



Innovating for a safer, better, and sustainable future

MMC Certification overview

23rd May 2024

MMC
IRELAND





Agenda

1 MMC Certification overview

2 MMC Roadmap deliverables

3 MMC Agrément process

4 MMC Industry involvement





MMC Overview



Irish Agreement Certification – TGD Part D

In existence since **1991**



Building Regulations, 1991

**TECHNICAL GUIDANCE DOCUMENT D
MATERIALS & WORKMANSHIP**



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Building Regulations 1997

Technical Guidance Document D

Materials and Workmanship

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Building Regulations 2000

Technical Guidance Document D

Materials and Workmanship

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D

**Materials and
Workmanship**

**Building
Regulations
2013**

**Technical
Guidance
Document**



Comhshaoil, Pobal agus Rialtas Áitiúil
Environment, Community and Local Government



Irish Agreement 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).

Why Agrément Certificate?

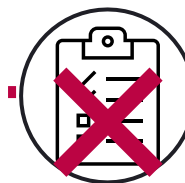
Agrément Certification is designed specifically for **new innovative building materials, products and systems** that do not yet have a long history of use.



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:

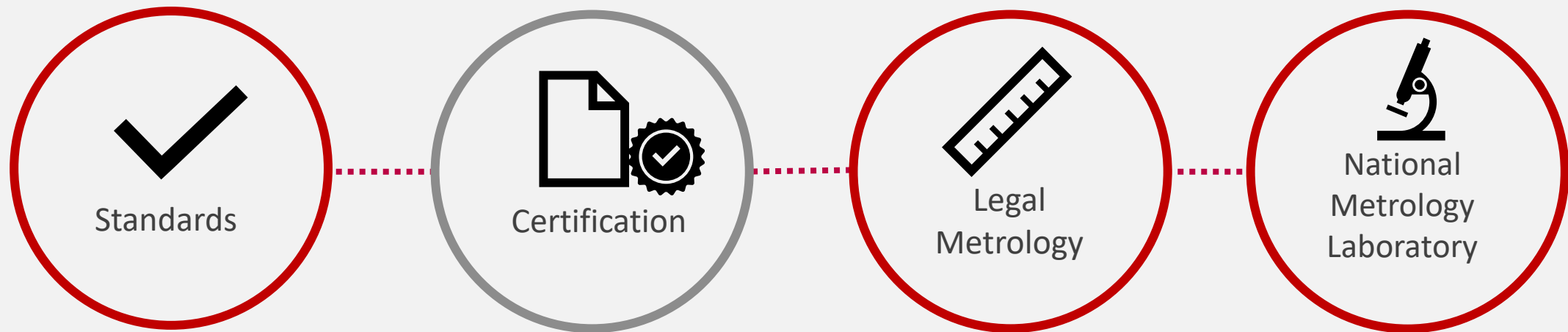
(a) **bear a CE Marking** in accordance with the provisions of the Construction Products Regulation;

(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.

About NSAI

Four Main Divisions

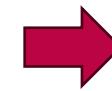
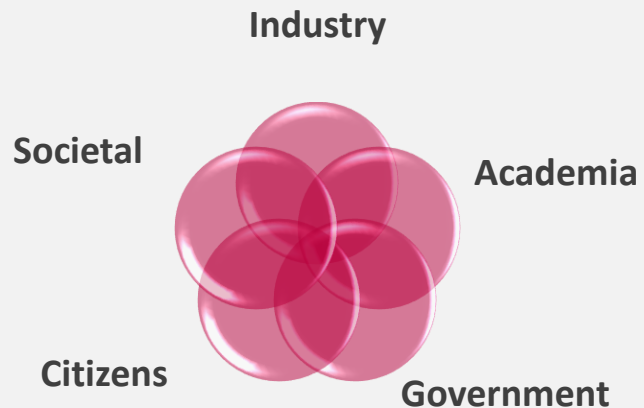


As Ireland's official **Standards body**, NSAI aims to inspire consumer confidence and create the infrastructure for products and services to be recognised and relied on, all over the world.

About NSAI

NSAI Role

Irish Stakeholders



Standards Committees

ICT
Advanced Manufacturing
Healthcare
Energy & Sustainability
Food
Construction
Services & Business
Processes

NSAI improves the performance of Irish business and protects consumers through the setting of standards and issuing of certification in the quality and safety of goods and services.

MMC Overview

7Nr. MMC Categories

PRECAST
CONCRETE
CONSTRUCTION



1 Pre-Manufacturing
(3D primary structural system)



2 Pre-Manufacturing
(2D primary structural system)



3 Pre-Manufacturing components
(Non-systemised primary structure)






4 Additive Manufacturing
(Structural and non-structural)



5 Pre manufacturing
(Non-structural assemblies & Sub-assemblies)



6 Traditional building product
Product led site reduction /
productivity improvements

-  = MMC certified
-  = S&BE certified
-  = Potential to be certified



7 Site process led i.e. site labour reduction / productivity / assurance improvements

MMC Agrément

Certified Clients:



STEELFRAME



58
Nr.

New Enquires
(A lot to Date):

