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STADSATELIERDEVILLE

We aim to enhance the ecological transition of the Belgian building sector by creating a common ground for circular construction. Rooted in a new material culture that is sustainable, inclusive, local and beautiful, we foster collaboration, innovation and community.

THE BUILDING

Ironically situated on a former coal stock site, the project repurposes a legacy of fossil energy into an operational model for decarbonized construction. The building itself aims to become a physical example of the radical shift that is necessary in the construction industry.

Circular construction

The construction of the building is an active, open-source experiment. To mirror the core themes of our project documentation, the structural and architectural ambitions are structured around four key material and constructive guiding principles, targeting an overall building carbon footprint below 200 kg CO₂/m²:

Bioregional sourcing

We prioritize local materials to minimize transport emissions and support a regional circular economy:

Geo-based materials: Sourced directly from Brussels' excavation soil (recovering from the 2 million tons excavated annually in the region) to manufacture clay bricks and plasters. Innovations include interior renders and load-bearing earthen vault floors (SLATE).

Bio-based materials: The building envelope features structural timber frames sourced locally with full traceability from the Sonian Wood Coop, insulated with straw bales derived from agricultural waste.

Urban mining

Heavy structural components are harvested directly from urban dismantling sites across Brussels:

Substructures: Foundations integrate reused concrete slabs salvaged from The Dome (Boulevard Anspach).

Superstructure & envelope: The primary frame is constructed using reclaimed steel profiles and wooden beams salvaged from the deconstruction of the Pacheco building. The exterior facade integrates high-performance, salvaged window assemblies recovered from dismantled European Union buildings.

Design for Disassembly

The entire building is engineered as a fully reversible structure, ensuring it can be cleanly deconstructed.

Dry connections: The structural steel, timber framing, foundations and floor plates are assembled using dry, mechanical, and visible connections. Bolted joints replace permanent welds or wet concrete cast-in-place methods.

Modular layering: Building layers (structure, skin, services, and interior partitions) are kept strictly separate. This independent layering ensures that individual components can be maintained, replaced, or harvested at the end of the concession without damaging adjacent systems.

Low-tech innovations

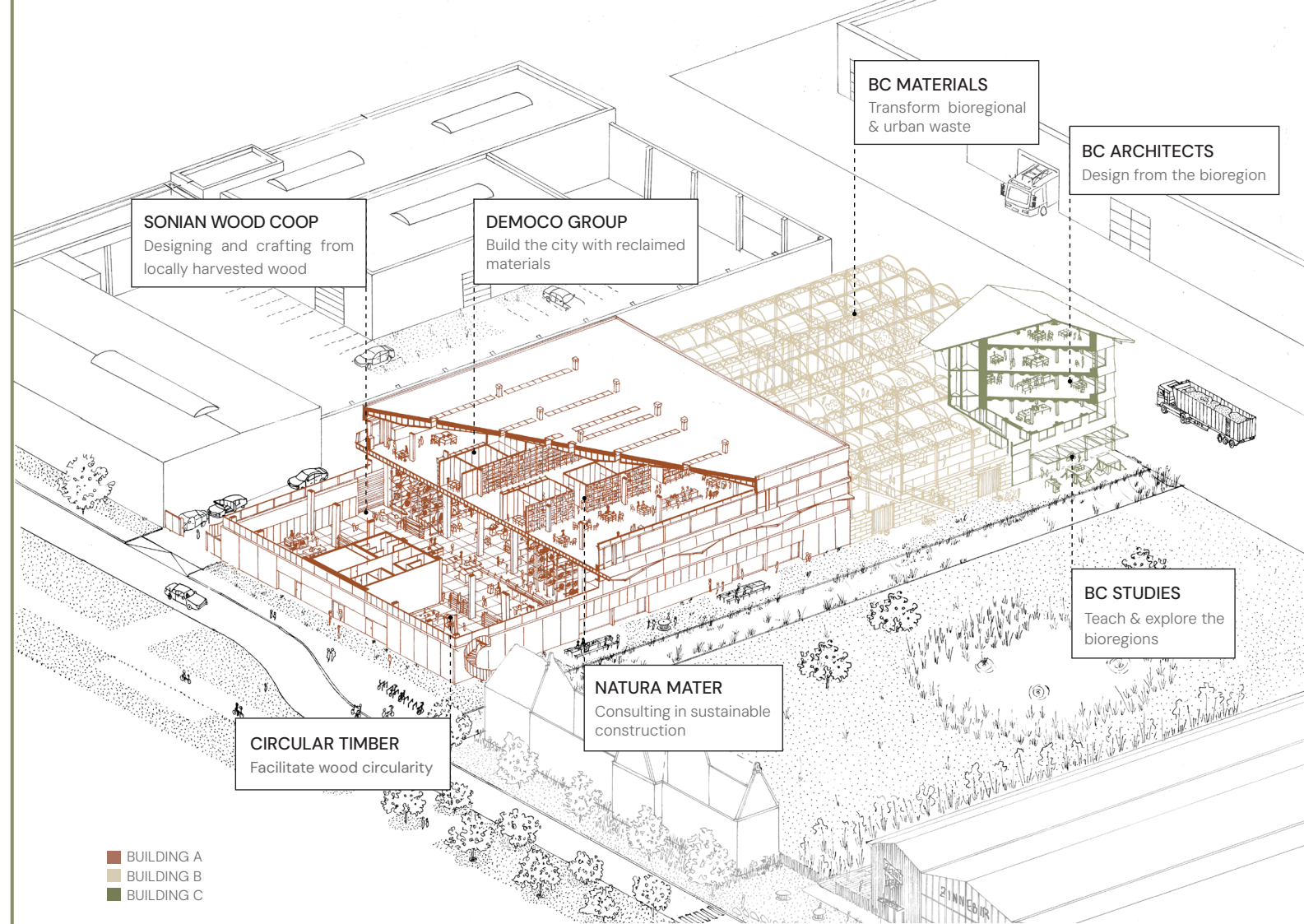
To achieve true environmental sustainability, the building rejects complex, high-maintenance active systems:

Passive climate control: The building operates completely without conventional mechanical heating systems, relying instead on passive solar gain, thermal mass from the earthen structures, and high-performance insulation using industrial-scale straw bales (a regional first).

Pushing legislative boundaries: Babini Geysen – Schenk and BC architects & studios & materials are experimenting in hybrid constructive systems, upscaling structural reuse and low-tech building physics solutions, where the design process inevitably pushes the limits of the current legislative framework.

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50°52'06.7"N 4°20'51.9"E



WHAT STADSAT OFFERS TO PARTNERS & VISITORS

Environmental leadership: Commitments to achieving carbon neutrality by 2030 and securing the Ecodynamic Enterprise label.

Visibility and showcasing: High-visibility exposure for circular construction methodologies, connecting partners with potential clients, institutional funders, and industry stakeholders.

Educational hub: Opportunities for professional training, specialized workshops, and academic research conducted in partnership with universities.

Circular synergies: Co-location with an ecosystem of circular economy specialists, facilitating joint funding ventures and collaborative project delivery.

Material sourcing: Streamlined distribution and procurement of bio-based, geo-based, and secondary urban materials within the Brussels region.

Event and prototyping space: Versatile venues for industry networking, material testing, and full-scale prototyping of circular building systems.

Networking: Alignment with international frameworks such as the New European Bauhaus and regional initiatives like the Renolution strategy, promoting an applied, experiential learning culture.

GOALS & TARGET KPIs (2025-2030)

Scale up: Upscale the processing of bio-, geo-, and urban-sourced materials to lower regional market pricing.

Waste valorization: By 2029 achieve a minimum of 1,380 tonnes/year of waste prepared for reuse (RCO119) and 1,280 tonnes/year of recycled waste (RCR47).

Education: Train future contractors and architects to integrate circular materials and design processes.

Impact: Create 35–50 full-time equivalent (FTE) jobs on-site.

Certification: All users obtain the Ecodynamic label and actively track CO2 emissions.

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CIRCULAR & BIOREGIONAL MATERIALS HUB IN THE CENTRE OF BRUSSELS

STADSAT is a unique hybrid space where circular building innovation meets practice. It brings together architects, engineers, designers, contractors, craftsmen and educators around bio-, geo-, and urban-sourced materials.

With **9.300 m² of co-productive space** situated in the Port Business Park at Thurn & Taxis, the hub supports:

Production: Reuse and transformation of local raw materials, such as Brussels excavation earth, urban reuse building components and reclaimed timber, in a robust, industrial environment specifically designed for circular players.

Distribution: Short supply chain logistics for builders and designers.

Design & Consultancy: Professional activities specializing in architectural design, structural engineering, circular material consulting, construction management, and timber procurement planning, streamlining the professional services required to deliver circular construction projects.

Innovation & Research: Cross-disciplinary prototyping, material R&D and experimentation.

Training & Education: Workshops, educational programs and specialized training to build the construction sector of the future.

Initiated by TM STADSAT
Herk & Red (DEMOCO Group)
BC architects & materials

Acoustical studies
D2S acoustics

Special techniques / MEP
Alpha studieburo & Out of Scope

Architects
Babini Geysen Architects
Dandelion (Building A)

EPB & Health/Safety coordination
iVEC

Technical control & third-party validation
SECO

BC architects (Buildings B&C)

Technical Design & Engineers
Structural engineering
WOW engineering & Burokiss

Public Support & Funding

European Union – FEDER / EFRO
Port of Brussels
Brussels Environment
Bouwmeester Maitre Architecte (BMA)
urban.brussels

Low-tech building physics & energy
Lars Junghans



Cofinancié par l'Union européenne
Middel gefinancierd door de Europese Unie



RÉGION DE BRUXELLES-CAPITALE
BRUSSELS HOOFDSTEDELIJK GEWEST

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