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EU CIRCULAR ECONOMY FORUM
belgium24.eu

BEYOND EXPERIMENTATION

Europe's leading role in mainstreaming circular practice

***Towards a Circular Built Environment
using Bio-Based and Reclaimed
materials***



DEPARTEMENT
ECONOMIE
WETENSCHAP &
INNOVATIE



Your hosts

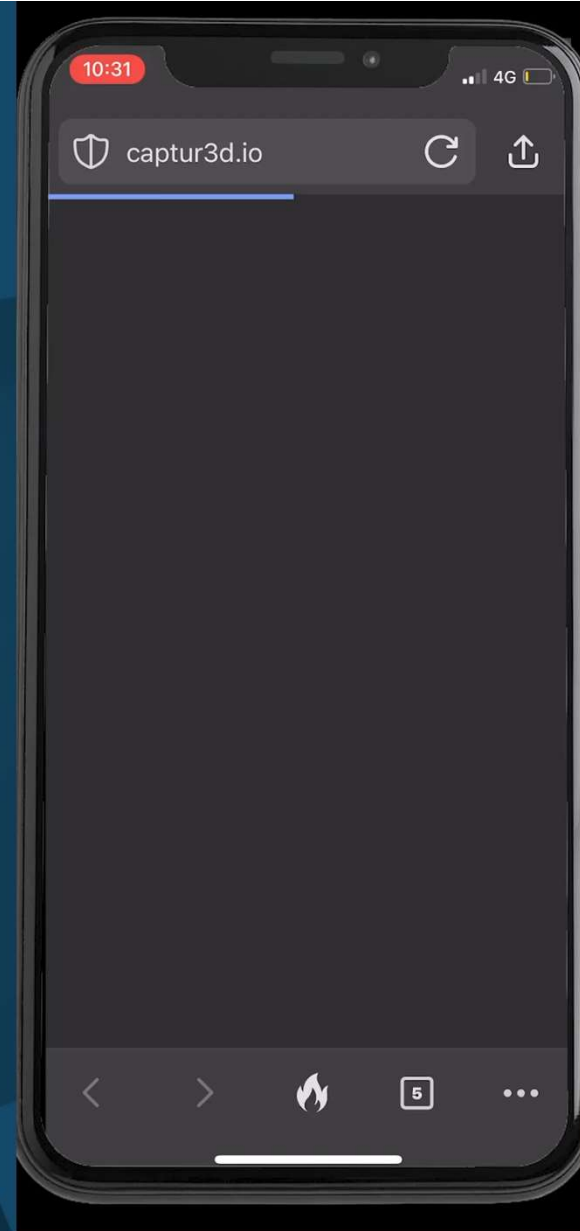


Chris Leinders – Hogeschool PXL



Michiel Ritzen – VITO

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enjoy an amazing
virtual experience !





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INNOVATIE



***Opening
«Tomorrow, circular
economy must be the
norm...»***



Barbara Trachte
Secretary of State of the
Brussels-Capital Region,
responsible for Economic
Transition and Scientific
Research

**Scan the QR code and
post your comments
and questions**



www.sli.do – code #1995

Panel #1

Circular Construction: Innovation, Public Policies and Skills



Joost Declercq
Archipelago



Anne Paduart
Leefmilieu Brussels



Jiri Branka
Cedefop



Jordi Thijs
Hogeschool PXL

« Bringing together governance, research and design in a creative environment with the aim of upscaling good and common-sense circular design practices. »



Joost Declercq
Director of Research & Innovation and partner at archipelago architects

Joseph Bracops hospital

where research, practice and governance meet

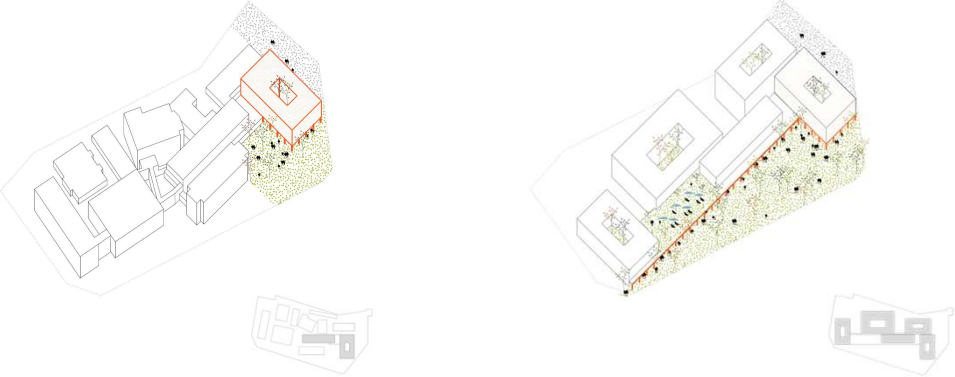
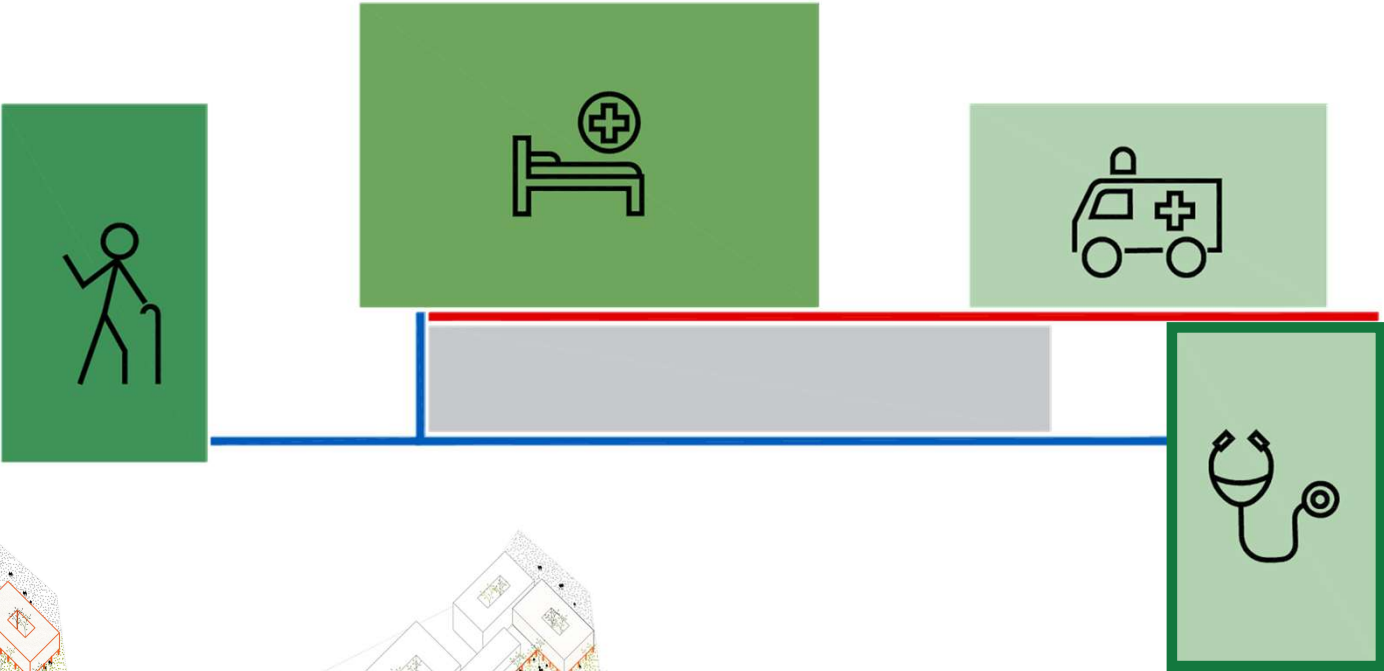


archipelago architects

Presentation WCEF – 17 04 2024

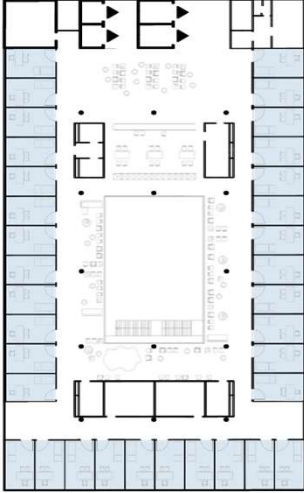
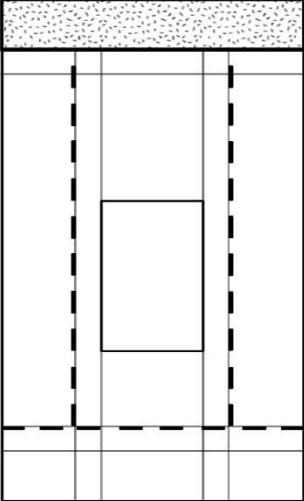


Open urban plan

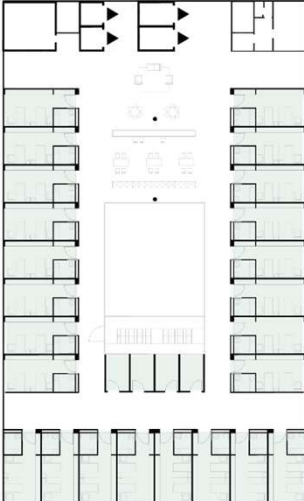


reversible building design

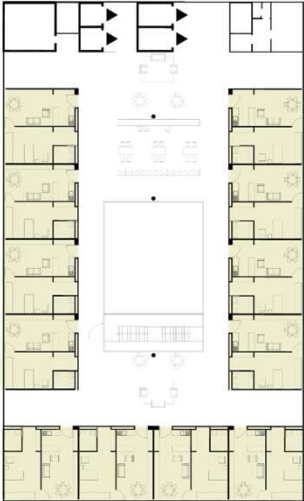
spatial reversibility



CONSULTATIONS



HOSPITALISATION



SERVICE FLATS



APARTMENTS

reversible building design



TRANSFORMATION CAPACITY
(TC)

