

# TIMBER IN CONSTRUCTION ROADMAP

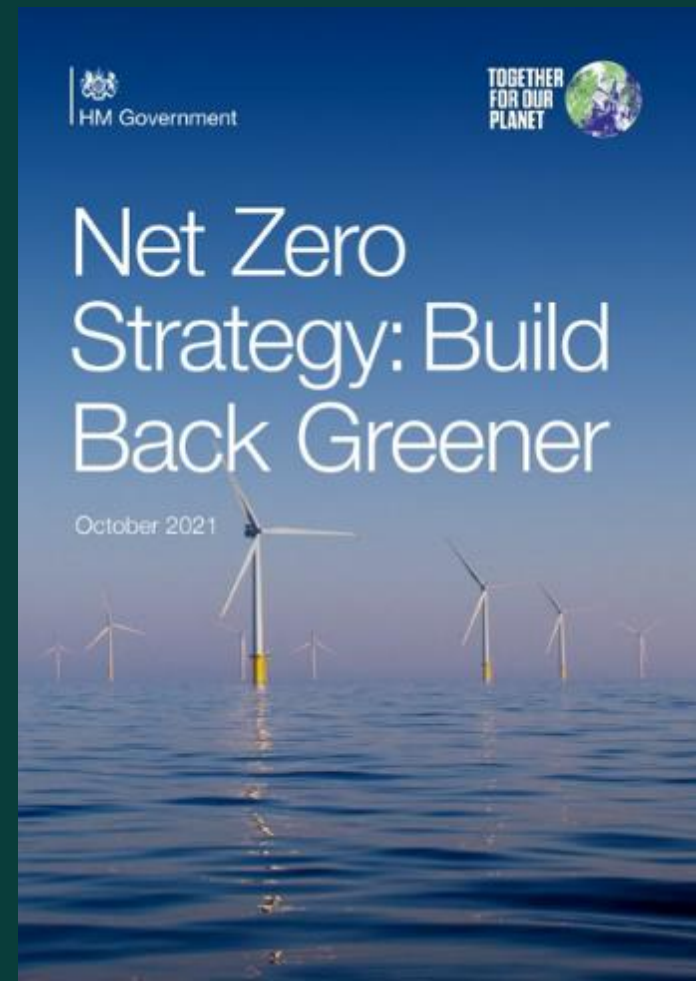
A brief overview of the Government's plan to expand low-carbon timber construction.

**David Hopkins**

CEO, Timber Development UK

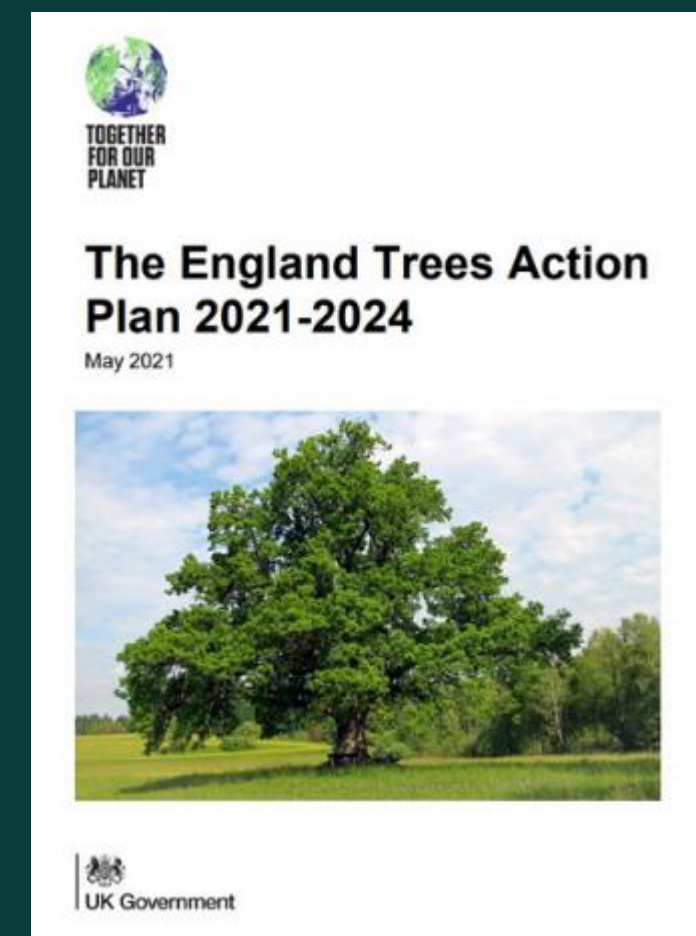


**TIMBER  
DEVELOPMENT  
UK**



# BACKGROUND

- The Government has committed to expanding timber construction in the Net Zero Strategy and England Trees Action Plan.
- Timber recognised as essential to net zero by the Environmental Audit Committee and Climate Change Committee.
- The Government created the Timber in Construction Working Group (TiCWG) to outline a roadmap for timber expansion.
- Fits in with wider policy objectives such as the Future Homes Hub



# TiCWG TIMELINE

## 1. Industry sub-groups

August - March 2022/3

There has been significant collaboration across industry and throughout the timber supply chain to understand what barriers exist, and what solutions are available to address them

## 3. Finalising the roadmap

November 2023

The roadmap is awaiting approval from Michael Gove and Therese Coffey.

## 2. Industry and government workshops

December - July 2023

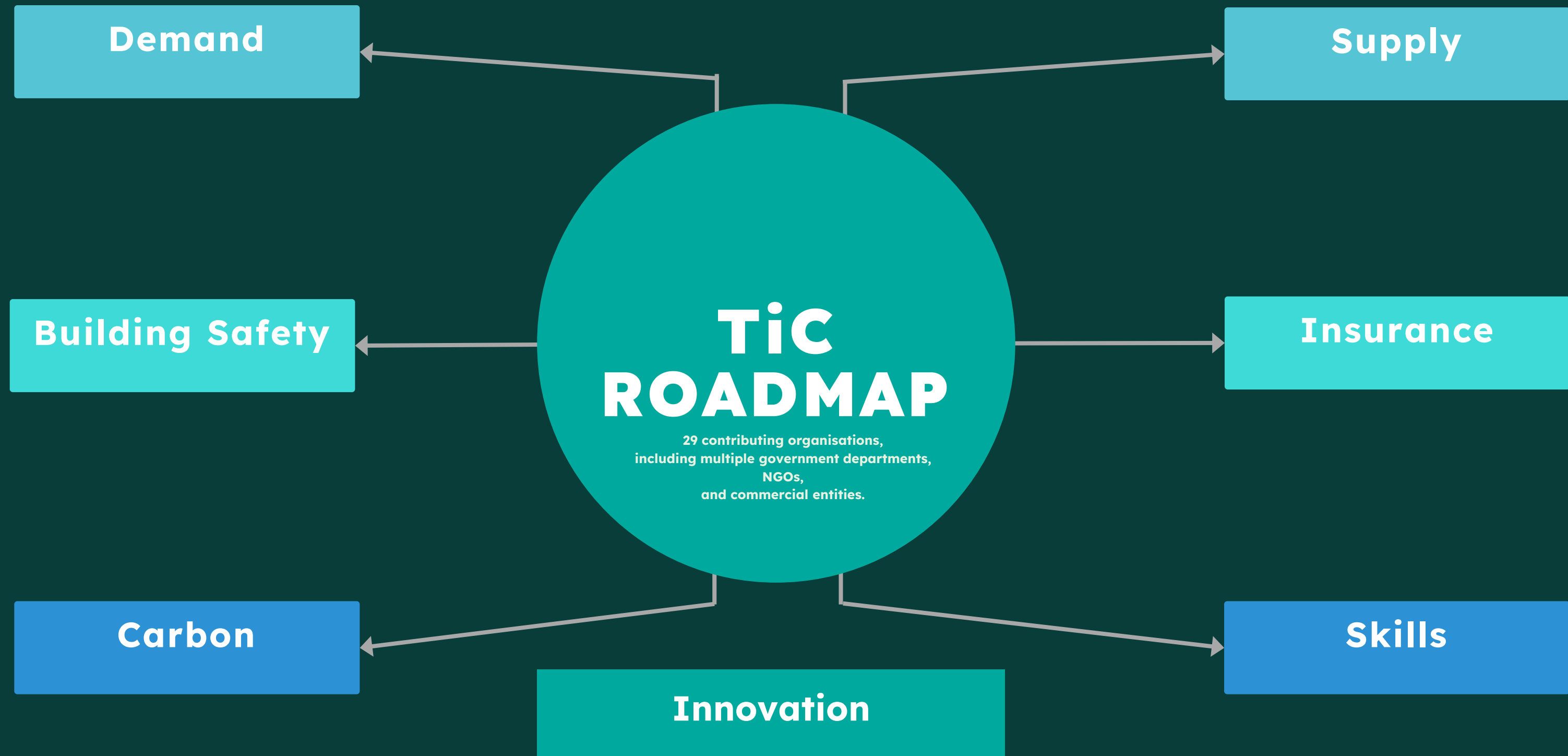
TDUK, STA, CONFOR, academics and industry partners have held several policy workshops with representatives from DEFRA, DLUHC and Forestry Commission

## 4. Publication

December 2023

The roadmap was published in December last year, and is now being acted upon by Government and industry.

