NSAI

Current Trends in Construction and Challenges for Building Control

MMC Agrément Certification updates

8th April 2026

Agenda

1 Routes to Certification

2 NSAI MMC, Durability & MMC Toolkit

3 MMC – TGD's Parts A-M & Regulatory changes

NSAI
Agrément

Routes to Certification

EU Drivers

- **EU Green Deal & REPowerEU**
- **CSRD and CSDD Directives** *(incl. Omnibus)*
- **New Construction Products Regulation** *(EU/2024/3110)*
- **Existing Construction Products Regulation** *(EU/305/2011)*
- **Energy Performance Building Directive (EPBD)** - Recast
- **EU Waste Framework Directive**
- **EU Ecodesign Directive**
- **EU Liability for defective products Directive** *(EU/2024/2853)*
- **EU Draghi Report** – The Future of European competitiveness
- **European Affordable Housing Plan**

https://www.irishtimes.com/ireland/housing-planning/2026/03/15/planning-laws-qa-what-changes-are-on-way/

Recent EU Reports

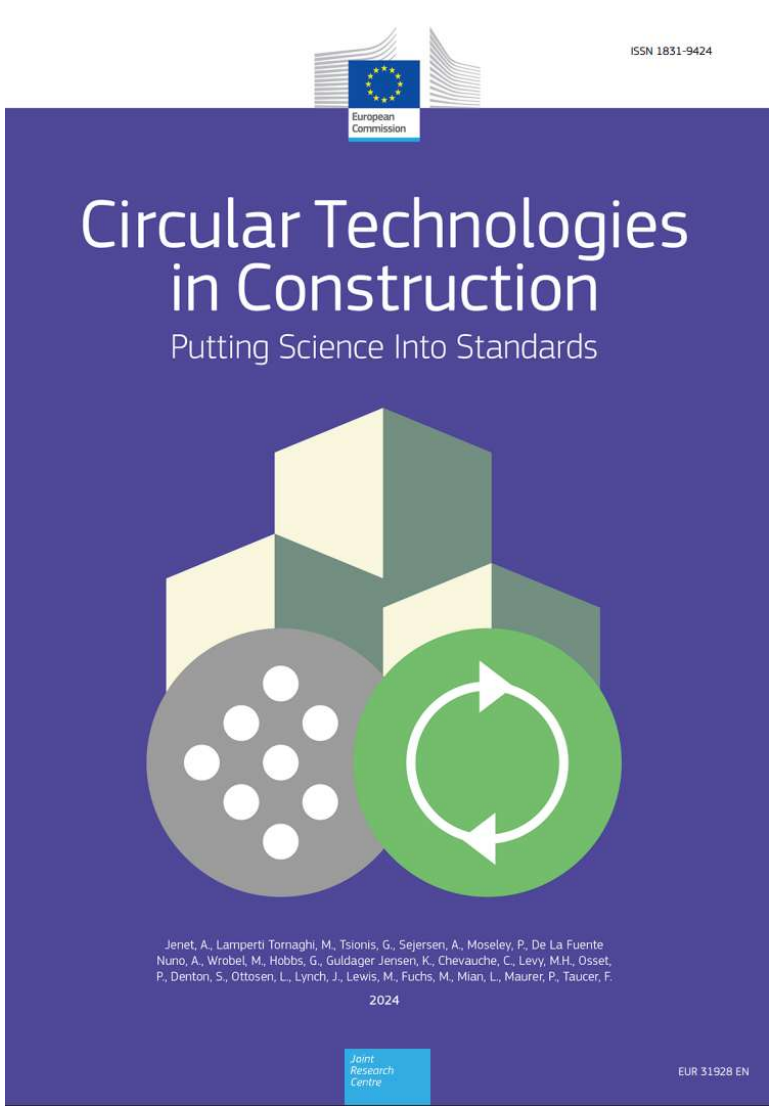
Based on the work of the EU **High Level Construction Forum** (HLCF) and **DG GROW**

Ref:
https://ec.europa.eu/docsroom/documents/53854

European Commission

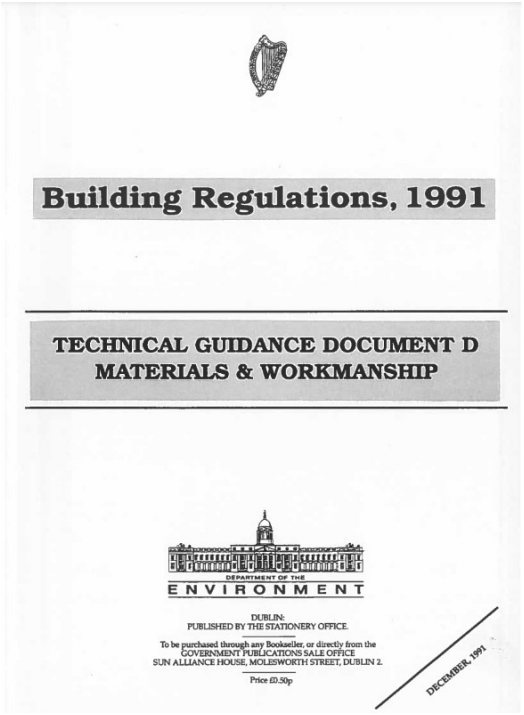
HIGH LEVEL CONSTRUCTION FORUM

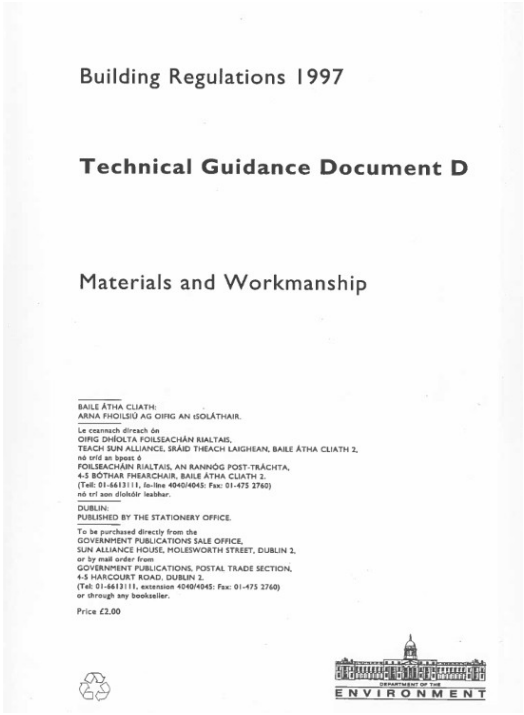
GUARDED

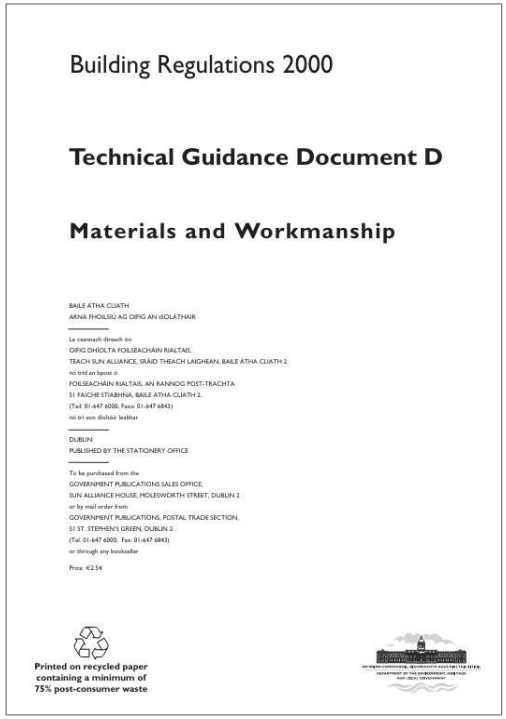


Irish Agrement Certification – TGD Part D

In existence since **1991**







Irish Agrement Certification – TGD Part D

In existence since **1991**

Section 1

MATERIALS

FITNESS OF MATERIALS

Building Regulations - The Requirement

Part D of the First Schedule to the Building Regulations, 1991 provides as follows:

Materials and workmanship.	D1	All works to which these Regulations apply shall be carried out with proper materials and in a workmanlike manner.
Definition for this Part.	D2	In this Part, "proper materials" means materials which are fit for the use for which they are intended and for the conditions in which they are to be used, and includes materials which: (a) bear a CE Mark in accordance with the provisions of the Construction Products Directive (89/106/EEC); or (b) comply with an appropriate harmonized standard, European technical approval or national technical specification as defined in article 4(2) of the Construction Products Directive (89/106/EEC); or (c) comply with an appropriate Irish Standard or Irish Agrément Board Certificate or with an alternative national technical specification of any Member State of the European Community, which provides in use an equivalent level of safety and suitability.

Definition for this Part	D3	In this Part, "proper materials" means materials which are fit for the use for which they are intended and for the conditions in which they are to be used, and includes materials which: (a) bear a CE Marking in accordance with the provisions of the Construction Products Regulation; (b) comply with an appropriate harmonised standard or European Technical Assessment in accordance with the provisions of the Construction Products Regulation; or (c) comply with an appropriate Irish Standard or Irish Agrément Certificate or with an alternative national technical specification of any State which is a contracting party to the Agreement on the European Economic Area, which provides in use an equivalent level of safety and suitability. "Agreement on the European Economic Area" means the Agreement on the European Economic Area between the European Union, its Member States and the Republic of Iceland, the Principality of Liechtenstein and the Kingdom of Norway as published in the Official Journal of the European Communities (O.J. No. L1, 03.01.1994, page 3).

European Quality Infrastructure Network (EQIN)

The functioning of the European Single Market relies on a well-defined and effective Quality Infrastructure (QI).

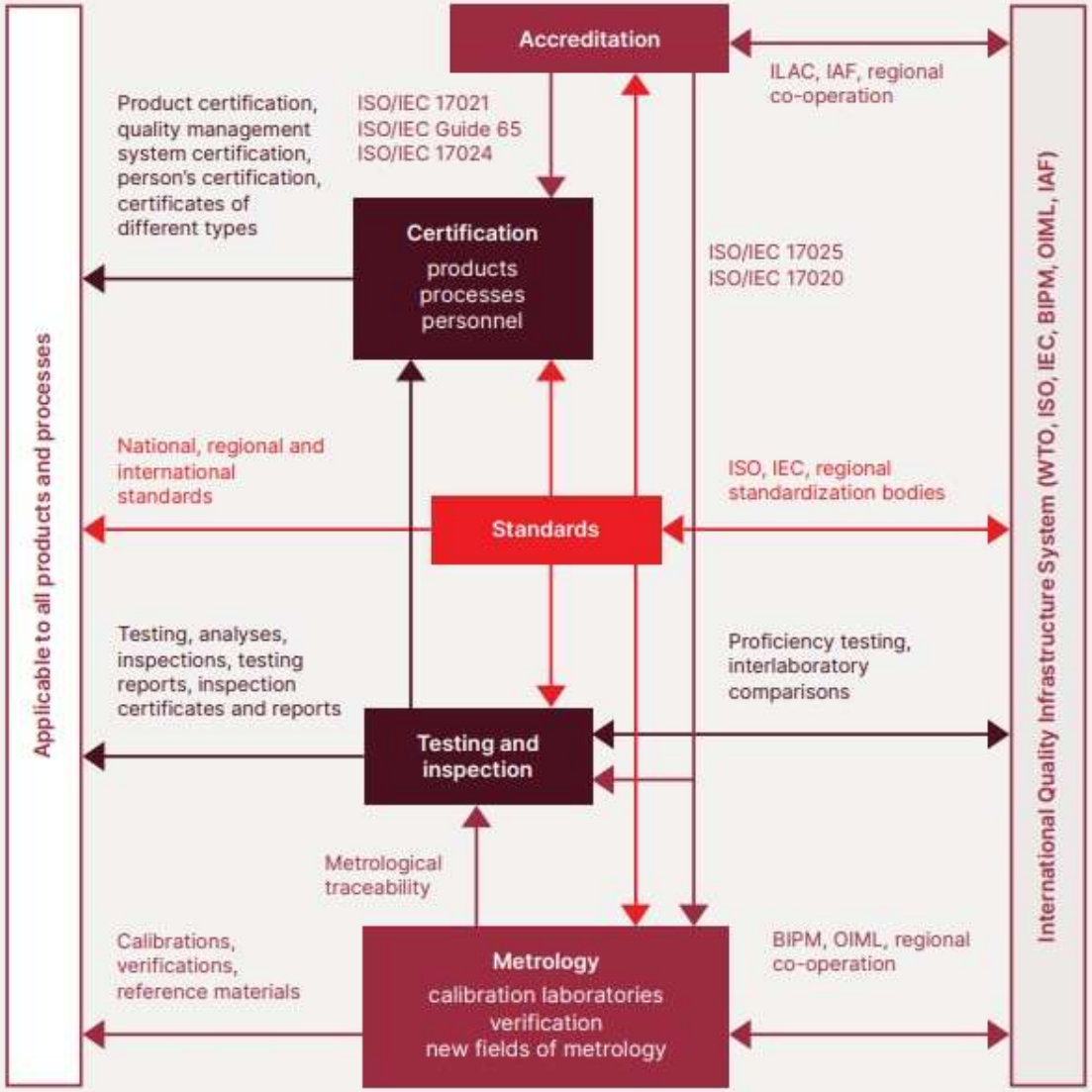
The European QI system:

- **promotes consistency** and **coherence for industry**, societal stakeholders, and regulators.
- based on policies, relevant legal & regulatory framework, and practices.

