

# The City as Data

Αρχιτεκτονική Σύθεση III  
2018-2019  
Fabiano Micocci

Figure / Ground

Diagrams

Models

Urban Sections

Colin Rowe and Fred Koetter,  
Collage City (1978)

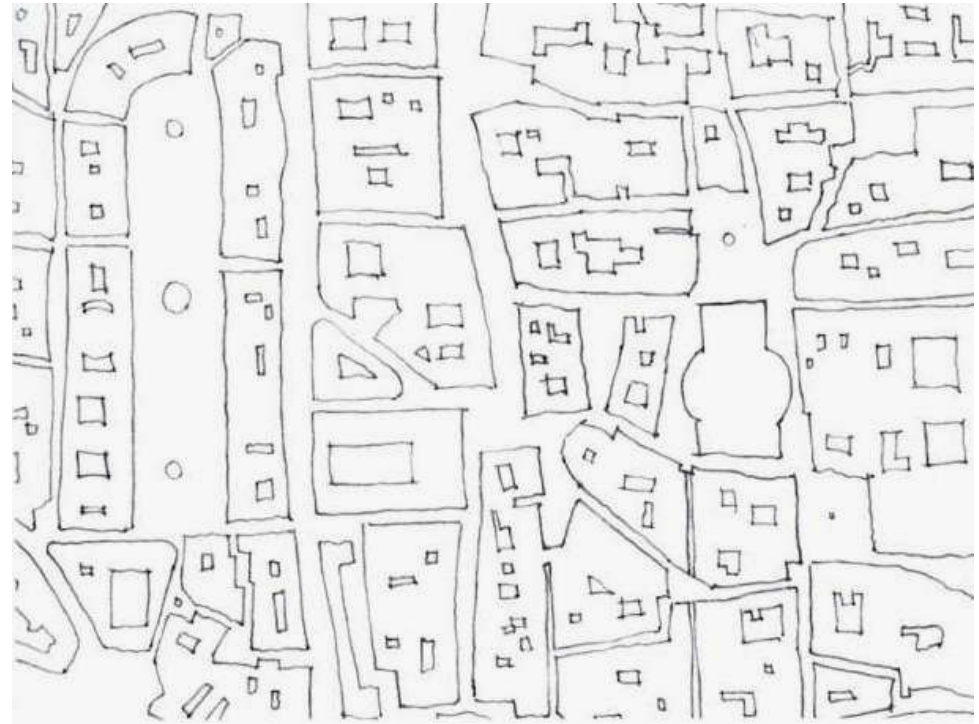


### Urban Space

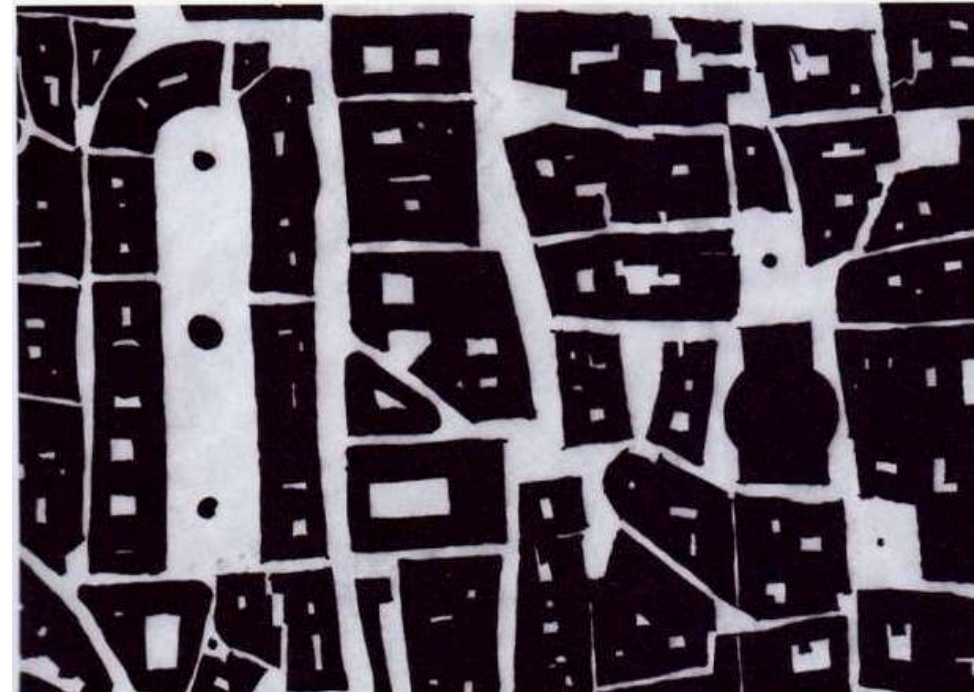
A figure/ground map allows a description of different spatial condition suggesting **density** or **urban space** using measured drawings and plans drawn to scale.



1



2



### Creating a Figure/Ground

- 1 Trace the **outline** of the street edges and buildings
- 2 Start **filling** out the buildings with black. Be clear about the part of the city you want to identify as 'space.'



### Buildings as Figures

The traditional figure-ground map identifies the buildings as solid blocks separated by spaces. This allows for the buildings and spaces to be read clearly to get a sense of density of a place. It is a reading of the figure (buildings) against the ground (the space between). Buildings can be identified because of their scale, shape, typology.

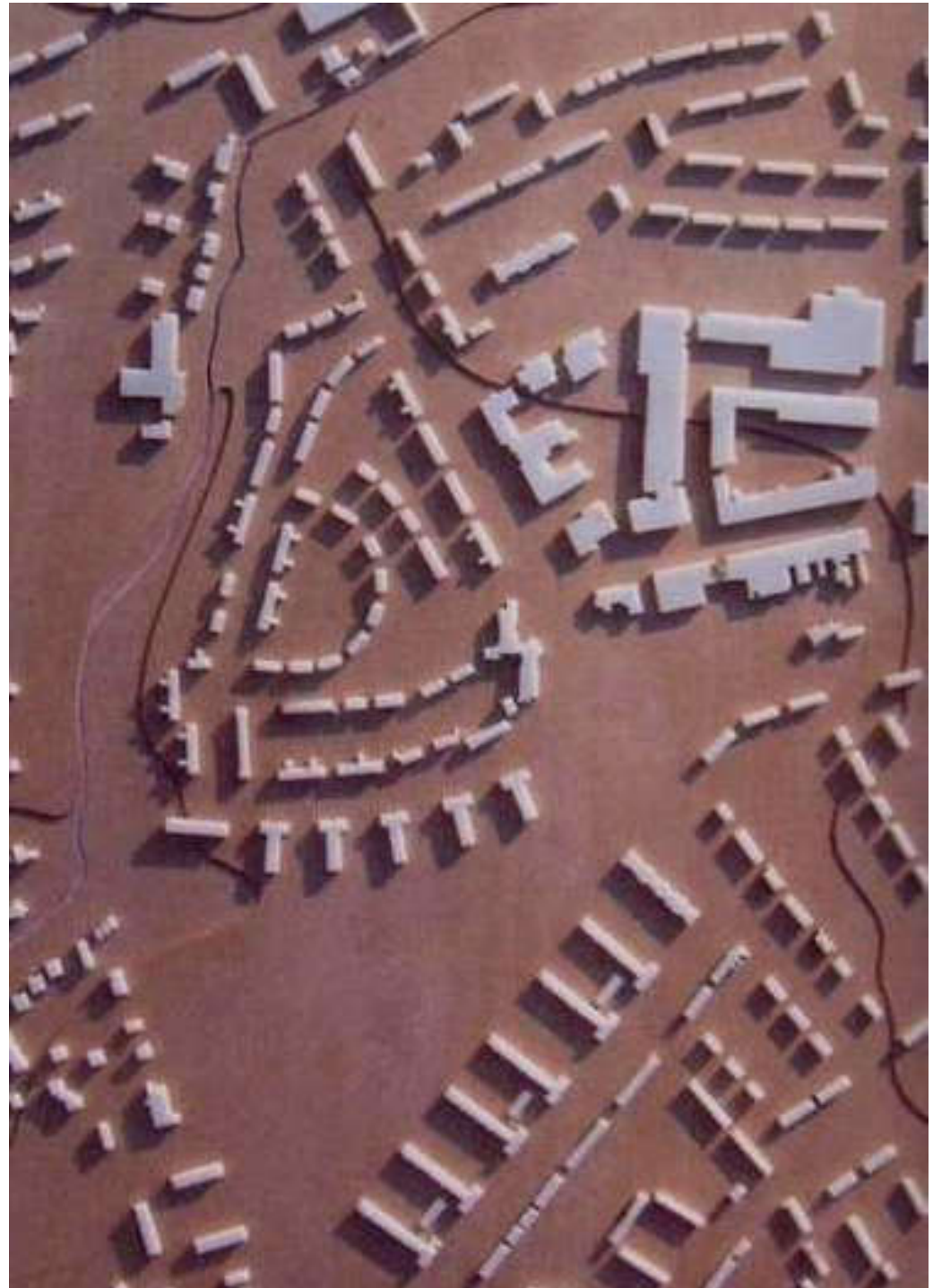


### Density and typologies

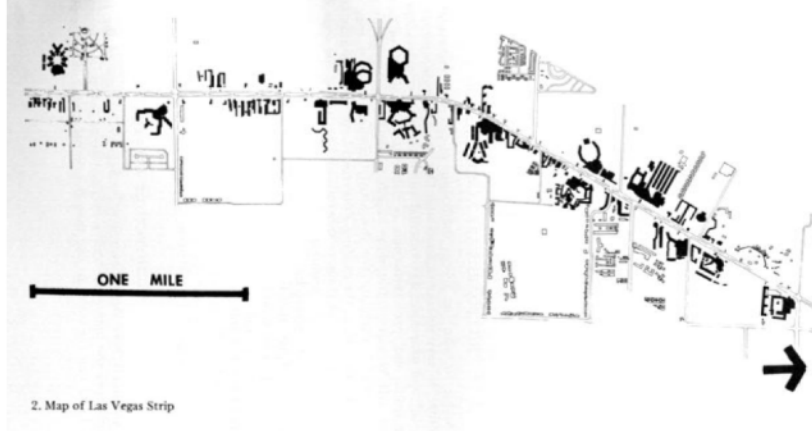
The figure/ground technic shows either too much or too little public space and the typological homogeneity of the area.

Physical/Study Models

The physical model shows the key **topographical elements** and the **buildings** as figure/ground.

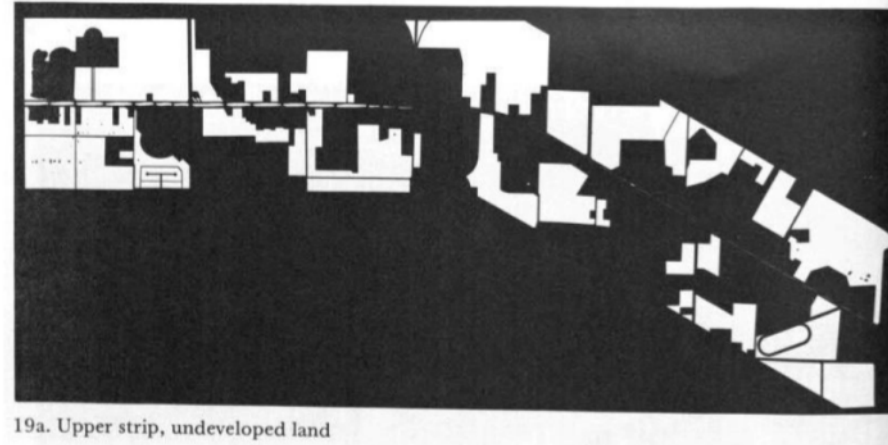


Robert Venturi and Denise Scott Brown,  
Learning from Las Vegas (1972).



