

Patterning Tectonics: the making of the Forum on the Bund, Shanghai

by

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B.S.Sc., Architectural Studies (2004)

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Submitted to the Department of Architecture
In Partial Fulfillment of the Requirements for the Degree of
Master of Architecture

At the

Massachusetts Institute of Technology

June 2009

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ABSTRACT

Surface is only one of the fragmented parts of contemporary architecture. As the size of architecture increases, it is broken down into the crown, the surface and the structure for individual consideration. The Bund in Shanghai demonstrates the polarized approach between the contemporary and traditional practice of architecture. The spirit of the Bund is about its unique urban tension between the animated continuity of the Baux-arts façade wall on the old city side, Puxi, and the contest of contemporary architectural iconography on the new city side, PuDong. Currently, there is one empty lot along the baux-arts façade wall where it becomes the opportunity for architectural intervention operating between the poles.

Through acknowledging the return of surface ornamentation in contemporary architectural practice, the thesis argues that ornamentation and patterns are not only limited to the mere surface operation but also the technique to organize space and structure in architecture. It is through this technique of patterning tectonics that architecture is treated as one intricate network of elements operating in the same ideal of consistency. It is also through this patterning tectonics architecture generates a tangible relationship between the outside perception of the façade to the interior organization of space. Finally, it is also through this patterning tectonics architecture relates itself to culture and urbanity.

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PATTERNING TECTONICS

the making of the Forum on the Bund, Shanghai

Acknowledgement

I would like to thank my thesis adviser, Prof. Nader Tehrani, for his immediate and sustained intellectual support for the entire research and design process of the project. Thanks also goes to my thesis committee member, Prof. Meejin Yoon, for her understandings and support.

Structure/Ornament: intricacy

The modernists' obsession with details and transparency are not less ornamental than the Renaissance obsession with façade rhythm and solidity. Venturi's criticism on modern architecture called upon the world to realize the ornamental aspect of modern architecture. *'Less may have been more, but the I-section on Mies van der Rohe's fire-resistant columns, for instance, is as complexly ornamental as the applied pilaster on the Renaissance pier or the incised shaft in the Gothic pier.'*¹ Nevertheless, whether Venturi or Mies is pro or against "ornament," ornament is still seen as a separated add-on to the structure. This Structure/Ornament distinction in architecture is completely a modern invention assigned to its members.² If we could re-cap Alberti's definition of ornament: everything embellishes architecture would be considered as ornament. He also wrote about structure/ornament relationship: *'It is not difficult to discover the parts that make up the structure: clearly they are the top and bottom, the right and left, the front and back, and all that lies in between...We must therefore take great care to ensure that even the minutest elements are so arranged in their level, alignment, number, shape, and appearance, that right matches left, top matches bottom, adjacent matches adjacent, and equal matches equal, and that they are an ornament to that body of which they are to be a part...'*³ That is: everything is ornament and everything is structure.⁴

The fragmentation of architecture encouraged by Modern movement for functionality and efficiency is reaching its end. More scholars and architects start to acknowledge the importance of ornament in architecture and the importance of treating all architectural elements as one entity. By borrowing Anne Marie Sankovitch studies on *"Structure/Ornament": 'Structure does not display ornament; rather, ornament reveals*

¹ Venturi, Robert. *Learning from Las Vegas*. Cambridge: MIT Press 1977. P.114

² Anne-Marie Sankovitch. *Structure/Ornament and the Modern Figuration of Architecture*. Art Bulletin #LXXX number 4. 1998 p.711

³ Leon Battista Alberti. *On the Art of Building in Ten Books*. Cambridge, Mass.:MIT Press, 1988. P.257-310

⁴ Anne-Marie Sankovitch. *Structure/Ornament and the Modern Figuration of Architecture*. Art Bulletin #LXXX number 4. 1998 p.711

*and makes present structure and it does so by pointing to and compensating for what structure lacks. It completes structure.*⁵ Structure/Ornament could never be separated. Rather, structure/ornament/space should be treated as one. In her book *Function of Ornaments*, Farshid Moussavi also wrote *'Ornament is the figure that emerges from the material substrate, the expression of embedded forces through processes of construction, assembly and growth. It is through ornament that material transmits affects. There is in it no hidden meaning but a tool to generate resonances between form, structure, materials and space.'*⁶

It may be difficult for architects to evade from the authority of the modern "structure/ornament" system unless we could understand architecture is always an intricate network of elements. Once the modernist dogmatic structure/skin relationship setup, creativity ceases to exist. There is no simple hierarchy for architecture, instead, architecture is an intricate network. Borrowing the text from Greg Lynn, *'Intricacy is the fusion of disparate elements into continuity, the becoming whole of components that retain their status as pieces in a larger composition. Unlike simple hierarchy, subdivision, compartmentalization or modularity, intricacy involves a variation of the parts that is not reducible to the structure of the whole.'*⁷

⁵ Ibid. P.704

⁶ Moussavi, Farshid. *The Function of Ornament*. Barcelona: ACTOR 2006. P.10-11

⁷ Lynn, Greg. *Intricacy*. ICA, Pennsylvania. 2003. *Introduction*

RESEARCH

Patterns, Ornaments, Architecture

The research part includes the studies on the development of patterning technique/ornamentation in relationship to the development of architectural style. The studies started by looking at influence of the earliest body embellishment to textile patterns on architectural design in different eras. The development can be concluded that embellishment is the basic human desire which is started from body to textile to architecture.

In contemporary Architecture, patterning technique can be divided into 2 main categories: structure ornament, and surface ornament typology.

Critical Study of Ornament and its Relationship to Architectural Autonomy

Introduction

The recent return of ornamentation has dominated the contemporary practices of art and architecture, which has also brought back the discussion of aesthetics in art and design. However, it has to be studied critically towards its value to architecture in order to enter the recurrent debate of autonomy in contemporary architectural practice. The practices of art and architecture have always been categorized into two-pole dichotomy condition: context versus autonomy or convention versus avant-garde. We used to relate the avant-garde with 'autonomy' while the convention with 'context.' The link between ornament and avant-garde seems to be intangible in the contemporary society. Ornament is seen as kitsch and cliché. However, in this essay, I will argue that the development of ornamentation in architecture has a strong relationship with the development of architectural autonomy. The essay will also argue that deeply ornamented contemporary architecture seems to be operating within the 'in-between' zone in a quasi-autonomy situation and with great success.

Modernism limits the imagination of architectural ornament and narrows the meaning of it into merely figurative, decorative attachment to architecture. The meaning of ornament has translated itself into different form of expression in different period of the history of art and architecture discourses. But one pertinent aspect of ornament is about its rhythm and motif. Patterning and repetition becomes the basic drive behind ornamentation. Considering the current contemporary practice, the technique of patterning is the driver for many of the projects. The scale of the repetition of element varies from a panel cladding system to a structure system or to a spatial configuration. Architects, like Herzog de Meuron, Foreign Office Architects and many others, are using the technique of pattern repetition to generate ornamented architecture that is trying to relate architecture to culture and society and also trying to relate architecture to individual sensations. Farshid Moussavi, the principal of Foreign Office Architects, wrote in her book *The Function of Ornament: "Ornament is the figure that emerge*

from the material substrate, the expression of the embedded forces through process of construction, assembly and growth. It is through ornament material transmit affects.”¹

The essay documents the process of investigation into the evolution of ornament and its relationship between the debate of ‘context’ and ‘autonomy’ in the history of arts and architecture. The essay will focus on the development of the idea of ‘autonomy’ in architecture by the influence of Kant’s philosophical idea of art to Riegl’s argument on art and ornaments, and finally, to the more recent discussion of autonomy and avant-garde by Peter Eisenman. From then, the essay will also discuss how the contemporary practice of ornamentation bridge across the realm of ‘context’ and ‘autonomy.’

Prologue: In between Context, Autonomy and Ornamentation

We could hardly link the term “ornament” with the recurrent debate of “autonomy” and “context” in art and architecture. In the theoretical works of Emil Kaufmann and Peter Eisenman, autonomy is praised as the driver for avant-garde in art and architecture.² Autonomy is an inevitable process of rupture to the existing conditions that would constitute the beginning of a new and avant-garde concept. Ornamentation has returned to the contemporary practice of art and architecture in the new form of expression. Patterning structure becomes the ornament of architecture. Ornament has to be reevaluated in the context of the recurrent debate in order to bring it back into the theoretical architectural discourse. Questions are raised due to that. What is ornament? What makes the return of ornamentation in current architectural practice? How does that relate to autonomy of architecture? Is ornamentation considered to be an avant-garde autonomous act?

¹ Moussavi, Farshid. *Function of Ornament*. Introduction Chapter.

² The reading of Peter Eisenman on Avant-garde and Autonomy and Emil Kaufmann writing on Classical and Neoclassical architecture will be further discussed in the latter part of the essay.

The debate on the origin of art in relation to the idea of context and autonomy could not be voided out in this particular discussion. The meaning of the term 'autonomy' is simply freedom; a self-sufficient and self-generated system that is free from the influence by the external factors and meanings. On the other hand, 'context' is understood as the social, and cultural circumstance that a general public sets forth. The idea of autonomy was started from Rousseau in the Enlightenment period. Individual freedom (autonomy) and idea of social morality and social contracts (context) were first introduced in that period. However, this was a new concept to the 17-18th century world as morality was detached from the social responsibility. This concept was also considered to be the beginning of Modernism. . The society is one single entity while each of us is every single component that formulates the overall system. However, each of us is unique and independent from each other under the social contract. We as human beings could never operate in the total freedom of will because we are still living under the social law. Within a set of social disciplines and ethics, we are free and autonomous.

Given the change of the cultural understanding of being and change of political situation, the Enlightenment philosophy also constituted to the beginning of the debate on autonomy in architecture discourse. Bestowed from the Enlightenment theory, the debate started by two opposing arguments in reading arts and architecture. One pole stressed that fine art and architecture are the representation of the social life, as they always engage themselves with religion, society, and sovereignty and authority.³ While the other pole argued that architecture and art would have their own disciplines in operation, which are indifferent from the influence of the cultural forces and social ideals. In terms of specific discussion of ornamentation and the origin of art, the two poles are represented by Alois Riegl who endorsed the need of autonomy and also by Gottfried Semper who emphasized the influence of context and technique.

³ Christopher Wood. *Why Autonomy?*

What is Ornament?

“Ornament is ‘anything that decorates or adorns; an embellishment...’⁴ It is ordinarily understood as a form of decoration that appears as motifs, patterns, and colors on object surface. In James Trilling’s book *The Language of Ornament*, he defined the generic meaning of ‘ornament’ as an embellishment on functional object for visual pleasure.⁵ Embellishment is the basic desire of human beings. The history of ornament could be traced back thousands years ago when human beings had the urge to adorn human body by putting decorative motifs and patterns on the skin. Riegl argued that the act of abstracting the nature into a two dimensional pattern or ornament was the beginning of art history and creativity. The act of making of patterns and ornaments are considered to be the very internal desire of human being.⁶ In other words, according to Riegl’s theory, Ornament is part of the constitution of the origin of art.

Semper’s theory is indeed speaking from a very contextual perspective: art is the product of the zeitgeist together with the constraints of techniques and materials. In his book, *the Four Elements of Architecture*,⁷ he divided architecture into four categories: hearth, roof, enclosure and mound. The ‘enclosure’ is essentially describing the wall, the envelop of architecture. He suggested that ‘enclosure’ is originated in the technique of weaving. Fabric screen would be the very first medium of enclosure. The form and materials of an enclosure were based on the materials properties and the specific technique of manufacture. Riegl disagreed with Semper’s theory on the materialist’s originality of art. Instead, he suggested that art is by all means autonomous from culture, the advancement of technology or the limitation of materials. The act of abstraction of the reality into an art piece is also by all means a product of the inner creative drive embedded in oneself (*Kunstwollen*). However, It is also pertinent to recognize that art or, precisely, *Kunstwollen*, is again by all means a manifestation, a projected world-view of oneself towards the reading of the society in that particular period of time. Having stated the two poles and the debate between Semper and Riegl, thus,

⁴ *American Heritage Dictionary* (1971)

⁵ James Trilling. *The Language of Ornament*. Thames & Hudson. 2001 P.6

⁶ Alois Riegl. *Problem of Style*. Introduction chapter.

the essay here will argue that the will of creating art and architecture is autonomous while the product of the will is contextual. In this sense, the will of creating a pattern or an ornament is free and autonomous. It would have its own generative process that is not necessarily related to the technique and technology. However, the product of the end process is symbolic and meaningful only when it is tied to the society and culture. Architecture is a cultural product that is the largest physical means of communication. It can never be entirely autonomous but it is always in a stage of quasi-autonomy situation in relation to society.

Chapter 1 From Body, Textile to Architecture

1.1 Meaning of Ornament to Classical Architecture

As what Riegl had suggested, ornamentation was seen as an art. It emphasizes its affections to and the perception of the audience through the arrangement of motifs and patterns. It is fair to believe that the physical incarnation of ornament evolve from body embellishment to textile motifs and then to architectural elements.

Ornament and architecture cannot be separated in the discourse of history and theory of architecture. Ancient Greek civilization was the birthplace of classical architectural order in which differentiated by the variations of ornamentation. Ornaments were applied between joints, on the column surface and also on the façade in order to give the regulating lines, proportion and rhythmic recognition to the entire composition of architecture. Repetition is the main technique in constructing an ornamental affect. The scale of the motif could change from a column capital to the entire arch form. Ornament existed as the trans-cultural affects in architecture. Styles of ornamentation can be studied in reference to the specific culture, which developed unique forms of decoration, or modified ornament from other cultures. It is a tool of aesthetics expression. As

Leone Battista Alberti put it, the meaning of ornament is very much adaptable: everything brought to reveal the beauty of architecture was categorized as ornament. “Ornament may be defined as a form of auxiliary light and complement to beauty.”⁷

The meaning of ornament to architecture has varied from time to time. In the *Lectures on Architecture and Painting*, Ruskin claimed that ‘Ornamentation is the principal part of architecture.’(12.83)⁸ What he meant of ‘ornament’ was very broad. In *The Stones of Venice*, Ruskin stressed that all elements of the building contributing to aesthetic articulation and visual expression were considered to be ornamental, ranging from the subdivision of structure to the smallest details of joints. Architectural ornament is part of the total architectural effect. Thus, ornament is not an extra secondary element added to architecture for embellishment, rather, it is inherent in the original design as an integral part of the composition.⁹

This integral approach was particularly true in Gothic Architecture. When one could study a Gothic church, the layout of the church is in the repeating modular system. The church can be divided into several modulated zone following the lines, and geometries of the pointed arches. Each module would contain exactly the same elements with one another. It is a spatial module with the integration of space structure and ornament. Ornament here is not only referred to the smallest decorated detail of the joints between the vault and the column, but also to the entire form of the module. The pointed arch is itself ornamental because the geometry and the line of the arch form affect people’s emotion and appreciation. Ruskin also made his judgment on aesthetics of this particular ornament approach in the chapter of *Lamp of Beauty* in *The Seven Lamps of Architecture*: ‘...man cannot advance in the invention of beauty, without directly imitating natural form...that forms which are not taken from natural objects must be ugly...’¹⁰ For Ruskin, the mere decoration with geometric lines, patterns, and colors is bad ornament. Abstract lines

⁷ Leone Battista Alberti. *On the Art of Building in Ten Books*, MIT Press. Cambridge 1988 P.261-62

⁸ John Unrau. *Looking at Architecture with Ruskin*. University of Toronto Press. 1978. P.65

⁹ Ibid. p. 67-9

¹⁰ John Ruskin. *The Seven Lamps of Architecture*. Adamant Media Corporation. 2001.p.104-5

would only be beautiful if they are borrowed from the nature, like the pointed arch of Gothic church, which is the abstraction of the tip of every leaf.¹¹ The two books by Ruskin manifested his interest in architecture as an entity of expression, as an art. Structure, ornament and space are considered as one body from the beginning of design.

If we could recall the argument of Riegl, origin of art is autonomous from culture. Also, if we agree with Riegl and consider ornament is part of the practice of art. The very early proposition of ornament must be autonomous. Indeed, ornament was used to unify different elements of architecture together as one entity. However, the history teaches us that ornamentation, after many years of development, turned out to be the very conventional system not so soon before it got rejected and exiled.

1.2 Beginning of Autonomy

The last two hundred year advancement in architecture was seen as if a path to architectural autonomy. The phase “Autonomous Architecture” which was first used by Emil Kaufmann describing and analyzing Claude-nicholas Ledoux’s architecture. It is a term derived from the Enlightenment philosophy of autonomy: Kant’s ideal of the freedom of will.¹² The 18th century enlightenment philosophy created a political and social paradigm shift from classical hierarchical world to bourgeois freedom social ideal. It also agitated the shift from Classicism (materials plasticity) to Neoclassicism (formal clarity) in the 18th century architecture discourse. According to Kaufmann’s own definition, there is fundamental difference between the two periods: *“For it [Neoclassicism] the material is dead. Form has no other function than to be the bearer of ideas, the mediator of moods, to arouse emotions which are distinct from the sensuous material and which the material itself does not contain.*

¹¹Ibid. P.105

¹² Antony Vidler. *“The ledoux Effect: Emil Kaufmann and the Claims of Kantian Autonomy”* Perspecta, Vol. 33, Mining Autonomy (2002) P.16

*The symbol of neoclassicism is the non-sensual stone, the stone inhabited by genius.*¹³ Classical architecture emphasizes the unity and harmony of architectural parts in its whole favoring a pictorial agglomeration of elements in order to affect the observer through the splendor visual beauty.¹⁴ The expression of architecture was granted through the exploitation of plasticity and properties of materials. On the other hand, Neo-classical architecture emphasizes on a coexistence of architectural parts formulating a system of clarity. Unlike Classicism, where “to detach a part is to destroy the whole,”¹⁵ individual part in neo-classicism could exist as a self-sustain functional module in a bigger formal system.

For Kaufmann, Ledoux’s architecture registered the struggle of the shift from classicism to neoclassicism expression of enlightenment autonomy in the most salient way.¹⁶ Kaufmann also argued that in Ledoux’s perspective, architecture was the expression of the new social and political values brought by the Enlightenment ideal, developed by Rousseau and Kant, of liberty, individual freedom and autonomy.¹⁷ The project that Kaufmann had emphasized was the Saltworks of Chaux, which he also argued that had demonstrated the significant shift in Ledoux’s approach of architecture. The initial plan of the project done by Ledoux in 1771 was very much classical and following the conventional “Baroque unity” model. However, there was a significant change in the final production from a unified building scheme to a series of separate pavilions system gathered around a semi-circle organization scheme.¹⁸ Citing Antony Vider: “*The break up of the project into functionally defined and*

¹³ Emil Kaufmann, “Die Architekturtheorie,” p.226. Translation George Teyssot, “Neoclassicism and ‘autonomous’ architecture,” p.24

¹⁴ George Teyssot, “Classicism and Neoclassicism Emil Kaufmann” *Perspecta*, Vol. 33, Mining Autonomy (2002) P.24

¹⁵ Antony Vidler, “*The ledoux Effect: Emil Kaufmann and the Claims of Kantian Autonomy*” *Perspecta*, Vol. 33, Mining Autonomy (2002) P.20

¹⁶ Ibid. p.20

¹⁷ Vidler, Antony. *The ledoux Effect: Emil Kaufmann and the Claims of Kantian Autonomy*” *Perspecta*, Vol. 33, Mining Autonomy (2002) P.18

¹⁸ George Teyssot, “Classicism and Neoclassicism Emil Kaufmann” *Perspecta*, Vol. 33, Mining Autonomy (2002) P.24

formally expressed units was, for Kaufmann, an indication of the 'principle of isolation,' the emergence of an 'architecture of isolation' that paralleled the emergence of the modern 'individual' consciousness."¹⁹

The introduction of this isolated system in architecture accelerated the demise of Baroque pictorial compositional practice but put forth the new building typology, a beginning of autonomous architecture that was not associated with the classical ideal. The break from the conventional model of operation leaps into the new age of reason and the new emphasis on the importance and meaning of geometries and forms. When we look closer to the Saltworks design, ornamentation was not omitted yet it appeared as minimal as it could be in terms of the overall organization of form. In this particular period, the overall form clarity overtakes the importance of a façade visual impact.

