From Concrete Barriers to Timber Buildings

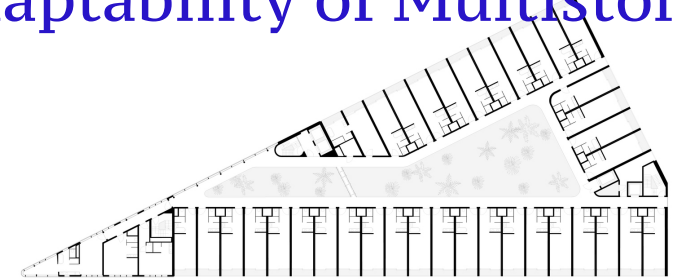
Barriers and Strategies for Multistorey Timber Construction in Belgium

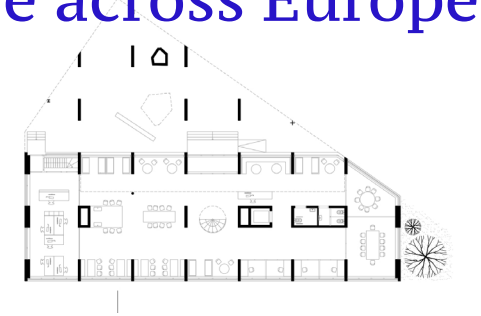
Wood Academy
15 October 2026

Esther Vandamme
University of Antwerp

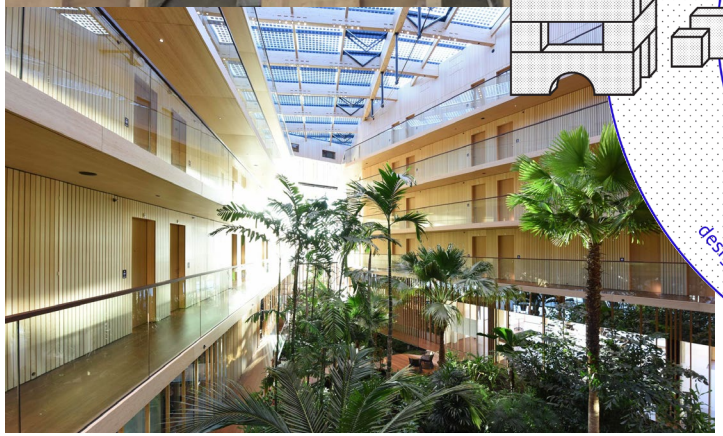
The Splinters of Mass Timber:
Adoption and Adaptability of Multistorey Timber Architecture across Europe