22
Nr.

NSAI Agrément 'Building systems'
certified *(to date)*





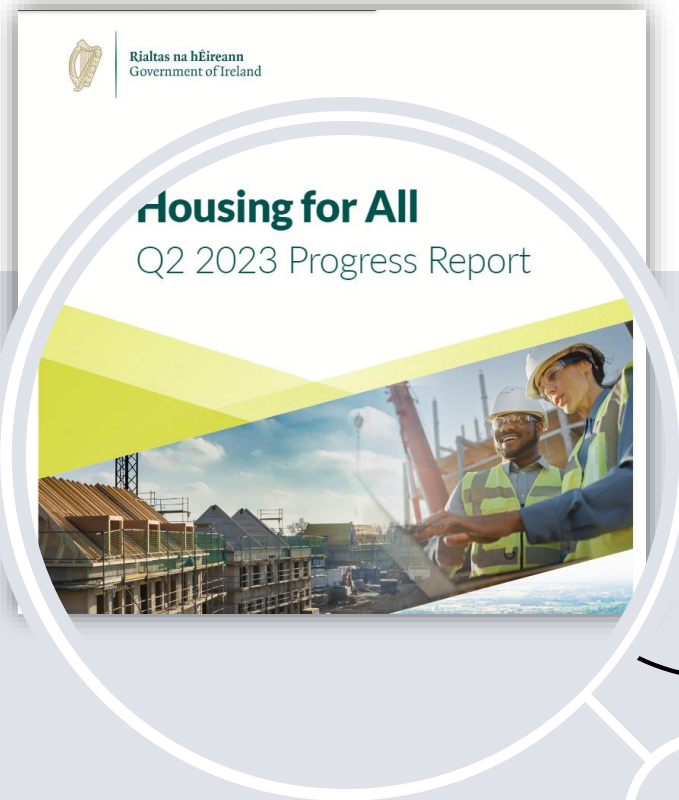
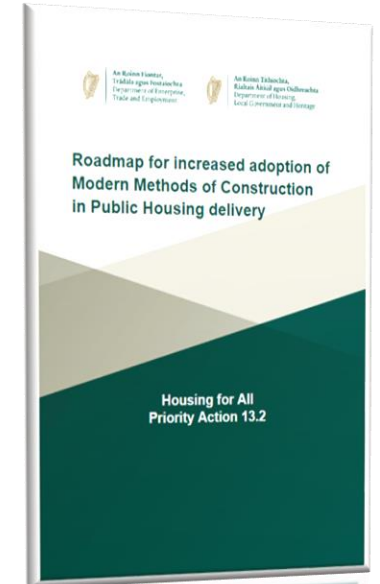
NSAI

MMC Roadmap Deliverables



MMC Roadmap

Deliverables – Supporting Government Policies & Actions



Regulation and Standards			
11	Strengthened capacity within the NSAI to support an efficient Agrément process.	Q2 2023	NSAI
12	Assessment of the efficiency of current Agrément Certification process in an international comparative context.	Q3 2023	NSAI
13	Communication of NSAI Agrément Certification and Inspection in the context of the broader regulatory system for residential construction.	Q2 2023	NSAI
14	Stakeholder engagement and contribution to related international and European standardisation developments, and consultation on specific national needs, if any, and progress as appropriate.	Ongoing	NSAI

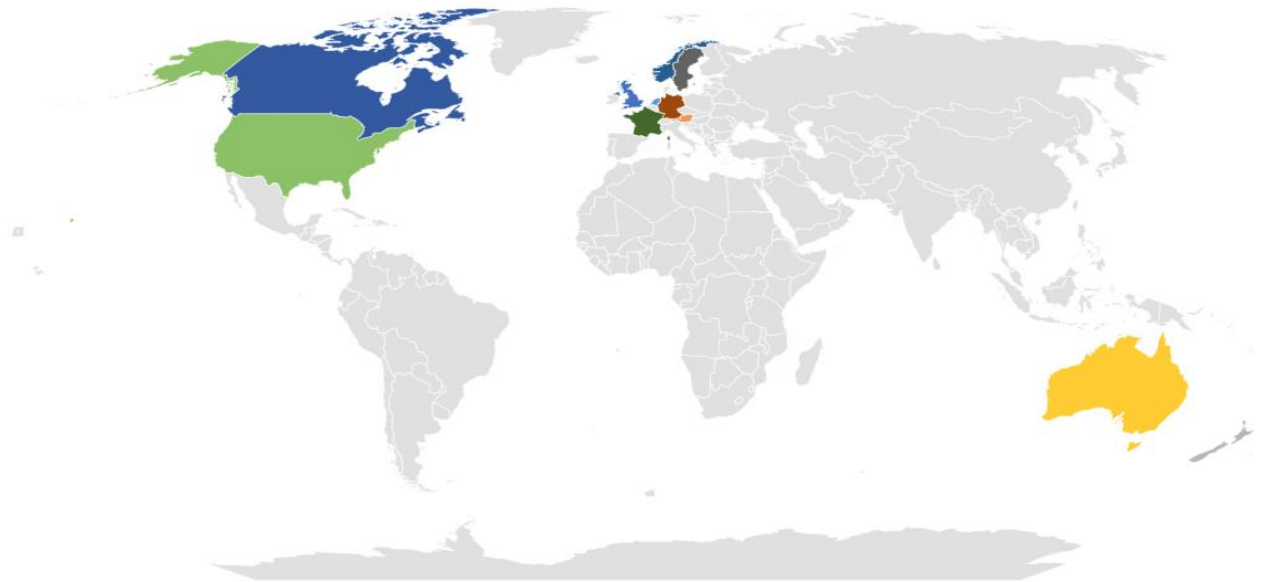
No.	Action	Delivery Date	Reporting Dept
61.	Drive further process improvements and cycle time efficiencies in NSAI Agrément certification for MMC in residential construction, including development of information supports to assist applicants to prepare for the certification process.	Q3 2024	DETE

MMC Agrément

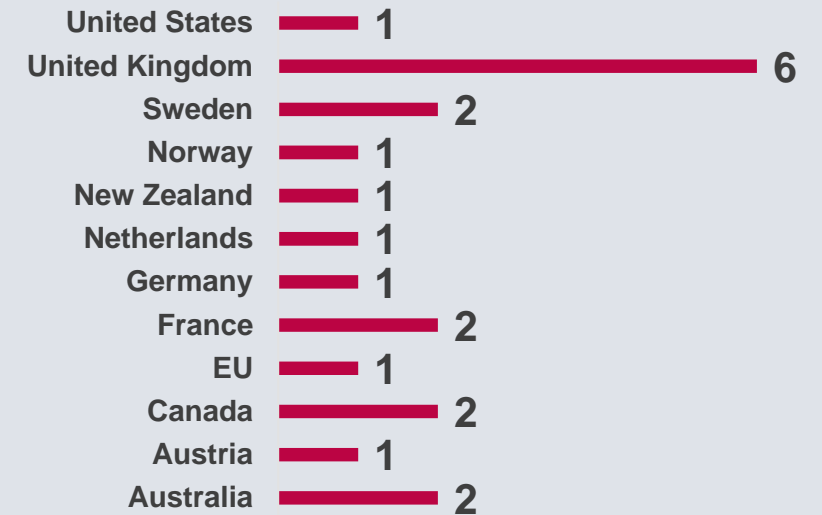
Market Research in an international comparative context

Certification Providers

Construction quality certification scheme by Country



Nr. certification scheme by Country



* Ongoing Internal research



21



MMC Agrément certification process





MMC Agrément service

Our services:



Pre-Approval

- Application Analysis
- Offsite Factory **Pre-approval process**.
- As per current FPC assessment.
- Scoring mechanism applied.



