

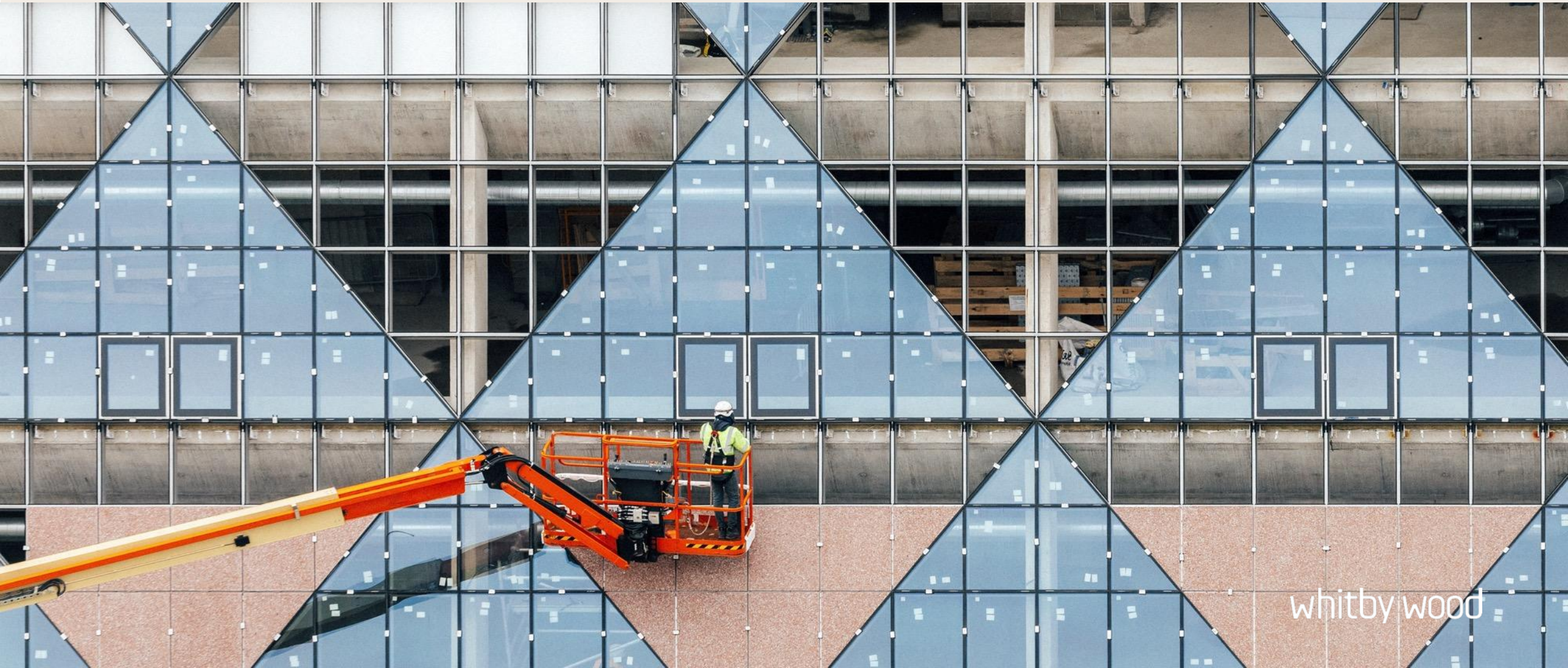
The background of the image features a wall of vertical, reddish-brown wooden slats. In the foreground, there are several curved, dark grey or black panels, possibly part of a staircase or a modern architectural element, with some metallic fasteners visible. The overall aesthetic is modern and industrial.

