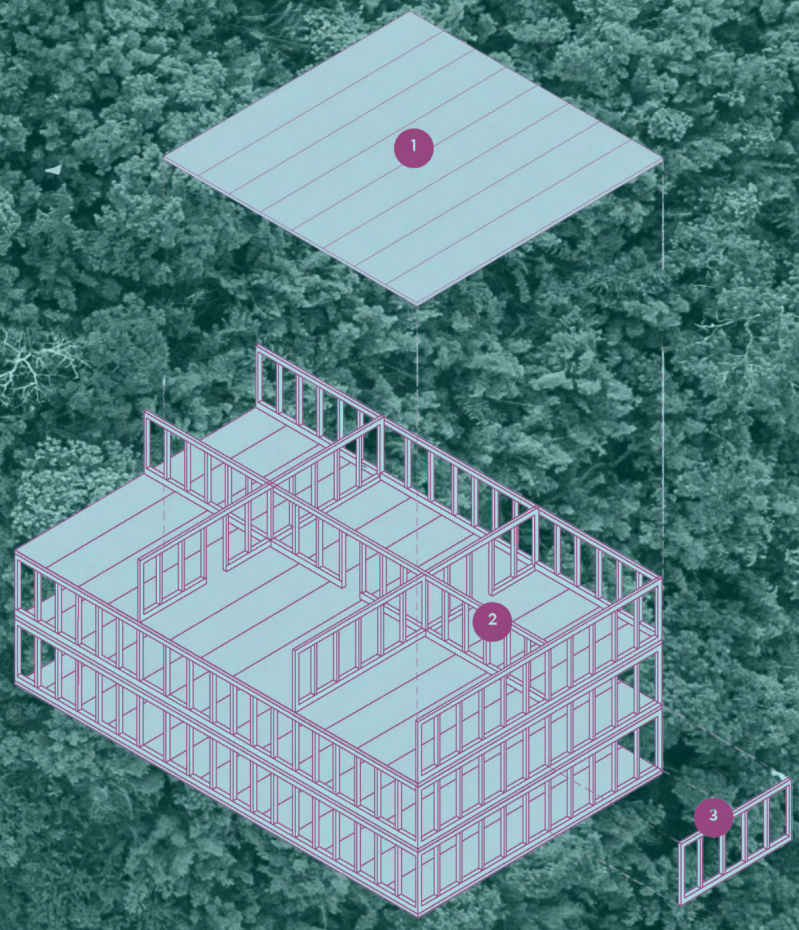
TIMBER IN CONSTRUCTION MANIFESTO

Confederation of Timber Industries



Our pathway to a low-carbon, high quality, safer built environment

TIMBER: OUR INDUSTRY IN NUMBERS

£10B Gross value added to UK economy by timber industry

51K Businesses in the timber industry

300K People employed directly by the timber industry

15M Cubic metres of timber consumed in UK per year

33% Of the timber used in construction is grown in the UK

75% The lifetime emissions of a building attributable to embodied carbon.

9% Of homes in England currently built with timber frame

20% Less embodied carbon by using timber frame instead of masonry

0.9T Of carbon dioxide sequestered per cubic metre of timber

RETHINKING OUR BUILT ENVIRONMENT

A bold plan for building higher quality, lower carbon homes, schools, workplaces and communities using timber.

OUR CALL FOR CHANGE

Climate change is increasingly central to global policy discussions and for good reason. If we are to ensure a sustainable future for all we must take action, and we must do it now.

The built environment accounts for as much as half of emissions in the UK, stemming from the day-to-day use of buildings (operational carbon) their manufacture and construction (embodied carbon). and it's broader influence across how we live. If we are to tackle these emissions, a foundational shift in the way we design, build and operate our buildings is required.

This means prioritizing low-carbon materials in construction and moving away from energy-intensive, non-regenerative resources. It requires avoiding demolition in favour of the retrofit and improvement of our existing building. And it means rethinking how we design our communities.

The benefits of timber construction have been well documented in recent years. It is the construction material with the lowest level of embodied carbon, requiring little energy for its manufacture. It acts as a carbon store as a building product and when sustainably sourced, is responsible for expanding forests in both the UK and abroad. It is suitable for a broad range of building types.