1

Agrément Certification for MMC

- **Subject to Pre-Approval**
- Application/scope Analysis
- Technical Assessment: The system will be assessed **against Parts A to M of the Irish Buildings Regulations**
- Laboratory test results checked
Min. 4Nr. Factory audits completed in 5-year period.
 - Audit reports recorded.
 - Audit scoring applied (to assess maturity of facility).
 - Year 1 – incl. FPC assessment
 - **Valid for 5 years subject to surveillance audits**

2

Ancillary certification

- Ancillary certification of Modular Construction process
 - *As per current BC(A)R 2014 requirements and current Irish Building Regulations – i.e. TGD’s Parts A-M.
- Onsite assessment**
20-10%
(12-20 weeks)
- Offsite assessment**
80-90%
(1-2 weeks)

3

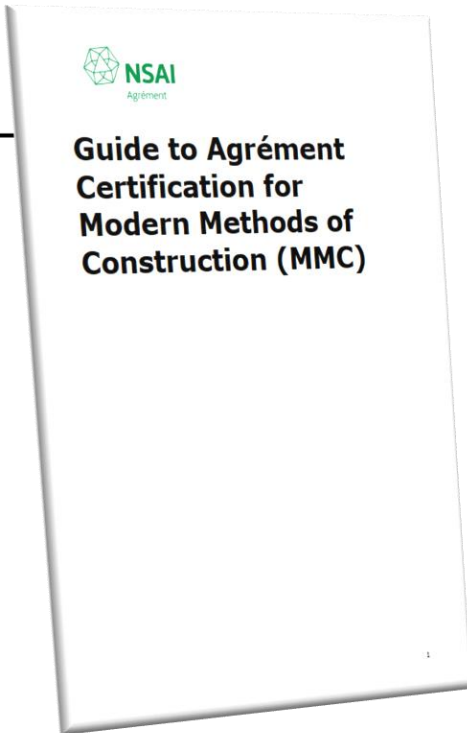
ISO 19650 (BIM) certification

- **Current service to support increased Digitalisation**
- **Irish BIM mandate announced in July 2023** (Now in effect since January 2024)

0

Pre-Approval

How to apply?



Before applying, verify your current **GAPS**. Do you have a Quality Management System in place? Do you have technical data/tests of your system? Are you ready?



Complete the NSAI Application form – for the application process by the manufacturer.



Upload your Technical Documentation Pack according to the "Guide to Agrément Certification for MMC"

<p>TGD A to M incl. Technical data, for importation and factory certification</p>		<p>Tests results Technical Calculations evidences of compliance against ALL applicable TGDs (Structural, thermal, sound etc.)</p>
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Incomplete or poor evidences can lead to failure



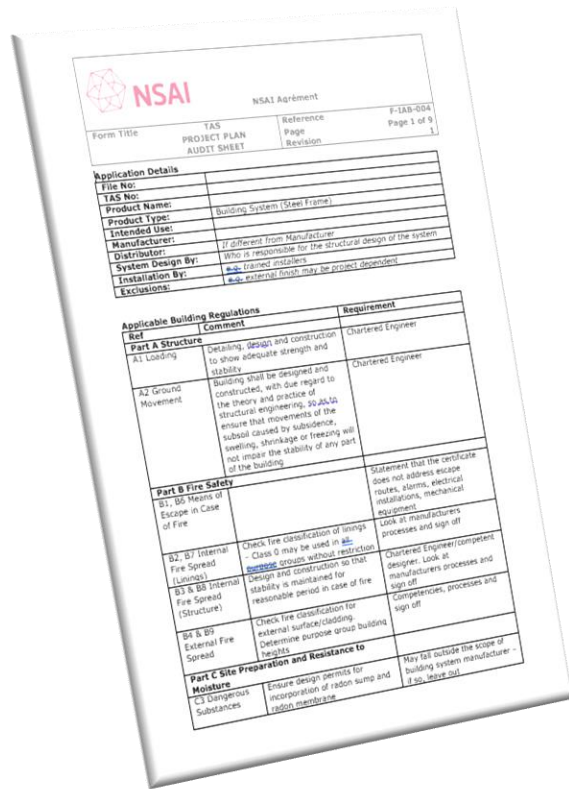
Pay the Fee : The application fee is **€1,800.00 plus VAT**, for Building Systems certification **Note:** The Application fees are non-refundable



Start of Pre-Assessment

1

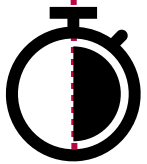
Agrément Certification for MMC



The image shows a sample of the NSAI Agrément Form F-IAB-054. The form is titled 'NSAI Agrément' and 'Form Title: TAS PROJECT PLAN AUDIT SHEET'. It includes sections for 'Application Details' (File No., TAS No., Product Name, Intended Use, Manufacturer, Distributor, System Design By, Installation By, Exclusions) and 'Applicable Building Regulations' (Part A Structure, Part B Fire Safety, Part C Site Preparation and Resistance to Moisture). The form is a detailed audit sheet for Technical Assessment Specification (TAS) development.



NSAI will undertake an **initial assessment** of the information provided for the system, then agree the scope of the assessment with the MMC manufacturer and provide them with a contract



The NSAI assessment can commence when the contract is agreed and payment (either in full or partial – as agreed) has been made



An initial meeting is held with NSAI / MMC Manufacturer(s).