whitby wood

THINKING DIFFERENTLY

ENGINEERING IMPACT

Whitby Wood is an **engineering design** and **advisory consultancy**



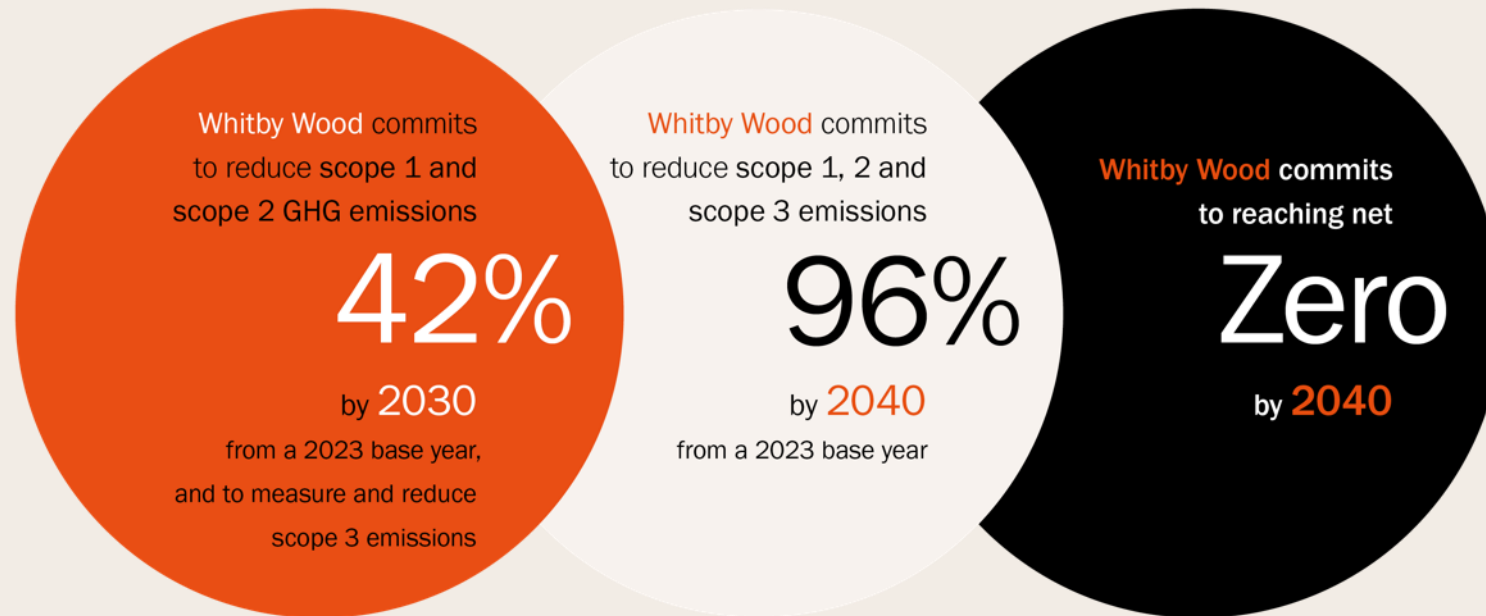
whitby wood

- 
- A group of seven diverse young adults are smiling and talking in front of a colorful mural. The mural features abstract shapes in green, yellow, and blue. The group consists of four men and three women of various ethnicities and ages, all appearing to be in their late 20s or early 30s. They are dressed in casual, contemporary clothing. The overall atmosphere is positive and inclusive.
- > 9 years old
 - > 100+ people
 - > 19 nationalities
 - > 32% female / 68% male

whitby wood

DELIVERING SUSTAINABILITY – AN ESG APPROACH

Whitby Wood has set emissions reduction targets through the Science Based Targets initiative, with levels required to meet the goals of the Paris Agreement.

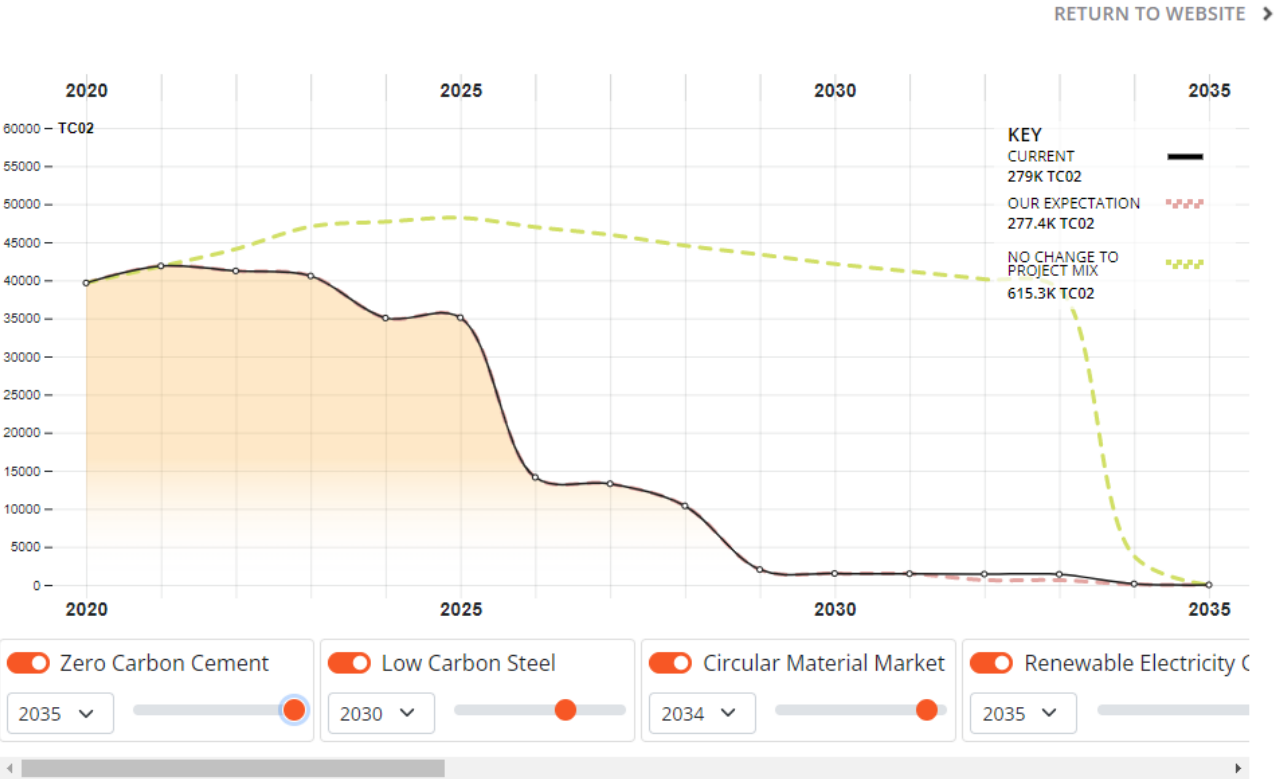


SCOPE 1 / *direct emissions by the company*
SCOPE 2 / *indirect emissions from the generation of purchased energy*
SCOPE 3 / *upstream and downstream indirect emissions (project emissions)*