Timber is also the material of choice for modern methods of construction (MMC). This is a way of building that creates efficient, high-quality homes capable of satisfying the growing demand for housing by integrating off-site construction methods. Timber is the low-carbon solution to our built environment emissions, and a crucial component in our bid to reach net zero.

This was recognised by the Government who, in late 2021, created the Timber in Construction Working Group, and in December 2023, released a roadmap to expand timber usage in the UK. Regardless of whom ends up in Government, the aims of this roadmap remain crucial to achieving a better, more sustainable built environment for all. However, far more can be unlocked.

This manifesto considers how a new Government can accelerate the efforts outlined in the Timber in Construction roadmap - by turning policy proposals into policy action - with consideration and examples of the way timber is already being deployed in the UK to build a better world with wood.

TIMBER IN CONSTRUCTION ROADMAP. This keystone document brought together more than 29 organisations, including five government departments to identify, map, and overcome barriers to timber in construction. Published December 2023 [link].

- priority theme 1: improving data on timber and whole life carbon
- priority theme 2: promoting the safe, sustainable use of timber as a construction material
- priority theme 3: increasing skills, capacity, and competency across the supply chain
- priority theme 4: increasing the sustainable supply of timber
- priority theme 5: addressing fire safety and durability concerns to safely expand the use of engineered mass timber
- priority theme 6: increasing collaboration with insurers, lenders, and warranty providers
- priority theme 7: promoting innovation and high performing timber construction systems

OUR PATHWAY FORWARD

We are in a climate and housing crisis in the UK. Overcoming these issues requires a new approach – a step away from the masonry and block builds of the past, to more sustainable, low-carbon, and efficient ways of building.

An unstable business and policy environment, with a "lack of co-ordination in policy-making and haphazard and unbalanced implementation", said the House of Lords' Built Environment Committee, has impacted delivery. A new Government must restore confidence in the building system, and bring an evidence-based approach to our built environment. This will positively impact outcomes for all.

At the heart of this approach must be a focus on providing the stability and confidence for businesses to invest; with policies which support environmental performance, underpinned within a framework which prioritises quality and safety. This is essential for creating a level playing field in which businesses can strive towards achieving net zero by 2050 along with house buildings goals.

WHY TIMBER?

Timber is a £10bn supply chain in the UK. It provides economic prosperity in every region of the UK, green employment, thousands of healthy, safe, warm, and beautiful low-carbon homes, and is helping create a sustainable construction industry.

The timber industry is at the forefront of driving low energy manufacturing, producing high-performance low-carbon goods, and helping achieve UK carbon reduction targets. Right now there is existing capacity to double timber frame manufacturing output to reach 100,000 homes per annum, with timber providing a cost-free solution to carbon capture.

As a climate and construction solution, the use of timber is proven, viable, and widely supported - both by built environment specialists, and the general public. Using wood in construction was supported by 82% of people in the Climate Assembly UK, in third place, just behind growing forests and improving forest management (99%).

WHY NOW?

Reducing the carbon emissions from our built environment is essential, as nearly half of the UK's total carbon emissions within our borders attributable to the construction, operation and maintenance of our built environment (up to 49%, according to LETI).

The UK Climate Change Committee (CCC), the independent advisor to Government on how to achieve net zero by 2050, has repeatedly advocated for growing the use of wood in construction to reduce emissions as a way to achieve this.

The CCC also recognises UK building stock as among the most energy inefficient in Europe. Even new builds are facing expensive retrofits, with efforts to make housing more efficient not set to be put in place until 2025 with the Future Homes Standard.

Bangor University estimates that increasing the share of homes built with timber frame to 270,000 homes per year in England, this would mean 3 Mt CO_2e/yr could be absorbed and stored in our built environment per year, with 0.8-1.0 Mt CO_2e/yr lower total embodied emissions in 2050.

Using more wood in the built environment, in structures, furniture and interiors, is a natural, cost-effective, sustainable carbon capture solution – which we can do now, as it is based on proven business models and established science.

BUILT ENVIRONMENT

How we design, build and operate our built environments is crucial to the future success of the UK. Decisions we make now will have an outsized impact on our ability to meet carbon, housing, and economic targets for years to come.

If the UK is to overcome the housing crisis and reduce carbon emissions we must employ a different approach. One which aims to build communities, rather than single homes. And which embraces sustainable construction methods and materials.

