

FROM
THOUGHT
TO
EXPRESSION

THE
DESIGN PROCESS
IS
A VISUAL PRACTICE

DIAGRAM

=

A VISUAL
COMMUNICATION

Diagram

=

Essential representation for
thinking, problem solving, and
communication in the
architectural discipline

Diagrams

=

express, develop, explore,
communicate and present ideas
and
solutions

Architectural diagram represents

Methods

Process

Definitions

Statements

Proof of propositions

Configurations

Characteristics

Spatial connections

Shape

Orientations/Directions

Forces

Flows

GRAPHIC PRESENTATION

GENERATIVE DIAGRAMS
DESCRIPTIVE DIAGRAMS
ANALYTICAL DIAGRAMS

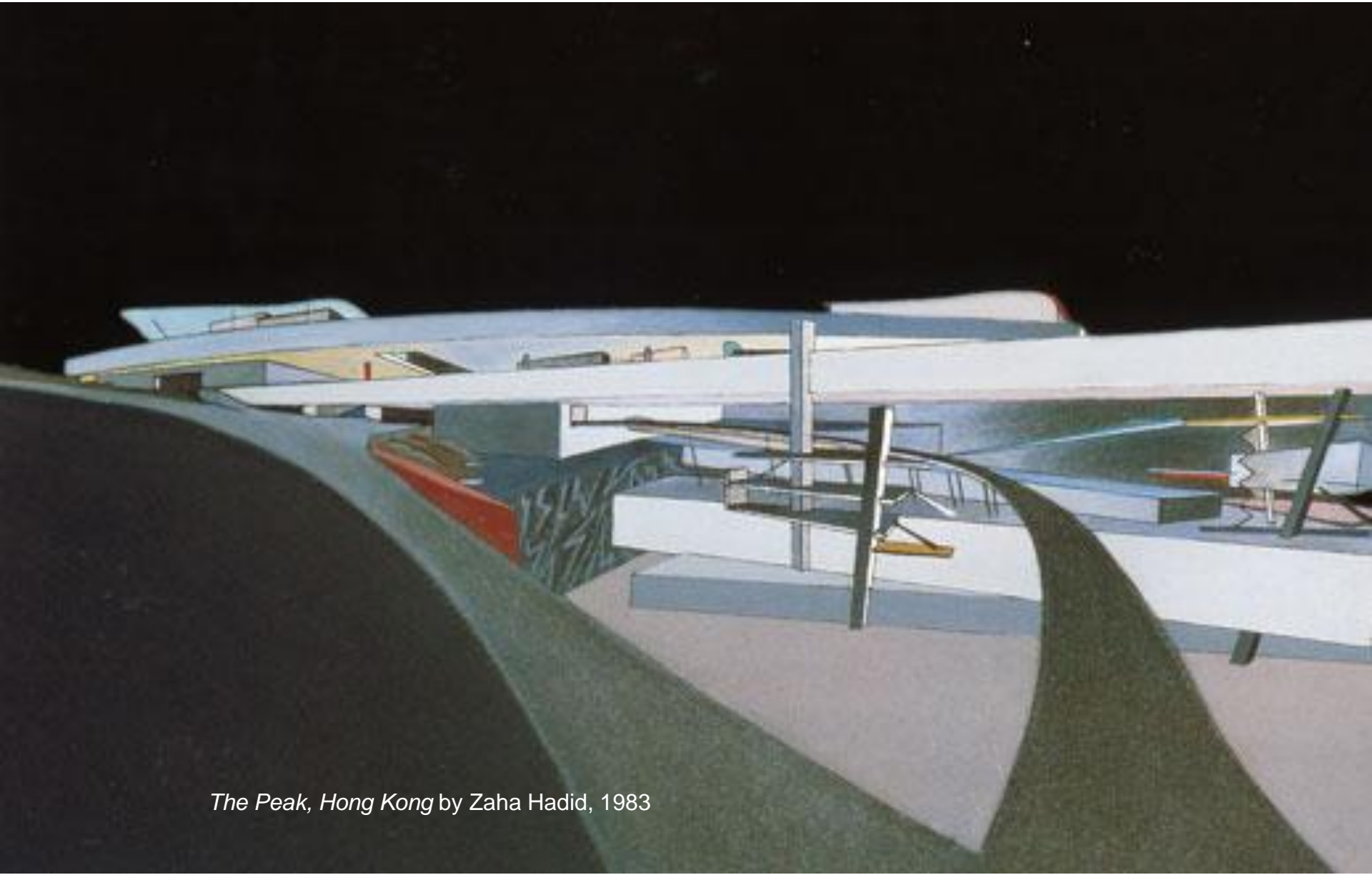
GENERATIVE / DESCRIPTIVE DIAGRAMS

- 1- CONCEPTUAL DIAGRAMS
- 2- POSITIONAL DIAGRAMS
- 3- DATA MAPPING
- 4- TRANSLATIONAL DIAGRAMS
- 5- DEMONSTRATIVE DIAGRAMS
- 6- CARTOGRAPHIC MAPPING

CONCEPTUAL DIAGRAM



The Peak, Hong Kong by Zaha Hadid, 1983



The Peak, Hong Kong by Zaha Hadid, 1983



Museum Plaza by REX, 2005



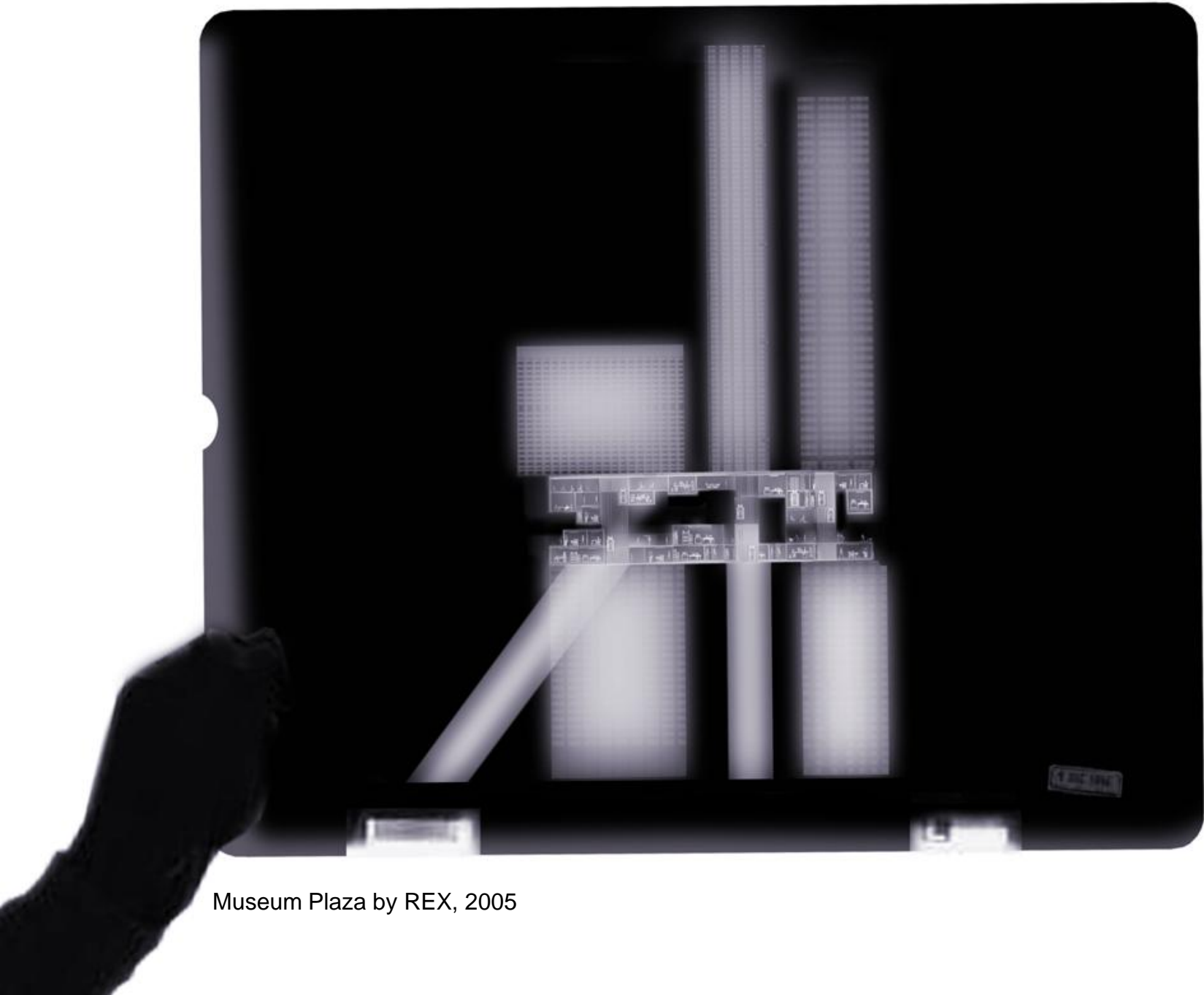
Museum Plaza by REX, 2005



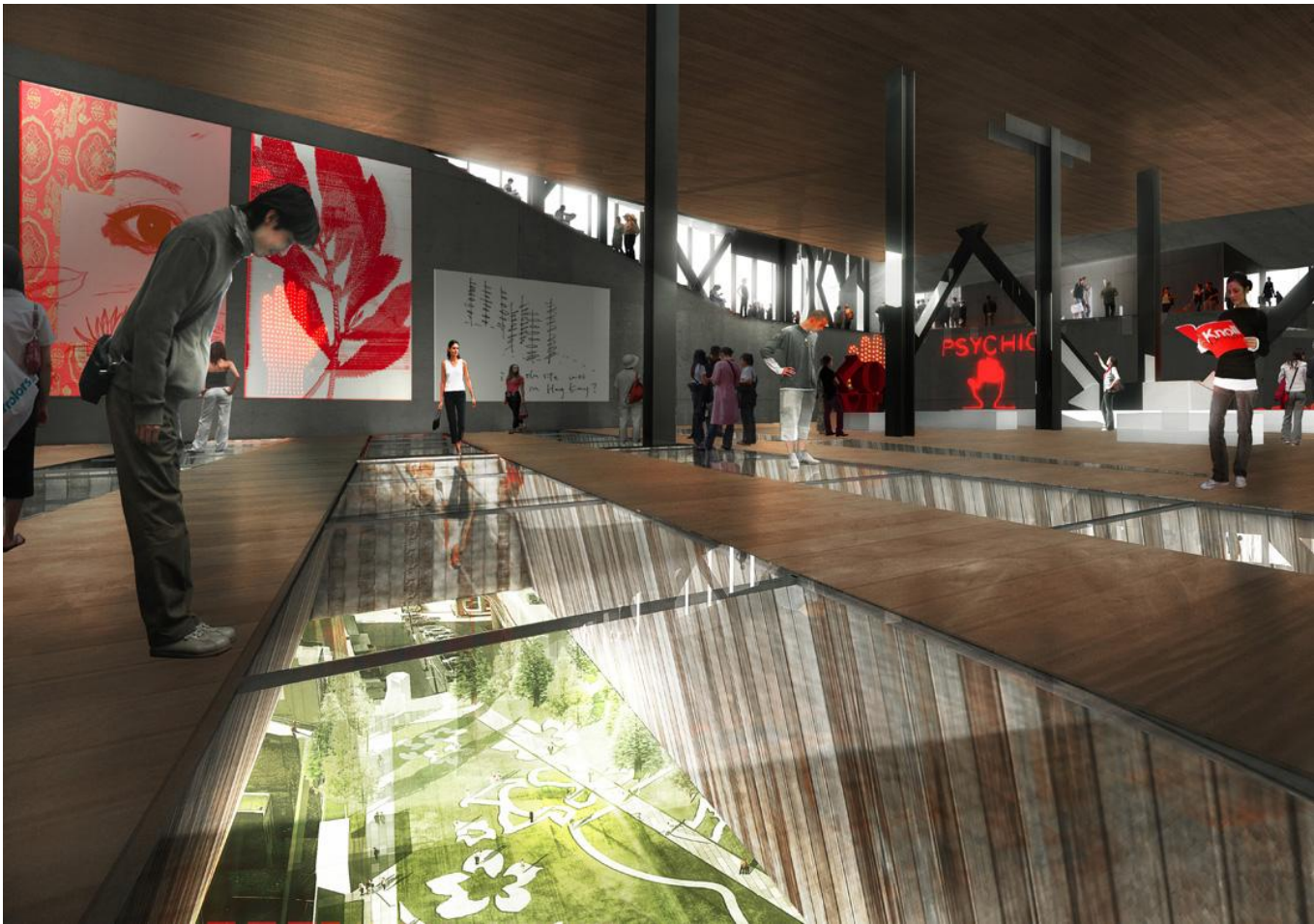
Museum Plaza by REX, 2005



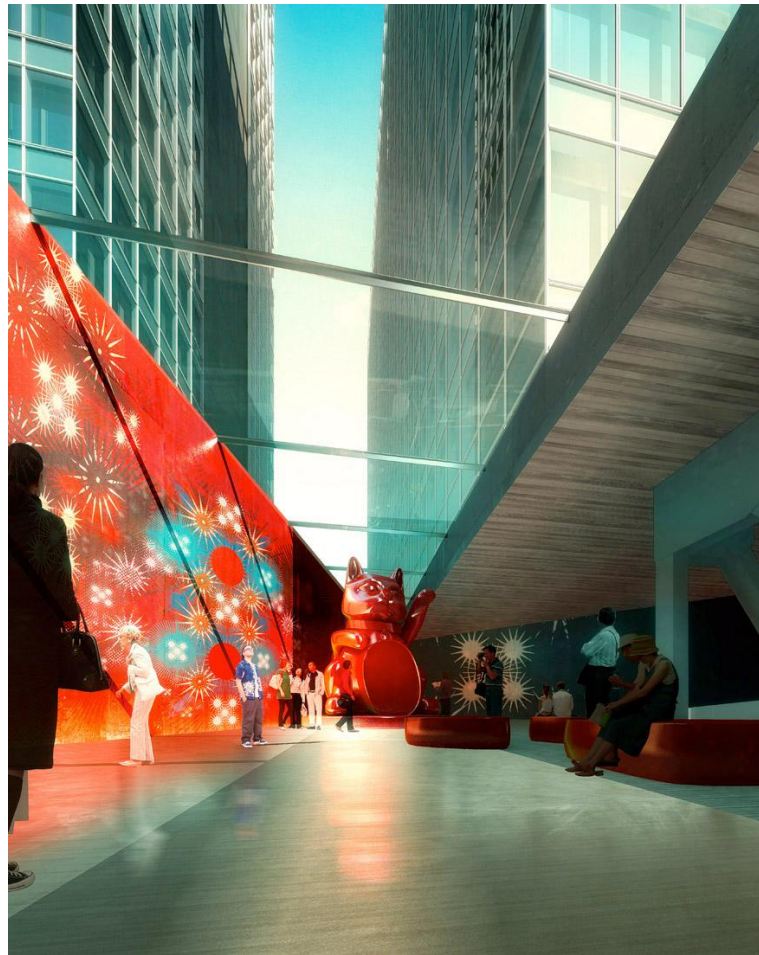
Museum Plaza by REX, 2005



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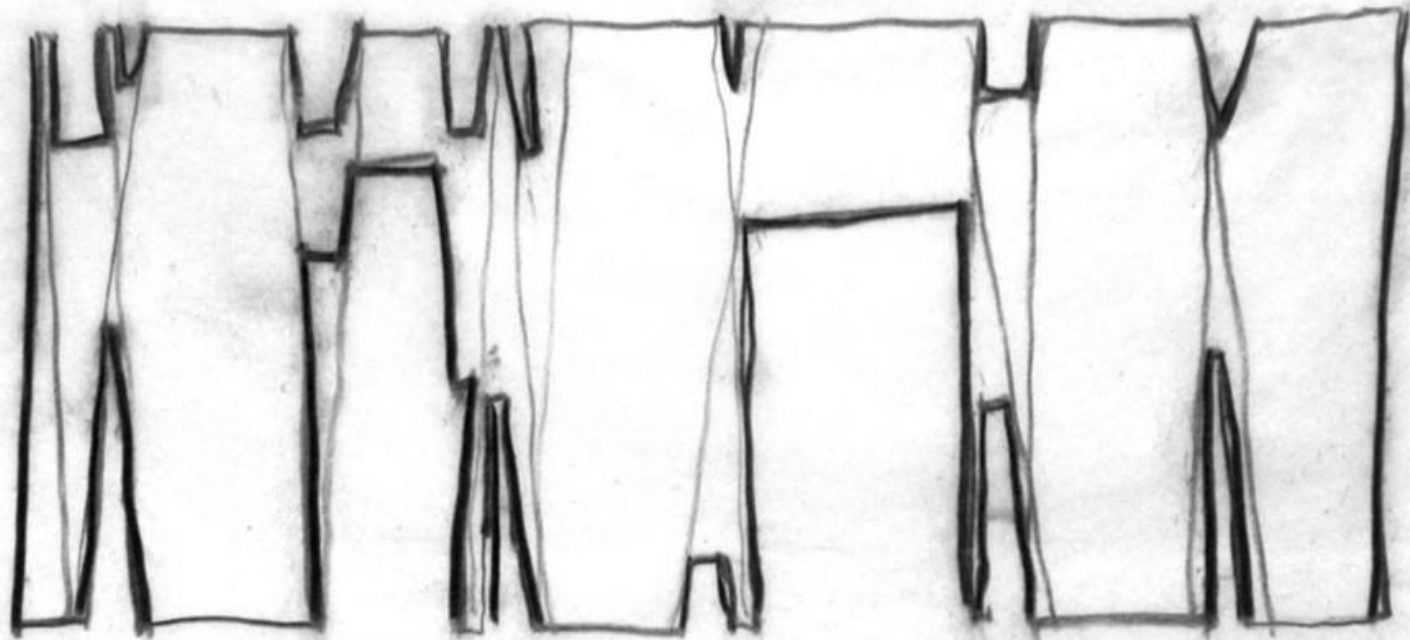
Museum Plaza by REX, 2005



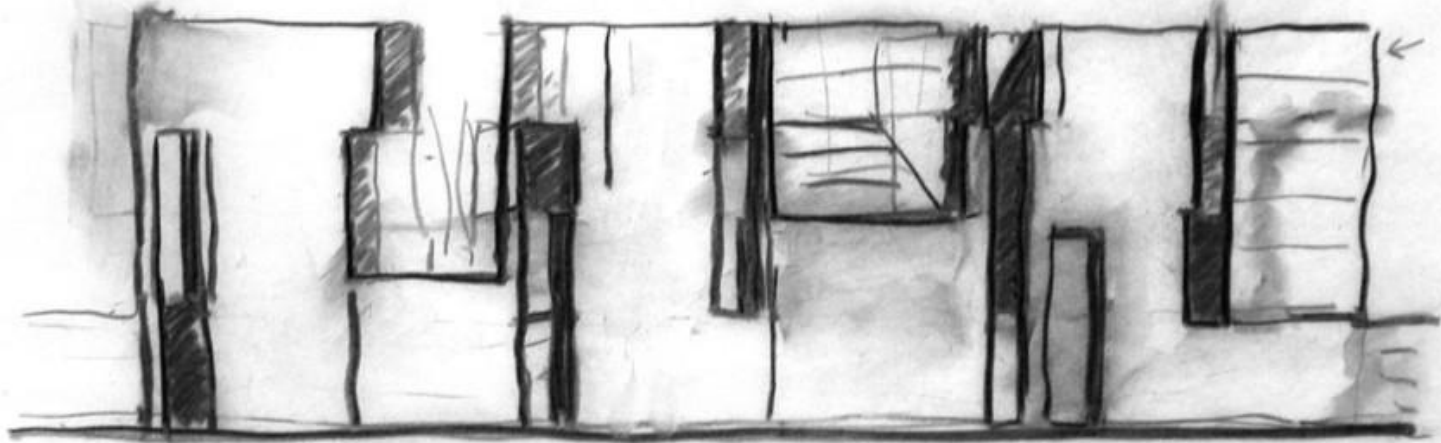
Museum Plaza by REX, 2005



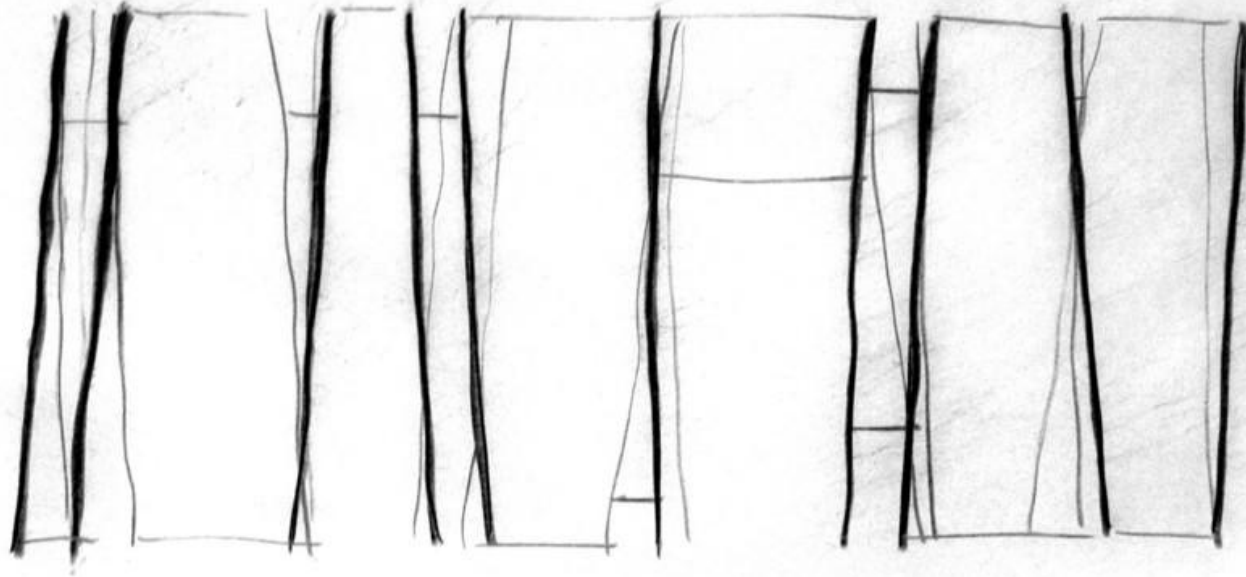
Noorderpoort College, Stadskanaal, The Netherlands by Mecanoo 2011



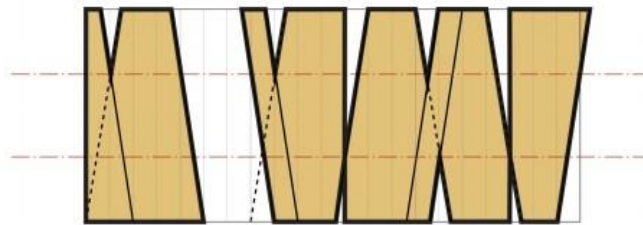
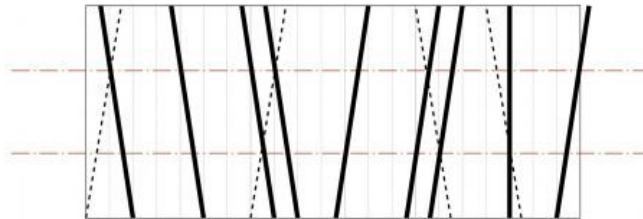
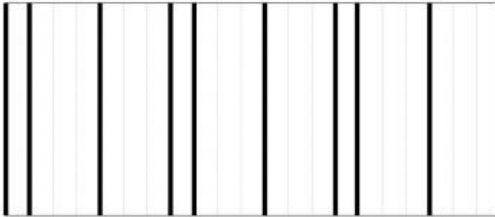
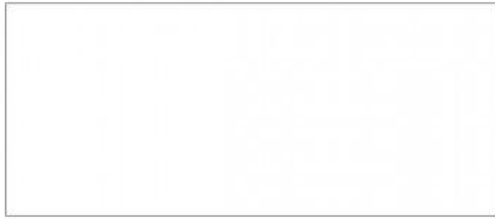
Noorderpoort College, Stadskanaal, The Netherlands by Mecanoo 2011



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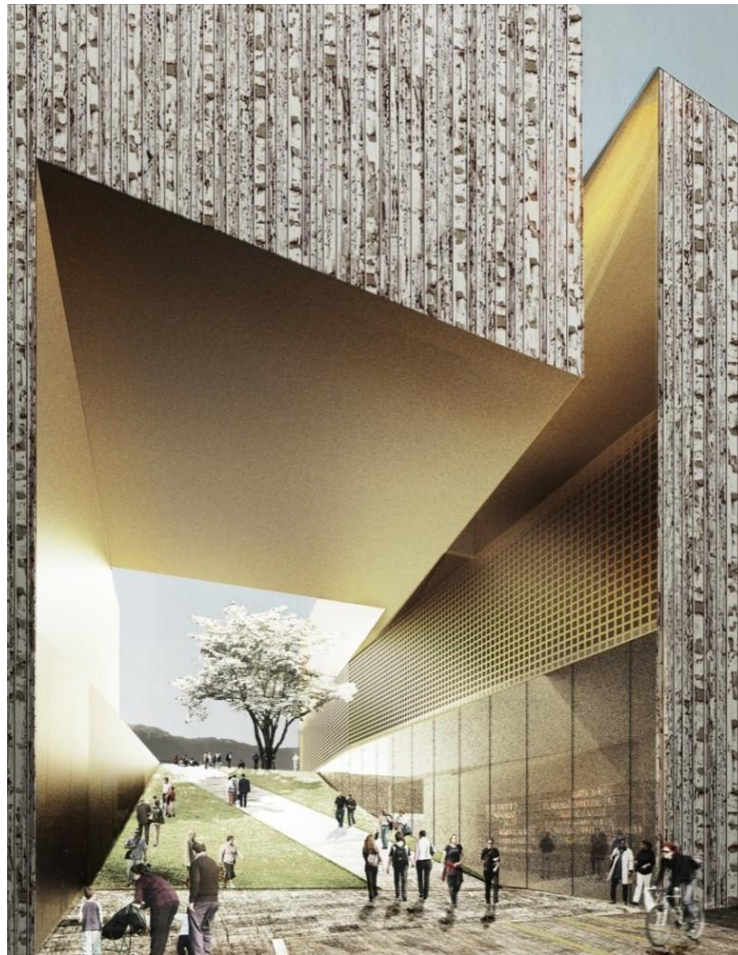




