

ARCHITECTS FOR FORESTS

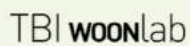
WOODEN WONDERS

Embracing FSC® Certification for Sustainable
Architecture and Design

Photo on cover:
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VIA University
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**Co-funded by
the European Union**

Life timber in housing (LIFE20GIE/NL/001073)

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**DEAR
ARCHITECT**

**DON'T JUST
BUILD NEW,
THINK NEW**

LET'S TALK.



FSC

SAFEGUARDING FOREST FOR ALL FOREVER

In a world where sustainable practices have become a necessity, the Forest Stewardship Council (FSC) stands at the forefront of preserving our planet's most valuable ecosystems. As architects, understanding the importance of FSC and the critical role of forests is crucial, as it directly impacts the way we design and build for a sustainable future.

Forests are a lifeline for our planet, providing numerous benefits that extend far beyond their aesthetic beauty. They act as natural carbon sinks, absorbing vast amounts of CO₂ and combating climate change. Forests also contribute to biodiversity by housing a myriad of plant and animal species, forming complex ecosystems that sustain life on Earth.

Why FSC Matters

The Forest Stewardship Council plays a pivotal role in ensuring the responsible management of forests worldwide. Established in 1993, FSC is an international association with a unique three-chamber structure: the ecological, social, and economic chambers. This structure ensures that decisions made by FSC consider the intricate balance between environmental sustainability, social equity, and economic viability.



Photo: FSC Italy, Christian Patrice Ricci and Mirko Sorgiu

One of the most remarkable aspects of FSC is its inclusive decision-making process. Unlike many other organizations, FSC grants voting rights to a diverse range of stakeholders, including renowned members such as the World Wildlife Fund (WWF), companies like IKEA, and indigenous peoples. This democratic approach guarantees that significant policy changes reflect a broad spectrum of perspectives and prioritize the well-being of both forests and people.

Preserving Forests

Forests, often referred to as the lungs of the Earth, are under increasing pressure due to deforestation and the conversion of valuable forest lands into non-forests, such as monoculture plantations for commodities like soy and palm oil. This alarming trend jeopardizes the delicate balance of ecosystems and contributes to climate change, habitat loss, and the erosion of cultural heritage.

The FSC certification system offers a viable solution to counter these threats. By promoting responsible forest management practices, FSC ensures that forests are sustainably managed, respecting ecological integrity, social well-being, and economic viability.

Architects and other professionals can contribute to the preservation of forests by using FSC-certified wood and other forest products in their projects, thereby supporting the cause of responsible forestry.

Forests are invaluable resources that provide countless benefits to humanity and the planet as a whole. FSC's commitment to sustainable forest management and the protection of forests ensures their survival for future generations. By engaging in responsible practices and utilizing FSC-certified materials, architects can actively contribute to the preservation of forests and the sustainable development of our built environment. Together, we can embrace the motto of "forests for all forever" and create a more resilient and harmonious world.



HOME for the future

SCALING UP CERTIFIED TIMBER IN SOCIAL HOUSING

In the pursuit of sustainable and biobased construction, the HOME for the future project brings together a collaborative effort between the Forest Stewardship Council (FSC), TU Delft, VIA University College, Centrum Hout, and construction companies specializing in wooden housing concepts. This ambitious initiative aims to accelerate the use of certified timber in the social housing sector in Denmark and the Netherlands. By leveraging the expertise of diverse stakeholders, HOME for the future aims to revolutionize the way we build homes, incorporating environmentally friendly materials and practices.

Scaling Up with Certified Timber

At the heart of the HOME for the future project lies a collective commitment to expand the utilization of certified timber in the social housing sector. By partnering with FSC, renowned for its rigorous forest management standards, the project ensures that the timber used meets strict sustainability criteria.

This collaboration fosters responsible forestry practices and supports the preservation of valuable forest ecosystems.

New LCA Data and Biobased Construction

HOME for the future takes a significant stride forward by producing new Life Cycle Assessment (LCA) data for various timber products. LCA, an essential comparison tool for sustainability, assesses the environmental impact of a material throughout its entire life cycle. The project generates LCA data for numerous timber products, including Plywood (tropical Africa and non-tropical), Constructive Softwood Plywood, Oriented Strand Board (OSB), Chipboard, Medium Density Fibreboard (MDF), Cross-laminated Timber (CLT) wall, CLT floor, and Laminated Veneer Lumber (LVL).