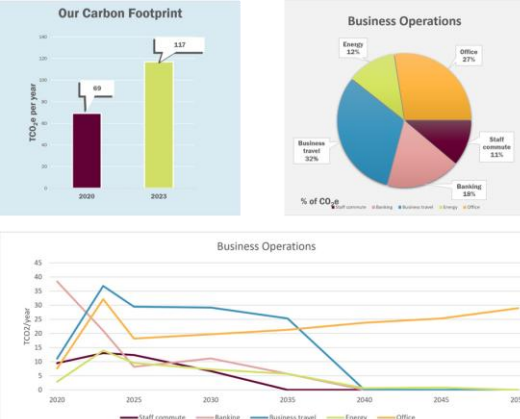
INDUSTRY IMPACT

Route To Zero

SPECIFIED CARBON



BUSINESS CARBON



REALISATION

⋮

WE CAN'T CONTROL OUR SPECIFIED CARBON WITHOUT SYSTEM CHANGE...

SPONSORING AND FACILITATING RESEARCH

We are leading industry change by **working with academia**



whitby wood



PARTNERSHIPS AND RESEARCH

PARTNERSHIP ORGANISATIONS



MEMBERSHIPS



whitby wood

Leading Industry Change



WORKING WITH RESEARCH BODIES

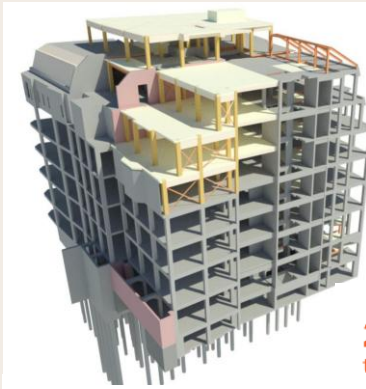
optoppen

Optoppen

How do we get to zero-carbon construction? Optoppen, or 'topping up', is one way.

LIGHTWEIGHT VERTICAL EXTENSIONS

Encourage our
lowest carbon
construction type.

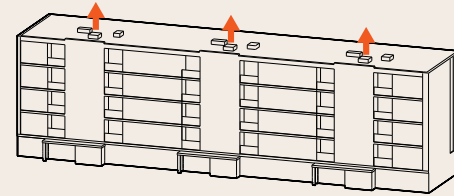


2,400
tCO₂ Retained

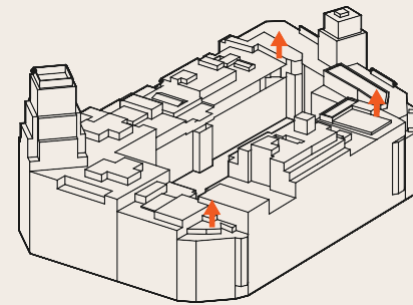
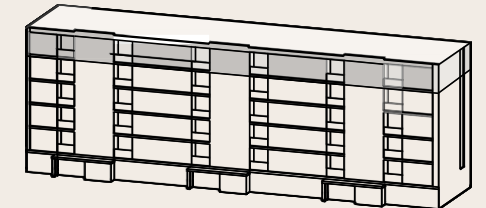
0.90
tCO₂e in
demolition



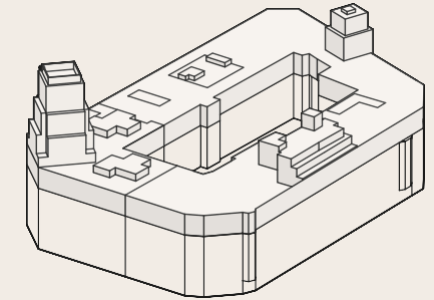
LONDON TOWNHOUSE



ROTTERDAM APARTMENT BLOCK

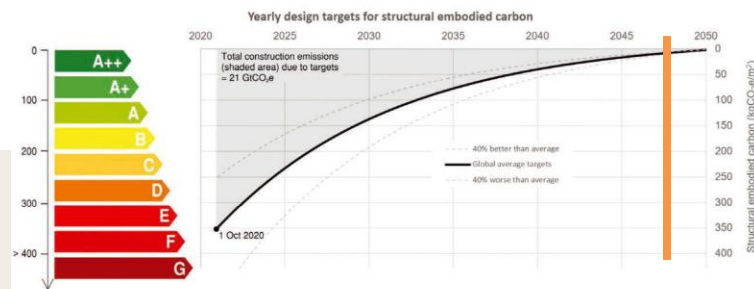


BARCELONA CITY BLOCK



Options	Embodied Carbon of Proposed Structure / m ²
Glulam/CLT:	67 kgCO ₂ e/m ²
Steel/CLT:	85 kgCO ₂ e/m ²
Steel/Concrete:	125 kgCO ₂ e/m ²