REUSE POTENTIAL
(RP)

reversible building design

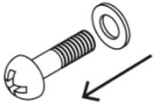
totem
CREATE | EVALUATE | INNOVATE



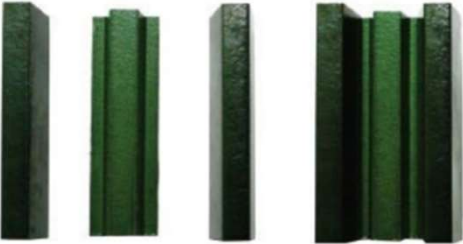
archipelago

reversible building design

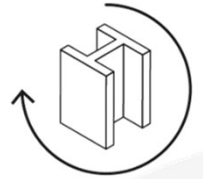
technical reversibility



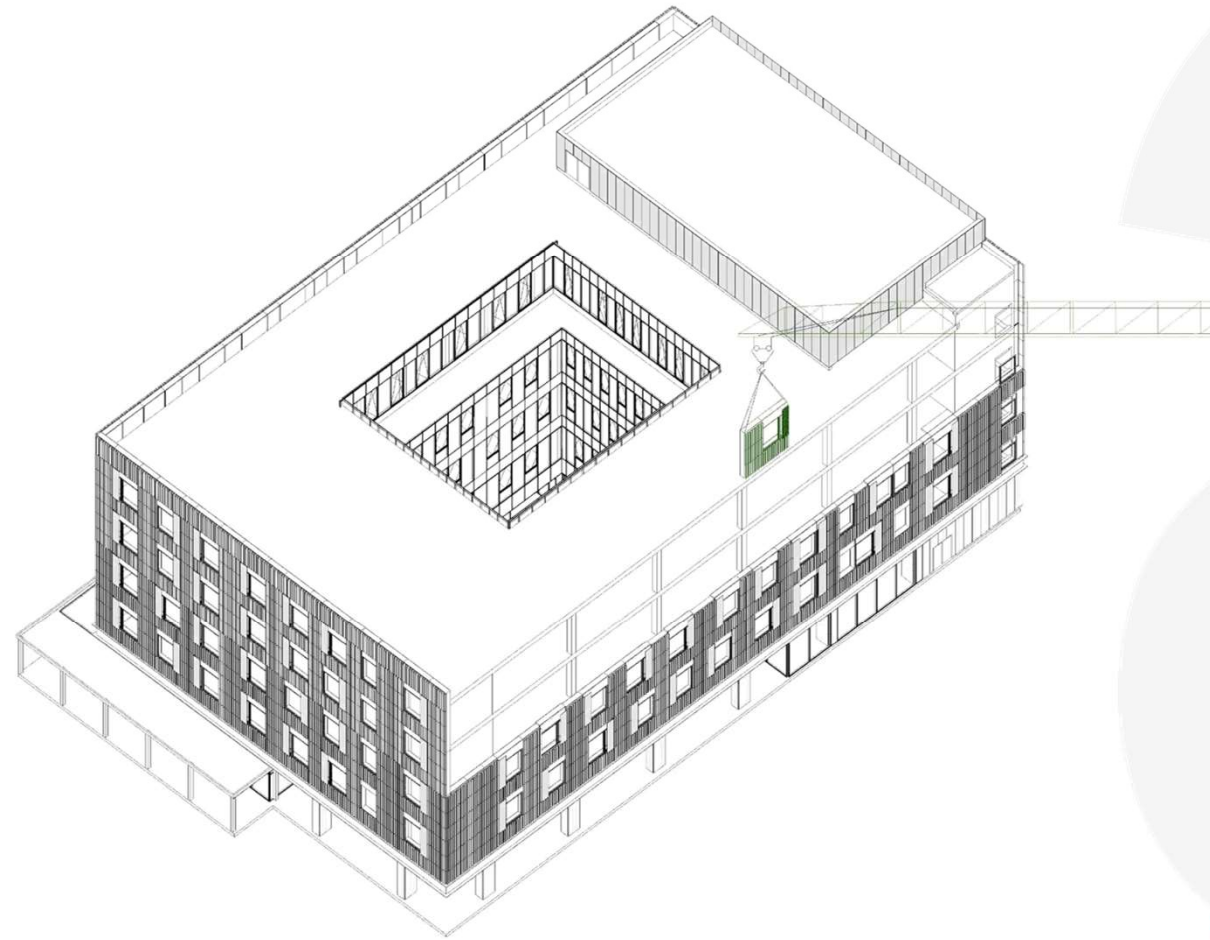
SEPARATE ELEMENTS



reversible building design
technical reversibility



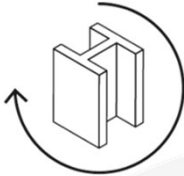
RECONFIGURE
STRUCTURE



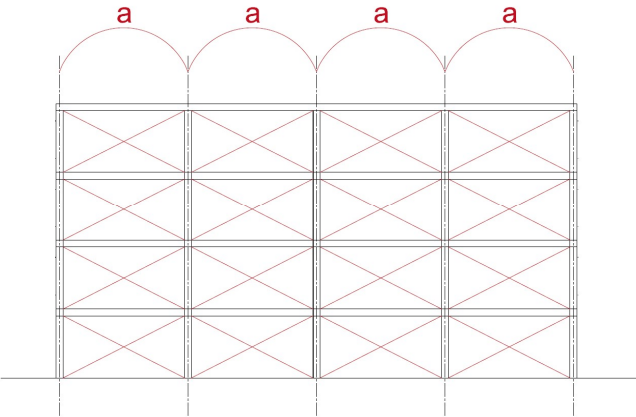
archipelago

reversible building design

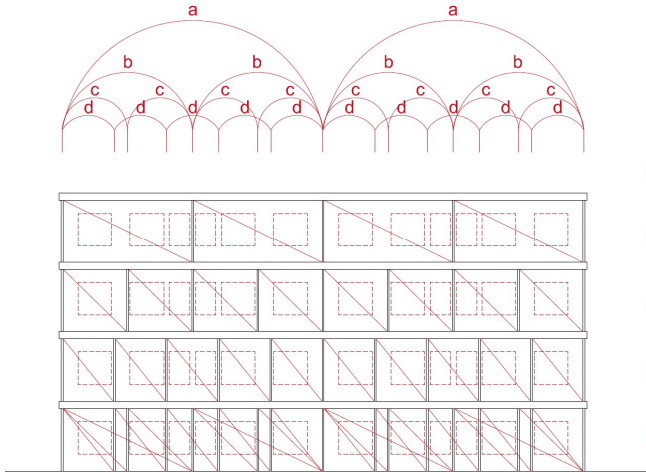
spatial reversibility



RECONFIGURE
STRUCTURE

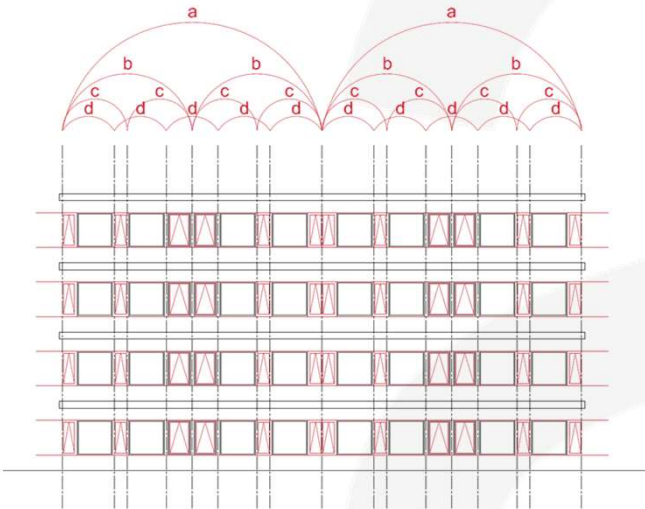


Non-bearing facade
structural module 7,5 m



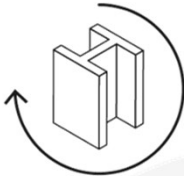
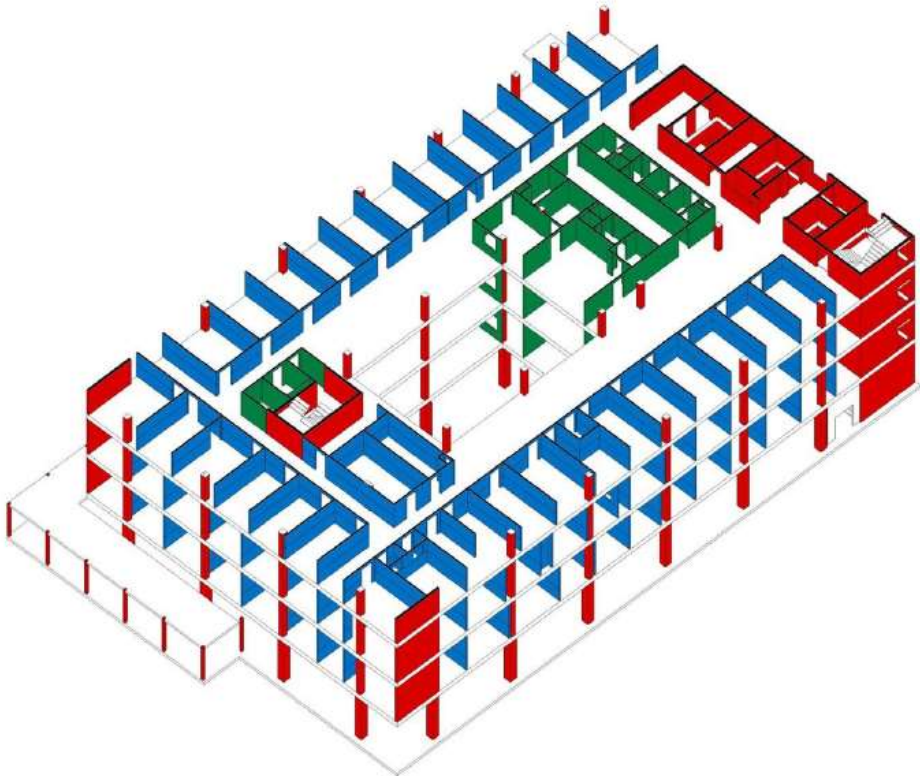
Modularity of the interior wall
subdivision