Within our cities, it means embracing approaches like Optoppen – adding timber floors to existing buildings. Within new towns or subdivisions, it means rethinking how we build – drawing on the Phoenix in Lewes, the sustainable redevelopment of a 7.9 hectare brownfield site within the South Downs National Park fully embracing timber in construction. Or deploying more sustainable social housing, like the award-winning Goldsmith Street, and urban solutions, like New Model Building.

There has been a lot of work from activists in recent years to pave the way for more sustainable forms of construction. It will be up to the new Government to turn policy proposals into policy action. We've highlighted below several key policies which should be implemented as soon as possible to help level up all areas of the UK.

- **MINIMISE EMBODIED CARBON EMISSIONS IN CONSTRUCTION.**
  INTRODUCE PART Z TO BUILDING REGULATIONS. An industry-proposed amendment to The Buildings Regulations 2010 which would ensure that embodied carbon is assessed on all projects, as part of a comprehensive whole life carbon assessment.

- **MINIMISE OPERATIONAL CARBON EMISSIONS FROM BUILDINGS**
  ADOPT THE NET ZERO CARBON BUILDINGS STANDARD. The UK's first independent cross-industry standard that brings together Net-Zero Carbon requirements for all major building types, based on a 1.5°C trajectory.

- **USE GOVERNMENT PROCUREMENT TO BOOST LOW-CARBON CONSTRUCTION**
  TIMBER POLICY. Make all new Government buildings measure and reduce their whole life carbon, as is occurring globally, and in UK schools under Technical annex 2J: sustainability.

- **REDUCE CARBON EMISSIONS FROM EXISTING BUILDINGS**
  NATIONAL RETROFIT STRATEGY. A twenty-year blueprint for how the construction industry can work with Government to retrofit the UK's 28 million existing homes.

- **BOOST PLANNING TO GROW CITIES FOR PEOPLE**
  RTPI PLANIFESTO 2024. Seek to encourage density through planning reform in partnership with local councils, including hiring more planning officers, to support existing communities to grow, and deliver on biodiversity, vitality, and socio-economic opportunities for residents.

- **URBAN TREE PLANTING TO BRING NATURE TO CITIES**
  CREATE A NATIONAL URBAN TREE STRATEGY. Trees should be part of the living fabric of our cities. They are beneficial to air quality, flooding prevention, provide shading, and enhance the aesthetic and material value of homes, connecting people with nature, and with timber.

- **VAT EXEMPTION ON RETROFIT AND LOW-CARBON BUILDINGS**
  REMOVE FINANCIAL BARRIERS TO RETROFIT. While new build projects are zero-rated for VAT, most refurbishments and retrofits are subject to the standard rate of 20%. This creates a perverse incentive to demolish existing buildings and replace them with new ones, rather than preserving and enhancing them.

NATURAL ENVIRONMENT

If the UK is to meets its carbon targets, we must grow more trees. This must be underpinned by a better understanding of the relationship between people, nature, and timber in the UK.

The United Kingdom has 60 million acres of diverse land types. The largest user of land is agriculture, which takes up more than 63% of all land in the UK, while woodland area in the UK as of 31 March 2023 is estimated to be 3.25 million hectares - about 13% of the total land area in the UK. While this might sound impressive, it means the UK is one of the least forested countries in all of Europe.

Average forest cover in Europe is closer to 40%, while globally it is around 30%. Planting more trees is essential if we are to meet the UK's carbon targets and, importantly, meet future demand for timber construction. Currently around two thirds of the timber used in construction is imported. While there is nothing inherently wrong with this, more trees in the UK will help ensure that there is long-term security for this valuable resource.

Forests planted in the UK for wood, including those which produce timber commercially, have significant value; as long-term carbon storage, as a key provider of green jobs in rural areas, and for supporting greater biodiversity.

Sustainable forestry management techniques employed in commercial UK forests reserve a minimum of 15% of the forest management unit for conservation and the enhancement of biodiversity as a major objective. The use of sensitive extraction methods such as thinning and coppicing means wood production can help improve the condition of native woodlands.

Any new Government should support UK forestry by implementing CONFOR's five-point plan by the forestry industry; and get the UK to plant more trees immediately.

