BUILT BY NATURE

SYSTEMIQ

TIMBER IN REAL ESTATE

Understanding investor perceptions

Contents

About this report

This report was funded by Built by Nature, and developed by Systemiq, to explore investor perceptions on the use of timber as a low-carbon alternative to steel and cement in new and redevelopment projects. This was done through a series of interviews with real estate investors and developers across the UK, Europe, and North America. The report highlights the key factors influencing investor decision-making on embodied carbon, and the main benefits and challenges that were identified by investors on the use of timber specifically. The report concludes with a set of recommendations and next steps to help scale demand for sustainable timber in the real estate market.

***About Built by Nature*:** Built by Nature (BbN) is a network and grant-making fund – backed by philanthropic funding - with a mission to accelerate the timber building transformation and a vision for a built environment that works in unison with nature. BbN supports the built environment sector's pioneering developers, architects and engineers, asset owners and managers, investors and insurers, city leaders, academics, researchers, non-profits, and policymakers in their journey to decarbonise our built environment and protect nature. The Built by Nature Fund makes grants to the teams and solutions that can increase the uptake of biobased materials and sustainable timber and improve their climate impact, overcoming the most challenging barriers. . https://builtbn.org/

***About Systemiq*:** Systemiq, the system-change company, was founded in 2016 to drive the achievement of the Sustainable Development Goals and the Paris Agreement, by transforming markets and business models in five key systems: nature and food, materials and circularity, energy, urban areas, and sustainable finance. A certified B Corp, Systemiq combines strategic advisory with high-impact, on-the-ground work, and partners with business, finance, policymakers and civil society to deliver system change. Systemiq has offices in Brazil, France, Germany, Indonesia, the Netherlands and the UK.

Authors and Acknowledgements: This paper was authored by Mike Batley, Jasmine Dhingra, and Amy Paterson from Systemiq. During the development of this paper we spoke to a range of real estate investors, developers, and representatives from investor networks and organisations to gather their perspectives. We gratefully acknowledge the valuable contributions from each of these individuals and organisations.