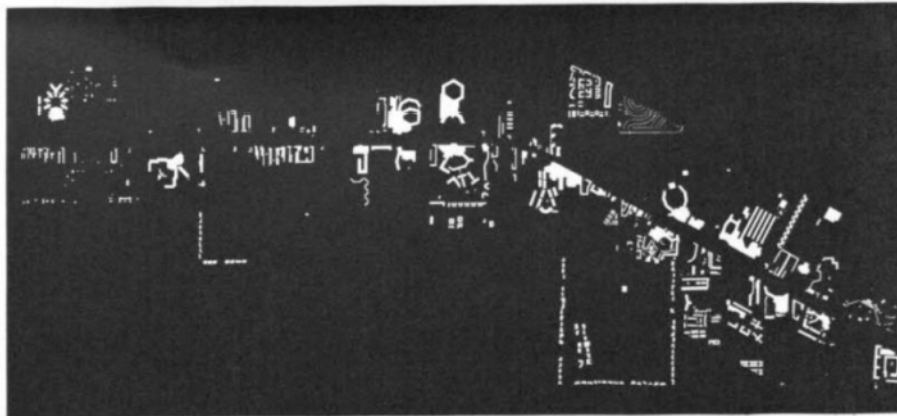
2. Map of Las Vegas Strip

1 Buildings as masses



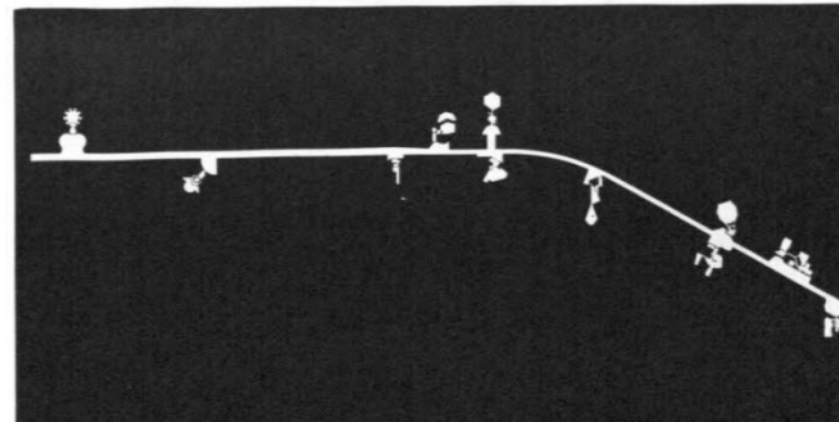
19a. Upper strip, undeveloped land

2 Undeveloped lands (surfaces)



19d. Buildings

3 Buildings (voids between buildings)



4 Street and drop off

### Buildings and Streets

This exercise is best done with the buildings indicated as solids in one image and the spaces read as solid in another - that is with the elements reversed out. Venturi and Scott Brown in their study for the Strip of Las Vegas used the figure/group map to show buildings, streets, parking, and undeveloped areas .

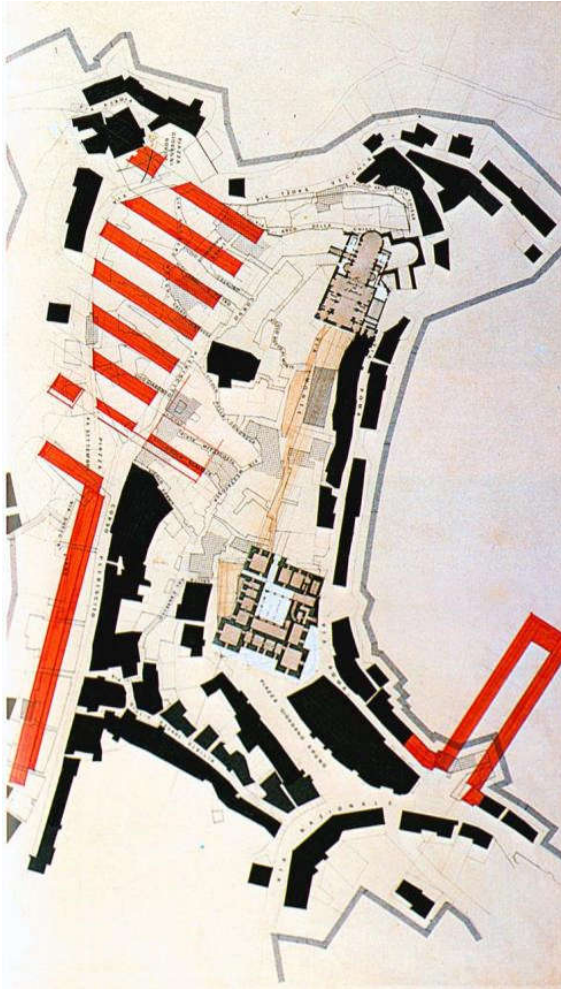




Representation of the public spaces

The map of Rome drawn by Gianbattista Nolli in the 1748 uses the figure/ground representation where the buildings are shaded and the spaces are left as gaps in-between. This allows the city to be read as a series of spaces and forms. Nolli clearly records any public spaces that are enclosed, the interiors of churches and colonnades. This map describes the public spaces of Rome.

Giorgio Grassi,  
Urban Renovation of Teora (Avellino)



The proposal in red color  
To make evident the proposal, it may have a different color from the black filling of the existing buildings. The red color is usually used for masterplan, as it brings the proposal in evidence in the drawing.

XDGA,  
Multifunctional Complex, Venlo

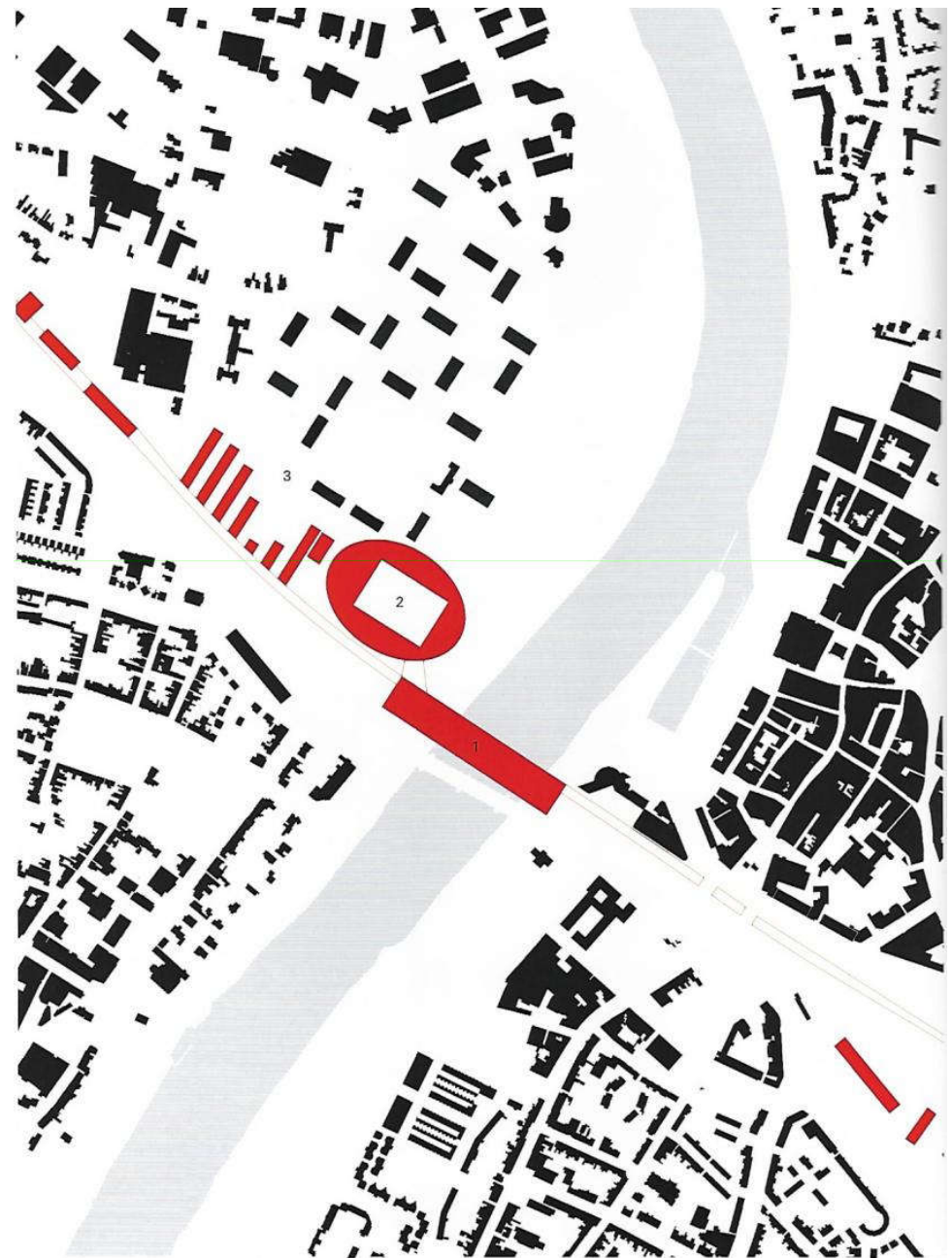
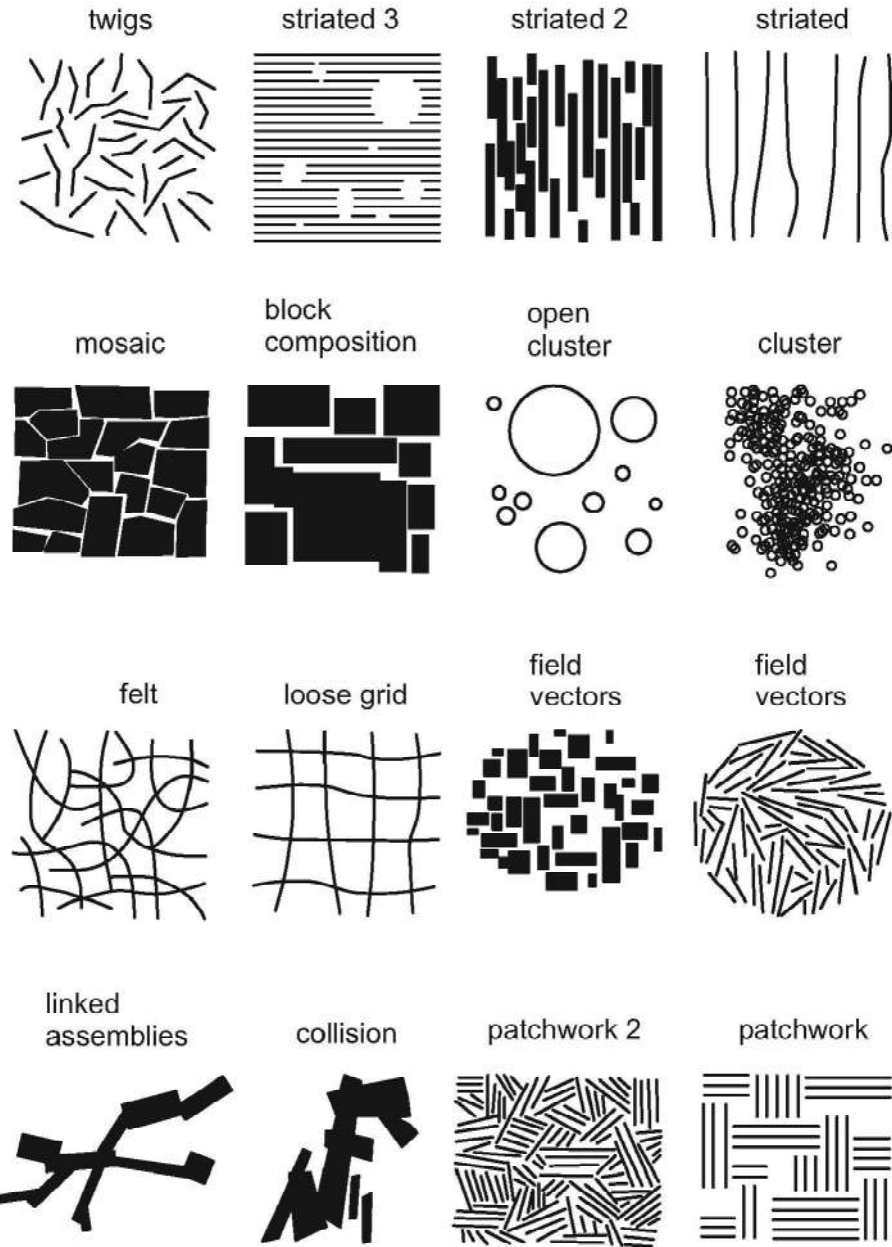


Figure / Ground  
Diagrams

Models

Urban Sections



### What is a Diagram

“A diagrams is an abstract mean to think about **organization**, that implies both **program** and its **distribution** in space, bypassing conventional dichotomies of function versus versus form or form versus content.

