

2nd edition, May 2021

## Upcycling – Reuse and Repurposing as a Design Principle

Daniel Stockhammer (ed.)  
**Upcycling.**  
**Reuse and Repurposing as a  
Design Principle in Architecture**

Book design: Annett Höland  
2nd edition, German/English, 220 pages, 16 × 21 cm  
ca. 230 images, Swiss brochure

Euro (D) 39.– / Euro (A) 40.– / SFr. 39.–

ISBN 978-3-03863-046-3

**With contributions by:** Alberto Alessi, Barbara Buser, Jürg Conzett, Elisabteh Crettaz-Stürzel, Anja Diener, Philipp Entner, Hanna Kuzniatsova, Silke Langenberg, Hans Rudolf Meier, Lisa Ochsenbein, Johannes Rederer, Nicholas Ransome, Fetanete Rashiti und Daniel Stockhammer.

→ 2nd edition printed on 100 % recycled paper, cover:  
**Gmund Bio Cycle made from fast growing fibres and  
green waste.**

→ 2nd edition printed on 100 % recycled paper, cover:  
**Gmund Bio Cycle made from fast growing fibres and  
green waste.**

**For a paradigm shift in architecture: recycling instead of  
new production**

Exploitation and destruction of the environment call for an inevitable paradigm shift as regards our resource consumption: “innovative” building will have to break away from the dogma of new build. We need to reconsider the existing building stock as a wealth of resources and ideas, just as we should understand recycling and upcycling building stock as architectonic potential.

New approaches in architecture reveal a trend towards concepts of the frequently used but theoretically and historically rarely defined term upcycling. In that context, one often forgets that the history of building has also always been a history of, firstly, recycled and upcycled building materials and components, and secondly, of building knowledge and building styles.

Comprehending buildings as a part of a social change process poses a challenge to our current habits and modern concept of unambiguity, seclusion and authorship of architecture.

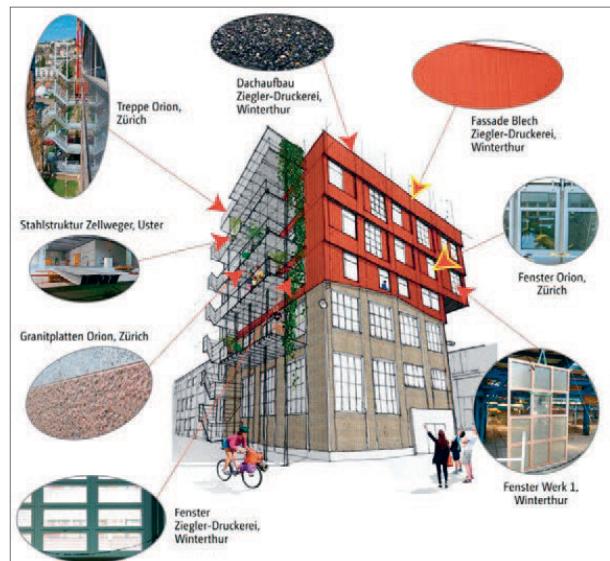
This publication explores the potential of historical concepts of upcycling – the qualitative recycling of buildings and building components – and confronts them with new developments in architectural and building practice.

Importantly, the authors look into the question of whether and how new solutions could be found for future architecture. “Recycling and upcycling” should not be a matter of idealism, but rather present an argument for economy and the quality of structure and design.

## About the editor

**Daniel Stockhammer** has earned diplomas from schools of architecture in Vienna, Zurich and Winterthur. After completing his studies in master classes headed by Wolf D. Prix and Zaha Hadid (University of Applied Arts Vienna), he worked for Jacques Herzog and Pierre de Meuron in Basel. From 2012 to 2015, he taught and gained his doctoral degree at the ETH Institute of Construction History and Preservation (IDB) under Uta Hassler (ETH Zurich) and Manfred Schuller (TU Munich) and worked as a docent at St. Gallen School of Architecture.

He is assistant professor at the Institute of Architecture and Planning, University of Liechtenstein and heads the design studio „Upcycling“ with Cornelia Faisst.



7



8

- 7 Old windows from renovations / Alte Fenster aus Renovierungsarbeiten
- 8 Old windows without frames / Alte Fenster ohne Rahmen
- 9 Upcycle Studios, Copenhagen, 2015–2019 by Lendager Group, window facade / Upcycle Studios, Kopenhagen, 2015–2019, Lendager Group, Fensterfassade
- 10 Upcycle Studios, Copenhagen, 2015–2019 by Lendager Group, exterior view / Upcycle Studios, Kopenhagen, 2015–2019, Lendager Group, Außenansicht

Dieses Wissen ermöglicht es uns, übliche Abrissprozesse abzukürzen und auf einen intelligenteren Rückbau hinzuarbeiten, der nicht nur den Abfall zu einem Fundus potenzieller Ressourcen macht, sondern inspirierende neue architektonische und ästhetische Potenziale schafft, bei denen die verfügbaren Materialien selbst das Design bestimmen. In einer Zeit mit wachsenden Aufgaben im Bereich der Stadtsanierungen ist die potenzielle Menge an Material enorm – und Fachwissen ist eine Voraussetzung, um diese Ressourcen zu erschliessen.