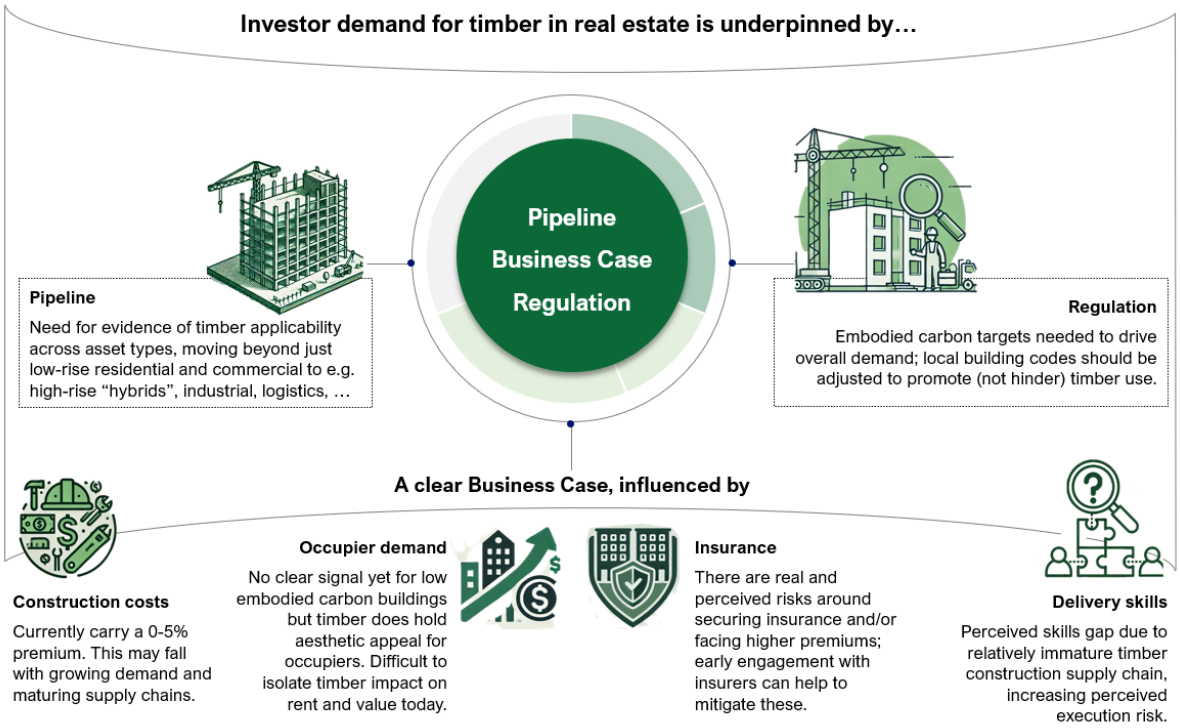
Executive summary

Addressing embodied carbon in real estate is critical. Embodied carbon represents 11% of global greenhouse gas emissions and can account for as much as 50% of a building's total life-cycle emissions[1]. Unlike green steel and cement, which face significant cost and technological barriers, timber has emerged as a mature and comparatively market-ready solution for reducing embodied carbon in construction, especially in the near-to-mid-term. To understand investor perceptions on timber and to identify what is needed to boost confidence in its use, we conducted a series of interviews with c.20 direct real estate investors, developers, and investor networks and organisations across the UK, Europe, and North America.

Embodied carbon is increasingly recognised as an important factor in real estate investments, particularly for those investors who see sustainability as core to their strategy. Such investors are taking a more hands-on approach, engaging with developers early to influence design (and reduce carbon) and staying involved throughout the project lifecycle. More broadly, however, the integration of embodied carbon into the investment decision-making process remains limited. Despite growing awareness, investor action faces barriers including a lack of clear occupier demand for low embodied carbon buildings, fragmented regulation, and inconsistent data and measurement methodologies.

For most, risk and return are the dominant considerations, in line with their investment mandates. The investors we interviewed stressed the need for three key elements to drive progress on low carbon, timber developments: **a pipeline of suitable projects, a clear business case, and a favourable regulatory environment**. **Exhibit 1** summarises our key insights across these three elements.

Exhibit 1: Investor insights on timber adoption in real estate



First, there is a perception amongst some that the pipeline for timber projects is constrained, being limited to low rise commercial and residential assets. Such investors believed timber had limited applicability for other asset types such as high-rise commercial, industrial, and logistics assets, restricting its adoption in their portfolios. This view may be rooted in existing regulatory standards and building codes which, for example, can limit mass timber building height. However, there may also be the need to further educate

[1] WGBC (2019). Bringing embodied carbon upfront; RMI (2024). The business case for reducing embodied carbon.

investors and showcase innovative and diverse uses of timber to inspire. These could include high-rise timber and steel/cement "hybrid" buildings, and examples of timber use in industrial and logistics assets.[2]

Second, the business case for mass timber is still evolving. There is a construction cost premium of approx. 0-5%[3] versus traditional materials. Such cost increases are a concern, though they are expected to decline as demand rises and supply chains mature. More importantly perhaps, the business case is also impacted by uncertainty around the value-add of timber buildings, as occupier demand and willingness to pay for these properties remains unclear in the broader market, though the material is known to have aesthetic appeal for tenants, and perceived execution risks, particularly around securing insurance and finding suppliers with the right delivery expertise. The number of mass timber buildings is growing[4], so some leading investors and developers evidently see a positive case, but there is more work to be done to communicate this to the rest of the market.

Finally, the lack of consistent (and robust) regulation on timber and embodied carbon is a key obstacle. This comes in two forms. First, a lack of national embodied carbon targets for new developments and redevelopments, except for a few markets such as France and Denmark, limits investor appetite to tackle these emissions. However, future changes through the EU's Energy Performance of Buildings Directive (EPBD) and Carbon Border Adjustment Mechanism (CBAM) should increasingly push the market toward low-carbon materials like timber. Second, many local building codes can add further cost and complexity to timber projects (including the need to add back high-carbon materials like concrete) to address perceived safety and performance concerns.

We conclude that to scale up demand for mass timber projects, investors need to be assured that returns are at least comparable with traditional buildings without significantly higher execution risks. To accelerate timber adoption in real estate, there are three unlocks. First, we must showcase timber's versatility by demonstrating its successful application in a wide range of sectors and building types. Second, we need to develop a clear and robust evidence base for investors on the business case for timber buildings, including cost, return and carbon performance vs. traditional buildings, emerging demand signals from occupiers, and how to successfully mitigate real and perceived execution risks (insurance, delivery skills). Finally, it is essential to enhance regulations by implementing clear and ambitious embodied carbon targets whilst updating building codes to promote timber use.