A diagram is a description of **potential relationships among elements**, a map of possible words. Diagrams anticipate **new organizations**. It is an **instrument**, not an end in itself. They are place-holders, **instruction for action**, or contingent descriptions of possible formal configuration.”

(Stan Allen, Diagram Matters, 1998)

MAD arkitekter,  
Spikerverket



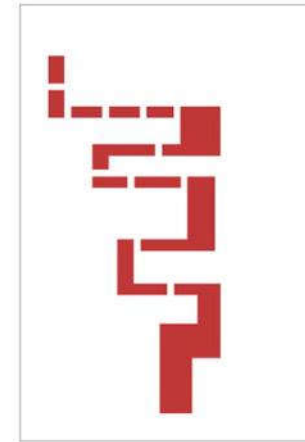
AERIAL VIEW



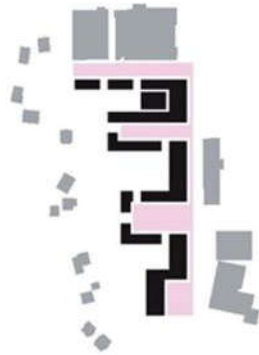
SITE CHARACTERISTICS



BUILDING VOLUME DEFINES A BORDER



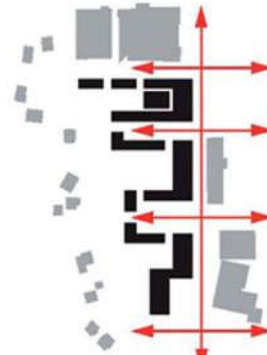
ADAPTING THE BUILDING VOLUME



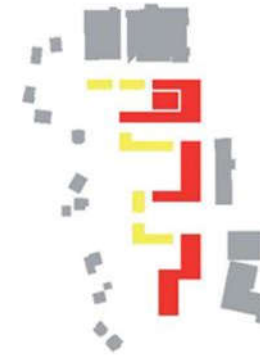
ZONED EXTERIOR - SOCIAL ASSEMBLY



GREEN AREAS EXPANDED



RESPONSIVE TO SURROUNDINGS



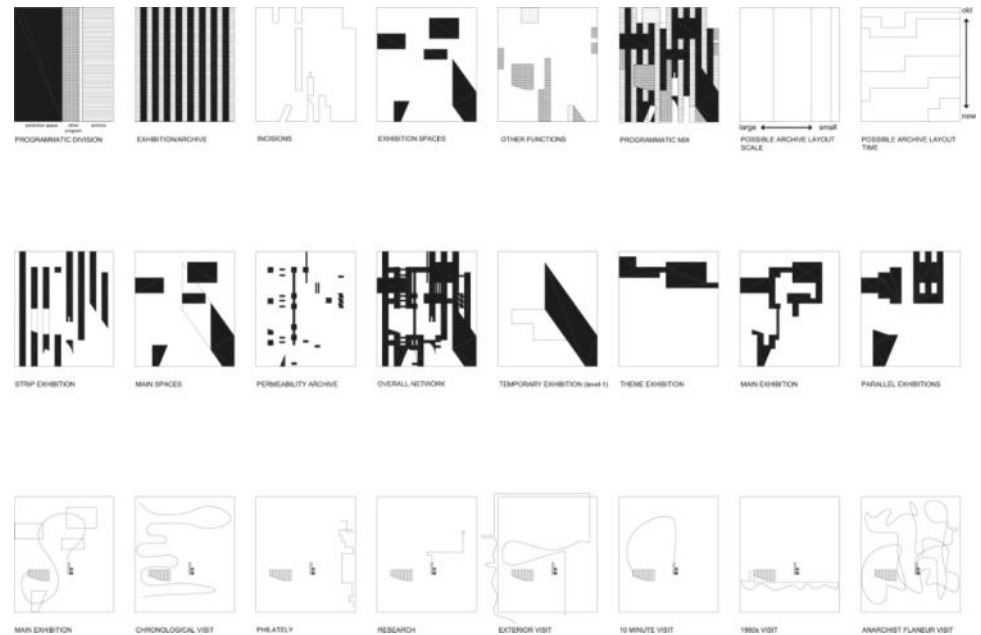
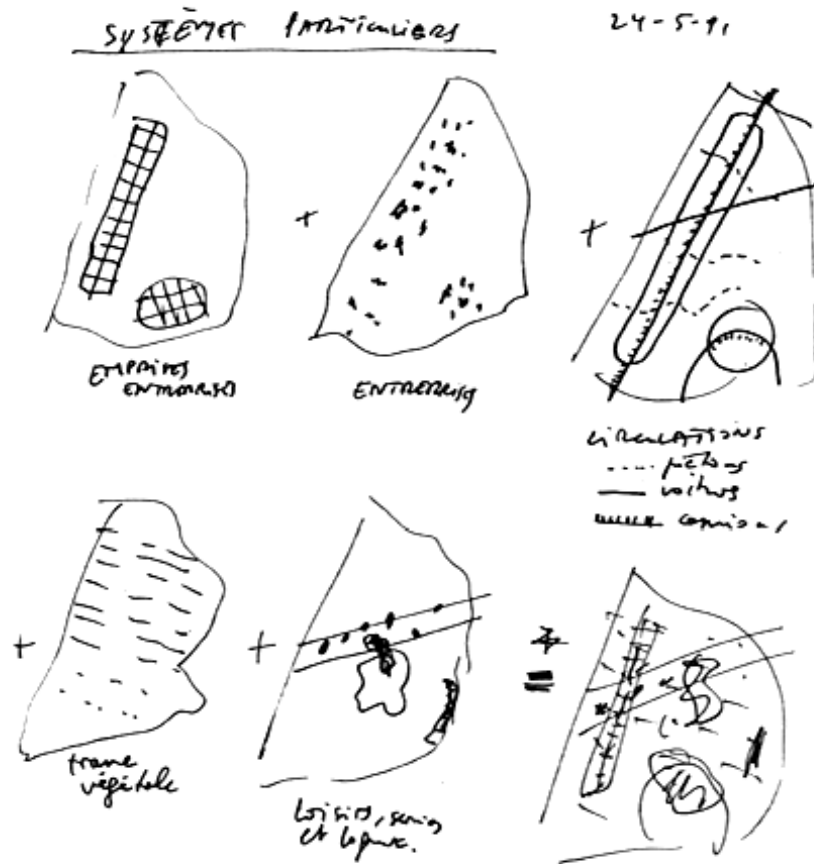
RESIDENTIAL - COMMERCIAL

### Diagrams as explanation of the project

The simplest way to explain complex information in a real and concise way is with diagrams. A city can be reduced to a set of diagrams to explain aspects of **geometry**, **axis**, **routes**, with a special street on the initial concept design.

Bernard Tschumi,  
Masterplan for the technological park of Rouen.

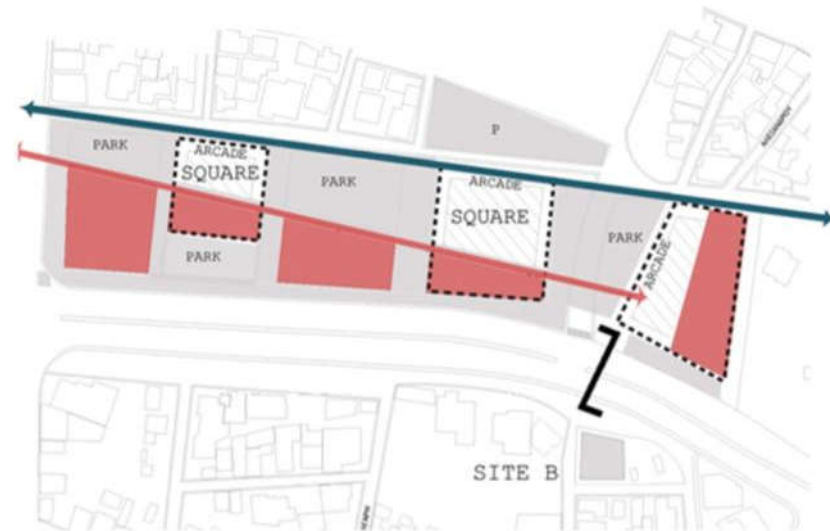
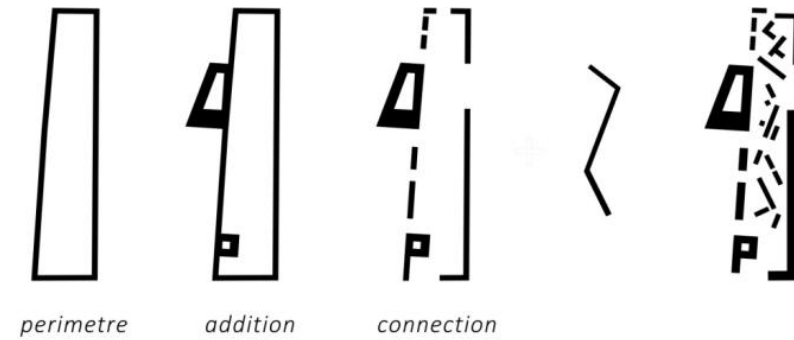
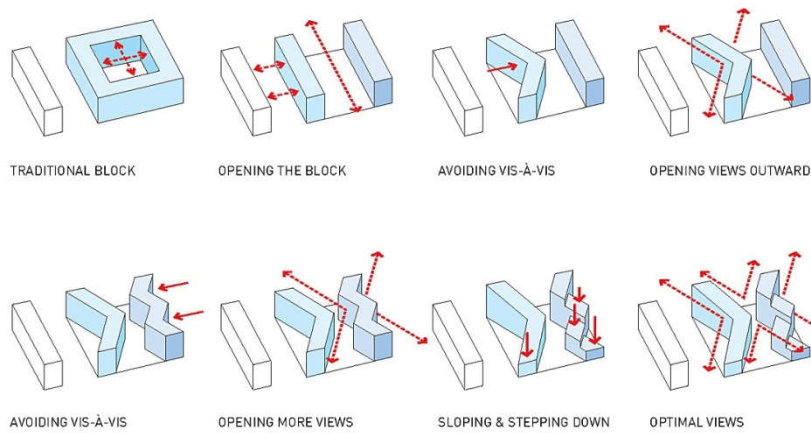
XDGA, MAS Museum, Antwerp.



### Diagrams as Sequence

Bernard Tschumi uses the diagrams to think on paper. It is about using the smallest number of lines in order to express what you are thinking. At this stage it is only about **thoughts, ideas, concepts**. Diagrams represent **space** and events better than traditional techniques of plans, sections, and perspectives. It is a description of the space **using layers** that is **simultaneously conceptual and dynamic**.

