

ORGANIZATION / INITIATIVE LEAD

Concular GmbH (Berlin, Germany)

Germany's leading circular construction platform, specializing in material reuse, digital material passports, and circular building processes. It is one of the first platforms to fully digitalize the entire lifecycle of building materials, enabling traceability, reuse, and circularity at scale.

TECHNICAL SOLUTION NAME

Concular — Digital Material Passports, Circularity Audits & Construction Material Reuse Marketplace

HIGHLIGHT TITLE

Transforming buildings into material banks by connecting digital material passports, standardized audits, and a marketplace that enables construction materials to be reused at scale.

SHORT DESCRIPTION

Concular is a digital platform that enables circularity in the construction sector by helping cities, property owners, architects, and contractors identify, recover, certify, and reintroduce building materials into new projects. Through digital material passports, standardized pre-deconstruction audits, and a dedicated reuse marketplace, the platform transforms demolition and renovation projects into sources of certified low-carbon materials.

EXTENDED DESCRIPTION

The construction sector is responsible for a significant share of global resource consumption, waste generation, and embodied carbon emissions. Yet most materials removed during demolition, renovation, or retrofit projects are still discarded rather than reused.

Concular addresses this challenge by treating the existing building stock as a material bank. Through standardized pre-deconstruction audits, reusable materials are identified, documented, and assigned digital material passports. These materials are then certified and made available through Concular's marketplace for use in new construction and renovation projects.

The platform combines assessment, certification, traceability, and transaction capabilities within a single ecosystem. In addition to its digital infrastructure, Concular operates a network of Urban Mining Hubs that support the recovery, processing, and redistribution of materials.

The initiative contributes to reducing construction waste, lowering embodied carbon emissions, and creating a more circular and resilient construction sector. It also supports compliance with emerging European circular economy and building regulations.

Rather than seeing buildings as consumers of materials, Concular proposes treating cities as reservoirs of materials already in circulation.



DEMONSTRATED METRICS

- Reusing a material instead of manufacturing it from virgin resources can reduce embodied carbon by more than 95%. More than 1 million tonnes of CO₂ emissions avoided through material reuse.
- More than 15 million construction materials recovered and reintroduced into new projects.
- Material reuse can reduce material costs by around 30%.
- More than 1,000 buildings audited through standardized pre-deconstruction assessments.
- Six Urban Mining Hubs operating across Germany.
- Collaboration with major developers, architectural firms, construction companies, and public authorities.

REAL IMPACT

Concular demonstrates that material reuse can move beyond pilot projects and become a scalable market solution. **Key impacts include:**

- Every renovation project becomes a potential source of certified low-carbon materials.
- Significant reductions in construction and demolition waste.
- Reduced demand for virgin materials and associated emissions.
- Lower embodied carbon in building projects.
- Reduced material procurement and disposal costs.
- Increased transparency and traceability across the material lifecycle.
- Acceleration of circular economy practices within the built environment sector.

The platform is helping transform urban renovation and redevelopment projects into sources of certified, reusable construction materials.

IMPLEMENTATION LOCATION & DATE

Founded in Berlin in 2020.

Implemented across Germany, including projects in Berlin, Hamburg, Munich, and other cities, with expansion into additional European markets.

A flagship example is the redevelopment of Berlin Tegel Airport (TXL), one of Europe's largest urban transformation projects, where material recovery and reuse are integrated into the redevelopment process.

SIMILAR CASES IMPLEMENTED ELSEWHERE

Comparable initiatives include:

- Madaster (Netherlands)
- Rotor DC (Belgium)
- Material Mapper

Concular distinguishes itself by integrating audits, material passports, certification, logistics, and marketplace functions within a single platform.

TECH LEVEL

High Tech

COST OF THE SOLUTION

MEDIUM. The platform requires auditing, inventory management, and coordination processes, but these costs are offset through reduced disposal costs, lower material procurement expenses, and the creation of value from recovered materials.



CO-BENEFITS

Environmental

- Reduced construction and demolition waste.
- Lower extraction of virgin resources.
- Reduced embodied carbon emissions.
- Increased material circularity.

Economic

- Lower demolition and waste management costs.
- Reduced material procurement costs.
- Increased value of existing building assets.
- Reduced dependence on volatile raw material markets.

Social

- Creation of green jobs.
- Professionalization of the material reuse sector.
- Support for more affordable renovation and housing projects.

Technological

- Digitalization of material inventories.
- Enhanced traceability and transparency.
- Standardized certification and verification systems.

Governance

- Alignment with emerging European circular economy regulations.
- Replicable methodology for cities and public authorities.

Exhibition Potential

- Live demonstrations of digital material passports.
- Interactive marketplace and traceability platform.
- Physical samples of reclaimed construction materials.
- Material-flow visualizations and circularity dashboards.
- Case studies from major urban redevelopment projects such as TXL Berlin.

MITIGATION / ADAPTATION

Mitigation

MAIN CATEGORY

Primary: Infrastructure & Building**Secondary:** Governance & Economy

BASE INFORMATION SOURCES

Concular official website
Circular LCA platform
Project documentation provided by Concular
European circular construction and material passport initiatives

AN INITIATIVE OF:

SMARTCITY
EXPO WORLD CONGRESS

TOMORROW.
CITY


Fira Barcelona

