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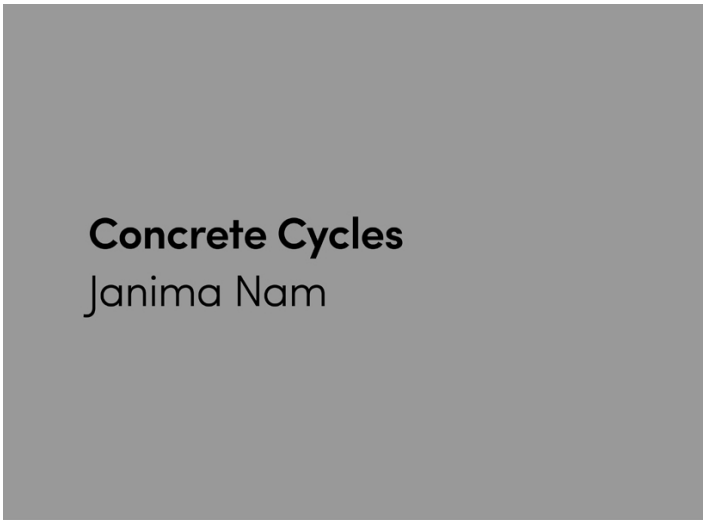

CONCRETE CYCLES

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One of the videos shown as part of an installation for the *Cycles* exhibition at the 2022 Lisbon Architecture Triennale is somehow both compelling and awkward to watch at the same time. In contrast to the often fast-paced, violent spectacle of watching a building being demolished by a wrecking ball, here, the building is being slowly, painstakingly 'disassembled'. With the help of a power crane, heavy concrete slabs are gingerly picked up by enormous tongs, reminiscent of the carnival game where one tries to capture a chosen toy using mechanical claws.

Like in the game, the key is care and patience: the items being handled must not be dropped or damaged. When a building becomes obsolete, its demise is not often associated with delicate handling. More often, it is knocked down, crushed, pulverized, or even blown up and reduced to a pile of rubble in a matter of minutes. This pile is then removed and discarded to make way for new construction.

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Some 30–40% of all the Earth's waste is produced by the building industry, a fact that has plunged the sector into an existential crisis, which is being explored in the 6th Lisbon Architecture Triennale whose theme and title, *Terra*, focuses on circular economy strategies and concepts in architecture. The Triennale is divided into four main exhibitions plus independent projects. The *Cycles* exhibition, curated by Pamela Prado and Pedro Ignacio Alonso, addresses the question of reconsidering architecture's approach to material.

"Considering the problems we're facing today regarding sustainability, architectural design should extend beyond the design of a given form of a building towards talking a bit more about the design of the full cycles and flows of the materials themselves," Alonso outlined at the Triennale opening.

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Indeed, the exhibition abounds with building materials derived from every imaginable phase and facet of architecture: thatched walls, algae plaster, rammed earth, Lisbon façade tiles, a massive pile of cork previously used as insulation.

Arguably, the most important material to address is not necessarily the most glamorous or exotic, rather the most fundamental, literally: concrete. As the most widely used building material, concrete is second only to water in terms of its usage as a substance in general – a reminder of the essential role of the built environment in civilization at large. At the same time, concrete production is responsible for 8% of the planet's carbon emissions, a conundrum that cannot be overlooked or underestimated.

The disassembly video is part of an installation contributed by ReCreate, an ongoing project funded by the EU Horizon 2020 program. Although there are many projects aimed at recycling concrete in innovative ways, ranging from green concrete produced from leftover steel production slag to crushing concrete debris into aggregate for use in mixing new concrete, ReCreate is about recovering existing concrete elements from buildings that are being taken down and reusing them to make new buildings.

Like the physical act of cautiously salvaging concrete elements depicted in the video, ReCreate's overall mission requires care, patience and steadfast resolve. In addition to the videos, the installation features core samples from pilot project buildings – highlighting the crucial process of testing and matching concrete strengths to their respective destinations, a billowing, fan-like chain of documents and blueprints illustrating the historical timeline of prefabricated concrete elements, and a circular table that offers a practical demonstration of the cyclical phases of the concrete element reuse loop, from deconstruction to reconditioning to reuse.

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Despite the well-laid-out, informative components of the installation, the project in reality is daunting in its complexity and scope. The mission is not only physically challenging, it deals with changing hearts, minds and perspectives as well – beginning with the architects themselves. While investigating and developing this approach over the past 15 years, Satu Huuhka, head of the ReCreate project and adjunct professor at the Faculty of Built Environment at Tampere University in Finland, has heard "every counterargument" out there from the architectural community, which she feels has slowly come around to the shift in mentality required to embrace circular models in the industry.