- a = 15 m
- b = 7,5 m
- c = 3,25 m
- d = 3 m
- a+b+c+d



Regular opening for natural ventilation

reversible building design
spatial reversibility



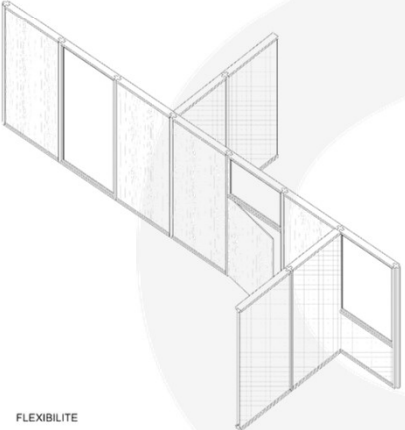
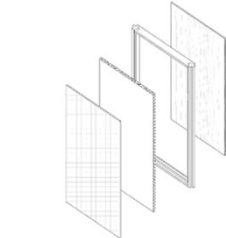
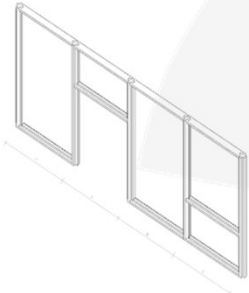
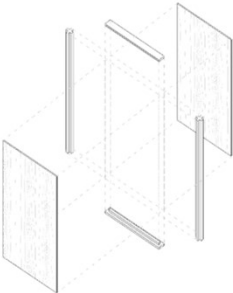
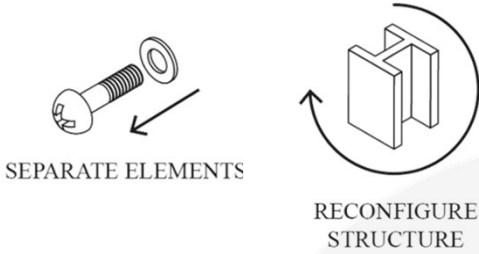
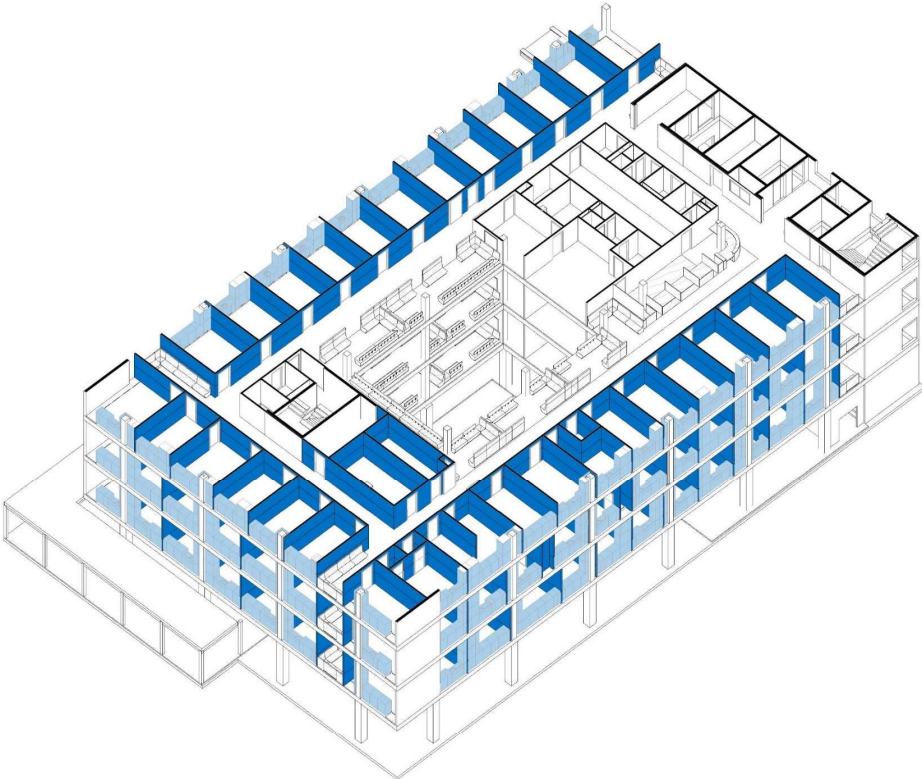
RECONFIGURE
STRUCTURE



archipelago

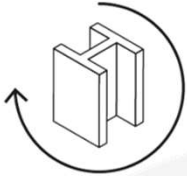
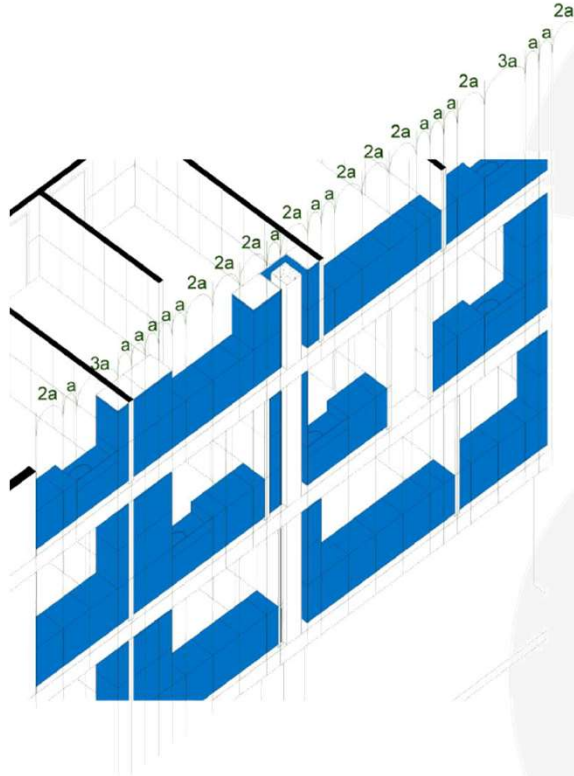
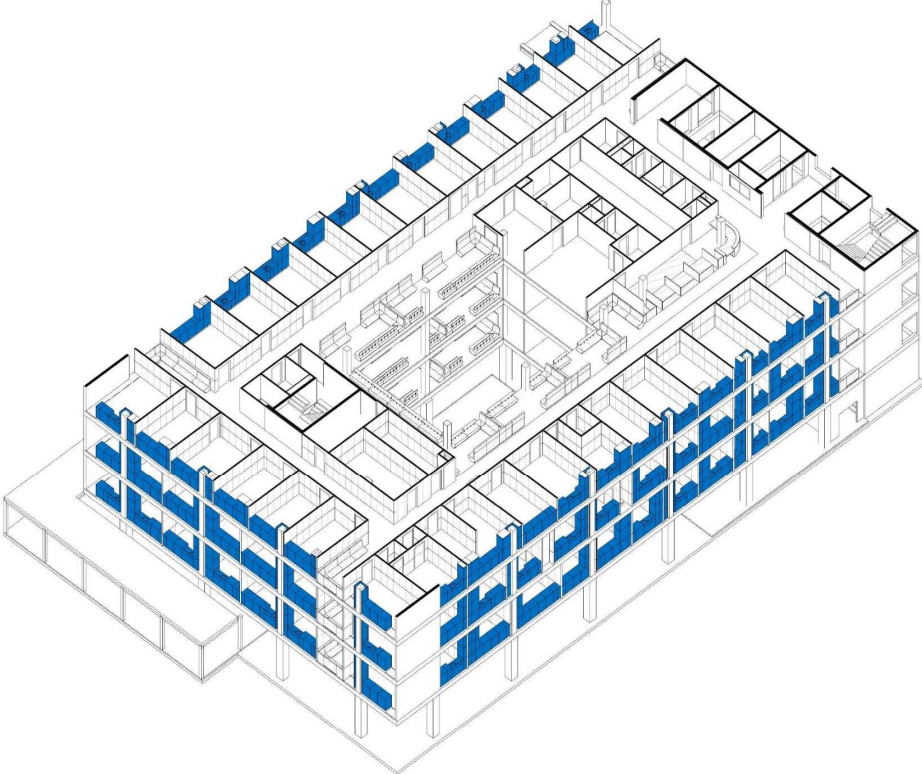
reversible building design