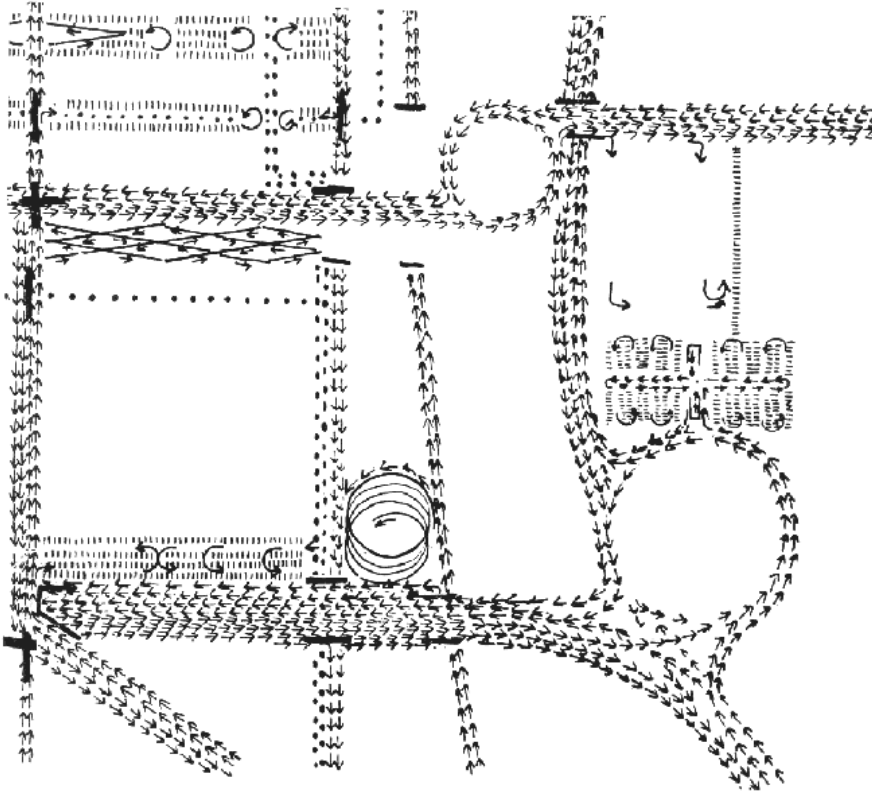
## BIG + JDS, VM Houses



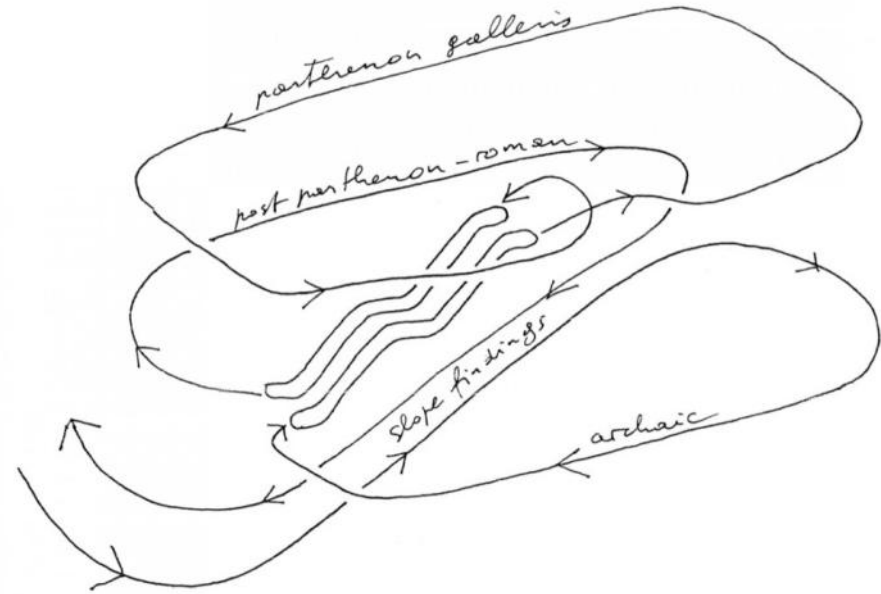
### Diagrams as Concepts

Using diagrams helps to clarify design intentions and architectural concepts. Very simple ideas and their variations can drive towards a high complexity.

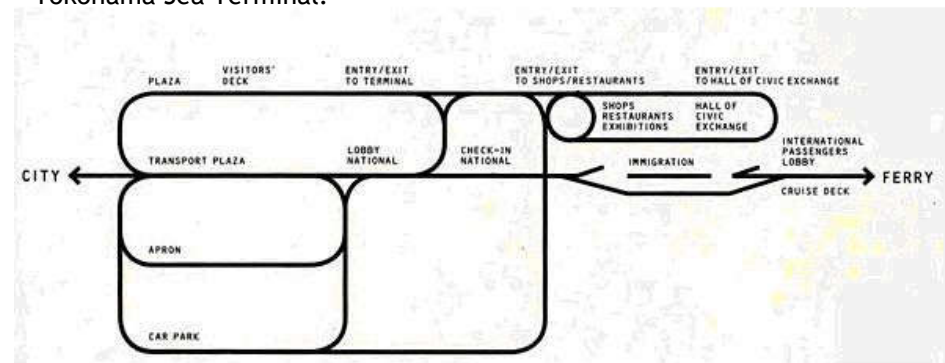
Louis Khan,  
Plan for Philadelphia.



Bernard Tschumi,  
Acropolis Museum.



FOA,  
Yokohama Sea Terminal.

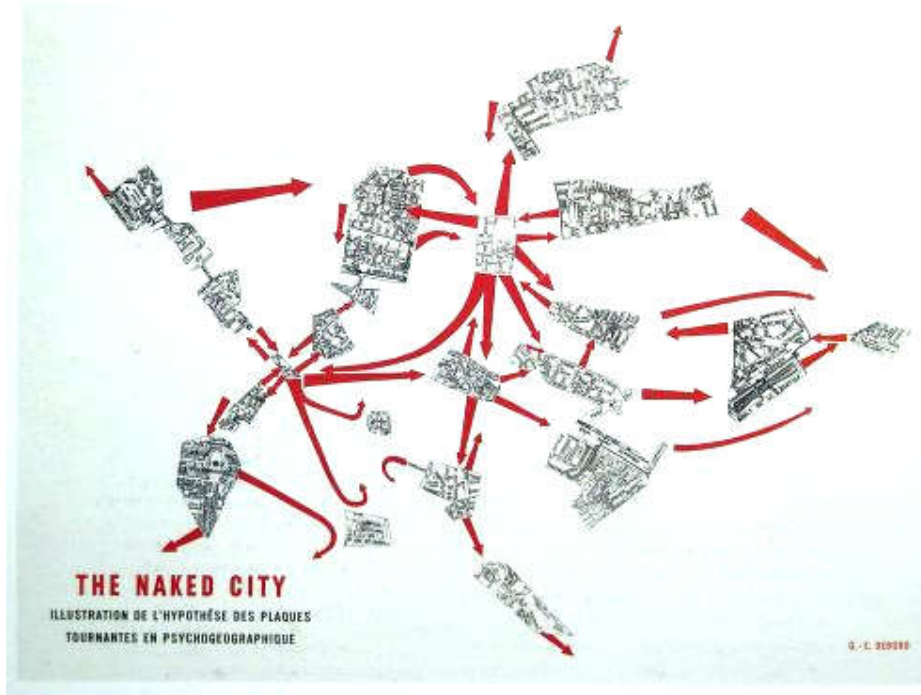


Diagrams as Movement/Circulation

Movement can be represented with simple arrows and lines. Louis Kahn illustrates the **vehicular circulation** and **accessibility** at the urban level; Bernard Tschumi the **internal movement** in form of spiral as the organizational concept; FOA the organization of the **internal program** and the links to the surroundin.



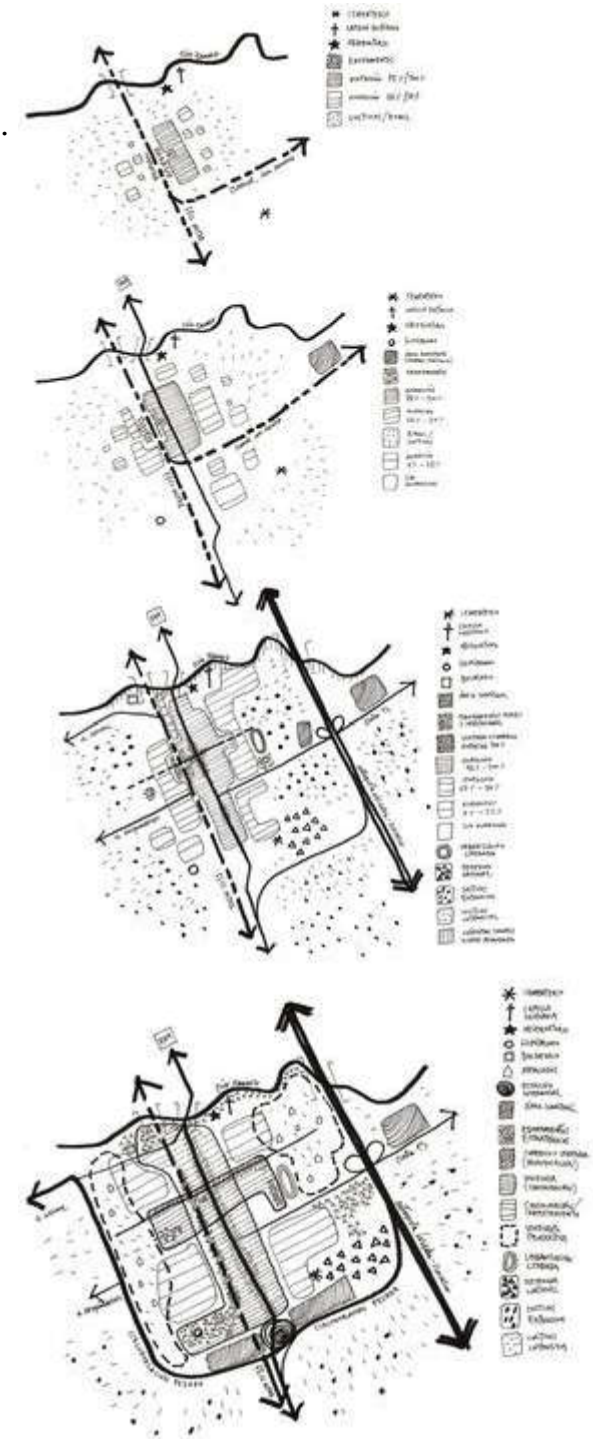
Guy Debord,  
The Naked City (1957).

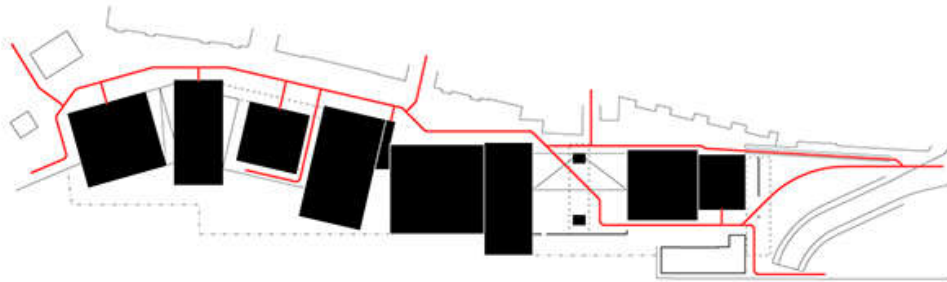


Diagrams for urban routes

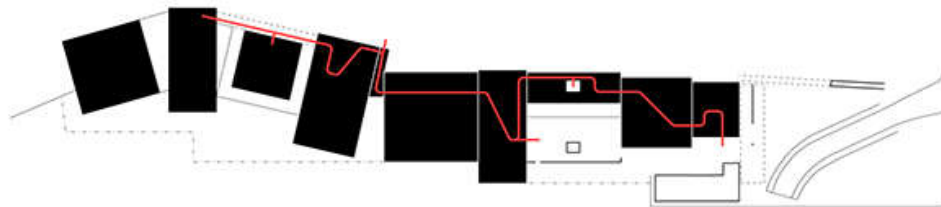
The diagram can be traced over a map or a plan that highlights key pieces of information, such as routes and accesses. Urban routes also highlight, as in The Naked City by Debord, levels of porosity and accessibility between areas of the city. Routes can be drawn with different lines to show hierarchy, typologies and intensity.

Kevin Lynch,  
The image of the City (1960).