1.3 Ornament and Autonomy and its exile

By linking Kant's philosophy with history and theory of architecture, Emil Kaufmann had introduced autonomy and modernism to the latter generations of architects.²⁰ The emphasis on forms lead to the very rejection of splendor pictorial composition ideal that the Baroque architects believed. In the age of reason and in the progress to autonomy, decoration was deliberately rejected. The debate between Riegl and Semper on the origin of art also resulted the discussion of the self-conscious artistic virtue. The emphasis on materials to art and architecture by Semper and also the emphasis on the architectural autonomy by Riegl have accelerated the development of architecture from accepting convention to progressing to the modern movement. Modernism could be described as a paradigm shift of human perception on the world. It was a period that people wanted to be modern by rejecting the past and rejecting the history. I think what Eisenman described Modernism in his passage on Le Corbusier reveals the very essence of Modern Movement. *"Modernism is a state of mind. It describes the change that took place sometime in the nineteen century in man's attitude toward his physical world and its artifacts, aesthetic, cultural, social, economic, philosophical*

¹⁹ Ibid. p.19

²⁰ Ibid. p.20

and scientific. It can be interpreted as a critique of the formerly humanist, anthropocentric attitude, which viewed man as an all-powerful, all rational being at the center of his physical world.”²¹ The discussion of Modern Architecture is not in the aspect of discussion of the paper. However, the paper will focus on how Modern Ideal influences the changes of ornament and its development.

Semper’s study on function of architecture resulted the divorce of structure and decoration on a priori principle. Ornament was detached from the entity of architecture, becoming the supplemental element to structure and space. Inherited from Neo-classical approach and the Enlightenment ideal, Architecture has fundamentally changed its emphasis from an entity of a whole to a fragmented pavilion system of elements which means parts are independent from each other and thus parts can be eradicated if those are not suitable or necessary. The morphological division between skeleton and rag leaves no room for conventional ornament to exist. The meaning of ornament was suppressed and narrowed down into mere figurative attachments applied onto architecture. Then, architecture is fragment into those categories what 20th century architects would very familiar with, ‘skin,’ ‘surface,’ ‘structure,’ ‘space,’ and ‘inside/outside,’ etc.

The situation was worsened by Loos’ criticism: *Ornament is a crime*, degrading this “ornament” into an immoral act in the industrialized world. Loos criticized that there should be a distinction between use-objects and art objects. There is a fundamental difference between crafts and painting and sculpture. Crafts are for function while painting is for pleasure and art. He argued that architecture leaned more towards the crafts than painting and sculpture.²² By fracturing the building system into two parts that could never overlap, modernism permits no observation that bears on a structural element to seep into the space called ornament.²³ This is the success of the machine functionality by emphasizing the importance of the skeleton and marginalizing the essence of ornament: beauty. *Ornament is unnecessary. In every corner of our*

²¹ Peter Eisenman, *Aspect of Modernism: masison Dom-ino and the Self-Referential Sign*

²² Stanford Anderson. *Critical Conventionism*

²³ Ibid. P.702

*created world, the modernist rejection of ornament has taught the beauty of the necessary: of undisguised materials, unconcealed technique, and functional form.*²⁴

Modern Architecture transcended the culture of locality making it as a cosmopolitan phenomenon in the twentieth century. The movement is argued whether it was a social response or an autonomous disciplinary movement. However, when we think about the five points of architecture proclaimed by Le Corbusier, “free” was the key word. The invention of steel as in reinforced concrete constituted the “five points.” “Free plan” and “free façade” are essentially inherited from the first point “the pilotis elevating the mass off the ground.” The “freedom” became so canonical to Modern architecture. The five points introduced the discipline with a freedom of choice of materials and a freedom in geometry and form for new architecture. It was new because it was free from following the conventional architecture rules and aesthetics, also the ornament. Even though the discussion of ornament became the taboo of Modern period, ornament continued to exist in the form of material-base ornaments in modern architecture. Modernist ornament is to select materials that endowed with decorative properties, to be used as the same sense as the traditional ornament. Natural materials, like marble, were widely accepted. Despite its glamorous color and unrecognizable motifs and patterns, modernists claim this material-based ornament as part of the building material itself. It was immune to the charges of excess and artificiality.²⁵

²⁴ James Trilling. *Ornament: Modern Perspective*.p.4

²⁵ James Trilling. *The Language of Ornament*. Thames & Hudson. 2001 P.198-199

Chapter 2 Ornament From Postmodern to Contemporary

2.1 The aesthetics of architecture in the age of post-modernism

In the article *Autonomy and Avant-garde*, Peter Eisenman argued that Avant-garde in America only existed after the year 1966 when Aldo Rossi and Robert Venturi published their two main books: *Architecture of the City and Complexity and Contradiction in Architecture* respectively, proposing the idea of autonomy of architecture.²⁶ There is a hidden agenda underneath the statement that Eisenman would argue that architectural autonomy may not be realized in Modern period, but yet only happened after 1966. In the article, he also suggested that both Rossi and Venturi argued that in order to understand the city, architecture must be placed back into its historical discourse. The idea of architecture and its own historical language becomes a condition for autonomy.²⁷ He criticized modernism is lacking the idea of history in its social contract and the historical conditions for meaning.

Also citing Antony Vidler, He wrote a statement that subtly suggested that architectural autonomy existed only around 1940s. *"Riegl's proposition of a historical and cultural specificity to the interplay of vision and space could be seen as setting up the grounds for a modernist idea of autonomy in architecture and the other arts. It was Emil Kaufmann who was the first to join the analysis of historical architecture to Kant's philosophical position, derived from Kant, and who was the first to coin the phrase "autonomen architektur" drawing on Kant's own concept of "autonomy" of will. It was Kaufmann who served to introduce the twin ideas of autonomy and modernism to successive generations of architects and critics, beginning with Philip Johnson in the 1940s, but continuing with Colin Rowe in the 1950s and Also Rossi in the 1950s and 60s".*²⁸

²⁶ Peter Eisenman. "Autonomy and the Avant-garde" *Autonomy and Ideology*, ed. Robert Somol (New York: Monticelli Press, 1997), 68-79.

²⁷ Ibid.

²⁸ Antony Vidler, *The Iedoux Effect: Emil Kaufmann and the Claims of Kantian Autonomy*" *Perspecta*, Vol. 33, Mining Autonomy (2002) P.16

The manifestation that Venturi made in his book showed that there was a move away from the proclaimed functional driven Modern architecture. He criticized the obsession with purity of modern architecture making it as an in-human machine that kills personal ingenuity. The rationality of modern architecture marginalized the discussion of aesthetics from different perspective. He argued that there should be a richness of complex and contradictory experience in architecture. He wrote in his manifestation *'I am not intimidated by the puritanical, moral language of modern architecture. I like forms that are impure rather than "pure," compromising rather than "clean," distorted rather than "straightforward," ambiguous rather than "articulated," allusive rather than simple, perverse rather than impersonal, accommodating rather than excluding'*.²⁹ Although in Venturi's book, he did not mention a word "autonomy." However, from his manifesto, one could see that he tried to reclaim the autonomous quality of architectural discipline. In certain extent, it ties back to Riegl's idea of *Kunstwollen* that architectural concept should transgress its time and place, counter the idea of the zeitgeist.

If we could believe in Venturi's argument of his postmodern ideal as an avant-garde to the modern approach, we should also assess what characterizes post-modern architecture. One of the main symbols is the applied ornament. Ornament was once again used as a tool to demonstrate its uniqueness in the culture of architecture and art. Not long after the publishing of *Complexity and Contradiction in Architecture*, Venturi published another book called *"Learning from Las Vegas"*. One of the chapters that, has been coined constantly, is about "decorated shed" and "duck." *'When Modern Architects righteously abandoned ornament on buildings, they unconsciously designed buildings that were ornament. In promoting space and articulation over symbolism and ornament, they distorted the whole building into a duck. They substituted for the innocent and inexpensive practice of applied decoration on a conventional shed that rather cynical and expensive distortion of program to promote a duck'*.³⁰ Monument and Symbolism are very important to Venturi's architecture. The meaning of architecture is given by the social construct. In this case, the use of ornamental motifs in the post-modern becomes the tool to link with the society and culture. Venturi envisaged

²⁹ Robert Venturi. *Complexity and Contradiction in Architecture*.

³⁰ Venturi, Robert. *Learning from Las Vegas*. Cambridge: MIT Press 1977. P.114

that there would be a merger between the two ends, for which I argued that is happening in the architectural discourse. The merger of the two ends suggest that architecture could never be entire autonomous yet it has to find its meaning through the social construct. The way to bridge across architecture and culture is through symbolism, through ornamentation.

2.2 Structure/Ornament: The return of Ornamentation in contemporary architecture

The modernists' obsession with details and transparency are not less ornamental than the Renaissance obsession with façade rhythm and solidity. Venturi's criticism on modern architecture called upon the world to realize the ornamental aspect of modern architecture. *'Less may have been more, but the I-section on Mies van der Rohe's fire-resistant columns, for instance, is a complexly ornamental as the applied pilaster on the Renaissance pier or the incised shaft in the Gothic pier.'*³¹ Nevertheless, whether Venturi or Mies is pro or against "ornament," ornament is still seen as a separated add-on to the structure. This Structure/Ornament distinction in architecture is completely a modern invention assigned to its members.³² If we could re-cap Alberti's definition of ornament: everything embellishes architecture would be considered as ornament. He also wrote about structure/ornament relationship: *'It is not difficult to discover the parts that make up the structure: clearly they are the top and bottom, the right and left, the front and back, and all that lies in between...We must therefore take great care to ensure that even the minutest elements are so arranged in their level, alignment, number, shape, and appearance, that right matches left, top matches bottom, adjacent matches adjacent, and equal matches equal, and that they are an ornament to that body of which they are to be a part...'*³³ That is: everything is ornament and everything is structure.³⁴

³¹ Venturi, Robert. *Learning from Las Vegas*. Cambridge: MIT Press 1977. P.114

³² Anne-Marie Sankovitch. *Structure/Ornament and the Modern Figuration of Architecture*. Art Bulletin#LXXX number 4. 1998 p.711

³³ Leon Battista Alberti. *On the Art of Building in Ten Books*. Cambridge, Mass.:MIT Press, 1988. P.257-310

In her book *Function of Ornaments*, Farshid Moussavi also wrote ‘Ornament is the figure that emerges from the material substrate, the expression of embedded forces through processes of construction, assembly and growth. It is through ornament that material transmits affects. There is in it no hidden meaning but a tool to generate resonances between form, structure, materials and space.’³⁵ More scholars and architects start to acknowledge the importance of ornament in architecture and the importance of architectural symbolism.

“Essentially, we address architectural issues that were eclipsed by modernism and in part criminalized- such as ornament, for example.”
Herzog & de Meuron, in *Natural History*.³⁶

Herzog&de Meuron is one of the earliest contemporary practices; who addresses the idea of ornament in a contemporary manner. From their very early library project with imprinted imagery concrete panel as the motif of the surface of architecture to their very latest Bird nest project for Beijing Olympics with structure as the surplus decorative element, they demonstrate their particular interest in architecture and their persistence in applying patterns as the main quality of the façade of architecture. Their practice rejects the superficial postmodern approach of ornament, which is merely about borrowing the antique ornamental forms. Instead, H de M’s approach is a combination of the modern materialistic minimalism and formalism with the decorative ideal of post-modernism. Patterns and motifs are created through the studies of materials and form of structure. The method of aggregating different materials and patterns affects the emotion of the audience. The concept behind is essentially the same as the plasticity that we found in Classical/baroque compositional ideals: ornament as a communicative tool. It is the happening phenomenon that reconciles what Venturi suggested as ‘decorated shed’ and ‘duck.’

³⁴ Anne-Marie Sankovitch. *Structure/Ornament and the Modern Figuration of Architecture*. Art Bulletin#LXXX number 4. 1998 p.711

³⁵ Moussavi, Farshid. *The Function of Ornament*. Barcelona: ACTOR 2006. P.10-11

³⁶ Philip Uspung, *Herzog de Meuron Natural History*. Lars Muller Publishers.2002 p.146

The approach that Herzog & de Meuron has been taking is further popularized in current architectural scene. That is structure as ornament, ornament as structure approach. In modern architecture perspective, structure is the superior functional element of architecture. Linkage between Ornament and structure was voided out. However, Anne Marie Sankovitch studies on *“Structure/Ornament”* teaches us that: *‘Structure does not display ornament; rather, ornament reveals and makes present structure and it does so by pointing to and compensating for what structure lacks. It completes structure.’*³⁷ Structure/ Ornament was the invention of modernism that limits the imagination of the relationship ornament and structure, and yet they could never be separated. Rather, structure/ornament/space should be treated as one. It may be difficult for architects to evade from the authority of the modern “structure/ornament” system unless we could understand architecture is always an intricate network of elements. Once the modernist dogmatic structure/skin relationship setup, creativity ceases to exist. The contemporary approach of structure/ornament is a deep decoration act. Nina Rappaport refers the current phenomenon as “deep decoration”: *‘Deep decoration, the structure that influences form, is as much about interiority and affect as it is about filling of space. Structure in this case is not opening up space, but becoming a part of it’.*³⁸

The approach of this structure ornament practice generates the architecture out from a pattern, that relates to a particular culture and conveys a particular meaning given by the social. This pattern is then becoming the symbolic communicative tool that bridge across the autonomy of architectural organization within with the larger whole of social and cultural aspects.

³⁷ Anne-Marie Sankovitch. *Structure/Ornament and the Modern Figuration of Architecture*. Art Bulletin#LXXX number 4. 1998 p.711

³⁸ Rappaport, Nina. *Deep Decoration*. 306090#10. New York: Princeton University Press. 2006: P.95

Postscript: in-between

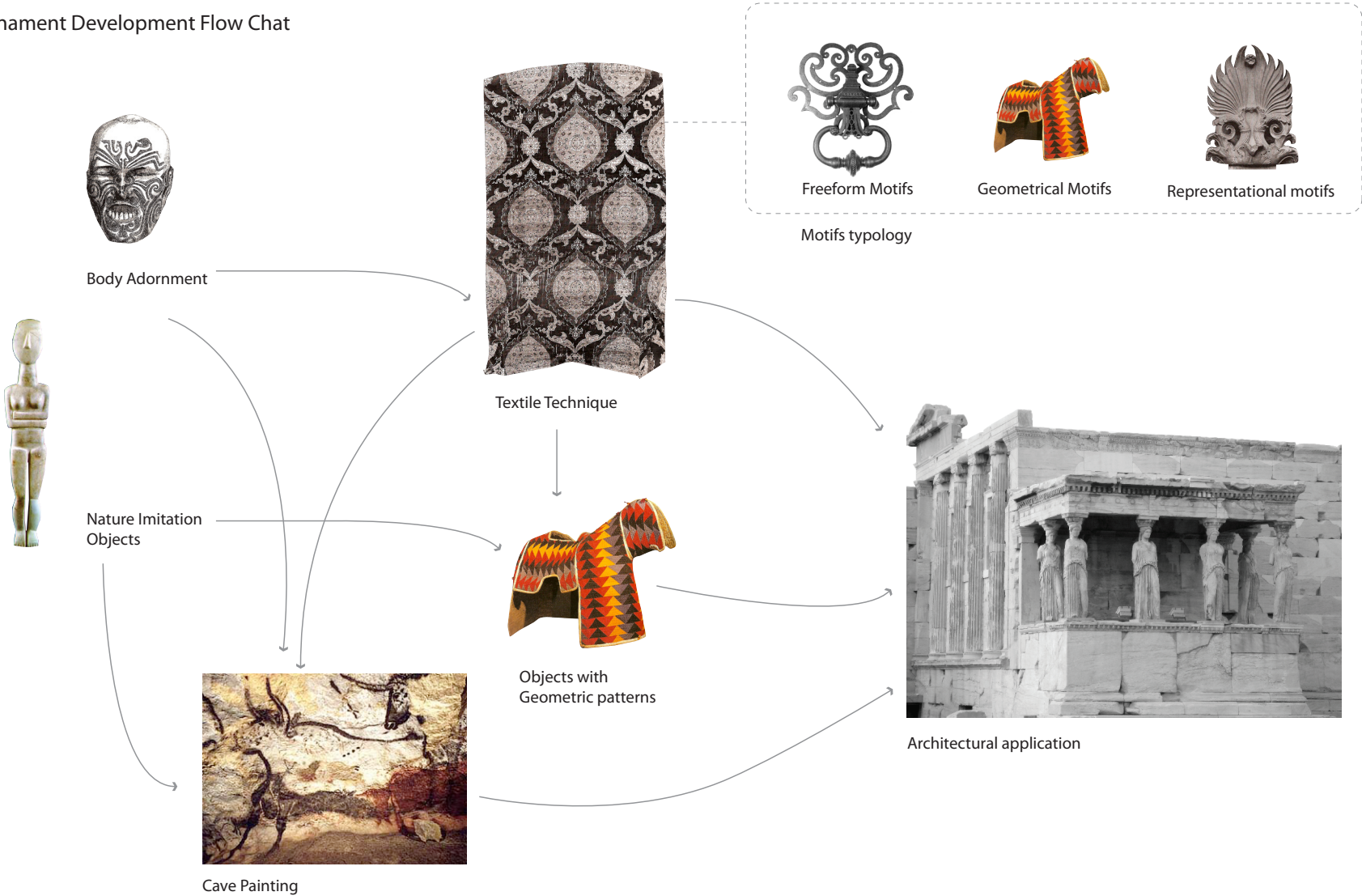
Why is it in-between?

There is no simple hierarchy for architecture; instead, architecture is an intricate network. Borrowing the text from Greg Lynn, *'Intricacy is the fusion of disparate elements into continuity, the becoming whole of components that retain their status as pieces in a larger composition. Unlike simple hierarchy, subdivision, compartmentalization or modularity, intricacy involves a variation of the parts that is not reducible to the structure of the whole.'*³⁹ The world prefers variations to uniformity. The contemporary practice of ornamentation once again brought back the discussion of symbolism of architecture in relation to the society. Architecture could never be completely autonomous from culture and technology. On one hand, the recent approach has been totally influenced by the advancement of digital technology. The parametric modeling and fabrication techniques available nowadays enable all sort of exploration in patterning space and structure. They are becoming the contemporary ornaments. These ornamental forms appear on a variety of symbolic levels. In contradiction to the regularities of Modernist or classical paradigms, they offer an image of individuation that does not position the individual element in a subordinate relationship a whole. The variable cell, with its looser affiliation to a whole, suggests an analogy to the social world; a world of endlessly diverse individuation.⁴⁰ The patterning practice, that the contemporary practice conveys, I would argue, is a quasi-autonomous approach that the choice of the ornament or essentially pattern must in some sense relate to the culture, to the epic, however, the discipline architecture still remains as its own having its own organization system.

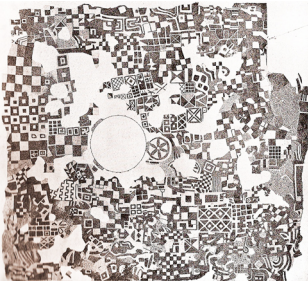
³⁹ Lynn, Greg. *Intricacy*. ICA, Pennsylvania. 2003. *Introduction*

⁴⁰ Robert Levit. *Contemporary "Ornament"*. Harvard Design Magazine. Issue 28, 2008

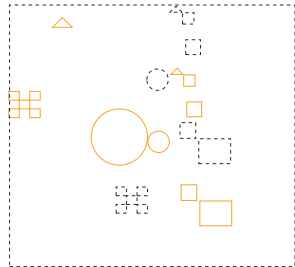
Ornament Development Flow Chat



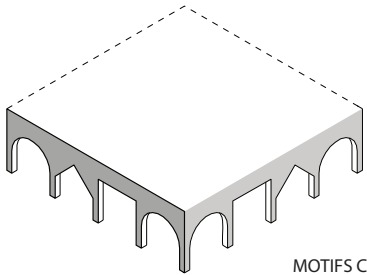
From Textile Pattern Technique to Architecture Form



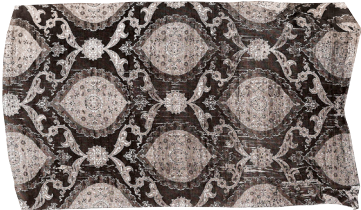
Additive Patterns



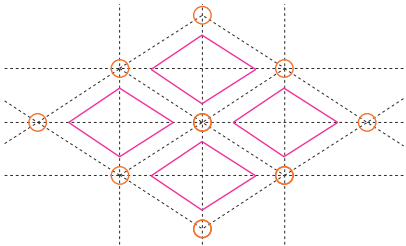
Additive patterns have a number of different motifs combined without consistent organizing principles.



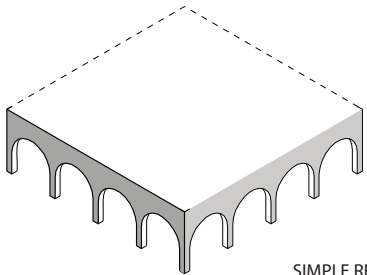
MOTIFS COMBINATION



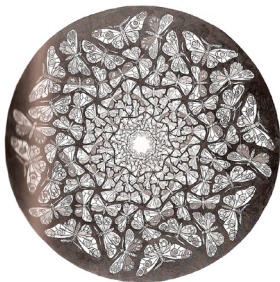
Repeating Patterns



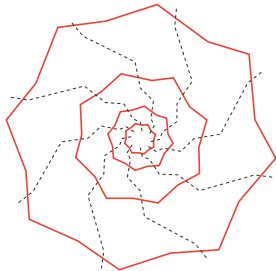
Repeating patterns use the same motif or motifs over and over again, in a predictable order.



