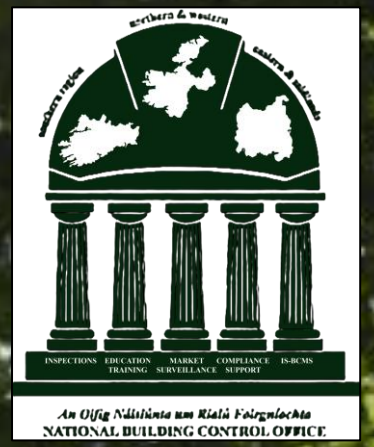
NBC & MSO CPD Day–
‘MMC - A MET Perspective’

D/RES

Making life remarkable



OVERVIEW

Overview

- Ireland's leading private sustainable residential developer
- Institutional and state-backed development
- 2,000 units delivered to date in the Irish market
- Secure pipeline with capacity for 5,000 units
- 2,697 units in active planning
- 398 units under construction

Focus Areas

Private Housing

Social & Affordable Housing

Private & Cost Rental Apartments

Development Finance Partners

AIB

HBFI Home Building Finance Ireland

Bank of Ireland

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Ciste Infheistíochta Straitéisí d'Éirinn
Ireland Strategic Investment Fund

UNITS UNDER DEVELOPMENT

80
FTE
Employees

ALTIDORE — GARDENS
Tinakilly Park
Bellevue DELGANY
Cherry Lane
EASTMOUNT DELGANY
BALLINAHINCH WOOD ASHFORD, CO WICKLOW

COMPLETED UNITS

2021**	2022	2023	2024	2025
206	369	168	460	303

CURRENT ACTIVITY

TOTAL DELIVERED
2,000

UNDER CONSTRUCTION
400

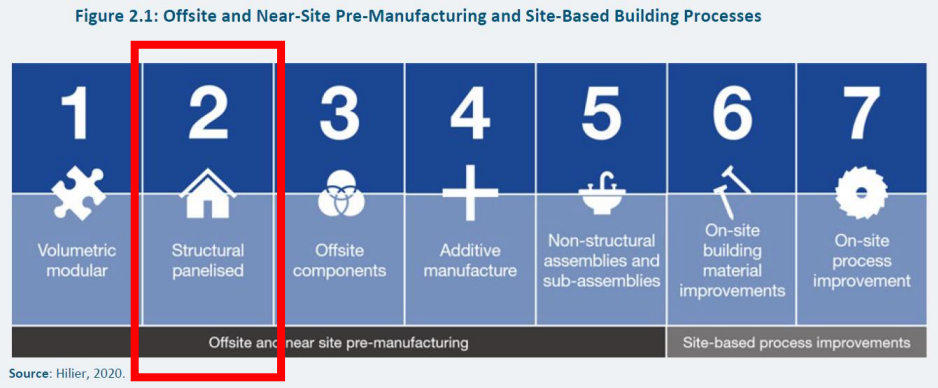
UNITS WITH PLANNING
393

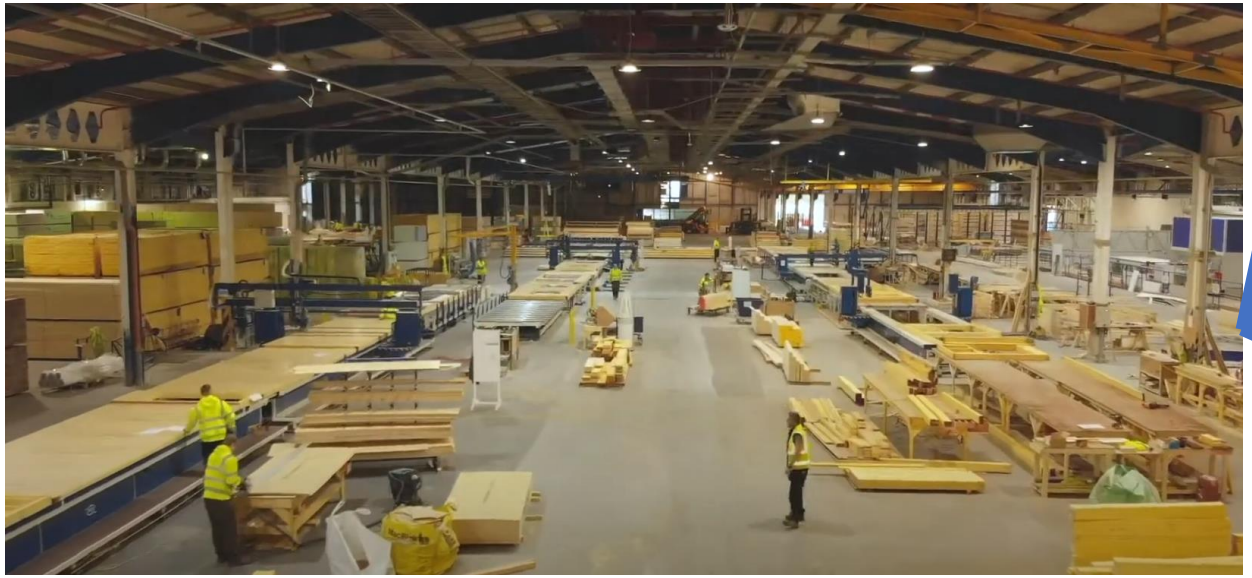
CURRENTLY IN ACTIVE PLANNING
2,697

95%
Timber Frame Construction

* Excluding sales from Cherrywood. ** D/RES sites were closed from December 2020 to April 2021 due to COVID-19

TIMBER FRAME HOUSING – MMC CATEGORY 2

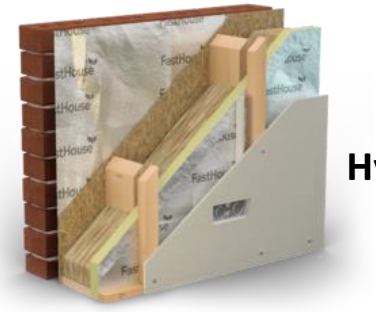




Off-site Pre-Manufactured Components

Roof Cassette

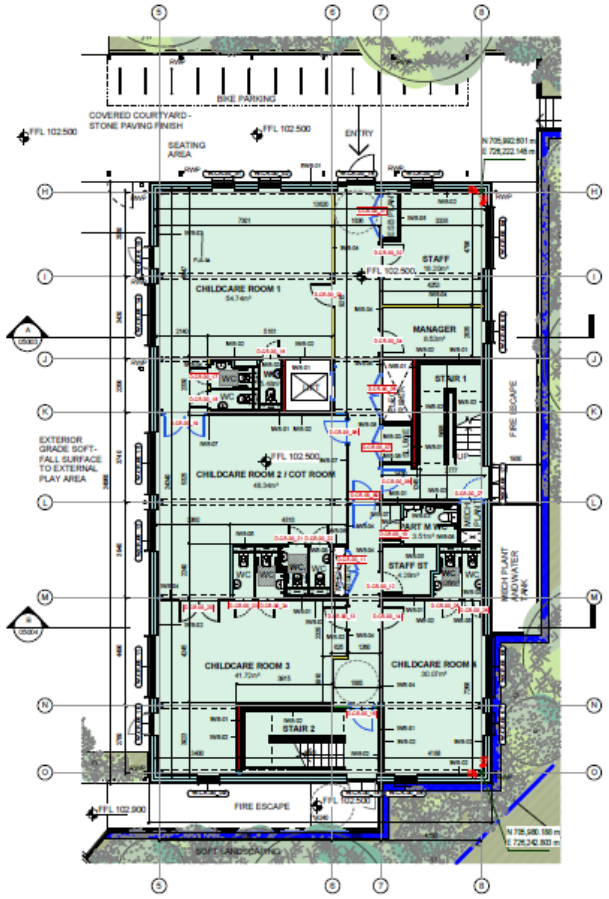
I-Joist



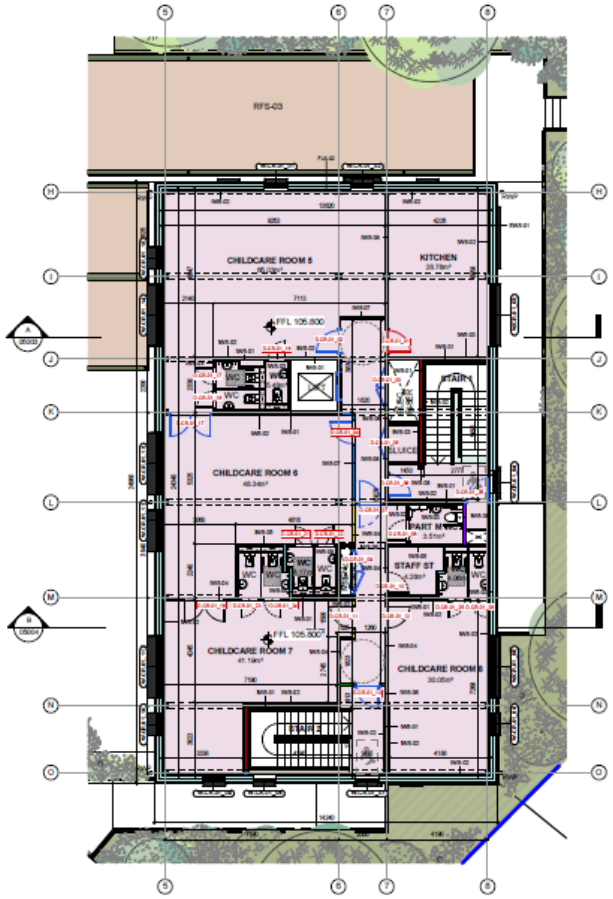
Hybrid Wall


Creche & Community Centre

CRECHE LAYOUTS



00 Creche Ground Floor
1 : 100



01 Creche Level 01
1 : 100

LEGEND

EWS - External Wall Systems

EWS-01	Render Finish on Insulation with CLT Structure (350mm)
EWS-02	Exterior Render on Blockwork outer leaf, 100mm cavity with Blockwork Inner Leaf (425mm) (Refuse Store & ESB Substation)
EWS-03	Blockwork Wall (215mm)

IWS - Internal Wall Systems

IWS-01	CLT Wall (100mm)
IWS-02	Wall Lining System (Non FR) (63mm)
IWS-03	Wall Lining System (Non FR) (Moisture Resistant) (63mm)
IWS-04	Timber Stud Partition System (Non FR) (115mm)
IWS-05	Timber Stud Partition System (Non FR) (Moisture Resistant) (115mm)
IWS-06	Timber Stud Partition System (60 min FR) (140mm)
IWS-07	Timber Stud Partition System (30 min FR) (115mm)
IWS-08	Timber Stud Partition System (60 min FR) (Moisture Resistant) (140mm)
IWS-09	Timber Stud Partition System (30 min FR) (Moisture Resistant) (115mm)
IWS-10	Tile Finish (15mm)

FLS - Floor Systems

FLS-01	Forbo Marmoleum 2.5mm Flooring on Concrete Screed, Insulation, and Concrete Slab (Ground Floor - Community Centre)
FLS-02	Forbo Marmoleum Decibel 3.5mm 18dB Flooring on Fibreboard, Timber Joists, and CLT Slab (First Floor)
FLS-03	Forbo Marmoleum 2.5mm Flooring on Concrete Screed, Insulation, and Concrete Slab (Ground Floor - Creche)

RFS - Roof Systems

RFS-01	Pitched Roof - Greencoat Sinusoidal Profile Metal Roof
RFS-02	Pitched Roof - Bauder XF301 Lightweight Sedum System Green Roof
RFS-03	Flat Roof - Metal Comflor Deck Roof
RFS-04	Flat Roof of Substation / Refuse Store - Concrete Slab with Stone Ballast

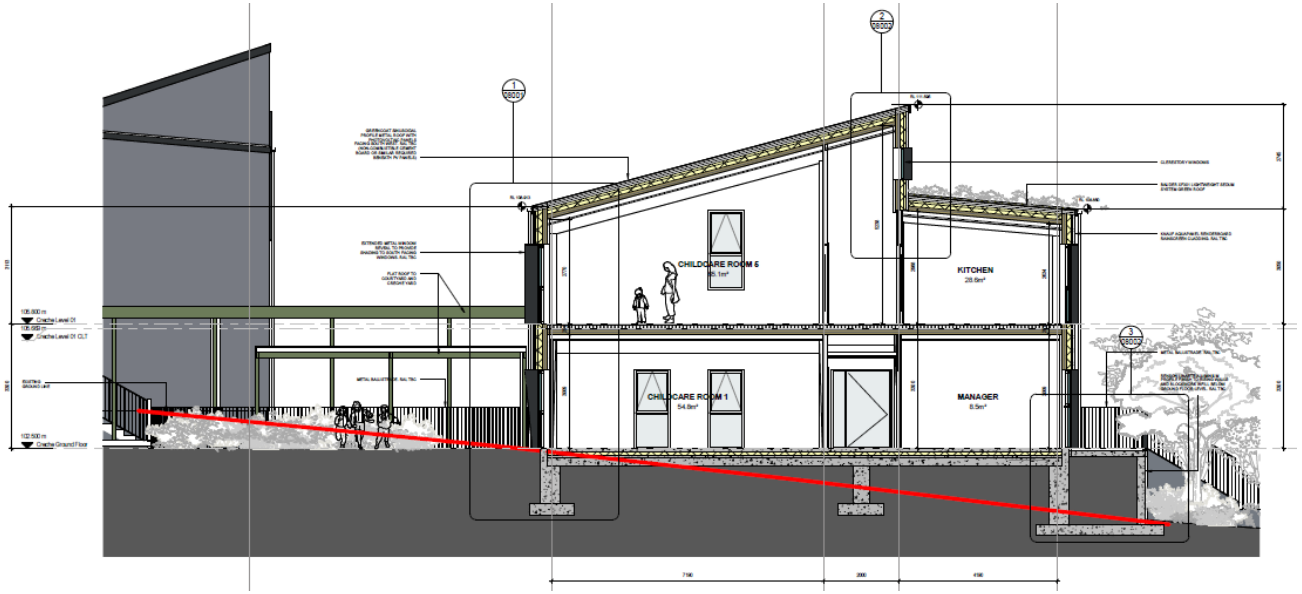
CLG - Ceiling Systems

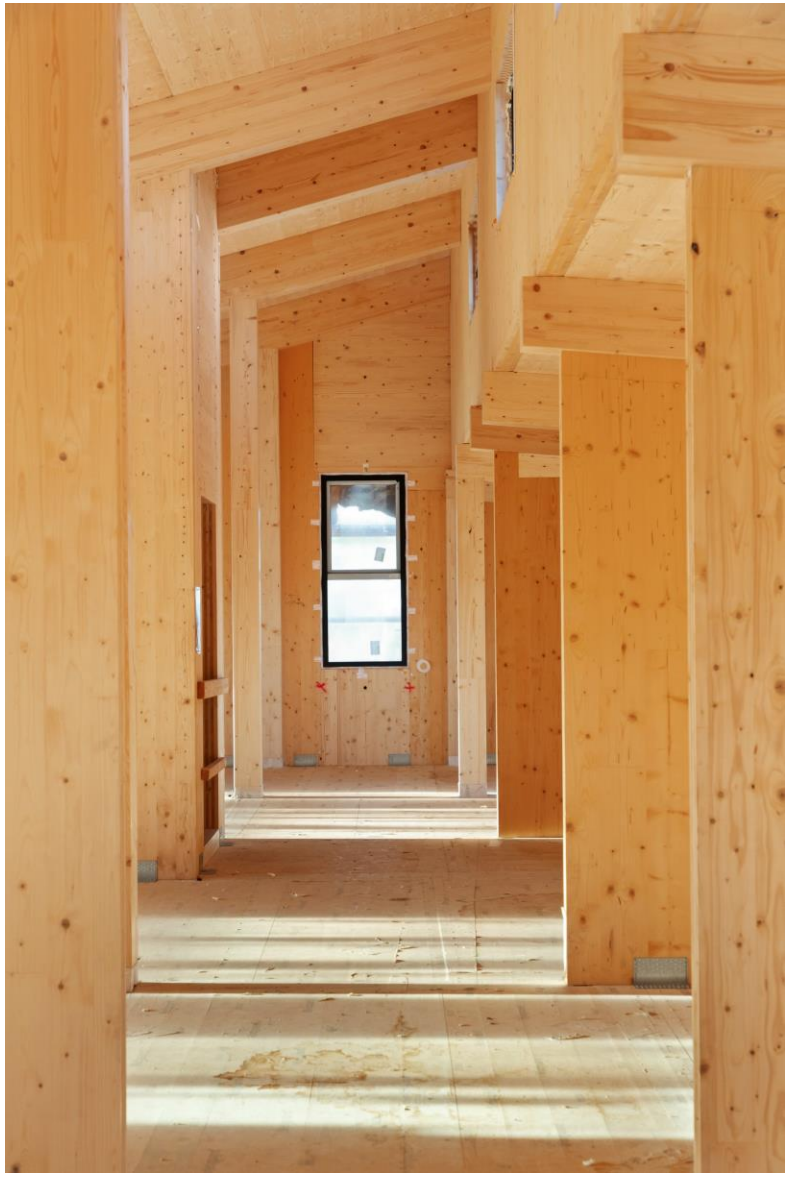
CLG-01	Lignotrend LIGNO Acoustic Light Ceiling
CLG-02	Suspended Ceiling
CLG-03	Moisture Resistant Suspended Ceiling