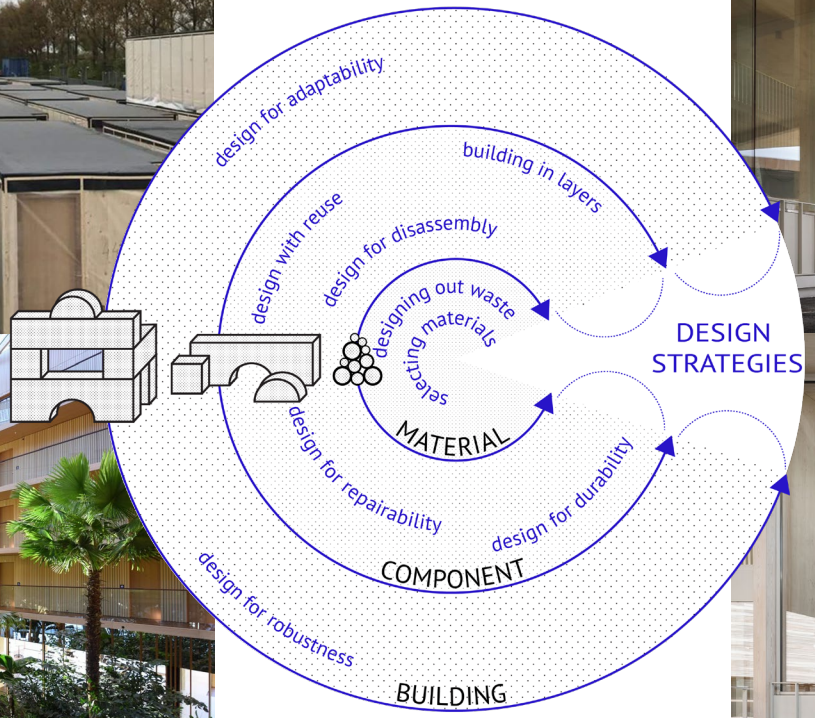
ESTHER VANDAMME













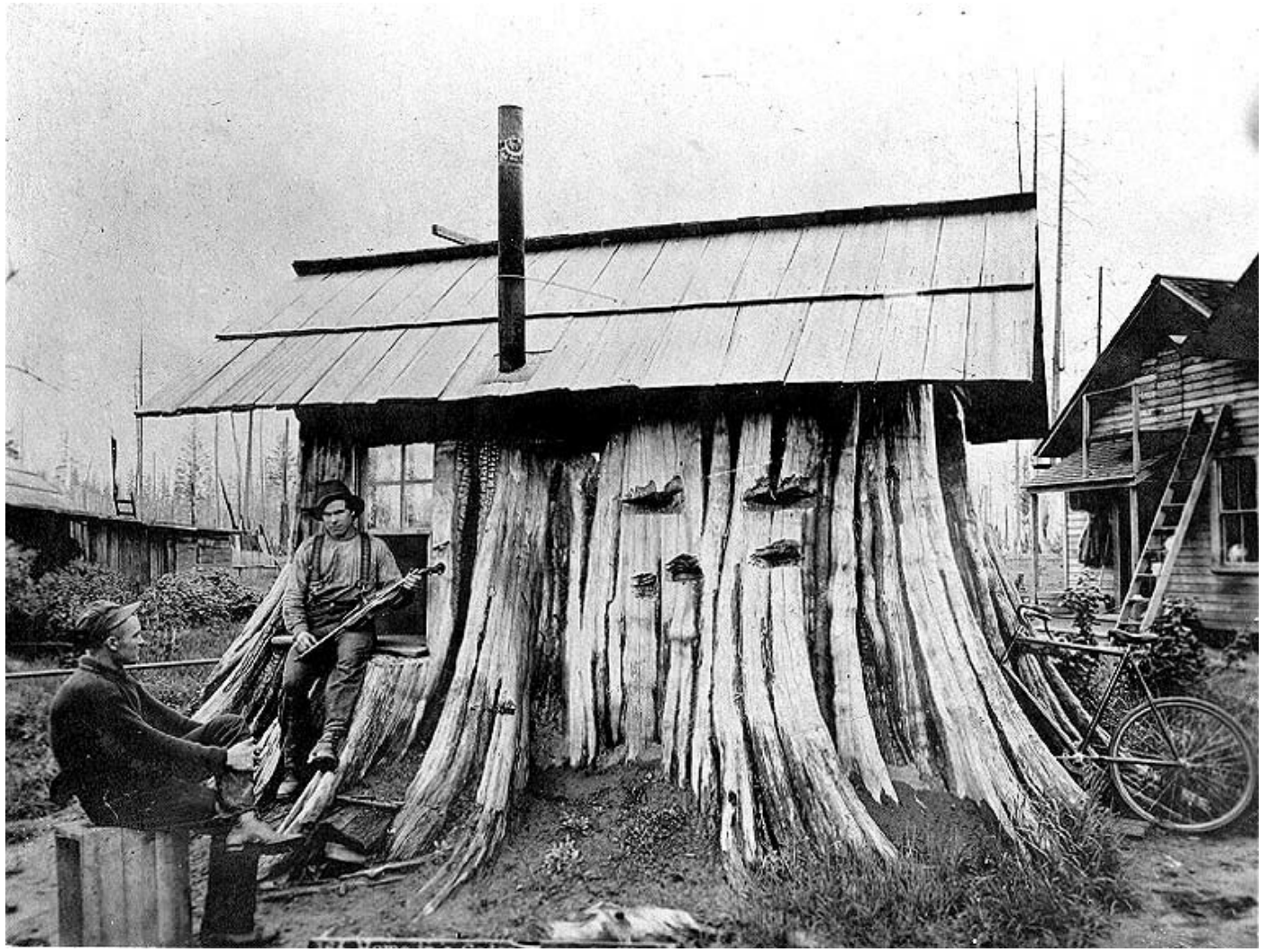


https://www.linkedin.com/in/esthervandamme/

Hotel Jakarta, sEARCH, 2018; Van Hoorebeke Timber Ghent, TRANS architectuur, 2020