Noorderpoort College, Stadskanaal, The Netherlands by Mecanoo 2011



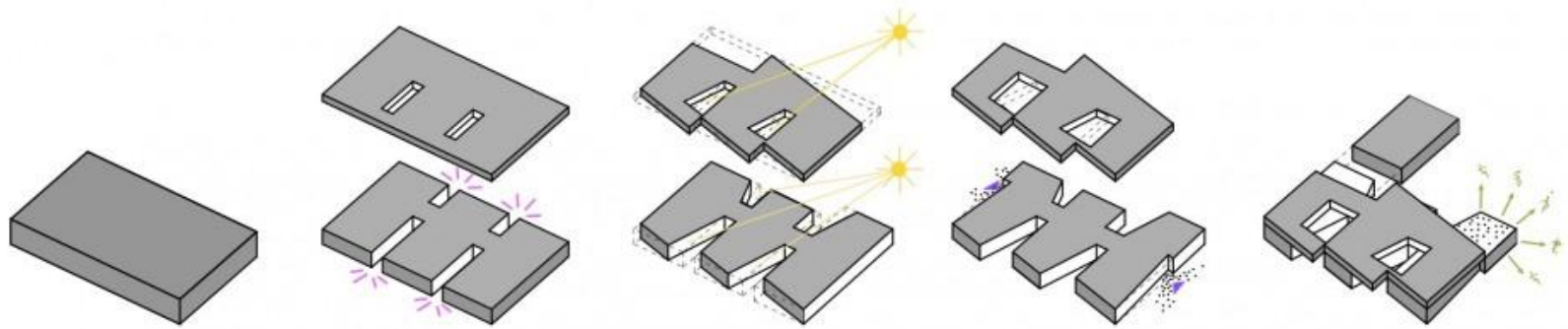
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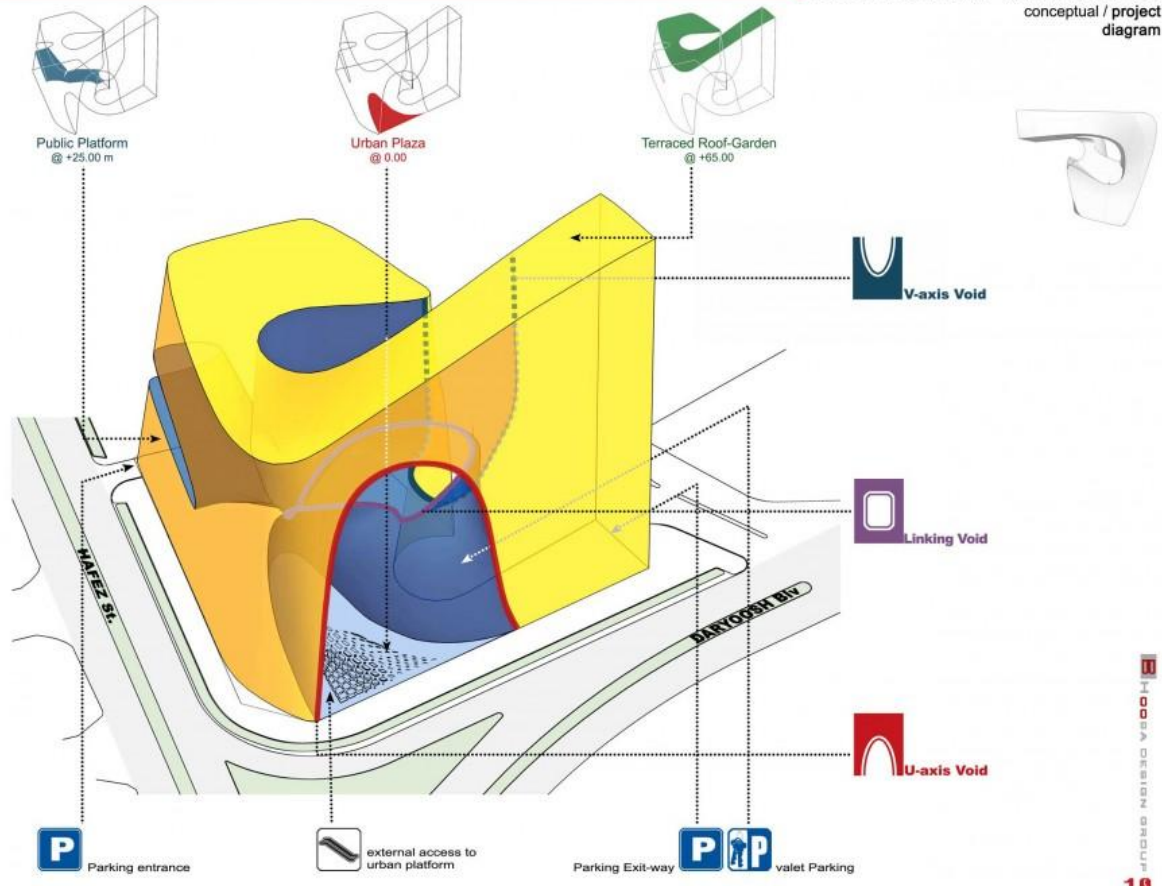
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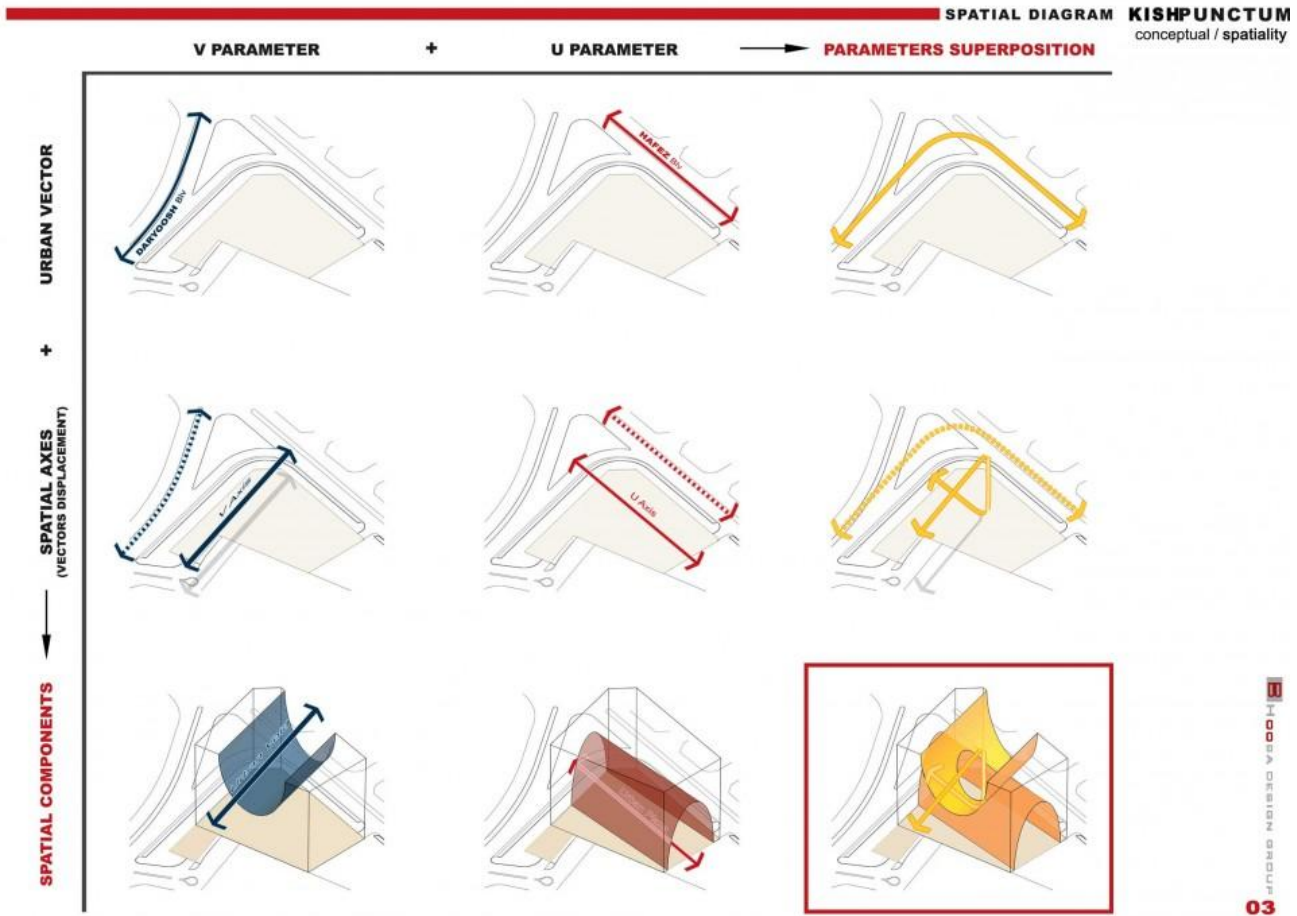
Noorderpoort College, Stadskanaal, The Netherlands by Mecanoo 2011

CONCEPT DIAGRAM **KISHPUNCTUM**

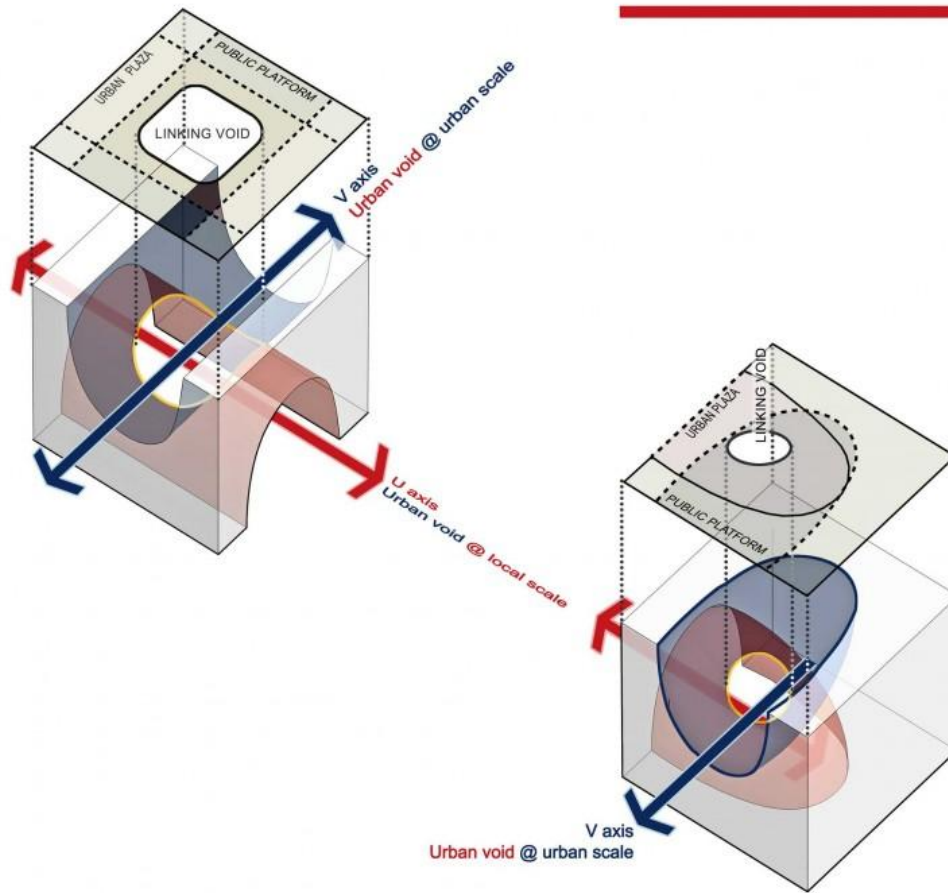
conceptual / project
diagram



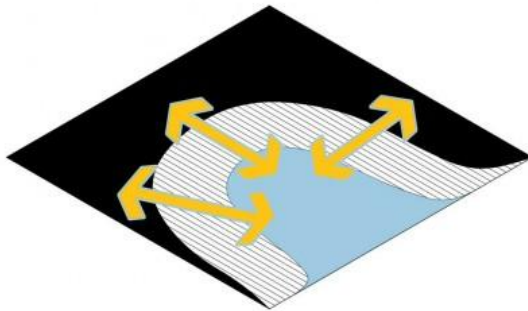
Office & Hotel Complex, Kish Island by Hooman Balazadeh



Office & Hotel Complex, Kish Island by Hooman Balazadeh

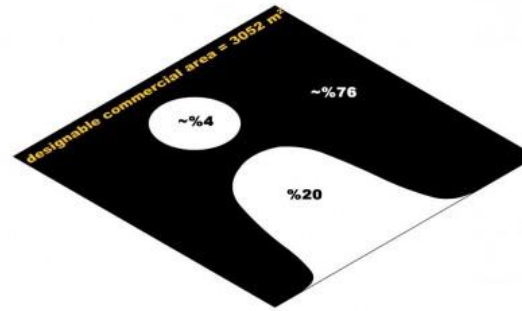


INFLUENCE DOMAIN of the PLAZA

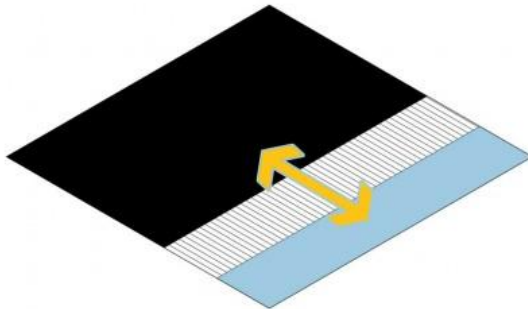


INTERACTIVE; By locating the %20 set-back in depth, the generated plaza interacts effectively with the surrounding atmosphere.

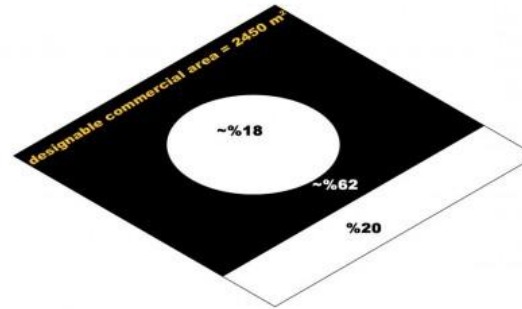
CENTRAL VOID KISHPUNCTUM
conceptual / formation



AREA-SAVING; The %20 set-back acts as the main public void. So, there is more area saved for the retails and commercial activities.

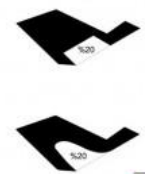
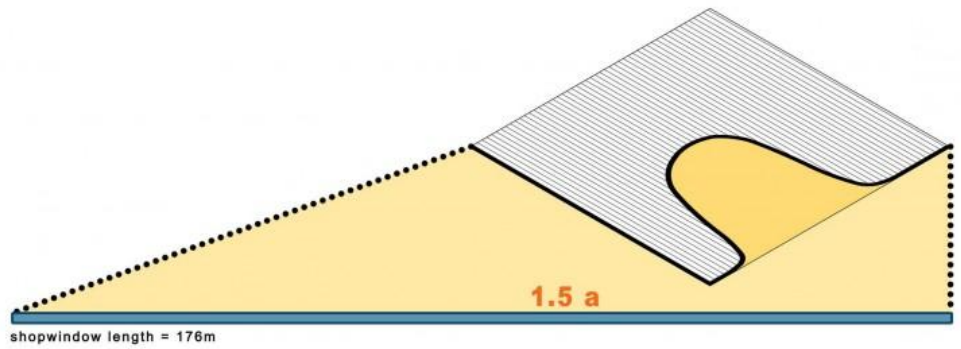
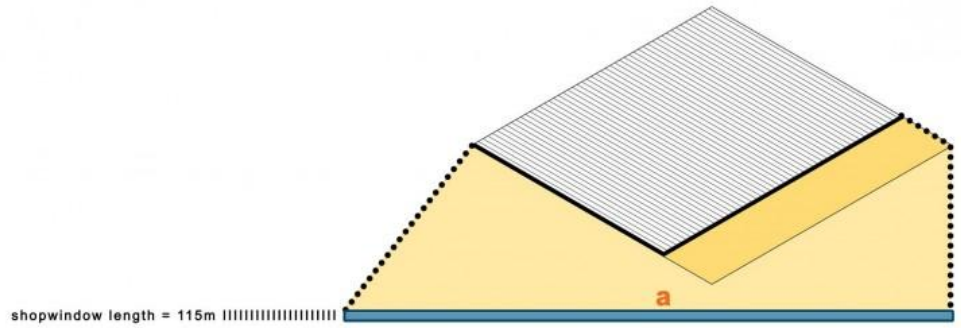


ONE-DIMENTIONAL; Executing the set-back on one side separates this area from other parts and reduces the influence of this part on the rest of the projects.



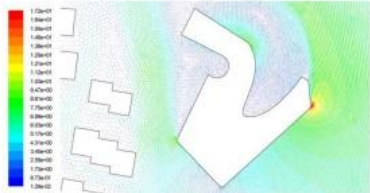
AREA-LOSING; the set-back doesn't work as the central organizing void and another void is required. This technique reduces the area remained for the retails..



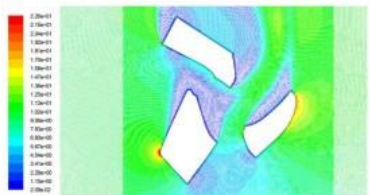


the curvature of facade provides a longer shop-window axis.

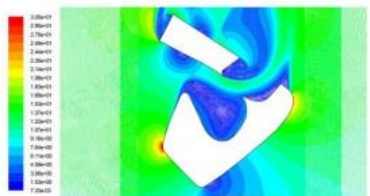
WIND EFFECT



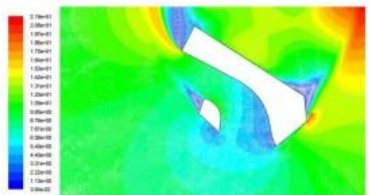
height of +10 m
(Urban Plaza)



height of +25 m
(Public Platform)



height of +56 m
(Office)



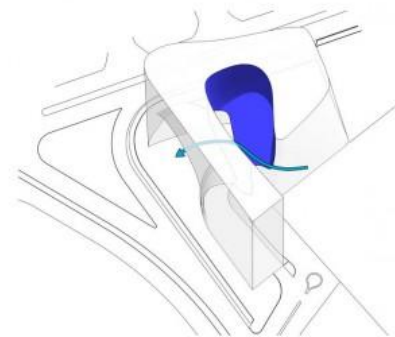
height of +65.50 m
(Hotel)

*) Green is the most desirable wind condition.

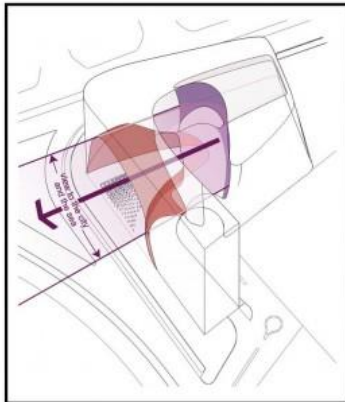
VENTILATION KISHPUNCTUM

still air unpleasant breeze desirable strong wind unpleasant

conceptual / formation
/ environmental
parameters

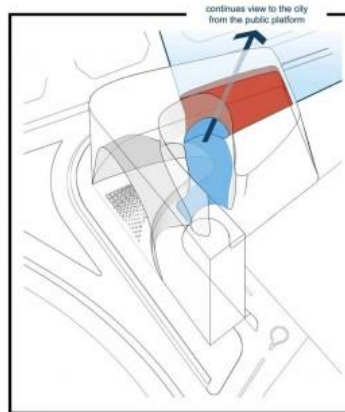


top: public platform is blocked from the west side;
unpleasant still air is trapped in the platform.
bottom: public platform has opening in the west side;
desirable breeze exists on the public platform due to the wind flow



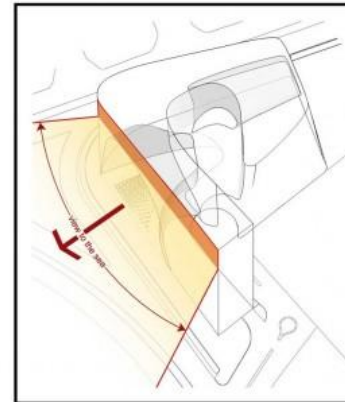
1) Office building;

The southern parts of office sector have view to the city and the sea through the arch of the urban plaza due to great diameter of the arch.



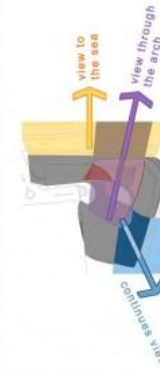
2) Public platform;

The public platform extends to the east face so there is continues view to the city.



3) Office;

The office has panoramic view to the sea and the city as it is higher than other buildings in vicinity.



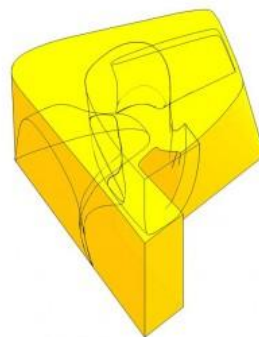
FACADING KISHPUNCTUM
conceptual / project
diagram

The main technique for designing the form was **subtraction**. Initially, we assumed the building as a tapered extrusion of site margin that sets back as it rises up to make a reasonable distance from the neighboring buildings. In the second step we subtracted the voids of the previously mentioned U-shape forms from this basic extrusion. As a result we grew a diagrammatic form that has attained the permitted area, according to basic documents.

The final form has two different themes that later inspired us in designing the facades. The first one is the exposing face of the project that is a geometric smooth layer. The

second theme on the inside is the internal void that contains the public platforms. To compose the final façade, we obtained a uniform mesh that grows from the outer layer in to the inner one. We considered an overlaying skin on the mesh that transforms in color, fabrication, openings, pattern and so forth based on the dual theme of the final form.

These transformations and other design issues such as solar accessibility, desirable shading, ventilation and being exposed (for retails) lead us to the final presented facade.

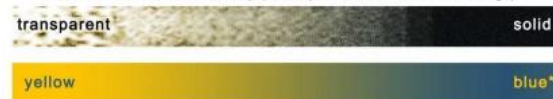


primary basic volume

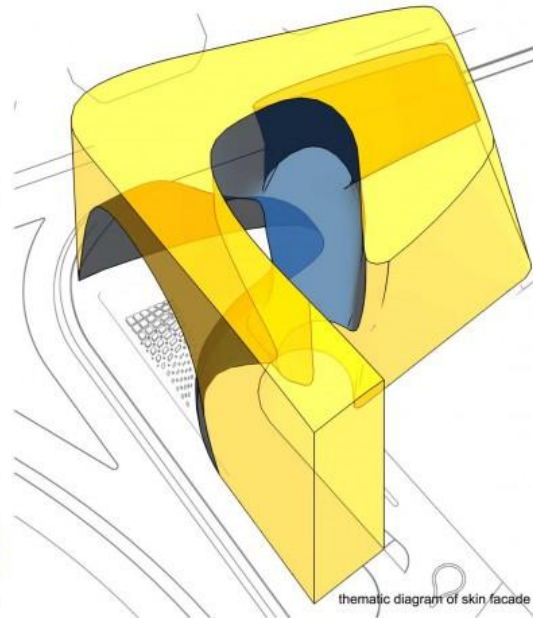


subtracted free-form of void spaces

variation of skin transformation (top: transparent-solit; bellow: color change)



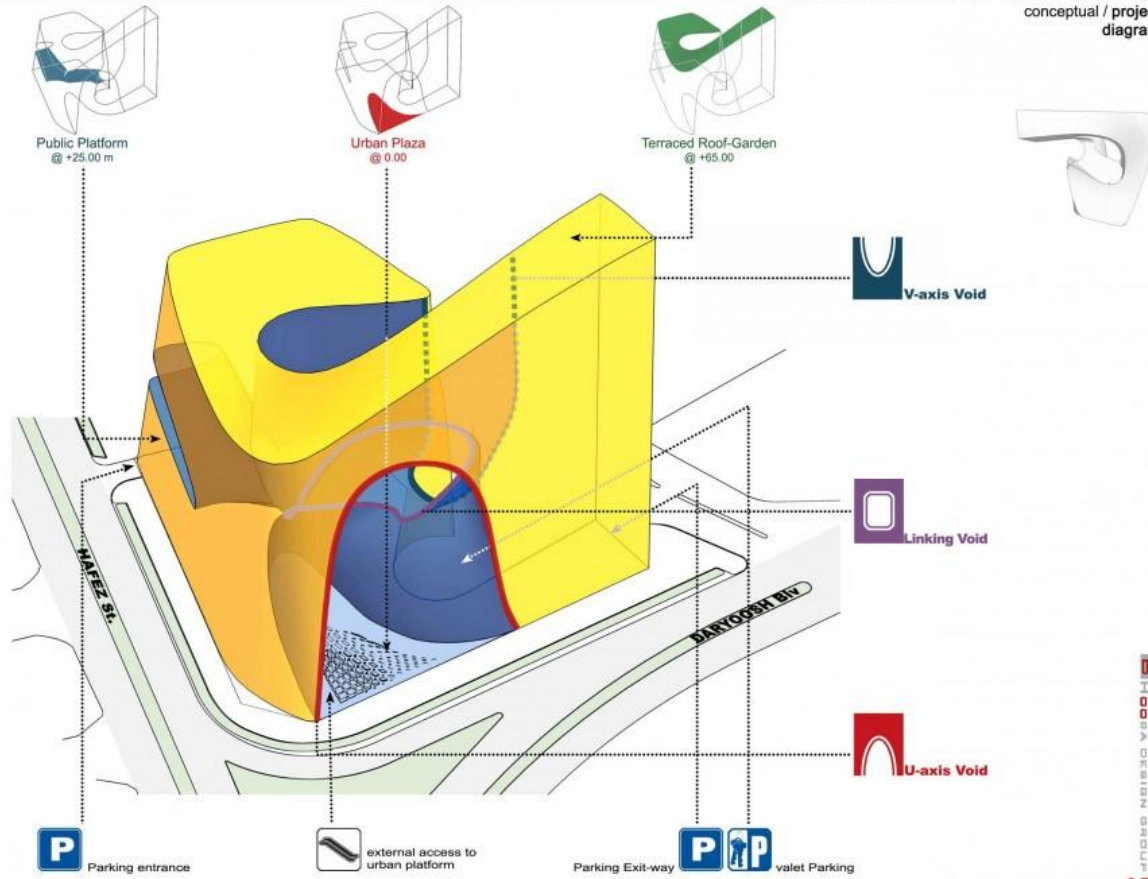
*) blue and yellow are sample colors only and not necessarily original colors. |||