Accreditation as a concept is also used in many disciplines other than conformity assessment—for example,

- *accreditation of universities,*
- *financial institutions,*
- *medical facilities,*
- *testing laboratories,*
- *calibration laboratories,*
- *vocational training institutions, etc.*

International standards published by the ISO and IEC deal with accreditation (**ISO 17000 series**).

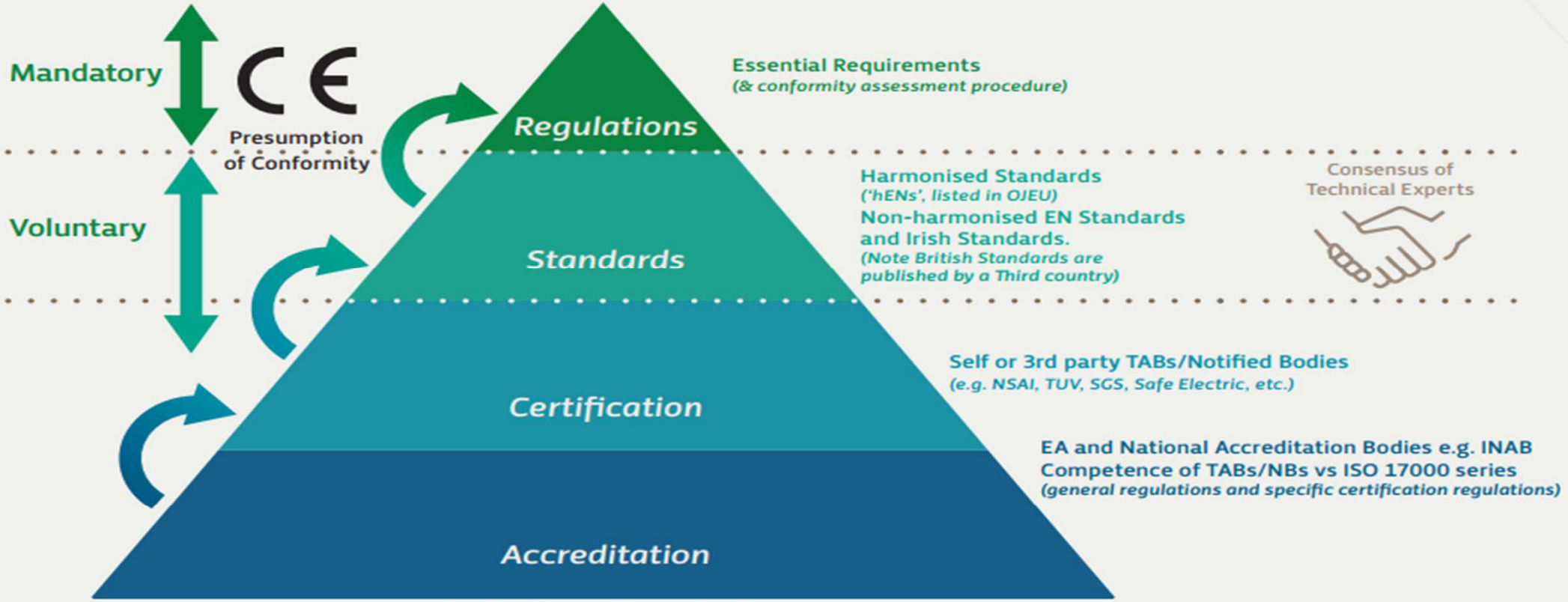


Source: World Bank – Ensuring Quality to Gain Access to Global Markets

NSAI

Links between Regulations, Standards and Certification

EU *New Legislative Framework*, NFL – previously called *New Approach*.



Market Surveillance level

e.g. NBC&MSO is a market surveillance authority for Ireland for construction products.
(Website: https://nmso.nbco.localgov.ie/)

MMC Agrément

NSAI Agrément

Open for Public Consultation until 30 April 2026

Agrément Certification is designed specifically for **new innovative building materials, products and systems** that do not yet have a long history of use.

Products and systems for which there may be **no national standard**

Products and systems for which there may be **no harmonised European product standard (hEN)**

Products and systems for which there may be **no European Technical Assessment (ETA)**

Part D of the Second Schedule to the **Building Regulations** states: **Materials and workmanship** D1 - All works to which these Regulations apply shall be carried out with **proper materials and in a workmanlike manner.** **"**Proper materials**"** means materials which are fit for the use for which they are intended and for the conditions in which they are to be used, and includes materials which:

(a) **bear a CE Marking** in accordance with the provisions of the Construction Products Regulation;

(b) **comply with an appropriate harmonised standard or European Technical Assessment** in accordance with the provisions of the Construction Products Regulation;

(c) **comply with an appropriate Irish Standard** or **Irish Agrément Certificate** or **with an alternative national technical specification** contracting party to the Agreement of the European Economic Area (EEA), which provides in use an equivalent level of safety and suitability.

NSAI MMC, Durability & MMC Toolkit

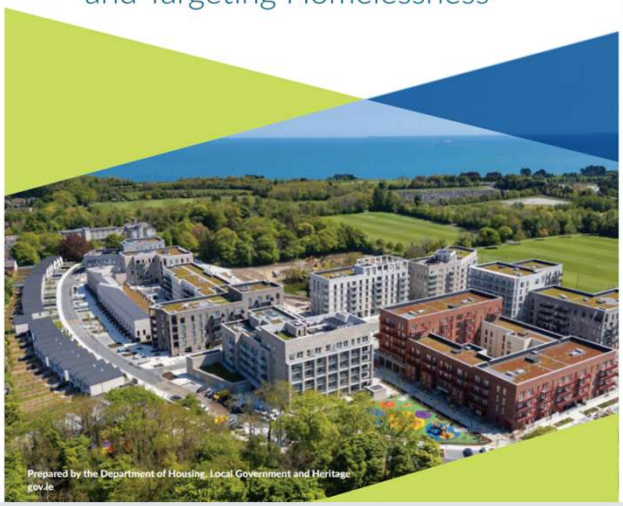
MMC Roadmap

Deliverables – Supporting Government Policies

Rialtas na hÉireann
Government of Ireland

Delivering Homes, Building Communities
2025-2030

An Action Plan on Housing Supply and Targeting Homelessness



Action Summary:

Increasing Skills, Adopting Modern Methods of Construction

Priority:

Increase skills and support the adoption of Modern Methods of Construction in the residential construction sector

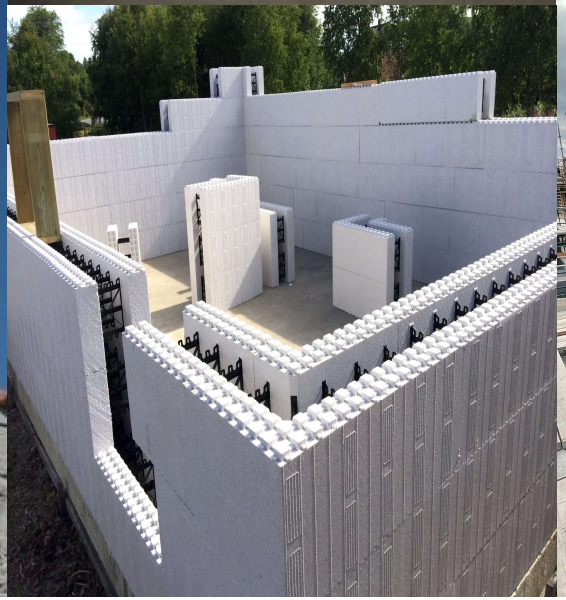
No.	Action	Owner
3.1	Use Modern Methods of Construction in at least 25% of all new social and affordable homes built during the lifetime of the Plan.	DHLGH
3.2	Increase the use of 3D volumetric systems by providing funding and support for pathfinder projects in Limerick (SMART Homes) and Wexford (3D volumetric units) to create demand for these innovative systems.	DHLGH
3.3	Optimise the process towards NSAI Agrément Certification by: • promoting the NSAI Agrément Toolkit with industry; and • undertaking a root cause analysis to identify constraints on the certification process.	DETE, DHLGH
3.4	Scope the potential for the development of an Irish Standard for Light Gauge Steel.	DETE, DHLGH, NSAI


2D PANELS


BATHROOM PODS


LIGHT GAUGE STEEL


2D PANELS




ICF

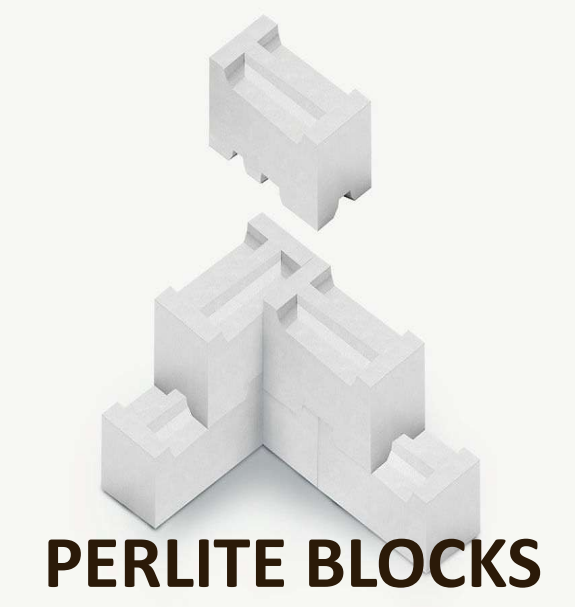

STRAW
INFILL
PANELS


HEMPCRETE

BIO-BASED


NOVEL MATERIALS


SIP PANELS


PERLITE BLOCKS


MASS
ENGINEERED
TIMBER

MMC Building Systems – Durability

Durability – specified min. Design life time periods								
Eurocodes	**CPR (EU/305/2011)**	**EN 15686-1**	**I.S. 440 standard**	**TGD Part A**	**BS 7543 standard**	**Homebond**	**Centre for Window and Cladding Technology (CWCT)**	**Cladding Manufacturers**
50 years	Based on hEN standard or ETA *(Typically 25-30 years)*	Service life forecasting and test methods	**50-60 years**	**50 years**	**60 years** (not less than 25 years)	**50 years**	Not less than the design life of the envelope system. ...forecast service life in excess of **50 years** provided they are properly maintained. Other systems may not be able to provide this degree of longevity.	**~ 25-30 years**

BS 6100–1:2004/BS ISO 6707–1:2004

5.5.4
building element
major functional part of a **building** (3.1.3)

EXAMPLE **Foundation** (5.1.1), **floor** (5.2.10), **roof** (5.2.20), **service(s)** (5.4.1).

