
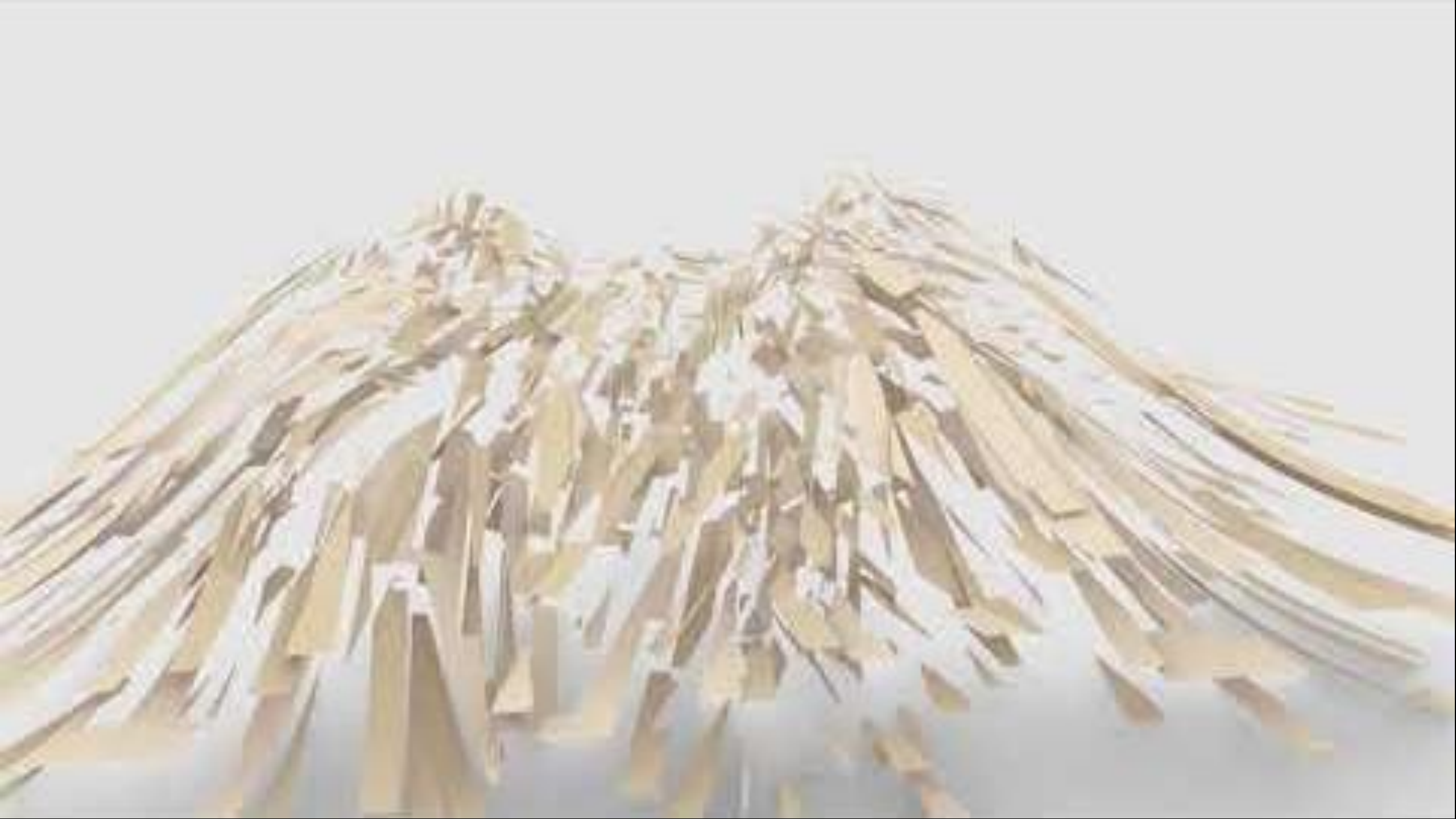


strong by form



Woodflow
By Strong by Form

High Performance
timber-based biocomposites





TRENDS

strong by form

Yesterday,
sustainability was a
good practice...



Today
is mandatory

Wood technologies are at the forefront of the sustainability revolution

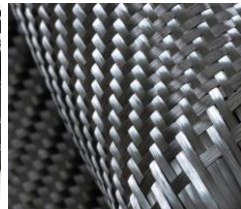




Concrete



Steel



FRP



Aluminium



Flax



Timber



Hemp

High Structural performance



High environmental impact

Low environmental impact



Moderate structural performance

Companies requiring lightweight structural materials struggle to find sustainable replacements