spatial reversibility



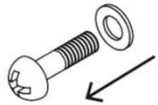
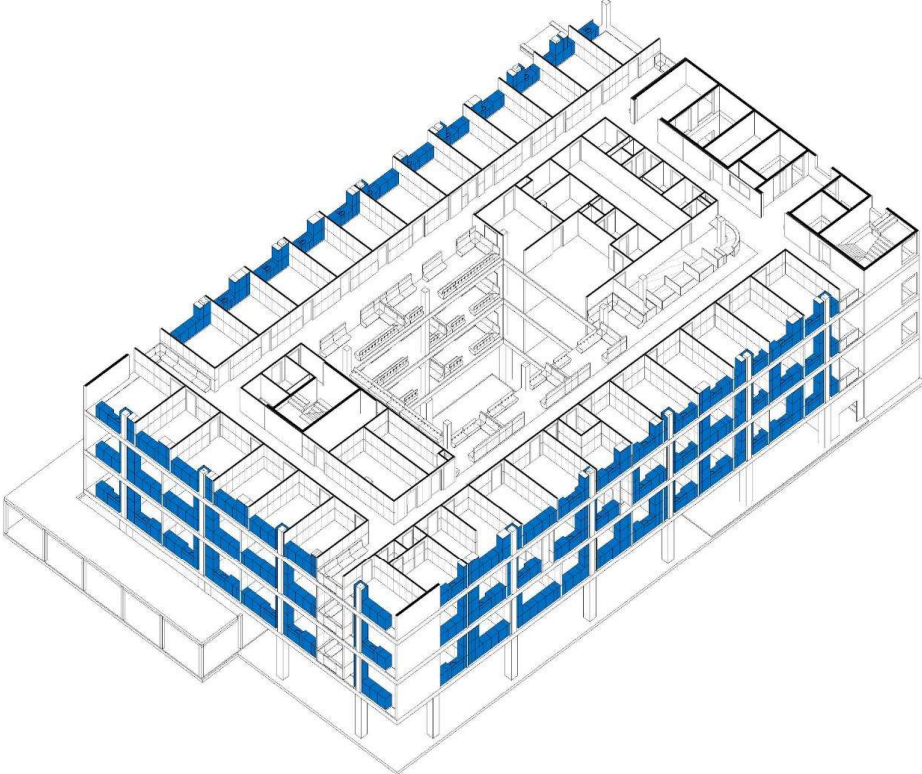
reversible building design

spatial reversibility

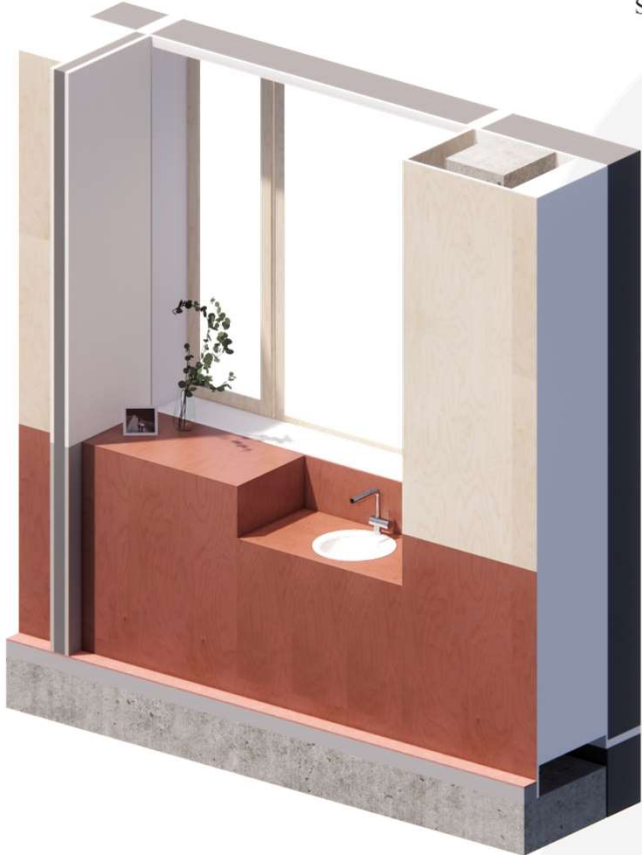


RECONFIGURE
STRUCTURE

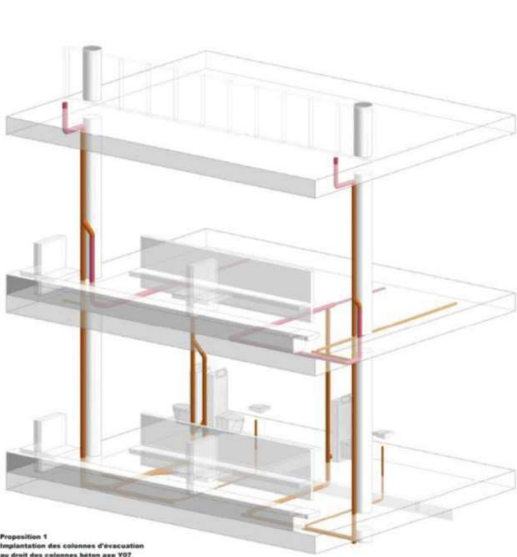
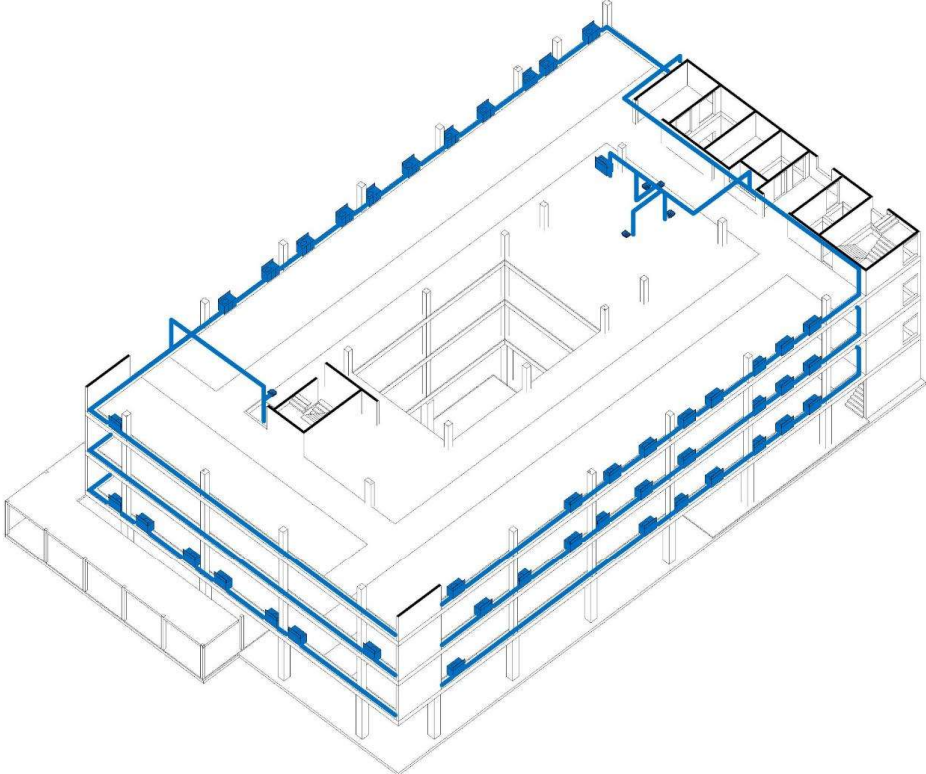
reversible building design
spatial reversibility



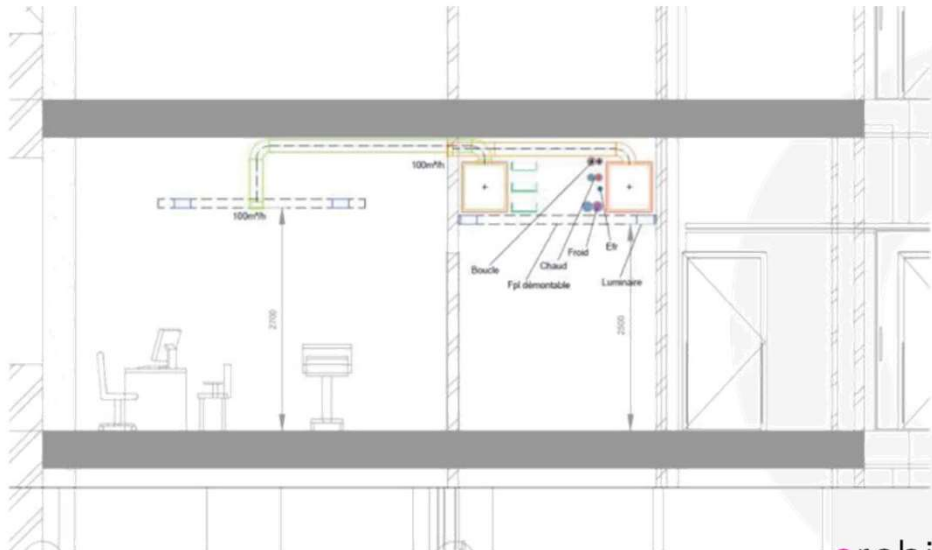
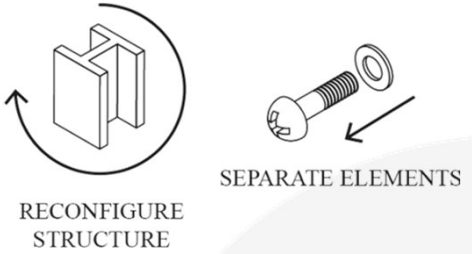
SEPARATE ELEMENTS



reversible building design spatial reversibility

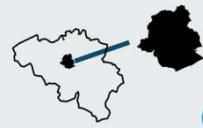


Proposition 1
implémentation des colonnes d'évacuation
au droit des colonnes béton aee Y07
(idem aee Y03)





