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Thesis submitted to the faculty
of the Virginia Polytechnic Insti-
tute & State University in partial
fulfillment of the requirements for
the degree of

MASTER OF ARCHITECTURE

Professor William Galloway
Chairman

Professor William Brown

Professor Eugene Egger

Professor Heinrich Schnoedt

ABSTRACT



Place de Montparnasse

Rue Bobillot

Avenue d'Italie

Rue de Tolbiac

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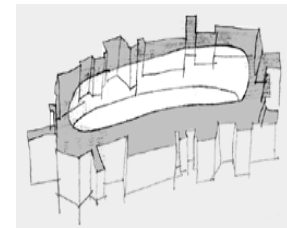
Boulevard Kellermann

Stade Sebastien Charlety

Peripherique Interieur Sud

The character of an urban void is defined by the built surrounding which determines the appearance and the function of the enclosed space. In modelling urban form, three major zones corresponding to this phenomenon may be distinguished:

1. Core
2. Transition Zone
3. Surrounding



The transition zone contains the capacity to determine the prospective character of the framed void. It offers the possibility to intervene in the existing urban form, not by filling, but by emptying it. The void experiences a transformation from a neglected urban object to a clearly identified urban subject. This threshold towards the void serves as a mediating element between the two coexisting situations. It acts as a "coullisse" of an urban theater towards the void.



The history of the urban growth and urban forms in France and more particularly in the Parisian context.

The economical and social crisis that french society had to endure had important consequences in the formation of urban housing and public space - urbanized space.

Urbanism inherited from the period 1950/1980 emphasized the social inequalities creating numerous urban zones occupied by the urban lower class, the most affected by the crisis. These "poche de pauverte" (formations of poverty) became places of relegation and exclusion, spatially as well as socially, which generated violence and political ruptures.

After having questioned the principles inherited from the "modern movement" (Congres Internationaux d'Architecture Moderne) as they were used during the 50/60's:

The rejection of the historic city, functionalism and zoning, automobile supremac and the methods that accompanied them, it seems that the contemporary urban project arises from a renewed political approach to the

intervention in the urban space. The urban project is a process of conception, aiming to preview and organize the evolution of an urbanized area. The urbanized area is defined as a continuously dense occupied space independent of the length of time of this occupation.

An urban project is also implemented when contradictions appear between the present situation of the occupation of this space and the possibilities of passage to other forms of occupation and socially more interesting usage. The intention of an urban project lies in finding an answer to these contradictions, by proposing a spatialized synthesis between social needs and the available means.

There are no two urban situations which are identical, but common to all is:

the definition of program on the one hand, and the relevance of the proposed spatial answer on the other hand.

HISTORY

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This project is sited at an edge situation in the 13th ward of Paris near the "Place de Rungis" adjacent to the peripheral belt highway. The aim is to reintegrate the area of the 3 hectares, including a warehouse, a former train station, and a decommissioned freight yard of the little belt railway system "petite ceinture". The place is surrounded by urban block type buildings of the 19th century on the north side and high-rise apartment buildings of the 60's or 70's on the south side. The split character between the two different urban forms is characteristic for the chosen site.

An urban project differs from architectural design in several essential points. First of all, although the physical dimension might be the same (Grande Bibliothèque de Paris, Opera Bastille) the emphasis is placed on different aspects of that physical reality: in the architectural design it is placed on the treatment of what is happening within its immediate periphery. Conversely the urban project in contrary deals with the relation between the territory to be treated and its further environment, taking into consideration all the forms, scales, limits, and as well articulations of it.

SITE

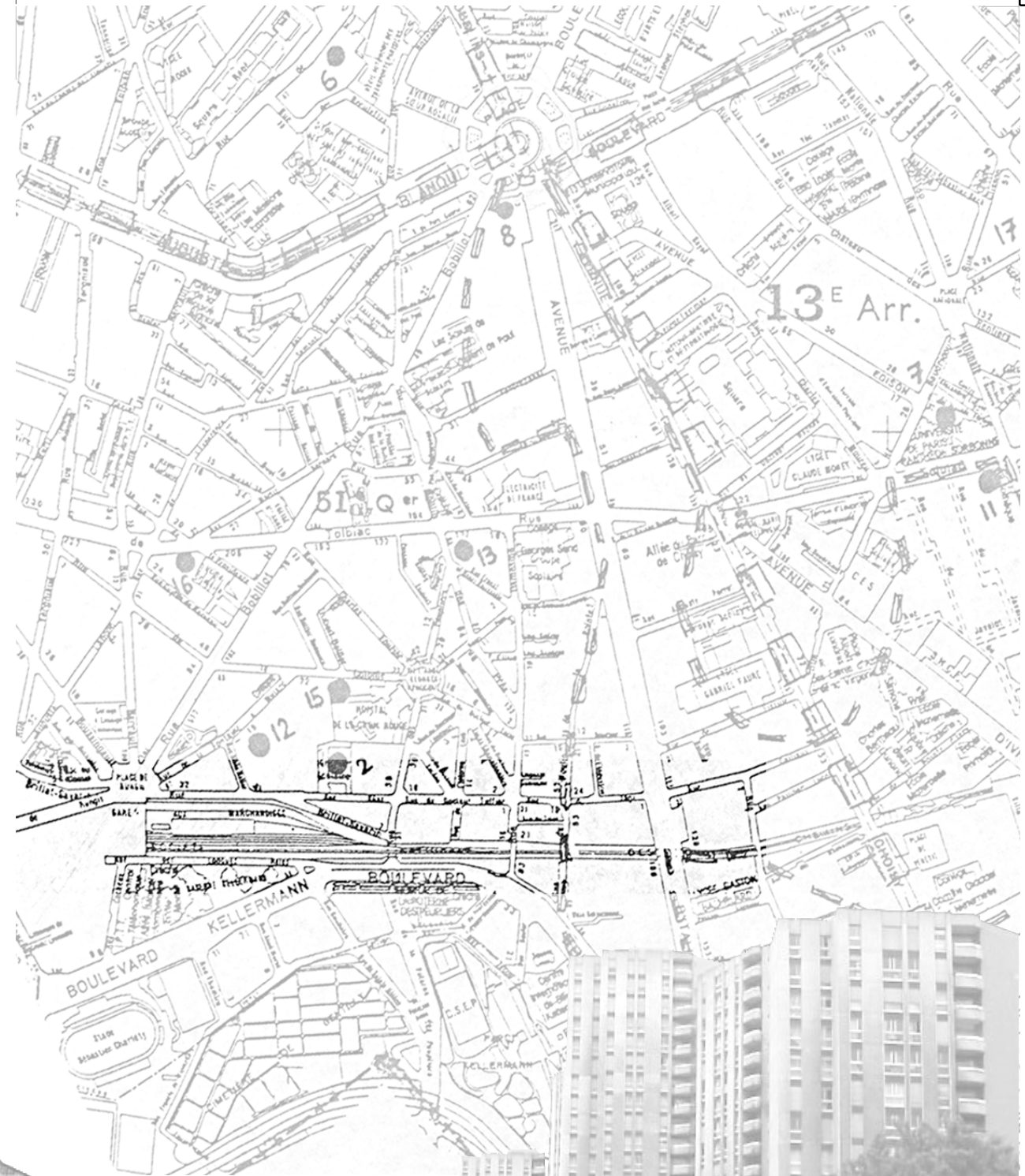
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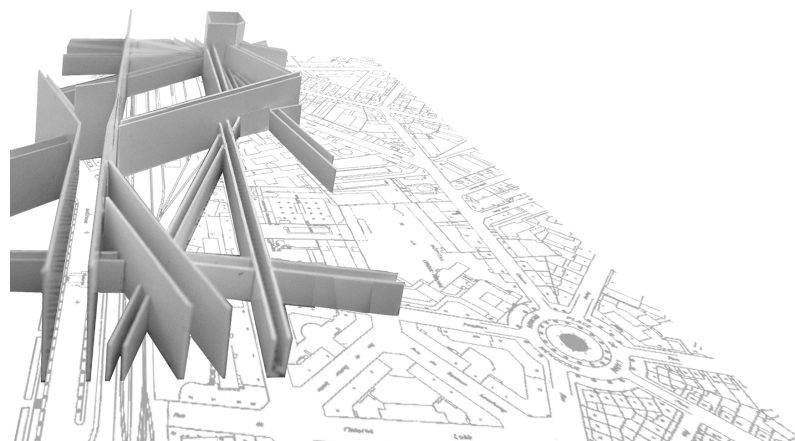
SITE

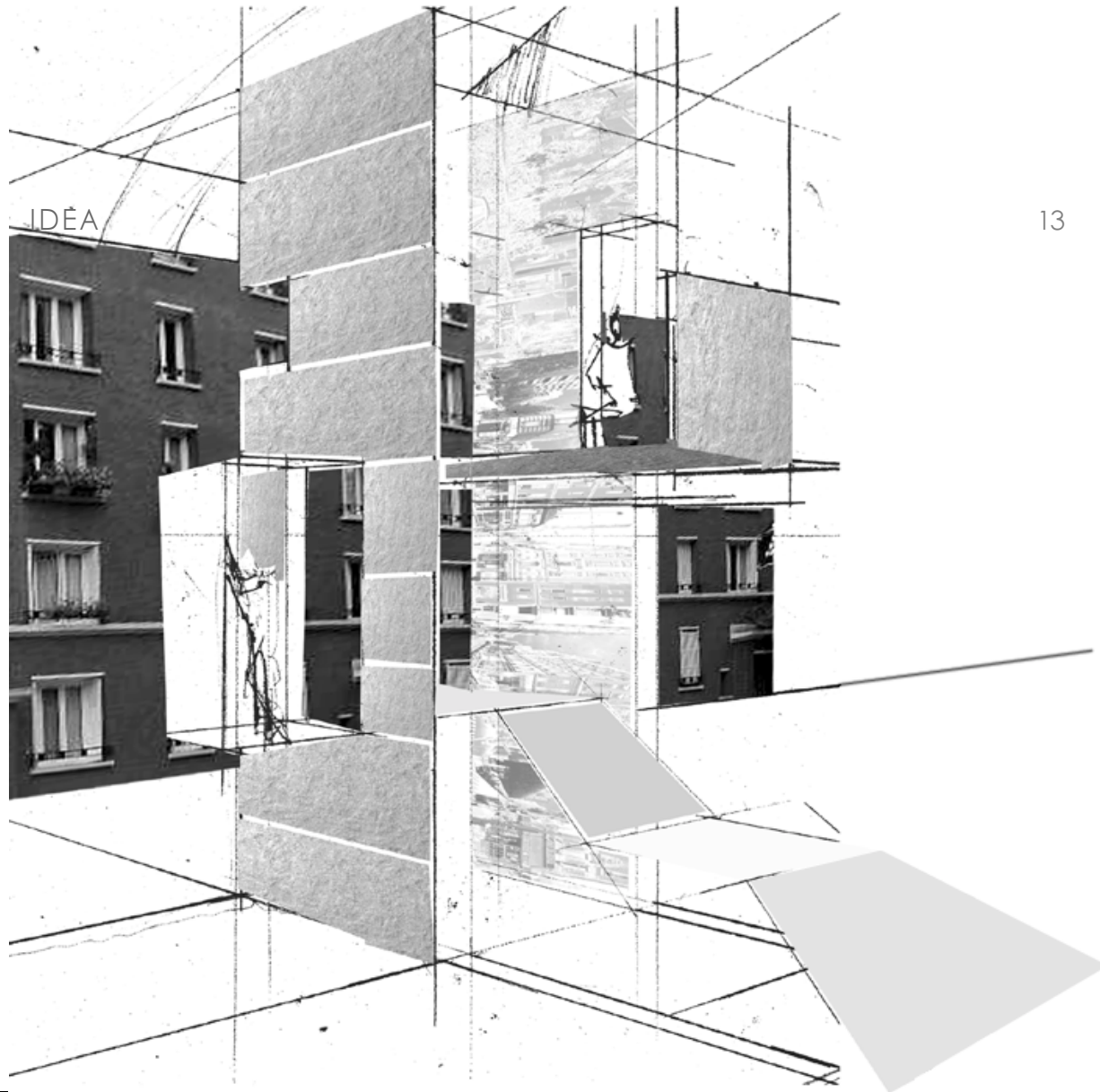
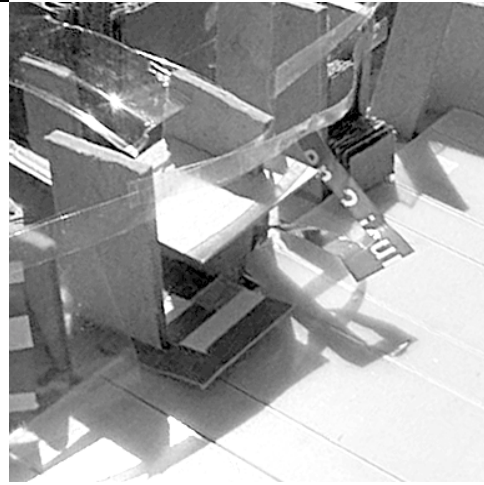
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The model shown on the opposite page illustrates the volumes occupied by the extruded street areas. The different heights of the volumes are derived from the hierarchical importance of each street in the context of the street network. The new urban infill represents an

