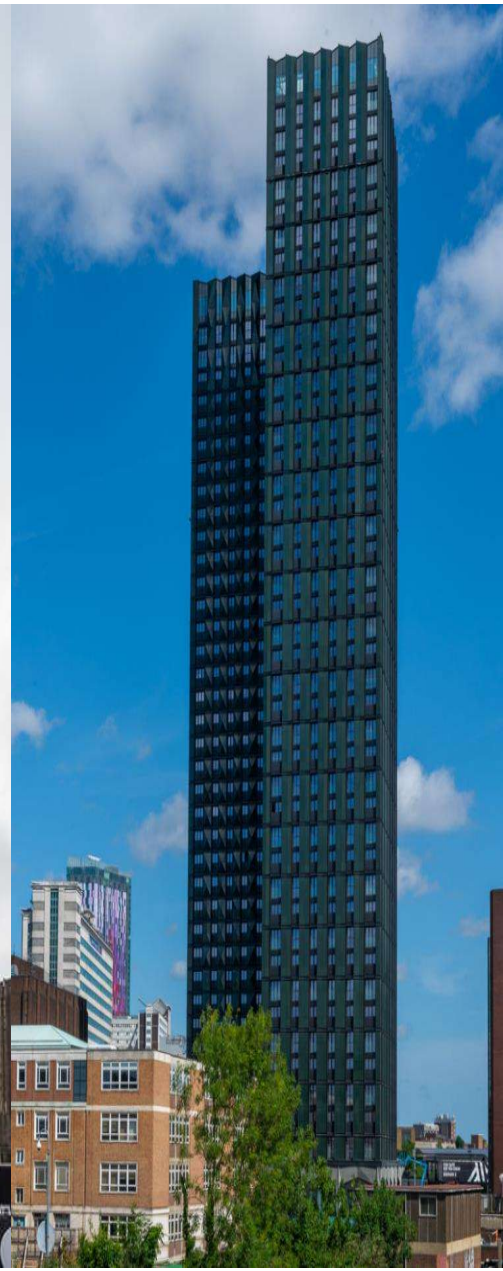
NBCO 2026

MMC Agrément Certification Requirements and Application for Ireland

PRESENTED BY

Declan Wallace

Evolusion Innovation CEO



We are leading MMC/Offsite experts in Cat 1 modular and Cat 2 panellised construction

MMC

Importance of MMC going forward cannot be overstated

The industry as a whole will need to fully embrace MMC

Buy-in from Design professionals, structural engineers, architects, building control, manufacturers, developers

To dramatically improve supply and drive prices down

Improve overall quality

This not to say traditional methods will be replaced, more to emphasie that MMC will become a key driver to future construction

EVOLUSION INNOVATION
LEADERS IN MMC CONSTRUCTION & BUILDING SYSTEMS

- Evolusion Innovation is a specialist consultancy in modern construction methods and offsite modular systems.
- Since 2010, we've grown from 2 to 60 employees and consulted on projects exceeding **€3 billion in value.**
- We’ve played a key role in the design and delivery of some of the tallest modular buildings in the world
- Our expertise spans design, product development, certification, and testing for innovative building systems.

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Evolusion's MMC track Record in Ireland and UK

Providing our Services to a variety of sectors





12,000+
Student Beds

10,000+
Residential units

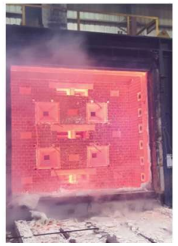
8,000+
Hotel Beds

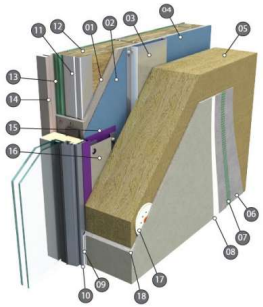
2,000+
Healthcare

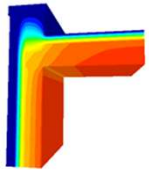
2,000+
Educational

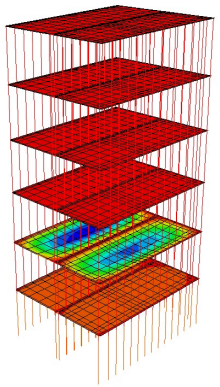
Central to the Development and Certification of more than 25 Building Systems and Construction Products

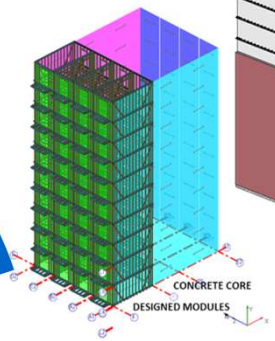
EVOLUSION DEPARTMENTS

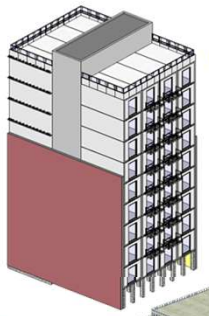












- NSAI/SCI/ NHBC Packs
- Innovative product development
- Structural/Fire testing

Product Development (R&D)

- Offsite Design Experts
- Specialise in LGS Design
- 3D Modular & 2D Panellised

Structural Engineering + BIM

Building Performance & Sustainable Engineering

- Embodied Carbon Value Engineering

Structural Fire Engineering

- Thermomechanical Models
- High Risk Building
- Fire Design of LGS

COMPLIANCE – WHY AND HOW?

DRIVERS OF COMPLIANCE

Building Regulations

Building Control legislation

Standards and Codes of Practice

Grenfell and the Hackitt Review

DEMONSTRATING COMPLIANCE

Agrément Certificates

Appropriate System Specific testing.

Has the offsite product got the system specific testing?

NSAI AGRÉMENT IS INDEPENDENT THIRD-PARTY CERTIFICATION FOR MMC SYSTEMS & PRODUCTS

- The primary responsibility for compliance with the requirements of the Building Regulations rests with the designers, builders and owners of buildings
- Third-party Certification does not guarantee project compliance
- It is the project design team responsibility in conjunction with the MMC supplier to ensure the building is being designed in line with the principles of the NSAI Certificate and the Building Regulations.

BASIC CRITERIA FOR NSAI AGREMENT CERTIFICATION

This checklist covers typical documents requested by NSAI.
Additional information, documents or tests may also be required.

Certification Requirement	Breakdown
Structural Design	Structural Design Philosophy of System or example structural report for NSAI review with height matching proposed height for certification if possible.
Standard construction Details	Typical junctions- Wall to floor, wall to roof, floor to foundation, Eaves, Intermediate floor to external wall, Intermediate floor to party wall, party wall to external wall etc..
Thermal Modelling	Thermal modelling of same typical junctions as above.
Hygrothermal Analysis	Glaser Analysis/ Wufi Analysis
3D illustrations for NSAI Cert	3D illustrations of typical junctions
Fire Testing	-30min/60min/90min External Wall -30min/60min/90min Internal wall -30min/60min Intermediate floor -Compartment/Separating floor -Non- combustible wall/floor if applicable -Fire test Assessments (if required)
Acoustic Testing	Acoustic test report for separating wall (and floor is applicable)
Quality Documentation	Documentation required for NSAI Audit Quality Manual SOP & DOP Data
Technical Manuals	Installation Manual Systems Manual
Air Tightness tests/reports	Third party air tightness report
Fixing Schedule	Schedule of various fixings used in system and their locations

STRUCTURAL DESIGN

Core Competencies of Engineers/Designers

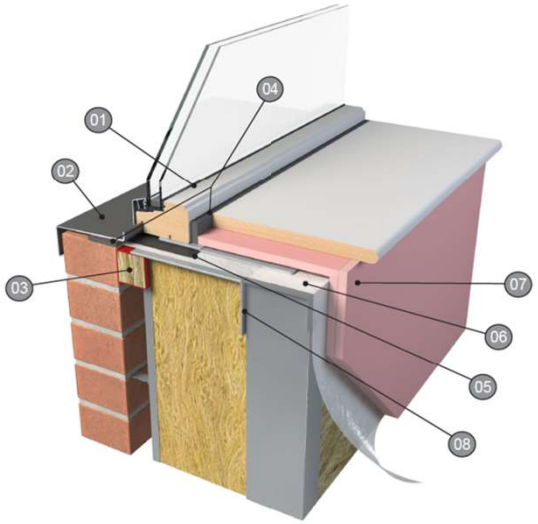
- Proven expertise in MMC structural design methodologies.
- Appropriate experience in system design and delivery.
- Full understanding of Agrément Certification - scope, limits, and what constitutes an acceptable design amendment.

