

ARCHITECTURE DEPARTMENT

MASTER OF ARCHITECTURE PROGRAMME



CHINESE UNIVERSITY OF HONG KONG

2005-2006

DESIGN REPORT

**ARCHITECTURE OF PERMEABILITY –
URBAN REDEVELOPMENT OF FA YUEN STREET**

LAU Man Kuen Ephes May 2006

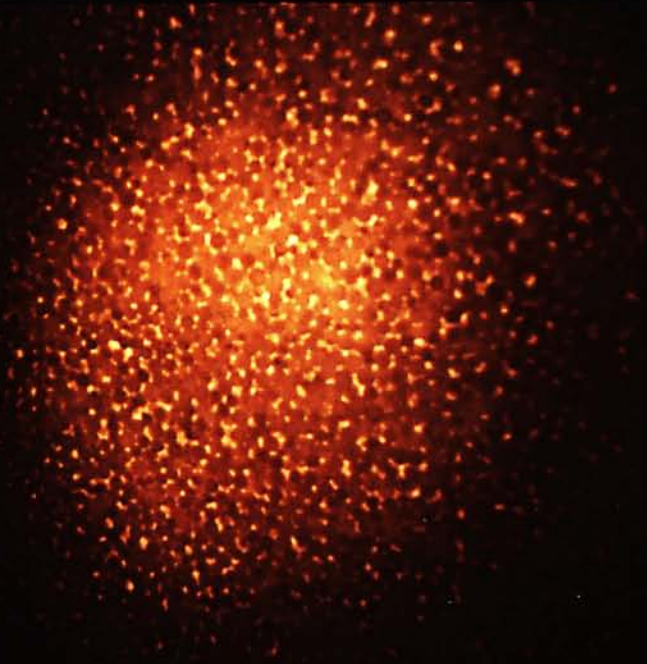


Department of Architecture
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Architecture of Permeability -
Urban Redevelopment of Fa Yuen Street

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Thesis advisor: Professor Chang Ping-hung Wallace



PERMEABILITY describes the flow in a space. In this thesis, Architecture of Permeability is proposed as a solution for urban redevelopment. It works with the existing urban fabric and increase the permeability of old district in three aspects: Light, Air and Human.

Theory of Permeability

Introduction - Permeability in Architecture

Permeability is the embedded quality of architecture. It manifests itself from the interface(external) to spatial organization(internal) of architecture. The definition of the physical and metaphysical side of Permeability and its application on design is the goal of this research. The starting point is the literal meaning of permeability from dictionary. Through the centrifuge of mediation to look inside and observation to see outside, the delaminate of underlying meaning of permeability is acquired as *Physical Permeability* and *Apparent Permeability*. The former is observed from the interface while the latter is observed from the spatial organization. A more detailed discussion will be conducted in the following sections.

Methodology

There is no direct approach to touch the core of Permeability in architecture, therefore, a phenomenological approach which I try to extract the essential features of experiences and the essence of what I experience is employed. Below is an ideal logical succession of this research.

1. The concept of "Permeability"
2. The transfer to Architecture
3. Generalization
4. Application

Through the process of searching, the above successions are not necessarily appear in sequence but fall in a cycle of "search→ elaboration→ evaluation".

salt of permanganic acid, as potassium permanganate. [1835-45; PERMANGAN(IC ACID) + -ATE²]

per-man-gan-ic (pūr'man gan'ik), *adj.* *Chem.* of or derived from permanganic acid. [1830-40; PER- + MANGANIC]

per/mangan'ic ac'id, *Chem.* an acid, HMnO_4 , known only in solution. [1830-40]

per-ma-press (pūr'mə pres'), *adj.* permanent-press. [by shortening]

per-me-a-bil-i-ty (pūr'mē ə bil'i tē), *n.* **1.** the property or state of being permeable. **2.** Also called **magnetic permeability**. *Elect.* a measure of the change in magnetic induction produced when a magnetic material replaces air, expressed as a coefficient or a set of coefficients that multiply the components of magnetic intensity to give the components of magnetic induction. **3.** *Geol.* the capability of a porous rock or sediment to permit the flow of fluids through its pore spaces. **4.** *Aeron.* the rate at which gas is lost through the envelope of an aerostat, usually expressed as the number of liters thus diffused in one day through a square meter. **5.** *Naut.* the capacity of a space in a vessel to absorb water, measured with reference to its temporary or permanent contents and expressed as a percentage of the total volume of the space. [1750-60; PERMEABLE + -BILITY]

per-me-a-ble (pūr'mē ə bəl), *adj.* capable of being permeated. [1400-50; late ME < LL *permeabilis*, equiv. to *permeā(re)* to PERMEATE + *-bilis* -BLE] —**per'me-a-ble-ness**, *n.* —**per'me-a-bly**, *adv.*

per-me-a-me-ter (pūr'mē ə mē'tər, pūr'mē am'i-tər), *n.* an instrument for measuring magnetic permeability. [1885-90; PERMEABILITY + -METER]

per-me-ance (pūr'mē əns), *n.* **1.** the act of permeating. **2.** the conducting power of a magnetic circuit for magnetic flux; the reciprocal of magnetic reluctance. [1835-45; PERME(ANT) + -ANCE]

per-me-ant (pūr'mē ənt), *adj.* permeating; pervading. [1640-50; < L. *permeant-* (s. of *permeans*), prp. of *permeare* to PERMEATE; see -ANT]

per-me-ase (pūr'mē əs', -āz'), *n.* *Biochem.* any of the proteins that mediate the transport of various molecules across biological membranes. [*<* F *permease* (1956), equiv. to *permé(able)* PERMEABLE + *-ase* -ASE]

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Literal meaning of Permeability

1. The capability of a porous rock or sediment to permit the flow of fluids through its pore spaces.
2. The rate at which gas is lost through the envelope of an aerostat, usually expressed as the number of liters thus diffused in one day through a square meter.
3. The capacity of a space in vessel to absorb water, measured with reference to its temporary or permanent contents and expressed as a percentage of the total volume of the space

Definition of Permeability

Physical Permeability – a literal meaning of permeability could be observed from the physical world in which liquid or gas is allowed to pass through an object. On that sense, this permeable layer acts as filter. The role of the physical permeable layer is interface. In other words, it is about the degree of control. Physical Permeability involves two important parameters which could be used for measuring the permeability of a physical interface, they are, *accessibility* and *visibility*.

Accessibility is an interpretation of time-movement relationship while visibility is an interpretation of time-space relationship.

Physical Permeability - Accessibility

Accessibility is easier to be understood as the effect of it could be observed directly. Even an apparently opaque surface is accessible to light. Marble is a translucent material which is permeable to light. Accessibility is usually employed for describing the capacity of human flow. In this case, the permeable layer acts as obstruction to the human flow. Obviously, an empty space is free to permeate. The permeability in terms of accessibility is at maximum in this case. Any architectural elements we add in order to define a space may reduce the accessibility of that space.



Yale University - Beinecke Rare Book and manuscript Library by SOM
The marble cladding allowing natural daylight permeate in day time. At night, the permeability to light property makes this building like a lantern in the campus.
(photos from http://www.som.com/resources/projects/3/2/9/beineckelibrary_1040.jpg)

Physical Permeability - Visibility

Visibility, on the other hand, allows the perception of different locations simultaneously. It is very complicated especially when it involves contemporary digital media. Consider there is a huge digital screen mounted on a wall, and there is a camera behind this wall. All the images captured by the camera will be projected on the screen simultaneously. For those who stand in front of wall is able to see what is the space behind the wall look like even through the screen and the wall is completely opaque. In fact, it is not a strange experience to us. In Hong Kong, huge display panels are mounted on the building façade. Even though it covers the wall behind, however, what we perceive from the display panel is another time another space. The panel – or we could call it a visual permeable layer – link up two time-space sceneries. In an article written by Vladimir Krstic, “Japanese city: The fiction of Urban Transparency”, he says,

“Accordingly a postulation is made that so transfigured space materializes as a negative instance – as a dimensionless field of infinite transparency where, through appropriate electronic and simulativestimulation, anything that can appear and present itself as real.” (Krstic 1999)

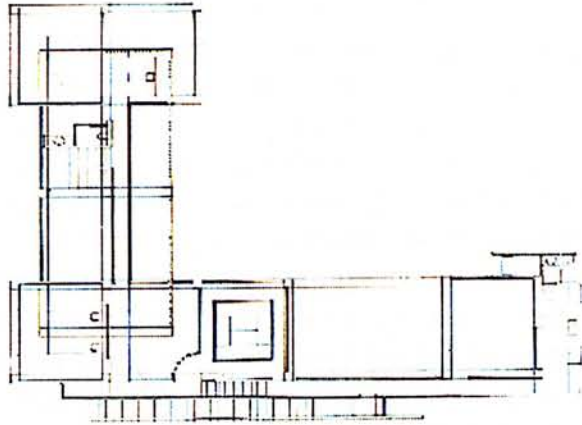
The author also think that the digital panel on the building façade is “A place in which the entire three-dimensional world is flattened into the immeasurable thinness of the screen matter and where everything exists in and occupies one and the same location, that of exposure and project.” The facade is no longer opaque in terms of the visual connection. The perception of visibility in a modern city like Hong Kong is blurred.



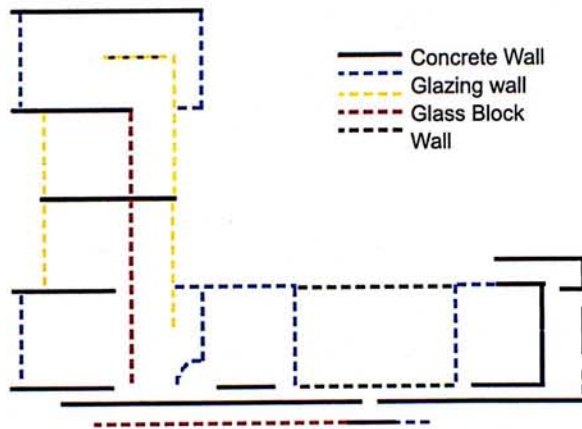
A digital mounted on the corner of building as a part of the facade of building. The facade is no longer opaque but visually connect to another time and space.

Permeability = Accessibility + Visibility

Accessibility against Visibility could be taken together to measure the degree of physical permeability of a building. They are a tool to study the relationship between the “in and out”, the “out and out”, and the “in and in” of architecture. All of these could be measured at the physical interface. In contemporary architecture, the mix-employment of various enclosure systems enriches the complexity of permeability of physical layer. In Matsumoto Residence by Tadao Ando in 1980, the physical permeable layer could be classified as below:



Plan of Matsumoto Residence



Analysis of physical permeability of Matsumoto Residence

	Accessibility	Visibility
Concrete wall with limited size openings (e.g. windows and doors)	Moderate (natural force) Low (human flow)	Moderate (in-out) Low (in-in)
Glazing wall with door	High (natural force) Moderate (human flow)	High (in-out)
Glass Block Wall	High (natural force) Low (human flow)	High (in-out) High (in-in)
Balustrade	Moderate (natural force) Low (human flow)	High (in-in)
Concrete frame which is used to define a courtyard	High (natural force) High (human flow)	Low (in-out) High (out-out)

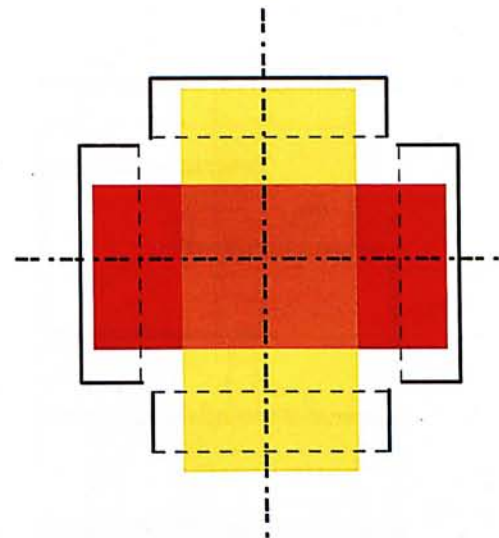
Apparent Permeability

Apparent Permeability – Space is a transparent permeable layer. Such idea could be manifested clearly through a figure-ground diagram. By reserving the figure and ground relationship, the “space” appears as “solid” and therefore it should inherit the properties as described in the physical permeability. The implied meaning could be obtained through a process of analogy to the literal meaning of Permeability – “the capability of a solid to permit the flow of fluids through its pore spaces”. The “flow” is a time-movement interpretation and form a layer of space, and the “pore spaces” is a time-space interpretation distorting the flow and form another layer of space. Base on these ideas, it is inferred that the permeability of space is a *form-space* organization.

Spatial Permeability - Horizontally

Siheyuan (四合院) in Chinese Architecture demonstrates a horizontal spatial permeability. It is a building compound with a central courtyard. The opposing houses in Siheyuan are axially related to each other and form a spatial layer. The overlapping of two spatial layers defines the central courtyard.

The spatial permeability could be further elaborated from a macro view. In Beijing, the lines of Siheyuan formed the alleyways which are called Hutong(胡同). Most of the civilian parts of Beijing are formed by joining up one Siheyuan to another which in turn led to joining up one Hutong to another. Hutong to Pekingese is not only the alleyway but also the common social space shared with the neighborhood. The public, semi-public and private space are permeable to each other.



Analytical Diagram of Siheyuan. Two spatial layers could be read through the trace of central axis which is permeable to each other. The superimposition of these permeable layers defines the central courtyard.

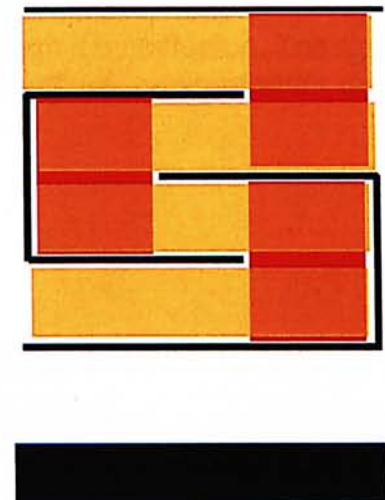
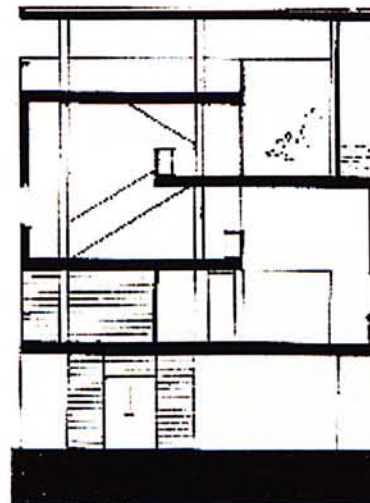
Spatial Permeability - Vertically

Atrium, on the other hand, demonstrates the vertical permeability of space. It is one of the personalities of contemporary architecture which employ *VOID* as a spatial definition within the building. Void in a building is a permeable layer. However, it is different from interior space. Interior space is defined by what we called the architectural element such as wall and column. In the contrast, void is defined by the higher order of interior space. In certain extends, it enjoys the immense flexibility and freedom of design. In Galleries Lafayette by Jean Nouvel, the interplay of geometry, material and lighting creates a unique spatial permeable layer. The geometry of the void is a cone which implies a descending or ascending magnification of horizontal space in that void. But these layers are interpenetrating to each other vertically and form the unity of the void. In other words, the void could be read as the summation of a series of independent horizontal layers.

The complexity and interplay of horizontal and vertical spatial permeability manifests itself subtly through Villa Carthage designed by Le Corbusier. In the book "Transparency" by Colin Rowe, the author describes this masterpiece as followings,

"The spatial zones are differentiated and united. Transparency makes the analogous classification of use and space possible" (Rowe 1997).

The idea of "Transparency" as described by Rowe is the spatial organization which implies that the horizontal spatial layer (defined by floor) and the vertical spatial layer (defined by the double height ceiling) are superimposed. From these, we could see that the interpenetration of spatial layer could be a means to organize and create space.



Architecture of Permeability

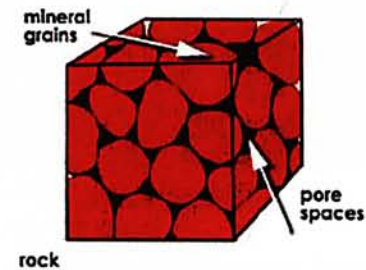
According to the article written by Cahal Stephens, "On Permeability - The Biology of Architecture", architecture of permeability is

FILTER
which
INTERACT WITH
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A LIVING ORGANISM

Permeability in other fields

Geology

The capability of a porous rock or sediment to permit the flow of fluids through its pore spaces.



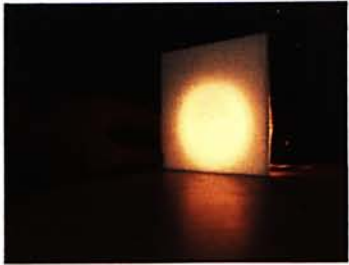
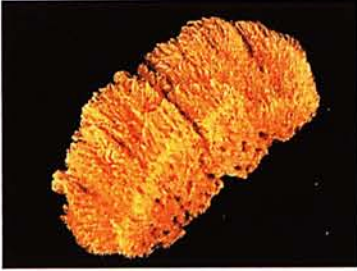
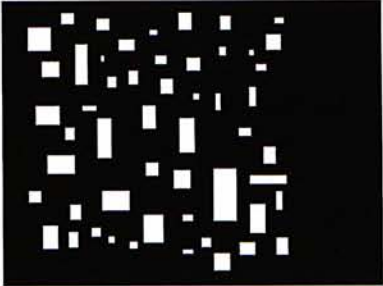
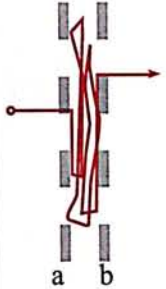




Biology

A semipermeable membrane allow certain molecules or ions to pass through it by diffusion. The rate of passage depends on the pressure, concentration and temperature of the molecules.



Scheme of semipermeable membrane during hemodialysis.
Red = blood
Blue = dialysing fluid
Yellow = membrane

Phenomenology of Permeability

	Penetrable	Porosity	Density & Distribution	Labyrinth
phenomenon	 <p>inversely proportional to thickness</p>	 <p>natural sponge has complex grain which is permeable</p>	 <p>ratio of porous volume to the total volume</p>	 <p>permeable membrane a and b are two sides</p> <p>the labyrinthine experience between in and out</p>
architectural expression	 <p>b&k+b - Geisselstrasse 55</p>	 <p>Steven Holl - Simmons Hall</p>	 <p>Jean Nouvel - L'Institut du Monde Arabe</p>	 <p>Preston Scott Cohen - The museum of Art and Technology</p>

Free Space

OCCUPY
architectural element

development: Permeable -> Impermeable

public

NO MORE SPACE

privacy

travel

flow

CITY

FILTER

ARCHITECTURE

PERMEABILITY

Blank Paper

Full of TEXT

SPACE

penetration

porosity

opaque

accessibility

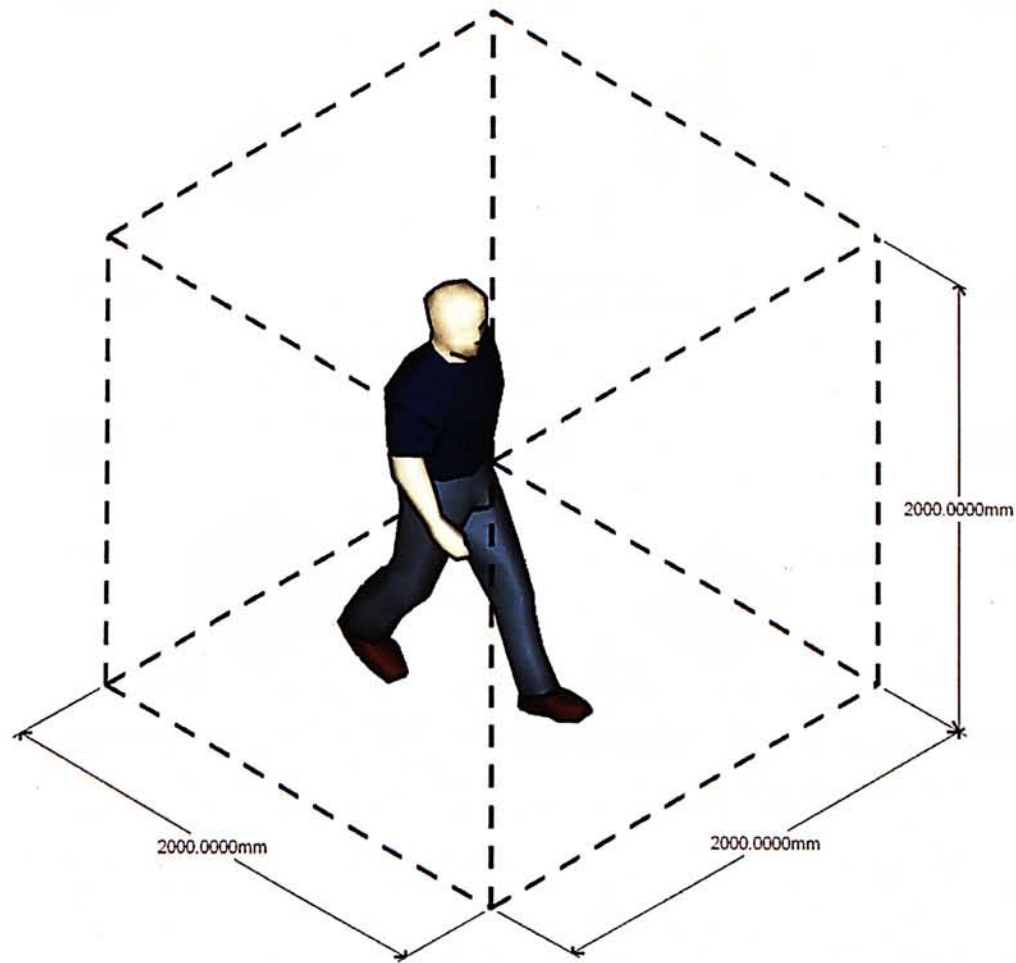
visibility

density

thickness

transparency

translucency

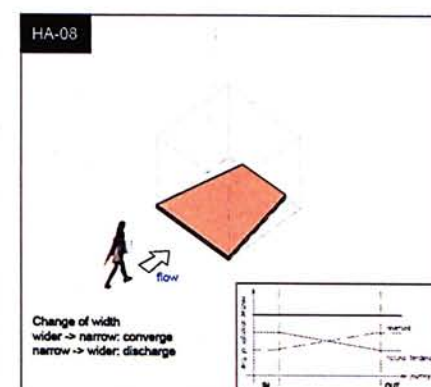
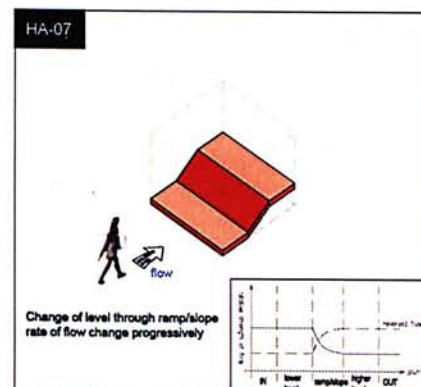
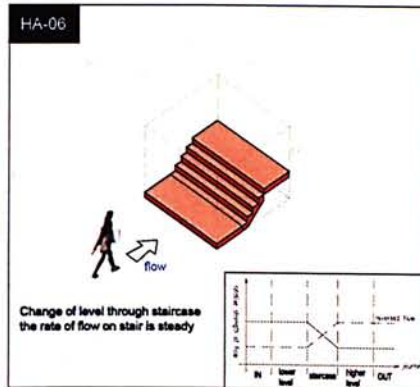
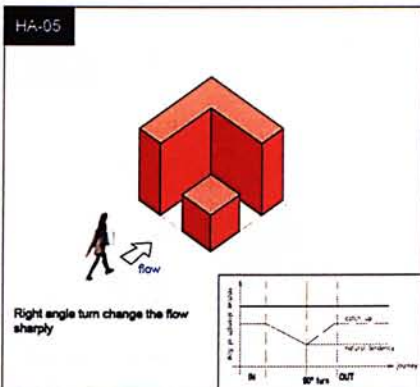
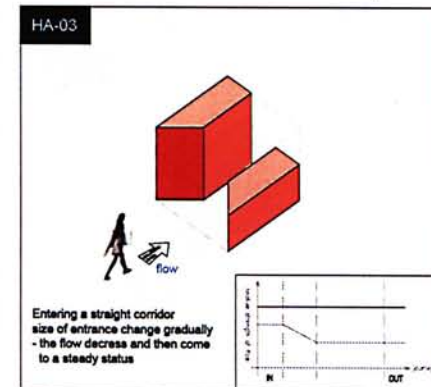
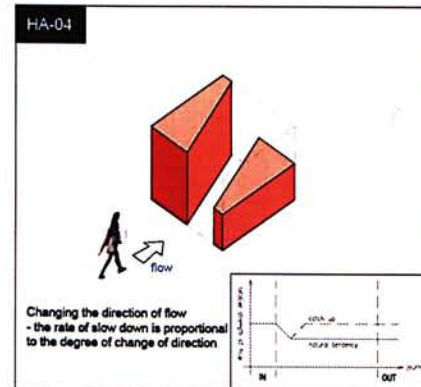
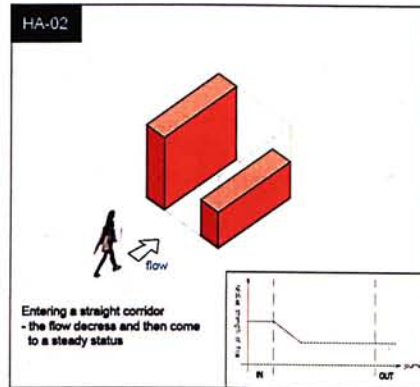
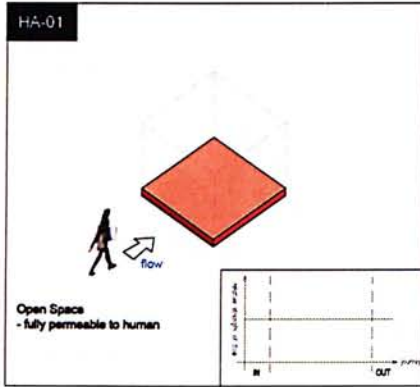


Evaluation of Permeability of Space

In the following studies, space modules in 2m cube (in relation to human scale) are extracted from various samples. They are simplified into minimal form for analysis in three aspects: Human, Light and Air. human scale.