### Beispiele

Die Upcycle Studios, ein Reihenhausprojekt in Kopenhagen, kombinieren die beiden oben skizzierten Ansätze. Wir haben uns schon früh dafür entschieden, riesige Fensterfassaden aus einem Patchwork aus doppelverglasten Altbaufenstern herzustellen, um eine CO<sub>2</sub>-Einsparung von bis zu 96 % im Vergleich zur Verwendung von neuem Glas zu erreichen. So waren wir aufgefordert, geeignete Materialien zu beschaffen und eine praktikable technische Lösung für die Realisation zu entwickeln. (Abb. 7, 8)

Im Zuge der Projektentwicklung ist es uns zudem gelungen, grosse Mengen an hochwertigen Reststücken aus Massivholz, welche wir als Bodenbelag verwenden, sowie 1400 Tonnen Betonabfälle aus der Kopenhagener Metro zu beschaffen. Mit Letzterem konnten wir handelsüblichen Beton durch einen lokal produzierten Beton mit recyceltem Zuschlag ersetzen, was zu einer CO<sub>2</sub>-Einsparung von 12 % bis 15 % führte. Abgesehen von Wasser das am meisten



9

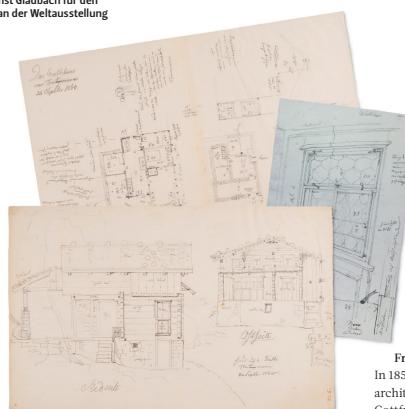
10

7 Formation of a (new) traditional building style. Visual presentation by Ernst Gladbach for his architecture lessons: 'Motifs as they occur in the Canton of Zurich combined in one example' / Formierung eines (neuen) traditionellen Baustils. Anschauungstafel von Ernst Gladbach für seinen Architekturunterricht: «Motive wie sie im Kanton Zürich vorkommen an einem Beispiel vereinigt»



7

8 Idealized design for 'Maisons en bois blindé de l'Oberland Bernois' by Ernst Gladbach for the Swiss architectural contribution to the 1878 World Exhibition in Paris / Idealentwurf «Maisons en bois blindé de l'Oberland Bernois» von Ernst Gladbach für den Schweizer Architekturbetrag an der Weltausstellung in Paris 1878



9

9 Survey drawings of buildings on the Rütli by Ernst Gladbach; 'Truttmann's Grütl House 1860' / Bauaufnahmen auf dem Rütli von Ernst Gladbach «Das Grütlhaus von Truttmann 1860»



8

From a collection of motifs to the architect's type case In 1857 Ernst Gladbach was appointed to the second chair in the architecture department of the Polytechnic in Zurich, alongside Gottfried Semper. To be able to produce suitable teaching materials for his lessons on building construction, he went on study trips in which he sought out and documented suitable case studies and sample motifs for his students. He soon devoted all his attention to building designs and style motifs from Switzerland. [fig. 3] With a penchant for Swiss woodwork, he began to copy, document, and sort building parts, constructions, and design features, and to publish these outside of his teaching duties. [fig. 4-6] In addition to his most important publications<sup>12</sup> Gladbach left behind well over one thousand sketches, drawings, and plans of traditional Swiss wooden buildings, most of which no longer exist today. His drawn collection of building parts and motifs, which he began to organize thematically, soon became a private type case, a kit of parts for his own designs: idealized designs, meant to convey a specific regional building style in his lessons [fig. 7], or fictive designs intended to represent Swiss architecture, such as his illustrative panels for the Swiss contribution to the World Expositions in Paris 1878<sup>13</sup>. [fig. 8]

78

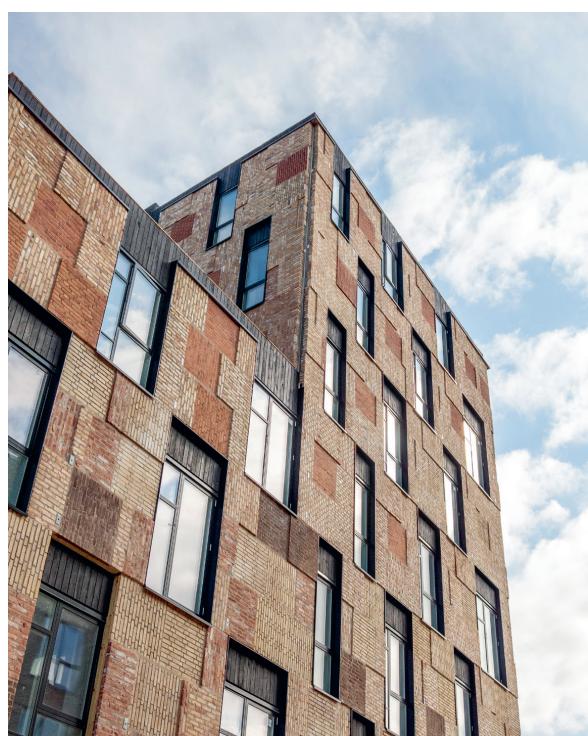
79

13 The Resource Rows, Copenhagen, 2015–2019 by Lendager Group, facade detail / Resource Rows, Copenhagen, 2015–2019, Lendager Group, Fassadendetail



13

14 The Resource Rows, Copenhagen, 2015–2019 by Lendager Group, brick patterns / Resource Rows, Copenhagen, 2015–2019, Lendager Group, Ziegelmuster



14