STRUCTURAL

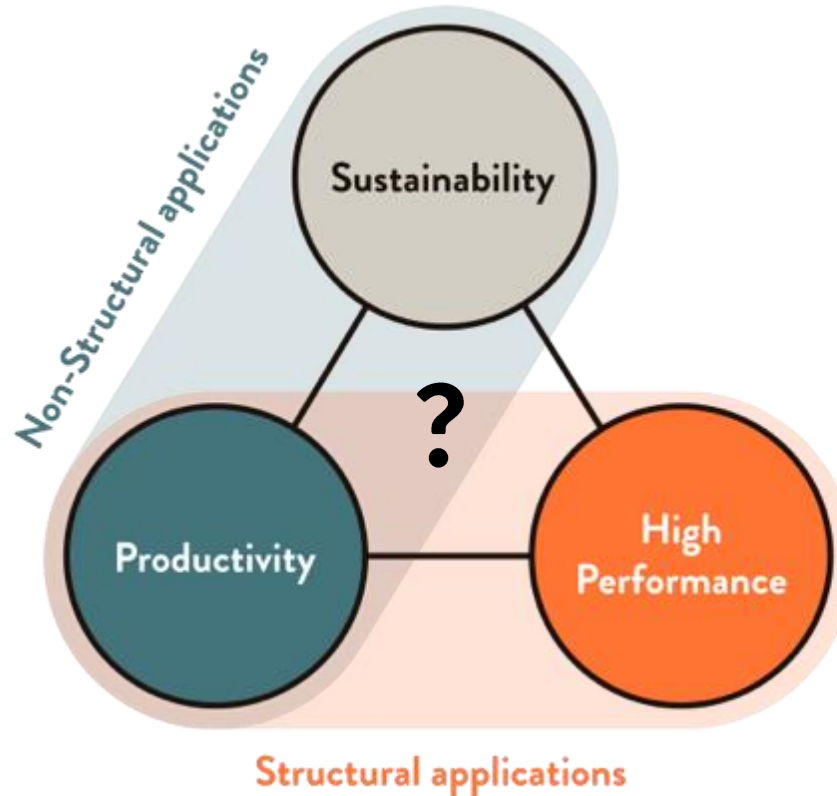


High CO2 emissions
Non renewable

NON-STRUCTURAL



Low CO2 emissions
Renewable



With Woodflow we aim to solve this triad



- Only available timber-based technology able to achieve freeform + high performance

Real prototype image

SOLUTION

strong by form

In nature,
wood is a high
performance
material

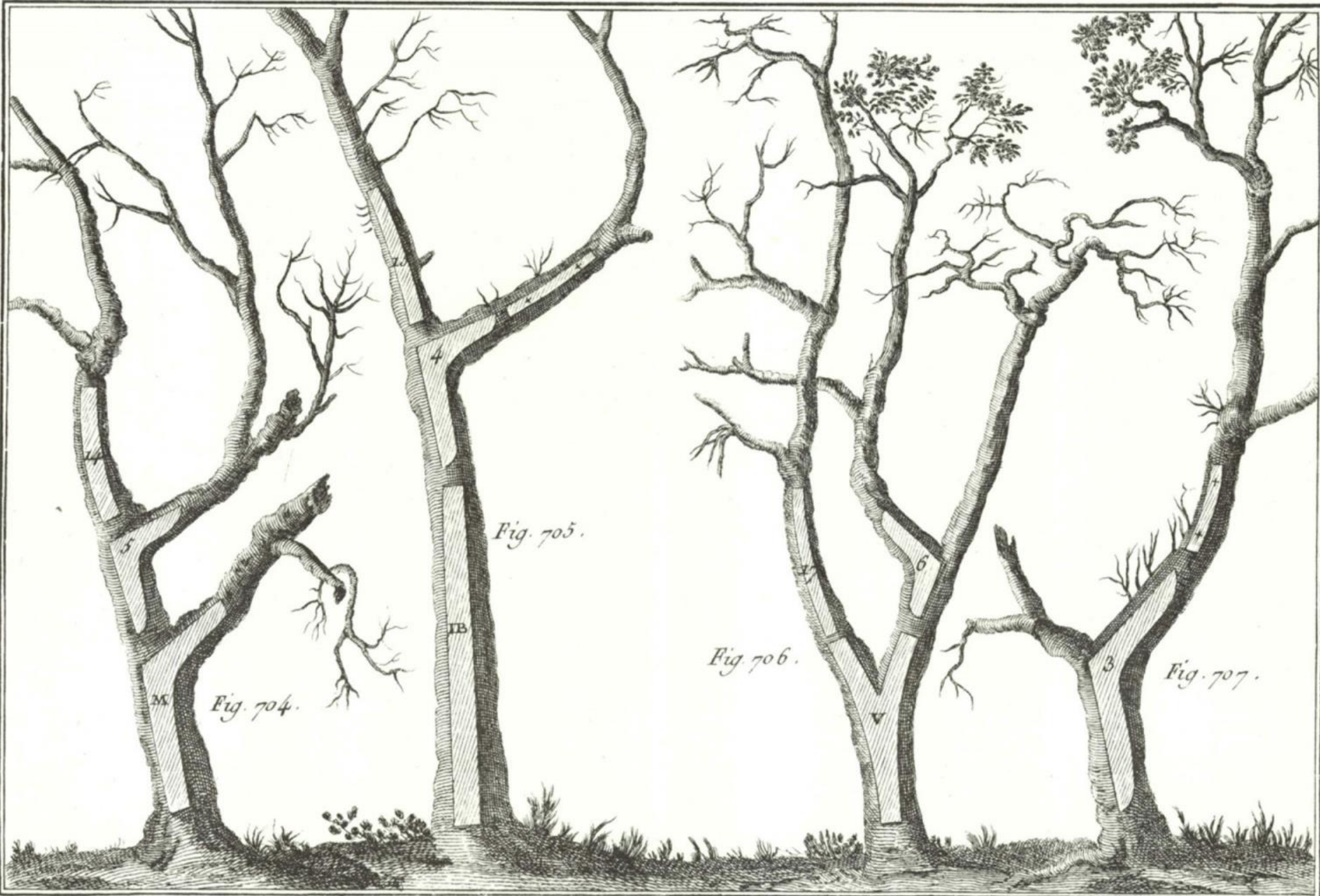
How?
Optimizing its
form and fiber
orientation



Did we discover this?