"It's always easy to make something new, because you can decide everything," she reflected. "As an

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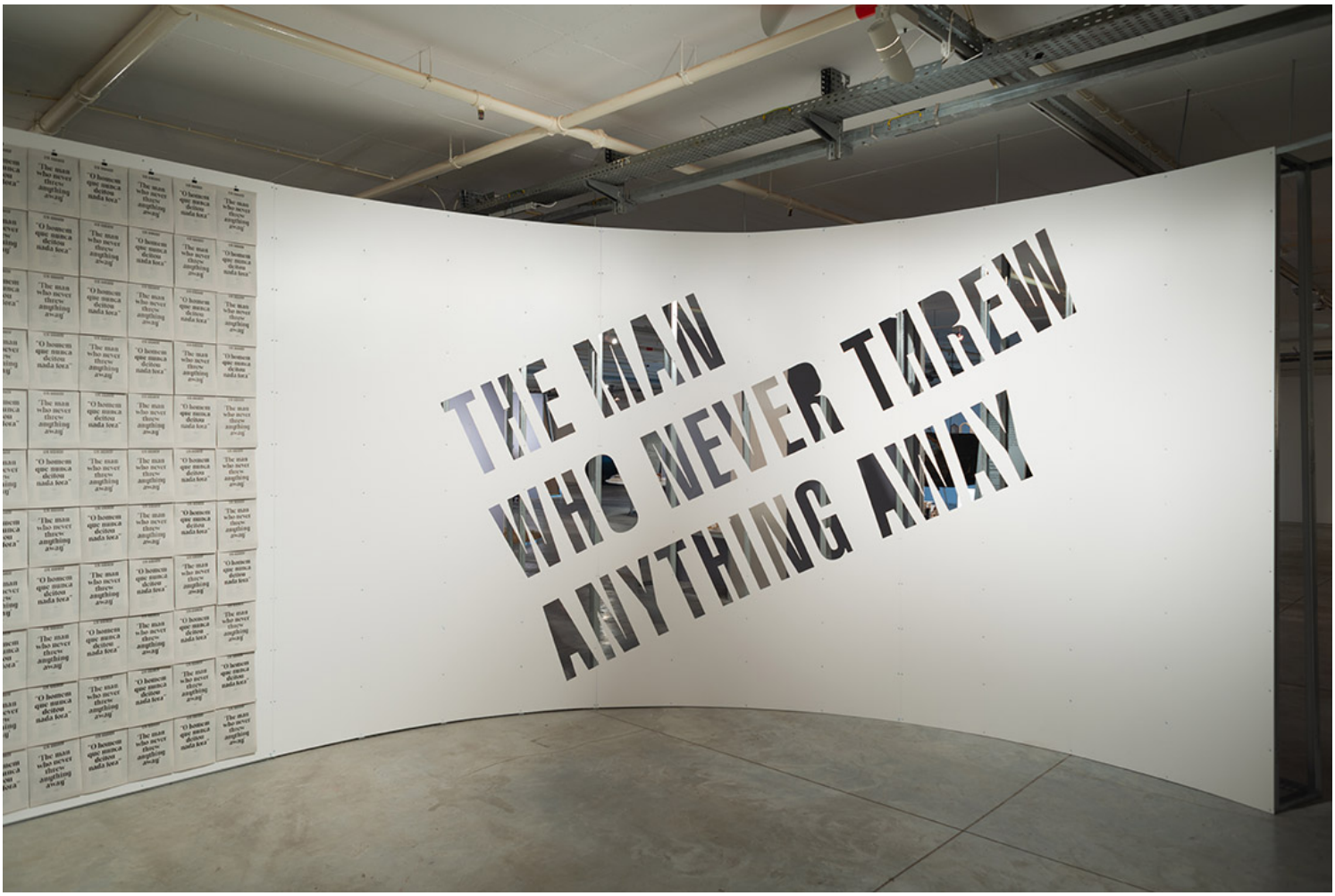
architect, you have to let go of some of that 'power' of creating everything from scratch. But actually, it's from such restrictions and learning to work with them that real creativity emerges."

Indeed, counterintuitivity not only lies behind ReCreate's objective, and that of the entire exhibition and Triennale, it is the key to the entire philosophy of the circular economy itself.

Among all the models, diagrams and materials to peruse in the *Cycles* exhibition, it ultimately begins and ends (and begins again) with the 1977 short story by the Russian author Ilya Kabakov that inspired it, "The Man Who Never Threw Anything Away," about the discovery of a plumber's apartment in which he has carefully and meticulously stored and classified various forms of "trash" in an attempt to extract meaning from our collective existence.



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The story ends with an observation about a building across the street from the apartment that has been “under construction” for the past 18 years, bringing us back full circle to that curious ReCreate disassembly video:

“Looking at it, it is difficult to understand whether is being built or torn down. It may be both at the same time.”

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