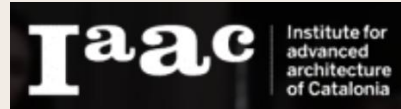
Total Proposed Embodied Carbon of Whole Building **9.5 kgCO₂e/m²**
11.0 tCO₂





optoppen

whitby wood



mule

rising tide



**Planning Policy &
Heritage
Approaches**

**Insurance and
Warrantees**

**Contractor
Engagement**

**Investor
Understanding**

**Design Team Skills
& Governance**

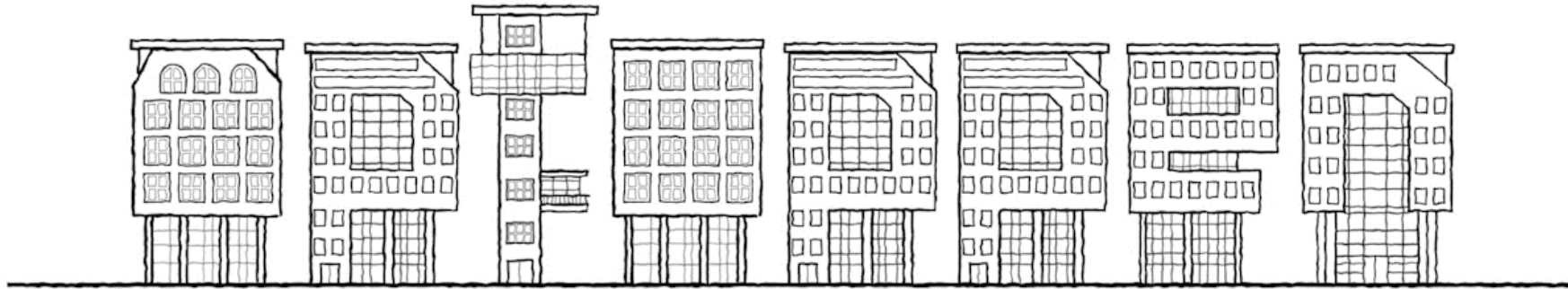
**Understanding the
possible**

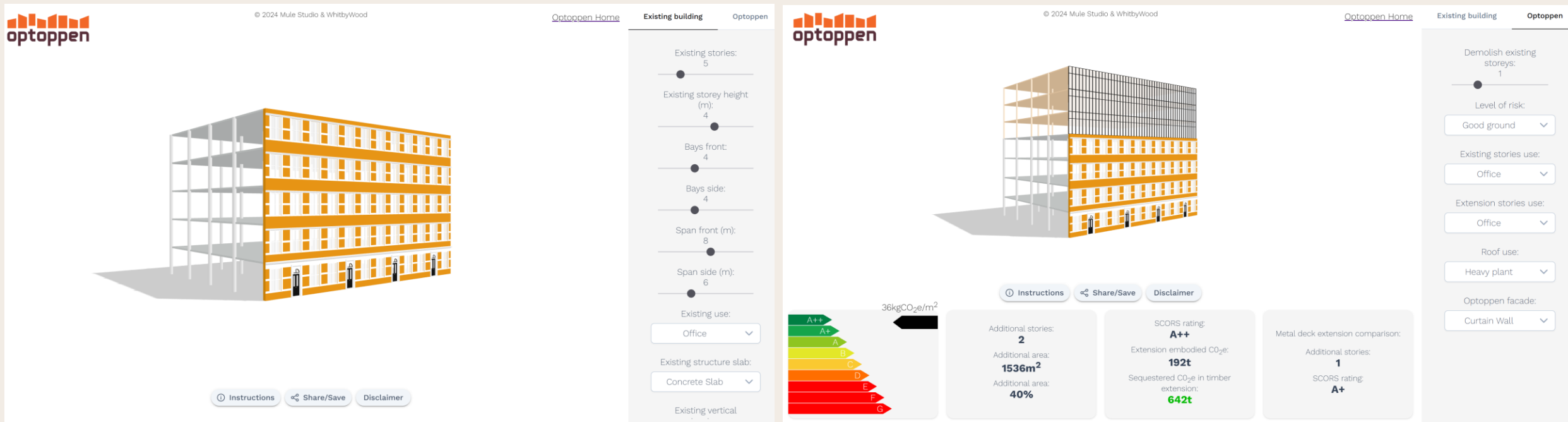
**Ownership
Complexities**

**European
Supply Chain**

**Whole Life Carbon
Governance**

**Design and
Investigations
Programme**



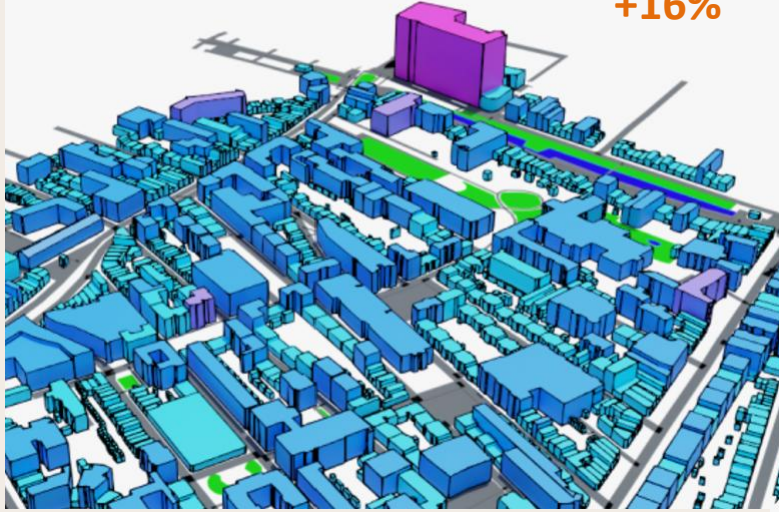


The screenshot displays the Optoppen web application interface, which is used for configuring and simulating building extensions. The interface is divided into several sections:

- 3D Model:** A central 3D rendering of a building with a grid of windows and a facade. The building is shown in a perspective view, highlighting its structure and the addition of new stories.
- Configuration Panel (Left):** A vertical sidebar containing various input fields and sliders for defining the existing building and the extension.
 - Existing stories: 5
 - Existing storey height (m): 4
 - Bays front: 4
 - Bays side: 4
 - Span front (m): 8
 - Span side (m): 6
 - Existing use: Office
 - Existing structure slab: Concrete Slab
 - Existing vertical: (dropdown)
- Performance Metrics (Bottom Left):** A section showing a carbon footprint comparison. A bar chart indicates a target of 36kgCO₂e/m². A color-coded scale from A++ (green) to G (red) is shown, with the current performance level indicated by a black arrow pointing to the A++ level.
- Summary Cards (Bottom Center):** Three cards providing key performance indicators:
 - Additional stories: 2
 - Additional area: 1536m²
 - Additional area: 40%
- SCORS Rating (Bottom Center):** A card showing the SCORS rating as A++ and the extension embodied CO₂e as 192t. It also displays the sequestered CO₂e in timber extension as 642t.
- Metal Deck Extension Comparison (Bottom Right):** A card comparing the current configuration to a metal deck extension, showing 1 additional story and a SCORS rating of A+.
- Control Panel (Right):** A vertical sidebar with dropdown menus for:
 - Demolish existing storeys: 1
 - Level of risk: Good ground
 - Existing stories use: Office
 - Extension stories use: Office
 - Roof use: Heavy plant
 - Optoppen facade: Curtain Wall
- Navigation and Utility (Top and Bottom):** The top navigation bar includes "Optoppen Home", "Existing building", and "Optoppen". The bottom of the interface features "Instructions", "Share/Save", and "Disclaimer" buttons.

Rotterdam Opportunity

+16%



London Opportunity

+8%



Barcelona Opportunity

+9%



Opportunities per district

DISTRICT	NEW FLATS	INTERNAL AREA M2	AREA INCREASE%	STORED CARBON > TCO2e	SIKLA SPUCE TREES
Waalhaven-Eemhaven	14500	1208500	23.00%	114400	152500
Vondelingenplaat	3300	280300	20.00%	26500	35300
Spaanse Polder	1400	117800	10.00%	11200	14900
Rivium	300	28800	21.00%	2700	3600
Usselmonde	7300	636700	16.00%	60300	80400

Opportunities per district

DISTRICT	NEW FLATS	INTERNAL AREA M2	AREA INCREASE%	STORED CARBON > TCO2e	SIKLA SPUCE TREES
Hillingdon	7300	842400	4.00%	79700	106300
Harrow	8000	694900	6.00%	65200	87700
Barnet	15300	1596200	7.00%	151100	201500
Enfield	15900	1295000	6.00%	122600	163500
Haringey	16500	1378500	9.00%	130500	174000

Opportunities per district

DISTRICT	NEW FLATS	INTERNAL AREA M2	AREA INCREASE%	STORED CARBON > TCO2e	SIKLA SPUCE TREES
Nou Barris	19200	1537900	7.00%	145600	194100
Sant Marti	40100	3208900	7.00%	303700	404900
Sant Andreu	16900	1354500	7.00%	128	170900
Horta-Guinardó	19400	1553400	7.00%	147000	196000
Gràcia	14000	1120000	12.00%	106000	141300

Delfshaven	9900	937800	17.00%	88000	119400
Rott Centrum	12000	1079700	14.00%	102200	136300
Charlois	7900	741000	16.00%	70300	93500
Total	129900	11379700	15.76%	1077100	1436100

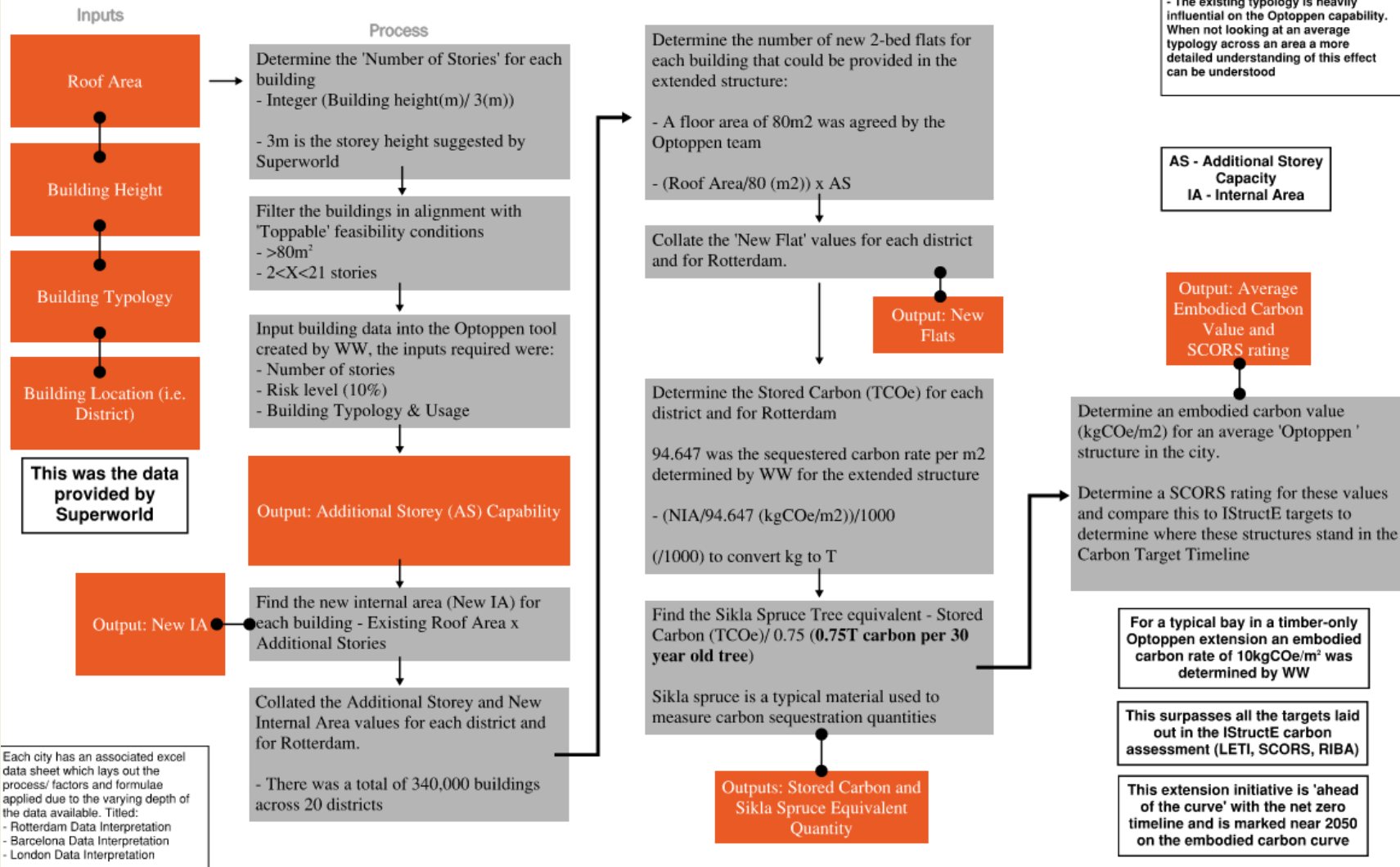
Kensington and Chelsea	23700	1915000	12.00%	181300	241700
Westminster	48300	4059200	12.00%	384200	512300
City of London	15400	1247000	10.00%	118000	157300
Total	515500	45752900	7.7%	4330400	5773900