This new LCA data not only enhances our understanding of the environmental performance of these timber products but also enables an update in existing LCA data.



Photo: Lister Buildings

LCA data forms the foundation for Environmental Product Declarations (EPDs), which provide standardized environmental information accessible through European and national environmental databases. These databases empower stakeholders to make well-informed decisions when selecting materials that align with their environmental objectives.

This information is crucial in driving the transition towards biobased construction, where sustainable, renewable, and low-carbon materials like timber take center stage. Architects, policymakers, and construction professionals can rely on this independently verified data to make informed decisions, choosing the right material for the application in construction projects while minimizing their environmental footprint.

With the generation of new LCA data and EPDs, HOME for the future provides a solid foundation for the transition to biobased construction. Together, we can shape a more sustainable future by embracing certified timber and its vital role in creating environmentally friendly homes for all.

The Dutch and Danish environmental databases will showcase the recently developed timber EPDs, which are scheduled to be available in the late fall of 2023.

HOME for people
for forests
for the future
www.homeforthefuture.org

RESPONSIBLE SOURCING OF WOOD IN CONSTRUCTION

ARCHITECTS AS CATALYST FOR CHANGE

In the pursuit of sustainable and environmentally friendly construction practices, responsible sourcing of wood plays a pivotal role. Architects, as the driving forces behind building design and material selection, bear a unique responsibility to champion the use of responsibly sourced wood in their projects. Recognizing that building in wood is only truly sustainable when materials are sourced responsibly is essential for architects to uphold their commitment to sustainability.

The Importance of Responsible Sourcing

Wood is a remarkable construction material, known for its renewability, versatility, and carbon sequestration capabilities. However, the sustainability of building in wood hinges on how the material is sourced. Irresponsible logging practices, deforestation, and illegal timber trade can have devastating environmental, social, and economic impacts. To ensure that the wood used in construction projects is truly sustainable, responsible sourcing is crucial.



Architects as Catalysts for Change

Architects have the power to drive positive change by incorporating a responsible sourcing policy, particularly through the adoption of Forest Stewardship Council (FSC) certification. The FSC sets rigorous standards for forest management, ensuring that wood and wood-based products come from responsibly managed sources. By implementing an FSC-policy, architects demonstrate their commitment to sustainability, sending a clear signal to the construction industry and stakeholders that responsible sourcing is a non-negotiable aspect of their projects.

Architects, with their creative vision and influence on material selection, hold a unique position to shape the built environment sustainably. By prioritizing responsible sourcing, architects can:

- **Promote Environmental Stewardship:** Architects can contribute to the preservation of forests, biodiversity, and the reduction of carbon emissions by specifying FSC-certified wood. This choice supports responsible forest management practices and helps combat deforestation and illegal logging.
- **Drive Market Transformation:** Architects have the potential to influence the construction industry and create market demand for responsibly sourced wood. By actively seeking out and specifying FSC-certified materials, architects can encourage suppliers and manufacturers to adopt sustainable practices and expand their offerings of responsibly sourced wood.
- **Enhance Project Sustainability:** Incorporating responsibly sourced wood not only reduces the environmental impact of construction but also improves the overall sustainability performance of projects. FSC-certified wood contributes to green building certifications and supports circular economy principles by promoting the use of renewable resources.

As stewards of sustainable design, architects have a crucial role to play in promoting responsible sourcing of wood in the construction sector. Building in wood can only be considered truly sustainable when materials are sourced responsibly. By adopting an FSC-policy, architects lead the way towards a more sustainable future, ensuring that the materials used in their projects uphold the highest standards of environmental and social responsibility. Together, architects can shape a built environment that reflects their commitment to sustainability and preserves our forests for generations to come.



Photo: FSC Ben Beech

Prodock 2.0

A Sustainable Vision in Amsterdam Harbor by WRK Architecten

Step into the vibrant harbor of Amsterdam; WRK Architecten unveils the preliminary design for Prodock 2.0, an innovative project commissioned by Port of Amsterdam.