Technical Assessment Specification (TAS) Development :

- **Irish Building Regulations (TGD Parts A - M inclusive) and European standards compliance verification**
Additional Regulations Compliance – as determined by NSAI in the Technical Assessment Specification document (as drafted up)
- **Laboratory tests results / checks / Engineering calculations**
- **On-site evaluations of the as constructed MMC product/system i.e.**
- **Factory Production Control (FPC) inspection/Manufacturing – Quality management system verification**
- **MMC Installation procedures/MMC Off-site factory inspection plan/Post-construction maintenance program**

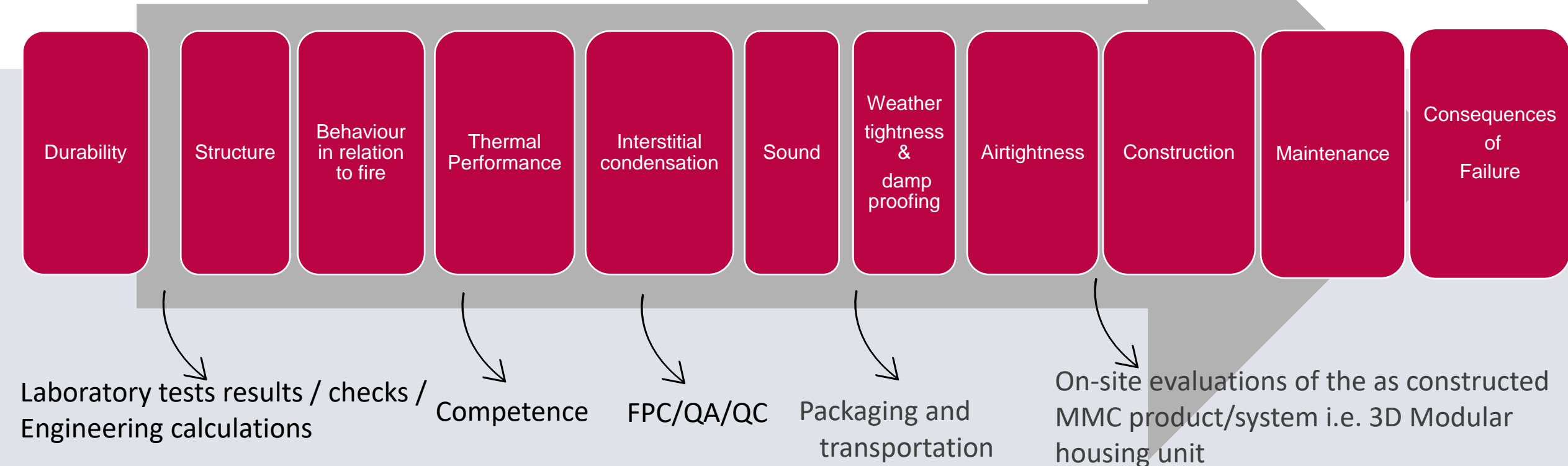


Subject to the results of the assessment, the NSAI Agrément Certificate is published. Valid for 5 years subject to annual surveillance audits.

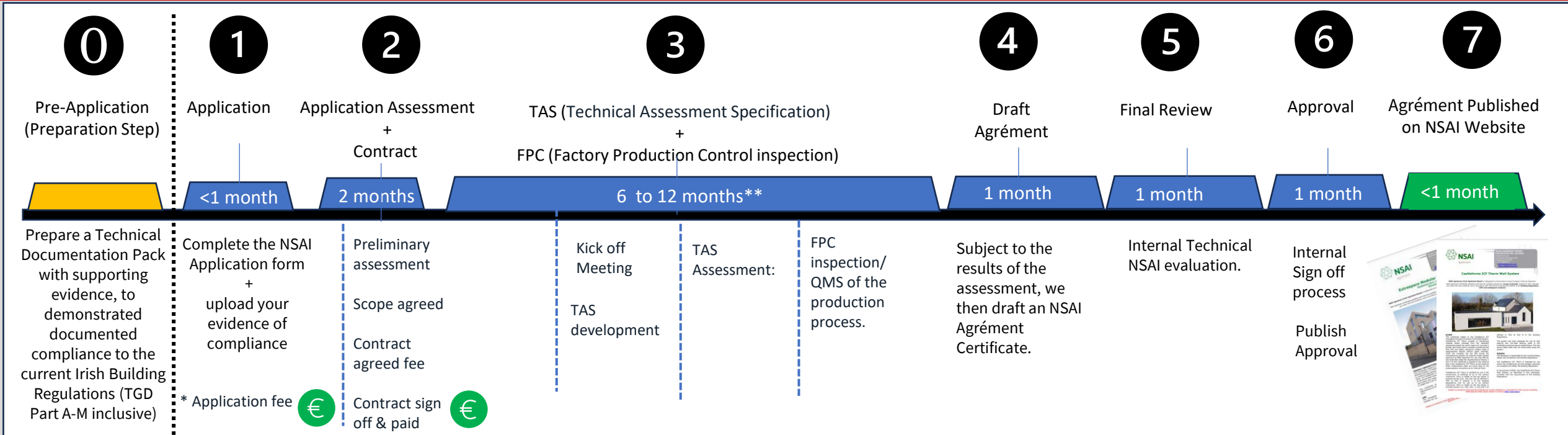
MMC Agrément service

The Technical Assessment Specification (TAS) overview

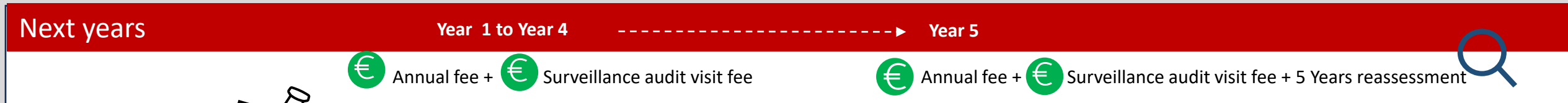
The system will be assessed **against Parts A to M to the Irish Buildings Regulations and European standards compliance verification**



Pathway for NSAI MMC Agrément



*The application fee is €4,400.00 plus VAT, for Building Systems certification (non-refundable) ** The timeline will depend on the availability and results of evidences provided to demonstrate compliance



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.