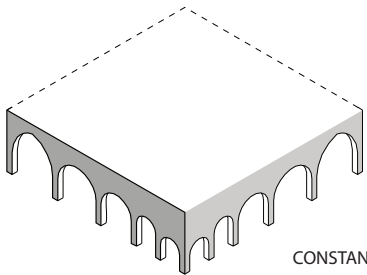
SIMPLE REPEATATIVE PATH



Hypotactic Patterns



Hypotactic patterns differ from repeating ones in that the motifs are not identical to one another and from additives patterns in that the organizing principles is deducible from the pattern.

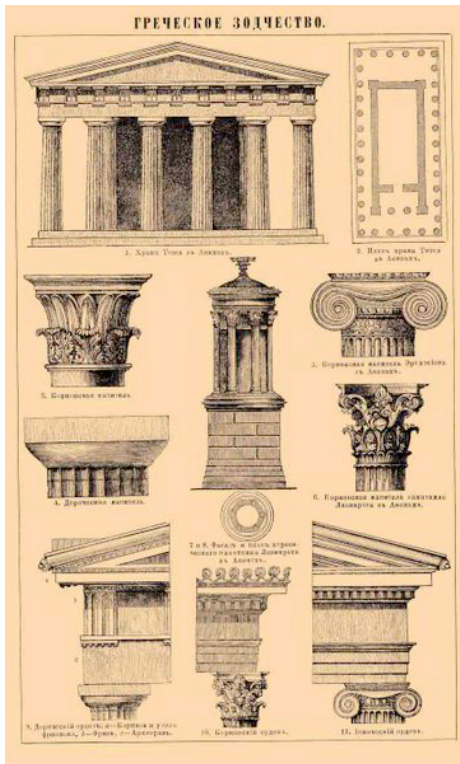


CONSTANT VARIATIONS

Structure/Ornament relationship

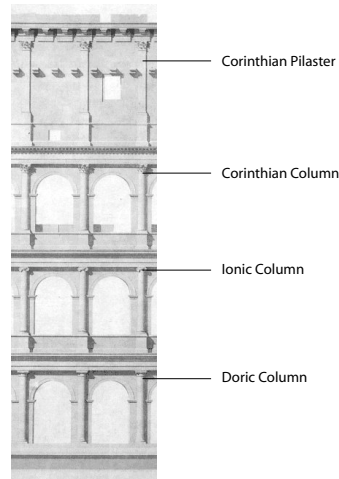
Greek Ornamental Orders: Everything is ornament and everything is structure

Alberti: 'It is not difficult to discover the parts that make up the structure: clearly they are the top and bottom, the right and left, the front and back, and all that lies in between... We must therefore take great care to ensure that even the minutest elements are so arranged in their level, alignment, number, shape, and appearance, that right matches left, top matches bottom, adjacent matches adjacent, and equal matches equal, and that they are an ornament to that body of which they are to be a part...'



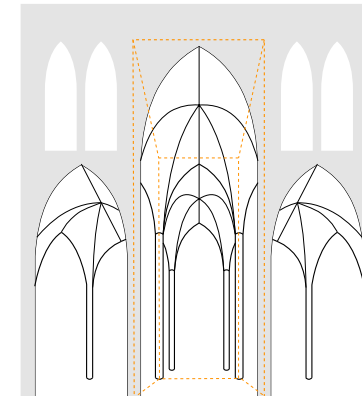
Roman Facade: Ornament as rhythm and orders

Roman architecture inherited the Greek culture while using ornament as form of organisational tool to regulate the facade in appropriate order. The hierarchy of the facade is established by the application of ornamentation. For example, in Colosseum, different orders of columns were applied onto facade. The ground floor used Doric Column, then to the second floor, it used Ionic Column, and then to the third floor, it used Corinthian Column, and at last in the top floor, it used the Corinthian Pilaster to finish.



Gothic Facade: Ornament completes and reveals structure

Anne Marie Sankovitch studies on "Structure/Ornament": 'Structure does not display ornament; rather, ornament reveals and makes present structure and it does so by pointing to and compensating for what structure lacks. It completes structure.'

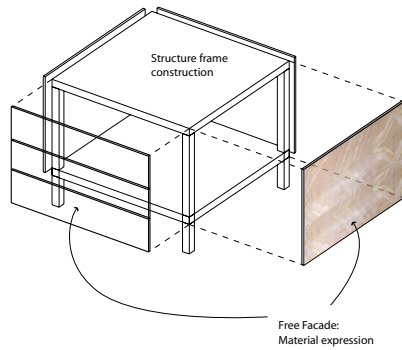


Space extended beyond the facade arrangement, the ornamental form appeared on the faade has a direct link to the organisation of space within.

Structure/Ornament relationship

Modern Free Facade: Divorce of Function and Beauty; Materials as ornamental surface

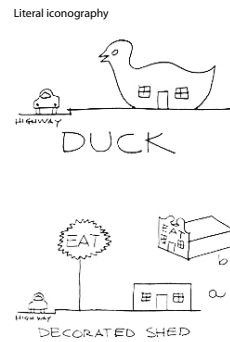
The invention of free facade helps liberating the burden of support of the external envelop. However, it also fragmented architecture into different categories: skin, ornament, structure, envelop and space...etc. The condemn by Loos on ornament claiming it as crime, forced the discussion of beauty of ornamentation from formal approach to material approach.



Post-modern Decorated Shed Facade: Collage of ornamental forms on surface

Venturi criticized the modernist's obsession with transparency, glass, steel and machine and, instead, emphasized the meaning and symbolism of architecture.

'Less may have been more, but the I-section on Mies van der Rohe's fire-resistant columns, for instance, is a complexly ornamental as the applied pilaster on the Renaissance pier or the incised shaft in the Gothic pier.'

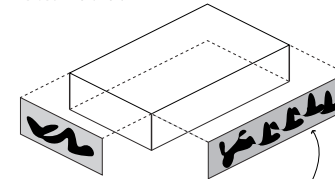


Contemporary Practice: Envelope as Total Surface Ornamentation

Because of the free facade, the envelop becomes the autonomous operation to architecture. The facade could take any shapes and forms. The discussion of ornamentation has brought back recently to consider the architecture ornamentation as the main tool of representation and also connection to culture. The contemporary practice focuses a lot on the surface ornamentation which results the Big Box phenomena: the disjunction between the representation of architecture and its inside function and space.

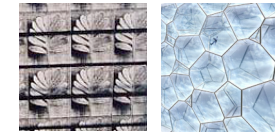


BIG Box Phenomena

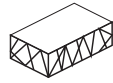


Facade becomes the autonomous operation, pattern structure, images are applied with no necessary relation with the inside function and program.

Motif example:



Structure Ornament Typology



Ornament as structure, structure as ornament is the key idea of structure ornament typology. The facade of architecture is articulated by the intricate form of structure in which creating the ornamental affects. From the classical architecture, the structure and ornament were treated as one entity. The structure/ornament pair has been translating and adapting itself to different cultures and periods. In contemporary practice, generally, the structure skin is articulated with extra members to create different pattern and motif while the internal structure would be kept very simple. the structure ornament envelop starts to influence the space within.



Prada Store, Tokyo, Japan

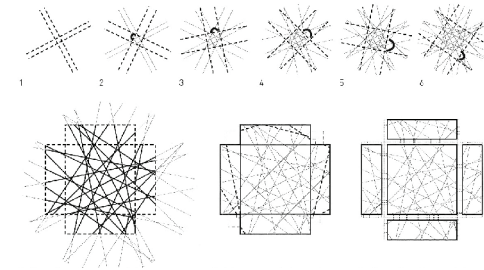
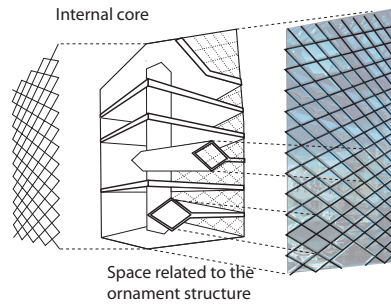


Serpentine Pavillion 2005

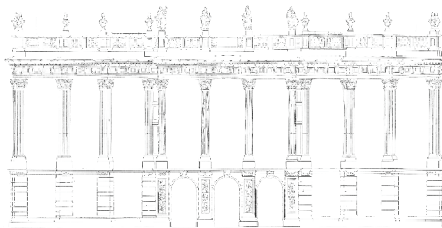


Palazzo Madama, Torino, Italy

Ornament Pattern Structure

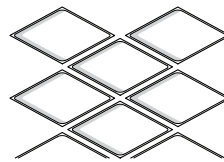


Structure = Ornament

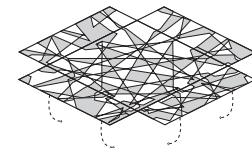
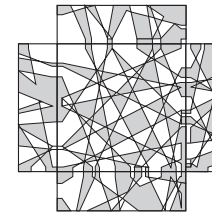


Space framed by the Ornament structure

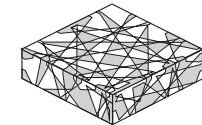
Motifs/Affection: Quilted



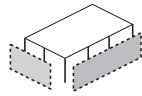
Motifs/Affection: Random



Space related to the ornament structure



Surface Ornament Typology



Inherited from the idea of free facade of Modern Architecture, contemporary surface ornament refers to the highly elaborated surface architecture in which surface is independent from the structure and the space itself. The surface acts as a dress put on and covered the envelop of architecture. Different openings and patterns are designed and articulated on the surface to express a particular affects. However, there is no specific relationship between the surface articulation and the structure logic of the architecture. While the load of the surface is carried by the main structure of the architecture.



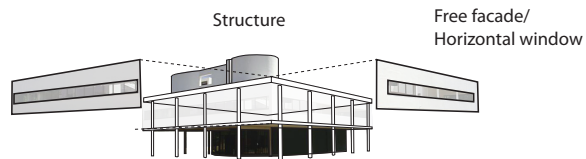
Villa Savoye, Poissy, France



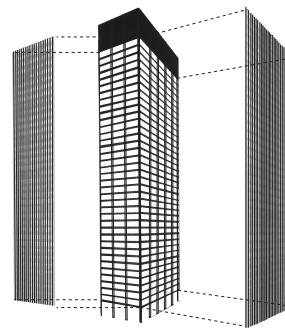
Seagram Building, NYC, USA



Eberswalde Library, Eberswalde, Germany



Structure



Extra Vertical I-beam attached to the facade to create Vertical affects

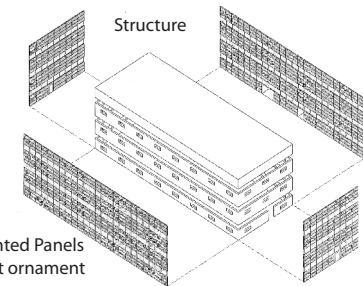
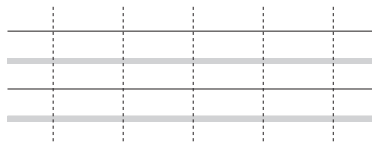
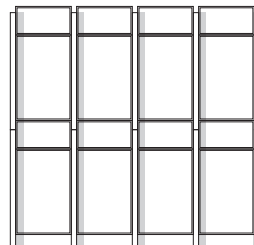


Image Printed Panels as abstract ornament

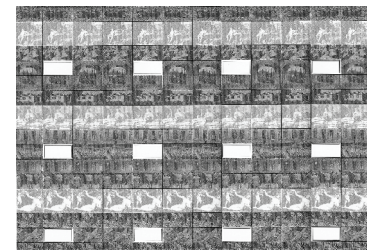
Motif/ Affections: Horizontal



Motif/ Affections: Vertical



Motif/ Affections: Image



SITE

The Bund, Shanghai.

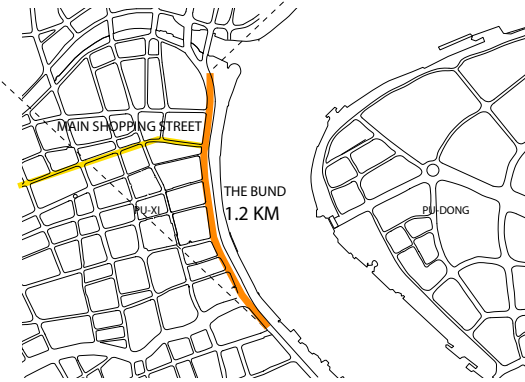
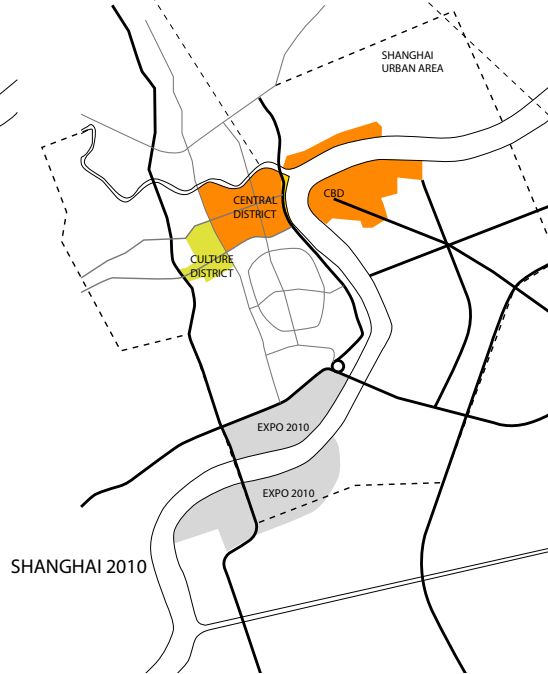
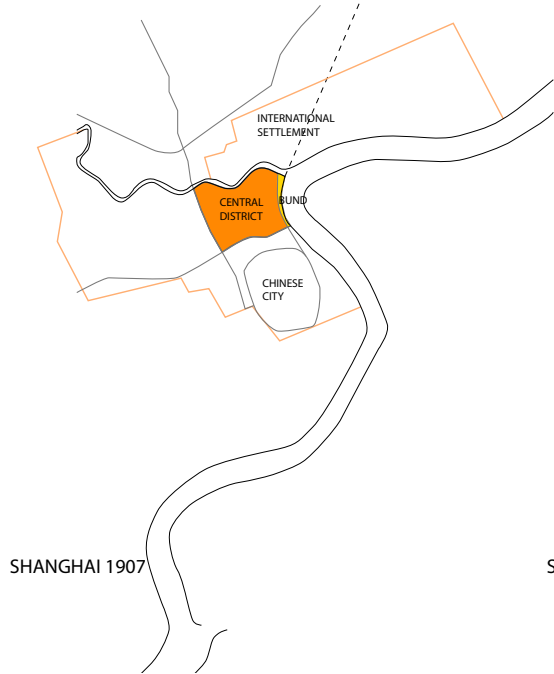
The Bund is the main urban artifact of the Shanghai City. It divides up the city into the new (PuDong) and the old (PuXi). On the old side, it situates the Beaux-art architecture group while on the new side, it situates the contemporary architecture fair collection of contemporary forms and styles. The Bund itself is the city icon which bridges across the new and the old and also the east and the west culture by bringing all kinds of people together as one whole. The place is unique for local as well as the expats.

The site of operation is chosen in the old Bund side with a special empty lot along the beaux-art architectural group. It is a given opportunity to examine the return of patterning technique in conjunction with the old beaux-art style. It aims at creating the urban drama stirring up the discussion of architecture in the city and the intricacy of architecture style.

Shanghai: Puxi development

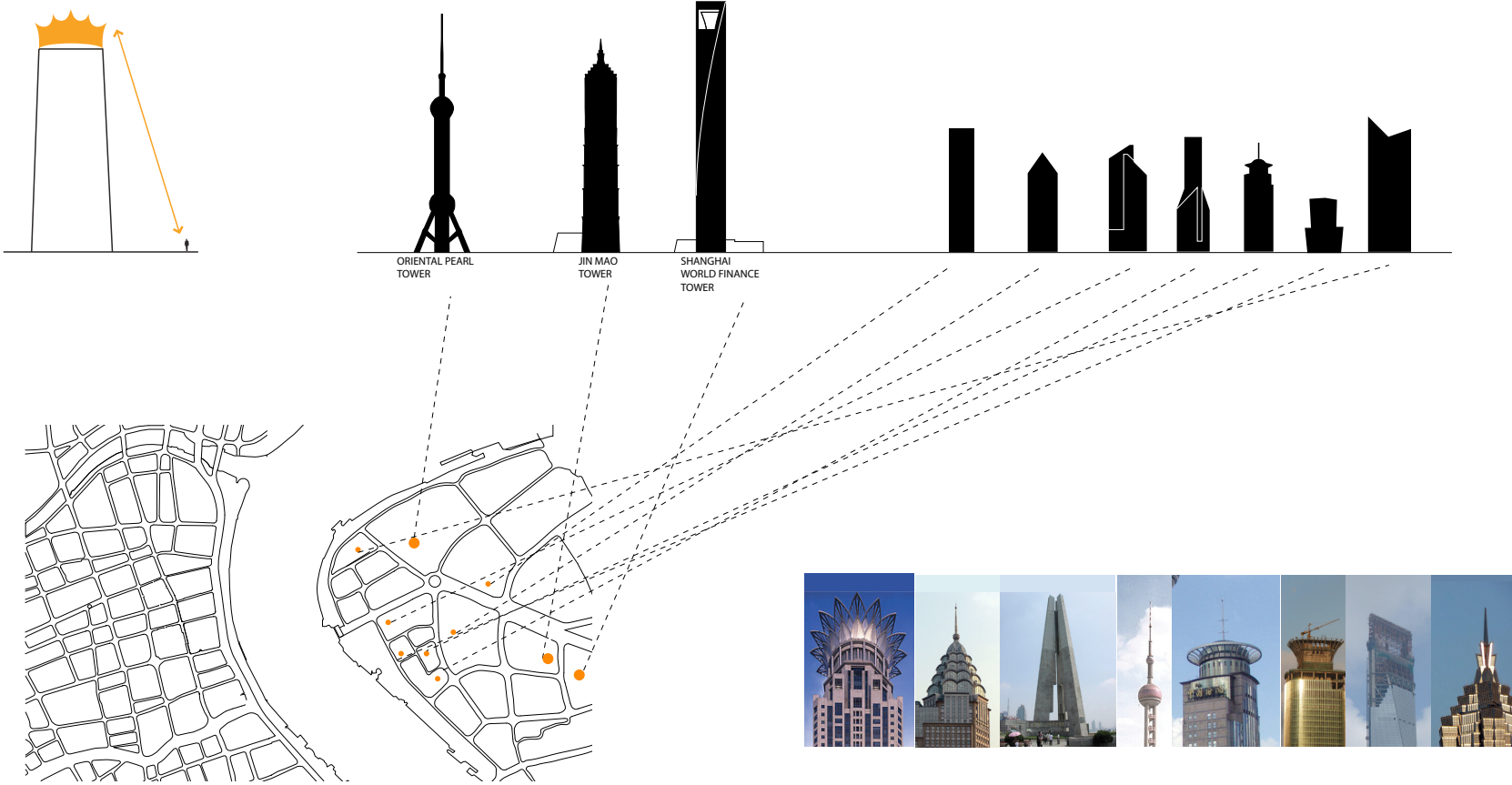


The Bund was the main trading port of Shanghai. It was also the face of the Central District of Colonial Shanghai.



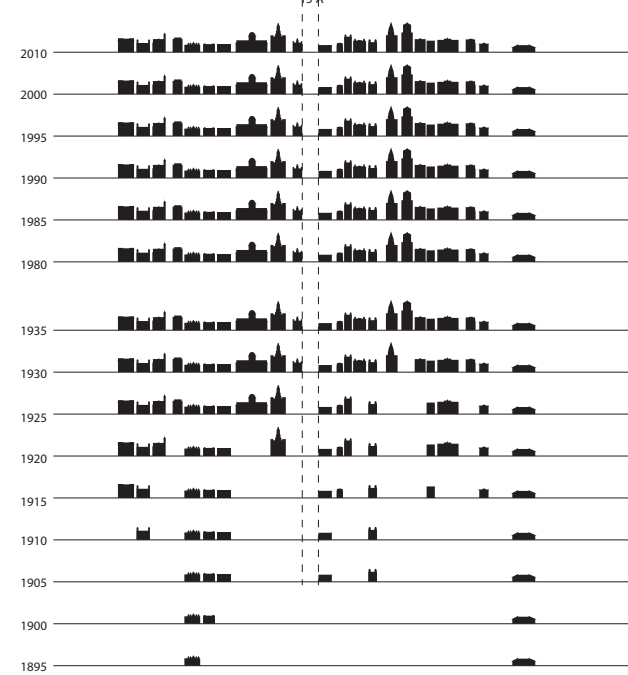
Puxi, the old city center, hosts most of the day-to-day activities of Shanghai. The history of Puxi could be traced back to late 19th Century when it was first colonized. Different cultures by then influenced the built culture and the living style of Shanghai city. It is always the place where the western and eastern culture meets. This creates the endless discussion about style and taste within the city.