I.S. EN 1990:2002+A1:2005

1.5.1.6
structure
organised combination of connected parts designed to carry loads and provide adequate rigidity

1.5.2.8
design working life
assumed period for which a structure or part of it is to be used for its intended purpose with anticipated maintenance but without major repair being necessary

MMC Building Systems – Durability

Table **Cladding materials – Harmonised EN (hEN) standard under CPR** (EU/305/2011)

1. **EN 490: 2011** – Concrete roofing tiles and fittings for roof covering and wall cladding - Product specifications
2. **EN 1469: 2015** – Natural stone products - Slabs for cladding - Requirements
3. **EN 12326-1: 2014** – Slate and stone for discontinuous roofing and external cladding - Part 1: Specifications for slate and carbonate slate
4. **EN 14782: 2006** - Self-supporting metal sheet for roofing, external cladding and internal lining - Product specification and requirements
5. **EN 14783: 2013** – Fully supported metal sheet and strip for roofing, external cladding and internal lining - Product specification and requirements
6. **EN 14915: 2013** - Solid wood panelling and cladding - Characteristics, evaluation of conformity and marking

4	50	Building structures and other common structures
5	100 [b]	

[a] Structures or parts of structures that considered as temporary.

[b] Working life for bridges of 120 years m

NA to I.S. EN 1990:2002

7.2.2 Durability generally

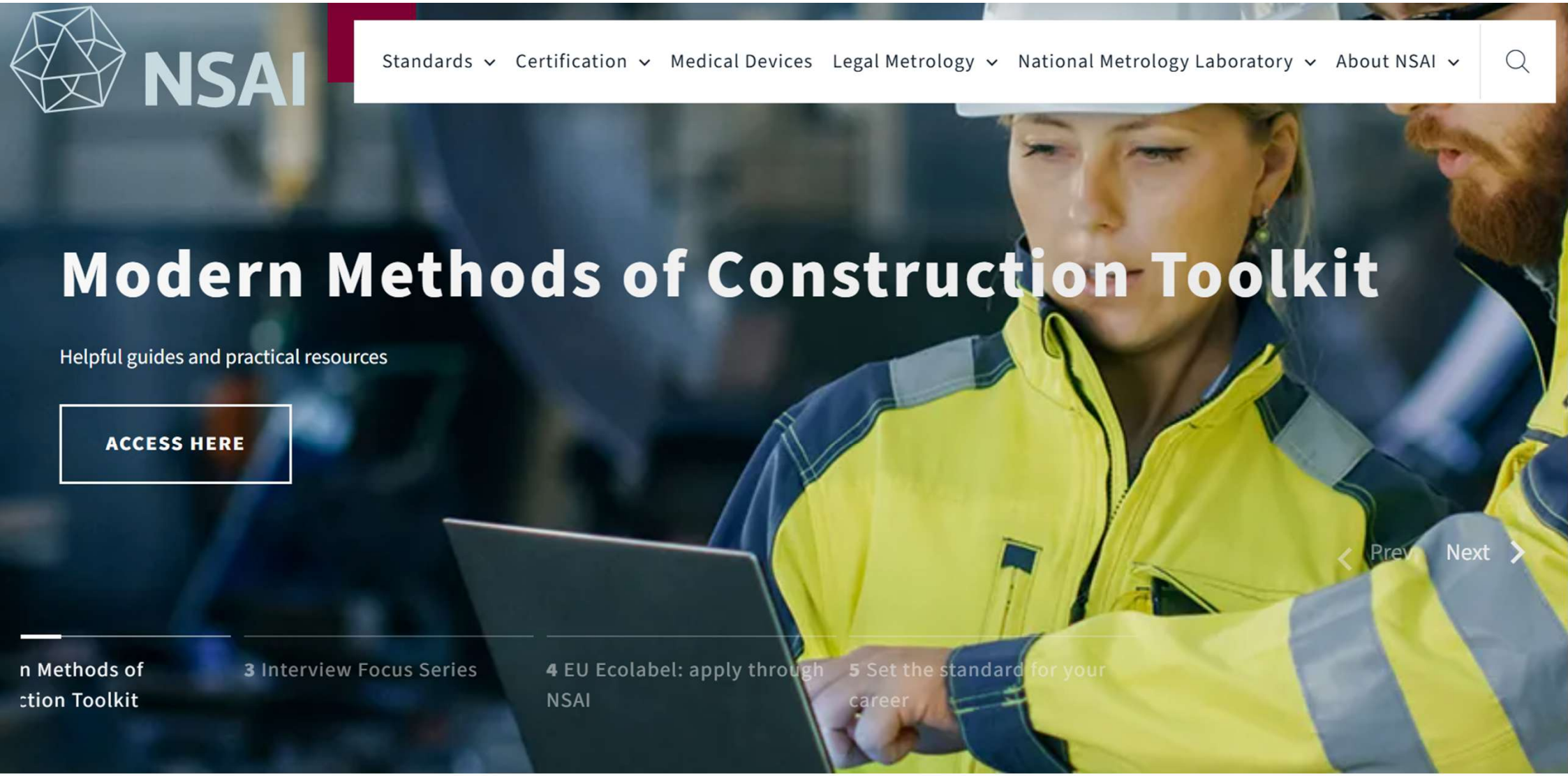
The performance criteria shall be satisfied for the full design life of the envelope system, as stated by the Specifier, provided always that the maintenance has been carried out as agreed with the Building Envelope Contractor.

The Specifier shall agree the design life of the envelope system, with the Client or Building Owner, at an early stage in the building design process and before award of the contract for envelope system works.

It shall be noted that the design life of the envelope system need not be the same as the design life of the building which it encloses. Some envelope systems have a forecast service life in excess of fifty years provided that they are properly maintained. Other systems may not be able to provide this degree of longevity.

be a concentrated or distributed load (refer to

CWCT – Standard for systemised Building envelopes: Part 7 – Robustness, durability, tolerances and workmanship specification



NSAI

http://www.nsai.ie/mmctoolkit

NSAI

Pathway for NSAI MMC Agrément

0 Pre-Application
Preparation Step

By applicant

Prepare a Technical Documentation Pack with supporting evidence, to demonstrate documented compliance to the current Irish Building Regulations (TGD Part A-M inclusive)

1 Application

Less than 1 Month

Complete the NSAI Application form + upload your evidence of compliance

*Application fee

**The application fee is €1,800.00 plus VAT, for Building Systems certification (non-refundable)*

2 Application Assessment & Contract

2 Months

Preliminary assessment

Scope agreed

Contract agreed fee

Contract sign off & paid

3 TAS *(Technical Assessment Specification)* & FPC *(Factory Production Control inspection)*

6 - 18 Months**

Kick off Meeting

TAS development

TAS Assessment

FPC inspection/QMS of the production process.

***Please note: The timeline above is dependent on the timely availability (and results) of evidence provided by the applicant, to demonstrate compliance.*

4 Draft Agrément

1 Month

Subject to the results of the assessment, we then draft an NSAI Agrément Certificate.

5 Final Review

1 Month

Internal Technical NSAI evaluation.

6 Approval

1 Month

Internal Sign off process.

Publish Approval.

7 Agrément Published on NSAI Website

Less than 1 Month

WWW

FOLLOWING YEARS

Year 1 to Year 4 Annual fee + Surveillance audit visit fee → Year 5 Annual fee + Surveillance audit visit fee + 5 Years reassessment

Application

The manufacturer applying for Agrément Certification will be required to provide evidence of compliance with Part A to M of Buildings Regulations and required EU standards.

Evidence of Factory production control

Evidence of quality control procedures for design, procurement, production and installation.

Application Forms

NSAI Application form link here

NSAI MMC Agrément guide here

TAS Assessment:

Irish Building Regulations (TGD Parts A - M inclusive) **and European standards compliance verification**

Laboratory tests results checks / Engineering calculations

MMC Installation procedures

FPC includes:

On-site evaluations of the as constructed MMC system i.e. 3D Modular housing unit

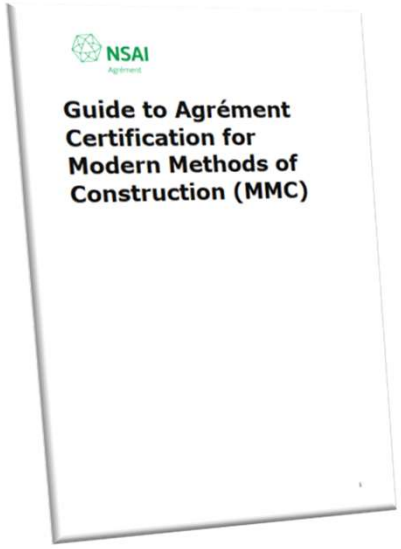
Factory / Manufacturing – Quality management system verification (ISO 9001, EN 1090, etc.)

Assessment of MMC Transportation, Storage, Handling, and Installation approaches taken

5 Years reassessment:

Evaluation of the current Agrément and verification of any changes to the product specification including manufacture, delivery and installation instructions.

In case of changes, the 'Application' to 'Approval' stages will need to be followed again.

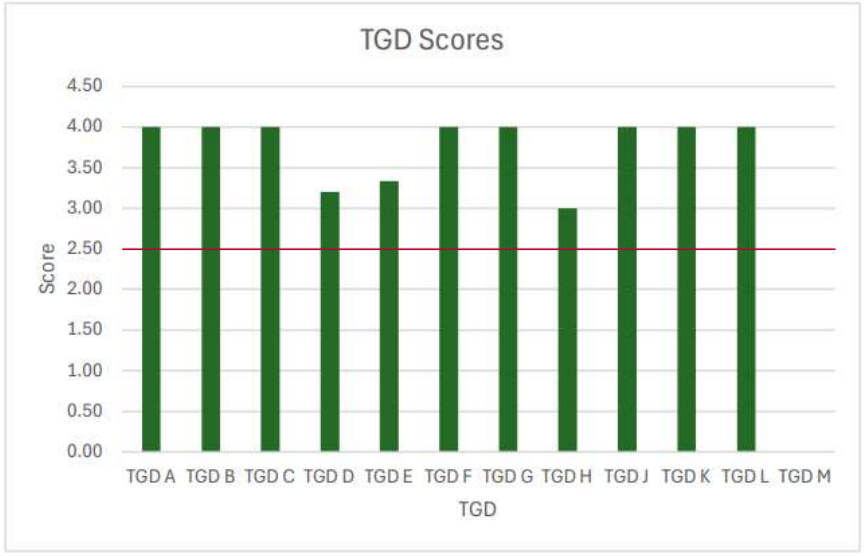


MMC Certification ‘Toolkit’

A **NSAI MMC Readiness scorecard** developed for MMC Certification evaluation assessment, plus Infographic supports.

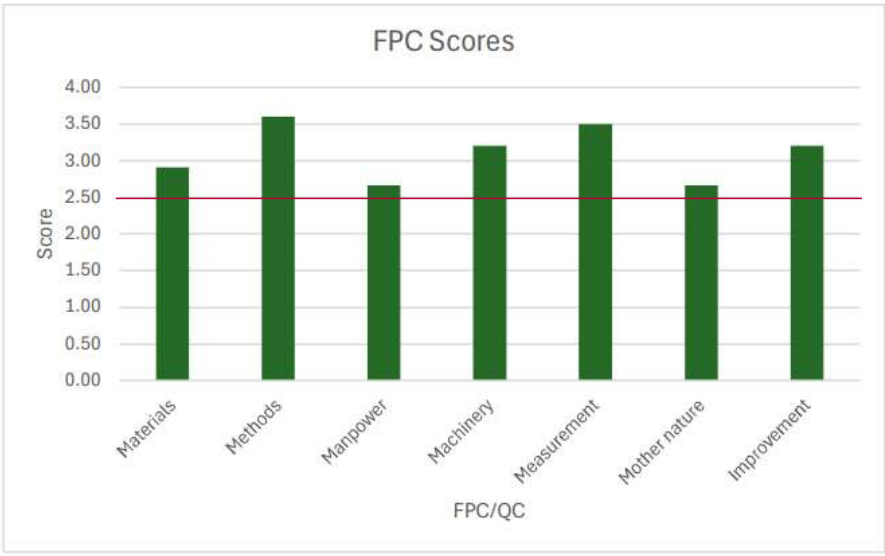
Your 'TGD' readiness score:

Likely High

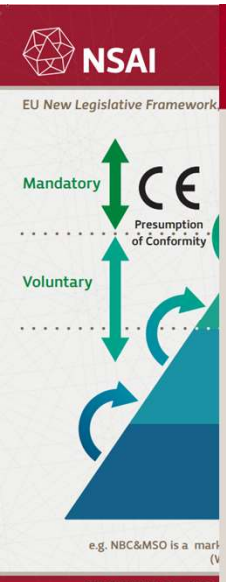


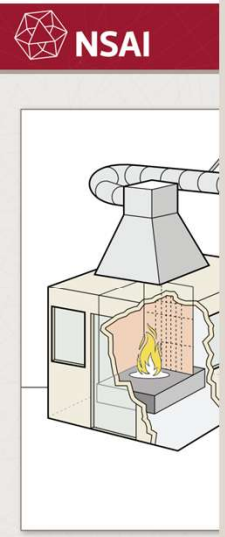
Your 'FPC' readiness score:

Likely Intermediate



NSAI





NSAI

Modern Methods of Construction

Agrément Certification

Matrix of Building Elements

BUILDING							SITE
Substructure	**Structure**	**Structure Completions**	**Finishes**	**Services (Mechanical)**	**Services (Electrical)**	**Fittings and Furniture**	**Site**
1. Substructure Generally	2. Structure Generally	3. Structure Completions Generally	4.Finishes Generally	5. Services (mainly piped and ducted) generally	6. Services (mainly electrical) generally	7. Fittings and furniture generally	8. Site Generally
9. Ground, earth, shapes	10. External walls	11. External walls: completions within openings	12. Wall finishes generally	13. Heating centre	14. Electrical supply and main distribution	15. Display, circulation fittings	16. Prepared site
17. Floors in structure	18. Internal walls, Partitions	19. Internal walls, partitions: completions within openings	20. Wall finishes internally	21. Drainage and refuse disposal	22. Power	23. Work, rest, play fittings	24. Site structures
25. Foundations and rising walls	26. Floors, Galleries	27. Floor, galleries, completions	28. Floor finishes	29. Water distribution	30. Lighting	31. Culinary fittings	32. Site enclosures
33. Piled foundations	34. Stairs , ramps	35. Stairs, ramps: completions	36. Stairs, ramps: finishes	37. Gases distribution	38. Communications	39. Sanitary, hygiene fittings	40. Roads, paths, paving
	41. Roofs	42. Suspended ceilings	43. Ceiling finishes	44. Space cooling	45. Security and Protection	46. Cleaning, maintenance fittings	47. Site services (mainly piped ducted)
	48. Frames	49. Roof: completions	50. Roof finishes	51. Space heating	52. Transport	53. Storage, screening fittings	54. Site services (mainly electrical)
				55. Ventilations and air conditioning	56. Other services (mainly electrical)		57. Site fittings
				58. Other services (mainly piped and ducted)			59. Landscape, play area
60. Summary: Building Substructure	61. Summary: Building Structure	62. Summary: Building Structure Completions	63. Summary : Building Finishes	64. Summary: Building Services (mainly piped and ducted)	65. Summary: Building Services (Maily electrical)	66. Summary: building fittings and furniture	67. Summary: Site

Recent Certified MMC Building Systems

NSAI Agrément

IRISH AGRÉMENT BOARD
CERTIFICATE NO. 26/0449
Castle Group/Castle Modular,
Raheen,
Gort,
Co. Galway,
H91 KP46
T: +353 (091) 771 823
W: https://castlegroup.ie/

Castle Group Modular Building System

NSAI Agrément (Irish Agrément Board) is designated by Government to issue European Technical Assessments.

NSAI Agrément Certificates establish proof that the certified products are **'proper materials'** suitable for their intended use under Irish site conditions, and in accordance with TGD Part D of the second schedule of the **Building Regulations 1997 to 2024.**

SCOPE

This Certificate relates to the Castle Group Modular Building System (a MMC Category 1 – 3D-Volumetric building system), for the design, manufacture and erection of volumetric buildings. The Castle Group Modular Building System is a factory manufactured structural building system completed (with internal fixtures, fittings and finishes outside of scope of this Certificate). The system is designed for use in buildings with traditional brick and block outer leaf cladding and roof coverings as per Section 2.1.6 and 2.1.14 of this Certificate. Other cladding systems and roof coverings may be suitable but have not been considered as part of this Certificate.

The Castle Group Modular Building System is certified to be used in the following Purpose Groups 1(a), 1(b) and 1(d) as defined in the Technical Guidance Document (TGD) Part B Fire Safety - Volume 2 – Dwelling Houses (2017) of the Irish Building Regulations and not more than 30m to the top floor of the building in Purpose Groups 1(c), 2(a), 2(b), 3, 4 (a), 5(a), 5(b) as defined in TGD Part B Fire Safety – Volume 1 – Buildings other than Dwelling Houses (2024) of the Irish Building Regulations.

The Castle Group Modular Building System (MMC Category 1) is designed and manufactured by Castle Group. Site erection is carried out by Castle Group or specialist sub-contractors / Main Contractor under the supervision of Castle Group.

In the opinion of NSAI, the Castle Group Modular Building System (MMC Category 1 as a 3D-Volumetric system), as described in this Certificate, can comply with the requirements of the Irish Building Regulations 1997 to 2024.

Refer to Section 2 of this Certificate for information on items outside of the scope of this Certification.

NSAI Agrément

IRISH AGRÉMENT BOARD
CERTIFICATE NO. 23/0435
Greenframe Offsite Building Systems,
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W: www.greenframe.ie

Greenframe Offsite Building System

NSAI Agrément (Irish Agrément Board) is designated by Government to issue European Technical Assessments.

NSAI Agrément Certificates establish proof that the certified products are **'proper materials'** suitable for their intended use under Irish site conditions, and in accordance with TGD Part D of the second schedule of the **Building Regulations 1997 to 2024.**

SCOPE

This Certificate relates to the Greenframe Offsite Building System, for the manufacture and installation of structural cold-formed Light Gauge Steel (LGS) frame buildings. The Greenframe Offsite Building System is certified to be used in the construction of buildings up to 10 storeys and maximum 30m in height to the top storey. The system is certified for use in the construction of buildings of up to 15m in height in purpose groups 1(a), 1(b) and 1(d) as defined in Technical Guidance Document (TGD) Volume 2 to Part B of the Building Regulations 1997 to 2024. The system can also be used up to 30m in height in purpose groups 1(c), 2(a), 2(b), 3, 4(a), 5(a), 5(b) and 7(c) subject to the definitions and specific requirements defined in TGD Volume 1 to Part B of the Building Regulations 1997 to 2024. The system has been assessed for use for structural walls and floors in the above purpose groups where the height to the upper floor surface of the top floor is not more than 30m from ground level on the lowest side of the building, and where the full structure is designed, manufactured, supplied and erected by Greenframe Offsite Building Systems Ltd, (except where stated below).

The Greenframe Offsite Building System is also approved for use in non-loadbearing infill panels. The infill panels are used within reinforced concrete, steel frames and traditional construction that possess their own independent lateral stability systems.

Site erection is carried out by approved installers employed by Greenframe Offsite Building Systems Ltd. or specialist sub-contractors under the supervision of Greenframe Offsite Building Systems Ltd. The buildings are assembled using a panelised system, factory made, and site installed.

The system is designed for use in buildings with traditional brick and block outer leaf cladding or NSAI certified external wall cladding systems and roof coverings (as certified as suitable for application to LGS framed structures) as per Section 2.1.6 and 2.1.8 of this Certificate. Other claddings systems may be suitable but have not been considered as part of this certification.

CI/SfB (47) Ln6

NSAI Agrément

IRISH AGRÉMENT BOARD
CERTIFICATE NO. 18/0404
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Remagin Steel Frame Building System

NSAI Agrément (Irish Agrément Board) is designated by Government to issue European Technical Approvals.

NSAI Agrément Certificates establish proof that the certified products are **'proper materials'** suitable for their intended use under Irish site conditions, and in accordance with Technical Guidance Document (TGD) Part D of the second schedule of the **Building Regulations 1997 to 2024**.

PRODUCT DESCRIPTION

This Certificate relates to the Remagin Steel Frame Building System, for the manufacture and erection of structural cold-formed Light Gauge Steel (LGS) Frame Buildings. The Remagin Steel Frame Building System is certified to be used in the following purpose groups 1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a), 5(a) and 5(b) as defined in Technical Guidance Documents B of the Building Regulations. The system is used for structural walls and floors in the above purpose groups up to 20m in height to the top storey or as part of a building not more than 20m in height, where the full structure is designed, manufactured, supplied and erected by Remagin Limited. The system can accommodate a wide range of custom designs.

The Remagin System is also assessed for use in non-loadbearing infill panels. The infill panels are used within reinforced concrete, steel frames and traditional construction that possess their own independent lateral stability systems.

Site erection is carried out by approved installers employed by Remagin or specialist sub-contractors under the supervision of Remagin Limited.

In the opinion of NSAI, the Remagin Steel Frame Building System, as described in this Certificate, complies with the requirements of the Building Regulations 1997 to 2024, hereafter referred to as the Building Regulations in this Certificate.

NSAI Agrément

IRISH AGRÉMENT BOARD
CERTIFICATE NO. 23/0434
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Castleforms Raft Therm System

NSAI Agrément (Irish Agrément Board) is designated by Government to issue European Technical Approvals.

NSAI Agrément Certificates establish proof that the certified products are **'proper materials'** suitable for their intended use under Irish site conditions, and in accordance with TGD Part D of the second schedule of the **Building Regulations 1997 and subsequent revisions.**

SCOPE

This Certificate relates to the Castleforms Raft Therm System. Castleforms Raft Therm System is a combination of a ground floor insulation and perimeter formwork panels moulded from high-density EPS. The EPS panels are combined with a reinforced concrete slab to provide a complete raft solution. The system is engineered to suit specific site conditions and loading, whilst also giving excellent thermal performance. Castleform Raft Therm System is compatible for use with different wall types such as traditional masonry, timber frame, SIP panels, light gauge steel and ICF.

Castleforms Raft Therm System is certified for use in the construction of buildings of up to two storeys (6m) in height to the top floor of the final floor level in purpose groups 1(a), 1(b) and 1(d) as defined in Technical Guidance Document to Part B Volume 2 of the Building Regulations, and 1(c), 2(a), 2(b), 3, 4(a), 4(b) and 5 as defined in TGD to Part B of the Building Regulations.

DESIGN

The developer is responsible for the overall building design and compliance with Building Regulations.

The Castleforms Raft Therm System is intended for use where the architectural and fire strategy drawings are available and satisfy the Building Regulations.

In the opinion of NSAI, the Castleforms Raft Therm System, as described in this Certificate, complies with the requirements of the Building Regulations.

