# Fragment and Inclusion

urban architecture in contemporary Barcelona

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# Index

# To the Blind and the Deaf I Leave*

by Fernando Pessoa
translated by Jonathan Griffin

To the blind and the deaf I leave
the soul with boundaries,
For I try to perceive
All every way there is.

From the height of being aware
I contemplate earth and sky-
Innocently I stare:
Nothing I see is mine.

But I see so alertly,
Disperse myself in them so
That each thought turns me
Diverse at a blow.

And just as things are splinters
Of being, and are dispersed,
I break the soul to slivers
And into different persons.

And if I see my own
Soul with a fresh gaze,
I ask if that offers any
Chance I should judge and seize.

Ah, as much as the land, sea or
Vast sky, a man
Who belives he is his is astray.
I'm various and not mine.

And so, if things are splinters
Of the knowledge of the universe,
Let me be my own slivers,
Imprecise and diverse.

If all I perceive is alien
And I am absent from me,
How came it the soul
Ends up in a body?

Therefore I harmonize
Myself with what God made:
A diverse mode God has,
I am diverse modes.

God, therefore I imitate-
Who, when He made all,
Removed from it the infinite
and unity as well.

# Chapter 1    Introduction

## 1.1 Intention

This thesis bases on the research and discussion about the relationship between architecture and site (the urban environment) with the background of contemporary period. It tries to analyze the different design methods that architects use according to their practical experiences and different programmatic requirements when they face to the same city condition, in order to conclude (of course in an incomplete layout) the characteristic of design methods which focus on the topic of the interpretation of the relationship between building form and the urban context.

The **fragment** in the title has its meanings in several levels: first, it means "piece" and "part", or "splinter", like Pessoa's poetry, the fragment of the city in the thesis mainly bases on the fundamental concept of the literal meaning; second, in the postmodernism condition, fragment also means expressing the character of fragmentation in understanding of objects. The cognitive procedures of rationalized, orderly and systematic we used to is replaced by non-rationality and fragmentization, which defines the one-sidedness knowledge when we try to read something from any object, but one-sidedness gives the diversity into the discussion also.

Because the method of recognizing things had changed, that every complete individual can be separated as different kinds of fragments. Each piece of fragment can be understood as a part of the original object, without obvious gap in hierarchy. That can bring the possibility to establish or rebuild the equality between things. For example, in the book "Walter Benjamin's Grave"

written by Micheal Taussig in 2006[1], the objective recording and subjective assumption about the history in the past, things happened in recently, the landscape around Portbou are mixed in the form of the monument – a literal way. The original qualities of object started to become not so clear, or we can say it can no longer be used as the exact definition to describe the relation between different positions of things, because every unit of things becomes individual. The new method to break tradition, and reorganize things not only exists in contemporary realm of art and literature, but also in the relationship between architecture and city that will be discussed in this thesis: the way to re-establish connections between things is no longer relying on their inner structure and system, neither limited by chronological clue and regional boundary, but according to the metaphorical logic and subjective intention by the author himself.

The process of breaking the existing relationship between things, letting them become fragments in order to reuse and reorganize them can demonstrate multiple values simultaneously: such like the value of the objective self of fragment, the mother body it belonged to before, the breaking process of fragmentation, the new form created after the reorganization and so on. From this point of view, fragment actually is a journey of breaking the structure of tradition, in order to create new possibilities. In the work

1. In this book, the writer started from the memory of Hannah Arendt, after that, jumped to the analysis of Walter Benjamin's philosophical ideas, then continued by what the writer saw in the trip to Portbou. In the next part, death of Walter, landscape of Portbou, information from newspaper- both recently and history, the form and material of monument and tomb, etc. all of those texts are connected without a precise clues or construction, but just like fragments related with Walter Benjamin. Micheal Taussig, *"Walter Benjamin's Grave"*. Chicago: The University of Chicago Press, 2006



Fig. 1.1 Aiweiwei, Dropping a Han Dynasty Urn, 1995

of Aiweiwei "Dropping a Han Dynasty Urn" (1995), (fig. 1.1) he proposed the stop-motion photos of the action of dropping an earthenware pot (206 BC- 220 BC) on the floor, to explain the idea of breaking, reorganizing and creating.

This thesis will utilize fragment as the research object, to analyze the content of architects' rethinking of city; utilize inclusion as the design method of how to use fragment of the city in designing of single buildings.

Fragment can be used as a special tool that can provide specific angle through which designers can discover some new faces of the traditional culture. If to call fragment in the title a new way of ideological performance, then the inclusion is the physical part of this discussion, which focuses on the design method. So under the condition of accepting the hypothesis of the meaning of fragment, which represents the value of breaking tradition, what inclusion tells is the process of reforming the value and meaning that fragment contains in itself.

In this thesis, the inclusion represents the process in which architects use fragment of the city to rebuild the relation between architecture and city, building and site. The meaning of the existence of inclusion is to avoid the impossible chaotic situation that may appear after the action of breaking, from that point, inclusion can be seen as one of those experimental discussions on the topic of how to rebuild the order in that disorder world, which has already become a universal problem. That universality requires the assistance from a series of philosophical concepts and definitions in the session of giving the new definition and explanation in this thesis, which should become the fundamental and theoretical part that this research cannot ignore.

Then in the following analysis, this relation between fragment and inclusion stays no longer a conceptual idea, but a systematic presence composed by 6 concrete criteria concluded from 6 catego-

ries of architectural projects. On one hand, the classification has influence from the theoretical discussion, but on the other hand, the analysis of architectural projects in those 6 categories can be seen as an independent part from those analysis. Those objects all are examples of specific answers to the question of how to use the formal operation of architecture to rebuild or recover the link between architecture and city when we face some particular fragments of the city in specific cases.

This project-based research will decrease the scope of the investigation, but the initial intention of this kind of research form was influenced by the personal education and practice background. Before entering Europe, I was educated as an architect in China. Since the end of last century, Asian countries have been undertaken a high-speed development of urbanization. Take the China as example, the urbanization rate has risen from 10,64 %to 26,41% in 40 years (from 1949 to 1990). Although it was suspended during some specific political moment, the urbanization rate of China has reached 47,5% in 2010.[2]  In these 20 years, the built area in Chinese cities has been risen up from 12.200 km$^2$ to 40.500 km$^2$.[3]  In side of those numbers and rates of speed of urbanization progress of China, a great amount of working opportunities have been created, but in the meanwhile, because of the long-term neglect of the urban design related issued inside of the education framework in architecture schools, most of Chinese architects have few experience and knowledge to use when they face the requirement of using architecture as the tool to improve problems of the city. When buildings inside of the city are still undertaking the situation of copy and paste, even if there are some good practice examples starting to appear in the contemporary environment, but those good examples almost all are located in the countryside. The urban problem still haven't been marked as the crucial point which can help architect to generate good architecture, escaping from city still seems to be the excuse and condition to make good architecture in China.

2. China International Urbanization Development Strategy Research Committee, *White-book of "The Report of Actual Urbanization Rate of China in 2010"*, 2010

3. *Oriental Outlook* vol.33. Shanghai: Shanghai Media Group, August, 2004

So under that pre-condition, I decided to study on the urban-related topic and try to find the model of designing urban architecture which can fit into a more general urban context of contemporary cities, From one side, it can avoid the urban-ignorance in the process of architectural design, from the other side can also avoid a pure metaphorical discussion that does not belongs to the research realm of the architectural project department. So it is this intention basing on objective thinking and practicing provides the fundamental orientation from the prospective of positivity instead of criticism, which makes the final layout of research lean more to the certain projects that having the urban character, not to those ones isolated from the urban context.

Certainly, the methodological discussion started from that intention does not mean that architecture can be evitable just by the way of the proposed method but ignoring other influences and conditions; and there should be some acclimatized moments when introduce this concluded method to distinct regions and areas with different cultural background. What I am trying to do in this research is to compare and create a possible approach to solve problems related with the urban architecture topic in the contemporary context, not only works in Europe, but also in China.

## 1.2 Scope

In order to make a deep-inside research within a clearer framework, I decide to reduce the quality and proportion of the diversity and complexity based on various cities as case studies into a very limited scope that can provide a controllable amount of selections of fragment of the city. This idea is to emphasize stronger the object of the thesis: the meaning of inclusion and its diverse performance under the limit area – the city Barcelona.

If only to choose an area as the range for delimiting fragment of the city, any city can be chosen as the object. To decide let Barcelona to be the research scope which can provide the resources for selecting fragment is because some special characters of the city.

The first character is the diversity of the performance of fragments. City as a special artifact, the generation of its urban form has different possibilities. In these kind of cities, monuments can be seen as one of the most important element of urban form. The values of monuments define the urban form and its meaning, in the meanwhile which also limit its transformation and development. In another type of city, its urban form is based on the continuous actions of filling and strengthening the natural landform, which was concluded by Lewis Momford that some city was mixture between aesthetic and engineer respecting to organic planning.

Unlike those two examples, in which the power to push the

urban development is relative clear, there is still one more kind of city whose establishment had received multiple directions of strength and power, the city of Barcelona is one of those examples.

Barcelona was built by the Romans in the 1st century following the urban axis rule that first decide where to put the center of the city, the forum, then according to the center point two appendicular axis going across the center. By the description about the building strategy of Roman city, we can understand the appendicular logic of planning the city was based on the similarity of the specific geographic condition of cities locating along the Mediterranean coast, for example the wind direction and path caused by the landform. In the meanwhile, the complex rite of building the city also can tell human's respect and fear to the nature, which can support the point that the original urban form was not a pure manufactured, but a fact that related tightly with the nature.

In the 3rd century, the Roman wall of Barcelona city was built to resist the barbarian invasion. The 1500 meters long man-made wall was not only built for the defensive use, but also clarified the boundary of the city. So the urban development turned its strategy from outward expansion into an inward implosion. This transition from un-walled city to walled city created the physical urban boundary, and at the same moment largely increased the sense of security in the social aspect. Because the defensive power of the walled city to keep away the outer invasion was enhanced, the people living outside of the boundary were poured into the wall, which stimulated the development of the inner society from all aspects. So the walled area was enlarged twice in one and half centuries, with its total length reaching 6 km long. The transformation of the walled area well done recorded the phases of urban development and urban renew. Of course, for the city like Barcelona, not only the city wall can tell the importance of the strategic decision of human being acting on the urban transfor-

4. "All block are same; their equivalence invalidates, at once, all the systems of articulation and differenti-ation that have guided the design of traditional cities. " Rem Koolhaas, *Delirious New York: a retroactive manifesto for Manhattan*. Rotterdam: 010 Publishers, 1994. Pp.42

5. "During 11th July to 14th August of 1934, in an exhibition named "The New Barcelona", Plan Macia was first published in front of public, which include sever-al sessions like: analysis of the present state, a plan for territorial organization by areas; a cleaning up of the old town (District V); the limits of the Eixample and new urban layouts; the connection of the city with the beach-es of El Prat de Llobrega, and a critique of prevailing urban planning regulation." GATCPAC, *Una Nueva arqui-tectura para una nueva ciudad: 1928-1939*. Barcelona : Museu d'Historia de la Ciutat : Col•legi d'Arquitectes de Catalunya, 2006. Pp. 162

mation of the city, also such urban project like Cuitadella and Plan of Cerda in the 19th century played the same role during the history of the development of the city.

So the city of Barcelona has the impacts from monuments and other aspects which can push the development and structural consummate, at the same time, the natural geographical condition like back to the mountain facing towards the sea, the pressing from both sides by two rivers and so on, all affected the develop-ment of the city.

In other words, the actual face of Barcelona can give you the impress from two sides: first you can perceive the urban texture of ancient Rome, the three sections of the existence of city wall, the grid of Cerda, etc. these kinds of artifacts that can tell differ-ent desires of the city in different periods; second, you can also see the variation of the distance between the city and the sea, the mountain and its distinct topographical conditions that influence the design of architecture. The diversity of fragment can provide the diversity of selection in contemporary design when architects try to build the relation through the city fragment. In the mean-while, the research that based on the diversity of fragment will have more suitability and flexibility.

The second character is that, we can find a tradition of thinking around the relation between single building and urban context in contemporary Barcelona architecture, or we can say the Bar-celona architects are used to think about the design from the urban perspective. From the early 20th century, in the works of Modernisme, that character started to appear. Those projects didn't abbey the homoheneity limitation of the urban grid,[4] but to use architecture as the tool to justify the similarity of the urban performance, to break the isolation between those similar blocks. For example, the San Pau Hospital designed by Lluís Domènech i Montaner is one of those pioneers. In the 30s, the local archi-tect society GATCPAC's urban practices such like Plan Macia[5] is

another example. Even though it is that period brought Barcelona architect onto the stage of Modern Movement to experiment the absolutely "functional city"; more important is because of that period the architectural operation in Barcelona was encouraged "de la arquitectura al urbanismo" and "de lo micro a lo marcro" in the matter of scale.[6] In the 50s, the Group R leaded by Sostres, and Moragas continued the concern about urban issue.[7] Then in 60s, the Italian Rationalism represented by Rossi was introduced in Barcelona, which became the theoretical sustain to continue the tradition of urban prospective thinking of Barcelona architects.[8] So starting from the Modernisme in the turning of the century, to the Modern Movement's formal operation impact into the urban planning and development in the 30s', to the economic and social concerns in the 50s, until the return of history in the 60s, the urban character of architecture design had become solid to not only being the carrier of space and form, but also being part of the city which can express the spirit of the city through architectural performance. And it is because of that urban tradition of Barcelona architects; the architectural projects built during the city development have their own universal character of being urban.

Furthermore, basing on GMP 1975,[9] the master plan of contemporary urban development of Barcelona was in a strategy model which promoted the urban renew through small projects, which reveal a possibility that the urban renew could no longer rely on the urban planning in big scale, but can generated step by step with the participating of individual projects. Those micro transformations could realize the reorganization of urban structure, inheriting the collective memories, expressing the city's desire, etc.[10] Just like what Peter Rown said: "General Motropolis Plan provided a new legal framework for tackling the large volume of demands and conflicts that had accumulated over the years. The watchwords of the plan were 'reconstruction and harmonization of urban space', as it focused on improvement and restructuring of Barcelona, rather than on extension".[11] Of course, the success

6. Ignasi de Solà-Morales, *Eclecticismo y vanguardia : y otros escritos*. Barcelona: Gustavo Gili, cop. 2004. Pp. 163

7. That concern was reflected in two seminars hold by this group in 1958 and 1959: the theme in 1958 is: "Economy and Town Planning", the one in 1959 is: "Sociology and Town Planning". Also they pointed out "The problems of modern architecture do not reside precisely in the mere question of style. Architecture and town planning cannot just be a banal repetition of a specific everything else, certain technical basis that orientate architecture towards industrialization and an economic and social basis that essentially conditions the evolution of town planning and architecture." Antoni de Moragas i Gallissà, *Antoni de Moragas Gallissà : arquitecte*. Barcelona: Col•legi d'Arquitectes de Catalunya, 1997. Pp.27

8. It was in this cultural climate that, from the second half of the sixties, Barcelona saw a debate over the urban project that was strongly influenced by Italian theories, commencing with the morpho-typological studies of Aldo Rossi. The Italian architect's ideas were the

avowed inspiration for the magazine 2C, Construccion de la ciudad, published from 1972-1985 by the group of architects of the same name. The editorial of the first issue, which preceded a interview with Aldo Rossi, declared: we are interested in the formulation of a theory of the city from the specific viewpoint of its architectural dimension [...][it] is a question of passing from the study of the relation between urban, analysis and architectural design.'(Editorial in 2C: Construccion de la Ciudad, No. 0,1972). The magazine tried to found a scientific, national theory on Rossi's arguments, based on the study of those relations and assigning a value to the history of architecture and city. Chiara Ingrosso, *Barcelona: architecture, city and society 1975-2015*. Milano: Skira , cop. 2011, Pp.39

9. "[...] ha permitido importantes reservas de suelo para espacio public y equipamientos; ha propuesto un equilibrio de usos y densidades que incluso ha provocado algunos cambios de signo en le crecimiento de la especulación ha establecido un sistema de ordenanzas y criterios en el uso y el forma, con la intención de sustituir la

of the Olympic Games application which can ensure and accelerate this great progress with large numbers of project should not be ignored. Under that leading strategy, a large amount of projects were basing on the urban view, which provide a large amount of first-hand materials to this thesis and increase the degree of credibility of this thesis also to support a deeper inside analysis.

primacía del zoning y de los estándars cuantitativos por un proceso de localización y formalización que supere tímidamente las posibilidades del plan e inicia un intento de proyecto; ha respondido a las exigencias de una coordinación territorial de mayor escala, atendiendo a la relación centro-periferia, en el ámbito metropoitano." Oriol Bohigas, *Reconstrucción de Barcelona.* Madrid: Ministerio de Obras Públicas y Urbanismo. Secretaría General Técnica, DL 1986. Pp. 11

10. "El que es consecuencia de la alternativa entre el plan y el proyecto y el que lo es de la alternativa entre el concepto de ciudad como sistema ideal unitario y el concepto de ciudad como suma conflictiva de fragmentos reales." Ibid. Pp.12

11. Peter G. Rowe, *Building Barcelona: a second Renaixença.* Barcelona: Actar, cop. 2006. Pp.49

# 1.3 Methodology

12. Since the 20th century, semiology developed a lot. In America, philosopher Charles Sanders Peirce defined sign in three forms: Icon, Idex and Symbol, which is quite different from Saussure's system. In the mid of 20th century people like Claude Levi-Strauss, Roland Barthes and Umberto Eco had developed semiology theory into a wider sphere. Around the same period, in order to against the Existentialism of Jean-Paul Sartre, some philosophers use semiology to reconstruct the relationship between the meaning and the object. It was also introduced into architecture discipline with its initial aim to search for the meaning of architecture.

13. Roland Barthes, *Semiology and the Urban*. 1967

In this thesis, the nature of inclusion is the method of reorganizing fragment, is the process of rebuilding the disorder environment, is hunting the meaning and intention of urban architecture. Here I borrow the classic discipline about the study of meaning – the semiology – to discuss the method of inclusion and to construct the concept of the essential idea of the research.