# WORKING GROUP THEMES





# TIMBER IN CONSTRUCTION ROADMAP

Published: 11 December 2023



1

Improving data on timber and whole life carbon

2

Promoting the safe, sustainable use of timber as a construction material

3

Increasing skills, capacity and competency across the supply chain

4

Increasing the sustainable supply of timber

5

Addressing fire safety and durability concerns to safely expand the use of engineered mass timber

6

Increasing collaboration with insurers, lenders and warranty providers

7

Promoting innovation and high performing timber construction systems



## IMPROVING DATA ON TIMBER AND WHOLE LIFE CARBON

Improve reporting on embodied carbon in buildings and explore the potential of maximum embodied carbon levels in new buildings.

### Government will:

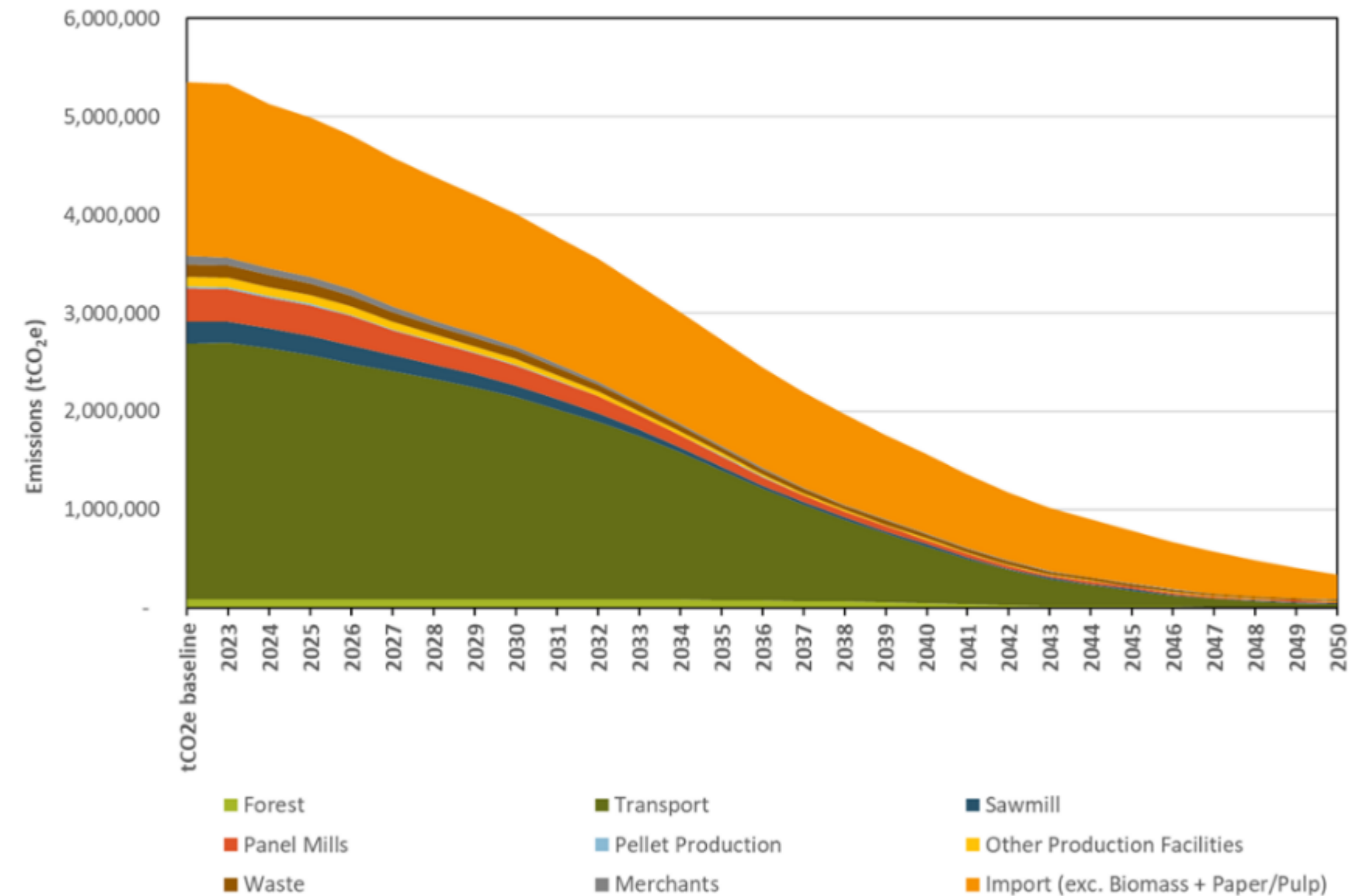
- Explore the potential of embodied carbon limits for buildings in the future.
- Explore effective and proportionate ways of deploying a broad carbon assessment.
- Expand and improve the evidence base for timber and embodied carbon.
- Work with industry and academia to expand and improve the evidence base for timber and embodied carbon by 2025

### Industry will:

- Continue voluntary work to measure and reduce embodied carbon.
- Encourage the inclusion of data on projects that use timber.
- Improve the quality of timber environmental product declarations (EPDs).



### TRANSITION TO NET ZERO BY SUBSECTOR



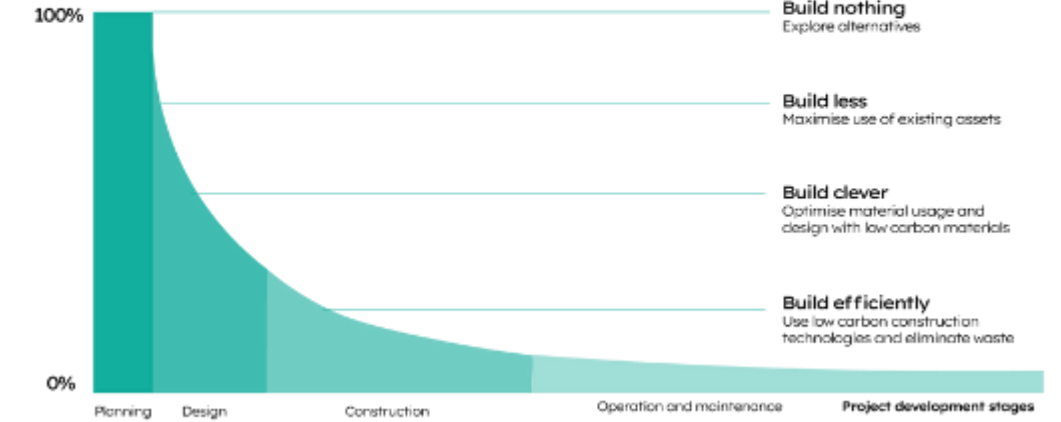
Source: Timber Industry Net Zero Roadmap.  
Available at <http://timberdevelopment.uk/resources/net-zero-carbon-roadmap/>



# WHAT WE'VE DONE

Released average weighted embodied carbon data for 95% of timber consumed in the UK

## Carbon reduction potential



## 2024 Embodied Carbon Data for Timber Products

Timber Development UK (TDUK) - the UK's trade association for the timber supply chain - has released average carbon data for the 10 major timber product categories - completely free for all to access.

