

CIRCULAR BUILDINGS IN CIRCULAR ECONOMY

**SALZBURG
WOHNBAU**
WIR BAUEN VOR

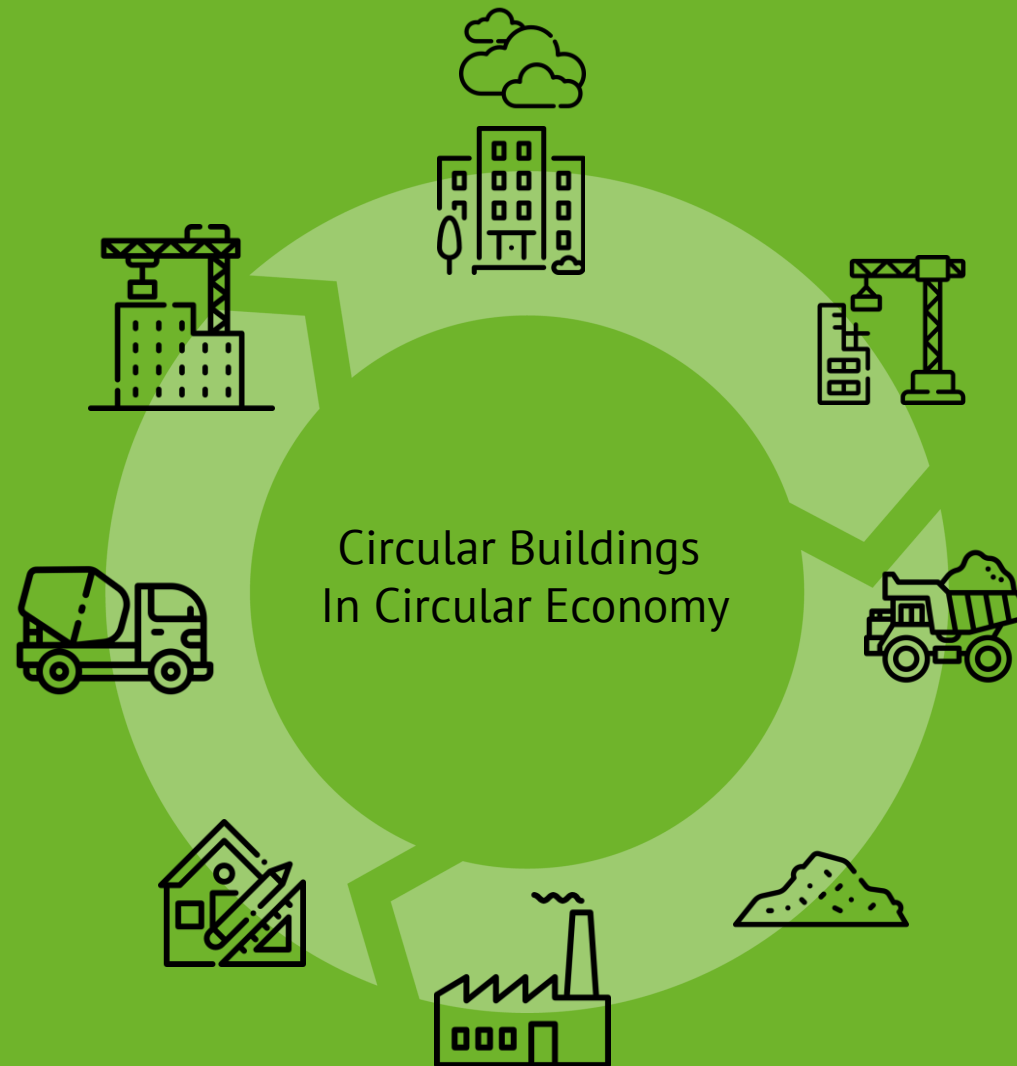


Referent Mag. Dr. Roland Wernik, MBA

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Regional Circular Low Carbon