Traditional ship construction



Components for ship construction "found" in trees

What are we doing in the XXI century?

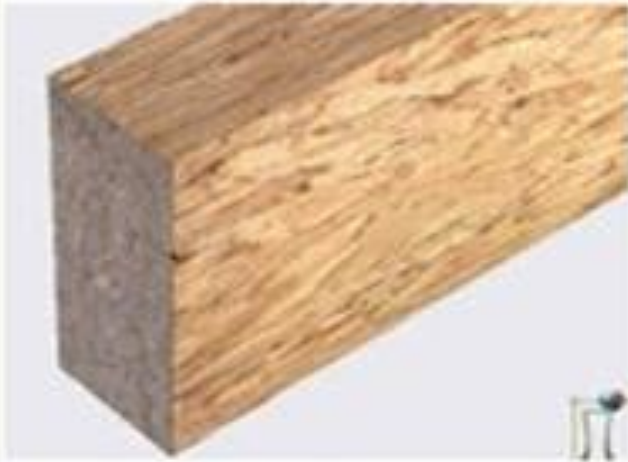




Laminated veneer lumber (LVL)



Laminated strand lumber (LSL)



Parallel strand lumber (PSL)



I-Joists



Glue laminated timber (Glulam)



Finger-jointed structural sawwood



Cross Laminated Timber (CLT)



A world made out of wood? Sounds great, but...



Sidewalks Lab, Timber City, Toronto

Current trends: massive amount of wood required



Azadeh Follahi

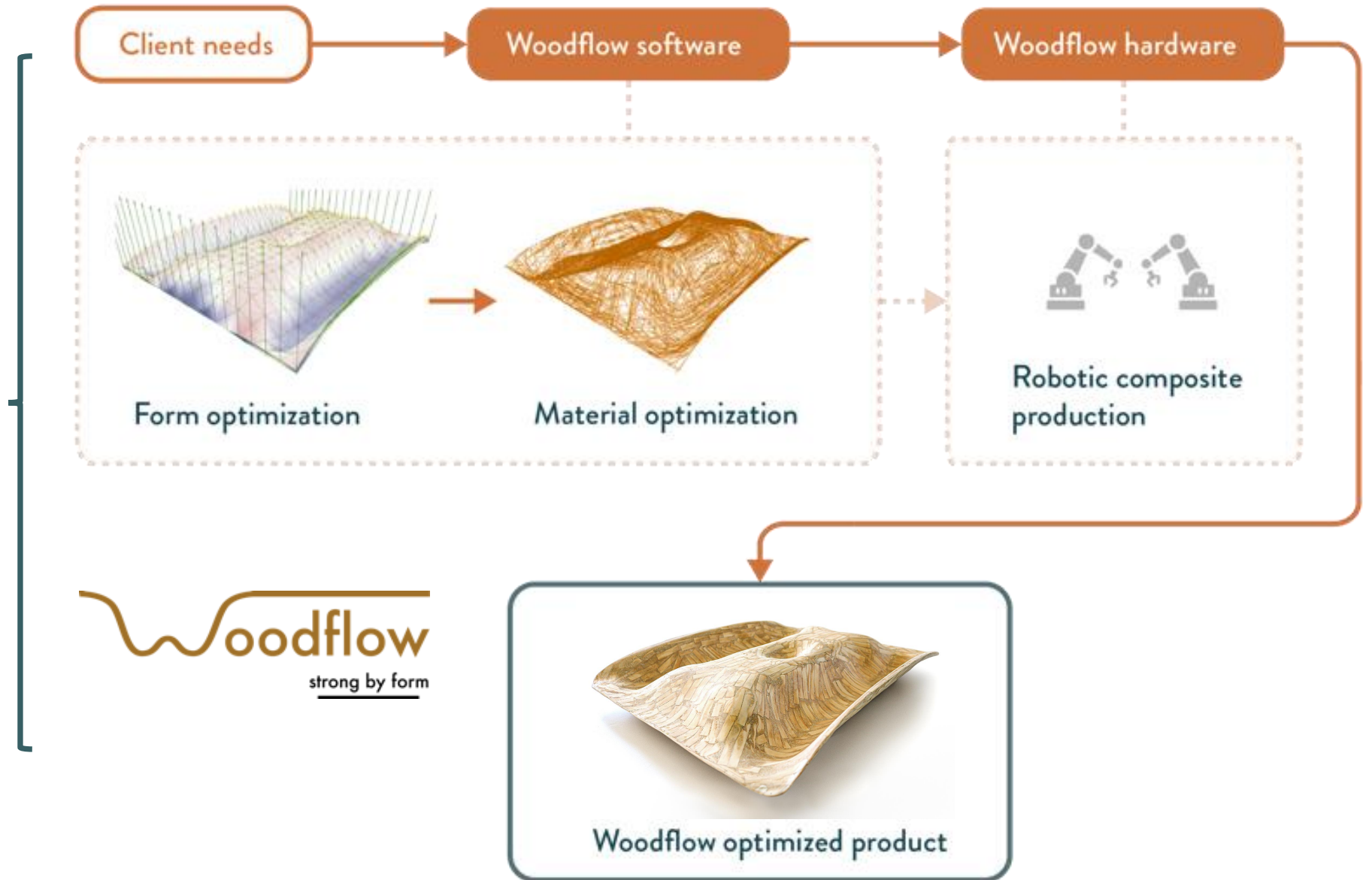
Not enough trees available to make it sustainable