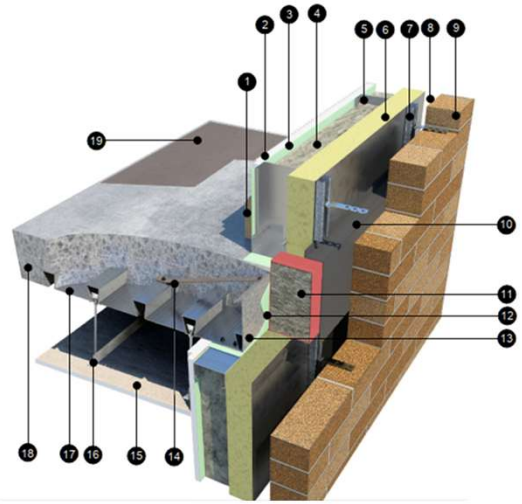
Design Integration Challenges

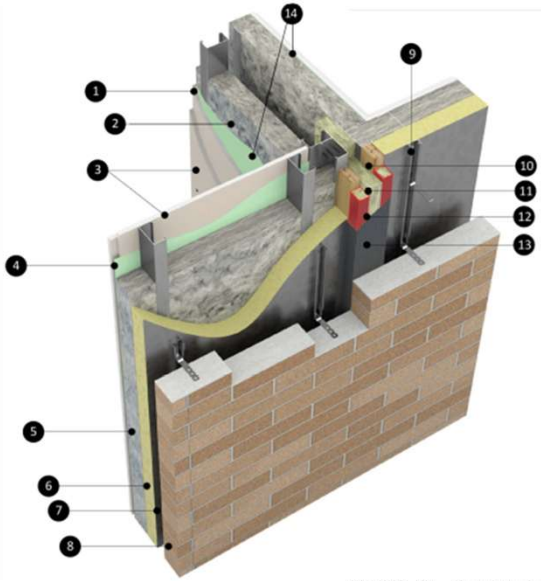
Structural coordination is required where third-party systems interface with, or are supported by, the MMC structure, including:

- Rainscreen, stone, and proprietary masonry-supported cladding systems
- External balconies, canopies, and other façade-mounted structures
- Stair systems supported by the structural frame
- Structural roof solutions outside the scope of certification (e.g., timber pitched roofs installed above 3D volumetric modules)

Illustrations in NSAI Agrement Certs



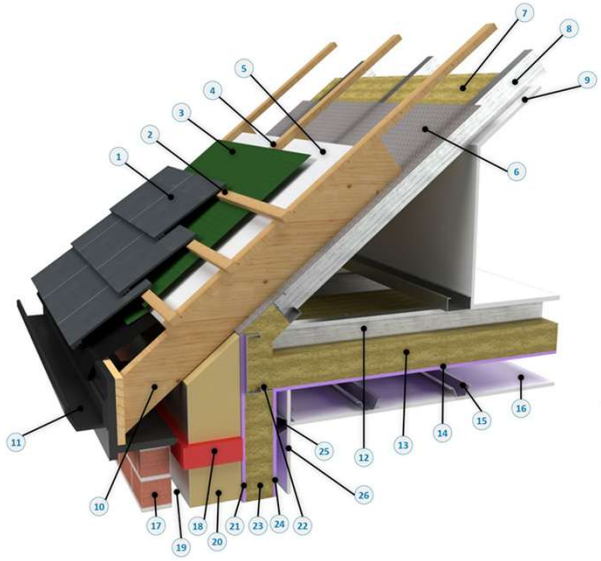


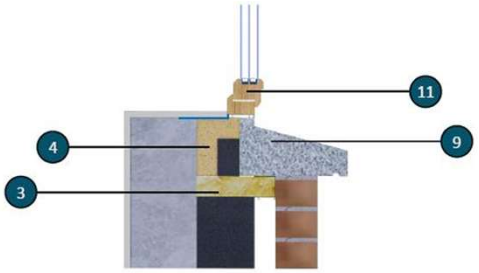


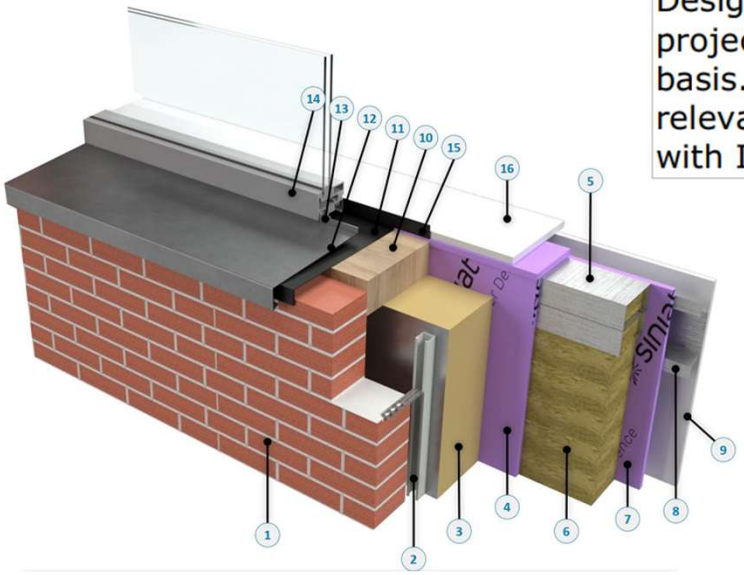
- Most NSAI certificates typically include 10 or more example illustrations of junction configurations
- These illustrations are not intended to restrict the manufacturer to only being permitted to construct exactly as is detailed
- The small number of illustrations contained in the cert cannot capture all junctions in the building system and there will always be project specific junction designs that differ from what is shown in the cert

Illustrations in NSAI Agrement Certs (Continued)

NSAI typically include the following statement to explain that the graphics are intended to be illustrative only, and that the manufacturers design team will produce building regulatory compliant design drawings on a project-by-project basis.







Note: This Certificate contains illustrations to explain the various elements of the certified Building System – these illustrations are not intended to be used as construction drawings. The Certificate holder in conjunction with the Design Team on a project, will produce a set of project specific details on a project-by-project basis. All drawings should be compliant with the relevant codes of practice and standards, along with Irish Building Regulations.

Illustrations in NSAI Agrement Certs (Continued)

- NSAI certs can only show a selective quantity of junction illustrations, however in reality, each manufacturer will have several variations of each junction
- To support their system design, each manufacturer will have a 2D drawing pack covering additional junction details
- Each manufacturer will also have dozens of additional 2D design details capturing other aspects of the system, such as structural steel connections, light weight claddings, service penetrations, balconies, alternative roof and foundation junctions…etc

MASONRY EXTERNAL WALL DETAILS		
Drawing No.	Description	Page
BC01	Window - Head & Cill	5
BC01-A	Window - Head & Cill (FFCB at cill)	6
BC02	Window - Jamb	7
BC02-A	Window - Jamb (brick return)	8
BC02-B	Window - Jamb (FFCB)	9
BC03	90-degree corner & Separating Wall Junction	10
BC03-A	90-degree corner & Separating Wall Junction (FFCB)	11
BC04	90-degree corner	12
BC05-A	External & Separating Wall Tee Junction	
BC05-B	External & Internal (LB) Wall Tee Junction	
BC05-C	External & Internal (NLB) Wall Tee Junction	
BC05-D	External & Separating Wall Tee Junction (FFCB)	
BC06-A	External Wall and Ground Slab Junction (vented slab)	
BC06-B	External Wall and Ground Slab Junction (non-vented s	
BC07-A	External Wall and Intermediate Floor Junction	
BC07-B	External Wall and Intermediate Floor Junction (FFCB)	
BC07-C	External Wall, Intermediate Floor, Penetration & Windo	
BC07-D	External Wall, Intermediate Floor, Penetration & Windo	
BC08-A	Parapet - Aluminium Flashing, Purlin Roof	
BC08-A1	Parapet - Aluminium Flashing, Purlin Roof (FFCB)	
BC09-A	Parapet - Aluminium Flashing, Composite Floor Roof	
BC09-A1	Parapet - Aluminium Flashing, Composite Floor Roof (F	
BC10-A	Door Threshold at Terrace	
BC22	Parapet - Membrane Flashing, Composite Floor Roof	
BC36	Juliet Balcony	
BC48	Pitched Roof Interface	
BC58	Gable End	
BC60	Parapet - Aluminium Flashing, Purlin Roof - Drain Outle	
BC75	Parapet - Membrane Flashing, Purlin Roof	
BC76	Parapet - Membrane Flashing, Purlin Roof (FFCB)	
BC79	Parapet - Membrane Flashing, Composite Floor Roof	
BC80	Parapet - Membrane Flashing, Composite Floor Roof (I	
BC88	Movement Joints	
IN10-A	External Wall Penetration	
INTERNAL WALL DETAILS		
Drawing No.	Description	
IN01-A	Separating Wall & Separating Floor Junction	
IN01-B	Internal Wall (LB) & Separating Floor Junction	
IN01-C	Internal Wall (NLB) & Separating Floor Junction	
IN02	Separating Wall & Purlin Roof Junction	
IN02-A	Separating Wall & Composite Floor Roof Junction	
IN03	Typical Door Frame	
IN04	Lift Shaft	
IN05	Stairs	
IN06	180 & 140 TH Beam Junctions	
IN07	Stairs quarter landing	
IN08	Letterboxing for services	
IN09	Electrical Sockets Guidance	
IN11	Separating Wall Ground Slab Junction (vented slab)	
IN11-A	Separating Wall Ground Slab Junction (non-vented sla	
IN13-A	Internal Wall (LB) Ground Slab Junction (vented slab)	
IN13-A1	Internal Wall (LB) Ground Slab Junction (non-vented s	
IN13-B	Internal Wall (LB) Ground Slab Junction (vented slab) -	
IN13-B1	Internal Wall (LB) Ground Slab Junction (non-vented s	
IN14-A	Internal Wall (LB) & Purlin Roof Junction	
IN14-B	Internal Wall (LB) & Composite Floor Roof Junction	58
IN15	Hot Rolled Beam - split span floor treatment	59

