

# **Renovation and Circular Economy :**

## ***Materials at the heart of the transition towards sustainable buildings***

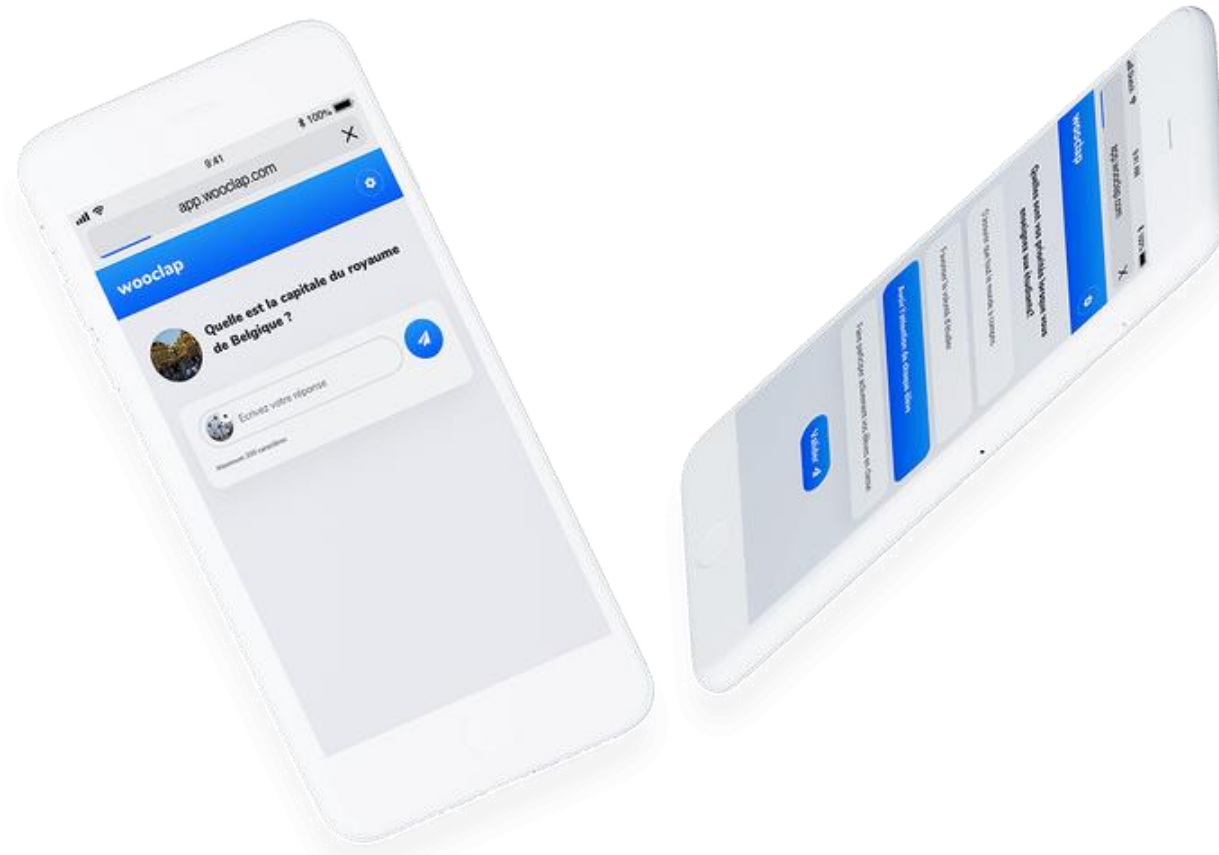
*17th of January 2024*

Introduction  
Liesbet Temmerman (CERAA)

## How to participate?

Via Website

1. Log on to **[www.wooclap.com/EURENO](http://www.wooclap.com/EURENO)**
2. You can participate





# REDUCING EMISSIONS, TACKLING CLIMATE CHANGE: CHALLENGE & ACTION

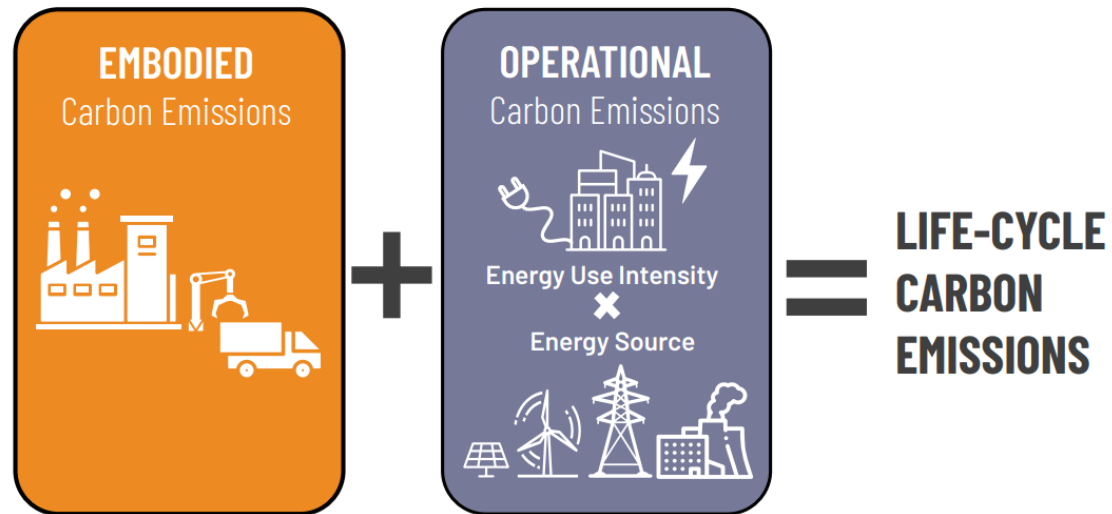


Excerpt from aerial thermography of the Brussels Capital Region, Bruxelles Environnement