[2] There are emerging examples of timber being used in industrial and logistics projects (e.g. high-density industrial spaces made of engineered timber by dRMM in Greenwich, Garbe Industrial Real Estate and NREP, and Logistics Centre West (LCW) in the Netherlands) and in "hybrid" high-rise buildings alongside steel and cement (e.g. Timber Square, expected completion in 2025, will be one of the most significant commercial developments in the UK to use a hybrid steel/concrete and timber structure).
[3] Indicative range based on investor interviews.
[4] Woodworking Network (2024) Mass-timber garnering mass appeal.

Section I: Introduction and motivation

Over 60% of European real estate investors have a net zero target, and nearly half of these include Scope 3 emissions.[5,6] Achieving net zero scope 3 requires tackling embodied carbon, which represents 11% of global GHG emissions.[7]

Embodied carbon can account for 50% of a building's life-cycle emissions[8] and is fixed at the outset, unlike operational carbon which can be mitigated over time as energy efficiency improves and electricity grids transition to clean energy. Addressing embodied carbon requires a fundamental shift in design and construction practices including the prioritisation of retrofits over new developments, material efficient design, re-use of materials and circularity, and the adoption of low carbon alternatives such as green steel/cement, and timber or other bio-based materials.

While low-carbon primary steel production technologies are expected to reach the market by the 2030s[9], these could still carry a significant cost premium of approx. 20 – 25%[10]. Similarly, use of green concrete is still subject to significant cost and technical barriers.[11] This underscores the importance of timber as a comparatively mature and "market-ready" solution for reducing embodied carbon in construction, particularly in the near-to-mid-term.

Investors, as the ultimate asset owners, play a crucial role in reducing embodied carbon emissions and addressing broader environmental and social issues by mobilising capital, influencing design, and funding development and redevelopment projects. Their views on the use of timber as a low-carbon alternative are central to understanding (and in turn influencing) demand. Our goal in this project, therefore, was to better understand investor perceptions on the use of timber and what is needed to give them the confidence to scale up deployment.

Section II: Process and methodology

To better understand investor perceptions, we interviewed c.20 real estate Limited Partners (LPs), General Partners (GPs), Developers, and Investor Networks and Organisations as set out in **Exhibit 2**.

Our primary focus was targeting developers and investors (LPs/GPs) directly involved in the development and redevelopment process, i.e. *direct* asset owners as opposed to *indirect* asset owners, given their ability to influence asset design and material composition. **Exhibit 3** illustrates a highly simplified view of key investor categories in the real estate value chain. It's important to note that many investors operate in more than one category. For instance, some investors may have both direct and indirect holdings. Additionally, a significant segment of the market is composed of integrated developer-investors. These entities, such as certain Real Estate Investment Trusts (REITs), often consider themselves "real estate companies" rather than solely investors or developers. They typically engage in a mix of buying existing assets, developing new properties, and managing assets through their in-house teams.

Within this cohort we aimed to cover a mix of investor types, ranging from smaller investors focused on one market to larger investors covering multiple geographies. In general our focus was on investors covering the UK, European, and North American markets. We also targeted investors and developers with significant experience in using timber (and other bio-based materials) in new projects and redevelopments, as well as those who were less familiar with but had still explored timber at a high-level.

In these interviews, our questions covered four key discussion areas:

- Views on incorporating embodied carbon into the (re)development process and the role of timber
- The key benefits of timber, both financial and non-financial

[5] ULI (2023). C-Change survey, decarbonisation rises up the investment agenda.
[6] BBP (2023). Infographic. Scope 3 emissions themselves typically constitute 85% of the GHG emissions arising from real estate investor portfolios.
[7] WGBC (2019). Bringing embodied carbon upfront.
[8] RMI (2024). The business case for reducing embodied carbon.
[9] Mission Possible Partnership (MPP). Steel sector transition analysis.
[10] McKinsey (2022). Net-zero steel in building and construction: The way forward.
[11] CBRE (2021). Is green cement making concrete progress?