- **CREATE MORE FORESTS**: As part of the CCC's target, plant at least 9,000 ha annually in England, including at least 3,000 ha of wood-producing forests, and protect all our existing forests.
- **CREATE A TIMBER SECURITY STRATEGY:** Commit to a future level of sustained domestic wood production that will see the proportion of timber imports to the UK reduce, including from endangered forests overseas.
- **PROMOTE HOME-GROWN WOOD:** Set a target to significantly increase the number of new homes in England built with domestically sourced timber frames by 2030. Utilise government's procurement power to make homegrown wood the material of choice for all government construction and renovation work.
- **DEVELOP A SKILLS ACTION PLAN:** To ensure these goals are met, implement a skills action plan in partnership with industry, to address workforce needs in the forestry and wood sector, including initiatives to help armed forces veterans enter the industry.
- **COMMUNICATE THE BIG MESSAGES:** Surveys repeatedly show that people love trees, and wood products, but don't often join up the two. A communications campaign should promote the importance of forests, timber security, and the economic and environmental benefits of the forestry and wood sector.

HUMAN ENVIRONMENT

At the heart of any policy decision we make for our built and natural environments must be people. The decisions of Government in these areas affect where we get to live, how we get around, in what ways we are able to make a living.

The past eight years have not delivered the certainty or ambition needed across all these areas. This includes disruption to the way we do business with our major trading partners, neglect of the social contract for people to be able to afford to buy a home where they live, have good quality jobs which benefit our planet, and a future which is not marred by climate change.

Timber as a material is a crucial piece of this social contract. Often wood is invisible due to its ubiquity, yet as a supply chain it touches all areas of our life. Within the forestry and timber sectors, there are pathways to unlock significant trade, education, and job opportunities - by fully embracing timber as a material which is regenerative, sustainable, and circular in nature.

As we redevelop our built environment, particularly as we ramp up efforts to future proof and retrofit UK homes, we can employ many thousands of people to build, retrofit and restore. This includes careers in research and development, the manufacture of new timber solutions, and the planting of the hectares of new forests required under our climate commitments. With significant shortages of workers predicted in the construction sector, these changes are not just valuable, but necessary.

Any new Government must bring certainty for businesses, and a social contract which brings better quality homes, jobs, and lifestyles - with lower carbon emissions. The timber supply chain should be seen in this context, and as an area which provides major opportunities and benefits to the UK.

PEOPLE | DEVELOP A NATIONWIDE GREEN JOBS STRATEGY.
Utilise the construction sector's national reach in job creation. This must include a clear definition of what the government means by 'green jobs' i.e. those which contribute to national climate objectives (to transition away from fossil fuels) and the preservation or restoration of the natural environment.

PEOPLE | REFORM THE APPRENTICESHIP LEVY
Timber industry training is often made up of several short modular courses which provide a smaller certificate for a specific application or job function, and which can then build to a larger qualification. These courses, however, do not qualify for the Apprenticeship Levy, which is only available for use on 12-month courses or longer.

BUSINESS | ACCEPT CE MARKING FOR CONSTRUCTION PRODUCTS
The Department for Business and Trade (DBT) has already indefinitely extended CE mark usage for 18 categories of products. This should be extended to include construction products to remove uncertainty for UK businesses and unlock greater productivity.

BUSINESS | REFORM MMC TO UNLOCK PRE-MANUFACTURED VALUE
Modern Methods of Construction (MMC) are crucial to overcoming labour shortages and increasing productivity and efficiency in construction - but the MMC Strategy is not succeeding. Too much funding has gone to Category 1 (3D primary structural systems), where there is not demand, or Category 6 & 7 (traditional methods with improvements to productivity), where gains are limited. Funding should be focused on Categories 2 to 5, with businesses left to compete for bids to complete homes with Government as procurer.

INNOVATION | FUND JOINT-RESEARCH BETWEEN ACADEMIA AND TIMBER INDUSTRY
The UK has some of the worlds leading material scientists and researchers, along with architects, engineers and manufacturers. Long-term funding could rapidly scale up the work of consortiums, like UKFIRES, to contribute directly and quickly to net zero solutions.

TIMBER: AN EXISTING LOW-CARBON SOLUTION

For environmentally conscious developers, timber products and systems are often the first choice - able to transform and revitalise individual buildings and whole neighbourhoods.