Shanghai: The Bund Skyline, the crown effect



Shanghai "International Fair of Architecture" along the Huangpu River

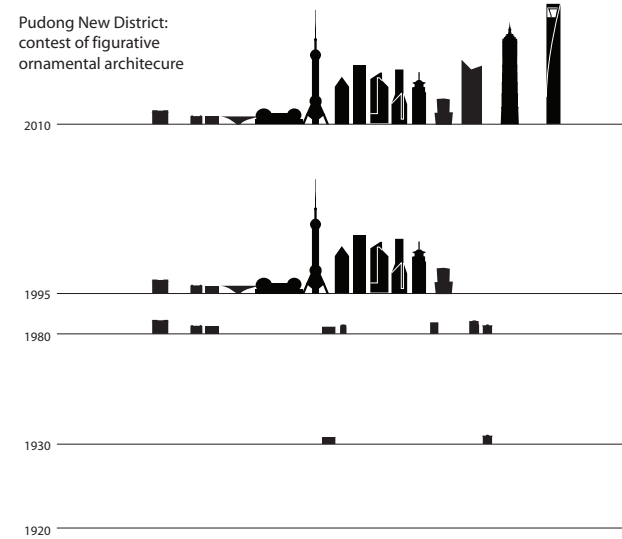
The Bund: Colonial Architecture group



The mix of program along the Bund and the scale changes



Pudong New District: contest of figurative ornamental architecture



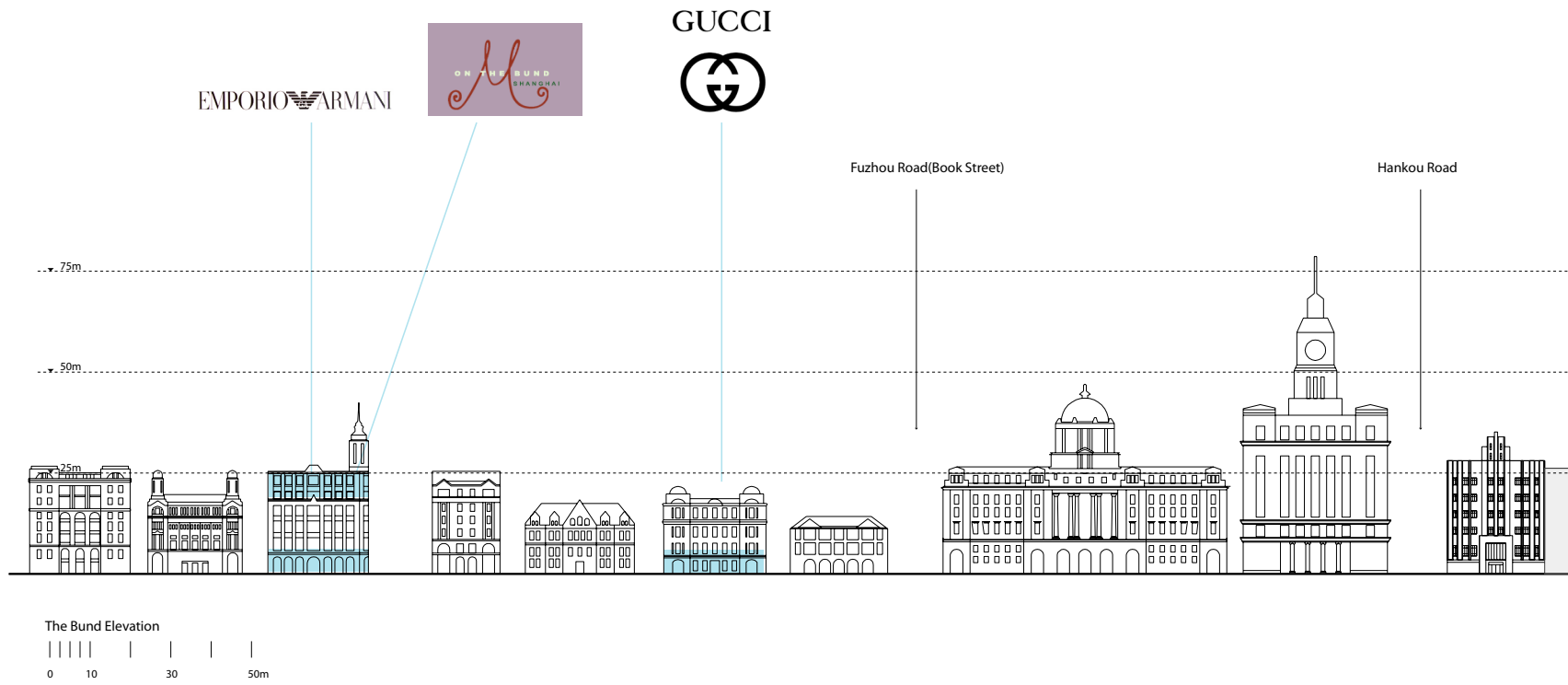
Pudong New District becomes the international fair of architecture. It is the contest of beauty in contemporary architecture. Also, together with the Bund on the other side of the River, this skyline becomes the symbol of Shanghai. On one side, it is the preserved colonial architecture group displays the history of Shanghai and also the traditional sense of beauty while on the Pudong side, it is the contemporary figurative ornamental design contest. These 2 sides' elevation creates the unique contrast for the city.

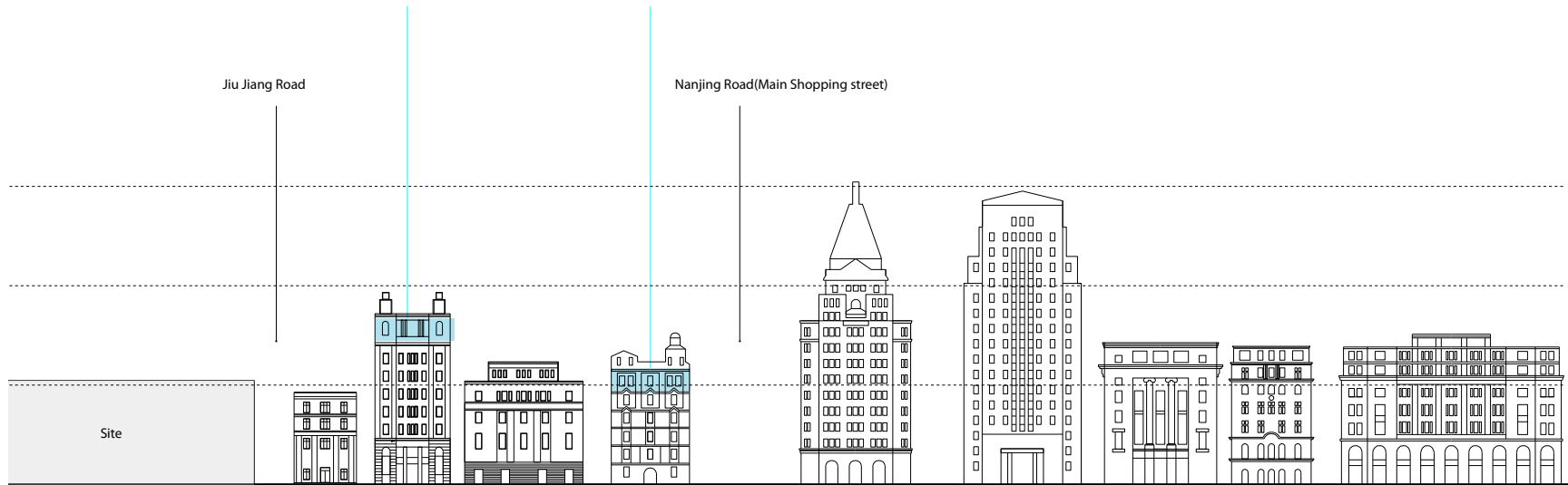




The Old Bund Side-beaux-arts architecture group

The Beaux-arts architecture group is no longer existed as its original function as commercial capital of the city but, instead, it is converted and renovated into a new kind of urban phenomenon, a stacking city with various kind of programs and uses: high-end restaurants, bars, high-fashion flagship stores are all implemented into the bund to rejuvenate the beaux-arts facade.







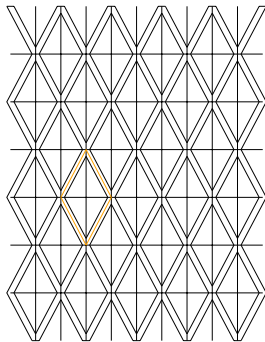
PROCESS OF INVESTIGATION

The investigation of form, space and structure

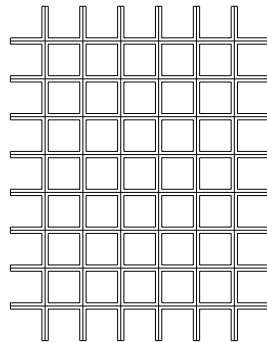
The process documents the investigation of forms/structure relationship and strategy in various scale of models. It is a collection of thoughts throughout the entire thesis investigation. It is an exploration of many possibilities of an architectural proposal could be. The final production is only a single part of the investigation.

Basic Structure Patterns

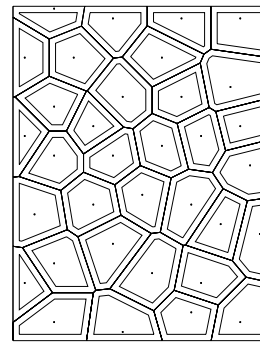
There are a few main categories of structural patterning techniques that are popularly used in contemporary architectural design: diagrid(Tokyo Prada Store by Herzog de Meuron), rigid rectangular grid(Simmons Hall by Steven Holl), voronoi structure(Watercube by PTW), or puncture envelop structure(Tokyo Mi-kimoto Store by Toyo Ito).



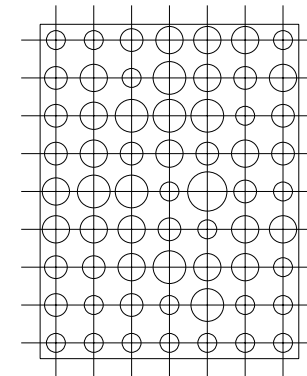
DIA-GRID



ORTHO-GRID



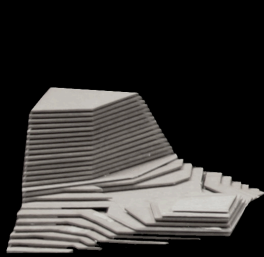
VORONOI



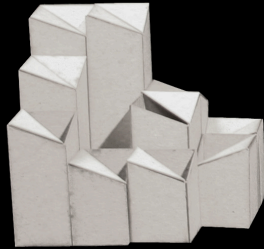
PUNCTURE

Massing proposals

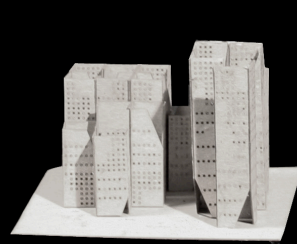
The series of model is an investigation into a particular technique of aggregation in architectural scale.



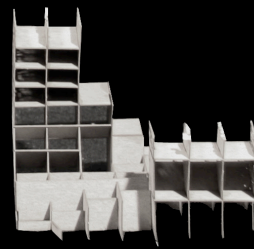
stacking



modulate



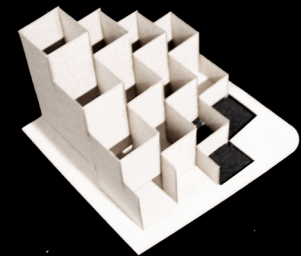
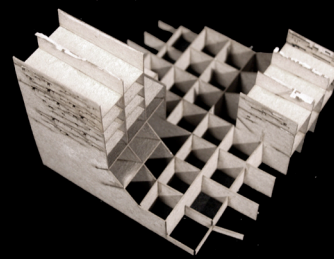
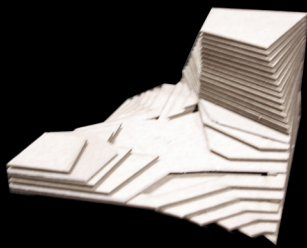
bundle



coffering

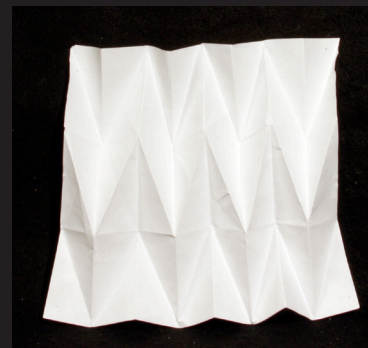
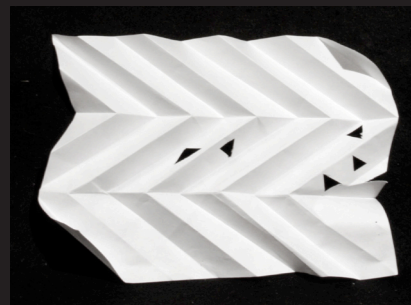
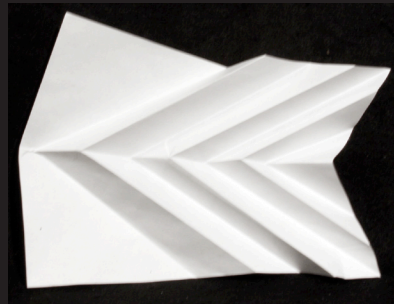


stagger



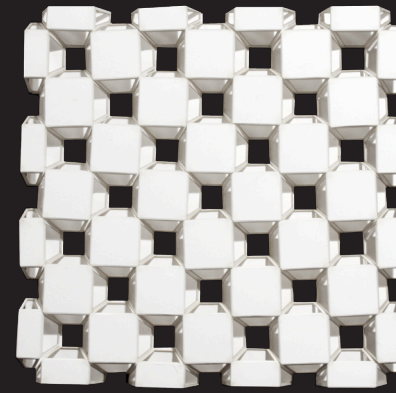
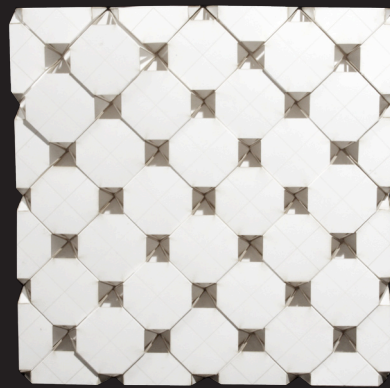
Structure Patterns Model investigation

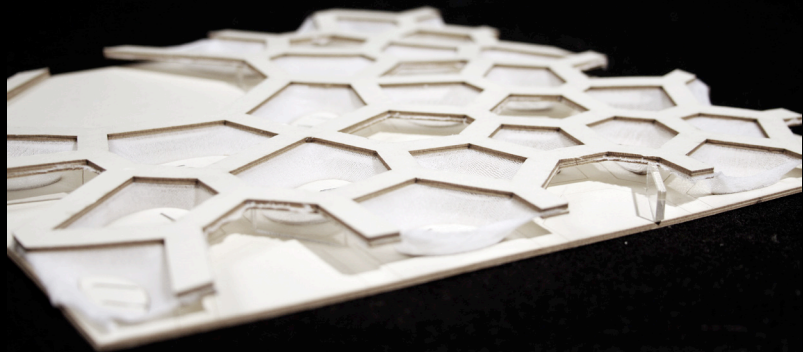
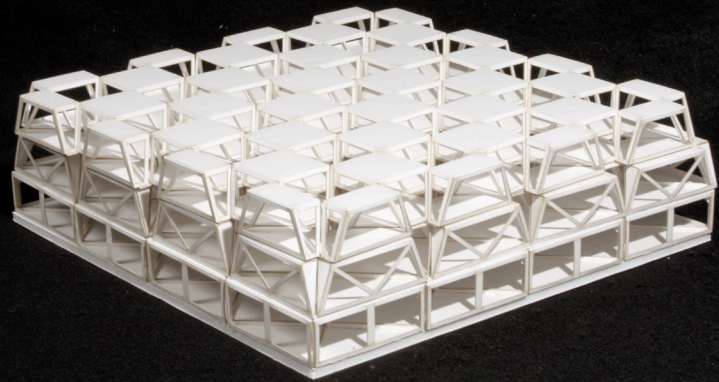
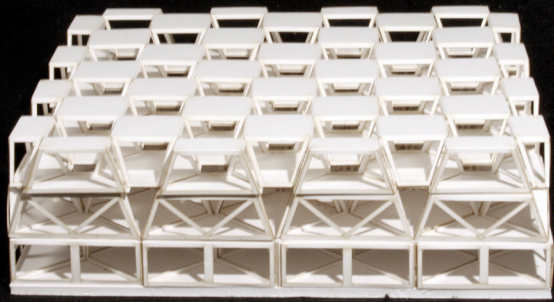
The Folding exercise is the another method to find the integration of form, space and structure. It is also the exploration of nuance morphological technique in architectural operations.

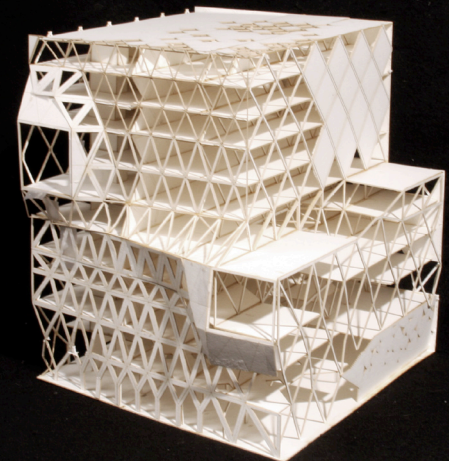
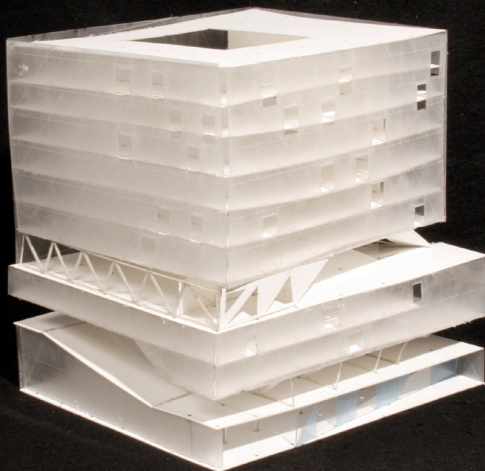
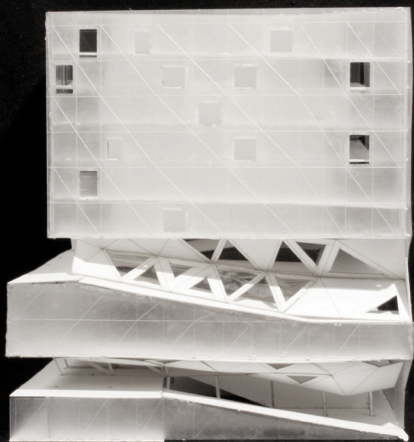
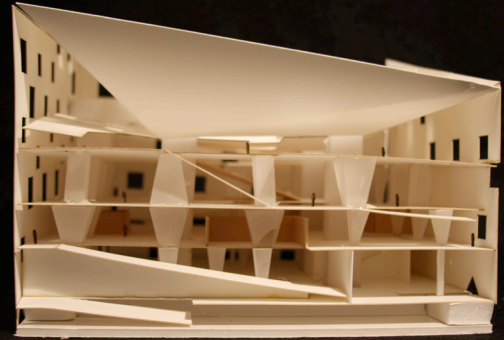
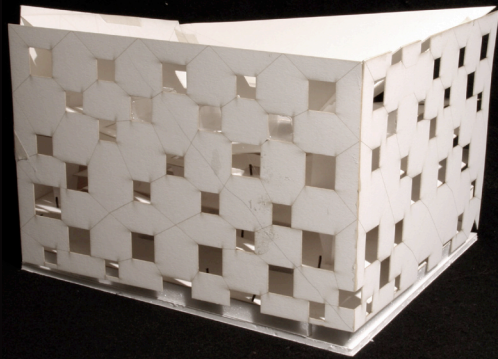
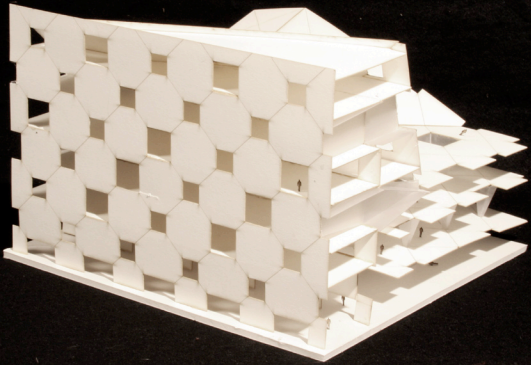


Structure Patterns Model investigation

The series of model is an investigation into the structure patterning possibilities. They are built in the form of three dimensional network which relates to the program dimension instead of merely surface operations.