Pending MMC Building Systems

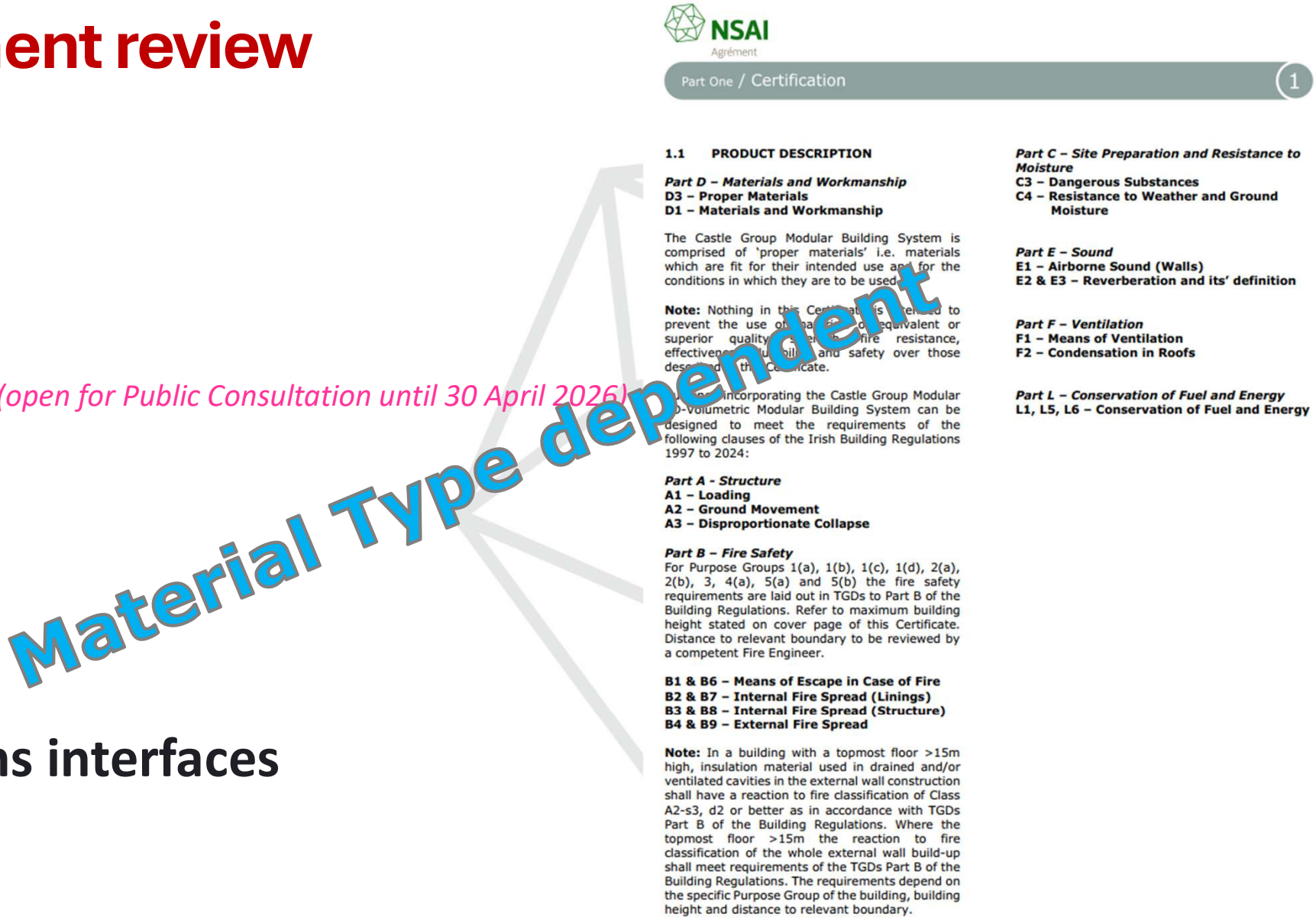
System	MMC Category	Material Type	Stage	Status	Expected schedule for completion of internal review	Expected date of publication *
System 1	Cat 2 - 2D-Panelised	**Concrete Sandwich Panel**	Internal Review	NSAI carrying out internal review.	April 2026	April 2026
System 2	Cat 2 - 2D-Panelised	**Light Gauge Steel** (LGS)	Internal Review	Awaiting Clarifications from the MMC Client.	April 2026	May 2026
System 3	Cat 1 - 3D-Volumetric	**Light Gauge Steel** (LGS)	Internal Review	Currently reviewing Client technical documentation.	April 2026	May 2026
System 4	Cat 2 - 2D-Panelised	**Structural Insulated Panel** (SIP)	Internal Review	Reviewing responses from supplier	May 2026	May 2026
System 5	Cat 1 - 3D-Volumetric	**Mass Engineered Timber** (MET)	Internal Review	NSAI carrying out internal review.	April 2026	April 2026
System 7	Cat 7 - Innovative site processes	**Insulated Concrete Formwork** (ICF)	Internal Review	Ready for publication. Internal Review complete.	April 2026	**Now**
System 8	Cat 1 - 3D-Volumetric	**Welded Steel Frame**	Internal Review	Awaiting updated Fire test reports.		July 2026 *
System 9	Cat 1 - 3D-Volumetric	**Welded Steel Frame**	Internal Review	Awaiting finalised Cladding details & tests.		August 2026 *
System 10	Cat 7 - Innovative site processes	**Insulated Concrete Formwork** (ICF)	Internal Review	NSAI awaiting Client System & Installation Manuals.	April 2026	May 2026
System 11	Cat 7 - Innovative site processes	**Insulated Concrete Formwork** (ICF)	Certificate Drafted	**Revision Certificate** updated.	March 2026	**Ready**
System 12	Cat 2 - 2D-Panelised	**Light Guage Steel** (LGS)	Certificate Drafted	**Revision Certificate** updated. Awaiting Client.	March 2026	**Ready**

* Expected Publication is based on timely responses and provision of supporting evidence being provided to the NSAI

MMC Interfaces – TGD Parts A-M review

MMC Agrément review

- TGD Part A
- TGD Part B
- TGD Part C
- TGD Part D *(open for Public Consultation until 30 April 2026)*
- TGD Part E
- TGD Part F
- TGD Part L
- MEP systems interfaces



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Part One / Certification 1

1.1 PRODUCT DESCRIPTION

Part D – Materials and Workmanship
D3 – Proper Materials
D1 – Materials and Workmanship

The Castle Group Modular Building System is comprised of 'proper materials' i.e. materials which are fit for their intended use and for the conditions in which they are to be used.

Note: Nothing in this Certificate is intended to prevent the use of materials of equivalent or superior quality, performance, fire resistance, effectiveness, durability and safety over those described in this Certificate.

Buildings incorporating the Castle Group Modular 3D-Volumetric Modular Building System can be designed to meet the requirements of the following clauses of the Irish Building Regulations 1997 to 2024:

Part A - Structure
A1 – Loading
A2 – Ground Movement
A3 – Disproportionate Collapse

Part B – Fire Safety
For Purpose Groups 1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a), 5(a) and 5(b) the fire safety requirements are laid out in TGDs to Part B of the Building Regulations. Refer to maximum building height stated on cover page of this Certificate. Distance to relevant boundary to be reviewed by a competent Fire Engineer.

B1 & B6 – Means of Escape in Case of Fire
B2 & B7 – Internal Fire Spread (Linings)
B3 & B8 – Internal Fire Spread (Structure)
B4 & B9 – External Fire Spread

Note: In a building with a topmost floor >15m high, insulation material used in drained and/or ventilated cavities in the external wall construction shall have a reaction to fire classification of Class A2-s3, d2 or better as in accordance with TGDs Part B of the Building Regulations. Where the topmost floor >15m the reaction to fire classification of the whole external wall build-up shall meet requirements of the TGDs Part B of the Building Regulations. The requirements depend on the specific Purpose Group of the building, building height and distance to relevant boundary.

Part C – Site Preparation and Resistance to Moisture
C3 – Dangerous Substances
C4 – Resistance to Weather and Ground Moisture

Part E – Sound
E1 – Airborne Sound (Walls)
E2 & E3 – Reverberation and its' definition

Part F – Ventilation
F1 – Means of Ventilation
F2 – Condensation in Roofs

Part L – Conservation of Fuel and Energy
L1, L5, L6 – Conservation of Fuel and Energy

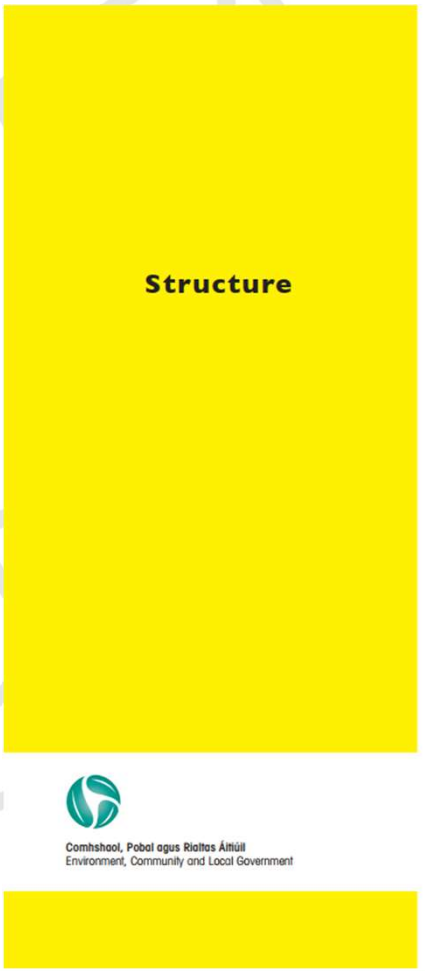
Material Type dependent

MMC Building Systems

- 2nd Ge
- Overse design Eurocc
- Dispro consid
- Claddi

Table A.1 - Categorisation of consequences classes.

Consequence class	Example of categorisation of building type and occupancy
1	Single occupancy houses not exceeding 4 storeys. Agricultural buildings. Buildings into which people rarely go, provided no part of the building is closer to another building, or area where people do go, than a distance of $1^1/_2$ times the building height.
2a Lower Risk Group	5 storey single occupancy houses. Hotels not exceeding 4 storeys. Flats, apartments and other residential buildings not exceeding 4 storeys. Offices not exceeding 4 storeys. Industrial buildings not exceeding 3 storeys. Retailing premises not exceeding 3 storeys of less than 1 000 m^2 floor area in each storey. Single storey educational buildings All buildings not exceeding two storeys to which the public are admitted and which contain floor areas not exceeding 2000 m^2 at each storey.
2b Upper Risk Group	Hotels, flats, apartments and other residential buildings greater than 4 storeys but not exceeding 15 storeys. Educational buildings greater than single storey but not exceeding 15 storeys. Retailing premises greater than 3 storeys but not exceeding 15 storeys. Hospitals not exceeding 3 storeys. Offices greater than 4 storeys but not exceeding 15 storeys. All buildings to which the public are admitted and which contain floor areas exceeding 2000 m^2 but not exceeding 5000 m^2 at each storey. Car parking not exceeding 6 storeys.
3	All buildings defined above as Class 2 Lower and Upper Consequences Class that exceed the limits on area and number of storeys. All buildings to which members of the public are admitted in significant numbers. Stadia accommodating more than 5 000 spectators Buildings containing hazardous substances and /or processes



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MMC Building Systems

- **Note:** January 2026 – Reprint in use.
- Appendix H – Building Heights are crucial for MMC
- MMC Material Types can affect the Fire Safety.
- EN 13501-1 and EN13501-2 – Fire Classification (products)
- Resistance to Fire also needed (EN 1364 & EN 1365 – Parts 1 &2 are needed for REI classification).
- Tables are excellent, clear and very good to refer to.

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Fire Safety – Volume
Buildings other than

Prepared by the Department o
Housing, Local Government ar

gov.ie/housing

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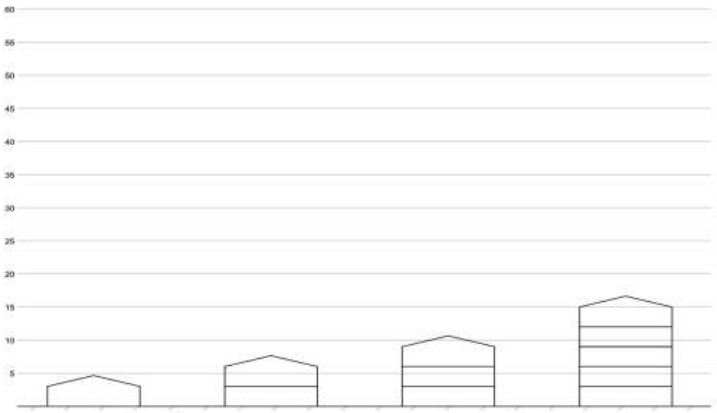
Table 1 Classification of Buildings by Purpose Group