Semiology, (also called semiotic or semiotic studies) is the focus on the meaning-making. This theoretical system has over a hundred year history since the publication of Ferdinand de Saussure's book "Course in General Linguistics". In the initial semiology system, it called all things that "can represent other things" the *sign*; and by dichotomy divided the sign into signified and signifier.[12] Later after the 70s, the semiology theory was widely used in architecture and urban planning fields, partly we can find the interest of urban issue by Roland Barthes,[13] and partly we can see in those Postmodernism architects' activities such like the conference of "Signs of Life: Symbols in the American City" held in Renwick Gallery of the National Collection of Fine Arts hosted by Robert Venturi and Scott Brown in 1976, which used the semiology method to review the architecture development. In 80s, the discussion around semiology and architecture was once popular in Spain, especially in Barcelona.

However, we have to understand there is not a theory can be

kept alive unchangeable and eternal. The semiology under its structuralism frame work had been experienced changes directed by Deconstruction and other contemporary philosophy. The relationship between signified and signifier had become more flexible and diverse, but still holding its semiology essence unrevised. When I borrow semiology theory in this thesis to explain my argument, I do not have any influence from the fashion theory, neither a personal preference. For me, it is the fact that the real understanding of the relation between architecture and city beneath the surface of appearance, the architecture's meaning projecting on the urban level can be matched with the essence of semiology theory. And that similarity can be deep-in discussed and proved  in the form of inclusion.

The precondition to see the relation between architecture and city fragment as the composition of sign is to define the resemblance between them before we entering the semiology discussion of the relation between building and city.[14] Between the different scales of the two elements, the similarity lays in their physical appearances and the multiple superposed layers of memories and emotions under their surfaces. For architecture, the architectural form is the carrier of all expressions, is the foundation of the container of many other elements[15] including the collective memories. So for city, the urban form, the physical appearance of urban form is the carrier and foundation of all the urban activities, the platform of civic live, the resource of the touristic impress, the recorder of urban transformation.[16]

The form is not only the most important character of architecture and city, but also the most dominate channel of expression and communication. Citizen can read different kinds of information through buildings, which can make them understood part of city in a new perspective. In this process, the architecture work just as language, helping people "speak" with the city.

No doubt, architecture has various relations with the city, differ-

14. "[…] it was resemblance that organized the play of symbols, made possible knowledge of things visible and invisible." Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*. London: Taylor & Francis, 2002. Pp.19

15. "[…]architecture is in essence the giving of form to intent, function structure and technics. Thus form is raised a to a position of primacy in the hierarchy of elements." Peter Eisenman, *The Formal basis of modern architecture*. Baden : Lars Müller, 2006, Pp.33

16. "The most enduring feature of the city is its physical build, which remains with remarkable persistence, gaining increments that are responsive to the most recent economic demand and reflective of the latest stylistic vogue, but conserving evidence of past urban culture for present and future generations." Spiro Kostof, *The City shaped: urban patterns and meanings through history.* London: Thames and Hudson, cop. 1991. Pp.40

17. "The architecture of the city- that is, its form, which seems to summarize the total character of urban artifacts, including their origins." Aldo Rossi, *The Architecture of the city.* Cambridge: MIT Press, 1984. Pp.32

18. Kojin Karatani, *Architecture as metaphor: language, number, money.* Cambridge, Mass.: MIT Press, 1995. Pp.35

ent from physical existence aspect to the social and political aspects. However, the most importance aspect lays in the question of form – the urban forms mostly are offered by architectures inside.[17] The relationship based on this formal logic is the key of this thesis, and it is just the presence and proof of the similarity between them.

Of course, the formal-based research cannot avoid the critic from the aspect of being formalism orientated. But the formalism is not the only criterion of the formal-based design of architecture, but "(Formalism) is marked by its insulation from what one might call the problematic of 'to be.' Moreover, formalism gives precedence to the arbitrary form that exists irrespective of object or sense, and conversely sees object and sense as interpretation."[18]

If we think from another angle that to see the form as the fundamental element of architecture, the idea that to treat the emphasizing of the formal-related topic as the focus on the fundamental issue of architecture design can be approved. The attention about the architectural form is just to give the principle to establish the architectural form under a certain meaning, to liberate the architectural design away from the limitation of subjective tendency and aesthetic training. If we see the formalism that strict form as the unique discipline, then the result from the analysis of the relationship between form and city fragment is just a behavior of anti-formalism, even it is under the logic of form.

In the meanwhile, when we borrow semiology as the methodology framework of the thesis, it means we decide not to follow the chronological or typological clue to organize the analysis of architectural projects, but base on the character of the relation each architecture case has with the city. From this point of view, although the whole thesis has the semiology theory as the structural methodology, its deepened-in progress of analysis still base on details of specific projects. Any realization of architectural design cannot simply base on style or theory, but influenced by

various objective conditions in its environment. That is the fundamental key point I have been emphasizing over and over again. And just because of that idea, the selection of analyzed project will not be chained by times and styles; neither will I avoid the phenomenon of repeating the selection of works from the same architect. Certainly the detail discussion of particular project will not include the general introduction of the entire situation of the project, but more targeted analysis pointing directly to the theme of the thesis after filtering unrelated information of the project. Compare with those tenebrous theory, I believe that the pure study on projects can lead to the true common point behind the appearance in a more direct manner. [19]

19. "[...]General laws may well be implied by the narrative of a case study and are perhaps never avoided, but starting with the case rather than the laws at least assures dialogue with the material. To be specific, it involves investigating the physical and cultural context of each building, and even if one trying to discover general rules or principles behind it, this perhaps better than bending the work to fit the rules." Peter Blundell Jones, *Modern architecture through case studies*. Oxford [etc.]: Architectural Press, 2002. Pp.6

Chapter 2      Fragment & Inclusion

1. Walter Benjamin, *Theses on the Philosophy of History*. London: Fontana/Collins, 1973. Pp.259-60

2. *Collins English Dictionary*. Glasgow: Harper Collins, 1991. Pp.610

## 2.1 Fragment

"[…]a painting by Klee called Angelus Novus. An angel is depicted there who looks as though he were about to distance himself from something which he is staring at. His eyes are opened wide, his mouth stands open and his wings are outstretched. The Angel of History must look just so. His face is turned towards the past. Where we see the appearance of a chain of events, he sees one single catastrophe, which unceasingly piles rubble on top of rubble and hurls it before his feet. He would like to pause for a moment so fair [verweilen: a reference to Goethe's Faust], to awaken the dead and to piece together what has been smashed. But a storm is blowing from Paradise, it has caught itself up in his wings and is so strong that the Angel can no longer close them. The storm drives him irresistibly into the future, to which his back is turned, while the rubble-heap before him grows sky-high. That which we call progress, is this storm."[1]

### Fragment in history

The definition of fragment in Collins English Dictionary is: as a noun, it means a piece broken off or detached, an incomplete piece or a scrap; as a verb, it refers to break or cause to break into fragments.[2] From the point of view on the root of the term "fragment", the Greek and Latin words which has the equal use of fragment are applies in antiquity only to physical objects, never to portions of discourse: the Latin term "fragmentum" means

to break; and the corresponding Greek words such as "apo-spasmata"(means excerpt) "spasmata" '(means break) and "klas-mate"(means fraction)refer to "bits and pieces of things like food or textiles and are never used for texts."[3] And this meaning had been transferred to the family of Latin languages; the fragment in English also borrows from the French.

From the linguistics point of view, the meaning of fragment was close to the meaning of the word "part", which pointed to de-scribe the physical character of object at the beginning. The ear-liest idea talking about the similar meaning of part, or fragment in metaphorical area is by Plato in the Phaedrus. Plato's concept came from the definition of the interrelation between a text and its parts: only if the text as a whole is thought of as a body can its dissociated parts be conceived as fragments.[4]

In the idea of Plato, fragments had the characteristic which was different from segments or portions is the one revealed an illog-ical order of organizing underneath the surface of presence of fragments; and the fragment could be seen not only as part of the whole thing, but also had its autonomous and dependence of self-existence. Afterwards in the field of literature, fragment started to be used frequently as an idea of abstract character. In the period of Renaissance, historians paid more their interests on the topic of antiquity, however, as the "antiquity is dead", the way of thinking of fragment became the only method to face the research about antiquate history. Accompanying with the sense of "connecting loss" in documentary research about the history, fragment turned to be more than the word that could express the emotional sentiment such like "lost".[5]

The expression of this kind of subjective feeling actually was sus-tained by another characteristic of fragment – the subjective se-lectivity. Since the fact of the contingency of the things happened in the history, the forming and consolidation of fragment was undesigned, however, in the contrary, in order to build an idea or

3. William Tronzo, *The fragment, an incomplete history*. Los Angles: Getty Publications, 2009. Pp. 11

4. In Phaedrus, Plato borrowed Socrates's words, described the use of rhetoric. In the description, the sequence of the arrangement of parts inside of a whole piece of text is kind of skill of rhetoric in speech? "Don't you think it was all thrown together indiscriminately? Or do you think there was any real reason why what came second was put second, and so on for all the other sections of the speech?"
In the meanwhile, concerning about the relationship between the integrative and partial, he explained: "Being able to cut things up again, class by class, according to their natural joints[…]the irrational part of the mind as a single type of thing, with features in common, and just as a single body has parts that naturally come in pairs with the same names (one called the part on the left and the other the part on the right.)" *Plato*, Translated by Robin Waterfield, Phaedrus. Oxford: Oxford World's Classics, 2009. Pp. 53-56

5. William Tronzo: "Pretrarch

who first extended the usage of the word 'fragmentum' to encompass with deep pathos all that was left over from the fall of Rome." William Tronzo, *The fragment, an incomplete history*. Los Angles: Getty Publications, 2009. Pp.14

6. Friedrich Schlegel: "Just like a small work of art, a fragment must be completely separated off from the surrounding world and must be perfect in itself, like a hedgehog." Friedrich Schlegel, "Athenaums-Fragmente", *Kritische und Theoretische Schriften*. Leipzig: Philipp Reclam Jun Verlag GmbH. 1998. Pp.99

7. Linda Nochlin: "Fuseli has constructed a distinctively modern view of antiquity as loss - a view, a 'crop', that will constitute the essence of representational modernism." Linda Nochlin, *The Body in Pieces, The Fragment as a Metaphor of Modernity*. London: Thames and Hudson, 1994. Pp.8

8. Linda Nochlin: "The fragment, for the Revolution and its artists, rather than symbolising nostalgia for the past, enacts the deliberate destruction of that past, or at least, a pulverisation of

concept which often could be subjective and personal, scholars used fragment more as materials which helped to complete a theoretical work than just using fragment as evidence to reconstruct the appearance of the past in history. In this way, the original meaning which focused on the relationship between parts and integrate whole was reduced and replaced by the concerning on the autonomous of each individual unite of fragment itself. So the trend of thinking which based on the system interior and core interior of fragment itself started to be apart from the system original.[6] In the meanwhile, this independency brought new feature into the concept of fragment, which is the fragment had not been seen as an unchanged objective existence any longer, but could be seen as something in motion. That is the starting moment when fragment began to have the possibilities that it became as a topic that was discussed spread into the areas of art and culture.

In the end of 18th century, along with the transforming caused by the industrial revolution, a large part of the writers and artists had been falling deeply into the depression caused by anxiety and sense of crisis upon the inheritance of culture starting from antiquity. The magnificence scene of history had been no longer suitable for the new frame of the present, which mainly leaded artists exhausted with the magnitude of past heroic. Those feelings were expressed by the paintings of Fuseli, for example, his "crop".[7] Those partial images, the "crop", fragments, all revealed the pessimistic emotions about nostalgia and utopian wholeness of those artists who experiencing the changing and unstable environment of that age. French Revolution- the truly arrival of modern period- stimulated using fragment as a positive rather than a negative manner. Comparing to the obsolete habit of memorizing on the past, artist facing with the new era wished to use fragment to demonstrate the farewell to the past and the expectation for a complete new future.[8] (fig. 2.1)

In the year 1900, German sociologist and social philosopher Georg Simmel's work "The Philosophy of Money" brought the

Fig. 2.1 Henry Fuseli , The artist moved to despair at the grandeur of antique fragments, 1778-1779

discussion of fragment into the area of sociology, moreover, he defined fragment as the Zeitgeist and the main characteristic of that time.[9] Comparing with the focus on the term fragment, Simmel paid more attention on the fragmentation.[10] And that attention brought the term fragment not only become a research method adopted in the areas of literature and art, but also was seen and discussed as a fact of social character and ideology. The definition of fragment by Simmel paid more concerns on the integrative reflection than the individual underlining, which all revealed his postmodernism tendency.

From 20th century afterwards, ration, progress, scientific con-

what were perceived to be its repressive traditions." Ibid, pp.8

9. D.Koigen: "Modernity has found here a dynamic expression: the totality of fragmentary, centrifugal directions of existence and the arbitrariness of individual elements are brought to light. In contrast, the concentric principle, the monument element is no attained." which was quoted by Fragment of Modernity in pp.39 from the article "Sociologische Theorien" written by D.Koigen in *Arichiv fur Sozialwissenschaft und Sozialpolitik*. vol.31, 1910. Pp.24

10. David Frisby: "Simmel did theorize the fragmentation of both individuals and discourses, and a breakdown in unified contact with the part which now, he argued 'comes down to us only in fragments' as a past that 'can come to life and be interpreted only through the experience of the immediate present'. However, our experience of the immediate present is one of discontinuity, flux and fragmentation." And he thought Simmel's discussion of fragment which was based on the research on Modernity brought it contaminated with a bit of

post-modernism theory – an 'Anticipating Postmodernity'. David Frisby, Georg Simmel. London: Routledge, 2002. preface

11. A. Fuat Firat: "1. [Fragmentations] persist in the media, the most important and dominating mode of exposure to our universe in contemporary society. 2. A fragmentation of our thoughts, desires, and behaviors from our own contexts. Especially the postmodern generation, our youth, sever themselves from the worldly events around them. To the modern(ist) mind this is a state of being uninformed or ignorance. To the postmodern (ist) mentality this is an alternative form of being; one that liberates from the conformities or impositions of a single "regime of truth." 3, Such postmodern existence is reinforced by another set of fragmentations; that of the signifier from the signified, the object from the function, and the product from the need." A. Fuat Firat, "Fragmentations in the Postmodern", in *Advances in Consumer Research* Volume 19. Provo: Association for Consumer Research. 1992. Pp.203-206

scious rules and the only one true picture of the world those which came up with the Modernism had been gradually replaced by individual independency in the postmodernism period. There was no longer existing the exact right or wrong according to an objective standard, the distinctive opinions referring to the different perspective points of views had been acceptable in a wider discussion. So as the talking which related with fragmentation, discontinuities and chaos, more and more became a weapon, which could be used to fight against the ordered and purified world in Modernism period, and had been spread over immediately. Thousands of articles writing about the topic of fragmentation had been published, which covered the area from social and culture problems to ordinary life.[11] The effect of the change is profound and unimaginable. From one side, our way to see things had been swift from structural and systematic manners to ways through fragmentation; another side, the existence relationship between things had been broken up and reconstructed. In total, the idea of fragmentation gave all the massive things the possibility of being a piece of fragment independence itself. The understanding of the fragment gradually had been converted from the focusing on the relation between wholeness and partial to the latter on the individual piece itself, until the postmodernism's attitude on the reaction from the part to the whole in absolutely contrary, which fundamentally changed the former "metanarratives" and replaced it with the complete new idea and it had influenced in a considerate degree of the philosophy of many research categories. Although this perspective point of view which lost the focus on the system and paid attention on the details still has been argued on its influences on the scientific research field, no doubt, the fundamental effect on the researches related with culture and social problems has been witnessed constantly.

As Zygmunt Bauman said:" […]I propose that the study of postmodern morality(ies) must be a study in the context of postmodern life and postmodern life strategies. It is the guiding theme of these essays that the roots of postmodern moral problems go

down to the fragmentariness of the social context and the epi-sodicity of life pursuits."[12]

## Fragments of the city

The rise of thinking following the way of fragmentation, which is mainly the way to receive information in fragments and also the way to rebuild the coexistence structure with fragmental materi-als, had influenced the research method about the field of urban study on postmodern cities.[13] Studies about the urban composi-tion had been no longer bounded by history, limitation on general hierarchies and structure, etc. Instead of that, urban researchers started to demonstrate a series of works full filled with diversity and personal interpretation.

In the book "Image of the city", Kevin Lynch classified the con-tents of the city image into five elements referable to the city's physical forms and construction: paths, edge, district, nodes, and landmarks.[14] The conclusion was based on the research of mental image of three cities: Boston, Jersey City and Los Angeles which are held by its citizens, so to use studies relating to human per-ceptions of the city on the perception of the city environment to build the theory of city form, which had the aim to guide the urban design. Even though, we can find that this five elements is defined without following a systemic logic, thers are more than those five elements can be found in a modern city. So the city was fragmentized by Lynch himself. Not only that, in this process of re-reading of city, the starting point was collecting the opinions of citizens who were living inside of the city;[15] this method had already got rid of the sense of functionalism from the Modern Movement and putting efforts on the research and discussion of fundamental relation between citizens and urban elements. Even those element are come from the collection, the method of how to define the way of collecting was actually designed by urban researchers. Therefore, the forming of any specific methodology

12. Zygmunt Bauman, *Life in Fragments: Essays in Postmod-ern Morality*. Oxford: Black-well Publishers, 1995. Pp. 9

13. Nan Ellin: "Postmodern urbanism", the main charac-teristics of urban research about the postmodern cities mainly are: "contextualism, historicism, the search for urbanity, regionalism, anti-uni-versalism, plualism, collage, self-referentiality, reflexivity, preoccupation with image/décor/scenography, superfici-ality, depthlessness, ephemer-ality, fragmentation, populism, apoliticism, commericialism, loos of faith, and irony." Nan Ellin, *Postmodern urbanism*, New York: Princeton Archi-tectural Press, 1999. Pp. 154

14. Kevin Lynch: "Paths are the channels along which the observer customarily, occasionally, or potential-ly moves; edges are the linear elements not used or considered as paths by the observer; districts are the medium-to-large sections of the city, conceived of as having two-dimensional extent, which the observer mentally enters "inside of", and which are recognizable as having some common, identifying character; nodes are points, the strategic spots in a city into which

an observer can enter, and which are the intensive foci to and from which he is traveling; landmarks are another type of point-reference, but which the observer does not enter, keeping external to." Kevin Lynch, *Image of the city.* Cambridge: MIT Press. 1960. Pp.47

15. Kevin Lynch: "Every citizen has had long associations with some part of his city, and his image is soaked in memories and meanings." Ibid.. Pp.1

16. Aldo Rossi: "The city comes to be seen as a 'masterpiece', something that is substantiated in from and space but understood in time, in its different moments (which cannot be predicted with certainty). The unity of these parts is fundamentally supplied by history, by the city's memory of itself." Aldo Rossi, *Architecture of the city.* Cambridge: MIT Press, 1984. Pp.64

17. In Rossi's book *Architecture of the city,* he firstly pointed out the fact that the modern cities had been fragmented and it was a mistake that any effort paid to unify this state of fragmentation: "This is true both for the modern metropolis and for

was essentially built upon personal perspectives and interpretations.

