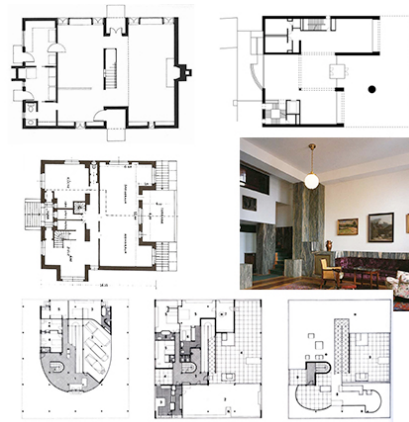


Some thoughts on spatial concepts...

Henri T. de Hahn

12.17.2017



Louis Kahn, Mario Botta
Adolf Loos
Le Corbusier

The following content was translated by Henri de Hahn from "DE LA CAVE AU TOIT," Temoignage d'un enseignement d'architecture, Pierre von Meiss, Edition: Presses Polytechnique et Universitaires Romandes, 1991.

The space of the structure where there is a rigorous coincidence between the order of the load bearing structure and the spatial form (i.e., the classical architecture, E. Viollet-Le-Duc, A. Perret, L. Kahn, M. Botta).

The plan libre (free plan) where there is a separation, and even more a contrast, between the order of the load bearing structure and the spaces (i.e., Le Corbusier, L. Mies van der Rohe, T. van Doesburg, P. Chareau, R. Meier).

The Raumplan where the structure is not anymore an object of essential preoccupation. The load bearing structure gives away to other values such as hierarchy, the variations of spaces by the manipulation of the heights, the succession of the spaces that "look at each other", the space in the space, as well as the interior "ambiance" as a result of the modulation of the materials and the finishes (i.e., A. Loos, J. Frank, F.L. Wright).

Each of these strategies has its own coherence and cannot pretend to any supremacy at the end of the 20-century.

Traditional plan (plan paralysé)

- Size and form of the rooms are determined by the construction
- Size of the rooms are influenced by the thickness of the walls
- Load bearing walls must rest on the one's below
- Floor layout is generally identical to each floor
- Larger rooms are to be found in the upper floors
- Dichotomy between the spatial organization and the constructive possibilities

A radical departure in 20th century space making ushered architectural spaces to be defined by slabs, pillars and supports. Space is now enclosed within the continuum of unlimited expansion, limited and

Some thoughts on spatial concepts...

Henri T. de Hahn
12.17.2017

made perceivable by horizontal and vertical elements. Architectural space does not arise anymore as a void within the mass.

The space of the structure

By the space of the structure we understand a rigorous correlation between the order of the load bearing structure and the spatial figure; it is to the structure to define the spaces. From the Antiquity till the 19th century, this way of making spaces was a fundamental constant throughout the stylistic periods (to the exception of the Baroque). The imposed constructive dimensions of buildings through the past were the sole elements to enable coherence for the images of our cities, of our streets and of our houses, defining public spaces in such magnificent manners.

However, even in the 19th century and in the 20 century, architects such as Eugène-Emmanuel Viollet-Le-Duc, Auguste Perret, Louis Kahn and in a certain way Aldo van Eyck, respect the discipline of this correlation. They do it although the constructive constraints have changed by the modern techniques: it is more a method and an ethic that the architect imposes on his/her work. This attitude, adopted with sincerity and rigor, allows clear compositions and voided of any ambiguity. By looking over some of these works, we can reveal some characteristics inherent to this approach:

- The order and the scope of the structure that inspires itself from the program and the desire of the spaces.
- The load bearing structure is the principal element that commands the spatial form. In Kahn's logic, it would be a "crime" to divide a span by a partition. The space of the Room would be the structure.
- The space-structure allows the juxtaposition and the sequence of distinct and articulated spaces; the strategy of the project deals with the addition or the division, the sequences and the assemblages of spaces. Each one is to stay under the order of the structure.
- The space-structure cannot exist without a geometrical precision because it brings to the idea the rationality of the relationships (dimensions, repetitions and proportions). It allows order and a spatial symmetry, because the wish to express the elementary static systems (load bearing) is to create an equilibrium of those forces.
- The position and the dimensions of the openings rely intimately on the order of the structure. It is equally true when it comes to the in-fills between a structural skeletal system. (Perret, Mies van der Rohe, Kahn...)
- The rapport with the organization of the structure brings a close attention to resolve the relationship with the ground (foundations, base...), with the sky (cornice, roof...).

The plan libre (free plan)

The contemporary technologies give us the ability to exceed the demands of structure and enable us to give form to the spaces. "The destruction of the box" used intuitively by Frank Lloyd Wright, was later rationalized by Le Corbusier through the Domino House project, and represents the antithesis of the space-structure. This space questions our conventions and introduces a new spatial and constructive dimension: one of the separation of the structure and the spaces.

If everything goes well, the structure and the elements defining the space will "talk to each other" by opposition and/or contrast. (Le Corbusier, De Stijl, Chareau, Mies van der Rohe in the Barcelona pavilion and the Tugendhat house.) In terms of structure there is a contrast between the expression of the load bearing structure and the spaces. If everything goes bad, both confront each other to accommodate the space and the program in a totality that lacks any coherence. This is what happens when the architect swells and/or inflects a non load bearing wall only under the excuse of the program of functions without taking into counter the complementary spatial play between structure and non load bearing walls.