This data will support architects, engineers, and other specifiers to make accurate assessments of the carbon impacts of their material choices as early in the design process as possible - when they have the greatest ability to influence them.

A1-A4 data is provided for 10 major timber products which means the EPD Database can be used to calculate the carbon impact of more than 95% of timber consumed in the UK.

The A1-A3 data draws only from EPDs for products available in the UK, with the data weighted based on a country of origin.

[DOWNLOAD NOW FOR FREE](#)



Table 1: Weighted average A1-A4 embodied carbon data for common timber products

	Number of EPD Data Points	Declared Unit	UK Average				Import Weighted Average				UK/Import Weighted Average			
			A1-A3 Biogenic Carbon Content kgCO <sub>2</sub> e/unit	A1-A3 Total Exc. Biogenic kgCO <sub>2</sub> e/unit	A1-A3 Total Inc. Biogenic kgCO <sub>2</sub> e/unit	A4 Transport kgCO <sub>2</sub> e/unit	A1-A3 Biogenic Carbon Content kgCO <sub>2</sub> e/unit	A1-A3 Total Exc. Biogenic kgCO <sub>2</sub> e/unit	A1-A3 Total Inc. Biogenic kgCO <sub>2</sub> e/unit	A4 Transport kgCO <sub>2</sub> e/unit	A1-A3 Biogenic Carbon Content kgCO <sub>2</sub> e/unit	A1-A3 Total Exc. Biogenic kgCO <sub>2</sub> e/unit	A1-A3 Total Inc. Biogenic kgCO <sub>2</sub> e/unit	A4 Transport kgCO <sub>2</sub> e/unit
Sawn Softwoods	19	m <sup>3</sup>	-764	107	-657	38	-742	56	-690	56	-750	74	-679	50
Cross Laminated Timber (CLT)	12	m <sup>3</sup>	N/A	N/A	N/A	N/A	-758	102	-655	83	-758	102	-655	83
Glue Laminated Timber (Glulam)	14	m <sup>3</sup>	N/A	N/A	N/A	N/A	-762	132	-630	69	-762	132	-630	69
Laminated Veneer Lumber (LVL)	3	m <sup>3</sup>	N/A	N/A	N/A	N/A	-782	273	-509	76	-782	273	-509	76
I-Joists	5	lm	-6.12	1.94	-4.18	0.28	-9.58	6.56	-3.02	0.59	-7.85	4.25	-3.60	0.43
Softwood Plywood	7	m <sup>3</sup>	N/A	N/A	N/A	N/A	-768	235	-561	168	-768	235	-561	168
Hardwood Plywood	5	m <sup>3</sup>	N/A	N/A	N/A	N/A	-871	596	-426	242	-871	596	-426	242
Orientated Strand Board (OSB)	6	m <sup>3</sup>	-973	112	-861	27	-1,025	217	-808	108	-989	143	-845	51
Medium Density Fibreboard (MDF)	4	m <sup>3</sup>	-965	258	-707	34	-1,069	432	-636	122	-1,020	350	-669	80
Chipboard	7	m <sup>3</sup>	-1,010	320	-690	23	-1,008	238	-770	81	-1,009	295	-714	40

### ARCHITECTS

"With a rightly increasing scrutiny within the industry of the climate impacts of construction, this data contribution enables design teams to move beyond 'rules-of-thumb' and 'gut feelings' to having a data-driven dialogue."



Seb Laon Lomas, Associate and Passivhaus Designer, Archtype

### ENGINEERS

"Having already compared these figures to some of our previous embodied carbon counts we can see a marked improvement. It's invaluable to have actual datapoints and verified, weighted average EPD information at early design stages to ensure that we make the right decisions."



Kelly Harrison, Director, Whitby Wood

### CONTRACTORS

"Consistent and up to date embodied carbon data is key to making accurate design decisions, particularly as the embodied carbon of timber continues to further improve... [this is] particularly valuable for supporting design teams at early design stages."



Michael Polack, Technical Manager, B&K Hybrid Solutions

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# PROMOTING THE SAFE, SUSTAINABLE USE OF TIMBER AS A CONSTRUCTION MATERIAL

Improve understanding of the properties, and challenge misconceptions, which surround the use of timber in construction.

## Government will:

- Consider options to measure and reduce embodied emissions in major public construction projects.
- Build three small school buildings that use the full GenZero system by 2025.
- Support the use of modern methods of construction (MMC) to deliver quality homes more quickly and more sustainably through Homes England's strategic plan.
- Work together to assess options and explore opportunities for scaling innovations in housing construction using English timber by 2025.

## Industry will:

- Promote timber through campaigns such as 'Time for Timber' and the 'Transforming Timber' web platform which showcases collaboration and best practice (ongoing).

**Use Class 2, 3 or 4?**  
INTERIOR and EXTERIOR environments are different - so treated wood performance levels should reflect this

BS 8417 groups the applications for treated wood into Use Classes, the main three being:

INTERIOR	EXTERIOR	
<b>Use Class 2</b> Above the ground or DPC, covered	<b>Use Class 3(u)</b> Above the ground (uncoated)	<b>Use Class 4</b> Ground or fresh water contact (and exterior structural support)
Internal construction timbers within the building envelope: Tiling battens, framing and roof timbers, internal joists, sole plates.	External construction timbers: Deck boards, fence rails and boards, cladding (including battens) and fascias.	External construction timbers: Fencing, fence posts, agricultural timbers, retaining walls, playground equipment, decking posts, joists and sub-structures.

WPA Wood Protection Association

engineerTimber - Engineering for Fire Safety  
149 views • 4 weeks ago

Timber and fire safety | Learn about our new resource  
106 views • 7 months ago

## FIND YOUR TIMBER PARTNER

Find the very best of the timber supply chain, all in one place.

## EXPLORE THE SUPPLY CHAIN

More than 1500 businesses and experts from across the timber supply chain appear in our directory, able to help your project from start to finish.

USE THE SEARCH TOOL

SUPPLY DESIGN BUILD

AGENT ANCELLARY DISTRIBUTOR IMPORTER  
MERCHANT SAWMILLER ARCHITECT ENGINEER  
EXTERIOR DESIGNER INTERIOR DESIGNER CARPENTER  
CONTRACTOR INSTALLER MANUFACTURER CONSULTANT

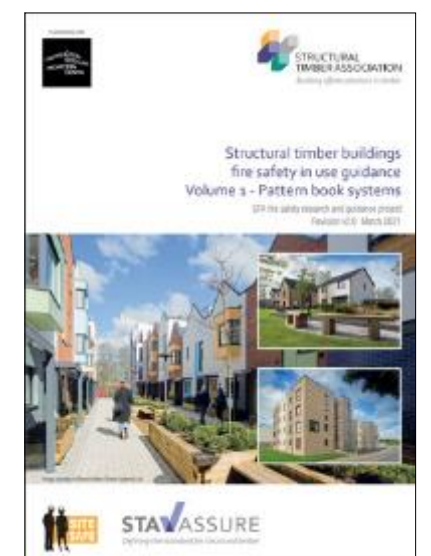
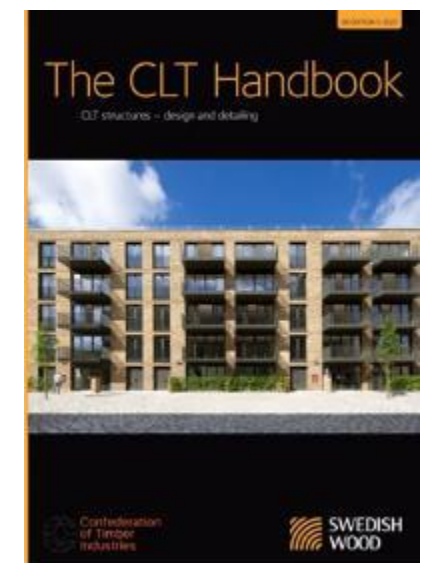
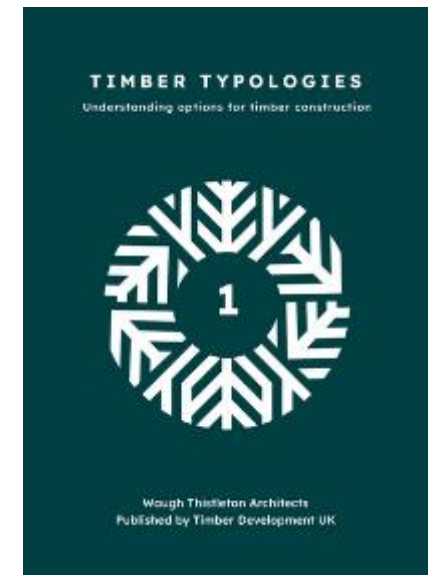




# MAJOR PUBLICATIONS

Major publications have been made free to download, including technical engineering manuals, fire in use pattern guides, and explainers on timber systems by industry bodies Swedish Wood, Structural Timber Association, and Timber Development UK.