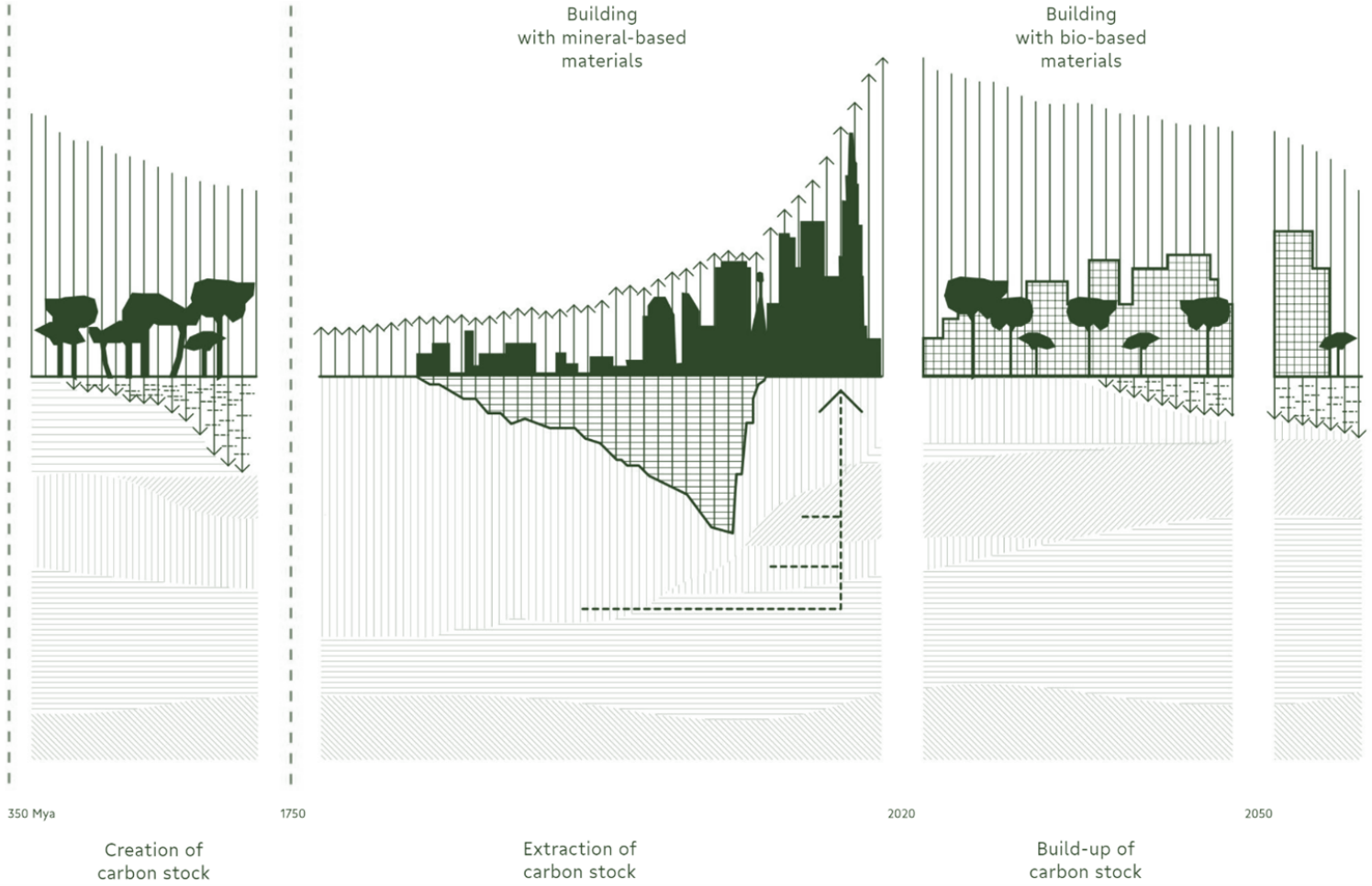
Building with Timber





Tree Stump Houses, Edgecomb Washington, 1901

Timber Building Benefits



LOWER IMPACT

Renewable material, stored biogenic carbon and circular potential

INDUSTRIALISED DELIVERY

Prefabrication, lighter structures and shorter site time

ARCHITECTURAL VALUE

Visible material quality, comfort and market differentiation

Ambitions

De Standaard Nieuws Opinie Inspiratie Podcasts

Shigeru Ban bouwt houten woontoren in Antwerpen



De houten woontoren zal verrijzen op Nieuw Zuid. — © Shigeru Ban/Triple Living

In de Antwerpse woonwijk Nieuw Zuid zal ook een woontoren verrijzen die werd ontworpen door de Japanse toparchitect Shigeru Ban.



binnentuin nieuw stadhuis © © Arne Deruyter, B-Architecten, Bressers en THIRD

Nieuw Roeselaars stadhuis wordt in hout opgetrokken en krijgt een groen hart: “We bouwen het meest duurzame stadhuis van Vlaanderen”

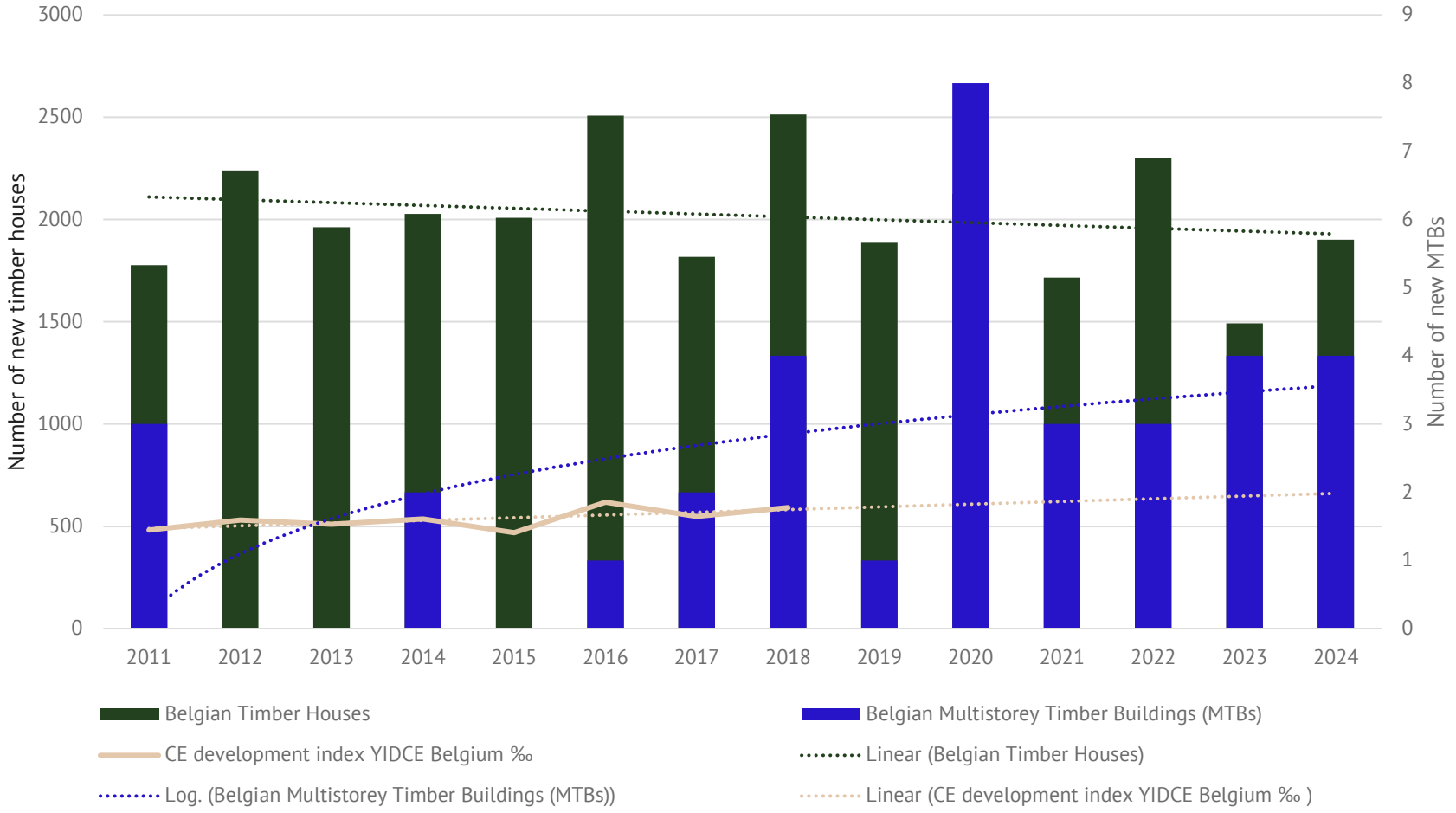
ROESELARE **Het nieuwe Roeselaarse stadhuis, waarvoor de werken volgend jaar starten en dat in 2024 moet openen, zal het meest duurzame stadhuis van Vlaanderen zijn. Dit dankzij de hoge duurzaamheidsnormen waaraan het zal voldoen, de ruime binnentuin en groendaken en de keuze voor houtskeletbouw.**

Charlotte Degezelle 19-11-20, 15:28 Laatste update: 19-11-20, 16:00

Shigeru Ban bouwt houten woontoren in Antwerpen, 2020. . De Standaard.
Degezelle, C., 2020. Nieuw Roeselaars stadhuis wordt in hout opgetrokken en krijgt een groen hart: “We bouwen het meest duurzame stadhuis van Vlaanderen.” hln.be.