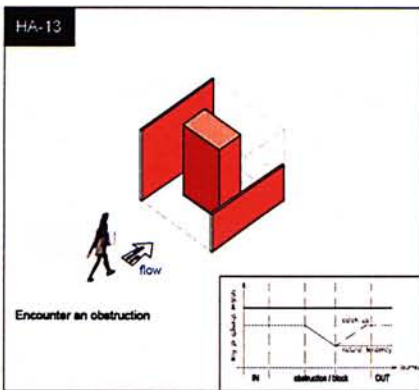
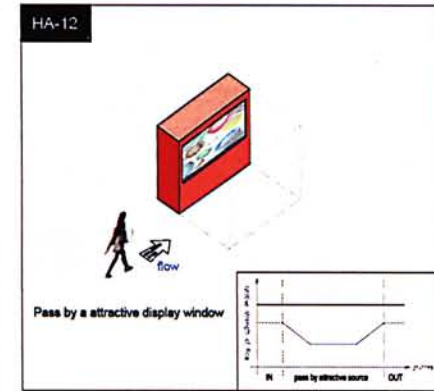
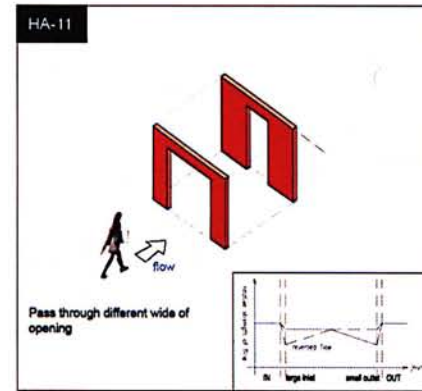
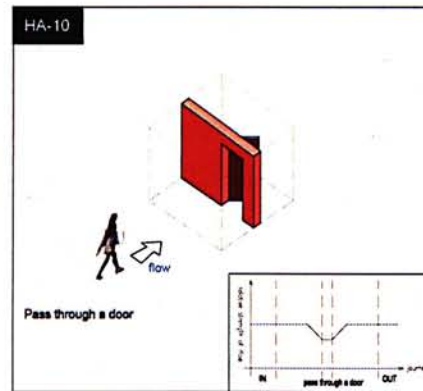
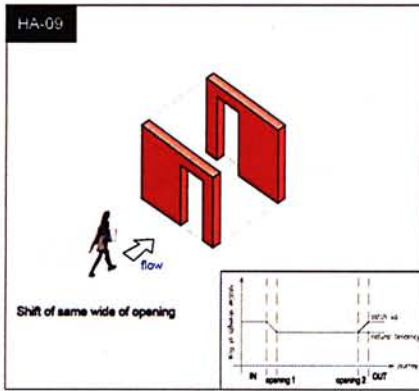
Permeability of Human

Accessibility Study (HA01 to HA08)



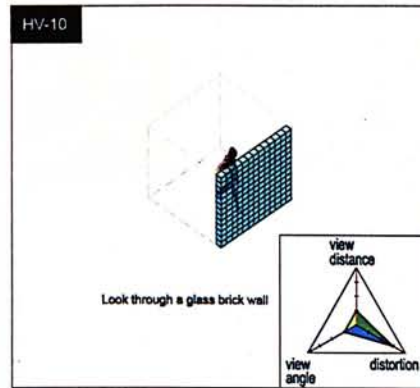
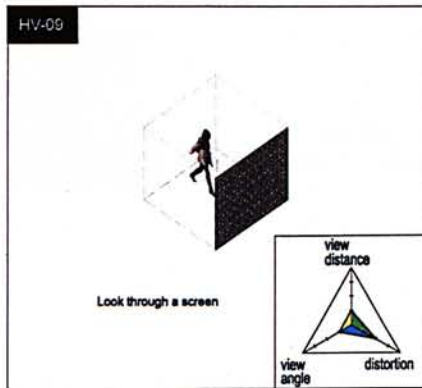
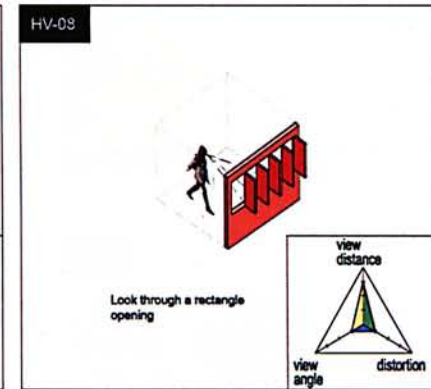
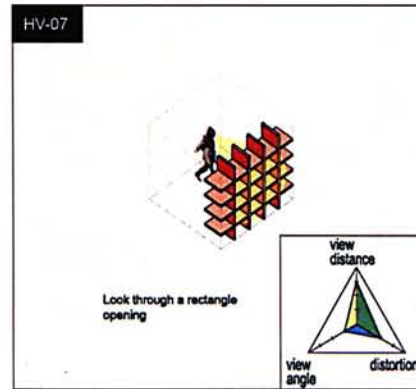
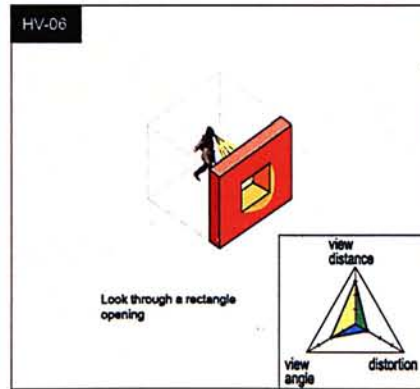
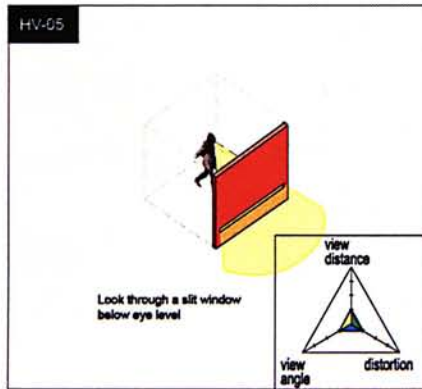
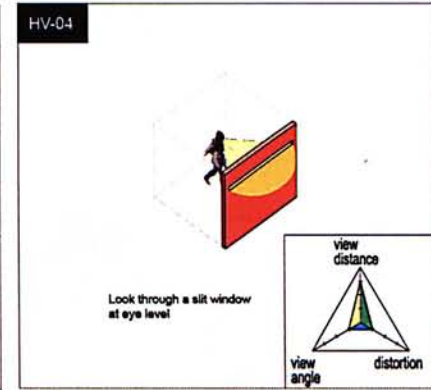
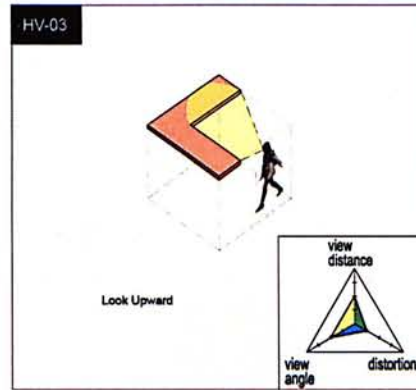
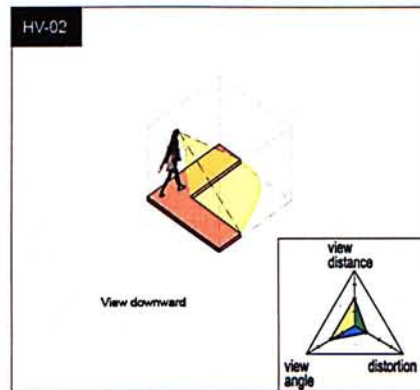
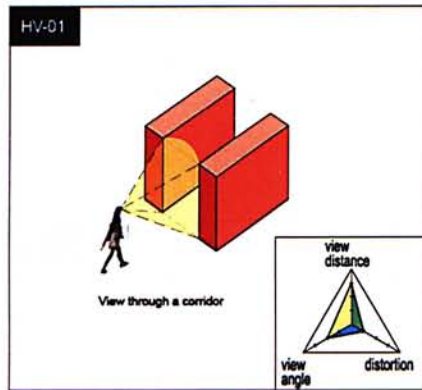
Permeability of Human

Accessibility Study (HA01 to HA08)



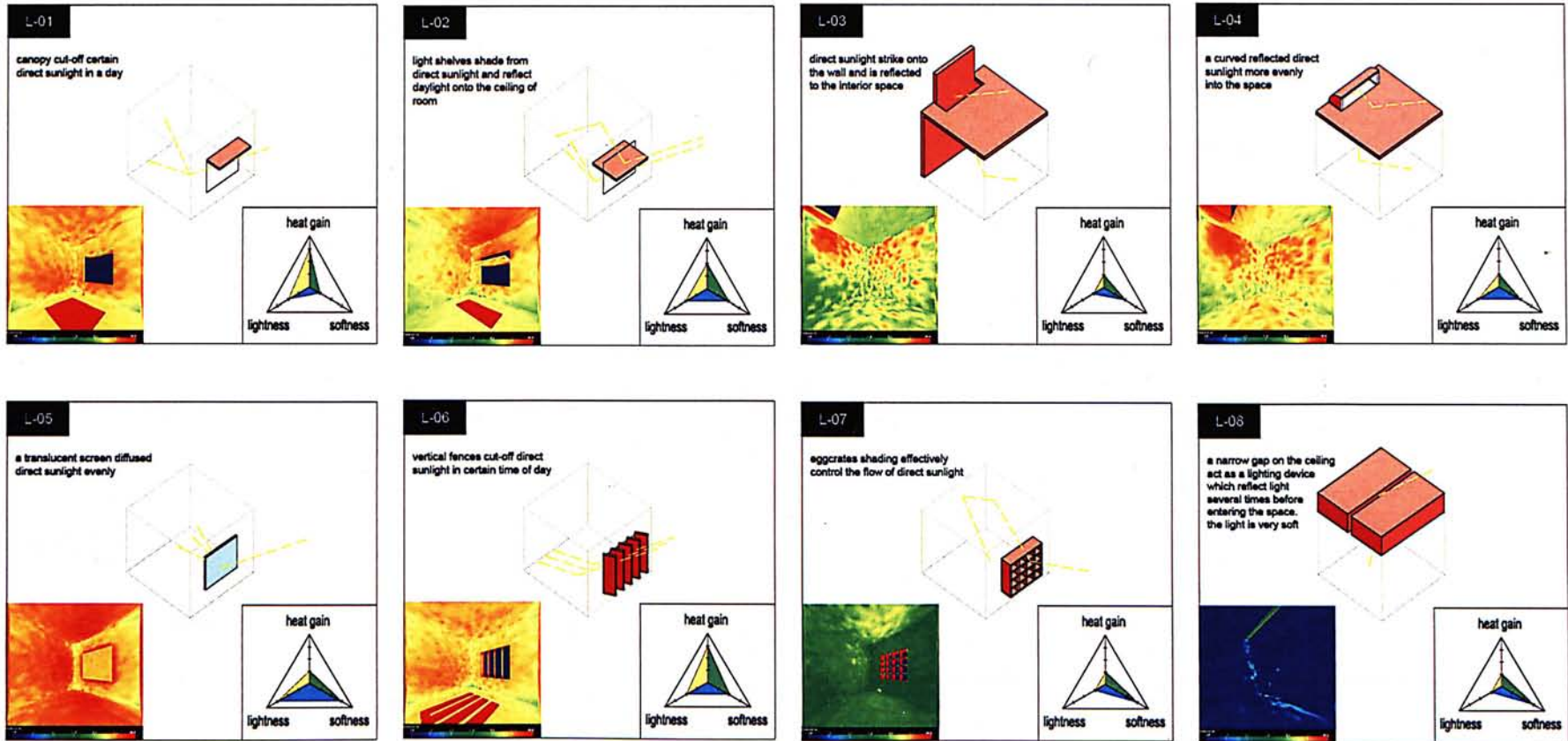
Permeability of Human

Visibility Study (HV01 to HV10)



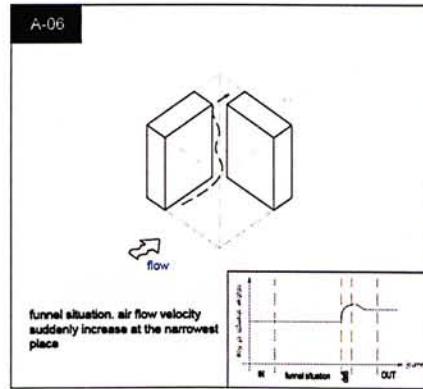
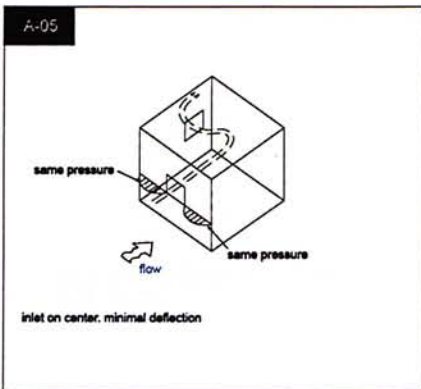
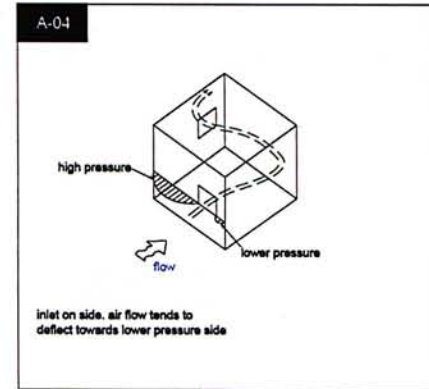
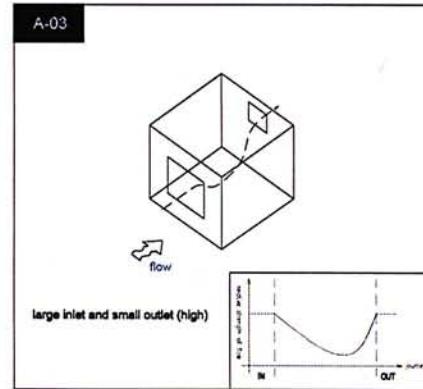
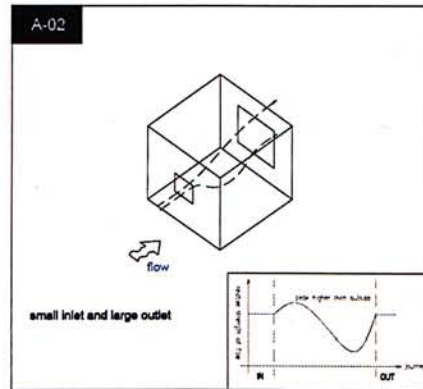
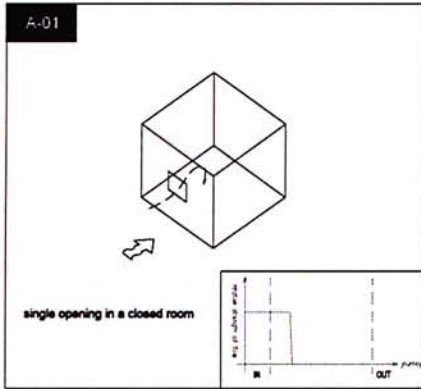
Permeability of Light (L01~L08)

The design of lighting device/shading device will affect the flow of direct sunlight into space. Temperature and the quality of light will be the means to evaluate the result.



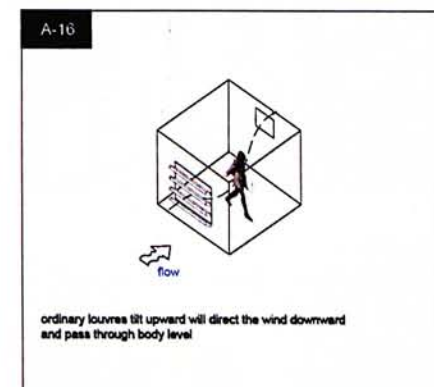
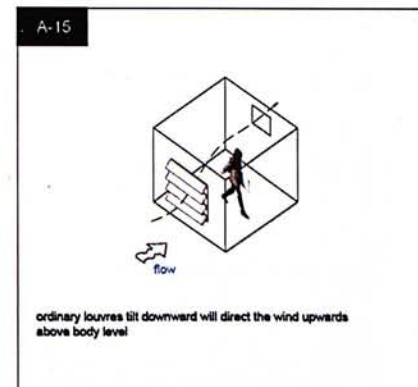
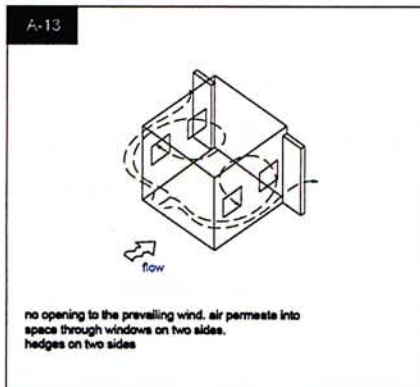
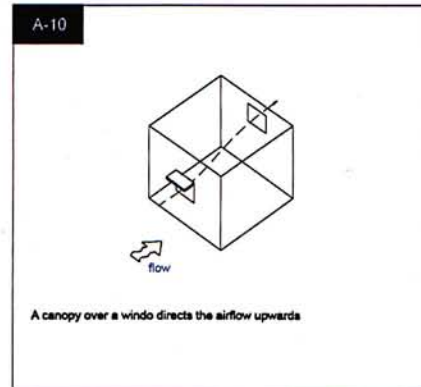
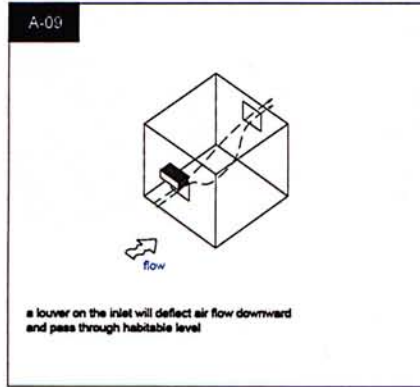
Permeability of Air

A-01 to A08



Permeability of Air

A09 to A16

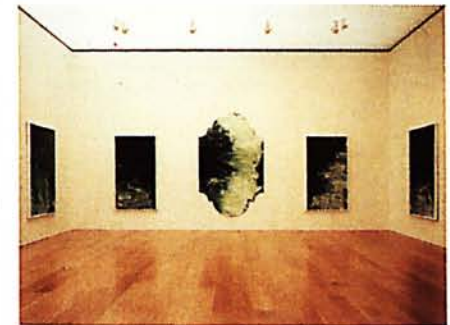
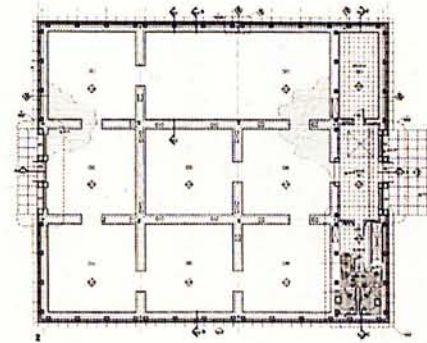
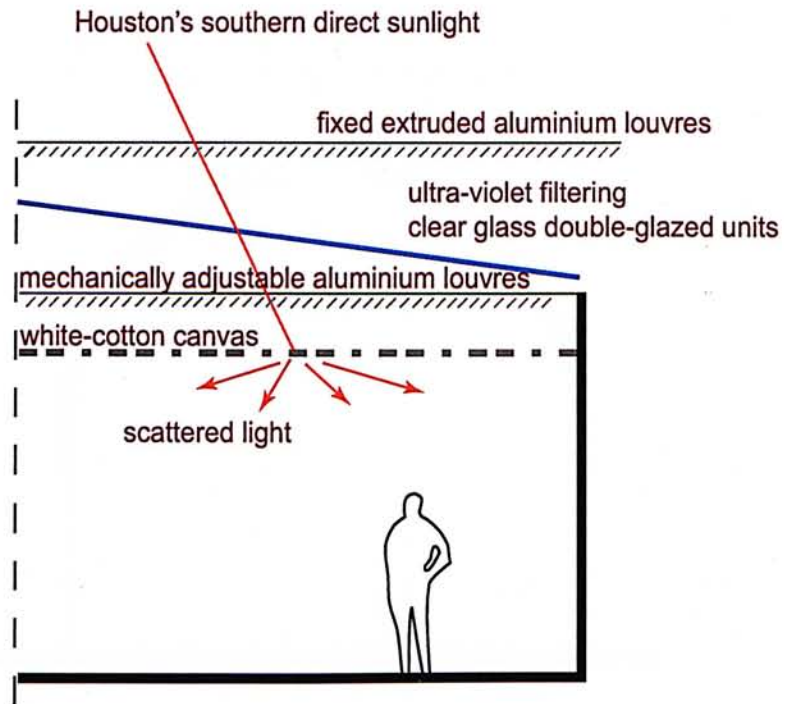
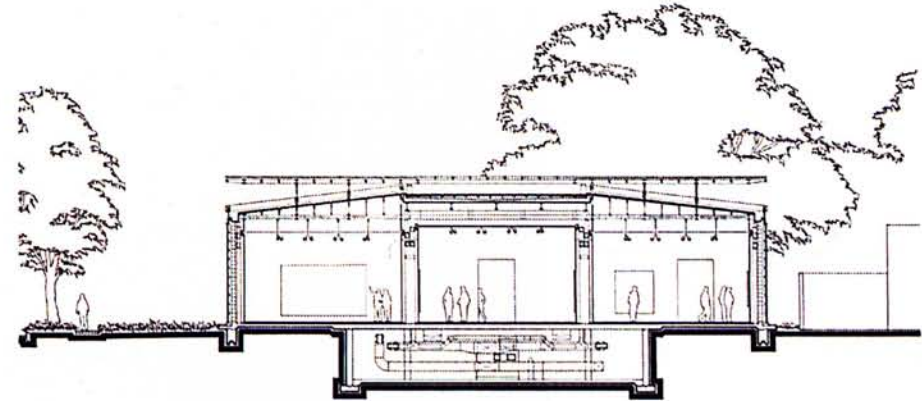


Case Study - Permeability of Light

Project 1

Project
Architect
Location
Strategy

Cy Twombly Gallery
Renzo Piano
Houston, Texas, USA
Through the material controlling the transmittance. The sunlight strike on the canvas and is scattered.

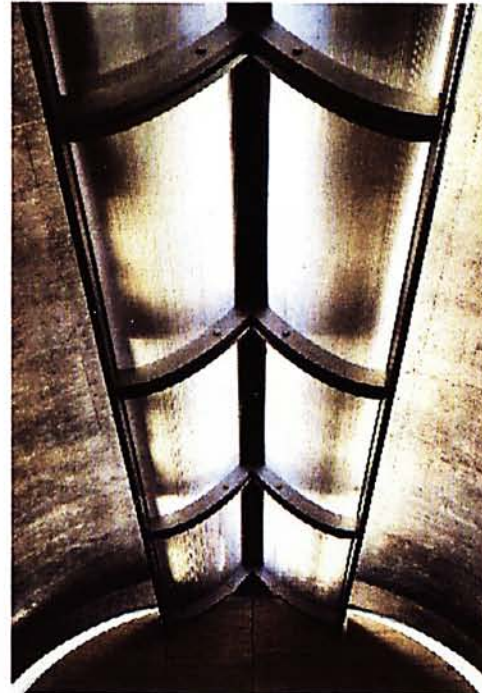
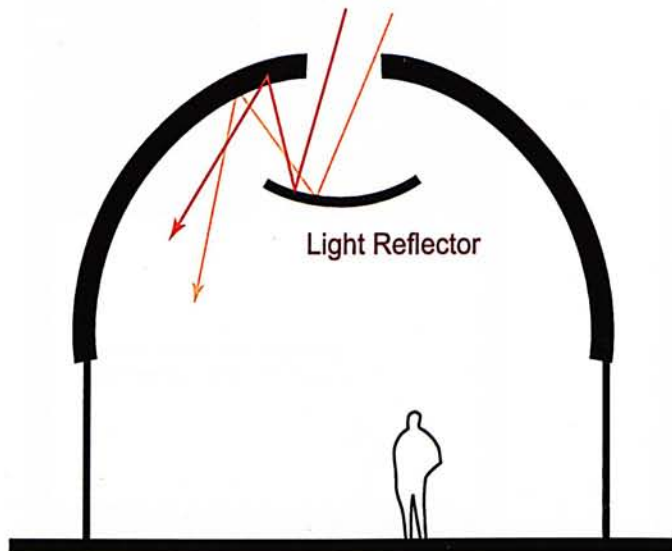


Case Study - Permeability of Light

Project 2	Project	Kimbell Museum
	Architect	Louis I. Kahn
	Location	Fort Worth, Texas, USA
	Strategy	Architect design a special daylighting reflector. Sunlight pass through the slit on the roof and reflect daylight to the curved concrete roof. The diffused light spread evenly and dramatically to the interior.

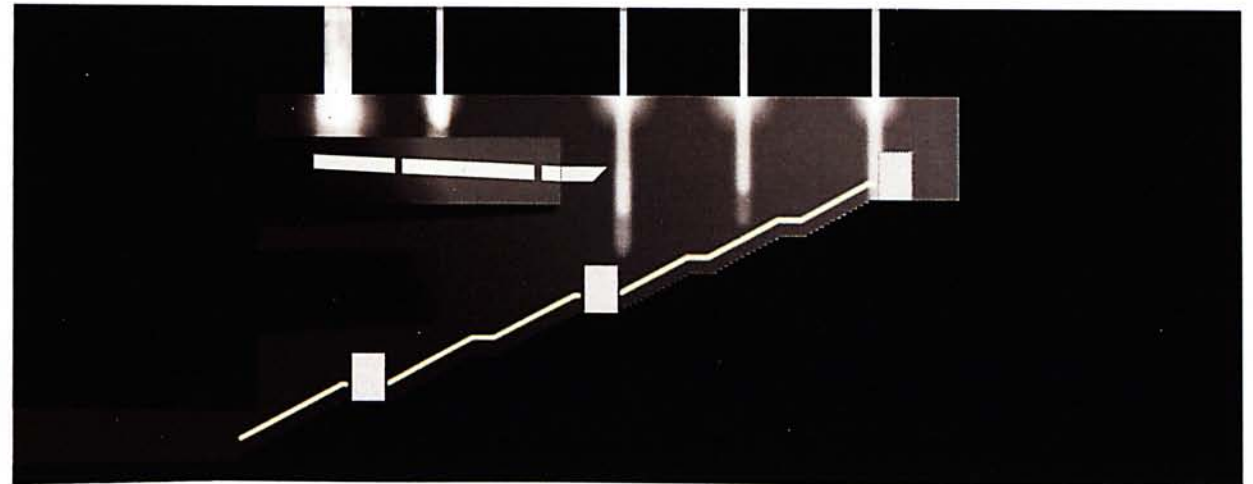
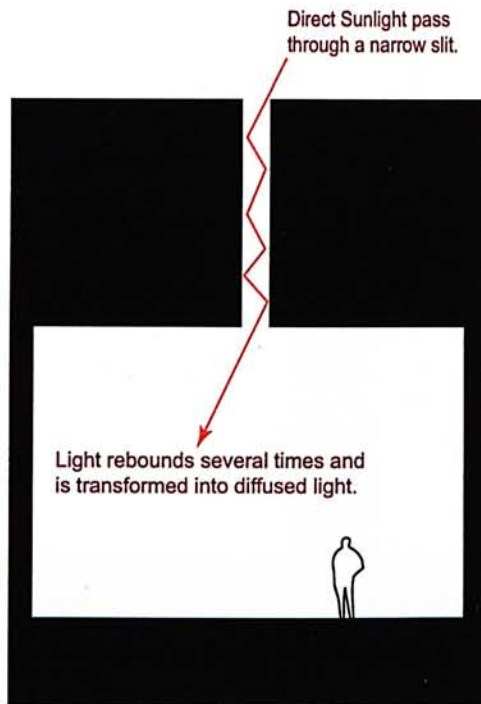


Direct Sunlight enter the building through the slit and is reflected and diffused.