INSULATED RENDER EXTERNAL WALL DETAILS		
Drawing No.	Description	Page
BC11	Window - Head & Cill	60
BC12	Window - Jamb	61
BC13	90-degree corner & Separating Wall Junction	62
BC14	90-degree corner	63
BC15-A	External & Separating Wall Tee Junction	64
BC15-B	External & Internal (LB) Wall Tee Junction	65
BC15-C	External & Internal (NLB) Wall Tee Junction	66
BC17	External Wall and Intermediate Floor Junction	67
BC18	Parapet - Aluminium Flashing, Purlin Roof	68
BC21	Parapet - Aluminium Flashing, Composite Floor Roof	69
BC38	Juliet Balcony	70
BC61	Parapet - Aluminium Flashing, Purlin Roof - Drain Outlet	71
IN10-B	External Wall Penetration	72
COMPOSITE FAÇADE PANEL EXTERNAL WALL DETAILS		
Drawing No.	Description	Page
BC63	Window - Head & Cill	73
BC64	Window - Jamb	74
BC65	90-degree corner & Separating Wall Junction	75
BC66	90-degree corner	76
BC67	External & Separating Wall Tee Junction	77
BC70	External & Internal (LB) Wall Tee Junction	78
BC71	External & Internal (NLB) Wall Tee Junction	79
BC72	External Wall & Ground Slab Junction (vented slab)	80
BC73	Parapet - Aluminium Flashing, Purlin Roof - Drain Outlet	81
BC74	External Wall and Ground Slab Junction (non-vented slab)	82
RAINSCREEN CLADDING EXTERNAL WALL DETAILS		
Drawing No.	Description	Page
BC23	Window - Head & Cill	83
BC24	Window - Jamb	84
BC25	90-degree corner & Separating Wall Junction	85
BC26	90-degree corner	86
BC27	External & Separating Wall Tee Junction	87
BC28	External & Internal (LB) Wall Tee Junction	88
BC29	External & Internal (NLB) Wall Tee Junction	89
BC31	External Wall and Intermediate Floor Junction	90
BC32	Parapet - Aluminium Flashing, Purlin Roof	91
BC33	External Wall and Intermediate Floor Junction (Masonry to Rainscreen Interface)	92
BC35	Parapet - Aluminium Flashing, Composite Floor Roof	93
BC40	Juliet Balcony	94
BC62	Parapet - Aluminium Flashing, Purlin Roof - Drain Outlet	95
IN10-C	External Wall Penetration	96

System Specific Fire Testing

Structural Walls

- Internal
- External - In to Out
- External - Out to In

Loaded Separating & Intermediate Floors

Indicative Testing Ceiling Interaction of Elements

- Ceiling Protection
- Firestopping
  - Interaction of Elements

Column Tests

- Fully Loaded

Service Penetrations & Cavity Barrier

- TGD 19 Open State
- BS 476 Part 20 Closed State Cavity Barriers

Fire Test Configurations in NSAI Agrement Certs

- NSAI Agrement certs contain a Fire Table which outlines a **selection of Fire tests** carried out by the manufacturer.

- They typically show one fire test configuration for each element of construction to match the requirements of Table 31 and Table 32 of TGD Part B 2024 *(External & Internal walls, Separating walls, Intermediate and Separating floors*)

- This Fire Table is not intended to outline the complete list of Fire tests carried out, nor is it intended to restrict a manufacturer to only offer these configurations, as is outlined with the following statement

Notes:

- The above build-ups are summaries of those tested to the referenced standards – they should not be taken as an exhaustive list. For full details of test reports, the Certificate holder should be contacted.

- It is also significant that most NSAI certs also contain the following statement

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

Table 4: Fire Protection Requirements for Wall, Floor and Ceiling Elements

Type	Element:	Test Standard	Results	Purpose Class
	External Loadbearing Walls			
1	LGS C-Studs (90mmx47mmx1.2mm) with 1No. layer 12.5mm Type F plasterboard fixed to the fire side face and 70mm PIR Insulation fixed to the non-fire side with 100mm stone mineral wool insulation between the LGS studs. 2 No. Double Sockets were also fitted on the Fire Side.	IS EN 1365-1: 2012	30 mins from inside	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
2	LGS C-Studs (90mmx47mmx1.2mm) with 2No. layers 12.5mm Type F plasterboard fixed to the fire side face and 2 No. layer 12.5mm Type F plasterboard fixed to the non-fire side with 100mm stone mineral wool insulation between the LGS studs. 2 No. Double Sockets were also fitted on the Fire Side.	IS EN 1365-1:2012	60 mins from exposed side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
3	LGS C-Studs (90mmx47mmx1.2mm) with 3No. Layers of 12.5mm Type F Plasterboard fixed to the fire side face and 75mm of Rockwool Duo Slab fixed to the non-fire side face with 100mm Stone Mineral Wool insulation between the LGS studs. 2 No. Double Sockets were also fitted on the Fire Side.	IS EN 1365-1:2012	90 mins from exposed side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
	Internal Loadbearing Walls			
4	LGS C-Studs (90mmx47mmx1.2mm) with 1No. layer 12.5mm Type F plasterboard fixed to the fire side face and 1No. layer 12.5mm Type F plasterboard fixed to the non-fire side with 100mm stone mineral wool insulation between the LGS studs. 2 No. Double Sockets were also fitted on the Fire Side.	IS EN 1365-1: 2012	30 mins from inside	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
5	LGS C-Studs (90mmx47mmx1.2mm) with 2No. layers 15mm Type F plasterboard fixed to the fire side face and 2 No. layer 15mm Type F plasterboard fixed to the non-fire side with 100mm stone mineral wool insulation between the LGS studs. 2 No. Double Sockets were also fitted on the Fire Side.	IS EN 1365-1:2012	60 mins from exposed side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
6	LGS C-Studs (90mmx47mmx1.2mm) with 3No. Layers of 12.5mm Type F Plasterboard fixed to the fire side face and 3No. Layers of 12.5mm Type F Plasterboard fixed to the non-fire side face with 100mm Stone Mineral Wool insulation between the LGS studs. 2 No. Double Sockets were also fitted on the Fire Side.	IS EN 1365-1:2012	90 mins from exposed side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
	Separating Walls			
7	**Twin Frame Wall** 2 No. Layers of 15mm Type F plasterboard fixed to the fire side face of the LGS C-Studs (90mmx47mmx1.2mm) with 100mm stone mineral wool insulation between the LGS studs. 40mm cavity, LGS C-Studs (90mmx47mmx1.2mm) insulation between the LGS studs with 2 No. Layers of 15mm Type F plasterboard fixed to the fire side face of the LGS studs.	IS EN 1365-1:2012	60 mins from exposed side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
8	**Twin Frame Wall** 3 No. Layers of 12.5mm Type F plasterboard fixed to the fire side face of the LGS C-Studs (90mmx47mmx1.2mm) with 100mm stone mineral wool insulation between the LGS studs, 40mm cavity, LGS C-Studs (90mmx47mmx1.2mm) insulation between the LGS studs	IS EN 1365-1:2012	90 mins from either side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
	the fire side face of the LGS studs.			
	Compartment Floors: Loaded Floors Joist or Truss			
9**	**Floor supporting an Imposed Load of 1.5kN/m²** 1No. layer of 12.5mm standard plasterboard, onto LGS Top Hat sections to form service cavity, onto 2no. layers of 12.5mm Type F plasterboard, onto 250mm LGS Floor Trusses at 400mm centres, with 150mm stone mineral wool between the trusses, with 18mm OSB3 floor deck screwed to the top of the floor trusses.	IS EN 1365-2:2014	60 mins from below ceiling level	1(a), 1(b), 1(c), 1(d), 2(b), 3, 4(a) and 5
	Compartment Floors: Loaded Floors Composite Metal Deck			
10	**Loaded Floor supporting Imposed Load of 2.0kN/m²** 140mm normal weight concrete with 0.9mm Comflor 60 (CF60). Concrete reinforced with 12mm diameter bar in trough with nominal 30mm cover and A193 Mesh with a minimum 30mm cover to the top of the reinforcing mesh – 4500mm span propped at centre of span.	Eurocode Design	30 mins from below deck	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
11	**Loaded Floor supporting Imposed Load of 2.0kN/m²** 160mm normal weight concrete with 1.2mm Comflor 60 (CF60). Concrete reinforced with 12mm diameter bar in trough with nominal 30mm cover and A252 Mesh with a minimum 30mm cover to the top of the reinforcing mesh 5250mm span propped at centre of span.	Eurocode Design	60 mins from below deck	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
12	**Loaded Floor supporting Imposed Load of 2.0kN/m²** 160mm normal weight concrete with 1.2mm Comflor 60 (CF60). Concrete reinforced with 16mm diameter bar in trough with nominal 30mm cover and A252 Mesh with a minimum 30mm cover to the top of the reinforcing mesh 5250mm span propped at centre of span.	Eurocode Design	90 mins from below deck	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
13	**Loaded Floor supporting Imposed Load of 2.0kN/m²** 160mm normal weight concrete with 1.2mm Comflor 60 (CF60). Concrete reinforced with 16mm diameter bar in trough with nominal 30mm cover and A252 Mesh with a minimum 30mm cover to the top of the reinforcing mesh 3650mm span propped at centre of span.	Eurocode Design	120 mins from below deck	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5