**Free to download for all members.**





# WHAT WE'VE DONE

We support the New Model Building which demonstrates how to achieve compliance within existing regulations.



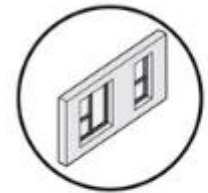
### ROOF

Encapsulated engineered timber roof structure. Installed to minimum 1:40 falls with BROOF(t4) certified roof build up



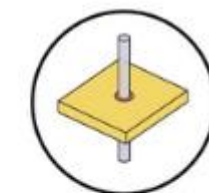
### STRUCTURE

Low embodied carbon, engineered timber structure. Fully encapsulated with K2-class gypsum board



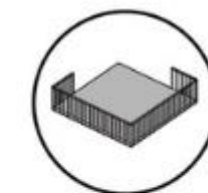
### FAÇADE

Non-combustible external wall system, designed in accordance with Part B Regulation 7



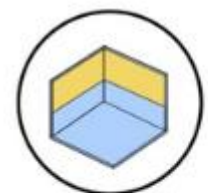
### PENETRATIONS

Penetrations through structure protected using compliant penetration details



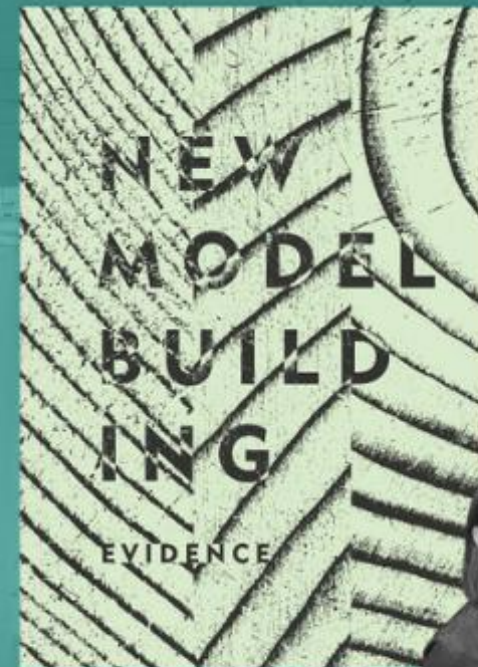
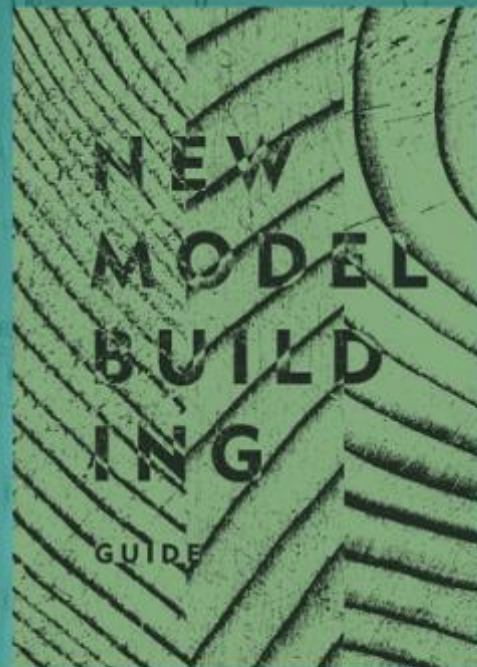
### BALCONIES

Non-combustible steel balconies, designed in accordance with MHCLG guidance documents



### WATERPROOFING

Best practice methods for prevention and mitigation of moisture ingress during construction, use and repair



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## INCREASING SKILLS, CAPACITY AND COMPETENCY ACROSS THE SUPPLY CHAIN

**Developing a skilled and competent workforce which is confident in the use and application of a range of timber systems.**

### **Industry and Government will:**

- Establish a representative multi-stakeholder industry forum to drive forward initiatives and align existing activity across all timber supply chain profession.
- Conduct research to quantify additional workforce requirements for a range of scenarios of increased use of timber in construction by December 2024
- Work together to better understand and resolve funding challenges in educational provision

### **Industry will:**

- Map routes to competency for each relevant timber occupation, including training and qualification requirements, current levels of training and education provision, and grant and funding availability by 2025.
- Improve its CPD offering to up-skill and re-skill the existing workforce by 2027 with a range of initiatives.





## WHAT WE'VE DONE

Wrote the Timber in Construction Action Skills Action Plan and put it into practice with NMITE.



## FIRST GRADUATES OF TIMBERTED

New courses, in addition to Timber Technology Engineering & Design, now being developed for specifiers.



## STA INSTALLER TRAINING SCHEME (ITS)

- New reference book
- Invigilated testing
- 3 Year programme
- Required by STA manufacturing members
- Link Back to Vocational Qualification







## INCREASING THE SUSTAINABLE SUPPLY OF TIMBER

Help support a sustainable, long-term supply of timber for the UK, particularly for construction products.

### Government will:

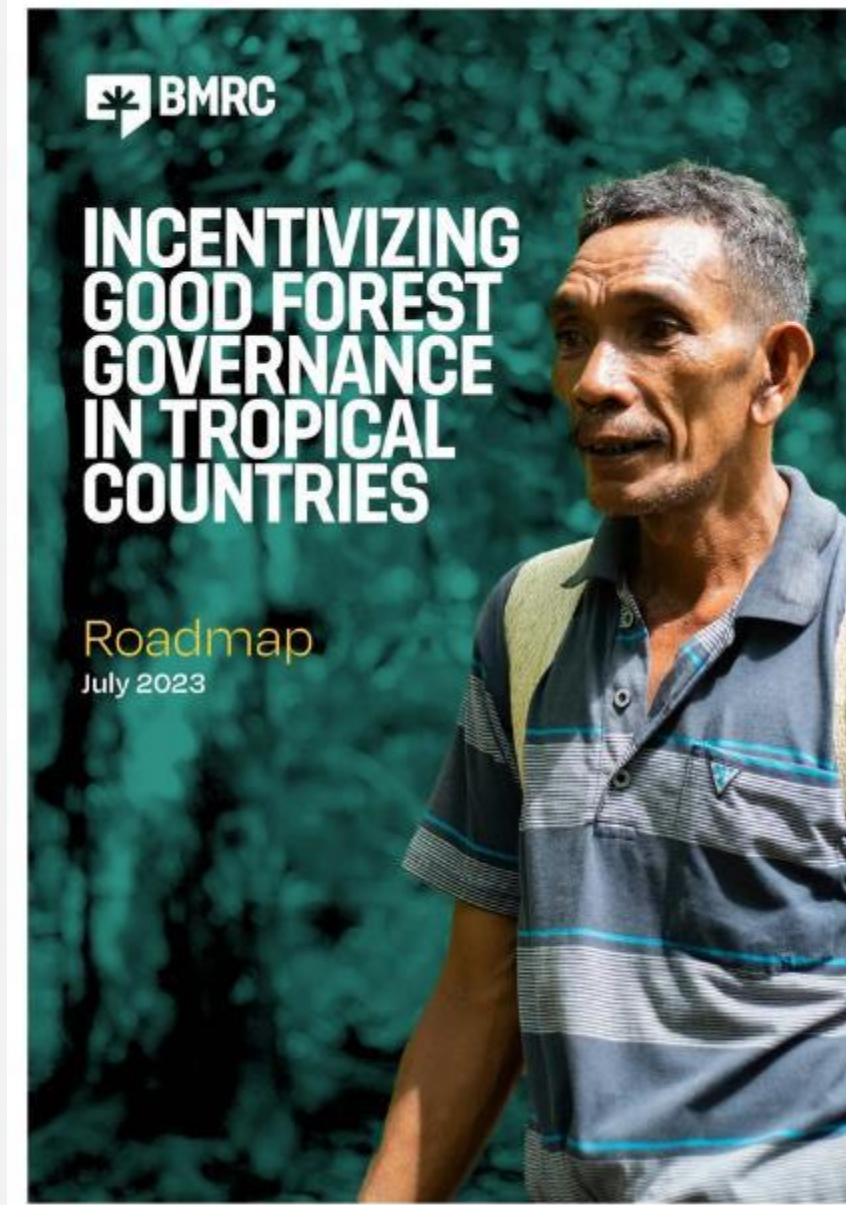
- Deliver against the statutory woodland cover target to increase the available domestic timber supply.
- Review the government's Timber Procurement Policy in 2024..
- Assess options for monitoring impact of policies promoting timber, with wider goals of tackling global deforestation.