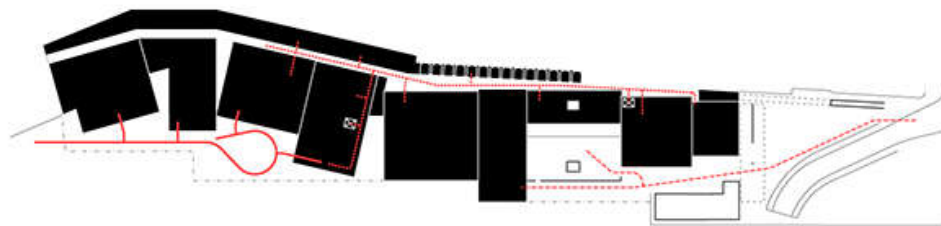




1 | Accessibility from public exterior spaces and main roads, both pedestrian and vehicular  
*Main accessibility at the urban level*



2 | Public internal parcours that links all the functions of a program.  
*Internal accessibility between main common spaces*

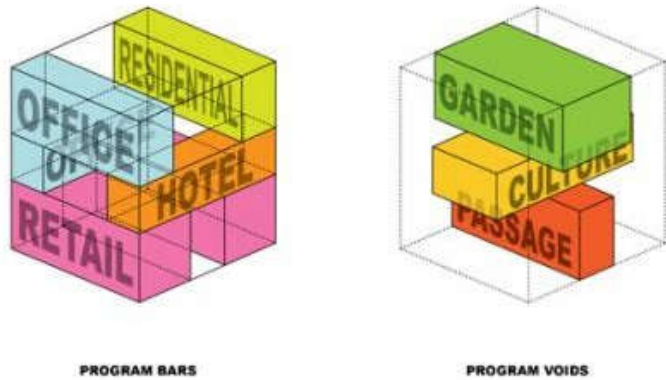


3 | Other kind of accessibility (AMEA, vehicular, delivery, distribution, etc.)  
*Secondary accessibility*

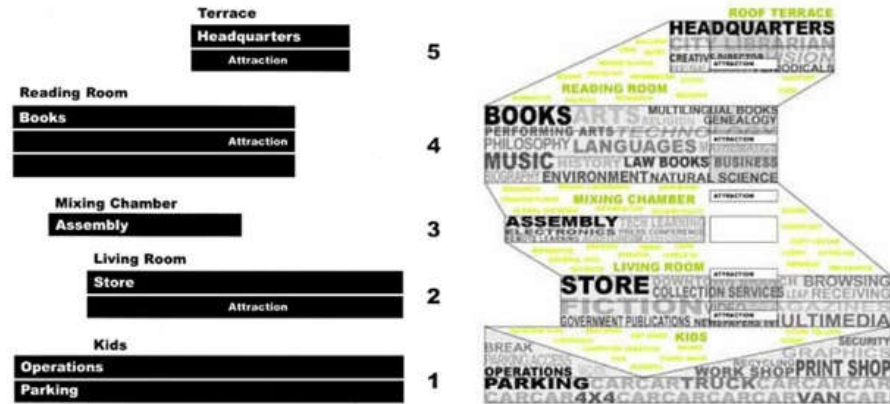
Diagrams for accessibility

Simple diagrams can explain how a building function in relation to urban networks. Accessibility diagrams works at three levels: 1) at the urban level 2) at the building level and 3) secondary accessibility.

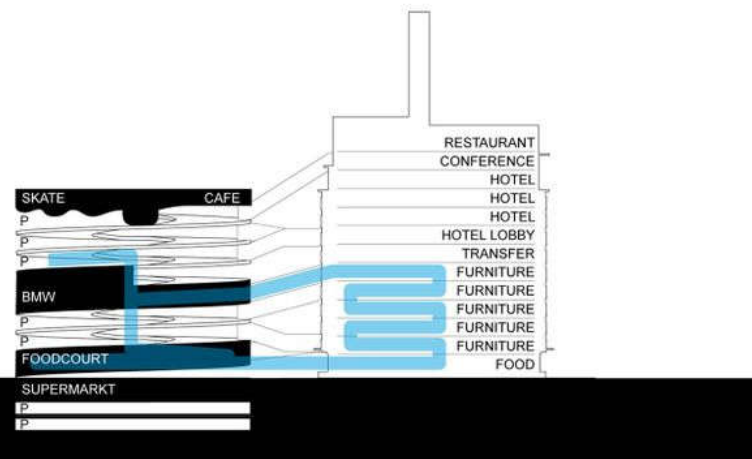
OMA,  
Coolisinger



OMA,  
Seattle Library



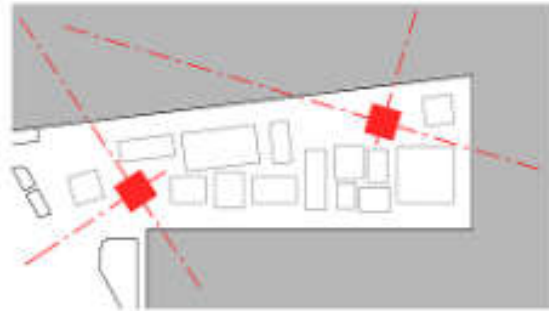
NL architects,  
Strijp S.



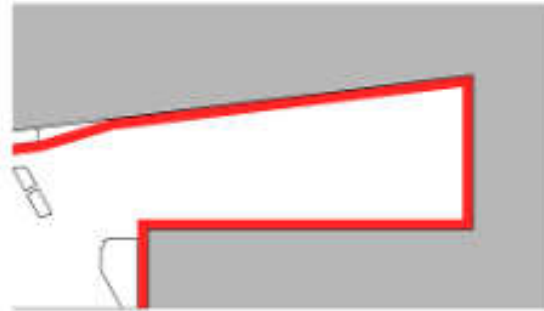
Building Program

Diagrams are the simplest way to explain a program and the internal organization of a building. In the case of public buildings, diagrams can present the programs with **texts or colors, masses (functions) and voids (common spaces)**. The power of this representation is that the program embeds the concept of the building itself.

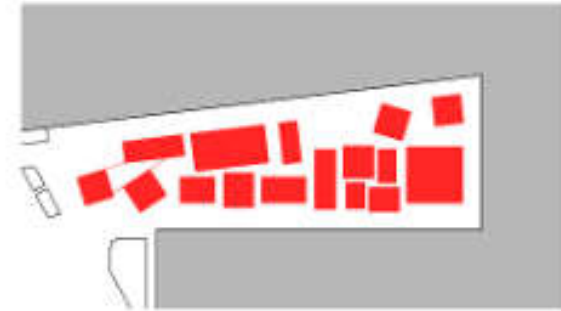
Kcap,  
Mullerpier, Rotterdam



Strategic intervention



Quay



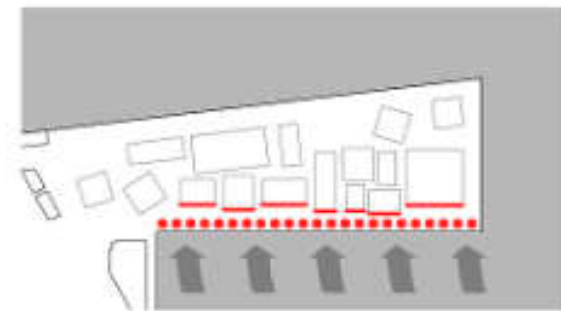
Ready made



Interior



Double bottom

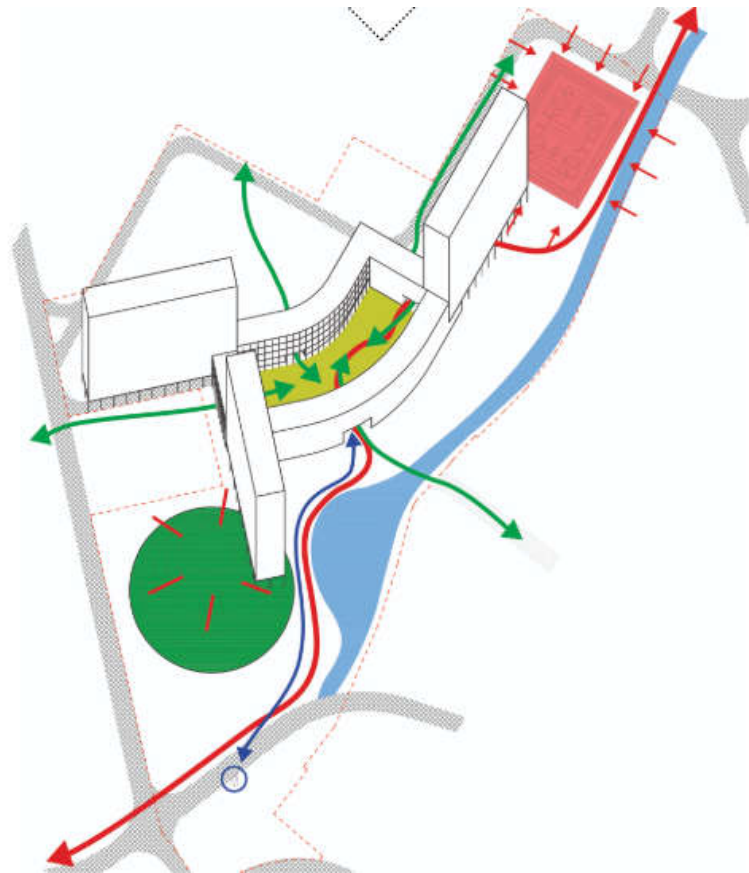


Wind

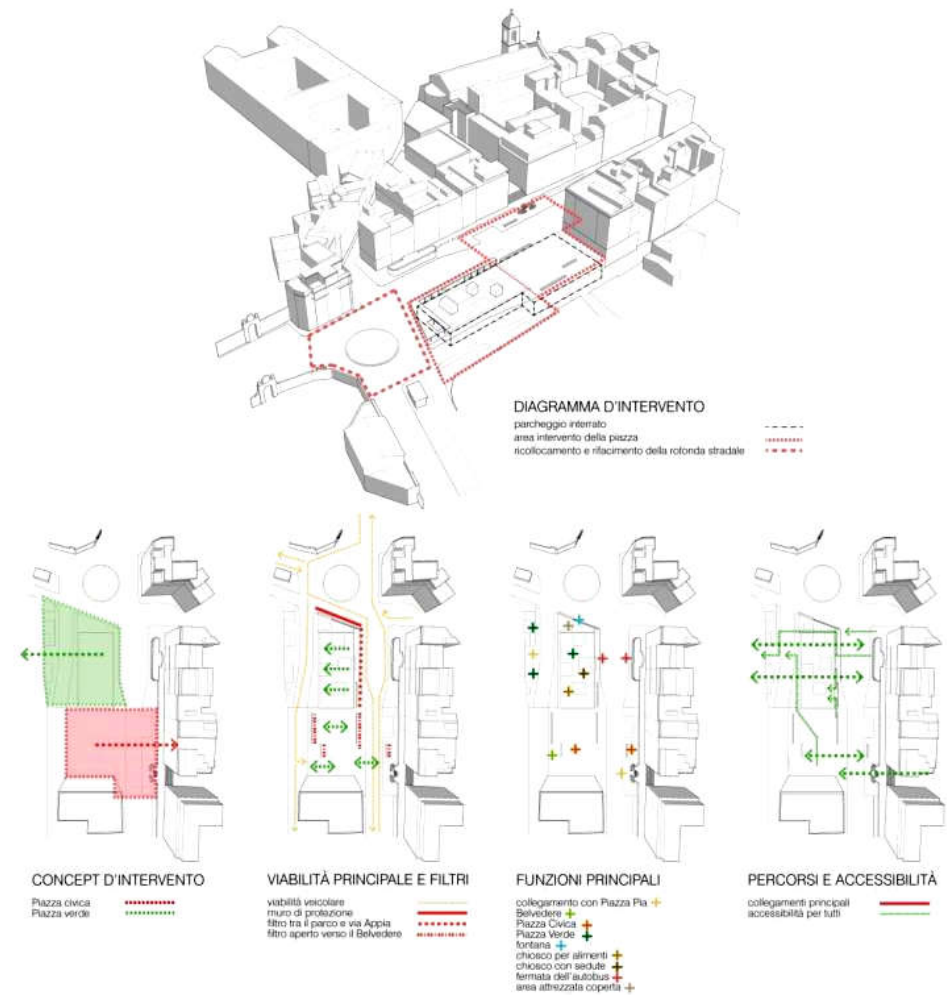
How to explain your project

Differt diagrams can be shown together to explain the many aspects that your project tackles.