Case Study - Permeability of Light

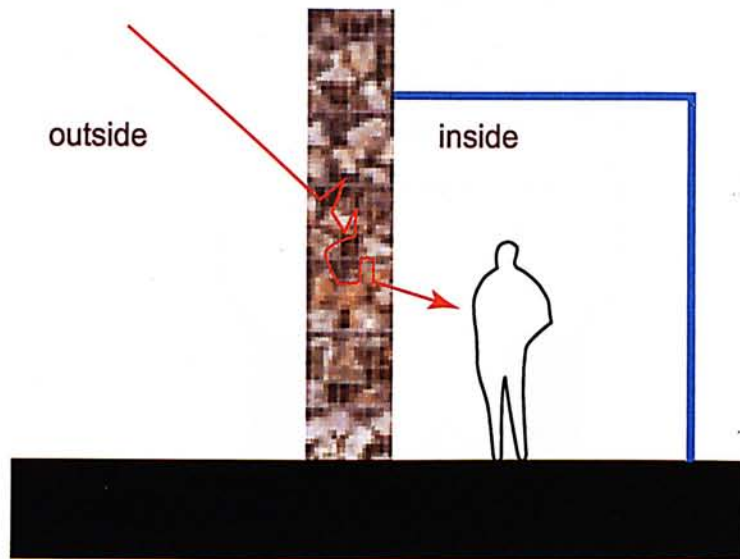
Project 3	Project	Jewish Museum
	Architect	Daniel Libeskind
	Location	Berlin, Germany
	Strategy	This lighting device is located in the stair-well. Sunlight enter the slit on the roof top and rebound several times before entering the interior.



Case Study - Permeability of Light

Project 4	Project	Dominus Winery in Napa Valley
	Architect	Herzog & de Meuron
	Location	Yountville, California, USA
	Strategy	The architects use gabion wall which is rich of porous.

gabion wall

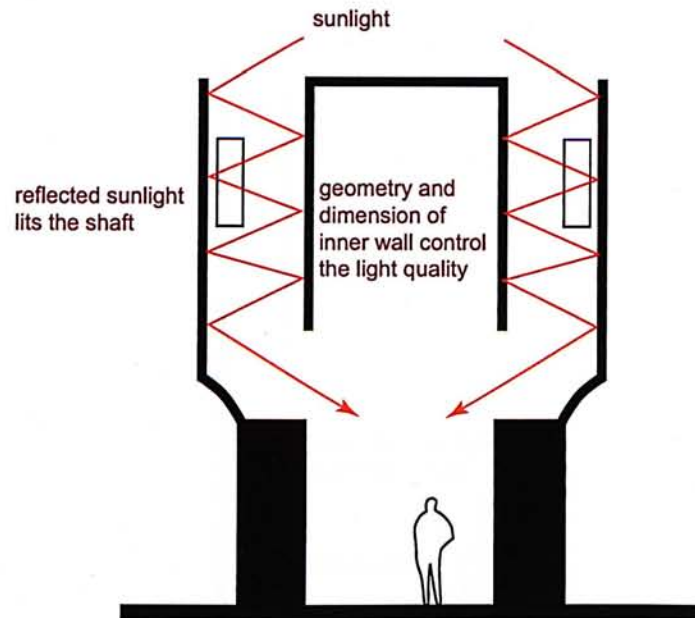


Case Study - Permeability of Light

Project 5

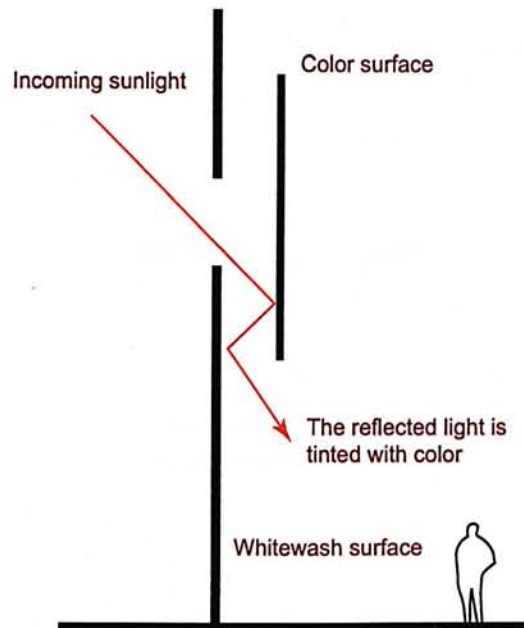
Project
Architect
Location
Strategy

Novy Dvur Monastery
John Pawson
Czech Republic
Sunlight enter a shaft from two
side of the main hall. It rebounds
several times before entering
the hall. A hanging wall is used
to control the atmosphere of the
lighting effect.



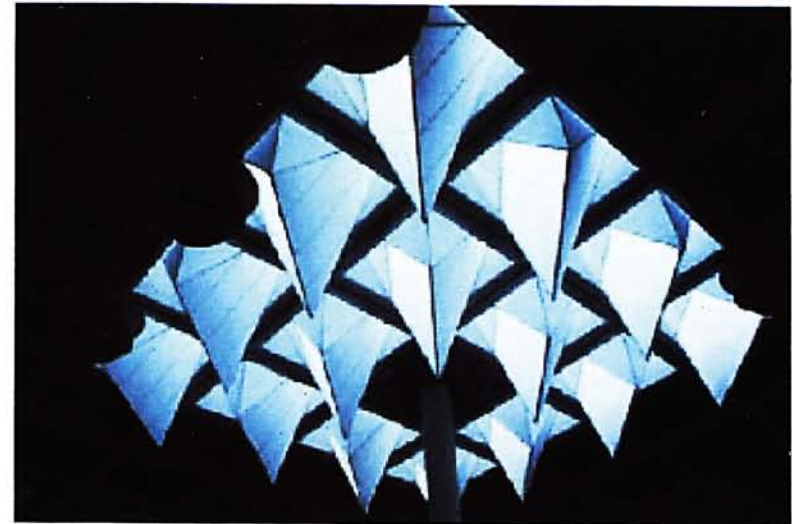
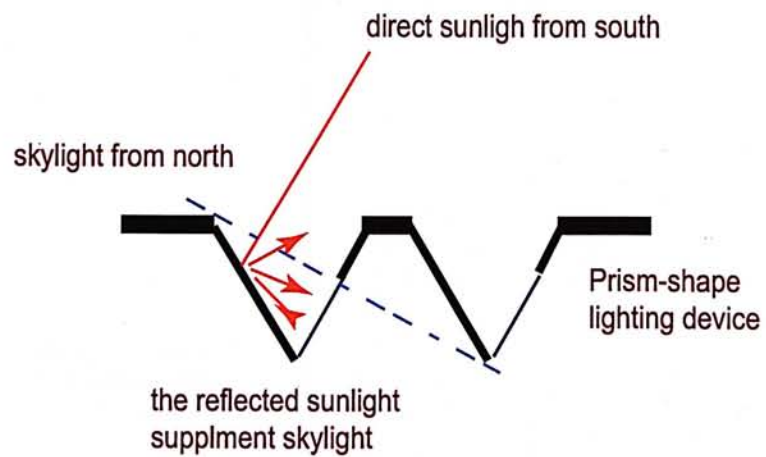
Case Study - Permeability of Light

Project 6	Project	The Chapel of St. Ignatius
	Architect	Steven Holl
	Location	Seattle, Washington
	Strategy	t



Case Study - Permeability of Light

Project 7	Project	Trapholt-Art-Museum
	Architect	Boje Lundgaard, Bente Aude
	Location	Kolding, Denmark
	Strategy	A specially design lighting device. The reflected sunlight is used to supplement the skylight from north.

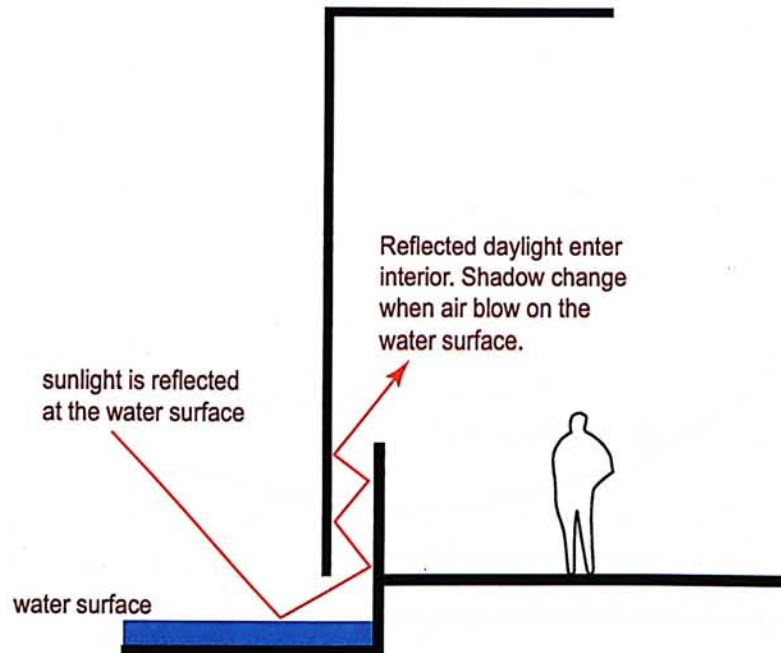


Case Study - Permeability of Light

Project 8

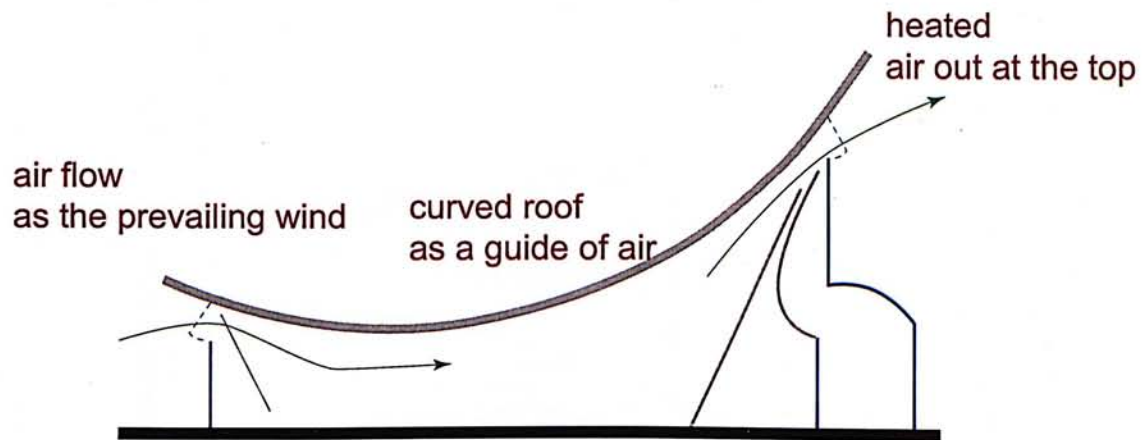
Project
Architect
Location
Strategy

MIT Chapel
Eero Saarinen
Cambridge, Massachusetts, USA
The cylinder shape of building is surrounded by water. At the bottom part of the building which is an arch structure, there is an opening which allow reflected light from water enter the building.



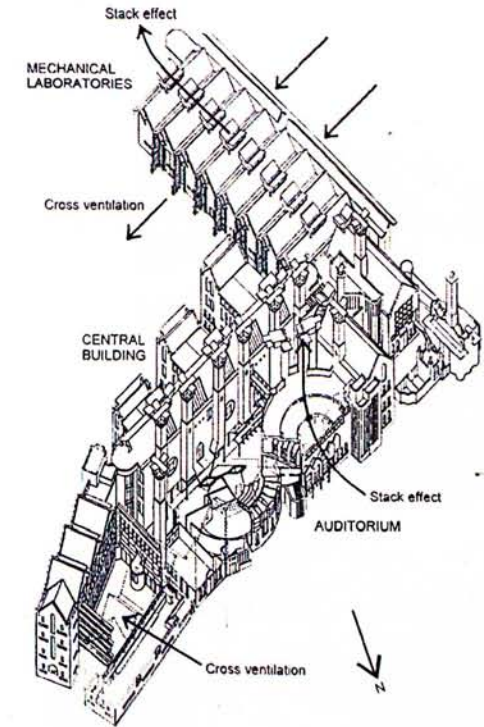
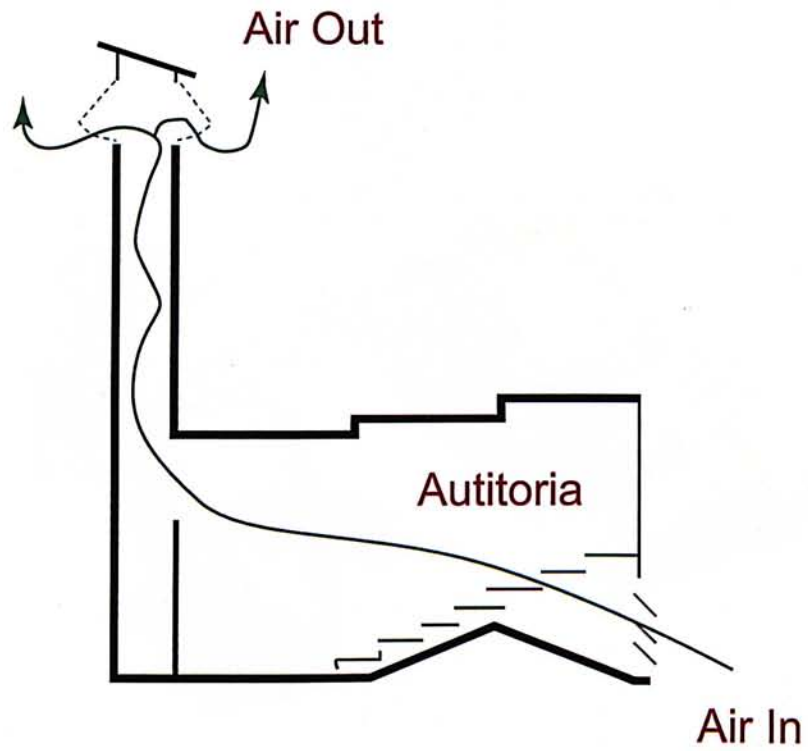
Case Study - Permeability of Air

Project 9	Project	Lowara Company Office
	Architect	Renzo Piano
	Location	Montecchio Maggiore, Italy
	Strategy	The shape of the roof guide air and create a dynamic space underneath.



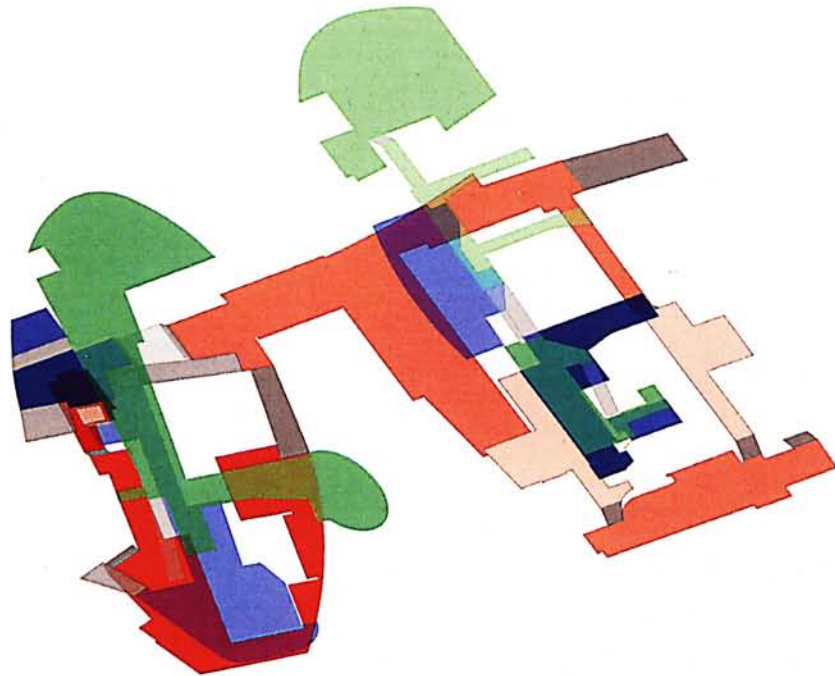
Case Study - Permeability of Air

Project 10	Project	Queens Building
	Architect	Ford Short Associates
	Location	Leicester, UK
	Strategy	Stack effect



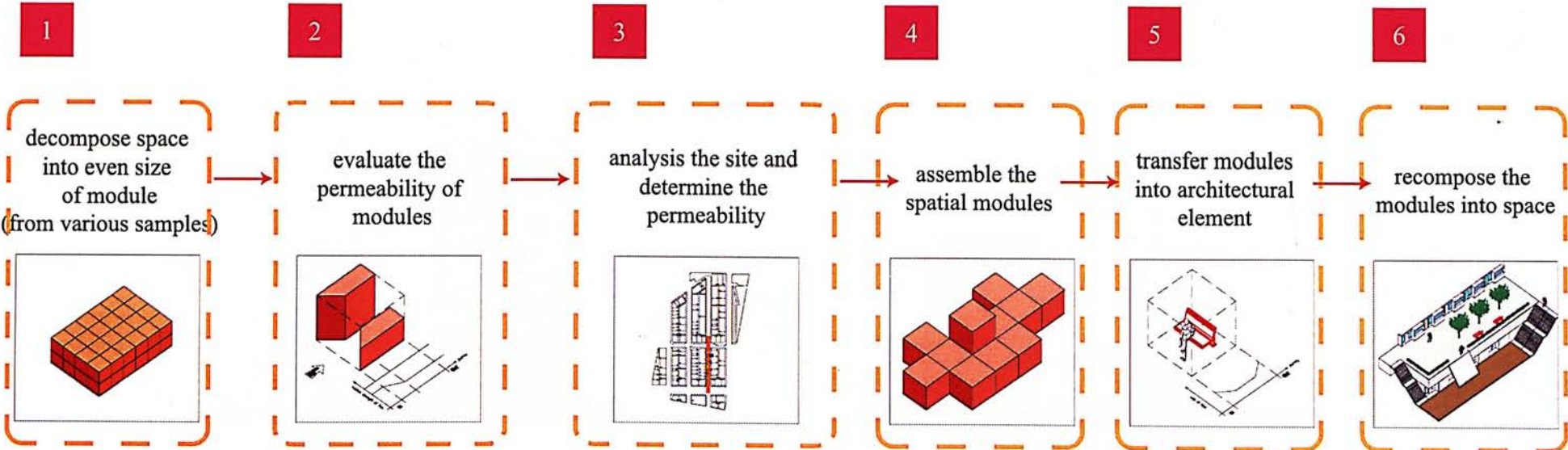
Case Study - Permeability of Human

Project 11	Project	Sunshine Kindergarten
	Architect	Arch Design
	Location	Zhongshan, PRC
	Strategy	Emphasize the openness and fluency of the spaces. Subtle leveling, ramp, looping circulation.



Design with Permeability

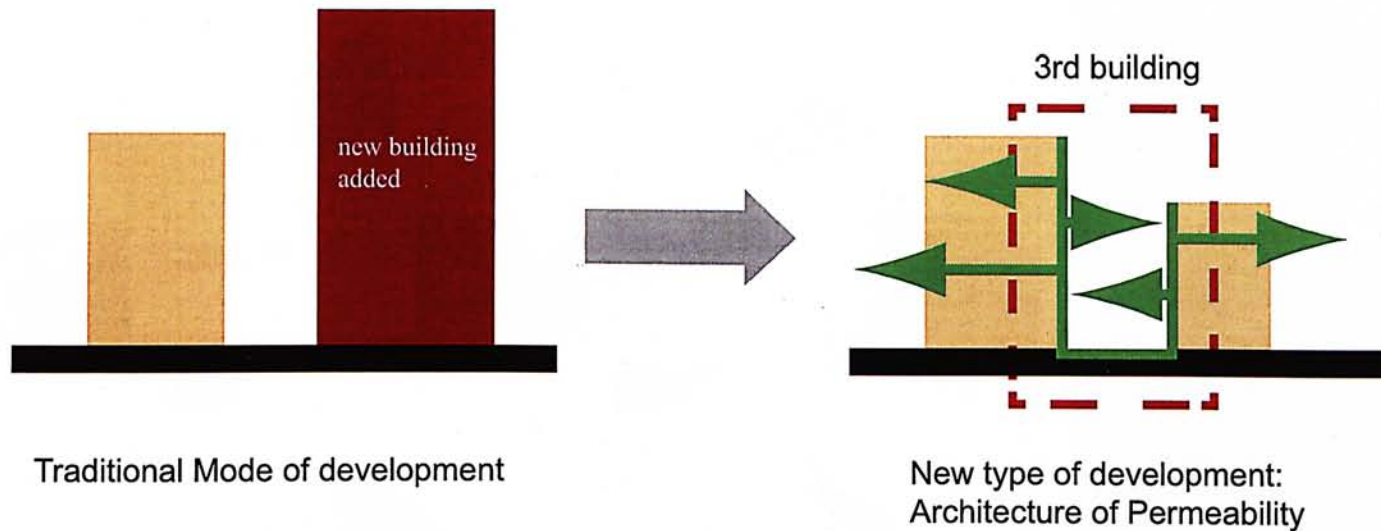
Design Procedure



Permeability in a City

The current urban development policy: replace the existing buildings with a mega structure which is so massive to create an unpleasant living environment.

Instead of putting new mega structure, a permeable structure is proposed which is to work with the existing city fabric



Permeability of Site - MongKok Fa Yuen Street

Permeability of Human in Fa Yuen Street

FYS-01

Accessibility modules:
HA-01, HA-12

FYS-02

Accessibility modules:
HA-02, HA-11

Visibility modules:
HV-01

FYS-03

Accessibility modules:
HA-01, HA-12

Visibility modules:
HV-09

FYS-04

Accessibility modules:
HA-11, HA-15

FYS-05

Accessibility modules:
HA-02, HA-12

FYS-06

Accessibility modules:
HA-06, HA-08
(apply to human and vehicle)

FYS-07

Accessibility modules:
HA-02, HA-06, HA-09

Visibility modules:
HV-02, HV-03, HV-05

FYS-08

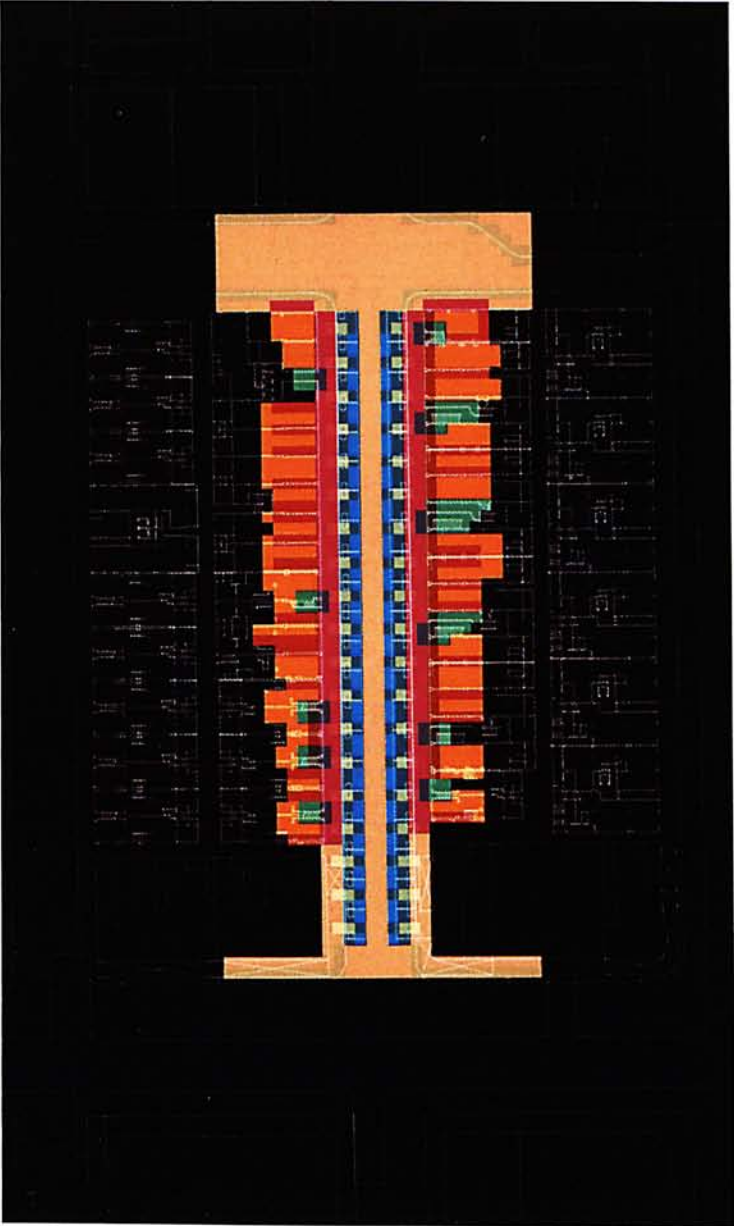
Accessibility modules:
HA-12

Visibility modules:
HV-03

FYS-09

Accessibility modules:
HA-01, HA-02, HA-05

Visibility modules:
HV-02, HV-03



Permeability of Site - MongKok Fa Yuen Street

Permeability of Human in Fa Yuen Street

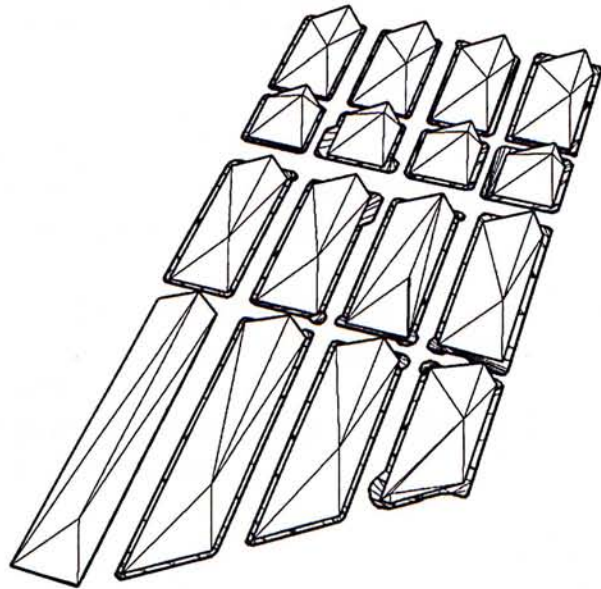
	accessible to public and private	inaccessible to public, accessible to private	inaccessible to public and private
visible to public and private	<ul style="list-style-type: none"> - circulation - shopping area 	<ul style="list-style-type: none"> - shop front 	<ul style="list-style-type: none"> - void
invisible to public, visible to private	<ul style="list-style-type: none"> - shopping area (permanent shop) 	<ul style="list-style-type: none"> - shop storage - resident lift lobby 	<ul style="list-style-type: none"> - internal atrium
invisible to public and private	<ul style="list-style-type: none"> - hidden short-cut - security zone 	<ul style="list-style-type: none"> - service space (e.g. lift core) - roof terrace 	<ul style="list-style-type: none"> - structure and all filled space

Permeability of Light in Fa Yuen Street

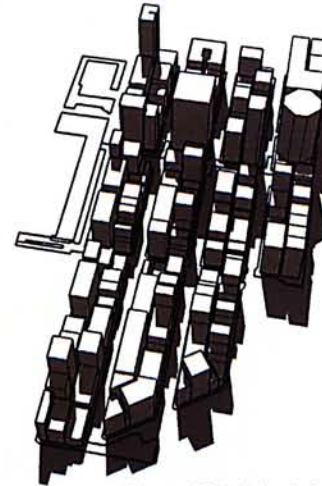
Solar Envelope study

- 11am to 3pm is examined.
- for a guaranteed sunlight access within the selected period of time, the typical building height should not exceed 22.7m (6 storeys).