Notes:

- Type F plasterboard refers to the particular type of plasterboard tested in the respective fire tests and the details are available directly from Metal Frame Construction.
- Stone mineral wool refers to the particular type and density of stone mineral wool used in a particular fire test and the details are available directly from Metal Frame Construction.
- All wall tests were completed without the joints being taped and jointed.
- For alternative approaches to fire safety requirements, refer to 0.2 of TGD B 2006 of the Building Regulations 1997 to 2019.

* Non-loadbearing wall fire resistance data is provided from the Load Bearing Test Data and can be utilised under the Field of Direct application whereby the load can be decreased on the specimen.

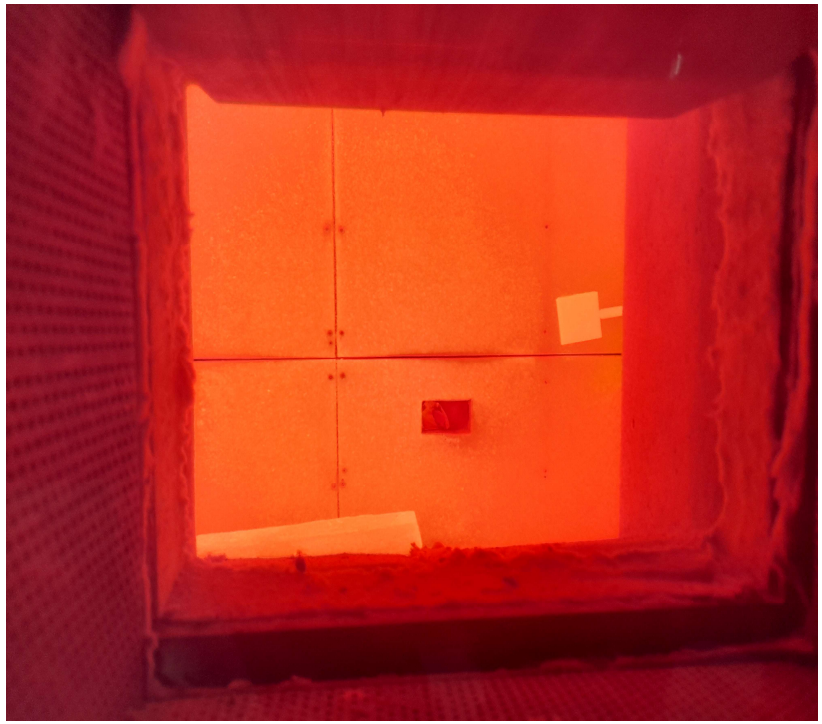
** Purpose Class 2(a) is removed from the construction in compliance with 3.2.5.1 of TGD B 2006 of the Building Regulations 1997 to 2019.

Typically Stages in a Loaded Fire Test

- Unexposed Face

Exposed Face

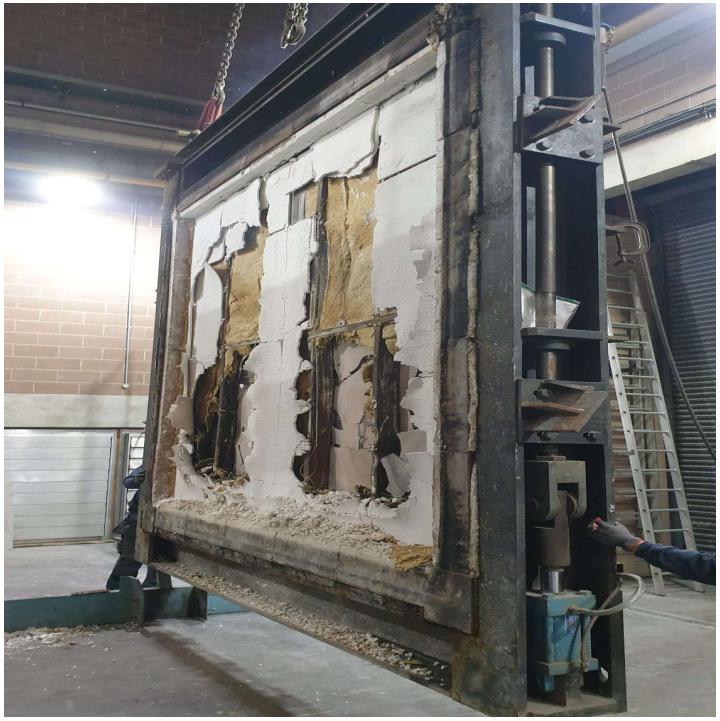
View within Furnace



Typically Stages in a Loaded Fire Test Continued

- During Test

Exposed Face After Test



Unexposed Face After Test

Technical Manuals to support NSAI Agrement Certification

- The building systems Technical manuals are intended to be used in conjunction with and to support NSAI Agrement Certificates
- They will contain the most current and in-depth technical information on the certified building system
- NSAI have recently started to add the following statement, to highlight the importance of these manuals which supplement the NSAI cert itself

> This Certificate does not contain a complete set of installation instructions, but an overview of the procedures involved. For a full list of these instructions, refer to the Certificate holder's Installation Manual[15]. Should a conflict arise between this Certificate and the Certificate holder's manuals, this Certificate shall take precedence.