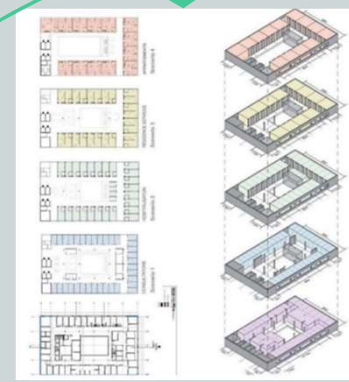
governance



research



CESCO XL
Hybride wonen



dissemination



projects



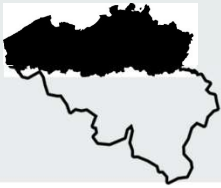
« Brussels Capital Region is aiming to support and integrate the inclusion of circular economy building principles in three gradual steps: voluntary measures by 2025, reglementary measures for the public sector by 2030 and a larger reglementary framework for all buildings towards 2040»



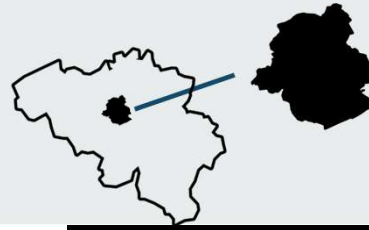
Anne Paduart

Project Manager at Brussels Environment

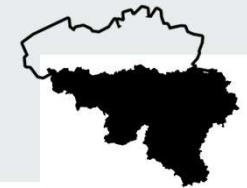
Responsible for the further development of the 'Roadmap towards a Circular Economy' of the Brussels construction sector



flanders

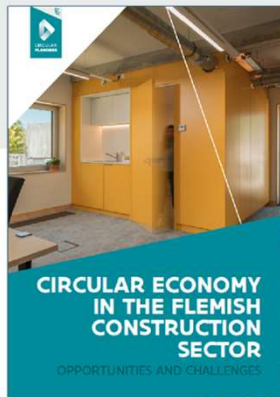


brussels capital region

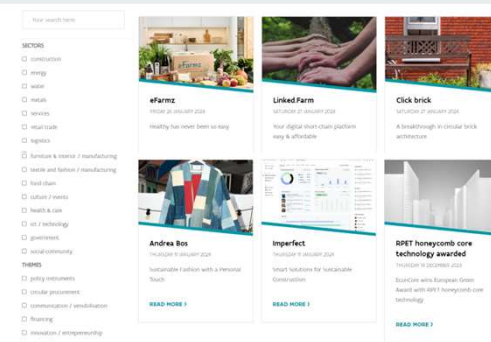


wallonia





knowledge sharing



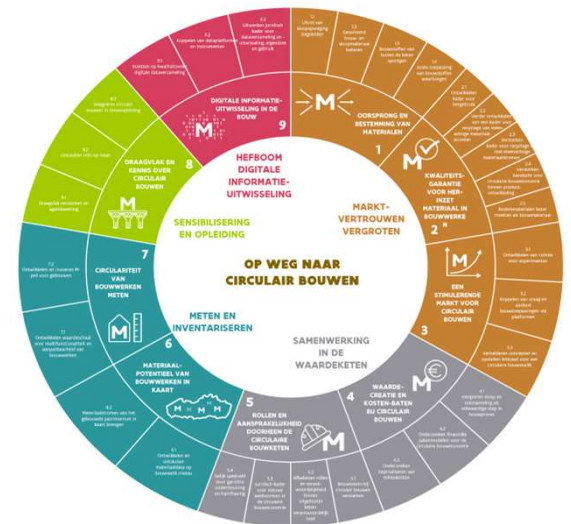
experiments
communite

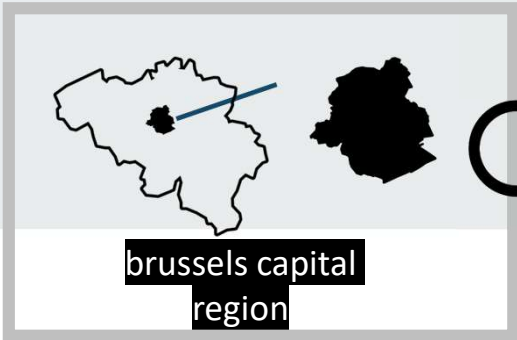


GREEN DEAL
CIRCULAIR
BOUWEN

350
PARTICIPATING
ORGANISATIONS

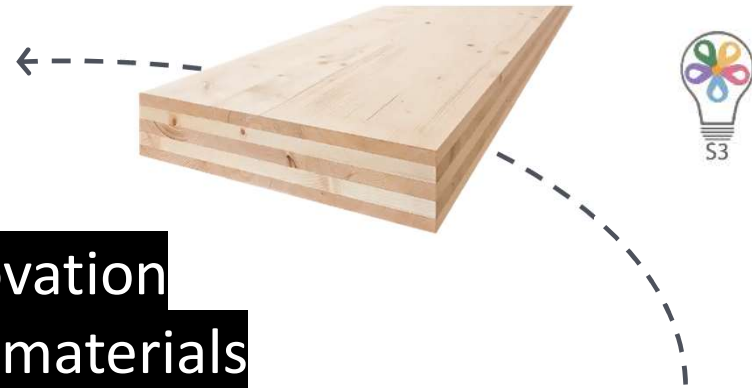
policy-making
upscaling







VALBOWAL



innovation
circular materials





raising awareness
providing tools and guides



etc.

future regulatory
framework

collaboration private -
public



Panel #1

Circular Construction: Innovation, Public Policies and Skills



Joost Declercq
Archipelago



Anne Paduart
Leefmilieu Brussels



Jiri Branka
Cedefop



Jordi Thijs
Hogeschool PXL

Panel #2

Circular practices: Reclaimed and Bio based materials



Tim Vekemans
RE-ST



Gaspard Geerts
Rotor



Joeri Beneens
Beneens



Rein Dressers
KiemKracht



Christian Roggeman
Gramitherm

”The most sustainable building is the building you don’t have to build”



**Tim
Vekemans**

REST

A hand is holding a rectangular, brown, textured card against a light grey background. The card has a repeating pattern of small, faint circular and diamond shapes. The text 'pleidooi voor het niet-bouwen' is printed in a white, sans-serif font in the center of the card.

pleidooi voor het niet-bouwen

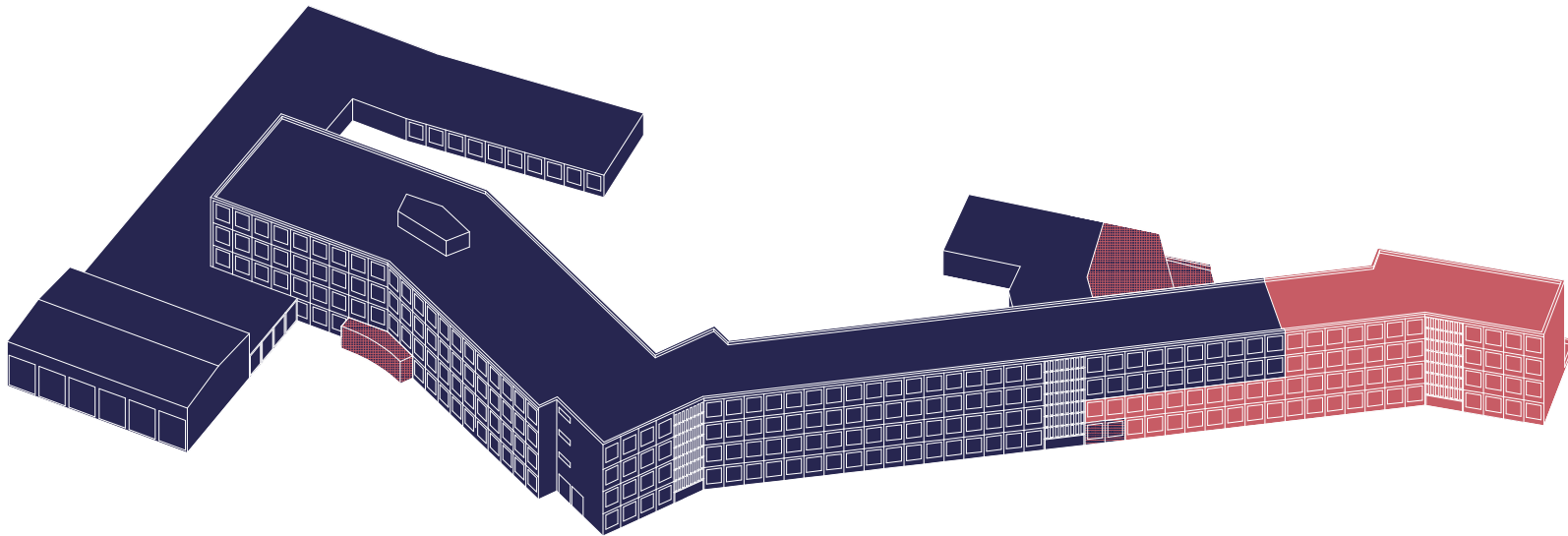


**The most
sustainable building
is the building you
don't have to build.**

RE-ST

**Het meest duurzame
gebouw is dat
gebouw dat je niet
moet bouwen.**

RE-ST

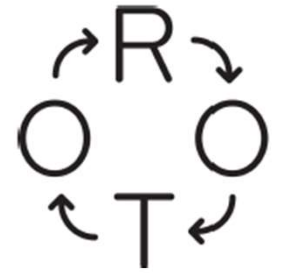


“Rotor aims to rediscover the practice of reusing building materials and to make it a common practice in the construction sector once again.”