Proposal for a  
**DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**  
**on the energy performance of buildings (recast)**

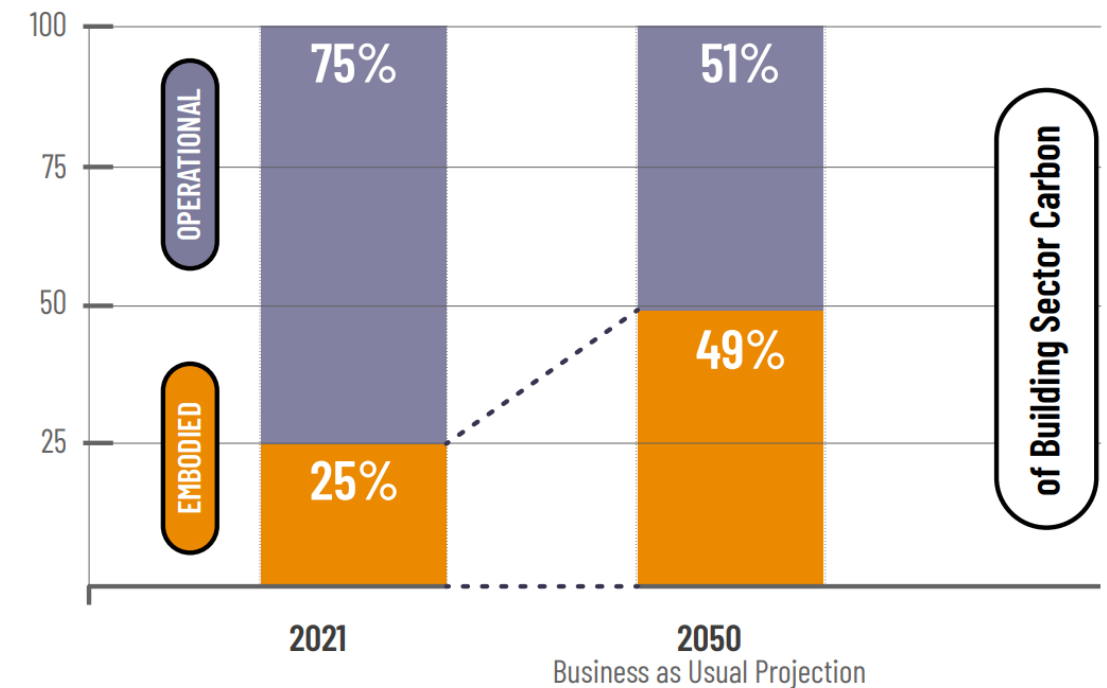
# WHOLE LIFE CYCLE CARBON EMISSIONS: *WHAT... AND WHY SHOULD/DO WE CARE?*



A building's carbon footprint over its lifespan is the sum of its embodied plus operational emissions.

## Projected Contributions from Embodied and Operational Carbon within the Building Sector

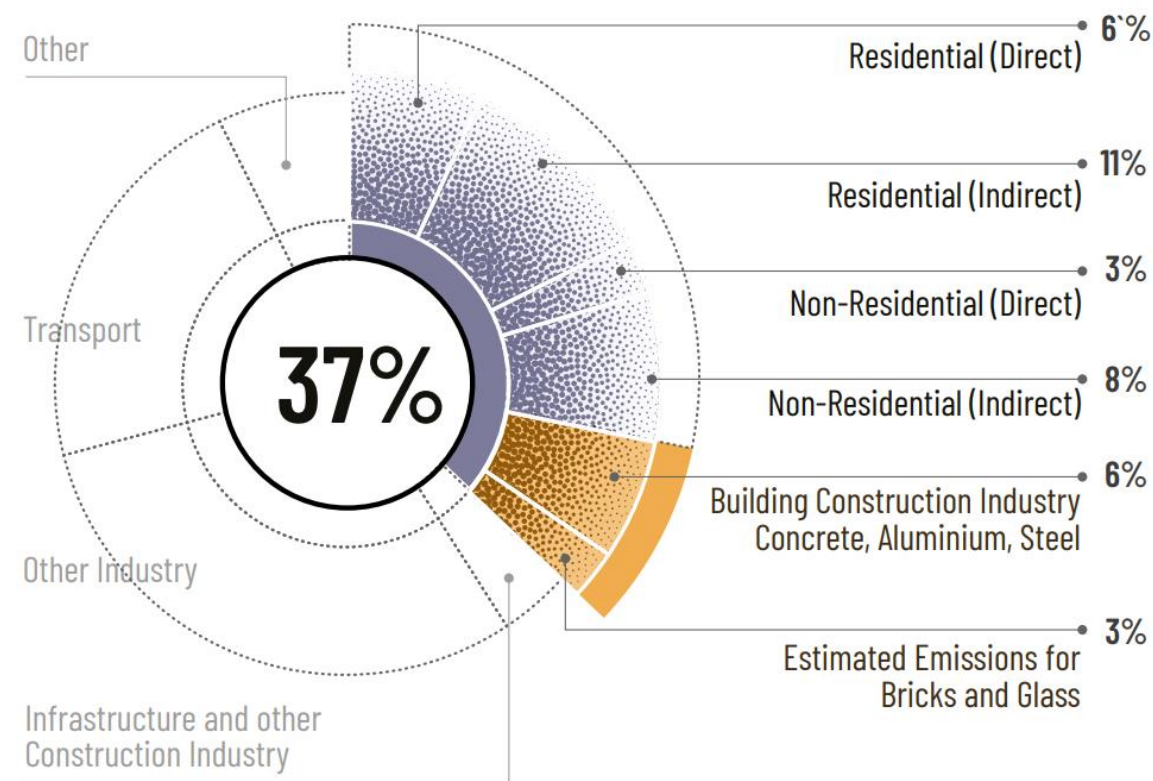
From 2021 to 2050 with Business as Usual Projections