As a collective building for ambitious entrepreneurs in the start-up and scale-up phases, Prodock 2.0 fosters a community of businesses dedicated to Circular & Biobased, Energy Transition, and Digitalization. With a plug-and-play concept, the building offers both office spaces and testing facilities, promoting collaboration and cross-pollination among its users. WRK Architecten, alongside Port of Amsterdam, Ingenieursbureau Luning, ABT and BBN, is pushing the boundaries of sustainability, circularity, and innovation in this exciting venture.

wrk architecten



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Where Sustainability Meets Innovation

Designed by WRK Architecten, Prodock 2.0 serves as an embodiment of sustainable architecture in Amsterdam harbor. Discover the enchanting details that elevate Prodock 2.0 to new heights of circularity, alluring with its striking design and ingenious solutions that make sustainability an inseparable part of its DNA.

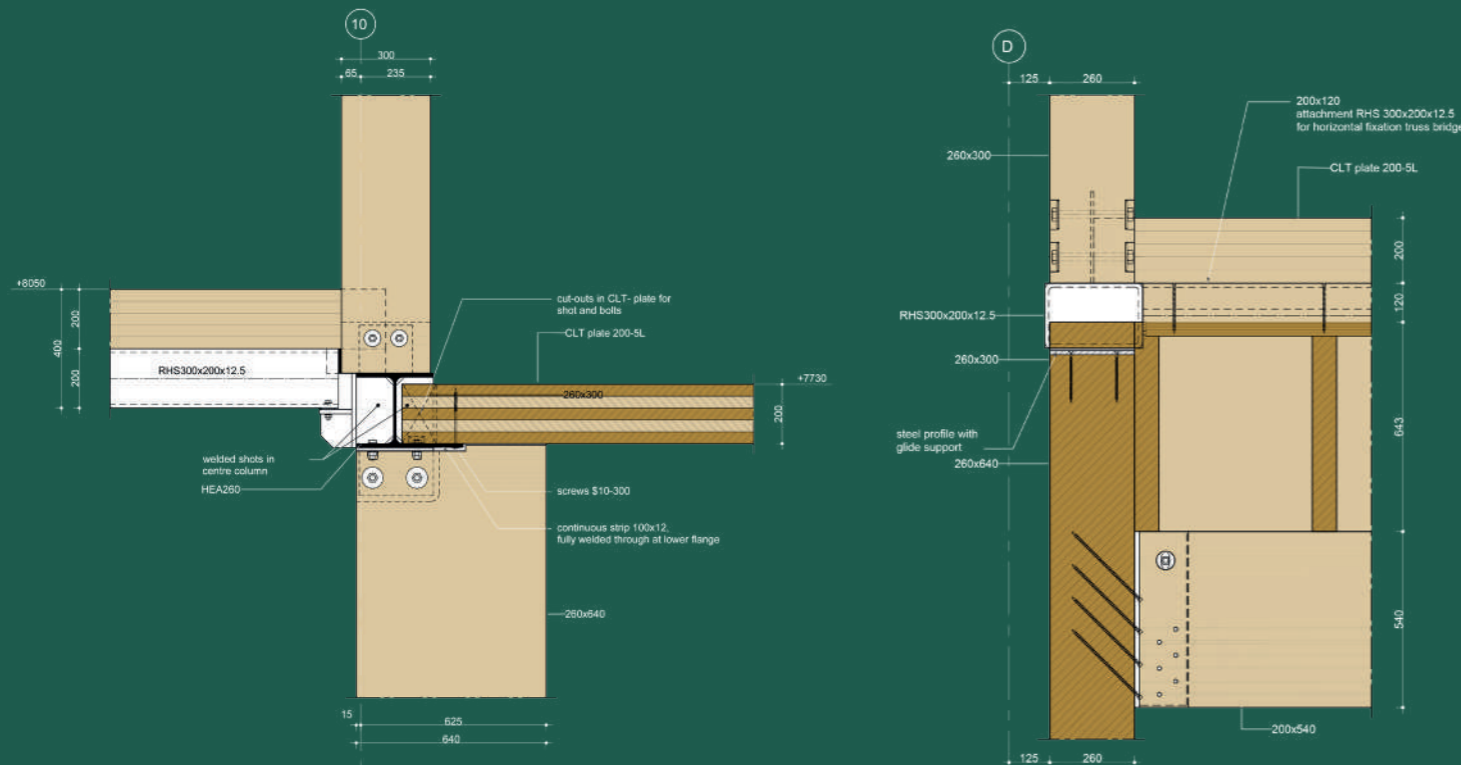
WRK Architecten Commitment to Sustainability.