Doors

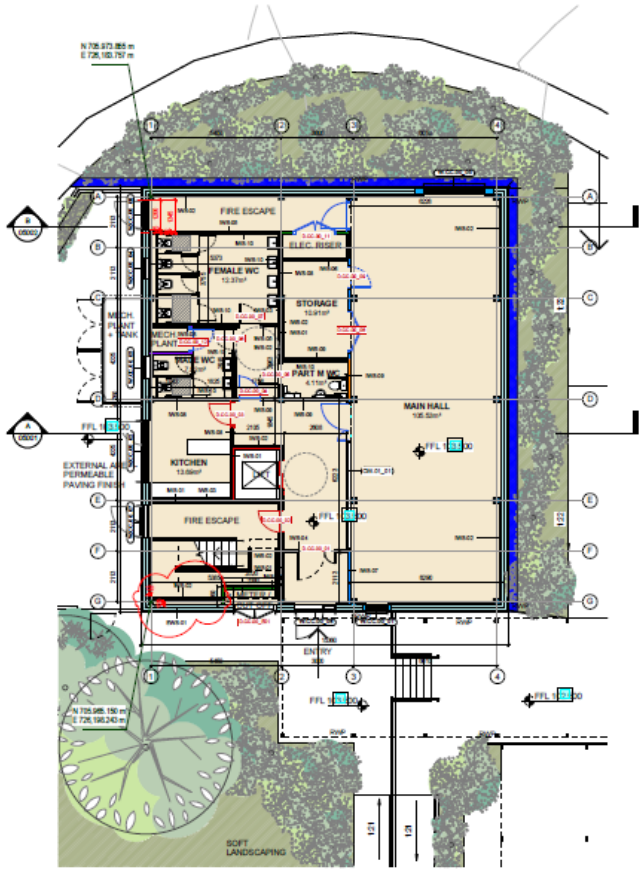
	60 Min FR Door
	30 Min FR Door
	Non-FR Door

CRECHE SECTIONS & SUPERSTRUCTURE

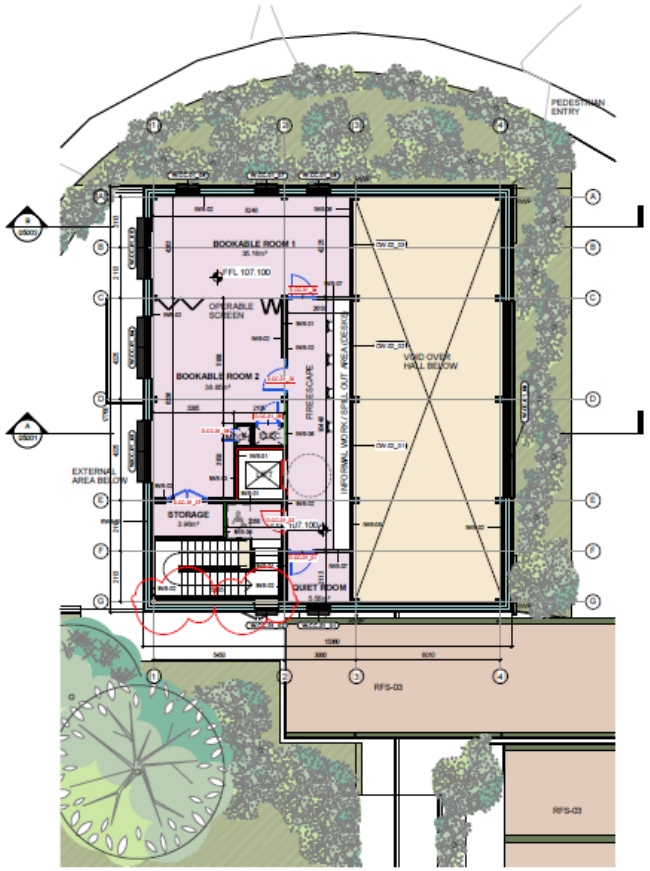




COMMUNITY CENTRE LAYOUTS



00 Community Centre Ground Floor
1 : 100



01 Community Centre Level 01
1 : 100

LEGEND

EWS - External Wall Systems

	EWS-01	Render Finish on Insulation with CLT Structure (360mm)
	EWS-02	Exterior Render on Blockwork outer leaf, 100mm cavity with Blockwork Inner Leaf (425mm) (Refuse Store & ESB Substation)
	EWS-03	Blockwork Wall (215mm)

IWS - Internal Wall Systems

	IWS-01	CLT Wall (100mm)
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	IWS-03	Wall Lining System (Non FR) (Moisture Resistant) (53mm)
	IWS-04	Timber Stud Partition System (Non FR) (115mm)
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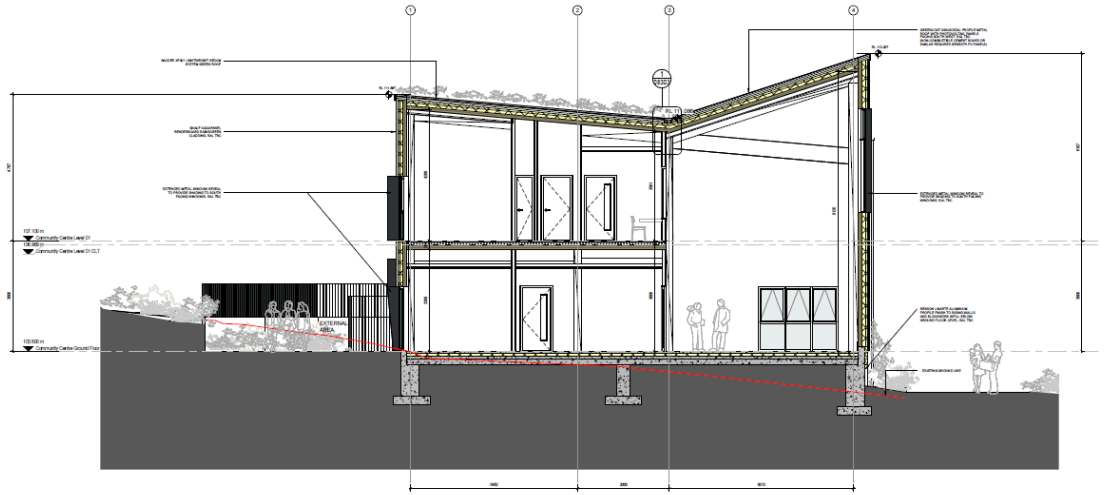
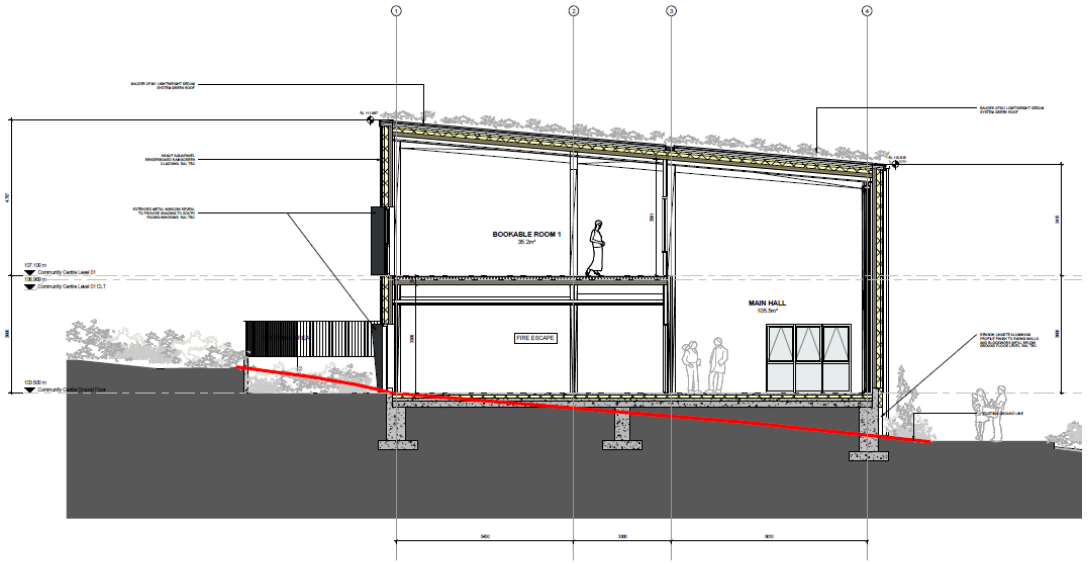
COMMUNITY CENTRE SECTIONS & SUPERSTRUCTURE

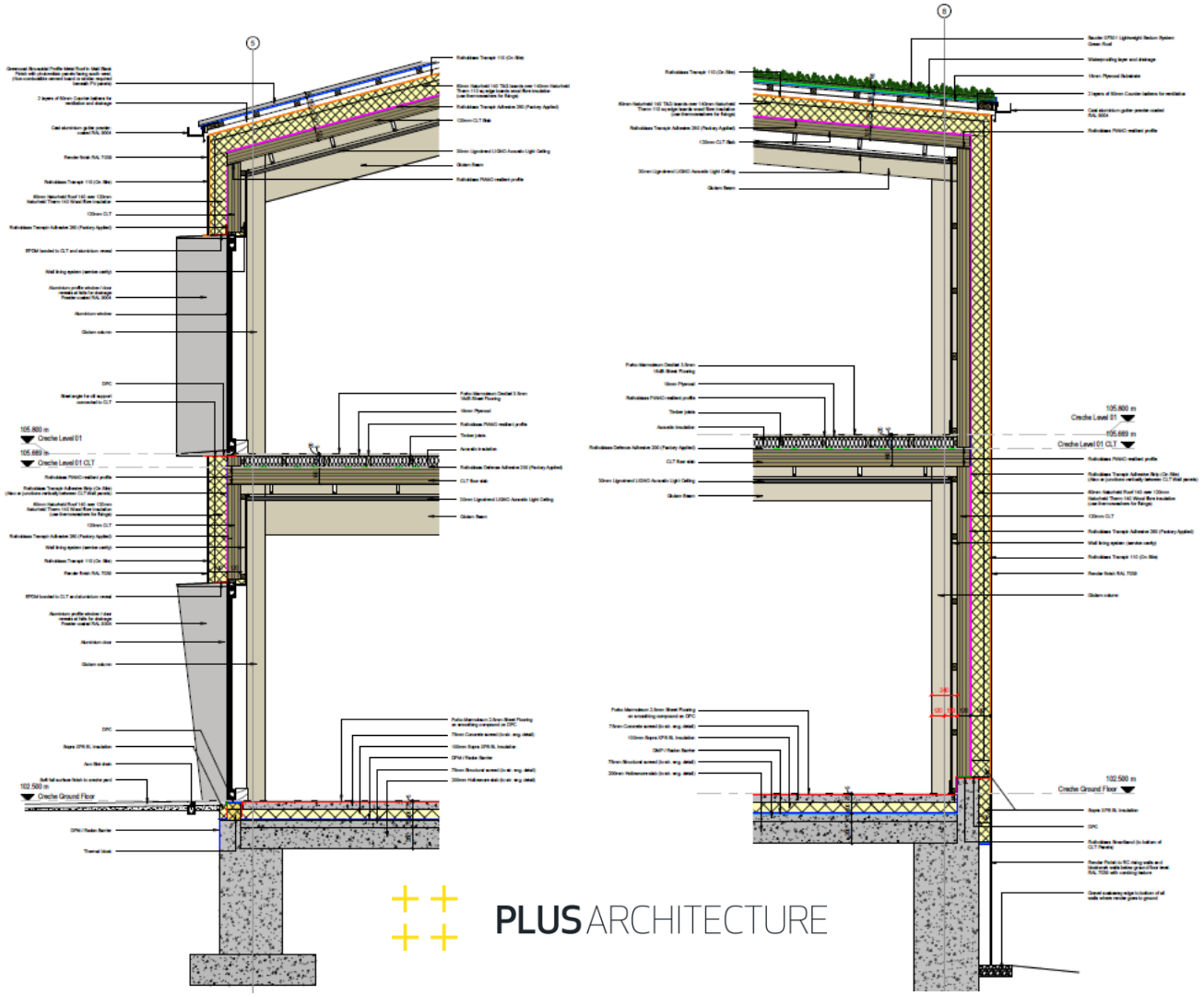


A Community Centre Section A
1 : 50



B Community Centre Section B
1 : 50

EMBODIED CARBON ASPIRATIONS



❖ **IGBC Definition:**

A ‘Net Zero Whole Life Carbon’ building does not exceed local targets for operational energy use or embodied carbon; such that the sum total Global Warming Potential for all cradle to grave life cycle stages are less than or equal to zero, where residual carbon is compensated for via renewable energy sources, or as a last resort carbon offsetting.

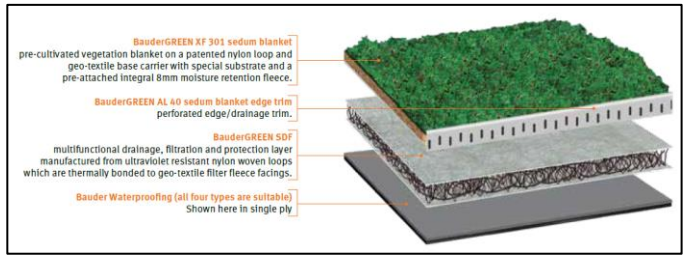
CARBON NET ZERO

IGBC
IRISH GREEN BUILDING COUNCIL

GREEN AWARDS 2026
Green Business & Sustainability
WINNER
The Green Transformation Award

LOW EMBODIED CARBON BUILDING PRODUCTS

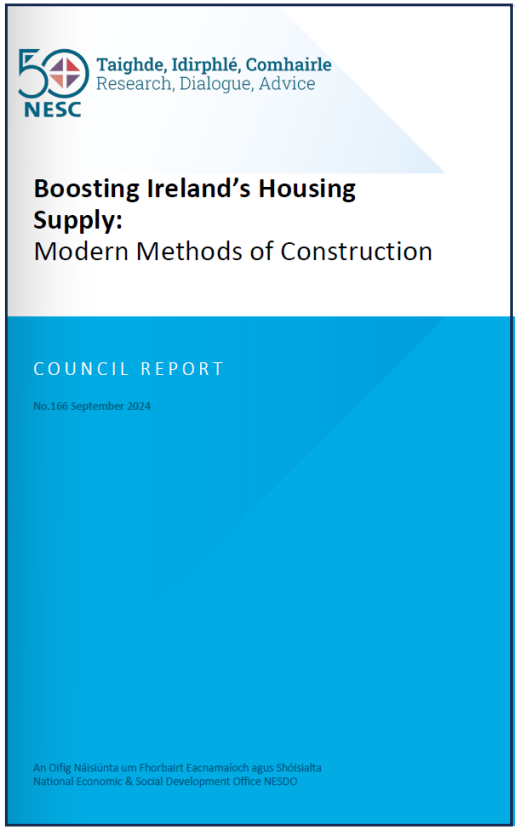
The Baumit StarSystem Nature has: good thermal insulation values, is water vapour permeable and is environmentally friendly due to wood being a renewable resource. The components not only have a high heat storage capacity, they are also breathable.