# WHOLE LIFE CYCLE CARBON EMISSIONS: *WHAT... AND WHY SHOULD/DO WE CARE?*

Global share of buildings and building construction operational and process-related CO<sub>2</sub>-emissions, 2021



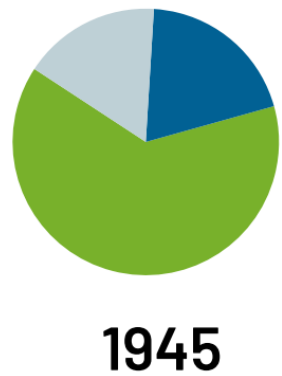
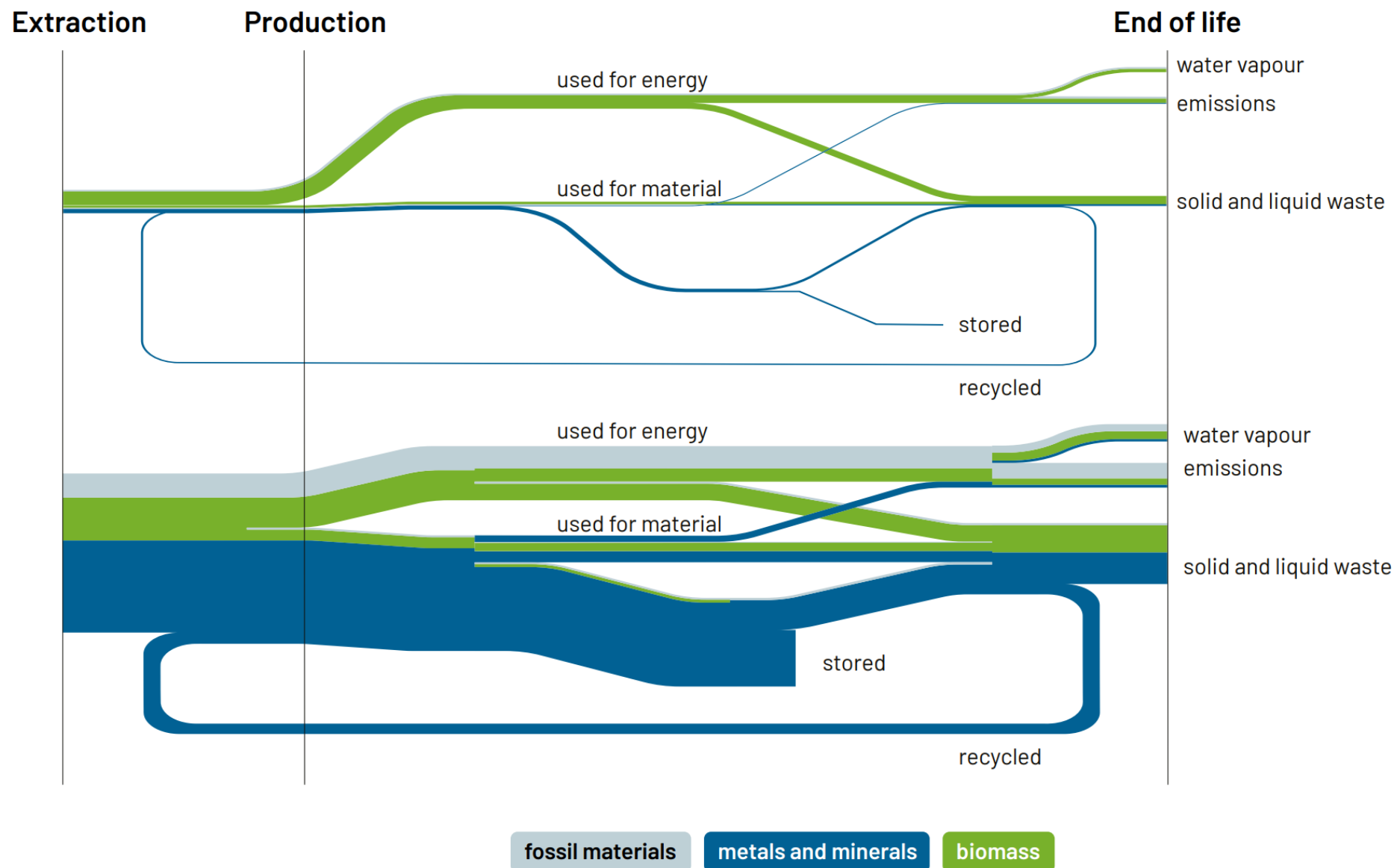
© United Nations Environment Programme (UNEP)