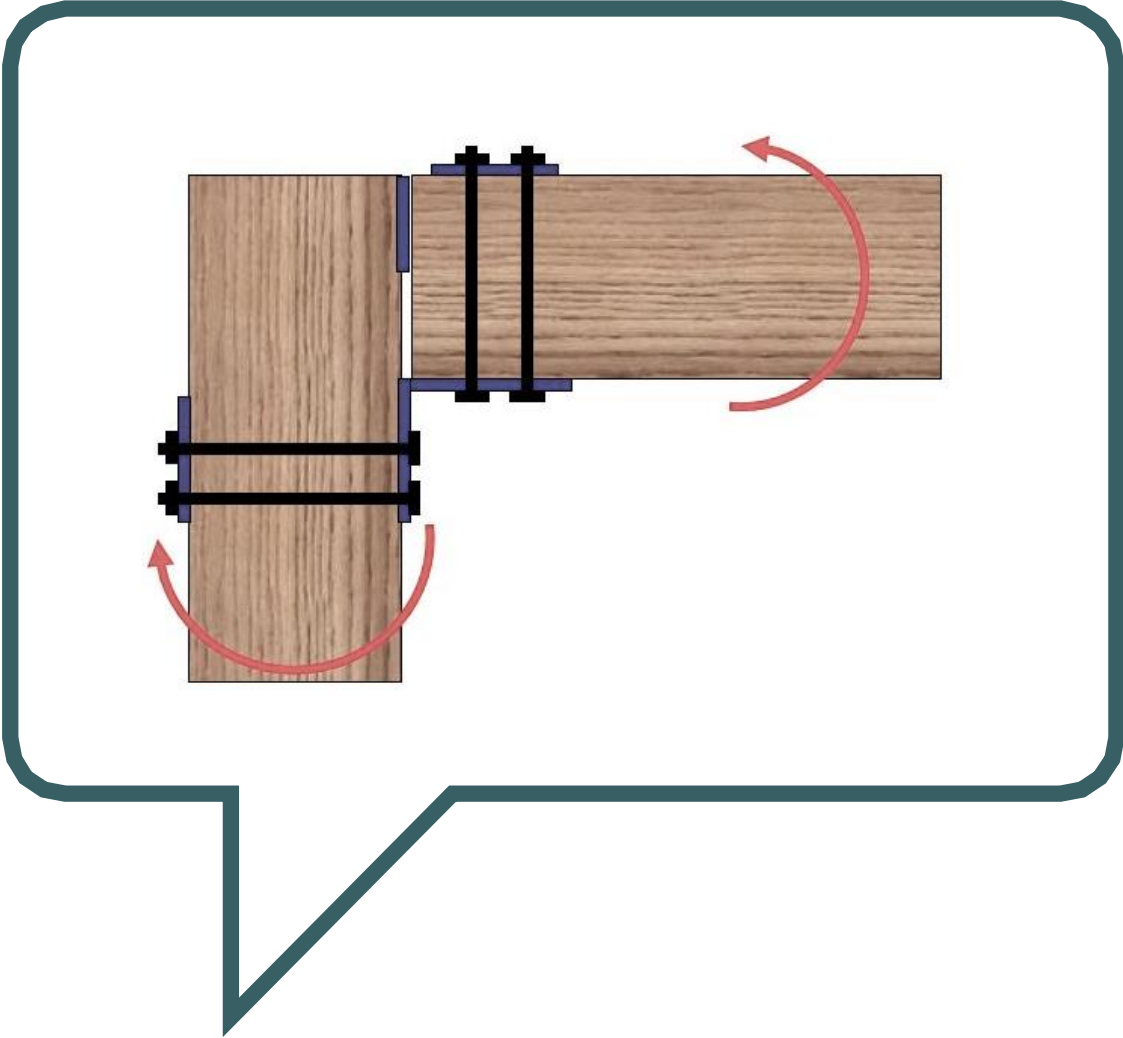


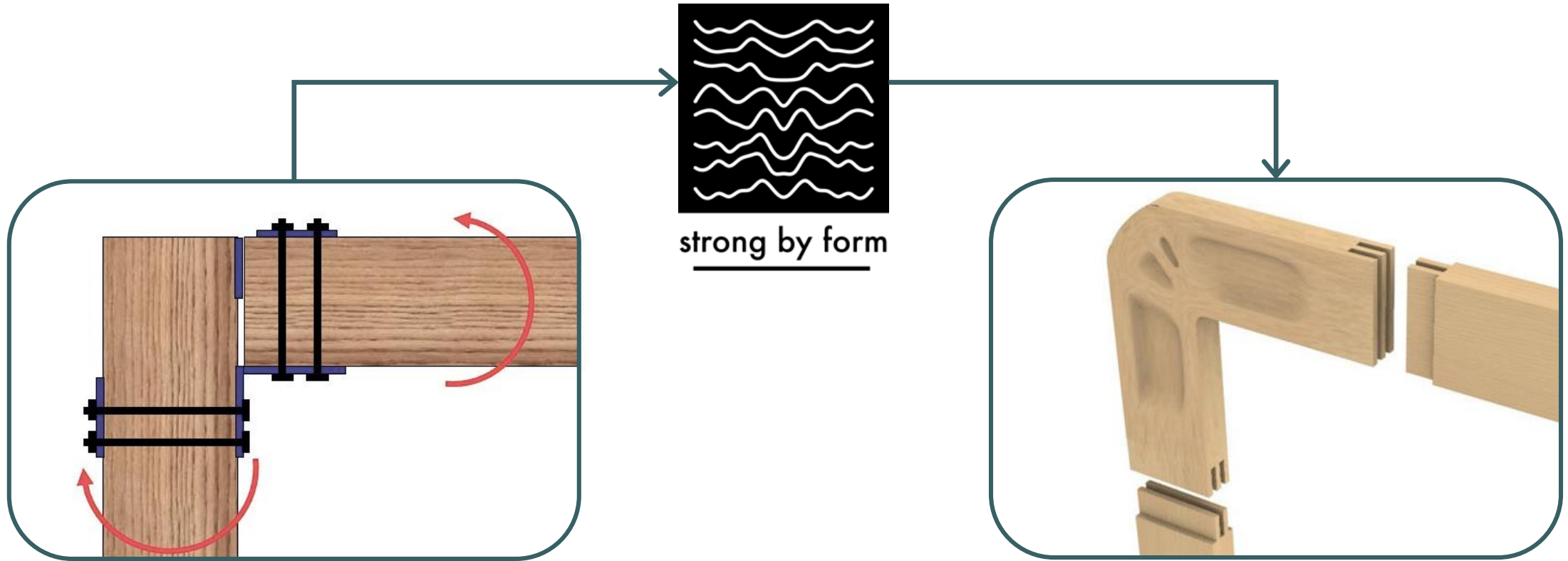
Brock Commons building during construction,
Acton Ostry Architects, Toronto.

