

Structural Design for Delayed Obsolescence

lecture by Prof. Corentin Fivet
Structural Xploration Lab (EPFL, Switzerland)

Friday October 4 2019 - 11h-12h
Seminar Room - department Architectural Engineering - VUB

Despite recent efforts, the environmental footprint of the construction industry remains an urgent concern and new means must be found to lessen energy demands, carbon emissions, and waste generation. Simultaneously, urban densification and everchanging functional requirements too often lead to the premature demolition of load-bearing systems. Designers' efforts to remediate those issues traditionally consist in minimizing material quantities and using low-impact materials. A third strategy is currently being (re-)introduced: the reuse of structural components over multiple service lives and in other systems, in order to delay their obsolescence and ultimate down-cycling. Still in its infancy, this circular economy strategy disrupts the design practice in many ways. Research activities at the Structural Xploration Lab, EPFL, are addressing this shift of paradigms. Focusing on load-bearing system find answers to the following questions: How to synthesize a new structural system from given component stocks? How versatile can a building skeleton be? How to measure the environmental impacts of reuse strategies? How to best reclaim high-tech material such as sport equipment, for new structural applications? What can we learn from past precedents of component reuse in architecture? After stressing the need for the development of a circular economy in the construction industry, this talk will review recent research answers developed at the Structural Xploration Lab.



Corentin is Tenure Track Assistant Professor of Architecture and Structural Design in the School of Architecture, Civil and Environmental Engineering (ENAC) at EPFL. He is heading the Structural Xploration Lab (SXL) since its inception in July 2016. Prior to 2016, Corentin worked for two years at the Massachusetts Institute of Technology, first as a post-doctoral fellow in the Department of Architecture and then as a lecturer in the Department of Civil and Environmental Engineering. Corentin holds a master in Architectural Engineering and a PhD in Engineering Sciences from the UCLouvain, Louvain-la-Neuve, Belgium. Corentin's research and teaching are driven by the need for more environmentally responsible building systems. Bridging the gap between architecture and structural engineering, his work explores more sustainable implementations of load-bearing materials, new computational design methods for resource-efficient structural typologies, and historical exemplary practices of structural design.



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