FINAL DESIGN

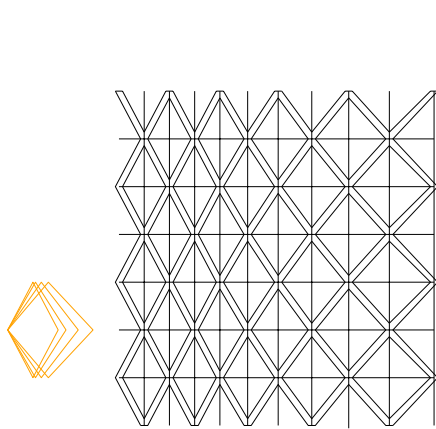
The final design outcome is only a point that the research could be summed up. It does not mean that it is the end of the entire research studies that have been carried out throughout the entire project.



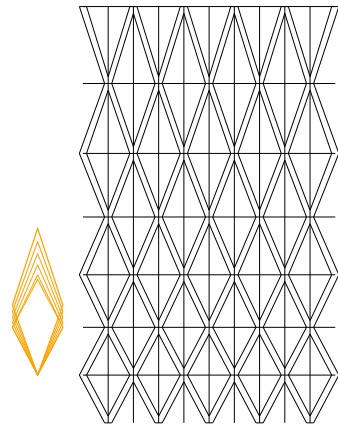


Pattern/Diagrid possibilities

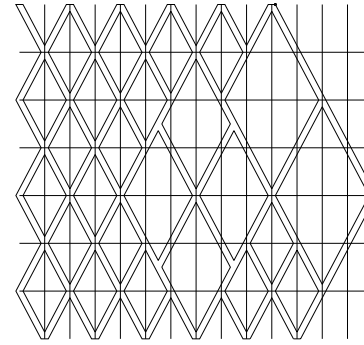
The diagrid structure becomes the parametric instrument for the integration of programs, surface and form. The architecture itself is an extension of the



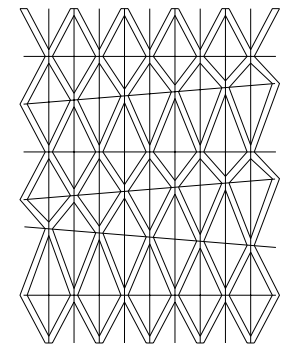
SCALING : X-DIRECTION



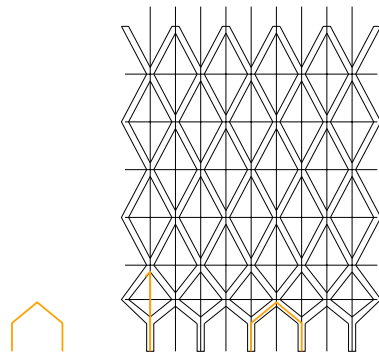
SCALING : Y-DIRECTION



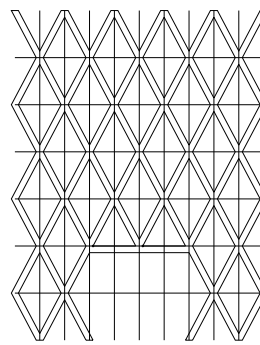
MERGING



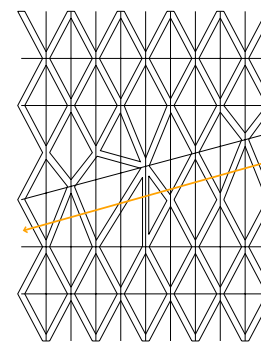
DISTORTION



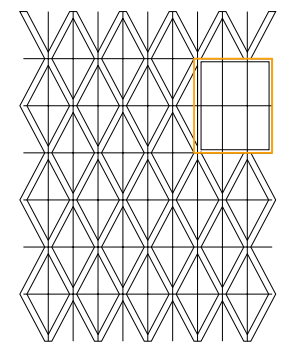
ARCADE



LONG SPAN THEATER SPACE



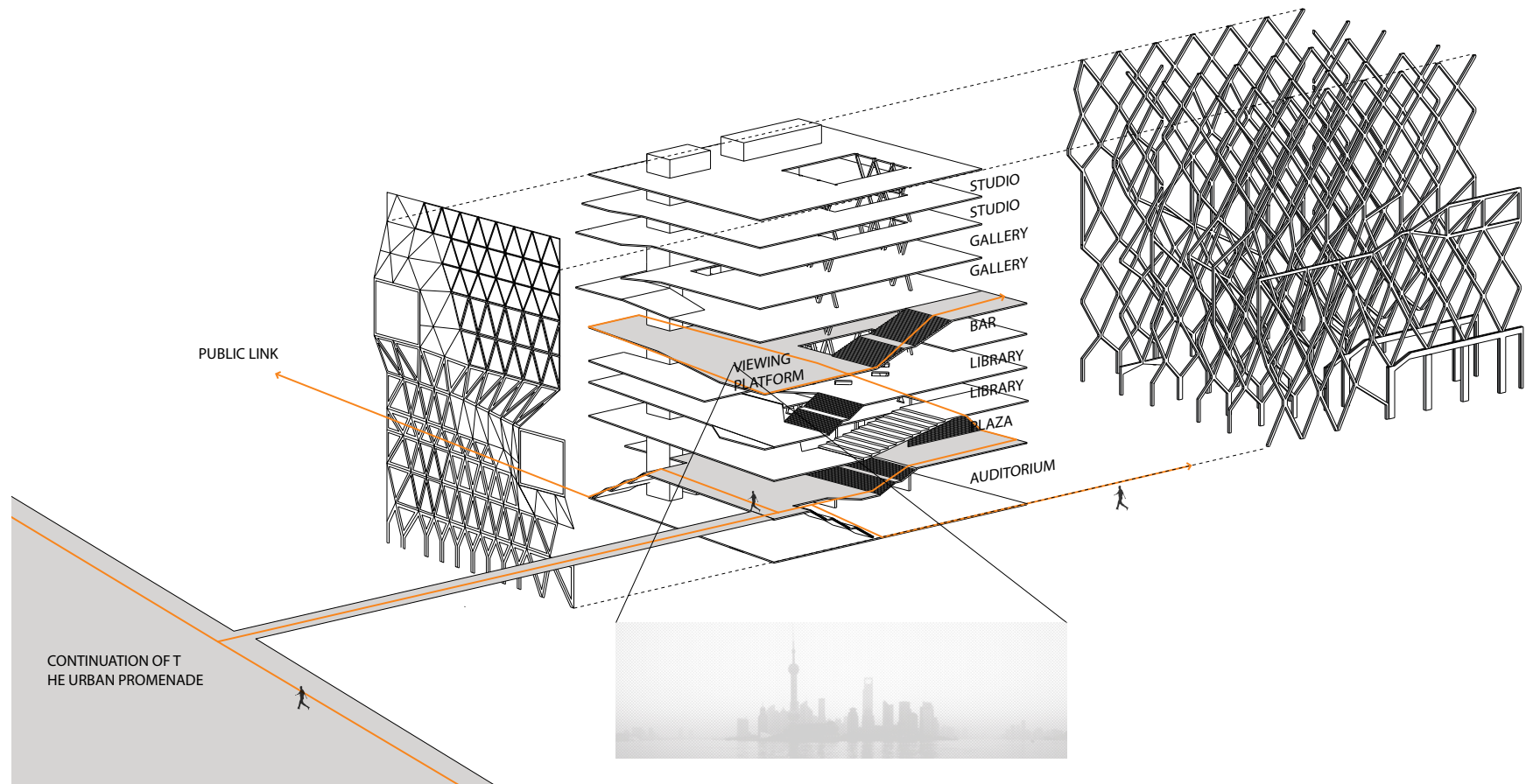
DISTORTION AND MERGING OF CELLS FOR RAMP



CRAFTED AND PUNCTURED FOR FEATURED FUNCTIONAL SPACE

Concept

The diagrid structure becomes the parametric instrument for the integration of programs, surface and form. The architecture itself is an extension of the promenade. A predominate ramping idea is implemented as a key architectural concept which will bring people from the promenade level to the higher level smoothly penetrating through the set-up diagrid structures. The program of the forum is essentially linked by the ramp and also the diagrid. The skin is also coherently generated through the articulation of the structure.

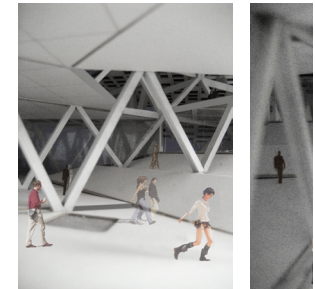


The Unrolled Section of Experience

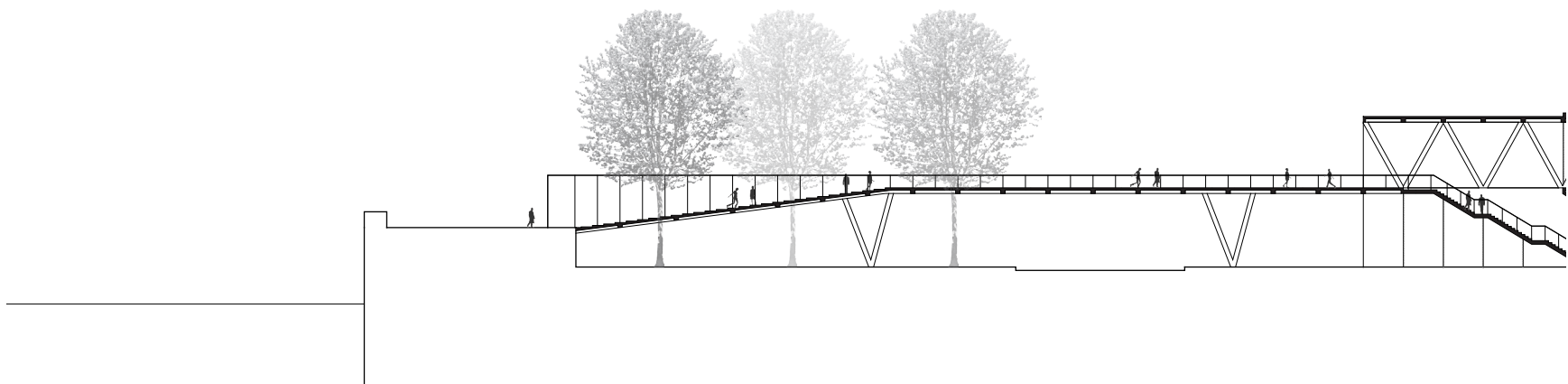
The section shows the path of experience that one could have starting from the Bund promenade to the viewing platform of the Forum. During the entire journey, one would penetrate the diagrid system experiencing the intricacy of space and form and also enjoying the programs along.

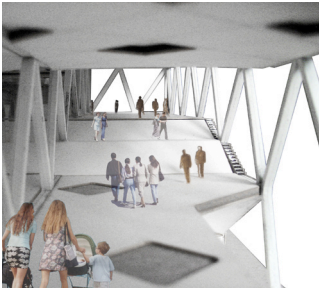


THE BUND - PROMENADE



WALKWAY PLAZA

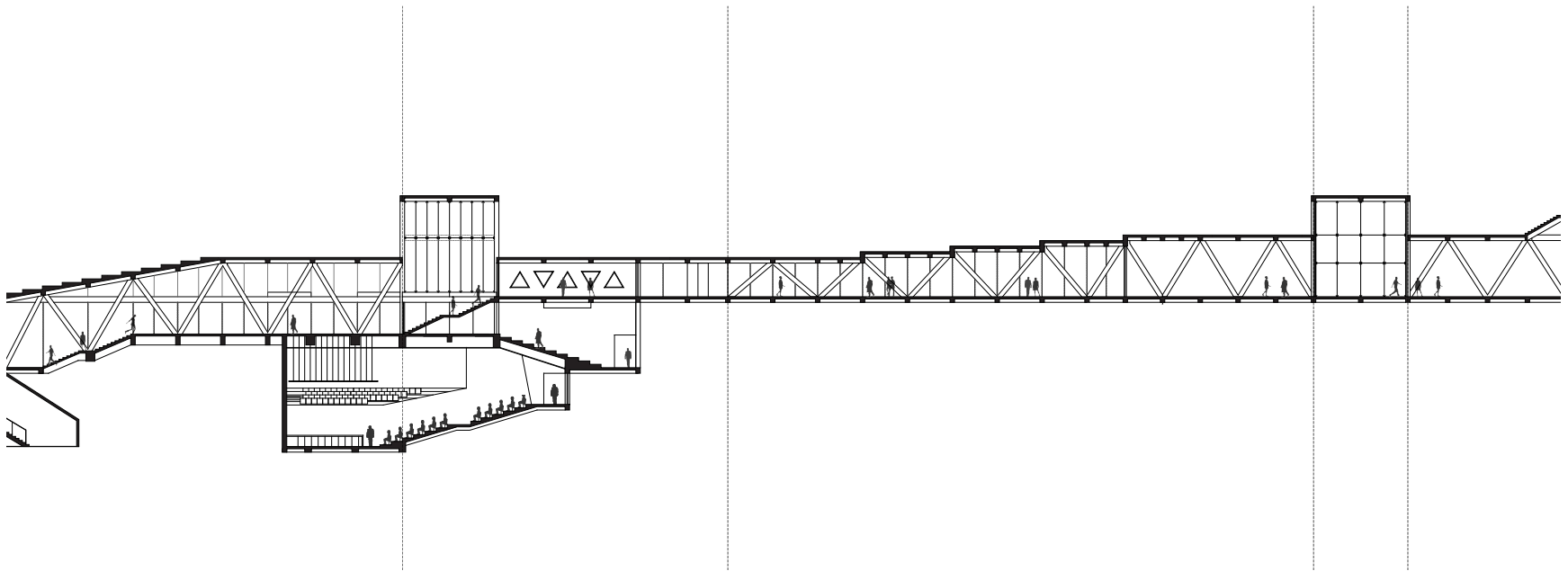


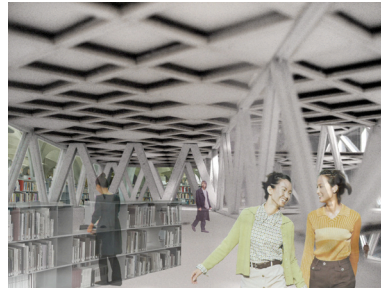


PUBLIC LECTURE HALL

MAGAZINE READING/CHILDREN LIBRARY

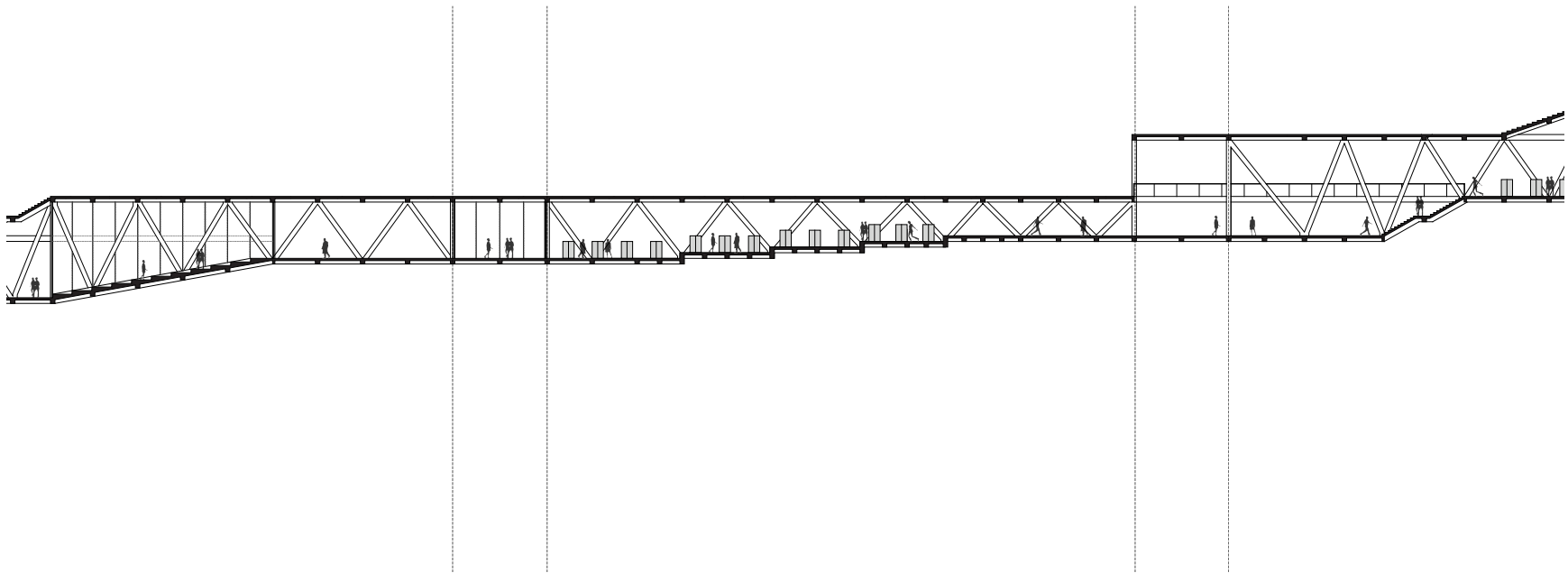
MEDIA LAB





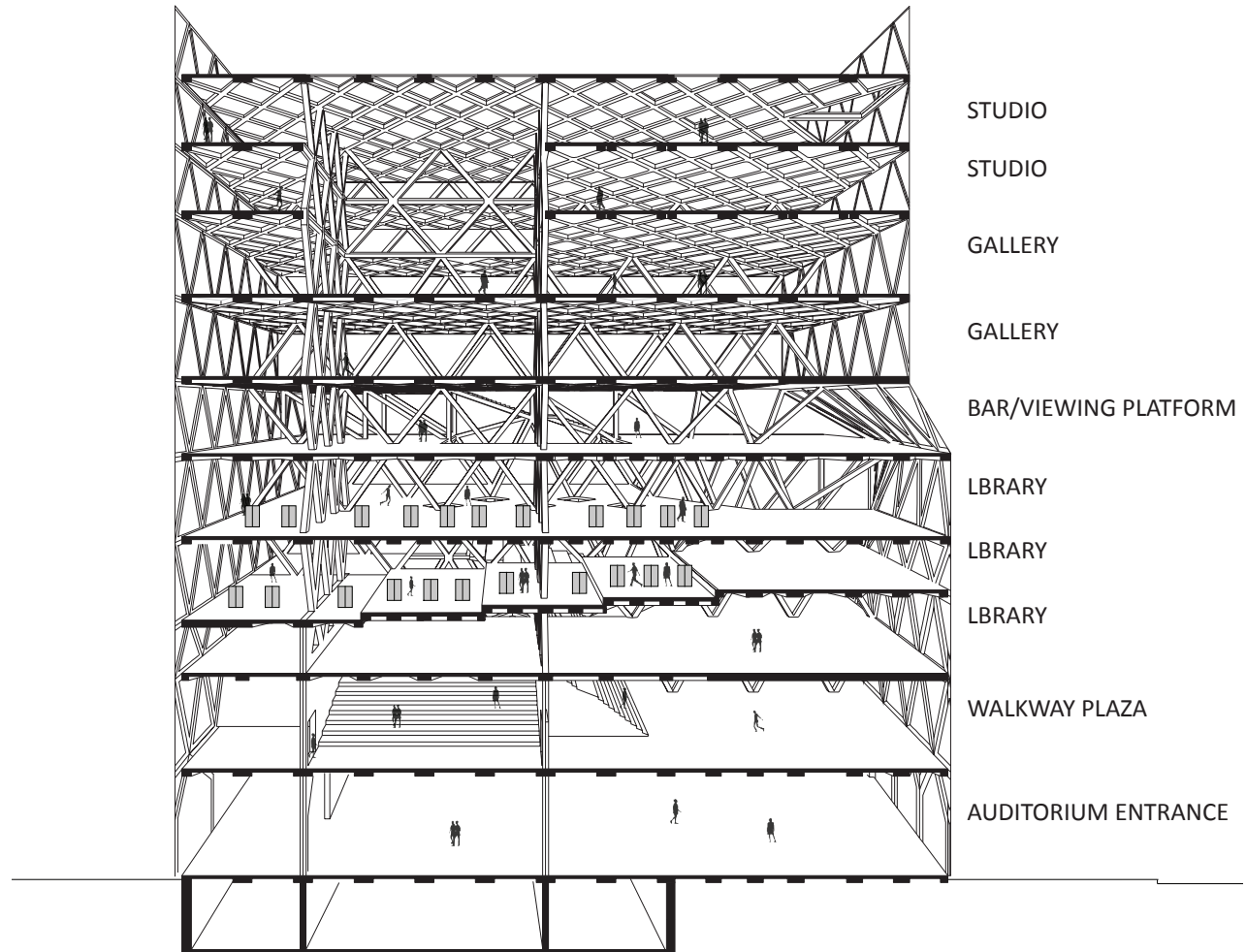
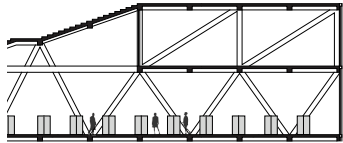
MAIN LIBRARY SPACE