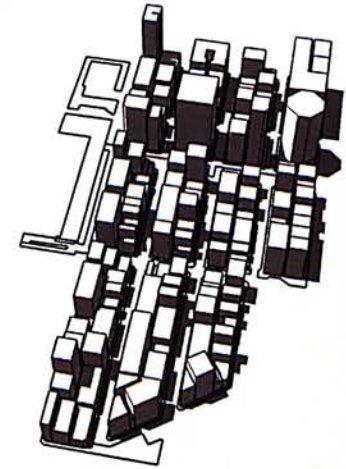
However, the typical building height in Fai Yeun Street is more than 7 storeys.



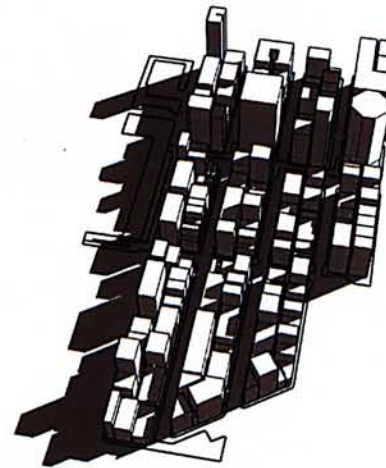
Solar Envelop of Fa Yuen Street, Mong Kok



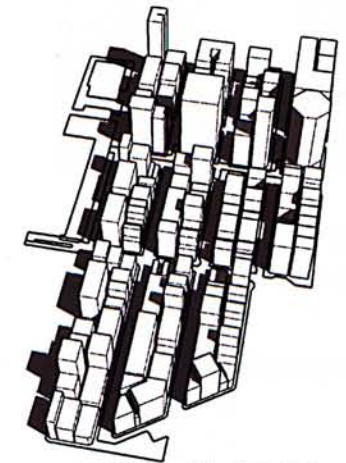
Jun-22 11:00



Dec-21 11:00



Jun-22 15:00



Dec-21 15:00

Permeability of sunlight in space

The number of hours that sunlight PENETRATE a specific location is considered. The inverse study is the number of hours of specific location IN SHADOW.

Two critical dates are chosen: 21-Jun and 22-Dec as they imply highest and lowest sun angle in a year respectively.

Compare to conventional study of sunlight which consider the striked surface, this study focus on SPACE instead of SURFACE.

Implication

From section study

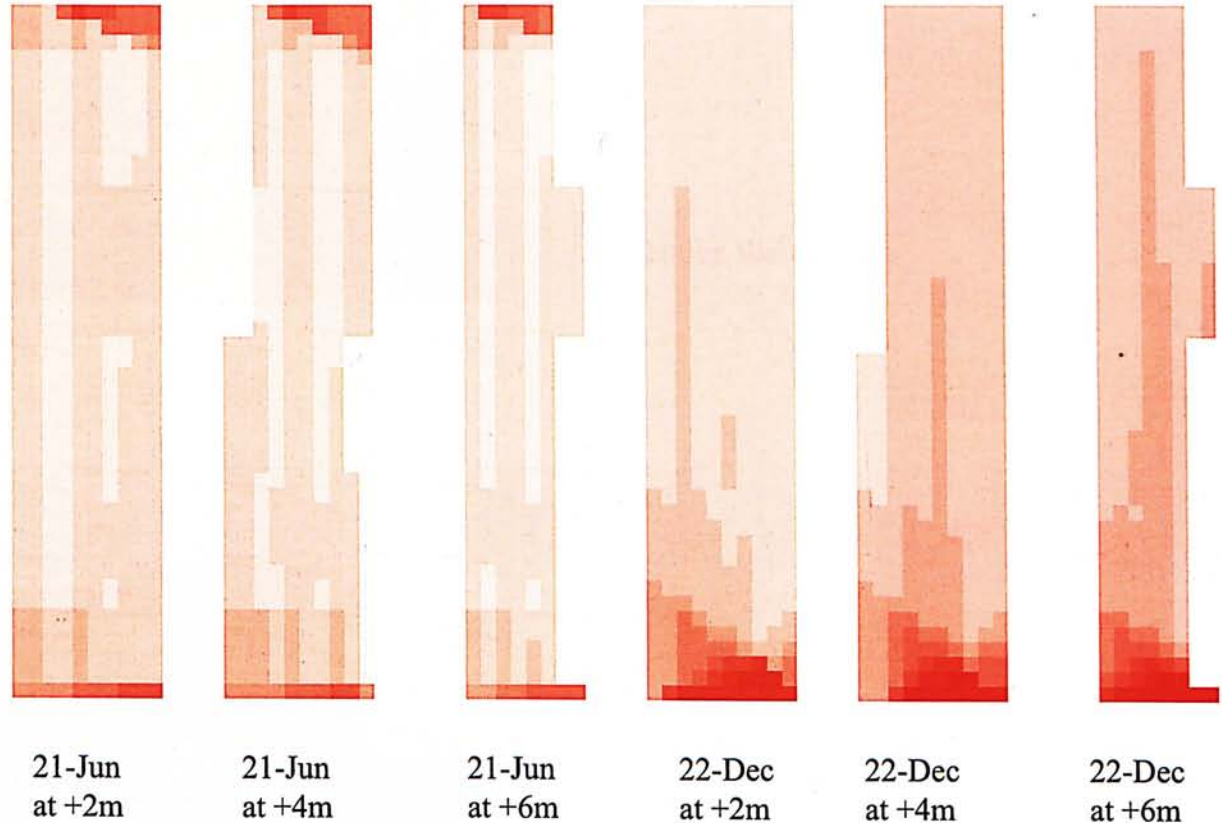
22-Dec: lightest area = boundary of shade

21-Jun: darkest area = always in shade

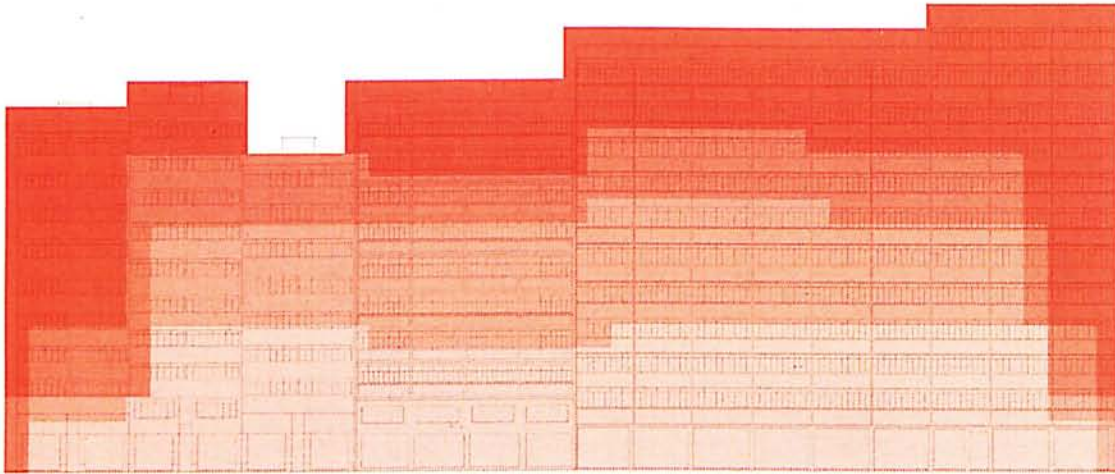
From plan and elevation study

22-Dec: more red = space that receive most direct sunlight in a year

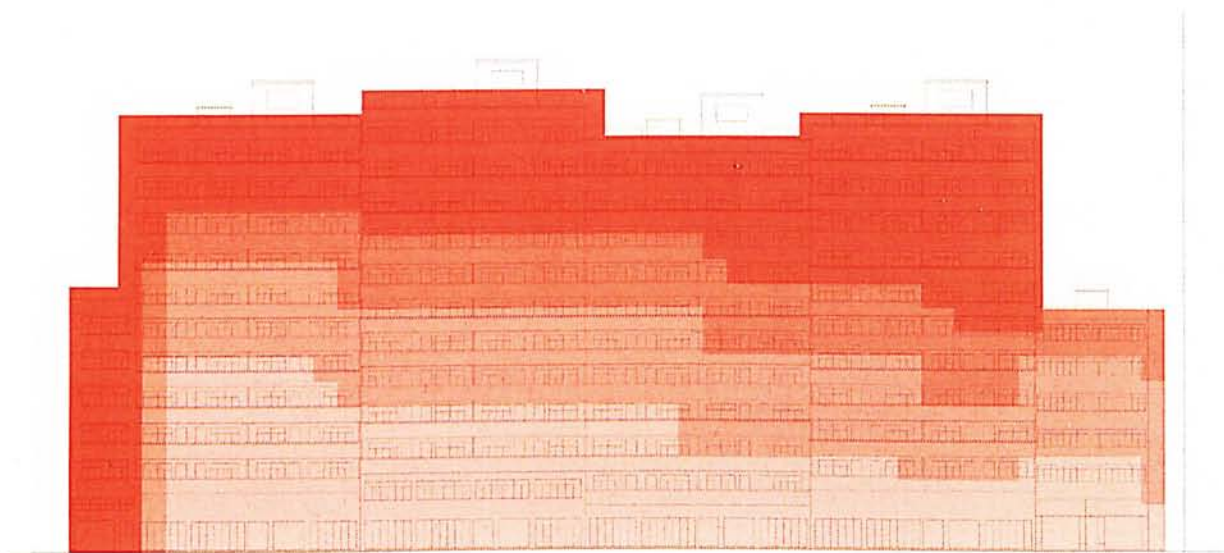
21-Jun: lightest red = space the receive less direct sunlight in a year



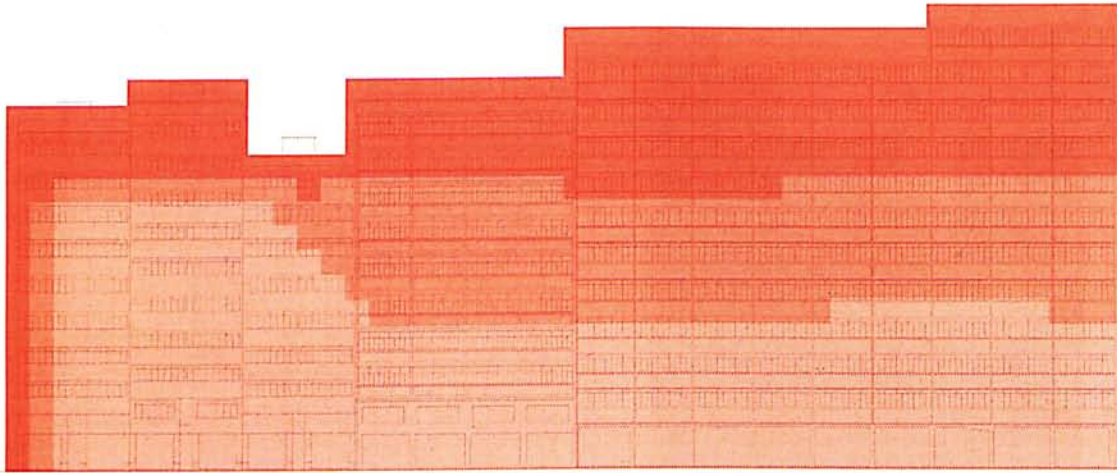
(for a complete set of diagram, please refer to Appendix)



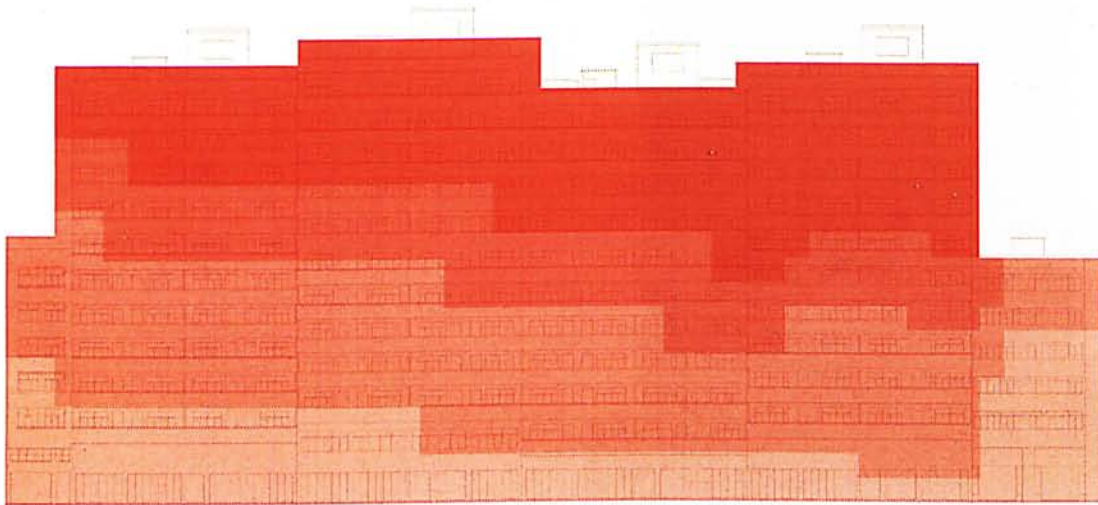
21-Jun West Facade



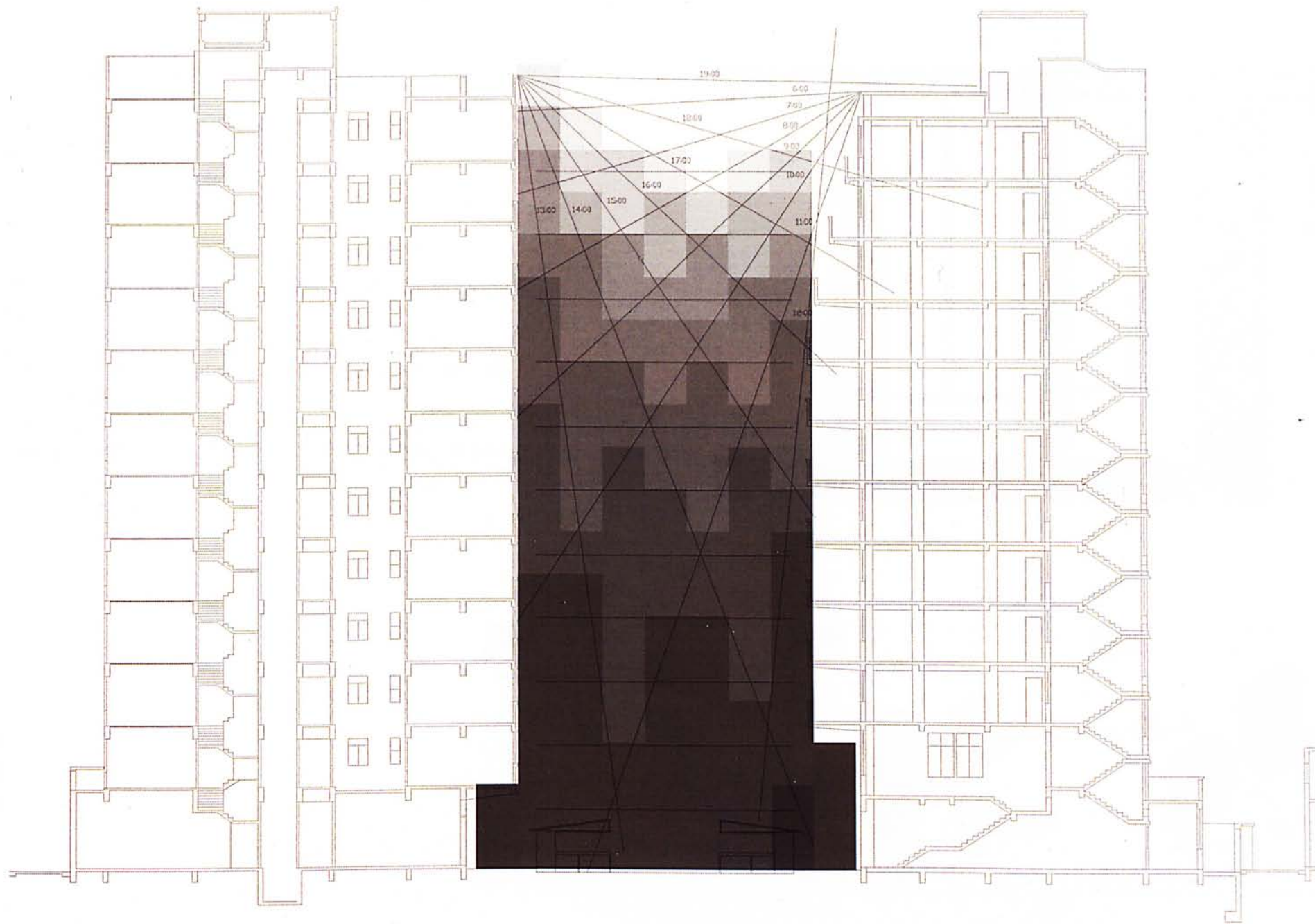
21-Jun East Facade



21-Jun West Facade



21-Jun East Facade



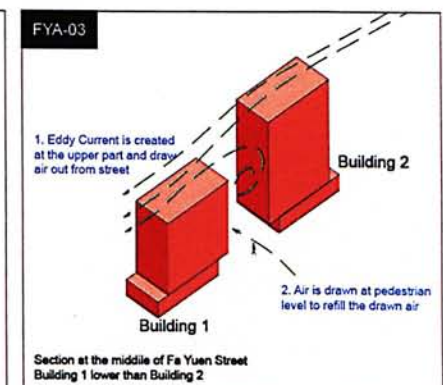
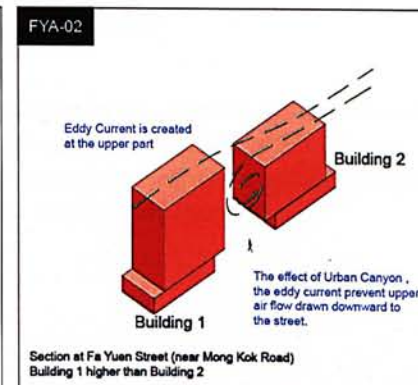
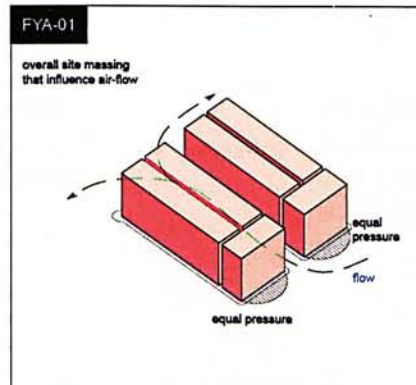
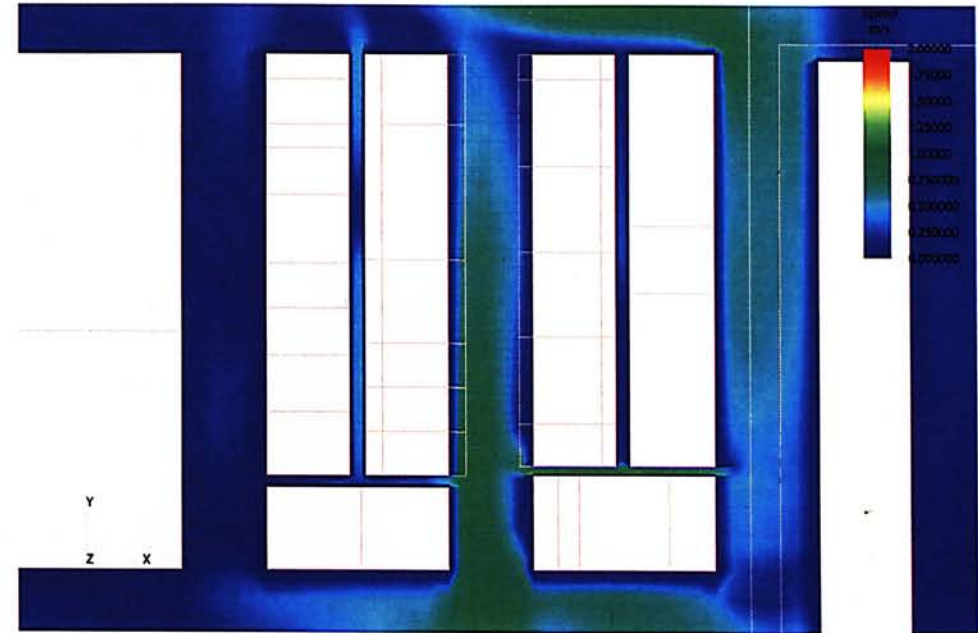
Permeability of Air in Fa Yuen Street

Computer simulation is used to study the air flow pattern of the site.

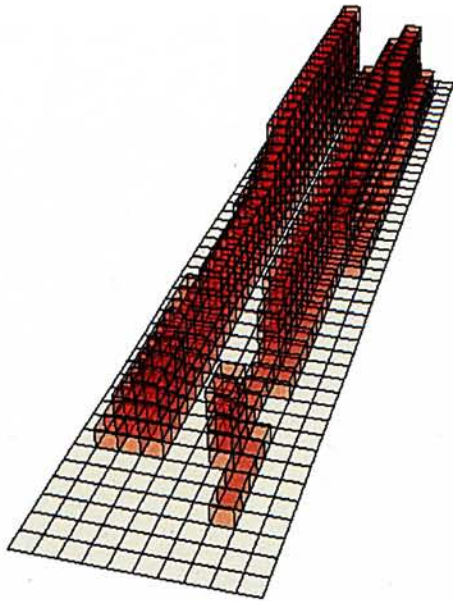
It is concluded that about half of the fa yuen street, the air speed is below 0.75 m/s which not enough to

Planning Guideline as suggested by Planning Department

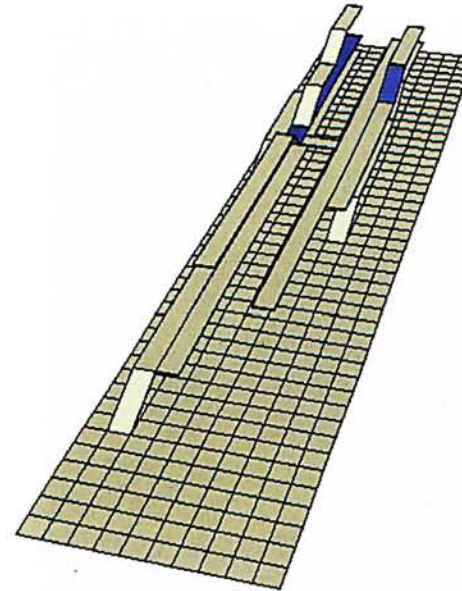
- link up open space at ground level
- use vertical projecting element (signage board, etc)
- alignment of main street
- ventilation corridor at podium level
- variation of building height - air velocity at pe-



Transformation of Modules into Architectural Element

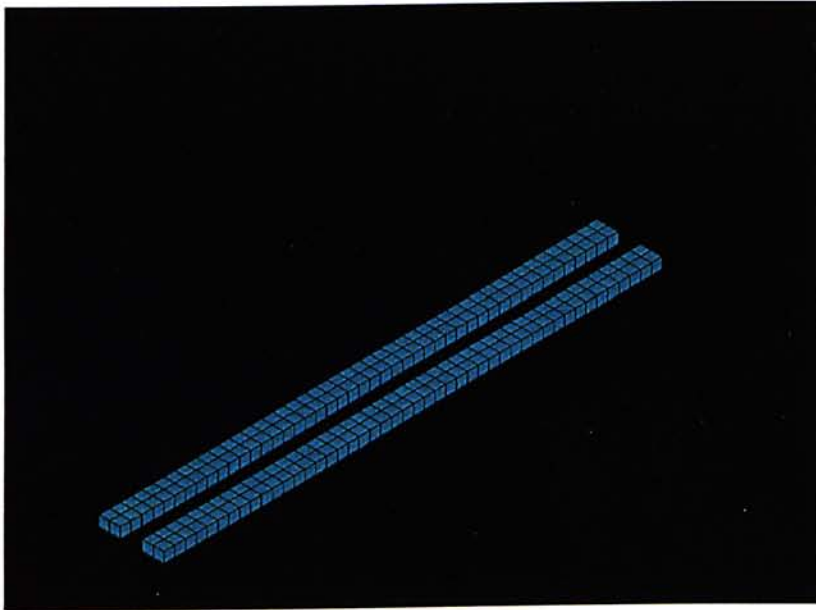


3d representation of the research study of the permeability of light of the site the data are based on the lightlest module on the diagram

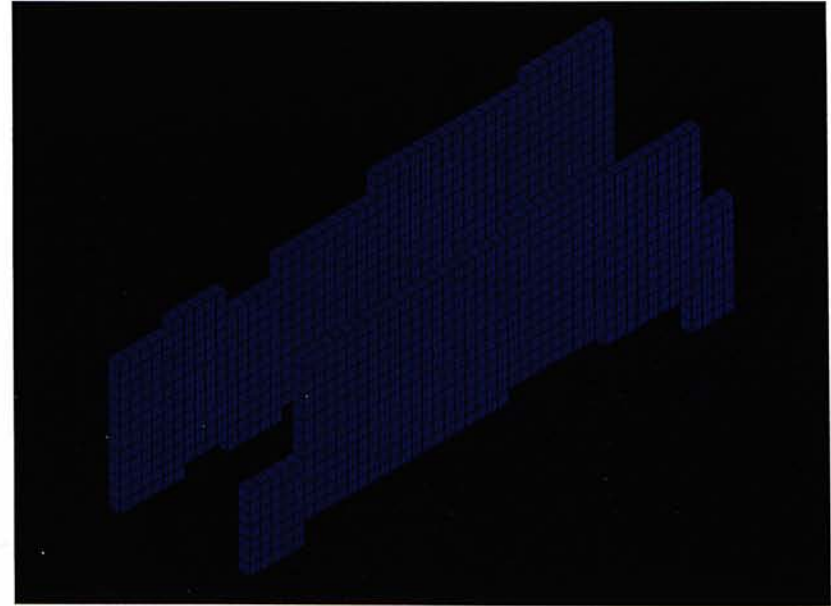


the lightest color on the diagram indicate that those space are in less direct sunlight in whole year they could be transformed into a pedestrian system above is one of the study models