Research Projects 2022 - 2025

CICO



Circular Concrete newly generated RC concrete from building demolition

CO₂max



CO₂ enrichment on RC concrete granulate
ETH Zürich

FutureBuilt



Norwegian low carbon research program measuring

HIVE



Hybrid Interactions in Vibrant Environments
HCI – Uni Sbg

Billy up



Upgrading Existing Property
„Bauhaus“
3D-Print application

R70



First Austrian Circular Building
70 years live cycle

REFURB



Furniture in elementary school

ORBIS



Structured demolition of thermal insulation composite systems

CIWO



Circular Wood
Secondary raw material through fermentation to humus

RPT



Rapid Building Prototyping
Digital Building Demonstration Lab

3 Research Projects

CICCO
R 70
CO₂ MAX

Research Project 1:

Circular Concrete





Schwarzach Bergstrasse 4

- Social Housing
- Old „Bundesforste Zentrale St. Johan“
- New 30 community flats 2021
- 950 Tons RC Concrete



Elementary School Anif

- Existing primary raw material
Gymnastics hall
- Wood and Concret in secondary circuit
- Walls and ceiling
- >1.200 Tons RC Concret
- Completion: autumn 2022





Primary School Wals-Siezenheim

- Sourcing of materials from different demolition sites
- >1.500 tons RC concrete
- Walls and ceiling

Research Project 2:

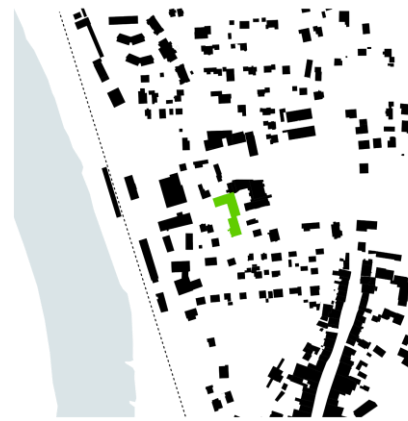
R70

The logo consists of the letters 'R' and '70' in a bold, blue, sans-serif font. The '0' is replaced by a green circular arrow icon, which is a common symbol for recycling or a circular process. The entire logo is centered on a background of a concrete floor with a faint, circular, light-colored stamp or marking.



Areal Seniorenwohnheim Golling

- Digital inventory, mapping
- Scan to BIM
- Analysis of contaminating substances
- Demolition and fragmentation according to ÖNORM