How can digital tools help us making construction more sustainable?

Integrating all the value chain:
From material science, to design & engineering and fabrication





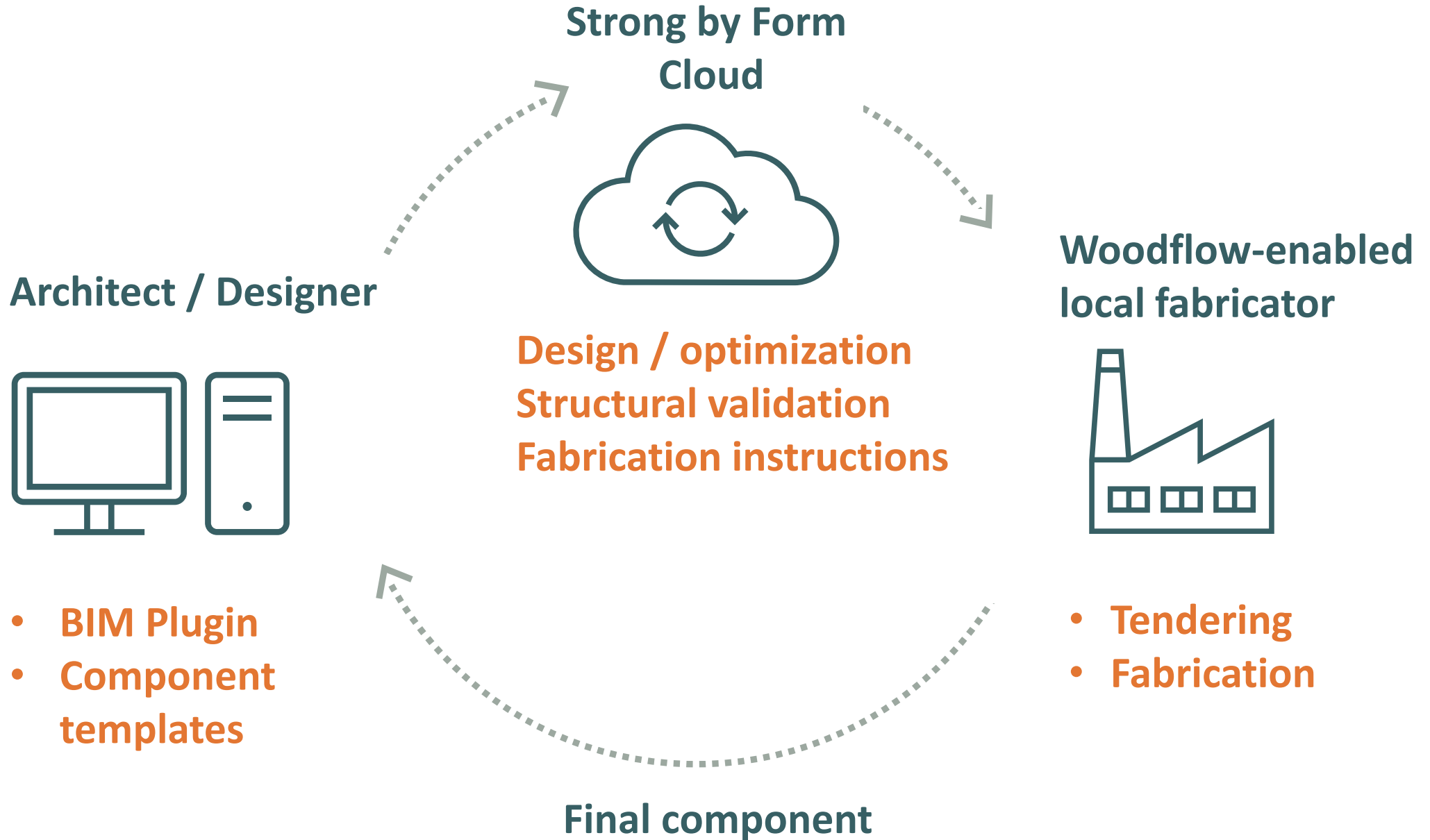


Traditional timber construction

- Metal joints = High CO2 emissions
- Prone to cracks
- Bulky
- Expensive

Woodflow solution

- Lower CO2 emissions
- Mechanically consistent
- Lighter = less foundations / transp.
- Aesthetically nicer