Technical System Manual

System Manual TOC

Date:	Jan/26
Revision:	003
Doc Ref:	CGSM
Approved by:	EM

Contents

Installation Manual

Installation Manual TOC

Date:	June/25
Revision:	002
Doc Ref:	CGSM
Approved by:	EM

Contents

USING AN AGRÉMENT CERTIFICATE

NSAI Agrément Certificate

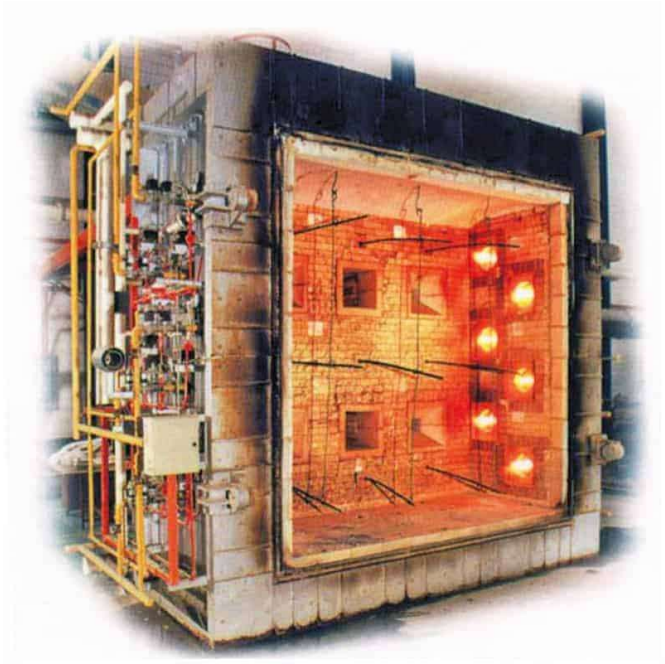
- Not a replacement for a National Standard
- Can appear limited - relatively short document
- Some details in the actual building design may be variations of details in the Certificate
- These details can be used if compliant and not a major deviation from the details in the Certificate
- Equivalent materials may be used
- Published certified systems evolve and the system manufacturer has the responsibility of carrying out appropriate confirmation testing

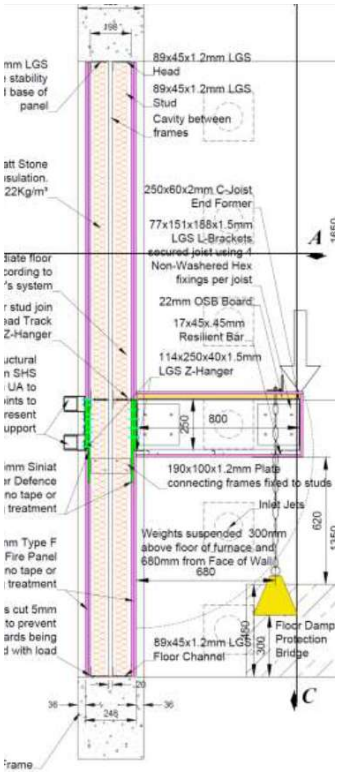
Design Team Responsibilities

- The design team must be fully familiar with the system as a whole, not just the Ag Cert. (manuals, technical details, etc.)
- All members of the design team must be aware of their responsibility
- Must be competent in incorporating variations from the details in the certificate
- Throughout the design process, designers must fully engage with the system manufacturer to ensure the building is designed in accordance with the building regulations.
- Must have a proper understanding of design freeze

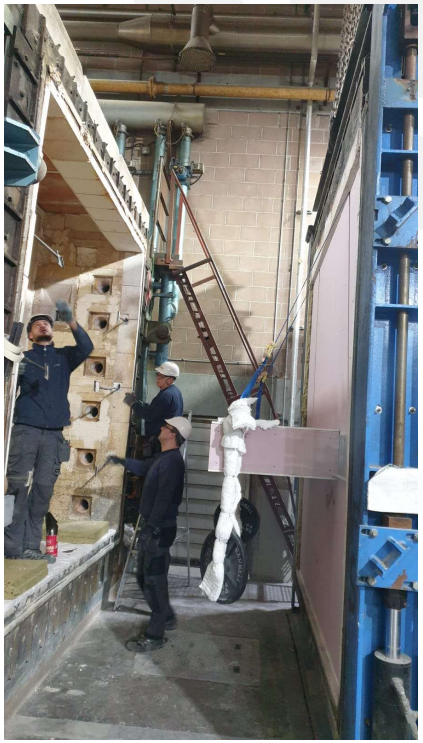
INTERACTIVE WALL & FLOOR

EN 1365 - 1



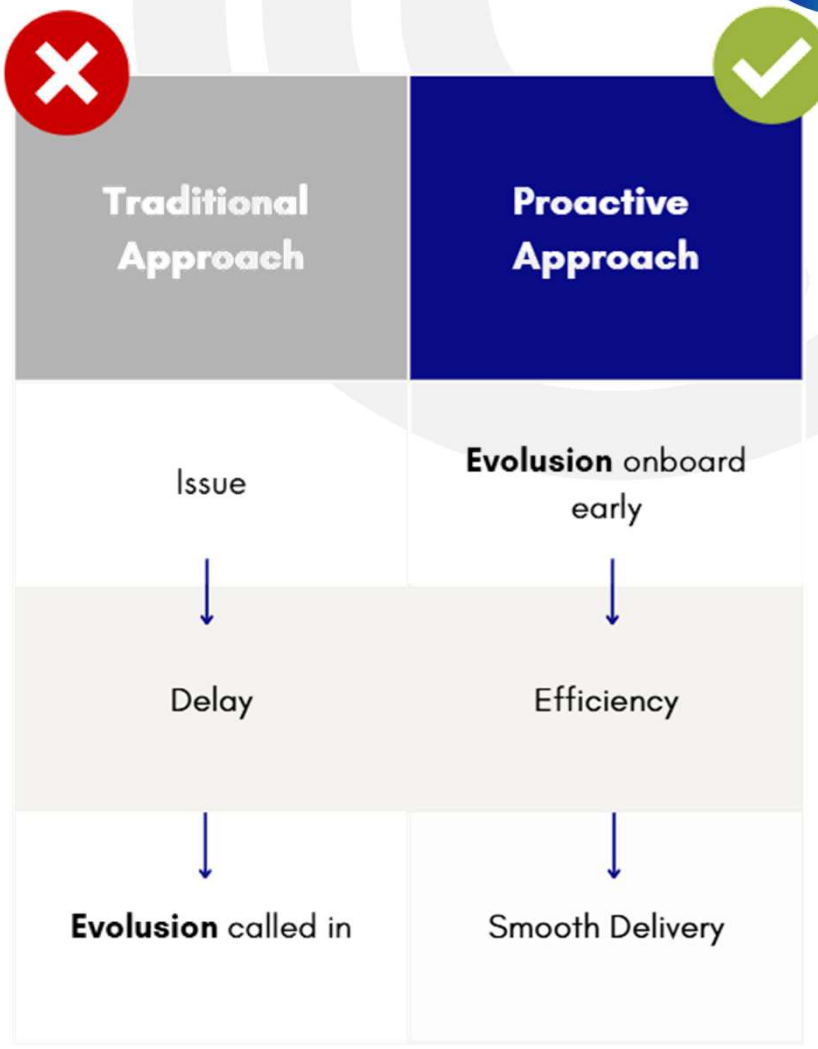


Fire Test Specimen



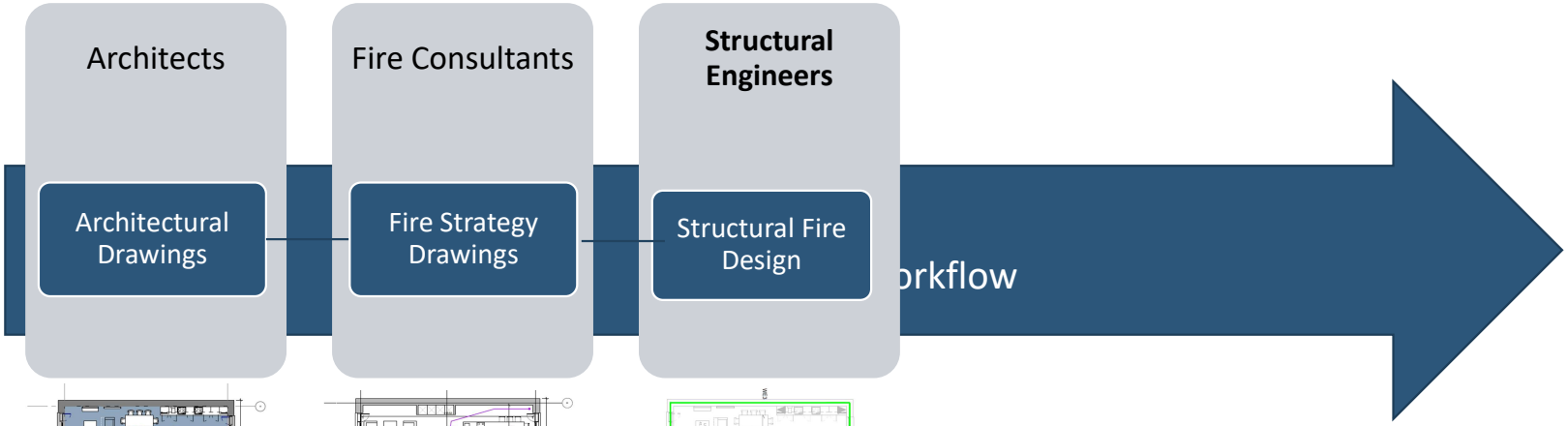
EARLY ENGAGEMENT

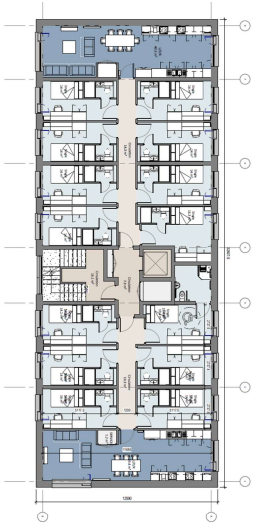
- Technical challenges and design flaws are often discovered mid-project, causing **costly delays** and **rework**.
- Contractors end up firefighting instead of delivering smoothly because specialists consultants like EI are brought in ***too late***.
- ***Early Technical Involvement*** can often prevent issues entirely and enable smoother project delivery, reduction of overheads and maintain client satisfaction.