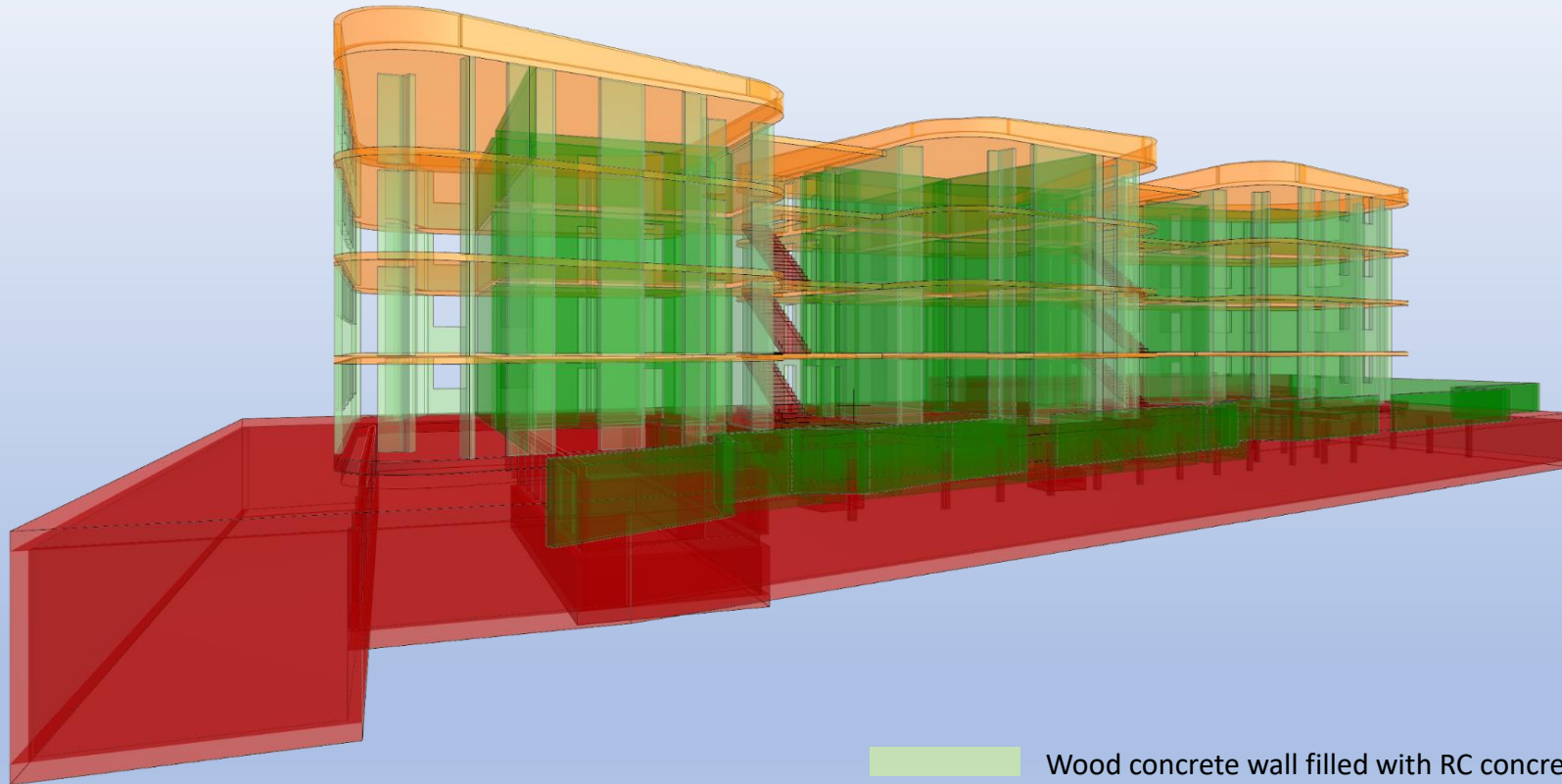




Analysis Inventory

- Point Cloud
- Digital Twin
- Big Data Analysis



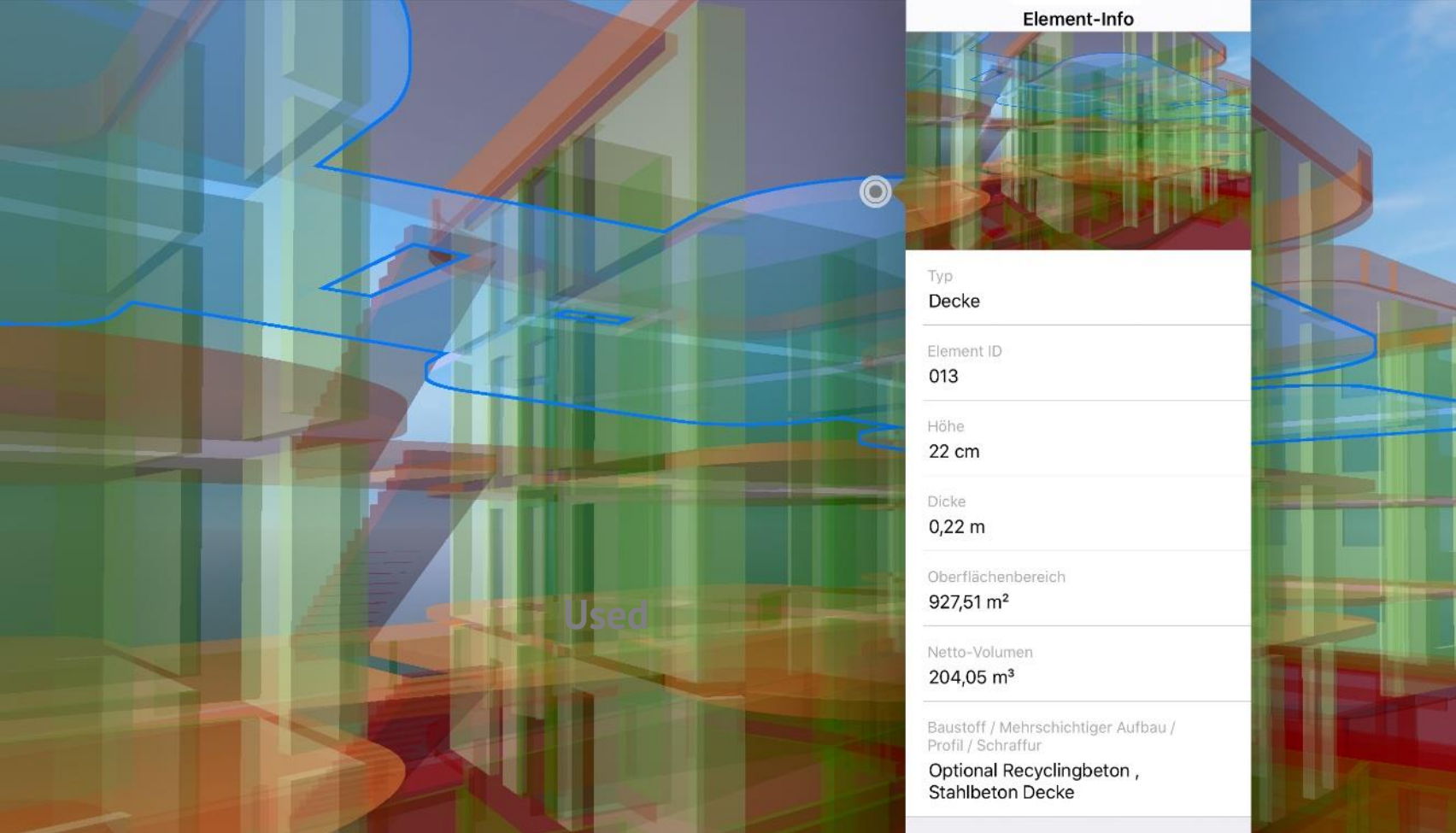


DREI GANZ
GOLLING

- Wood concrete wall filled with RC concrete
- STB – RC Concrete
- STB – Addition of RC concrete possible
- STB – without RC concrete

Digitale Analysis new building

- Comparing old stock of RC to required natural stone
- No frost resistance given



Wood cement cover with integrated concrete and wood fiber thermal insulation