attempt to locate the beginning of an urban extension to the boundary of the already existing urban context. This threshold takes place in the street using its characteristic functional qualities. The extension of the circulation to the 3rd dimension widens the communal spaces.



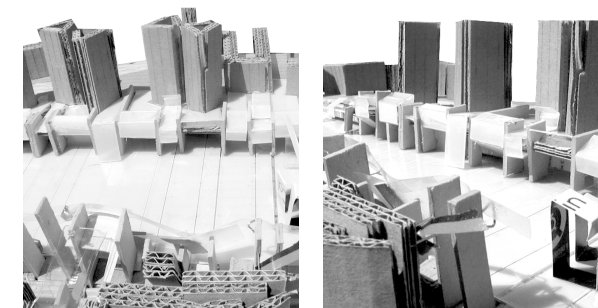


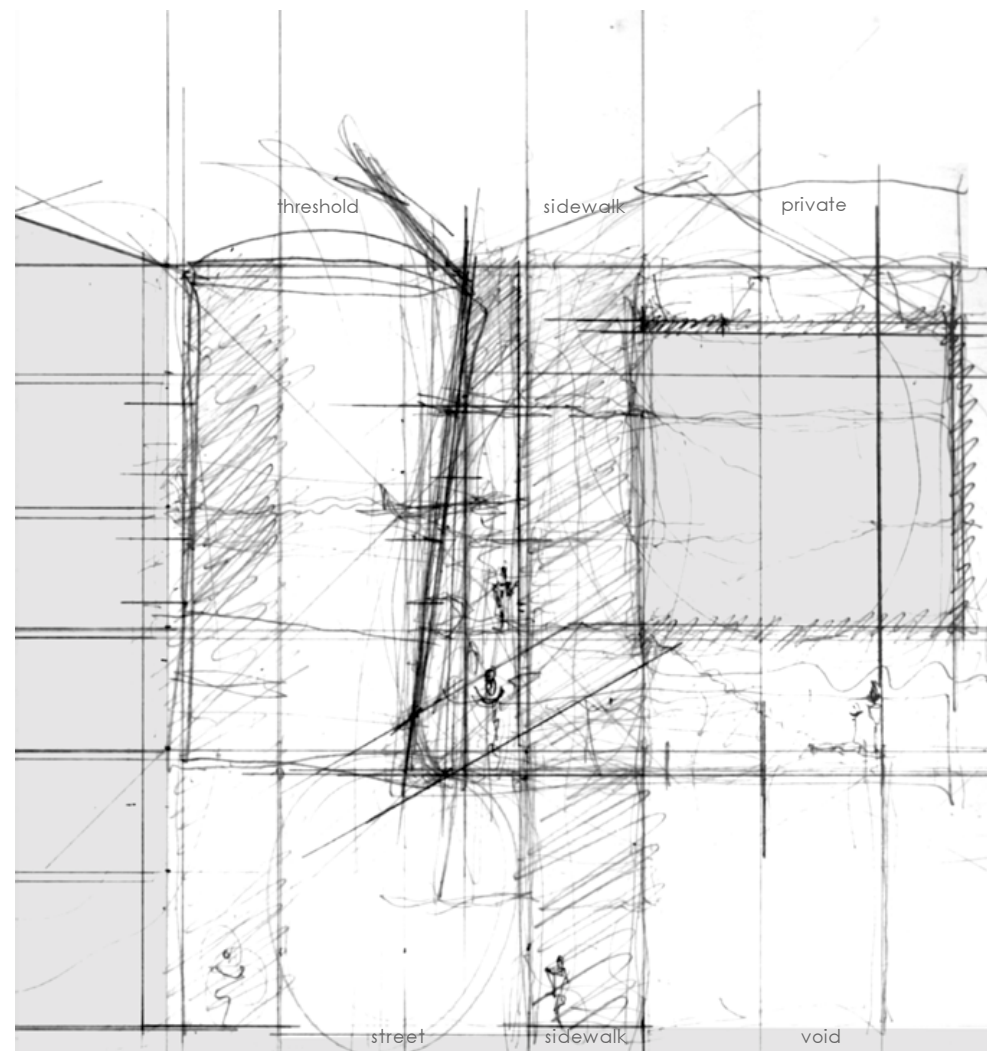
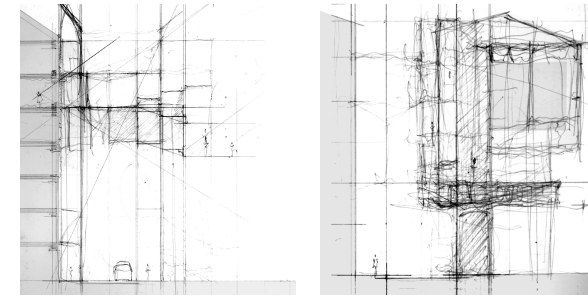
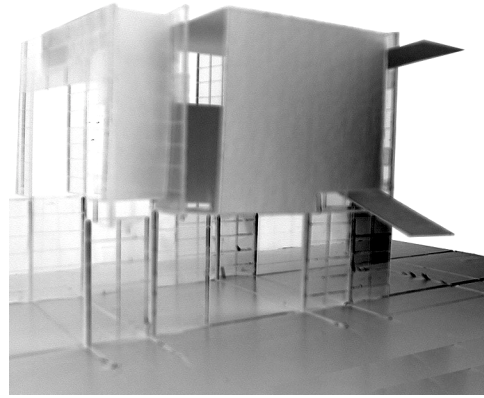
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The threshold is modeled as a row of repetitive walls on both sides of the void providing the ordering structure for the entire extent of the project. Based on a grid of 9/9 m derived from the measurements of the existing street width, the walls are inhabited by the circulation devices

for accessing the spaces in between the walls. The construct serves as an functional extension of the existing neighborhood and offers additional space for communal activities. The form of the infill changes according to the topographic and topological conditions.



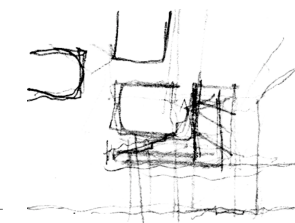


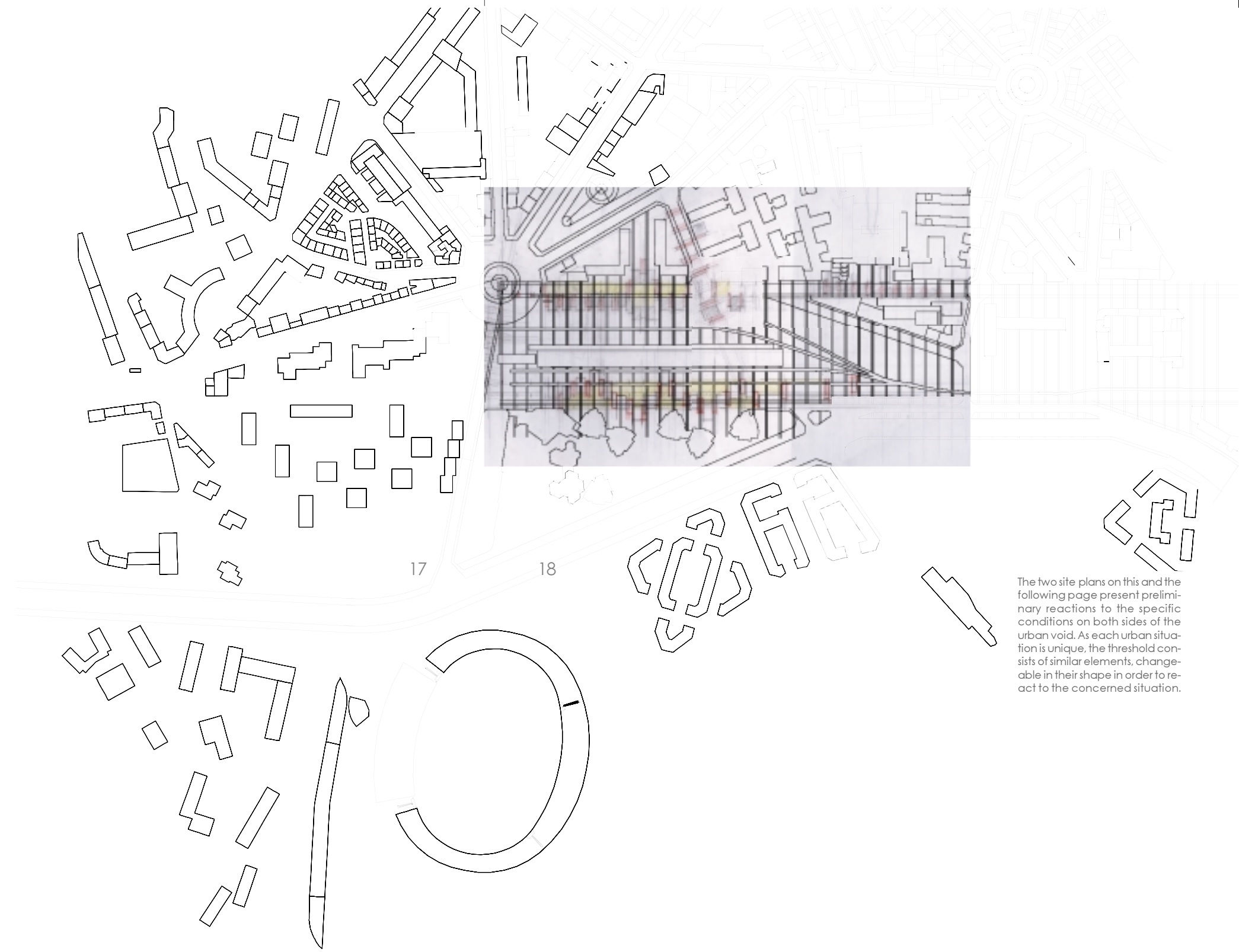
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Section studies are employed to verify different ways of framing the space between the proposed project and the existing streetfront. The section is divided into rooms for the public on the street level, semi public spaces on the second level and private space on the third level.