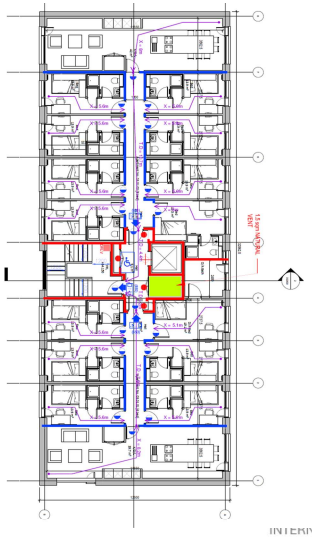


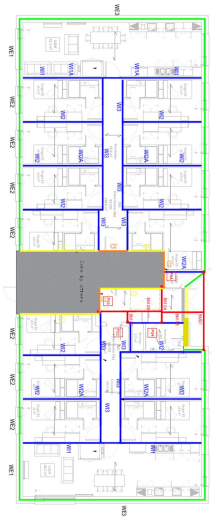
Current Design Workflow

Fire Consultants and Structural Engineers do not collaborate









Fire consultants are not provided with structural drawings

Structural engineers are not provided with minimum periods of fire resistance for elements of structure

Proposed Design Workflow

Internal load bearing walls exposed to fire

Architects	Structural Engineers	Fire Consultants	Structural Engineers
Architectural Drawings	Identification of Elements of Structure	Fire Strategy Drawings	Structural Fire Review

One Side Separately

Exposed sides Simultaneously

Structural Engineers

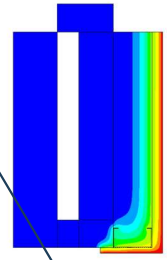
Fire Resistance Verification of Elements of Structure *

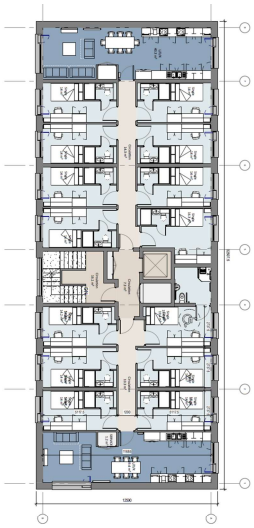
*Based on Fire Tests

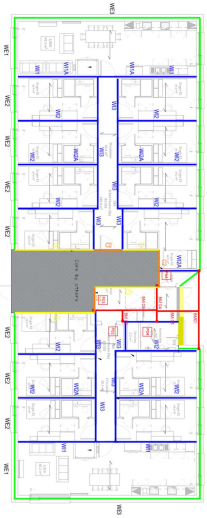
Structural Fire Experts

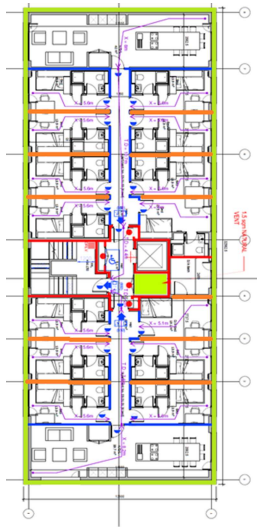
Fire Resistance Assessment of Elements of Structure **

**Based on Heat Transfer Models calibrated with Fire tests and third party verified







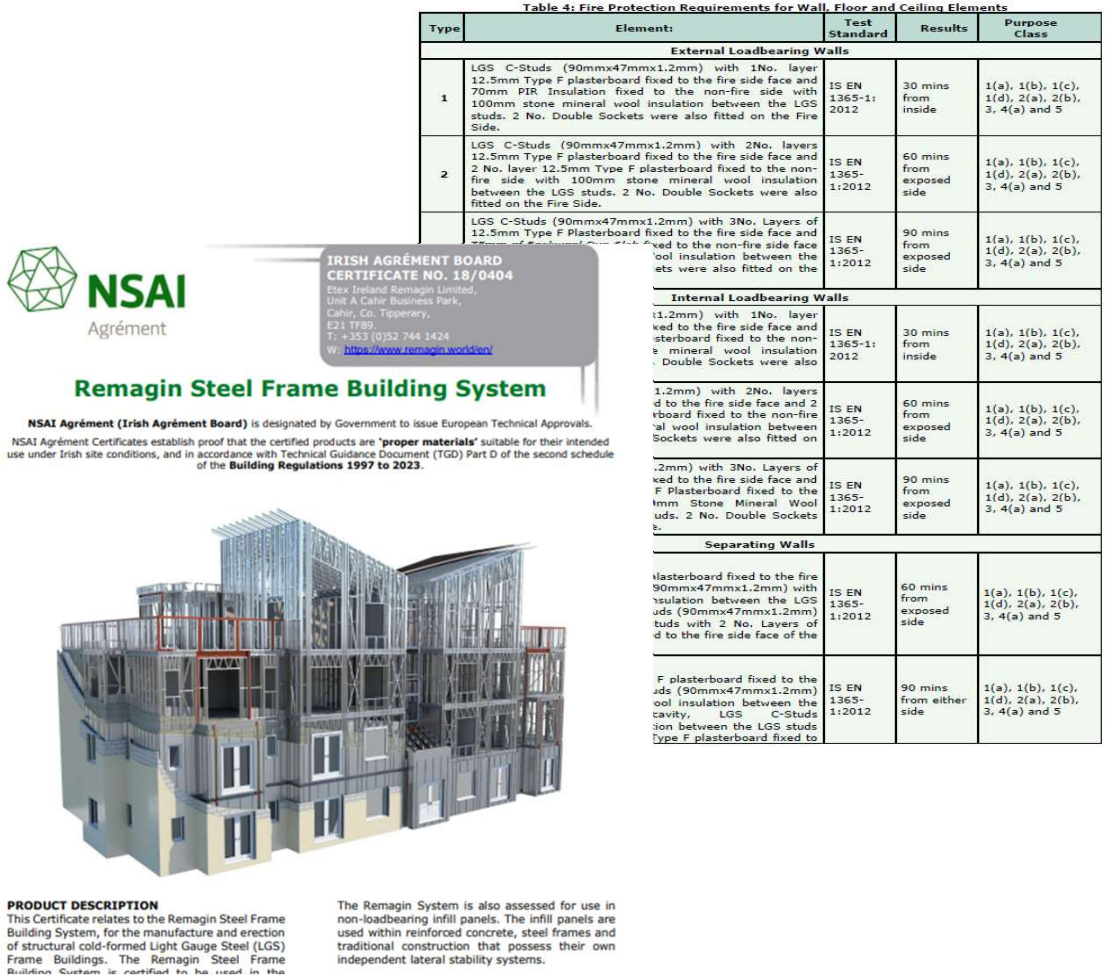


Fire consultants are provided with structural drawings

Structural engineers are provided with minimum periods of fire resistance for elements of structure

Boarding Installation Inspections

- Ensure the material and fixing specifications outlined in the NSAI Certificate Fire table are being adhered to
- Ensure the highest levels of installation workmanship are being achieved
- Help identify and rectify common site errors that would otherwise go unnoticed.
- Provide evidence that the fire-rated system is correctly installed, reducing liability.



NSAI Agrément

IRISH AGRÉMENT BOARD
CERTIFICATE NO. 18/0404
Etex Ireland Remagin Limited,
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Cahir, Co. Tipperary,
E21 TF89.
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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 2023**.

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

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.