Under “business as usual”

- ▶ operational carbon will (continue to) decrease
- ▶ Embodied carbon is set to remain high

# EVOLUTION OF GLOBAL MATERIAL FLOWS FOR THE BUILDING SECTOR

By type, 1945 versus 2015



# MATERIAL IMPACT: BROADENING THE SCOPE

Considering the **entire life cycle** of a building, the construction sector in Europe accounts for:



**1/2** of all extracted materials



**1/2** of the total energy consumption



**1/3** of waste generation



**1/3** of water consumption

Source: European Commission – « A brief introduction to Level(s) »  
[https://ec.europa.eu/environment/publications/brief-introduction-levels\\_en](https://ec.europa.eu/environment/publications/brief-introduction-levels_en)

→ *Pathways: presentation given by Wendy Boswell*

# MATERIAL IMPACT: THE ENGAGING APPROACH - BELGIUM

## LCA-based tools & environmental indicators:

Totem, the Belgian tool – element and building-level



SAMEN MAKEN WE  
MORGEN MOOIER  
**OVAM**



**Wallonie**  
**service public**  
**SPW**



bruxelles  
environnement  
leefmilieu  
brussel  
.brussels

- ▶ evaluate and optimize impacts
- ▶ free and voluntary (\*)

→ *Presentation given by Dorothee Stiernon and Emilie Gobbo*



# MATERIAL IMPACT: JOINT APPROACH IN BELGIUM

## LCA-based tools & environmental indicators:

Totem, the Belgian tool – element and building-level



→ Presentation given by Dorothee Stiernon and Emilie Gobbo

# MATERIAL IMPACT: JOINT APPROACH IN BELGIUM

## LCA-based tools & environmental data:

Environmental product declarations (EPD) are key !

**EN 15804** is the EPD standard, developed by CEN TC 350, the European standardization committee for the sustainability of construction works. 'This European standard provides core product category rules for all construction products and services. It provides a structure to ensure that all Environmental Product Declarations (EPD) of construction products, construction services and construction processes are derived, verified, and presented in a harmonised way.' (EN 15804:2012+A2:2019).

Product-level LCAs are a key area of focus in the **EU Green Deal**, the **EU Circular Economy Action Plan**, and are also prominently addressed in the **Construction Products Regulation** review. Companies that want to stay a step ahead of the game should look to EPDs to futureproof their green policies and practices in construction.



B-EPD .BE

EPDs according to EN 15804	European Programme operators
>1000	EPD Norway* (2002), IBU (Germany, 2011), FDES (France, 2011)
Between 100 and 500	BRE (UK, 2015), MRPI (NL, 2004), ITB (Poland), Global EPD (Spain, 2013), EPD Italy, <b>B-EPD **</b>
< 100	EPD Denmark, Bau EPD (Austria), RTS Finland, Slovenia, Portugal, etc.

# FURTHER BROADENING THE SCOPE: HOLISTIC ASSESSMENT

The construction building sector is considered a **key area** to meet the United Nations Sustainable Development Goals.