BROWNFIELD: FROM INDUSTRIAL SITES TO HUMAN HABITATS

The Government defines brownfield land as developed land that is, or was previously, occupied by a permanent structure. Timber frame systems are particularly suited to brownfield sites with poor soil conditions (sites that favour lighter buildings), and sites with restricted access.

Factory-precise manufacturing allows for the creation of light-weight modular components and prefabricated panels, which are easy to transport and erect onsite, whilst offering strict quality control and producing fewer quality problems.

Brownfield land accounts for 8.7% of land in England, and 54% of all new homes in 2021/22 were built on brownfield land. Development of these sites is crucial to overcoming the housing crisis, allowing local councils to better utilise existing areas - while preserving natural greenbelt areas.

As an existing business model and proven technology, timber products and systems are able to significantly reduce the carbon emissions from major developments in these areas. This has meant timber is often the material of choice to achieve sustainability goals for brownfield sites.

Some examples the next Government should seek to learn from are:

Athletes Village: Building 700 homes in 700 days

What was previously a contaminated and disused brownfield site was converted into an ecofriendly village, with 700 homes delivered in just 700 days using Modern Methods of Construction (MMC).

Glasgow Council worked with City Legacy and offsite timber frame manufacturers CCG on this project, which is just 3km from the city centre, ahead of the Commonwealth Games. CCG led the design and construction of 237 of the new homes using their state-of-the-art offsite timber frame construction methods to create accommodation for 6500 athletes and officials. Use of the CCG Offsite Manufacturing (OSM) timber system, which was inclusive of internal wall linings, insulation, service zones, windows and doors, enabled full construction delivery within 15 months.

Twelve house types are spread across the site comprising one or two bedroom apartments, and two-, three- and four-bedroom terraced houses. A ‘fabric first’ approach to housing design, the use of solar PV panels, and a state-of-the-art heating system contributed to a 95% carbon reduction on 2007 levels, as well as an ‘Eco Homes’ Very Good rating. Of the 700 homes, 300 are for social rent, in addition to a care home for 120 residents.

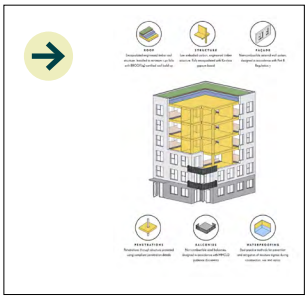
Dalston Works: The World's Largest CLT Building

The world's largest CLT building on completion, this landmark Waugh Thistleton Architects (WTA) project showed how we can use timber systems to build high-density urban housing, across London and beyond..

The ten-storey, 121-unit development is made entirely of Cross Laminated Timber (CLT), weighing a fifth of a concrete building of this size, and reducing the number of deliveries during construction by 80%.

Due to its vastly reduced weight, the building is taller than was ever thought feasible on the neglected brownfield site. The distinctly modern residential community makes up a large part of the new streetscape, with varied roof heights, undulating between five and ten storeys, each orientated to maximise daylight to the apartments' balconies and communal open spaces.

Next steps: A mass timber residential solution for today



Changes to regulations have limited the use of mass timber in the external wall of mid-rise residential buildings. To address the dual policy requirements of the building safety act and net zero, WTA developed the New Model Building. Ready-made, detailed and pre-approved by NHBC and the GLA - it allows for mid-rise timber housing to adhere to the UK's new fire safety regulations, while achieving exceptionally low levels of embodied carbon.

PHOENIX IN LEWES: SUSTAINABLE TIMBER IN CONSTRUCTION AT SCALE

The Phoenix is the redevelopment of a 7.9 hectare brownfield site within the South Downs National Park, brought forward by Human Nature, a campaigning development company, working with some of the UK's leading architects, designers and engineers. It seeks to turn the imperatives of the climate and natural emergencies into opportunities for better design, better placemaking and ultimately healthier and better living.

Planned to prioritise people over cars, constructed primarily in sustainable timber, powered by renewable energy and designed to encourage a culture of sharing, it represents a new and regenerative way to make a place, build a community and create a productive and circular local economy.

The development will transform a neglected former industrial site into a beautiful green place, providing much-needed homes and jobs, community spaces, a river walk, flood defences and health centre. At the heart of the neighbourhood will be a series of public squares connecting to a community canteen, event hall, taproom, fitness centre, workspace

and makers' studios, much of which will be housed within repurposed industrial structures. Shared courtyards, parks, green corridors and rooftop gardens will enable social interaction, promote communal living and provide habitats for local wildlife.