Different from the absence of historical aspect in Lynch's five elements of city image, Aldo Rossi emphasized especially the importance of history in his urban reading.[16] In Rossi's interpretation, city was constructed by series of urban fragments.[17] This way of trying to discovery the continuity of the urban reform was supported by pieces of researches on parts of the urban context shares the principle, which is closed to Lynch's approach; besides, the way of Rossi that used city events to re-organize the urban understanding primarily shares the principle in common with Lynch's way of collecting citizens' images of the city as well: the selection of their methodologies of researches are basically base on their personal preferences.

Similar methodology could be easily found in post-modernism period, like the "Collage City" by Colin Rown.[18] In these contents of researches we could find some common points as following:

1. The character of city no longer could be defined just through the image of city as a whole thing; it also spread into many parts of the urban fabric. So the research related with the urban topic, had been gradually moving to studies emphasizing on those city's fragments.

2. The way of how to read and analyze city had received its high freedom, it revealed the spirits of anti-heroism and diversification in the creed of post-modernism, so that a kind of liberation had come into the urban research field;

3. Instead of being interpreted by functions, architectures and streets had been seen as objects which could demonstrate their various urban characters according to different ways of perspective thinking;

4. The range of urban research objects had been enlarged considerately, city was on longer a collection of artifact, and it should evolve multiple relations, such as the nature environment, the activities of citizens, memories, so on;

Overall, the meaning to re-define city with the ideology of fragmentation lies in the intention that to detach urban researchers and architects downwards from the god's view of seeing the city from the sky and transforming the urban area in large scale operations, then to focus on the topics concerning about more specific items which related with history, geography, human activities and so on. Although there would be a big mount of different attitudes and strategies carrying on with specific definition inside of each separate part, here in this thesis I define this separate part as **the fragment of city**.

Compare with the idea of "part", the fragment of city has a deeper meaning: first the fragment of the city expresses the relation between whole and parts, so it has a similar meaning with the word "part"; secondly, compare to "part", the fragment emphasizes the individual independence of single pieces, the singularity of fragment gives the possibility of an isolated discussion which only focus on the fragment itself; lastly, the performance of fragment depends on different method of breaking, so the results – the presences of the fragment – becomes diverse.

Although there are hundreds of classification on definition fragment, the intent of defining the fragment of the city is to build up a hierarchical system that divides fragments into two categories – easily changeable and rarely changeable. The ones rarely changeable do not refer to the quality of function or form, but the memories formed by events lies inside of fragments, which cannot be easily erased by the passage of time. So regarding to that characteristic of continuity which fragment has as its rarely changeable criterion made by the collective memories, it helps us in a certain point to grasp the meaning of city structure, to

the concept of the city as the sum of many parts, of quarters and districts that are highly diverse and differentiated in their sociological and formal characteristics. In fact, this differentiation constitutes one of the typical characteristics of the city. To reduce these diverse aspects to one kind of explanation, and thus to one formal law, is a mistake. The city in its totality and beauty is made up of numerous different moments of formation; the unity of these moments is the urban unity as a whole." Then, Rossi explained his own definition and understanding of the fragmentation of urban context: "They participate in the evolution of the city over time in a permanent way, often becoming identified with the major artifacts constituting the city. The union of these primary elements with an area, in terms of location and construction, permanence of plan and permanence of building, natural artifacts, and constructed artifacts, constitutes a whole which is the physical structure of the city." and "Certain works which participate as original events in the formation of the city endure and become characteristic over time, transforming or denying their

original function, and finally constituting a fragment of the city- so much so that we tend to consider them more from a purely urban viewpoint than from an architectural one." Ibid. Pp. 64, 86,115

18. In the book Collage City, Colin Rown borrowed the description of "objects trouvés" from T.S. Eliot in the Waste Land, aiming to decompose city to "memorable streets, stabilizers, potentially interminable set pieces, splendid public terrenes, ambiguous and composite buildings, nostalgia-producing instruments and garden." Colin Rowe, *Collage City*. Cambridge: MIT Press, 1984. Pp.152-182

19. Maurice Halbwachs: "a collective remembrance has a double focus-a physical object, a material reality such as a statue, a monument, a place in space, and also a symbol, or something of spiritual significance, something shared by the group that adheres to and is superimposed on this physical reality." Maurice Halbwachs, translated by Lewis a. Coser, *On collective memory*. Chicago: The University of Chicago Press, 1992. Pp204

20. Aldo Rossi: "Memory, within this structure, is the

understand the individuality of architecture itself, in the meanwhile, encourage people to call their memories on those events which hide behind the physical shape of architecture.[19] By this mean, history have been passed down and reconstructed in the actual moment. Right until now, when we find ourselves staying in side of a city, no matter we are local citizens or just tourists, the reading and understanding of the city and those architectures, which includes all the information coming from the aspects of architectural form, urban structure, history, geographical data and so on, are obtained through city's fragments. Those fragments working together with their collective memories consolidate the characteristic of the city.[20] In that process, fragment plays the role of 'catalysts' that delivers the information of the city.[21]

However, what we have to aware is that, the passing down of the 'collective memory' in fragment does not mean the things happened in the past are preserved in its original statement. Because on one hand, the 'collective memory' is a concept basing on a collection from certain quantity of people, it is the individuality that has the ability of remembrance;[22] on the other hand, the knowledge of the past are all based on contemporary reinterpretation, which basically is a reconstruction of city fragment. All these have made up the self-interpretation of the description and categorizing of city fragment.

So we can say that, the three features of fragment - the continuity, the role of 'catalyst' and the autonomy – all together define the equality of each piece of fragment, so the historical and physical criteria do not play much importance on the concept of fragment of the city, the chronological order of appearance and volumetric scale of specific object that one fragment represents for do not have much direct connection with how much 'collective memory' that is included inside of itself.

This equality of fragments decides the equality of the aim to use the fragment in architecture design process. In the context of

postmodernism, we can borrow the concept of fragment of the city to express the emphasis on the individualism of the "place" - the city – in order to argue the internationalism and standardization of architectural design (that argument not only appeared in the modern movement period, but also in the contemporary society). In the meanwhile, the characteristic of continuity that the fragment of the city has can be used as a tool to against the situation that becomes gradually out of control by the blindly sought and chasing for "being different". In other words, the fragment of the city devotes its fundamental intent to weaken the absolute respect to the rationality and order in the spirit of modern movement; moreover, with the help of fragment, we may find the possibility of creating a new approach with guidelines and principles which architecture design can rescue it from chaos in the postmodernism period.[23]

If we take a view back to review those adventures taken for discovering the true meaning and order of design, it is not difficult to realize that history cannot be underlined as a rectilinear motion, but a pendulum, which escaped from the conformity of restricting the order to a value placed on tolerance for diversity, cultural pluralism, and relativism, but finally ended up with situation of disorder, another extreme pole. So what the concept of the fragment of the city expresses is an attitude full filled with diversity and generosity, which can be used as the essential key to sustain a proposal of a new method. Using fragment will help us to build another standardized in a chaotic society.

consciousness of the city; it is a rational operation whose development demonstrates with maximum clarity, economy and harmony that which has already come to be accepted. Aldo Rossi, *Architecture of the City*. Cambridge: MIT Press, 1984. Pp. 131

21. Aldo Rossi: "In a general sense they are those elements capable of accelerating the process of urbanization in the city, and they also characterize the processes of spatial transformation in an area larger than the city. Often they act as catalysts." Ibid. .Pp. 87

22. Maurice Halbwachs: "While the collective memory endures and draws strength from its base in a coherent body of people, it is individuals as group members who remember." Maurice Halbwachs, Translated by Lewis a. Coser, *On Collective Memory*. Chicago: The University of Chicago Press, 1992. Pp.48

23. Aldo Rossi: "Rationalism is necessary, like order, but whatever the order, it can be upset by the external factors of other order- whether historical, geological, psychological." Aldo Rossi, Translate by Lawrence Venuti, *A Scientific*

*Autobiography*. Cambridge: The MIT Press, 2010. Pp.16

24 Nan Ellin, *Postmodern Urbanism.* New York: Princeton Architectural Press, 1999. Pp. 113

## 2.2 Fragment issues

*"While the postmodern reflex might be regarded as an effort to find meaning and to be contextual, it usually entails discovering meanings and inventing contexts in order to cope with the peculiar fear of the postmodern condition."*[24]

In the post-modernism context, the continuity and stabilization rooted inside of the concept of city fragment was the essential core to make the tool that can achieve the aim to fight with the chaotic and unpredictable environment at that moment. In other words, although the absolute faith for the functionism of those modernists has been criticized by postmodernists, the fact is that the architectural identity which lies behind the postmodernism theory still needs to search for the inspiration from new object other than function, which can offer new meaning, reference, order and sense of security. In the meanwhile, the encouragement and chasing for the individuality and personality of perspective thinking create a more diversified scene of the postmodern period than the one in the modern movement. And it is the way of using fragment in architectural design reflecting that kind of diversity.

**Team X, the beginning of the revision**

As a representative of the young generation, Team X was one of the first group of people who opened the discussion on the attempt of linking architectural practice with un-architectural criteria. In the beginning, it focused on the issue which paid the re-attention to the environment. Early in the meeting of CIAM IX, those young architects had pointed out that architecture could not be seen only as an isolated object, but a comprehensive system that connected architecture with its surrounding of the environment. According to the notes and writings that were taken down during the group's meeting, the environment here not only comprised the nature environment, but also the social and urban ones.[25]

Then those architects from the same group started to think how to bring these un-ignorable external criteria into the architectural design. That method was not a negation to those principles proposed in the modern movement, but an intention to integrate the modern with the existing fabric and for seeking new possibilities for transforming both old and new structure, which exactly had its foundation based upon the thought in the modern movement. In other words, the relative individual position as "single point" of the architecture designed in the modern movement had been gradually replaced by placing inside of a communicative network made together with the "outside". The discussion about the relationship between architecture and the environment had come back to the table and it became the fundamental precondition for using the fragment in architectural design.

In the project of the Economist Building designed by Alison Smithson and Peter Smithson in 1964, the new building respected the scale, the height and the material of the existing building in its surrounding except the ornament of those details on the historical building. Many aspects of the design of that building, such as the form generation, the selection of materials and so on, revealed the specific interest of the author on the consideration of the historical and urban environment of the place where the

25. "Their architectural solution displayed a wide range of formal articulations and theoretical frameworks. These differences not with standing, they recognized a common desire to create environments with would encourage relations between inhabitants, between and its environment, and which would accommodate the cultural needs of people." […] To discover the qualities of built environment, to approach them, one must study the real units of the city: the district, the city, the house." *Team 10*, edited by Max Risselada and Dirk van den Heuvel, Team 10, 1953-1981, in search of a Utopia of the present. Rotterdam: NAI Publishers, 2005. Pp.21-26

26. Alison & Peter Smithson: "The space available on this site is small, which suggests that the cladding material should be light-coloured so as to reflect light into the courtyard-like spaces between the buildings. This material also had to be capable of being worked in large unite, which could sustain the scale of the building and provide an obviously support-cladding architecture, more or less in the way that the columns and entablatures are applied to the outside of the structural frame of a Roman amphitheater. […] It is hoped that the building, so far as colour is concerned, will eventually resemble Archer's Church, St Paul's Deptford, that is , with a strong black and white contrast according to orientation (The Economist tower has the same orientation as the tower of this church.)" Alison & Peter Smithson, "The Economist Group St James's Street, London", *Architectural Design*, Vol. XXXV, 1965. Pp.63-86

27. Peter Blundell Jones, *Modern Architecture Through Case Studies* 1945-1990. Boston: Elsevier, cop., 2007. Pp.66



Fig. 2.2 Alison Smithson and Peter Smithson, Economist Building, London, 1965

building located.[26] And those kinds of interests, also including the way to design the presence of architecture through the understanding of the city and its context, were those figures which the members of Team X shared in common. After all, the Economist Building was seen as rather finely balanced between sensitive refinement and blunt certainties.[27] (fig. 2.2)

In the same period, Josep Antoni Coderch's project Casa Ugalde expressed also his attention of the environment in the surrounding of the given site: the natural elements became the main
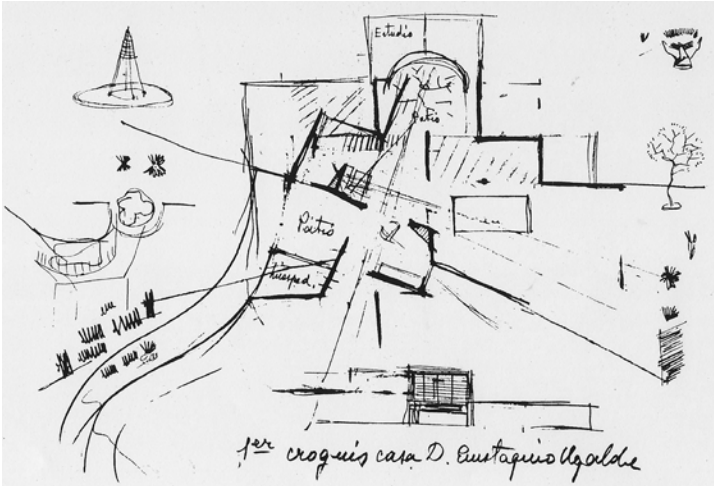
Fig. 2.3 Josep Antoni Coderch, sketch of Casa Ugalde, 1951

28. "The master plan does not interpret renewal of the historic center as mere improvement and modern-ization of building…but as a radical restructuring of the city in pattern and forms capable of guaranteeing con-tinuity between the existing and the new physical frame-work." Team 10, edited by Max Risselada and Dirk van den Heuvel, *Team 10, 1953-1981, in search of a Utopia of the present.* Rotterdam: NAI Publishers, 2005. Pp.106

reason to shape the architectural form and the axis inside of the composition. The architecture itself borrowed those external objects to guide the direction, at the same time build the rela-tionship between the building and its place.(fig 2.3)

That idea of searching for the relationship could be found not only in the architectural design project, but also the urban design and urban planning in large scale. Giancarlo De Carlo's master plan of Italian city Urbino is one of those examples in large scale. On one hand, the plan showed its functional concerns that relat-ed with the principle from modern movement; on the other hand, it included a visual analysis of city and surround landscape, in-cluding the architectural quality of the building, landmarks, views, green structures and road surface. Inside of that project, all the characteristics and basics of the city Urbino became the informa-tional resources and objective foundation preparing for analysis and design, and De Carlo used those materials and elements as the city fragment of Urbino to realize a continuity of urban devel-opment.[28] (fig. 2.4)

Even though Team X was not a well-known research group in

Fig. 2.4  Giancarlo De Carlo, Masterplan of Urbino, 1966

theoretical fields and the organization management was a bit loose, all the group members as architects themselves were using their designs of singles buildings in different regions and countries as a series to present their thinking and proposing about the new character of architecture in the new era. We could easily summarize several common points lying inside of those practices done by Team X members: first, their practices still continued some features of modern architecture; second, that group of architects had been starting to consider the method to connect the single building with its urban context, territory, even history; third, compare to the modern movement, the diversity of architectural performance and legible meanings achieved from the individual interpretation and election on the concerning about the surroundings in that specific period had been risen up in a considerable degree.

However, the continuity hesitated from the modern movement together with the transformation in the attitude of open up to the environment brought us difficulties in giving a precise defini-

tion about a sort of ascription when facing with two tendencies: whether it was a self-adjust during the late modern movement period or a new call for starting a new epoch. In the meanwhile, the magnificent imposing manner of narration by Team X showed a certain way of maladjustment that kept them a distance either from modern movement or postmodern era, which caused the following young generation laying more on the urban image than on urban structure.