### Industry will:

- Identify blockers that are preventing the use of more homegrown timber.
- Provide guidance to construction professionals on the use of homegrown wood-based construction products.

### Government and Industry will:

- Commission an audit of the supply chain in England and the UK by 2028 to better understand the current and potential circularity of wood and carbon stored within it



## Responsible Purchaser

Timber Development UK  
building a better world with wood



# WHAT WE'VE DONE

Published C16 Span Tables, which is the most common grade of construction timber grown in the UK.

**C24 Span Table - Domestic Flat**  
Access for maintenance and repair only.  
Imposed load not exceeding  $q = 1.02 \text{ kN/m}^2$

C24	Dead load $q_d$ per $\text{m}^2$ not more than $0.5 \text{ kN/m}^2$		C
	400 mm	450 mm	
38 x 57 mm	1.71	1.69	1.4
38 x 140 mm	3.07	3.01	2.1
38 x 184 mm	4.13	3.98	3.4
38 x 228 mm	5.25	5.06	4.7
45 x 95 mm	2.01	1.96	1.7
45 x 120 mm	2.71	2.67	2.1
45 x 145 mm	3.45	3.32	3.4
45 x 170 mm	4.08	3.89	3.1
45 x 195 mm	4.61	4.45	4.1
45 x 220 mm	5.14	5.00	4.7
72 x 120 mm	3.28	3.21	2.1
72 x 145 mm	4.02	3.86	3.1
72 x 170 mm	4.67	4.51	4.1
72 x 195 mm	5.24	5.15	4.7
72 x 220 mm	5.99	5.76	5.7
89 x 84 mm	5.28	5.19	4.7
89 x 228 mm	5.79	5.55	6.4

The above table provides a general summary of common sizes and spacings. The table is only for guidance and is not intended for use in the design of any structure. In preparing the table, Timber Development has assumed the complete design and build will be undertaken by competent people and that their engineering calculations will be undertaken to verify the guidance provided in the span table for each specific circumstance.

[www.timberdevelopment.co.uk](http://www.timberdevelopment.co.uk)

**C24 Span Table**

The following span tables indicate the C24 strength class timber members.

The following tables are solely for guidance and loadbearing capacity of solid softwood timber members to give adequate support to floors, ceilings, and roofs in domestic dwellings.

Use kiln-dried softwood in the appropriate strength class, grade stamped to comply with Eurocode 5. Moisture content or pressure treated timber should be specified where necessary to meet the requirements of the application service class and desired service life.

The calculation cannot be adapted for built or engineered timber products.

Always consult Eurocode 5 span tables when calculating spans.

In preparing these tables, Timber Development has assumed the complete design and build will be undertaken by competent people and that their engineering calculations will be undertaken to verify the guidance provided in the span table for each specific circumstance.

[www.timberdevelopment.co.uk](http://www.timberdevelopment.co.uk)

**C16 Span Table - Domestic Ceiling**  
Imposed load not exceeding  $q = 0.25 \text{ kN/m}^2$  and  $q_d$  not more than  $0.25 \text{ kN/m}^2$

C16	Dead load $q_d$ per $\text{m}^2$ not more than $0.25 \text{ kN/m}^2$		C
	400 mm	450 mm	
38 x 84 mm	1.50	1.49	1.4
38 x 140 mm	2.74	2.70	2.1
38 x 184 mm	3.85	3.78	3.4
38 x 228 mm	5.15	5.04	4.7
45 x 95 mm	1.78	1.74	1.7
45 x 120 mm	2.42	2.38	2.1
45 x 145 mm	3.08	3.03	3.4
45 x 170 mm	3.75	3.64	3.1
45 x 195 mm	4.42	4.30	4.1
45 x 220 mm	5.04	4.99	4.7
72 x 120 mm	2.85	2.80	2.1
72 x 145 mm	3.72	3.64	3.1
72 x 170 mm	4.49	4.40	4.1
72 x 195 mm	5.25	5.13	4.7
72 x 220 mm	6.02	5.90	5.7
89 x 84 mm	5.30	5.20	4.7
89 x 228 mm	5.65	5.74	6.4

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**C16 Span Table**

The following span tables indicate C16 strength class timber members.

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**TIMBER DEVELOPMENT UK**

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Timber Knowledge Sheet

Category  
Design

Author  
Author (Designer)  
Engineer (Designer)

Theme  
Span Tables

Number  
Borehole Search for "C16"

**KNOWLEDGE LIBRARY**

## C16 Span Tables

Span tables determine the size of a timber member of a particular strength class needed for a given span, plus the maximum spacing between each timber member or section.

[→](#)







