



Lebbeus Woods, Excerpt from *Metastructure* (from *Bosnia Free Zone*, 1993)

DISASTER MACHINES: *An architecture of necessity*

Cornell University, Department of Architecture Spring 2021 Option Studio, Tues & Thurs 8:30am-1:25pm, Peter Ballman, Visiting Critic

This studio will explore the relationship between architecture, technology, construction and environment through the design of infrastructure. Any work of architecture, regardless of scale or complexity, is an aggregate of technologies invented to satisfy needs and necessities inherent to human occupation of an environment. Construction is the act of assembling these technologies sequentially and simultaneously, with varying degrees of integration. Technologies for construction and for inhabitation are kinetic, performative and adaptive. How we identify our needs – spatial, social and environmental – and how we execute and integrate these technological processes is critical as we create new architectures to adapt to new ways to live.

This studio will look at disasters – environmental, urban and sociocultural – as a way to understand the needs of inhabitation in extreme cases. Each student will identify a disaster (present day or historical) and will respond to it architecturally by inventing a machine that engages it, whether through avoidance, mitigation, management or recovery. Students will identify a problem, develop a hypothesis, define the spatial, structural, and technological systems that frame and facilitate a solution, and define the means, methods and procedures to realize it. The logic whereby each student defines and solves their problem, and the manner in which they articulate and integrate technologies, will be the critical discourse of the class.

The course will include Tafel Lectures and Workshops that will investigate specific technological processes used in design and construction, such as structure, enclosure, kinetics systems, environmental systems, acoustics, rigging, and construction coordination, to show how various technologies and methods are implemented in all aspects of building. Speakers will include project leaders from some or all of the following: Cimolai, Thornton Tomasetti, Vector Foiltec, TAIT Towers, Transsolar, Budco, and Sciam Construction. Speakers will provide firsthand professional experience and information to help facilitate a high level of technical development in student work.