



The Structure of Architecture

Role of the “New” Computational Designer

With specific reference to Structure, as the underlying organization of tectonic form, pattern, space and ultimately Architecture, Daniel Bosia will discuss the role of the contemporary Computational Designer in the dialogue between architects and engineers, but also clients and fabricators.

The presentation will consist of a brief journey through a selection of projects of the last 15 years that illustrates the evolution of this “quasi-discipline”. From early algorithmic work, to parametric optimization, to real-time form-finding and design, Daniel will show how technical disciplines have become more and more engrained within the design process, not just in academic experimentations and speculations but within applied, market changing projects.

Through collaborations with of signature architects and artists, Daniel will demonstrate how the rigorous application of a process-based approach to research and design, have provoked discussion, deep collaboration and freed creative experimentation and expression. With projects which have become iconic, Daniel will illustrate the research, process and development of tools that have enabled their conception through to final realization.

The presentation will include examples of work carried out in Academia, which demonstrate the necessary deep link between research and application, practice and

education. The importance of small prototypical projects will be discussed in relation to larger projects, as these have served as test-beds for material experimentation, development of tools and technologies on structures of a larger scale.

In recent years, the development of realtime multi-parametric tools at AKT, has enabled Daniel's team to engage with aspects of environmental form-finding. The simulation of wind and sun effects around building has been built into the toolkit of the Computational Designer and tested against real examples with the same rigorous "first-principles" approach that AKT have towards structural design.

Daniel Bosia

Director at AKT II and head of the specialist team P.art®, is a qualified structural engineer with an MSc in Structural and Bridge Engineering and a Master Degree in Architecture. He is an expert in computational and structural design with extensive knowledge in programming, form finding and non-linear analysis.

Formerly head of the AGU (Advanced Geometry Unit) at Arup, Daniel has over 17 years experience of working on complex, high-profile multidisciplinary projects including buildings, foot-bridges and large scale art installations. He has worked with signature architects like Foster and Partners, Zaha Hadid, Daniel Libeskind, Toyo Ito and Enric Miralles as well as emerging practices like BIG, Acme, LAVA and Aranda/Lasch. He has also collaborated with artists like Anish Kapoor, Thomas Heatherwick, Matthew Ritchie and Richard Wilson. Daniel is currently working on the Bloomberg Headquarters in London, the Rabat Theatre in Morocco and the Central Bank of Iraq in Bagdad, Gardermoen Airport and the Palais des Arts in Gabon, which will host the 2014 African Summit.

He teaches a Diploma Unit at the Architectural Association in London and is Honorary Professor at the Department of Architecture and Media Technology in Aalborg. He has lectured at architectural and engineering schools in the US and Europe including UPenn, IIT, Columbia, Princeton and the Batlett.