WRK Architecten, an architectural firm in Amsterdam, is dedicated to sustainability and creating pleasant living environments. Prodock 2.0 stands tall as a testament to this commitment, representing the fusion of visionary design and responsible building practices. The project embraces a holistic approach, meticulously considering the social and ecological impact of the development alongside

the physical structures. By prioritizing FSC-certified timber as a sustainable building material, WRK Architecten significantly reduces the project's carbon footprint while contributing to the preservation of forests. Prodock 2.0 exemplifies sustainable practices, aligning with environmental stewardship and supporting the protection of forests and biodiversity.

Creating the Environment Every Human Deserves.

WRK Architecten believes that every human being deserves a living environment that prioritizes well-being and sustainable development. Prodock 2.0 serves as a beacon of inspiration for architects, urging them to embrace responsible sourcing, sustainable design, and the preservation of our forests.



Details wooden structure of Prodock 2.0
details Adviesbureau Lüning B.V.

Fact sheet Prodock 2.0

The CO₂ calculation of a building plays a crucial role in design decisions. By analyzing the carbon footprint of the building across its lifecycle, we as architects can make informed choices that have a significant impact on sustainability and environmental responsibility.

For Prodock 2.0 we have calculated the different building parts to see how much impact the decisions we made actually have on our emissions, and how the use of wood will store CO₂ and protect the forests.

1.523 m³ used wood in Prodock 2.0 this protect 5.88ha of FSC forest for 30 years.

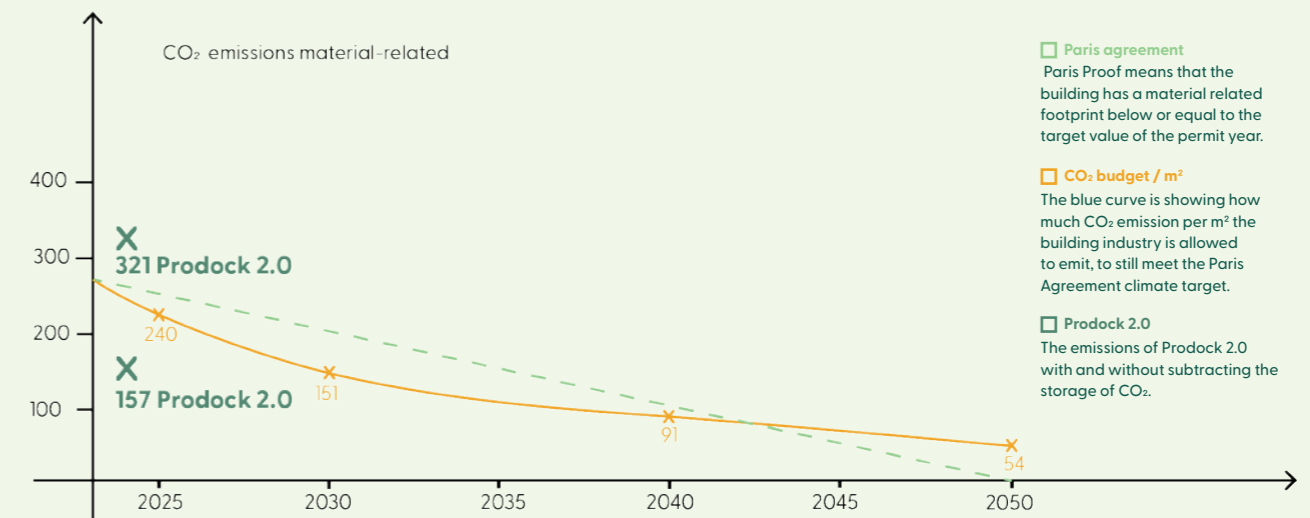
emission storage total

$$321 - 164 = 157 \text{ kg CO}_2 \text{ eq./ m}^2 \text{ GFA}$$

GFA area Prodock 2.0: 8.744m²

Building parts	kg CO ₂ eq./m ² GFA	Emission	Storage
foundation	45	45	0
structure	-26	95	-121
skin	33	53	-20
partitions	21	44	-23
installations*	60	60	0
other	25	25	0
total	157	321	-164

* estimation



Paris agreement
Paris Proof means that the building has a material related footprint below or equal to the target value of the permit year.