The masterplan for the Phoenix comprises 18 different housing blocks designed by 12 different architects, giving the neighbourhood diversity, character and housing choice. Phoenix, and others since, take a regenerative approach, linking local supplies and skills to low carbon materials, creating a self-fulfilling circular, low carbon industry that can use a development to grow and then scale and serve future developments, providing employment and industry.

SOCIAL HOUSING: TIMBER SYSTEMS A PERFECT FIT FOR COUNCILS

Goldsmith Street: Beautiful, Low-Carbon, and Affordable

Showcasing what is possible when local government and the construction industry work together, these 105 terraced council homes were awarded the Stirling Prize by the Royal Institute of British Architects, with judges calling it a 'masterpiece'. Goldsmith Street in Norwich was conceived by architectural firm Mikhail Riches with Cathy Hawley and built directly by the council.

These homes are part of a low-carbon scheme, with all houses and flats facing South and achieving full 'Passivhaus' Certification. This makes Goldsmith Street the largest social housing scheme in the UK to achieve the Passivhaus standard. The design seeks to provide sunny, light filled homes with very low fuel bills of approximately £150 per year, which is around 70% lower than average.

Built using timber frame and encased in bricks, these houses show that council housing can be efficient, sustainable and beautiful. With the all the homes being rented with secure tenancies at fixed social rent, this project has also been able to achieve remarkable social outcomes to help restore a community, and make an impact on the housing crisis.

Next steps: City of York scales up the 'gold' approach

Just before their Stirling Prize win for Goldsmith Street in 2019, Michail Riches were appointed as architects for City of York's groundbreaking Zero Carbon Housing Delivery Programme.

This first-of-its-kind local government development will provide 600 homes across seven sites in York, targeting both Passivhaus certification and net-zero carbon in use. Leading on from the approach developed at Goldsmith Street, the practice was asked by York council if they could do the same, but at a greater scale and taking it all the way to net-zero operational carbon.

Like Goldsmith Street, the houses across the York sites will be built using brick and render cladding with timber frame underneath, provided by timber frame specialist Roe Ltd. Timber construction and

recycled newspaper insulation have been used to reduce the embodied carbon of the development.

The first two of Mikhail Riches' sites – Duncombe Barracks (34 homes) and Burnholme (78 homes) – are currently onsite and due for completion this year. The third, Ordnance Lane, will provide almost 100 new shared ownership/social rent homes, with construction expected to start shortly.

Both the scale of the development, and its ambitious deliverables, represent a major commitment to housebuilding and sustainable construction in the region, boosting local skills and providing certainty to the market.

OPTOPPEN: ACHIEVING URBAN DENSITY WITHIN CARBON TARGETS

Optoppen (meaning 'topping up') is a new, ongoing project that shows how to increase the useable space in a building through lightweight timber roof extensions.

It is often said that the most sustainable building is the one that already exists. If we want to give our cities and towns more useable space, we need to make the most of the buildings we have – adding to them, instead of always building from scratch.