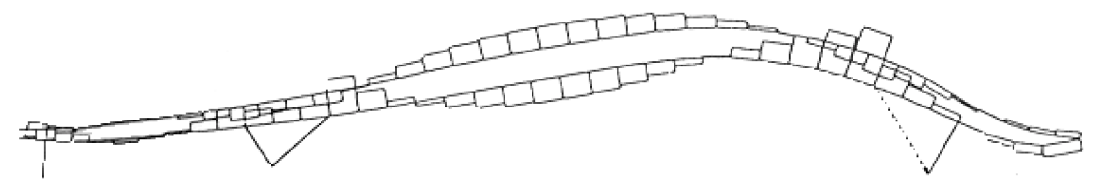
The section on the opposite side comprises a semi public sidewalk on the second level and an independent private space, whose orientation marks its use. The folded semi public wall enclosing the street opens the street room towards the void and creates an urban loggia.



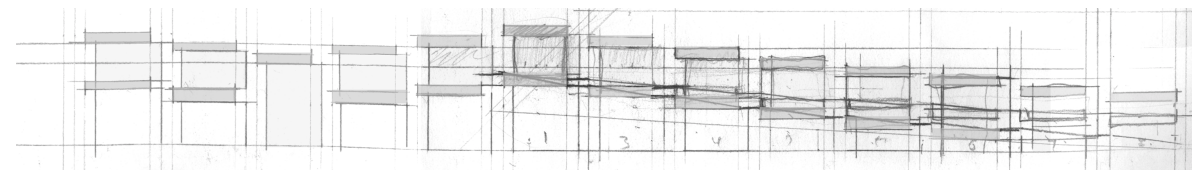


IDEA

The two site plans on this and the following page present preliminary reactions to the specific conditions on both sides of the urban void. As each urban situation is unique, the threshold consists of similar elements, changeable in their shape in order to react to the concerned situation.

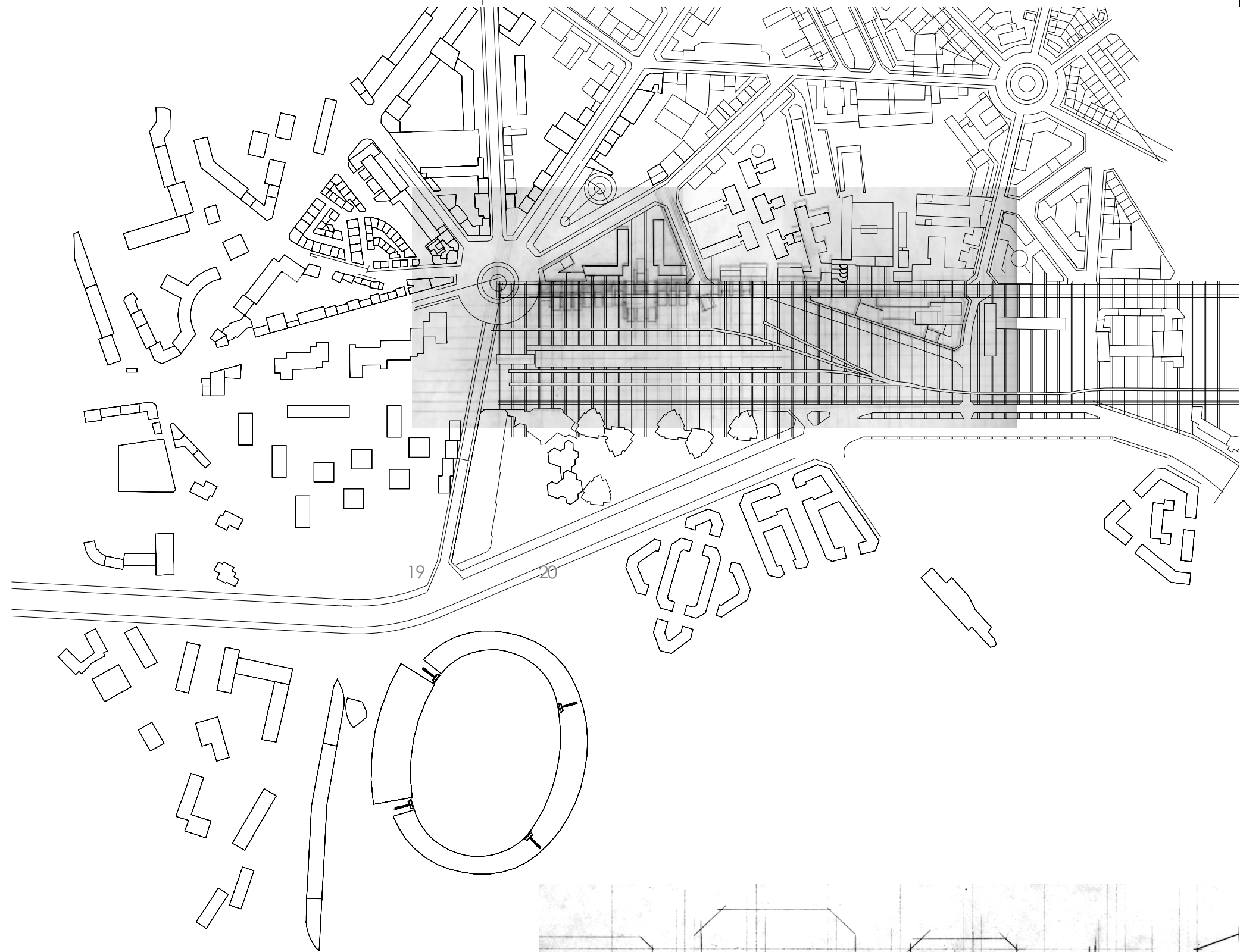


Roof truss force diagram of the Kansai int. Airport, Osaka by R.Piano



Longitudinal section through the street- horizontal ramp circulation



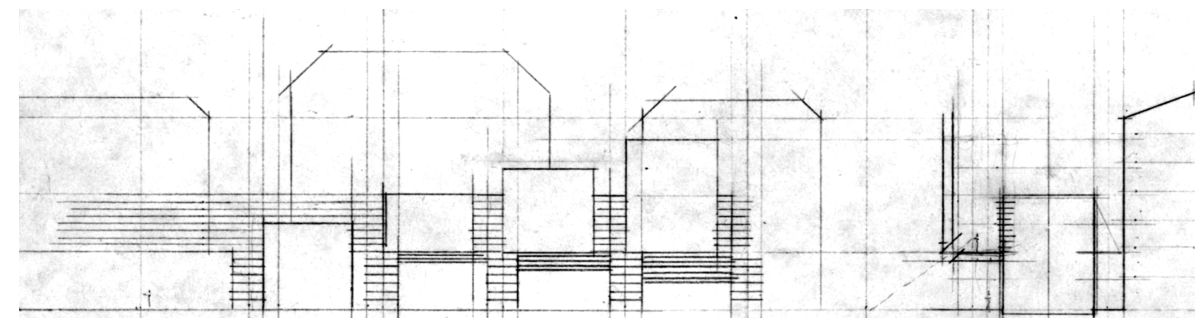


IDEA

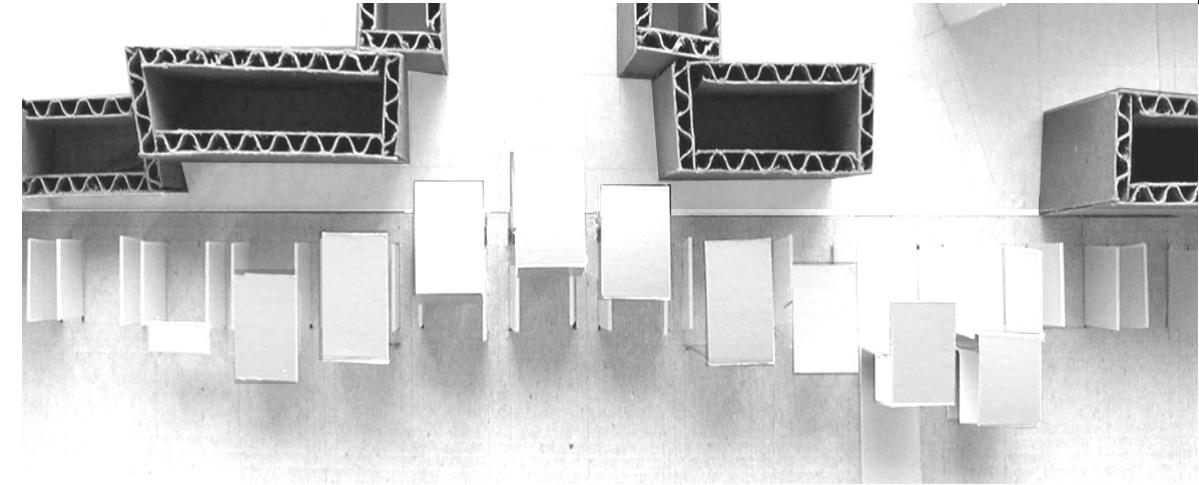
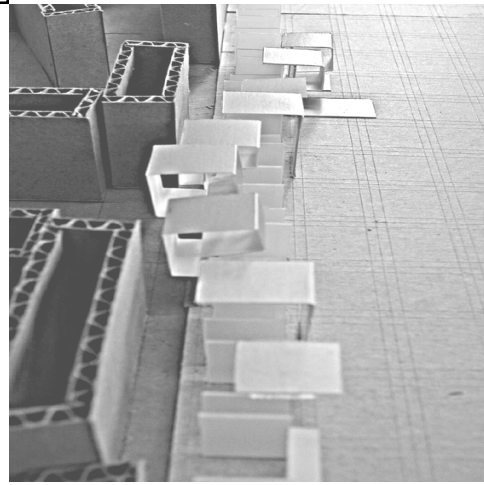


GUIDING

A generous ramp system interlocks the elements of the project horizontally



Relationship of the folded elements to the streetfront and the elevation and section