CO₂ budget / m²
The blue curve is showing how much CO₂ emission per m² the building industry is allowed to emit, to still meet the Paris Agreement climate target.

Prodock 2.0
The emissions of Prodock 2.0 with and without subtracting the storage of CO₂.

Unlocking Sustainable Building Potential

Free online course 'Sustainable Building with Timber'

In the pursuit of sustainable construction practices, timber has emerged as a versatile and environmentally friendly building material. To empower architects and professionals in the industry with the knowledge and skills needed to harness the potential of timber construction, TU Delft and VIA University College have collaborated to create the free online course 'Sustainable Building with Timber'. This comprehensive course offers a deep dive into the world of timber construction, exploring its environmental impact, circular design typologies, structural aspects, building physics, and more. Join this transformative learning journey to gain fresh insights and shape a more sustainable future in the built environment.

The course 'Sustainable Building with Timber' presents a structured curriculum designed to equip participants with a holistic understanding of sustainable timber construction. Throughout the course, you will:

Gain Fresh Insights

Explore the importance of building sustainably with timber sourced from well-managed forests. Understand the larger societal context of circularity, sustainability, and the low-carbon building sector.

Assess Environmental Impact

Familiarize yourself with Life Cycle Assessment (LCA) methodologies to evaluate the environmental impact and carbon footprint of timber constructions. Compare results based on case studies and learn strategies for prolonging product lifespans.



Photo: Lister Buildings



Identify Circular Design Typologies

Analyze and identify typologies for new timber buildings, including low-rise, mid-rise, and high-rise structures. Discover circular timber design approaches for refurbishment and top-up projects. Learn about design for disassembly and explore inspiring case studies.

Understand Structural Basics

Dive into timber load-bearing structures, examining their cohesion, stability, and different construction systems. Study dimensions, typologies, and execution methods through global case studies.

Explore Building Physics and Durability

Investigate the material and physical properties of timber, considering weather and fireproofing, humidity and heat mitigation, indoor climate comfort, circular assembly, and adaptability. Discover how timber products can replace abiotic building materials effectively.

Embrace Prefabrication and Building Process Benefits

Explore the potential of prefabrication and industrialization in mass timber buildings. Understand how construction activities can be moved away from building sites for increased efficiency and improved outcomes.



Available on edX
fall 2023
Enroll now!

This course has been developed by TU Delft's Faculty of Architecture and the Built Environment and the Circular Built Environment Hub, in collaboration with VIA University College Denmark, FSC Netherlands, Ssse | OvO associates architects, Lister Buildings, the AMS Institute, Material District, and geWOONhout in the context of the HOME for the future project.

Unveiling Hidden Gems

Unique Qualities of Tropical Timber

Tropical wood boasts a remarkable array of qualities that set it apart as a preferred choice for cladding and window framing:

Exquisite Beauty

From the rich hues of Mahogany and Louro to the striking patterns of Fraké, tropical wood offers a captivating palette of colors, grains, and textures. This natural elegance enhances the visual appeal of architectural designs, infusing warmth and sophistication.

Exceptional Quality

Tropical wood stands the test of time, thanks to its inherent durability, strength, and resistance to decay and pests. Architects can rely on tropical timber species, ensuring longevity and structural integrity in their projects.

Low Maintenance

With its inherent resistance to decay and pests, tropical wood requires minimal maintenance throughout its lifespan. This feature minimizes the need for chemical treatments and frequent repairs, promoting a more sustainable and cost-effective approach to building maintenance.

The Sustainable Use of Tropical Wood in Cladding and Window Framing

Architects, driven by a desire for sustainable and visually appealing designs, are increasingly turning to tropical wood for cladding and window framing applications. By leveraging the Lesser Known Timber Species Database, architects gain access to a wealth of information on sustainable lesser-known timber species, unlocking a world of possibilities for creating environmentally responsible and stunning architectural designs.