Site Module Analysis

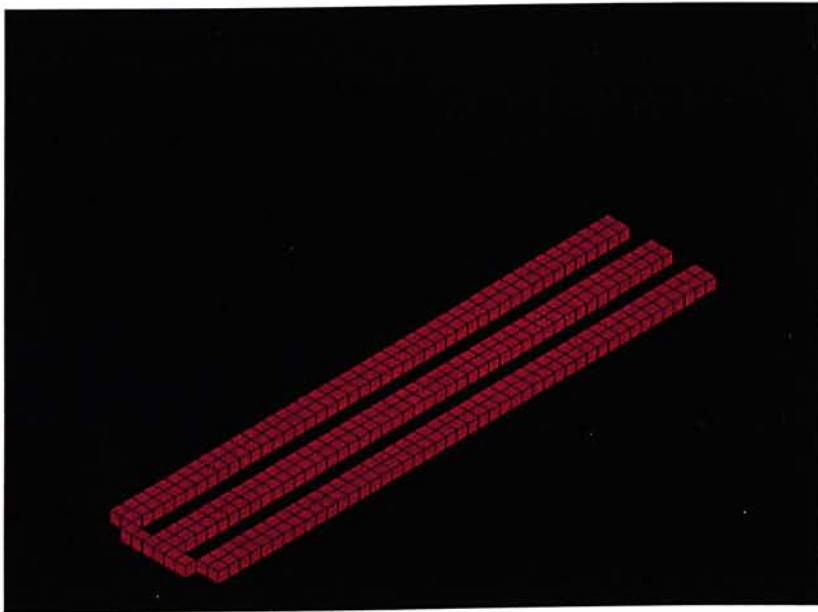


Open Market Stall

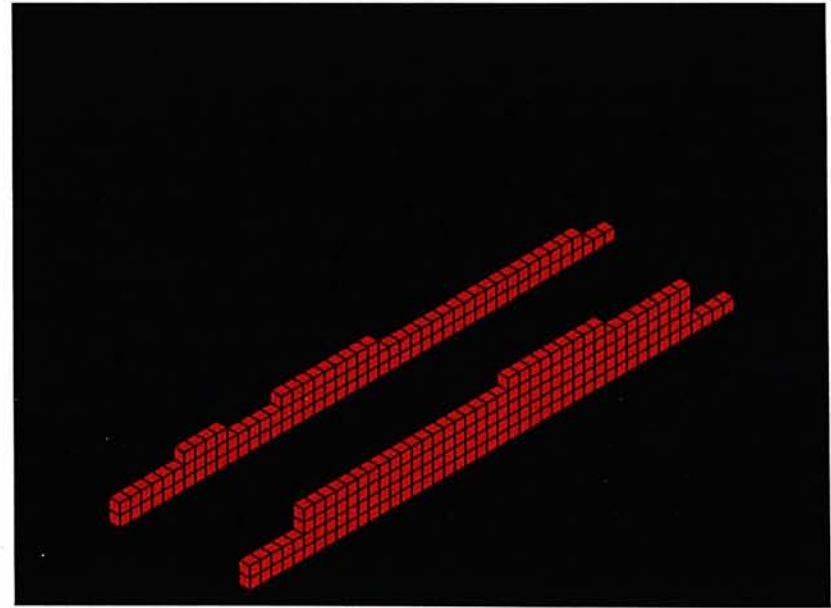


Habitation

Site Module Analysis

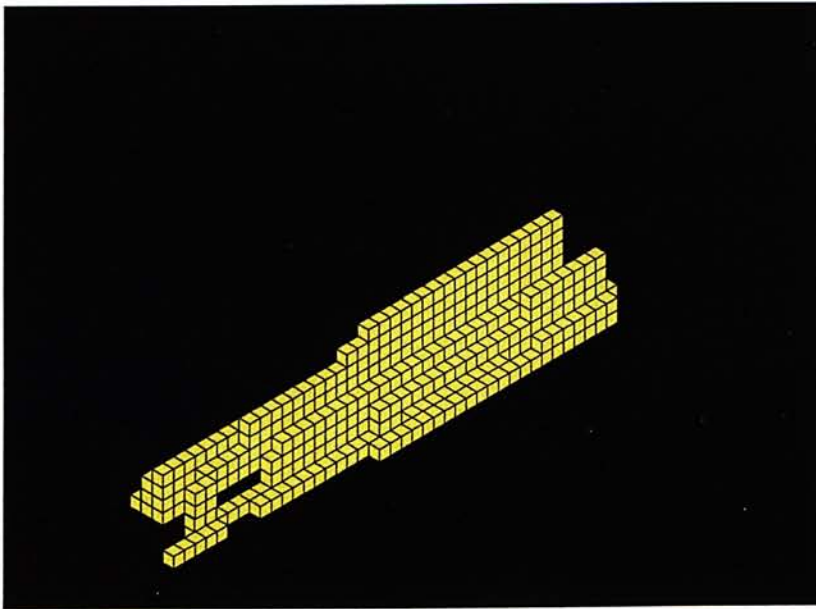


Pedestrian

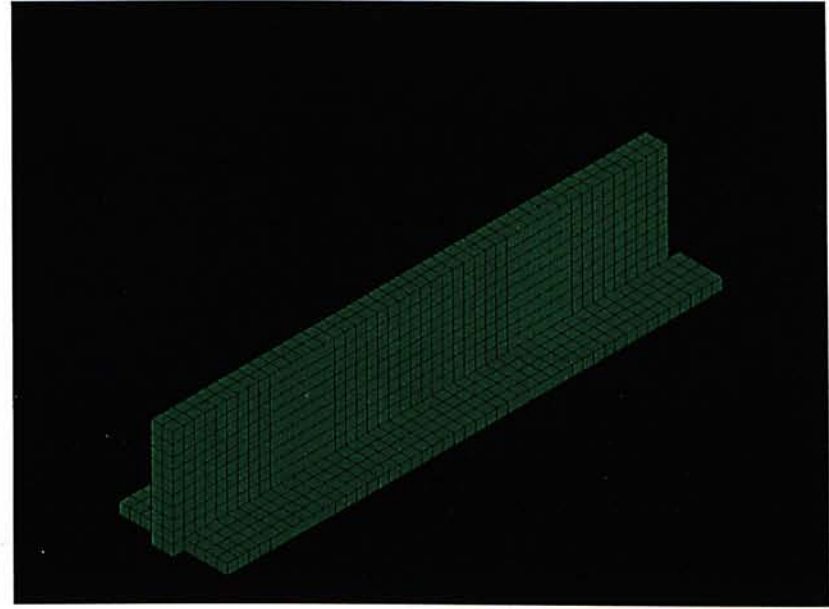


Shop

Site Module Analysis

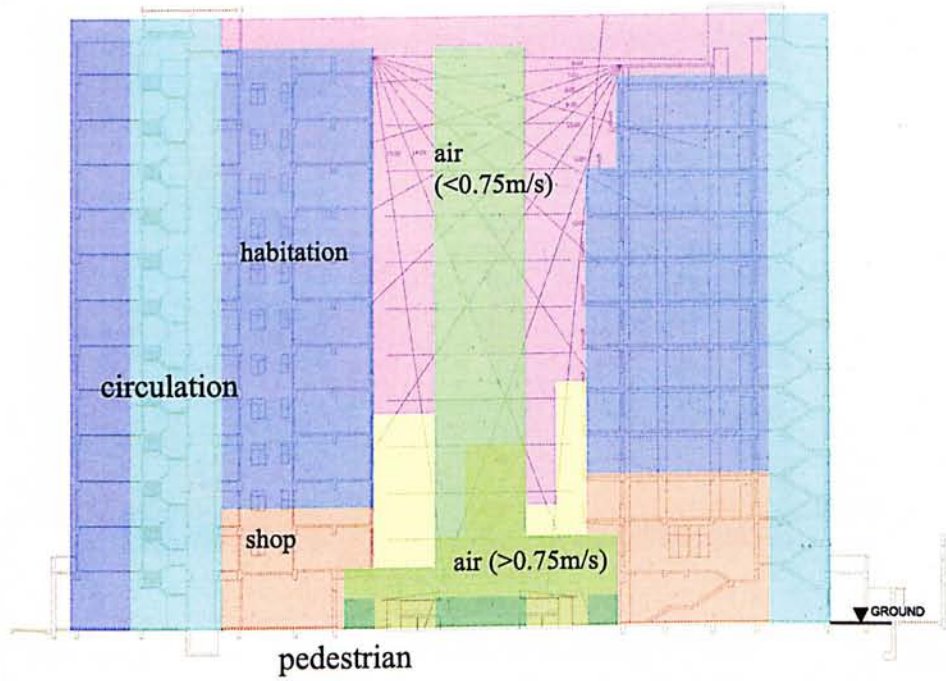


Sun Light

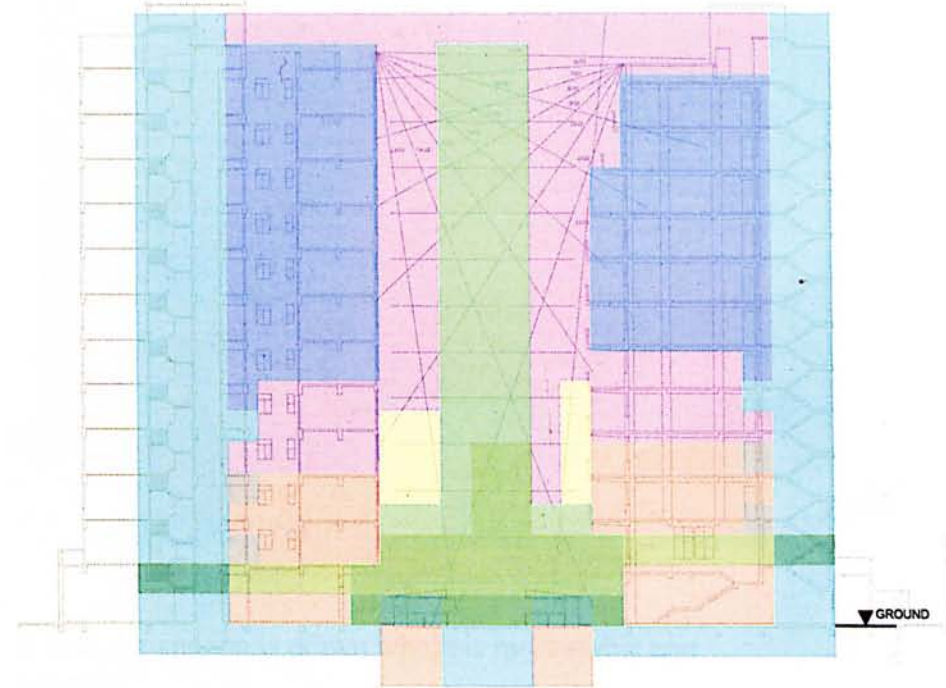


Air

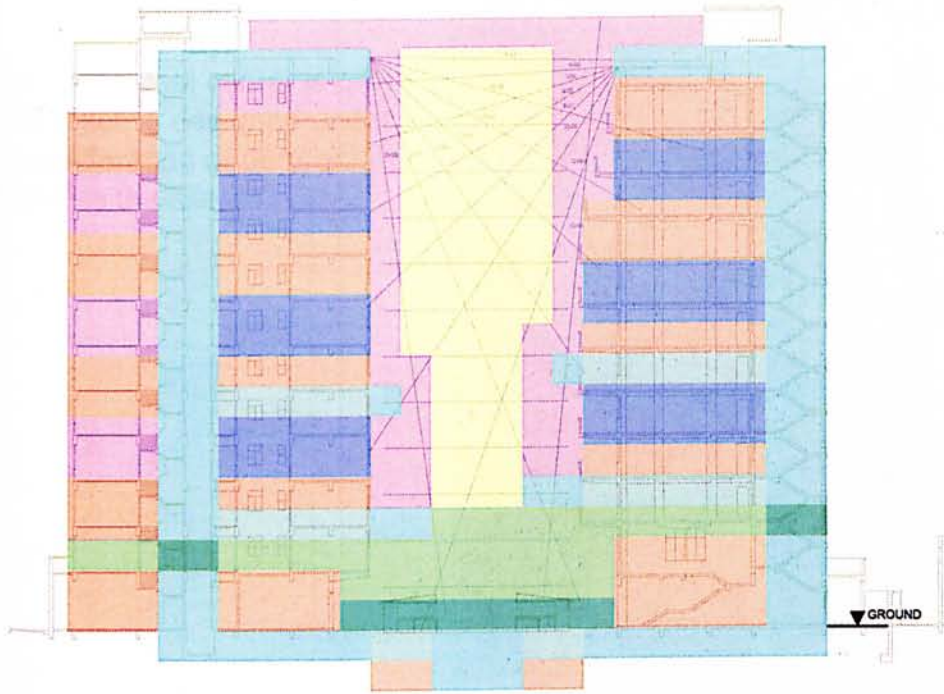
Permeability of Air in Fa Yuen Street



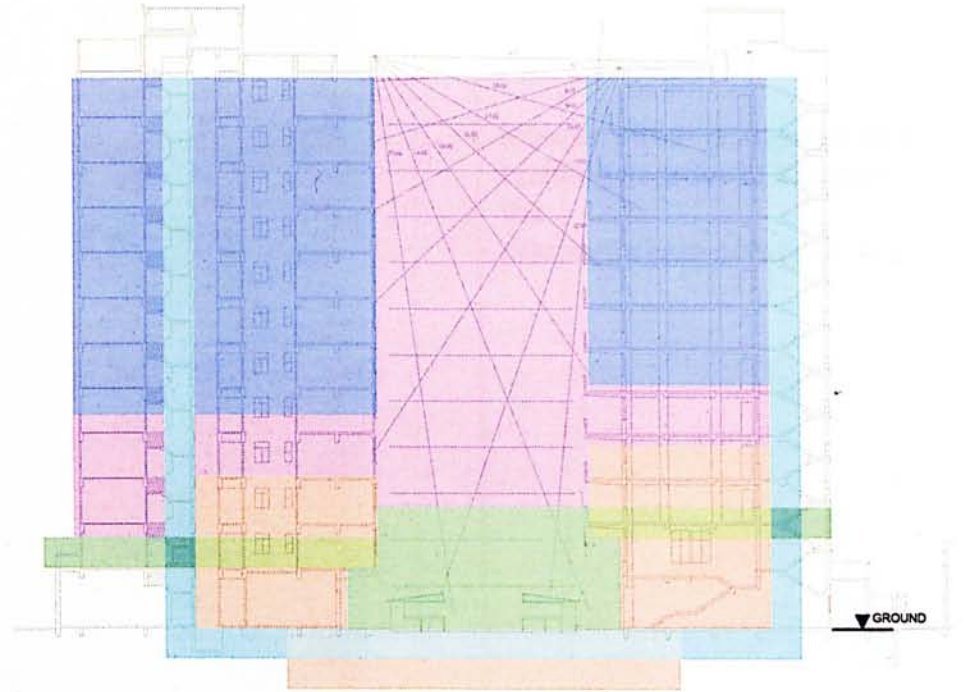
existing composition of the module in fa yuen street



As a first stage of design, the modules of void space are infiltrated into the existing buildings.



The space between two program could be shared to each other. The above diagram is developed based on this idea .



A final conclusion is drawn which is more stable and practical.

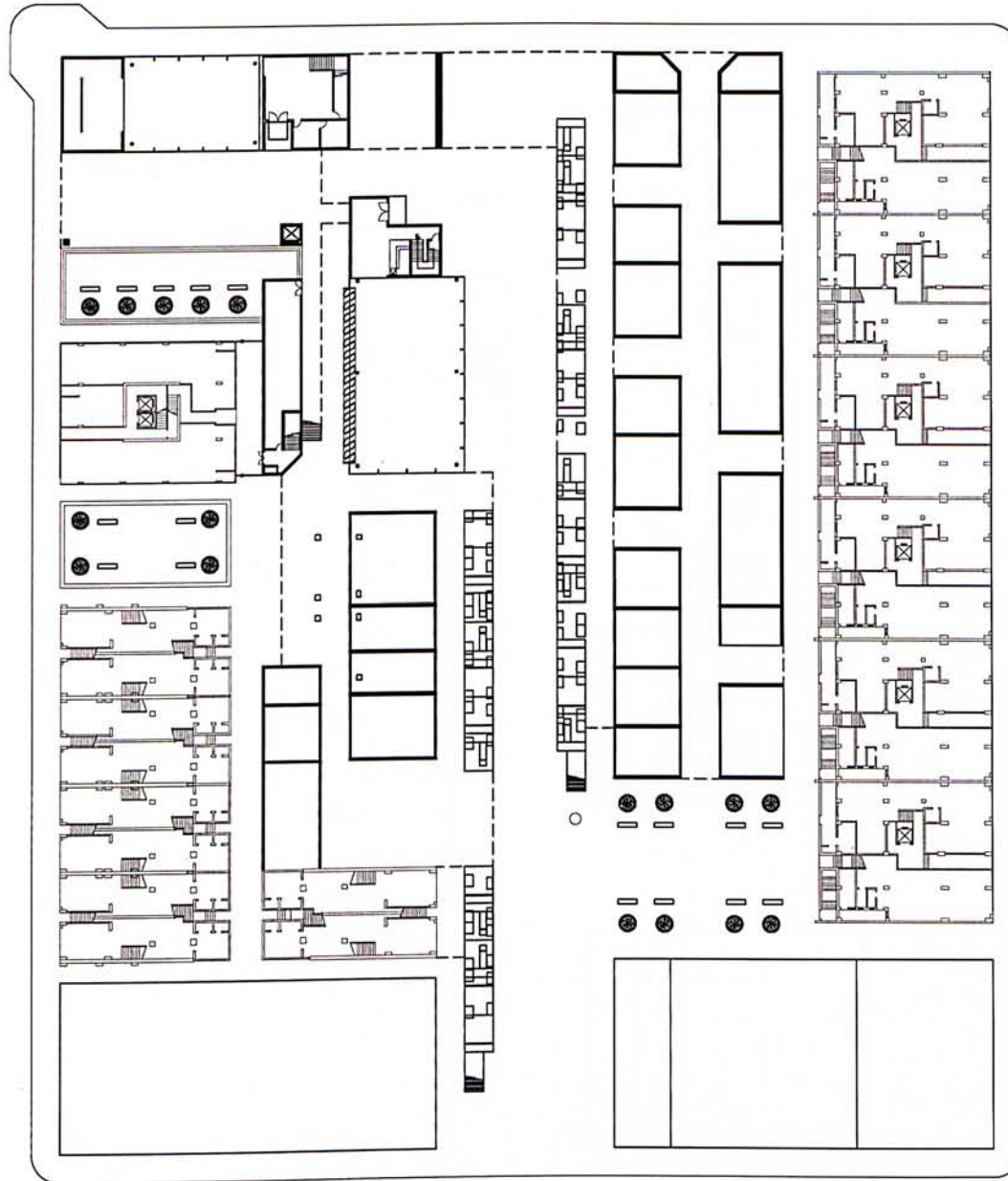
Composition of Space

A new communal center is proposed which is designed under the consideration of permeability of itself to the site.

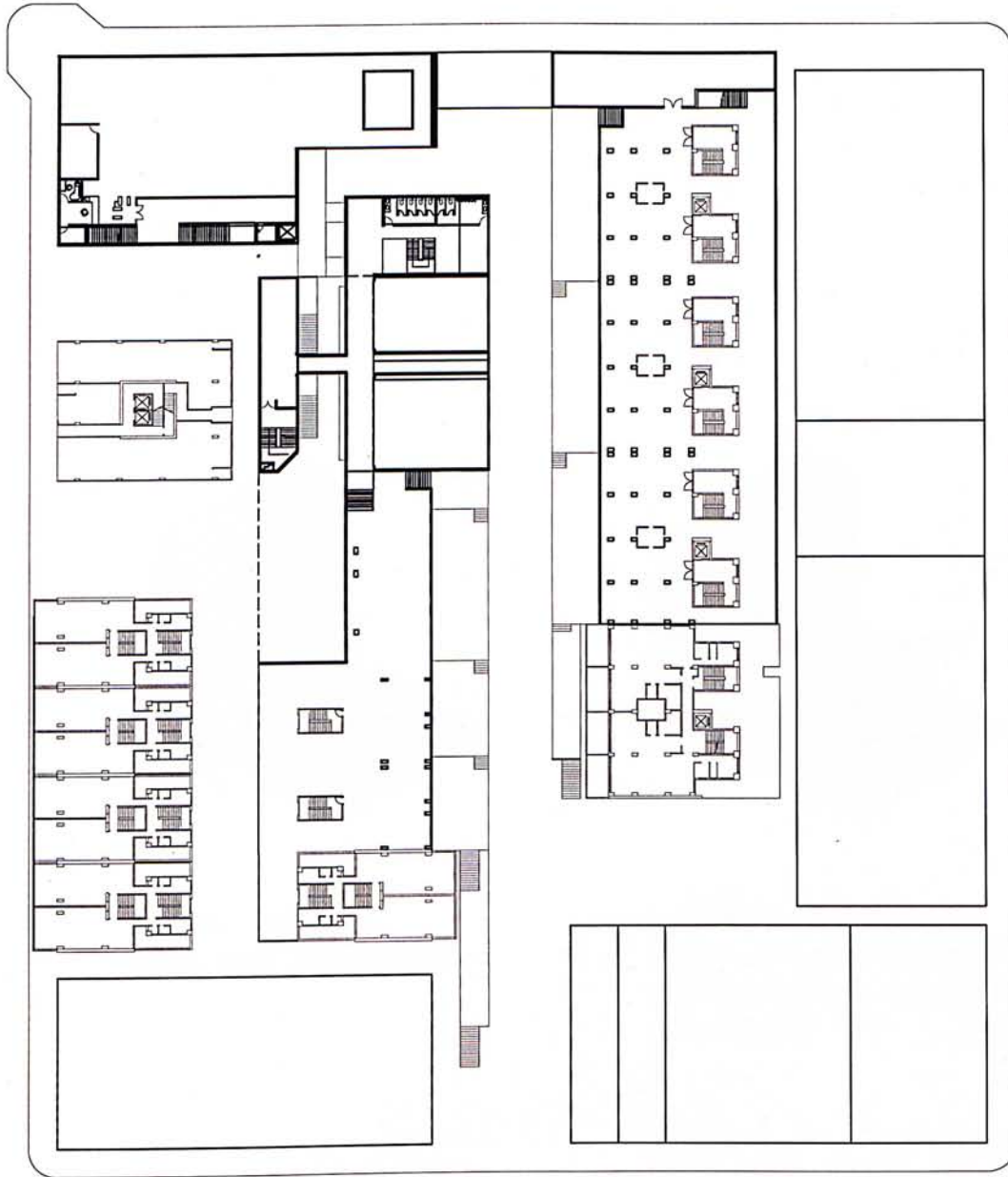


internal street is inserted into building in order to increase the discharge rate of human flow

Permeability in Site Level



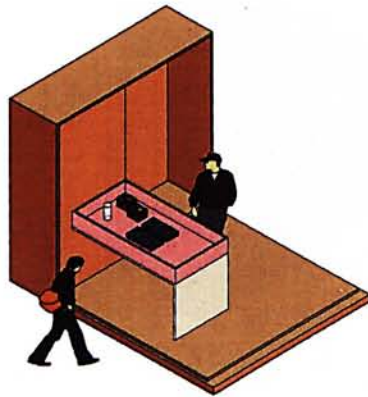
Site - Ground Plan



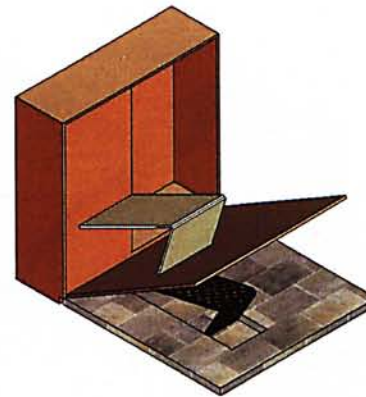
Site - Podium Plan

Permeability in Site Level

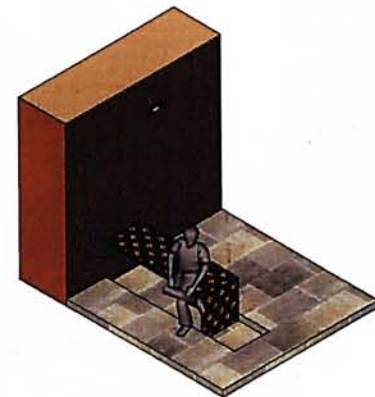
The module of open market booth is transformed as below. It is a vendor booth in the day time and could be modified into an urban furniture in the night time.