ATTRIBUTES

strong by form

SUSTAINABLE



LIGHTWEIGHT



HIGH PERFORMANCE



TAILORED PERFORMANCE



Tailored fiber
architecture



Freeform



Variable thickness

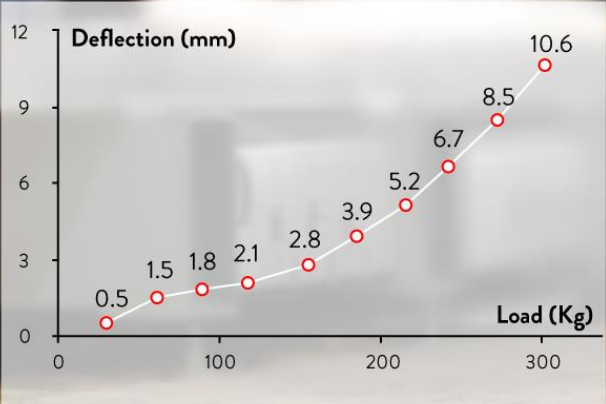


Seamless joints



Load:
302 Kg

Sample:
854 g
Thick.
≈ 5 mm



Load Test

- **350X load (non-destructive)**
- **Minimum deflection**

RELEVANCE OF WOODFLOW TECHNOLOGY

strong by form



**Renewably
sourced**



**Low CO₂
emissions**



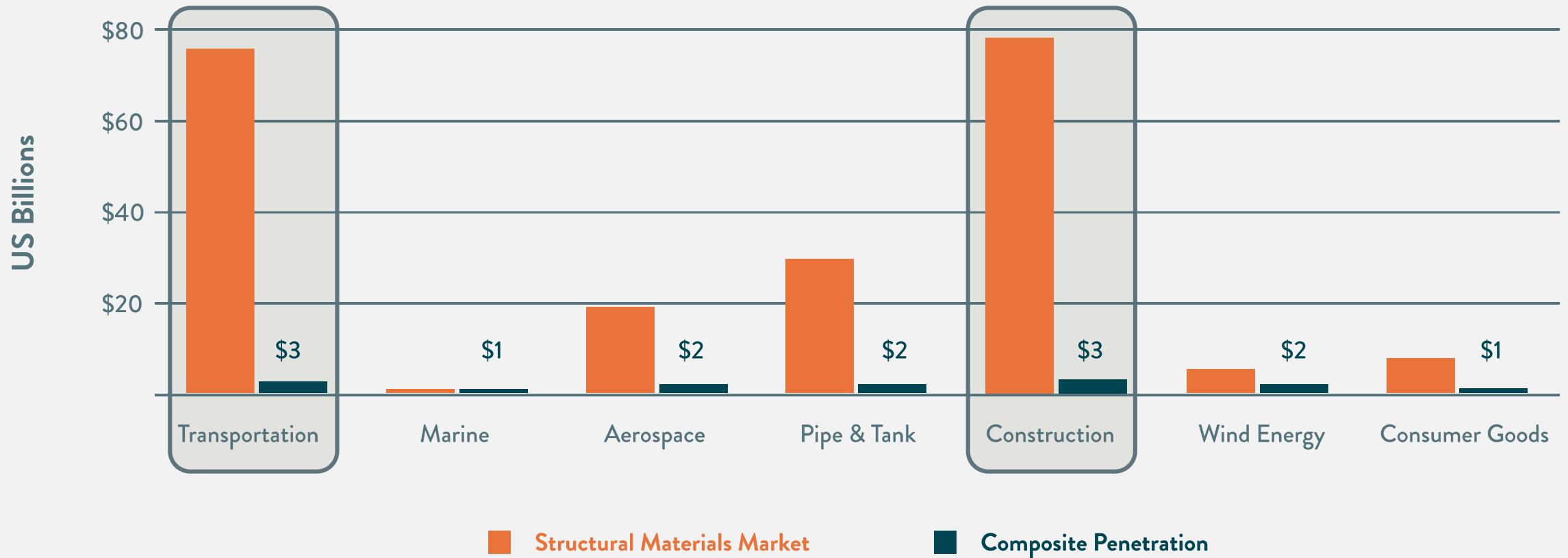