- The key challenges around deploying timber
- The key unlocks needed to drive greater demand for sustainable timber

Exhibit 2: Real estate investors, developers, and investor networks and organisations interviewed

Peter Hebin Bruun, Head of ESG, **ATP Ejendomme**

Edward Dixon, Head of Sustainability, Private Markets, **Aviva Investors**

Jonathan Hulbert, Head of Programme Management, **Better Buildings Partnership**

Theo Michell, COO, **Bywater Properties**

John Davies, Head of Sustainability, **Derwent London**

Maaike Hof, Executive Board Member, **GREEN**

Blair Astle, Principal, Real Estate Sustainable Investing, **HOOPP**

Laurence Desmazieres, Managing Partner, **ICAWOOD**

Bertrand Absolut, Sustainable Investment, **Ivanhoé Cambridge, the real estate group of CDPQ**

Alexia Laird, Sustainability Director, **Landsec**

Nina Galbiati, Head of Sustainability, Real Estate, **Norges Bank Investment Management**

Abigail Dean, Global Head of Strategic Insights, Real Assets, **Nuveen**

Clemens Brenninkmeijer, Head of Sustainability, **Redevco**

Nils Rage, Head of ESG, **Stanhope**

Charlie Green, Co-Founder, **The Office Group**

Erik Reichmuth, Managing Director, **Timber Finance Initiative**

Jonathan Flaherty, Global Head of Sustainability, **Tishman Speyer**

Johan Hallgren Madsen, Head of Decarbonization , **Urban Partners**

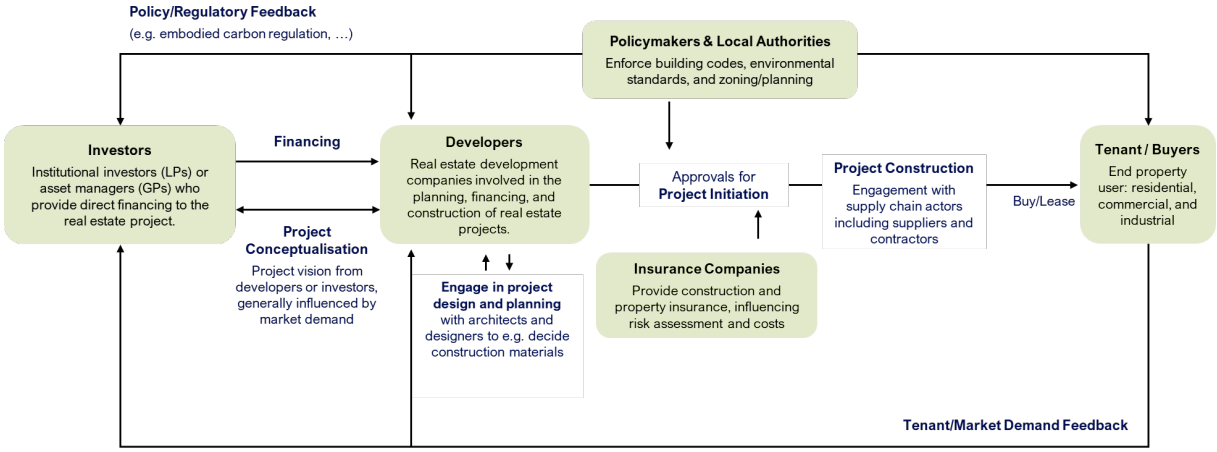
Exhibit 3: Key investor categories in real estate development

		Pre-Development Phase	Development Phase	Post-Development Phase
Investor Category	**Role Definition**	This stage involves market research, feasibility analysis, site selection, concept development, and planning approvals.	This stage includes financing through banks and investors, master planning and construction.	This stage focuses on asset management to optimise financial performance, including securing and managing tenants.
Direct Investors (GPs and LPs)	Institutional investors (LPs) or asset managers (GPs) who provide direct financing to the real estate project.	*Usually only a limited role, however pro-active investors may engage developers earlier to shape project design.*	Provide financing to enable the development and construction process. GPs will typically be closer to day-to-day operations and asset management than LPs.	
Developers	Real estate development companies involved in the planning, financing, and construction of real estate projects.	End-to-end project management from planning to construction and early asset operations/leasing activities. Following project completion developers may retain their stake or exit. In residential developments developers often adopt a Build-to-Sell model versus a Build-to-Rent model for commercial developments.		
Integrated Real Estate Investor - Developer	Investors, asset managers, companies, or REITs that combine development and investment roles, often engaging in both buying and managing standing assets and using in-house developer teams to build new projects.	Potential to be actively involved across all project stages depending on their strategy, with in-house teams managing development, investment, and management aspects.		
Indirect Investors *(Out of scope of this study)*	Indirect investors (LPs and/or GPs) who do not invest directly into real estate projects but invest through vehicles like Real Estate Investment Trusts (REITs) or real estate funds, which may invest in projects at various stages.	*N/A – not involved in individual projects*		

In this paper we set out our key leanings from these interviews on embodied carbon and the role of timber in the (re)development process, including the importance of interactions between key stakeholders such as investors, developers, contractors and suppliers, policymakers, insurance providers, and occupiers.