11:00am ~ 07:30pm
open market booth for vender



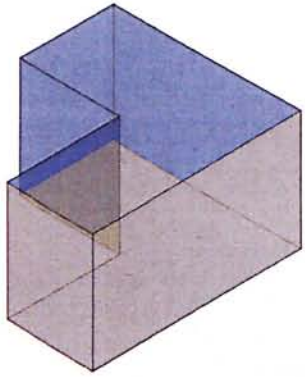
07:30pm ~ 08:00pm
the vender store their goods
inside the booth and then fold
the door up



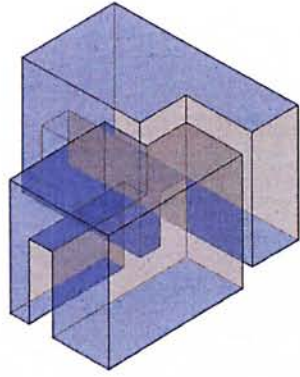
08:00pm ~ 10:30am
the booth is transformed
into a urban furniture
hence, it allow people pass
through the space between
a pair of booth

Permeability in Building Level

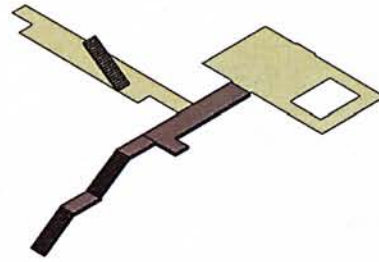
Proposed District Center in Fa Yuen Street



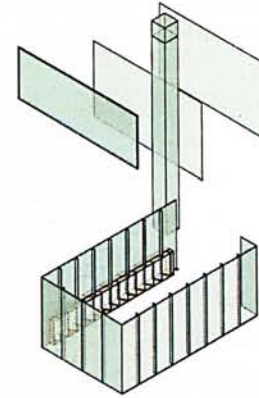
massing



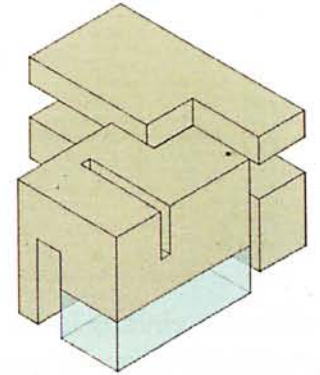
accessibility through
internal street



upper street



transparency



visibility through
material

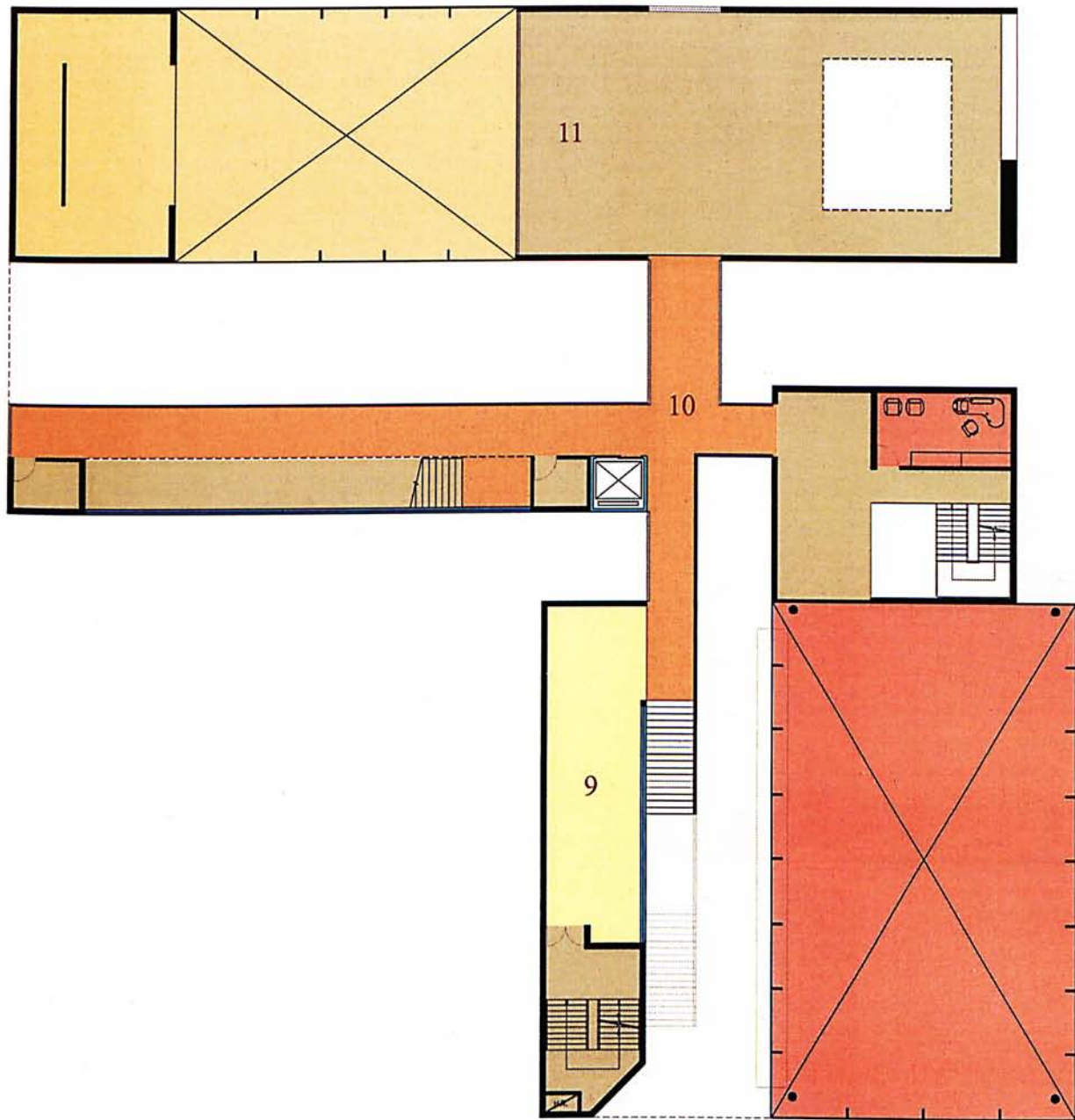
Proposed District Centre



- 1 open museum
- 2 internal street
- 3 office
- 4 museum lobby
- 5 auditorium
- 6 mini stage
- 7 auditorium lobby
- 8 new garden
- 9 exhibition room
- 10 upper street
- 11 upper auditorium
- 12 office
- 13 library
- 14 cafeteria
- 15 podium
- 16 classroom
- 17 activities room


The ground level mainly consists of two program: an open exhibition area and an open stage+auditorium area. The idea of putting this two program is to provide a visual permeability of the main street to the internal street

 Ground Plan



- 1 open museum
- 2 internal street
- 3 office
- 4 musuem lobby
- 5 auditorium
- 6 mini stage
- 7 auditorium lobby
- 8 new garden
- 9 exhibition room
- 10 upper street
- 11 upper auditorium
- 12 office
- 13 library
- 14 cafertia
- 15 podium
- 16 classroom
- 17 activities room

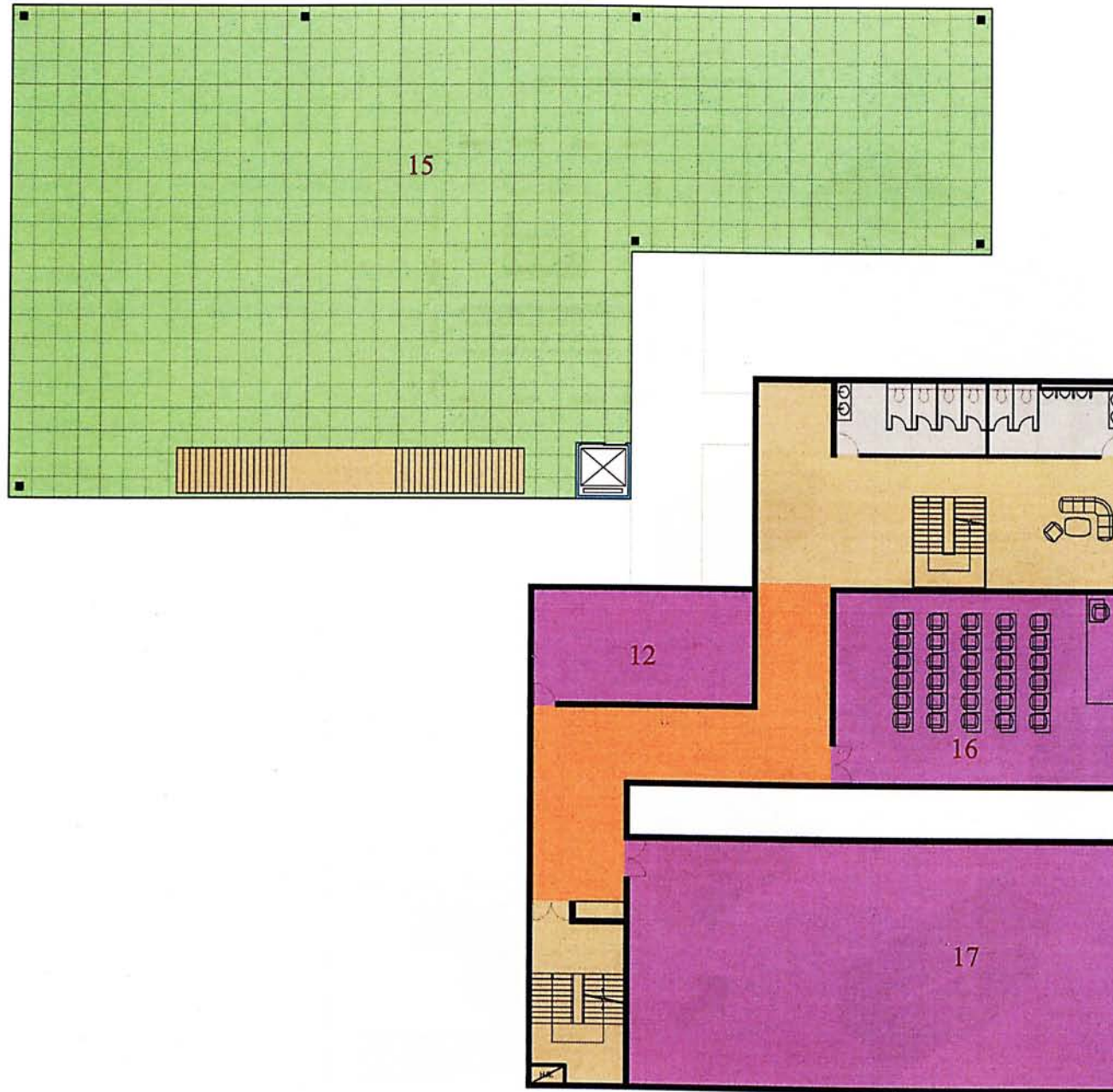
An upper street level is propsoed as an extention of the ground level

 Plan at +8.0m (upper street)



- 1 open museum
- 2 internal street
- 3 office
- 4 musuem lobby
- 5 auditorium
- 6 mini stage
- 7 auditorium lobby
- 8 new garden
- 9 exhibition room
- 10 upper street
- 11 upper auditorium
- 12 office
- 13 library
- 14 cafertia
- 15 podium
- 16 classroom
- 17 activities room

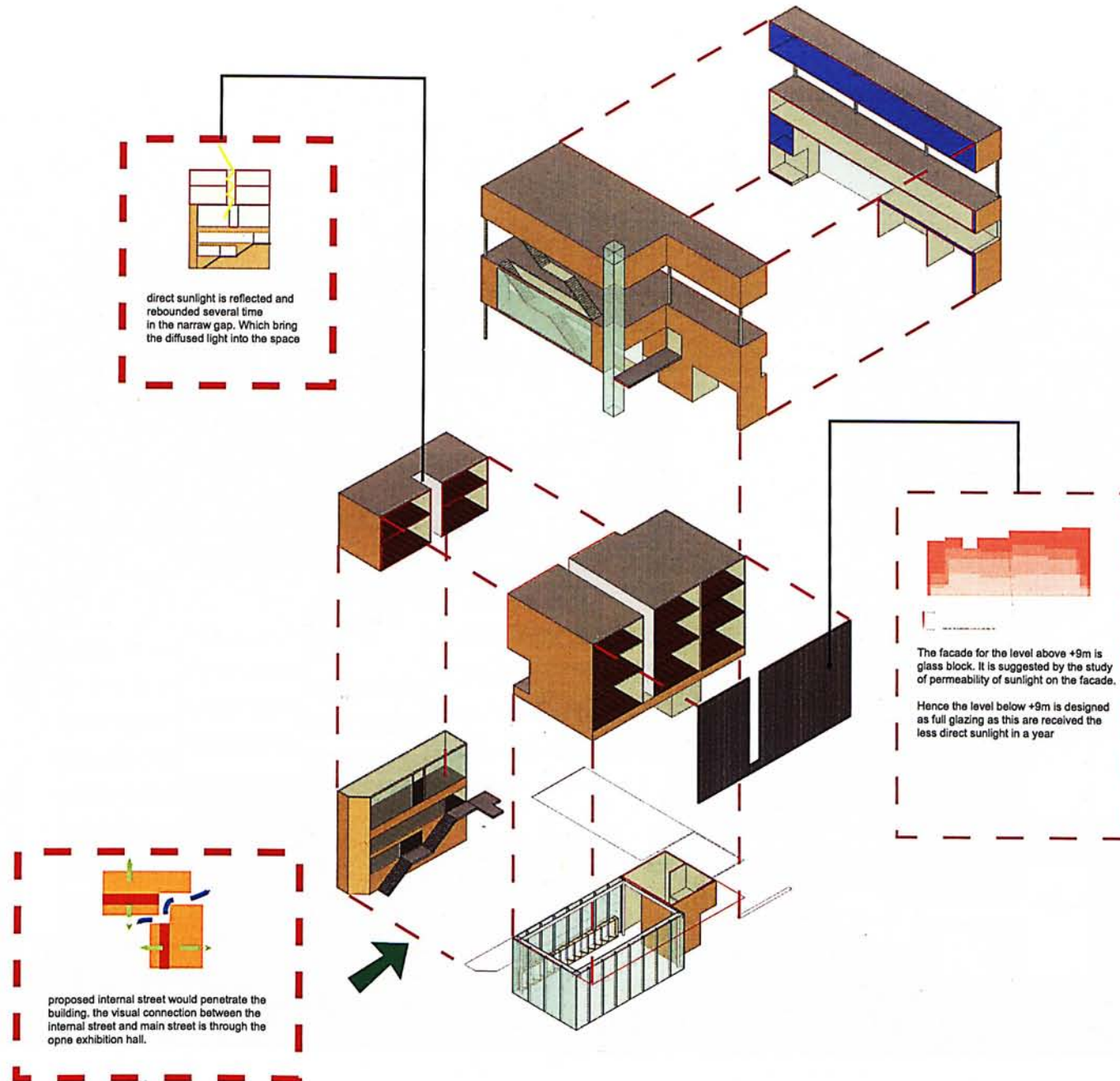
An upper street level is propped as an extension of the ground level



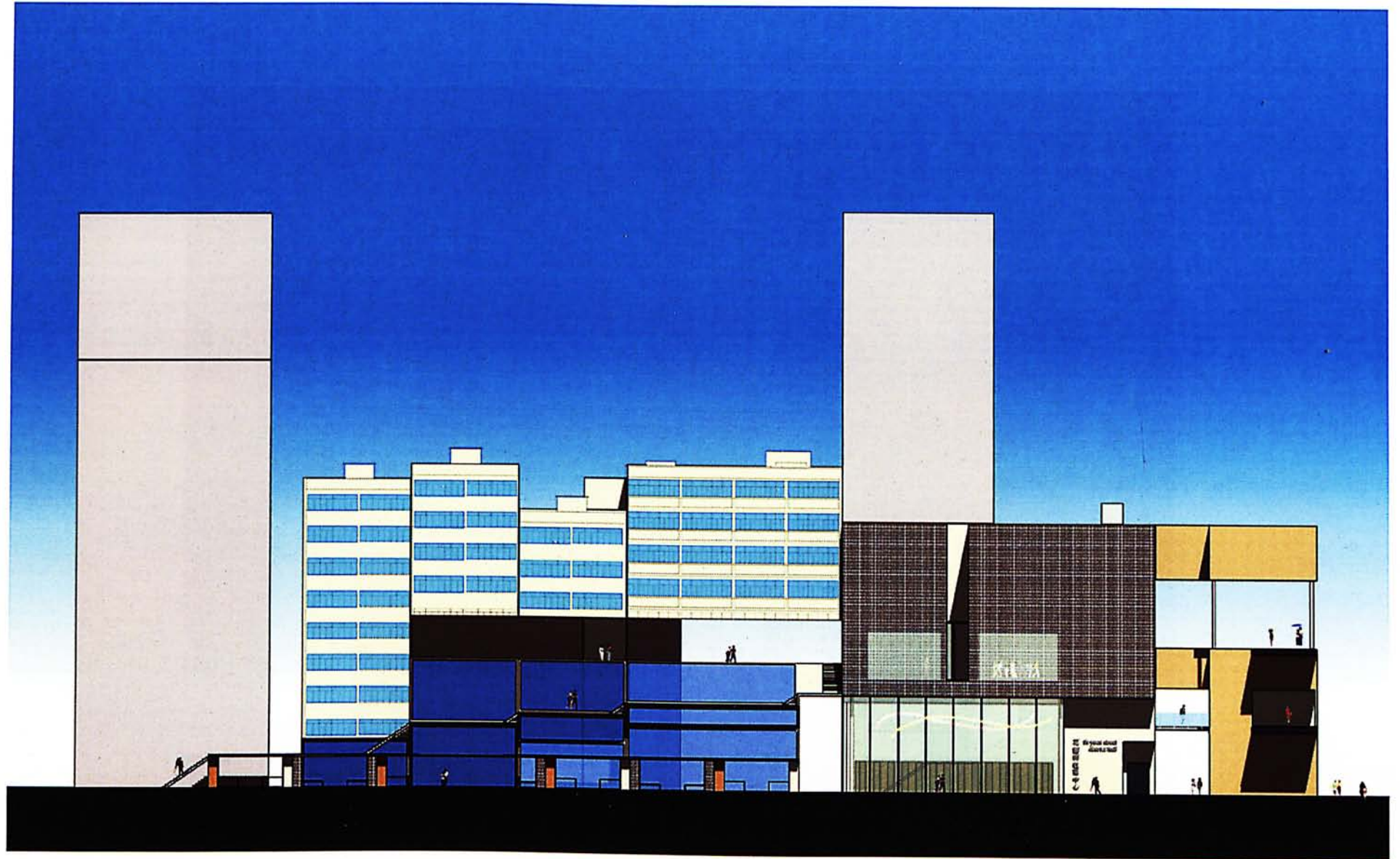
- 1 open museum
- 2 internal street
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- 7 auditorium lobby
- 8 new garden
- 9 exhibition room
- 10 upper street
- 11 upper auditorium
- 12 office
- 13 library
- 14 cafeteria
- 15 podium
- 16 classroom
- 17 activities room

Podium is another important in this building as it contribute the air permeability to the site area. The podium will act as a ventilation corridor.