IDEA

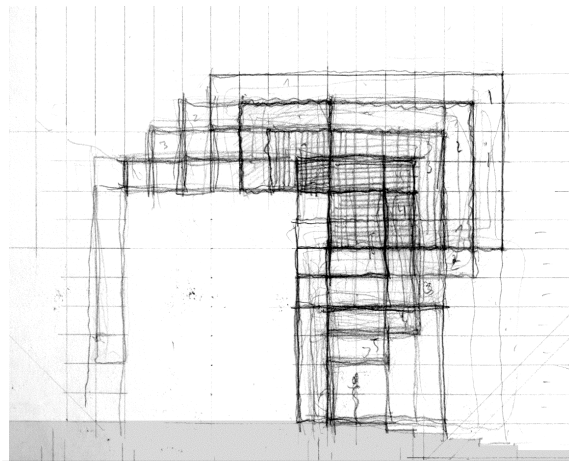
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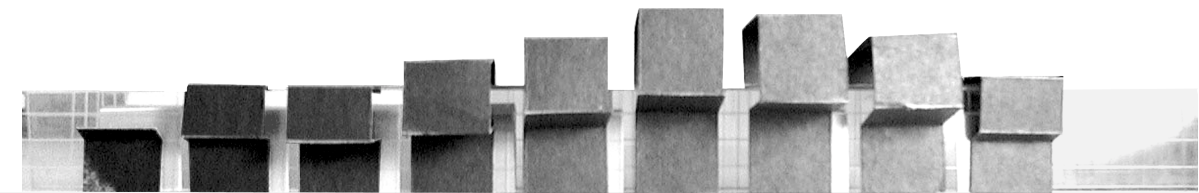
The threshold consists of two major dependent elements:

1. The walls perpendicular to the streetfront provide the structural stability and serve as the connector to the existing urban environment.
 2. The folded facade element located parallel to the streetfront defines the sectional shape of the space formed between wall and facade.

The extent and size of the folded facade are directly dependent on the streetfront of the background. The space in section varies from completely open to completely closed in several gradations. The continuity of the row of folded elements generates enclosed, different usable rooms of different sizes.



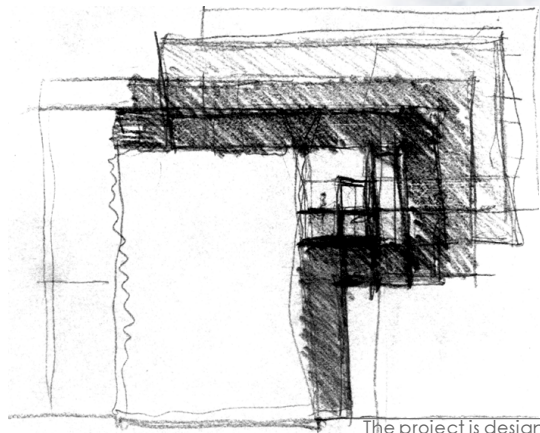
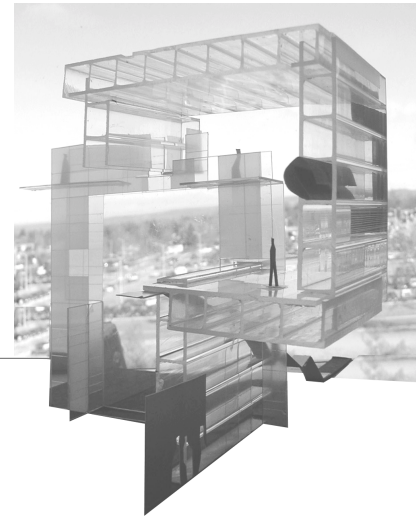
spatial relationship between enclosed and open space of the plaza



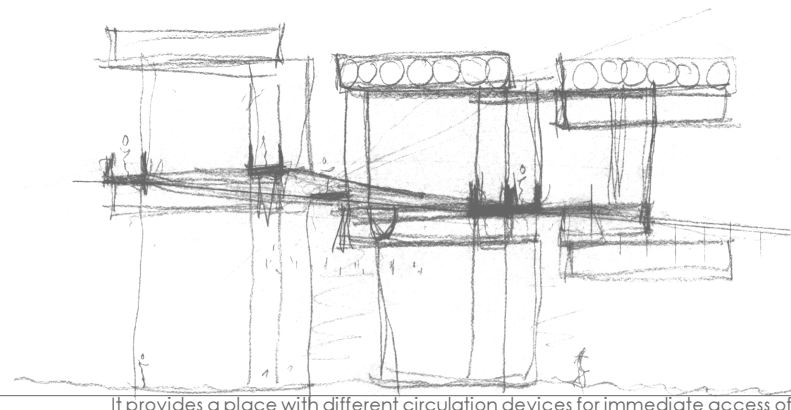


PROJECT

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The project is designed as a preparatory infrastructural device for a continuing urban extension.



It provides a place with different circulation devices for immediate access of the singular folded elements



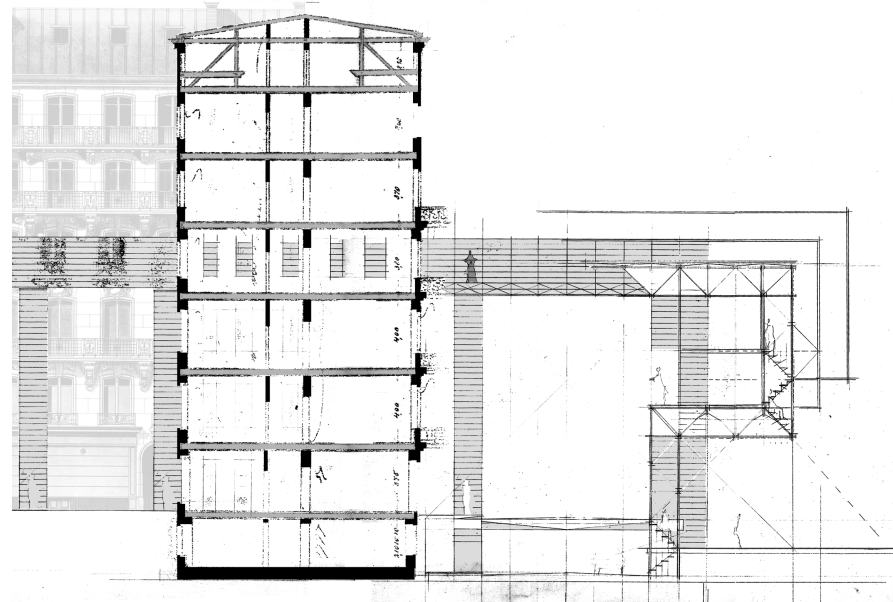
The frames perpendicular to the streetfront define the dimension of the street and build repetitive regular elements in the longitudinal extent of the project. The thickness of the frames changes according to the structural need to support the folded facade. The frame inhabits the passageway in order to connect both street sides with each other.

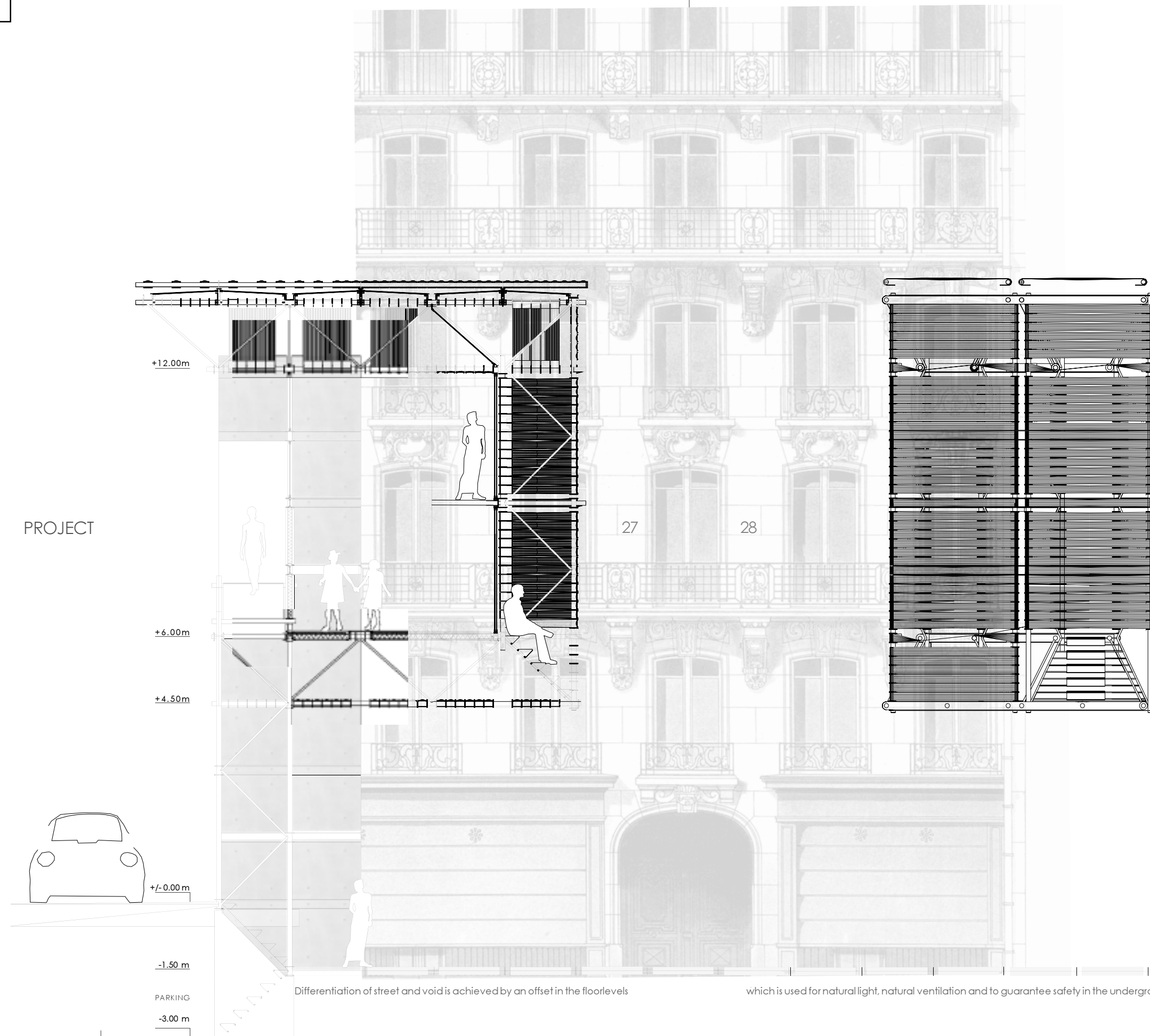
The density of the fold is set in relation to the density of the existing neighborhood. A play of transparency in the overlapping areas of new and old questions the position of the background in relation to the foreground and creates a stronger interrelation of street room and building.