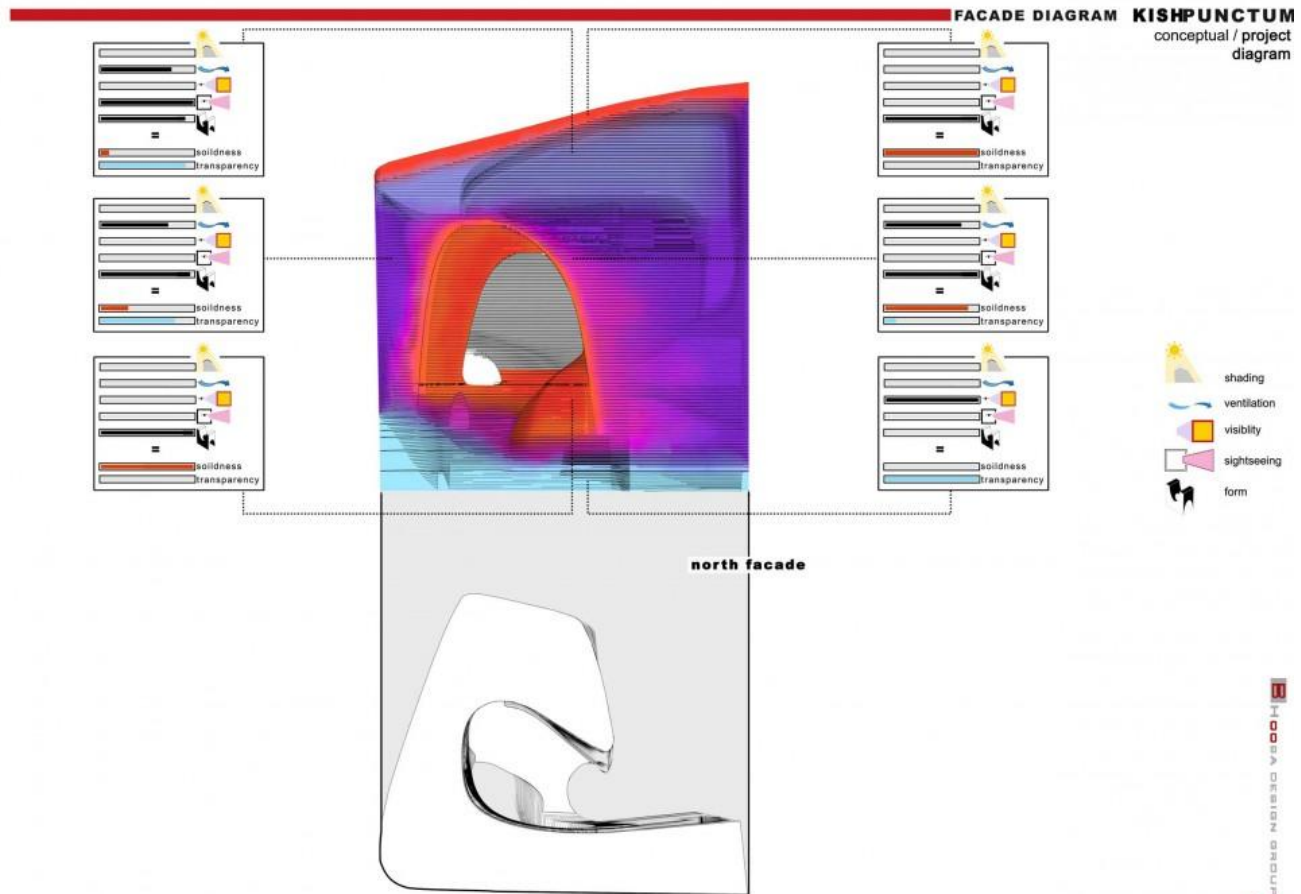
thematic diagram of skin facade

CONCEPT DIAGRAM **KISHPUNCTUM**

conceptual / project
diagram



Office & Hotel Complex, Kish Island by Hooman Balazadeh

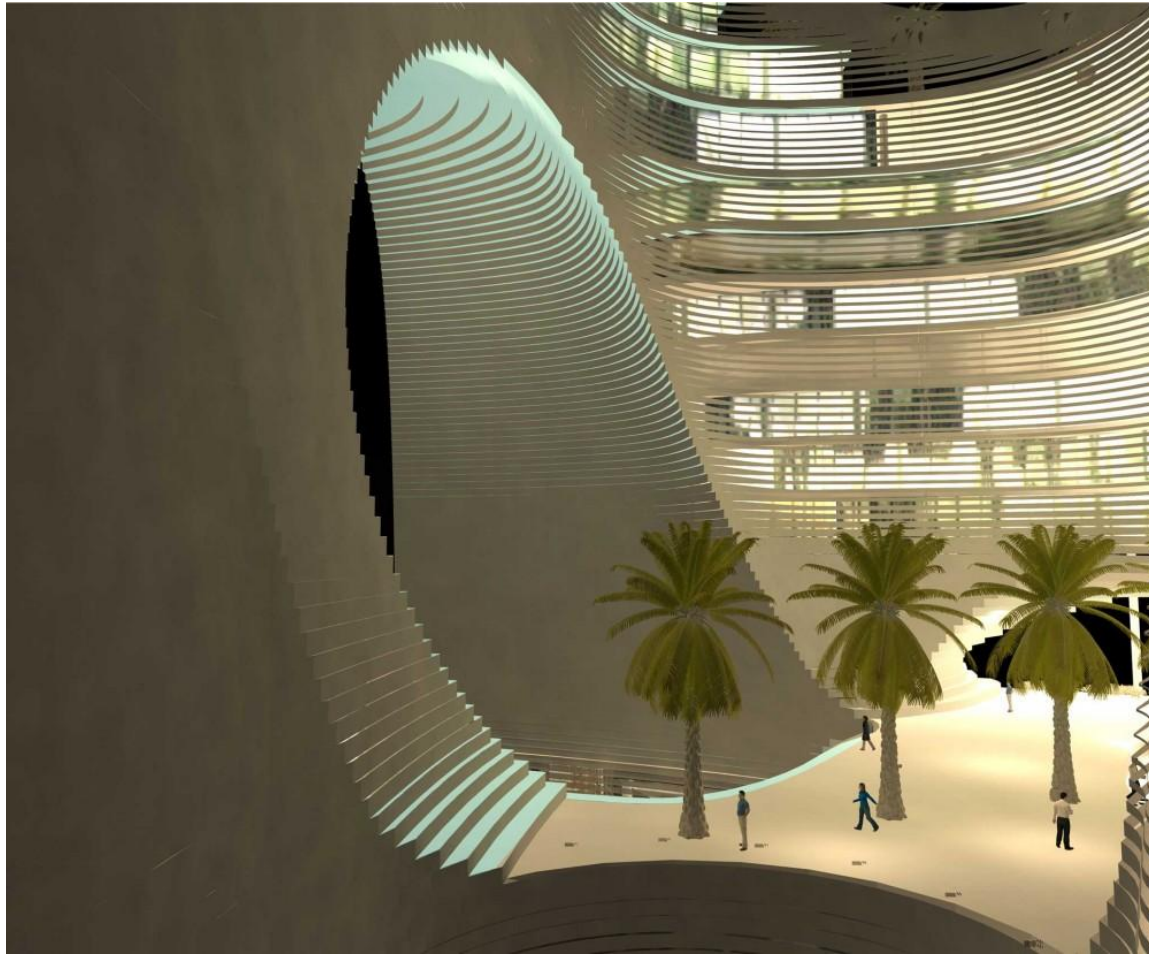




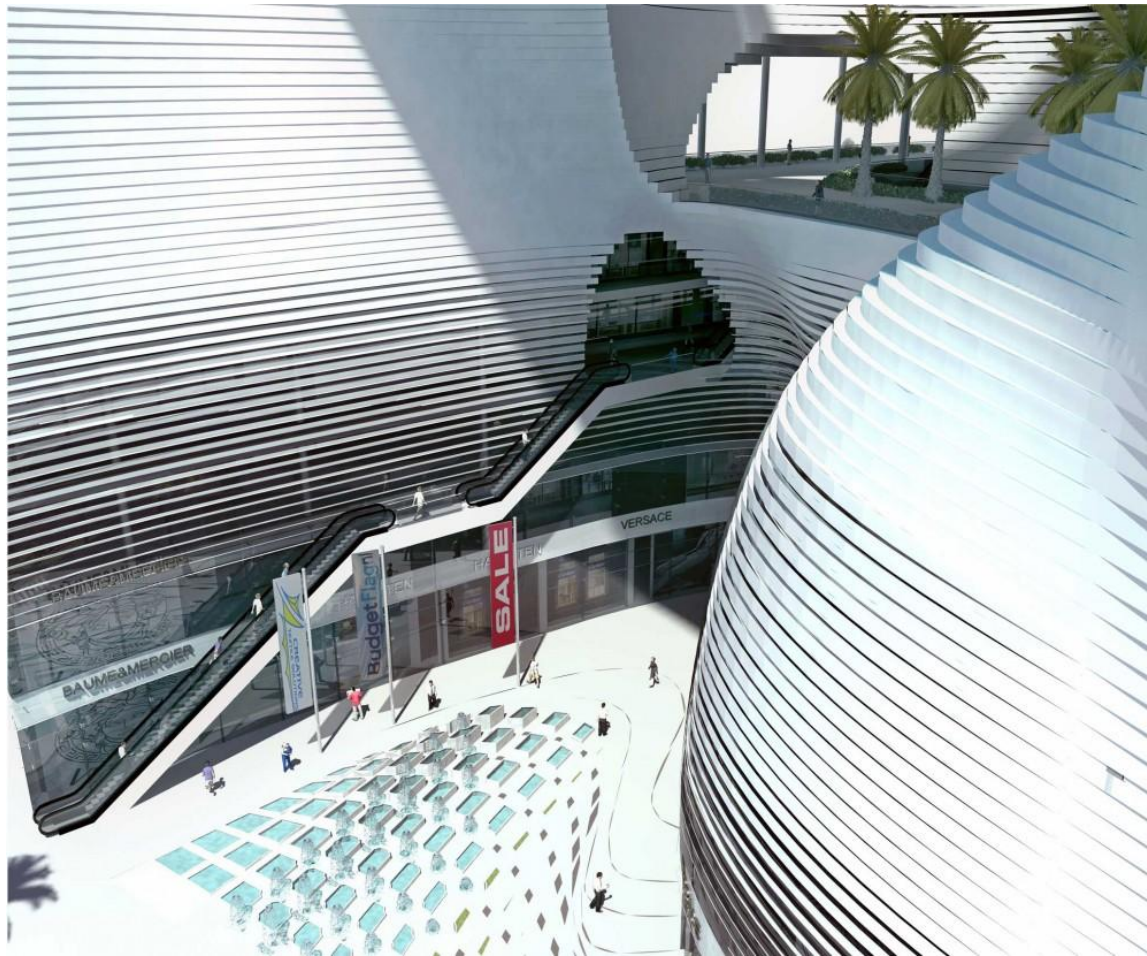
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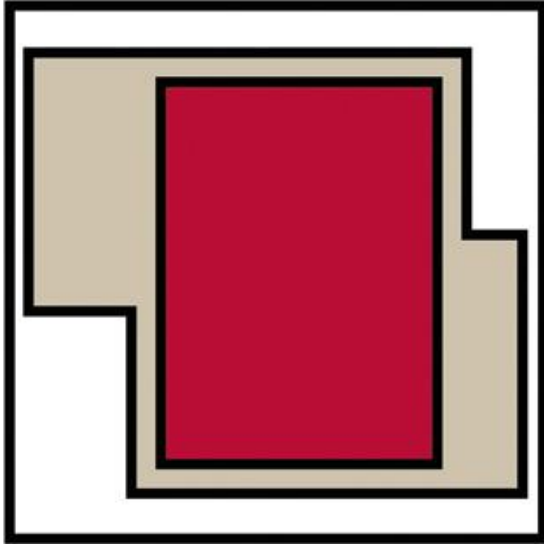
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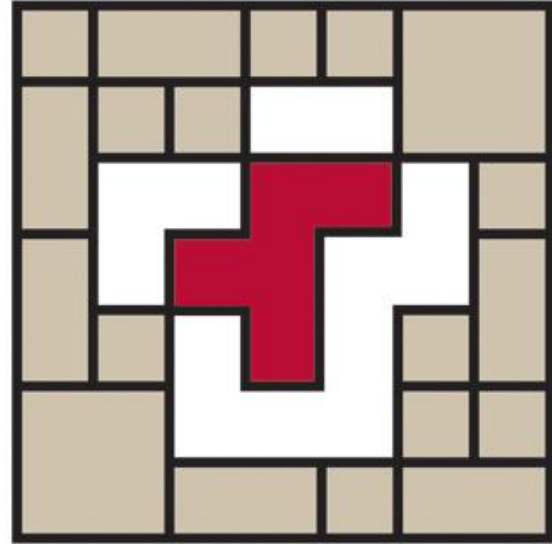
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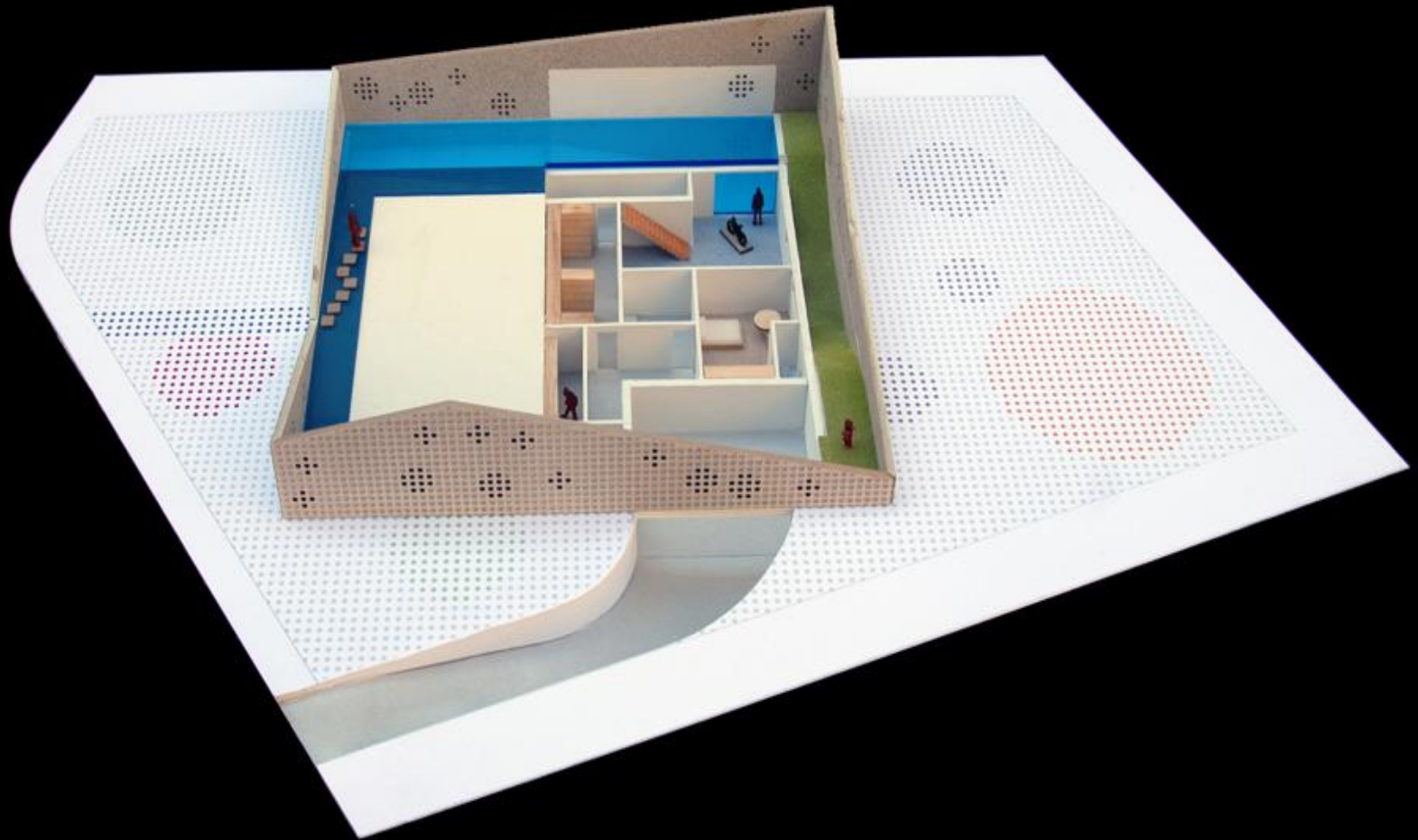
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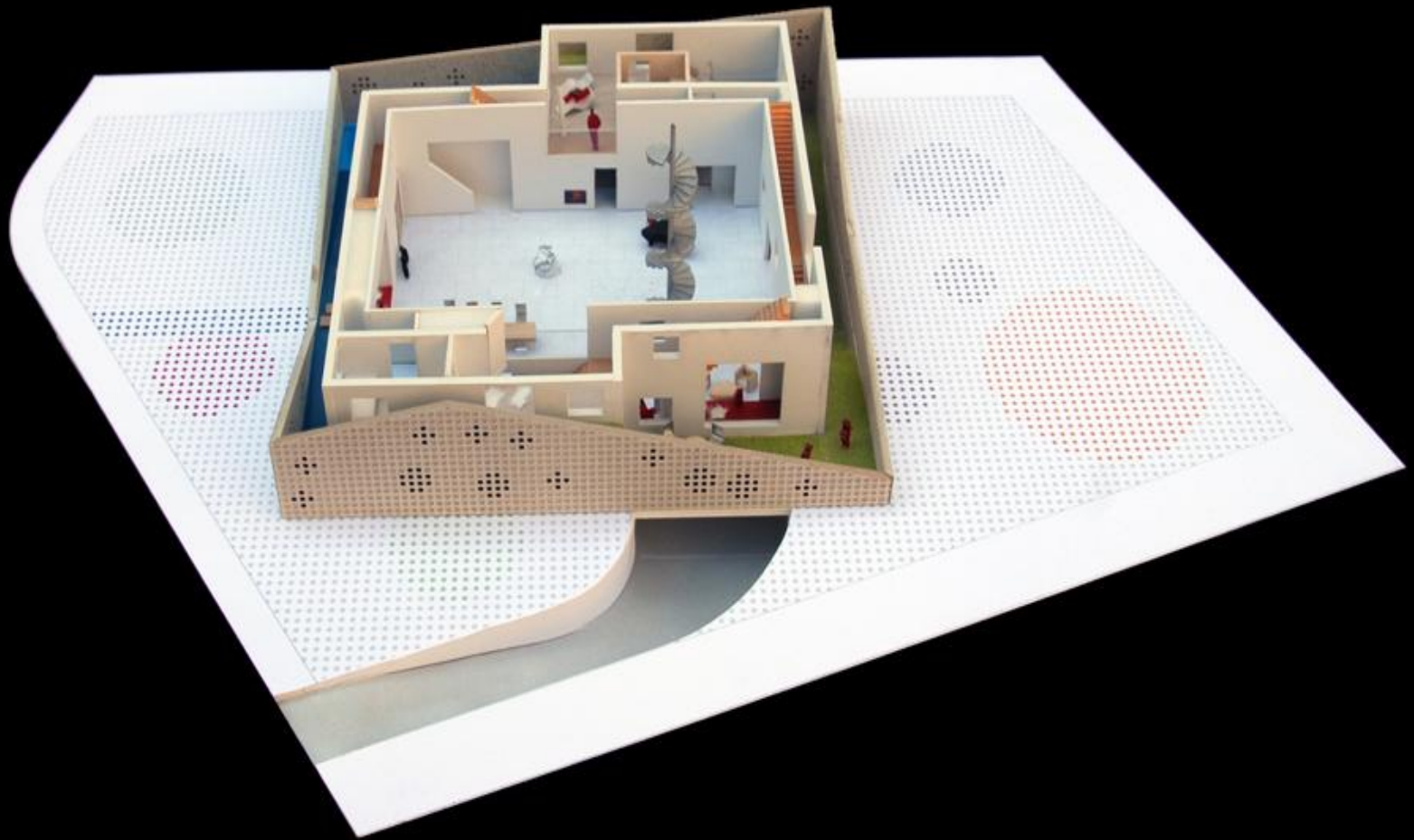
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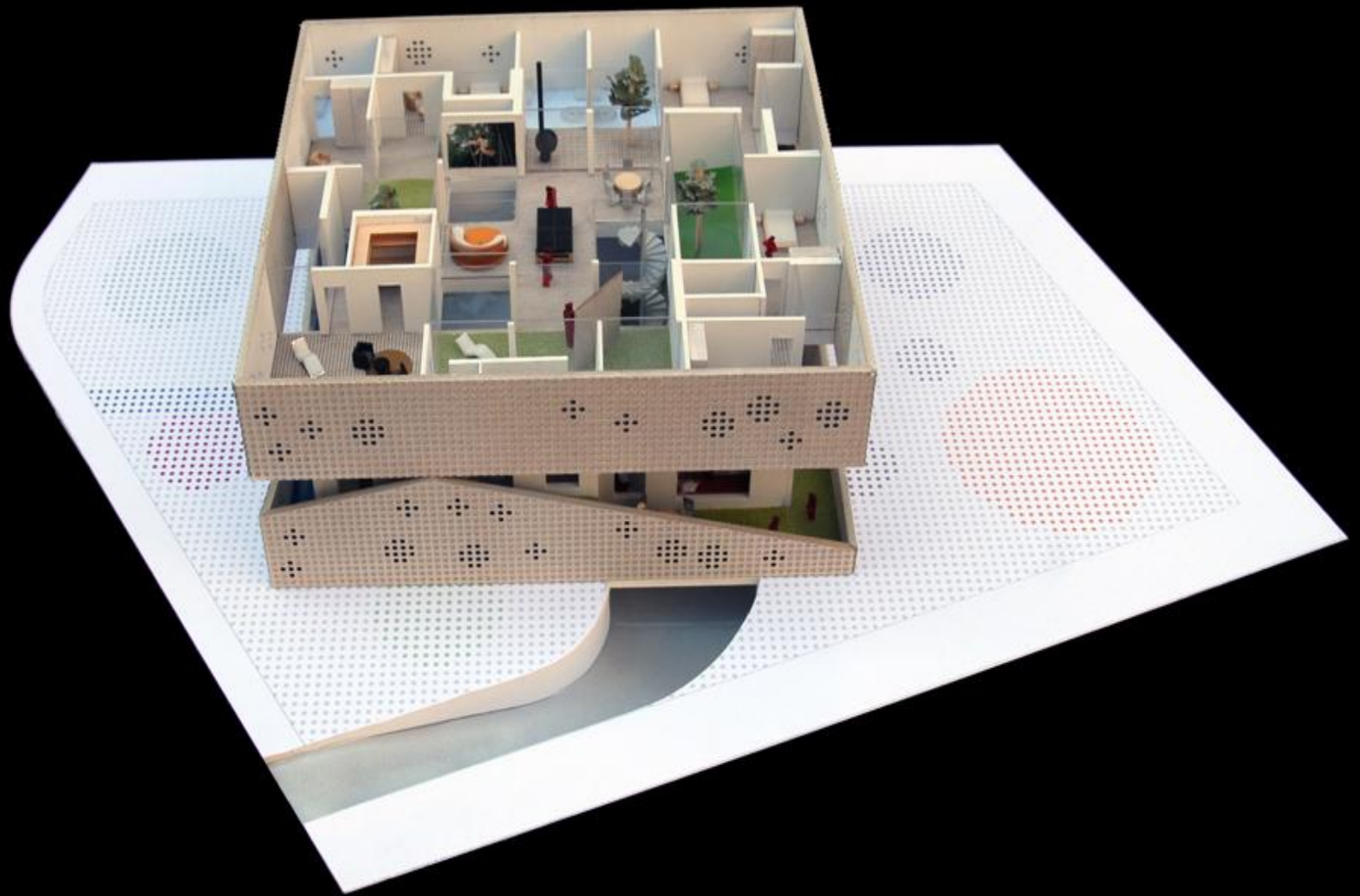
INDIVIDUAL