The Belgian Paradox

Growth in Circular Economy – Decline in Timber Housing – Stagnation Multistorey Timber



Toestand van de Houtbouw in België 2011-2024. houtinfobois; 2024.
Mazur-Wierzbicka E. Towards Circular Economy—A Comparative Analysis of the Countries of the European Union. Resources. 2021 May;10(5):49.



How can Belgian architects, contractors, clients and engineers overcome barriers and deliver successful timber projects?

Research Question

Research based upon

BELGIAN PROJECT MAPPING

42 built or ongoing projects

33 semi-structured interviews

under review, PhD "The Splinters of Mass Timber"

BELGIAN SURVEY

Construction professionals

44 survey and 22 focus group participants

https://doi.org/10.1088/1755-1315/1554/1/012068

EUROPEAN COMPARISON

Drivers and barriers across contexts

116 European survey participants

https://doi.org/10.3390/buildings16153096

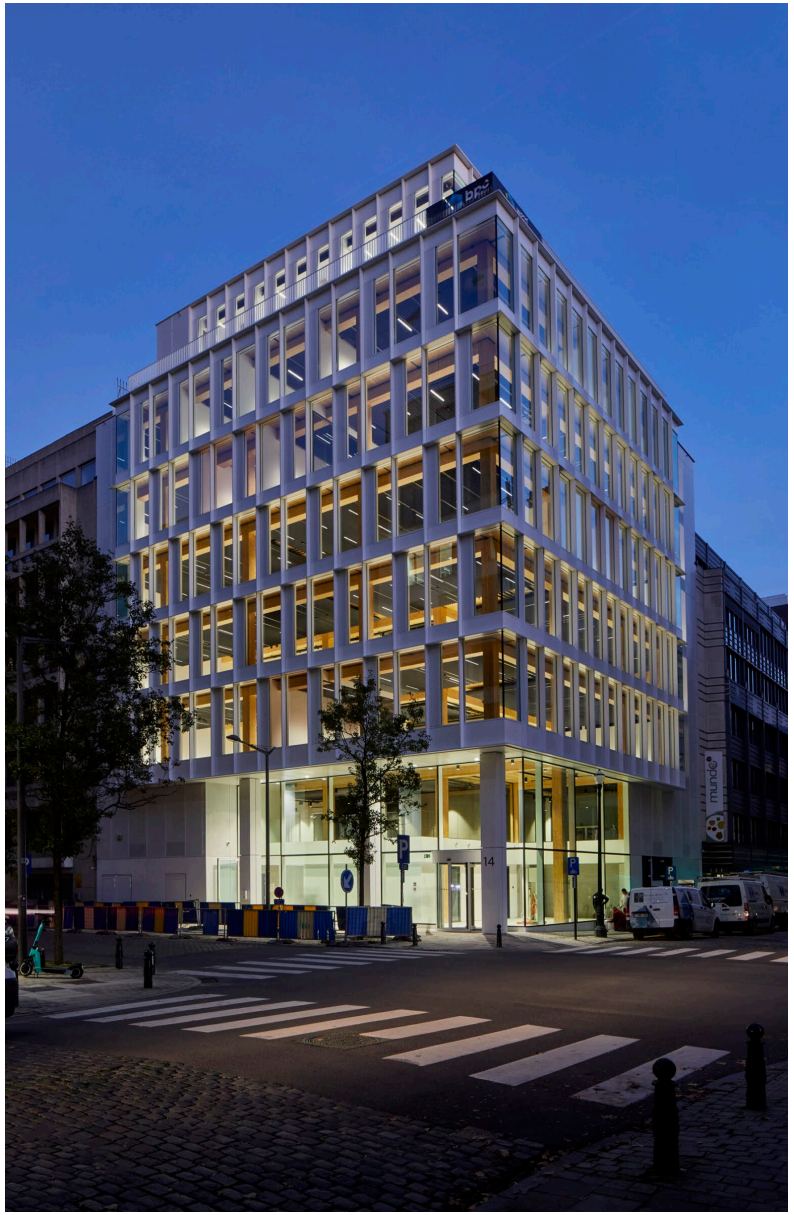
Focus today: what Belgian practitioners can do differently on the next project.





Lange Beeldekensstraat, 2024, Antwerp, Dierendonckblancke, UTIL, Boydens, Daidalos Peutz, Huybreckx, AG Vespa





Monteco, 2022, Brussels,Archi2000, Ney& Partners (Wow), SWECO, BPC Group (CFE), Wood Shapers (CFE), LeasInvest - (N)Extensa (Ackermans - van Haaren), Laetizia Bazzoni