## Postmodern architecture, graphic operation

The term postmodern was firstly used in the architectural field in the title of an article by Joseph Hudnut in 1945. But it was Charles Jencks brought it to be populating discussed. He defined postmodernism in architecture as a 'double-coding': the combination of modern techniques with something else in order for architecture to communicate with the public and a concerned minority, usually for architects. This definition of double-coding was just the response exactly to the formulation of fragmentation in postmodernism theory. Considering about the variety of multiple interpretations by different individuals, the architecture should also accept the possibility of a linguistic understanding by the way of double-coding.[29] Without a doubt, the meaning and the significance of architecture do not have to be equal because according to different knowledge backgrounds and living manners, the significance of architecture that obtained by the reader could be distinct. The theory of double-coding refused the narrow perspective and single language even if it was concluded from professional experience; it brought the possibility of establish the relationship based upon multiple interpretation and wider communication.[30]

Distinct from the structuralized operation of Team X, the postmodern architecture put more efforts in the graphical presentation of the historical information, which jumps out of the lim-

29. Charles Jencks: "a popular traditional one which like spoken language is slow-changing, full of clichés and rooted in family life"and one which is "a fast-changing society, with its new functional tasks, new materials, new technologies and ideologies." Charles Jencks, *The Language of Post-modern Architecture*. New York: Rizzoli, cop., 1991. Pp.83

30. According to the view of Eric Donald Hirsch, a different between the meaning of a text and the significance of a text, the meaning of a text is what the author intended it to mean, that is to say, what we can establish with a reliable paraphrase. The significance of the text is the meaning for us, that is to say, what we take to be important about this meaning. The way, in which for example, we can translate it into our own terms historically, we can adapt it to a cause or an intellectual position. The way, in other words, in which we can taking the meaning of a text and make it significant for us. Enric Donald Hirsch, *Validity in Interpretation*. New Haven: Yale University Press, 1967

31. Matei Calinescu: "The postmodern have taken

[…] that of de-unifying and de-simplifying our image of the past. Fundamentally pluralistic, the historicism of postmodern architecture re-interprets the past in a multiplicity of ways, going from the endearingly playful to the ironically nostalgic, and including such attitudes or moods as humorous irreverence, oblique homage, pious recollection, witty quotation, and paradoxical commentary." Matei Calinescu, *Five faces of Modernity, modernism, avant-garde, decadence, kitsch, postmodernism*. Durham: Duke University Press Books, 1987. Pp.283

32. Robert Venturi: "I am for messy vitality over obvious unity[…] I like elements that are hybrid rather than' pure,' compromising rather than 'clean,' distorted rather than 'straightforward,' ambiguous rather than 'articulated,' perverse as well as impersonal[…] conventional rather than 'designed', accommodating rather than excluding, redundant rather than simple, vestigial as well as innovating, inconsistent and equivocal rather than direct and clear[…] I include the non-sequitor and proclaim the duality" Robert Venturi, *Complexity and Contradiction in architecture*. New York:
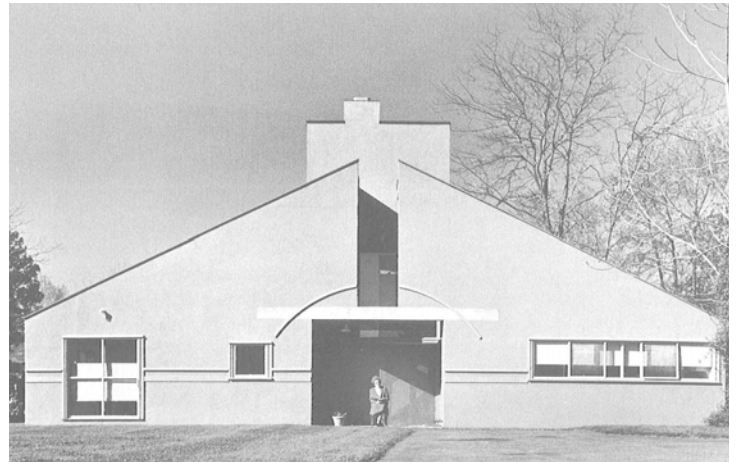


Fig. 2.5 Robert Venturi, Vanna Venturi House, Philadelphia, 1964

itation on systemic operation, liberating the interpretation into a larger free space.[31] This was reflected in the work of American architects such as Rober Venturi and Michael Graves. As early as 1966, Venturi published his manifesto text- "Complexity and Contradiction in architecture". In this book, base on the analysis of uncertainty and contradiction in architecture, Venturi tried to decomposes the connection between form and function and emphasize the complexity, which does not mean the functions, but composition of form.[32] Then, he started to find the meaning and reference for the form of architecture itself, if architectural form could be divorced from the function, where can we obtain the resource of the archetype of form and its way of composition? Like the work of himself, the fragment in the historical architecture became his resources for designing. In his works, the fragments taken from the historical building was not seen as a part of the original whole, but just a state that become an individual object. The original context had been washed off; the part had been taken apart from its mother body.[33] (fig. 2.5) This division also can be encountered in the works of Michael Graves, even more obvious, like the illusion of pillar on the elevation of the Portland Building, the enlarged keystone placed in the central upper part and even there is a simplified temple that is located on the top
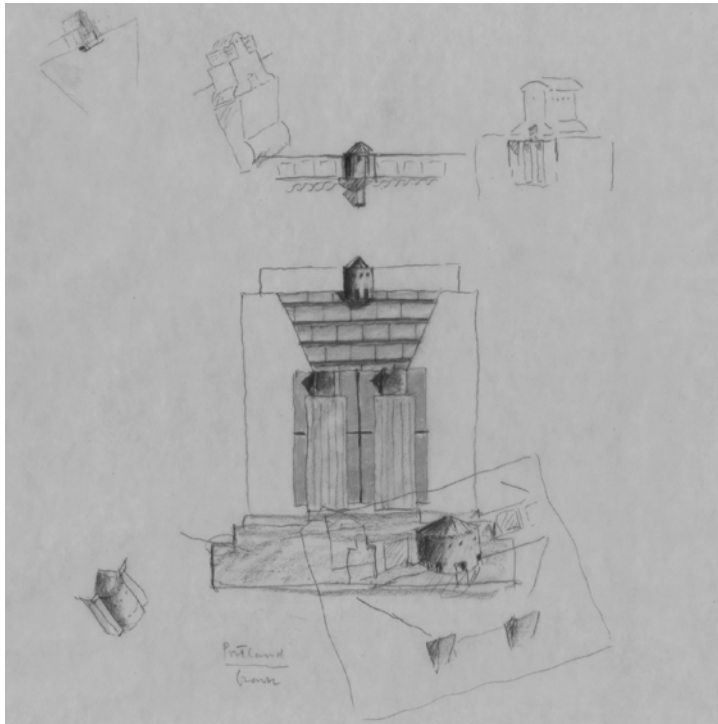
Fig. 2.6 Michael Graves, Drawing of Portland Building, Portland, 1982

of the building (fig. 2.6). However, this way of transforming traditional architectural elements gradually became the popularity of collage in pop culture. Such as the swan like object, which can be found in the Walt Disney World Swan Hotel, was designed occupying the most significant location in the entire building. The relationship between form and function had been totally cutoff, but afterwards, the process of rebuilding the new order seemed to be not easy.

Both Venturi and Graves, had walked out of the systematic, grammatical and structural manners, stepping into a period that promote the way of seeing the traditional element as a piece of fragment that can be used to compose the new architecture, in which the rule of composition was created mostly by the person-

33. Robert Venturi: "The architect's main work is the organization of a unique whole through conventional parts and the judicious introduction of new parts when the old won't do […] The architect thereby, through the organization of parts, create new meaning within the whole. If he uses convention unconventionally, if he organizes familiar things in an unfamiliar way, he is changing their contexts, and he can use even the clichéto gain a fresh effect." Ibid.. Pp.43

34. Wojeriech G. Lesnikowski: "Venturi did not address the composition of the examples he described in their contextual (political, cultural physical) totality but picked fragmentary and secondary aspects to prove his points." Wojeriech G. Lesnikowski, "Rationtism and Romanticism in Architecture", *JAE*, Vol. 36, No. 4. London: Taylor & Francis, Ltd., 1982. Pp. 30-32

35. Robert Venturi: "You build an order up and then break it down, but break it from strength rather than weakness[…] Expediency

without order, of course, means chaos" Robert Venturi, *Complexity and Contradiction in Architecture*, New York : Museum of Modern Art ; Chicago : Graham Foundation for Advanced Studies in the Fine Arts, cop., 2002. Pp.41

36. Nicola Marzot ,"Aldo Rossi and Gianfranco Caniggia 'Deconstructed'", International Seminar on Urban Form, 2010

37. Alberto Asor Rosa: "During this period, there was amazing vitality in the exchanges between different cultural fields, which is almost unimaginable today, when each discipline has slipped neatly back into its own little box." Alberto Asor Rosa, "Manfredo Tafuri, or, Humanism Revisited." *Log* No. 9 (Winter/Spring 2007), Pp. 29-38

38. Aldo Rossi: "In fact, architecture presents itself as a vast cultural movement: it is discussed and criticized well beyond the narrow circle of its specialists; it needs to be realized, to become part of the city, to become" the city."[…] Thus, architecture implies the city; but this city may be an ideal city, of perfect and harmonious rela-

al grammatical and logical system of the designer himself. From one point of view, this method of design like collage had completely liberated the architect that to get the maximum degree of freedom; but from the contrary point of view, the way that absolutely ignores the classic rule and composition[34] had broken the continuity that rooted inside of the fragment, which cause the piece of fragment losing its connection with the history and became just a piece of graphic. For this reason, to re-build and re-organize those dissociated fragment following a new created principle or order became an action which strengthened the chaotic and uncertain characteristic of postmodern environment.[35]

An article in Harvard Architectural Review concluded the postmodern architecture "as a searching for the messing and imperfectability, but not for the clarity and order of an ideal world." There, the question on the modernism principles had given its way to the searching for the new law, however, in those discussions, fragment still had not play its essential role as the one to establish the order.

## Italy, architectural typology & urban morphology

Different from the discussion focusing on the ontology of architecture in America, in the mid of twentieth century's Italy, there was a series discussions focusing their topics on city and its urban space. During the year 1950 to 1954, the seminar "Caratteri Distributivi degli Edifici" directed by Saverio Muratori could be seen as the very first point that initiated those discussions. The course of Muratori mainly paid the attention on the topic of recalling the importance of the relation between architecture, urban morphology and urban history, so as to search for "its ever-changing role and meaning"[36]. That perspective point of view latter on had been continuing mentioned by Carlo Aymonino and his associates. In the 60's, Italian architecture such as Carlo Aymonino, Aldo Rossi, Vittorio Gregotti, architecture theorist Manfredo Tafuri,
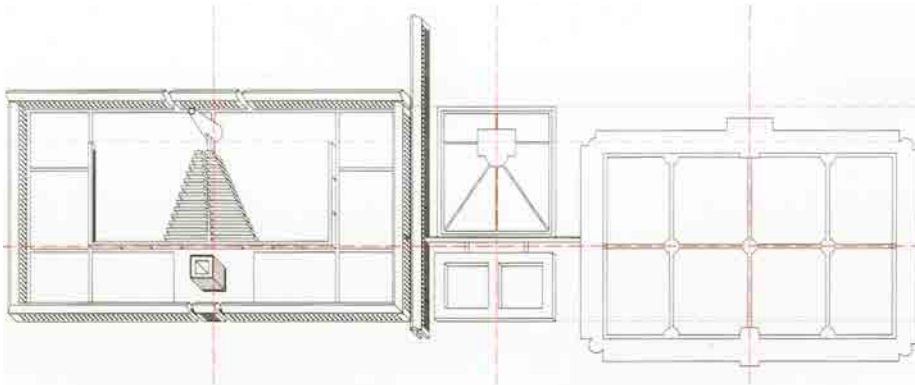
Fig. 2.7 Relationshio between San Cataldo Cemetery and thenhistory cemetery

even those writers like Italo Calvino were all involved the widely discussion about the urban related issues.[37] The tradition of conservation and the especial attention paid on the historical related issue in Italy are the main source that provoked the environment to born the idea that include the concerning of the city into design. The city became the most important carrier for architectural design strategies; and the existing urban fabric was seen as "site" as to the new buildings. Inside of all those researches and proposals, Rossi's work can be the most representative one.

In his book "Architecture of the City", architecture is seen as a crucial part of the city that the city plays the role of bringing meanings to the architecture and architecture helps city to get its most important identity as a response.[38] Architecture and city are essentially equal;[39] they are all artifacts. The artifact, which is comprised by those informations such like political, economic, cultural, etc., forms the foundation on which our city can be built and renewed. It is a way that the present can act with the past; also the present can presume the future. And the value buried underneath the surface of artifact has been enriched in the presence of physical form during the accumulation of time.[40] Rossi's way of understanding the form of architecture pushed him forwards into the research field of architectural typology and the geometrical operation on architectural object.

tionships, where the architecture develops and constructs its own terms of reference." Aldo Rossi, The *architecture of the City*. Cambridge: MIT Press, 1984. Pp.113

39. Aldo Rossi: "The city, which is the subject of this book, is to be understood here as architecture. By architecture I mean not only the visible image of the city and the sum of its different architecture, but architecture as construction, the construction of the city over time." Ibid. Pp. 21

40. Aldo Rossi: "[…] the value of these artifacts often resides solely in their form, which is integral to the general form of the city; it is, so to speak, an invariant of it, architecture of the city. Ibid. Pp.60
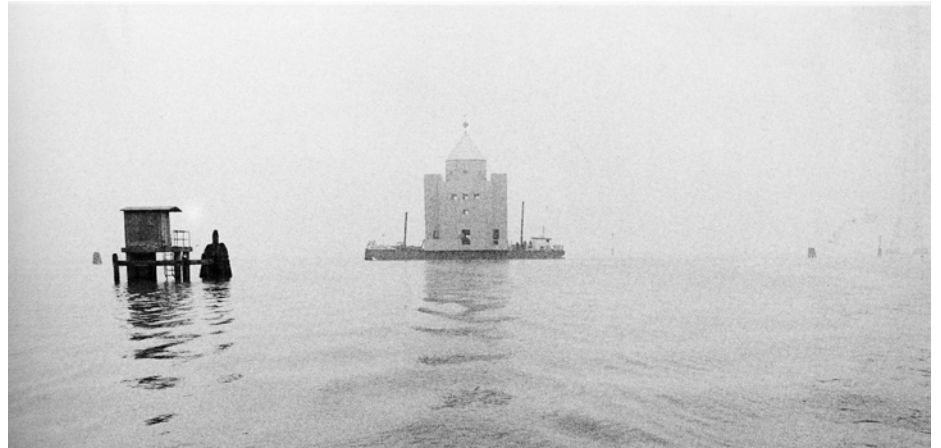
Fig. 2.8 Aldo Rossi, Teatro del Mondo, 1979

The San Cataldo Cemetery in Modena designed by Aldo Rossi in 1971 shows clearly his design character. (fig. 2.7) The master plan of the cemetery took the reference from the history cemetery next to it: the struction of both two cemeteries is similar, such as the axis and the plan, several manners of dealing with the form by Rossi also was translated from its neighhood. This manner of design architecture was call by Rossi analogy architecture. The colonnade showed its purified form borrowed from the neoclassical style of colonnade with enclosure. The palace located in the center point of the plan was set just in a geometric volume of simple cube without any additional part of ornament. The statement alike unfinished perfectly expressed the emotion of the dead, the lost emotion of being abandoned, and the illusion of the illness in metaphysical level.

In the Venice Biennale of 1979, Rossi's design of a floating theater on the water, the Teatro del Mondo, reconstructed in the fashion of those theater which were so characteristic of Venice in the 18th century but by a way of simply composition of geometric volumes without any decoration either. (fig. 2.8) The form itself represented the history of city Venice, and the presence of coming along above the water also told its metaphor of the tradition-

al living and construction style that Venice had always had.

The typological method was impressively easily to understand and to learn, which is one of the reasons that Rossi and his theory became so important in the chaotic context of postmodernism, but, there is one point that we have to pay especial attention, which is Rossi's had been keeping on putting emphasize into the importance of the context, into the individuality of the site and the role of architecture which played inside of the individuality,[41] in the meanwhile, tried to coherent architecture with the site and urban context by using the result from a series uninteresting and dry research process of architecture typology,[42] all that transformed the analysis of specific examples of cities into a standardized routine of undergoing a typological study to exam all the individuality. The form of architecture once is created out of the connection with its place and context, the true meaning of the form has already lost, as what Joseph Rykwert said in one of his essays: "So that's it then. Architecture may stay alive as long as she stays dumb. Dumb and beautiful maybe, but dumb."[43]

## Scandinavia, back to the nature

Compare with the preference of the manmade environment from the neo-rationalism in Italy, the architects and theorist from the Scandinavia region lean their interests more to the nature environment which can be seen as references to be brought into the architecture design.

Early in the beginning of twentieth century, the Stockholm Public Library designed by Erik Gunnar Asplund, despite of the volumetric shape of the building expressed its evolution tendency to the minimalism, had showed the architect's concerning about the relationship between the architecture and the city. In the sketches during the design progress, the connections between the building and the urban fabric, also the building and the park in its

41. Aldo Rossi: "[architecture] shaped a context. Its forms changed together with the larges of a site, participating in the constitution of a whole and serving an overall event, while at the same time constituting an event in itself." Ibid. Pp. 106

42. Joan Ockman: "Although they call for contextualism, the proposals are actually couched in "a language of universality that views 'type as a constant' in a context of changing productive relations". Joan Ockman, *Architecture, Criticism, Ideology*. Princeton: Princeton Architectural Press, cop., 1985. Pp.9

43. George Dodds, Robert Tavernor, Joseph Rykwert, *Body and Building: Essays on the Changing Relation of Body and Architecture*. Cambridge: The MIT Press, 2002. Pp. 7

44. Sverre Fehn told something about the first lecture he attended in the opening of Korsmo: "I am not able to teach within the differences of beautiful and ugly, neither can I discriminate the Renaissance over the Gothic. But when I go over a bridge and see two houses, one on each side as if the landscape open and closes before us, I think the following: on one side I want to look out, and on the other I ask for protection. This is the essence of my architecture: to open or take away from the landscape." Per Olaf Fjeld, *Sverre Fehn: the patter of thoughts*. New York: Monacelli Press, cop., 2009. Pp.15



Fig. 2.9 Erik Gunnar Asplund, Masterplan of  Skogskyrkogårde, 1932

neighborhood were all drew out by the author. Moreover, in the project of Skogskyrkogårde that Asplund worked together with another Swedish architect Sigurd Lewerentz, the buildings had become almost part of the nature.  (fig. 2.9)

The similar situation we can find in Finland as well, the architect Alvar Aalto who started to pay more attention in building with the use of materials from the local place in the same period, for instance, he liked to use the traditional building materials as brick, stone, wood, etc., which was absolutely distinct with other modern movement architects at that time. The formal languages of organic architecture apparently were influenced by a kind of sympathetic response to the nature environment in the Northern Europe. These examples of having tight relationship with nature environment can be found largely appeared in the postmodernism period in the north and they were spread into various research fields which linked with architectural design and theory.