XDGA, Social Housing Quarter, Ostend



NEAR architecture, Square in Albano Laziale



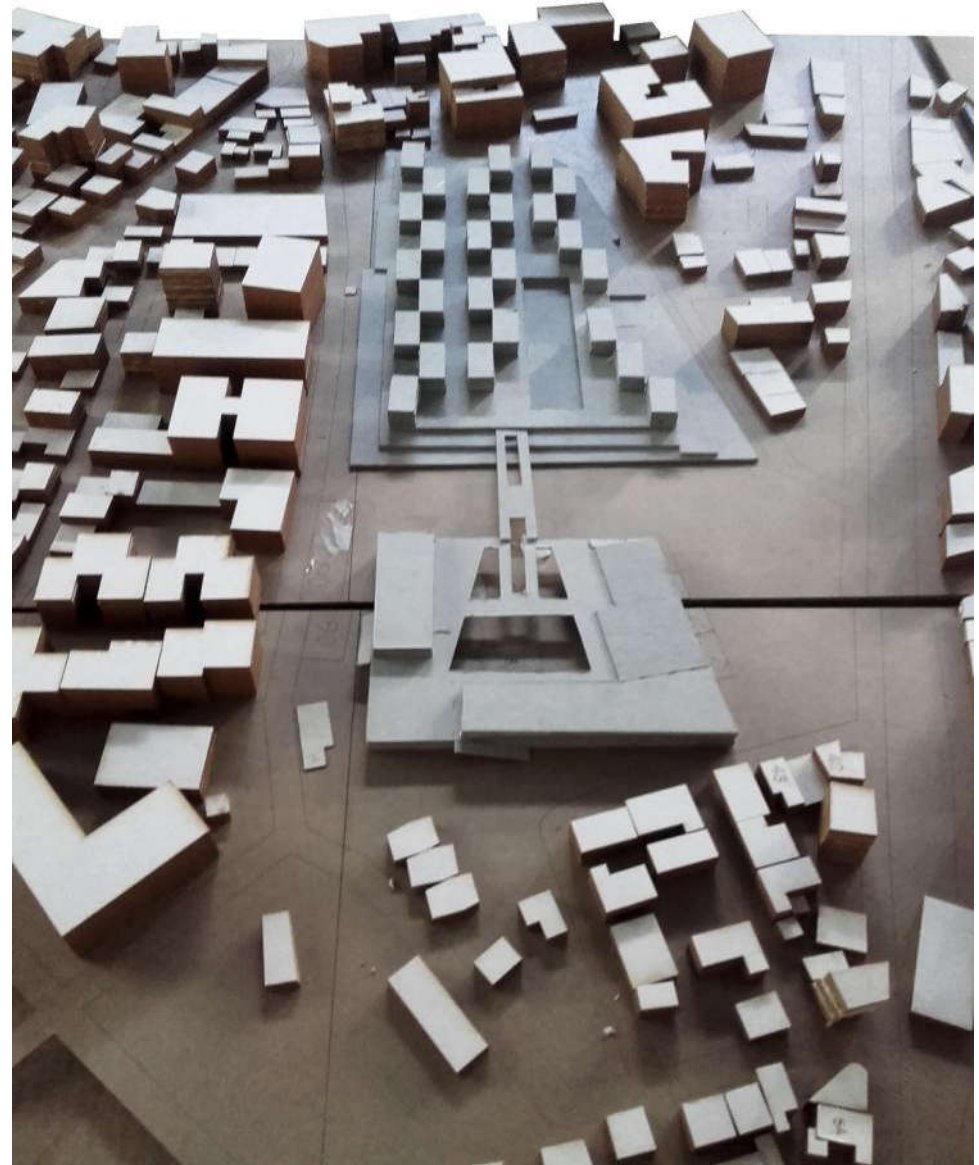
### Integration of techniques

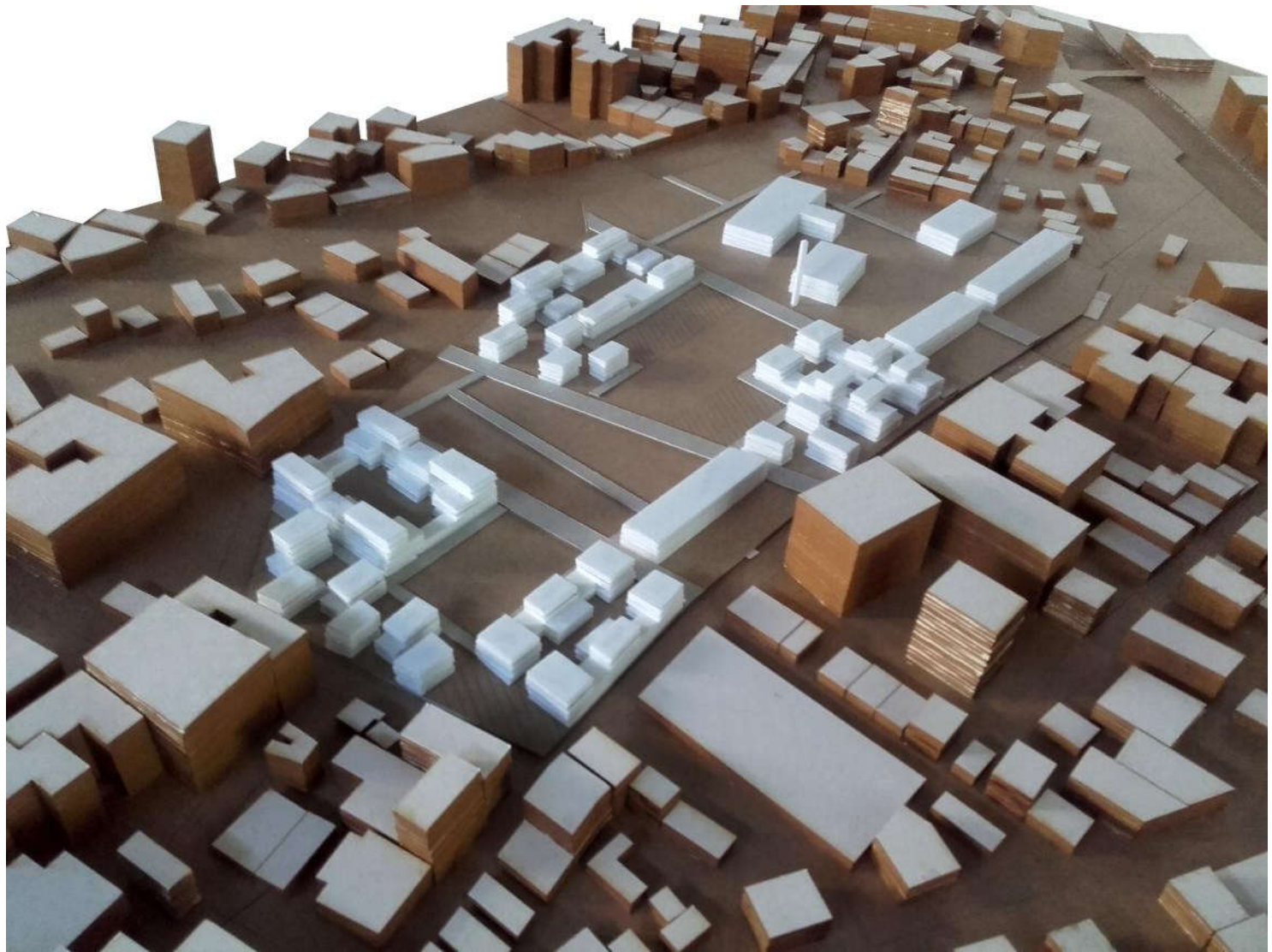
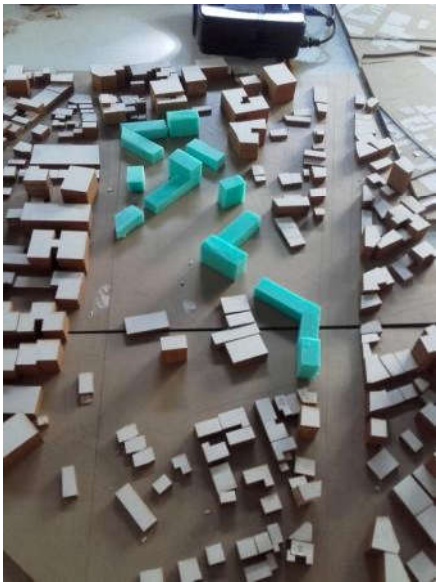
Diagrams can be used together figure/ground maps, aerial photographs, photos of models, CAD models in axonometric, perspective or perspective top views.

Figure / Ground  
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Urban Sections

### Massing Models

The massing model is used to give basing information to allow an overview of a city or part of a city. They describe the mass and the volume of buildings in a place. This model type is particularly useful in the early stages of design to convey a sense of the density and scale of built form in a city.

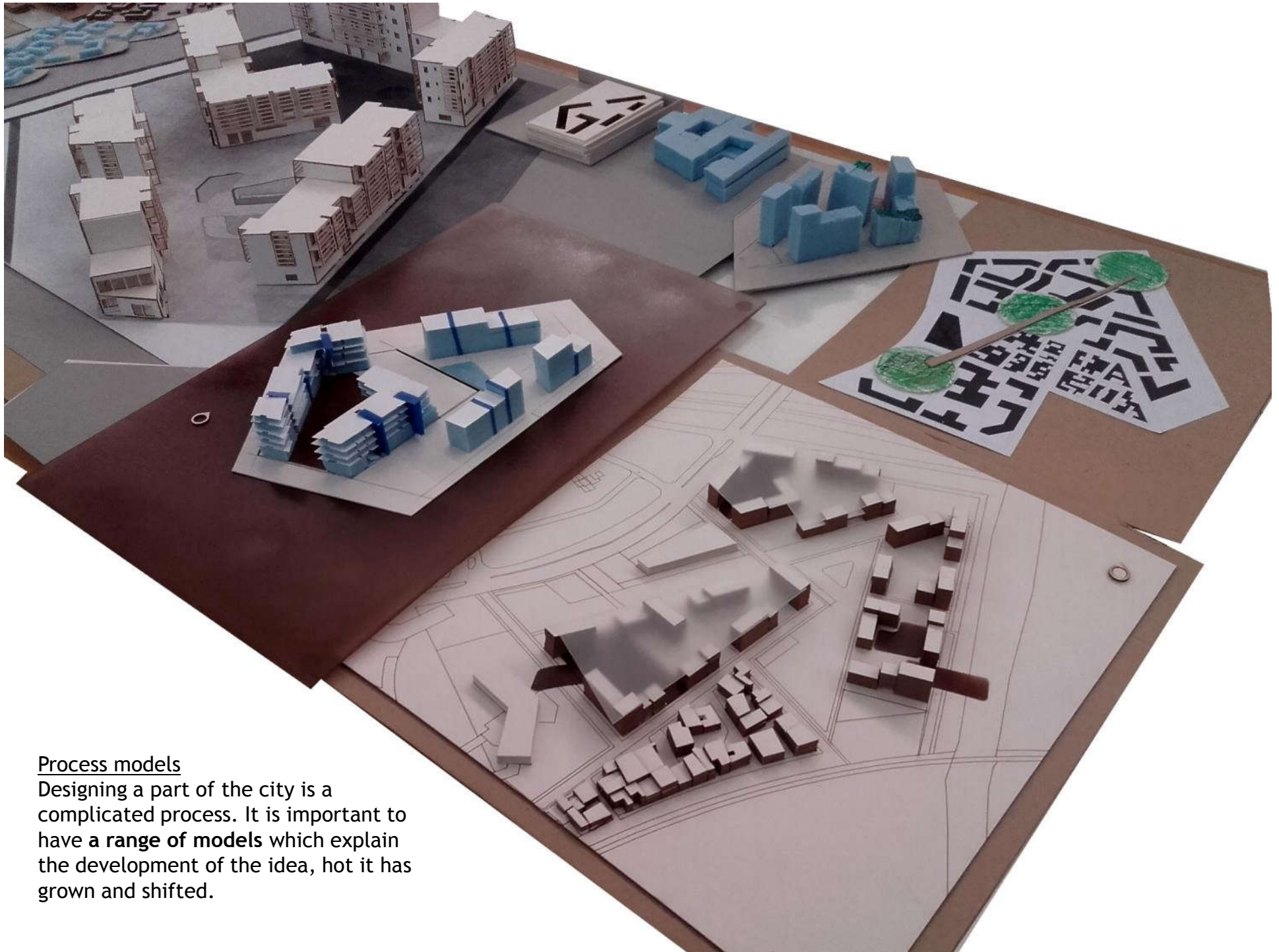




### Use of Different Materials

Using two **different materials** in a massing model makes it simple to differentiate **between existing and proposed elements**. In this cases the new development is represented with white k-fix, and the new streets with grey cardboard, or in blue foam.