To help understand how these stakeholders interact, the development process for new buildings is shown in **Exhibit 4** below. The process for redevelopment of standing assets is similar, though here it is more often overseen by the investor/asset owner who may then engage external redevelopment and project management partners to plug any capability gaps.

Exhibit 4: Stakeholder interactions in development projects



Section III: Key learnings on incorporating embodied carbon into (re)development, the role of timber, and the main benefits and challenges of deploying timber

There is an increasing recognition of the importance of embodied carbon amongst investors, but its integration into the investment process is still limited.

Embodied carbon is increasingly being recognised by investors with scope 3 net zero targets and incorporated to some extent into investment considerations. However, there is a wide spectrum of integration. Some more ambitious investors are setting clear embodied carbon targets for their (re)developments, some are still seeking consistent data to understand embodied carbon baselines, and others are not yet tackling it at all. In general, those we interviewed felt embodied carbon was swiftly coming up the agenda for investors, but was still several years behind operational carbon in terms of integration into the investment process due to a lack of data and a clear economic case (*see below*).

Widespread action on embodied carbon faces several barriers, including a lack of occupier demand, limited regulation, and inconsistent data.

***Lack of occupier demand*:** Investors we interviewed generally observed there is no strong demand signal *yet* from occupiers around embodied carbon, except, perhaps, from a handful of the most ambitious corporates with net zero targets. This broadly stems from limited education on the matter and occupiers' primary focus on operational carbon. Crucially, the fact that occupiers do not need to account for embodied carbon in their emissions reporting (as opposed to operational carbon) removes an obvious incentive for them to act.

***Limited embodied carbon regulation*:** In addition to a limited demand pull from occupiers, in most markets today there is no clear push from regulators on embodied carbon. Exceptions include France and Denmark which have quantitative embodied carbon limits for new developments that decrease over time.[12] In the absence of such regulation elsewhere there is limited incentive for investors to move quickly.

***Inconsistent Lifecycle Assessment (LCA) data and methodologies*:** The absence of a widely accepted methodology for assessing embodied carbon across a building's lifecycle creates further challenges in accurately measuring and comparing the impact of low carbon materials and construction methods.

[12] GRESB (2023). *Embodied carbon: What it is and how to tackle it*.

Investors proactively tackling embodied carbon typically engage earlier with developers and are more "hands on" throughout the (re)development process.

Direct real estate investors can take a range of approaches towards property development. However, traditionally the investor enters the process once planning permission has been secured and initial building designs agreed (a process led by the developer). In such scenarios investors have less ability to influence project design. Developers in turn are incentivised to design buildings they believe will appeal to the broadest segment of investors (from a risk/return perspective), limiting appetite to experiment with low embodied carbon materials such as timber that they may be less familiar with, and where there is a less obvious investor demand.

Accordingly, investors who are more ambitious on embodied carbon typically engage much earlier in the development process (or leverage in house development teams) to better influence design and choice of materials. In these scenarios investors typically set overarching embodied carbon targets and let the developers/architects determine how to most cost-effectively deliver, rather than specifying the use of certain materials such as timber. Several investors we spoke to that had adopted this approach noted, however, that more ambitious embodied carbon targets typically require timber to play some role in the final design given the limited availability of e.g. green steel and cement today.

In general, investors acknowledged the embodied carbon benefits of mass timber.

While many mentioned the need to ensure the use of sustainable forestry practices, only a very few nuanced this further with possible concerns around broader supply-side land use implications versus competing use cases, such as biomass energy. This seems to indicate the supply-side/land-use debate is much further down the investor agenda, with well-managed timber generally being seen as "good" from a carbon perspective.

Regardless of ambition on embodied carbon, all investors emphasised the need for 3 elements when considering the adoption of timber in real estate: **A pipeline of suitable projects, a clear business case, and a favourable regulatory environment.** Overall, risk and return will continue to be the primary influencing factors for the vast majority, given investment mandates.

1. Pipeline

Some investors felt mass timber had limited applicability across asset types and so was less suitable for certain parts of their portfolios, constraining potential pipeline. However, this may be driven by current policy settings and a lack of innovative examples to "inspire".