Use	Group	Purpose for which a building or compartment of a building is used	
Residential (Dwellings) – Dwelling House	1(a) 1(b) 1(d)	Dwelling House < 4.5m Dwelling House > 4.5m Community Dwelling House	See Technical Guidance Document B - Fire Safety – Volume 2 – Dwelling Houses
Residential (Dwellings) – Flat (apartment)	1(c)	Separate and self-contained premises constructed or adapted for residential use and forming part of a building from some other part of which it is divided horizontally. (1)	
Residential (Care Facility)	2(a)	(i) Hospital, (ii) nursing home, home for old people or for children, school or other similar establishment used as living accommodation or for the treatment, care or maintenance of persons suffering from illness or mental or physical disability, where such persons sleep on the premises.	
Residential (Other)	2(b)	Hotel, hostel, guest building, residential college, hall of residence, student accommodation, and any other residential purpose not described above.	
Office	3	Premises used for the purpose of administration, clerical work (including writing, book keeping, sorting papers, filing, typing, duplicating, machine calculating, drawing and the editorial preparation of matter for publication; handling money (including banking and building society work), telephone system operation).	
Shop	4(a)	Premises used for a retail or wholesale trade or business (including retail sales by auction, self-selection and over-the-counter wholesale trading, the business of lending books or periodicals for gain and the business of a barber or hairdresser,) and premises to which the public is invited to deliver or to collect goods in connection with their hire, repair or other treatment, or where they themselves may carry out such repairs or other treatments.	
Shopping Centre	4(b)	A building which comprises a number of individually occupied premises to which common access is provided principally for the benefit of shoppers.	
Assembly and Recreation (2)	5(a)	"place of assembly" includes— (i) a theatre, public library, hall or other building of public resort used for social or recreational purposes. (ii) a non-residential school or other educational establishment. (iii) a place of public worship. (iv) a public house, restaurant or similar premises used for the sale to members of the public of food or drink for consumption on the premises. (v) a sports pavilion, stadium, grandstand, or other spectator accommodation. (vi) a terminus, station or other facility for air, rail, road or sea travel.	
Day Centre (2)	5(b)	A building used for the provision of treatment or care to persons where such persons do not stay overnight, such as (i) a pre-school, a crèche, a day nursery, or similar facilities for children, or (ii) any other day centre, including a GP or dental surgery, primary care centre, facilities for medical treatment, or other similar facilities.	
Industrial Normal Hazard(3)	6(a)	Factories and other premises of normal hazard, used for manufacturing, altering, repairing, cleaning, washing, breaking-up, adapting or processing any article, generating power or slaughtering livestock.	
Industrial High Hazard (3)	6(b)	Factories and other premises of high hazard, used for manufacturing, altering, repairing, cleaning,washing, breaking-up, adapting or processing any article, generating power or slaughtering livestock.	
Storage Normal Hazard (3)	7(a)	Place for storage or deposit of goods or materials of normal hazard other than those described under 7(c)	
Storage High Hazard (3)	7(b)	Place for storage or deposit of goods or materials of high hazard other than those described under 7(c)	
Car Park	7(c)	Car parks designed to admit or accommodate only cars, motorcycles passenger vehicles or other light goods vehicles, not more than 2,500 kilograms vehicle weight.	
Other non-residential	8	Any other non-residential purpose not included in any other purpose group	

Appendix H: Summary of Requirements at Height



Building Height	Single Storey	Topmost floor ≤ 5 m	Topmost floor > 5 m, ≤ 11 m	Topmost floor > 11 m, ≤ 15 m
Min. no of Stairways	N/A	**PG 2(a):**2 Stairways (i) **All other PG's**: 1 (i)	**PG 2(a), 5(a), 5(b):** 2 Stairways (i) **All other PG's**: 1 (i)	**PG 2(a), 2(b), 3, 4, 5, 6, 7, 8**: 2 Stairways (i) **PG 1(c):** 1(i)
Compartment wall and floor RtF classification	**PG 2(a):** A2-s3,d2 (walls only)	**PG 2(a):** A2-s3,d2 (vi, vii) **All other PG's**: No requirement	**PG 2(a):** A2-s3,d2 (vi, vii) **All other PG's**: No requirement	**All PG's:** A2-s3,d2 (vi, vii)
External wall < 1 m to Boundary RtF classification	**PG 2a, 2b, 3, 4, 5, 6, 7, 8**: B-s3,d2 (ii) **PG 1c**: N/A	**PG 2a**: Class B-s3,d2 (ii) **PG 1c, 2b, 5**: B-s3,d2 (ii) **PG 3, 4, 6, 7, 8**:B-s3,d2 (ii)	**PG 2a:** B-s3,d2(ii) **PG 1c, 2b, 5**: B-s3,d2(ii) **PG 3, 4, 6, 7, 8:** B-s3,d2(ii)	**PG 2a**: B-s3,d2(ii) **PG 1c, 2b, 5**: B-s3,d2 **PG 3, 4, 6, 7, 8**: B-s3,d2(ii)
External wall > 1 m to Boundary RtF classification	**PG 2a, 2b, 3, 4, 5, 6, 7, 8**: No Requirement **PG 1c**: N/A	**PG 2a:** B-s3,d2(ii) **PG 1c, 2b, 5:** C-s3,d2 (ii) **PG 3, 4, 6, 7, 8:** C-s3,d2 (ii)	**PG 2a:** B-s3,d2 (ii) **PG 1c, 2b, 5:** C-s3,d2(ii) **PG 3, 4, 6, 7, 8:** C-s3,d2(ii)	**PG 2a:** B-s3,d2(ii) **PG 1c, 2b, 5:** C-s3,d2(ii) **PG 3, 4, 6, 7, 8:** C-s3,d2(ii)
Firefighter access	**All PG's:** Perimeter access based on floor area & volume	**All PG's:** Perimeter access based on floor area & volume	**All PG's:** Perimeter access based on floor area & volume	**PG 1(c), 2(a), 2(b),** Protected stair and firefighting main **All other PG's:** Perimeter access based on floor area & volume
Sprinklers	**PG 4(b):** Throughout (iv) **All other PG's:** N/A(v)	**PG 2(a), PG 4(b):** Throughout (iv) **All other PG's**: N/A(v)	**PG 2(a), PG 4(b):** Throughout (iv) **All other PG's:** N/A(v)	**PG 2(a), PG 4(b):** Throughout (iv) **All other PG's**: N/A(v)
Other		External escape stairways permitted in limited circumstances	External escape stairways permitted in limited circumstances	External escape stairways not permitted (vi)

(i) Additional stairways may be required to satisfy escape requirements for travel distance, occupant capacity, etc.
(ii) Applicable only to the outermost wall element.
(iii) Applicable to the whole wall build-up.
(iv) Sprinklers are not required in sterile mall areas of a shopping centre
(v) Sprinklers may be required due to other provisions of this document
(vi) For existing buildings, see Section 7
(vii) For certain walls and floors in a shopping centre, see Subsection 1.7

MMC Building Systems

- **Claddings** – ventilated and/or drained cavities required for LGS & Timber-frame building systems.
- **Corrosivity required for below gr systems** (<150mm below ground
- **Sub Floor void space below grou** drained *(as required based on sit*
- **Wind driven Rain index – Met Ei** *14Nr. Storms in Ireland > 100km/*

Ref: https://www.rte.ie/news/analysis-and-comment/20

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Table C.1 — Description of typical atmospheric environments related to the estimation of corrosivity categories

Corrosivity category[a]	Corrosivity	Typical environments — Examples[b]	
		Indoor	Outdoor
C1	Very low	Heated spaces with low relative humidity and insignificant pollution, e.g. offices, schools, museums	Dry or cold zone, atmospheric environment with very low pollution and time of wetness, e.g. certain deserts, Central Arctic/Antarctica
C2	Low	Unheated spaces with varying temperature and relative humidity. Low frequency of condensation and low pollution, e.g. storage, sport halls	Temperate zone, atmospheric environment with low pollution (SO_2 < 5 µg/m^3), e.g. rural areas, small towns Dry or cold zone, atmospheric environment with short time of wetness, e.g. deserts, subarctic areas
C3	Medium	Spaces with moderate frequency of condensation and moderate pollution from production process, e.g. food-processing plants, laundries, breweries, dairies	Temperate zone, atmospheric environment with medium pollution (SO_2: 5 µg/m^3 to 30 µg/m^3) or some effect of chlorides, e.g. urban areas, coastal areas with low deposition of chlorides Subtropical and tropical zone, atmosphere with low pollution
C4	High	Spaces with high frequency of condensation and high pollution from production process, e.g. industrial processing plants, swimming pools	Temperate zone, atmospheric environment with high pollution (SO_2: 30 µg/m^3 to 90 µg/m^3) or substantial effect of chlorides, e.g. polluted urban areas, industrial areas, coastal areas without spray of salt water or, exposure to strong effect of de-icing salts Subtropical and tropical zone, atmosphere with medium pollution
C5	Very high	Spaces with very high frequency of condensation and/or with high pollution from production process, e.g. mines, caverns for industrial purposes, unventilated sheds in subtropical and tropical zones	Temperate and subtropical zone, atmospheric environment with very high pollution (SO_2: 90 µg/m^3 to 250 µg/m^3) and/or significant effect of chlorides, e.g. industrial areas, coastal areas, sheltered positions on coastline

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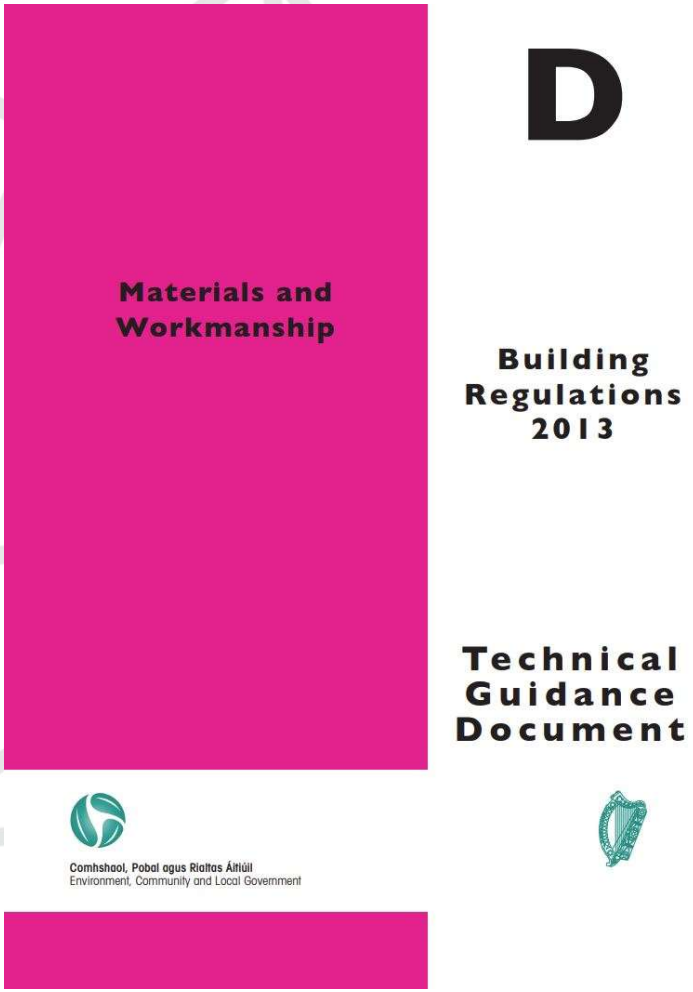
I.S. EN ISO 9223: 2012

MMC Building Systems

- **TGD Part (2026) – Open for public consultation.**
- **New CPR 2024, not well known by MMC Clients.**
- **Local climatic conditions** *(worse case needs to be consider for MMC / Modular building systems)*
- **ETA certificates do not always cover current Irish requirements or Irish standards** e.g. I.S. 10101, I.S. 3217, I.S. 3218, etc.
- **Errors identified in DoP certificates as drawn up by product manufacturers.** Need to check these *(as provided)*.



MMC Building Systems

- Acoustic reports need to be checked to match the relevant Building System material type.
- Acoustic readings to be <53dB, when tested.
- Single leaf wall build ups, need to also be considered from a Fire, Structural, Thermal, functionality, too and Detailed for Flanking noise.