# HOLISTIC ASSESSMENT: JOINT APPROACH IN BELGIUM

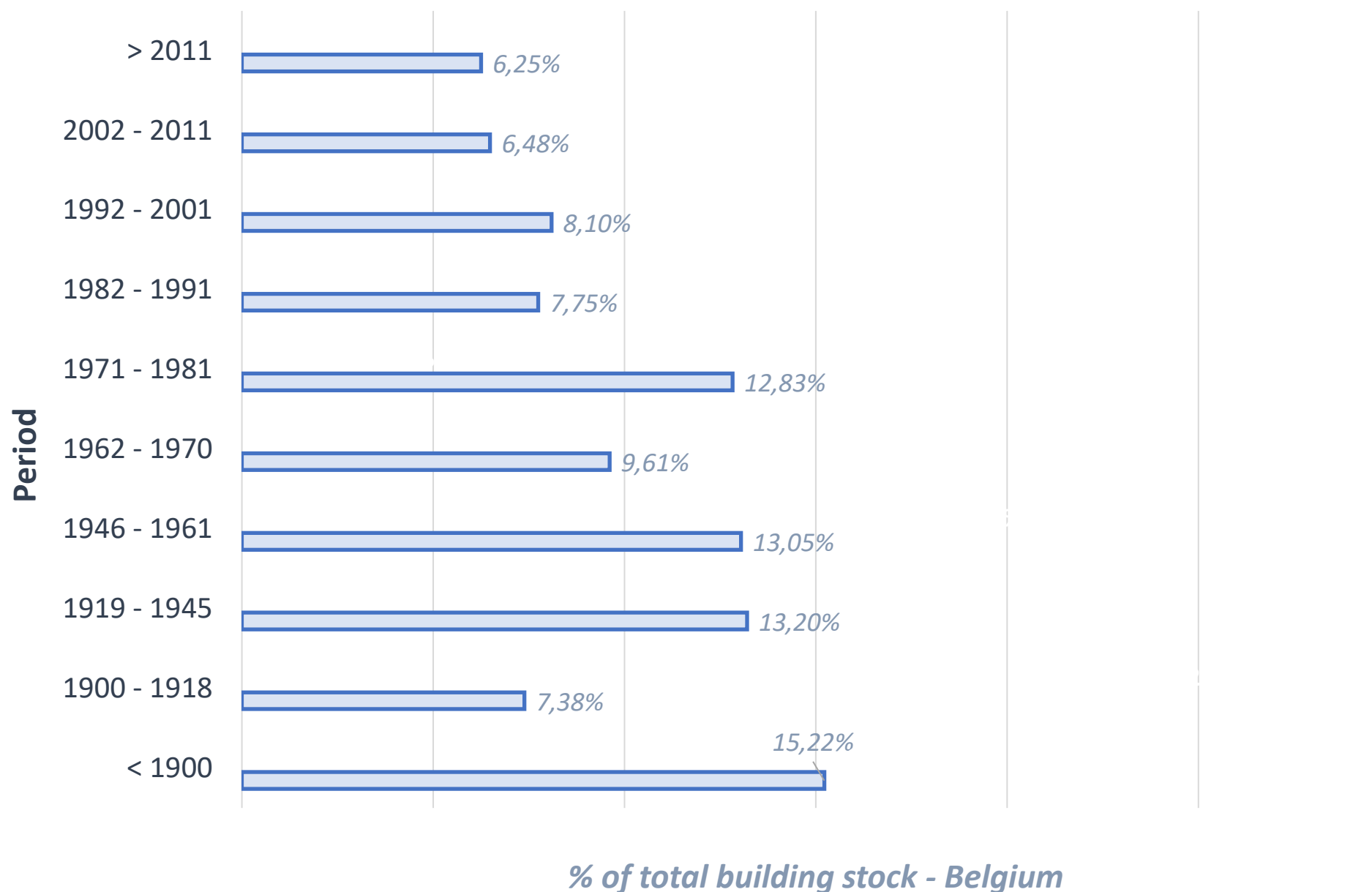


## GRO-tool:

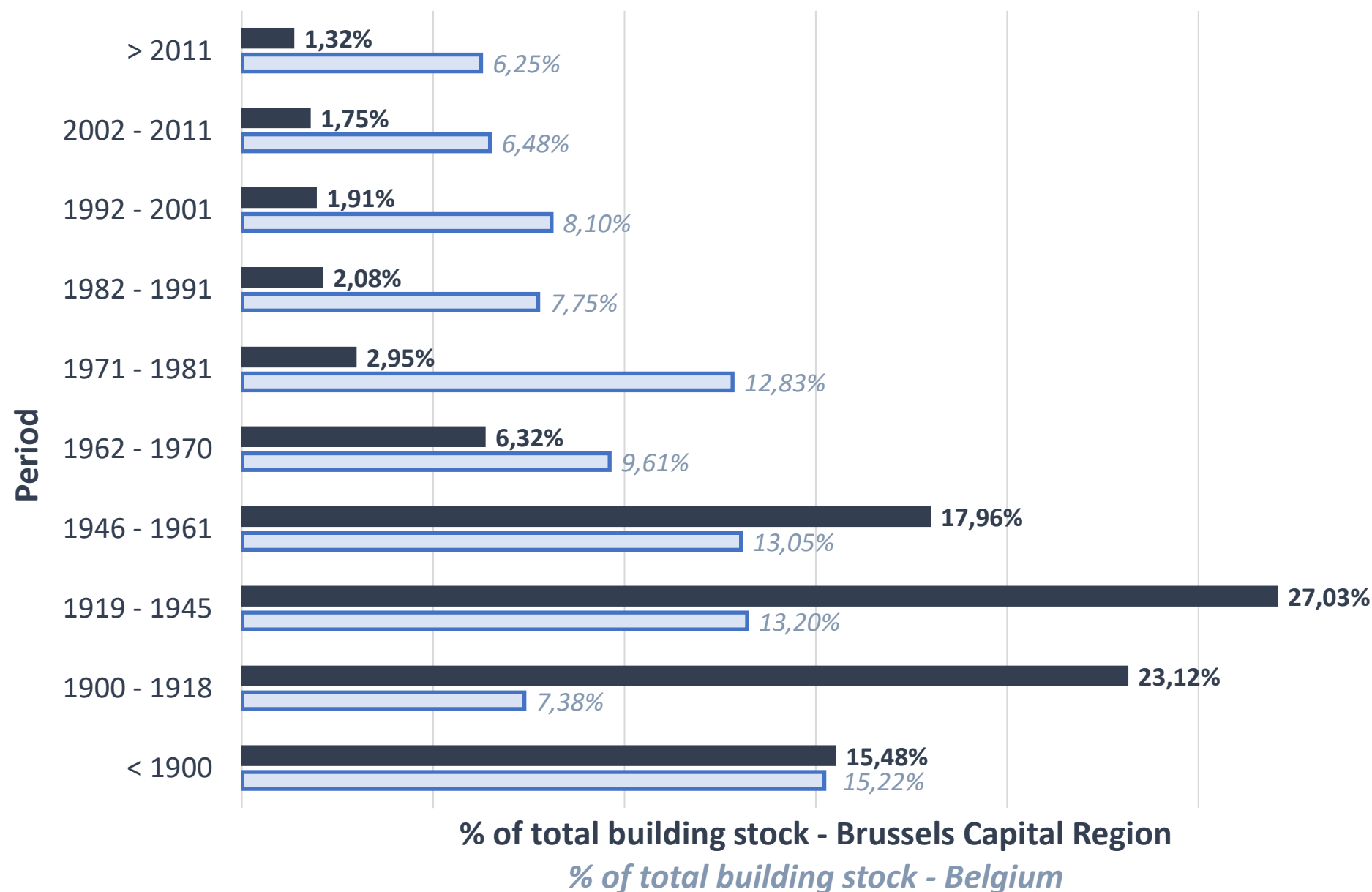
- ▶ a guide during the design process
- ▶ ambition and performance assessment in terms of sustainability
- ▶ can be used
  - during the different phases of a project
  - for all functions
  - for new buildings and renovation projects
- ▶ free and voluntary (\*)