About 40% of investors we spoke to said that timber was unlikely to be applied across all building types and it was first important to understand its most relevant applications. For example, timber has been perceived to be more appropriate for low-rise office and residential buildings, and less applicable to high-rise developments in, for example, North American city centres, or logistics and industrial assets. Such views likely stem from local regulations, such as US IBC 2021 which restricts mass timber usage up to 270 feet (18 stories), and a general lack of examples across less obvious sectors. However, there are emerging examples of timber being used in industrial and logistics projects (e.g. high-density industrial spaces made of engineered timber by dRMM in Greenwich[13], Garbe Industrial Real Estate and NREP[14], and Logistics Center West (LCW) in the Netherlands[15]) and in "hybrid" high-rise buildings alongside steel and cement (e.g. Timber Square, expected completion in 2025, will be one of the most significant commercial developments in the UK to use a hybrid steel/concrete and timber structure)[16].

[13] Flatman, B. (2023). *Innovative mass timber industrial scheme unveiled by dRMM in Greenwich*.
[14] Europe-re.com. (2024). *Garbe and Logicenters break ground on timber logistics property (DE)*.
[15] Henninglarsen.com. (2024). *We're on a journey to redefine logistics with mass timber hub in the Netherlands | Henning Larsen*.
[16] PEFC. (2024). *PEFC Project Certification at Timber Square - PEFC*.

This suggests that the perceived limitations on pipeline and applicability could be more related to a combination of current policy settings and limited examples of new designs and approaches. Indeed, some investors and developers we spoke to were thinking about how timber might be deployed strategically and innovatively across portfolios, for example as lightweight vertical extensions to existing steel and concrete buildings (an approach known as “Optoppen”).

2. Business Case

When speaking to investors, several elements emerged as critical in shaping the business case for timber construction. An obvious one was construction costs versus traditional buildings. Another important factor was the potential for rental income or value-add post-construction. Investors are keen to see evidence of whether timber buildings command higher rents or asset values due to their sustainability credentials or otherwise market appeal. Additionally, the cost and execution risks related to insurance and delivery skills were significant concerns.

***Construction costs*: Both independent studies and interviews indicate a construction cost premium of approximately 0-5%. However, investors seem to anticipate this will decline as demand increases and supply chains mature.**

Investors identified several ways that timber differed from traditional materials such as steel and cement in terms of lowering and increasing construction costs. Reduced foundational needs due to the use of lightweight materials, the potential for faster construction timelines, off-site prefabrication, and lower labour requirements could all generate cost savings. However, these were generally offset by increased material costs and increased contractor and supplier risk premiums, given lower levels of execution experience and smaller scale supply chains.

Overall, investors and developers we spoke to that had direct experience with timber expected a slight construction cost premium of 0-5%. This is broadly supported by research from Cromwell Property Group and Woodworks US[17], though a wider range of studies from Forest Products Journal[18] indicate a higher premium of up to 26%. However, such investors and developers also expected that as demand for timber scales and supply chains mature these costs will likely come down. Operating costs for timber buildings were not discussed in detail and were not seen as significantly higher or lower, beyond perhaps property insurance (see below).

***Value-add:* There is no clear demand for low embodied carbon buildings, but timber does hold some aesthetic appeal for occupiers. Regardless, any green premium remains unclear. Investors with conviction instead often look to de-risk against future regulation (EPBD[19], CBAM[20]).**

As discussed earlier, investors reported limited occupier demand for low embodied carbon buildings, largely driven by low awareness and weak incentives from carbon accounting rules. However, over half of those we spoke to highlighted timber's strong aesthetic appeal and clear sustainability narrative, with well-documented benefits (when left visible and exposed) for employee health, well-being, and productivity.

Investors active in timber projects often anticipate ‘higher-end’ rents, but isolating timber’s impact from factors like Grade-A quality, prime location, and unique architecture remains a significant challenge. Indeed, it was perceived to be too early to gauge whether timber commands a clear value premium, given the limited number of trades and data in the market. However, some investors said they were also betting on upcoming embodied carbon regulations like the EPBD and CBAM which they believe will ultimately impose cost premiums or ‘brown discounts*’ on traditional buildings. By developing capabilities with low

[17] WoodWorks | Wood Products Council. (n.d.). *Mass Timber Business Case Studies*.
[18] Gu, H., Liang, S. and Bergman, R. (2021). Comparison of Building Construction and Life-Cycle Cost for a High-Rise Mass Timber Building with its Concrete Alternative.
[19] European Commission (2023). *Energy performance of buildings directive*.
[20] European Commission (2023). *Carbon Border Adjustment Mechanism*.
* A depreciation in value of the asset for not being ‘green’. Aquicore.com. (2023). *ESG Trends: Green Premiums and Brown Discounts*.

embodied carbon (i.e. timber) buildings today, they were de-risking their ability to execute and comply with such regulation in the future (versus competitors).

