

Emergence: Form Finding In Nonlinear Architecture

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Abstract- After the popularity of modern architecture during the early 20th century, a series of new 'isms' desire to break the monopoly of modern architecture. However, they lack enough viability and cannot replace modernism thoroughly because of limited innovations based on modern architecture. In the 21th century, with the development of science and technology, we have already entered into the digital and information age. People desire to know the complex society and natural world better than ever before.

With the help of new digital technology, scientists are focusing on nonlinear science to explain and understand complex nature and human society rather than linear classical science that cannot answer complicated questions. Inspired by new scientific theory, many experimental architects have already begun to study how to transfer nonlinear theory into architecture, to explore a new building and urban design methodology with the assistance from digital techniques. One innovative, smart, and dynamic form-finding process needs to be made to figure out intricate and chaotic design issues. Designers need not intuitively make a building form-rather a new design process requires designers to use new rules to judge and choose. This new process redefines architectural design; the opportunity and potential for architecture is huge.

This essay asks: ***Is nonlinear architecture intelligent and smart enough to design a building for current age?*** It focuses on the following essence of nonlinear architecture: the dynamic form-finding process. Through theoretical and critical analysis of design process, case studies, and experimental simulations to test this process. We can effectively understand nonlinear architecture: its advantages as well as disadvantages.

The structure of investigation is bottom-up; through studying three dynamic systems to emerge more general design questions and other issues, then trying to propose a workflow of form finding process, argue the benefits and deficiencies in nonlinear architecture, and the roles architects play in it.