



## **The LIGNA sustainability concept**

We live sustainability. Our focus is on the future.





# Sustainability & Ecology

**No other building material is as resource-efficient, reusable, and recyclable as wood.**

## The 3 LIGNA sustainability pillars

The LIGNA sustainability concept is based on three pillars: resource conservation, hybrid construction, and cascade use.

Through innovative construction methods such as the truss design, up to 50% of wood can be saved compared to traditional solid wood constructions. The hybrid construction combines wood and steel to leverage the best properties of both materials. LIGNA systems also promotes the zero-waste cycle by reusing materials and incorporating recyclable construction components.

1

**Resource conservation**

2

**Hybrid construction**

3

**Cascade use**



2





# 1

## Resource conservation

### Efficient use of timber for maximum savings

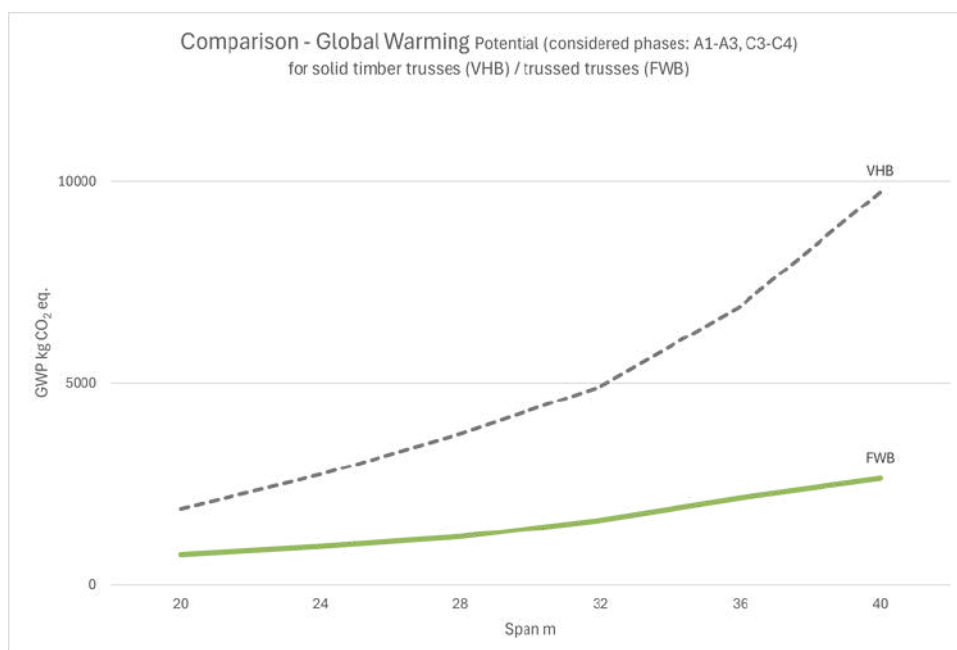
Timber is a valuable resource that we use with care and maximum efficiency. Despite exclusively using FSC-certified timber, we anticipate that timber may not remain an unlimited resource in the future. Therefore, our focus is on resource-saving construction methods

Our innovative truss construction method allows us to **save up to 50%** of the timber compared to solid wood constructions without compromising stability or load capacity. These material savings not only contribute to more sustainable construction but also make your projects more cost-efficient.

### — Up to 50% Timber Savings. Comparing solid timber beams to truss beams



Through our optimized truss construction, we achieve maximum material savings and offer structures that are not only cost-effective but also highly resource-efficient. In the beam section, the truss design enables wood savings of up to 50% compared to solid wood beam constructions. As a result, an entire structure, including columns, can be built with the same volume of wood as a comparable structure using solid wood beams on concrete columns.







# 2

## Hybrid construction

All-timber? Not necessarily!