Same material, different construction ecosystems

BELGIUM

Emerging market

Project-specific solutions

Need: ecosystem readiness

AUSTRIA

Established timber culture

Growing industrial capacity

Need: standardisation

NORWAY

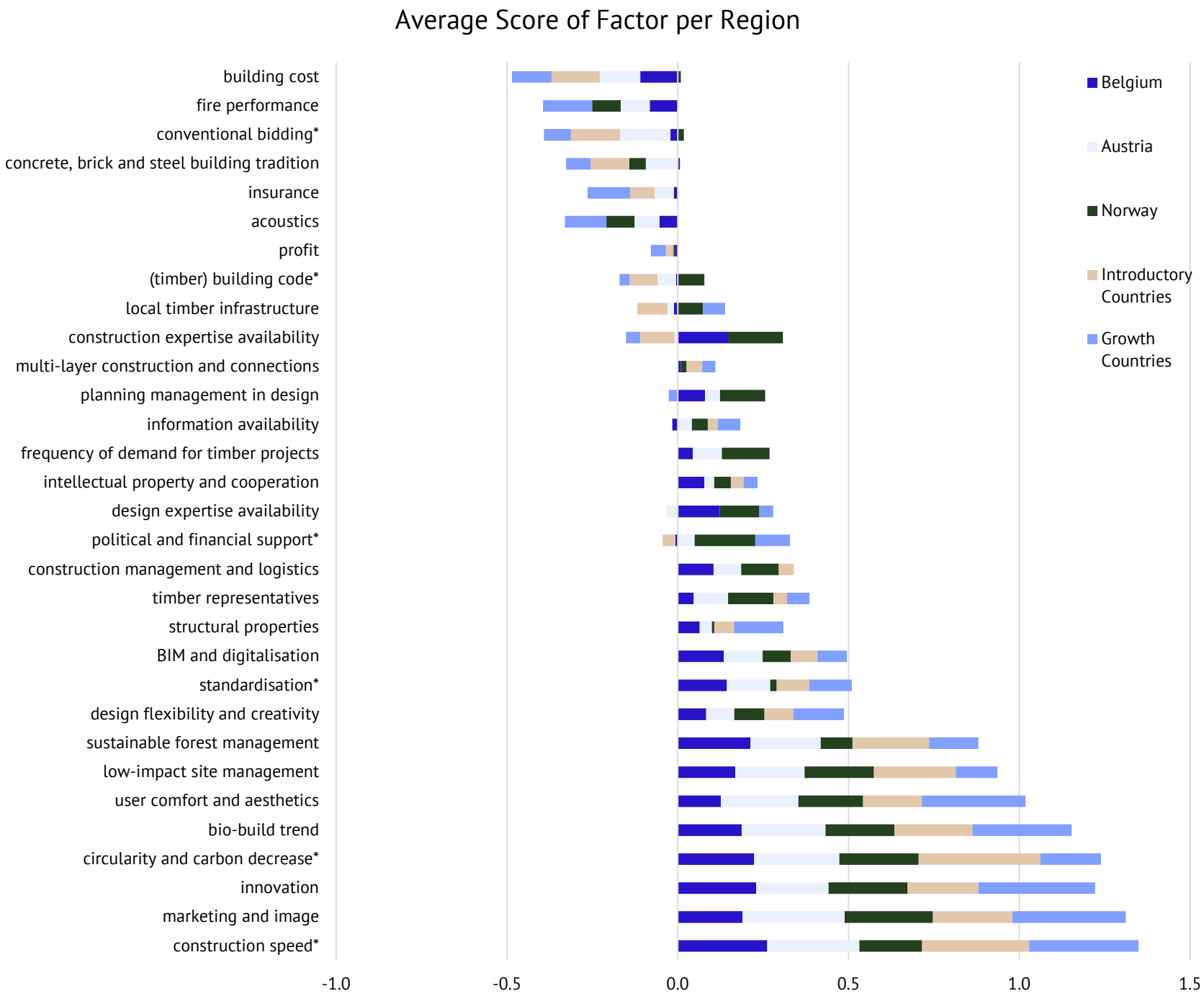
Policy-driven mature setting

Public leadership and demonstrators

Need: market continuity

The difference is not simply technical capability. It is how knowledge, policy, supply chains and risk are organised.

EU



Actor's drivers and barriers to mid-rise timber construction per region ordered by average survey scoring, increasing. Factors with significant differences between the regions are marked with an asterisk (*).

Diverging Barriers

15

BELGIUM & EUROPE



Esther Vandamme
University of Antwerp

A technical constraint becomes a cost barrier when expertise, rules and procurement arrive too late.

TECHNICAL

Fire, acoustics, moisture, vibration and interfaces

ECONOMIC

Higher study effort, risk premiums and uncertain comparisons

SOCIO-CULTURAL

Limited experience, conservative routines and perceived risk

LEGAL + POLITICAL

Inconsistent interpretation, certification and policy support

ENVIRONMENTAL

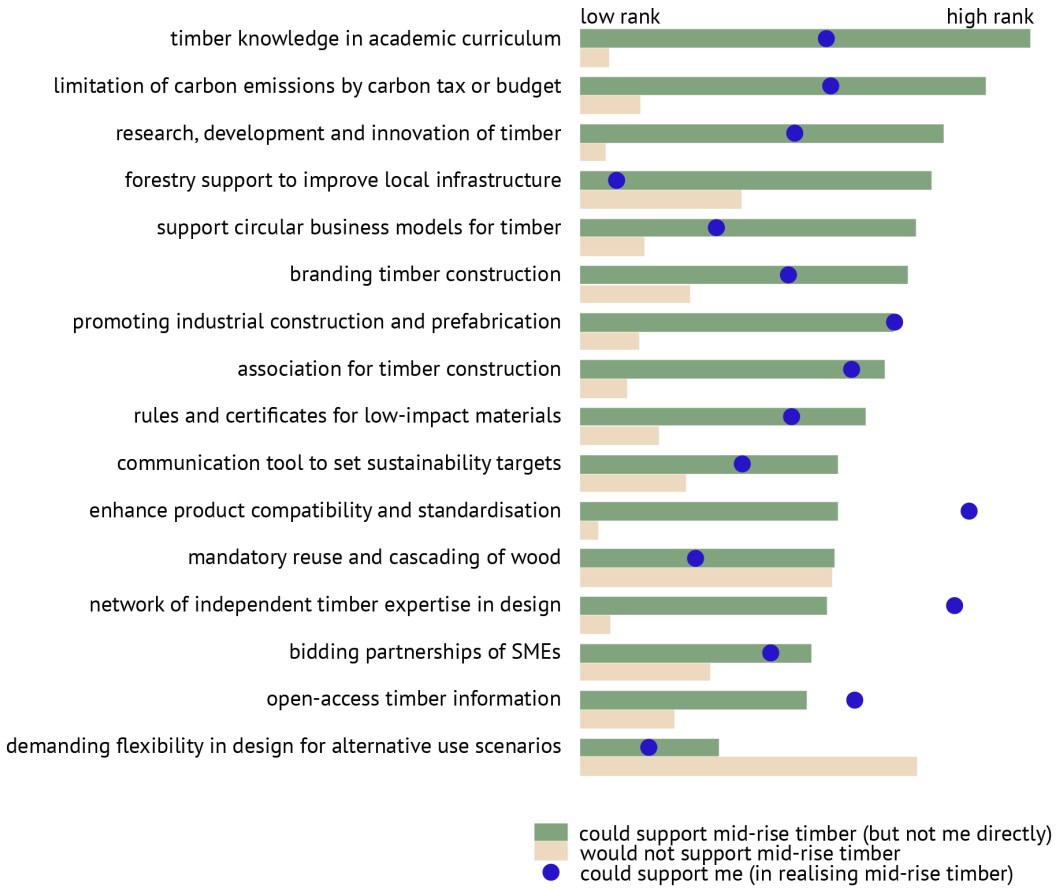
LCA methods may underrepresent biogenic and circular value

PROCESS

Late expertise and fragmented procurement lock in poor choices

Strategies across Europe

Which strategies would you consider most effective for supporting mid-rise timber projects?



