

## CONCEPT : FORM : MEDIUM

Before we engage with a specific design task we are concerned to systematically probe into the design resources that enable and limit any specific design effort. The agenda here is to critically reflect the discipline of architecture as it is condensed in its most fundamental concepts, its most generic forms and habitual media and ways of working. The aim is to consciously appropriate the various extensions of the architectural repertoire witnessed in the 20<sup>th</sup> Century and in particular to build on the momentous expansion of conceptual, formal and medial repertoires achieved in the last two decades.

We want to explore the new repertoires along three dimensions: Concept, Form, Medium. These terms indicate three semi-autonomous registers of the architectural toolbox or the arsenal the discipline has build up to address any design task.

At the same time these terms indicate three levels of abstraction with respect to any given design proposal or project. While there are no one-to-one correspondences between these levels they are certainly not indifferent to each other either. The interdependencies and relations between these levels – e.g. how media suggest concepts or can become formal catalysts, how conceptual restrictions can lead to formal proliferations etc. - will be explored within the studio.

### Conceptual Dimension

Architectural concepts are abstract and general principles of ordering space. Architecture might be explicitly *defined* as the organisation and articulation of space. Its repertoire – on its most general and abstract level – consists in the various ways architecture might structure space. These might be referred to as concepts of space or *spatialities*.

Although all architecture of all times might be classified with respect to general principles of spatial order, it was only in the 20<sup>th</sup> Century that *space* became explicitly the most fundamental category of architecture.

As, on the one hand, the emerging global communication at the end of the 19<sup>th</sup> century opened the view on to the full diversity of world architecture across the ages and as, on the other hand, both functional requirements and structural possibilities proliferated far beyond the limits of the classical tradition, this new, abstract level of generalisation – space - emerged as unifying dimension of the multitude of concepts devised to classify the proliferating phenomena. At the same time this level of abstraction afforded an unheard of realm of freedom

for architecture. Before architecture came to be understood as structuring space, it's repertoire was understood in terms of various given types of buildings with their respective style: Villa, Forum, Pallazzo ect. The discipline was confined to the reproduction of these building types.

Modern architecture broke this spell and gave itself the freedom to device new types and - more significantly - new *concepts* thus radically reinventing its repertoire on the basis of abstraction.

Some examples of concepts (of space): territory, boundary, blurred boundary, axis, open vs bound space, isotropic vs differentiated space, smooth vs striated space, space-time, figure-ground relation, solitaires vs clustering, phenomenal transparency, juxtaposition, fragmentation, superposition, matrix, multiple affiliation, particle space, field space, vector of transformation, deformation, iteration versus repetition, single surface, bigness, intensive coherence. These concepts – collected from various sources – should not be expected to form a system. (The aim to device a coherent and comprehensive system of such concepts might be doomed - but any attempt would be welcomed as a contribution to the studio.)

A subcategory of principles concerns the constitution of (inhabitable) objects or artefacts within space rather than the structuring of space itself (distinction is not strict):

Cellular aggregation, carved object, modular constitution, articulated organism, loose assemblage, hybrid, swarm, tangle, weave, collage.

These concepts offer principle options how to spatially configure or constitute the programmatic elements of any specific design task. The a priori set of conceptual options intervenes even on the level of the conception of the institutional programme, i.e. the formulation of design task itself. Schedules of accommodation implicitly assume the design to proceed by means of hierarchically nested, bounded realms. The inclusion/exclusion dichotomy is assumed as the primary ordering principle of the design.

Concepts are always already operating. Mostly they are discovered retrospectively. Whenever an operating principle is made explicit as a conscious concept a measure of freedom is gained. What was habitually taken for granted can now be chosen or rejected. Once I now that all I have been doing in drawing up my designs was delineating boundaries, I can open up and explore an uncharted universe of possibilities: designs and spatial organisations that operate without boundaries.