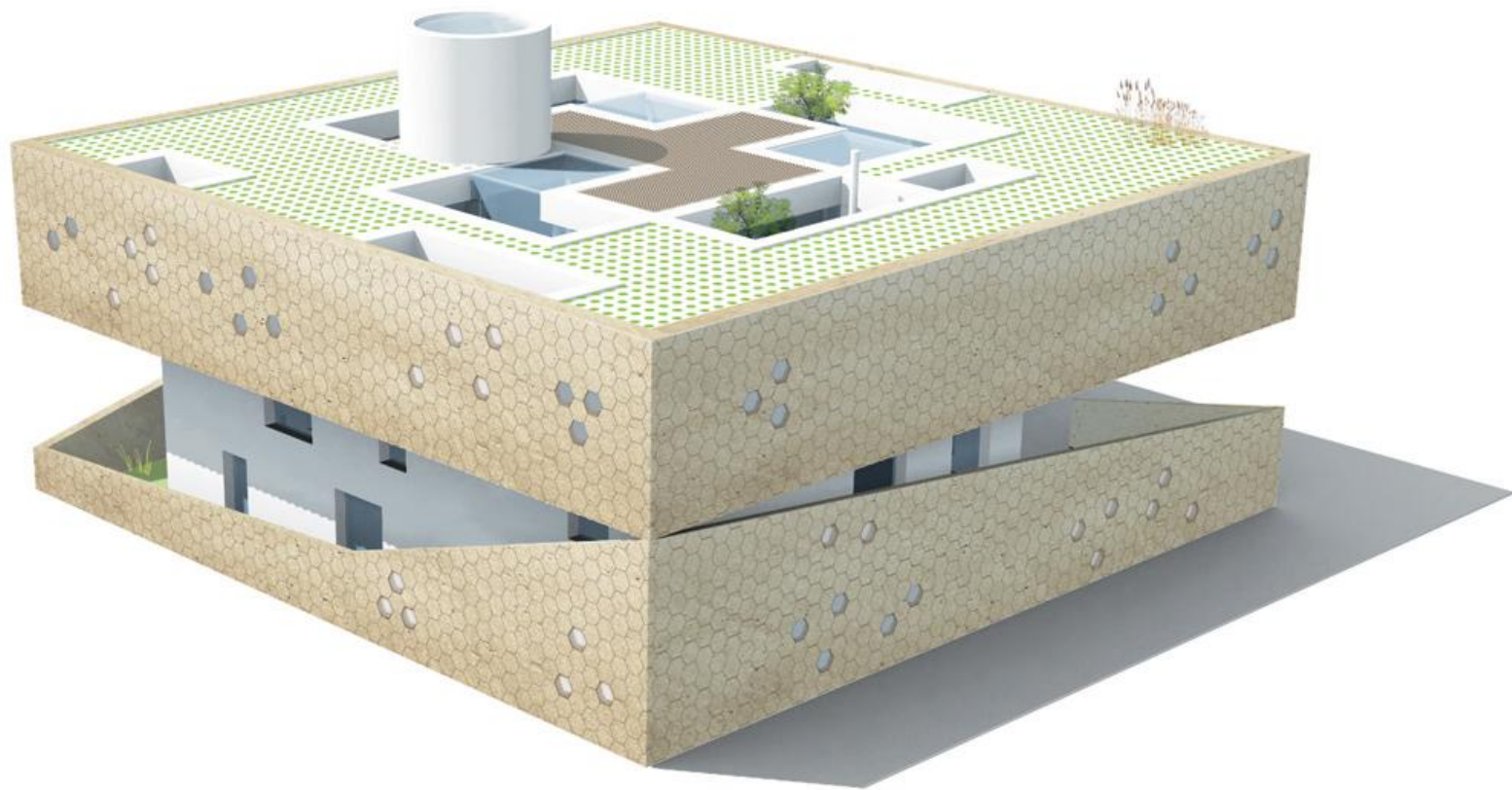
Ordos, Inner Mongolia, China by Work AC



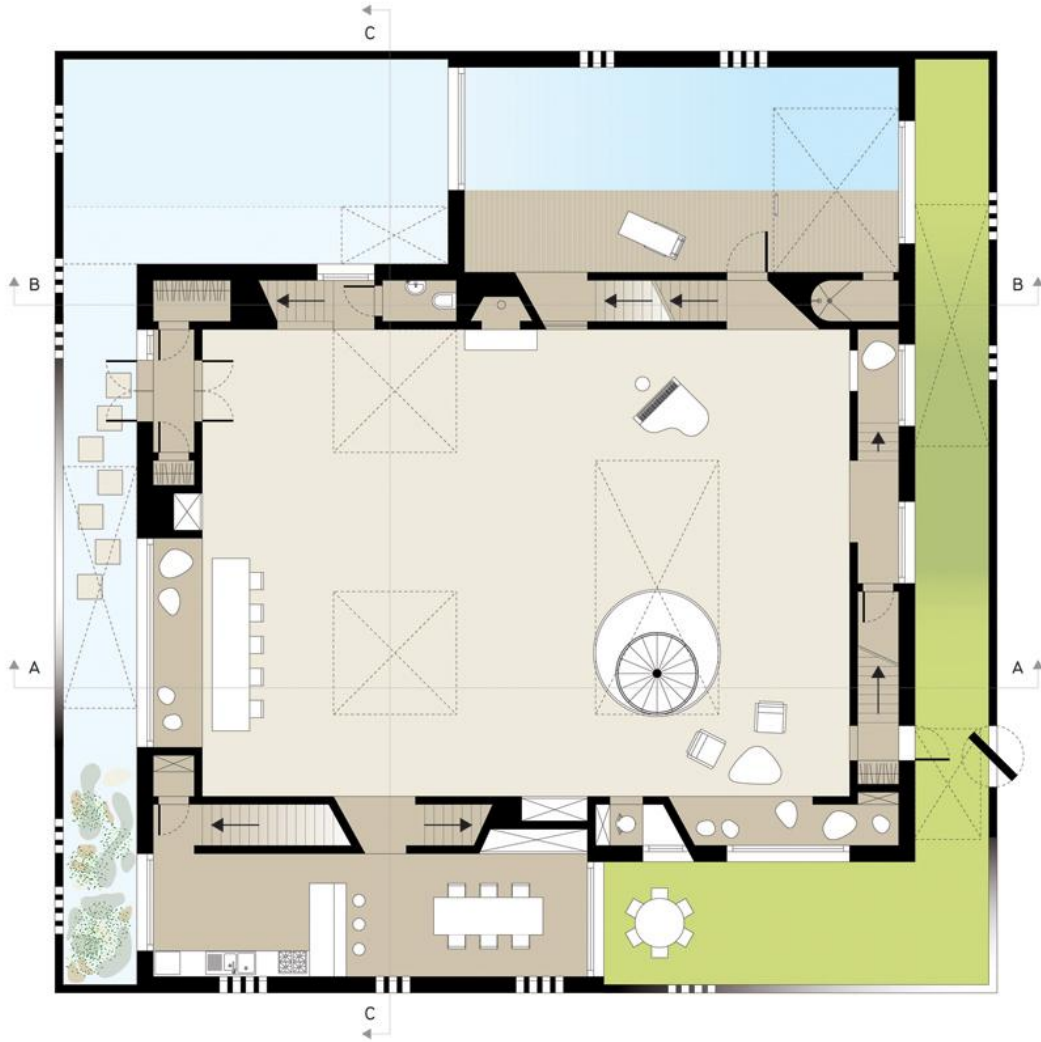
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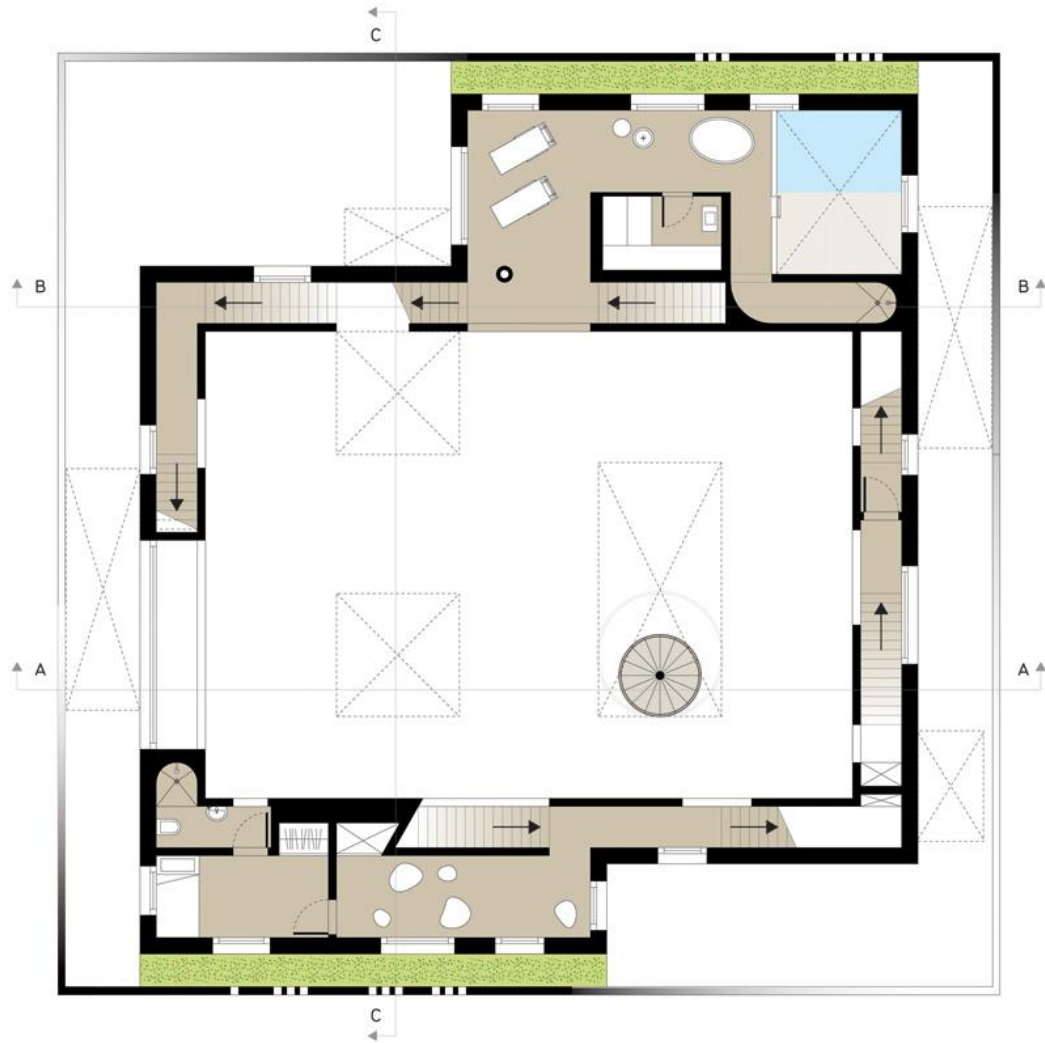
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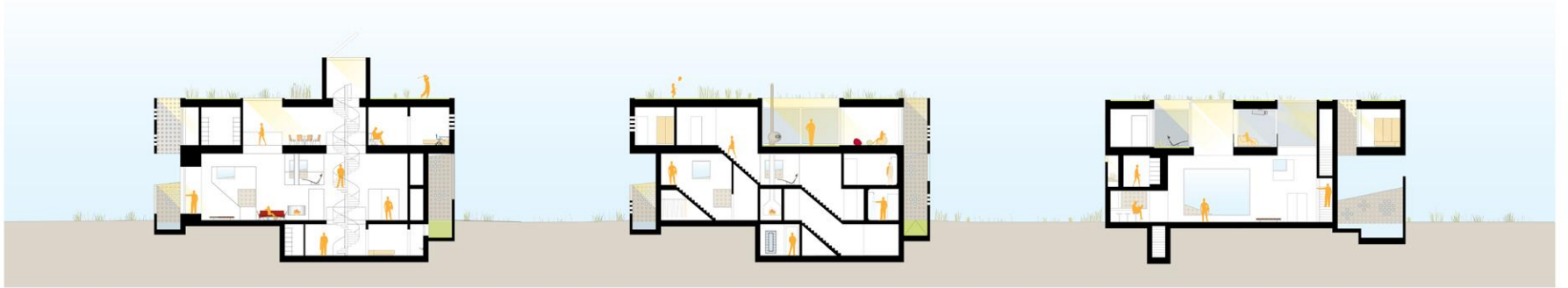
Ordos, Inner Mongolia, China by Work AC



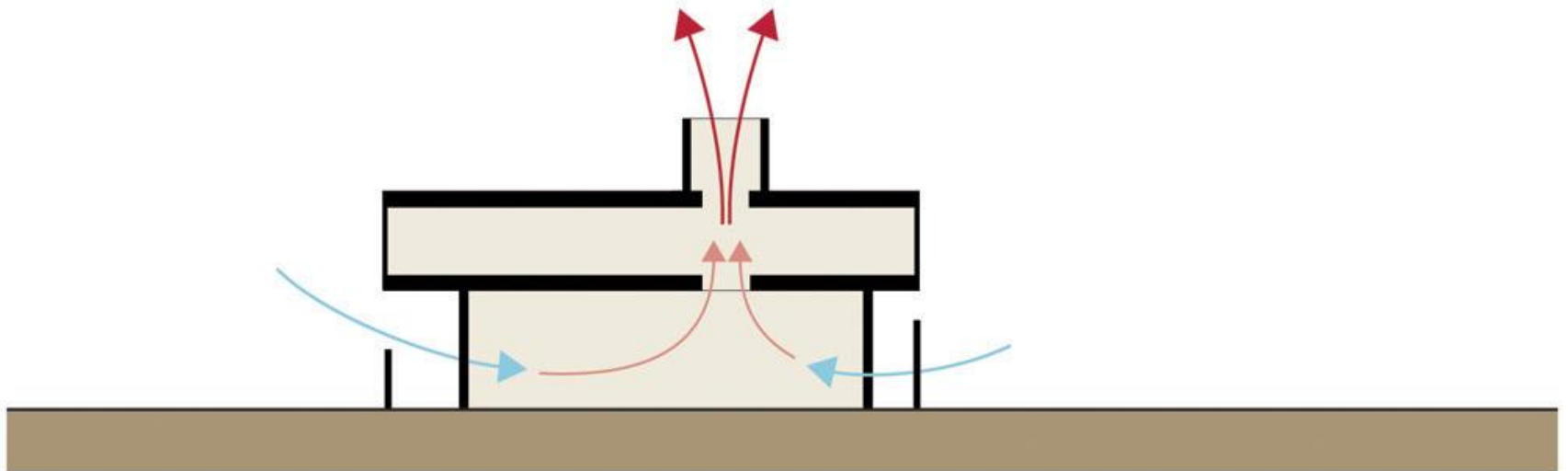
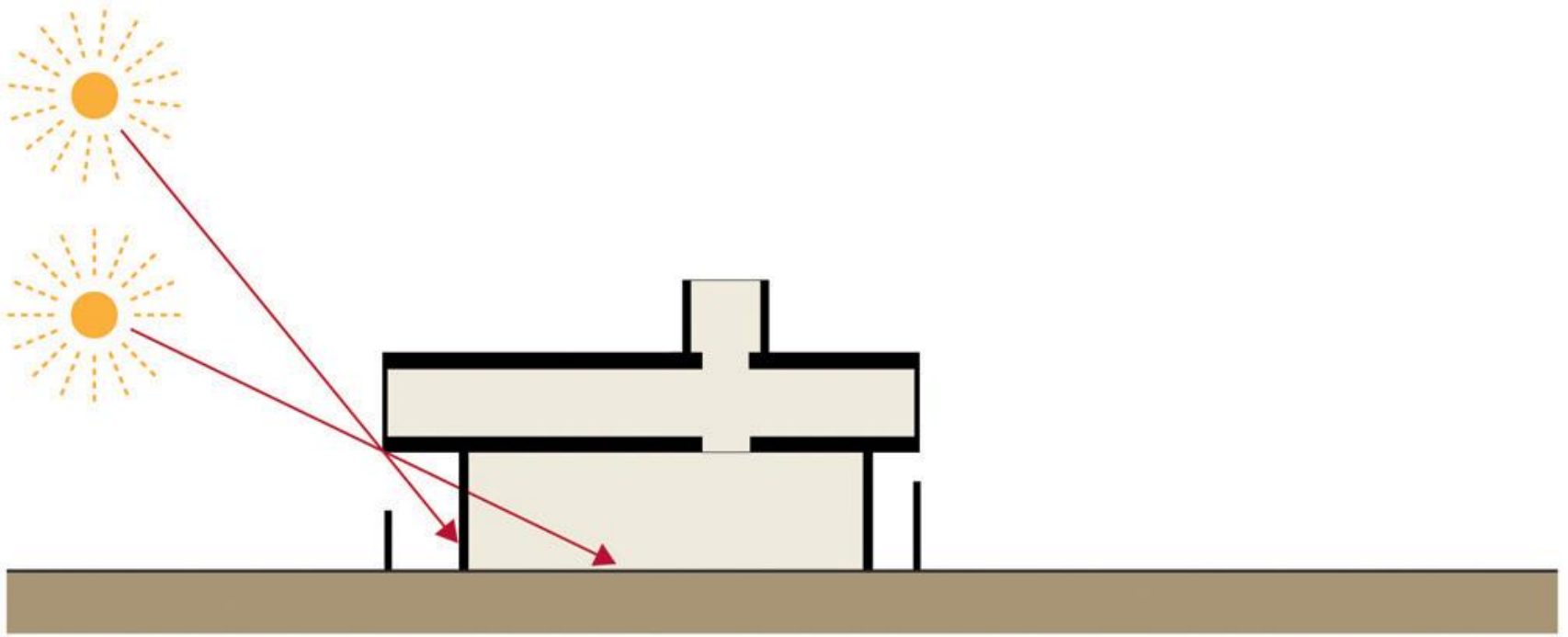
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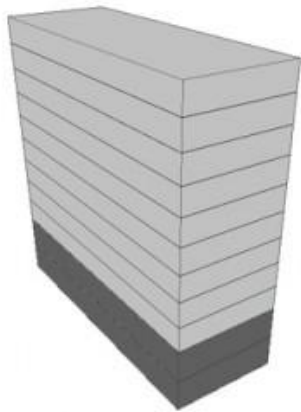


Ordos, Inner Mongolia, China by Work AC



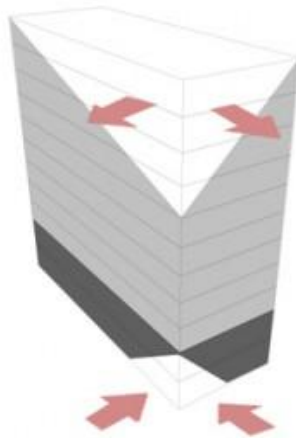
Ordos, Inner Mongolia, China by Work AC

RESIDENTIAL



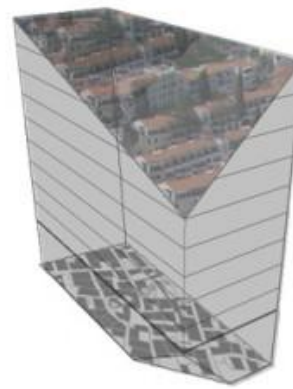
COMMERCIAL

EXTROVERT



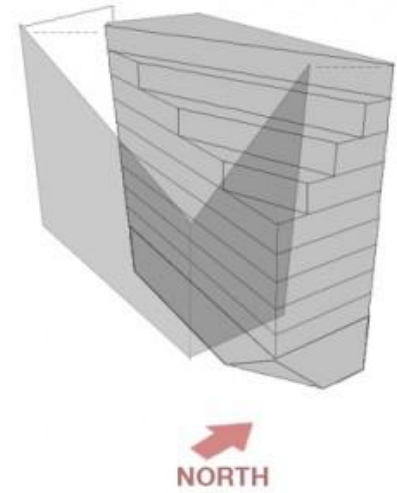
INTROVERT

CASCADE
/ LIVING SPACE /



OLD TOWN
/ PUBLIC /

ENVELOPE
/ ANTI-INSOLATION /





Salt Tower, Budva, Montenegro by Enforma + AIM Studio, 2012



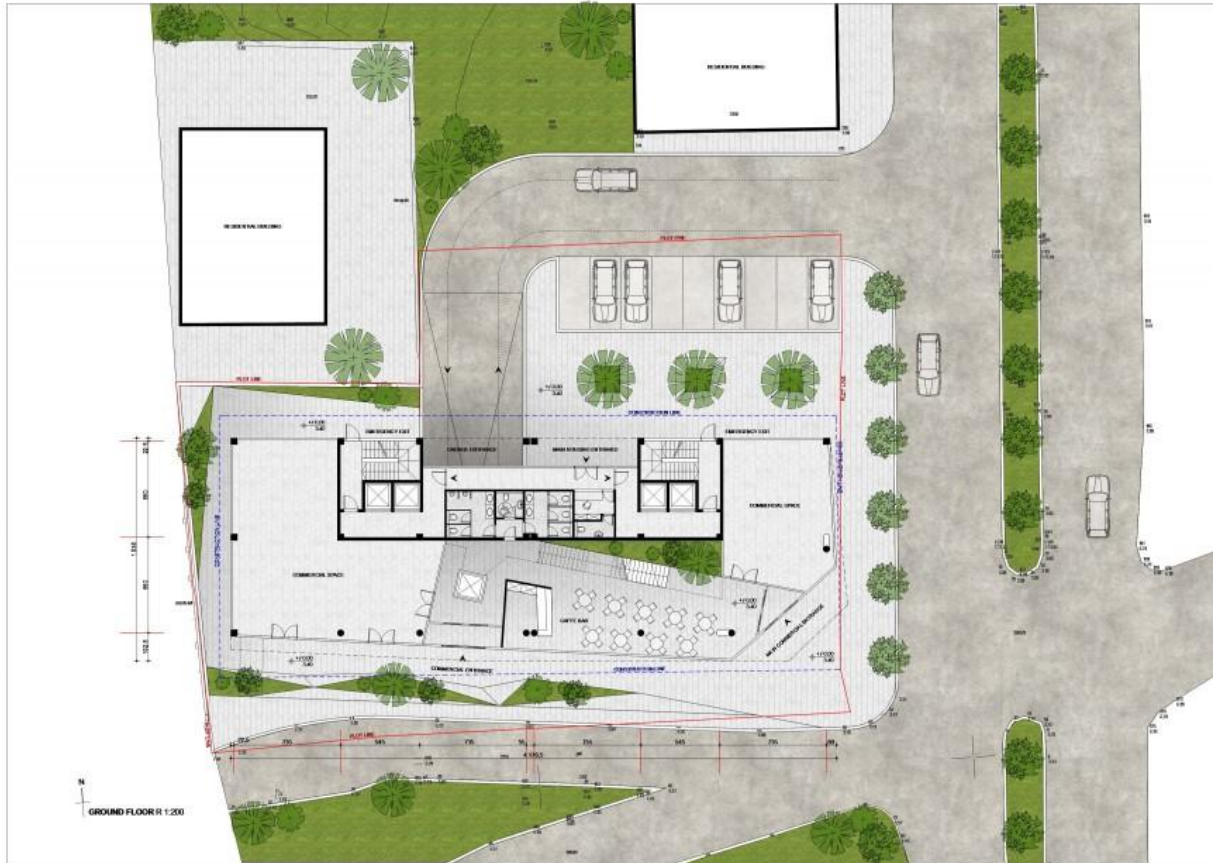
Salt Tower, Budva, Montenegro by Enforma + AIM Studio, 2012



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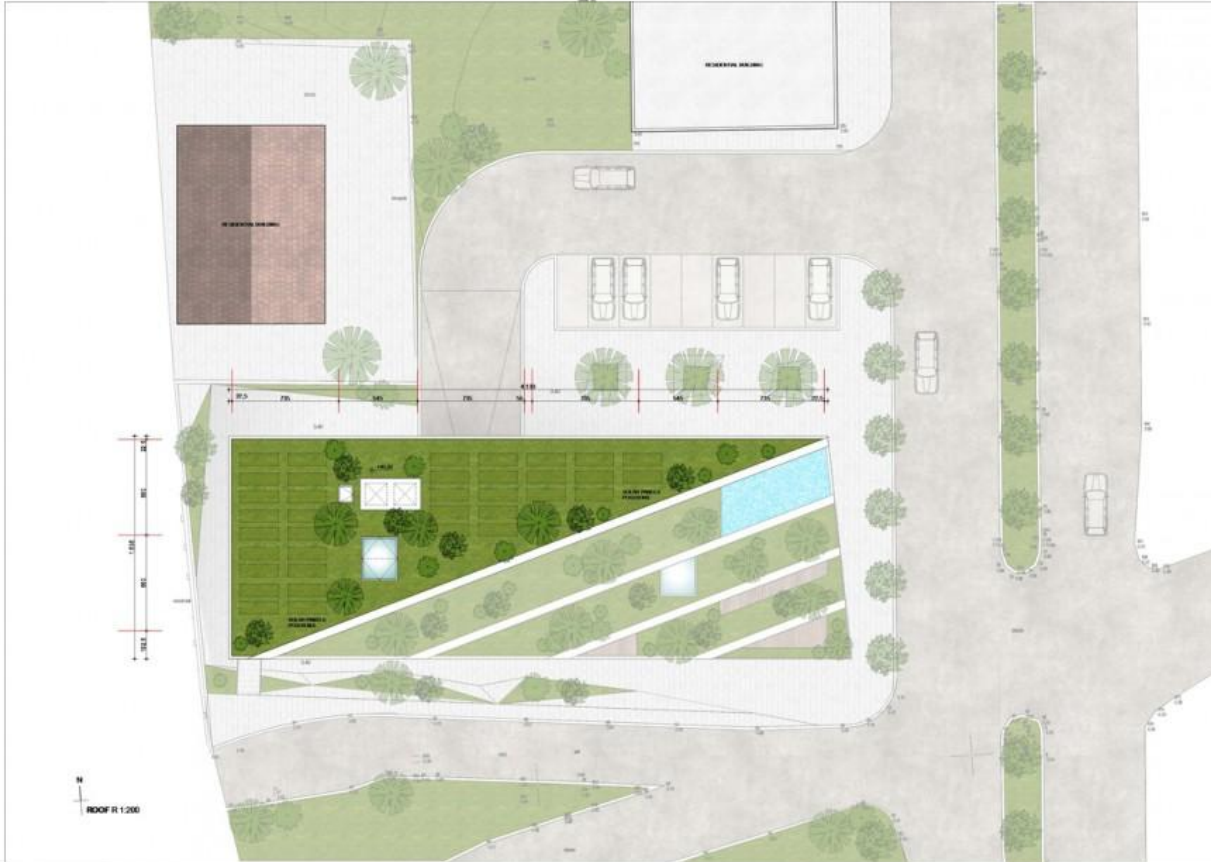
Salt Tower, Budva, Montenegro by Enforma + AIM Studio, 2012