VIEWING PLATFORM

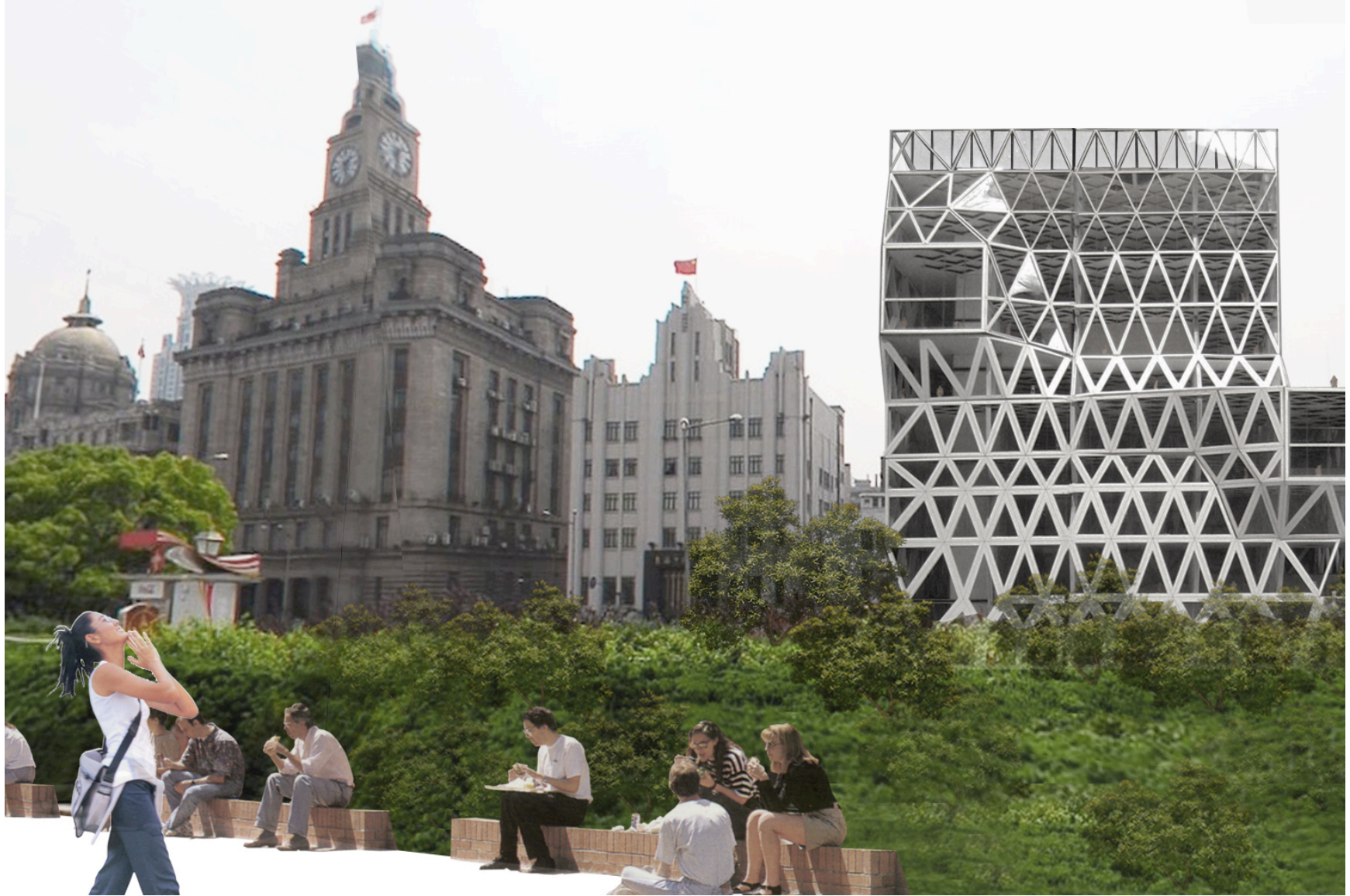




GALLERY ATRIUM

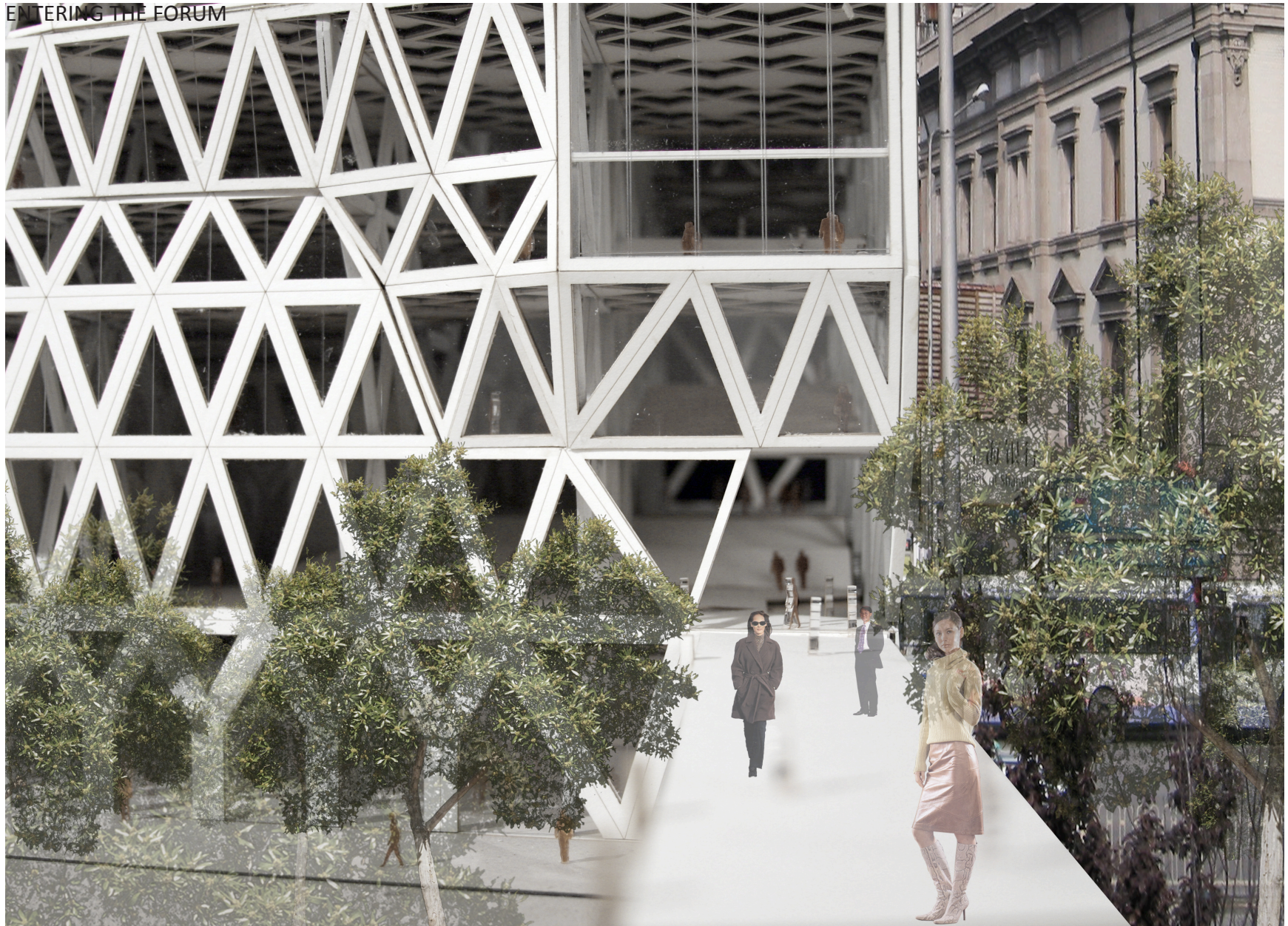


VIEW FROM THE PROMENADE





ENTERING THE FORUM



THE PLAZAUM



CHILDREN LIBRARY

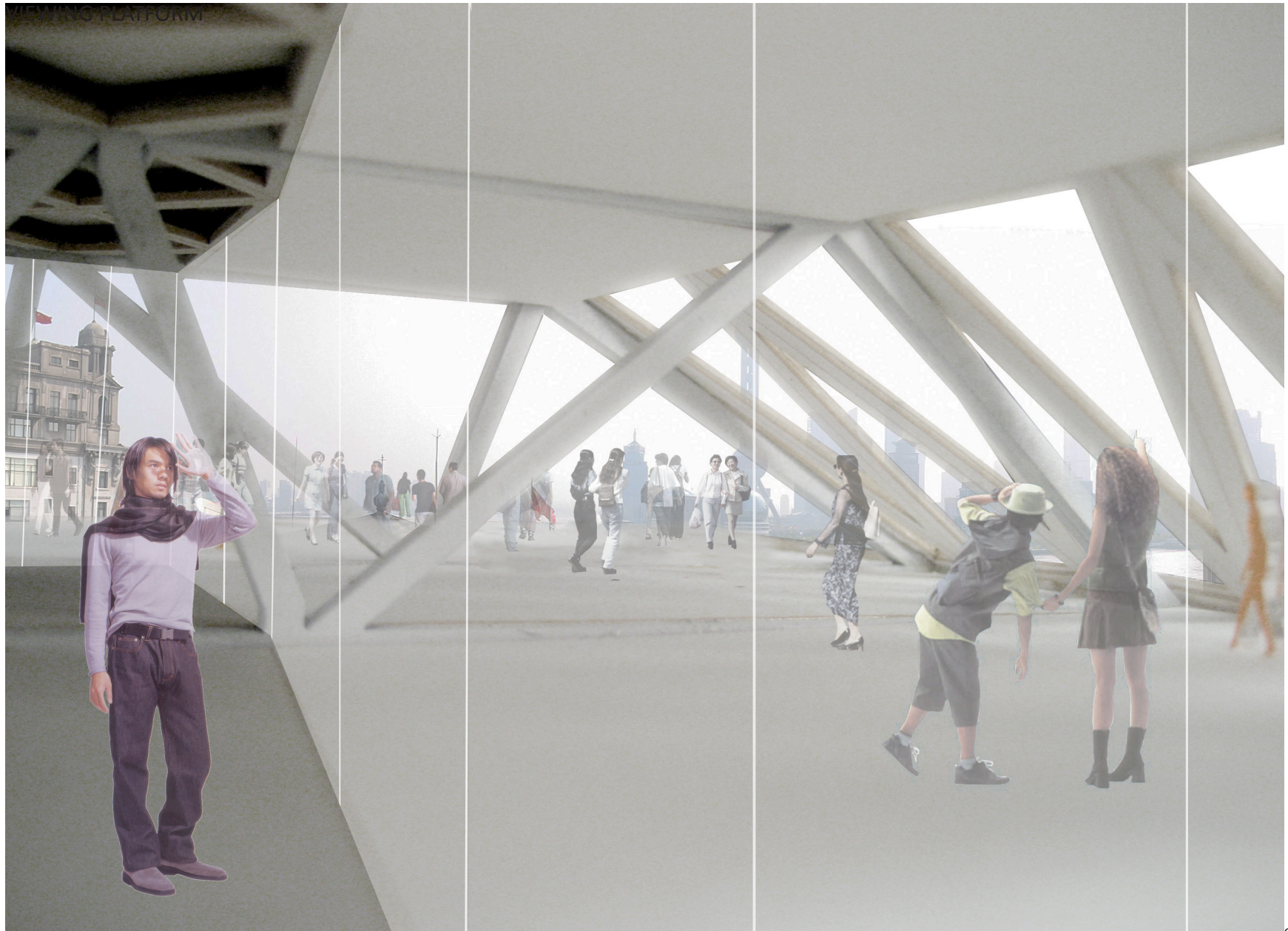


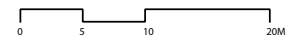
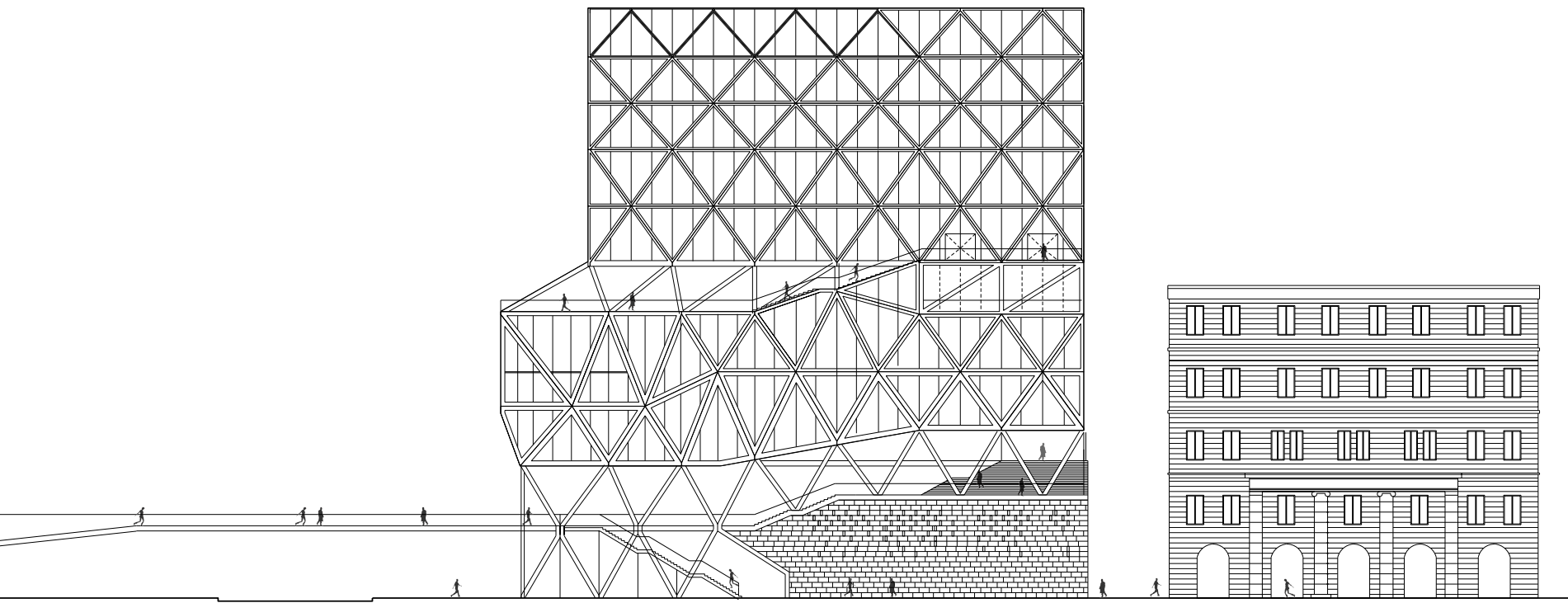
VIEW LOOKING AT THE MEDIA LAB