PROJECT

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PROJECT

+12.00m

+6.00m

+4.50m

+/- 0.00m

-1.50m

PARKING

-3.00m

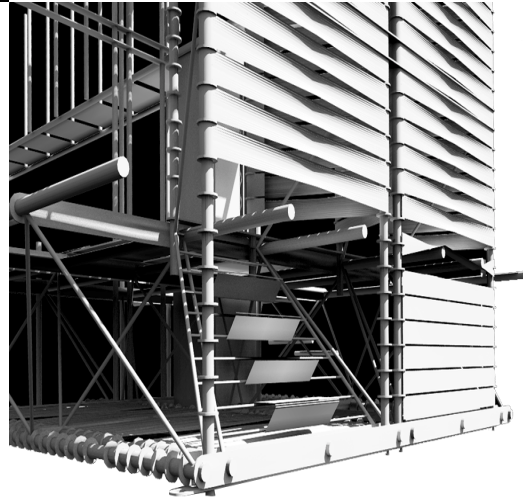
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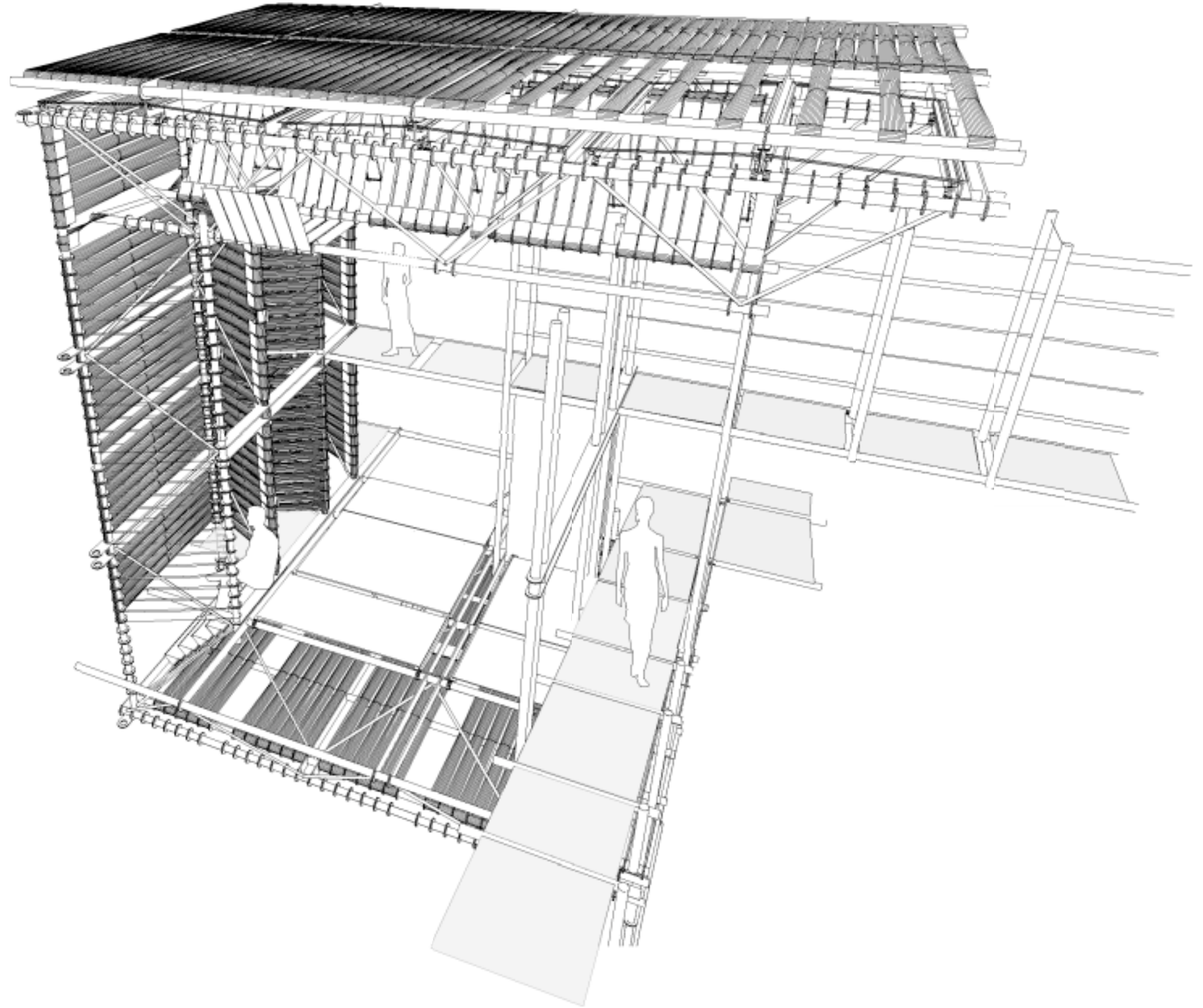
Differentiation of street and void is achieved by an offset in the floorlevels

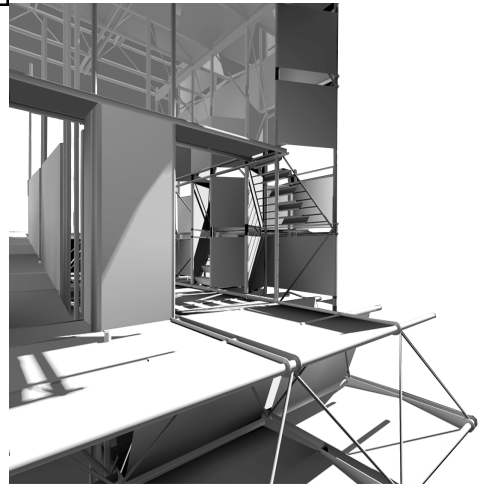
which is used for natural light, natural ventilation and to guarantee safety in the underground parking below the streetlevel.





SPACE

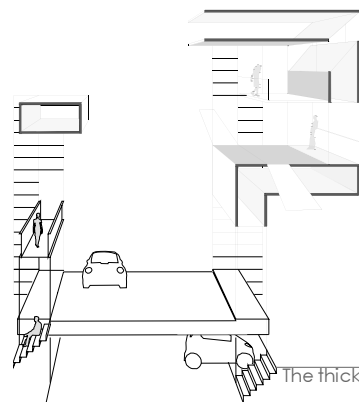
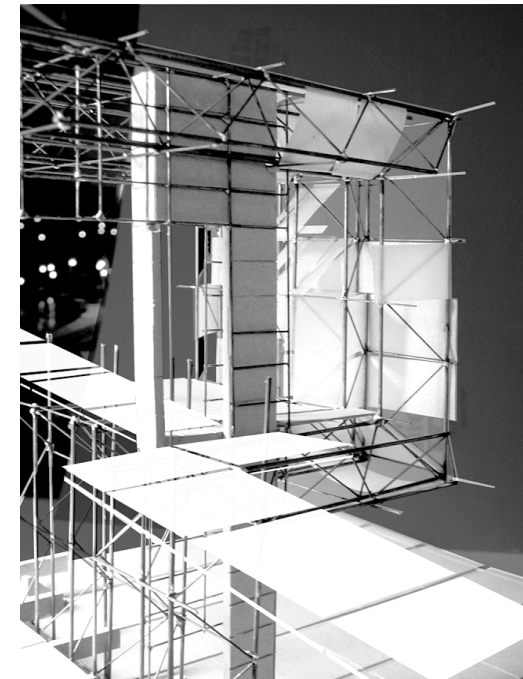




SPACE



The entrance situation to the single rooms is marked by the change of the ramp landing in order to change the circulation direction. The concrete wall in the steel frame work serves as anchorage for the ramp structure and as beginning signage of each new element.



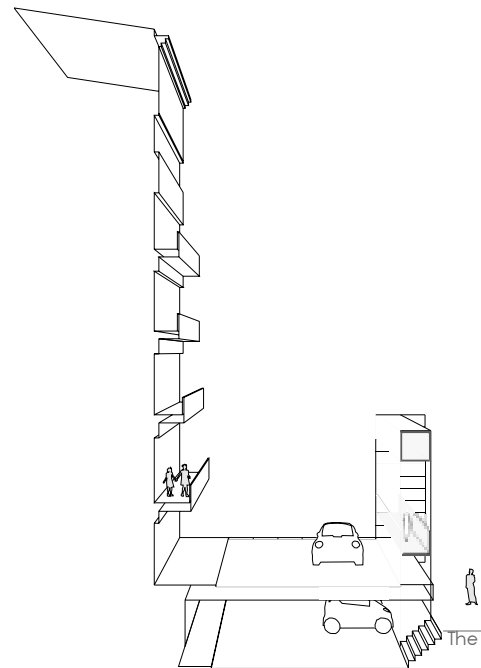
The thickness of the skin serves as threshold between the thermally closed space and the exterior. The space in between the structural members of the facade hosts the interior circulation devices.



FACADE

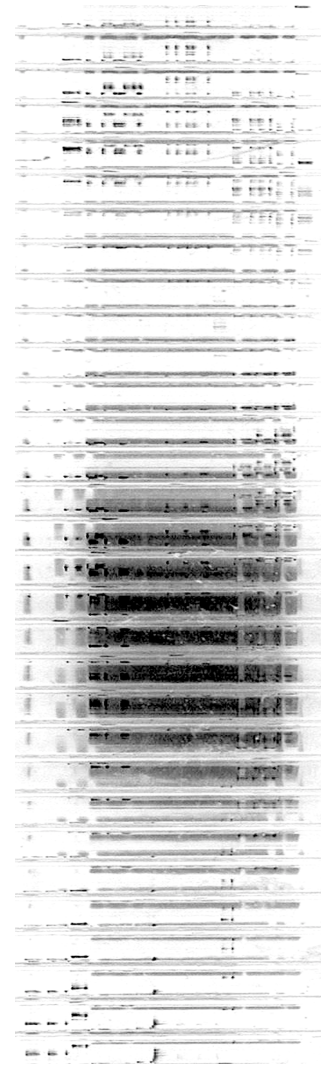


The wrapping skin elements are stretched on the tubular steel structure members responding to the specific need of natural light for the interior spaces. In order to maintain the closed appearance of the folded facade towards the void the openings widen to the interior.