### Formal dimension

Architectural forms are specific ways of instantiating concepts. A *solitaire* can take the form of a cube, a cylinder or a sphere. Such simple geometric figures are the most obvious and most familiar (architectural) forms. Each concept allows for many formal instantiations. The concept of the single surface might be realised as a "ruled surface", in the form of a cuspid or umbilic. But forms are not simply subcategories of concepts. They operate across concepts. A cube might be a *solitaire*, a cell, or a carved space. A point grid might realise either a striated or a smooth space. Some more examples of forms: Cone, paraboloid, toros, blob ect. Forms might be "found" by means of analogy: amoeba, sponge, moraine.

We should not necessarily think of forms as objects (*solitaires*). "Form" includes formal systems: orthogonality, parallel striation, undulation ect.

It is possible to extract forms from concepts: fields can be established through various types of grids or lattices (e.g. geodetic space-frames), by pixellations, by various fractal patterns, or by specific series of morphological transformation; blurred boundaries might take the form of topographies with valleys and ridges, or by means of scattering particles like trees in a forest distributing zones of differential density, clearings that emerge gradually ect.; hybrids might be constructed by the interpenetration of specific geometric figures or by means of a specific morphing algorithm. Vectors of transformation might be linear, curved or radial.

### Medium

We will try to work with an unusually broad notion of design *medium*.

Bill Mitchell's notion of "design world" is very useful here. Each medium opens up/limits a universe of possibility: types of objects, their constitution, modes of manipulation and rules of association.

The most obvious and familiar medium is given with pen and paper or various other graphic media like canvass+brush+acrylic etc. One of the premises of our studio is that already this most "superficial", concrete level of material medium is pregnant with a certain formal, even conceptual thrust.

Material media include various physical modelling materials, and we even include the final 1:1 construction material within this notion of (material) medium. Modelling material has a strong bias with respect to tectonic operations like subtractive (carving) formation versus assembly, cutting and bending versus molding and plastic deformation. These operations – which we classify within the dimension of *medium* - limit the formal universe of possibility to such a degree that they have conceptual import. A radically new modelling material/technique requires and leads to radically new architectural concepts. Historically this was the role of the available construction material/technique. Quatremere de Quincy traces all (traditional) architectural articulation to three fundamental material/technological lineages: the tent leading to skin/skeleton structure (Chinese architecture), the cavern leading to mud and brick architecture (Egyptian architecture), the wooden hut leading to carpentry then also translated into other materials (Greek architecture). Such alignments of medium and form have been referred to as tectonic systems. But these alignments are not fixed. The forms and concepts derived from one material might well migrate into other materials (being transformed in the process).

The revolution of modern architecture and the emergence of *space* as the most fundamental concept of architecture is related to the introduction of steel and concrete as new construction materials.

The notion of media are not restricted to material media. The use of pen and paper (+ruler, set-square, compass) is governed by well established conventions, by determinate types of drawings: Orthogonal projections (plans, sections, elevations at various scales), oblique projections (axonometrie, isometry), perspective projection ect. The lines drawn on paper dissect the plane, distribute *boundaries* and material *edges* and thus are all about the strict partitioning of space. This medium thus limits architectural thought to such partitioning. This need not be taken for granted. One might proliferate lines to blur boundaries to create textures of gradient density ect. One might interpenetrate perspectival vistas, work with sliding viewpoints, abuse perspectival projection as a technique of formation rather than representation.

A whole new ballgame has been introduced with the digital media which had a huge impact on the development of the recent formal repertoire of the discipline. While CAD systems like Auto-Cad continue the world of pen and paper other softwares open up a new universe of speculation.

The critical reflection and inventive exploration of various design media will be an ongoing focus of the studio.

### Exercise 1: Creative analysis

We will start to build up the repertoire through the analysis of paradigmatic projects. The analysis will proceed along all three dimensions, i.e. as conceptual analysis, formal analysis and analysis in terms of the media in which the project is presented and executed. We are talking *about creative analysis* because our analytical effort is not so much aimed at what has been laid into the various projects but the emphasis is on what conceptual, formal and medial material we can draw out of these projects – employing our own rich and expanding arsenal of media.