Gaspard Geerts

Architect and Project
manager at Rotor



Salvage building materials, rethink construction practices

Gaspard Geerts (Rotor)

WCEF 24

17 avril 2024



Assistance to building owners



Design



Exhibitions



Education, workshops



R&D to foster reuse



Non-profit organisation
Since 2005
~15 people
<https://rotordb.org>

RotorDC

Cooperative company
Since 2016
~20 people
<https://rotordc.com>



Salvage



Materials cleaning



Stockholding



Shop



1. Rotor, 2010 • 2. Rotor, 2012 • 3. Rotor, c. 2016
4. Rotor's and RotorDC's teams, 2020 • 5. Rotor's team, 2023 • 6. RotorDC's team (2023).

Assistance to the *Multi* project

Deep renovation of an office building in Brussels

Surface area: 40.000 sqm

Original building: 1968

Renovation: 2017-2023

Clients: Whitewood + Immobel

Architect: CONIX RDBM

Reuse assistance: Rotor

Demolition and asbestos removal: Renotec + De Meuter

General contractor: Cordeel

Picture: © Jasper Van der Linden /
CONIX RDBM





The goal was that a minimum of 2% of all materials installed in the project will be reclaimed ones (percentage in value and in weight), either from the building itself or from other sources.

Rotor assisted the architects and the client to achieve this objective.

89 % of the original building could be retained (percentage in mass, including foundations).



Lifteninstallatie toren
demon-lege en herinstallatie, één verdieping hoger

Techniques des ascenseurs
démont-lege et rehausse de l'installation des ascenseurs

Elevator installation
dismantling and reinstallation of the motor, one floor up



Hexagonale plafond-elementen, M. Lambrichts
+18: plafond van de wintertuin

Éléments de plafond hexagonaux, M. Lambrichts
+18: plafond du jardin d'hiver

Hexagonal ceiling elements, M. Lambrichts
+18: ceiling of the winter garden



Granieten tegels, J. Wabbes
+2: overgang atrium - terras

Sol en granit, J. Wabbes
+2: transition atrium - terrasse

Granite flooring, J. Wabbes
+2: transition atrium - terrace



Dallen uit blauwe hardsteen, gebouchardeerd, T. Zand
+3: terras

Dalles de pierre bleue, beuchardée, T. Zand
+3: terrasse

Blue limestone slabs, bush-hammered, T. Zand
+3: terrace



Aluminium gevelprofielen
- gvl vestibule: lampen
- atrium +1, +2: barbeveering
- atrium +2: lambrisering

Profilés aluminium
- rdc vestibule: luminaires
- atrium +1, +2: garde corps
- atrium +2: lambris

Aluminium facade profiles
- ground floor vestibule: lamps
- atrium +1, +2: railing
- atrium +2: paneling



Technische vloertegels
nog te beslissen, kantoren

Plancher technique
encore à décider bureaux

Raised floor tiles
still to be decided, offices



Brandwerende Deuren
nog te beslissen, backoffice

Portes coupe-feu
encore à décider, backoffice

Fire doors
to be decided, backoffice

Waar komen de hergebruik-producten terecht?

Où sont intégrés les éléments de réemploi?

Where do the reclaimed products go?



Trespa
+18, bekleding van het technisch openluchtlokaal

Trespa
+18, bardage / façade du local technique en plein air

Trespa
+18, facade cladding of the technical open air room



Dallen uit blauwe hardsteen, gebouchardeerd, in situ:
+18, bekleding van de 'kern'

Dalles de pierre bleue, bouchardée, in situ:
+18, lambris du 'noyau'

Blue limestone, bush-hammered, in situ:
+18, paneling of the 'core'



Gelijmd-gelamelleerd hout
- nieuwe trapkokers: ballustrade
- gvl: Lambrisering

Bois lamelle-collé
- nouveaux escaliers: garde-corps
- rdc: Lambris

Glued-laminated timber
- new stairs: railing
- ground floor: paneling



Parquet en plankenvloer
- atrium gvl, +1
- lobby's liften

Parquet et plancher
- atrium rdc, +1
- lobby's des ascenseurs

Parquet and plank floor
- atrium ground floor, +1
- lobby's elevators



Materialen voor buitenaanleg
gvl en terras +3

Matériaux pour les abords
rdc et terrasse +3

Outdoor materials
ground floor and terrace +3



Lampenlijn Rotor
nog te beslissen, backoffice

Gamme de luminaires Rotor
encore à décider, backoffice

Lamp line Rotor
still to be decided, backoffice



Sanitaire uitrusting
huidige sanitaire kokalen, in situ & ex situ hergebruik

Équipements sanitaires
locaux sanitaires actuelles, réemploi in situ & ex situ

Sanitary equipments
current sanitary spaces, in situ & ex situ reuse



Deze afbeelding is een weergave van de tentatieve stand van zaken, op woensdag 18 april 2011. De beslissingen rond de materialen moeten niet als definitief begrepen worden.
Cet image est une représentation d'un état des lieux préliminaire, le mercredi 18 avril 2011. Les décisions concernant les matériaux ne doivent pas être comprises comme définitives.
This image represents a preliminary state of affairs, as of Wednesday April 18th, 2011. The decisions concerning the materials should not be understood as being definitive.

Interreg



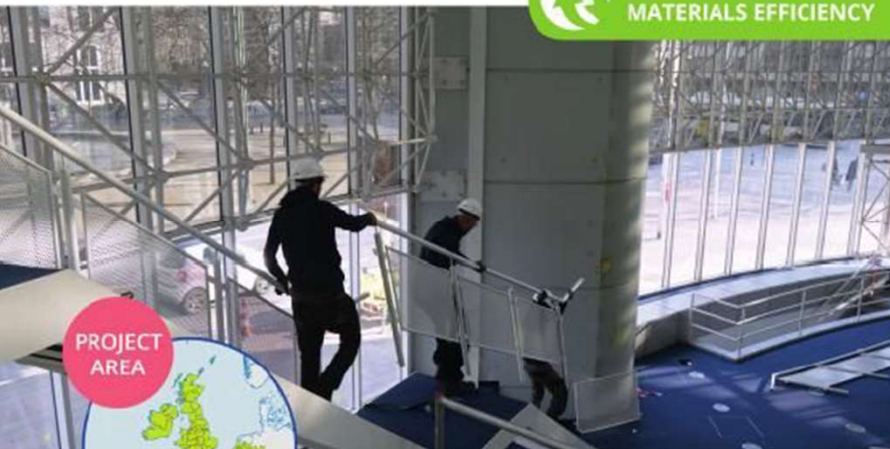
EUROPEAN UNION

North-West Europe

FCRBE

European Regional Development Fund

THEMATIC PRIORITY:



Project objective: Increase by 50% the amount of reclaimed building elements being circulated in North Western Europe by 2032.

Total budget received from Interreg North-West Europe (2014-2020):

€2.6 million of ERDF



Total project budget:
€4.33 million

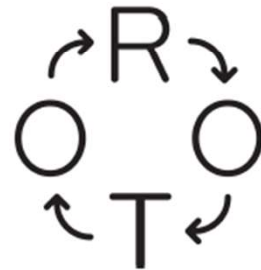
www.nweurope.eu/fcrbe

Five years of joint efforts to promote reuse



The project delivered:

- 1 online directory that documents more than 1500 specialised reuse operators
- A reclamation audit method
- A guidebook on procurement strategies
- A catalogue of 36 material sheets
- Practical guides for contractors
- 36 pilots operations
- and much more!



Gaspard Geerts

gaspardgeerts@rotordb.org

<http://rotordb.org>

<http://rotordc.com>

<http://opalis.eu>

***“Stop making
prototypes and start
applying demountable
typologies”***



Joeri Beneens
Beneens

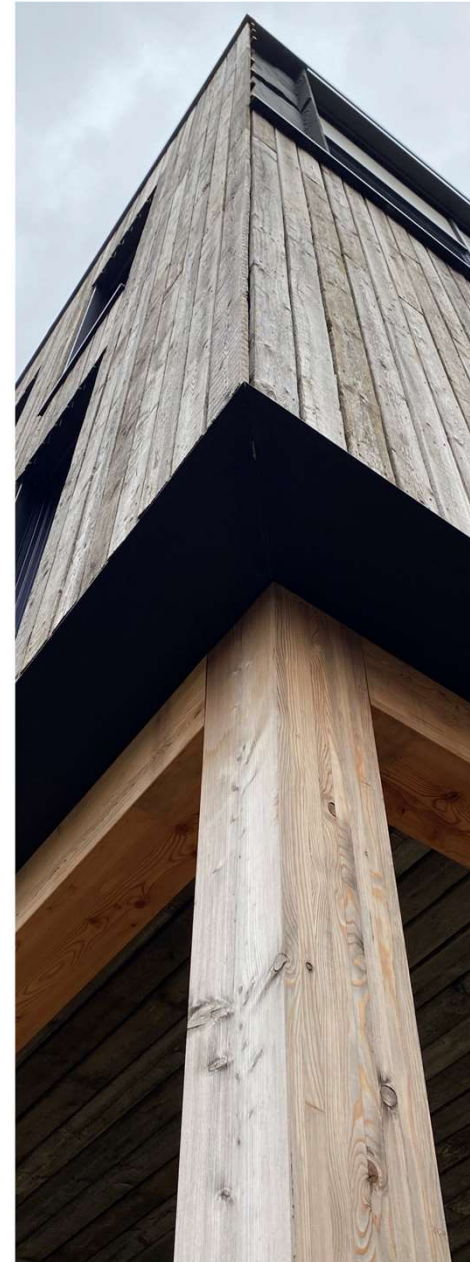
Future-proof constructions

Joeri Beneens



Stop prototyping

- Carbon neutral
- Standard grid structure of 5m x 5m
- Hybrid structure from CLT, GL, HSB
- Demountable
- Less sawing loss
- Cement-free
- Chemicals-free
- Broad spectrum of customers:
 - Office buildings
 - Retail
 - Houses
 - Schools