From my point of view, the most representative examples of delivering the tradition of ideology and practices, in which the link between architecture and nature become the essence of design, must be the works done by Norwegian architect Sverre Fehn.[44] In the Nordic pavilion built between 1958 and 1962 in the Giardini of Venice Biennale, Fehn preserved the appearance of several trees which were the preexisting in the site by breaking several

Fig. 2.10 Sverre Fehn, Nordic pavilion, Venice,1962

opening in the roof that was built by the structure of two over-
lapping layers of concrete beams in order to bring needed light
to the plants and emphasize the importance of the preexistence.
(fig. 2.10) The double-layer beams formed a network of concrete
structure that weakened the strong sunlight in the summer, which
rendered an atmosphere that strongly had the Nordic charac-
teristic of the ambiance simulated by natural light and with less
heavy shadow. If we see those preserved trees as what architec-
ture had as connections with the site, then the simulation of light
environment made by the roof structure represented the con-

45. Christian Norberg-Schulz: "The concept of gathering implies that natural meanings are brought together in a new way, in relation to human purposes. Natural meanings are thus abstracted from their natural context, and as elements of a language they are composed to form a "new", complex meaning which illuminated nature as well as man's role within the totality. […] Gathering means that things are brought together, that is, that they are moved from one place to another." Christian Norberg-Schulz, *Genius Loci-towards a Phenomenology of Architecture*. London: Academy, 1980.Pp.169

46. Christian Norberg-Schulz: "Most modern building exist in a "nowhere"; They are not related to a landscape and not to a coherent, urban whole, but live their abstract life in a kind of mathematical-technological space which hardly distinguishes between up a down." Ibid. Pp.190

nections between architecture and its home culture.

The attitude Fehn has which aims to balance the relationship between architecture, the preexistence objects and topographical condition of the site lets his building fit perfectly with its environment. Among those elements which is nature and which is constructed there is not confliction in his works. For him, the most important ability architects should have is to build connections with the earth through the understanding of the nature of the land. No doubt, the specific feature that Fehn's architectures have in common is mainly created by the Nordic environment made of special nature resource and low density of the population. His method to construct on site basically starts from the concerning of the natural elements in the surroundings. But, in his later projects which were built in the city context, like the New Headquarters for Gyldendal Publishers for instance, despite of the architectural solutions of light and materials in that building are still commendable, his consideration of reconstructing the historical building context in a certain sense is similar to Rossi's typological approach.

In the same period, the architectural theorist Christian Norberg-Schulz wrote in his book "Genius Loci" that classified the discovery of the characteristic of the place into the field of phenomenology architecture. In his book, he emphasized the specific feature of the site and the concept of "gathering", which explain the idea of gathering and abstracting different meanings out of its context in order to make them together to compose one meaning with its full complexity. And that is the originality of all the artifacts coming from.[45] That idea of gathering in a way shared a certain amount of similarity with the idea of stressing the connections between things from the postmodernism point of view, so as to help architecture to find more various meanings.

Norberg-Schulz thought many buildings built inside of the city lacked the connections with the elements in its surrounding.[46]

The metropolis' problem and international style were the main causes of "the loss of place". However, in his later book, he proposed the specific method of "recover of place" by emphasizing on the projects basically explaining the "materiality" and "character of nature", but rarely mentioned the objective analysis that really focusing on the city problem. Although he pointed out some problems about Rossi and the historicism in America, the "pyramid" designed by Richard Bofill in his point of view, was "a most convincing synthesis of general, local and temporal factors id thus created."[47] make a contradiction. As what he said, urban architecture has to meet with a more complicated situation,[48] so the effort of trying to solve the urban problem of metropolis city had to pay more attention in analyzing the objective environment of the actual condition.

## Manhattan and Metropolis

Compare to the attention of the natural elements in the Nordic architecture and the historical regards in the architecture of the South Europe, the American case studies in recently take more care about the way of building a relative pure model of contemporary city, so as to find the approach leading directly to the solution of representing the relationship between building and its urban texture, which can be fully evidenced in the practices of Rem Koolhaas and Steven Holl.

In Koolhaas's book "Delirious New York", he described Manhattan as a representative of metropolis in the 70's "a mosaic of episodes", which pointed out loudly that the city could no long be seen as an organic system that were continuously growing surround a fundamental core, just like the cardo and decumanus in Roman city are the main urban structure that the growing and expansion linked with. In the contrary, the transportation network of expressway developed in the vertical direction fasted the connection between different zones of the city but isolated those

47. Ibid. Pp.200

48. Christian Norberg-Schulz: "Urban architecture instead, has a more general value, as it is based on symbolization and transposition. Urban architecture there fore presupposes a formal language, a "style". In the town, "foreign meanings meet the local genius, and create a more complex system of meaning. The urban genius is never merely local [...] Urban gathering may be understood as an interpretation o f the local genius, in accordance with the values and need of the actual society." Ibid. Pp.170

49. Rem Koolhaas: "No longer does the city consist of a more or less homogeneous texture - a mosaic of complementary urban fragments - but each block is now alone like an island, fundamentally on its own. Manhattan turns into a dry archipelago of blocks." Rem Koolhaas, *Delirious New York: a retroactive manifesto for Manhattan*. Rotterdam: 010 Publishers, 1994.Pp.97

50. Rem Koolhaas: "The Skyscraper as a single unit of the Mega-Village." Ibid. Pp.144

51. Rem Koolhaas: "Bigness no longer needs the city: it competes with the city; it represents the city; it preempts the city, or better still, it is the city." Rem Koolhaas, 'Bigness or the problem of Large', S*, M, L, XL: small, medium, large, extra-large: Office for Metropolitan Architecture*. Rotterdam: 010 Publishers, 1995. Pp.515



Fig. 2.11 OMA, Model of Seattle Central Library, 1999

areas in the view of plan by a sense of being cut off from each other.[49]

In this moment of facing the urban context as a situation out of context, Koolhaas thought that the unique solution was the building complex settled inside of each piece of fragment and that is why skyscraper fitted perfectly into metropolis city as the representation of building complex.[50] There, in his writing, the isolated distribution of zones in the plan of urban fabric was reconstructed in the way of vertical schism, which was connected with different parts of the interior spaces in each single skyscraper. Those building complex follow the same formal structure from the view of their external appearances, but their internal spatial compositions stay autonomous independent and rarely communicated with each other. The urban structure was transferred into a new way of architectural composition.[51] The arrangement of functional internal spaces of architecture is like how a city is organized, which can be proved in some of his architectural projects. For example, the Seattle Library, the architectural program was organized from the view of sections. (fig. 2. 11) Those main inter-
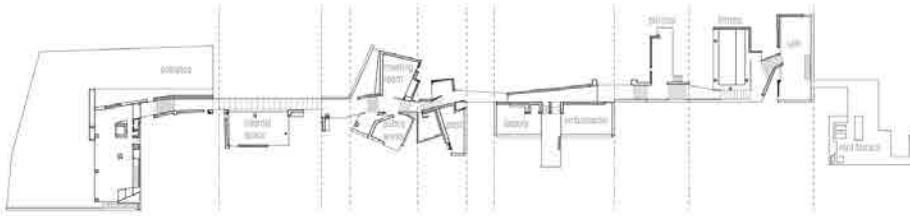
Fig. 2.12 OMA, Unfolding of Dutch embassy in Berlin, 2004

nal spaces of volumes distributed vertically stay relatively independent and spaces between those main volumes are for public uses, just like the public space of the city. In the Dutch embassy in Berlin, the circulation inside of the pure cube linking different interior spaces with different functions is designed as streets of the city in the beginning. There, the traditional way of architectural composition which tightly linked with function is replaced by the simulation of having a kind of urban structure inside – rooms act like building, stairs and paths act like street. (fig. 2.12)

The early research of Steven Holl also followed the interest in the urban structure, the grid, of American cities, for him, the urban grid would not bound the design freedom of architecture, but an ideal model for those contemporary cities.[52] His understanding of the decisive role that the autonomy and continuity of architectural form play in the reconfiguration of urban context can be read in his works like the Bridge of House in Manhattan (fig. 2.13) and Simmons Hall of MIT.

The discussion of urban grid and the method focusing on the new light and air dimension, both trying to face directly the urban characteristic of metropolis, have their own values of being analyzed and synthesized. However, the possibility to test the conclusion and model from the case study of the special modern city of Manhattan as a reference to other cities, like those in Europe and Asia which have their culture so characteristic and complicated, is absolutely doubtable. The way of using the spatial composition of contemporary metropolis as the method to organize the section
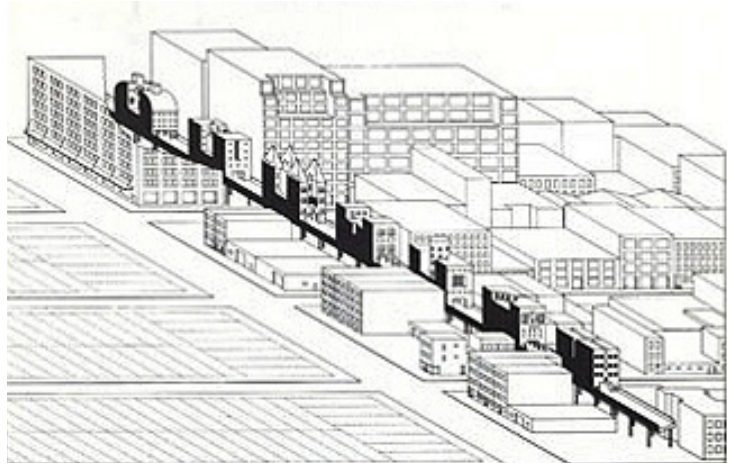
Fig. 2.13 Steven Holl, Drawing of Bridge of House in Manhattan, 1981

inside of single architecture actually is still a limited adventure. It still only focuses things happening inside but ignores the estrangement from the urban point of view that makes the building probably is walking away from the obligation of connecting with the city it belongs to. Koolhaas brought us a fresh new perspective innovated for seeing fragment from an absolutely opposite position, but he could not cover the passive emotions inside of his strategy when link it with the urban issue and urban problem, which pays rare attention to the meaning of existing for city fragment.

The aim of this part is not going deep into exam every possible method and tendency of using city fragment in architectural design, which will let the research work falling into an endless discussion. From the improve of Team X to the contemporary American metropolis idea, each one of those different ways and attitude of how to use the fragment is manipulated by subjective thought and objective environment. So there is hardly a standardized answer which can solve all the problems appearance in the

postmodernism context. But there is one point that we cannot deny seeing in those stated cases that the architecture is no longer an outcome self-generated by its own autonomous logic, but a reflection of process that is influenced by the fragment of the city in different prospects and angles. Some of those influences represent the structural aspect, like Giancarlo De Carlo or Koolhaas, some are formal aspect and some are just in the sense of ornamental adjunctions, Charles Moore for exmaple. Regardless the external manifestation and the final outcome, in the context of postmodernism period the meanings of using fragment in the process of architectural design are all the same that to create new manners to relate the architecture with the site.

That new manner of relationship can not only be found in architecture composition, but also one of most significant characters in the field of postmodern art.[53] Under the question of how to face the fragment, those manners, no matter art or architecture, have a similar meaning and objective. The idea of fragmentation has already cut off the physical connection between things; in the meanwhile, it has broken the obsolete principles on hierarchy and level, which provide opportunities of rebuild and enrich new connections. Based on this kind of idea so far, modern architecture design with single expression was placed and took over by diversify operation which fit different time and location.

53. Alan Colquhoun: "We must, therefore, see the return of the architectural figure as subject to the same laws of fragmentation which we see operating in all the other 'modern arts-fragmentation in the works themselves, and also in terms of their social context." Alan Colquhoun, "Form and figure," *Collected essays in architectural criticism.* London: Black Dog, cop., 2009. Pp.139

54. Aldo Rossi, *The Architecture of the City.* Cambridge: MIT Press, 1984. Pp163

## 2.3 Inclusion

"*Thus the complex structure of the city emerges from discourse whose terms of reference are still somewhat fragmentary. Perhaps the laws of the city are exactly like those that regulate the life and destiny of individual men. Every biography has its own interest, even though it is circumscribed by birth and death. Certainly the architecture of the city, the human thing par excellence, is the physical sign of this biography, beyond the meanings and the feelings with which we recognize it.*"[54]

### Definition and the idea of sign

Before we stepping into a series of more deep discussion about the method of how to use fragment of the city in the process of design, a precondition of noticing the character of the fundamental principle of architecture design in the actual era has to be aware: for those architectural projects in the postmodernism context, the essential spirit of "form follows function" has been deconstructed already, instead, the functionalism rules have been more used in the field of interiors and the exteriors lean more to the way of formalism.

In the previous chapter, the introduction of those methodologies around the same topic of how to use fragment in practices and theoretical discussions by architects and critics cannot be seen as the direct reference without be categorized to copy and paste

into different actual situations. The fragments that architect normally faces have distinct features, and to use them in a prorate way is the topic which this chapter is going to mainly focus. Some are the method paying more attention on the fragment of natural environment, some are more suitable to deal with the problem in the urban context, and if we go further, under the same catalog of urban issue, there are still different sub-issues, such like some talk more about the relation between building and city, some lean closer to the question of ornamentation on the level of simulating or decorating, some are complete revolutionary, splitting apart totally the tradition sense of value on the topic of finding the relation with the city. If we assume an occasion that when all the architects are facing the same source of fragment to use in the design of their buildings, the result must be diverse as well, according to their different personalities, society and culture background and so on. So, if we want to process a systematic research program about the method of using fragment in architectural design, we have to solve the problem of contingency caused by criteria of influences, and that is the reason why I want to bound the amount of influence criteria of the fragment in a certain area and around a certain amount of choices, in one city for example. And at the same time, jumping out of the limitation of traditional thought on schools, styles, and tendencies, only follow the clue questioned by the way of how to use fragment, in order to establish a new framework of design tools in system.

The aim to build that framework of research, is to create a method that can assist the provocative thinking of the relation between architecture and city, which explain the practical way of how to rebuilding or recovering that relationship, or even order by the role as a single architecture.[55]

In this thesis, I will simply base on the fact of those understandings of the fragment of the city from local architects by a kind of contingency and opportunity of their personal representation in those architectural projects, through transforming and reorganiz-

55. Christian Norberg-Schulz: "From birth we struggle to establish a fragment of order in the infinite variety of our environment. The order we attain is, as we have seen, a result of collaboration and the transmission of information." Christian Norberg-Schulz, *Intentions in Architecture*. Oslo : Universitets for laget, 1966. Pp. 79

56. Levi-Strauss: "[in French], its old sense the verb' bricoler; applied to ball and billiards, to hunting, shooting and riding. It was however always used with reference to some extraneous movement: a ball rebounding, a dog straying or a house swerving from its direct course to avoid an obstacle. Ad in our own time the 'bricoleur' is still someone who works with his hands and uses devious means compared to those of a craftsman. The characteristic feature of mythical thought is that it expresses itself by means of a heterogeneous repertoire, which, even if extensive, is nevertheless limited. It has to use this repertoire, however, whatever the task in hand because it has nothing else at its disposal. " Claude Levi-Strauss, *The Savage Mind.* Chicago: The University Of Chicago Press, 1966. Pp. 16

ing those information of city fragments, in order to conclude a new methodology of design, which is be called "**Inclusion**".

In other words, the inclusion is, the way of organizing different elements - fragments - that already existing in the city context and showing them together as a unified object in a innovative way according to different situation the design involving in. However, no matter in what manner that composition takes, the quantity of the amount of fragments stays in a certain stable condition, which means almost the fragments have their origins in their city. So the understanding and attitude of architect about the site and its urban fabric is the key that control the structural and logical thinking of the order of composition, also it is the spirit of the design that will be expressed through every strategy of how the organization of fragment can be. That idea of design composition was called 'bricolage' by Levi-Strauss.[56]

To describe in a more vivid way, the method of inclusion likes kaleidoscope: the fragmental chips of paper inside of the kaleidoscope tube can be reorganized into many different compositions of images by the accidental events and the force of hand affected on the kaleidoscope tube to make it keep turning around. Those fragmental paper chips are absolute units that stay individual to each other, at the same time they can continuously work together to comprise various images inside of the kaleidoscope tube. There is a limited quantity of paper chips, but the composition of the chips can reach an almost infinite variation. We can say every final outcome of kaleidoscope image is created under conditions of three aspects: the fragment paper chips themselves, the accidental force and the structure of the container – the method of composition.

That method of composition is the essence of inclusion: if the city's fragment is defined in the postmodernism context for liberating the freedom of self-interpretation, then inclusion is expression of freedom of architectural design based on this character of

city fragment.

Inclusion does not aim to draw a direct portrait of the actual reality, which avoids a series of problems of limitation related to fragmentation, ornamentation and conservatism of traditional style. Inclusion works together with the previous description of fragment, to "consolidate" the recognitions comprised by the existent understanding of the city. Although it has the characteristic of elective enforcement, this kind of elective enforcement is established on the precondition that self-independency between the single building of architecture and the fragment of the city. At the same time, the enforced selection gets rid of the indetermination and contingency of various interpretations of readings about the urban issues. With the assistance of fragment, inclusion transforms the abstract concept of identity into something solid and concrete, which emphasizes the inner feature and meaning hiding inside of the surface of fragment.

How much effort inclusion can bring into the determination of the form making process depends on its distinct strategy of using the fragment in architectural design. But no matter how much effort it does the influences during the design, the discussion about inclusion, has to tie up building with its urban environment in mind all the way long.