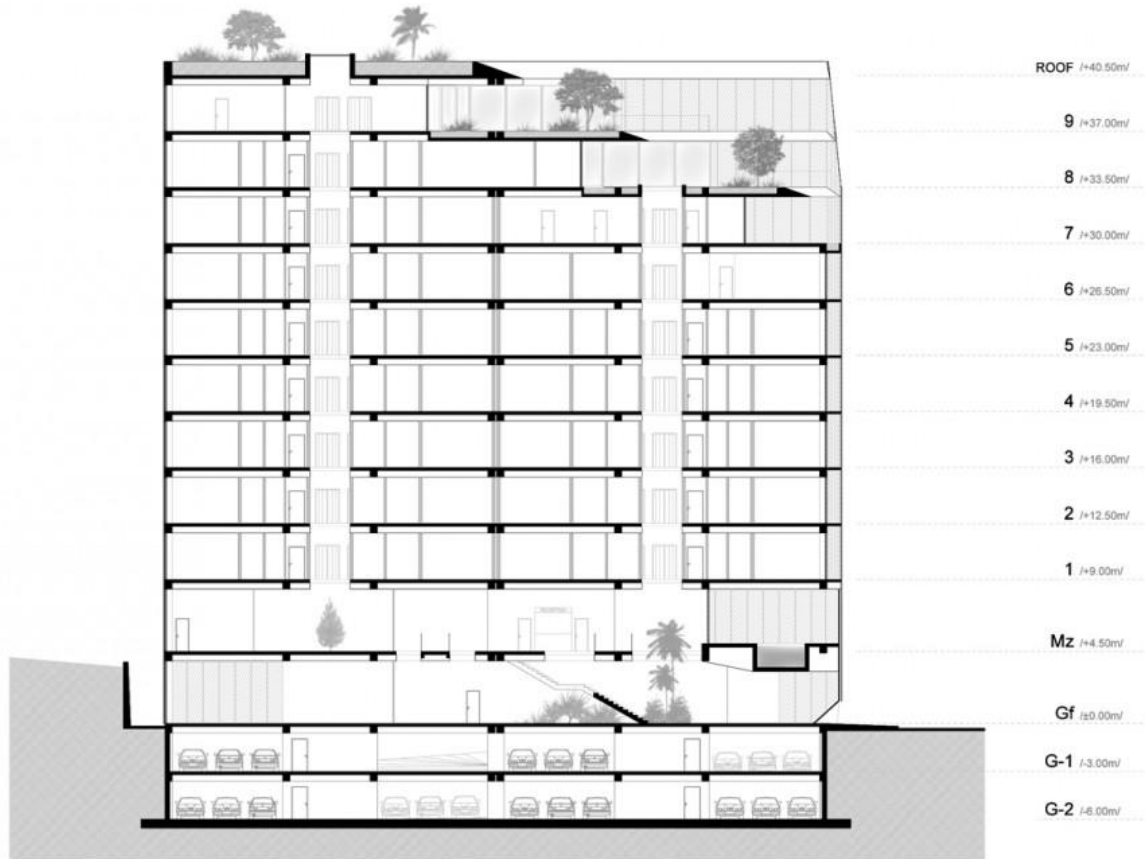
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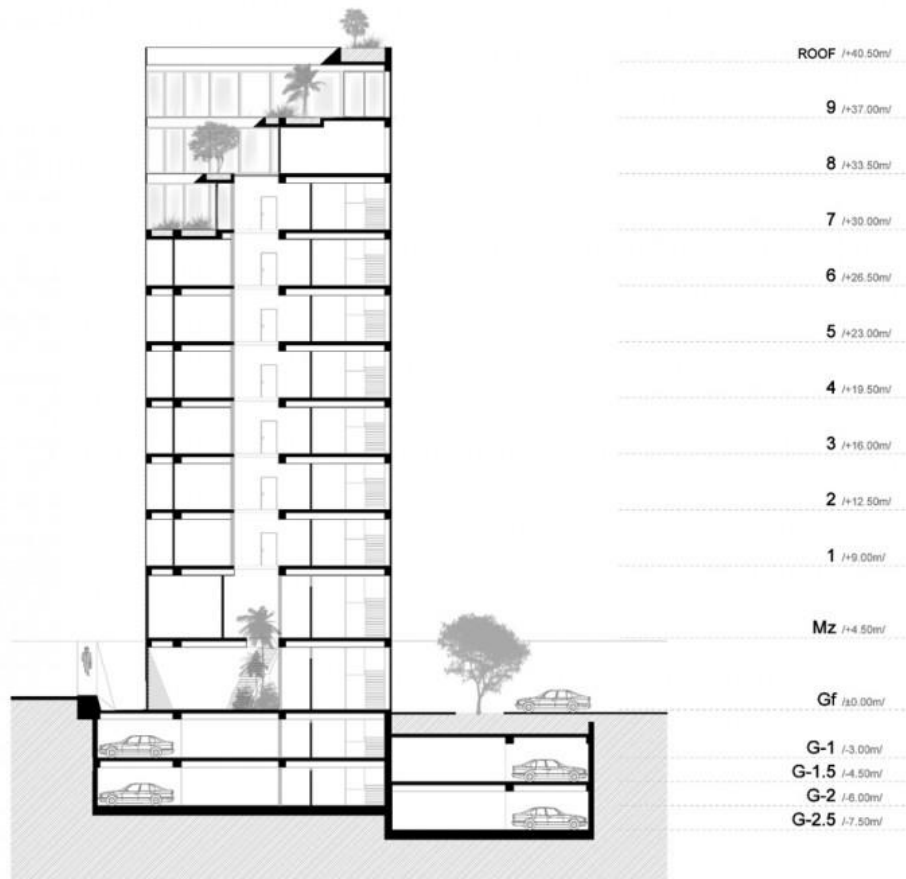
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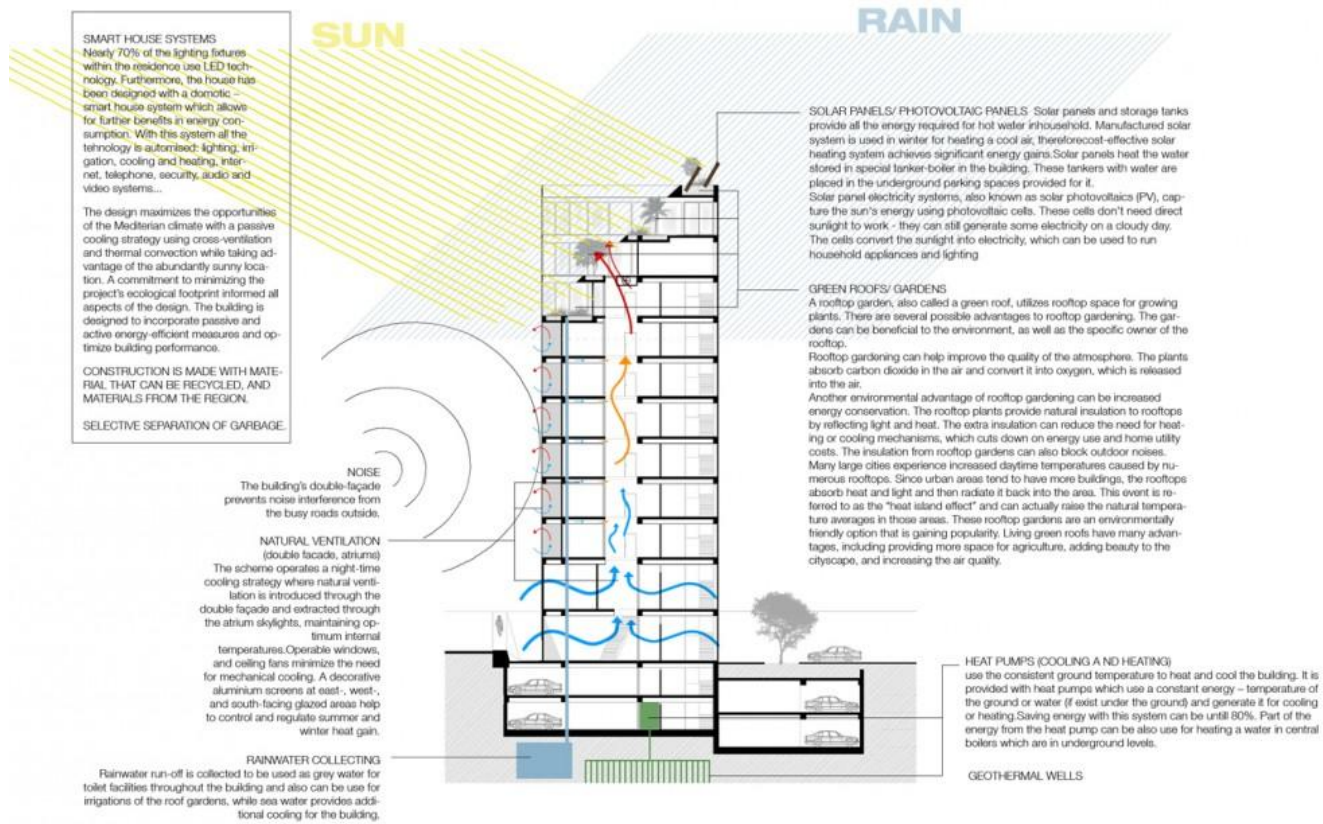
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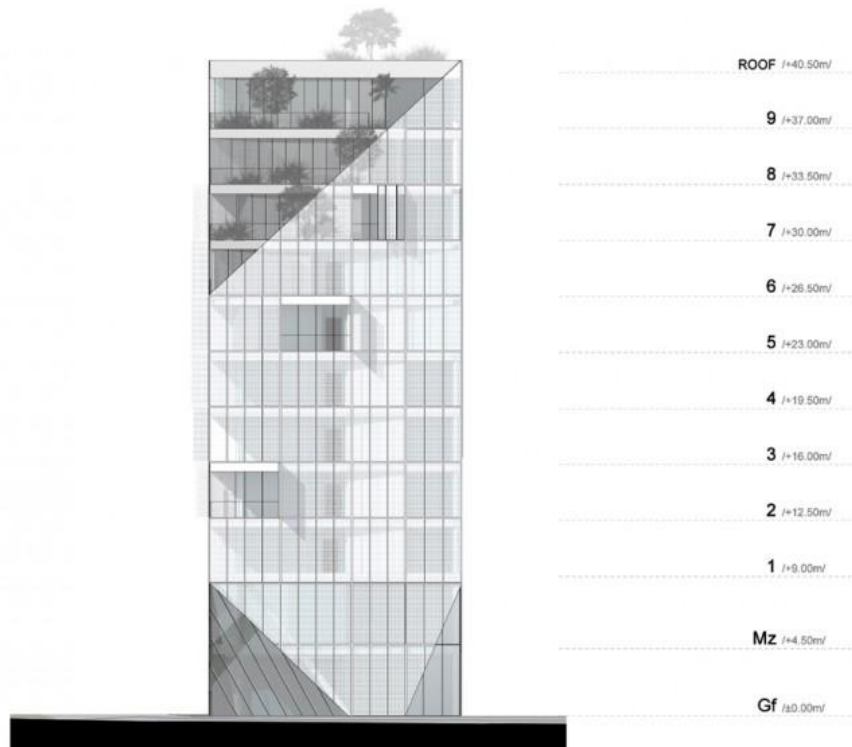
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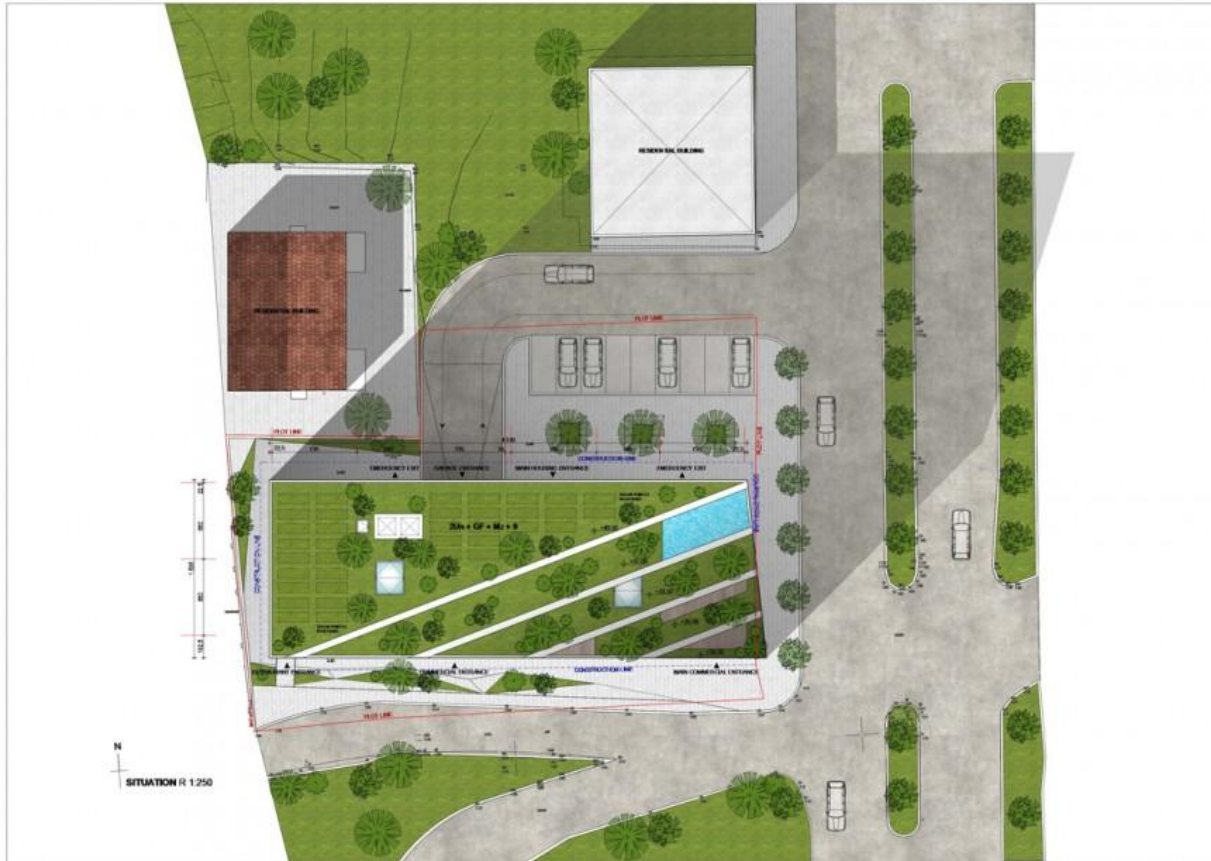
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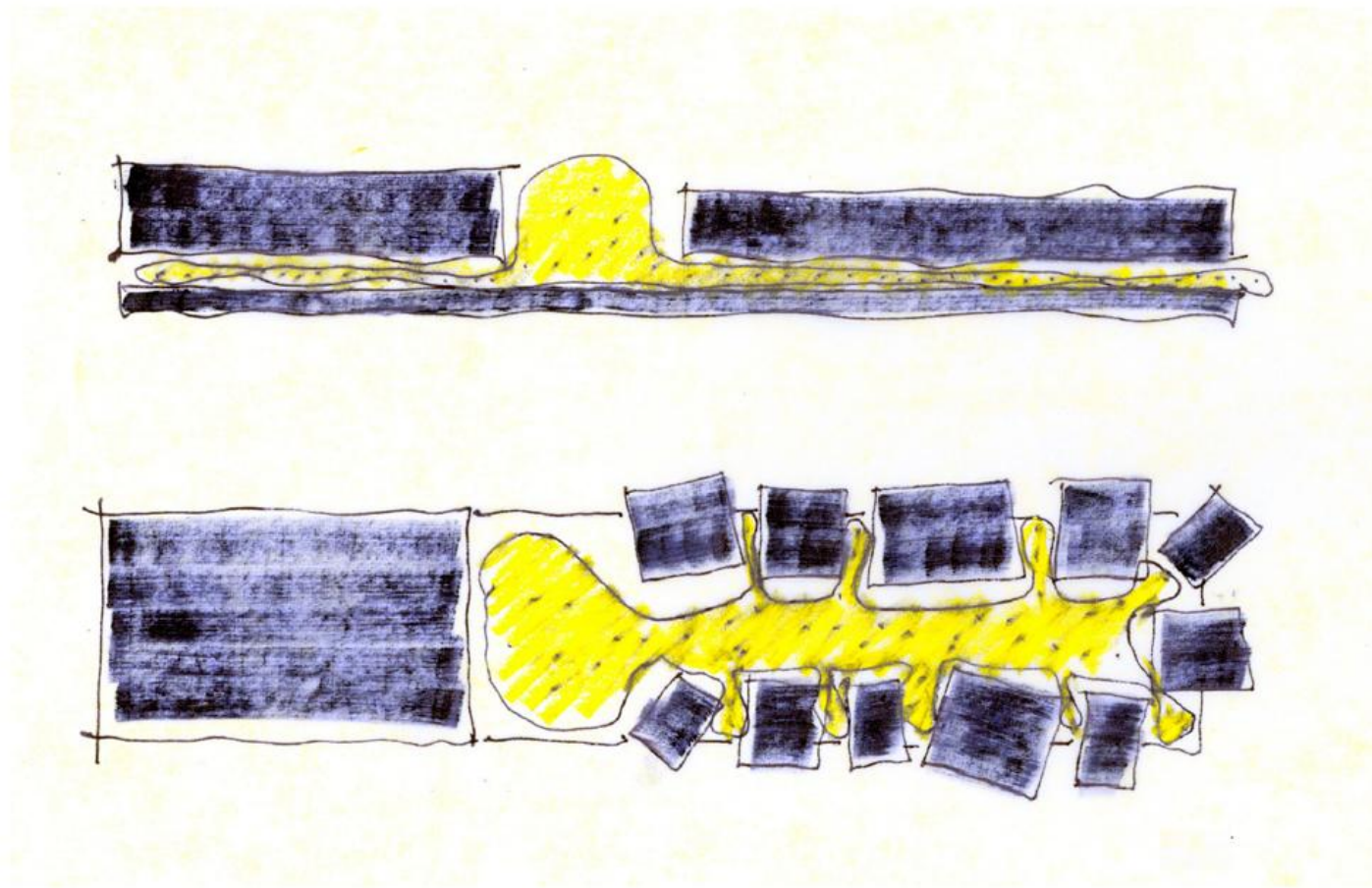
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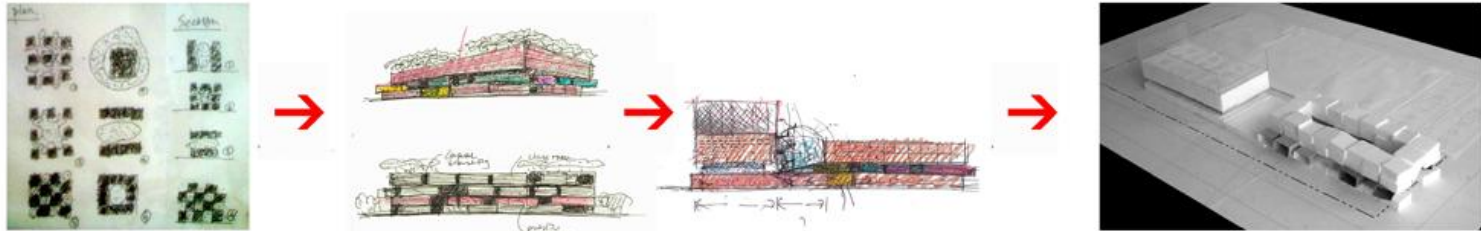
Salt Tower, Budva, Montenegro by Enforma + AIM Studio, 2012



Tianjin Elementary School, Tianjin, Xiqing, China by Vector Architects + CCDI



Tianjin Elementary School, Tianjin, Xiqing, China by Vector Architects + CCDI



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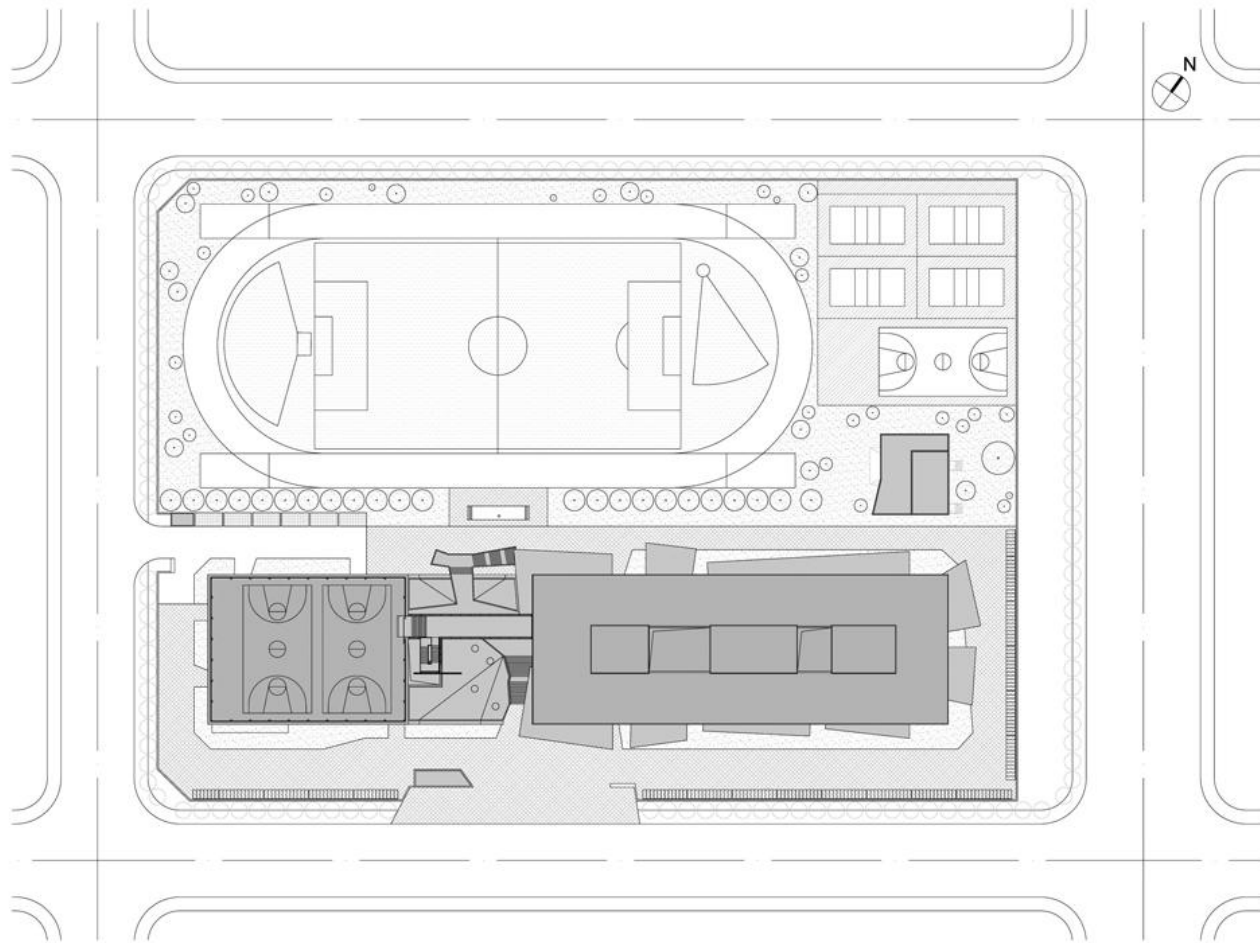
Tianjin Elementary School, Tianjin, Xiqing, China by Vector Architects + CCDI



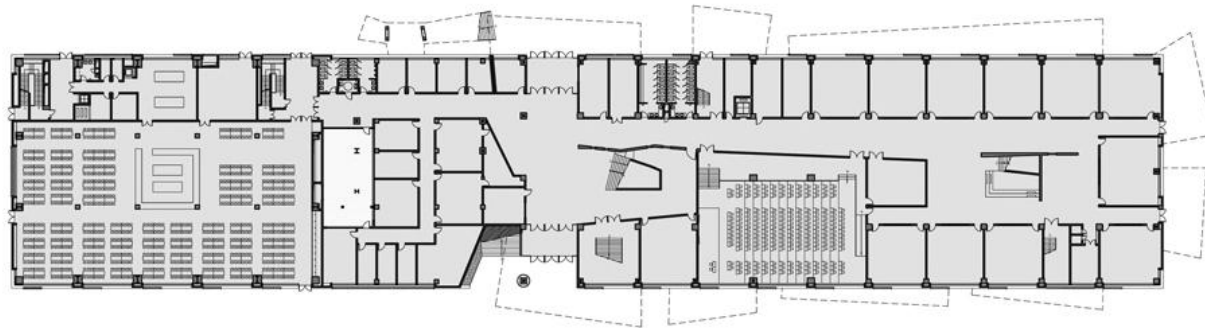
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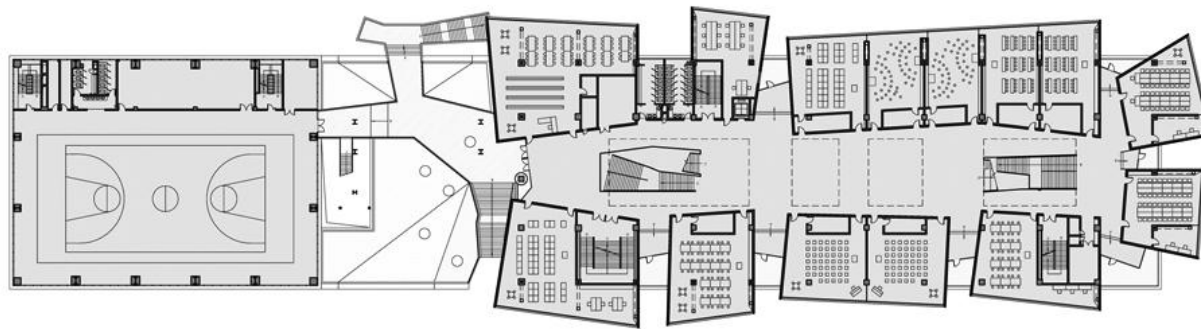
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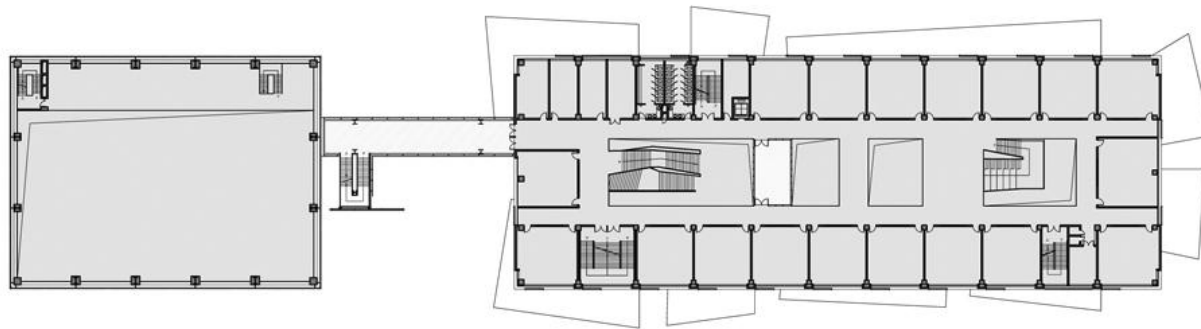
Tianjin Elementary School, Tianjin, Xiqing, China by Vector Architects + CCDI



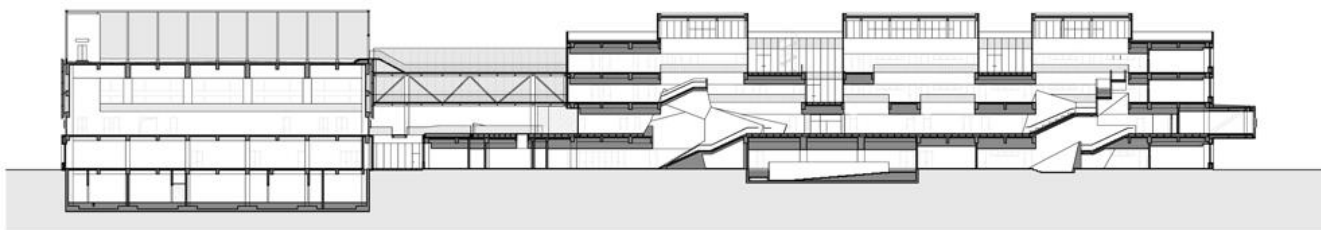
Tianjin Elementary School, Tianjin, Xiqing, China by Vector Architects + CCDI



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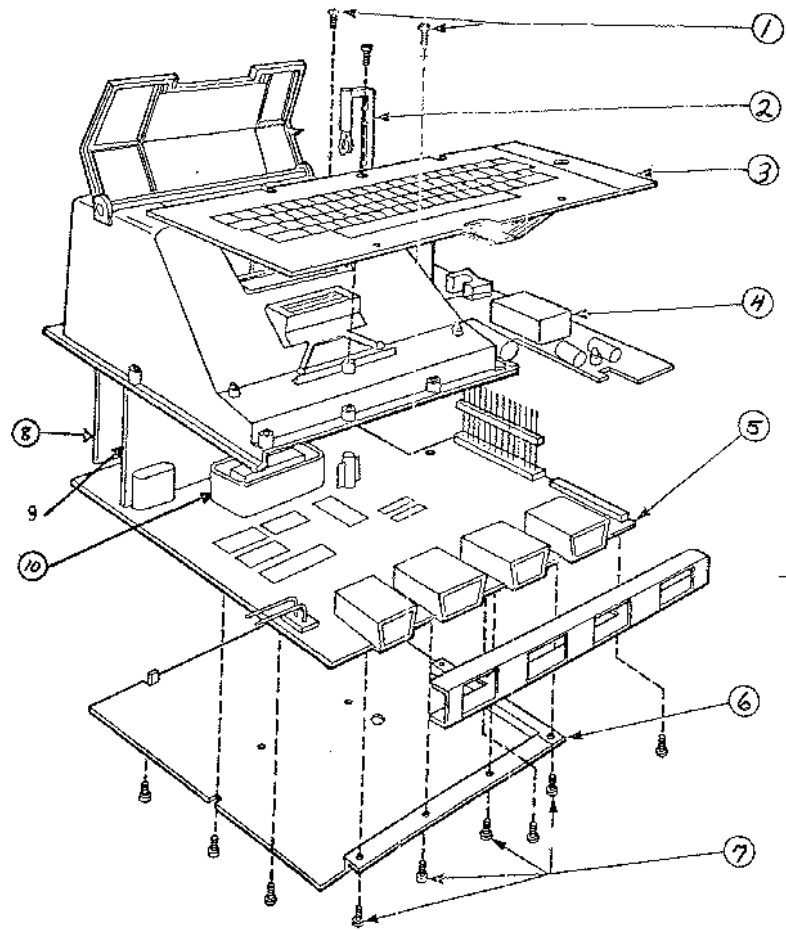