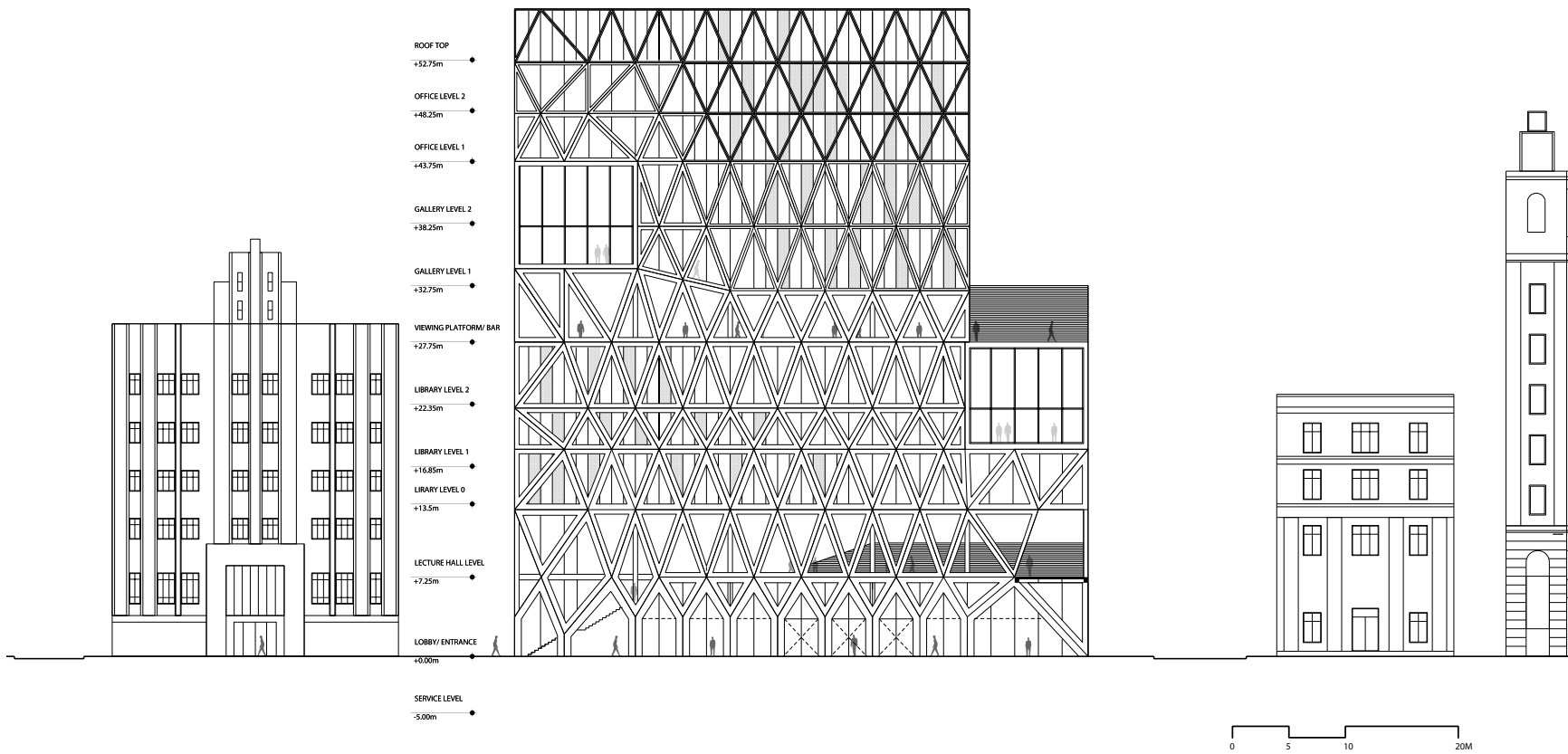
LIBRARY



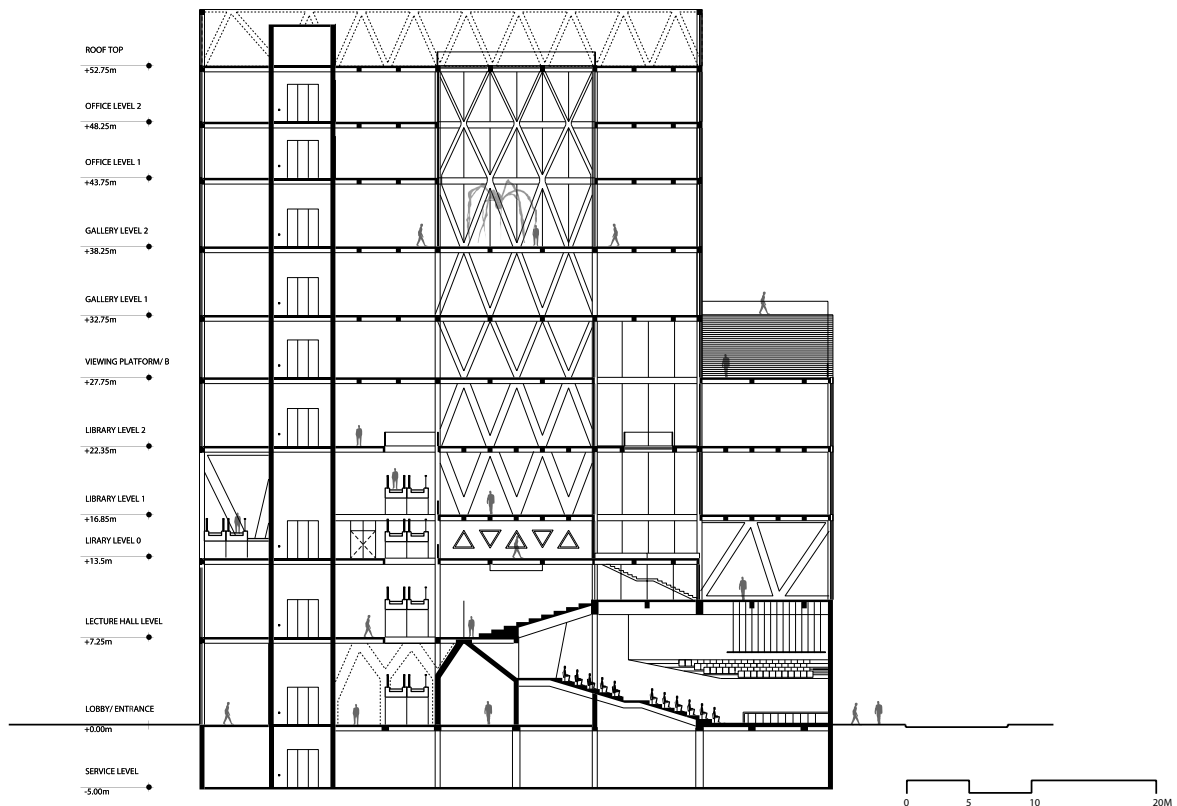




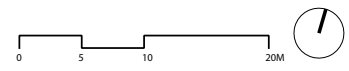
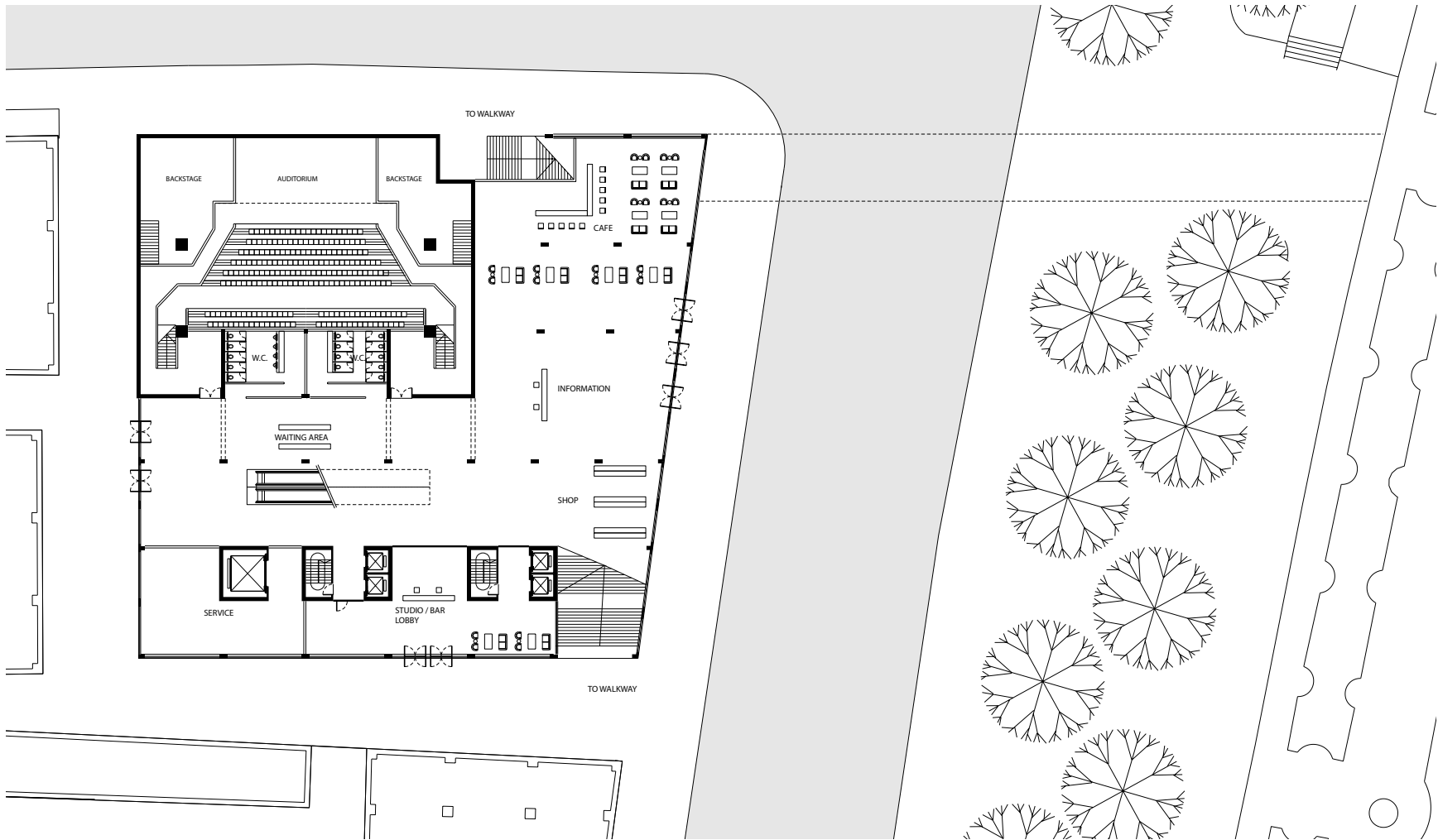
NORTH SIDE ELEVATION ALONG THE BUND



EAST SIDE ELEVATION ALONG THE BUND

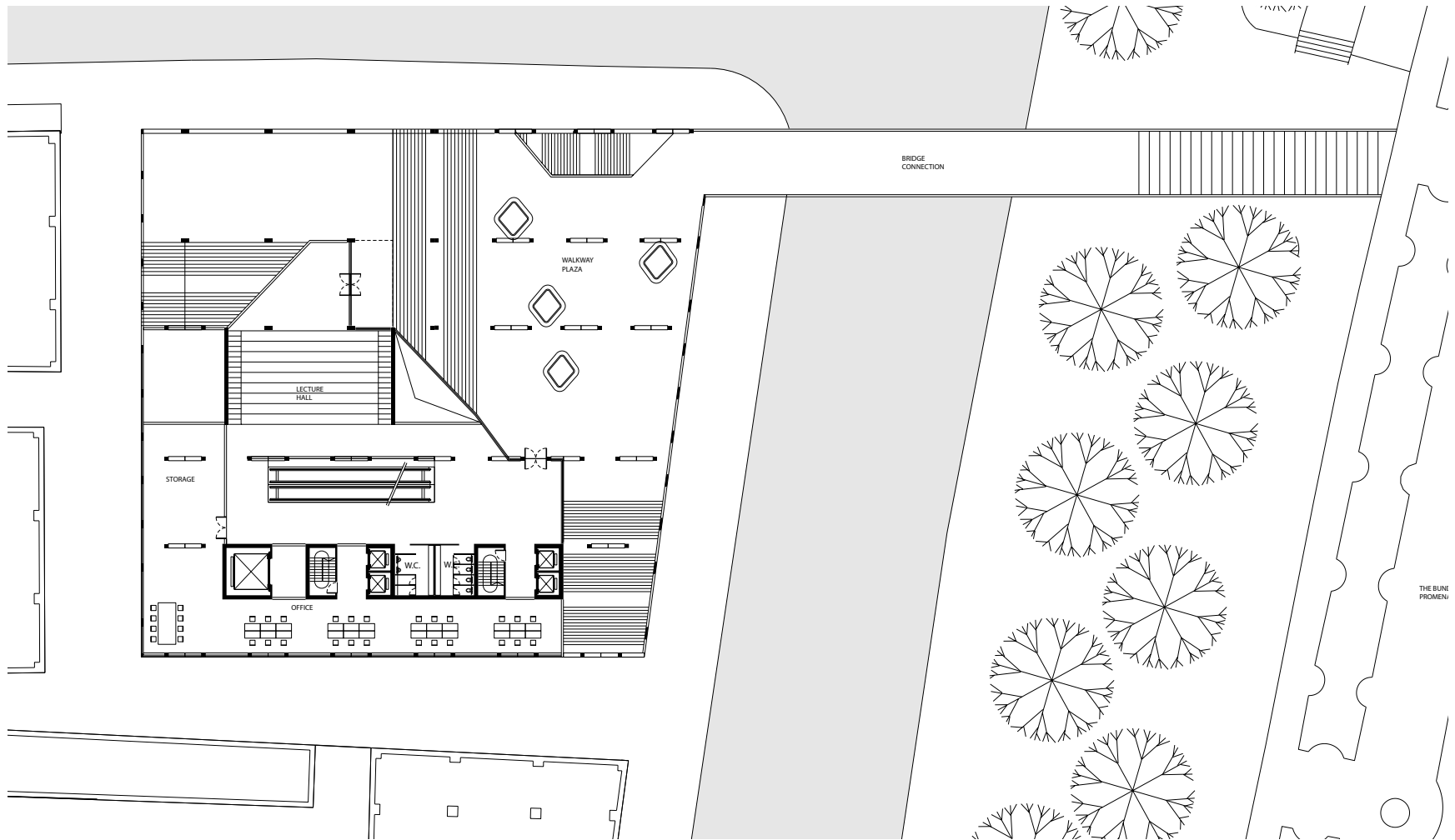


TRANSVERSE SECTION



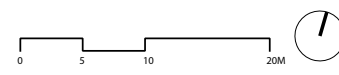
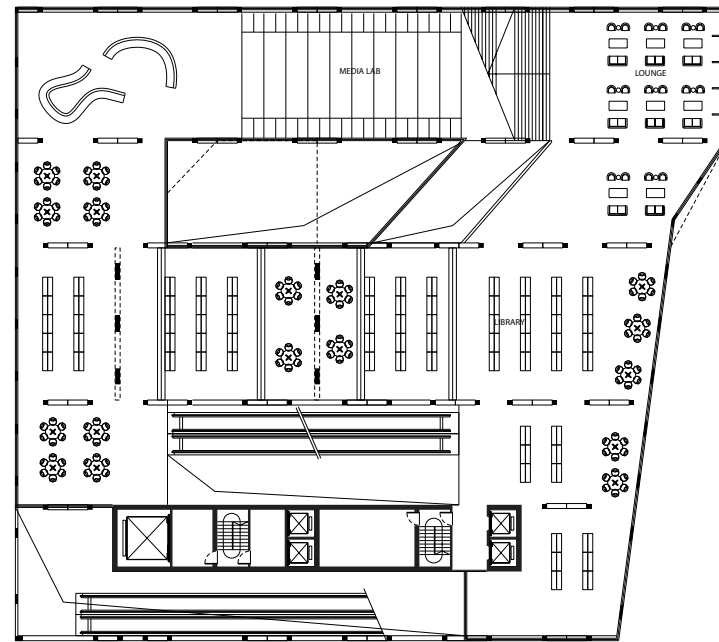
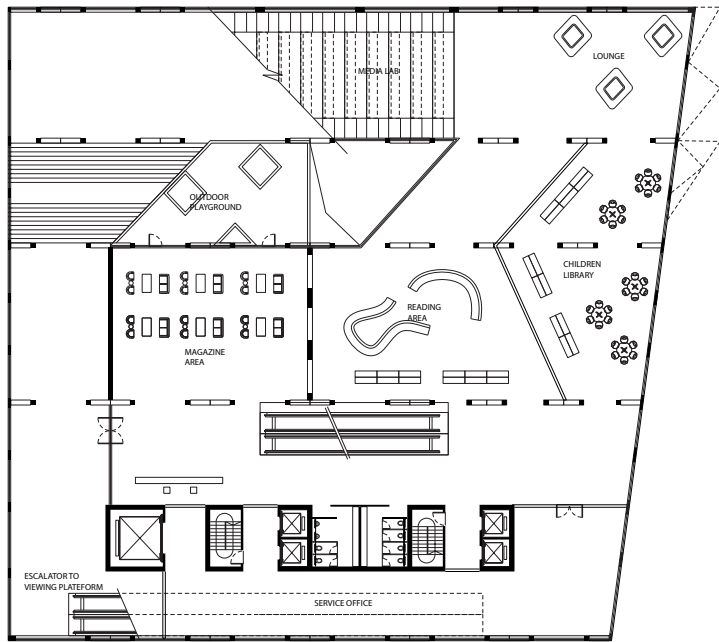
GEM ON THE BUND: THE SHANGHAI FORUM

01



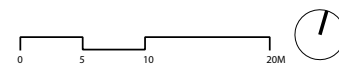
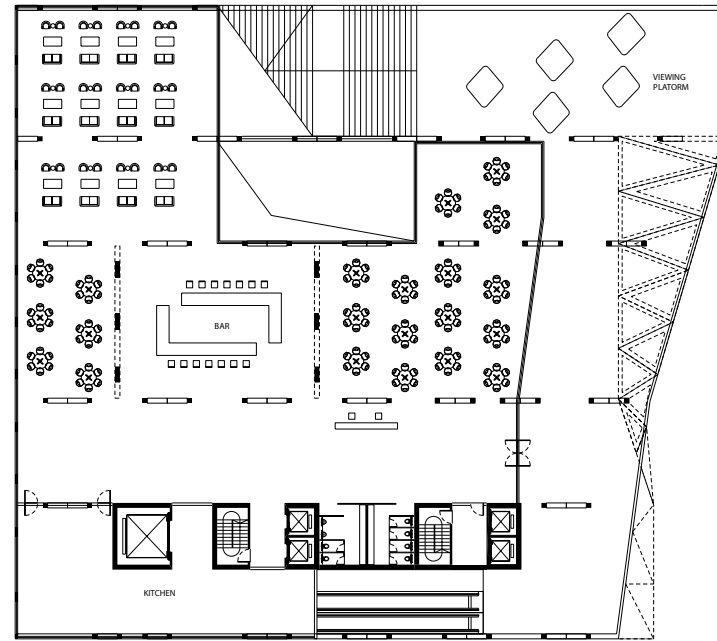
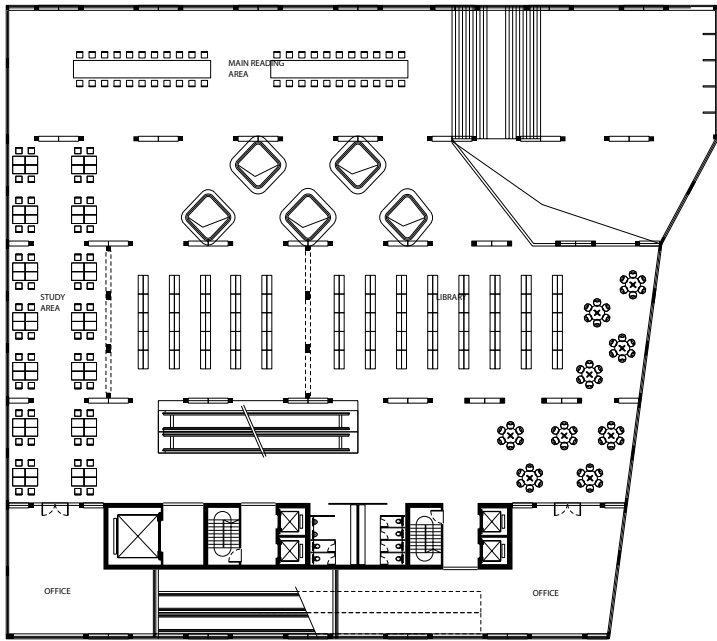
GEM ON THE BUND: THE SHANGHAI FORUM

02



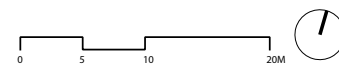
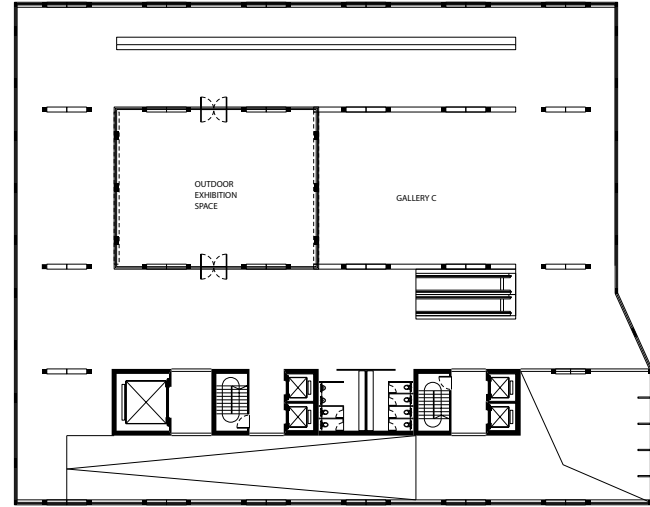
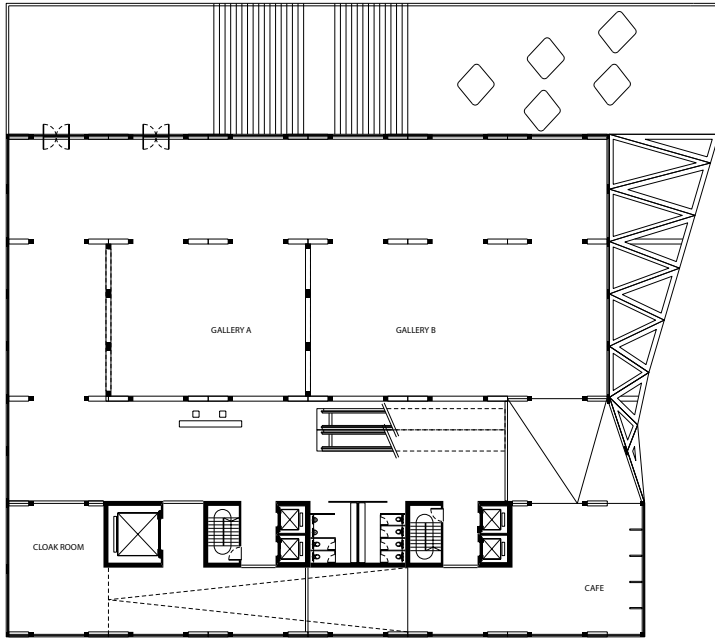
GEM ON THE BUND: THE SHANGHAI FORUM