Building passport with circularity score

BIM Integrum

Reuse starts in the design

preserve the value of materials

As a service
CAPEX shift to OPEX

deposits on building materials

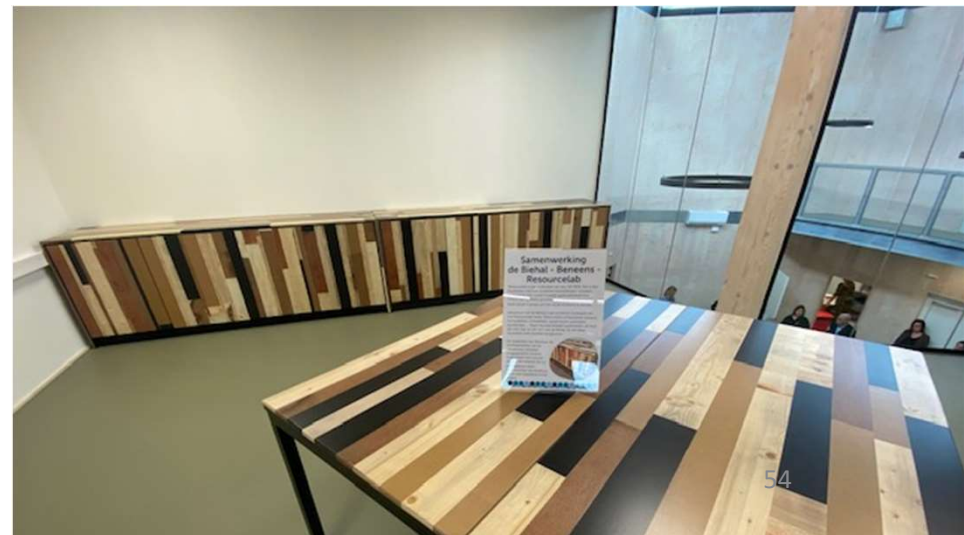
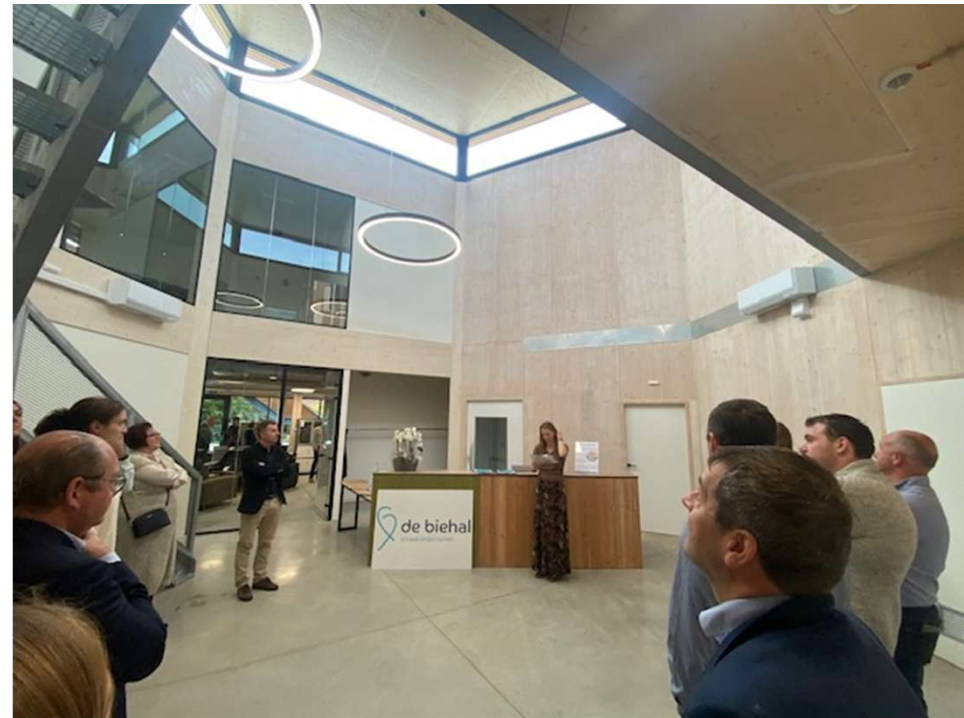
The BIM model is a materials library

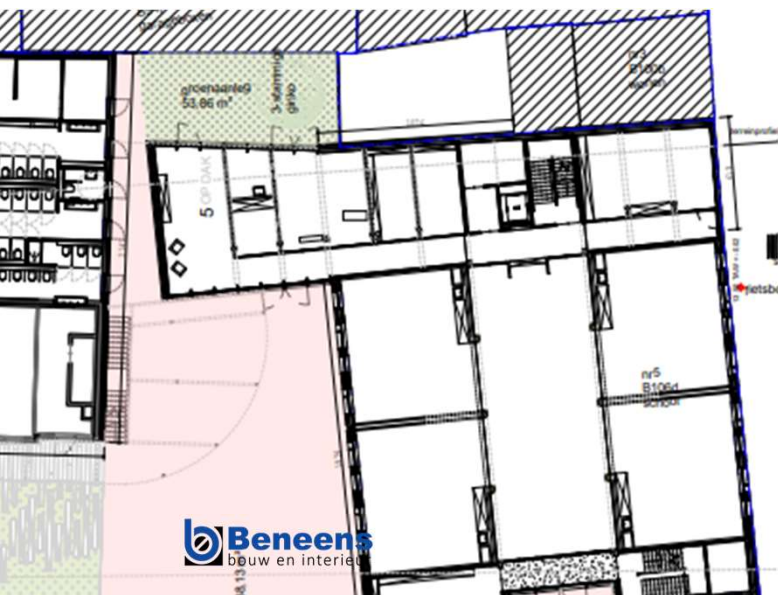


Future proof

- Digital support strengthens circularity
- Building passport of the future
- Materials traceable
- Urban mining
- 100% dismantlable
- Adaptability and flexible
- Embodied carbon
- Deposits will be possible in the future
- CSRD-rapports for EU-taxonomie







Panel #2

Circular practices: Reclaimed and Bio based materials



Tim Vekemans

RE-ST



Gaspard Geerts

Rotor



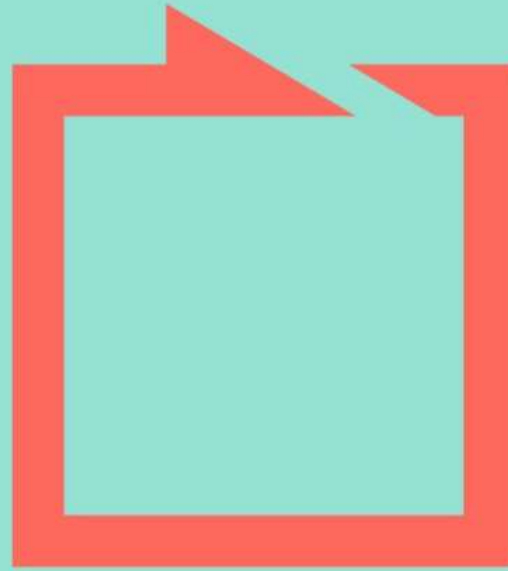
Joeri Beneens

Beneens

***“Collaborate in local
value chains to
construct bio-circular
buildings”***

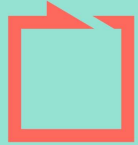


Rein Dessers
Earth plant & fiber



earth plant & fiber

DE NATUREBASED KETENCOALITIE



earth plant & fiber

DE NATUREBASED KETENCOALITIE

MISSION

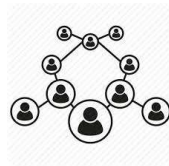
Connect local value chains to facilitate the valorisation of natural residues and living organisms in functional applications in the built environment.





BASED ON PRACTICE

Based on practices of entrepreneurs



MULTIDISCIPLINARY NETWORK

Quadruple helix collaboration within the value chain



INDEPENDENT

No political, nor commercial interests will colour our message




ENVIRONMENTAL IMPACT

Making environmental impact is our main goal

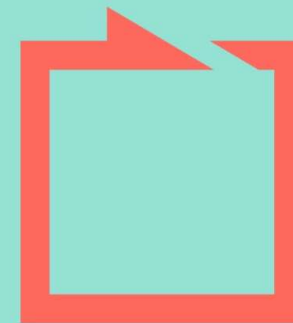


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Earthplantfiber.be

 [linkedin.com/company/earth-plant-fiber/](https://www.linkedin.com/company/earth-plant-fiber/)

Rein.dessers@kiemkracht.org



earth plant & fiber

DE NATUREBASED KETENCOALITIE

“More well-being with less resources: the choice of grass”