Eixample	26700	2136300	7.00%	202200	269600
Ciutat Vella	14200	1137900	12.00%	107700	143600
Total	197900	15832300	8.58%	1498500	1998000

City Scale Opportunity

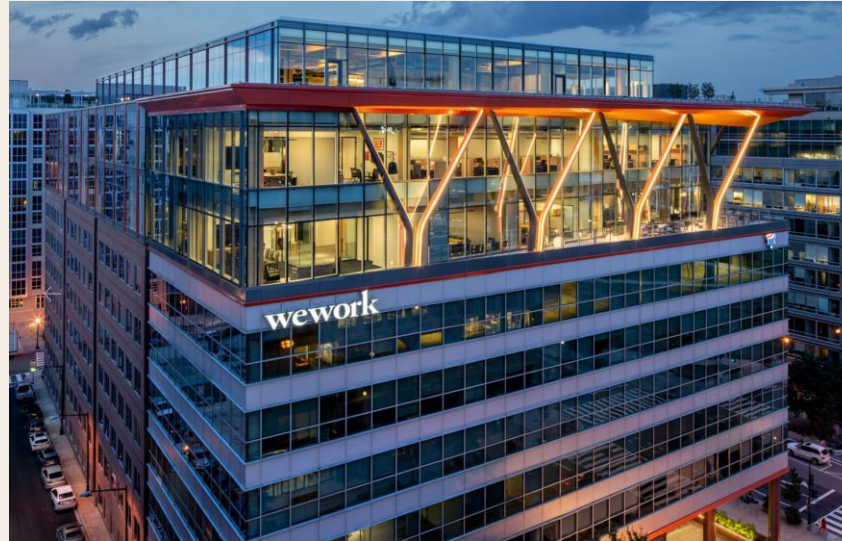
Optoppen - CityScale Application - Process Flow Charts