### Process models

Designing a part of the city is a complicated process. It is important to have a **range of models** which explain the development of the idea, how it has grown and shifted.



### Models at different scales

The proposal should be investigated using model as different scales (1:2000, 1:1000, 1:500, 1:200). Each scale defines the impact and the relevance of the idea.



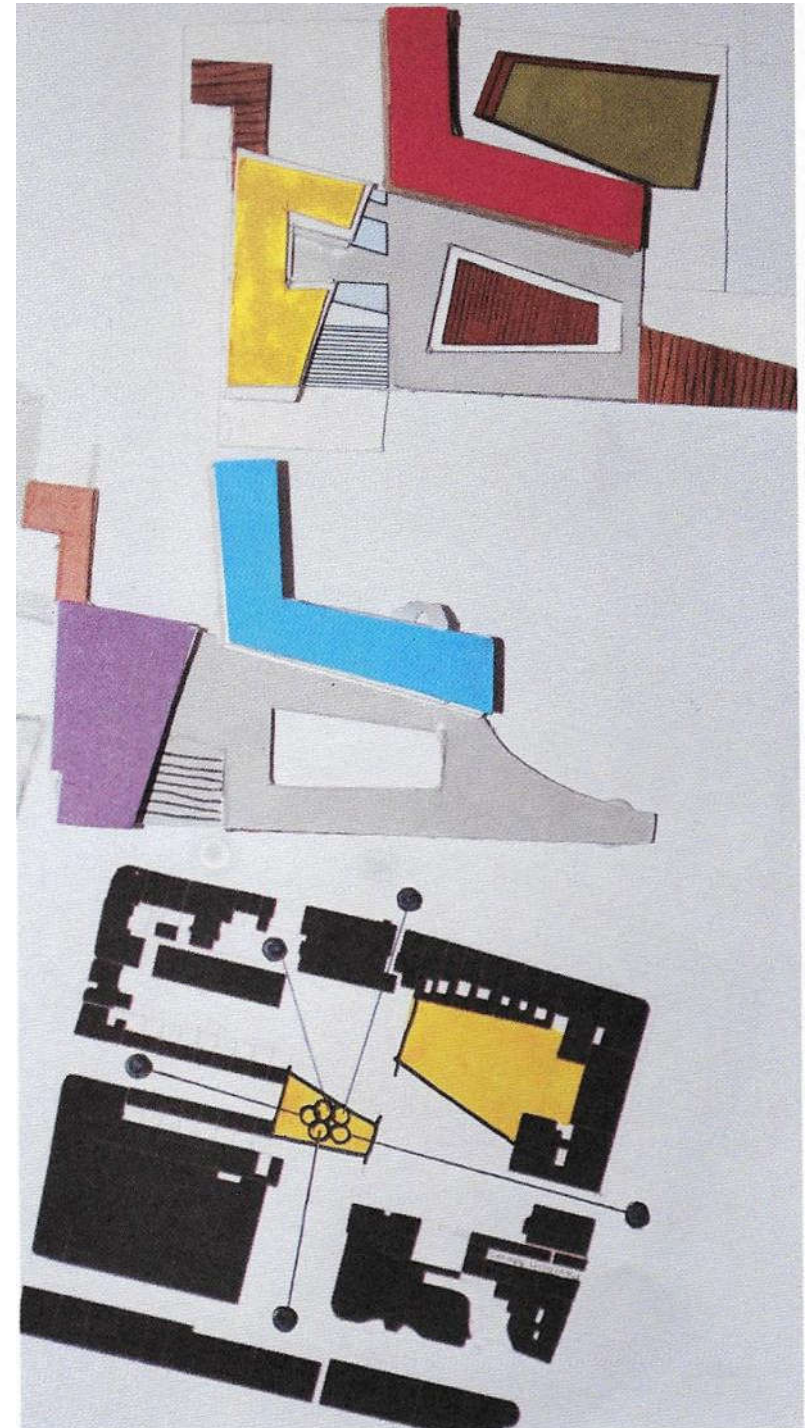
### Abstract Models

Abstract models are useful to **explain the concept** for a city of masterplan. These models may convey notions of form, space, mass or material. The intent is to suggest an idea rather than to determine it.



### Abstract Urban Massing

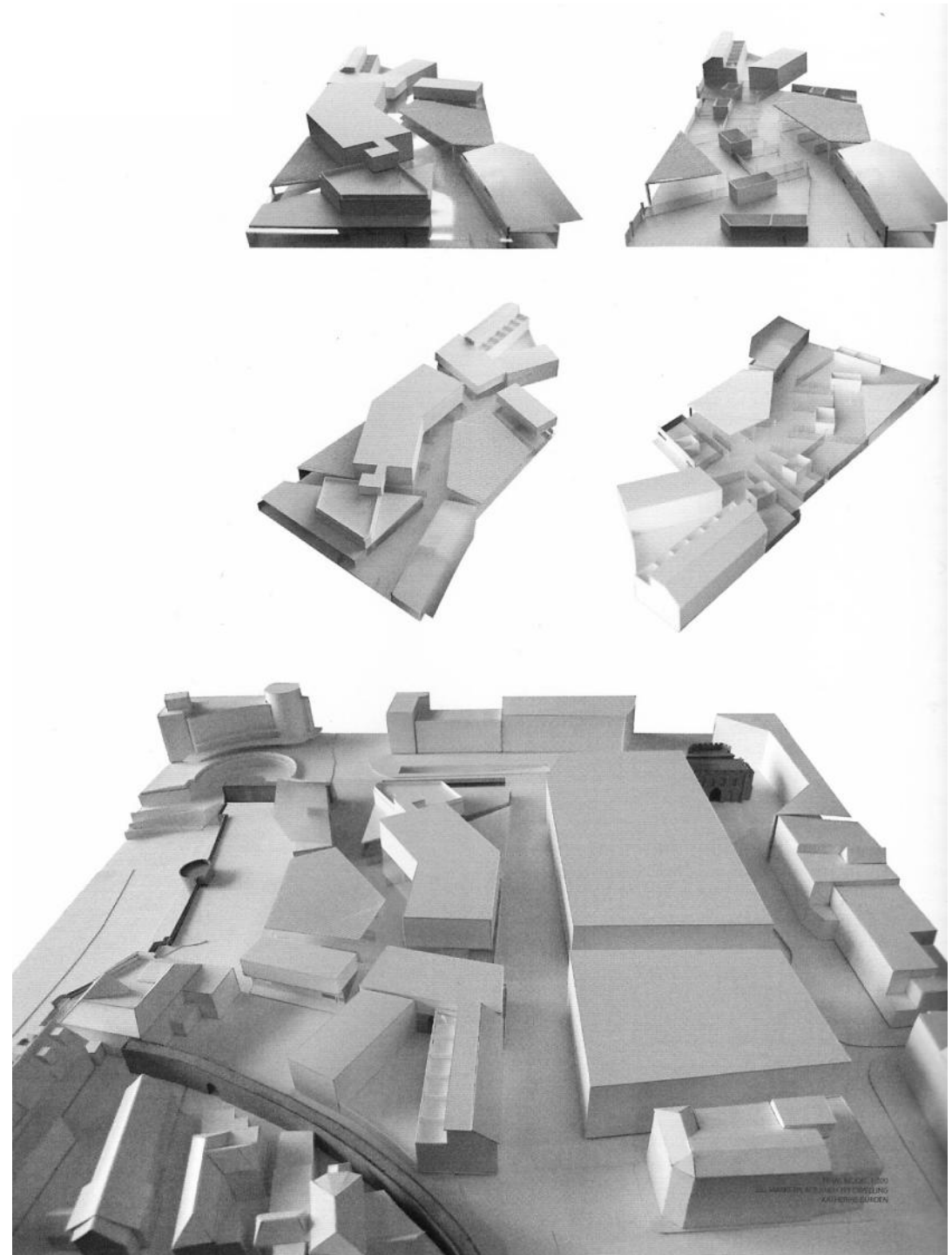
Urban massing can be abstracted to its **fundamental elements** to provide a core analysis of an urban environment.





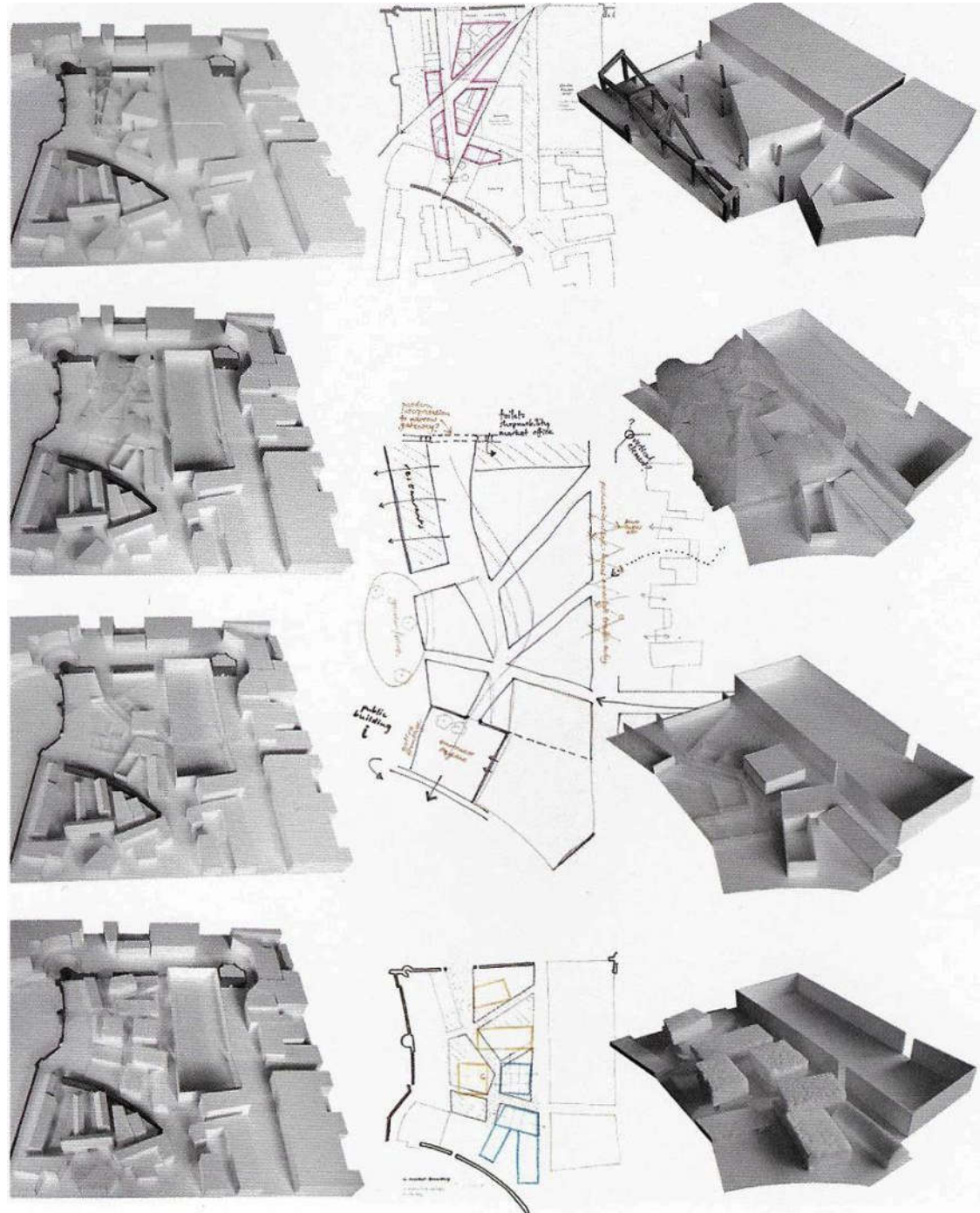
### Physical Diagrams

Diagrams can be realized like a model. In this case many layers are overlapped to physically portrait the process between analysis and proposal. Layers shows: figure/background, street network, program, hard/soft surfaces.