NSAI Application form link - <https://www.nσαι.ie/certification/agrement-certification/application-form-foragrement-certification/>

NSAI MMC Agrément guide link: https://www.nσαι.ie/images/uploads/certificationagrement/Guide_to_Agr%C3%A9ment_Certification_for_MMC.pdf

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 product/system i.e. 3D Modular housing unit
- ✓ Factory / Manufacturing - Quality management system verification (ISO9001 to EN1090)
- ✓ Assessment of MMC Transportation, Storage, Handling, and Installation approaches taken

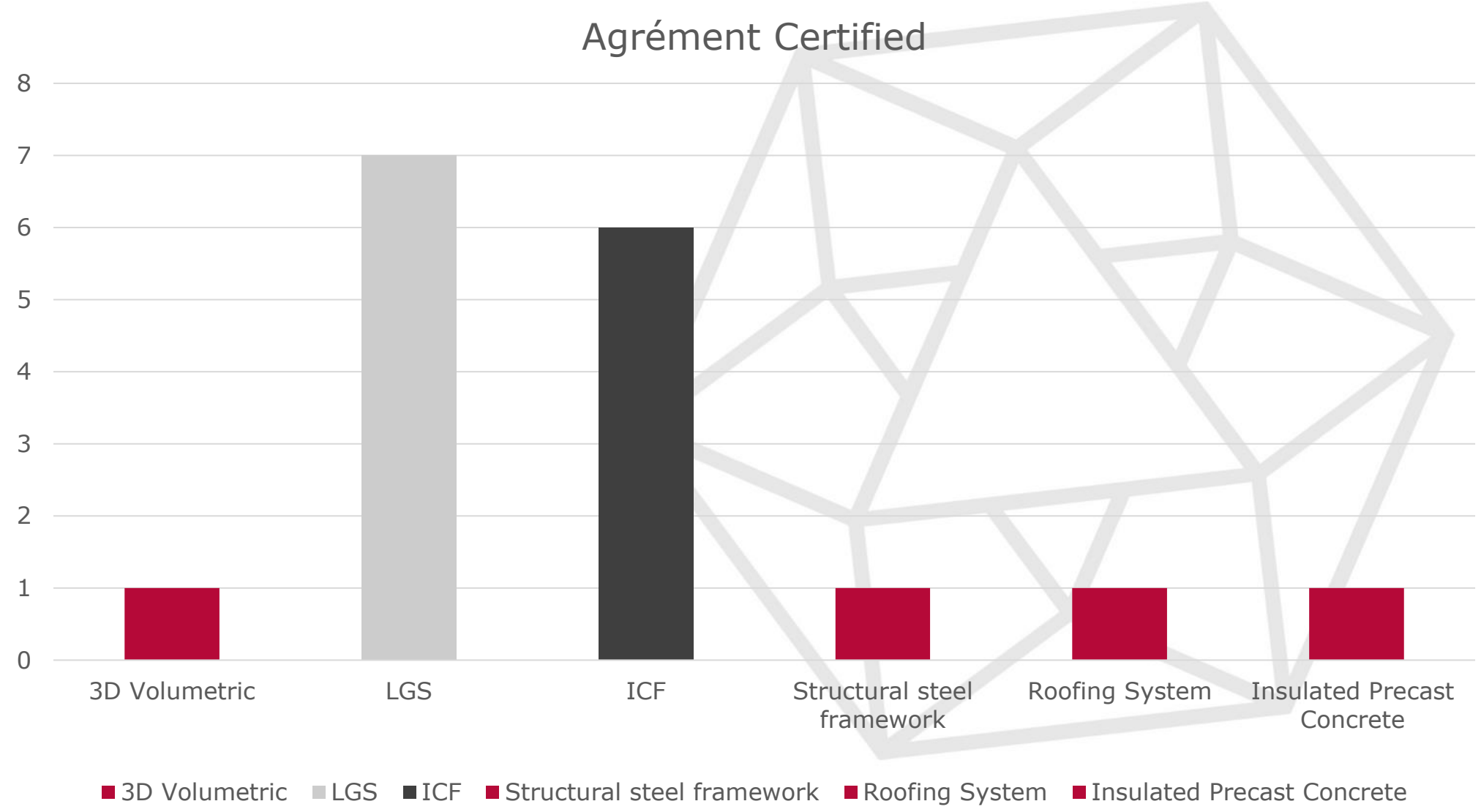
5 Years reassessment:

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

In case of Changes, Steps 1 to 7 need to be followed.



MMC Agrément certificates (breakdown)