# ADDRESSING FIRE SAFETY AND DURABILITY CONCERNS TO SAFELY EXPAND THE USE OF ENGINEERED MASS TIMBER

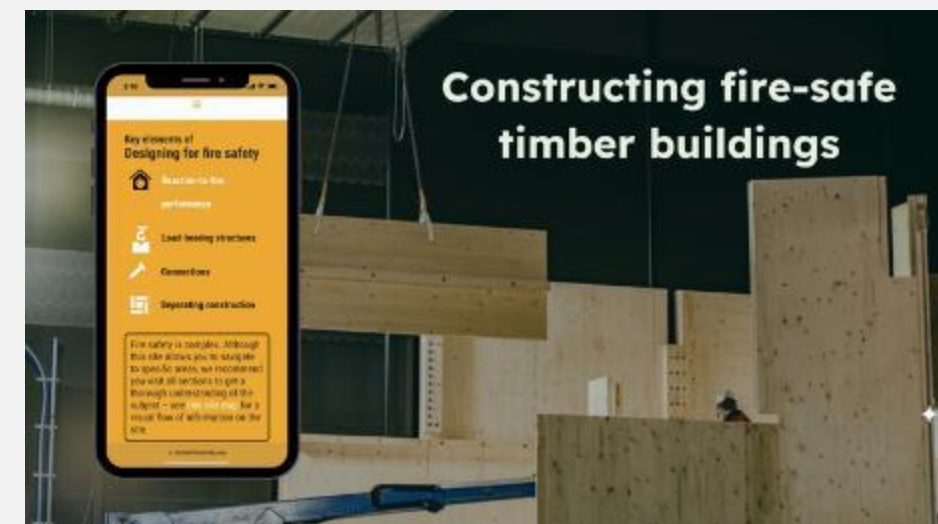
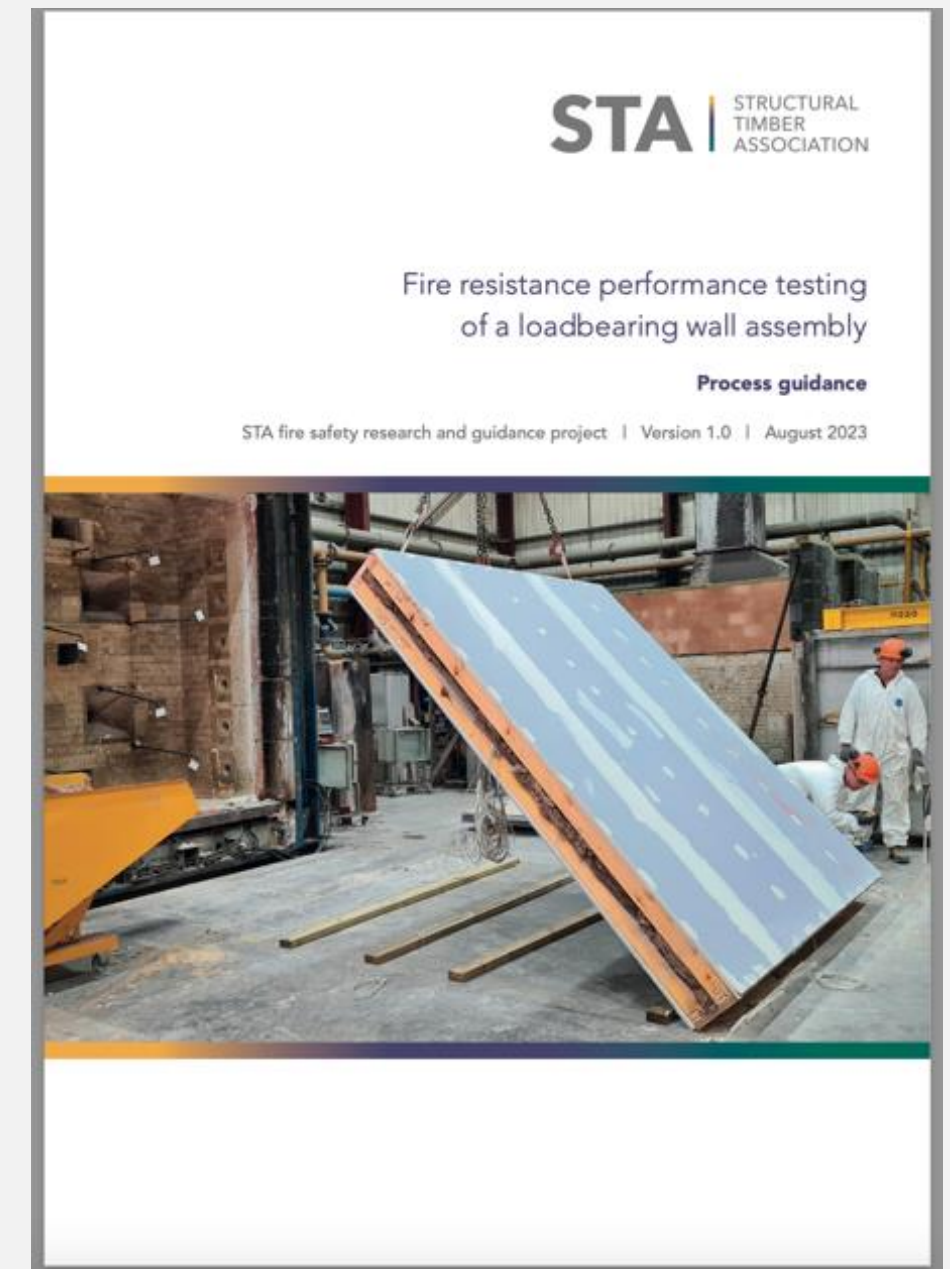
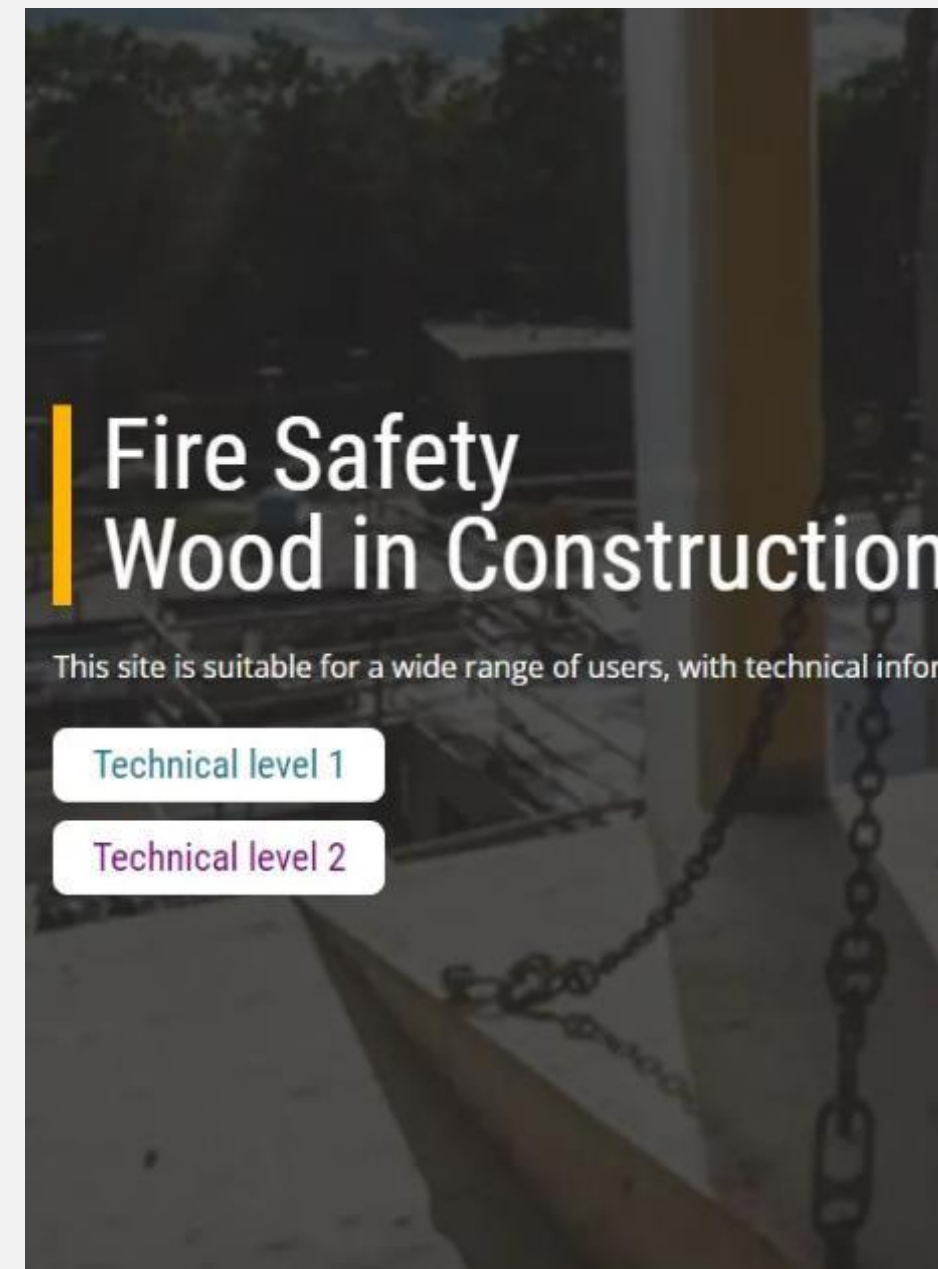
Work with industry, academia, and the Building Safety Regulator to further investigate outstanding fire safety, durability, and competence questions.

## Government and Industry will:

- work with industry, academia and the Building Safety Regulator to research outstanding safety, durability, and competency questions towards closing the evidence and competence gaps for the expansion of engineered mass timber beyond low-rise buildings over the next five years.

## Industry will:

- continue to support the Fire Safety Hub web platform to promote data sharing and best practice guidance on timber construction and fire safety that aligns with building regulations (ongoing)
- develop and share best practice from demonstrator projects which meet functional building regulations.



# WHAT WE'VE DONE

Developed the Timber Fire Safety Website, with plans to integrate demonstrator projects in Q3 2024.

Users	Technical level 1	Technical level 2
<b>Design</b> Architects, structural engineers, fire engineers and structural fire engineers	✓	✓
<b>Construction</b> Timber-specific and fire product supply chain for timber construction, and contractors	✓	✓
<b>Regulation</b> Building Control, LABC (UK), standardisation and regulators	✓	✓
<b>Clients/project management</b> Developers, owners, mortgage lenders, insurers, architects and project managers	✓	
<b>Fire brigade</b>	✓	

## Fire Safety Wood in Construction

This site is suitable for a wide range of users, with technical information levels 1 and 2 available on closed toggles.