# RENOVATING THE BUILDING STOCK IN BELGIUM



# RENOVATING THE BUILDING STOCK IN BRUSSELS



# RENOVATING THE BUILDING STOCK IN BRUSSELS



# GETTING THE VARIOUS ACTORS ON TRACK: THE BRUSSELS REGION'S ENGAGING APPROACH

**“Policy makers must engage actors across the value chain, support and lead by example”**

- ▶ Support (practical, technical and administrative)
- ▶ Project calls and funding
- ▶ Fundamental research
- ▶ Financial incentives
- ▶ Showcasing best practices
- ▶ Trainings, seminars
- ▶ Disseminating experience, feedback and sharing knowledge
- ▶ Information
- ▶ Benchmarking

→ *Presentation given by Barbara Dewulf*

... and currently nearing 25 years of pioneering in sustainable ambitions and solutions !



# WHOLE LIFE CYCLE IMPACT TRANSITION: *REQUIREMENTS AND CHALLENGES*



“Policy makers must engage actors across the value chain, support and lead by example”

→ *Presentation by Barbara Dewulf & presentation by Jérémy Boomer*

# GETTING THE VARIOUS ACTORS ON TRACK: THE BRUSSELS REGION'S ENGAGING APPROACH



... which we thoroughly understand and why the deployed measures and actions are as varied and diverse as they are



# OBJECTIVES OF THE SEMINAR

Offer you the opportunity to

- **learn** from our experiences (*and we from yours !*)
- **engage** with and question experts
- **be inspired** by visits to circular economy projects

# PROGRAM

**09:00 – Introduction**

[Liesbet Temmerman, CERAA]

**09:20 – Brussels' Green Journey : Strategies to Minimise Environmental Footprint in Building Initiatives**

[Barbara Dewulf, General Director of Brussels Environment]

**09:35 – Which Priorities and Objectives for Construction Materials?**

[Wendy Boswell, Sustainable Building Facilitator, and Jérémy Boomer, NaturaMater]

**10:20 – Tools to Minimise the Environmental Impact of Buildings**

[Dorothee Stiernon and Emilie Gobbo, Catholic University of Louvain]

**10:40 – Coffee Break**

**11:00 – Mundo-Lab, a Sustainable Approach to Real Estate: Innovative projects in terms of circularity, materials and energy**

[Frédéric Ancion and Julien Willem, Mundo LAB]

**11:25 – Zinneke: an Exemplary Circular Economy Project**

[Myriam Stoffen, Zinneke]

**11:50 – Q/A with panelists**

**12:20 – Conclusion**

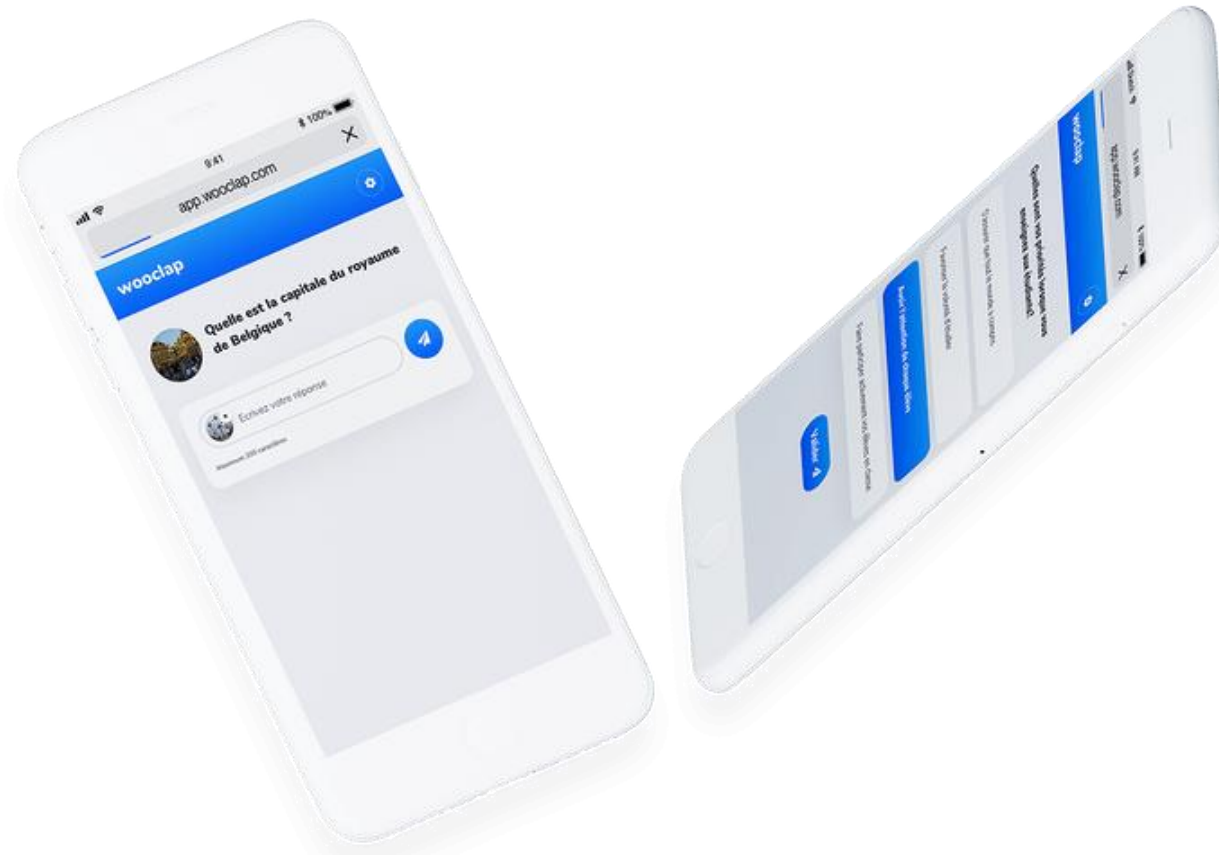
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10:40 -10:55