MMC systems by Material type & Sectors *(existing clients)*

Timber



2 Clients

Residential
Educational

Max. 3
storeys

LGS



8 Clients

Residential
Commercial
Educational

Max. 20
storeys

Pre-cast



2 Clients

Residential
Commercial
Educational

Max. 10
storeys

ICF



8 Clients

Residential

Max. 6
storeys

Welded Steel



7 Clients

Residential
Educational
Healthcare

Max. 10
storeys

Novel Material



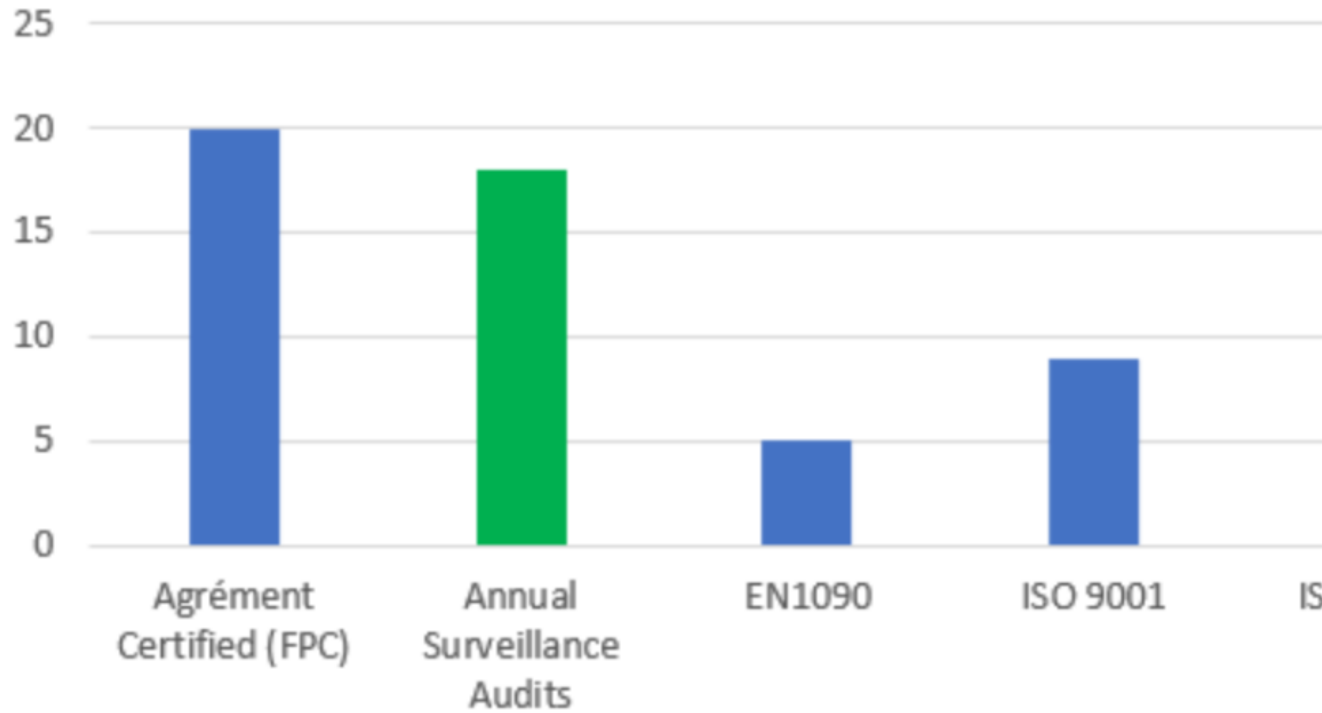
11 Clients

Residential
Commercial
Healthcare

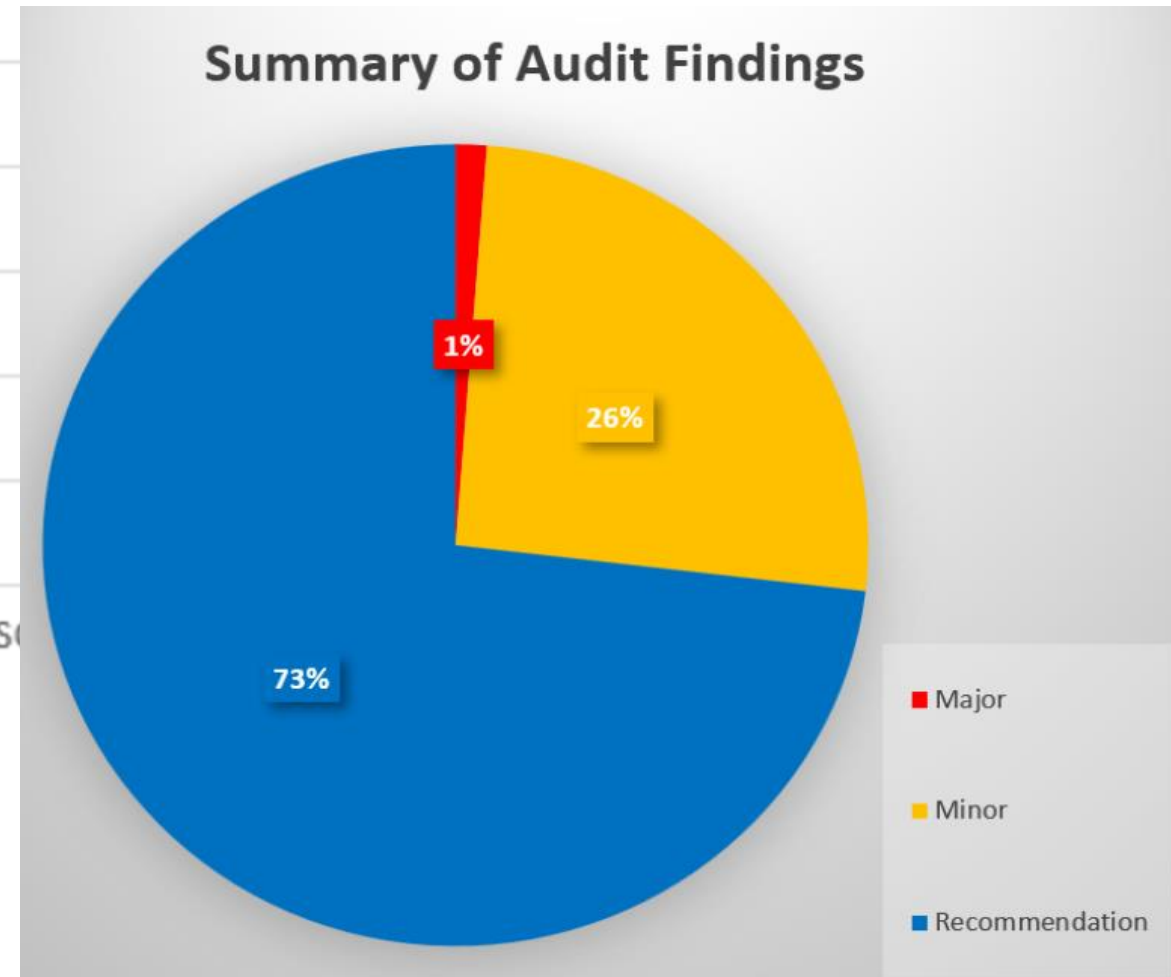
Max. 3
storeys

MMC Surveillance Audits 2023

NSAI Agrément Certification Building Systems Surveillance 2023

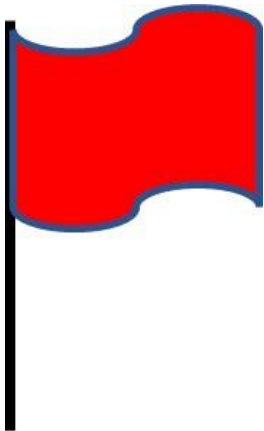


Audit Finding Categories			
Major	Minor	Recommendation	Compliant
Major non-conformance. Follow-up required from the Client. Evidence of corrective action required.	Minor finding. Follow-up required from the Client on corrective action. Evidence of corrective action required.	Suggestion for improvement. Auditor did not identify any non-conformances for a particular item.	Based on the evidence provided Auditor did not find any non-conformances for a particular item and did not suggest any improvements.