Technical level 1

Technical level 2

### Key elements of Designing for fire safety

-  Reaction-to-fire performance
-  Load-bearing structures
-  Connections
-  Separating construction

10

INDUSTRY EXPERTS

150

PAGES OF GUIDANCE





# INCREASING COLLABORATION WITH INSURERS, LENDERS, AND WARRANTY PROVIDERS

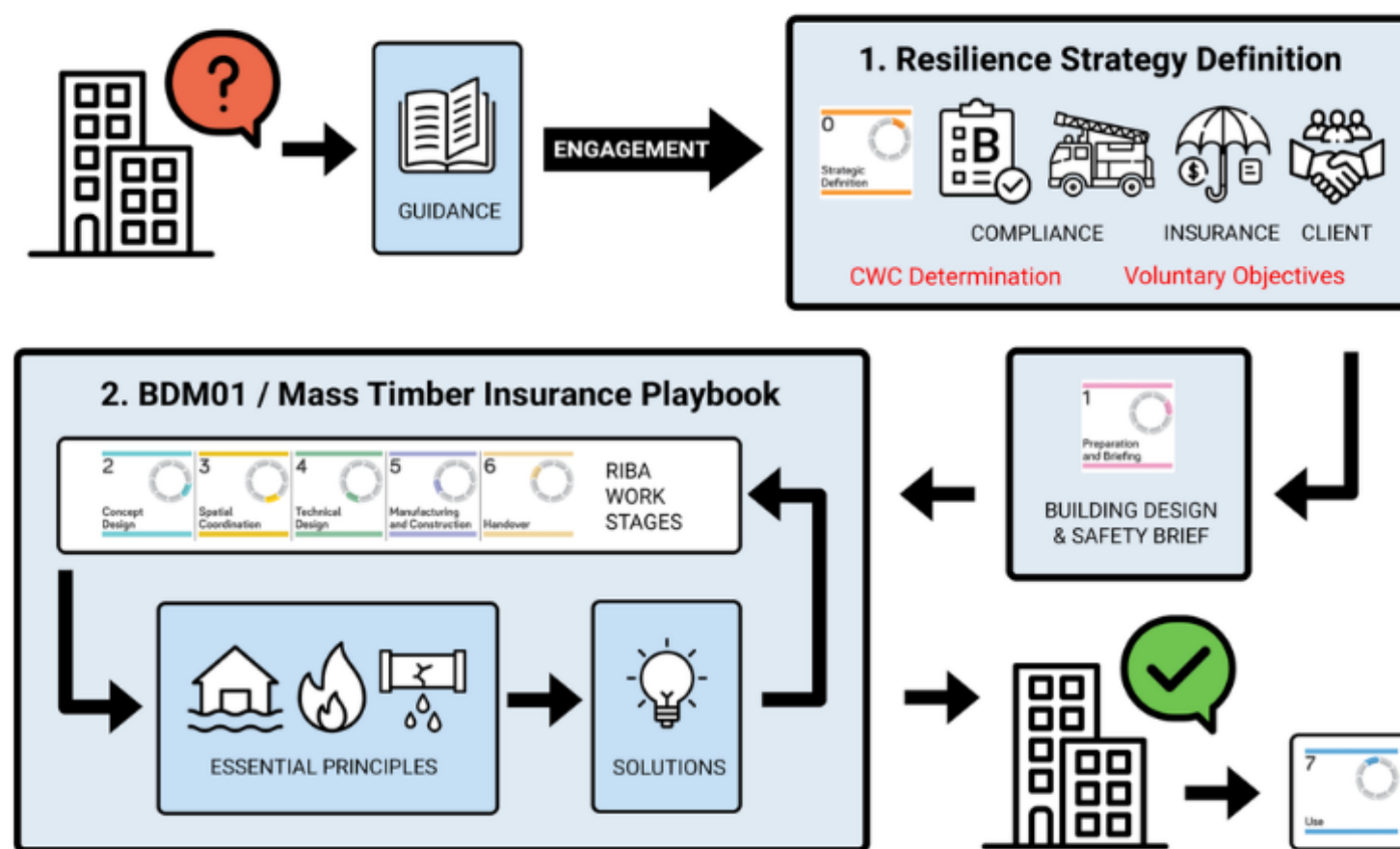
Work with industry, academia, and the Building Safety Regulator to further investigate outstanding fire safety, durability, and competence questions.

Government and industry will:

- Explore the feasibility of creating an asset register of anonymised data relating to mass timber buildings, including international data by 2028
- Work together to facilitate greater dialogue between the insurance sector and developers to foster collaboration during and post construction by 2028



Figure 1: Process (p08)



The Mass Timber Insurance Playbook

<https://asbp.org.uk/project/mass-timber-insurance-playbook>

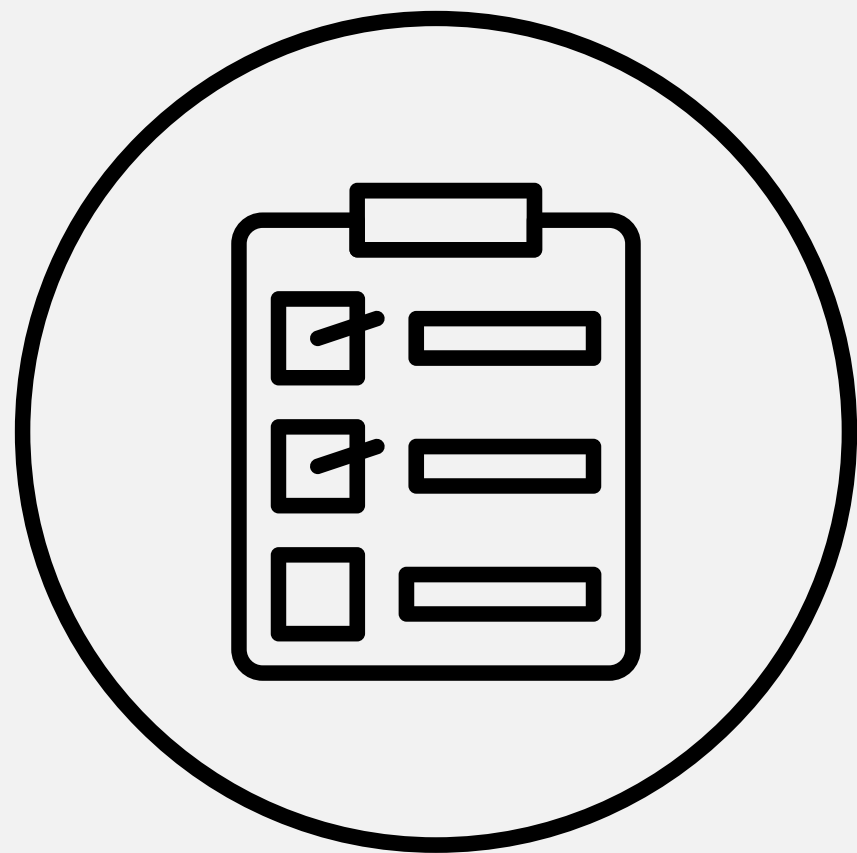




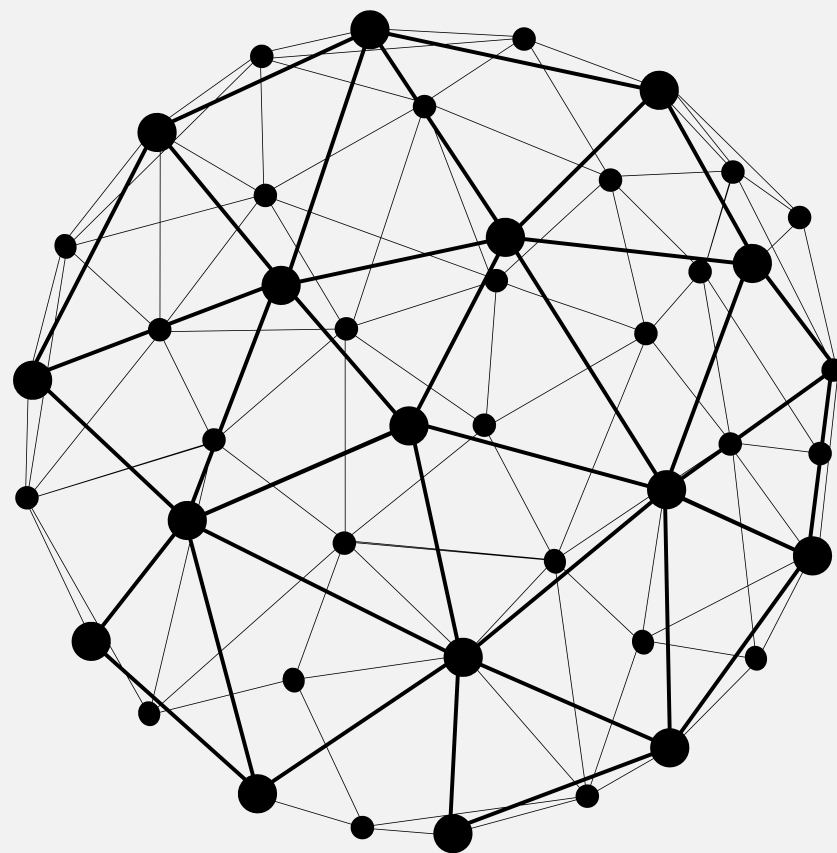
## WHAT WE'VE DONE

Supported the Mass Timber Insurance Playbook, and initiated a new set of projects to manage risk.