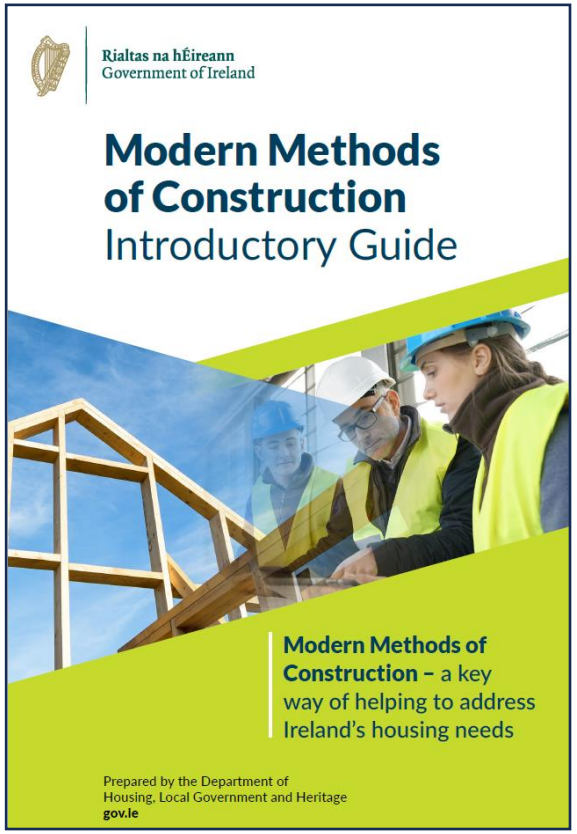


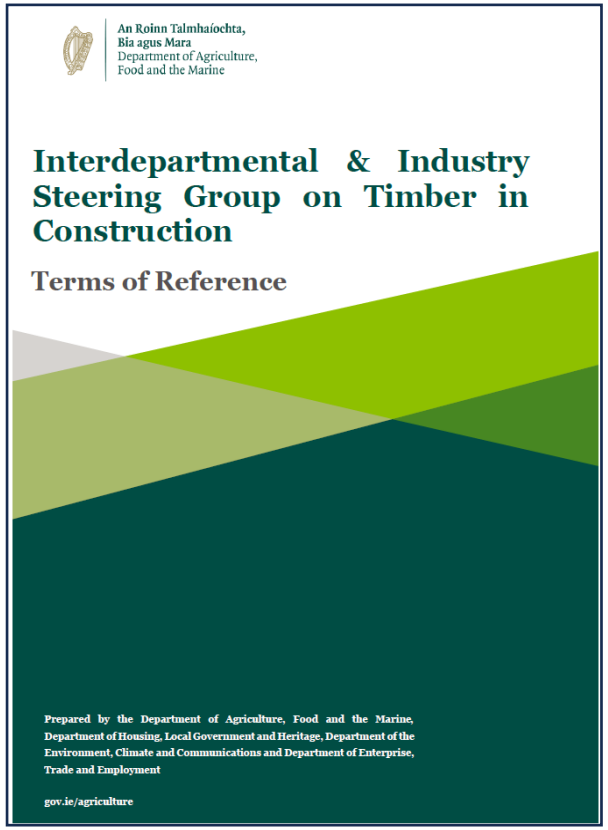

Mass Engineered Timber

MMC & DFMA - GOVERNMENT INTENT

NESC REPORT SEPT 2024: “It finds that greater adoption of MMC for residential development can be a ‘game changer’ for the Irish housing system, as it can drive higher productivity gains, substantially increase housing supply, and help meet the environmental goal of decarbonising housing – both new and existing stock.”







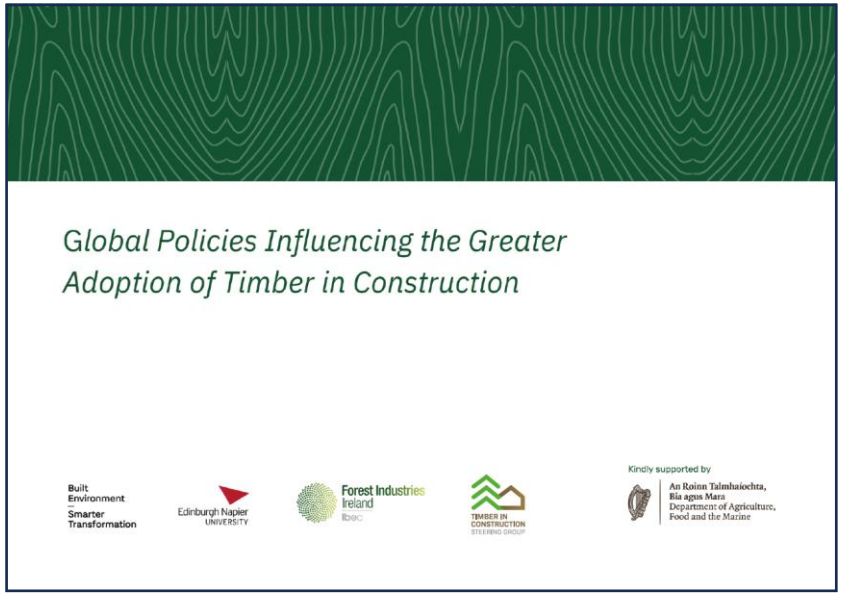
TIMBER IN CONSTRUCTION STEERING GROUP

Terms of Reference for Interdepartmental & Industry Steering Group
To develop a forum with Government and Industry to work collaboratively:

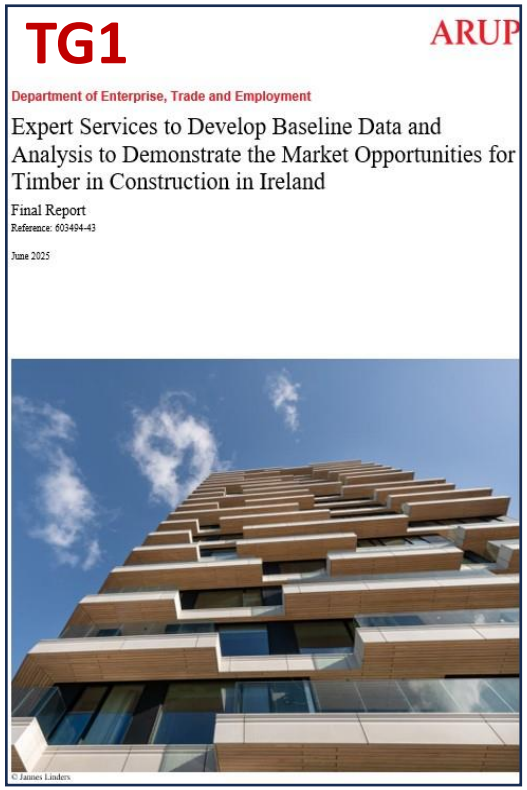
I. to create the conditions to increase the use of timber in construction whilst ensuring the highest degree of building safety and property protection;
II. to examine regulatory and standardisation challenges; and
III. to maximise the use of home-grown timber in construction.

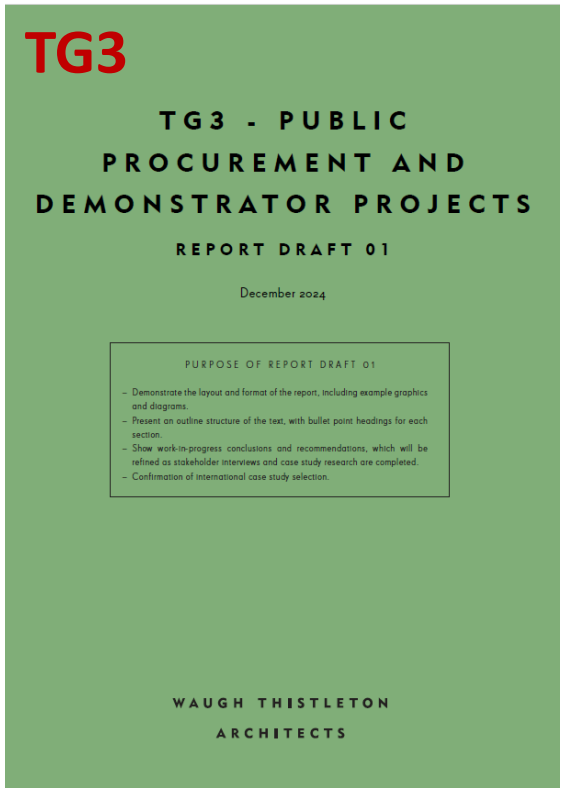
Two reports were released in 2024, with four further reports expected in 2025:

- **"Global Policies Influencing the Greater Adoption of Timber in Construction"**
- **"Timber in Construction Academic Survey"**



TIMBER IN CONSTRUCTION – D/RES INVOLVEMENT





An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

INTERDEPARTMENTAL & INDUSTRY STEERING GROUP on TIMBER IN CONSTRUCTION

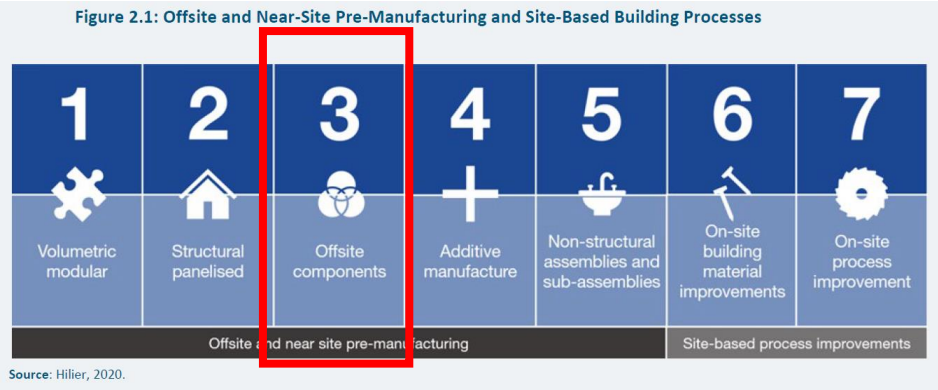
- **TG1 - Market Opportunity**
- **TG2 - Regulation, Standards & Compliance**
- **TG3 – Public Procurement & Demonstration Projects**
- **TG4 - Research & Development**
- **TG5 – Communication, Education, Training & Public Awareness**

ARUP

WTA

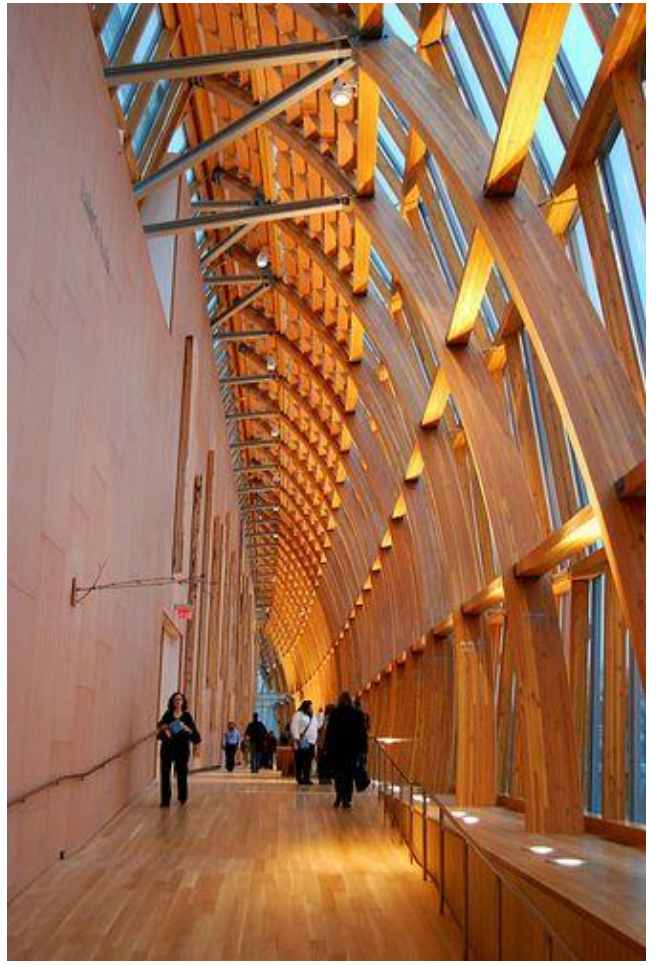
TIMBER IN CONSTRUCTION STEERING GROUP

MASS ENGINEERED TIMBER – MMC CATEGORY 3



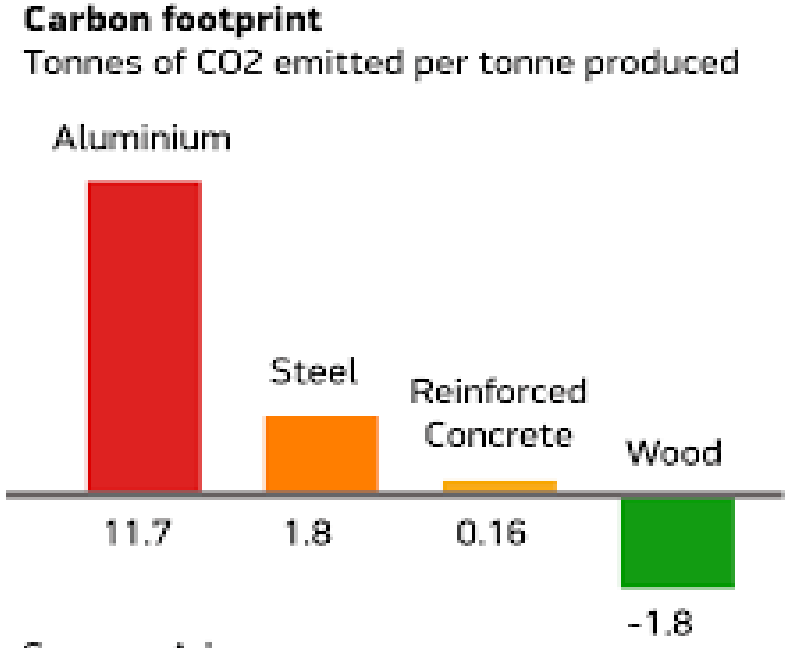
- **Cross Laminated Timber (CLT)**
  - CLT is an engineered wood product consisting of layers of kiln-dried dimension lumber (usually three, five, seven or nine) oriented at right angles to one another and then glued to form structural panels.

- **Glue Laminated Timber (Glulam)**
  - Glulam (glued laminated timber) comprises a number of wood laminates glued together. The fibres in the laminates run parallel to the length of the piece then glued to form structural panels.