Insurance: **Inability to secure insurance, or having to pay large premiums, is widely perceived as a key risk and "blocker" for mass timber buildings. However, if insurers are engaged early, it may be possible to de-risk this element of the business case.**

Over 60% of investors interviewed saw insurance as one of the key challenges to the business case for mass timber buildings, particularly in the UK. There is a widespread perception that securing insurance (construction insurance and property insurance being the two key products impacted) will be particularly challenging and if it is secured at all will come at a significant cost premium, of perhaps 1.5 times (in hybrid structures) to 2.0 times (in full timber structures) that of traditional buildings. From a business case perspective this can result in cost increases as well as increases to delivery and execution risk. This can significantly reduce investor appetite, particularly given the lack of a clear timber value premium.

Such challenges arise from the fact that insurers make conservative assumptions in their underwriting models around fire and water damage (e.g. 100% maximum loss risk in timber, vs. typically 40% for steel/cement). This is driven by a lack of real world data on mass timber buildings and damage loss, and insurers will only accept the damage results from controlled "tests" to a certain extent. These conservative models amplify perceived risks, driving up costs and discouraging investment.

Interestingly, a handful of investors and developers that were much more experienced in the use of mass timber said perceptions around insurance among those with limited to no timber experience have tended to exaggerate risks and costs. They admitted that there was certainly more work to be done when compared with traditional building materials, but if insurers were brought in early enough to input into design, then insurance could be secured at much reduced (albeit still elevated) premiums which limited the impact on overall project costs. This may indicate the need for greater evidence or "mythbusting" on the exact impact and costs of insurance (and how the market has begun to shift over the last few years).

Delivery Skills Gap: **Given the relative lack of maturity in the supply chain, there is generally viewed to be a skills gap for mass timber projects, which increases perceived execution risk.**

Developing mass timber buildings demands a significant shift in design and construction practices, particularly in engaging insurance and fire safety authorities early on. This shift presents a challenge not only for developers and general contractors accustomed to conventional materials but also for the workforce, which is primarily trained to handle traditional projects. The skills gap in delivering mass timber projects can lead to execution risks that drive up costs and project delays. Concerns over the ability to execute a mass timber project can lead to risk premiums that discourage investors and developers at the outset. Indeed, many investors we spoke to that had delivered mass timber projects said the success of the project was down to a leading developer and/or architect that had a "vision" and a track record of working with the material.

The relative importance of these different elements varied by investor and across regions, typically driven by the local regulatory and building code regime, and market sentiment.

For example, insurance is a major factor in the UK, driven by a lack of familiarity with timber, a building code not well suited to timber, and the psychological impact of Grenfell. In other markets, such as France, embodied carbon regulation has begun to see greater demand for timber buildings (albeit from a small base). In the US, the Buy Clean initiative mandates the use of low-carbon materials in federal projects, potentially driving some demand for mass timber in the construction industry[21]. Furthermore, timber's importance in Canada is growing due to its environmental benefits, support from the government for growing urbanisation and housing needs, and technological innovations that make it a strong alternative to traditional materials.[22]

[21] Stora Enso (n.d.). *Good for wood: new embodied carbon regulations*.
[22] Gresham House (n.d.) Global Timber Outlook.

3. Policy and Regulation

There is limited regulation on embodied carbon to push investor demand for timber. Local building codes can also add cost, complexity, and carbon back into timber projects over perceived safety and performance concerns.

As discussed previously, there is limited regulation on embodied carbon, with the exceptions of France and Denmark. A few others with recent or upcoming regulations include Finland, which will introduce full life-cycle carbon limits in 2025,[23] and Sweden, which mandates upfront embodied emissions calculations through the Act on Climate Declaration for New Buildings[24].

On timber, whilst regional building codes vary, investors acknowledge that they generally are not designed to accommodate mass timber structures. There are limitations on structure height and design, with additional safety and otherwise (e.g. acoustic) measures required. These include covering timber in concrete or requiring traditional concrete/steel floors at given intervals. Such requirements can add complexity, cost, and delays to projects, particularly if there is ambiguity and concern from the local planning authorities.