The analysis of past examples enables us to summarize some characteristics inherent in the way one works the space within the independence between structure and the spatial limits or envelope.

Some thoughts on spatial concepts...

Henri T. de Hahn
12.17.2017

- The load bearing structure is generally found as a system of columns and slabs. This system has its own constructive logic. It offers a space more or less neutral and fluid that awaits to be given definition through a variety of programs and spatial organizations. This neutrality is somehow compromised if one decides to add to the field of columns a system of beams.
- The structure in some instances concedes its spatial definition (the spatial limits) to non loading elements that can be planes or "boxes." One expresses the structure and it (the structure) can even dominate through its presence, but never is the structure the sole actor in the spatial composition.
- The space tends to be fluid. One loses the notions of "rooms" juxtaposed to the benefit of a more ambiguous interpenetrating of the spaces. The measures and the geometric precision is now left to the designer. The "plan libre" paves the road towards a more open space liberated of the structural implications. On the other side it opens the doors to the risks of arbitrariness.
- The cantilever allows in section to extend the difference between spatial limits and The forms, the positions and the dimensions of the openings can follow the programmatic constraints with more or less freedom.
- One forgets too often to mention the "dropped ceiling." Contrary to the non load bearing walls, this element offers a supplementary richness and adds to the spatial investigation (Alvar Aalto).
- This approach can question certain aspects of the role of the urban building especially when working within the urban context that is characterized by spaces-structures.

The Raumplan

One talks less often of this spatial approach. The Raumplan is difficult to characterize and appears to be "playful" to experiment by the apprentice. Where does the "honesty" of architecture lead us when the structure is not anymore an important subject of consideration?

The role of the Raumplan seems to accommodate solely a spatial ambiance. The structure is left as the utilitarian scaffolding for the elements of this ambiance.

The Raumplan gives absolute priority to the spatial interior quality. As a result, this space making offers great potential for domestic architecture. Its most important extend are the hierarchy of spaces, the thoughtful manipulation of ceiling heights, a spatial sequence that interact strongly to each other, a close attention to the used materials and to the finishing. The Raumplan is a spatial principal of organization most well expressed in the architecture of Adolf Loos and Joseph Frank. One can find precedence of this spatial organization in the architecture of the English 19 century and likewise in the first houses of Frank Lloyd Wright and perpetuates itself through several contemporary Viennese architects. By studying the works of Loos and Frank, we can give some precision in terms of the inherent characteristics of this way of working the space.

- The heights of the spaces are to be defined in accordance to definition and the destination of the spaces to create: the places of entertainment are not bedrooms; the Dining room is not the children's playroom; the main stairwell is not the one that leads us to the basement; the reading niche is not a place to dine...
- The spaces are distinctly defined, but rather than to be juxtaposed they are interrelated. Each space looks at the neighboring spaces and this not only in a horizontal relationship but furthermore in a diagonal manner as a result of a change of levels and height. The niche relates to the main space and vice versa.
- The openings are there for the view and the light; they need to abide to the constraints of the interior ambiance rather than the answer to some law of esthetic composition of the exterior facade. In the houses of Loos we are dealing with "an interior project" rather than an exterior.
- And finally, and this is essential, the materials, the finishes, the textures and the interior Color all lead to a clear spatial definition and a sense of place. In fact, the requirements of the structural solidity calls for construction materials that most often do not correspondent to the

Some thoughts on spatial concepts...

Henri T. de Hahn
12.17.2017

interior spatial intentions. The finishes are the elements that give to the space a continuous surface.

The Raumplan in a first instance does not favor any precise formal codification. On the contrary the spaces suggest rather a domestic character even if the project is not a dwelling. It is a space making that is rather difficult to suggest any clear principal of composition and syntax. The setting in place of spaces that have very specific characteristics and search for a simple volumetric result, implies simultaneously a strategy of addition and removal. The student who chooses the Raumplan as a spatial investigation does not always understand the ambiguity between the structure and the spatial organization.

Translated by Henri de Hahn from "DE LA CAVE AU TOIT," Temoignage d'un enseignement d'architecture, Pierre von Meiss, Edition: Presses Polytechnique et Universitaires Romandes, 1991.

Suggested bibliography:

Eisenman, Peter, "Aspects of Modernism: Maison Dom-ino and the Self-Referential Sign," *Oppositions: A Journal for Ideas and Criticism in Architecture*, 15/16 (1979), pp. 118-128.

Greg, Eleanor, "The Dom-ino Idea," *Oppositions: A Journal for Ideas and Criticism in Architecture*, 15/16 (1979), pp. 60-87.

Maitland, Barry, "The Grid," *Oppositions: A Journal for Ideas and Criticism in Architecture*, 15/16 (1979), pp. 90-117.

Risselada, Max and Beatriz Colomina, *Raumplan versus Plan Libre: Adolf Loos and Le Corbusier, 1919-1930*, Rizzoli, NY, 1993.