**Christian
Roggeman**
Gramitherm



**I have a profitable solution to
Insulate buildings with grass
and capture CO₂**

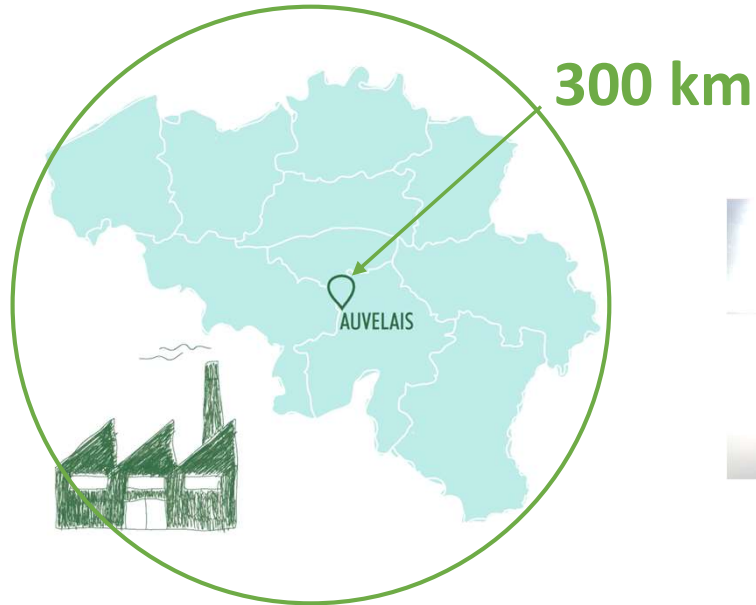
GRAMITHERM[®]
Sustainable Grass Insulation

GRAMITHERM[®] / Circular Economy



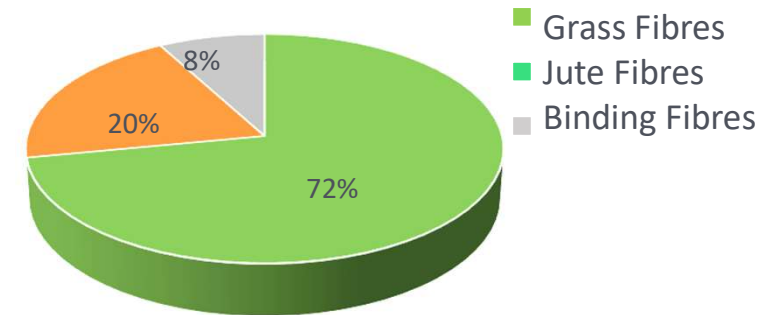
GRAMITHERM[®]
Sustainable Grass Insulation

GRAMITHERM® / Business Model



MARKET CHANNELS:

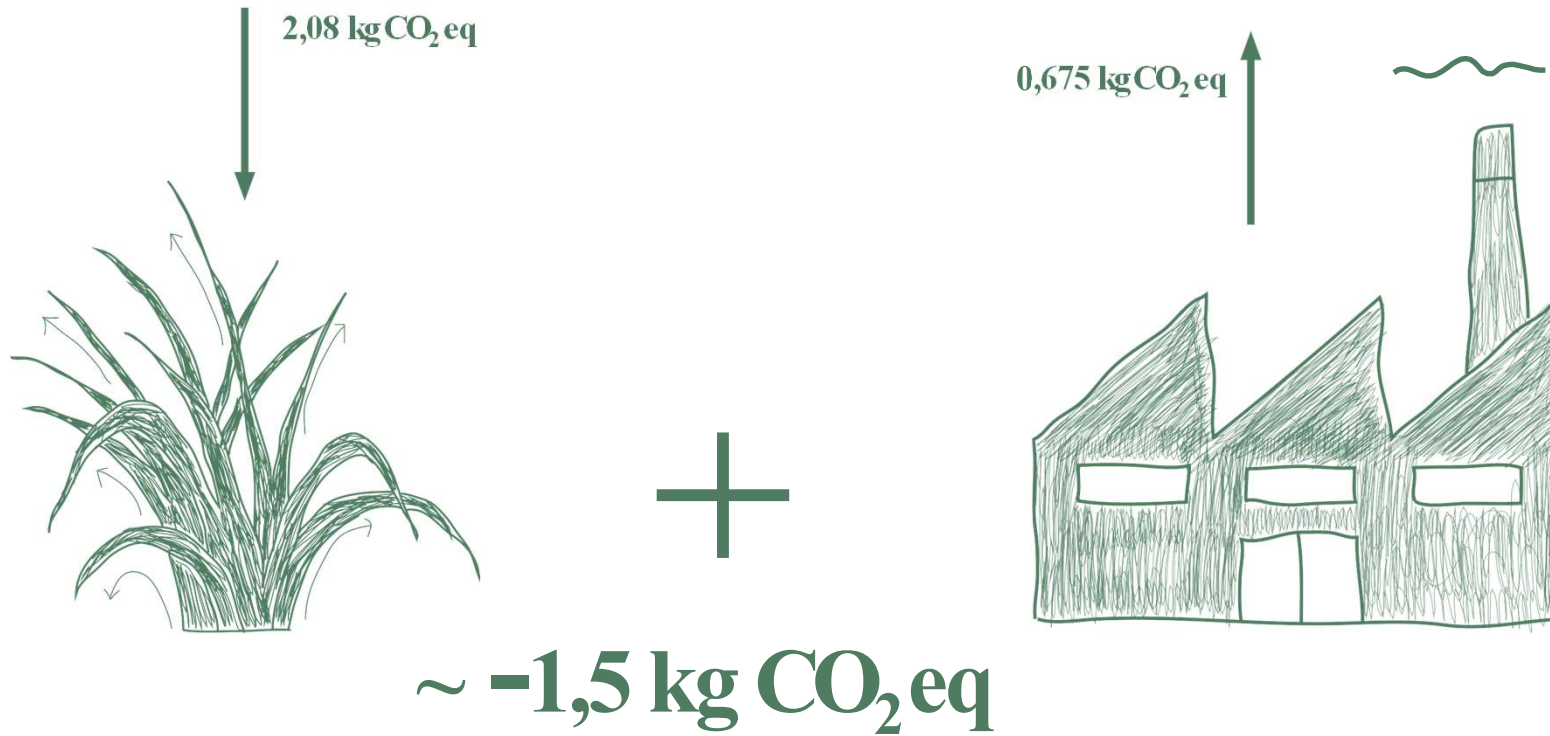
- SPECIFICATION / ARCHITECTS
 - TIMBER FRAMES / OFF-SITE
 - CRAFTMEN
 - RENOVATION / NEW BUILDINGS
- => COUNTRIES: BENELUX, FR, IT, DK, CH, D



GRAMITHERM®
Sustainable Grass Insulation

GRAMITHERM® / Capture CO₂

Per kg of GRAMITHERM (40 kg m⁻³ density)



totem
CREATE | EVALUATE | INNOVATE



B-EPD .BE



Environment

Product	Gramitherm®	Cork	Glass wool	EPS
Grey Energy (MJ/kg)	18.5	25	44.7	105
CO ₂ balance	-1.405*	1.27	1.47	7.36

*University of Zurich / Dpt ZH AW / 2015

GRAMITHERM®
Sustainable Grass Insulation

GRAMITHERM® / Renovation



GRAMITHERM®
Sustainable Grass Insulation

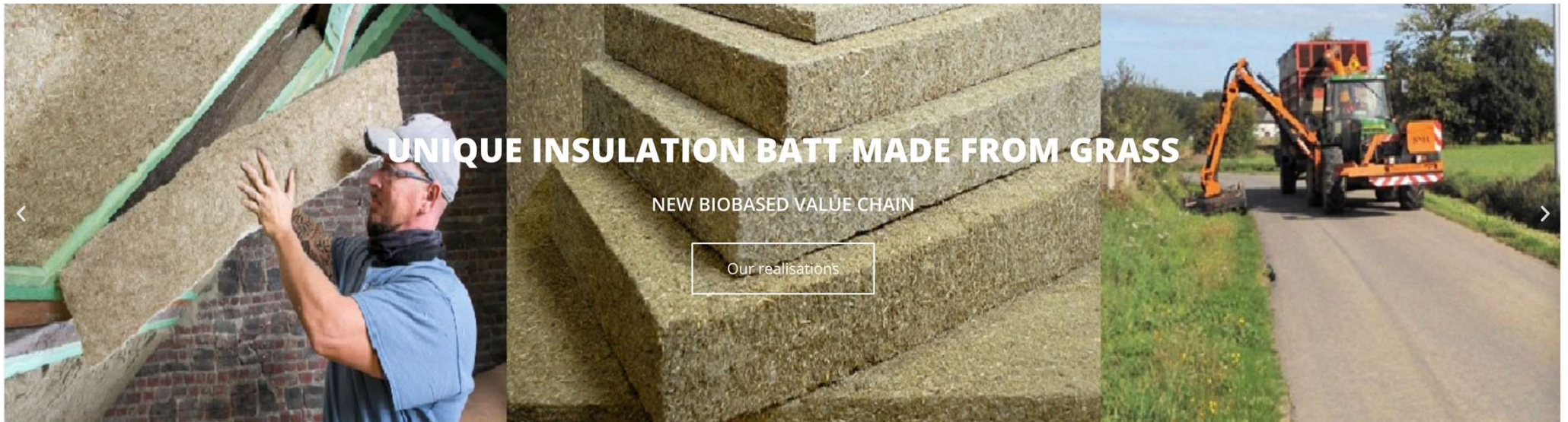
GRAMITHERM[®] / Construction



Vincent Lavergne Architecture
&
Atelier WOA

GRAMITHERM[®]
Sustainable Grass Insulation

TODAY



UNIQUE INSULATION BATT MADE FROM GRASS

NEW BIOBASED VALUE CHAIN

Our realisations

Thank you to all of our clients!

2218.99*

TONS OF CO₂ -EQ TRAPPED BY THE GRAMITHERM SALES

*since 2020



* April 2024



Panel #2

Circular practices: Reclaimed and Bio based materials



Tim Vekemans
RE-ST



Gaspard Geerts
Rotor



Joeri Beneens
Beneens



Rein Dressers
KiemKracht



Christian Roggeman
Gramitherm

Final words



Anders Ladefoged

Member of the European
Economic & Social Committee

***Thank you for
your attention.***