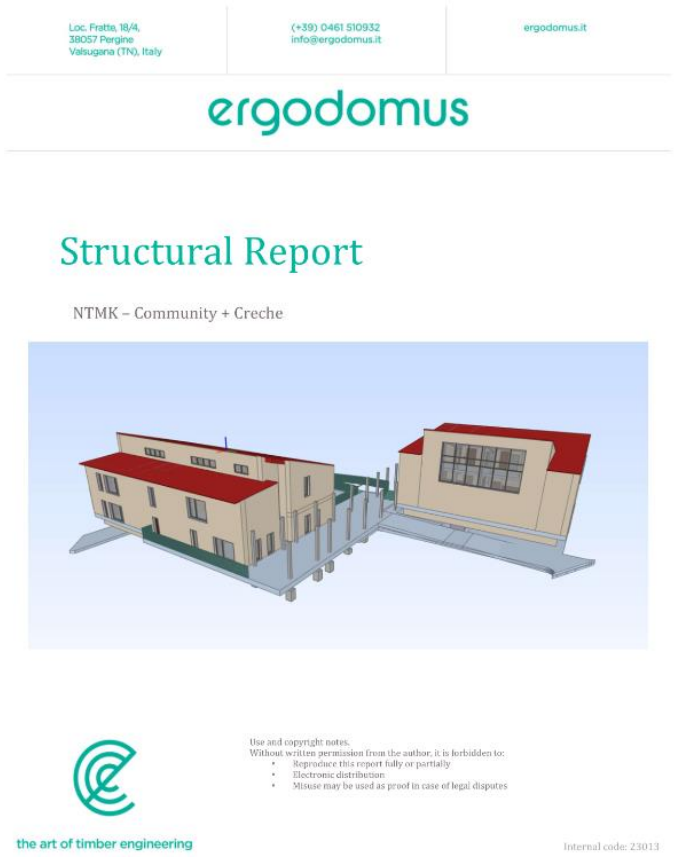


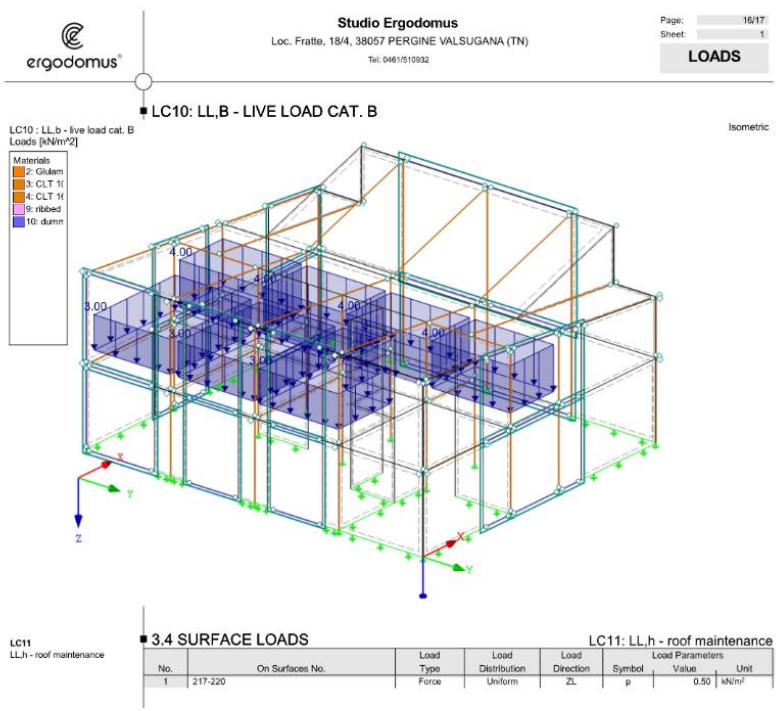
MOTIVATION FOR USING MASS ENGINEERED TIMBER

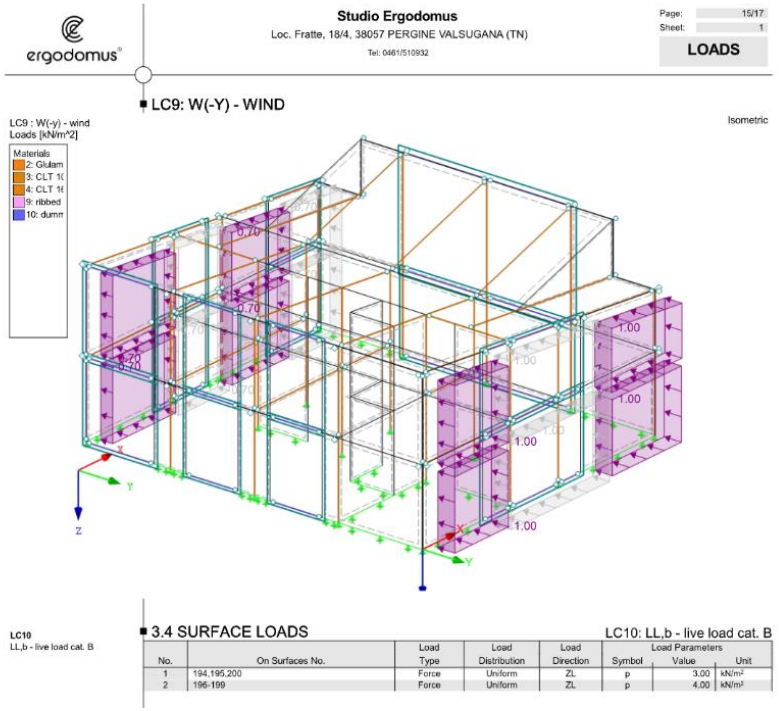
- **Sustainability**
  - Renewable resource via afforestation
  - Sequestration of carbon within timber
  - Lowest Global Warming Potential (GWP)
- **Operational Effectiveness**
  - Lower heating consumption
  - Air tightness achieved is almost Passivhaus
  - Superior thermal insulation & comfort levels
  - Indoor quality similar to the WELL Concept
- **Construction Efficiency**
  - Design for Manufacture & Assembly (DfMA)
  - Shorter programme duration
  - Greater precision & construction quality
  - Fire safety
- **User Comfort & Wellness**
  - Biophilia response to proximity of timber
  - Improved health & wellbeing
  - Enhanced productivity and learning outcomes



SUPERSTRUCTURE – ENGINEERED TIMBER

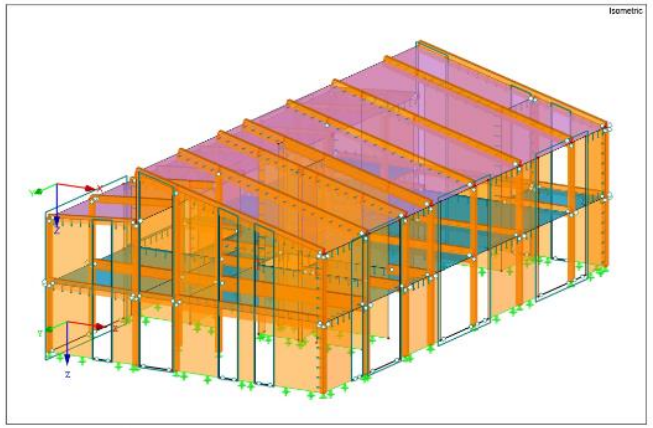


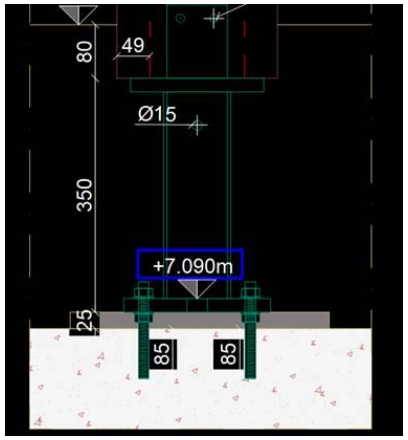




Structural Report (233 pages)

19.1 Engineered Timber - Structural Analysis 1





EN 1995-1-2 (Draft version)

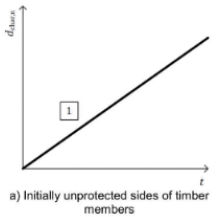
5.4.2 The European charring model

5.4.2.1 General

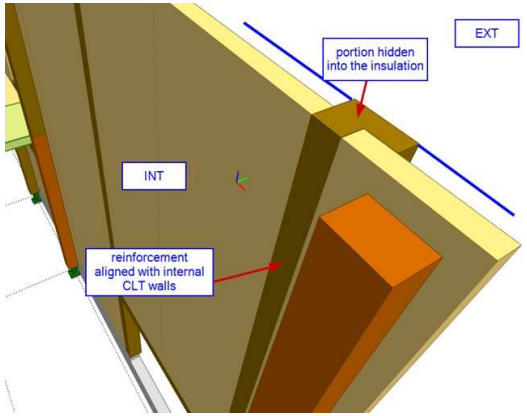
(1) <RCM> The European charring model should be applied to standard fire exposure.

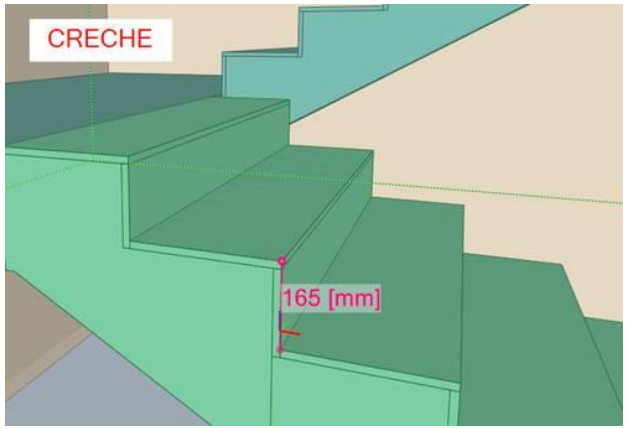
(2) <RCM> The following phases should be taken into account where relevant (see Figure 5.1 and Figure 5.2):

- **Normal charring phase (Phase 1)** for initially unprotected sides of timber members and for initially protected sides of timber members
- **Encapsulated phase (Phase 0)** is the phase when no charring occurs behind the fire protection system.
- **Protected charring phase (Phase 2)** is the phase when charring occurs behind fire protection system while the system is still in place.
- **Post-protected charring phase (Phase 3)** is the phase after the failure of the fire protection system before a fully developed char layer has been formed.
- **Consolidated charring phase (Phase 4)** is the phase with fully developed char layer.



a) Initially unprotected sides of timber members

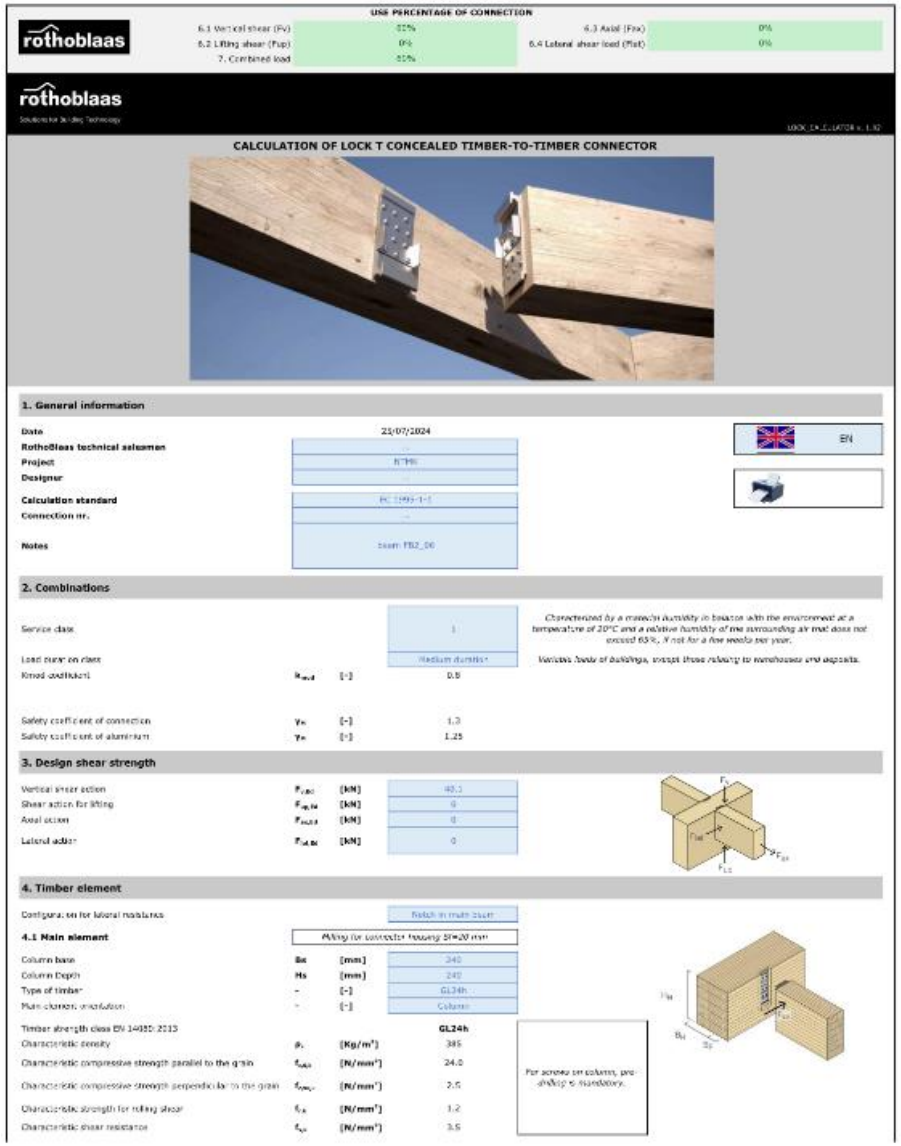




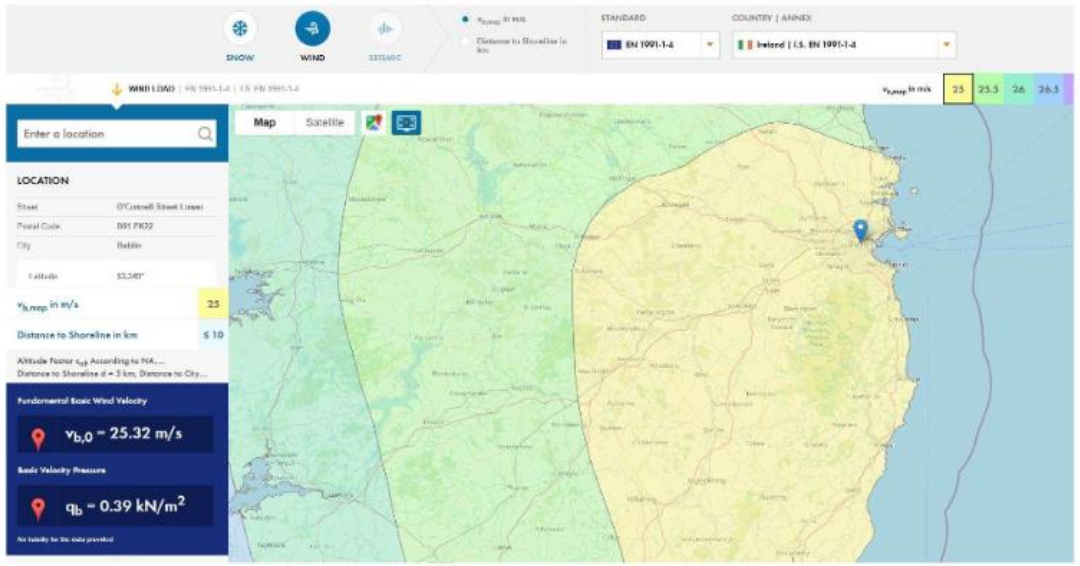
Conclusion

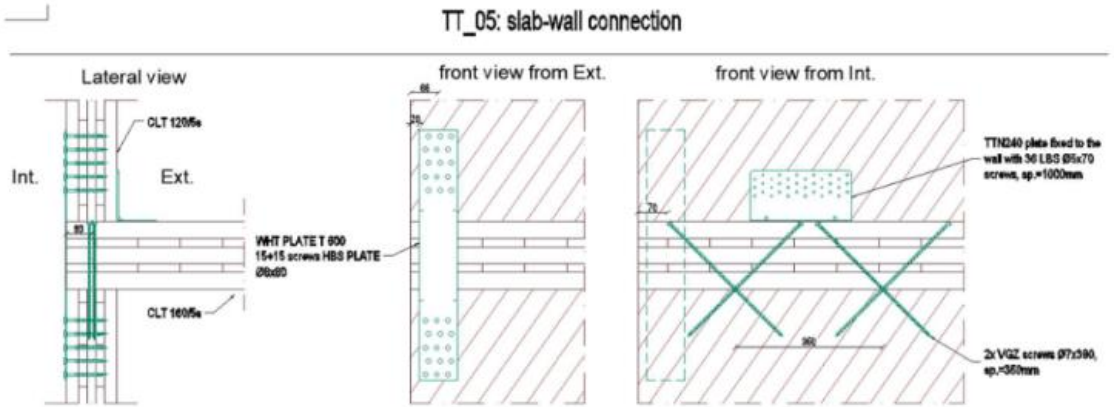
For linear glulam elements, current and draft Eurocode adopt the same linear model (reduced cross-section method). The check of the elements is performed accordingly.

19.2 Engineered Timber - Structural Analysis 2



Horizontal Wind Load





Biogenic Envelope

WOOD FIBRE INSULATION ENVELOPE

› Home › Solutions Guide › External Wall Insulation Systems › Baumit StarSystem Nature ☆

Baumit StarSystem Nature:
Renewable resource

CSTB le futur en construction

Direction Sécurité, Structures et Feu
Division Etudes et Essais Feu
Safety, Structures and Fire Department
Fire Studies and Tests Division

RAPPORT DE CLASSEMENT EUROPEEN DE REACTION AU FEU
REACTION TO FIRE EUROPEAN CLASSIFICATION REPORT

N° RA23-0106

Notification par l'état français auprès de la commission européenne sous le n° 0679
Notification by the French government to the European commission under no. 0679

Document d'évaluation Européenne 040083-00-0404:2019
« Système d'isolation thermique extérieure par enduit (ETICS) »
EAD 040083-00-0404:2019 European assessment document
"External Thermal Insulation Composite System with rendering (ETICS)"

4. Classement et domaine d'application / *Classification and direct field of application*

4.1 Référence du classement / *Reference of the classification*

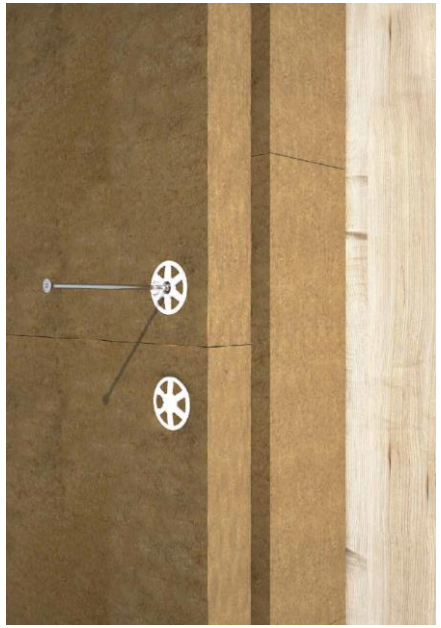
Le classement est prononcé suivant la norme NF EN 13501-1:2018.
This classification has been carried out in accordance with the NF EN 13501-1:2018 standard.