# PROGRAM

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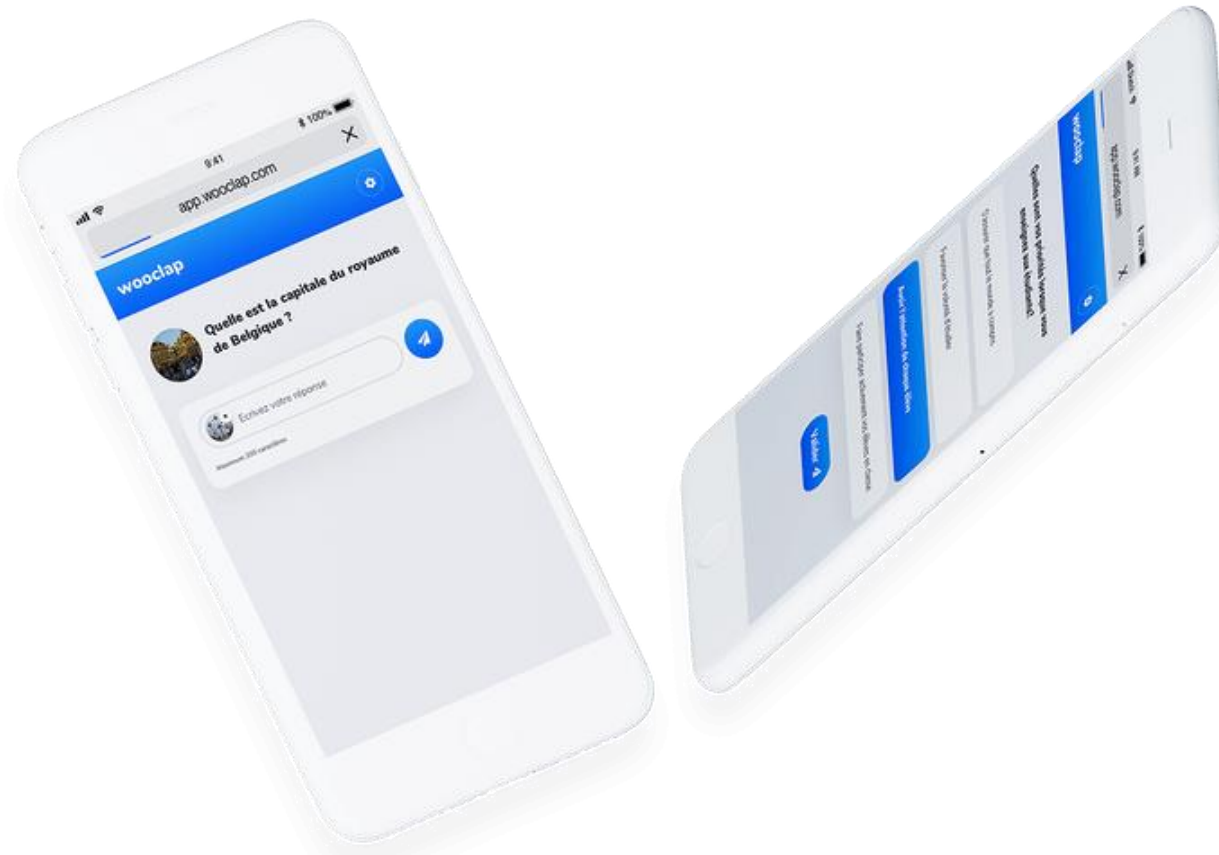
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# PROGRAM