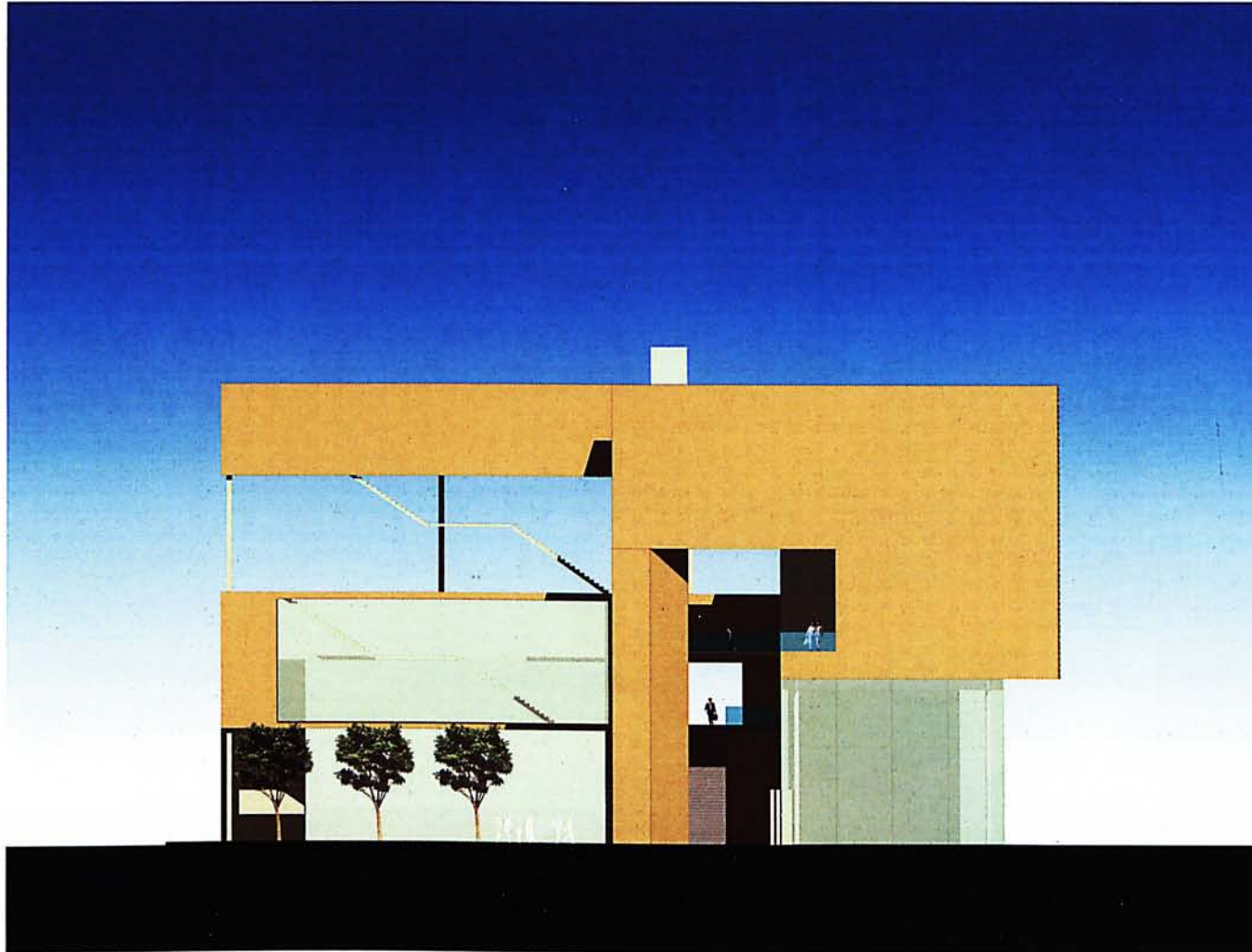
Exploded isometric



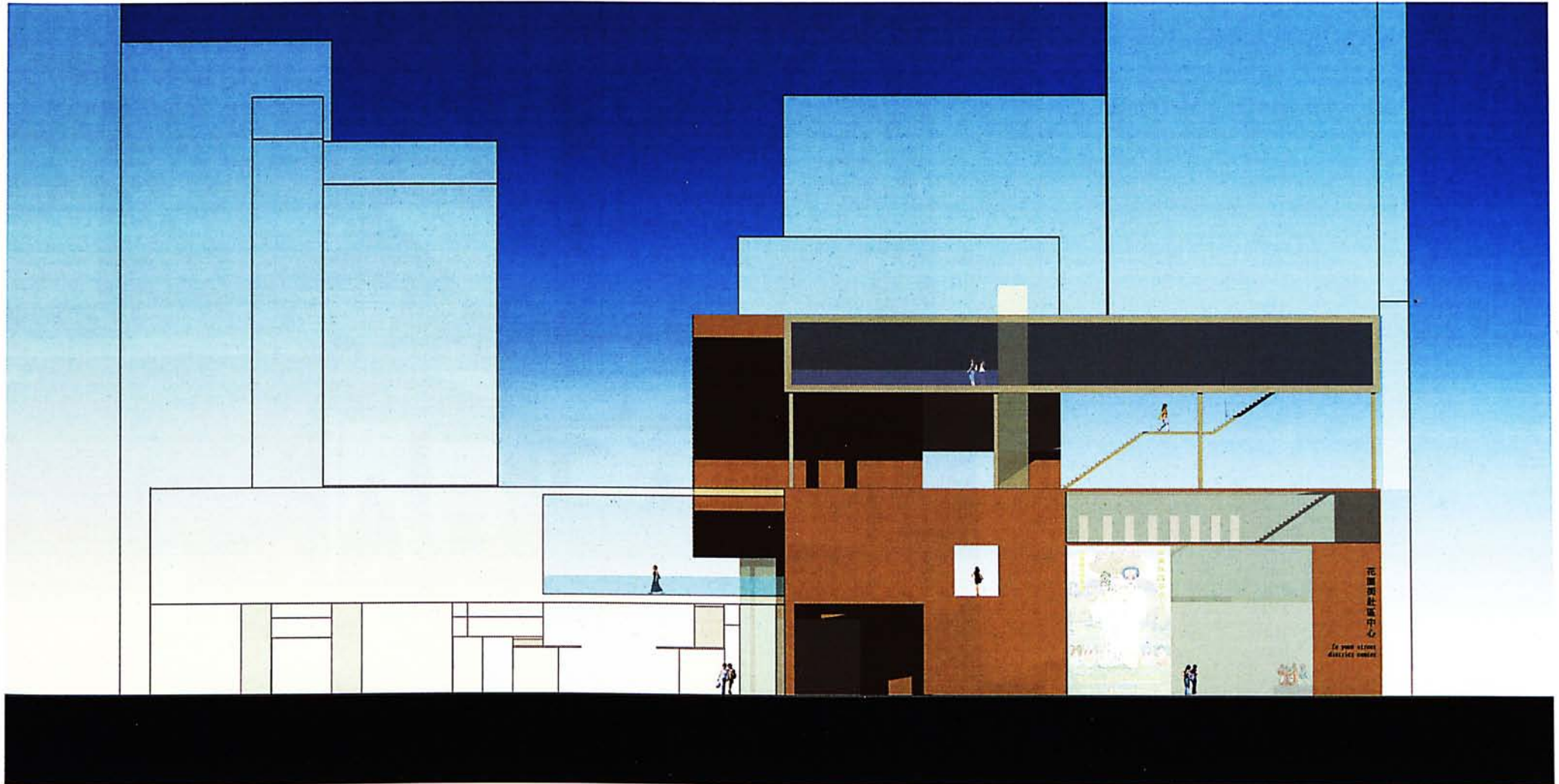
Site Elevation Along Fa Yuen Street

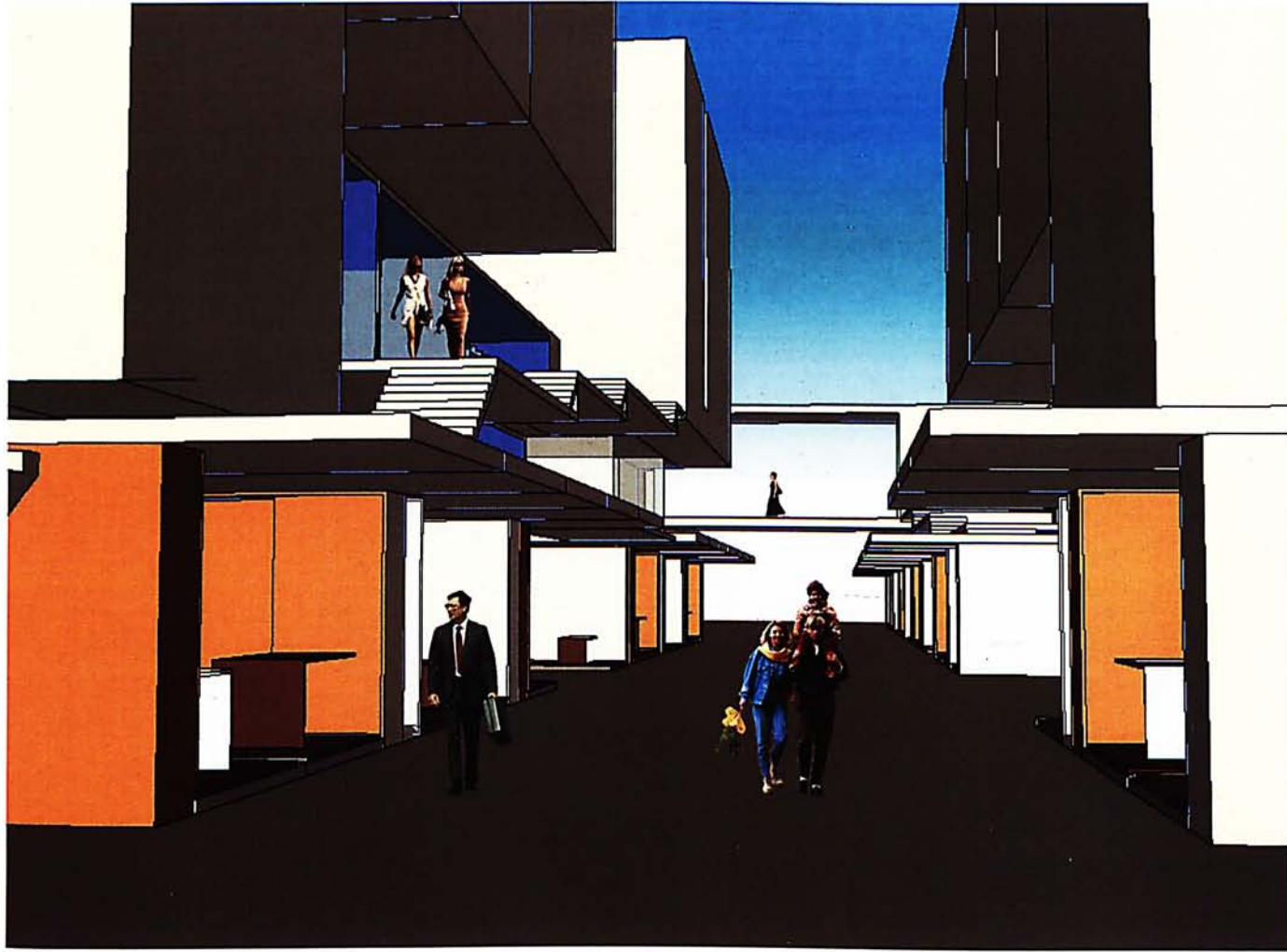


Elevation from Internal Street



Elevation Along Bute Street

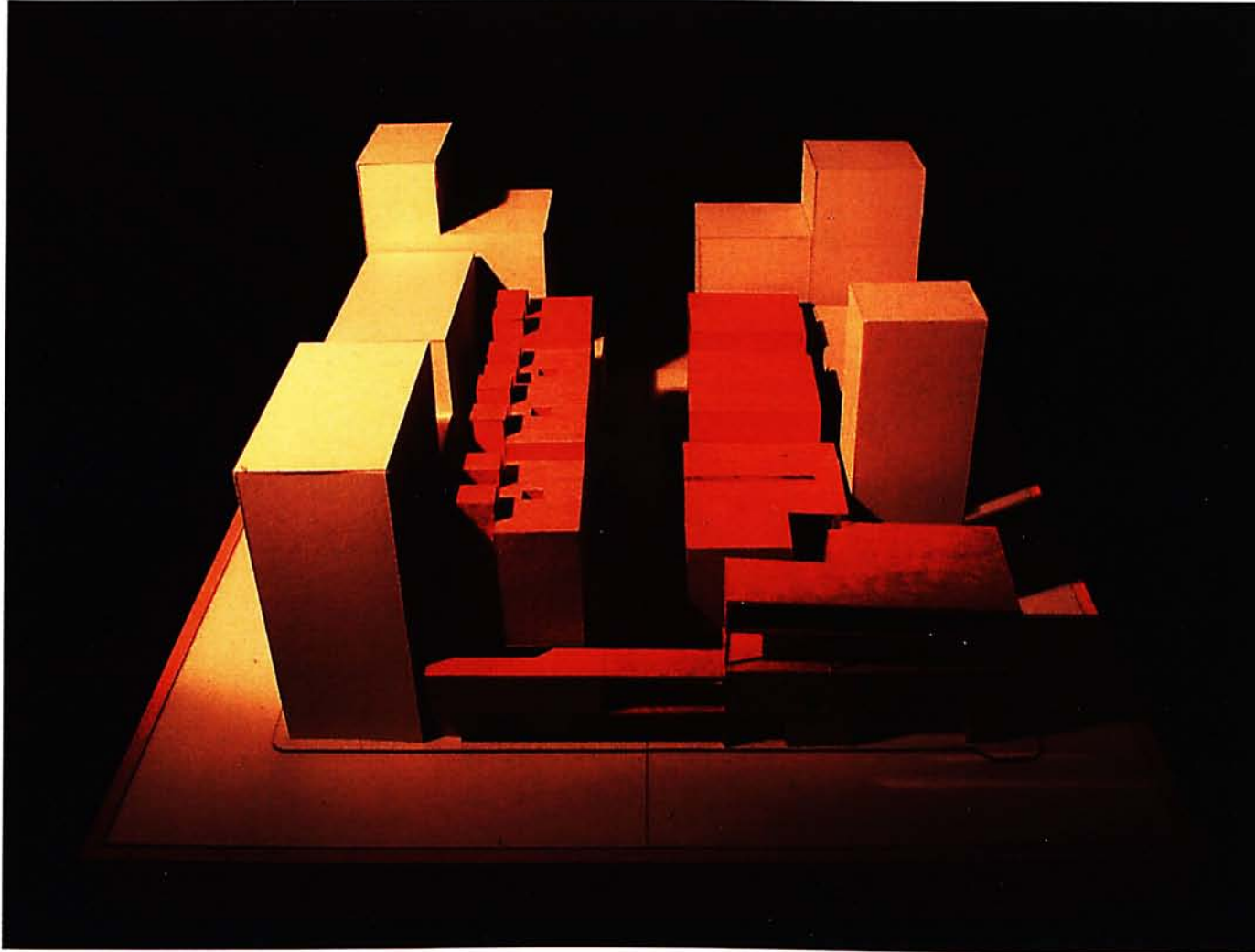


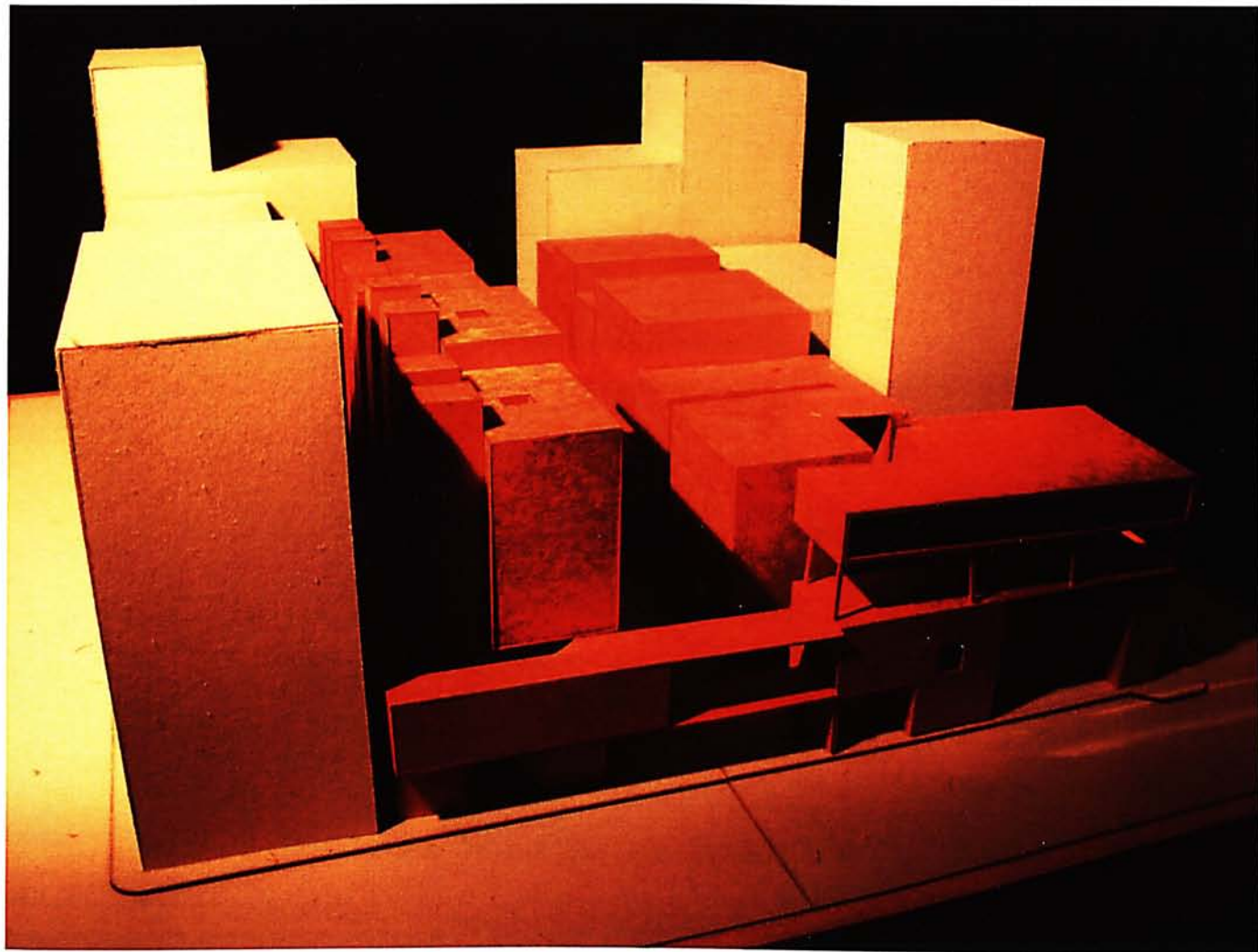


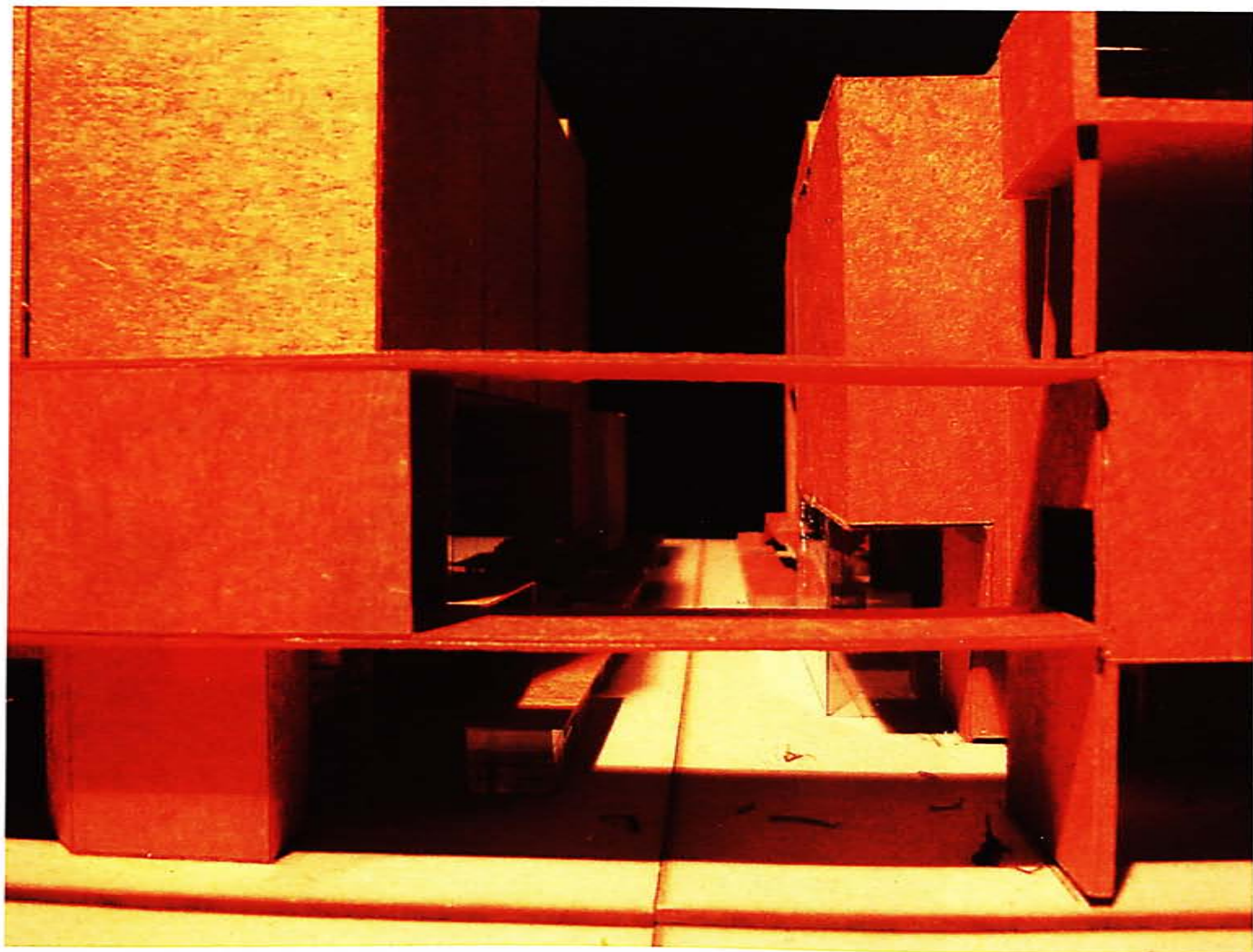


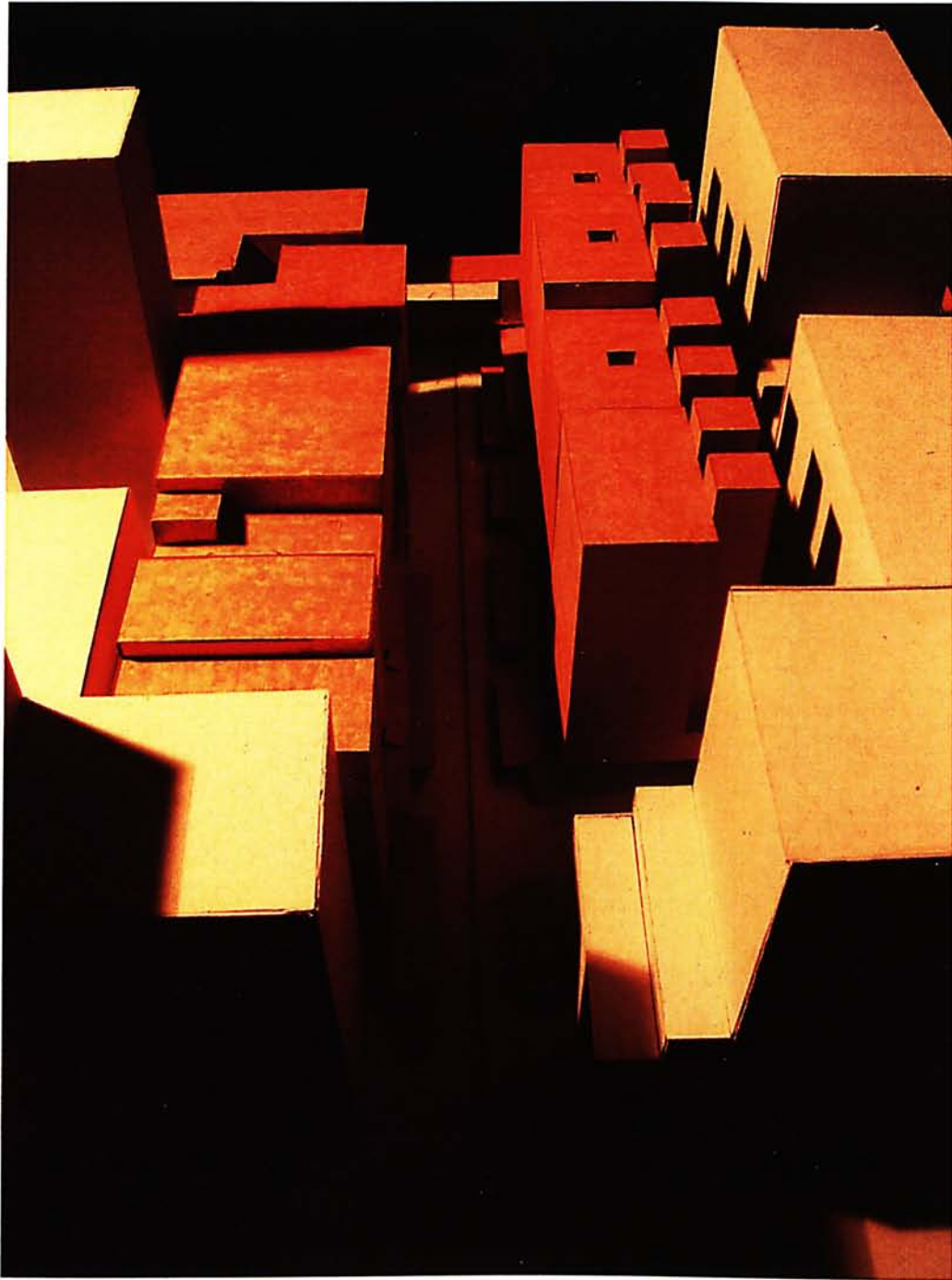


Site Model 1:500



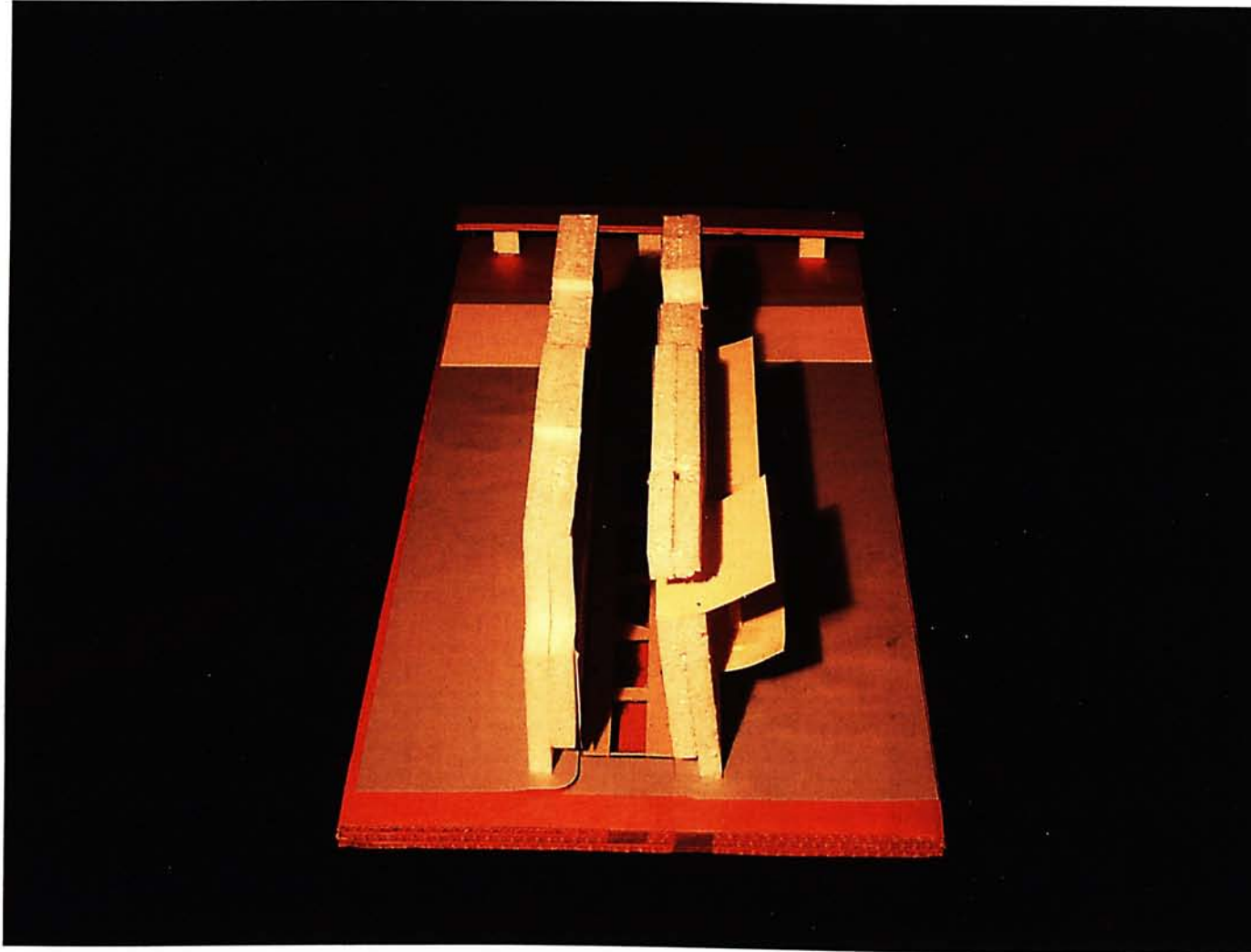




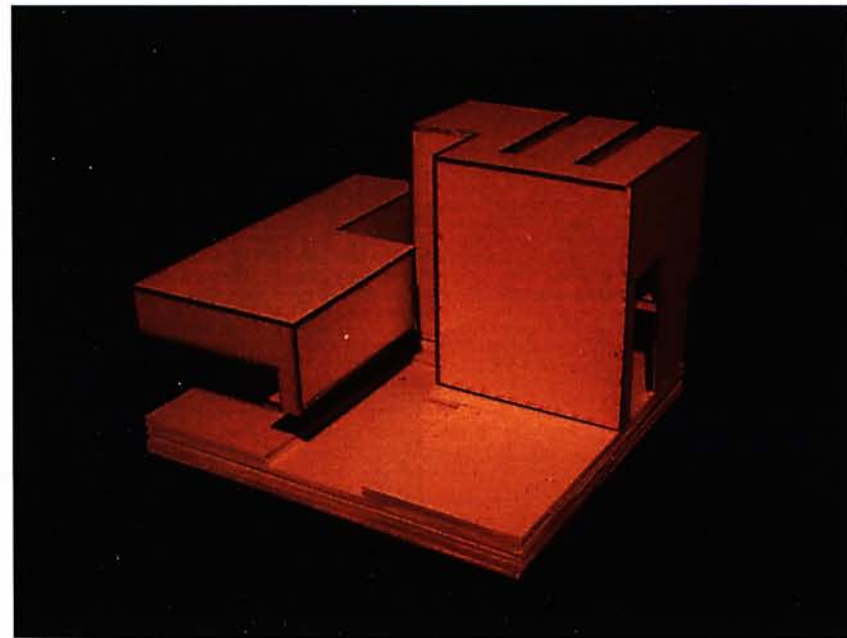
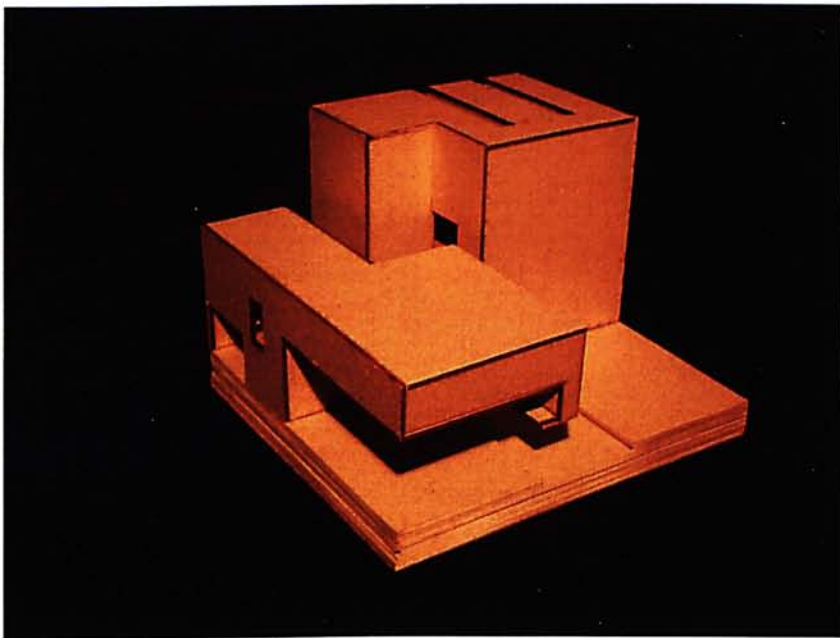
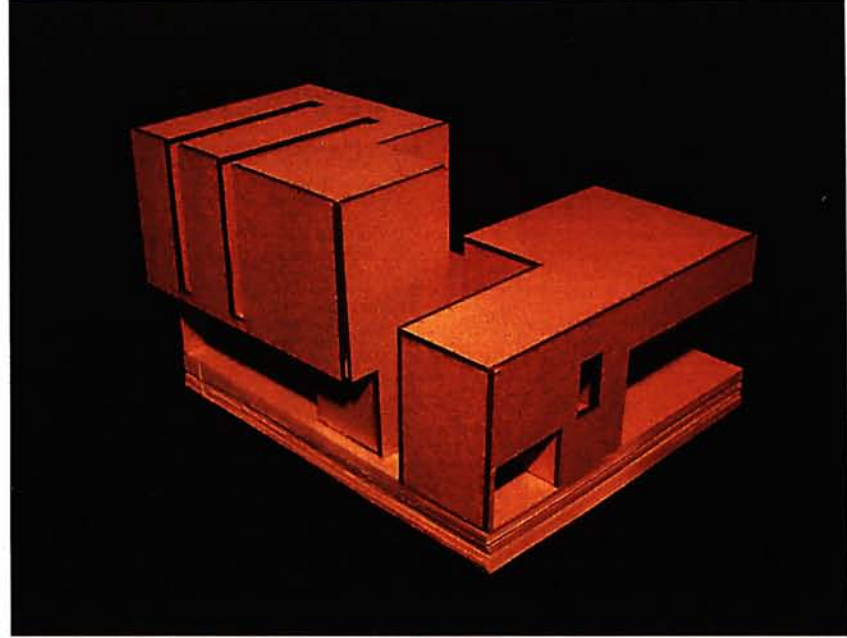
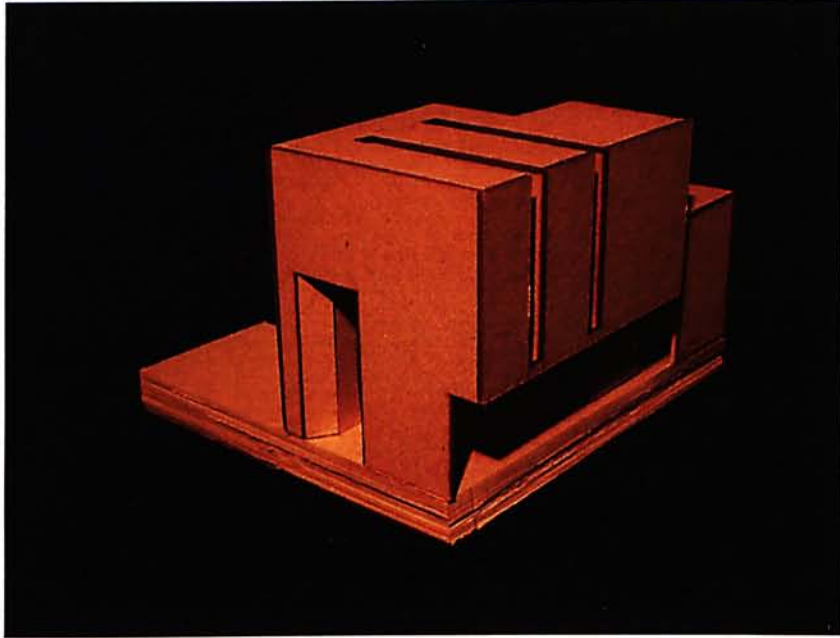