4.2 Classement / *Classification*

Comportement au feu *Fire behaviour*		Production de fumées *Smoke production*		Gouttes ou particules enflammées *Flaming droplets or debris*
B	-	s1	,	d0

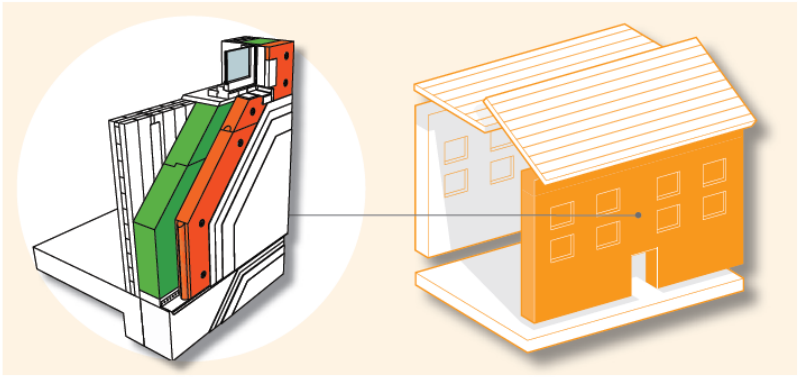
Classement / *Classification* : B- s1, d0

natur held



NBT Natural Building Technologies

New Build System for Cross Laminated Timber Render



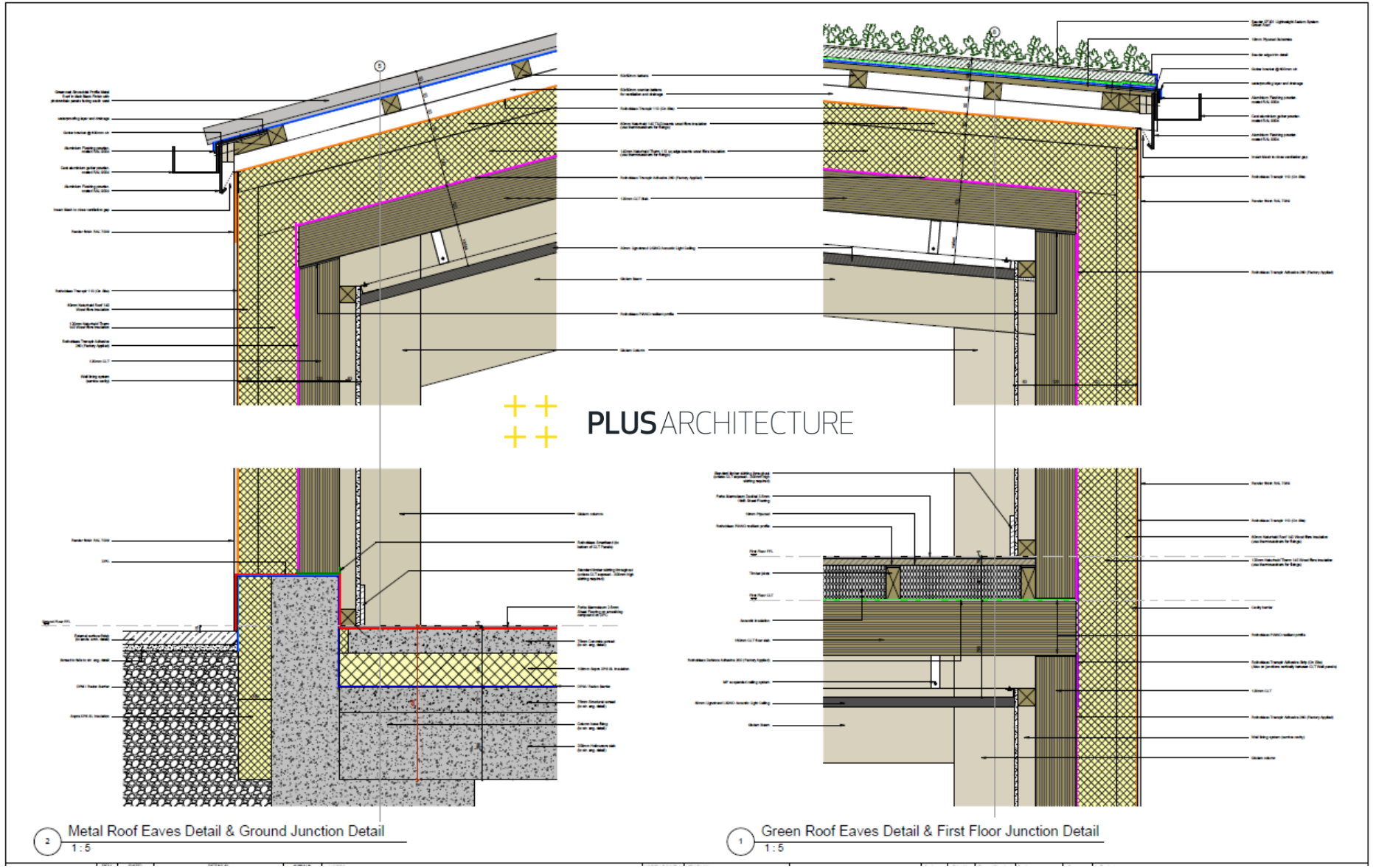
System Performance

u - values 0.26 – 0.10

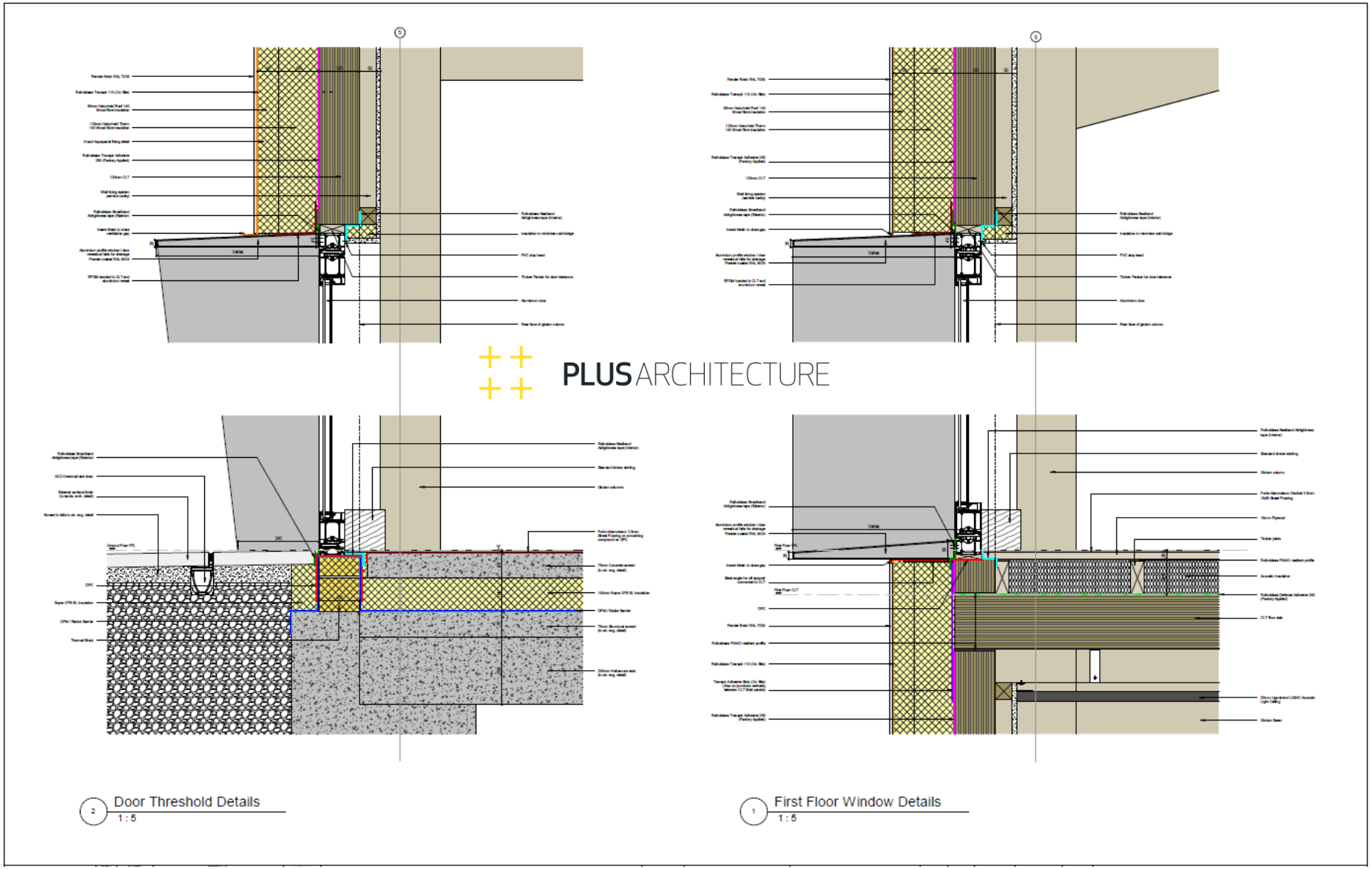
y – values 0.05 – 0.02

The system complies with the most stringent of standards – from baseline building regulations through to Passivhaus. The system is available in an extensive number of render options including, colour, texture and weathering resistance. All components for the system are available from NBT.