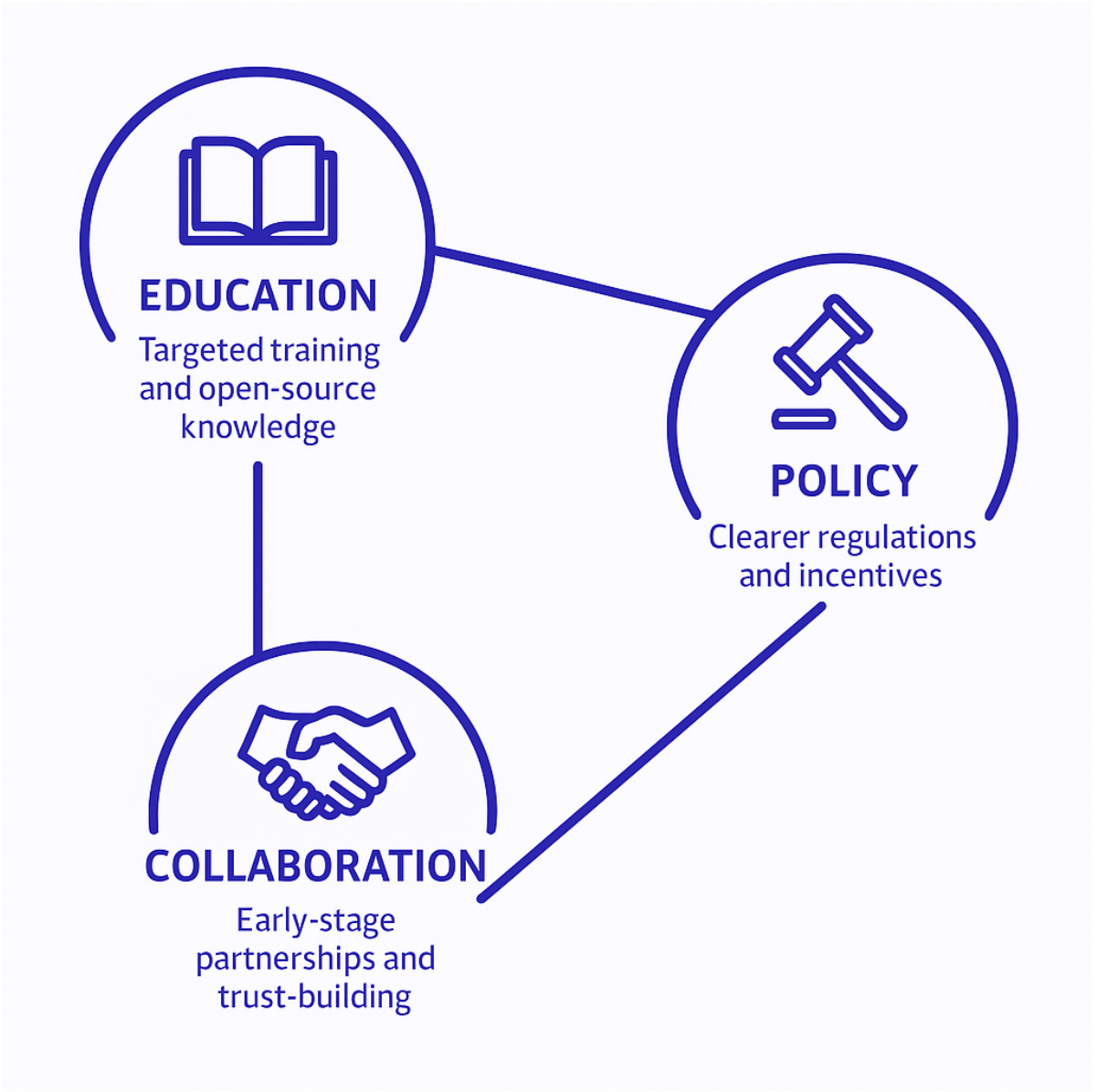
KNOWLEDGE Timber education and practical training

RULES Performance-based, predictable regulation

MARKET Industrial capacity and local supply chains

PROJECTS Early expertise, partnerships and demonstrators

Strategies for Belgium



How can you overcome barriers and deliver successful timber projects?

1

INTEGRATE THE TEAM

Timber, fire, acoustics, services, production and approval expertise early

2

DESIGN THE RIGHT SYSTEM

Efficient grids, realistic spans, pragmatic hybrids and protected details

3

DEFINE VALUE

Measurable carbon, circularity, programme, site and user targets

Technical barriers



FIRE Encapsulation, compartmentation and approval evidence

ACOUSTICS Mass-spring-mass build-ups, flanking and junction control

MOISTURE Design, transport, erection and monitoring strategy

SERVICES Early zones, penetrations and maintainable interfaces

Eco-Résidence Méan, 2021, Liège, Bureau d'architectes AD-REM, Ney& Partners (Wow), Timber Team, Reno-solutions, Invest & Corporate SA

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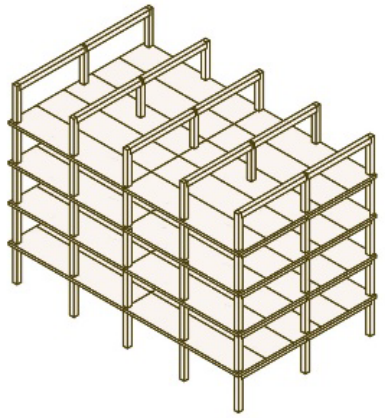
Efficient grids, realistic spans, pragmatic hybrids and protected details