List of projects:

The projects are grouped with according to three (assumed) levels of difficulty to account for the various levels of advancement of the students within the studio. Not incidentally the degree of difficulty distributes more or less chronologically. The later the project, the more is presupposed. (Students may work individually or in teams of two.)

“Fresh”:

|                    |                                  |
|--------------------|----------------------------------|
| Mies               | Barcelona Pavilion, 1929         |
| Rietveld           | Haus Schroeder, 1924             |
| Loos               | Haus Müller                      |
| Le Corbusier       | Villa Savoye, 1929               |
| Gropius            | Bauhaus, 1926                    |
| Hilbersheimer      | New Regional Pattern, 1945       |
| Leonidov           | Ministry of Heavy Industry, 1934 |
| Niemeyer           | Brasilia, plaza of three powers  |
| Hannes Meyer       | League of Nations, 1927          |
| Le Corbusier       | League of Nations, 1927          |
| Frank Lloyd Wright | Falling Water, 1942              |
| Frank Lloyd Wright | Guggenheim, 1946-59              |

“Refined”

|                        |                                  |
|------------------------|----------------------------------|
| Le Corbusier           | Olivetti Headquarters            |
| Le Corbusier           | Algiers, 1931                    |
| Niemeyer               | Three Powers Square, 1960        |
| Le Corbusier           | Venice Hospital                  |
| Candilis, Josic, Woods | Frankfurt Römerberg, 1963        |
| L. Kahn                | National assembly, Dacca 1965-74 |
| Graves                 | Hanselmann House, 1968           |
| Tange                  | Tokyo Bay, 1960                  |
| Gerd Boon              | Amsterdam Town Hall, 1967        |
| Herzberger             | Centraal Beheer, 1974            |
| Smithsons              | Berlin, 1958                     |
| Portman                | Atlanta Center                   |
| Strategic Plans        | Milton Keynes, 1972              |
| Sharoun                | National Library, Berlin         |

“Sophisticated”

|                    |                                    |
|--------------------|------------------------------------|
| Eisenman           | Cannaregio, Venice                 |
| OMA                | Parc de LaVilette, 1983            |
| Zaha Hadid         | Hong Kong Peak, 1983               |
| Coop Himmelblau    | Melun Senart, 1987                 |
| Zaha Hadid         | Cardiff Bay Opera, 1994            |
| OMA                | French National Library, 1989      |
| Ito                | Mediatheque, 1997                  |
| Eisenman           | Frankfurt Rebstockpark, 1992       |
| Greg Lynn          | Stranded Sears Tower, 1992         |
| MVRDV              | VPRO, 1998                         |
| Winy Maas          | European Berlin, 1992              |
| Zaha Hadid         | Victoria and Albert Museum, 1996   |
| Zaha Hadid         | Qatar Museum of Islamic Art, 1997  |
| Un Studio          | Arnhem, 1998                       |
| Greg Lynn          | Embriological House, 1999          |
| FOA                | Yokohama Ferry Terminal, 1996      |
| Reiser + Umemoto   | Manhattan, 1999                    |
| Zaha Hadid         | Contemporary Art Centre, Rome 1999 |
| Eisenman           | Paris Anthropology Museum, 1999    |
| Kolatan/Mac Donald | Raybould House, 1999               |

The analysis is a purely formal (vs functional, psychological, historical) analysis.

The analysis proceeds through words, drawings and models, distinguishing and relating the levels of concept, form and medium.

Always try to work with *extended series* of diagrammes, *compare* ways of drawing/re-drawing or modelling the project. Actively extract ideas. Try to reconstruct or invent a plausible design process for the project, i.e. the gradual build up of complexity within the project. The “morphogenesis” of the project will reflect the hierarchy of concepts, forms and media operating in the project. You might animate this morphogenesis. The phenomenology of the project should be explored through perspectival renderings, and animated fly-throughs.

End.