Table 1	Sound performance levels *(Par. 1.1.1)*	
Separating construction	**Airborne sound insulation $D_{nT,w}$ dB**	**Impact sound insulation $L'_{nT,w}$ dB**
Walls	53 (min)	-
Floors (including stairs with a separating function)	53 (min)	58 (max)
NOTE: For works to protected structures, refer to paragraph 1.1.3		

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Technical Guidance Document

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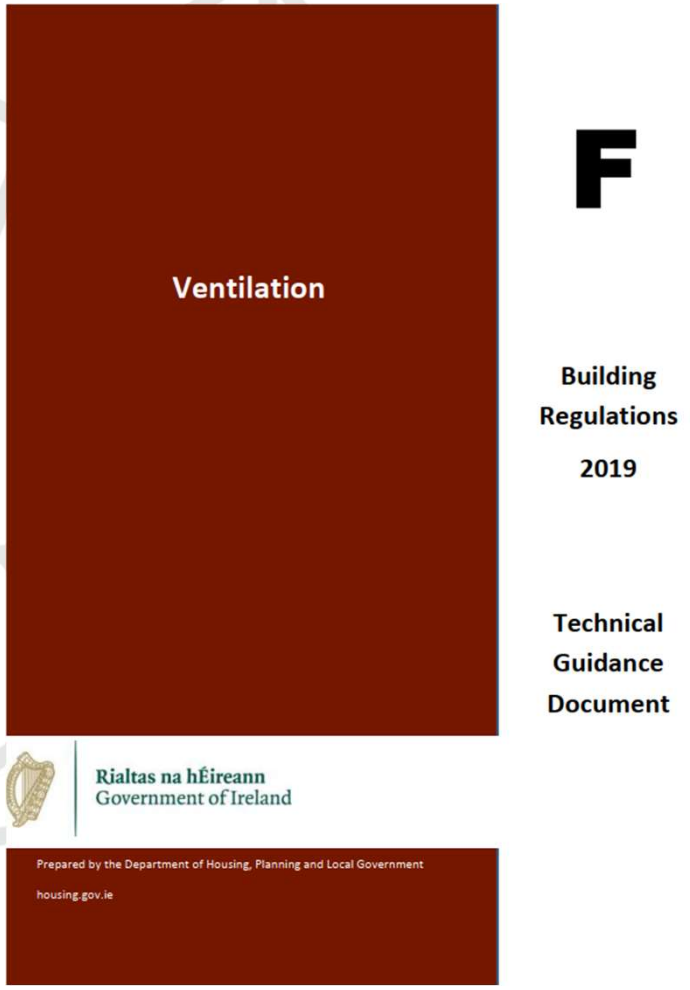
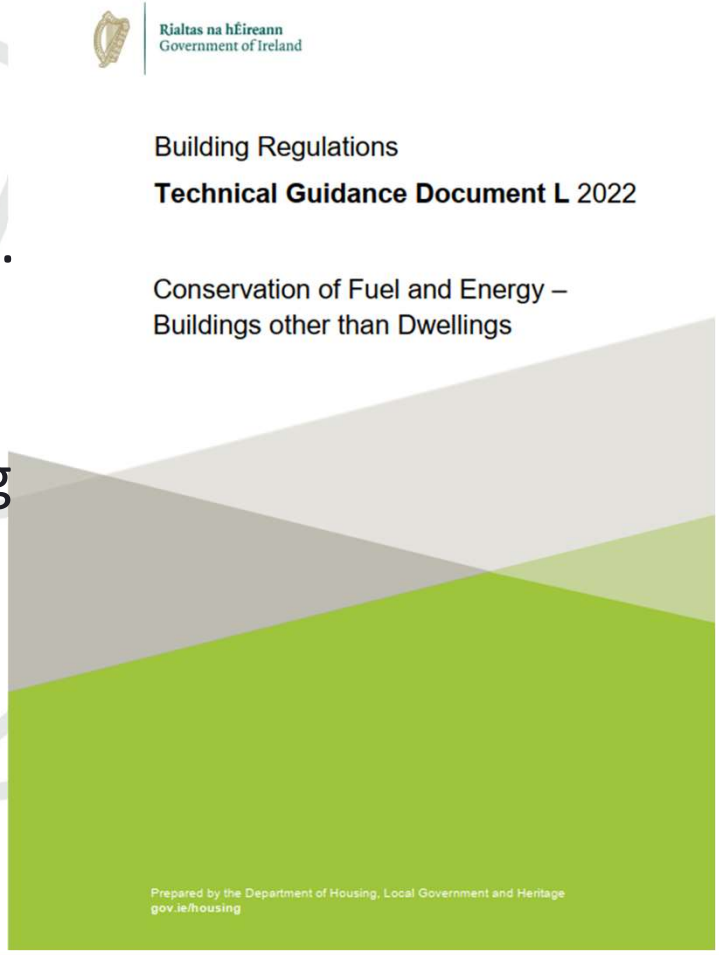
MMC Building Systems

- Validated ventilated systems – 3rd Party Independent assessor (NSAI approved scheme).
- Interfaces with other Services and Wall Build-ups.
- Moisture management is important *(in particular onsite)*
- Interstitial condensation also must be addressed, fully. Design for the moisture loads in rooms / use purpose. Redundancy needs to be built in.



MMC Building Systems

- Interstitial condensation analysis – WUFI analysis solely will not account for ‘real-life’ scenarios.
- Wall Build ups are critical from a design perspective. U-Values and Thermal modelling required.
- Airtightness for proposed Building Systems detailing needs to be robustly assessed.
- Review building systems in the ‘whole’, not on an elemental basis, or in isolation.

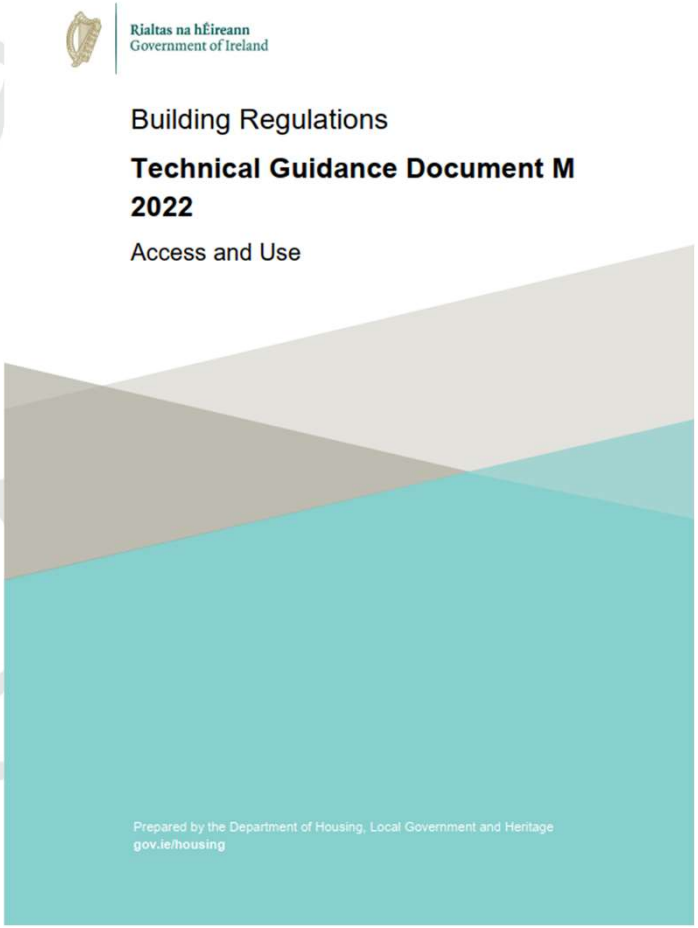


MMC Building Systems

- Level Access for the door threshold needs to be considered for suitable access and detailing for the proposed building system *(e.g. integrated with a framed Module system)*.

- Heights of electrical wiring devices, door handles, etc. for disabled access needs to be incorporated.

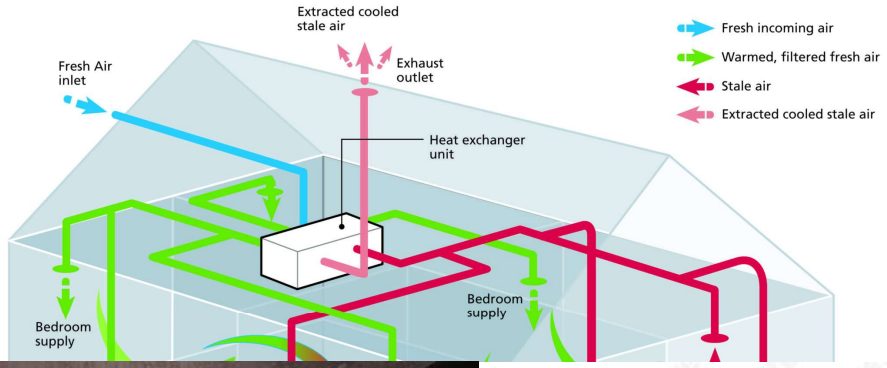
- **System / FPC** and **Onsite Installation manuals** *need to be detailed and cross-checked for QC control measures and accuracy to each building system.*



MMC Building Systems – MEP Interfaces

Key Interfaces to consider:

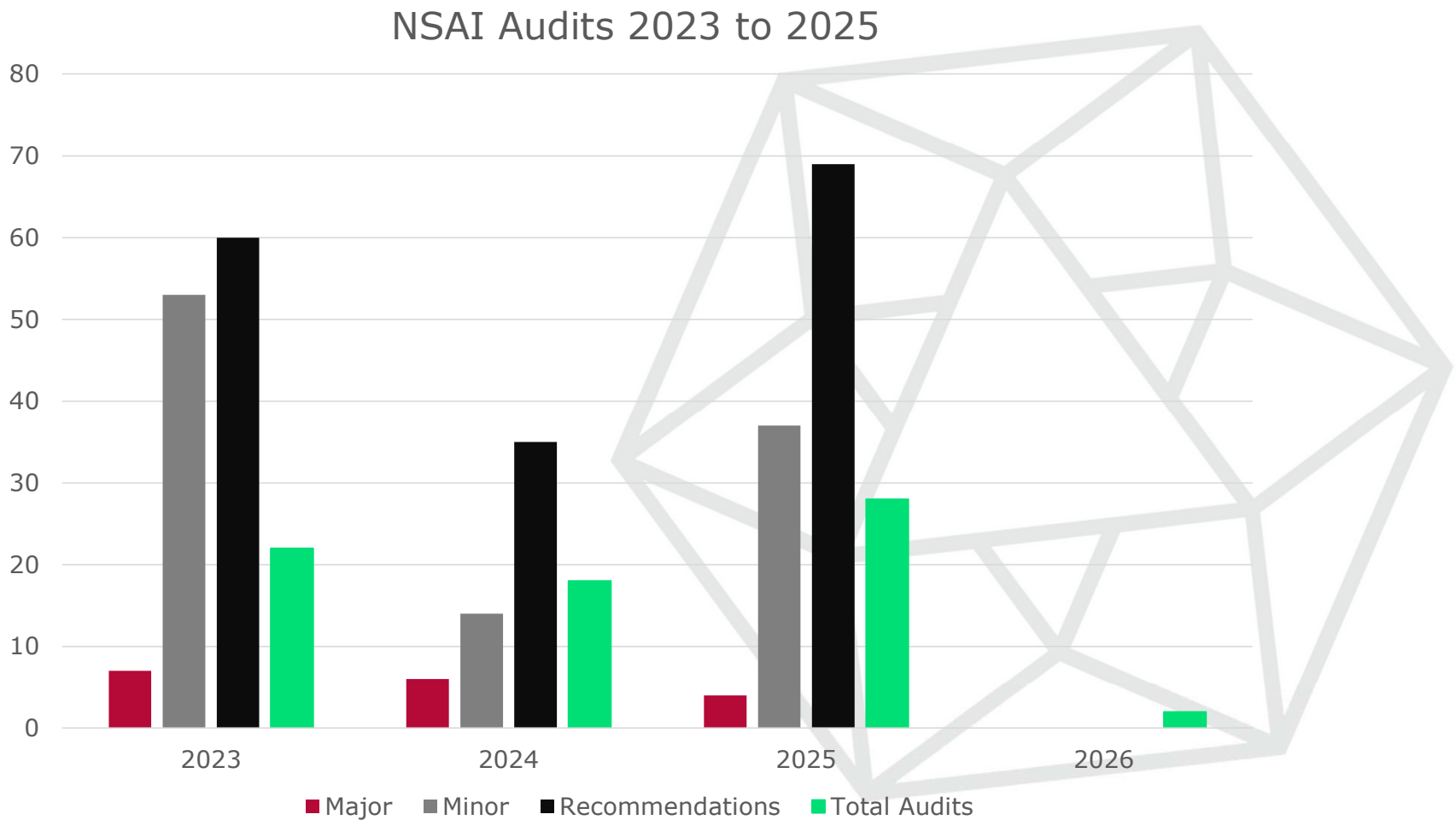
- **Solar PV systems** and **MVHR systems considered** *(particularly in attic spaces & roof levels).*
- **Fire penetrations between Compartment walls** – *proprietary Fire collars / Fire stopping required.*
- **External penetrations for services to be consider for weathering details.**
- **Electrical cables** to be **Dca rated** *(as per I.S. 10101: 2020 + AC2: 2025 requirements) as per EN 50575 (CPR 2013)*
- **Lightnin**
  per I.S. E



527 Selection and erection of wiring systems to minimize the spread of fire

527.0 For all buildings, cables shall as a minimum meet the requirements of Class $\mathbf{D_{ca}}$**-s2,d2,a2** or higher in accordance with I.S. EN 50575. In addition, cables shall be tested in accordance with I.S. EN 61034-2 and the smoke generated shall result in transmittance values of not less than 60 %.