In other words, in the construction of the inclusion's concept, apart from the consideration of program and self-hierarch, the procedure of inventing an architectural form has to consider the relation coming from the environment in the meanwhile.[57] It sustains the formal building process another level of hierarch and formal expression. That way of seeing architecture and its surrounding environment as one unique object breaks the narrow vision of modernism about the emphasis on the environment.[58] In the unified network, architecture bridges its connection with fragment of the city through the method of inclusion. In this kind of situation, fragment of the city play the role as a meaning pro-

57. David Leather barrow: "For architecture, the argument for context, for redefining the architectural object as a constituent of a wider milieu, has meant, rethinking the building's engagement with its material and spatial surroundings, whether built or unbuilt." David Leather barrow, *Topographical Stories: studies in landscape and architecture*. Philadelphia: University of Pennsylvania Press, cop., 2004. Pp.9

58. David Leather barrow: "Long before the 20th century, architecture convinced themselves the order and become instruments of ordering could be both ends and means. Heirs to this tradition, we have great trouble seeing design as something other than technique or planning, great difficulty seeing it as a mode of participation in a preexisting structure." Ibid. Pp. 255

59. Ferdinand de Saussure, *Course in General Linguistics*. Chicago: Open Court Publishing, 1983. Pp.67

60. Roland Barthes, *Elements of Semiology*. New York: Hill and Wang; Reissue edition, 1977. Pp. 11

61. Roland Barthes: "The signification can be conceived as a process; it is the act which binds the signifier and the signified, an act whose product is the sign." Ibid. Pp.15

62. Saussure: "The bond between the signifier and the signified is arbitrary. Since I mean by sign the whole that results from the associating of the signifier with the signified, I can simply say: the linguistic sign is arbitrary." Then he proved that arbitrary in the way of various sound images of a same meaning. Ferdinand de Saussure, *Course in General Linguistics*. Chicago: Open Court Publishing, 1983. Pp.67

63. Cognitive linguistics for example, thought the signifier and signified in single semiology sign of language could be switched by any occasion, and the signifier and signified in a complicate sign were not in an arbitrary condition.

vider that gives new identity to the architecture.

According to the point of view from Ferdinand de Saussure,[59] a sign is made by two parts – signifier and signified. Signifier is the sound image of a sign; signified is the concept. They form together the idea of a sign. Roland Bather extended that linguistic definition: signifier refers to the expression of a sign, and signified points to its content.[60] No matter the variation of the use of terminology, a sign is always expressing a relation of two relates. If we borrow this idea into the discussion of inclusion, the architecture can demonstrate fragment of the city by architecture itself, and establish the connection between building and site, urban space, time, etc.by using fragment in the process of deign. So, we can say that fragment can be seen as one of the most important factor in formal generation of architecture. Here, form is the expression (signifier), fragment is the content (signified). And according to Roland Barthes's definition of signification and sign,[61] the relationship between the form of architecture and the fragment of the city is inclusion, which can be seen as a way of signification, a method that can build the connection between signifier and signified. That relationship of interactive between architecture and city fragment shows a characteristic quality of being a sign.

If the equation between inclusion and signification is approved, the semiology research about the concept of sign and its concluded qualities can be found in the relation between architecture can city fragments.

One of the basic qualities is the 'arbitrary'. In Saussure's definition, the relation between signifier and signified is arbitrary,[62] but this absolute attitude had been criticized by many his followers.[63] Like Levi-Strauss' words "the linguistic sign is arbitrary a priori, but ceases to be arbitrary a posteriori."[64] Of course, I am not going to step into an endless discussion about criticize whether is right or not of the idea of arbitrary in semiology field, what I am paying attention is the relativity of this arbitrary that has the influence

from specific context and iconicity, which is in fact based on the contemporary semiology theory, such like the Systemic functional linguistics by Michael Halliday.

In talking about the qualities of inclusion, arbitrary appears in the random of the selection of signified (fragment) by architect. The architectural form (signifier) is also arbitrary, because one fragment can be interpreted by different forms. The arbitrary of inclusion increases the complexity of clarifying the relation between architecture and fragment; in the contrary, it offers a certain degree of freedom from the prospective of designer. However, what we have to consider about is that the arbitrary is not absolute; it receives the limitations from many aspects, such as the environment, the program of project and utility of fragment so on.

The second quality is the 'value' of inclusion. Although in Saussure's theory, there is not a clear definition of the idea of value, he pointed out that in one hand, the value of sign appeared in the aspect of "exchange and communicate";[65] in the other hand, the value of sign lied in the uniqueness of sign itself.

Talking about the exchange and communicate of value, in the quality of inclusion, the value can be seen in the fact that the architecture has the opportunity of making conversation with fragment. People can perceive at the same moment the new part of the building and the partial information about the history through the expression of fragment. This combination of new and old will help us to re-think about the past,[66] so as to achieve the communication and reconstruction of qualities and realize the continuity of urban history respecting to the synchronic and diachronic aspects. For the uniqueness aspect that brings value to the inclusion, the fragment is described by event, so the uniqueness of each event decides the uniqueness of fragment. There is not two fragments staying absolutely the same appearance, there is not two same projects neither, because architectures stand in diversity according to their distinct sites, programs, designers and

64. Claude Levi-strauss, *Structural Anthropology*. New York: Basic Books, 1974. Pp.91

65. The concept is similar with the one in Karl Max's political economy. Ferdinand de Saussure, *Course in General Linguistics*. Chicago: Open Court Publishing, 1983. Pp.79

66. Umberto Eco: "Our rereading of art nouveau is based not only on what we have rediscover of the codes de ideologies of the turn-of-the century bourgeoisie, but also on codes and ideological perspectives peculiar to our times (codes of enrichment), which permit us to insert antiquarian objects in new context, to use them both for something of what they meant in the past and for the connotations that we attribute to them on the basis of our present-day subcodes. […]So consumption gives way to accretion, with the preservation and rediscovery of codes of the past going hand in hand with the employment of contemporary code." Geoffrey Broadbent, Richard Bunt, Charles Jencks, *Signs, Symbols and Architecture*. New Jersey: John Wiley & Sons Inc., 1980. Pp.31

67. Jorge Luis Borges, "The Analytical Language of John Wilkins," *Selected Non-Fictions*. New York: Penguin Group, 1999. Pp. 231

68. Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*. London: Taylor & Francis, 2002. Pp.16

so on. When the fragment (signified) and project (signifier) both are unique, the relation between those unique objects has its own uniqueness as well. The value of inclusion can be appreciated inside of that multiple hierarchies of uniqueness. So, it seems that there is not an opportunity to bring the classification and category into amount of objects that have their absolute uniqueness, but in this research, the trying is emphasizing on search the similarity among those methods of inclusion which help to achieve the value of a deep and systematic discussion about this specific design method.

## Classification of inclusion

A 'certain Chinese encyclopedia', which is written by Jorge Borges, said that 'animals are divided into: (a) belonging to the Emperor, (b) embalmed, (c) tame, (d) sucking pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camelhair brush, (l) et cetera, (m) having just broken the water pitcher, (n) that from a long way off look like flies'.[67]

In "Order of things", Michel Foucault also use this passage and said that this text disturb threaten between the Same and the Other, demonstrated as the exotic charm of another system of thought. In my point of view, because of the meaning of culture background, make the possibility of classification. The importance of culture background, demonstrates the system of thought; it is the limitation of our own, the stark impossibility of thinking that.[68] The limitation made by the crossover thinking on culture background is obvious, it may bring into ridiculous and chaotic eventually to the logical thinking in the mind. But in the meanwhile, it is because of the absence of culture background, the human mind can make the escaping from the bounded self-manner or self-identity come true, which gives the possibility of encountering the real self-awareness and the fundamental law of percep-

tion. So this research is absolutely base on the objective issues, those projects in reality, although it might cause some certain sense of misreading, it would not decrease the academic value as a research work of architectural design theory.[69]

The different definitions and manners of classification is various according to the differences in culture background. We can borrow the distinctions between occidental and oriental cultures in dining culture to explain that difference in a more vivid way: the western manner to serve the table follows a standardized sequence facing to each individuality plate by plate starting from starters, first course, second course, and desert; but the manner in the eastern country, people used to share a composition of dishes in a common table without a rigid serving sequence, basically the oriental people eating in a more homogeneous way. If we say the western manner represents a linear way of thinking, the eastern culture is closer to an interconnected network. By coincident, David Leatherbarrow also see city as a dining table,[70] and if we bring the difference of dining culture into urban analysis, the western methodology of urban research leans more to the diachronic analysis, and the eastern way follows the more synchronic approach.

In other words, although fragment of the city represents the collective memory of citizens, but in the thesis, the collective memories do not have the quality of time. This research concerns only about the method of how to comprise city fragment in the new design referring to the actual urban context; and it is the basic rule that define the precondition of the classification for the characters of different methods of inclusion.

In my thesis, there are two species of Inclusion, according to the role that fragment plays in the process of design. The first one is called 'operation', the second called 'reference'.[71]

Operation is one type of those features of inclusion that builds

69. Levi-Strauss: "This science of the concrete was necessarily restricted by its essence to results other than those destined to be achieved by the exact natural sciences but it was no less scientific and its results no less genuine." Claude Levi-Strauss, *The Savage Mind*. Chicago: The University Of Chicago Press, 1966. Pp.16

70. David Leatherbarrow: "The table- much like a building site or even a city." David Leatherbarrow, *Architecture Oriented Otherwise*. New York: Princeton Architectural Press, cop., 2009. Pp. 131

71. The original words come from Levi-Strauss's book The Savage Mind: "Totemism, or so-called totemism, confines itself to conceiving a homology of structure between the two series, a perfectly legitimate hypothesis, for social segments are institute d, and it is in the power of each society to render the hypothesis plausible by shaping its rules and representations accordingly. The system of sacrifice, on the other hand, makes a non-existent term, divinity, intervene; and it adopts a conception of the natural series which is false from the objective point of view, for, as we have seen, it

represents it as continuous. To express this difference in level between totemism and sacrifice it is not, then, enough to say that the former is a system of reference and the latter a system of operations." Claude Levi-Strauss, *The Savage Mind.* Chicago: The University Of Chicago Press, 1966. Pp.227, in this research, the abstractive definitions of operation and reference are based on the idea of the savage mind, which is also means concrete mind; they do not have direct connection with the two words totemism and sacrifice.

the relationship between fragment and the design object. The root of the word operation – oper – has its original meaning of to work, so the type of operation emphasizes a direct mode of actions, manipulations and strategies. Fragment of the city joins into the model of action in a direct way; the appearance of fragment in the final outcome of design is direct and solid also.

As to the type of reference; it is opposite to the type of operation. Fragment of the city does not participate in a direct manner, the designer uses an analogical way to establish the connection between building and urban fragment. The project itself plays a role of intermediate agent or rule-maker. In the meanwhile, there is a pre-condition that there should be a common aspect or a correspondence connection between fragment and partial of architectural project in which the type of reference can be found. In the type of reference, the appearance of the fragment of the city is not solid and obvious.

Furthermore, apart from two categorizations, I will propose six sub-categories; each of them will stand for the specific hypothesis according to a diverse selection of architectural projects in city Barcelona.

**Collage**, here it means the new building and fragment combine together as a new integrate unit. However, the fragment still has its independency to the building, not being manipulated to become a part. It is the way of collage; object of building and object of fragment are stated in a parallel condition. It likes the Shakkei in oriental garden, the visual composition of borrowed scenery. The difference is, in borrowed scenery, the borrow object which stays parallel with the new building usually become the background scene. In the idea of collage here, the relation between new building and fragment does not have to be in a front-back position; the way of collage admits a more variable collection of materials and a more flexible method of combination.

**Scalalize** is a self-invent word, refers to the role that architecture plays as "staircase" in the multiple topographical environment with many height differences and slopping directions. In the staircase-lize method, the topography is the main reference to the design. Architecture in this type usually shows it's respecting attitude to the site, which bridges relations and connections on distinct levels by elevation, so as to demonstrate the intimate link between architecture and the place.

**Detournement** is the design strategy based on plan – master plan or partial plan of urban fabric. The intervention of the new building can in a way re-organize the urban structure by a series of self-generation and re-composition. The method of detournement does not only aim to solve the traditional problems about the transportation, function, the potential to have the sunlight and natural ventilation and so on; it is not a simple topological manipulation neither; it is a re-thinking of the urban structure on which the single building can emphasize to generate and improve the urban network into a better quality by the architectural intervention.

**Interface** is the method that directly superposes or reflects fragment of the city onto the elevation of building. Although the entire surface of architecture will not change by the interaction of fragment, the additional layer still brings bring a new quality of appearance to the original surface: the façade of building is not only working as a functional layer for protection the interior from the exterior, but also an layer of interface which bring the urban scale into the small scale. At the same time, this layer provides the independency to the building façade.

**Landform** is a method that architect use the new building to simulate the form or the detail of some specific fragments. The new presence of the building has a certain kind of similarity compare to the presence of the fragment, but they actually stay in an absolute distinctive form from the originality of the fragment. In

this thesis, the fragment used in the way of landform point to the translation of natural form in order to find the coherence between architectural intervention and the natural context.

**Superposition** is the way applying multiple layers into the design process. The fragment of the city is translated into one or several layers which can re-construct the new urban framework by superposing with other layers coming with the design strategy, new functions, program, circulation, etc. Those layers coming from the urban context can be taken references from geographical information, urban structure and so on. And these layers will not be kept as they used to be when they are introduced into the new plan, but with a process of transformation, into new composted layers. No doubt, these new layers will heritage some similarity with the statement which they used to be.

Among these six methods of inclusion, the first four belong to the category of operation, in which fragment participates into the design process of inclusion by a direct manner. The landform and superposition are the type of reference, because the fragment participates into the design only after the action of being transformed. In the transforming, the original form of fragment becomes the reference to the final presence.

Inside of this classification, we need to notice that the operation type of inclusion has to base on the objective foundation of both sides, the new building and the existing fragment, that explain the initial purpose of creating the concept of a new design method, the inclusion, is to propose a way to re-organize and re-building the realistic condition that the presence of new architectural intervention and city fragment. In the reference type of inclusion, the form of fragment does not suit to be introduced into the new architectural intervention directly; it stays in historical documentary resources which normally have an absent in volumetric form, a piece of texts record or formless things like that. At this moment, we need an intermediate role as shifters to join in, so as

to transform the superficial presence of fragment into a relevant new form of interpretation that is suitable to be adapted by the architecture. It is the process of that intervention, which change the original relationship of signified into a relatively complicated situation. Furthermore we can call the operation type a 'Termino-logical' system and the reference type a 'Rhetorical system'.[72]

Of course, I would not bring the analysis into an absolute discussion following the theory of semiology. The idea that borrowed from the semiology theory can provide helps in demonstrating these two categories not in an encyclopedia situation, that is to say not all the project that once include fragment into the design of project can find their position inside of these two main categories, there is still possibility that they do not belong to any of those six sub-categories. Apart from that, there are even more projects which cannot fit into the two main categories. Furthermore, in some projects, we can encounter more than one inclusion method; if for each method of inclusion there is one corresponding signification; those projects should have the quality of 'variation concomitarite'. In the meanwhile, one architect may use different inclusion methods during his entire practical career, and those methods are not something rigid for shaping the design character of architect. So the final outcome of architectural project fully has its contingency.

This contingency appears many times in the systematic discussion of inclusion. First of all, the category of selected project is indeterminate; the selection will jump out of the limitation of uses, function, volumetric dimension etc.. The appearance of contingency and accident provide the occasion that the discussion of design theory of architectural composition can get rid of the traditional sense of functionalism, instead to purify the attention on the discussion about architecture and environment. From this point of view, inclusion had received the influence by the urban design strategy[73] although it is mainly sustained by the analysis of architectural projects. Second, the contingency comes from the

72. Roland Barthes, Translated by Matthen Ward and Richard Howard, The Fashion System. New York: Hill and Wang, 1984. Pp.31

73. Scott Brown: "The essence of the urban design approach is that is concentrates more on relation between objects, more on linkages, contexts and in between places, than on the objects themselves." Scott Brown, *Urban Concept: rise and fall of community architecture*. New York: St Martin's, 1990. Pp.19

74. Plato, Translated by Jowett, *The Republic, Book IX*. State College: Pennsylvania State University, 2013. Pp.268

indetermination of events. Basically inclusion is a method of formal composition that based on events and materials. Even when we face the range inside of one city - that is to say the fragments we can obtain are the same - the indetermination of the events can still cause the contingency of the presence of project. These two kinds of contingency can explain the aimlessness of the selection: it does not reflect the individual thought, but a collective sense inside of a certain region. From this point of view, it seems that it is not so important how to classify the method of inclusion, but the sense rose above the methodology, the sense of connection the architecture with the city, is what this thesis truly interests in.

To conclude the previous discussion, inclusion is a method of exchanging and communication of value and information, a signification approach. Although it express the utopian ideology born native of architect, it still gives us the possibility of re-construct the order in the postmodernism context. I will end this chapter by text in Plato's "Republic":

*"I understand; you mean that he will be a ruler in the city of which we are the founders, and which exists in idea only; for I do not believe that there is such a one anywhere on earth?*

*In heaven, I replied, there is laid up a pattern of it, methinks, which he who desires may behold, and beholding, may set his own house in order. But whether such a one exists, or ever will exist in fact, is no matter; for he will live after the manner of that city, having nothing to do with any other."*[74]

Chapter 3     Six models of fragment & inclusion

The theoretical discussion has to be sustained by proofs, proofs as analyses of architectural projects. So in the following chapter, I will explain the examples of those six categories of qualities of fragment & inclusion. They are not aiming to exam the perfection of the categorizing method, neither to conclude some specific design character of some architects through their projects, what I wish to do is simply connect the theory of design strategy with analyses of practical projects.

In order to emphasize the importance of the systematic structure, in the flowing discussion, all the projects are from the same city – Barcelona(fig 3.1); also for fragment, they are all having their origins from Barcelona as well. Although the resource quantity of the study materials is going to reduce, the specification of the study range can consolidate the analysis in a more specialized scape, which in contrary can reduce the disturbing information that may cause by regional differences and so on.

City Barcelona locates on the northeast coast of the Iberian Peninsula, facing the Mediterranean Sea. The urban area is bounded by two rivers Llobregat and Besòs on its both sides, and on its back, there is the Tibidabo Mountain, which belongs to Serra de Collserola mountain chain. Some small hills are peppered inside of the urban area as well. All of those nature elements shape the form of Barcelona's terrain.