MMC Building Systems

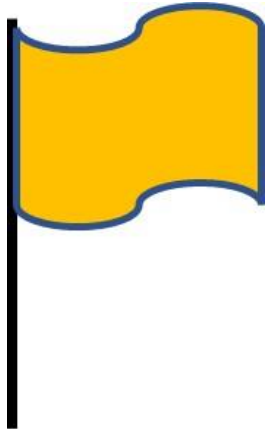
Top 10 items



1. Manufacturers, Designers, Specifiers not reading or understanding the hierarchy of EU Directives, CE marking, EN, IS and BS standards and TGD parts A to M (*also not sectorially aware of other additional regulatory requirements e.g. DoES School Design Guides (SDG), etc.*)
2. Applications are a) not detailed enough, or b) lacking supporting evidence, certificates, test record documentation, etc.
3. Applicants **'suspend'** , **'pause'** or **'do not continue'** with their original application, as previously submitted to NSAI (*for various unknown reasons*).
4. MMC Applicants **do not fully read or understand** the MMC Agrément Guide document or follow the process steps involved (*in advance*).
5. The legal entity of the Offsite Factory versus the MMC Client / Main Contractor is not clear **OR** their relationship(s) are not defined.

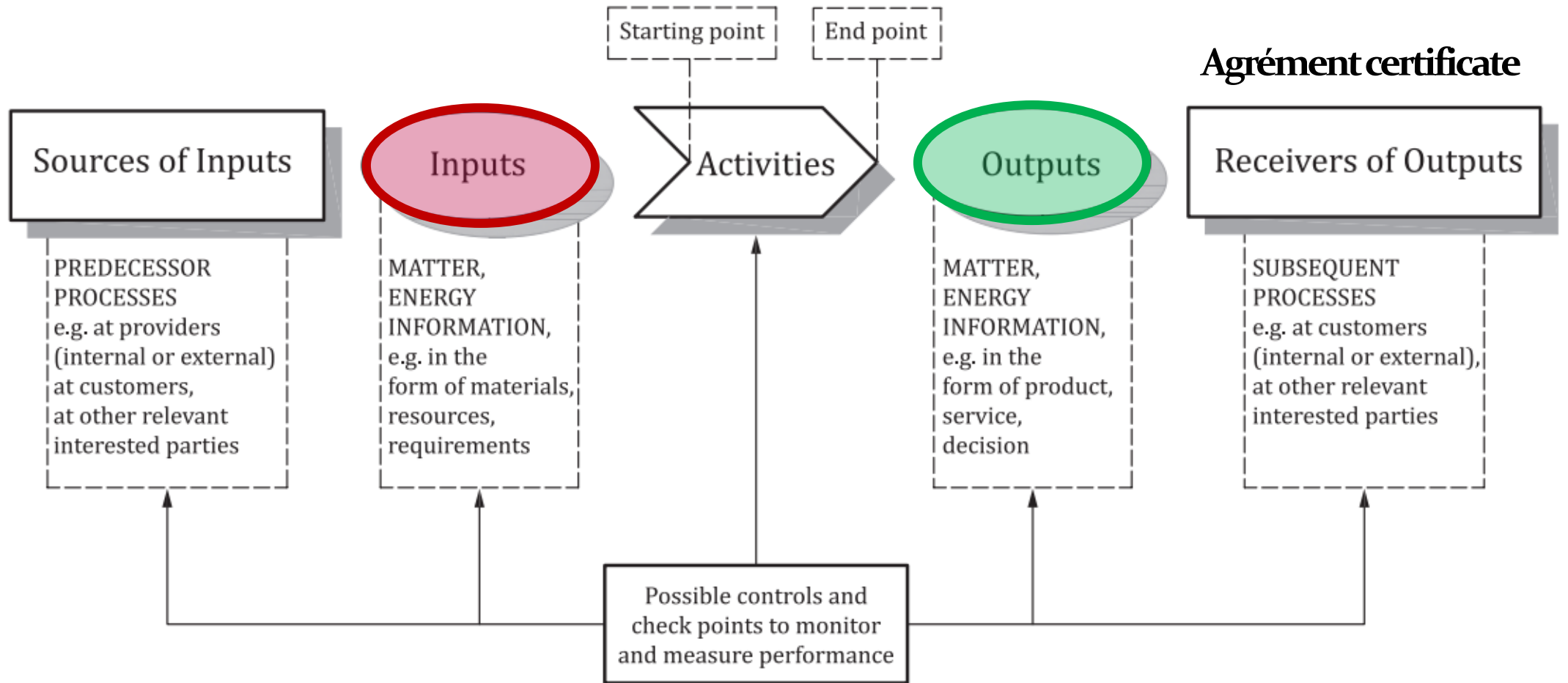
MMC Building Systems

Top 10 items



6. A lot of speculative Enquiries, particularly from outside Ireland and very little if any review has been completed of the regulatory environment.
7. MMC Applicants **do not fully demonstrate** how their Building System aligns or complies with the current TGD Parts A to M, with some evidence not provided.
8. Frequently asked of NSAI as to: **“Who do you recommend as a consultant for MMC.”** NSAI cannot provide consultation or advise.
9. CE marking / Declaration of Performance (DoP) certification being provided in support of materials used, that do not always comply with (CPR) EU/305/2011.
10. MEP services - By Others. Yet services installed in the factory / other installation is outsourced. *(in the Modular Building system being fabricated)*

MMC Certification Approach





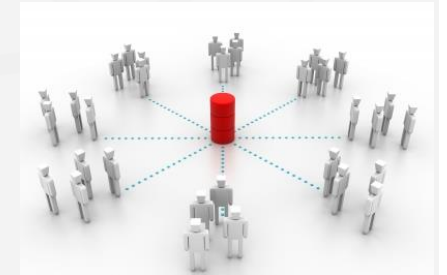
MMC Certification Industry involvement

(past 11 months)