MMC Building Systems – Surveillance Audits



MMC Building Systems – Regulatory changes

- **2nd Generation Eurocodes**
  Key dates to note:

  End of Q1 2027: Adoption and publication of all 2nd Generation Eurocodes in Ireland.
  30 March 2028: Formal withdrawal of the 1st Generation Eurocodes across Europe.

  This creates a 12-month coexistence period, allowing both sets of Eurocodes to be used.
  https://www.nsai.ie/about/news/2nd-generation-eurocodes-update-on-irelands-adoption-plan/

- **TGD Part B (2024)** – *in operation since 1st May 2025 (Reprint January 2026)*
- **CPR 2024** – 36 Product Families now (S.I. No. 669 of 2025)
  "Building Kits" not fully defined and dependent if this can be harmonized as a hEN Standard.
- **TGD Part D (2026)** – *pending 1st June 2026*
- **EU Affordable Housing Plan**
- **EU Construction Strategy 2025-2030**
- **CBAM (Carbon Border Adjustment Mechanism) and EPBD Recast 2024**
- **EU Products Defect Liability (EU/2024/2853)**

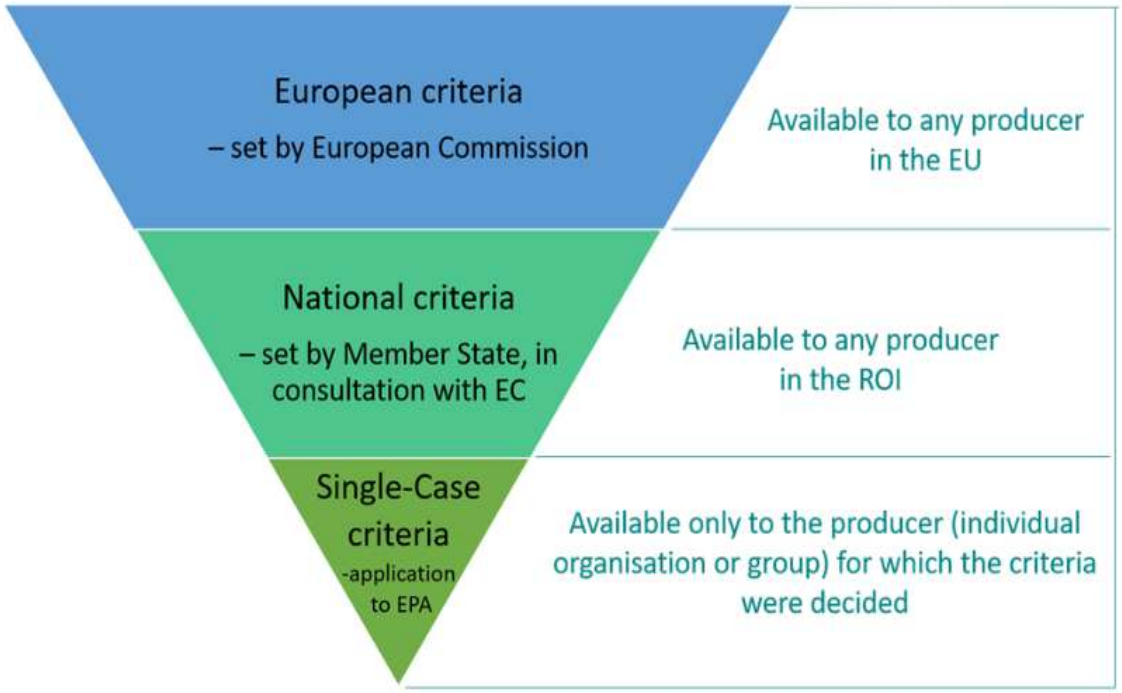
Bio-based / Agri materials consideration

End-of-waste criteria in Ireland

- **End-of-Waste**
- **By-Products**

Levels of end-of-waste criteria

There are three levels of end-of-waste criteria that can be utilised in Ireland, as illustrated below:

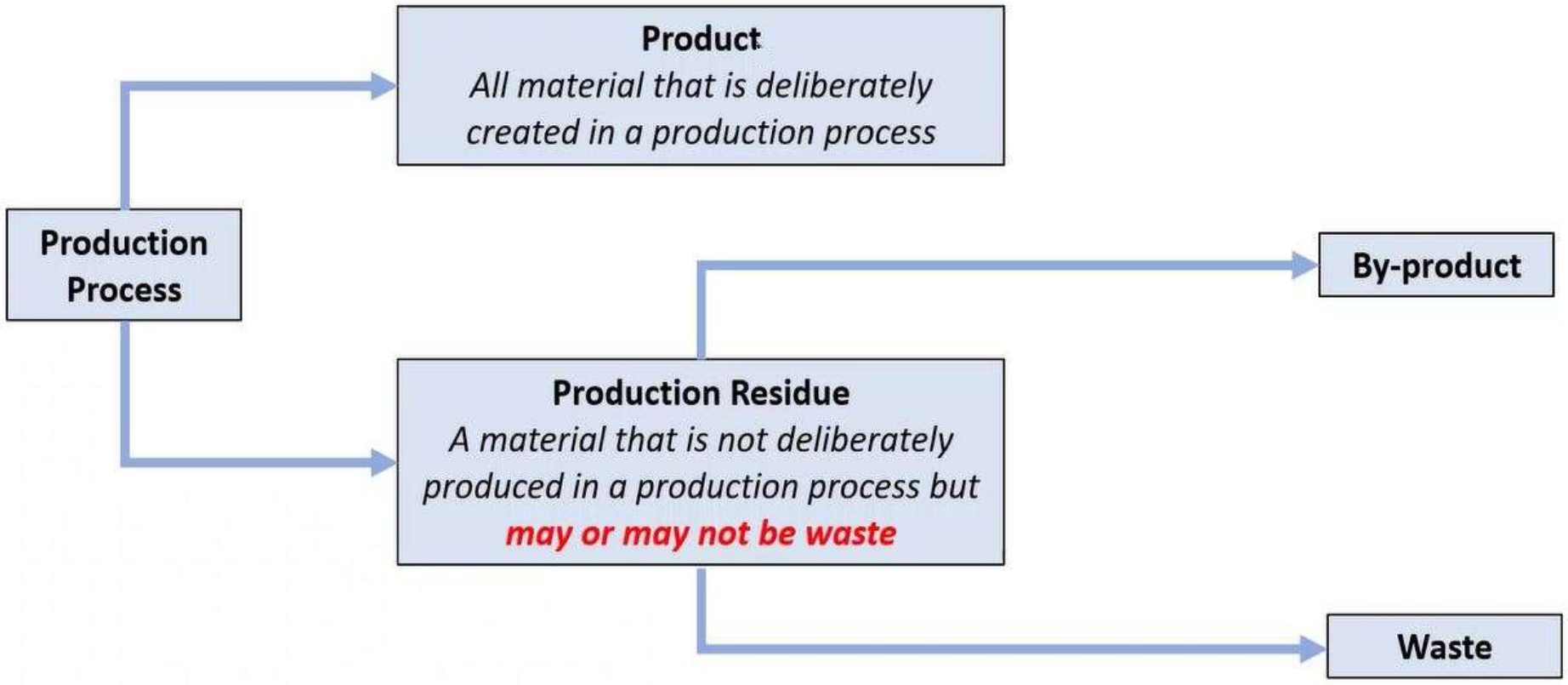


Ref: [Circular economy | Environmental Protection Agency]

Ref: [EPA National Criteria to Help Reduce Construction Waste | Environmental Protection Agency]

PRODUCTION RESIDUES

– IN THE CONTEXT OF BY-PRODUCTS AND END-OF-WASTE



Reference: EU Waste Directive 2008/98/EC https://eur-lex.europa.eu/eli/dir/2008/98/oj/eng

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Thank You

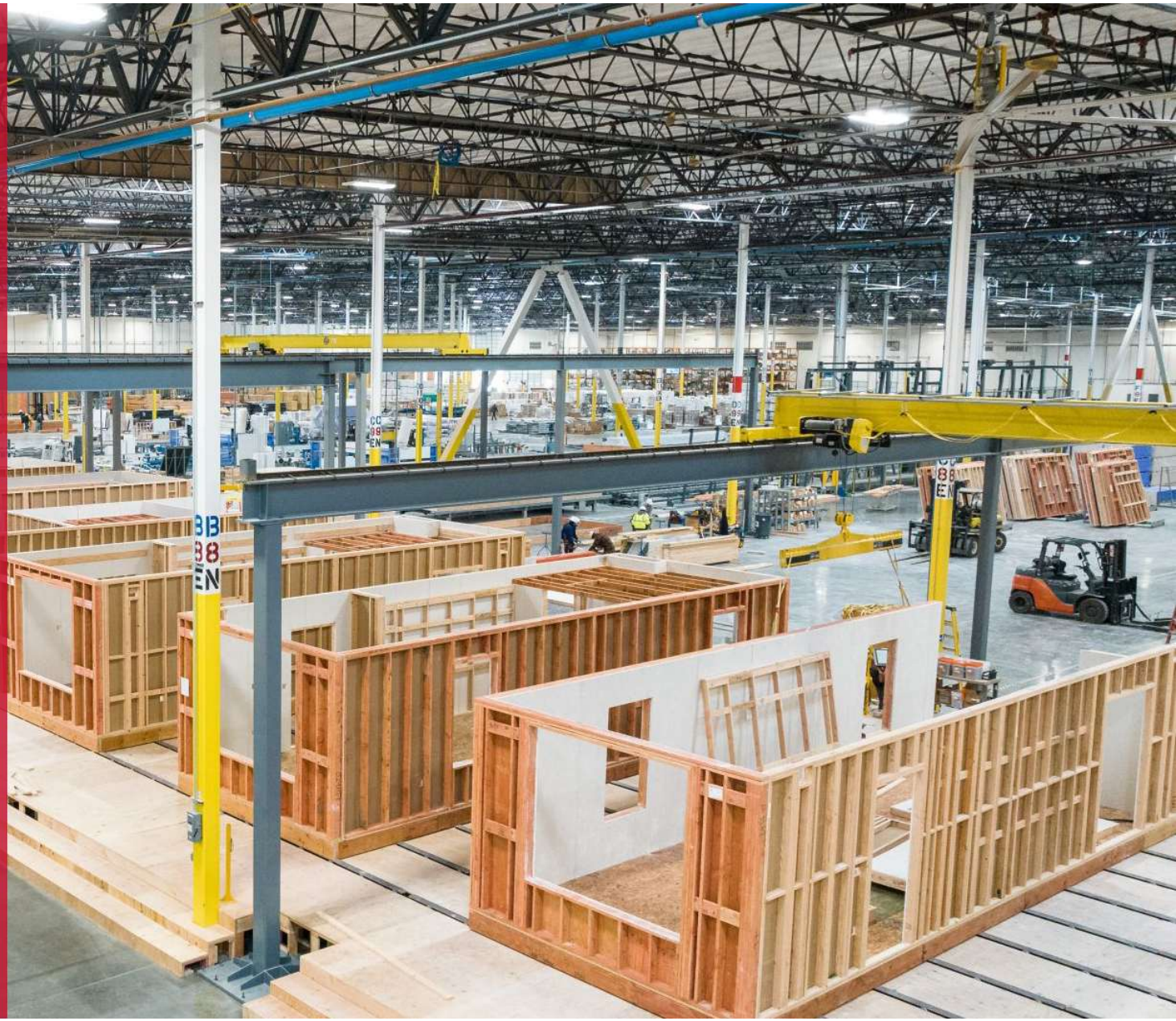

Image courtesy of VBC Limited