Recyclable



**Resource
efficient**

From technology to business

Composite penetration in various segments



LIGHTWEIGHT CONSTRUCTION FOR BUILDING INDUSTRY

strong by form

Point supported structural shell

Suitable to combine with standard timber elements

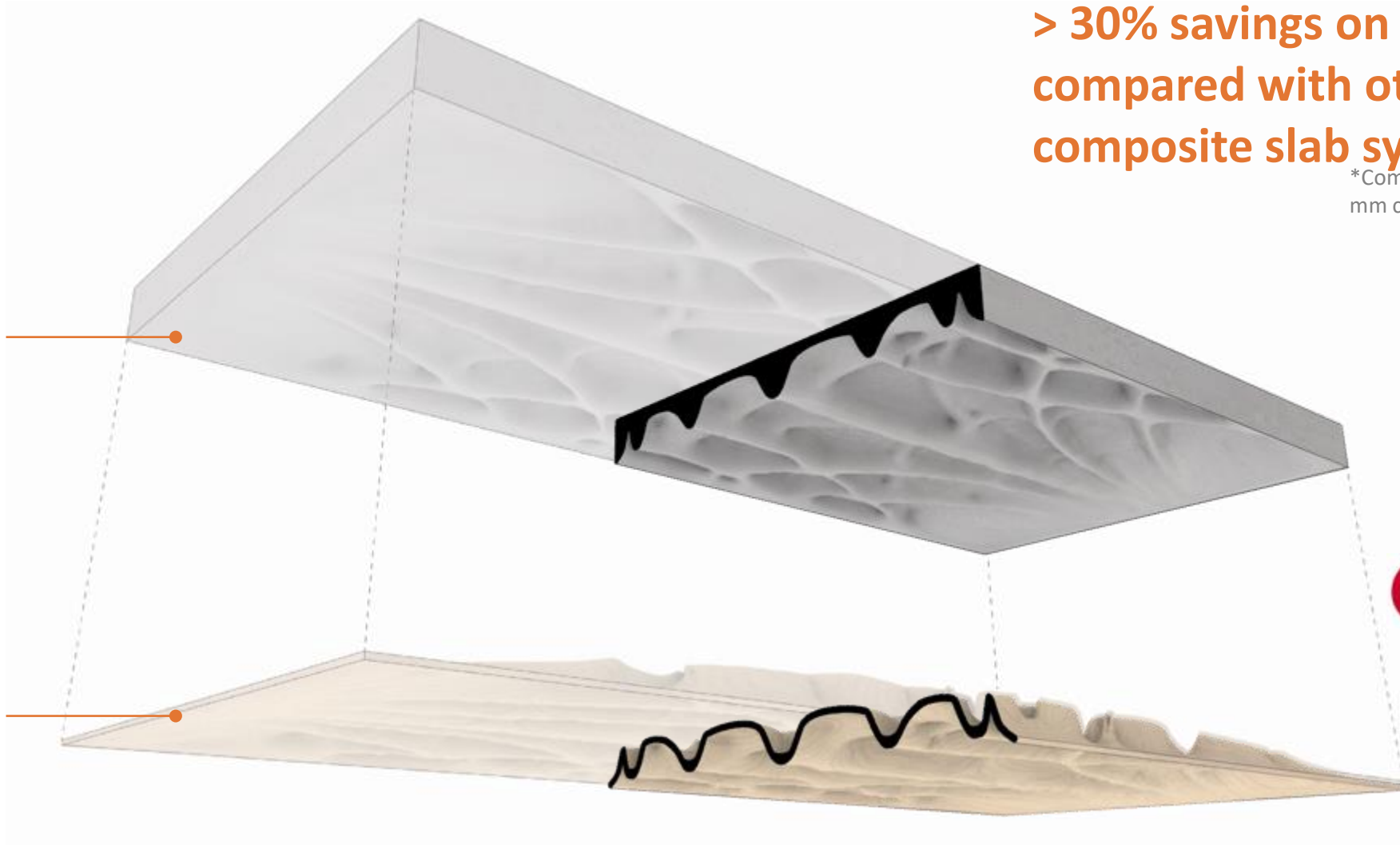
Stiff timber joints

> 50% lighter,
> 30% savings on concrete
compared with other
composite slab systems*

*Compared to a 182 mm CLT + 100 mm concrete composite slab.

