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A4002: Core II Architecture Studio

Columbia University GSAPP

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The Infrastructural Building



Toyo Ito
The New Deichman Main Library in Oslo, Norway (2008)



Sou Fujimoto
N/A House in Tokyo, Japan (2010)

This studio defines *the infrastructural building* as a three-dimensional organization that is capable of realistically housing a set of human activities and yet is not tied to any particular programmatic package. In other words, it is a material structure that transcends any specificity of form to program while retaining a fundamental architecturalness.

The library happens to be one of the most flexible programmatic packages. Countless of different spatial typologies have proven suitable to holding a library. As a result, it lends itself to be explored through the notion of *the infrastructural building*—one that rejects any identity between spatial typology and program—in especially productive ways. Moreover, this notion taps into the increasing necessity for buildings to accommodate change over time, while resisting any compromise on architectural qualities in the name of “flexibility.” Our premise will be that, in further delineating *the infrastructural building*, the six propositions below underpin a design framework that facilitates historically significant contributions in the domain of architectural thinking:

1. Form-Program. This species of building embodies the concept of *form-program*, i.e. a construct where the two categories are synthesized. In such a construct, “program” is not construed as form’s *a posteriori* infill, but as form’s inherent content. “Form” becomes a programmatically inflected three-dimensional configuration, rather than the outcome of merely morphological operations.

2. Curated Equilibrium between Order and Differentiation: Toward Three-Dimensional Field Conditions. *The infrastructural building* hinges on a deliberate equilibrium between order—whether apparent or underlying—and differentiation. It operates at the edge of control: it materializes a lawful pattern or set of decisions capable of catalyzing chance, variations, and obstacles by means of local adjustments. It's coherent and yet diverse; consistent and yet nuanced. In a sense, it pursues the three-dimensionalization of Stan Allen's *field conditions*.

3. Beyond Separation between Floors. In-depth research into the building's internal organization will be pursued largely as a means to free it from its pervasive identification with uniformly stratified space. Rather than some version of a vertical pile of slabs, we will consider three-dimensional infrastructures capable of overcoming the separation between levels through an array of distinct configurational properties. These infrastructures will bring about alternative ways of organizing the various knowledge formats within the library as well as novel relationships with the itineraries around them.

4. Structure as Spatial Medium. *The infrastructural building* capitalizes on the subversive disciplinarity of the architecture-engineering hybrid—a design domain whose basis lies at the intersection of both disciplines. This approach channels a double understanding of the notion of structure, both in the conventional sense of the building's physical support and in that of the organizational properties of form. It is one enabling us to abstract properties away from the former and turn them into a generative spatial code in the latter. As a result, a shift can be effected from structure as a series of neutral elements, unrelated to the conception of the building, to structure as a spatial medium coextensive with it.

5. Distinctive Spatial Qualities. Just like its bi-dimensional counterparts, the “free plan” and the “free section,” the “free infrastructure” proposed here allows for multiple distributions within it, partitions and structure being independent. At the same time, however, since such an infrastructure is envisaged as a spatial medium, it materializes a specific configuration and therefore, far from being neutral, introduces a number of distinctive spatial qualities. Among other things, this kind of infrastructure calls into question the idea of having “rooms” within it; offers new possibilities to tap into the historical importance of ceilings (and related openings) in libraries; and helps transcend the garden model by incorporating outdoor spaces as part of the *form-program* substance.

6. From Concealment to Integration of Services. Louis Kahn famously distinguished between “served” and “servant” spaces, the latter encompassing most of what mechanical engineering deals with (ducts, pipes, etc.) as well as other connective elements, such as stairs, elevators, and corridors. Rather than placing the servant spaces in the building's leftover regions—i.e. rather than subordinating them to the served spaces—*the infrastructural building* devises the two sets as largely equivalent, the hierarchy between them dissolved. Can servant spaces be turned into the very elements articulating the library and further envisioned in connection with the structure? Can services and flows be reformulated again (after Ito's fundamental breakthrough at Sendai) by becoming built into the concept of the spatial organization itself?