03/04



GEM ON THE BUND: THE SHANGHAI FORUM

05/06

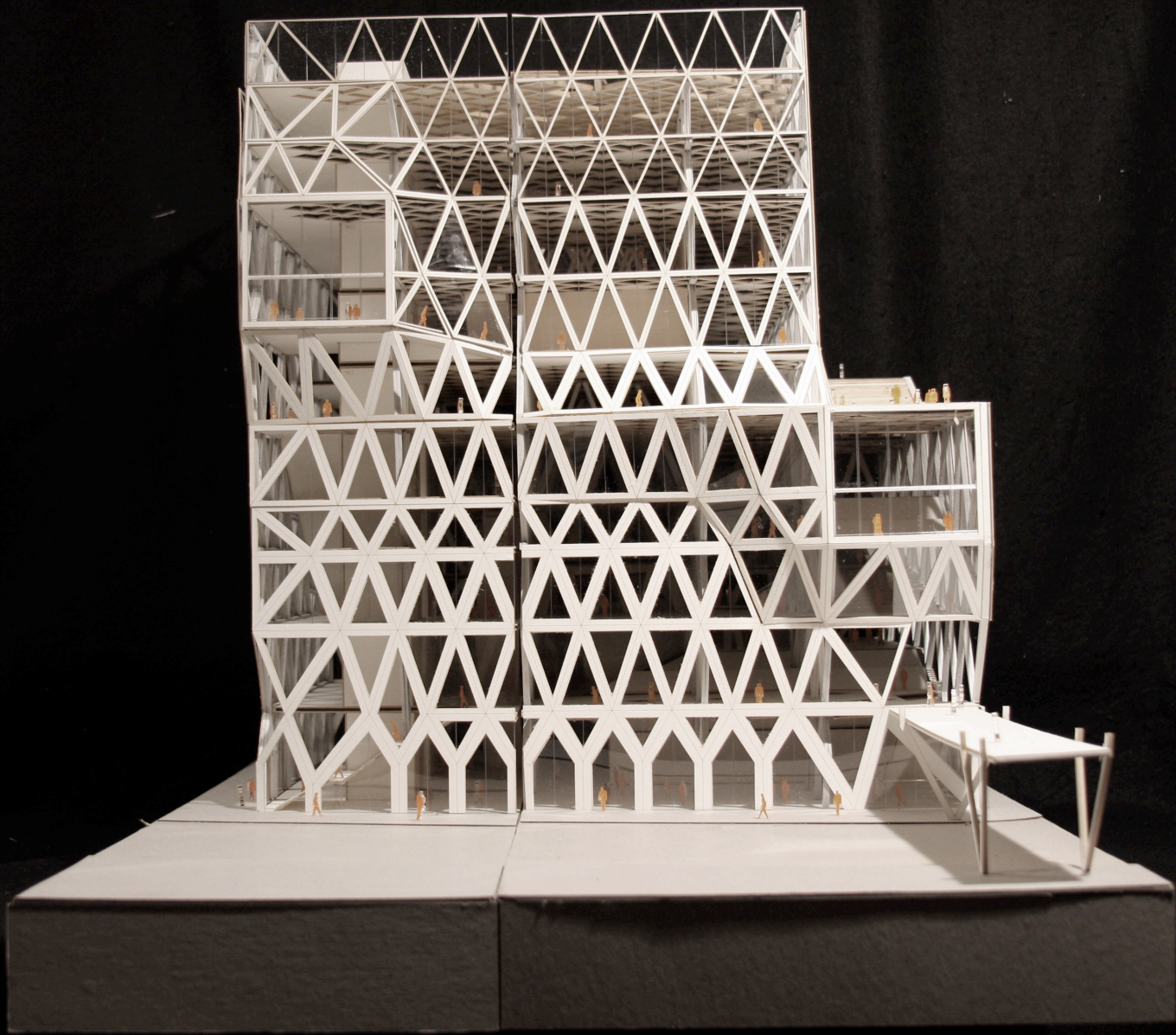


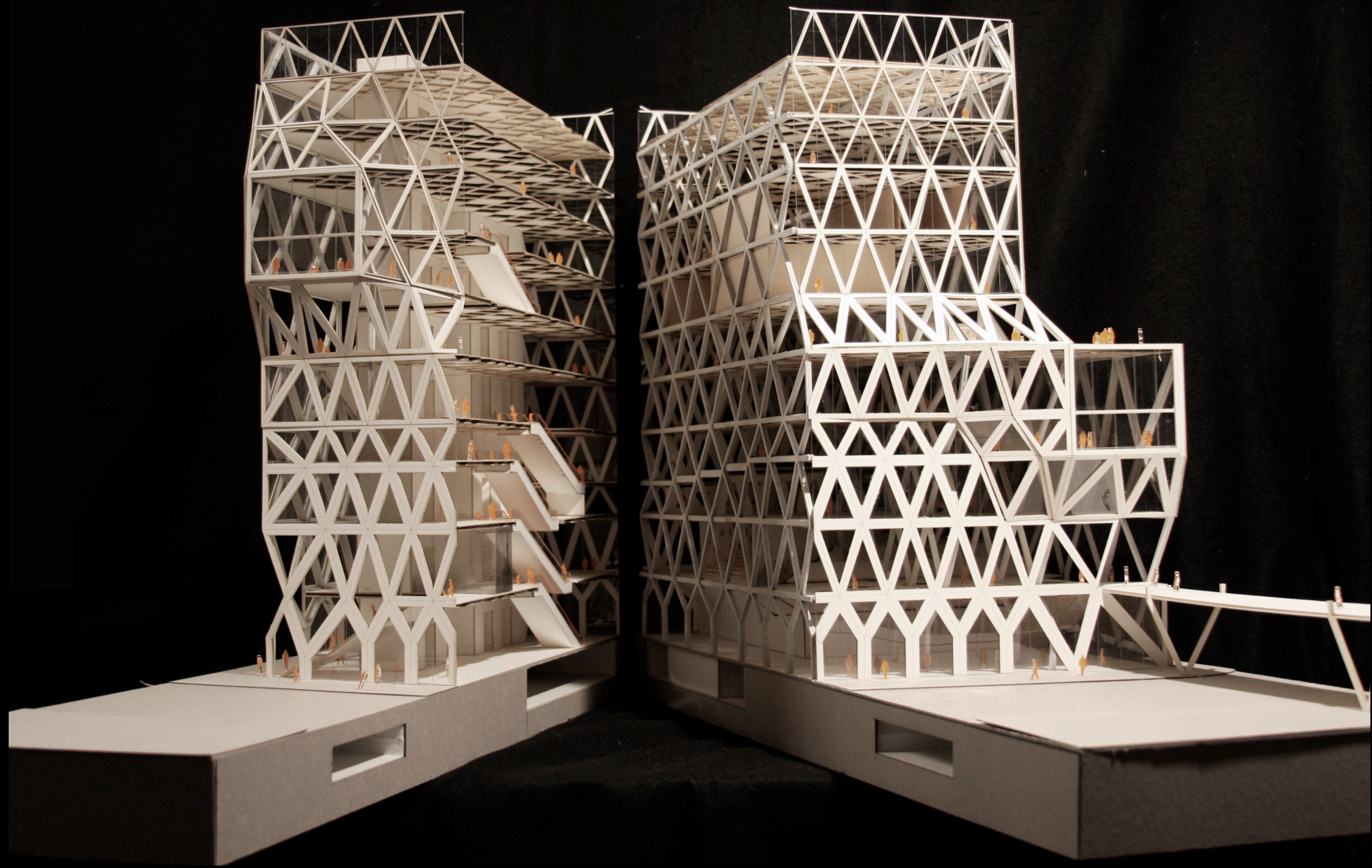
GEM ON THE BUND: THE SHANGHAI FORUM

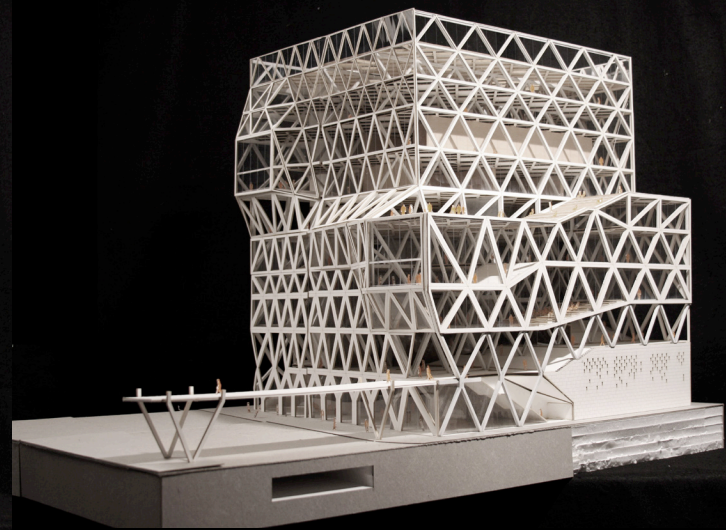
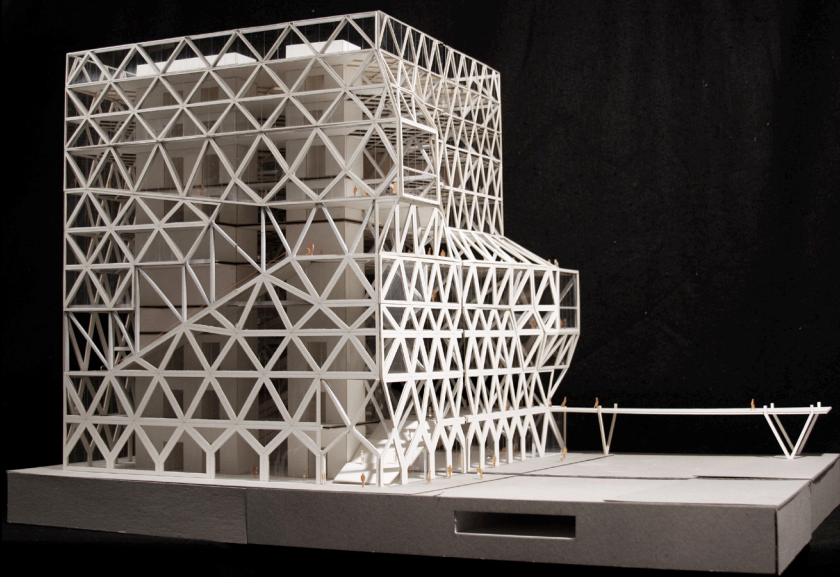
07/08

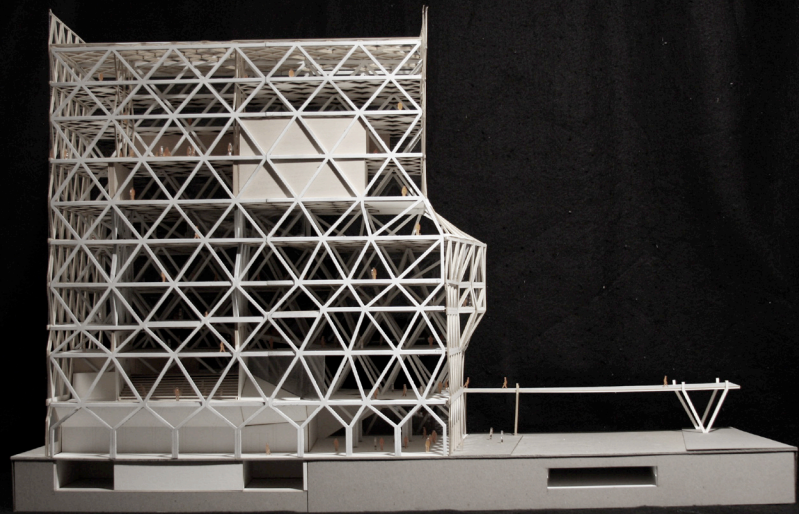
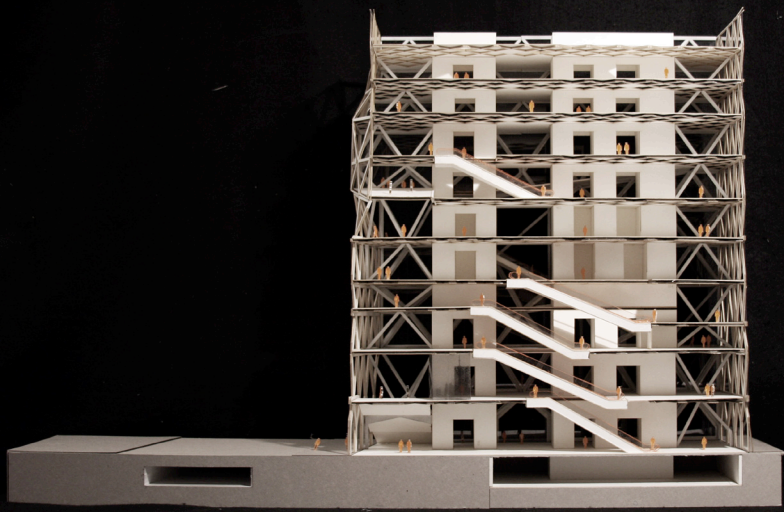


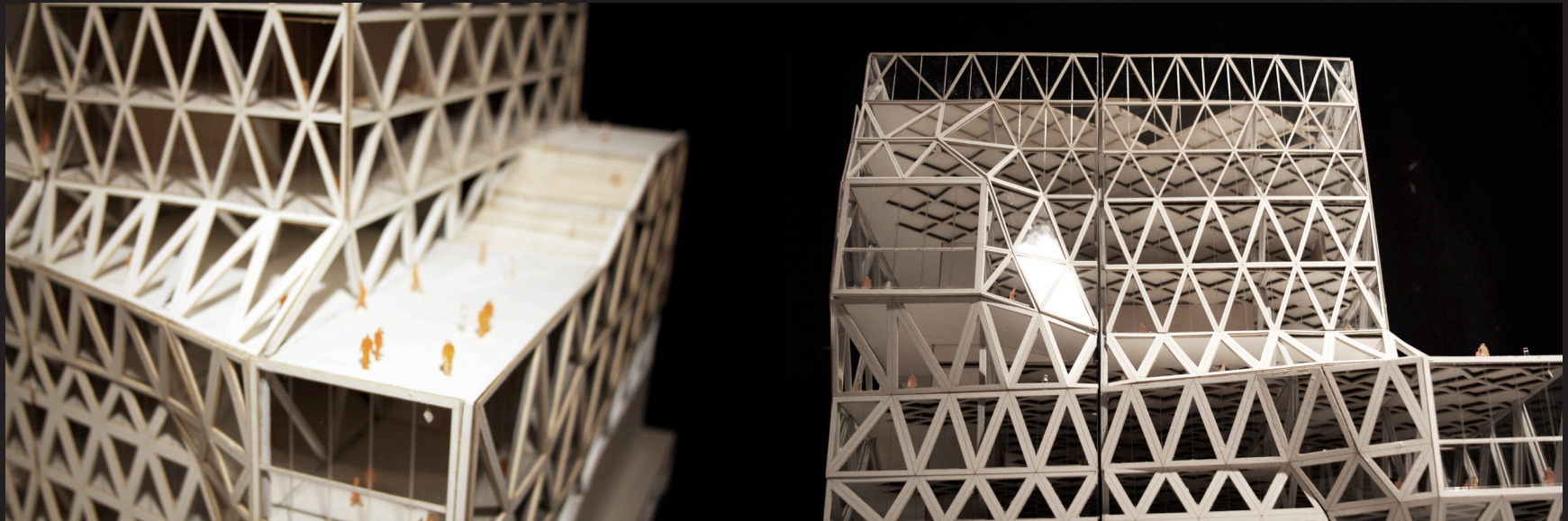
MODEL IMAGES

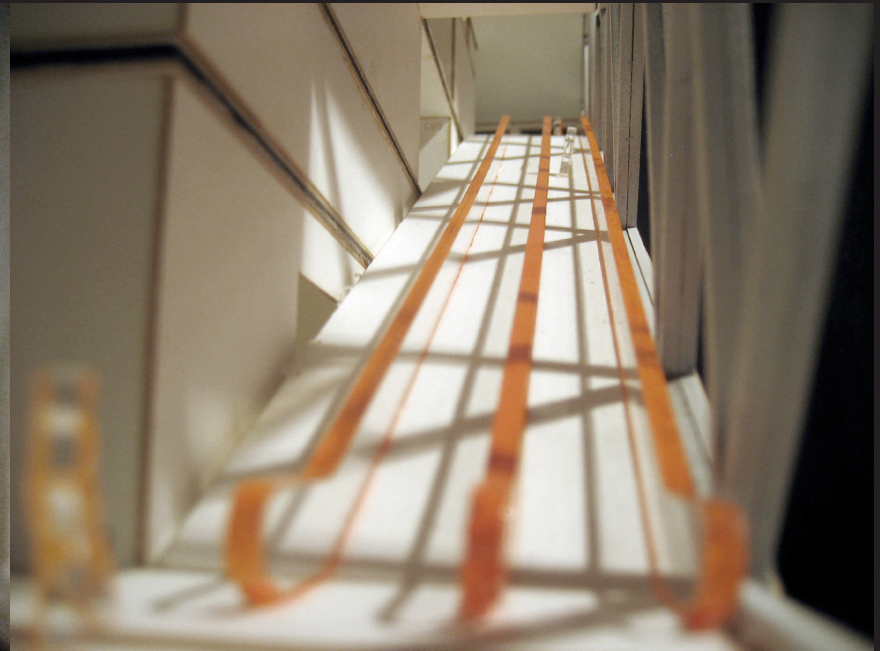
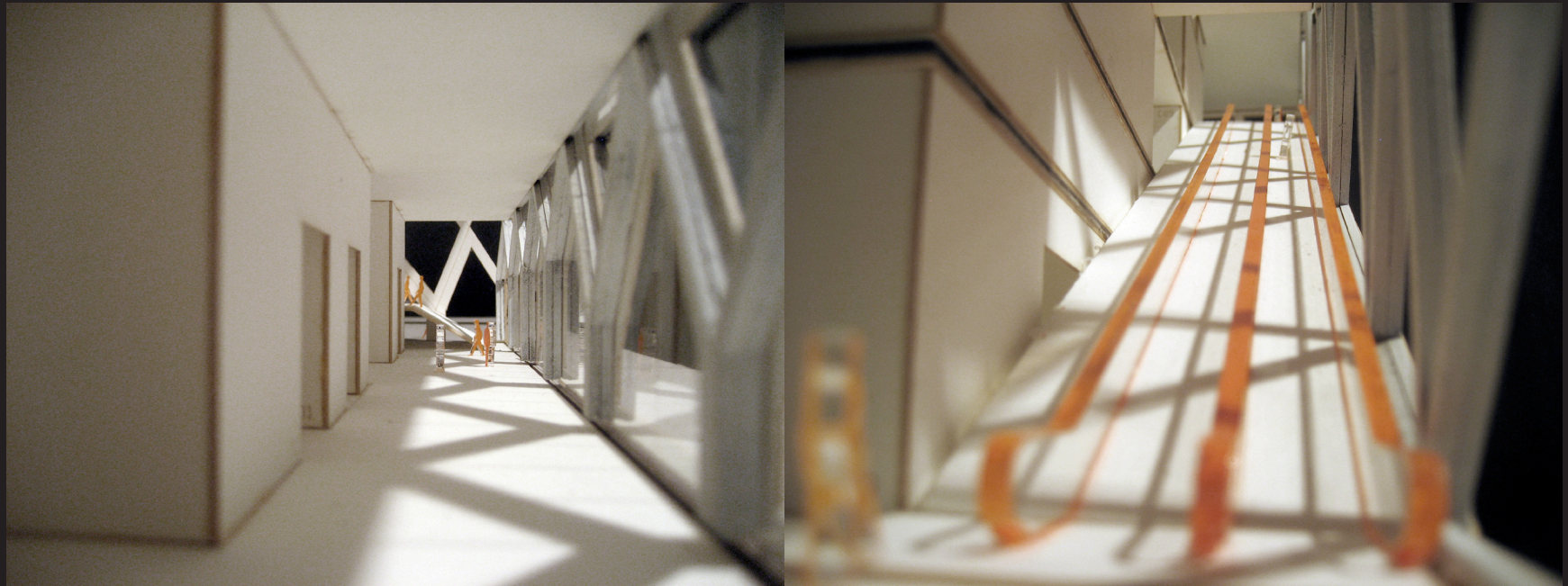


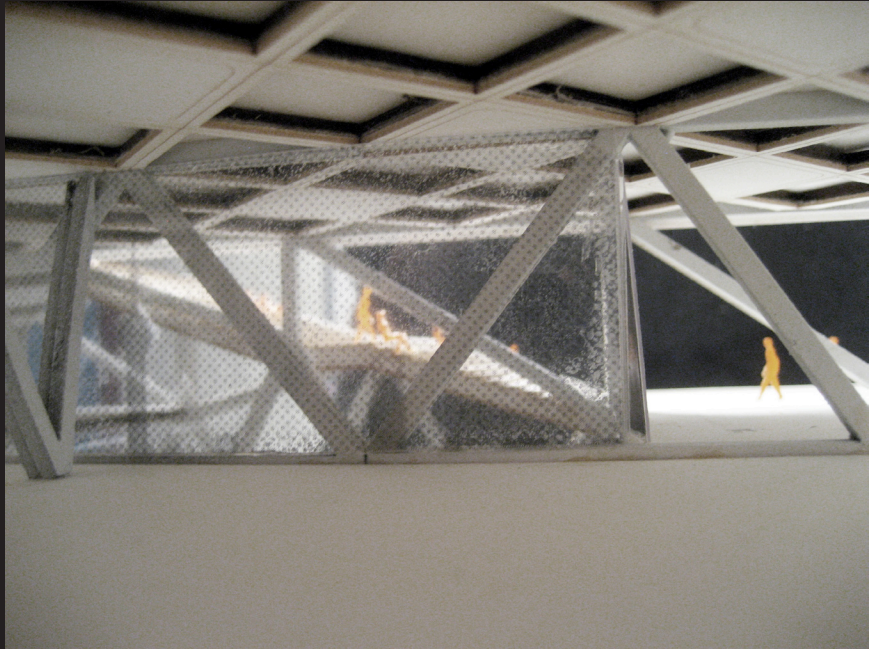


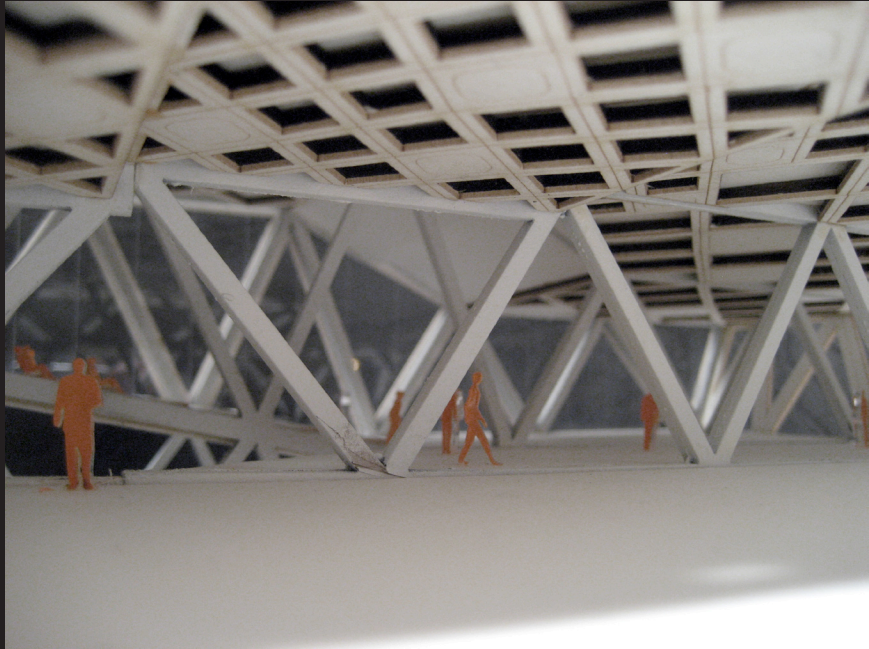












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