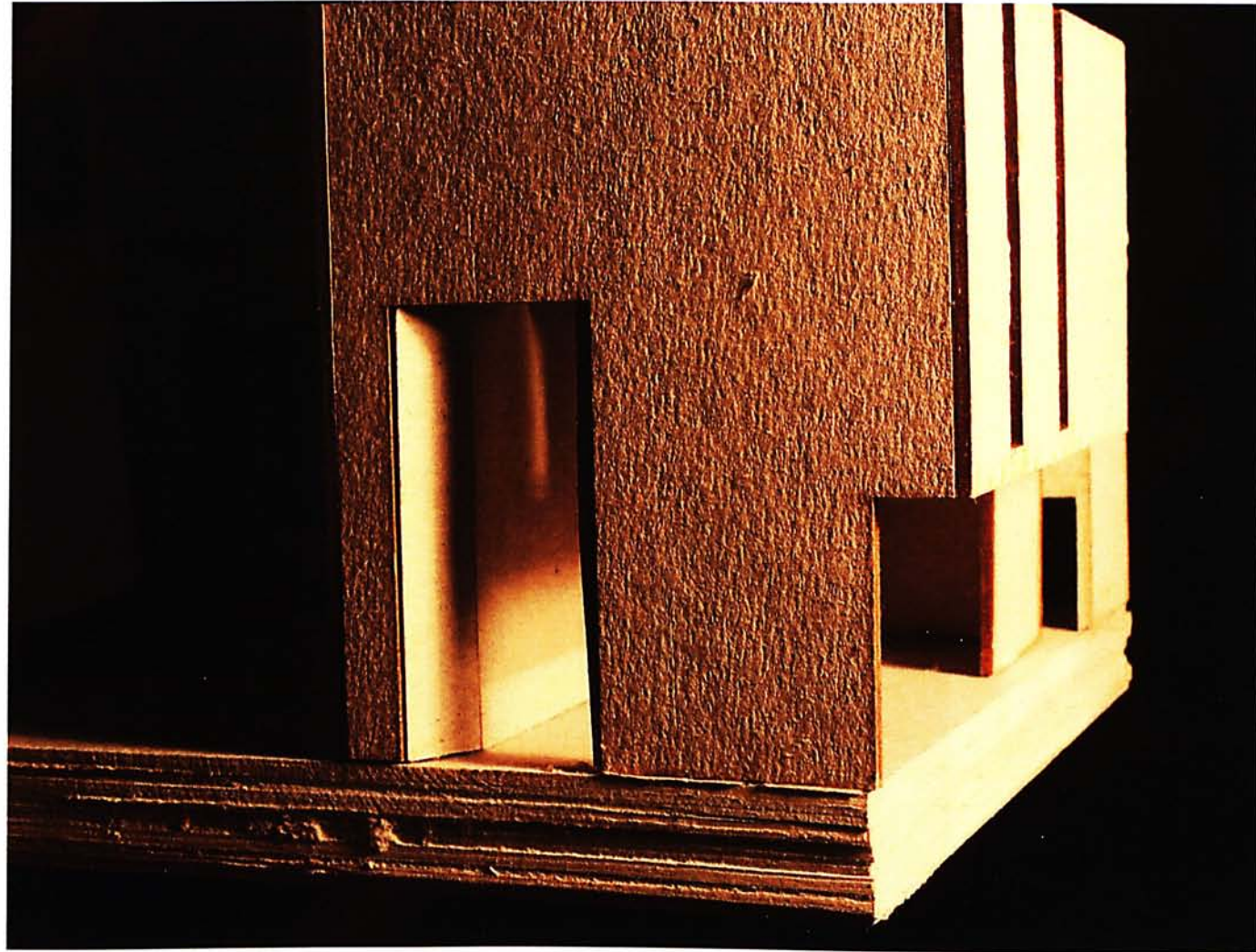


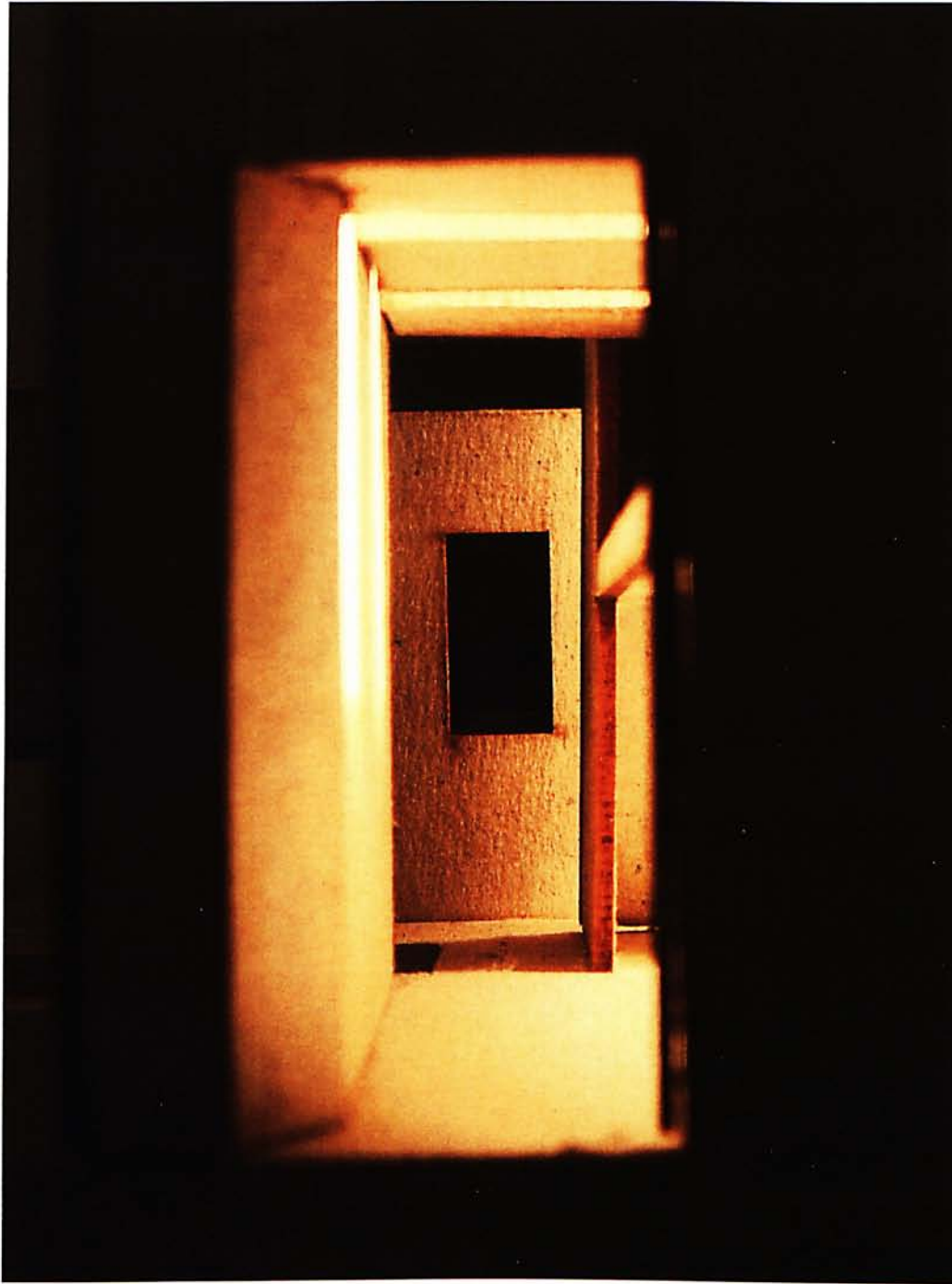
Study Site Model (Fa Yuen Street) 1:250

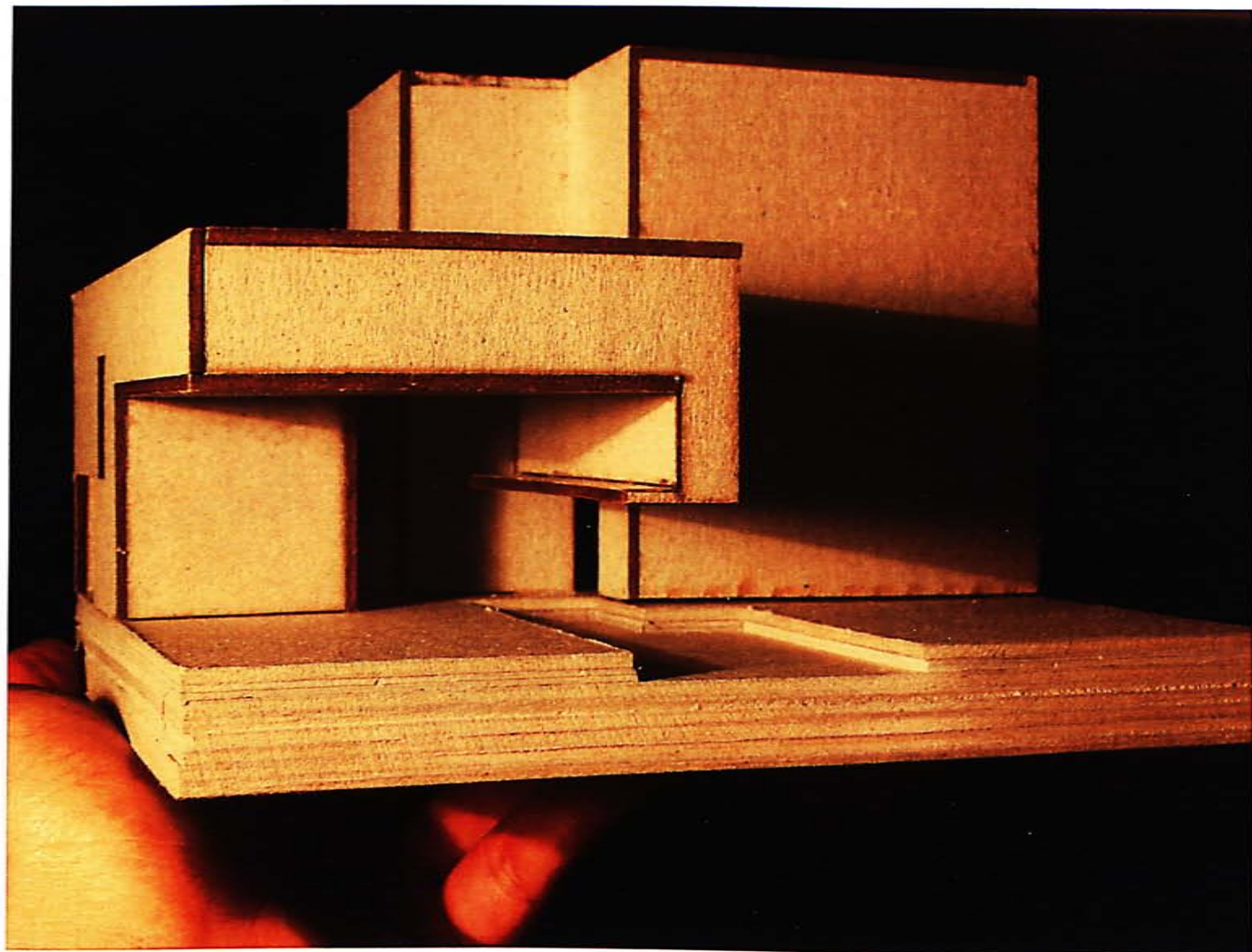


Study Model (proposed district center)1:250

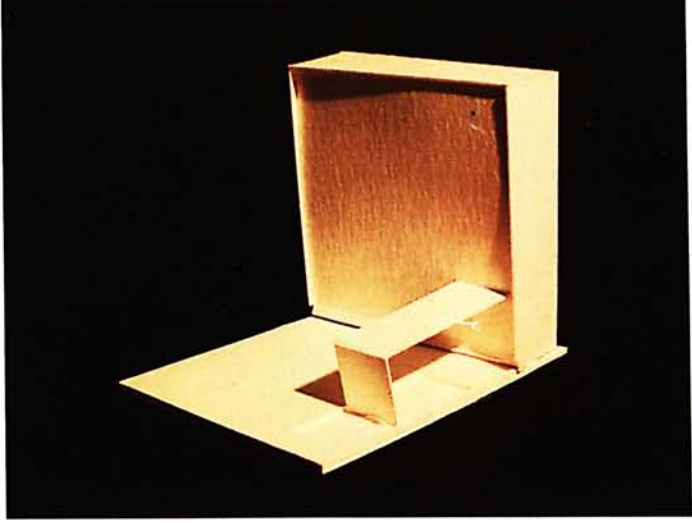
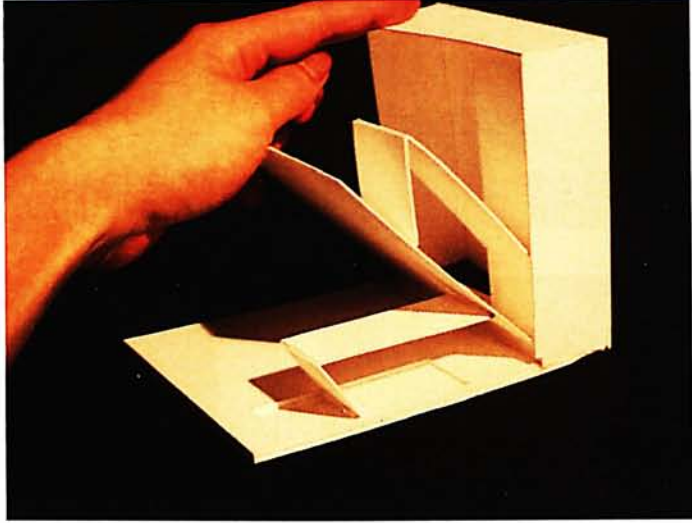
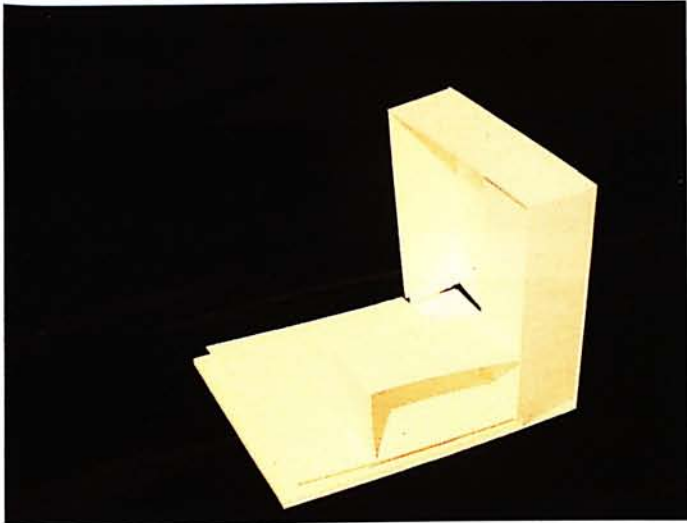




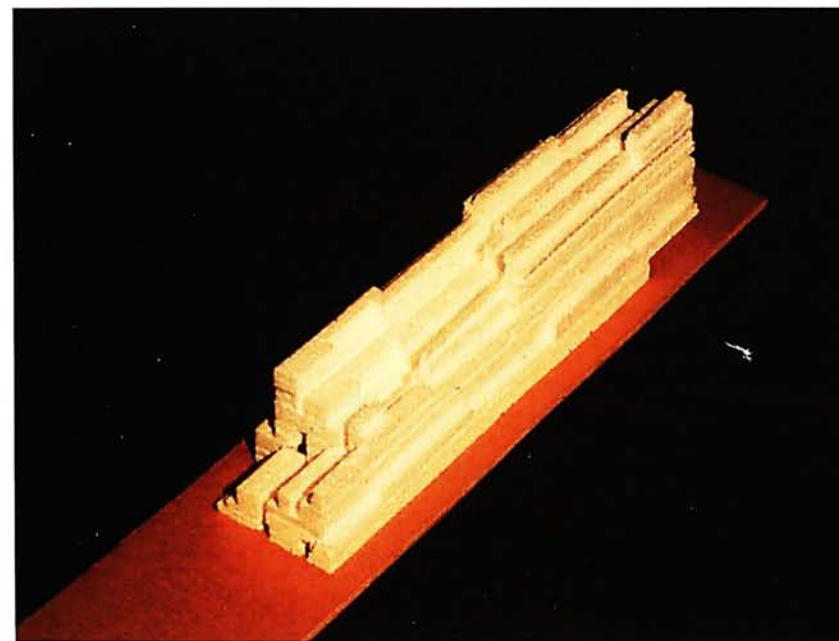
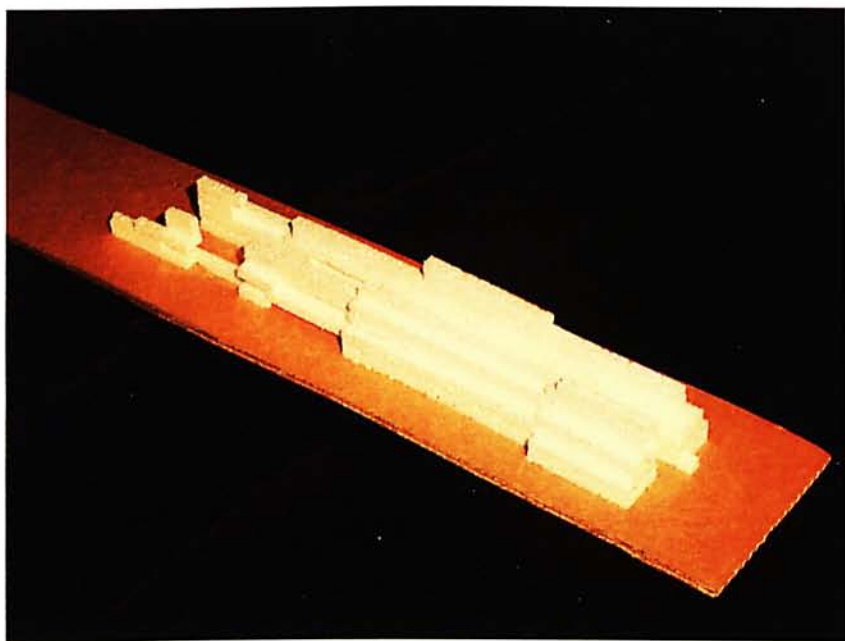
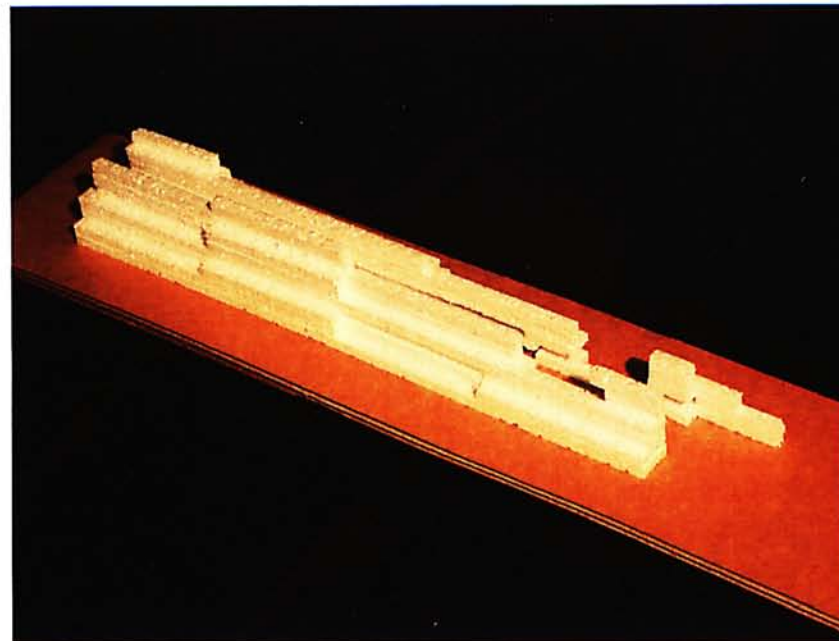
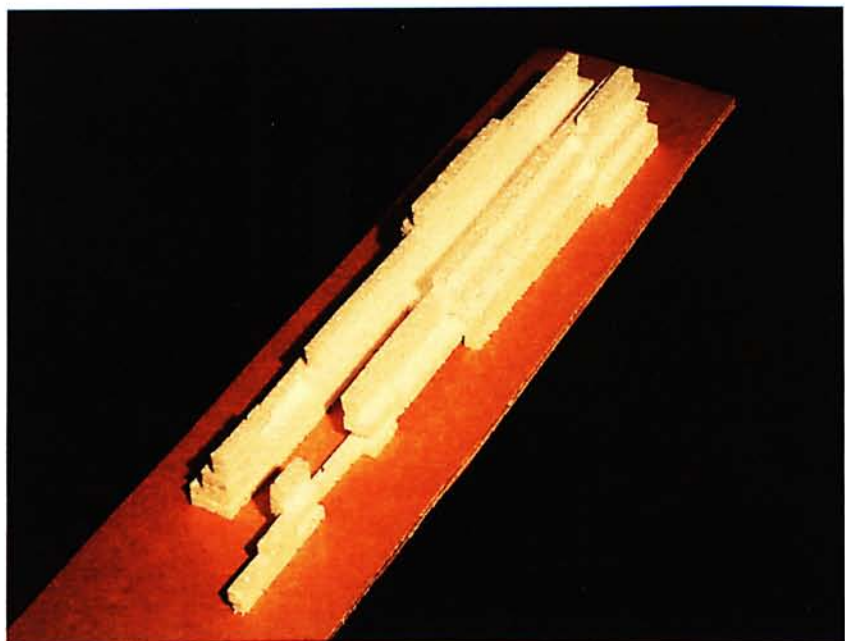




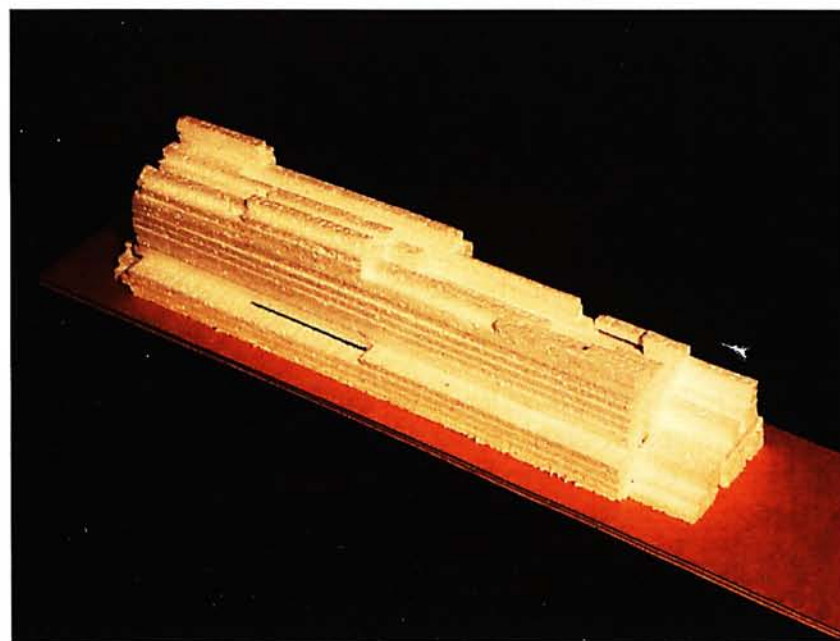
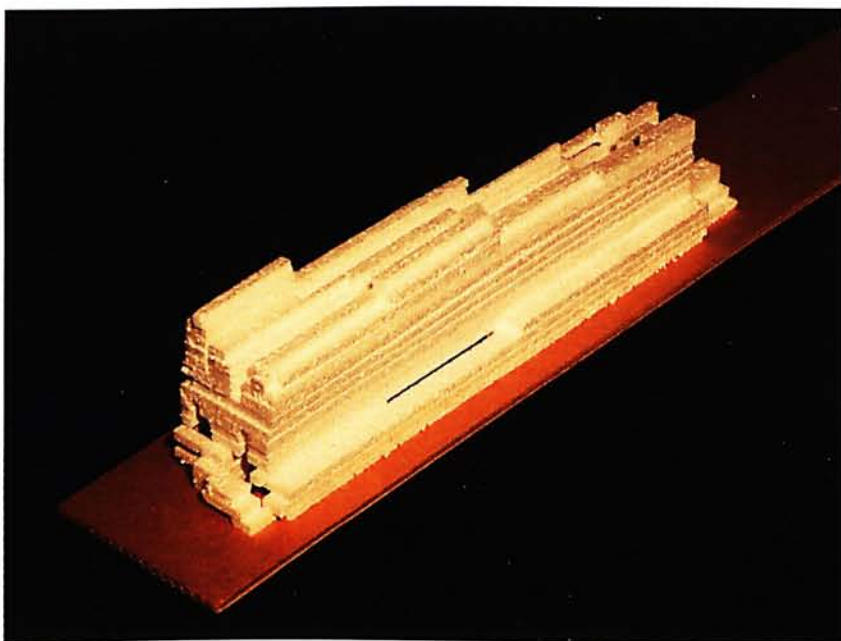
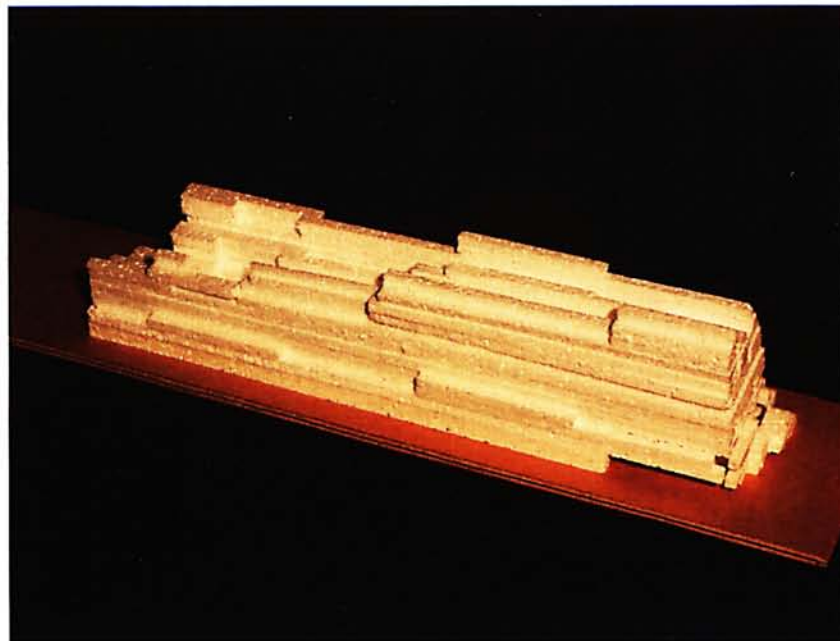
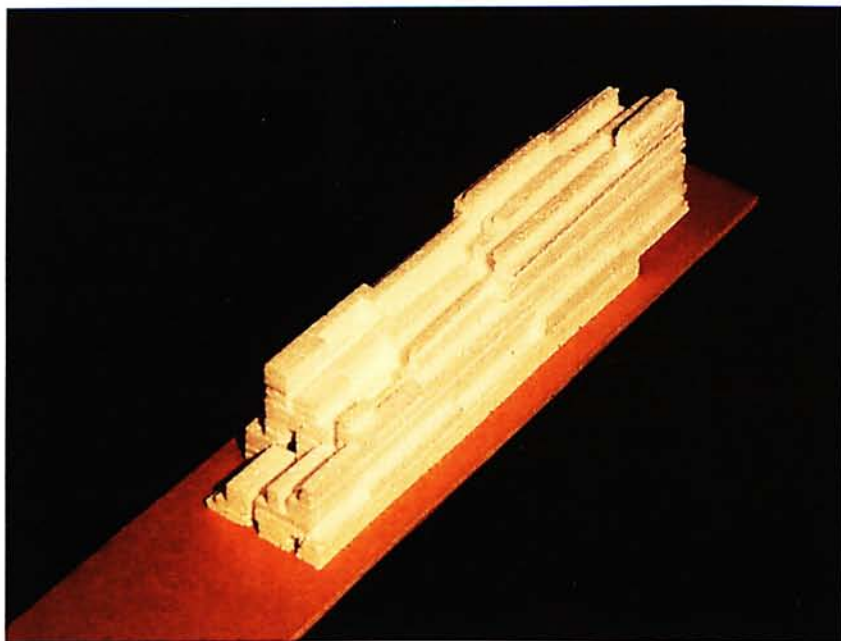
Study Model (open market stall) 1:50



Study Model (3D sunlight diagram 1) 1:250



Study Model (3D sunlight diagram 2) 1:250



Acknowledgement

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Finally, I would like to leave a few words to some juniors who will read this design report. Doing thesis is a very special experience. Throughout the process, you would taste struggle, depression or even anger. Always stick to your dream and treasure everything you learn from the process. If you want to have a discussion with me, feel free to leave me a message at epheslau@yahoo.com.hk. Good Luck.

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