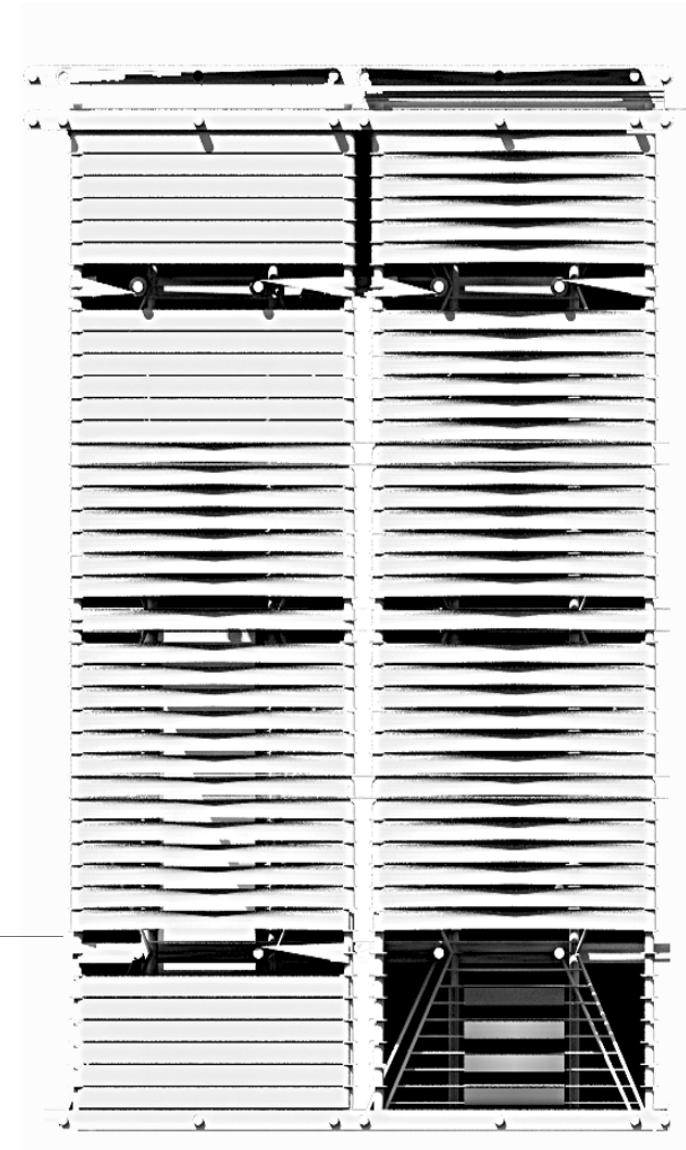
The facade studies in both digital and physical models illustrate the intention to control

the transparency of the folded facade according to existing background and the use of the enclosed space

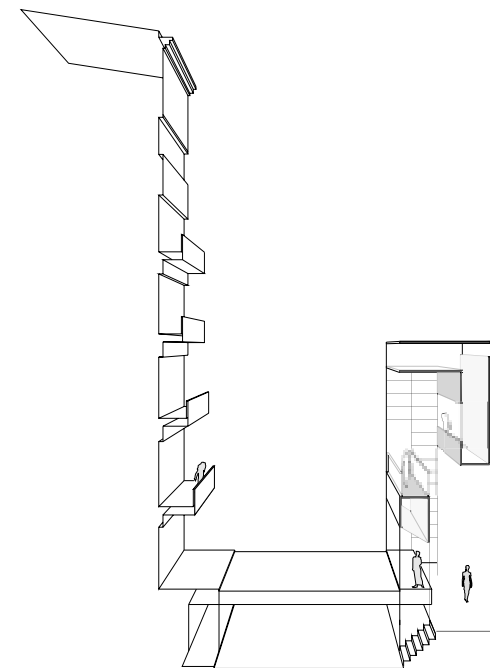


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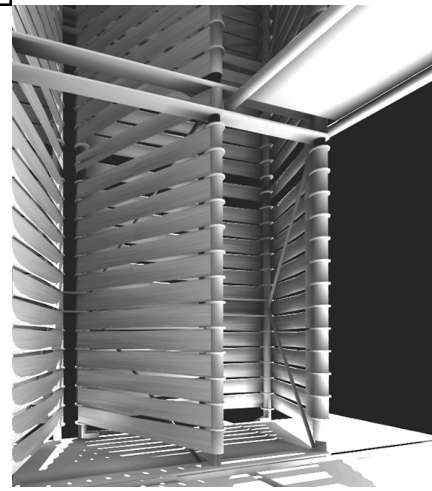
FACADE



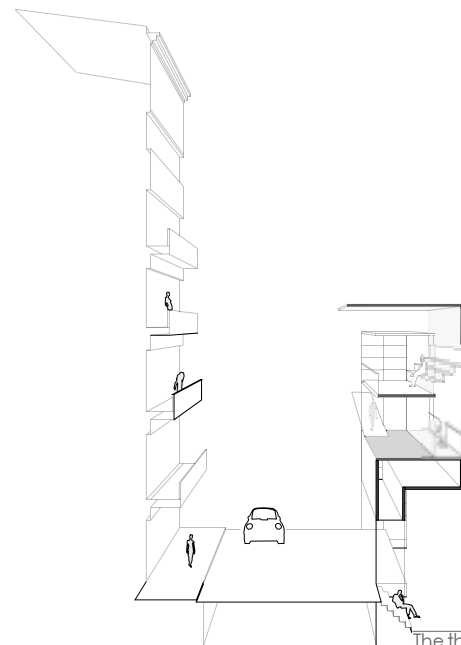
The wrap stretched on the steel tube structure like a canvas on a wood frame is realized by textile non ductile metal sheets, for instance copper. The tension is transferred by stainless steel springs on the metal louvers ensuring a constant tension. Small changes in the length of the lou-

vers caused by thermal expansion can be therefore avoided. The tension on the louvers is raised at the lower parts of the facade and in areas where the in between facade space is accessible in order to increase the transparency of the rainscreen towards the void.





FACADE



The thickness of the folded skin is used as a threshold for light and as a rainscreen accessible

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rainscreen shading device
thermal enclosure
2% inclined 2 layered security glass
gutter system

lighting and HVAC

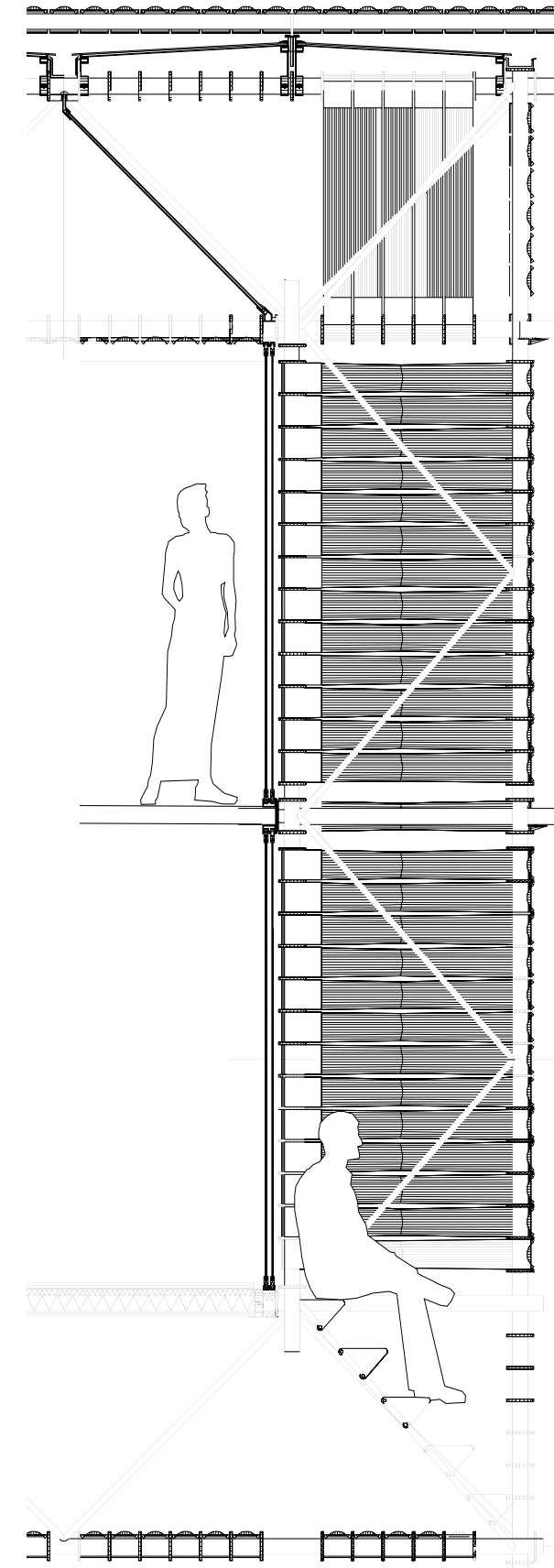
10 cm galvanized steel tube

thermal floor level enclosure

sitting device

through sliding doors on both levels

+ 7.80
+ 7.50
+ 6.00
+ 3.00
+/-0.00 M
- 1.50

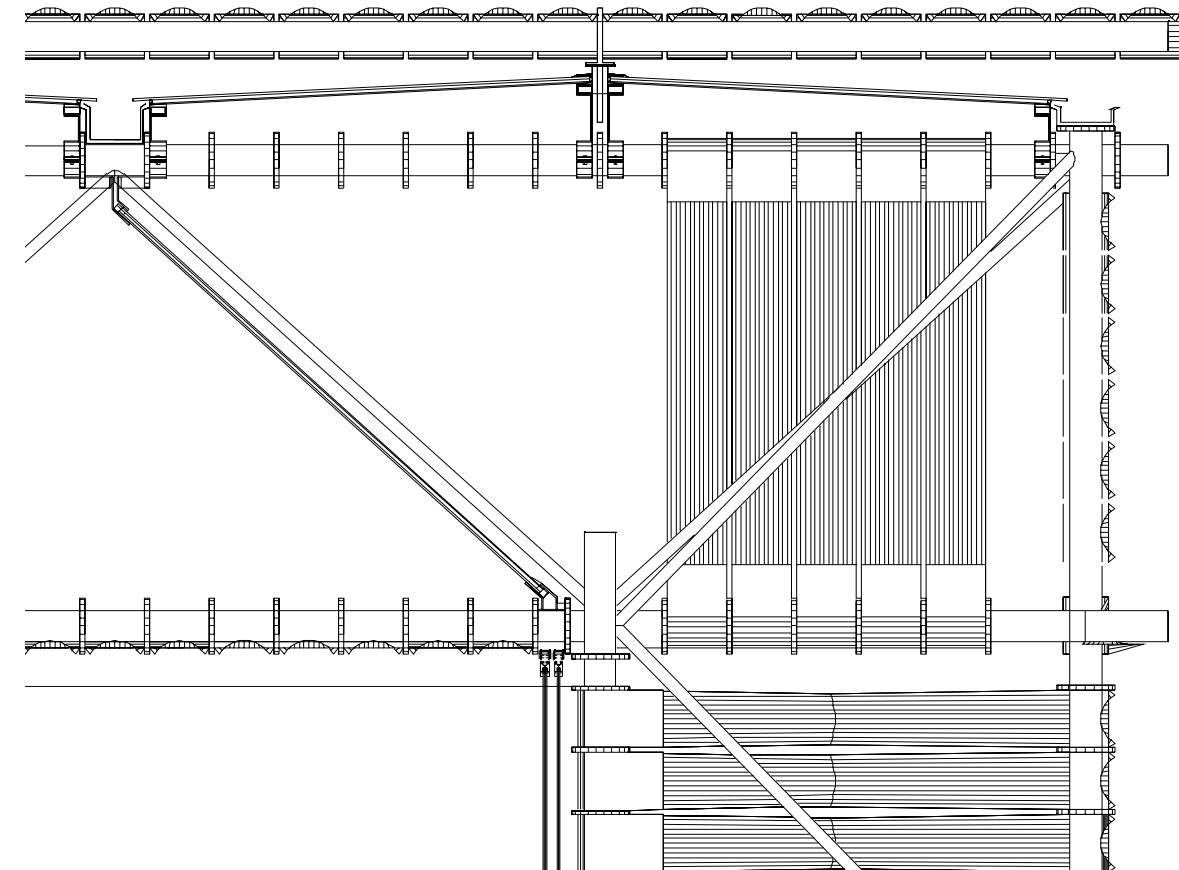




FACADE

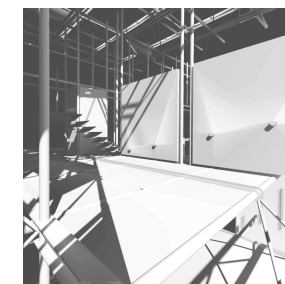
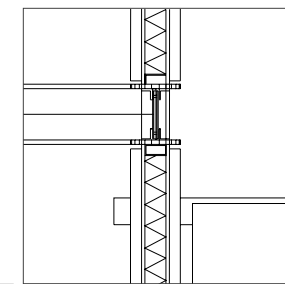


The triangular shapes of the truss members are employed in section and in plan to



The louver sheets are separated from the 10 cm diametred galvanized steeltubes by a plastic hard foam material in order to avoid corrosion caused by contact from two metals of different chemical properties. Prefabricated concrete panels with insulation infill are used in the inter-

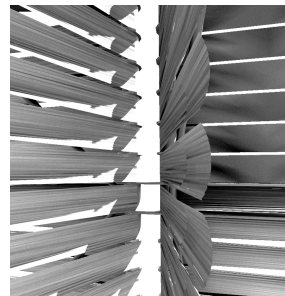
ior areas as separation walls to the connected ramp to act as heat storage and as noise buffer. As result of their little structural importance, the connecting joints are designed as longitudinal windows to increase the transparency towards the street and the ramp system.



direct the views through the facade towards the void.