Forest Protection through FSC-Certified Wood

There are over 30,000 timber species. Yet, the construction sector only uses a handful (mainly Meranti and Mahogany). One of the key advantages of utilizing the lesser known timber species is the direct contribution to strengthening the business case of responsible forest management. By employing the diversity of the tropical timber species with equal or higher qualities for cladding and window framing, architects actively support sustainable forestry practices, safeguarding biodiversity, and preserving the delicate ecosystems of tropical forests for generations to come.

Sustainable Construction and Tropical Timber

Architects seeking sustainable construction solutions can leverage the Lesser Known Timber Species Database as a valuable resource. This database highlights lesser-known timber species that are often underutilized but possess remarkable sustainable qualities.



By exploring these options, architects can expand their repertoire of sustainable materials, reduce reliance on more commonly used species, and promote the conservation of biodiversity and unique ecosystems.

The Lesser Known Timber Species Database

The Lesser Known Timber Species Database serves as an essential tool for architects in their quest for sustainable timber solutions.

This comprehensive resource offers valuable information on lesser known timber species, including their sustainable sourcing, environmental characteristics, and potential applications. Architects can tap into this database to discover new possibilities, broaden their understanding of sustainable timber choices, and create distinctive designs that showcase the hidden gems of the tropical wood world.



**Check out the database on:
www.lesserknowntimberspecies.com**

Transforming Housing with Timber

Embracing Industrialization and Low Carbon solutions

In the realm of architecture, timber has emerged as a game-changer, revolutionizing the way we design and construct buildings. TBI Woonlab's HOUTbaar Loft and HOUTbaar Huis exemplify the potential of timber housing, offering architects and professionals in the industry a glimpse into the future of sustainable, prefabricated housing. These model timber homes, built with precision in a factory setting, not only showcase the advantages of building with wood but also highlight the synergy between industrialization and sustainability in the context of timber construction.

TBI Woonlab stands as the innovation hub within the TBI holding. This collaborative platform serves as a catalyst for driving innovation and advancement in the construction industry. By leveraging the collective expertise and resources of these companies, TBI Woonlab aims to develop cutting-edge solutions and technologies that promote sustainable, efficient, and high-quality housing projects.

Building with wood offers a multitude of advantages, making it an increasingly popular choice for architects seeking sustainable and efficient construction solutions. The advantages include:

Environmental Sustainability

Timber is a renewable resource that has the ability to sequester carbon dioxide, reducing the carbon footprint of buildings. By choosing timber as a primary building material, architects contribute to combating climate change and promoting a more sustainable future.

Speed and Efficiency

Prefabrication and off-site construction techniques, such as those employed by TBI Woonlab, enable faster construction timelines and reduced on-site labor requirements. The precision manufacturing in a controlled factory environment ensures high-quality construction and minimizes material waste.

Design Flexibility

Timber's versatility allows for diverse architectural expressions and innovative design solutions. Whether it's a modern loft or a traditional house, timber offers architects the freedom to explore creative possibilities while ensuring structural integrity.

Industrialization in timber housing streamlines the construction process, reducing costs, minimizing construction waste, and optimizing material usage. The controlled factory environment allows for precise fabrication, ensuring the structural integrity of the buildings. Furthermore, prefabrication enhances construction speed, resulting in shorter project timelines and reduced disruption to surrounding areas.



In the case of timber houses, this industrialization approach aligns perfectly with sustainability goals. The use of renewable and responsibly sourced timber reduces the environmental impact associated with traditional construction materials. Additionally, off-site construction minimizes noise pollution, dust, and waste generation, leading to a cleaner and more sustainable building process.

TBI Woonlab's HOUTbaar Loft and HOUTbaar Huis exemplify the transformative power of timber housing in the architectural landscape.

Through their prefabricated construction approach, these model homes demonstrate the advantages of building with wood, including environmental sustainability, energy efficiency, speed, and design flexibility.

The seamless integration of industrialization and sustainability in timber houses showcases a path towards a more sustainable future in the construction industry. Architects and professionals in the field are encouraged to explore the possibilities of timber construction, leveraging the benefits it offers to shape a greener and more efficient built environment.

DEAR ARCHITECT

**LET'S
TALK...**