In general**, the majority of investors** we spoke to felt the key issue holding back the supply of mass timber buildings was the lack of a well evidenced financial case, underpinned by robust occupier demand and/or embodied carbon regulation, alongside heightened uncertainty and risk around project execution, particularly on insurance.

We conclude that investors need assurance they can achieve returns at least comparable to traditional buildings while maintaining similar levels of execution risk.

Section IV: What needs to happen to build investor demand for timber in real estate?

Based on our consolidated learnings from these interviews we see three areas for action:

1. Expanding awareness on the pipeline of timber projects

The perception that timber is only suitable for certain asset types, such as low-rise offices or residential buildings, hinders broader adoption. Overcoming this view requires a concerted effort by timber-focused developers, stakeholders, and industry bodies to highlight the material's versatility. This can be done by showcasing successful applications in less obvious sectors, like industrial and logistics assets, and novel applications in more traditional sectors, such as vertical timber extensions to offices or residential buildings (a practice known as Optoppen). Driving awareness of such applications can inspire investors and help catalyse innovative use of timber across different asset types.

2. Demonstrating a compelling financial case

Mass timber is still relatively niche in many real estate markets, with investors often relying on anecdotal evidence rather than robust quantitative data. Whilst those with successful timber projects are often more optimistic on the business case, a lack of clear market evidence for others could be leading to exaggerated perceptions of risk and uncertain returns.

[23] One Click LCA (2021) *Embodied carbon benchmarks for European buildings*.
[24] Nordic Ministers of Construction and Housing (2024), *Harmonised Carbon Limit Values for Building in Nordic Countries*.

To give investors the confidence to deploy timber at scale, therefore, we need to develop a clear and robust evidence base on the business case for timber buildings, including quantitative analysis of cost, return and carbon performance vs. traditional buildings, evidence of emerging demand signals from occupiers, and, crucially, guidance how to successfully mitigate real and perceived execution risks, including how to overcome potential delivery skills gaps and how to de-risk insurance through, for example, early and proactive engagement with insurers during the building design phase.

This evidence base should ideally come from a library of real world case studies on successful timber developments and redevelopments, with leading developers, asset owners, and architects sharing data and learnings with industry bodies to help educate the market and stimulate broader demand for timber. This should, in turn, help to scale up the timber supply chain, reducing costs and frictions for all.

3. Strengthening embodied carbon regulations and updating building codes

Weak embodied carbon regulation creates insufficient incentives for pursuing timber (and other low-carbon materials) in construction. Existing building codes can also disincentivise use of timber, increasing costs, complexity, and emissions in projects. To overcome these challenges, it is essential for regulators to establish clear embodied carbon targets and update building codes to better accommodate timber.

Implementing strict embodied carbon targets for new developments and redevelopments will create demand for low carbon materials like timber. Countries such as Denmark and France already have such regulations in place, and the revised Energy Performance of Buildings Directive (EPBD) is expected to spur further national-level regulation across Europe. The Carbon Border Adjustment Mechanism (CBAM) is also likely to increase the cost of traditional materials, further incentivising use of timber. Early and clear signposting by governments on embodied carbon will help build a clear demand signal amongst investors.

Updating local building codes to accommodate for and encourage timber use is also key. For example, in 2024, the US revised its International Building Code (IBC) to better integrate mass timber. Notably, code change G147[25] now permits up to 100% exposed timber on ceiling and integral beam surfaces.

Section V: Conclusion

Investors – as those who decide how capital is allocated across projects – play an important role in tackling embodied carbon in real estate. It is therefore crucial to understand their perceptions towards (and demand for) low embodied carbon materials, particularly timber as a relatively mature and "market ready" solution for lowering emissions in the near-to-mid-term. Through this work, which included a series of interviews with c.20 investors, developers, and investor organisations across the UK, Europe, and North America, we have attempted to map out these perceptions.

It is clear that whilst there are a few leading investors and developers with conviction in the value and impact of mass timber, the broader market needs something *more* to give them the confidence to deploy timber at scale. Regulation can (and will) be key, particularly through nationally-determined embodied carbon limits and more timber-friendly building codes. However, there is also a clear need for an enhanced evidence base, showcasing the versatility of timber across many different asset types and construction use cases, and demonstrating the financial case for timber – in short, that it can deliver lower-carbon buildings at broadly comparable risk and return levels as traditional buildings.

[25] Code Red Consultants. (2024). 2024 IBC Mass Timber Ceiling Exposure - Code Red Consultants.

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