3

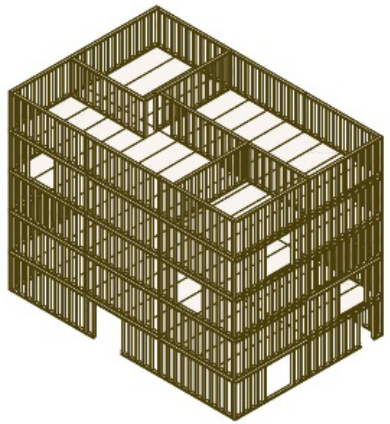
DEFINE VALUE

Measurable carbon, circularity, programme, site and user targets

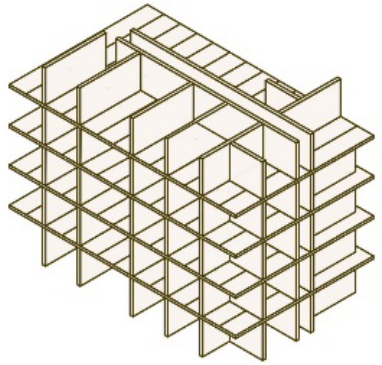
Timber Typologies



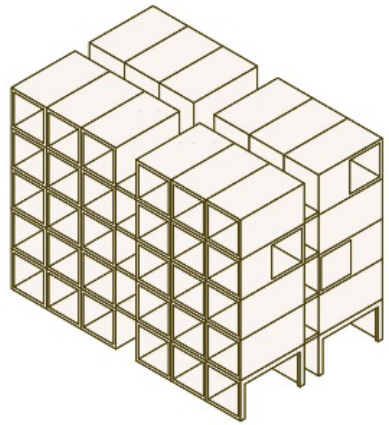
post-and-beam construction



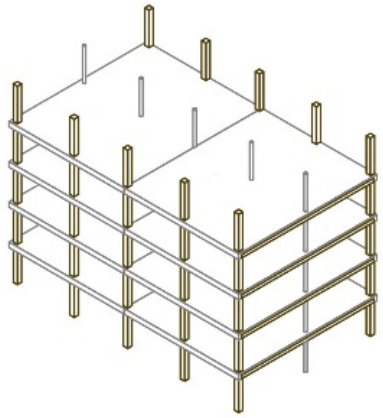
light frame timber panels



mass timber panels



modular construction



hybrid systems

ALL-TIMBER

Use where spans, height, exposure and repetition support it.

HYBRID

Place materials where they perform best: cores, transfer zones, long spans.

TIMBER-SPECIFIC GRID

Avoid importing concrete spans and then “solving” timber afterwards.

“Preparation is 90% of success.”

BRIEF	Targets, exposure ambition and evaluation method
CONCEPT	Grid, spans, stability, core and hybrid logic
INTEGRATE	Fire, acoustics, moisture, services and interfaces
PROCURE	Bouwteam, design-build or functional tendering
DELIVER	Fabrication freeze, logistics, rain protection and quality assessment

Front-load the decisions that are expensive to change.

Timber Evolution



Espoir, **2010**, Sint-Jans-Molenbeek, Damien Carnoy Architectes, MK Engineering, Luc Delvaux, De Graeve (Eiffage), Fonds du Logement RBC



Klein Veldekens, **2020**, Geel, Osar architects, Bureau De Fonseca, ingenium, m-ngineers (MACOBO-STABO), CLT-S (O3 shift), Astor vzw



AZ Herentals, **2026**, Herentals, 4D architects, archipelago, ABT, Vanhout.pro (Van Roey) , AZ Sint Elisabeth Herentals

How can you overcome barriers and deliver successful timber projects?

1

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Timber, fire, acoustics, services, production and approval expertise early

2

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3

DEFINE VALUE

Measurable carbon, circularity, programme, site and user targets

Cost comparisons are often made before value is fully defined.

An apparent “timber premium” combines different effects:

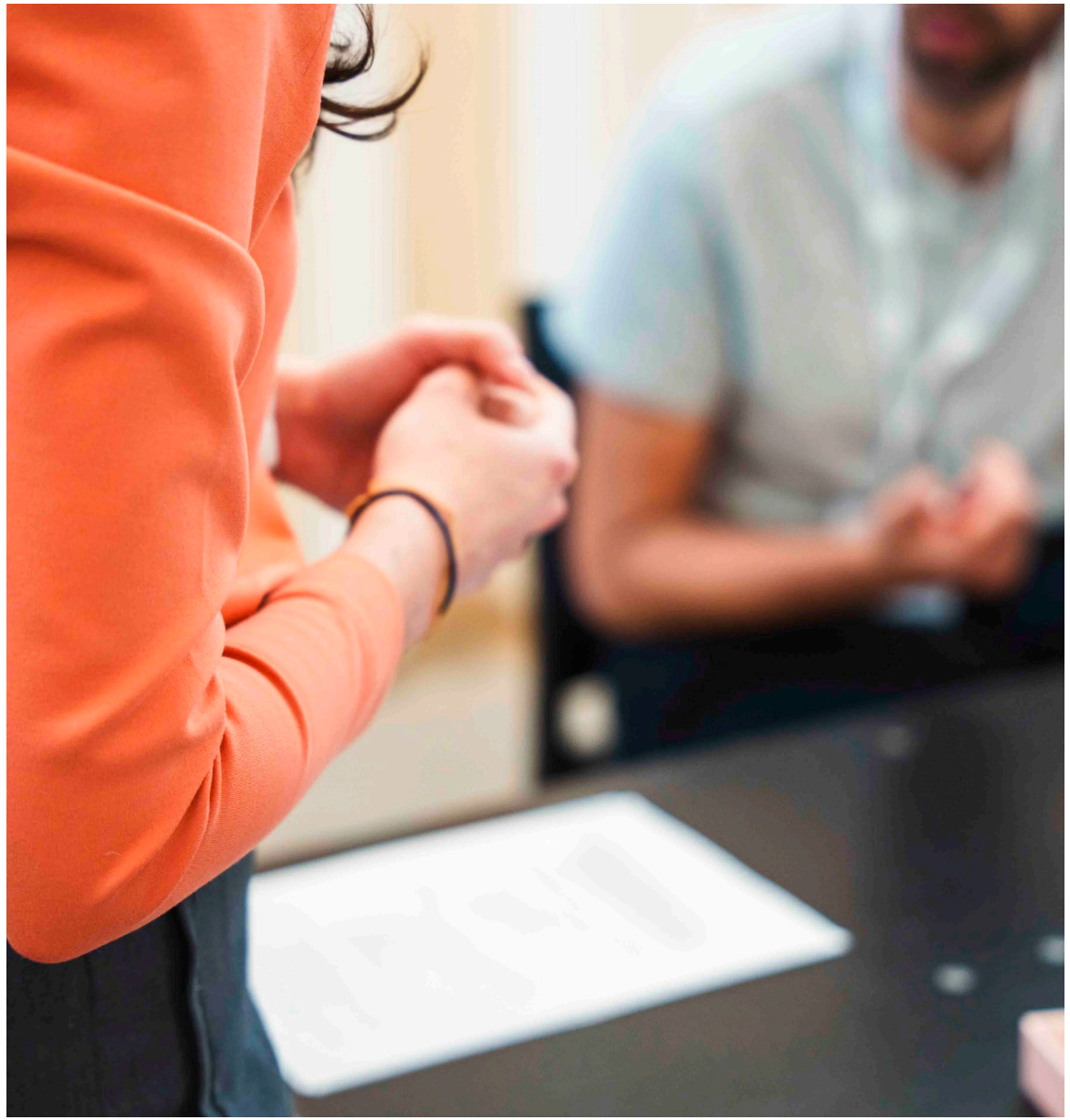
DIRECT	material, additional layers and connection complexity
INDIRECT	design iterations, testing, approval and coordination
RISK	contingencies from unfamiliarity and unclear responsibility
VALUE	speed, foundations, logistics and carbon benefits often sit elsewhere