Table 4: Fire Protection Requirements for Wall, Floor and Ceiling Elements

Type	Element:	Test Standard	Results	Purpose Class
External Loadbearing Walls				
1	LGS C-Studs (90mmx47mmx1.2mm) with 1No. layer 12.5mm Type F plasterboard fixed to the fire side face and 70mm PIR Insulation fixed to the non-fire side with 100mm stone mineral wool insulation between the LGS studs. 2 No. Double Sockets were also fitted on the Fire Side.	IS EN 1365-1: 2012	30 mins from inside	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
2	LGS C-Studs (90mmx47mmx1.2mm) with 2No. layers 12.5mm Type F plasterboard fixed to the fire side face and 2 No. layer 12.5mm Type F plasterboard fixed to the non-fire side with 100mm stone mineral wool insulation between the LGS studs. 2 No. Double Sockets were also fitted on the Fire Side.	IS EN 1365-1:2012	60 mins from exposed side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
	LGS C-Studs (90mmx47mmx1.2mm) with 3No. Layers of 12.5mm Type F Plasterboard fixed to the fire side face and xed to the non-fire side face ool insulation between the ets were also fitted on the	IS EN 1365-1:2012	90 mins from exposed side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
Internal Loadbearing Walls				
	1.2mm) with 1No. layer xed to the fire side face and sterboard fixed to the non- mineral wool insulation Double Sockets were also	IS EN 1365-1: 2012	30 mins from inside	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
	1.2mm) with 2No. layers d to the fire side face and 2 rboard fixed to the non-fire al wool insulation between Sockets were also fitted on	IS EN 1365-1:2012	60 mins from exposed side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
	.2mm) with 3No. Layers of xed to the fire side face and F Plasterboard fixed to the mm Stone Mineral Wool uds. 2 No. Double Sockets s.	IS EN 1365-1:2012	90 mins from exposed side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
Separating Walls				
	lasterboard fixed to the fire 90mmx47mmx1.2mm) with nsulation between the LGS uds (90mmx47mmx1.2mm) tuds with 2 No. Layers of d to the fire side face of the	IS EN 1365-1:2012	60 mins from exposed side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5
	F plasterboard fixed to the uds (90mmx47mmx1.2mm) ool insulation between the cavity, LGS C-Studs ion between the LGS studs Type F plasterboard fixed to	IS EN 1365-1:2012	90 mins from either side	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 5

- Boarding Schedule drawings are created, based on the structural layout and FSC drawings
- Installers work off the boarding schedule to ensure each wall is boarded and insulated with the correct material specifications which are inline with the fire test specifications.
- Onsite Boarding Inspections are carried out on a specific area of the project to agree the standard of workmanship required and use it as a Benchmark going forward.

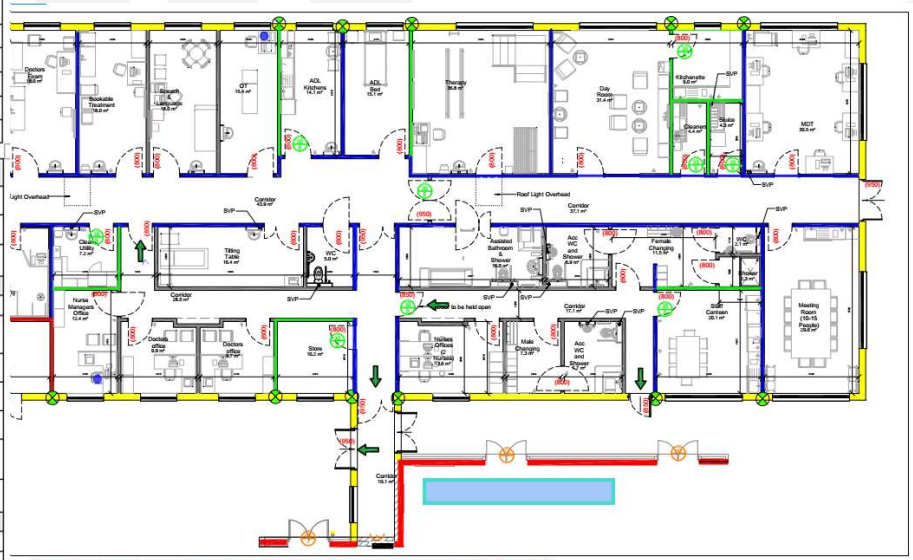
Onsite Boarding Induction

Project:	**Contactor Name:** **Contact Details:**
Date:	
Inductor:	**Board Brand/Manufacturer used:**

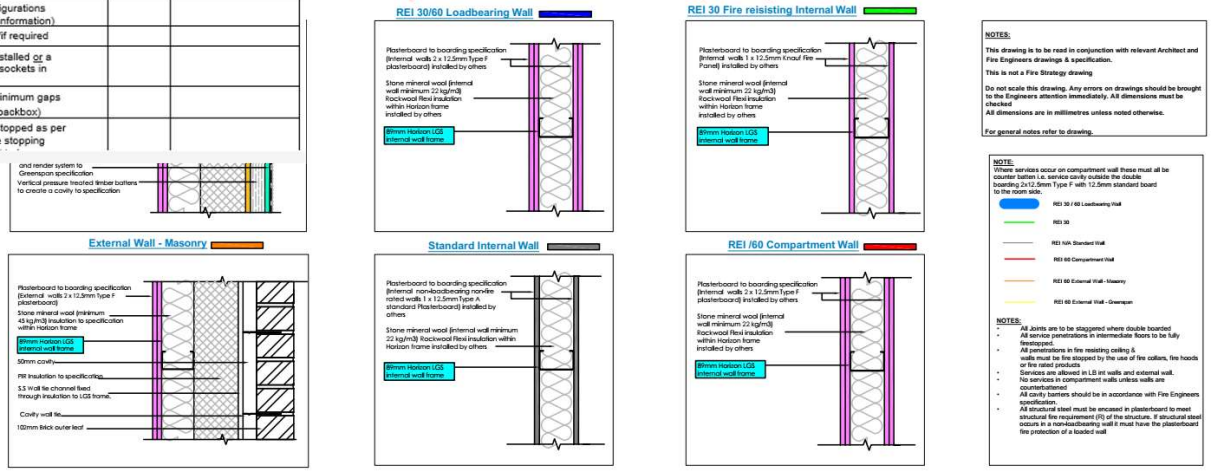
The following persons are confirming their attendance at the stated boarding induction and were briefed and understand information outlined in the checklist below.

Print Name:	Company:	Signature:

	Pre-Boarding Checklist	Check if discussed	Comments
1	Insulation installed correctly and to specifications of relevant fire test. (Note density and thickness)		
2	Stud size as per design and fire testing specifications		
3	Boarding brand/manufacturer used is as per specifications. (Note board name and thickness)		
	Boarding Checklist		
4	All sheet edges fixed over LGS stud support (grounds)		
5	Plasterboard fixings correctly spaced in accordance with fire test specifications. (Note spacing distances)		
6	Plasterboard joints are staggered between layers (Vertically and Horizontally)		
7	Door Reveals double boarded to same specifications of wall they are installed in.		
8	Window Reveals double boarded to same specifications of wall they are installed in.		
9	Plasterboard abuts tight to underside of steel deck were applicable. Gaps are kept to a minimum and are filled with intumescent sealant where they occur.		
10	Junction of plasterboard on partition and plasterboard on ceiling is tightly abutted and layers are stepped		
	Service Penetrations		
11	Letter box details are double boarded on reveals		
12	Penetrations to Letterbox's are fire stopped were required		
13	Electrical socket locations comply with tested configurations (Remagin design team to be consulted for further information)		
14	Electrical sockets have putty pads installed where/if required		
15	Back-to-back electrical sockets have putty pads installed or a layer of 12.5mm Class A2 board between back of sockets in compliance with details		
16	Cut outs in plasterboard for sockets is neat with minimum gaps (Minimum 5mm engagement of plasterboard and backbox)		
17	Penetrations from service pipes are correctly fire stopped as per specifications and where required. (Proprietary fire stopping		



Note: Boarding schedule does not take into account Acoustic requirements (Resilient Bar)



MMC Construction Research Group
Standardize Project

Project Objectives

1. Identify industry need for standardized details/Performance
2. Production of standardized MMC construction details based on EN standard testing
3. Identify industry performance & durability requirements (Parts A-M)
4. Opensource publication of test data and verification of performance to simplify and widen access to MMC

Evolusion have been at the forefront of the Standardize Project Workshop group that have been providing feedback and guidance to the Standardize Project Team in helping shape the project's direction.