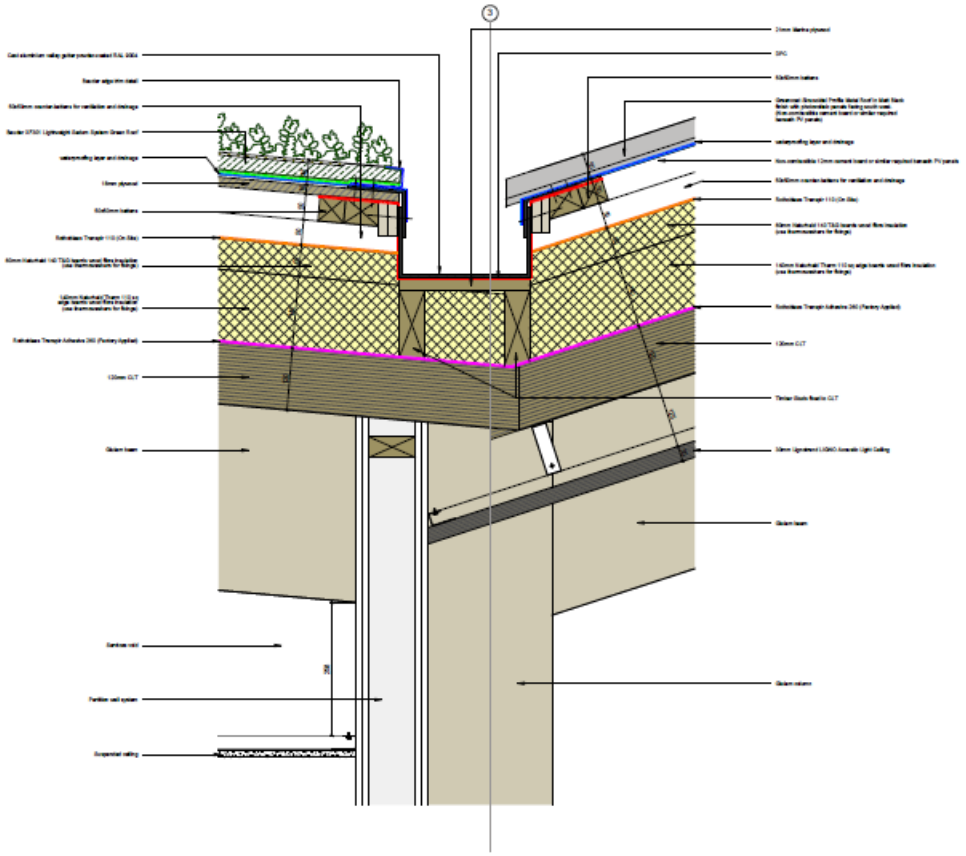
DETAILED STUDY OF CONSTRUCTION METHODOLOGY - 1



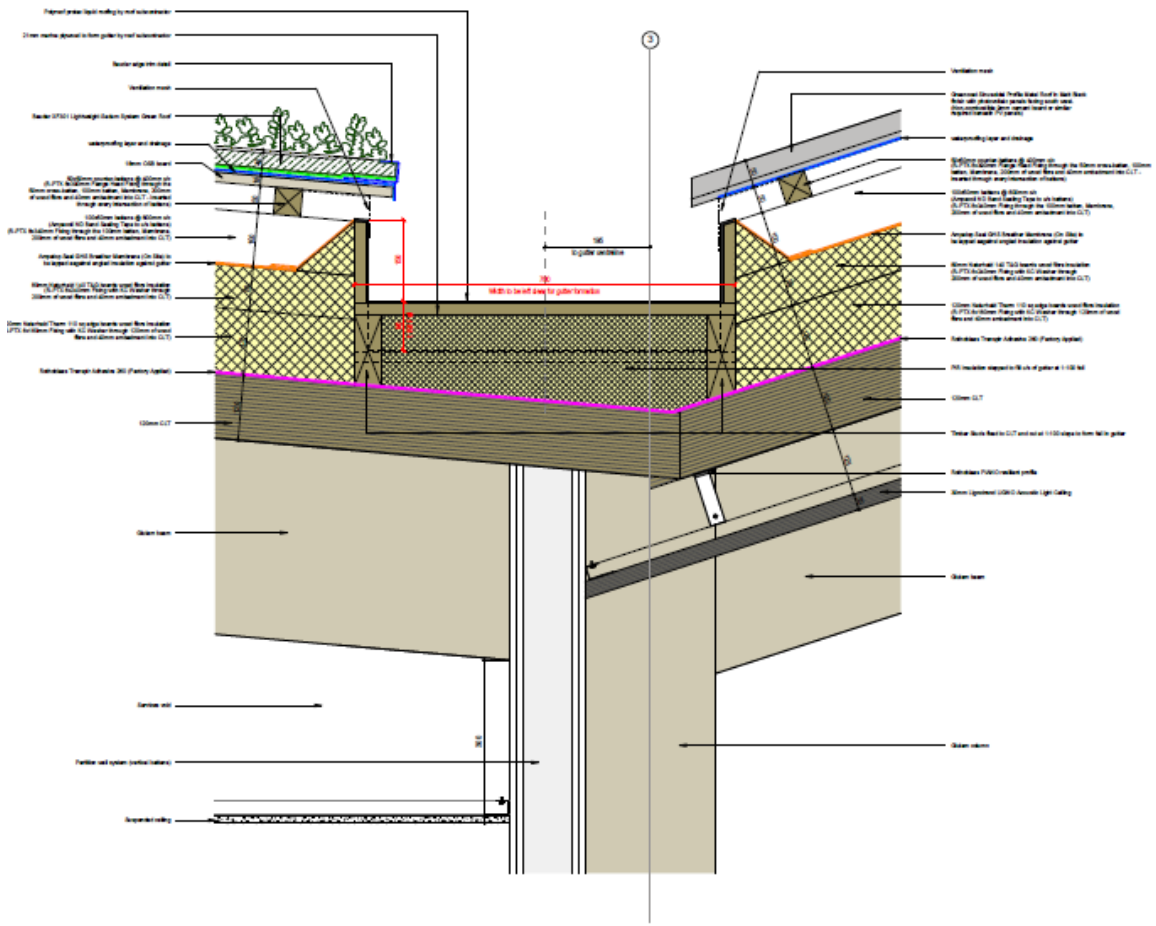
DETAILED STUDY OF CONSTRUCTION METHODOLOGY - 2



DETAILED STUDY OF CONSTRUCTION METHODOLOGY - 3



1 Community Centre Valley Detail
1 : 5

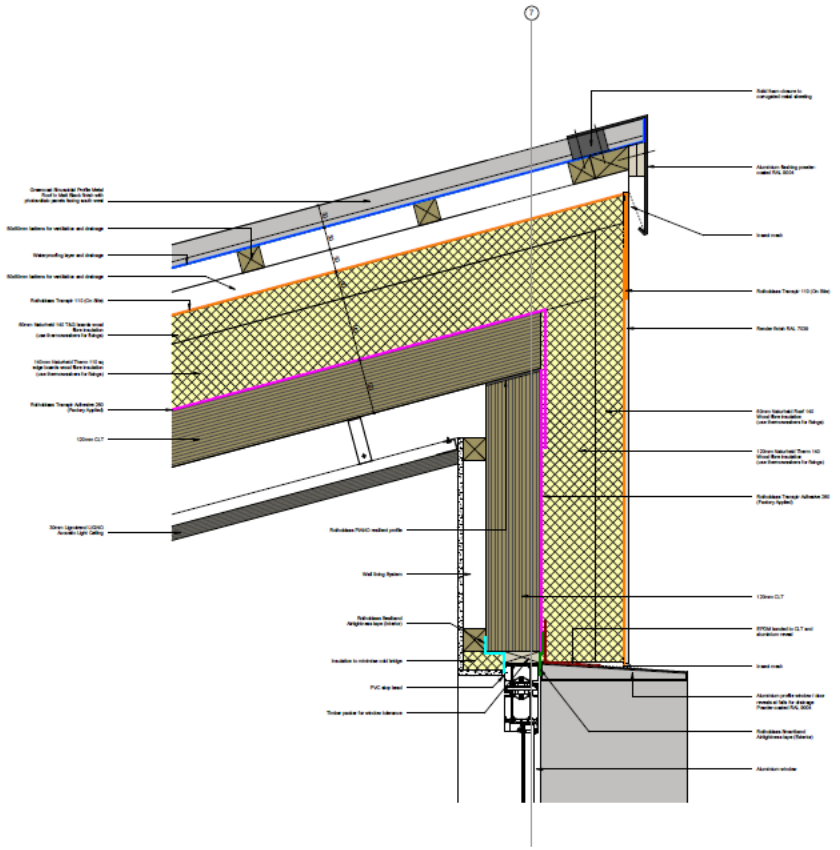


1 Community Centre Valley Detail
1 : 5

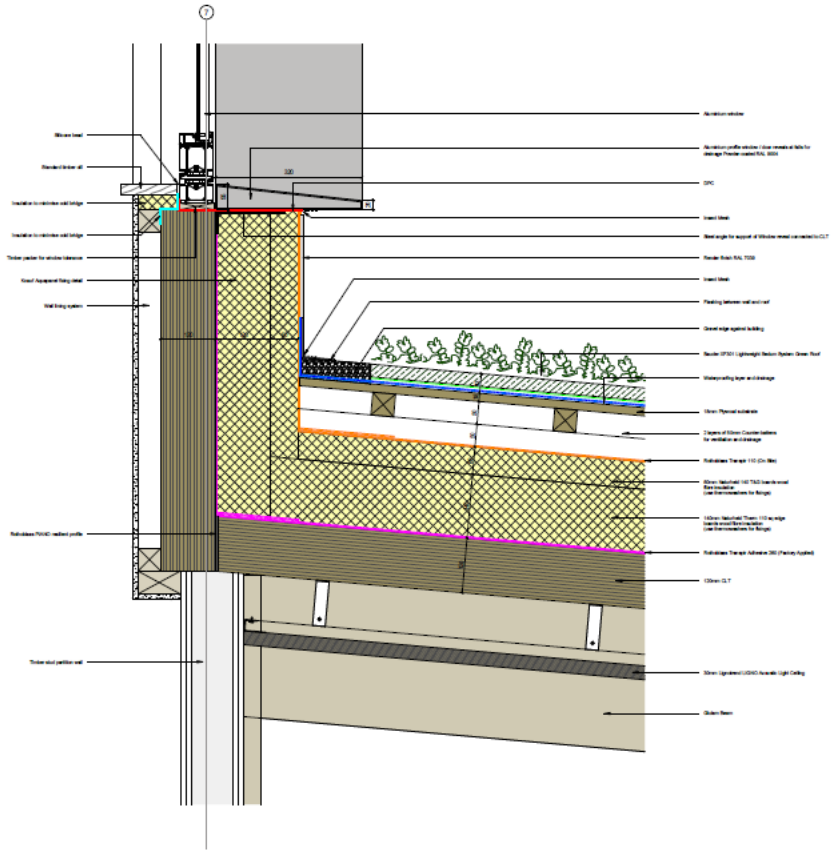
PLUS ARCHITECTURE

DETAILED STUDY OF CONSTRUCTION METHODOLOGY - 4

PLUS ARCHITECTURE

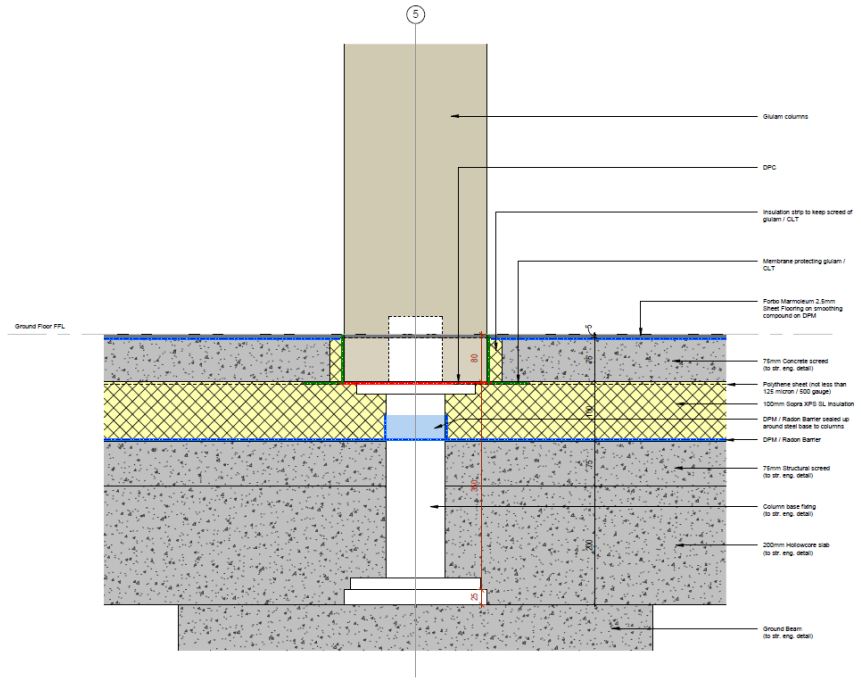


1 Metal Roof Ridge
1 : 5



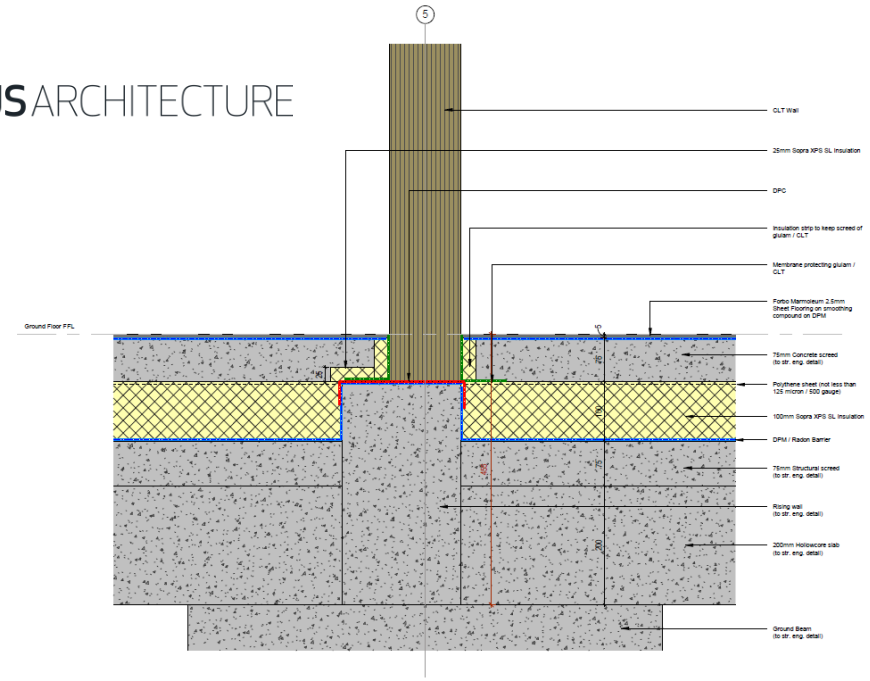
2 Creche Green Roof Top Junction
1 : 5

DETAILED STUDY OF CONSTRUCTION METHODOLOGY - 5



1 Ground Junction Detail - Column Base (Internal)
1 : 5

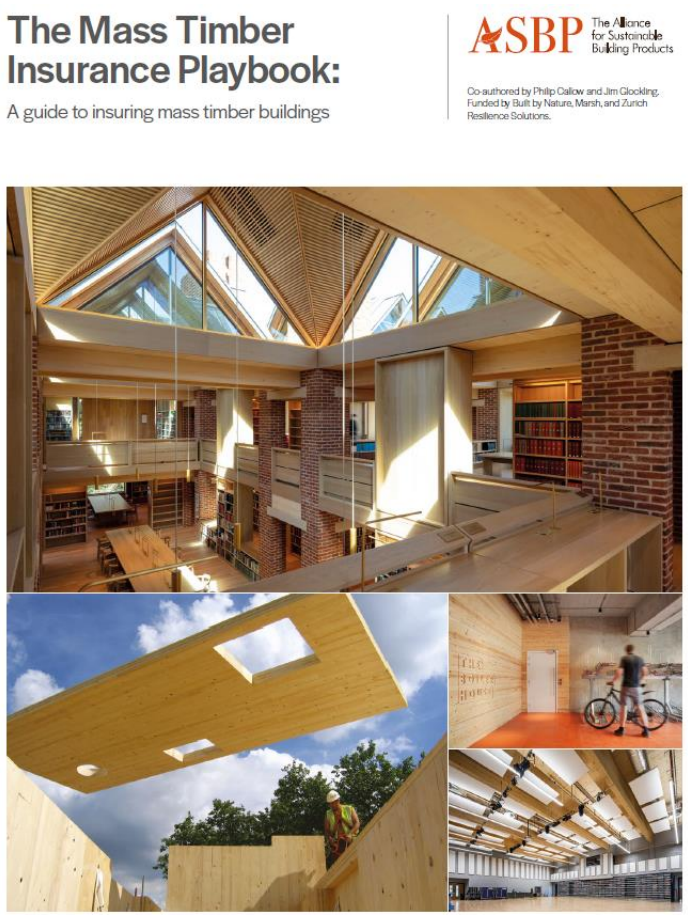
PLUS ARCHITECTURE

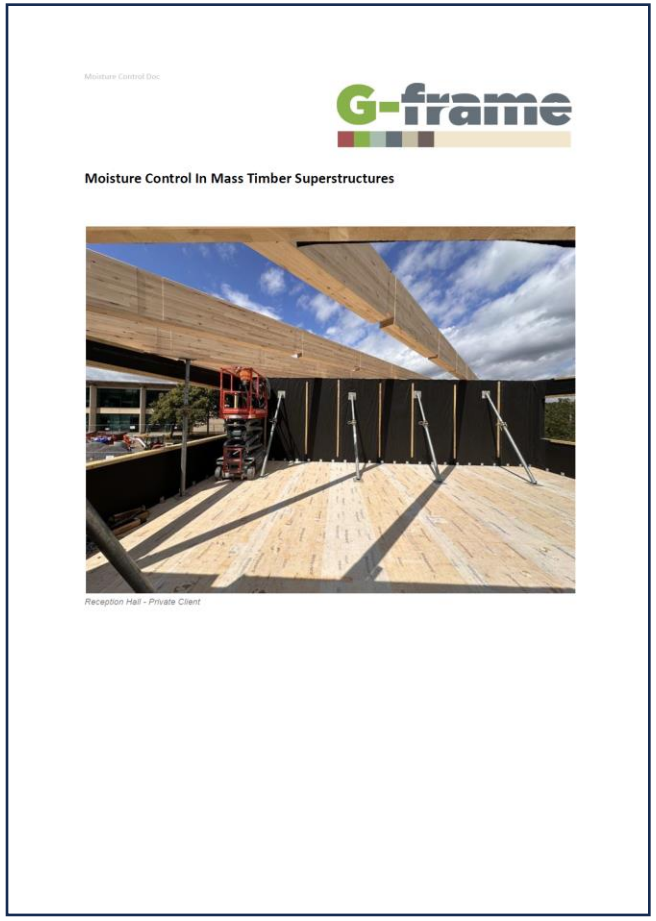


2 Ground Junction Detail - CLT Wall Base (Internal)
1 : 5


Risk Mitigation

INSURANCE - RISK MITIGATION MEASURES





INSURANCE REQUIREMENTS

REQUIREMENTS:

a) ***No EPS to be used on site****. All insulating materials to be LPCB approved, Rockwool or similar*
approved non-combustible
- *i. (this despite NSAI Agrément certification for EPS with Baumit render)*

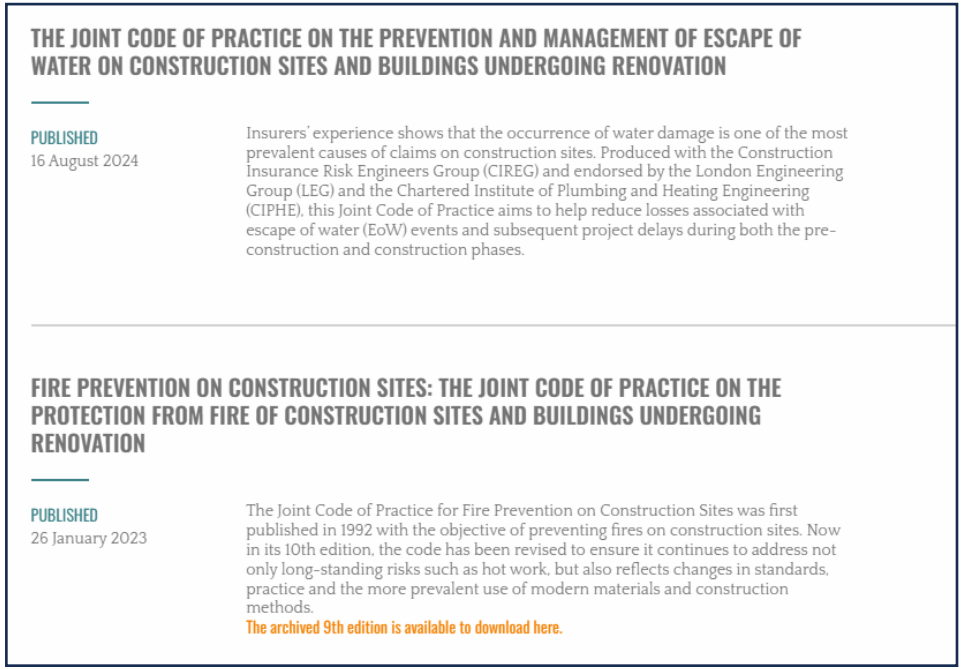
b) ***Adhere to joint Code of Practice on respectively****:*
- *i. Prevention and Management of escape of water on construction sites*
- *ii. Prevention from Fire of Construction Sites*

c) ***Glulam Structures subject to****:*
- *i. Creche/community centre site have full security DURING CONSTRUCTION (hoarding/ days patrols & 24hr CCTV)*

d) ***Provision of Construction Management Plan*** *(CMP):*
- *i. Construction stage Safety Plan to be included*

DOCUMENTATION PROVIDED:

i. European Technical Assessment (ETA) and Declaration of Performance (DoP) of Naturheld wood fibre insulation with Baumit render
ii. G-Frame Moisture Control in Mass Timber Report
iii. D/RES Insurance Risk Mitigation Report (based on UK Mass Timber Insurance Playbook)
iv. Evercam 24h camera monitoring of construction process (Construct Innovate Seed Funding)
v. D/RES Construction Stage Safety Plan



THE JOINT CODE OF PRACTICE ON THE PREVENTION AND MANAGEMENT OF ESCAPE OF WATER ON CONSTRUCTION SITES AND BUILDINGS UNDERGOING RENOVATION

PUBLISHED
16 August 2024

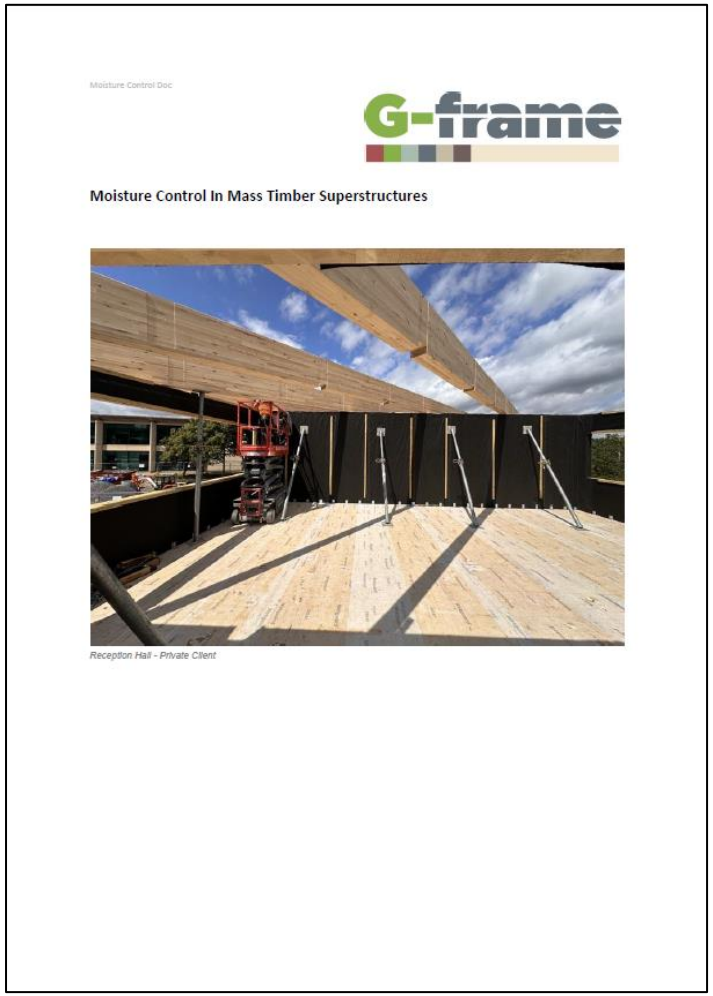
Insurers' experience shows that the occurrence of water damage is one of the most prevalent causes of claims on construction sites. Produced with the Construction Insurance Risk Engineers Group (CIREG) and endorsed by the London Engineering Group (LEG) and the Chartered Institute of Plumbing and Heating Engineering (CIPHE), this Joint Code of Practice aims to help reduce losses associated with escape of water (EoW) events and subsequent project delays during both the pre-construction and construction phases.