Rotterdam

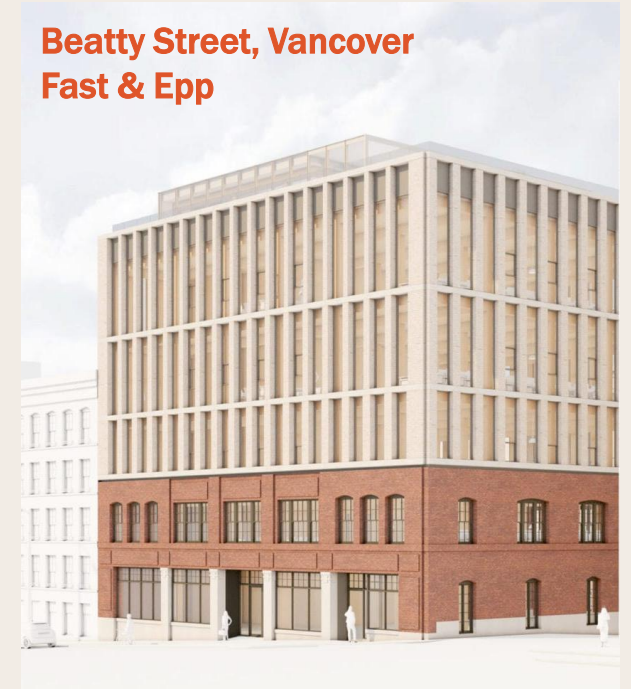


80M, Washington DC
Mercer

Hanover House, Bradford
KLH



Beatty Street, Vancouver
Fast & Epp



Hotel Reimer, Girona
IAAC

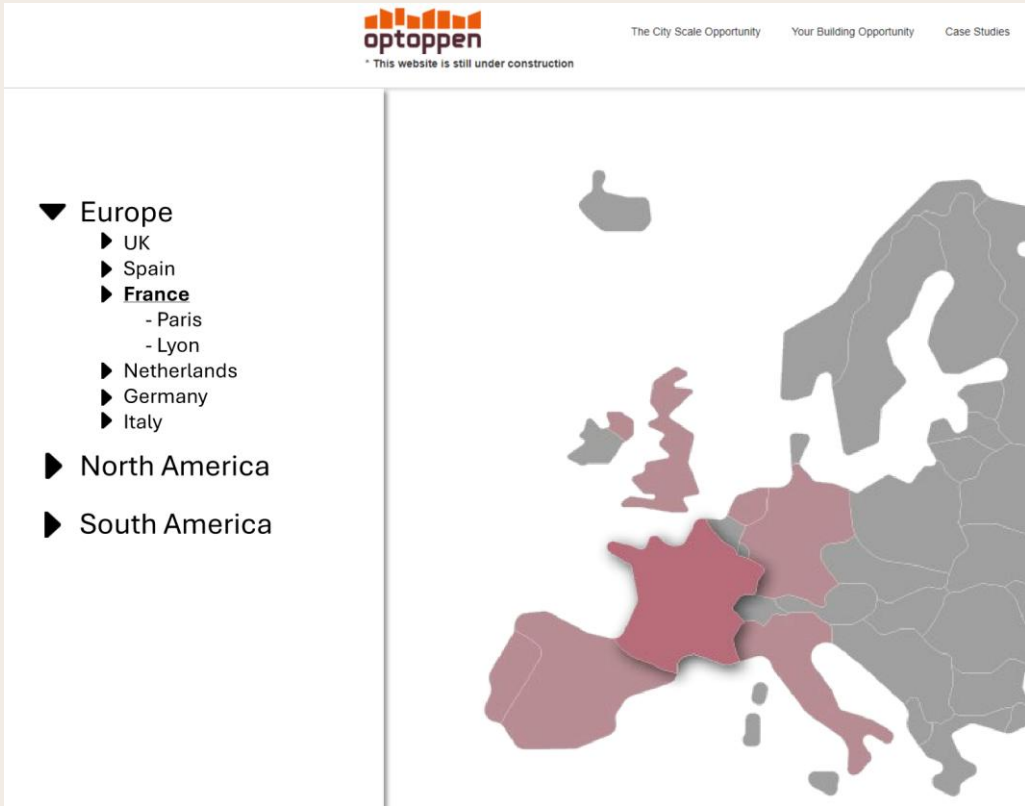


The Department Store, London
Squire & Partners



La Tour Watt, Austria
KLH

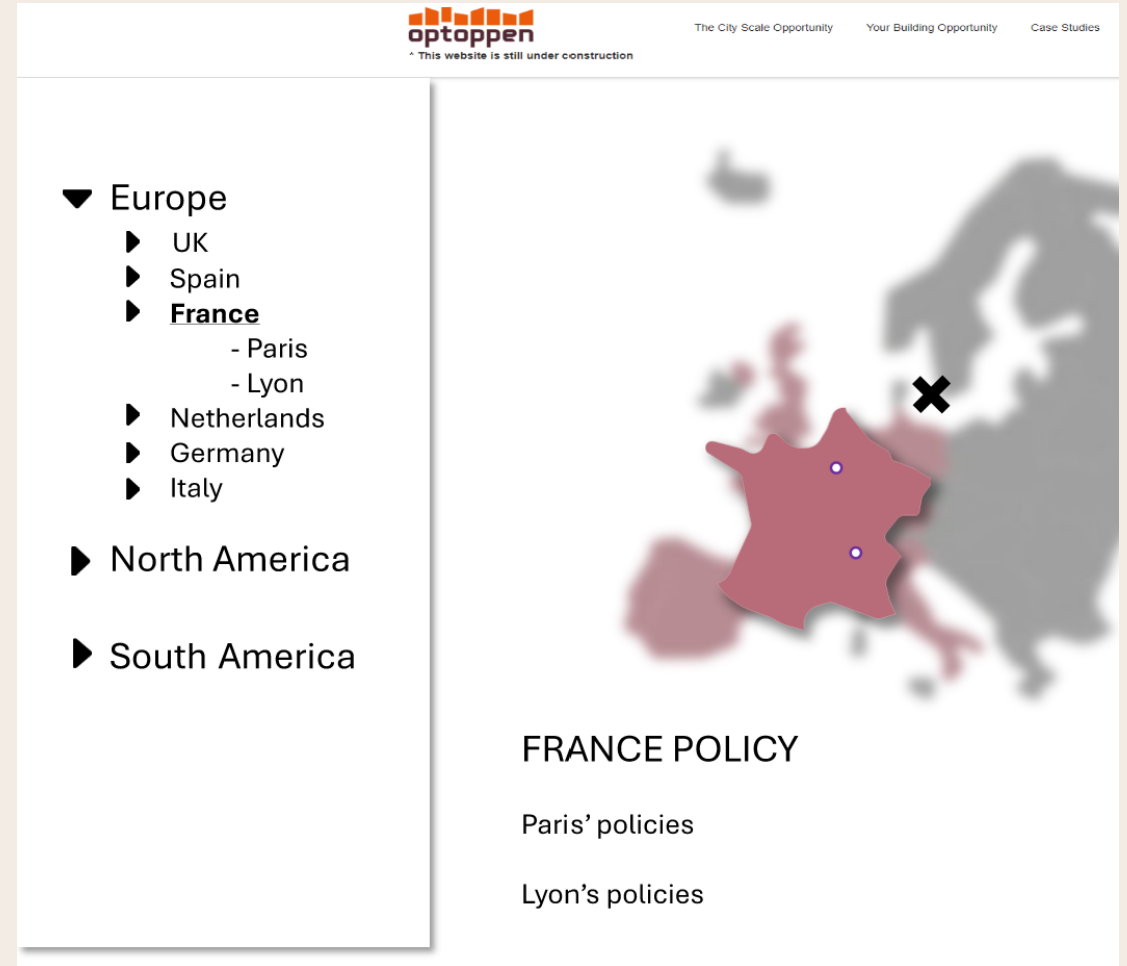
IMAGES | Leo Campus Barato



optoppen
* This website is still under construction

The City Scale Opportunity Your Building Opportunity Case Studies