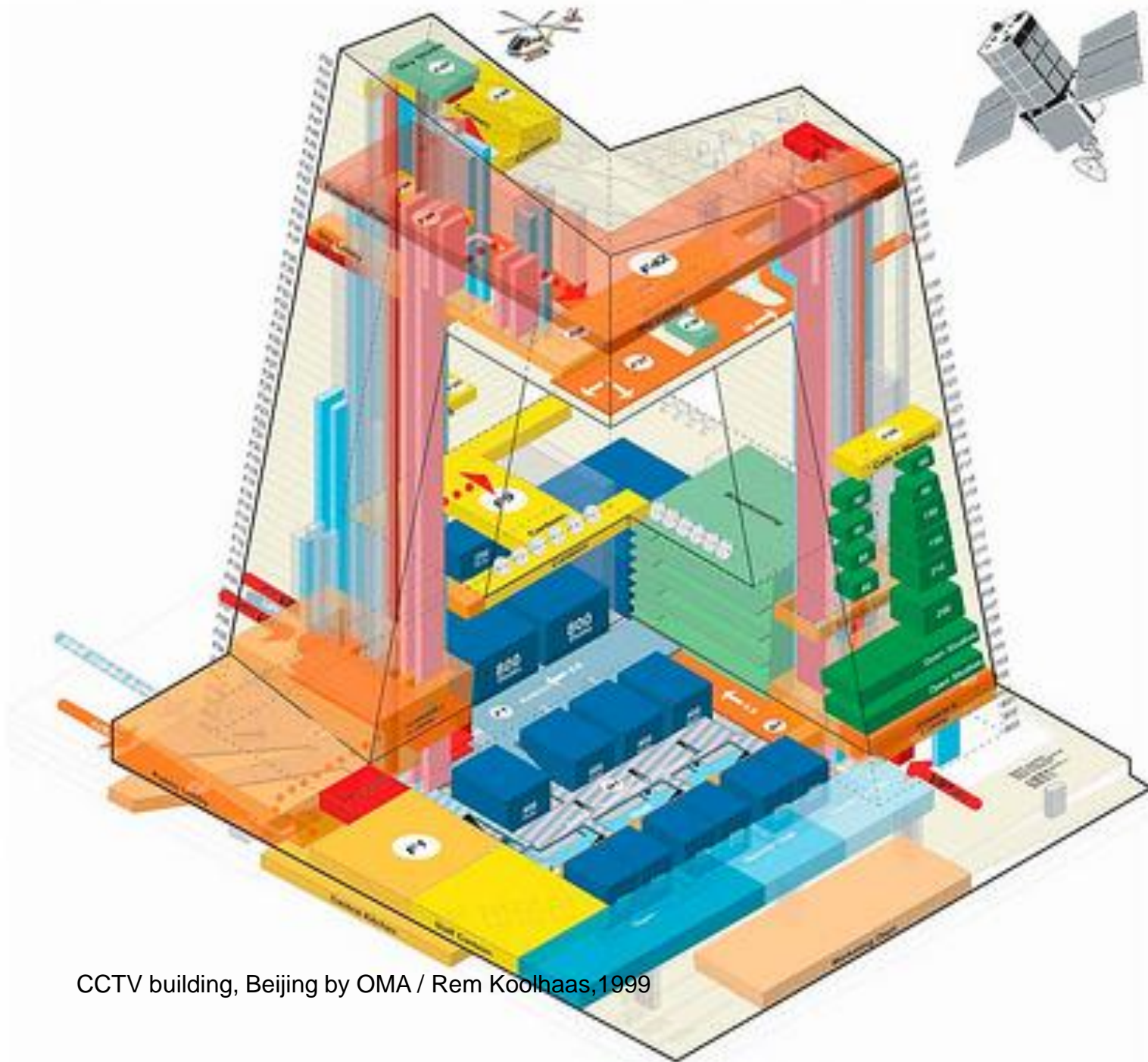
Tianjin Elementary School, Tianjin, Xiqing, China by Vector Architects + CCDI



Tianjin Elementary School, Tianjin, Xiqing, China by Vector Architects + CCDI

POSITIONAL DIAGRAM

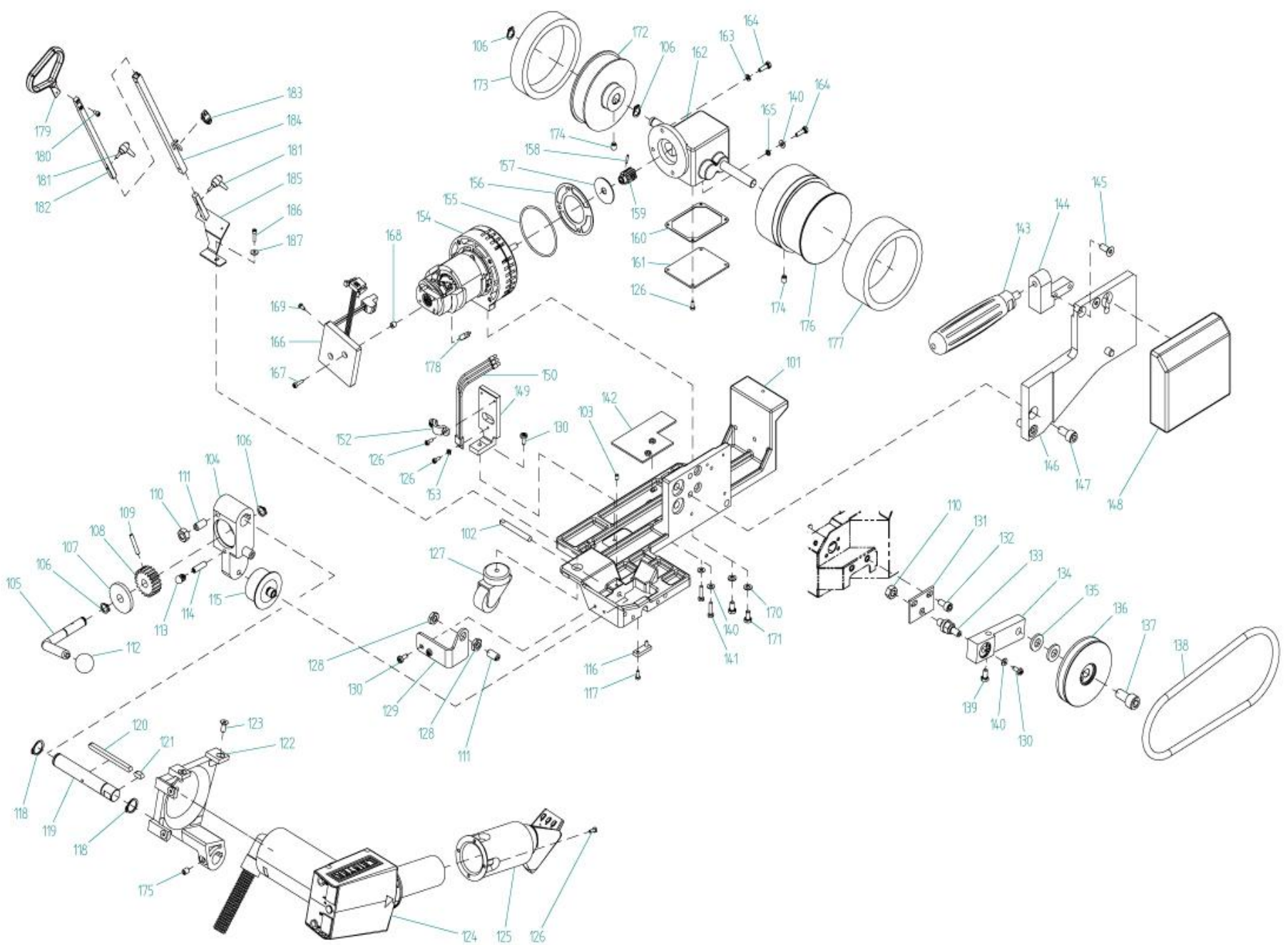


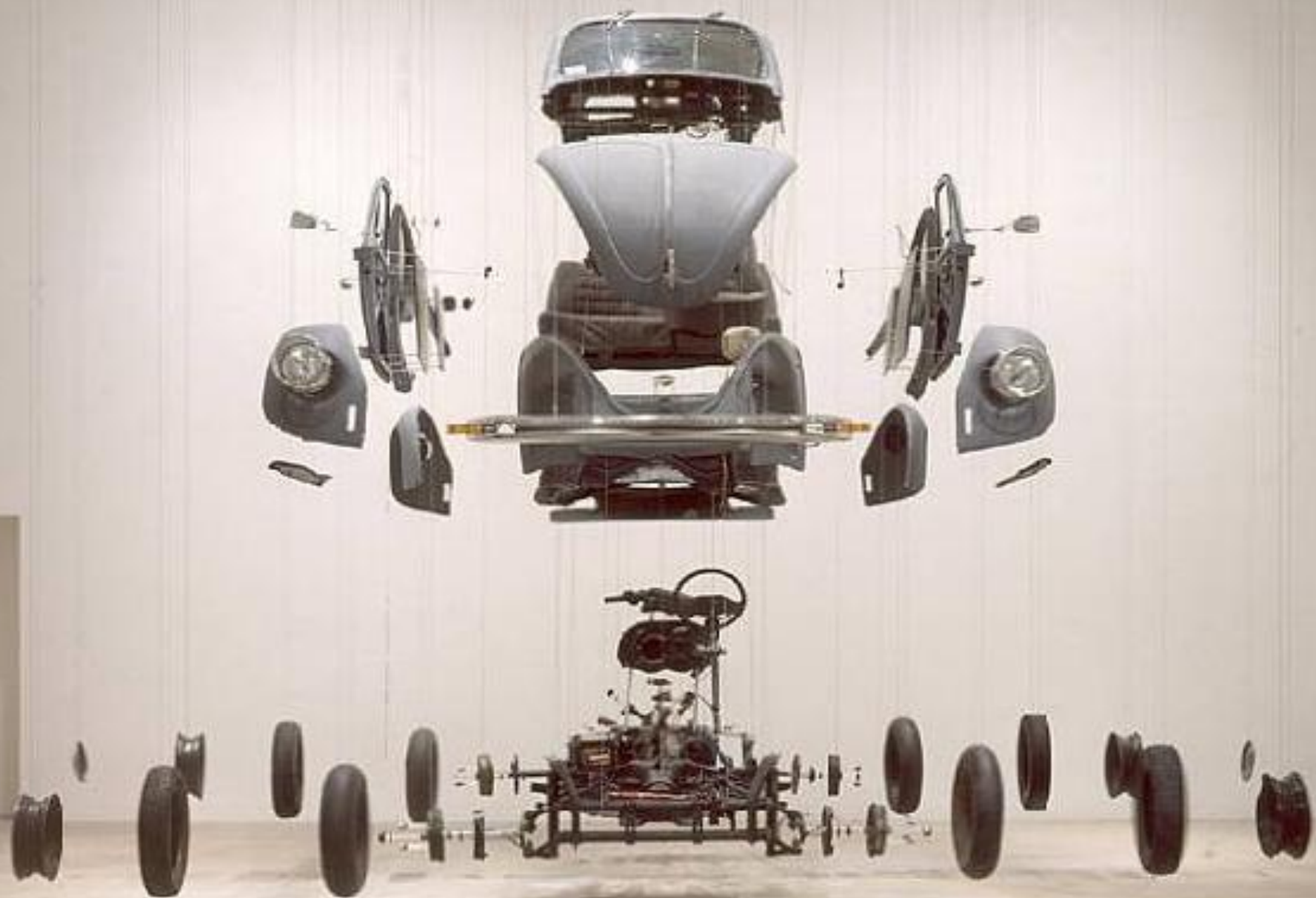


CCTV building, Beijing by OMA / Rem Koolhaas, 1999

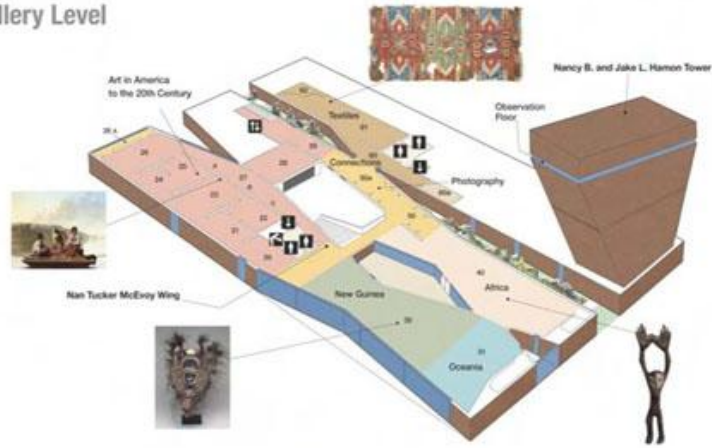


CCTV building, Beijing by OMA / Rem Koolhaas, 1999

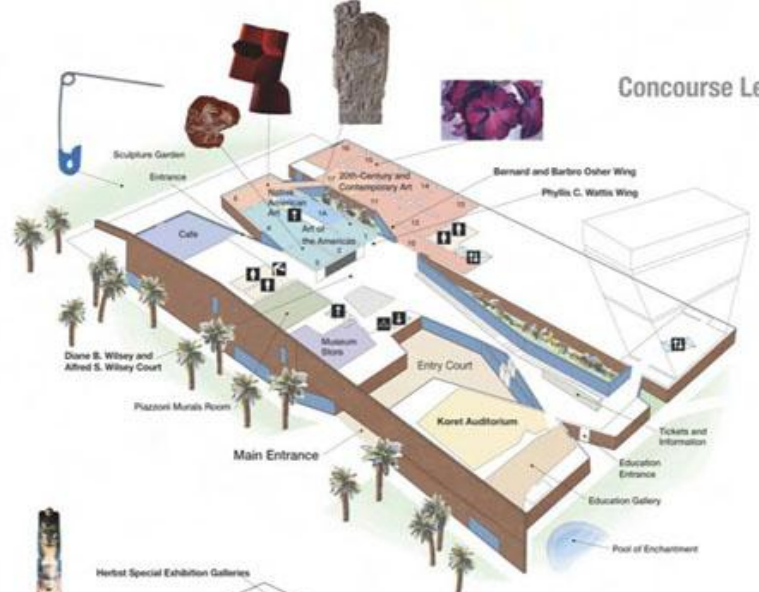




Upper Gallery Level



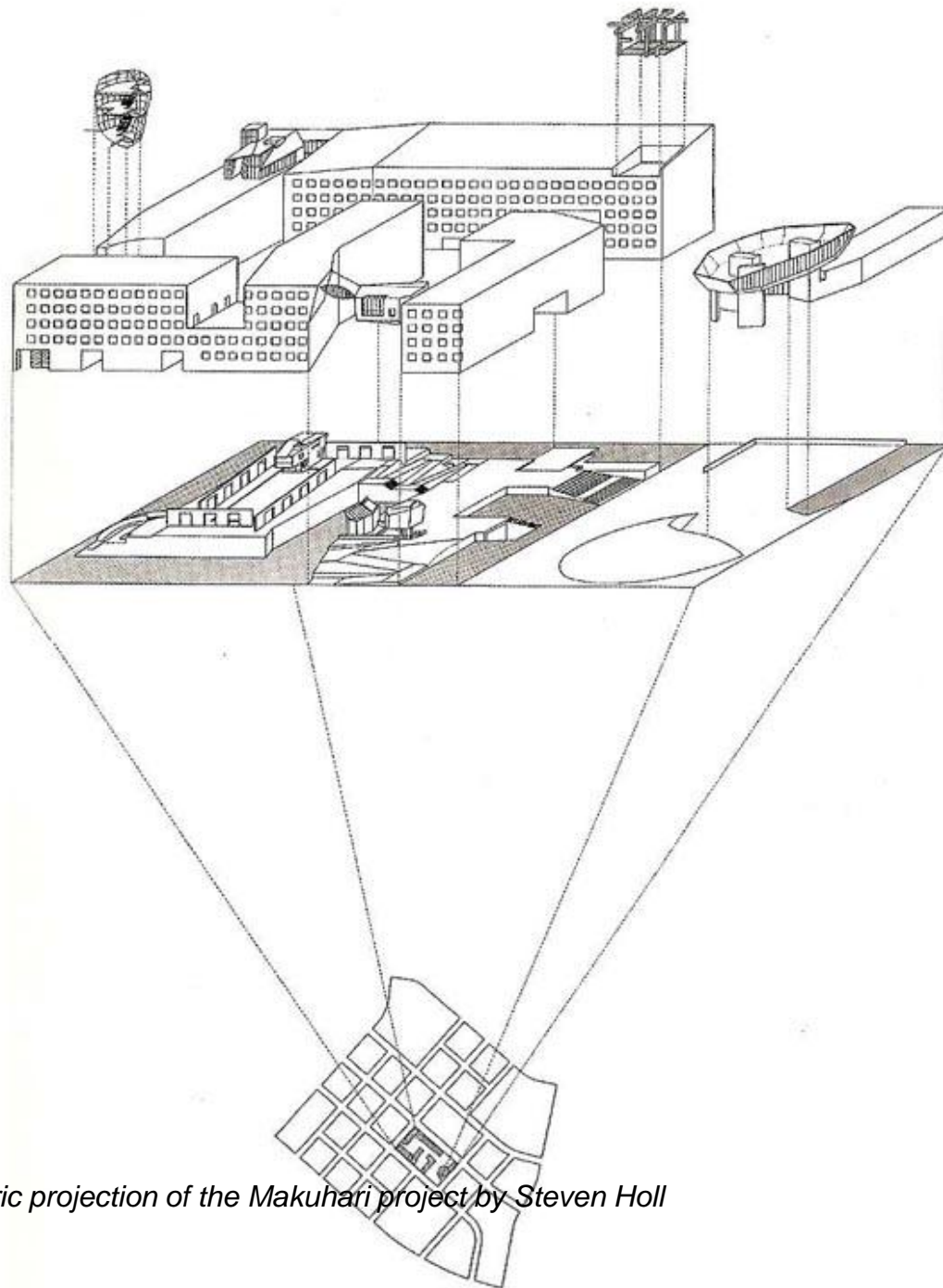
Concourse Level



Exhibition Level

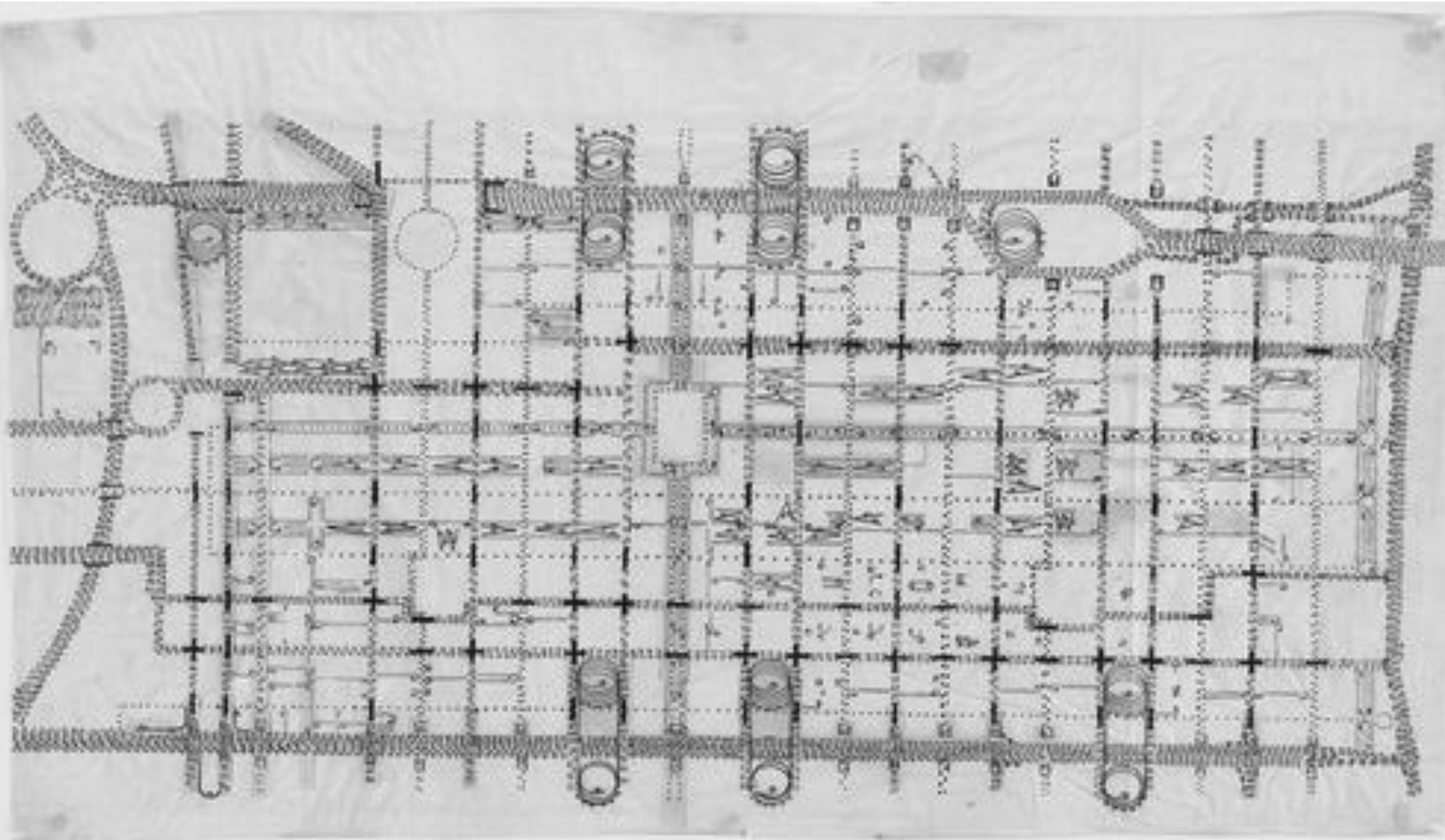


The deYoung Muesum, San Francisco, California by Herzog & de Meuron

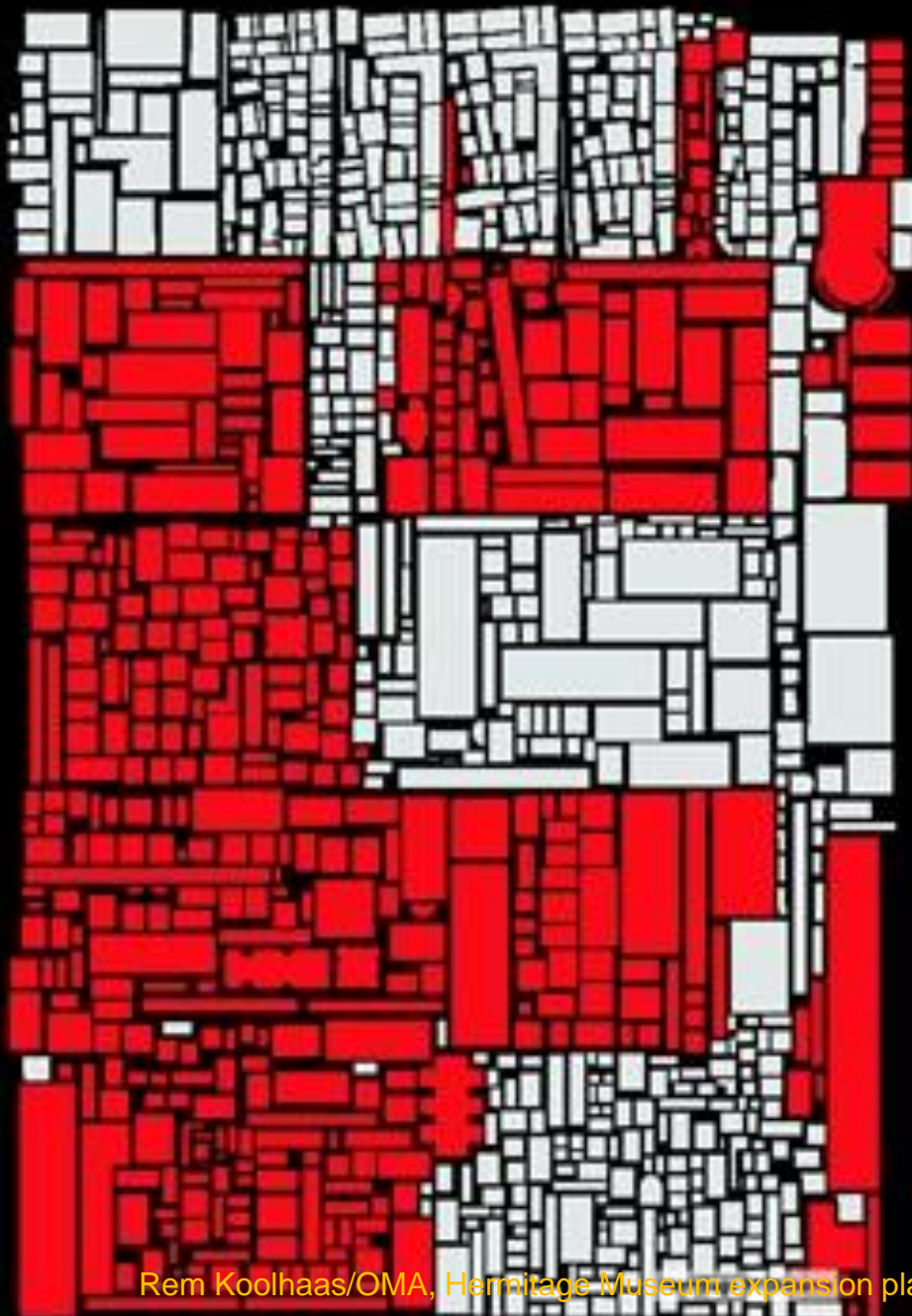


Initial axonometric projection of the Makuhari project by Steven Holl

DATA MAPPING



drawings by Architect Louis Kahn in 1953 of Philadelphia which illustrate the city through the movement, speed, and flow of its vehicles rather than by its physical configuration



+



Rem Koolhaas/OMA, Hermitage Museum expansion plan, St. Petersburg, Russia, 2003.