Used as supporting structure

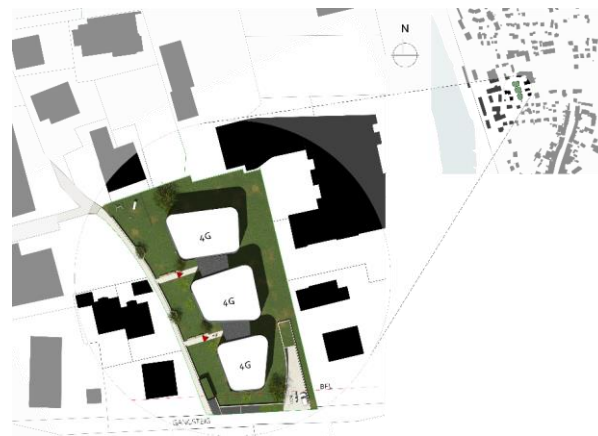


Analysis New Building R79 Mass Evaluation

- Total amount: 12.000 tons
- More than 9000 tons in circulation consisting of wood, glass, concrete, wood concrete wall incl. thermal insulation



DREI GANG
GOLLING



Drei Gang Golling

- Rented or privately owned properties
- First utilization of recycled and conditioned material with CO₂ max, more than 900 tons
- Start Q4 2022
- Architect: Art field

Mandatory Return Policy after 70 years

Research Project 3:

CO₂max

CO₂max

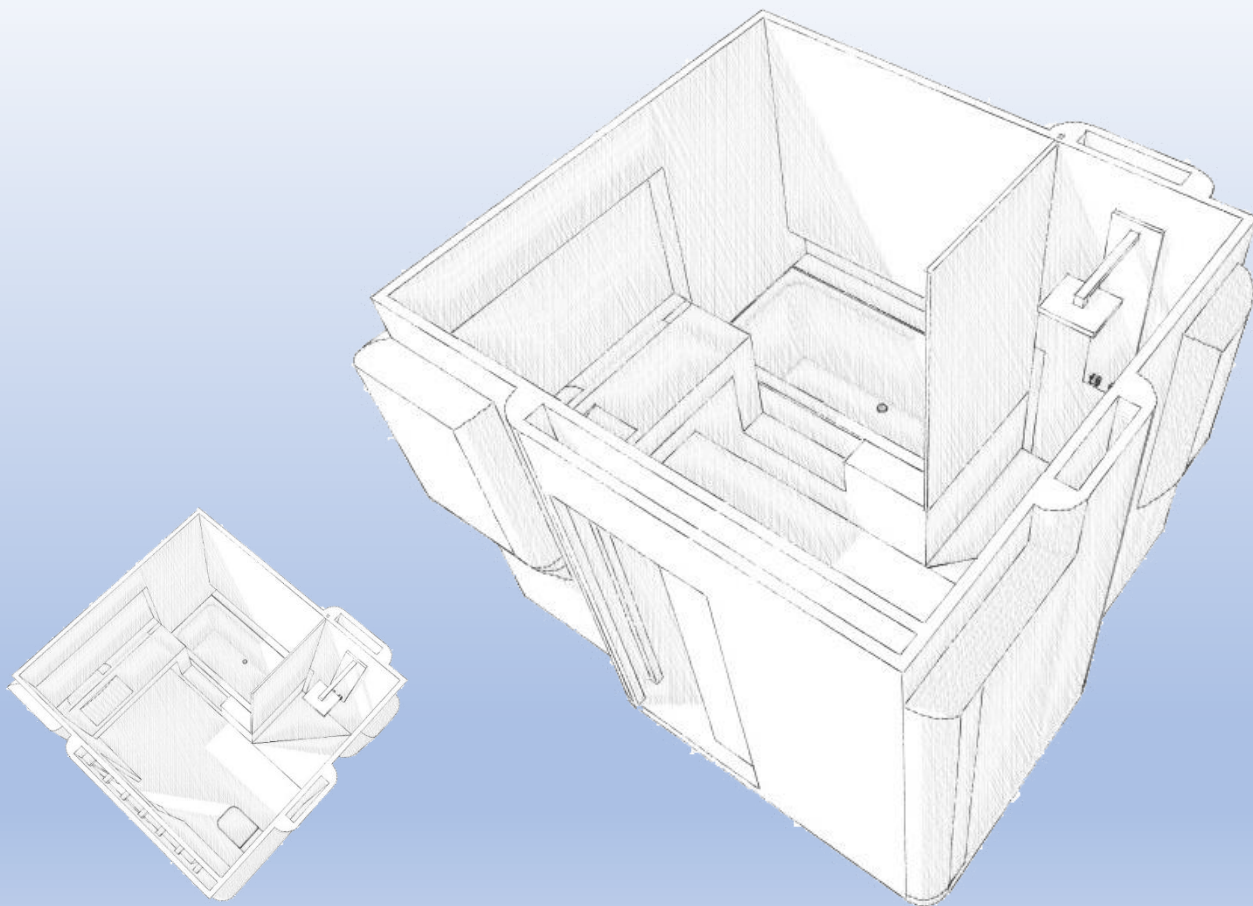


Mobile Plant Neustark AG

- Collaboration with Neustark - Spin off ETH Zürich
- CO₂ fixing in regional field study
- Outcome : more than 900 Tons fixed CO₂ limestone
- Optimized Recyclat prepared for Drei GanG Golling

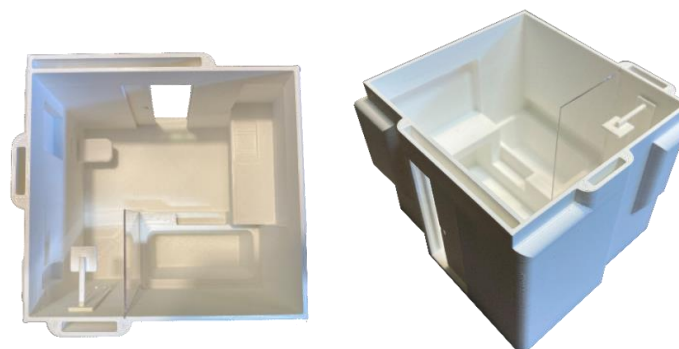
3 D Concrete Printing

3D Additive Manufacturing




Rapid Prototyping

- Additive computer Manufacturing
- More than 50% of material saving
- Optimized space using
- Manufactured in house
- 22 bath modules with bathtub and washstand





Collaboration with
Universities

 **Bundesministerium**
Klimaschutz, Umwelt,
Energie, Mobilität,
Innovation und Technologie



in public
partnership



Kooperationen
mit Forschungs-
partnern



FutureBuilt
Tiqu

Circular economy : We have everything we need