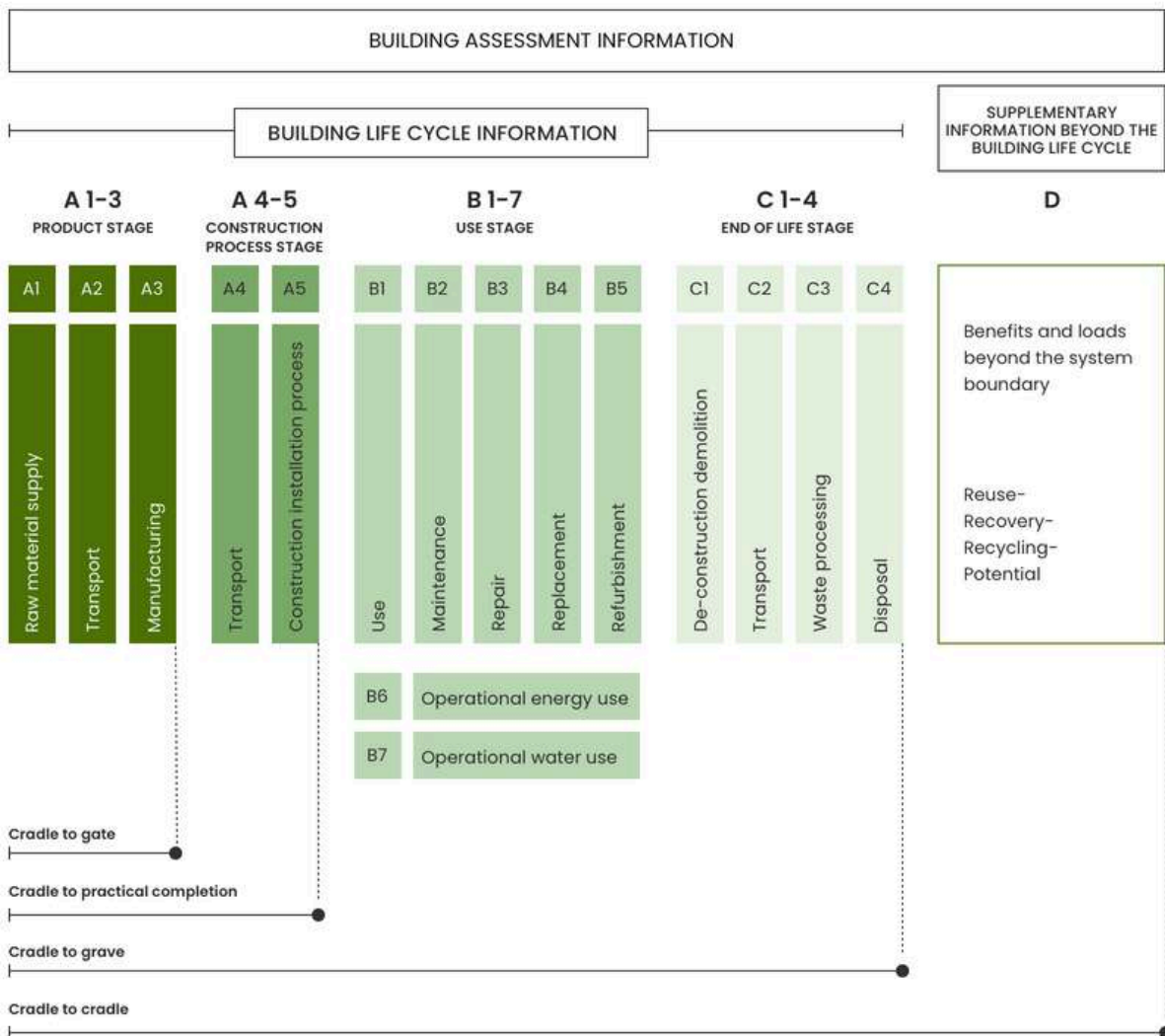
### Timber structures with steel cladding

We believe in using each material where it performs best. LIGNA systems adopts a hybrid construction approach, combining the strengths of timber and steel. For cladding, lightweight metal facade systems like sandwich panels often make more sense than solid wood walls, particularly in terms of lifecycle analysis. In lifecycle assessments, lightweight metal systems often outperform solid wood walls due to their lower material mass while achieving similar physical properties.

As a result, our timber structures are designed to integrate seamlessly into a variety of building solutions. This approach minimizes the ecological footprint and ensures competitive pricing, particularly for structural costs, against steel or concrete solutions.

### Life Cycle Assessment (LCA)

A lifecycle assessment evaluates a building’s environmental impact throughout its life, from raw material extraction to construction, operation, disposal, and potential reuse.