Compare whole-project value and risk, not only structural €/m².

Shared Drivers

A contractor:
“Can you ask brickmakers to offer the sustainability labels? FSC bricks. FSC cement.”

A timber representative:
“There's enough sustainably sourced wood—but we're burning it instead of building with it.”



Environmental assessment can change the material decision.



Three recurring concerns

1. Biogenic carbon timing and storage
2. End-of-life and reuse scenarios
3. Data consistency

Make the LCA assumptions explicit before using the result as a material veto.

Residentie De Steiger, 2020, Gavere, B2Ai architects, SWECO, CLT-S (O3 shift), Kaizer, Amanu-Invest

Timber is technically feasible.

For the next project:

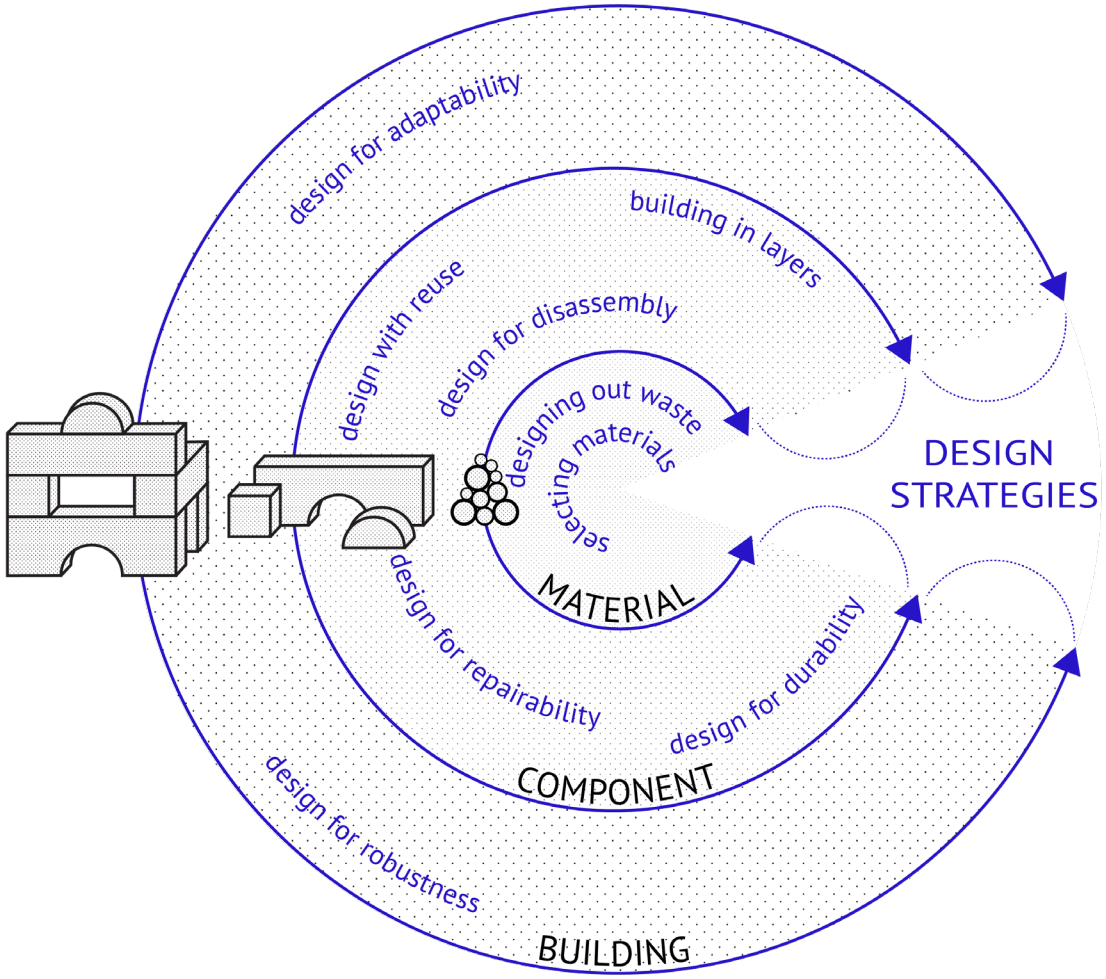
1. Bring the critical expertise to the table now.
2. Choose the right timber or hybrid system.
3. Define the value timber must deliver.



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Thank you

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