Fig. 3.1 Masterplan of the city Barcelona

The city was founded in the 1st century BC, by Roman people. According to some books, such as "the idea of the city" for example, we can learn that in each Roman city, there are two main streets crossing the city center, one horizontal and one vertical, named "the cardo maximus and the decumanus maximus". The direction of the orthogonal cross was defined by the wind. That is to say, from the beginning, various natural and geographical factors had already influenced the construction of Barcelona during Roman period.

Although the geographical condition of Barcelona shares the similarity with other Mediterranean Cities which were founded by Roman People, the history of Barcelona is more unique and glorious. Some sections and pieces of roman walls still remain inside of the old quarter of the city. In the Middle Ages period, Barcelona had already become the biggest city in the Mediterranean area. Although in the Renaissance period, the urban development of Barcelona had been inhibited by disease and some political reasons, Barcelona started its own "Renaissance" period in the Industrial Revolution era. The Cerda's plan laid the foundation for its metropolitan dream; Expo 1888 activated the "Modernisme Movement"; architectural works from that period designed by Lluís Domènech i Montaner and Antonio Gaudi now become the most important "business card" of the city. Then thanks to 1992's Summer Olympic, Barcelona started to make an amazing turnaround from the shadow of Franco Period. Information from history was recorded by monuments and city fabric, which can be seen as city's historical fragments.
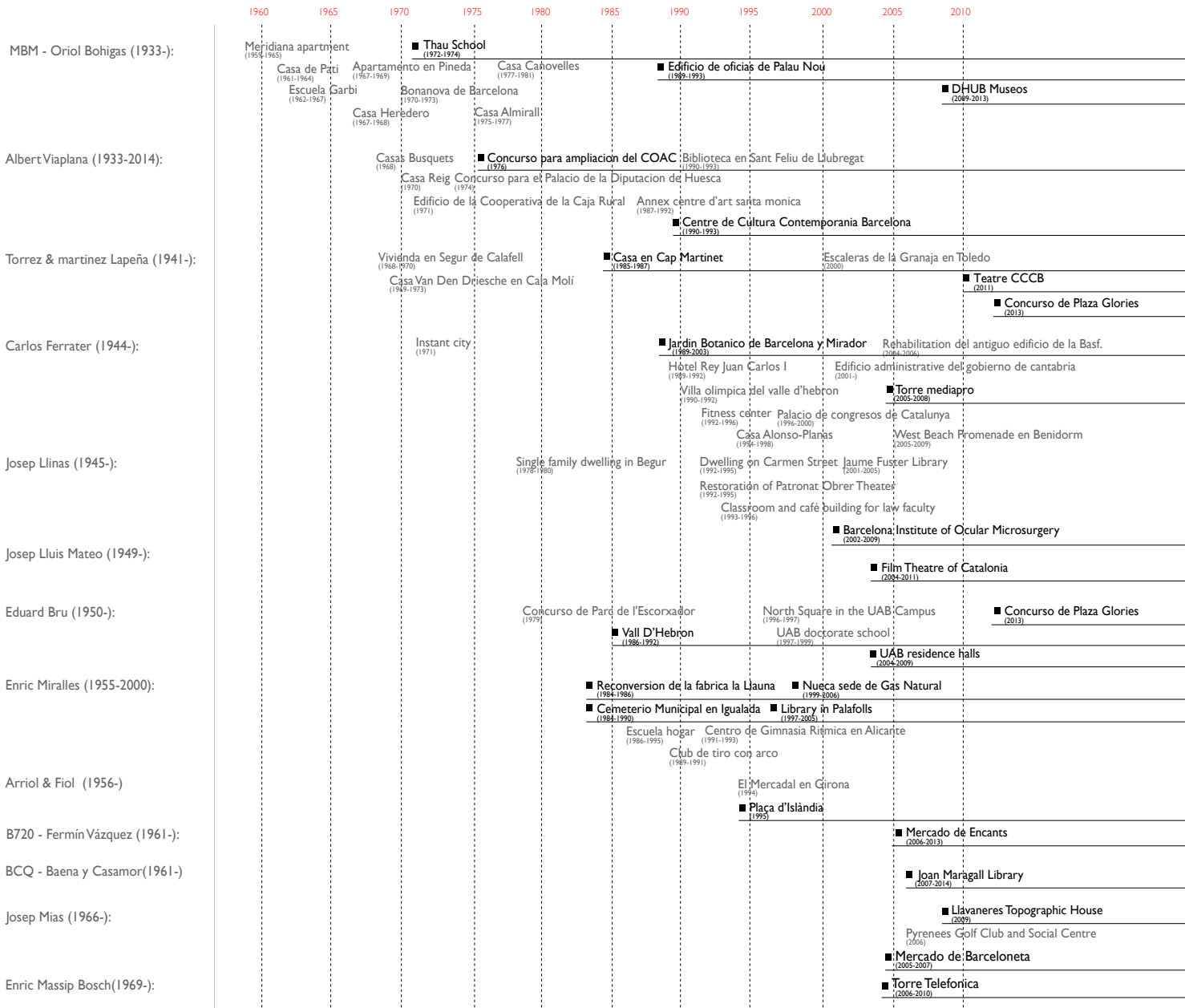
From the 19th century, the rapid increasing of the city's economic and industry brought out new chances for the urban development, "urban culture"- the unique culture label of Barcelona, had also gradually begun to appear at the same period. The plan of Cerda and Leon Jaussely, and urban project of Carrer Ferran and Zona Gracia, reveal that the professional conscientious of urban planning appeared earlier than other cities in Europe. During the

time of the Second Republic, Plan Macia and some other plans designed by architects' group-GATCPAC, made the scale local practice larger, which increased from micro to macro scale, from architecture to urban design. In 1950s and 1960s, the research work of Group R and Escuela Barcelona continued the same trend, and brought it into architectural education field. In the "Plan General Metropolitano" of 1980s, the strategy of which is to reconstruct Barcelona through specific projects, which gave architects who focused on the city scale a good change to practice, and later the Olympic in 1992, made that change bigger and stronger.

In short, the reason to choose Barcelona as the study scope, on one hand is because there are rich amount of objects as material of fragments in side of the city: the historical and contemporary sectors exist in side of this compact urban area; the city also has its topographical variety of geographical condition between the mountain and Mediterranean Sea; moreover, the city has met several big events that caused the enlargement of the urban area many times. On the other hand, there has been a good tradition that in Barcelona, architecture has its typical identity that the building is tiredly related with the urban fabric, and with its appearance of distinctive presences, which in fact increases the options for case studies. In order to make the construction of thesis clear, I put all the projects which will be mention in the next part in one table (see the following page). We can see those architects whose works are selected spread from the after-war generation to the new generation born after 60s. Although those projects that have a deep-in analysis mainly are built after 1975, those efforts related with the theme of practicing between architecture and site, architecture and the city before that period are not ignored.

Six models of fragment & inclusion are based on the research of those buildings. Six models mean six methods. Each method

Timeline axis: 1960 · 1965 · 1970 · 1975 · 1980 · 1985 · 1990 · 1995 · 2000 · 2005 · 2010

**MBM - Oriol Bohigas (1933-):**
- Meridiana apartment (1959-1965)
- Casa de Pati (1961-1964)
- Escuela Garbi (1962-1967)
- Casa Heredero (1967-1968)
- Apartamento en Pineda (1967-1969)
- Bonanova de Barcelona (1970-1973)
- Thau School (1972-1974)
- Casa Almirall (1975-1977)
- Casa Cañovelles (1977-1981)
- Edificio de oficias de Palau Nou (1989-1993)
- DHUB Museos (2009-2013)

**Albert Viaplana (1933-2014):**
- Casas Busquets (1968)
- Casa Reig (1970)
- Edificio de la Cooperativa de la Caja Rural (1971)
- Concurso para el Palacio de la Diputacion de Huesca (1974)
- Concurso para ampliacion del COAC (1976)
- Annex centre d'art santa monica (1987-1992)
- Biblioteca en Sant Feliu de Llubregat (1990-1993)
- Centre de Cultura Contemporania Barcelona (1990-1993)

**Torrez & martinez Lapeña (1941-):**
- Vivienda en Segur de Calafell (1968-1970)
- Casa Van Den Driesche en Cala Molí (1969-1973)
- Casa en Cap Martinet (1985-1987)
- Escaleras de la Granja en Toledo (2000)
- Teatre CCCB (2011)
- Concurso de Plaza Glories (2013)

**Carlos Ferrater (1944-):**
- Instant city (1971)
- Jardin Botanico de Barcelona y Mirador (1989-2003)
- Hotel Rey Juan Carlos I (1989-1992)
- Villa olimpica del valle d'hebron (1990-1992)
- Fitness center (1992-1996)
- Casa Alonso-Planas (1994-1998)
- Palacio de congresos de Catalunya (1996-2000)
- Rehabilitation del antiguo edificio de la Basf. (2004-2006)
- Edificio administrative del gobierno de cantabria (2001-)
- Torre mediapro (2005-2008)
- West Beach Promenade en Benidorm (2005-2009)

**Josep Llinas (1945-):**
- Single family dwelling in Begur (1978-1980)
- Dwelling on Carmen Street (1992-1995)
- Restoration of Patronat Obrer Theater (1992-1995)
- Classroom and café building for law faculty (1993-1996)
- Jaume Fuster Library (2001-2005)

**Josep Lluis Mateo (1949-):**
- Barcelona Institute of Ocular Microsurgery (2002-2009)
- Film Theatre of Catalonia (2004-2011)

**Eduard Bru (1950-):**
- Concurso de Parc de l'Escorxador (1979)
- Vall D'Hebron (1986-1992)
- North Square in the UAB Campus (1996-1997)
- UAB doctorate school (1997-1999)
- UAB residence halls (2004-2009)
- Concurso de Plaza Glories (2013)

**Enric Miralles (1955-2000):**
- Reconversion de la fabrica la Llauna (1984-1986)
- Cemeterio Municipal en Igualada (1984-1990)
- Escuela hogar (1986-1995)
- Club de tiro con arco (1989-1991)
- Centro de Gimnasia Ritmica en Alicante (1991-1993)
- Nueca sede de Gas Natural (1999-2006)
- Library in Palafolls (1997-2005)

**Arriol & Fiol (1956-)**
- El Mercadal en Girona (1994)
- Plaça d'Islàndia (1995)

**B720 - Fermín Vázquez (1961-):**
- Mercado de Encants (2006-2013)

**BCQ - Baena y Casamor(1961-)**
- Joan Maragall Library (2007-2014)

**Josep Mias (1966-):**
- Pyrenees Golf Club and Social Centre (2006)
- Llavaneres Topographic House (2009)

**Enric Massip Bosch(1969-):**
- Mercado de Barceloneta (2005-2007)
- Torre Telefonica (2006-2010)

**INCLUSION** ■

has its own feature and also its limitations. Some come from the program, some from the site, and other from the situation of fragment. Each model has a chapter following similar structure: One architect was chosen to be the one whose characteristics of career can describe the model as a kind of center of attention; in the meanwhile, there are some other projects and architects analysis that will also help to support the argument of the chapter. All of those six main architects are from Barcelona, and most of those buildings in this thesis are located in Barcelona.

The role to select which kind of projects as the case to be studies is following a subjective manner, but also objective. Because, the object way is to tell the importance of the architectural projects together with their authors, which played a significant part in the history of development of design stream in architectural sphere. And furthermore, the those projects gathering together as a group can describe the common character of architecture in Barcelona as a general idea, and the first-hand material of those projects are easy to obtain from my point of view, which both can sustain the research in a convinced manner that comprised by fruitful possibilities of discussion. However, eliminated by the shortage amount of personal knowledge storage and experience, together with the scope boundary, the selection of the cases definitely was influenced by the direction of my subjective thought and consideration. With the help of those projects, the core issues can be explained in a more precise way, which is how those six models operate in a specific environment when the architects face the same "fragment library".

A big amount of fragments will be mentioned in these chapters, but they will not be discussed and described with careful details. Because fragment is not the main emphasis of my research, instead, the main issue of this thesis will only focus on how to build the relationship between fragments and the building.

There are two points to note. First, it has to be clear that the

perspective reading of an architectural project by a third person, me for instant, has to be different from the explanation of the project author. The essence of this kind of interpretation of the built architectural project is explaining a way that the people who bring critics into the architectural interpretation is not trying to tell the initial intention of the original author of the project, but is to tell the self-interpretation of the outsider himself, which normally follows a deconstructive manner. It is just like what Roland Barthes said: "A text's unity lies not in its origin but in its destination."

Next, this thesis mainly talks about the relationship between architecture and city, and in the following sections, the discussion will be based on this urban character of architecture also. The architectural function and program are those parts that will receive less attention. That does not mean architectures will only have their advantages from the urban aspect; the designing process of architecture also will be influenced by other ideas and facts, but the urban character of architecture tradition in Barcelona is the one emphasized the most in this research. Certainly, in side of these six categories, there will be chances that those characters fit with architectures that are built outside of this region, which means they are not the only privileges belonging to Barcelonese architects.

These six categories can be divided into these two species ignoring the appearance order.

Fig. 3.2 Giovanni Battista Piranesi *Campo Marzio,*1762

1. Such as Pablo Picaso's *Still Life With Chair Caning* in 1912 or Kurt Schwitters's *Merz Building* design between 1920 and 1936.

## 3.1 Collage

Collage (fig 3.2) here means a new architectural composing method that fragment of the city takes parts. This composition may happen both inside and outside of the new project, in which different parts of the building stay independent from each other but cooperating inside of an equal and specific hierarchy.

The definition of collage has its origin from art field. It describes the combination manner for graphic presentation, which uses the collaboration of different styles and materials to comprise the new image. The history of collage method can go back to one hundred years ago, but not until the early period of 20th century, it started to call the attention in art works as an instrument applied into the new presentation, which was used to express the theme of fragmentation and the existence that could not be recorded by objective manner. In collage image, those elements that compose the image are inspirited from different parts of different objects, which on one hand maintain their original characters of distinct resources, on the other hand demonstrate illusions and new meanings in the form of the roles those elements play in the collage image. The works of Picaso and Kurt Schwitters are the examples.[1]

The method of collage was also used in the architectural graphic presentation. In the Plan for Paris of 1937, Le Corbusier used a collage image composed by photograph and free-hand drawing to
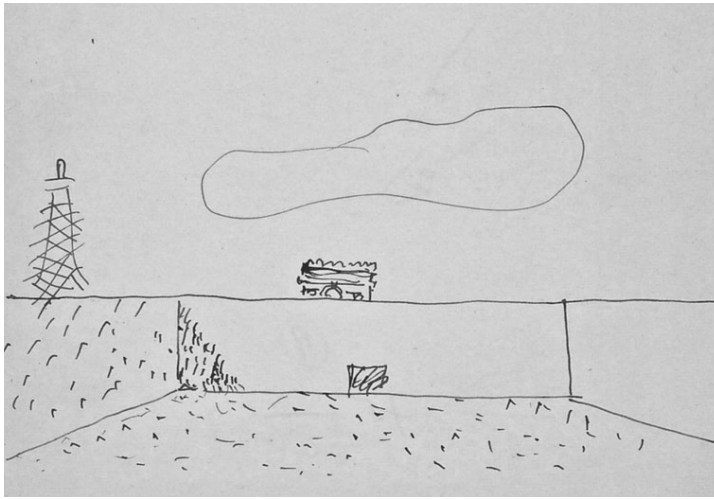
Fig. 3.3 Le Corbusier, Drawing of the roof garden of the Charles de Beistegui apartment, 1948

express the combination of the reality of the historical quarter of Paris and the ideal planning of the intervention of new urban block. The photography and hand drawing are staying in a separate condition because of the different techniques and manners, and that exactly corresponded with the situation that had this kind of difference in reality; in the meanwhile, it was the personal intention that joined these two elements together inside of one image, which revealed a special character of cooperation by the common sense that both parts had: the traditional distribution of historical urban texture and the ambition to build an utopian new city; and this cooperation beyond the chronological boundary also can tell the continuity of the development of the history.

Corbu not only used the way of collage in the drawings, but also in the architectural design, which ignored the physical distance and time distance, giving the architecture a precise position inside of the historical context and urban fabric. In the sketch drawing of the roof garden of the Charles de Beistegui apartment (1929-1931), the Triumph Arch and Tower Eiffel are placed in theor picturesque position in the back of the wall. (fig. 3.3) The new build-

Fig. 3.4 Viewing in Humble Administrator's Garden, Suzhou

ing worked with those magnificent urban monuments is to use the way of collage to emphasized the importance of the building itself inside of the city, no matter the importance happens in the special dimension or the chronological dimension.

If we see the oriental garden in the early medieval period, which can be recognized in the earliest example of collaged used in the architectural design field, like the design method of Borrowed Scenery wildly used in Chinese and Japanese gardens. In those gardens, the way of collage produces the richness of scenes that contains multiple layers combining historical architecture with the new one. For example, the Humble Administrator's Garden in city Suzhou in China, built in early 16th century, the garden designer borrowed the view of one ancient tower far away from the site of the garden, to compose the scenes of views which can be observed inside of the garden by finding the equality between horizontal and vertical axis, and also to give more weight to the visual depth of those scenes.(fig. 3.4)

In the postmodernism context, the method of collage had been encouraged and wildly used in the art fields such as pop art and etc.[2] A large amount of ordinary and popular elements were composed by an irrational manner that was out of the context and tradition, to deliver new thoughts. It was adapted in to the architectural design as well during the same period. Like the Plaza New Orleans by Charles Moore, in that project, many historical architecture elements were comprised together by the method of collage. By using those historical elements, the architect could find the lost attitude of respect to the historical things; in the meanwhile, the variety of the elements in the collage could help the formal language of architectural design escape out from the dilemma situation lacking the vocabulary diversity. The problem for using collage in architectural design at that time was: because of the simpleness of the method, and the complexity of the information which lied inside of the elements, the collage was applied in a simple and crud way into the design process, the lack of rational thinking on the relationship between collage elements and the context caused an hidden danger of letting things going out of control. In the contemporary architectural design environment, we can see more and more rational uses of collage method, for example, in the project Casa Collage in Girona, the architect reused the original material from the existing building as the elements of collage to represent the accumulation of history in the new design.