- ▼ Europe
 - ▶ UK
 - ▶ Spain
 - ▶ **France**
 - Paris
 - Lyon
 - ▶ Netherlands
 - ▶ Germany
 - ▶ Italy
- ▶ North America
- ▶ South America



optoppen
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The City Scale Opportunity Your Building Opportunity Case Studies

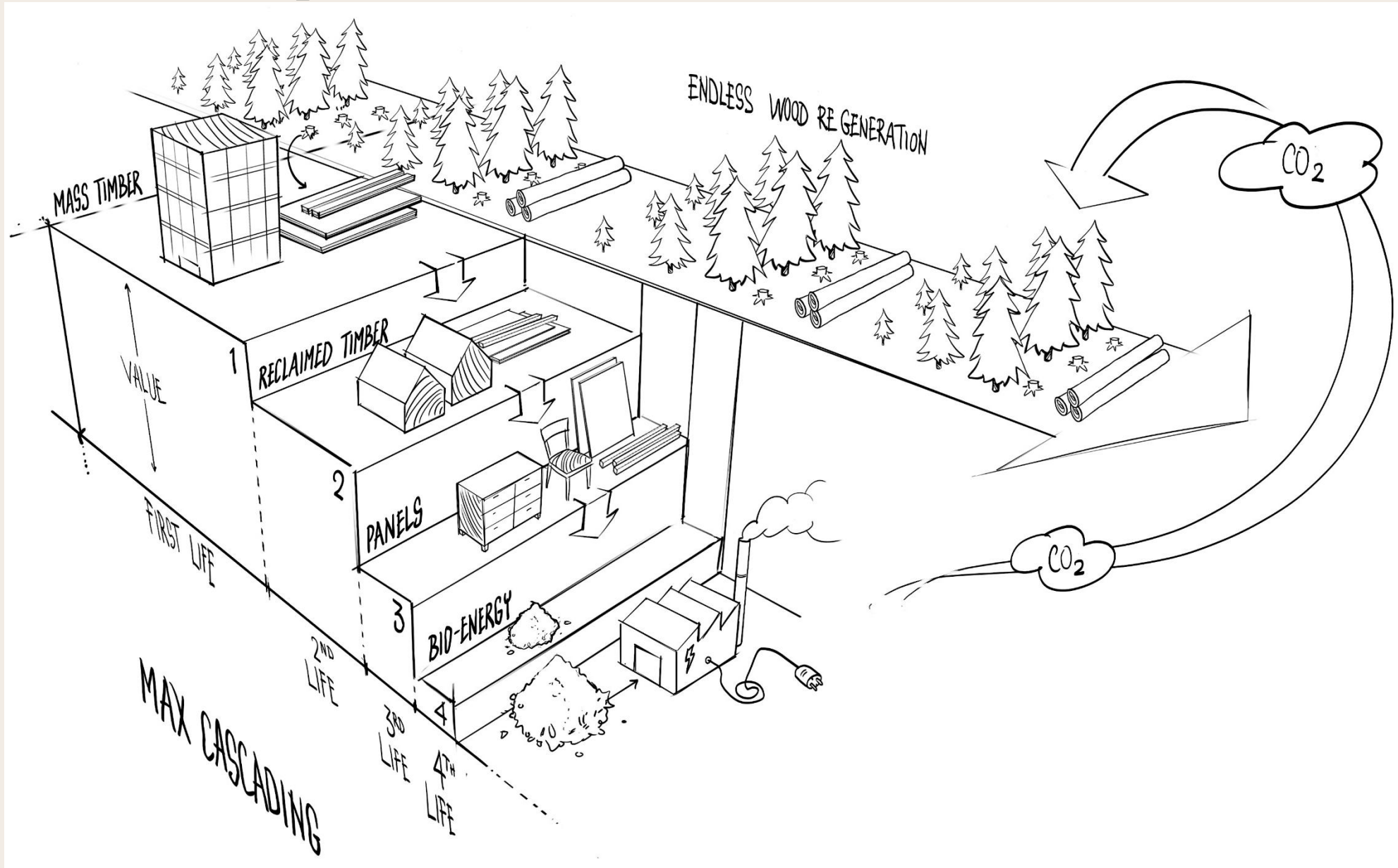
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FRANCE POLICY

Paris' policies

Lyon's policies

Why – a reminder



whitby wood

ENGINEERING AS IF PEOPLE MATTERED