Rem Koolhaas/OMA, Hermitage Museum expansion plan, St. Petersburg, Russia, 2003.

A Day in the Life of Joe Consumer

The typical person leaves electronic fingerprints everywhere, unaware of how such traces can be combined with other data bases for sale or rent, and used in unexpected ways. Here are examples from a composite consumer day, based on actual practices. NINA BERNSTEIN

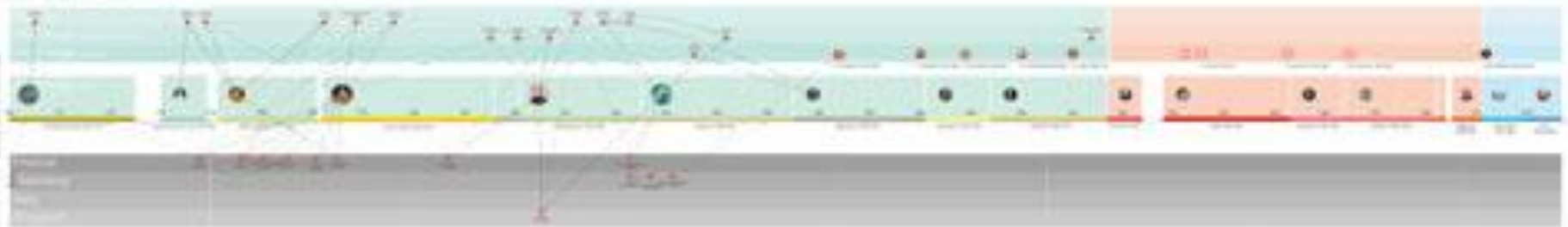


	Telephoning	Driving	Sending E-mail	Dining	Getting Prescriptions	Shopping	Mail Ordering
ACTIVITY	Joe calls an 800 number to check the pollen count.	Rushing to work, Joe inadvertently runs a red light.	At work, Joe criticizes his boss in E-mail to a friend.	Joe eats lunch at a restaurant that records each order on a computer.	Joe stops at the pharmacy to fill a tranquilizer prescription.	At the supermarket, Joe uses a discount shopper's card.	Before bed, Joe orders cufflinks and silk boxer shorts from a catalogue.
DATA CAPTURE	Joe's number is caught through Caller ID; his name and address are pulled from a public records data base.	Though the intersection is empty, a video camera captures his license number.	Joe's company reviews employee Internet activity and keeps copies of all E-mail.	Joe pays by credit card, linking his account number to his order of a bacon cheeseburger and fries.	His name, the drug and his doctor become part of the data base of the pharmacy chain.	The card links Joe's identity to every item he buys.	He pays by American Express, which adds his name to lists of "buyers of expensive jewelry."
FIRST USE	Joe is put on a list of allergy sufferers; it is sold to a drug company marketing allergy pills.	Joe is sent a traffic ticket in the mail.	After Joe's boss reads the E-mail, Joe is dismissed.	The restaurant checks his credit standing and sends him a discount offer.	The chain is part of a pharmaceutical company that combines the data with lists of magazine subscribers.	The supermarket chain uses a data-mining service to create profiles of its most profitable customers.	The catalogue company puts his name on a list of "male buyers of sexy lingerie" and trades it with other companies.
LATER USE	The list is linked with a profile of Joe and he is sent a coupon for the company's allergy medication.	Joe's insurance company finds the violation in a data base search and raises his rates.	Joe's unsuccessful lawsuit to regain his job shows up when a prospective employer uses an Internet investigation service.	The restaurant goes bankrupt and its list of men who ate bacon cheeseburger lovers goes on the information market.	A rival tranquilizer company advertises in Joe's favorite magazine; company mailings urge Joe's doctor to switch.	Joe is deemed a prized customer and gets electronically-generated discounts; less loyal customers pay more.	Within two weeks Joe will receive four jewelry catalogues, five lingerie catalogues and a sex-video tape offer.

By New York Times. Illustration by Megan Lagerman

Timeline daily activity diagram

PEOPLE TIMELINE



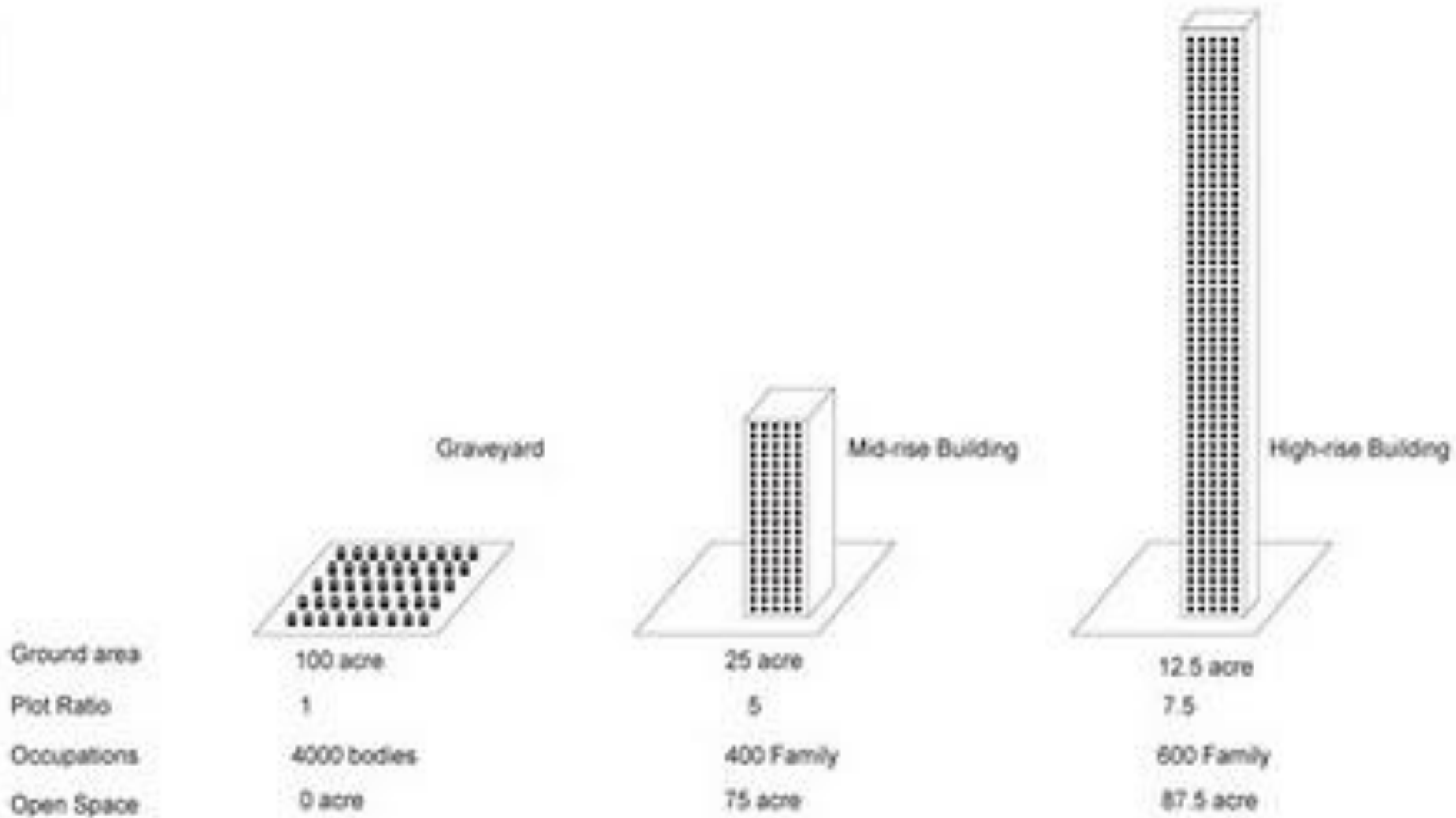
COLLECTIONS TIMELINE



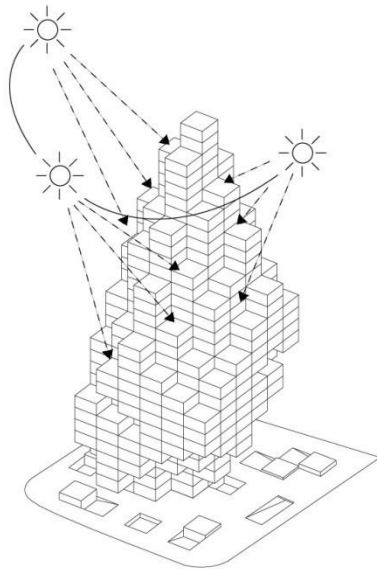
ARCHITECTURE TIMELINE



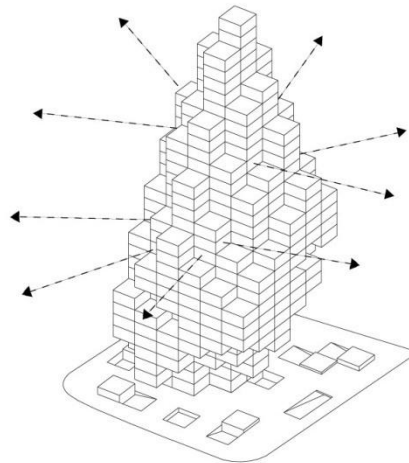
Hermitage Timelines by OMA / Rem Koolhaas, 1999



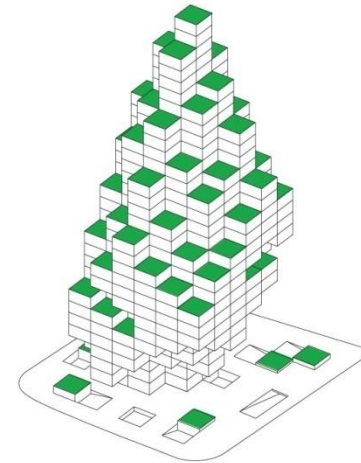
Concept of a vertical cemetery in Mumbai was presented as a way to satisfy cultural expectations while efficiently utilizing scarce urban land



Light
 - no floor level is the same, and no level is 'complete'.
 All floors are opened up in various places which allows for daylight to enter, even deep into the building.



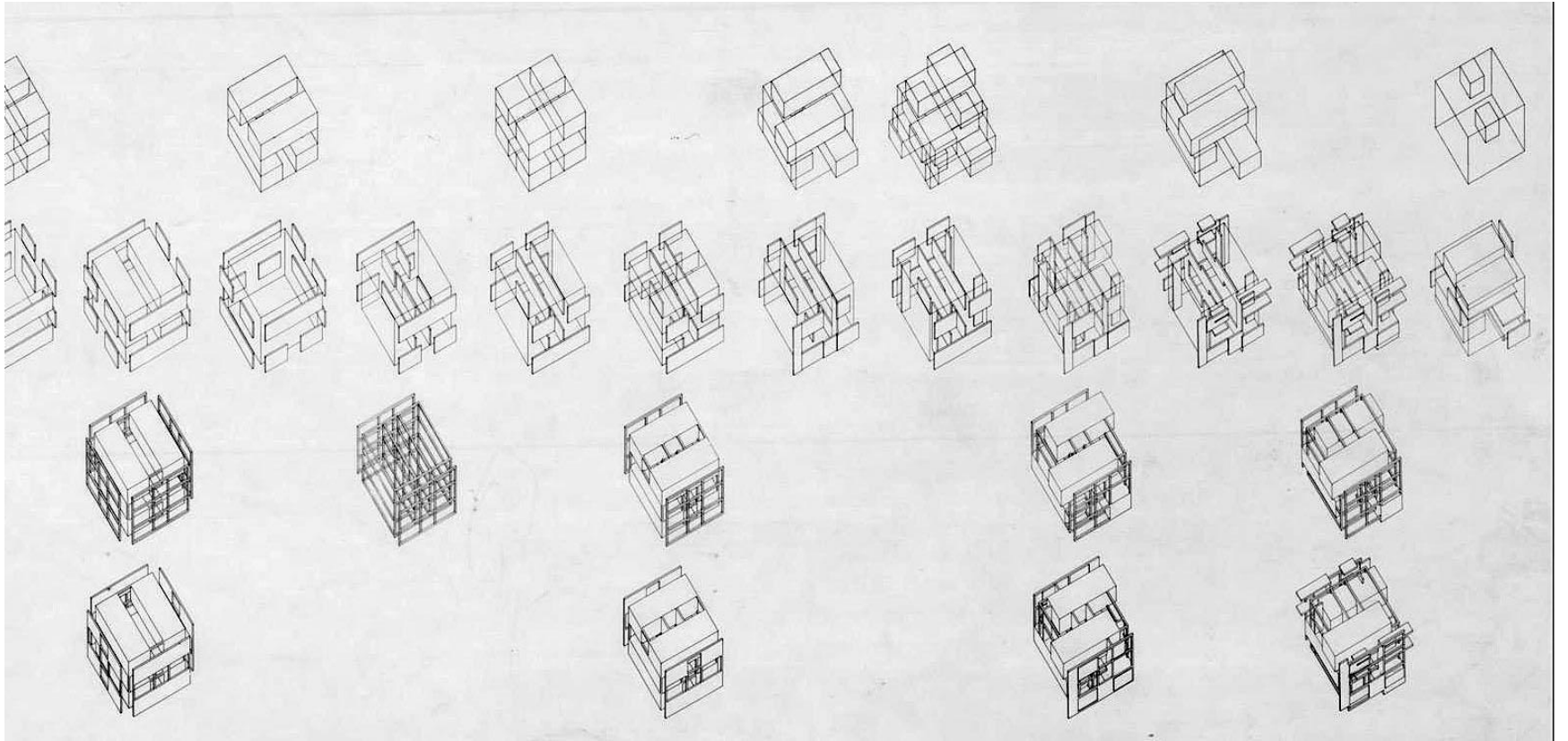
Views
 - the differentiated floor plan increases the amount of views on each level.



Terraces
 - the Sky Village has, as any other village, a large amount of outdoor spaces. The terraces are a mix of private and semi-public ones, covered or under open sky. Many are in corners and thus in most cases protected from the wind.

Light, views and terraces

TRANSLATIONAL DIAGRAM



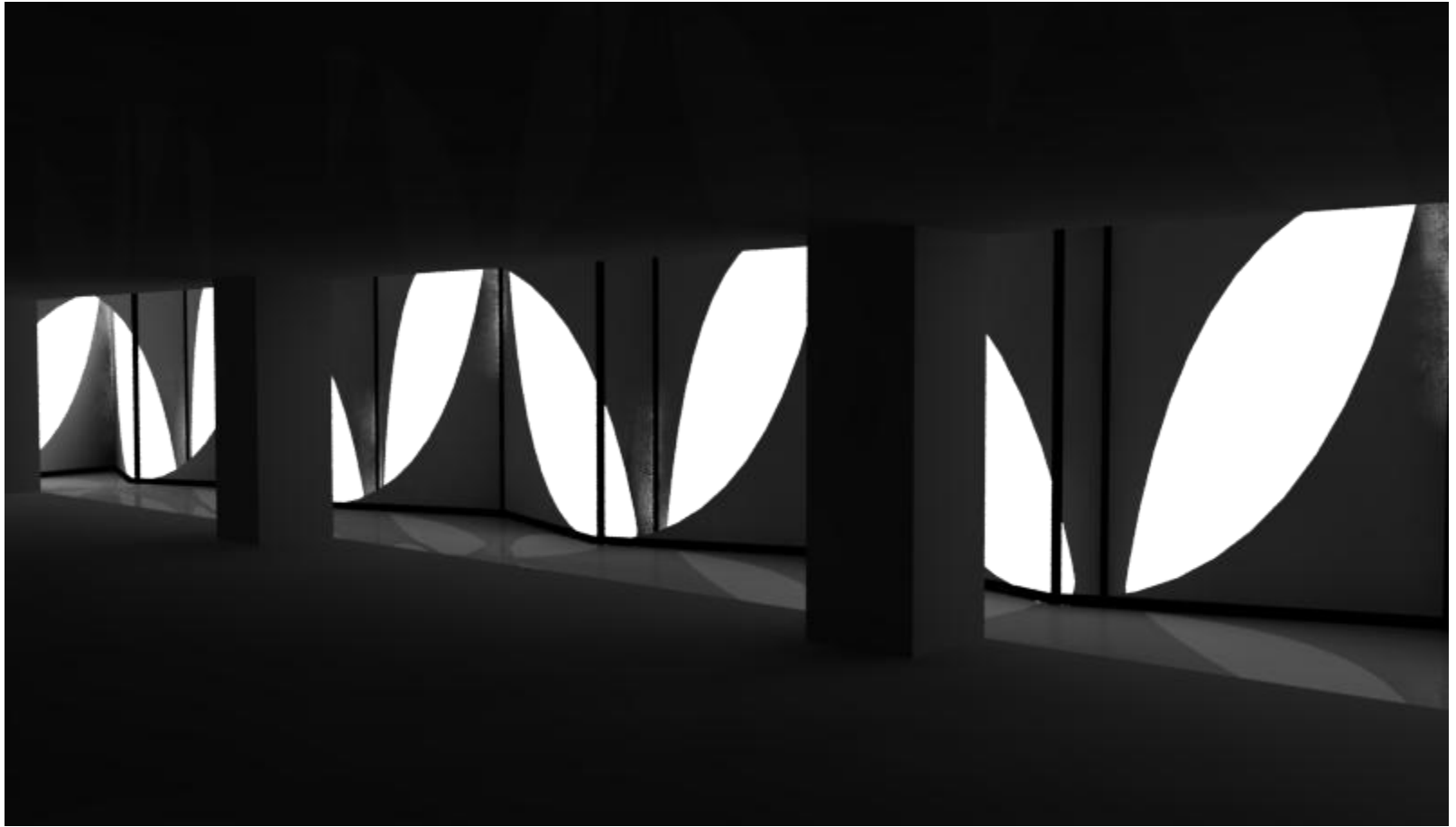
A series of Peter Eisenman's axonometric study sketches

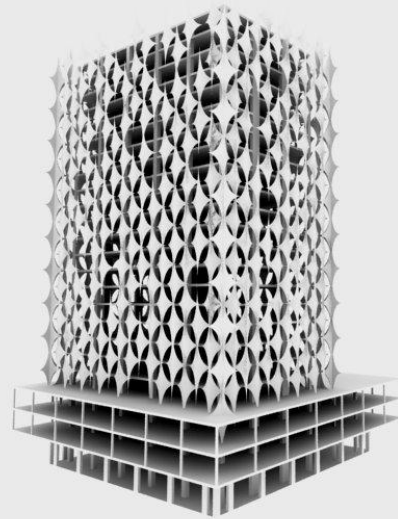
FIGURE DE LA GRIEL, CONTREDANSE .

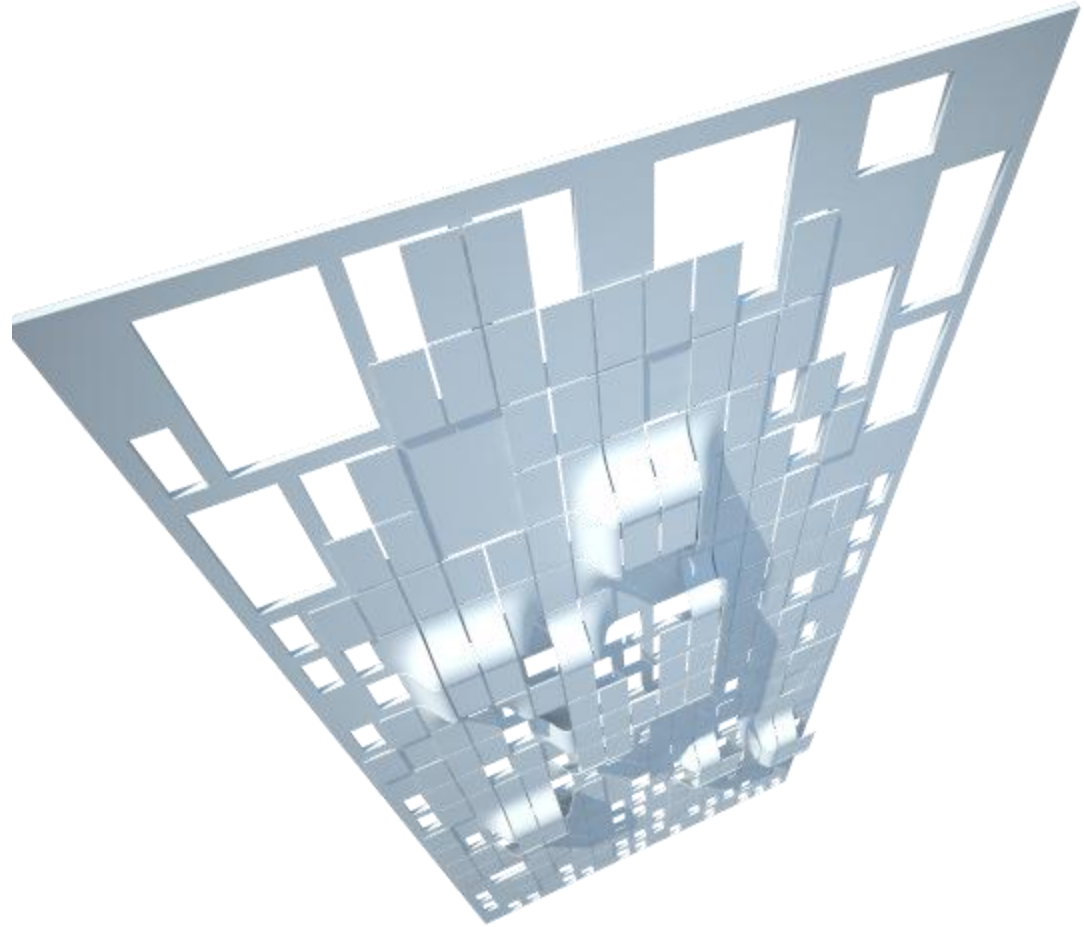
<p>1^{er} Mouvement. <i>Quatre en amas par deux couples et Rigaudon en arrière.</i></p>	<p>2^e M^o. <i>Les mêmes changent de places avec ceux de vis-à-vis</i></p>	<p>3^e M^o. <i>La Petite Chaise sur les côtés . puis les 4 autres figurent font à leur tour la même figure que ceux-cy viennent de faire aux 1^{er} 2^e et 3^e Mouvements.</i></p>	<p>4^e M^o. <i>Les 4 qui ont agi les premiers vont figurer vis-à-vis ceux de leur droite .</i></p>	<p>5^e M^o. <i>L'on prend la Dame qui se trouve vis-à-vis de soy et l'on chaise avant avec elle .</i></p>	<p><i>Et sans</i></p>

EDWARD TUFTE, DETAIL OF DANCE NOTATION REDRAWN FROM *LA CUISSE*, CAILLEAU & M^{lle} CASTAGNERY, 1762-64.

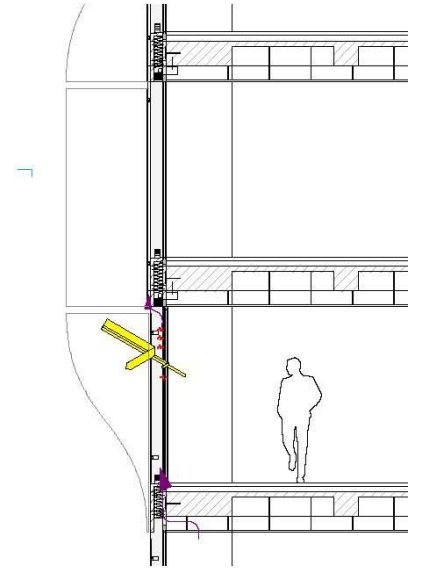
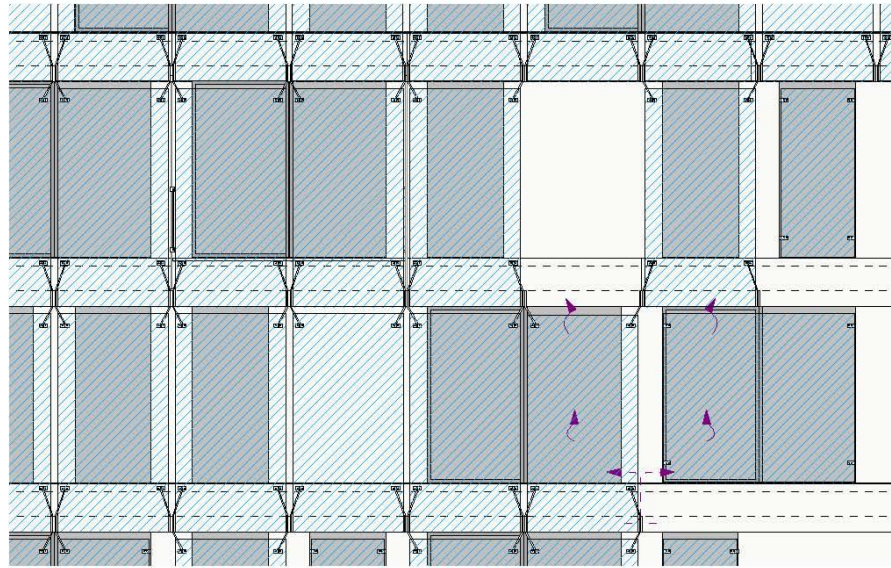
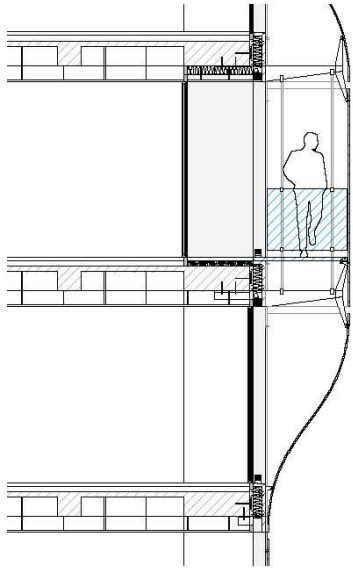
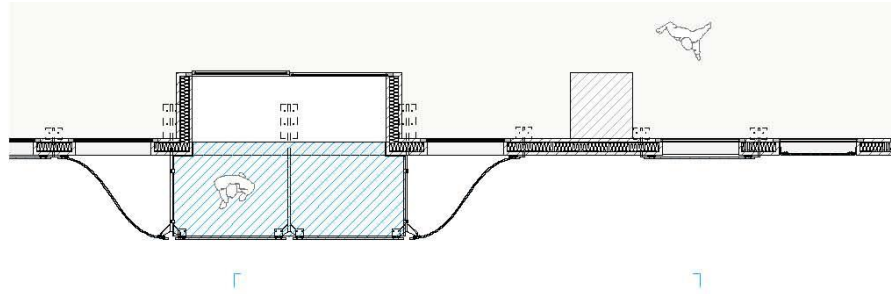
DEMONSTRATIVE DIAGRAM