The resultant Standardize Project research report identified **Category 2: Light Gauge Steel (LGS) as the building system** to be advanced under the initiative

Evolusion will continue to support the project going forward in helping develop the test program and in terms of Building Regulation compliance, leading to the eventual opensource publication

EVOLUSION INNOVATION

Construct Innovate
Built Environment Research Ireland

UCD DUBLIN

Ollscoil na Gaillimhe University of Galway

An Roinn Fiontar, Trádála agus Fostaíochta
Department of Enterprise, Trade and Employment

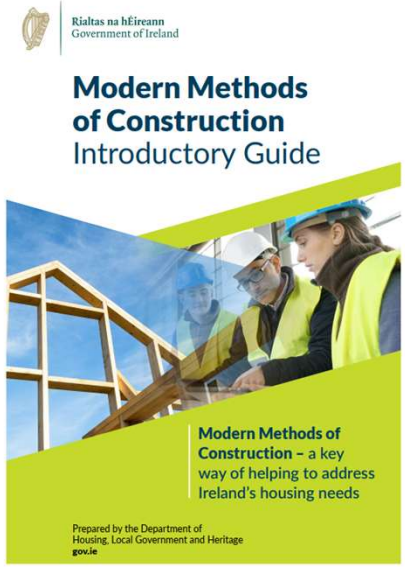
An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

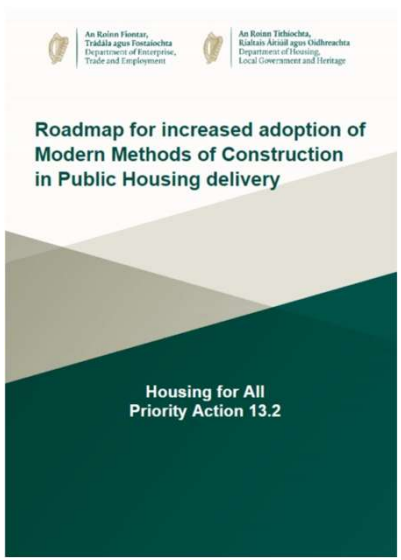
Enterprise Ireland

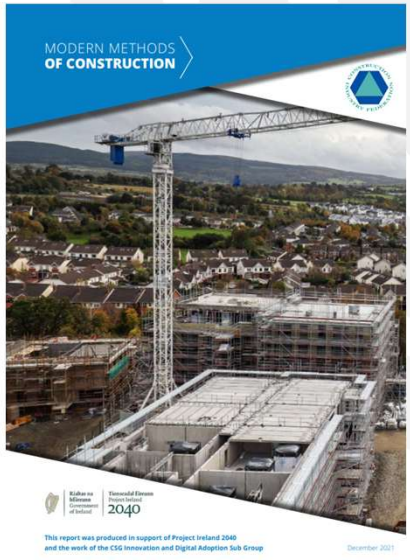
Conclusions

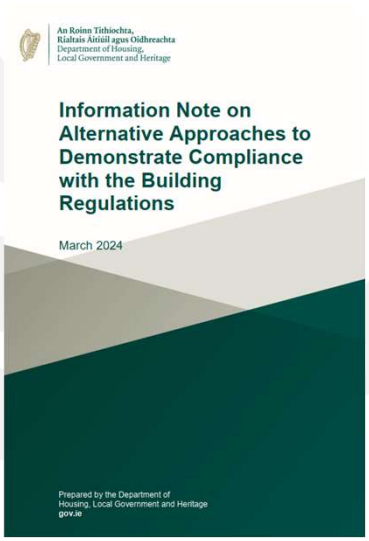
- Agrément Certificates are interim technical assessments in the absence of a I.S/EN standard with demonstrating how it should be manufactured and designed so it can be in compliance with Building Regulations.
- We need to develop comprehensive National Standards for:
  - LGS Steel Frame Cat 2
  - Insulated Concrete Formwork Cat 2
  - Modular Construction Cat 1
  - CLT
- This will help grow the market from both a supply chain and wider adoption from all the professions involved in the development and design of projects.
- Clear guidance is required for external claddings that are alternatives to brick & block construction as this is one of the biggest barriers to innovation and the growth of MMC. There is clear guidance in the UK with demonstrating compliance when using alternative claddings and we need the same in Ireland and we do not need to reinvent the wheel

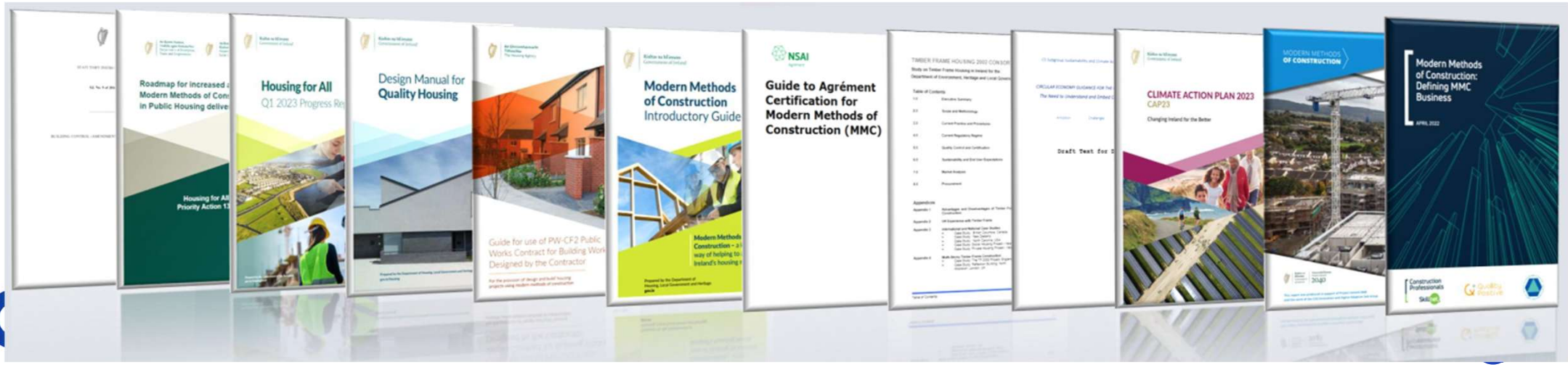
Government Guidance Documents published for MMC



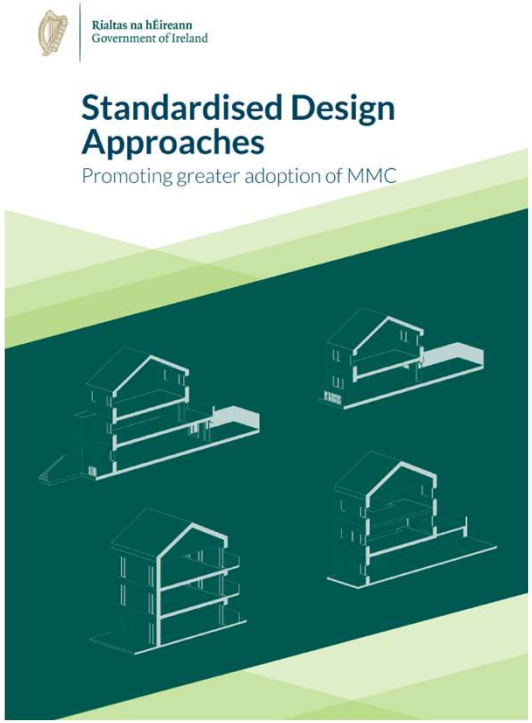


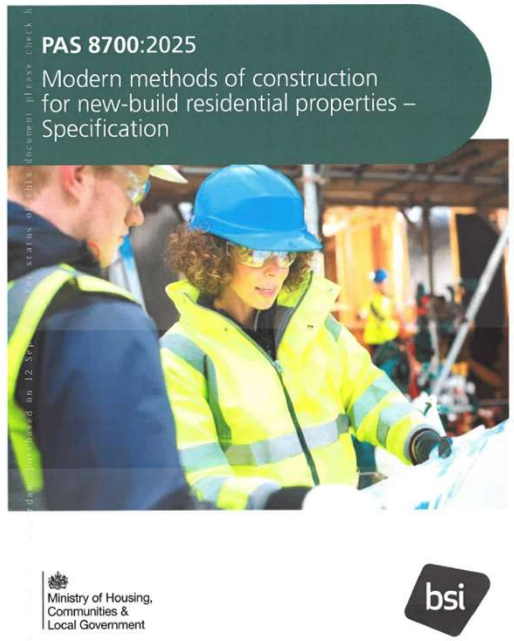






Important publications





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