

Virtual Design vs. Matter Reality

Since Leon Battista Alberti, architecture has always been an intellectual practice, in which architect only works on the virtual level through certain media, and later instructs the construction on the material level by the notational system of drawing set. Today, the cutting-edge development of virtual 3D technology has been liberating architect from the limitations of design media. Architect becomes able to construct space in a fully 3-dimensional virtual space, and the design result could be translated directly to machine to be realized without any layers in between. With the advanced digital fabrication technology, although virtual design and matter realization have been connected seamlessly, and the virtual paradigm of design has been completely overwhelmed, the virtual and the material are still being interpreted as two separated world in architecture.

With the development of contemporary nature science and philosophy, actually our understanding about virtual and material has been enormously broadened. Virtual wouldn't represent merely the imaginary or symbolic world anymore, and matter wouldn't be considered as purely passive and inert existence. Actually, the physical world itself, which consists of matters, contains a kind of virtuality. This virtuality not only presents the topological space of possibilities in which our world evolves, but also defines the internal mechanism of the evolution. To some extent, there's no boundary at all between the virtual and the material world.

Therefore, in architecture, the building material could be considered as having a virtual agent too. This agent would drive the material to find its best energy state in any given situation, in order to achieve a dynamic equilibrium in thermal, structural, or even human behavioral aspect. And in this searching process, architect's task would become using tools to visualize the agents and to utilize them to explore the formal possibilities of architecture.

In this context, both the authority of architect and the tradition of design have been highly challenged. Questions like "what architectural form represents", "what architectural tectonic should be" and even "what architectural autonomy means", should be reconsidered and answered carefully. Confronting the turning point, this lecture tends to devoted to the critical discussion and interpretation on these questions. And in doing so, it seeks to establish a novel relation between the virtual design and the matter realization.

虚拟设计 vs. 物质实现

自阿尔伯特（Leon Battista Alberti）开始，建筑师的工作便一直是通过特定的媒介在虚拟层面进行空间的构建，并通过图纸集（drawing set）对在场的物质建造进行指导。当代，不断发展的虚拟三维技术让建筑师得以摆脱媒介的束缚直接在虚拟空间中进行空间操作，并通过由数字到机器的转译直接进行物质实现。虽然数字加工技术的发展使得虚拟设计与物质建造之间的连接越来越紧密，阿尔伯特范式下建筑师的非物质工作模式也逐渐被打破，但是在建筑学中虚拟与物质仍被视为相互对立与隔离的两个世界。

事实上，当代科学技术与哲学思辨的发展使得我们对于虚拟与物质的认知越发宽泛。虚拟不再仅仅代表主体想象中或是象征意义中的世界，物质也不再仅仅被认为是消极的和静态的存在。由物质所承载物理世界本身便被认为存在着一种虚拟性。这种虚拟既包涵着物理世界向前演进的无数可能性，又在定义着这种演进过程中的内在规律。在某种层面上，物质本身便是虚拟的，虚拟与物质之间并没有明晰的界限。

因此，在建筑学中，我们可以认为构成建筑的物质材料具有某种虚拟的智能。这种智能可以驱动物质自身搜索在特定环境中的最佳能量状态，以达到一种或热工层面、或结构层面、亦或人体行为层面的动态平衡。这一过程中，建筑师的任务则是通过特定的工具与媒介将物质的虚拟性进行视觉呈现，并加以利用来探索建筑形式的可能性。

在这一背景下，无论是建筑师的主体性还是对建筑设计的传统定义都受到了巨大的挑战。何为建筑形式的意义、何为物质建构、甚至何为建筑设计的自治性等问题都需要被重新解答。而本次课程正是试图在这一转折点中对当代建筑学的发展进行解读与批判性思考，以在建筑学中建构一种虚拟与物质之间的全新关系。