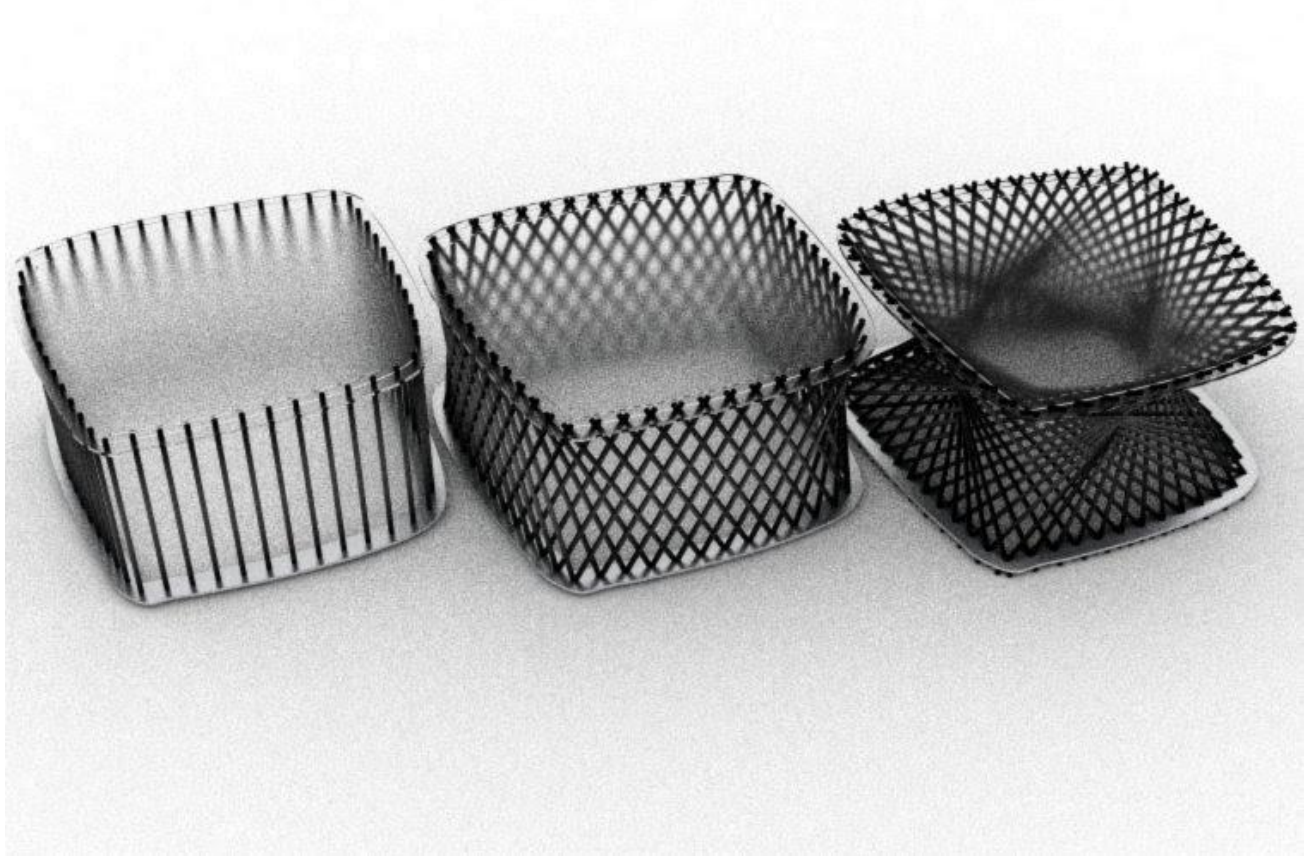




Facade tectonics

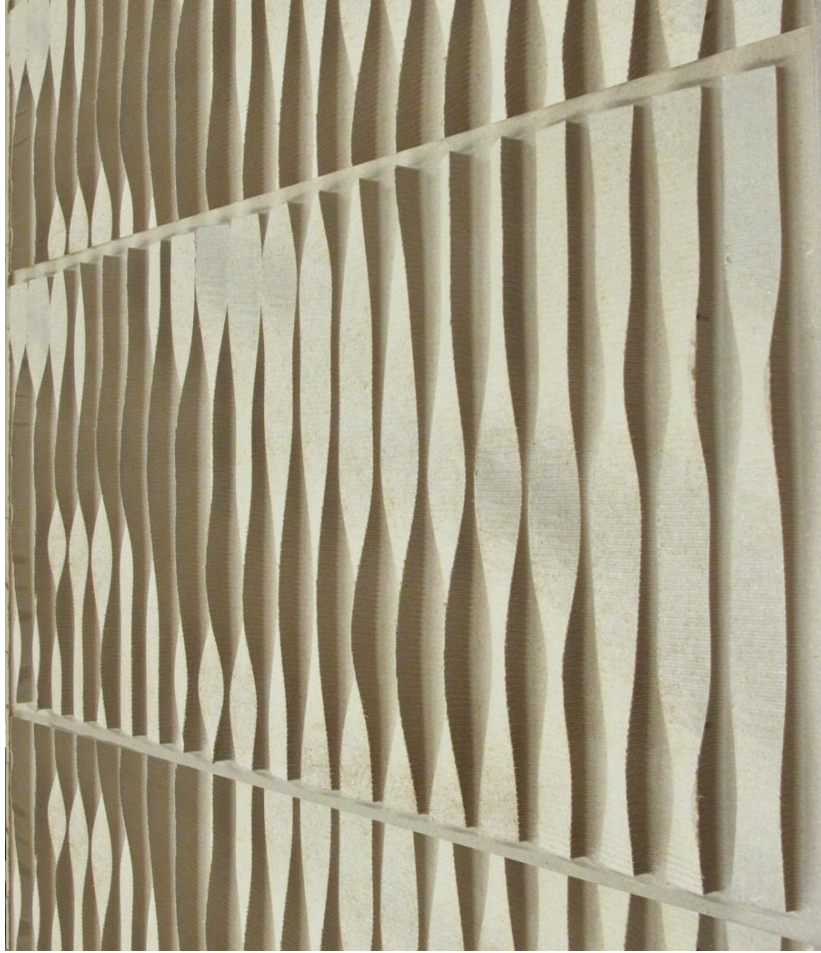


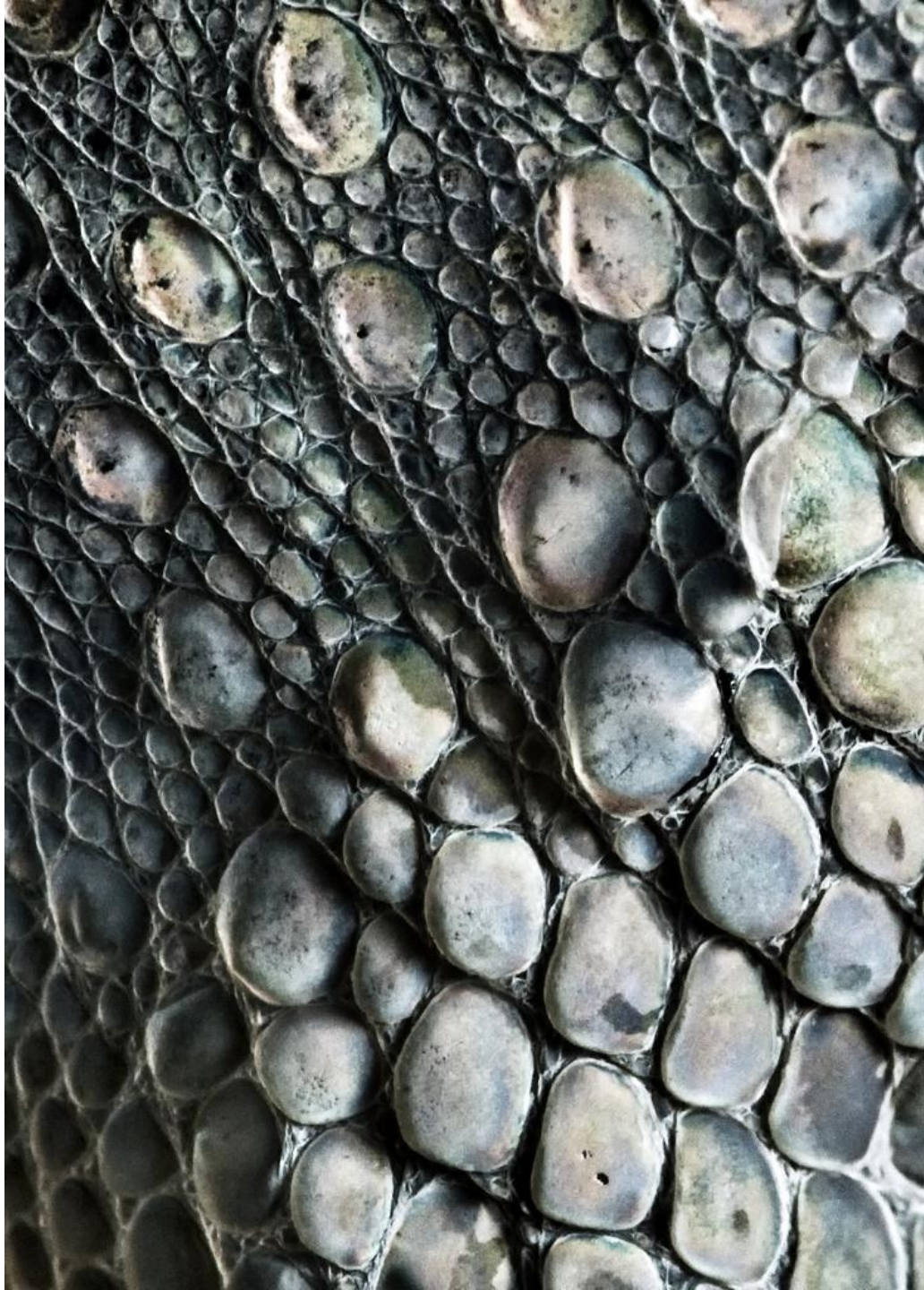
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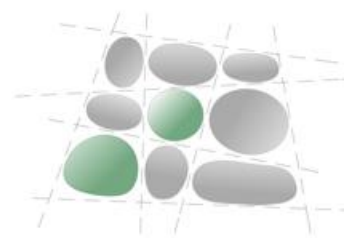
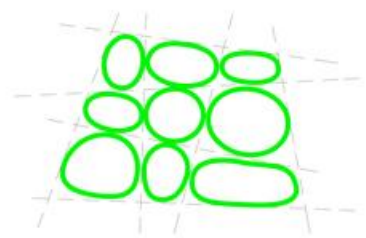
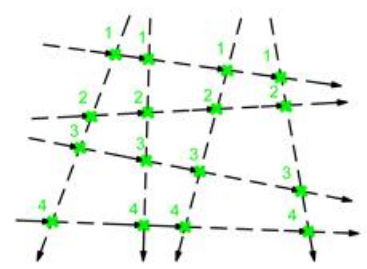
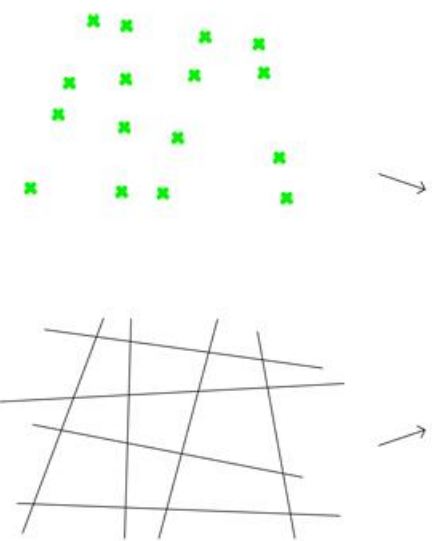


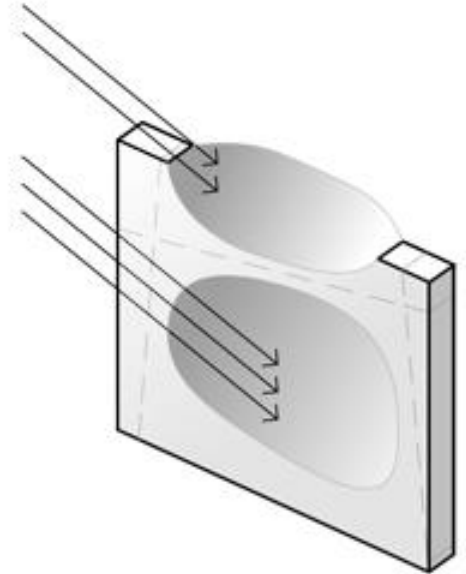
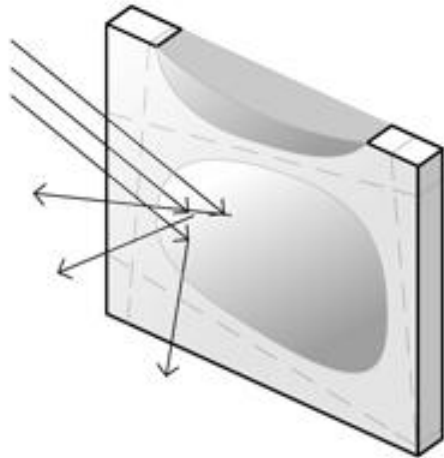


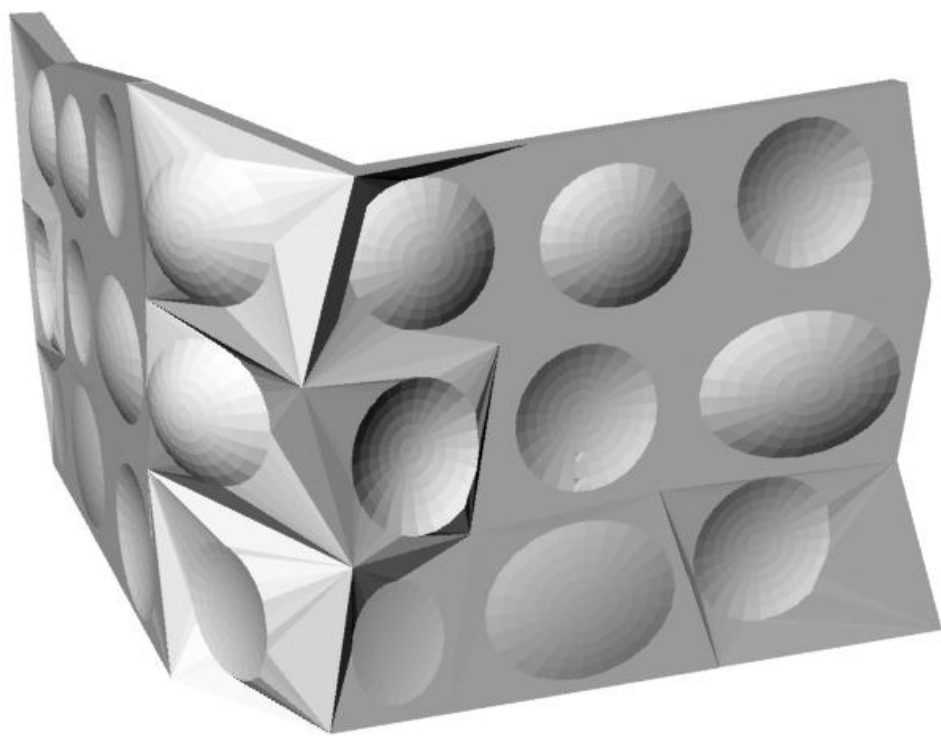












Expression

The facade is the conceptual extension of the primary building structure and becomes its visual manifestation on the outside of the building. The diagrid is expressed by recessed steel profiles dissecting the otherwise homogenous surface of glass curtain wall panels, creating a configuration of seemingly independent and floating glass diamonds that add differentiated scales to the overall building geometry.

Modular System

Each diamond acts as single, essentially stiff element that is suspended from the facade steel profiles mirroring the diagrid structure. Structural global movements at the nodes of the diagrid and diaphragm floors are relatively small compared to the local floor beam deflections between nodes. In a traditional type of curtain wall construction with direct support off each floor edge, the differential movements between diaphragm and non-diaphragm floors burden the design with the need to provide much greater joint sizes. By spanning between the primary structural nodes the impact of global structural movements on the CCTV facade are minimized. The system can maintain consistent small joints within the diamond glass plane with larger cumulative movements only at the perimeter of each diamond where they are accommodated by the recess of the steel profiles.

Performance

A high performance glazing provides outstanding solar and thermal insulation while providing a comfortable environment for the occupants of the building with excellent visibility and daylight quality. The design employs a laminated and insulated glass panel with an integrated layer of expanded metal mesh (acting as micro louvers and sunshades) and an insulating low-e coating (improving the u-value). This glass panel technology achieves excellent insulating and solar control values while transmitting natural light with excellent color rendering, allowing for the use of clear glass instead of tinted or reflective glass. The integrated metal mesh also results in a diffusion of direct sunlight providing glare control and reducing the periods during which internal blinds must be deployed.

表現

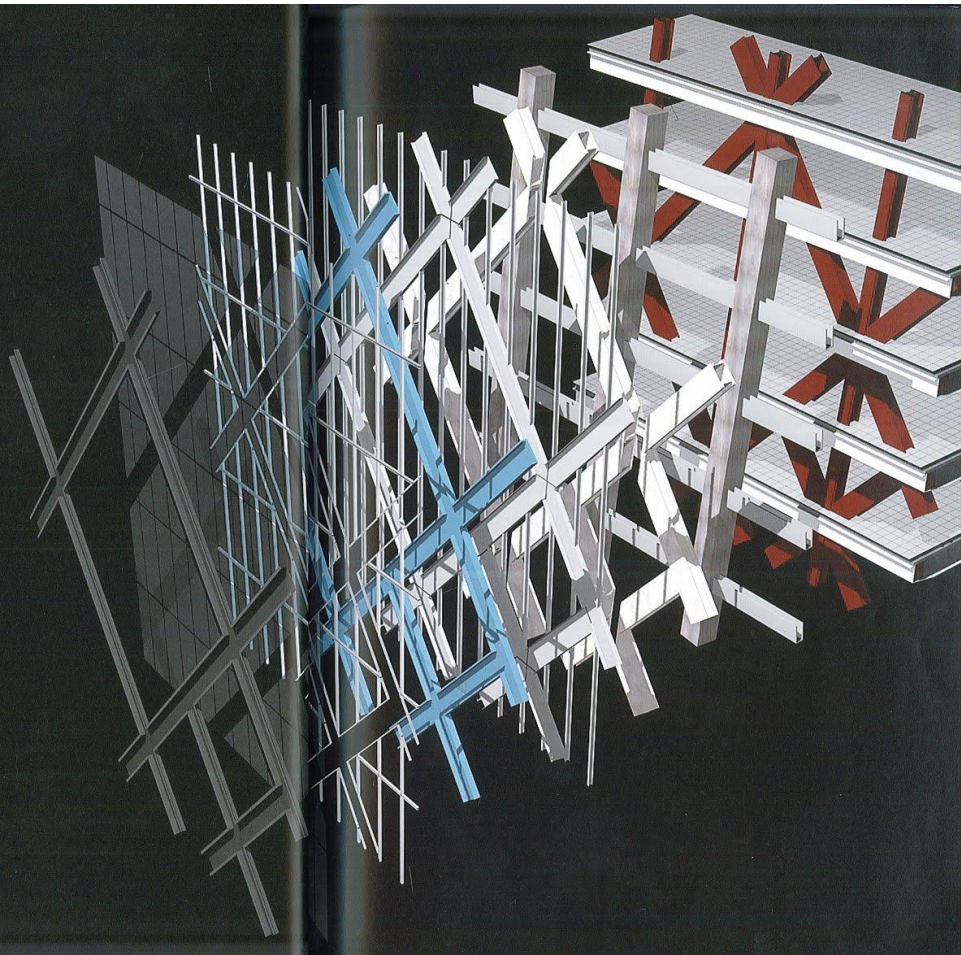
建物の主要構造にたいする考え方は、ファサードに転写されている。しかもファサードではそれと外部空間に於いて視覚的に表現される。ダイアグリッドは、スチールの細い断面部によって表現される。このスチールが、ガラスのカーテンウォールパネルの間に浮かせようとする塊となり、そのことが外観のジオメトリに複数のスケールを与える。

モジュラーシステム

剛性を増した形状の1つ1つは、個別に動く。スチールは、ダイアグリッド構造をファサード上に反映させ、その内側にこれらの形状がはめ込まれる。躯体規模の動きはダイアグリッドの節々やダイアフラム入りの間に伝わるものの、節と節の間に渡された床梁の局所的なたわみには比喩した規模でもない。従来型のカーテンウォール構造では、支柱を床の端際からややすらすらすため、ダイアフラム入りの床とそうでない床とでな動きにずれが生じ、そのずれを吸収するために接合部をかなり大きく設計しなければならなかったが、ここでは、躯体の主要な経路から結節部へとスリットをよび出すことで、躯体規模の動きをファサードに響かなくしている。この方式なら、建物ガラス面の内側にいろいろな接合部を具してはく必要がなくともできる。剛性的な動きも外側のスチールの断面によって凍止がめられ、変形の初期まで伝わることはない。

パフォーマンス

高性能のガラス・ファサードは、接合の密封、断熱性をそなえつつ、視界の広さや採光の面でも快適な室内環境をもたらしてくれる。ここでは高性能の合せ断熱ガラス・パネルを採用し、これにエクスパン・メタル・メッシュの層(ミクロな日除けとして機能)を組み込み、さらに断熱用のLow-Eコーティング(日除を下げる働き)を施している。この特殊なガラスは優れた断熱・遮熱性、そして優れた透光性と両立性を発揮し、おかげで色つきガラスや放射ガラスのかわりに透明ガラスを使うことができた。また、メタル・メッシュは、直射光を拡散し、グレアを軽減してくれるので、室内側でブラインドを使用する期間は短縮される。

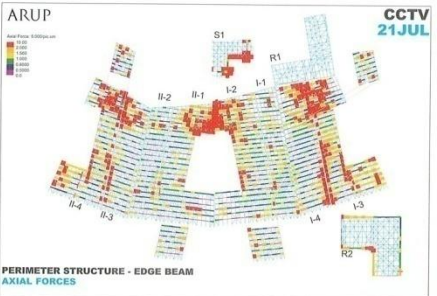
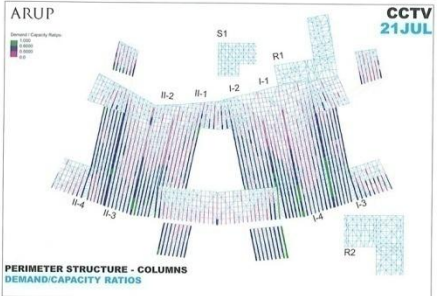
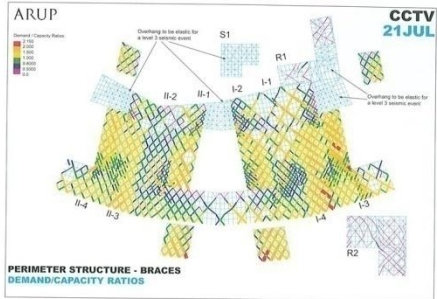


CARTOGRAPHIC MAPPING

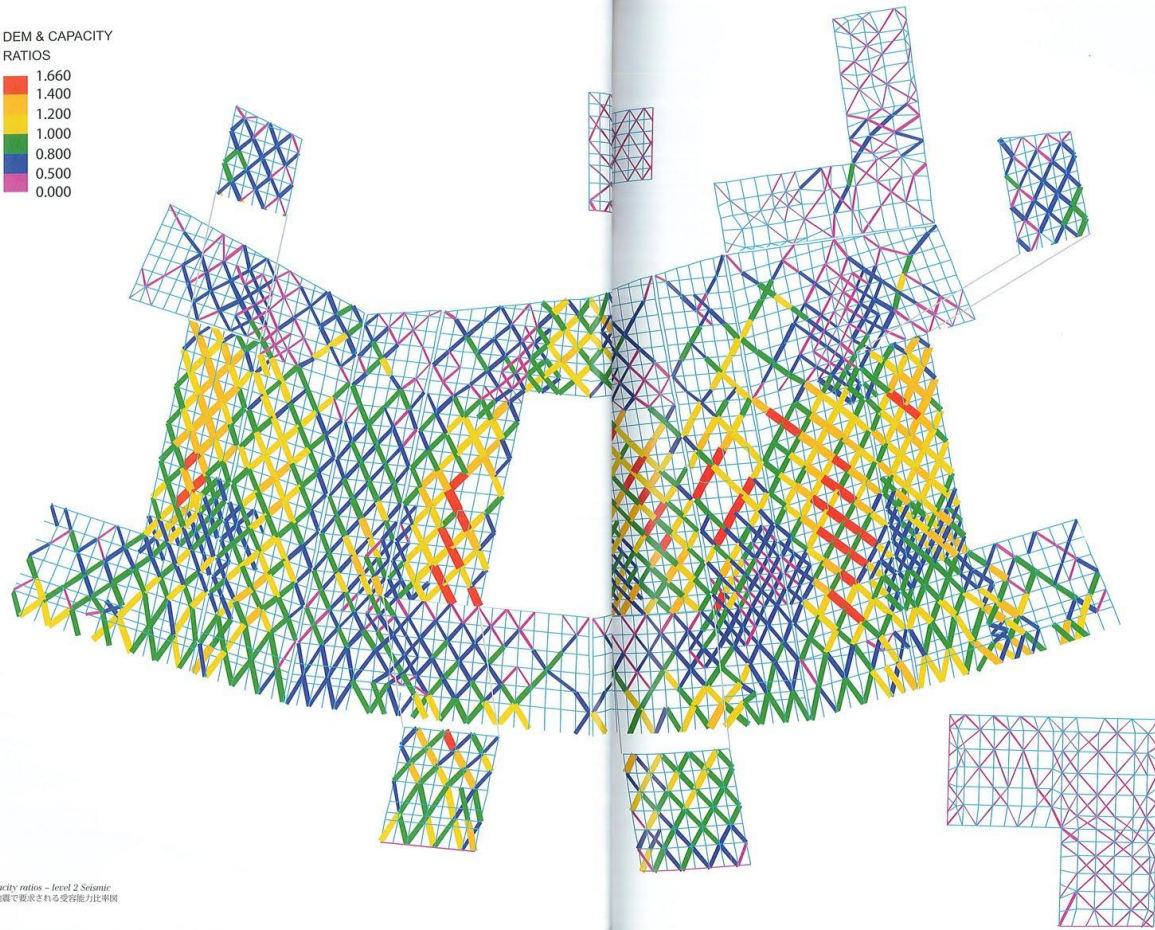
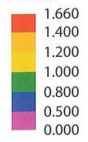


intricate geographical paintings by artist Sue Beyer





DEM & CAPACITY
RATIOS



Demand capacity ratios - level 2 Seismic
レベル2の地震で要求される受荷能力比率図