Black and white photography

Black and white photography is used to bring out the massing of the urban context. Pictures are cut out to have a white background.



Photography of the model

The models should be photographed as it changes and these photographs are the recorded process, of that models made at various stages are retained. They explain the evolution of the design, recording various thought processes and stages of decision-making.

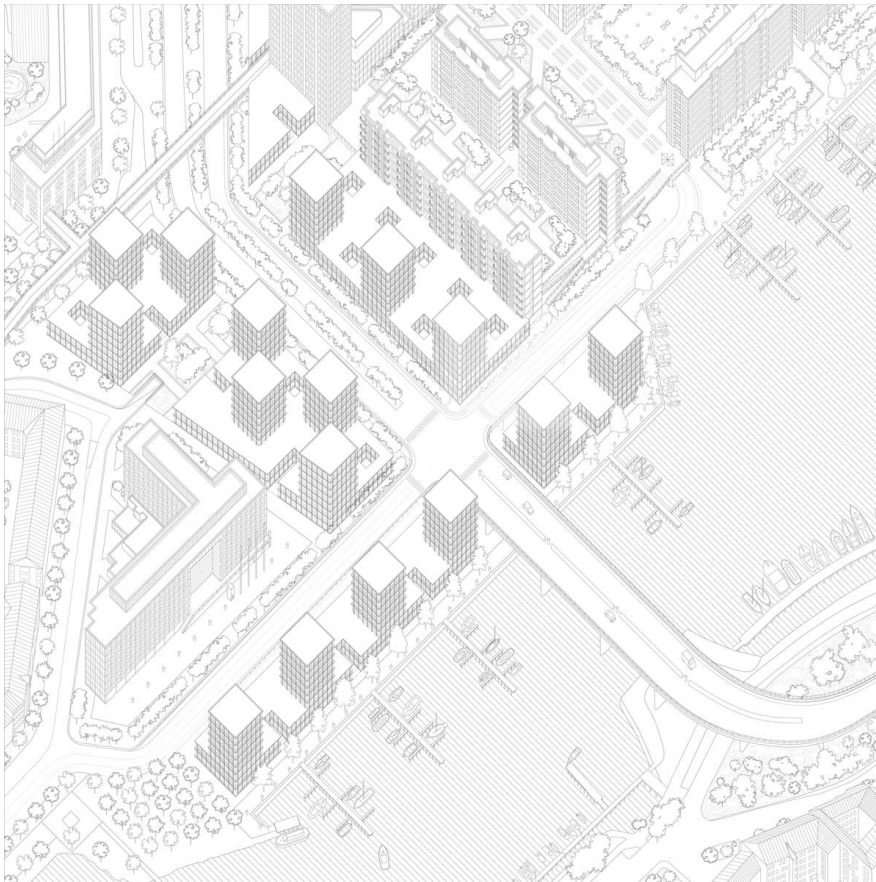


### CAD modelling

The CAD model gives a different impression from the physical model. It can cover an enormous physical area and it can be viewed at a range of scales, from **street level** to **bird's-eye view** of the whole cityscape. It needs to be used at **every stage** of the design process.



Dogma, Tower and Plinth. Proposal for affordable housing in the Merihaka district, Helsinki, 2014.

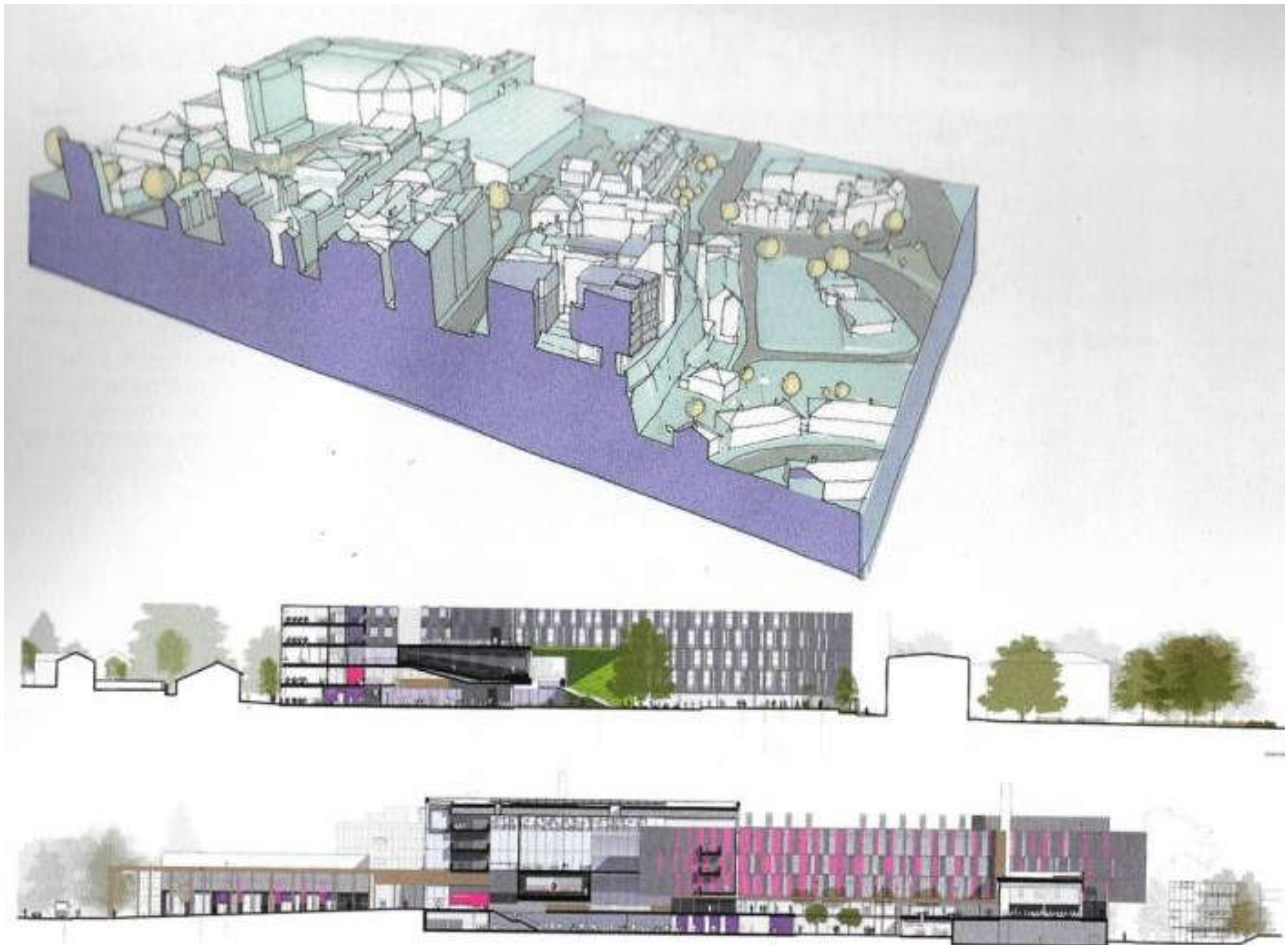


### Digital Axonometry

A way to use the CAD model is to have axonometry drawings. They better explain quantity and massing. An axonometric can have more or less details but what is important is the massing. The proposal may be represented with more detail and better refined.

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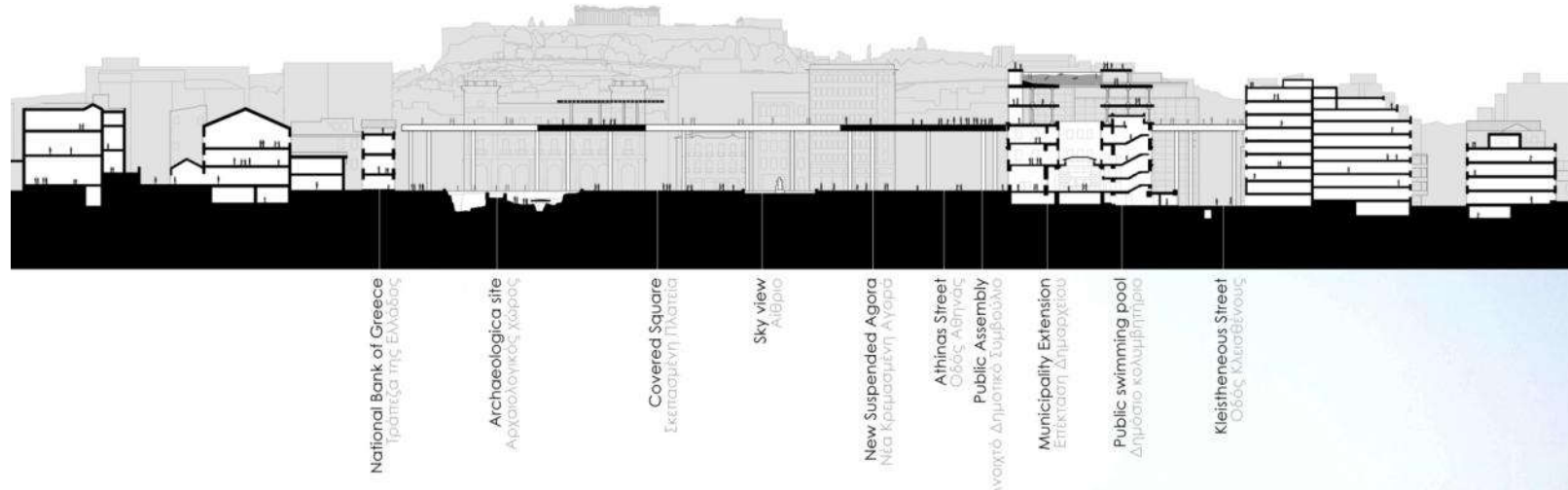
Re-format architects, residential scheme in Nottingham.  
Design Engine, urban section.



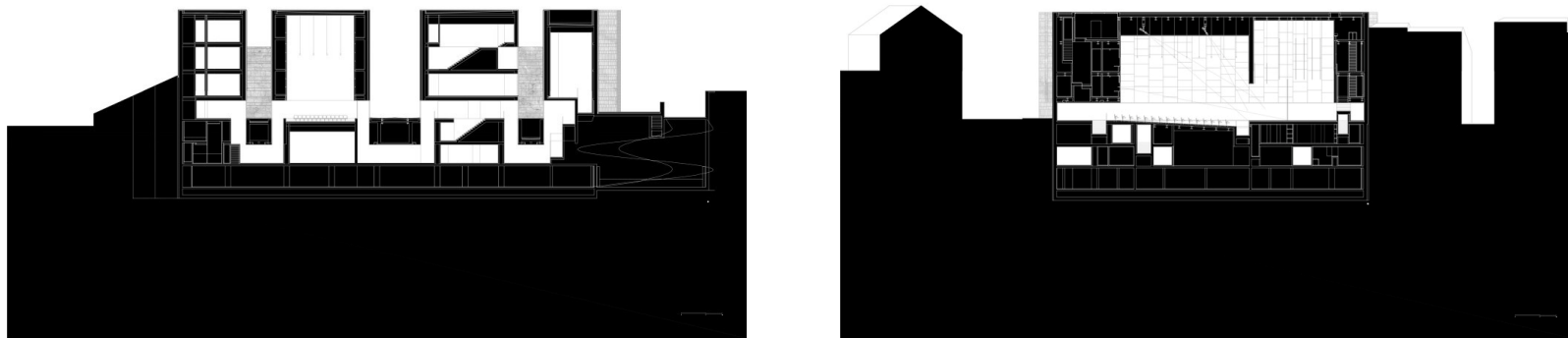
### Conceptual field

The conceptual field establishes connection across different areas. **It slices through a city** and within that slice reveals the concept of the city. It may connect a residential areas with a shopping mall. The section reveals what cannot be understood from looking at a map, like **heights, space in-between, dimension of voids, scale, topography.**

NEAR architecture, Plateia Kotzia



Aires Mateus, Sines Center for the Arts, Sines



Mass/Voids

Using only black filled areas and light gray is a useful tool to highlight the relationship between masses and voids, underground areas, levels, functional spaces vs. service spaces, and the continuity of the ground line through our building.