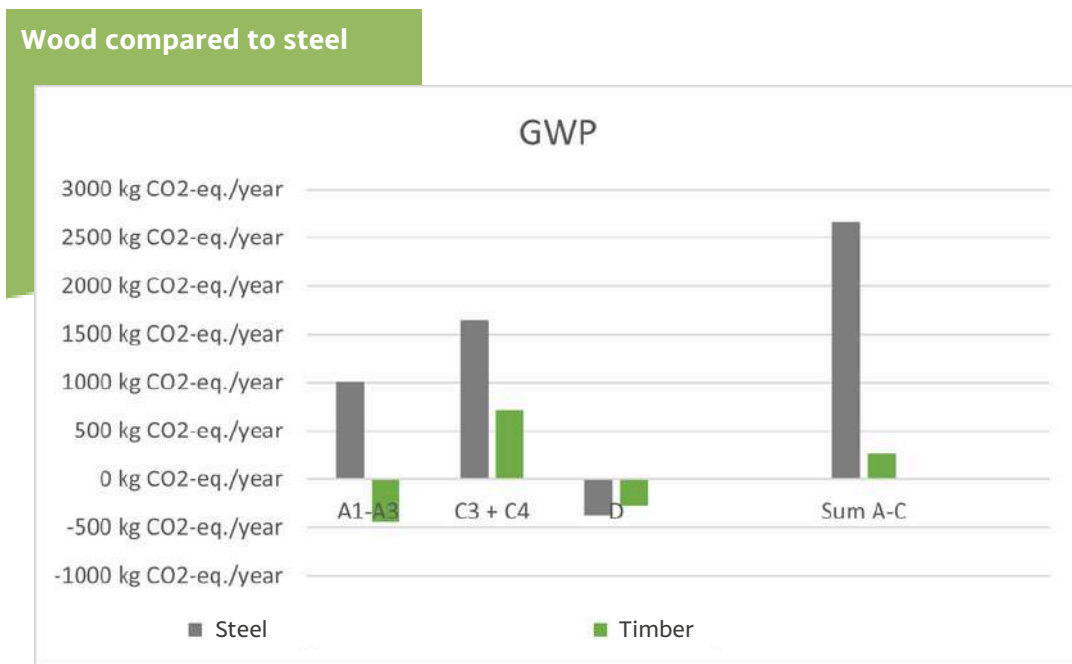
# Timber compared to Steel and Concrete

Timber offers numerous ecological benefits compared to steel and concrete, as highlighted in lifecycle assessments.

Key Metrics:

## Greenhouse Gas Potential (GWP)

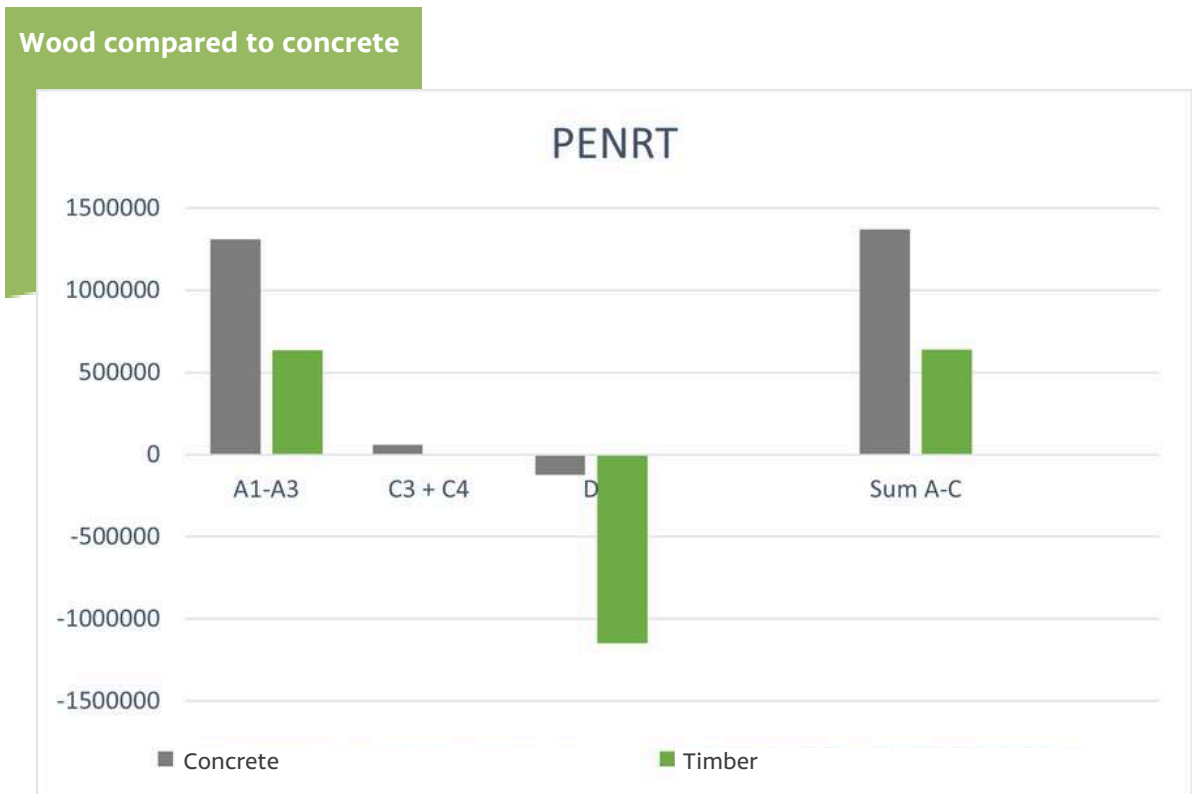
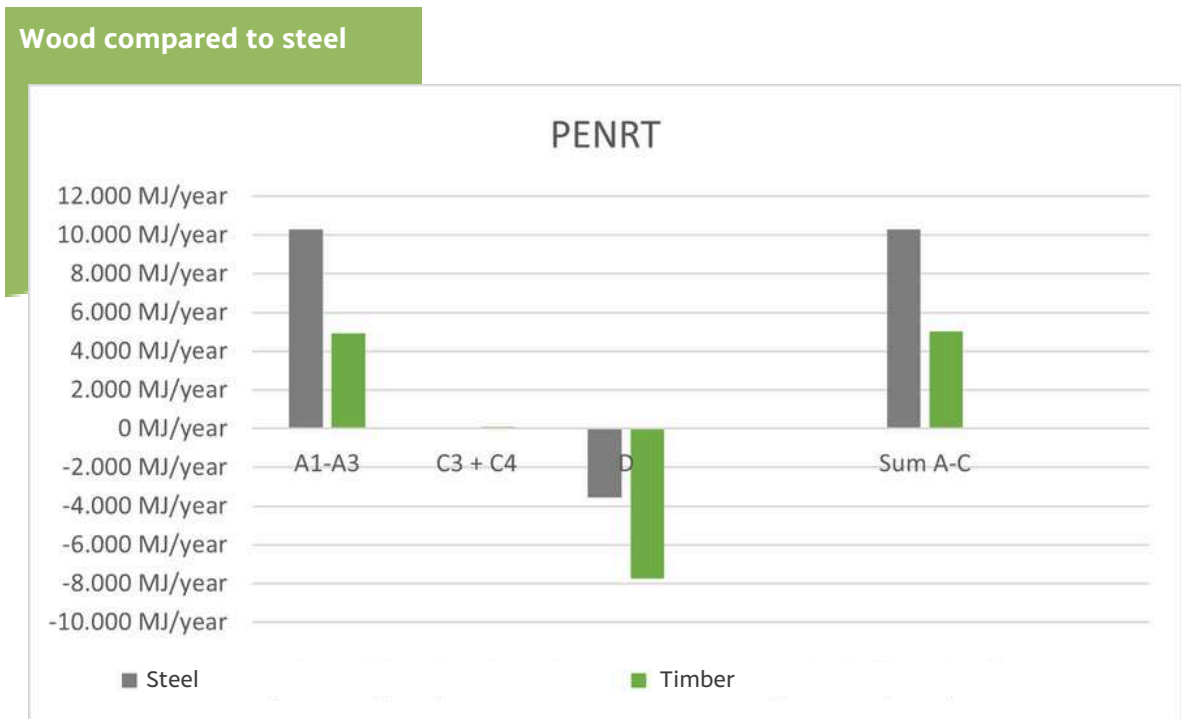
Timber has a lower greenhouse potential, storing CO<sub>2</sub> during growth and reducing atmospheric CO<sub>2</sub> levels.





## Primary Energy Demand (PENRT)

Timber requires less non-renewable primary energy for production and processing, as it is a renewable resource.



# 3

## Cascade use

5

Conserve resources through reuse

Timber is a material too valuable to use only once. Our construction method with detachable connections, such as screws and bolts, ensures that components can be easily disassembled and reused after their lifespan.

We create a circular economy where both timber and steel components can be recycled for new projects. LIGNA systems guarantees to accept returned components at the end of a building's life and repurpose them for future projects. This approach minimizes waste and promotes sustainable resource use.




### — ZERO-WASTE-CYCLE



Member of  
**DGNB**

Deutsche Gesellschaft für Nachhaltiges Bauen  
German Sustainable Building Council

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