FIRE PREVENTION ON CONSTRUCTION SITES: THE JOINT CODE OF PRACTICE ON THE PROTECTION FROM FIRE OF CONSTRUCTION SITES AND BUILDINGS UNDERGOING RENOVATION

PUBLISHED
26 January 2023

The Joint Code of Practice for Fire Prevention on Construction Sites was first published in 1992 with the objective of preventing fires on construction sites. Now in its 10th edition, the code has been revised to ensure it continues to address not only long-standing risks such as hot work, but also reflects changes in standards, practice and the more prevalent use of modern materials and construction methods.
The archived 9th edition is available to download here.

MOISTURE MANAGEMENT PRINCIPLES



G-FRAME MOISTURE MANAGEMENT PLAN

MOISTURE MONITORING FROM FACTORY TO SITE

PRE-APPLIED TIMBER PORTECTION FORM MANUFACTURE TO SITE

MET – FIRE PERFORMANCE

A. Fire Performance as per TGB – Part B (Fire Safety)

2.1 General Provisions

Subject to the variations and specific provisions described in the paragraphs below, the surface linings of walls and ceilings should meet the following classifications: -

(d) **Class B-s3, d2** (European class EN 13501) or Class 0 (National class) in other circulation spaces (including the common areas of flats and maisonettes)

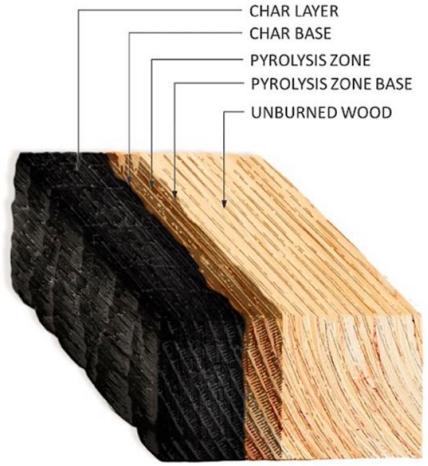
(e) **Class B-s3, d2** (European class EN 13501) or Class 0 (National class) in rooms exceeding 30m² in Residential (Institutional) and assembly and recreation buildings

2.2 Variations and Special Provisions

2.2.1 Part of the surface of a wall in a room may be of a class lower than specified in 2.1 (but not lower than Class D – s3, d2(European) or Class 3 (National)) if the area of that part (or if there are two or more parts, the total area of those parts) does not exceed the lesser of the following:

(i) Half the floor area of the room
(ii) 20m² (in the case of a building or compartment of Purpose Group 1,2 or 5) or 60m² in any other case, and

In the case of a wall surface in a building of Purpose Group 1, 2, or 5 the area of that part should not exceed 5m² and should be separated from any other such part by a distance of not less than 2m.



The charring rate for CLT walls is consistent and chars at an average rate of **0.65 mm/min** where only the outermost layer is charred and 0.8 mm/min where charring progresses past the first layer

MET - SURFACE SPREAD OF FLAME

4. BENEFITS OF A NEW GENERATION OF FIRE RETARDANTS

Timber buildings are environmentally friendly and safe for users. Their benefits include low emissions and the recyclability of the materials. These properties should not be eliminated with coatings or treatment agents that contain harmful substances, generate emissions to indoor air or are non-recyclable.

The new generation of fire retardants like Nordtreat's patented, extensively tested and certified NT DECO are well suited for timber buildings because they make it possible to achieve fire protection in compliance with Euroclass B-s1, d0. This means that the products contribute to a fire in a very limited manner, their smoke production is very limited and they do not produce flaming droplets.

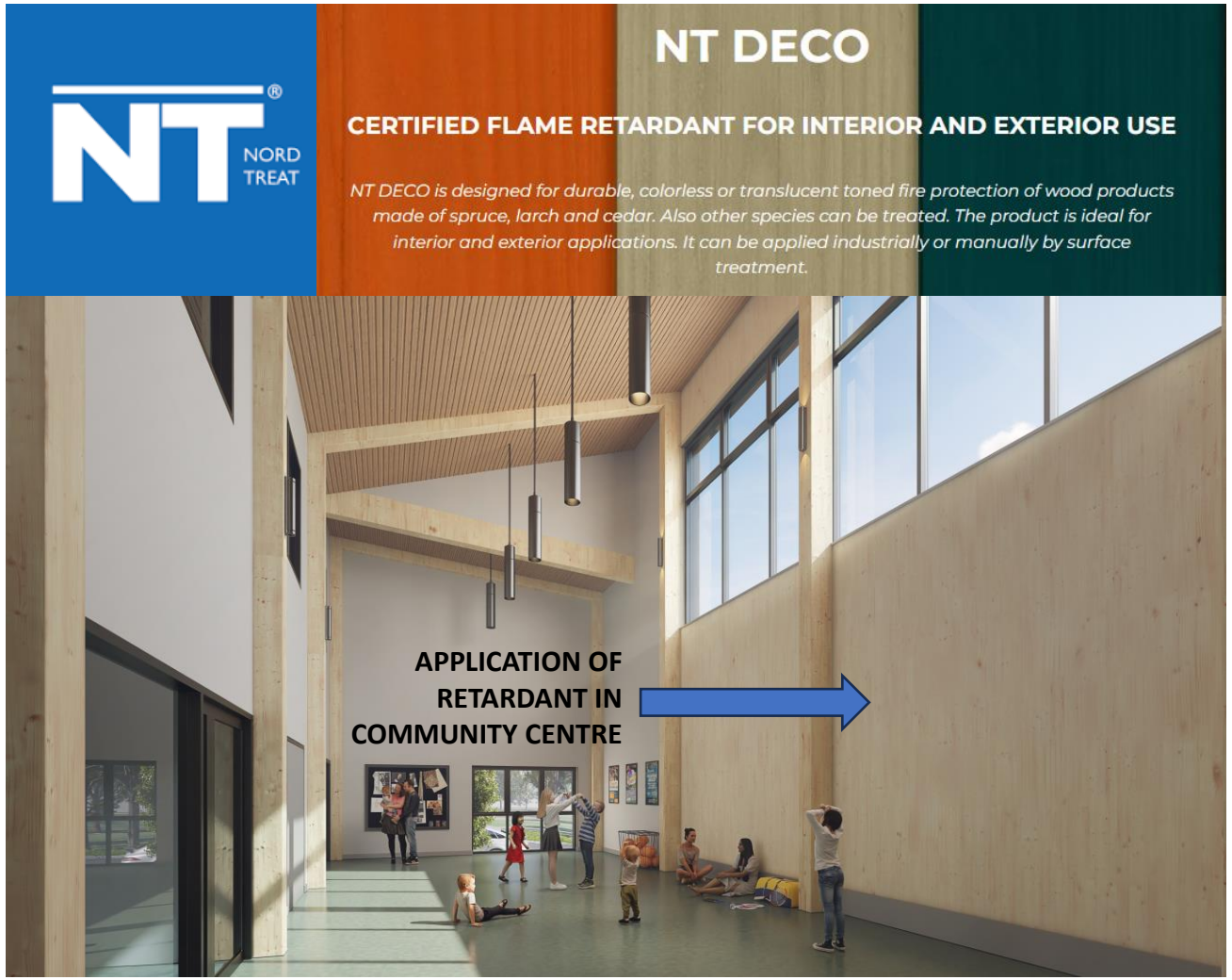
The translucent fire retardant leaves the natural grain pattern of wood visible, either clearly or with a desired tone. In many cases, the hidden surfaces of CLT elements are treated with a colourless fire retardant while the visible surfaces are treated with a tinted retardant.

In many buildings, the beautiful wooden surface of CLT boards can be left visible both inside and outside. When used on exterior surfaces, Nordtreat fire retardants also protect the wood from the effects of sunlight and weathering.

BENEFITS OF NORDTREAT FIRE RETARDANTS:

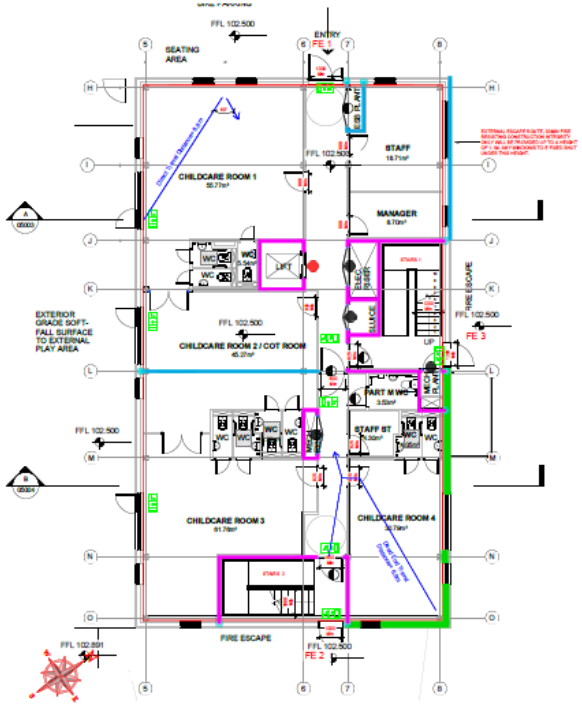
- **Durability of fire protection**
- **Safety and low emissions**
- **Sustainability**
- **Cost-effectiveness**
- **Resistance to sunlight and weathering**
- **Maintaining the natural appearance of wood**

The Nordtreat fire retardants have been tested by leading research laboratories and are certified to comply with the requirements of various environmental and indoor air quality management systems.

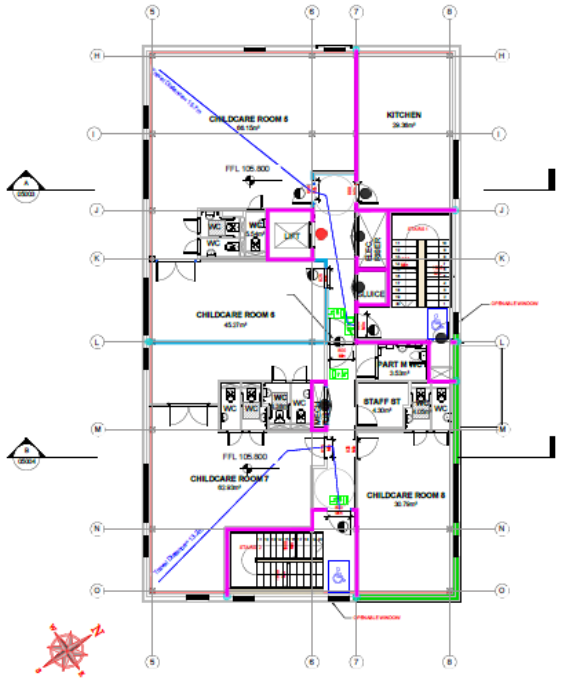


ENCAPSULATION OR FLAME RETARDANTS TO ACHIEVE:
FIRE CLASS B-s3,d2 (European Class EN13501) or Class 0 (National Class)

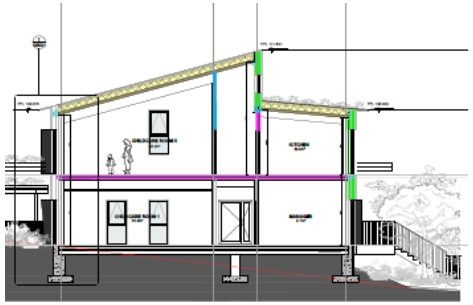
FIRE PROTECTION PRINCIPLES - COMPARTMENTALISATION



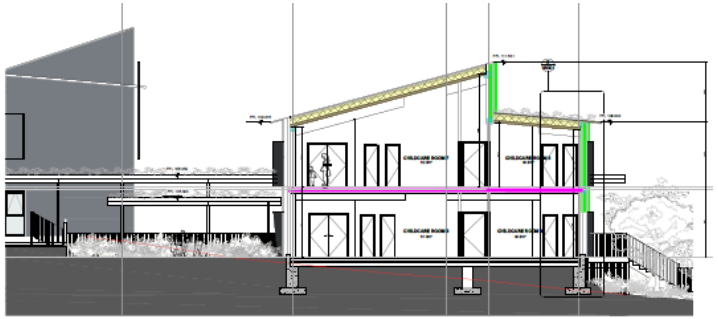
PROPOSED GROUND FLOOR LAYOUT
SCALE 1:100



PROPOSED FIRST FLOOR LAYOUT
SCALE 1:100



SECTION A
SCALE 1:100



SECTION B
SCALE 1:100

BCAR Process

BCAR – BUILDING CERTIFICATION

A. PSDP (Project):

bba architecture

B. ASSIGNED CERTIFIER (Project):

bba architecture

C. ANCILLARY CERT (Sub-structure):

POGA CONSULTING ENGINEERS

WICKLOW
ENDLESS OPPORTUNITIES

D. ANCILLARY CERT (Timber Engineer):

ergodomus

E. DESIGN CERTIFIER (Creche & Community):

PLUS ARCHITECTURE

G. ANCILLARY CERT (Superstructure):

G-frame structures ltd

F. Fire Safety Certificate & DAC:

R&A RYAN & ASSOCIATES

LOCAL AUTHORITY - FIRE SAFETY CERTIFICATES (FSC)

REQUIREMENTS:

a) **BBA Certification, NSAI Agrément Certificate or ETA**
b) **Upgrade of encapsulation from REI30 to REI60** for 'special areas of risk' – electrical service risers
c) **Timber Structural Engineering Report**

CLARIFICATION PROVIDED:

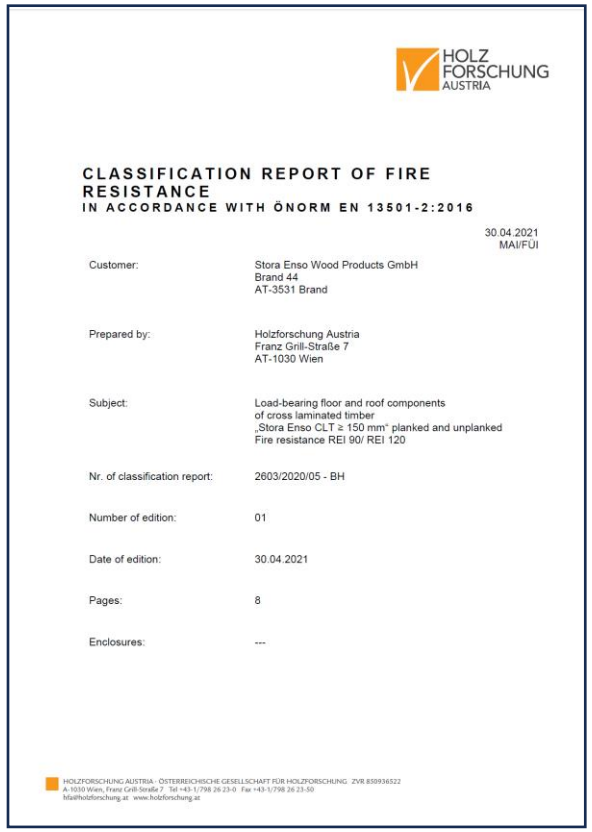
a) NSAI Agrément Certificate not required - EU Principles of Certification of mass engineered timber components (as per box)

DOCUMENTATION PROVIDED:

i. Timber Structural Engineering Report
ii. Stora Enso European Technical Assessment (ETA) for CLT
iii. Stora Enso Classification Reports of Fire Resistance (walls, floor & roof)
iv. Commitment to upgrade encapsulation to high-risk areas

EU PRINCIPLES OF CERTIFICATION

As the CLT manufactured for the project has a **European Technical Assessment (ETA)** and the Glulam has a **harmonised European standard (hEN) and CE marking**, none of the mass engineered timber products should require NSAI Agrément certification, as they are EU approved products, not system buildups.