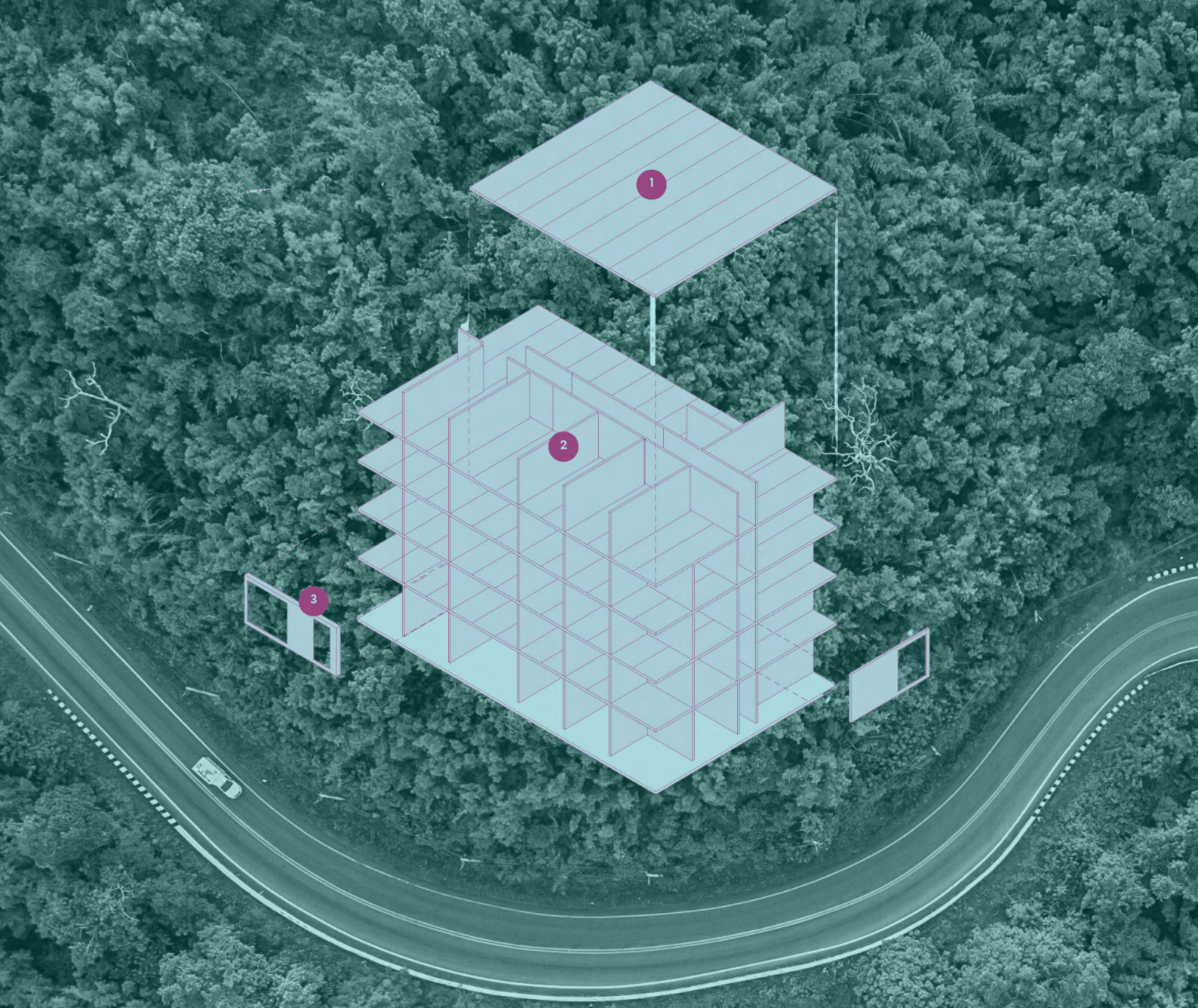
Extending upwards is an excellent way to do this – delivering new floorspace on the top of an existing building. With Europe's cities facing multiple housing crises, Optoppen is one solution that avoids demolishing a structure: enlarging floorspace with a low-carbon material that itself stores carbon.

This international venture is led by engineers Whitby Wood, together with Mule Studio and Rising Tide in the UK, New Urban Networks, Houtland Holland and Creative City Solutions in the Netherlands, and the Institute for Advanced Architecture of Catalonia (IAAC) in Spain.

Funded by Built by Nature, this group is developing an online resource platform and interactive tool to help designers and their clients identify additional areas for building 'up top'. This follows on from the longstanding succesful deployment of this approach to commercial buildings.

The Technique building at 132 Goswell Road is one such example. From it's origin as a gin distillery, it has gone through multiple transformations. In the 1960s it became office space with the intriguing name 'Laser House', and today, thanks to an extensive timber-framed retrofit and extension, it has been granted a new lease of life as the Technique Building.

It has been transformed by a new superstructure of glulam column-and-beam frame, and new storeys (with solid CLT floor slabs) added to the top. The building now offers some 74,000 sq ft of space across its six storeys, featuring high ceilings and generous open volumes.



ABOUT THE CTI

The Confederation of Timber Industries (CTI) is an alliance of associations and stakeholders from across the UK timber supply chain.

We work collaboratively to promote and protect the markets for, and interests of, timber and timber products and systems.We do this via political advocacy, market research, policy reports, conferences and other events.

You can find out more information at www.cti-timber.org.

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