Concrete
works in
compression

Woodflow
works in
tension

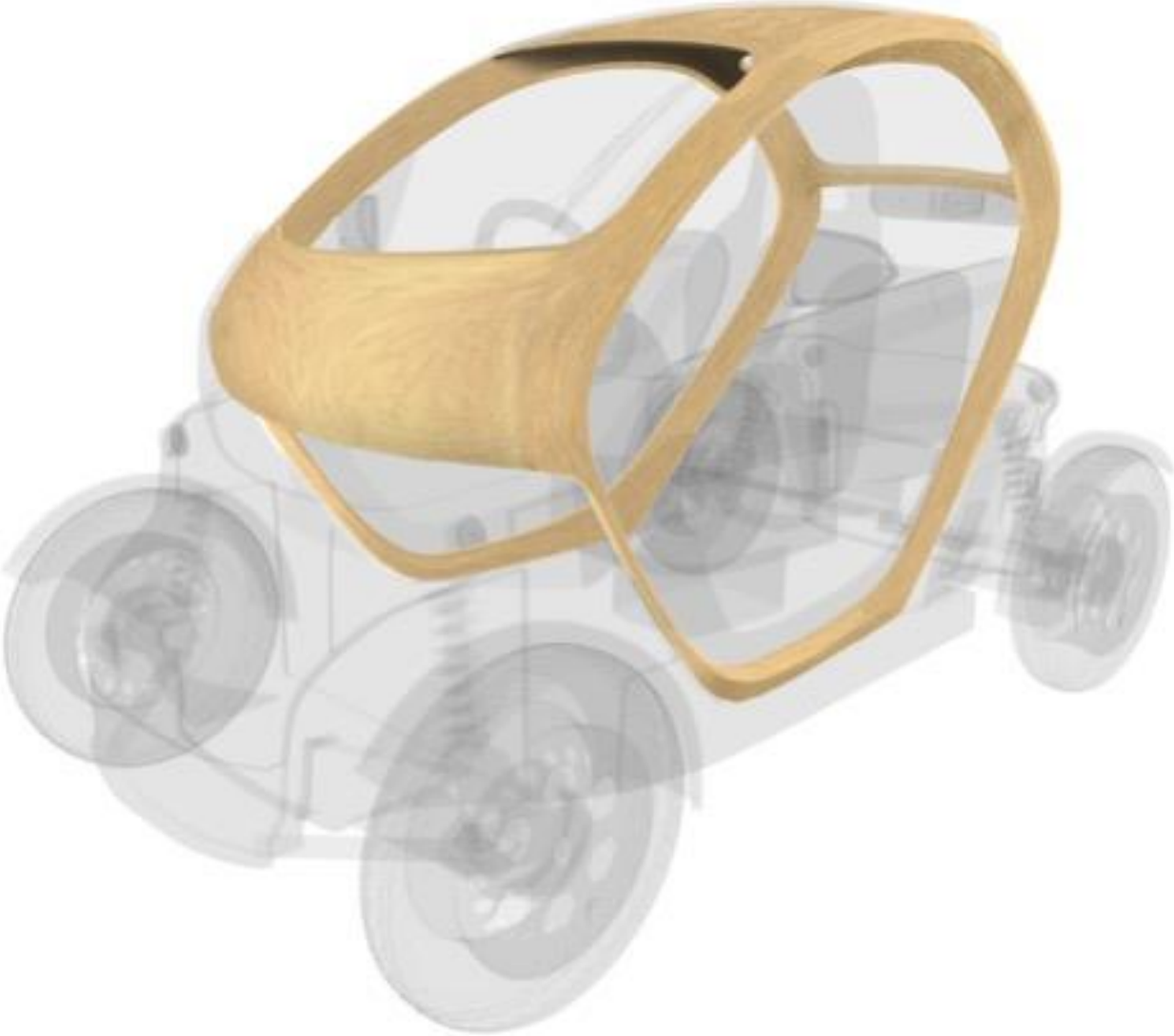


In collaboration with

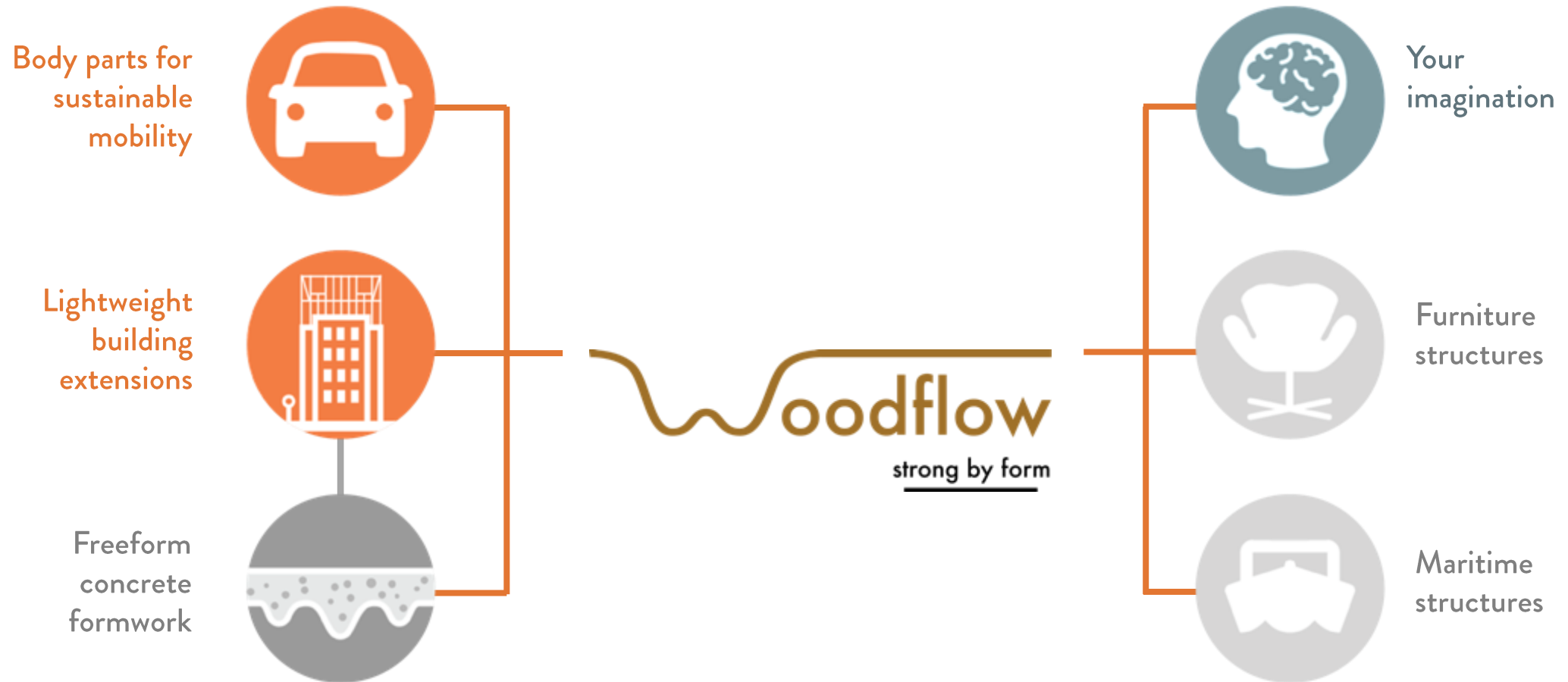


OUR VISION FOR MOBILITY

strong by form



One technology, many applications...





Companies with declared interest on Woodflow



ŠKODA



Research centers willing to collaborate with us





Tomorrow is
being
changed
today

W350 Project Sumitomo Forestry & Nikken Sekkei