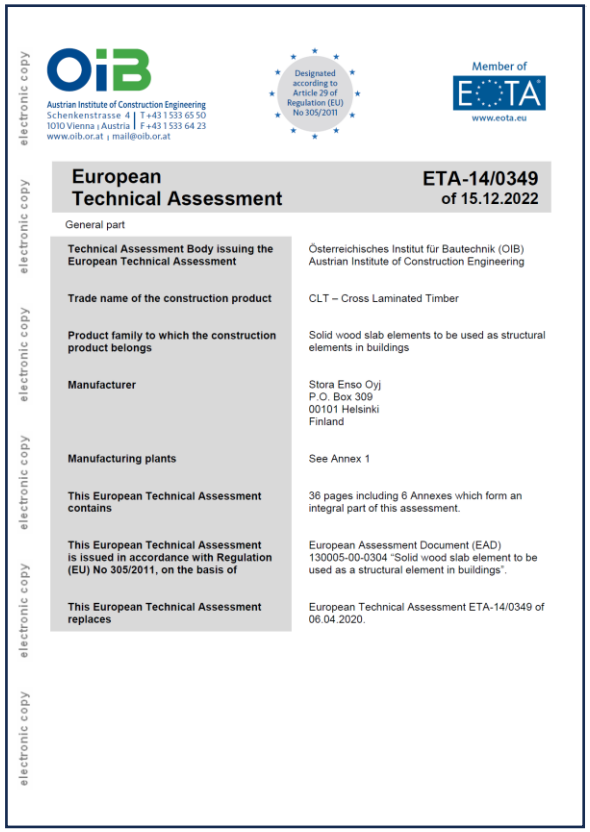


HOLZ FORSCHUNG AUSTRIA

CLASSIFICATION REPORT OF FIRE RESISTANCE
IN ACCORDANCE WITH ÖNORM EN 13501-2:2016

30.04.2021
MAI/FÜI

Customer:	Stora Enso Wood Products GmbH Brand 44 AT-3531 Brand
Prepared by:	Holzforschung Austria Franz Grill-Straße 7 AT-1030 Wien
Subject:	Load-bearing floor and roof components of cross laminated timber „Stora Enso CLT ≥ 150 mm" planked and unplanked Fire resistance REI 90/ REI 120
Nr. of classification report:	2603/2020/05 - BH
Number of edition:	01
Date of edition:	30.04.2021
Pages:	8
Enclosures:	---



OiB
Austrian Institute of Construction Engineering
Schenkenstrasse 4 | T+43 1 533 65 50
1010 Vienna | Austria | F+43 1 533 64 23
www.oib.or.at | mail@oib.or.at

Designated according to Article 29 of Regulation (EU) No 305/2011

Member of EOTA
www.eota.eu

electronic copy

European Technical Assessment **ETA-14/0349 of 15.12.2022**

General part

Technical Assessment Body issuing the European Technical Assessment	Österreichisches Institut für Bautechnik (OIB) Austrian Institute of Construction Engineering
Trade name of the construction product	CLT – Cross Laminated Timber
Product family to which the construction product belongs	Solid wood slab elements to be used as structural elements in buildings
Manufacturer	Stora Enso Oyj P.O. Box 309 00101 Helsinki Finland
Manufacturing plants	See Annex 1
This European Technical Assessment contains	36 pages including 6 Annexes which form an integral part of this assessment.
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	European Assessment Document (EAD) 130005-00-0304 "Solid wood slab element to be used as a structural element in buildings".
This European Technical Assessment replaces	European Technical Assessment ETA-14/0349 of 06.04.2020.

LOCAL AUTHORITY – BUILDING CONTROL

REQUIRED:

a) Structural Timber Engineer –
- Timber Structural report
- Timber Fire Calculations
- CLT & Glulam Fabrication Drawings

b) Architectural Drawings –
- Full set of working drawings including detailing
- Proposed weathering and fire details at 'conjunction' junctions

c) Civil & Structural Drawings –
- Clarification that only substructure is concrete, and superstructure is timber
- Clarification that suspended concrete floors are being utilised

d) CLT Manufacturer –
- European Technical Assessment (ETA)
- Classification Reports of Fire Resistance (walls, floor & roof)

e) National Standards Authority of Ireland (NSAI) –
- Details of communications with NSAI regarding an Agrément Certificate

DOCUMENTATION PROVIDED:

i. Stora Enso European Technical Assessment (ETA) for CLT
ii. Stora Enso Classification Reports of Fire Resistance (walls, floor & roof)
iii. Zaza Certificate of Consistency of Performance (CE Marking)
iv. Full set of Architectural and Civil & Structural Drawings
v. Timber Structural Engineering Report
vi. Ergodomus 2-D & 3-D fabrication drawings & IFC models

bm certification

CERTIFICATE OF CONSTANCY OF PERFORMANCE

Notified Body No. 2358

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product

Glued laminated timber and Block glued glulam

Species:	Spruce (PCAB)	Pine (PNSY)	Larch (LADC)
Strength Classes:	GL20h, GL24h, GL24c, GL28h, GL28c, GL30h, GL30c, GL32h, preservative treated and untreated	GL24h, GL24c, GL28h, GL28c, GL30h, GL30c, GL32h, GL32c, preservative treated and untreated	GL24h, GL24c, GL28h, GL28c, preservative treated and untreated
Adhesive:	- Finger joint: PUR, Type I - Surface bonding: MUF, Type I	- Finger joint: PUR, Type I - Surface bonding: MUF, Type I	- Finger joint: PUR, Type I - Surface bonding: MUF, Type I
Intended use:	In buildings and bridges (service classes 1, 2 and 3)	In buildings and bridges (service classes 1, 2 and 3)	In buildings and bridges (service classes 1, 2 and 3)

Produced by

ZAZA TIMBER PRODUCTION SIA

Rubenu ceļš 46f, Raubēni, Cenu pagasts, Jelgavas novads, LV-3002, Latvia and produced in the manufacturing plant at the above address

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard

EN14080:2013

under system 1 are applied and that the factory production control fulfils all the prescribed requirements set out above.

This certificate was first issued on September 25, 2015 and will remain valid until the date of expiry shown on this certificate provided that the test methods and/or factory production control requirements included in the harmonised standard, used to assess the performance of the declared characteristics, do not change, and the product, and the manufacturing conditions in the plant are not modified significantly.

EN ISO/IEC 17065
S1-439

Certificate number: 2458-CPR-086
Date of initial certification: September 25, 2015

Date of last issue: September 22, 2022
Certificate expiry date: September 24, 2025

Jānis Švirksts
Executive director
BM Certification

BM Certification SIA, 15 Jūrkalnes street, Riga, LV-1046, Latvia
This certificate remains the property of BM Certification SIA. Further clarification regarding the scope of the certificate and verification of the certificate is available through BM Certification SIA at the above address or at www.bmcertification.com

EU PRINCIPLES OF CERTIFICATION

As the CLT manufactured for the project has a **European Technical Assessment (ETA)** and the Glulam has a **harmonised European standard (hEN) and CE marking**, none of the mass engineered timber products should require NSAI Agrément certification, as they are EU approved products, not system buildups.

Research & Development

D/RES

CONSTRUCT INNOVATE - SEED FUNDING TOPICS

CONSTRUCT INNOVATE SEED FUNDING awarded for:

1. Mass Timber Demonstration Building Project

Project summary:

Use of the Creche & Community Centre as baseline CLT buildings which can demonstrate the use of typical CLT floor cassettes, walls & roofs as well as standard mass timber structural connections, membranes & tapes that can be used across other building typologies.

2. Mass Timber Living Lab Project

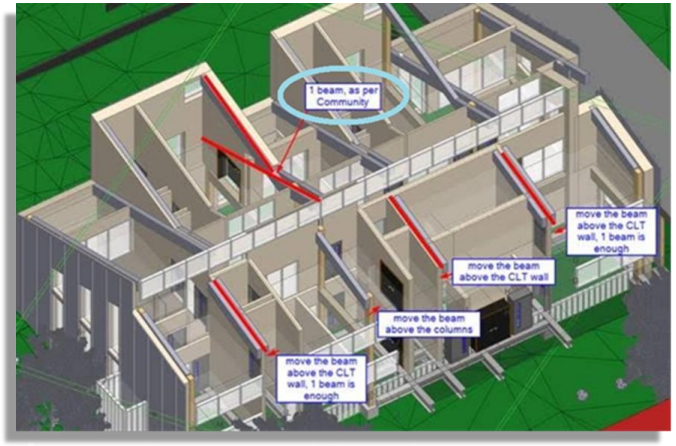
Project summary:

A pioneering effort to assess the creation of a mass timber demonstrator building in order to establish criteria for measuring and monitoring the post-occupancy satisfaction of users and the overall success of the mass timber buildings.

Supervision by:

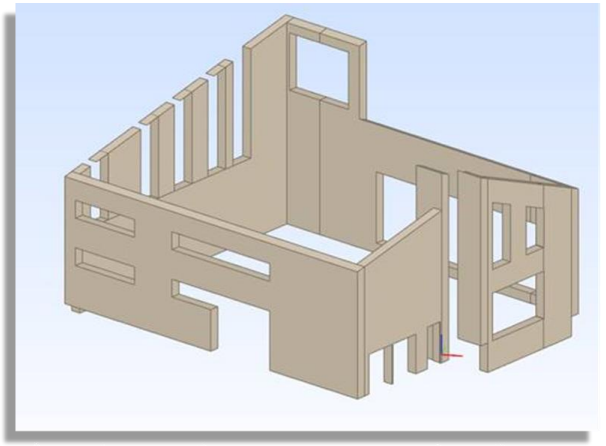
- Dr Patrick McGetrick (University of Galway)
- Brett Chrystal (DRES Properties)

BUILDING PERFORMANCE ANALYSIS

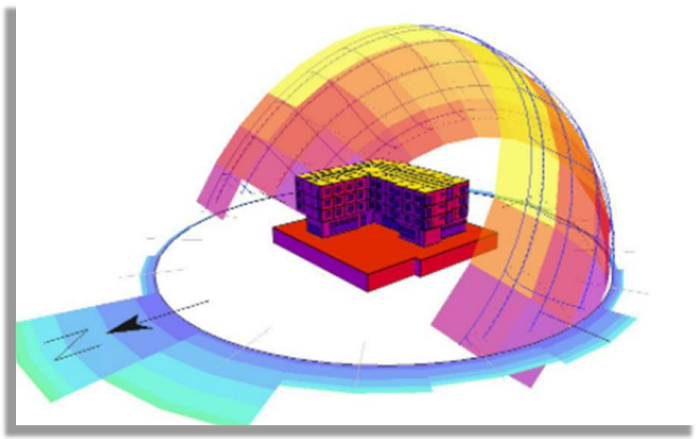


❖ 3-D Volumetric Modelling

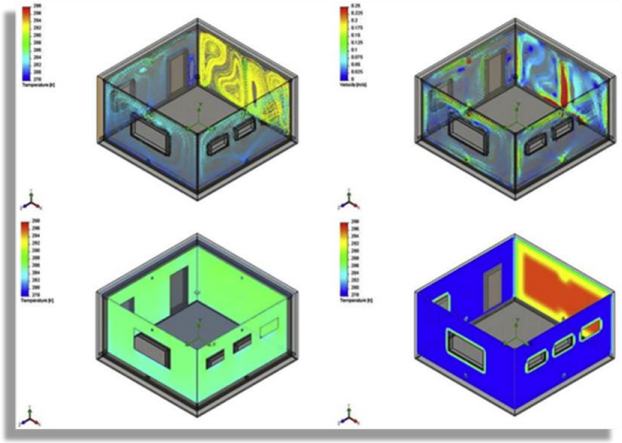
❖ 3-D Analysis of Envelope



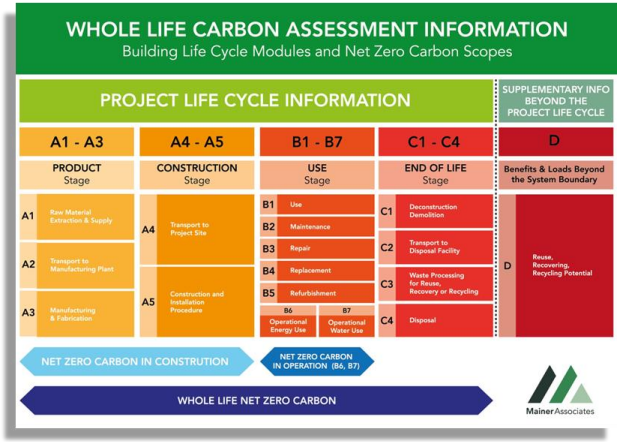
❖ Isolation of CLT Components for DfMA



❖ Building Energy Modelling

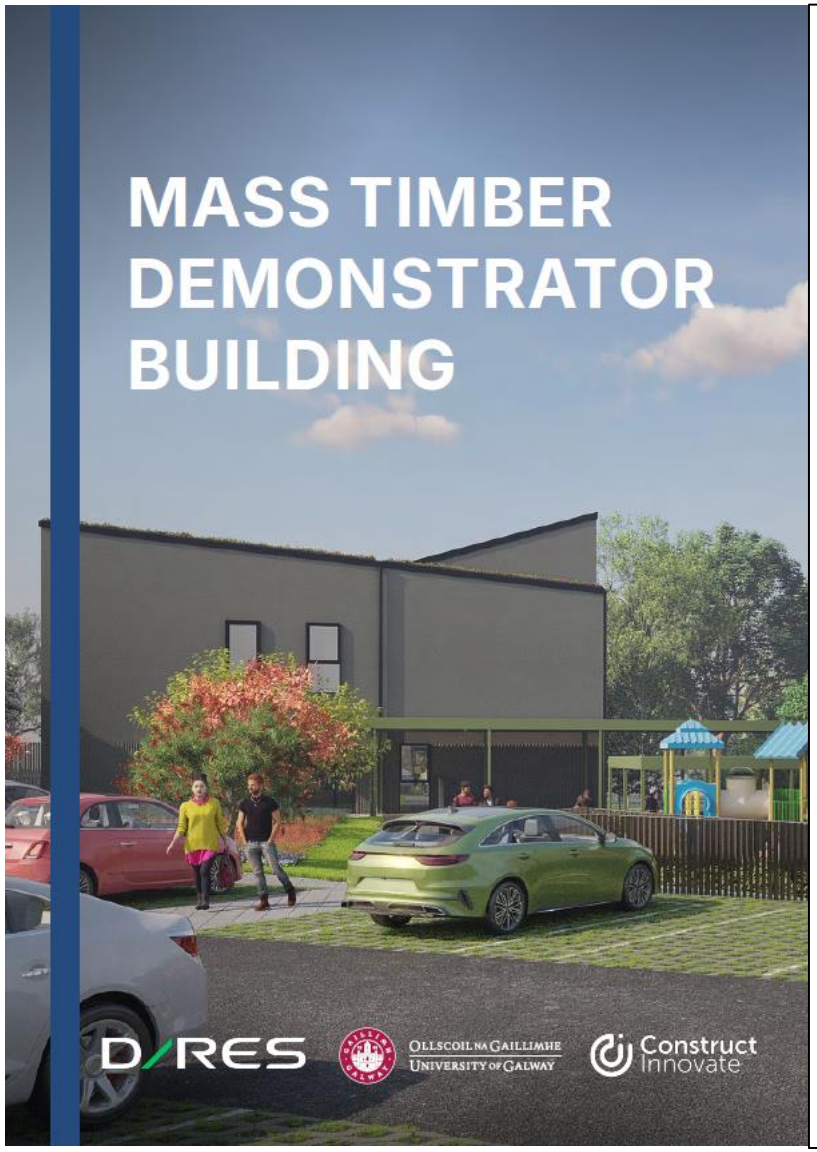


❖ Thermal Modelling



❖ Whole Lifecycle Carbon Assessment

ACADEMIC LITERATURE



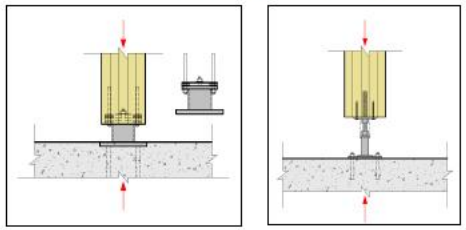
Glulam Base Connection

Fixed height steel stanchions with plate connectors were used to affix the glulam columns with laser levelling used to limit deviation to 2 mm-3 mm. However, variability in the thickness of the intumescent coating, together with the variability experienced in the concrete upstands which exceed ±10 mm tolerance, meant there was very little scope for adjustment to the baseline heights of the glulam columns, with a knock-on effect on the CLT walls and their plate fixings.

Glulam Column Fixed Stanchion

In retrospect, an adjustable steel stanchion would have been more suitable, allowing the height of each glulam column to be erected and then securely fixed once the final position was achieved.

Glulam Column Custom Fittings



REPLICABLE LOW-SCALE PUBLIC & COMMUNITY BUILDINGS

Sands End Arts & Community Centre, London
(Mæ Architects)

- ❖ **GREENFIELD DEVELOPMENTS**
- **Schools**
- **Clinics**
- **Libraries**
- **Community centres**
- **Creches**

Elementary School, UK
(HCMA Architecture & Design)

The Future of Healthcare
(ZGF – Proof of Concept)

- ❖ **MODERN METHODS of CONSTRUCTION**
- ❖ **DESIGN for MANUFACTURE & ASSEMBLY**

La Conner Swinomish Library, Washington
(BuildingWork)

VISION

“To escalate the transition of Ireland’s built environment to one that achieves net zero carbon buildings using locally manufactured engineered timber”

D/RES