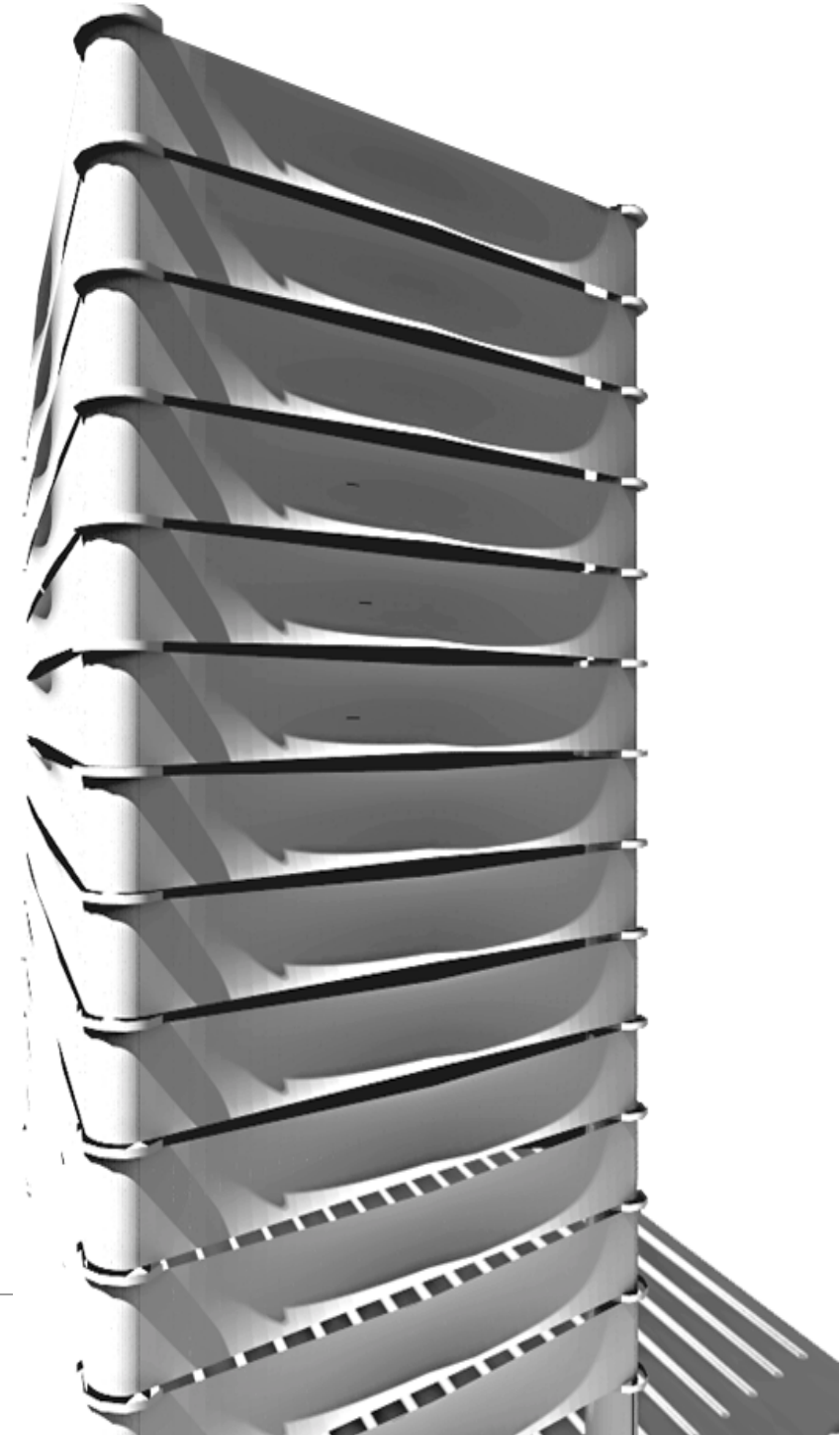


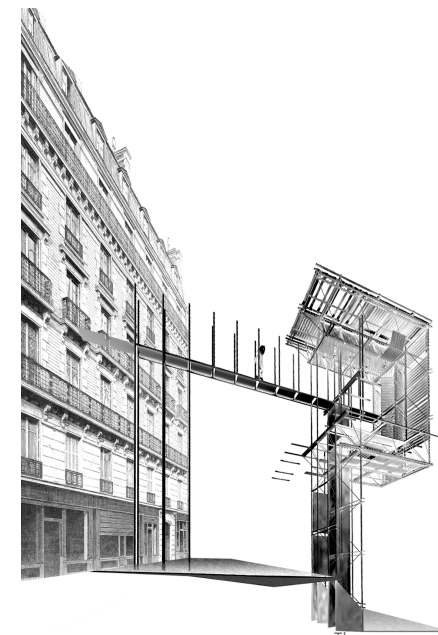
The linkage of the roof and the facade truss is achieved by an offset of both structural systems. The penetration of the vertical and horizontal truss members responds to the intended structural transparency: two elements joining at the same level without being directly but laterally connected to each other. The plastic ring element fixes the louvers in place and avoids the metallic corrosion. The slightly curved surfaces of the stretched copper sheets help to distribute the light through the slim curved openings to the interior space.



SKIN

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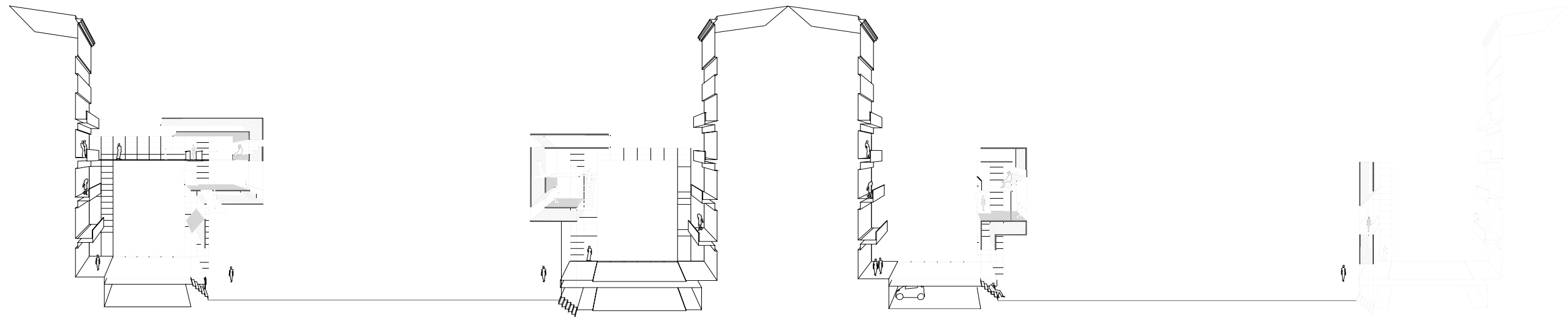




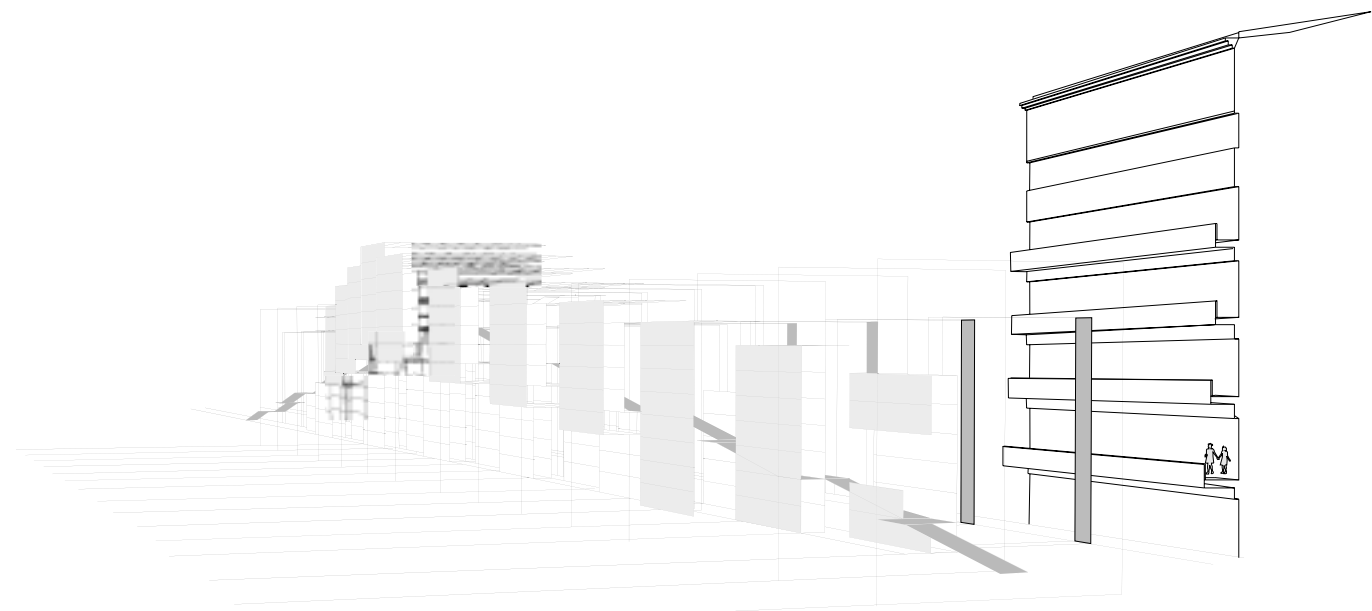
The sequence of sections shown on the upper level illustrates the morphological changes of the

folded facade in consideration to the variation of the neighborhood. The ramp as the major longitudinal medium