11:50 – Q&A session with the panelists

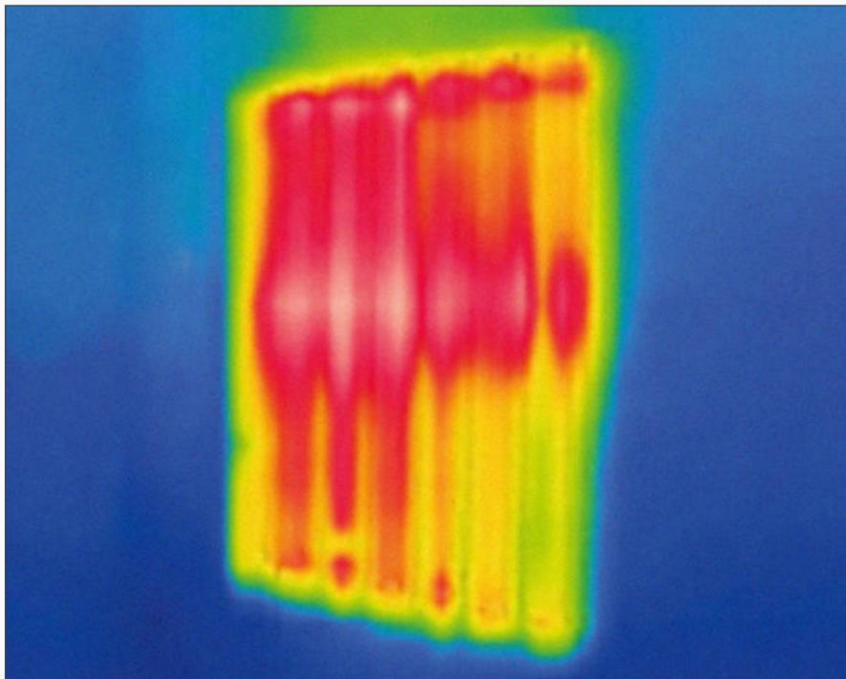
- **Jérémy Boomer**, NaturaMater
- **Wendy Boswell**, Sustainable Building Facilitator
- **Barbara Dewulf**, General Director of Brussels Environment
- **Emilie Gobbo**, Catholic University of Louvain
- **Catherine Massart**, Catholic University of Louvain
- **Dorothee Stiernon**, Catholic University of Louvain
- **Myriam Stoffen**, Zinneke
- **Julien Willem**, Mundo LAB

# CONCLUSION

(... AND WHILE YOU'RE IN TOWN:)

# C I.II.III.IV. A

## Culture — Architecture



CIVA EXPO

**POWER**

13.10.23 — 17.03.24

*“POWER connects questions of energy and politics. (...)*

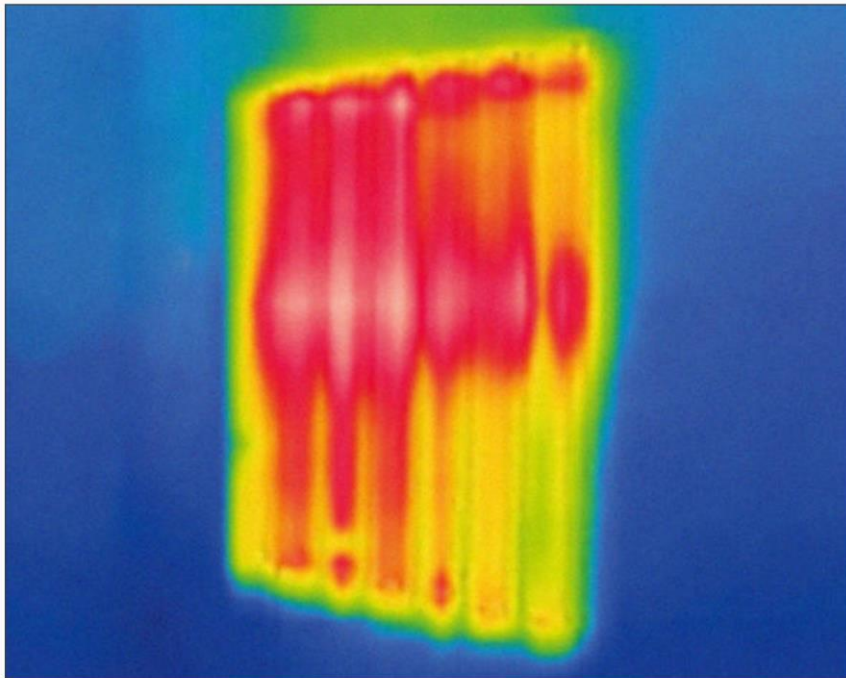
*Today, architects, landscape designers, artists, and urban practitioners perpetuate the regime of carbon modernity. Yet they are also in a unique position to shift discourse and practice toward large-scale energetic transformation.”*

[POWER | C.I.II.III.IV.A \(civa.brussels\)](https://civa.brussels)

(... AND WHILE YOU'RE IN TOWN:)

# C I.II.III.IV. A

Culture — Architecture



CIVA EXPO

*POWER*

13.10.23 — 17.03.24

[POWER | C.I.II.III.IV.A \(civa.brussels\)](https://civa.brussels)

# HouseEurope!

the European Citizens' Initiative

[HouseEurope!](https://houseeurope.eu)





To achieve the social-ecological transformation of the existing building stock we must activate what is already there, through measures focused on building preservation, adaptation, renovation, and transformation.

**Preservation**

Reuse don't demolish!

**Adaptation**

Adapt don't abandon!

**Renovation**

Build for the future!

**Transformation**

Shift the Value!

# PROGRAM

**12:30 – Lunch break**

**13:25 - 17:00 – Guided Tours of Sustainable Buildings**

**Group 1 - 'Ixelles'**

**Group 2 - 'Anderlecht'**

**Group 3 - 'Centre'**

**17:00 – Closing of the Seminar at Maison de la Poste**



# THANK YOU !



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See you tomorrow: **Unlocking social innovations**

12:30 -13:25 – Lunch Break

