Spatial Regimes

Typological Transformations towards Post-Oil Environments

Author: Oswald Jenewein

Supervisor: Prof. Gabriela Seifert-Kavan

Keywords: Climate Adaptation, Geopolitical Territories, Coastal Landscapes

ABSTRACT: This dissertation utilizes the Texas Coast as a geopolitical territory to demonstrate how the burning of fossil fuels has evolved into a spatial regime demanding transformations of the natural and built environment. It proposes a typological approach to develop climate adaptation strategies generating Post-Oil Environments.

Anthropogenic climate change puts the natural, cultural, and built environment at risk. While climate adaptation of the built environment clearly is an interdisciplinary task, architecture needs to define a disciplinary response to remain relevant in the most pressing discourse of the century. This dissertation proposes a typological approach to climate adaptation, investigating the sectional relationship between object and datum, or building and ground, or city and landscape. As rising seas have started to redraw the edges of the continents, the relationship between water and land has become increasingly more fluid. As Aldo Rossi describes the study of type as the core of the architectural discipline, it seems obvious that a question as fundamental as architecture's response to climate change needs to be addressed from its very core: the type.

To articulate a disciplinary response, this work outlines the historical process of how the burning of fossil fuels has contributed to both accelerating environmental change and (re)forming the morphology of cities. Described as a spatial regime, the logistical landscapes of oil within and around cities are showcased to highlight the often invisible processes that fueled the twentieth-century city: exploring, producing, refining, distributing, and burning fossil fuels. The Texas Coast and its petrochemical corridors serve as a case-study to demonstrate how this spatial regime (re)shaped the coastal landscape. As a particular urban typology, many of Texas' coastal cities are now facing both environmental and industrial hazards that have been a premise and outcome of climate change.

This dissertation proposes twelve types aiming to address some of the most immediate climate change impacts. These types could be applied to both the architectural object or building scale and the infrastructural or urban scale. These typological studies are shown in a series of drawings, diagrams, and images showcasing the relationship between water, land, and architecture. The work concludes by outlining how the post-oil future of the Texas Coast could look like based on a typological approach.