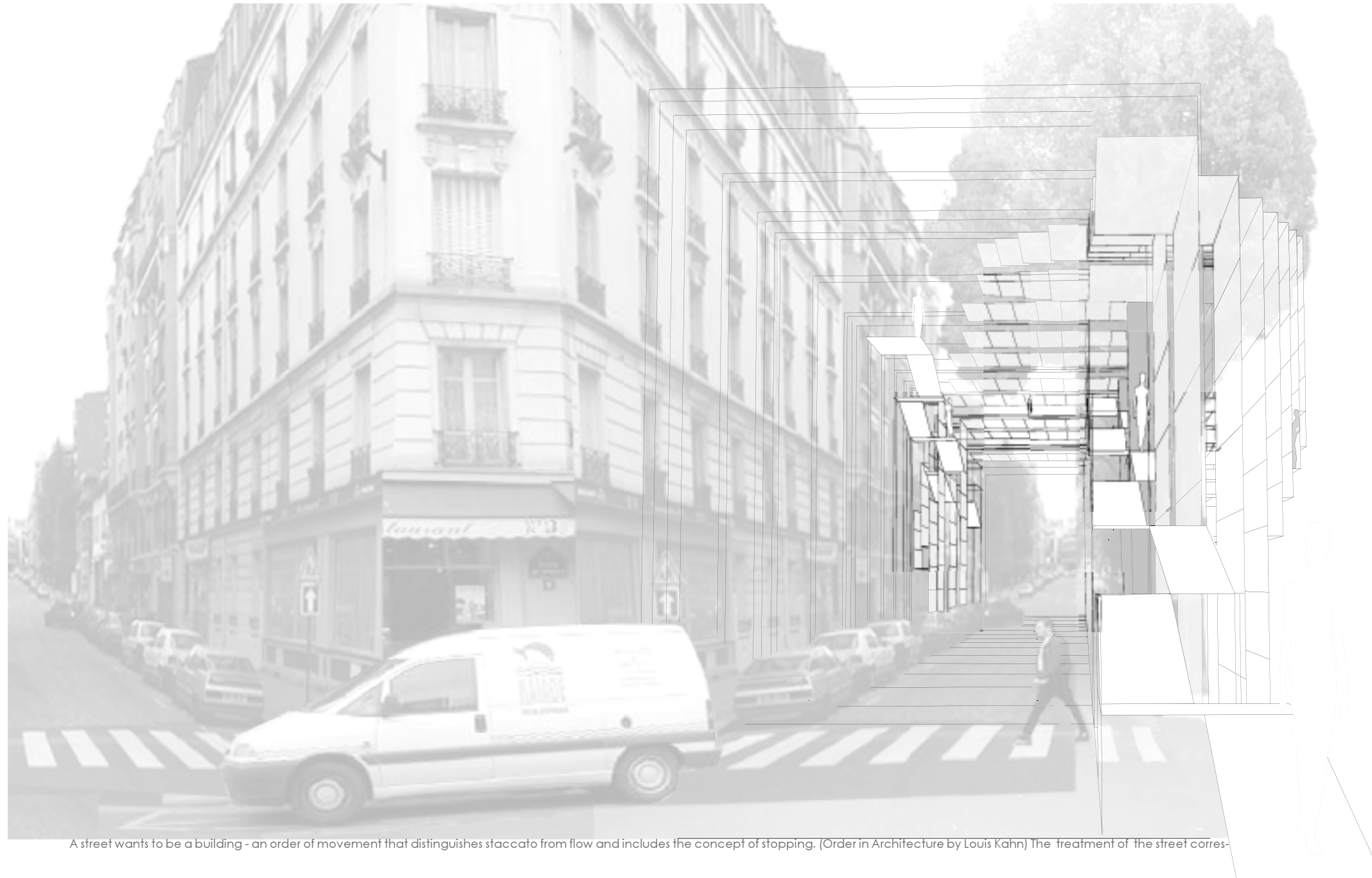




connects the single wall elements which inhabit the transversal passageway linking both opposite streetfronts to each other



The continuity of the streetroom is the major urban contribution to the heterogeneity of the existing neighborhood.



A street wants to be a building - an order of movement that distinguishes staccato from flow and includes the concept of stopping. (Order in Architecture by Louis Kahn) The treatment of the street corres-

ponds its inherent, communal qualities.

EPILOG

The chosen approach to define an appropriate urban form seems to be under the first observation contradictory to the current urban design practise, taking in consideration that the largest area of the site stays unbuilt. The built part is reduced to the minimum of the necessary elements which support the entire idea. The reduction to the boundary of the existing urban context is achieved by the following steps:

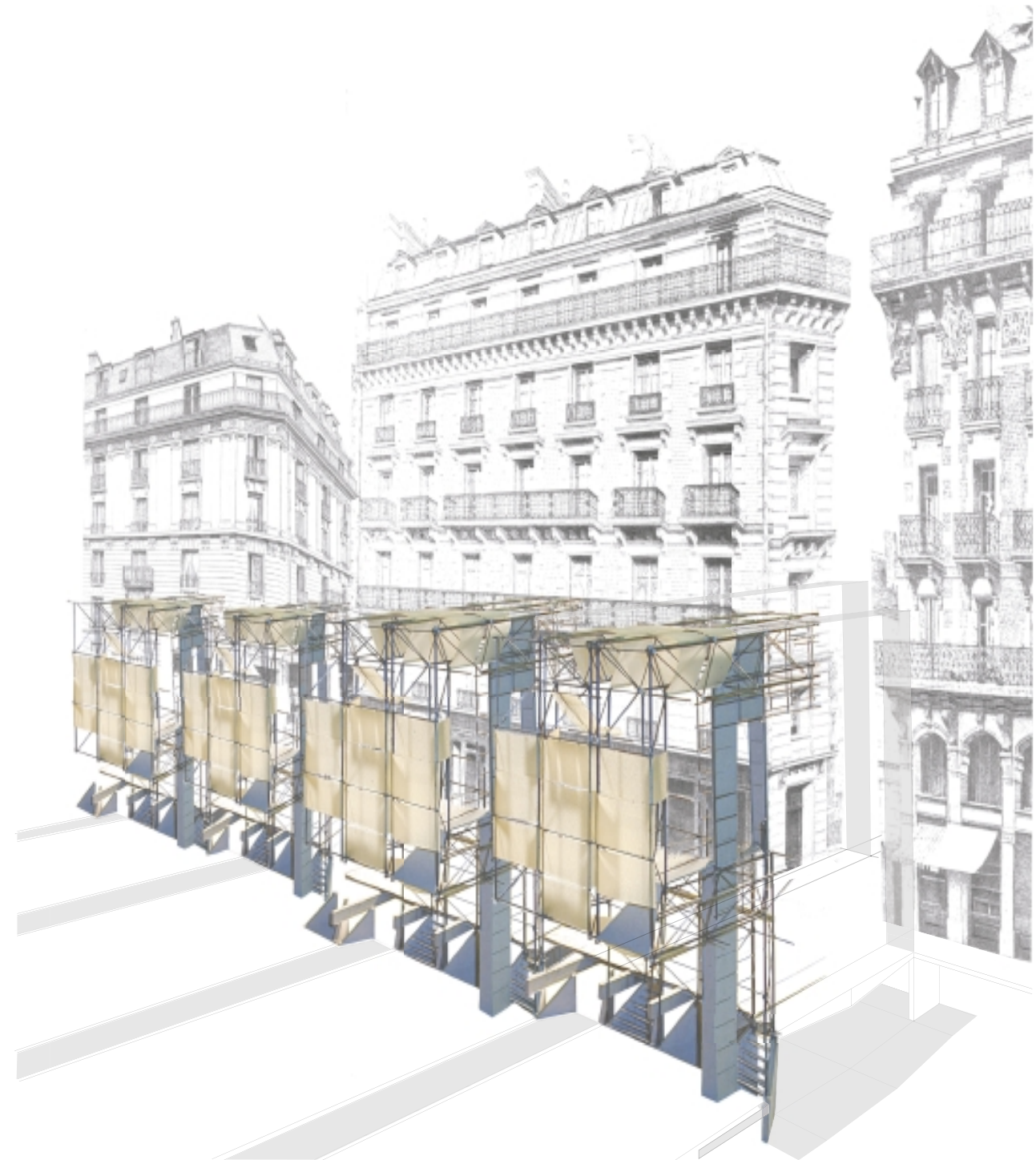
purpose
homogenizing of the existing situation and maintaining of territory

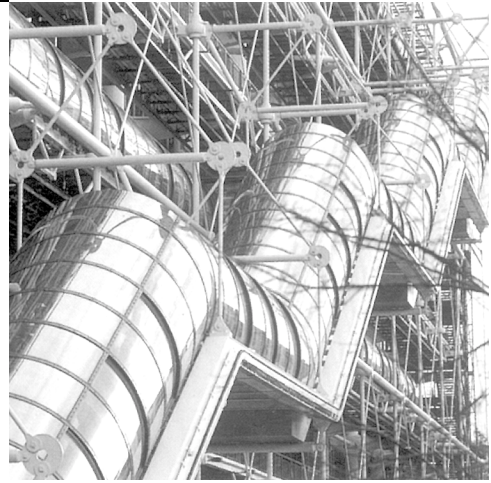
function
extension of existing

topos
street as public room obeying solely public obligations and property boundary

form
adequate answer to signification of a street structured by the way of adaptation to singular urban situations

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ACKNOWLEDGMENTS

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I want to dedicate this thesis to my family who always supported me on my way in life.

I would like to thank the Fulbright Commission, the Virginia Polytechnic Institute & State University, the Department of Architecture and Urban Studies and my committee Prof. William Galloway, Prof. William Brown, Prof. Eugene Egger, Prof. Heinrich Schnoedt and Prof. Rengin Holt who offered me the great opportunity to study in their Master of Architecture Program.

My special thanks go out to all friends I met during my studies in Blacksburg who supported me with joy, critic and humor.



VITA

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education	08/2001	Master of Architecture
	08/1999	M. Arch Program at the Virginia Polytechnic Institute & State University
	05/1999	German Fulbright Scholarship Master Degree in Architecture at the HfT Stuttgart - University of Applied Sciences, Germany
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	2001	Graduate Teaching Assistantship at VPI for Prof. Rengin Holt in Graphics
	1999	Tobias Wulf & Partners Stuttgart, Germany
	1997	Architecture Studio Paris, France
	1996	Alluin & Mauduit Paris, France
	1994	Auer & Weber Stuttgart, Germany
workshops	2001	International Architectural Educational Exchange IAEE, Los Angeles
	2000	International Workshop (USA/GRE) VPI, Virginia
	2000	International Architectural Educational Exchange IAEE, Paris
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	2000	ACSA Wood Competition 2000 Third Prize / Crafting of Space
	1999	German Fulbright Scholarship
	1999	Karl Kraemer Publisher Thesis Prize, Stuttgart
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	1996	German Academic Exchange Program DAAD Scholarship
	1996	Karl Kraemer Publisher Thesis Prize, Stuttgart