MMC Industry & Research – NSAI involvement

1. Delivered +30 MMC Certification presentations to Industry & Academia
2. Involved in DETE – MMC Research projects:
 - **KPMG** – MMC metrics
 - **EY** – MMC Skills needs
3. Participated in the Construct Innovate – AIM day and MMC Webinar series
4. Delivered a NBCO presentation on MMC Certification to Building Control / Fire Officers
5. Completed MMC Stakeholder interviews for:
 - **National Economic & Social Council** (NESC)
 - **CIOB / TASC** research
 - **Final Year Student dissertation research projects** on MMC
6. Member of CSG, CSG Subgroup and MMC LIG representing NSAI

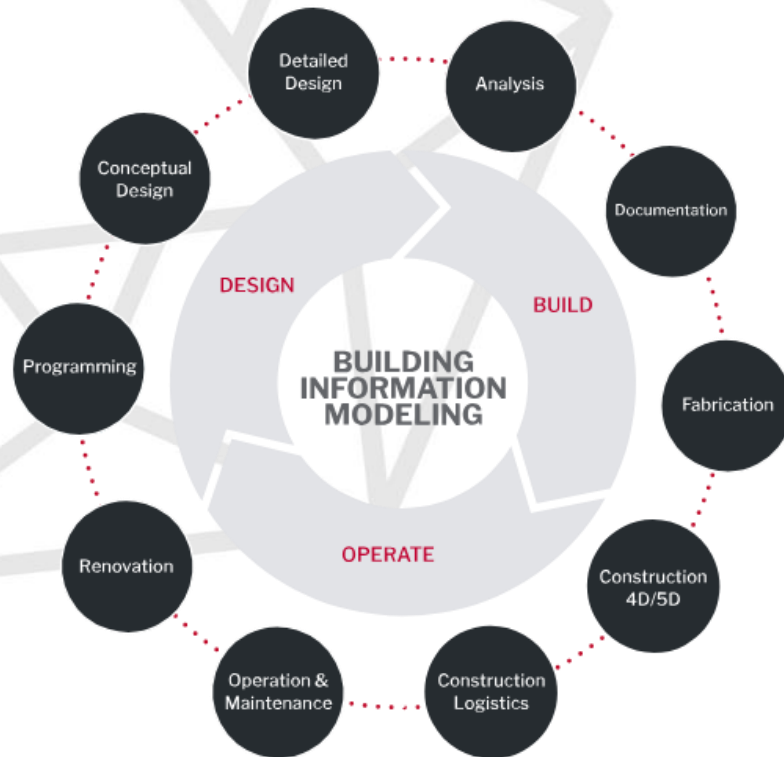


MMC Stakeholders (+100 organisations)

Industry	Government	State Agencies	Industry Associations	Educational	Training Providers	Others
Offsite Manufacturers	DETE	Enterprise Ireland	MMC Ireland	SOLAS	LOETB	European Union
Property Developers	DHLGH	Construct Innovate	SOSA (CIF)	LOETB	Construct Innovate	European Commission
Insurance Providers / Underwriters	DECC	Centres of Excellence (EI)	ITFMA	Further Educational Training (FET)	CitA Skillnet	EU-27 member states / EEA
Banking & Payments Federation	DPER	IDA	Construct Innovate members	National Universities	CP Skillnet	CPR Acquis working group
RIAI	DAFM	SOLAS	CIF	Institutes of Technology (IoT's)	Skillnet Ireland	EU Nandos (i.e. EU-27 Notified Bodies)
Engineers Ireland	DoES	LGMA	Homebond	RIAI		ISO
ACEI	DHFERIS	LDA	MEBCA	Engineers Ireland		CEN
SCSI		LGMA	IGBC	AECI		CENELEC
Material Suppliers	NBCO & MS	AHB	IBEC	SCSI		BSI (UK)
Main / General Contractors	BCA	OPW	PII			BRE (UK)
MEP Specialist Trade Contractors	LA	The Housing Agency	BMF			BOPAS (UK)
Think Tank organisations	CSG	EPA	ICF - Irish Concrete Federation			SCI (UK)
Big 5 Auditing firms:	CSG Subgroup	CRU	Chief Fire Officers Association (CFOA)			NHBC (UK)
KPMG	MMC LIG	Safe Electric	IBCO			Kiwa
EY	BRAB	RGII	IFE - Institution of Fire Engineers Republic of Ireland			CARES (UK)
Grant Thornton		INAB	LCi - Lean Construction Ireland			CWCT
PwC		HSA	Wood Technology Ireland			CQI / IRCA
BDO		NSAI	Wood Connect			CIOB - Chartered Institute o
Future Analytics		SEAI	Dublin Chamber			CIBSE - Chartered Institutior
		PSA				BESA - Building Engineering
		An Garda Siochana				IET - Institution of Engineeri
		HSE - Health Service Executive				BSRIA - Building Services Re:

BIM Certification (ISO 19650 standard)

- **BIM mandate** announced by OGP (Office of Govt. Procurement) in July 2023.
- BIM closely aligned to MMC ⇒ supports increased innovation and adoption of Modular Construction.
- **BIM mandate** came into effect in January 2024 for Public sector projects (*5-year phase in*).
- NSAI currently have **Organisations** seeking **BIM certification**, at present.
- NSAI (MS) is a participatory member of The Build Digital Project.
- NSAI Standards have a dedicated Head of Digital Transformation and a Digital Standards Officer, to support digital standards.
- NSAI Standards have engaged with **CoBuilder™** regarding a pilot project to convert PDF Standards to XML code (BIM readable).



In Summary

Up and running 11 months now and we have achieved:



- A lot of Stakeholder engagement,
 - Raised the Industry awareness of **Agrément Certification** for MMC / Modular Construction in Ireland,
 - Engaging with Offsite Manufacturers incl. auditing of Offsite factories.
-
- Processing new MMC Applications / Certificate Revision requests,
 - Continuing to raise standards in The Built Environment, and
 - Actively supporting **HfA** through completion of assigned actions.

Thank you.

WWW.NSAI.IE

martin.searson@nsai.ie

Search "NSAI"





Q&A



Image courtesy of VBC Limited