### Durability Work Book



### Mass Timber Asset Register



## EARLY STAGES

Both projects aim to improve how risk is managed and communicated.

The Durability Work Book will help teams build evidence for development teams for insurers as an exercise book,

The Mass Timber Asset Register will aim to improve data on long term durability of mass timber projects, improve evidence, and ensure early mitigation of emerging issues.

These projects are a collaboration between industry, insurers, and government.



Government and industry working together to improve engagement

STA Assure – Quality Assurance Programme  
Levels of excellence

Gold

Silver

Bronze

Design and Engineering Standards  
Manufacturing Controls

QA Systems transfer from factory to site  
Follow on Trades – care points and duty to warn

The STAV ASSURE logo features the word 'STAV' in a large, bold, grey font. The letter 'V' is stylized as a large, blue checkmark. Below 'STAV' is the word 'ASSURE' in a smaller, bold, grey font.







# PROMOTING INNOVATION AND HIGH PERFORMING TIMBER CONSTRUCTION SYSTEMS

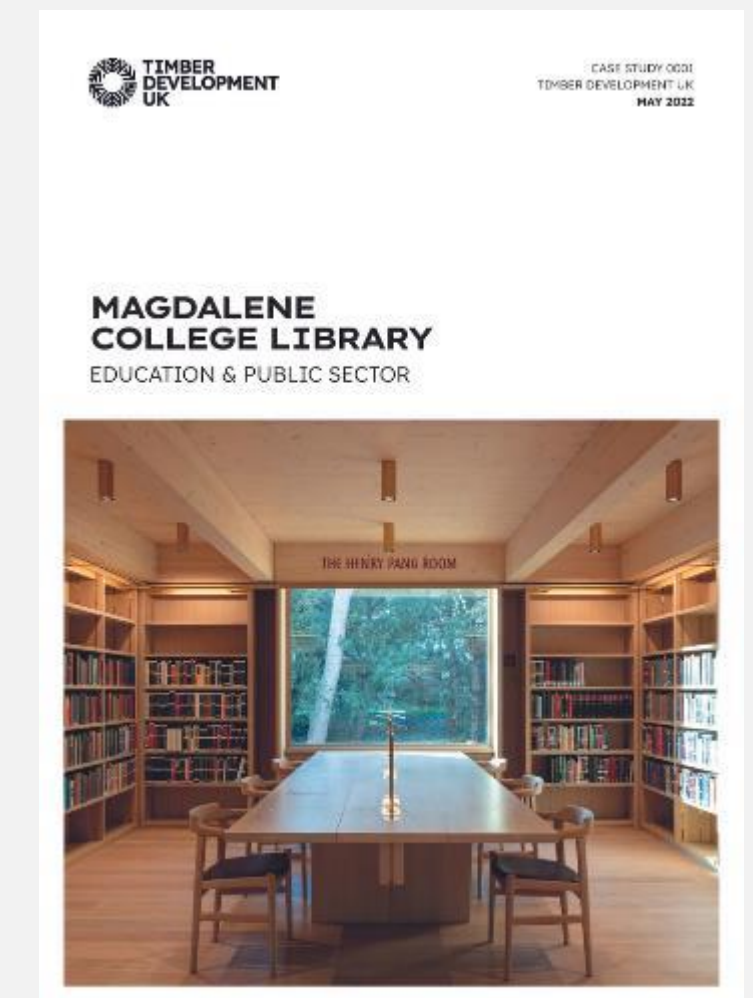
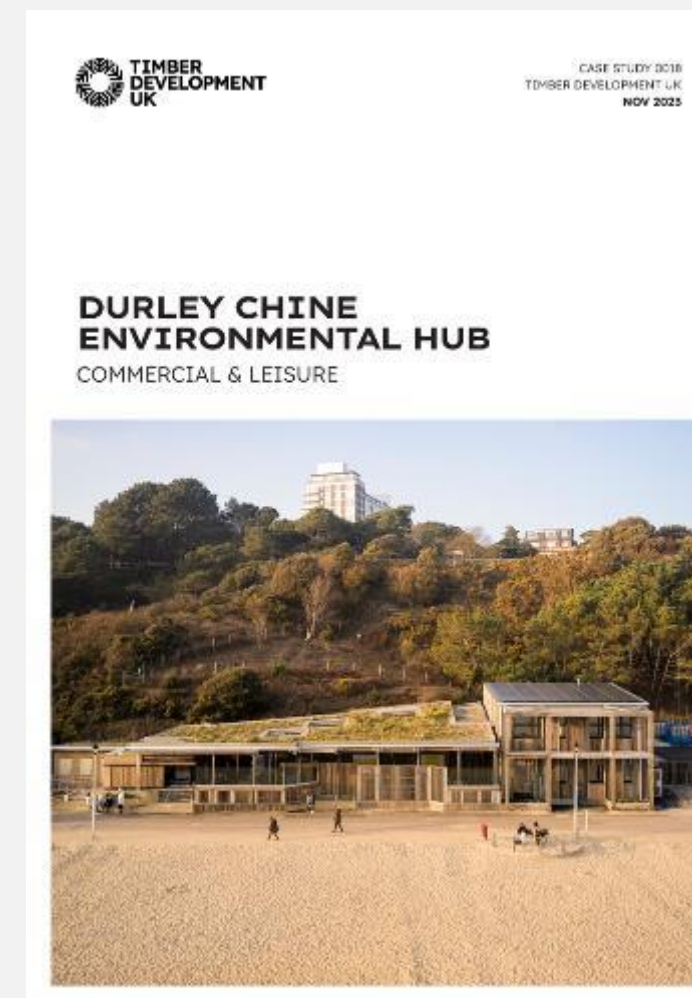
**Work with industry, academia, and the Building Safety Regulator to further investigate outstanding fire safety, durability, and competence questions.**

## Government will:

- publish a new universally recognised Publicly Available Specification (PAS) standard (created by the BSI), for homes built using Modern Methods of Construction, which will include references to timber and is set to be published by 2025.
- promote the results from the Timber in Construction Innovation fund projects so that learning can be used and applied more widely by 2025.

## Industry will:

- Continue to publish, promote and maintain best practice technical standards for structural and non-structural timber enabling procurers in the construction sector to specify, and manufacturers to deliver, with confidence (ongoing)





# WHAT WE'VE DONE

Released more than 50 Timber Knowledge Sheets, with another 100+ to be published this quarter.





**TIMBER TYPOLOGIES**

Understanding options for timber construction



Waugh Thistleton Architects  
Published by Timber Development UK

**TIMBER POLICY**

Understanding low carbon policies for timber construction



by Waugh Thistleton Architects  
Published by Timber Development UK

**MANY COUNTRIES SEEKING TO  
DECARBONISE CONSTRUCTION**

How are they doing this?

- Carbon policy
- Publicly funded timber building
- Financial incentives
- Advocacy
- Regulation change
- Mandated use of timber in construction

**Timber Policy released as a free  
download last month.**

Comparative study of global policies which  
support timber in construction.

 **DOWNLOAD**

**‘Our mission is for timber to be accepted as the first choice for any construction project in the UK, and as the best route to decarbonise the built environment.’**





# BUILDING A BETTER WORLD WITH WOOD

↑ Image © David Grandorge. Homerton College Dining Hall,  
from Feilden Fowles. Via Wood Awards



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