In Barcelona, the architects link this kind of rational collage method with the fragment of the city, by connecting urban elements with building in order to bring the new quality and character to the single design, which is demonstrated by the cooperation between architecture and urban monument. In that cooperation, the observer can see one specific image of scene that is composed by more than two architectural elements from different periods from one settled position. The Palau Nou de la Rambla design by MBM is one of those examples.

2. Nan Ellin: "It encourages, like postmodern forms of cultural expression, the facile borrowing and collaging of facets from the past and mass imagery to compose a self." Nan Ellin, *Postmodern Urbanism*. New York: Princeton Architectural Press, 1999. Pp.137
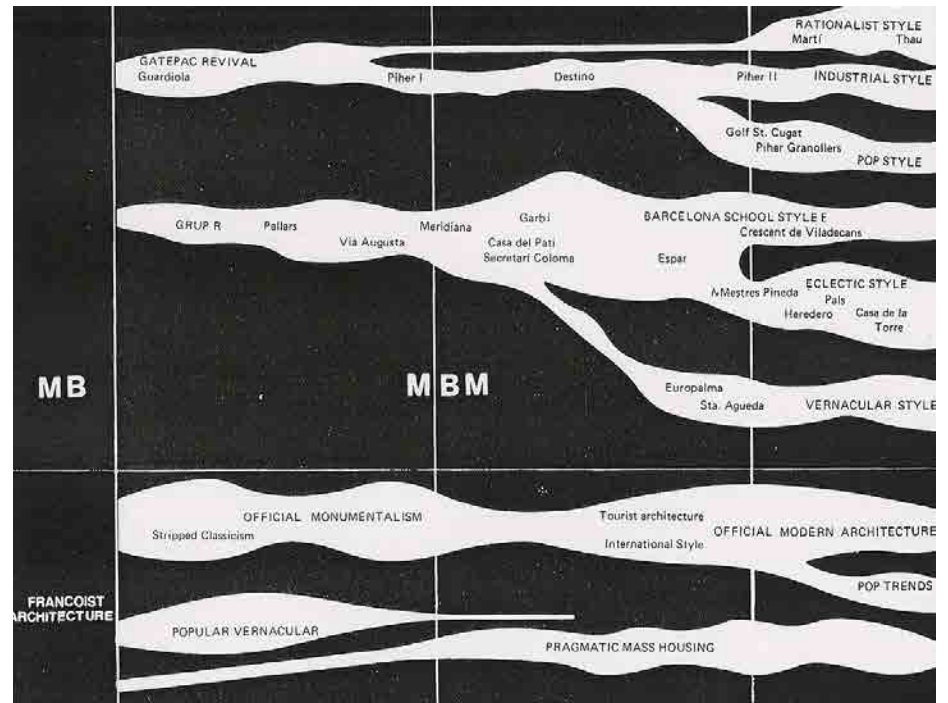
Fig. 3.5 Diagram of influences, Charles Jencks, 1979

Be one of the most important architectural studios in the second half of 20th century, (fig. 3.5) MBM played a distinctive role in the discussion of how to deal with the problem of the relation between architecture and city in the urban development. In the early projects of MBM, such as the Meridiana Apartment constructed during 1959 – 1965, (fig. 3.6) although the architectural form still has the influence from the modular tendency of Modern Movement, the design of the openings on the façade, the open direction of the window started to show the willing for changing. Because the special direction of window opening can reduce the noise of transportation flue from the Medridiana Avenue; also its orientation can increase the time of receiving the natural sunlight into the interior spaces. These changings reveals the influences that they received from the Group R, the intention of discover the local identity for architectural design and the interest about

Fig. 3.6 MBM, Meridiana Apartment, Barcelona, 1965

the relationship between pre-existing environment with the new building.

In one piece of the declaration text of Bohigas in 1962: "Cap a una arquitectura realista," he pointed out clearly the necessity of using the building environment to fight the fragmentation of the postmodernism life with the character of irrational and unsystematic, which emphasized the importance of the realistic condition.[3]

In the following projects of MBM, the discovery of the method of how to include the contextual elements inside of building's surrounding or those traditional languages into the new design was the main target they were working on, such like the use of chimeneas in the project of Edificio de Apartamento para Maestro in Pineda (1967-1969), the use of patio in Casa de Pati (1961-1964) and Bonanova de Barcelona (1970-1973), the character of "ciudad en mininature" in the plan and arrangement of spatial hierarchy in the project of Escuela Garbi (1962-1967).[4]

However, those experiments only can be found in relative big projects of MBM studio through the method of playing with the various compositions of unit and model; for those projects with single volumetric building, there hardly can see the continuity of that idea, because for the single volume, the design seemed to stay in an indeterminate condition hesitating between the autonomy of self-generic form and the impacts from the environment. For example, in Casa Heredero (1967-1968), the building is planned and rose up in a spiral sequence surrounding a core made by four columns placing in rectangular shape, which has the similarity with Adolf Loos's project Raumplan. And in the later single house project, the Casa Almirall (1975-1977), that spiral circulation still can be recognized easily. This conflict between the self-autonomous distribution and the existence of contextual elements in the environment can be expressed in the most obvious manner by the project of Casa Canovelles (1977-1981). The main volume of the building is generated from the rectangular shape bound by two steel frameworks; the circulation is placed on the central axis of the rectangular which is similar with the central position of the spiral circulation of Casa Heredero. Compare to the rigid steel framed structure, the spaces inside of two rectangular shapes are manipulated by a dislocation in volume, furthermore, a big staircase like the one occurs in Casa Malaparte is placed on one side of the rectangular volume, which is used for exhibiting the outside landscape from the staircase. In the meanwhile, a curved glass surface, the Sala, is inserted into the two volumes, which has the similar characteristic of the architecture of Mies: using the transparent material to bring the scene of outside landscape into the interior space. The appearance of the Sala and the staircase both reveals the impact that the external environment plays on the architectural form. However, the organism style-alike of the Sala appears in a very dynamic manner considering the comparing on the formal character of other parts of that building, which makes strong sense of contradiction in those differences. There, the concerning about the environmental elements that can be involved into the design does not bring

Fig 3.7 MBM, Palau Nou de La Rambla, Barcelona, 1994

a essence logic of the manipulating of architectural form, in the contrary, those ideas related with the landscape causes lacks of ration when we look from a higher view to the whole development of that design.

Until the project built inside of the city center of Barcelona, the Palau Nou de La Rambla (1988-1994), the architects finally found the rational logic for their architecture through using the inclusion method of fragment of the city. (fig. 3.7)

The site is located on one of the most important street in the old quarter of Barcelona - La Rambla. The houses on both sides of the street, like Betlem church, the Palau Moja, the Palau de la Virreina, the Liceu Teatre, etc. have been recording the urban development of the city. The continuity of the street's façade decides that the elevation of the new building has to follow the boundary of the street façade. At the same time, the requirement of a 54 meters long volume has to control its height in order to not obstruct the appearance of those historical building behind the continues façade of La Rambla.(fig. 3.8)
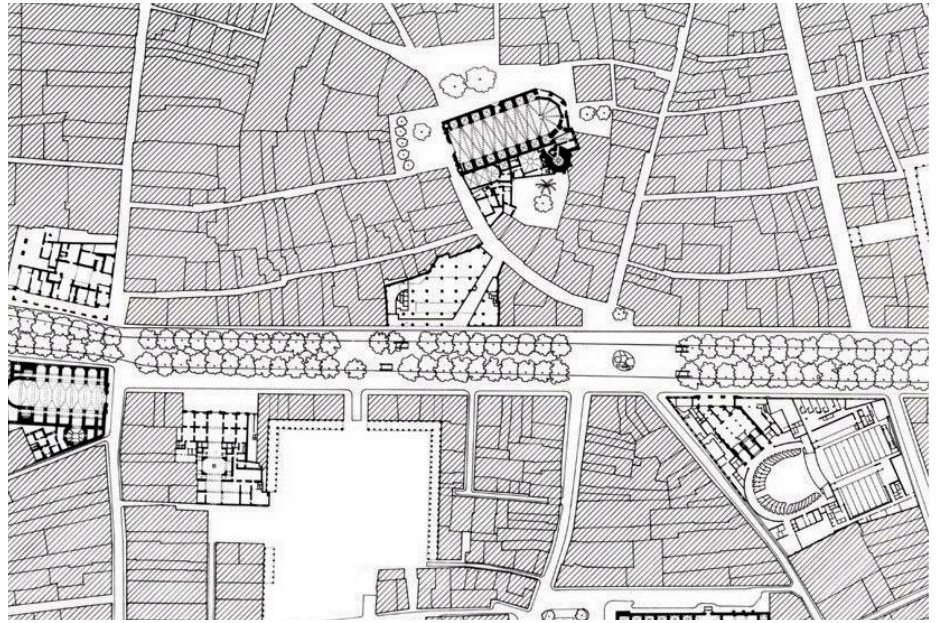
Fig 3.8 Masterplan of Palau Nou de La Rambla and its surrounding

In this project, the architect decided to let the new form fit into the continues housing elevation of the street, but insert in the middle of the long volume an opening of pedestrian passage, which breaks the continuity of the 220 meters long urban street façade of La Rambla and brings connection between the old quarter behind the lineal building and the open public space of the street. It is not only the dichotomy tradition of the design studio that has been applied once again in this project, but also the control of the dimension of the passage opening is the result of the calculation and visual analyses from several observation points on La Rambla with their unique aim to see the bell tower of Church Santa Maria de Pi by passengers. (fig. 3.9) This visual accessibility enlarges the perception distance between those passengers on La Rambla and the urban elements. Compare to the wall of housing along both sides of La Rambla, the new building deconstructs the volumetric feeling as a traditional palace, but more like a painting frame for circling the appearance of the

Fig. 3.9 Relationship between Palau Nou de La Rambla and the bell tower of Church Santa Maria de Pi

5. Oriol Bohigas: "[…]La escena se convierte en calle y cada calle in una manera de entender la ciudad," Oriol Bohigas, *Reconstruccion de Barcelona*. Madrid: Ministerio de Obras Públicas y Urbanismo. Secretaría General Técnica, DL, 1986 .Pp.97

bell tower in its background view. The street, new building and the tower those three establish their new relationship, in which the new building and the monumental tower compose a collage image; as for the street, it no long means the boundary or the urban structure providing the entrance to single architecture, but a place where can obtain the observer's point that creates the collage image,[5] in other words, that relationship of collage is built on the precondition that the street must participant inside of this

composition in order to offer the possibility of visual observation. The new building emphasizes the historical building in a unusual way by inserting visual connection through volumetric manipulation. That method of collage shares both characteristic features of the two parts and makes them complement to each other as well: the form and detail of the new building is enriched by the existing historical element, and the historical monument is aware again into the contemporary context with the new presence and look. (fig. 3.10)

Apart from the passage opening, the elevation of the ground floor is pushed backwards by the architects, applying colonnade into the open space in the backwards area similar with the traditional colonnade corridor surrounding urban public space. The shape of the broken line that steps back to create the open space gives the perspective angle that emphasizes the visible area of "collage". And in the elevation of the building facing La Rambla, on the right side of the passage, the style and dimension of windows, balconies are borrowed from the neighborhood building façade: three levels balconies and the doors opening to the balcony, the style of lines for the roof eaves. The eave line, going along the whole façade from right to left, together with the long windows in the left side part on the first level, emphasize the continuity and the integrity of the new volume that avoid the split interrupted by the big dimension of the passage and visual corridor, so as to keep the unified temper of the elevation along La Rambla. (fig.
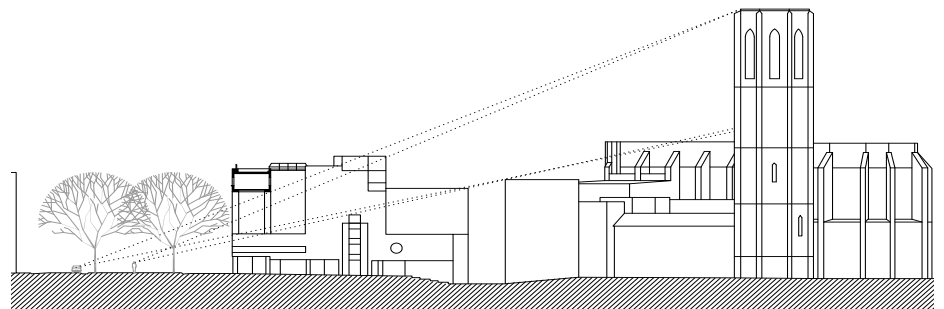


Fig. 3.10 Visual analysis in the section of Palau Nou de La Rambla
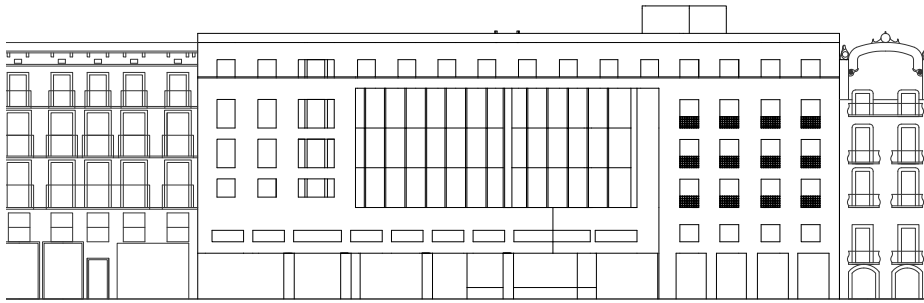
Fig. 3.11 Elevation to La Rambla

3.11)

In the project of Palau Nou, MBM found a just good critical point to balance the impact from the urban context and the architectural form of building and to coherent the new building into the urban fabric. There, the architecture does not only has its obligation to satisfy the functional needs of the program, but also receives the character of urban publicity that makes the architecture become a medium reminding the urban fragment as the meaningful monument to the people. With the help of fragment of the city, architecture can establish a closer relation with the site, which provides the fundamental reference for the formal generation.

This method of collage can also be found in the project of Gas Natural Office Building (1999-2006) designed by EMBT (Enric Miralles & Benedetta Tagliabue). (fig. 3.12)

The new headquarter of gas company of Barcelona is built on the original site where the old building located with 160 years history. The new building complex comprises a 20-floor tower and the lower part of podium. It stands next to the ring of expressway going around the Barcelona city area; the location belongs to a corner of Barceloneta residential area with low rise but high dense. In order to reduce the unsocial feeling of towering appearance of the building, the podium part takes measure from

Fig 3.12 EMBT, Gas Natural Office Building, Barcelona, 2006

the height of the building surround; at the same time, the site is completely open to the public on its ground floor, the square around the building was planned as public parks, which makes up the problem of lacking public space in the Barceloneta quarter.

The height of the high-rise tower is also strictly controlled: the number of the height is the medium value between the lower height of the housing in Barceloneta and the seafront twin towers in Olympic Port, which are not far away from the gas company building. The mediating measure of the building realized a transition on height in the view of the urban elevation from the large scale view; the linear shape of the 20-floor-tower and the structure on the top makes the feeling of the height even higher when
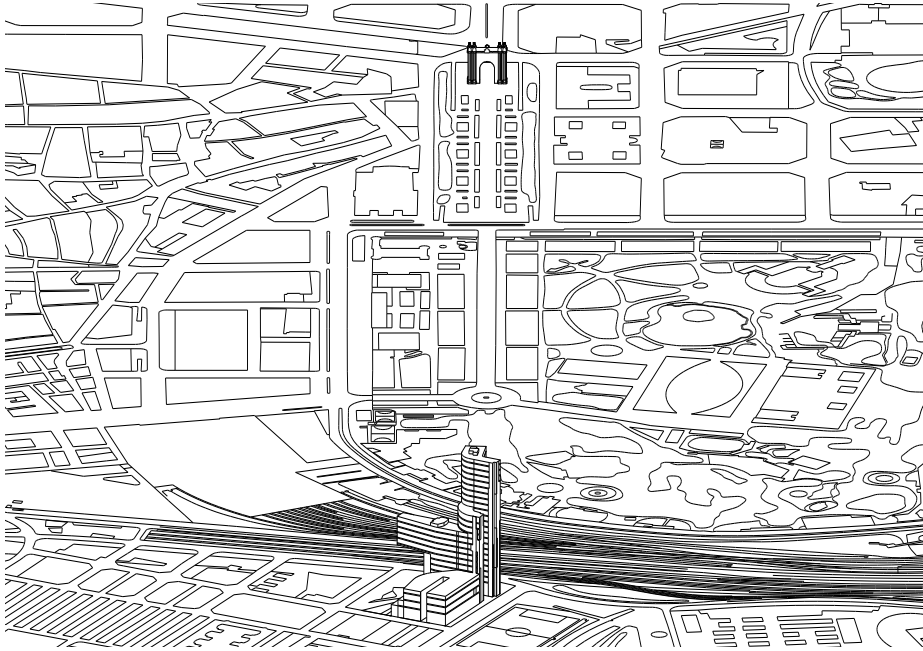
Fig. 3.13 Figures of Gas Natural Office Building and his surrounding

see it standing on its bottom; the more important is, the architects draw the plan of this project from a very large scale reading of site and urban context in sketches of the initial phase stressing the line and its extended part linking Passeig de Sant Joan and the Ciudatella, this line appears in the conceptual drawing as the main axis reference to collage the monument of the Arc de Triomf with the headquarter high-rise tower: the frame of the arch is perfectly fitted with the outline of the Gas Company building. Using the way of collage, the two characteristics different in building times are composed together inside of one visual image; the meaning of illusion, the historical triumph is collaged with the contemporary metropolis, the passing of time and epoch is perceived in a realistic manner.(fig.3.13)

In contemporary city, skyscrapers are symbols of modernization and vanguard spirits; moreover, they form a unique urban scape by the appearance of mega structure and large dimensions in

6. Spiro Kostof: "[…]however it might have come to dominate visually the image of the city, and to stand as the very embodiment of its public realm."Spiro Kostof, *The City Shaped: urban patterns and meanings through history*. London: Thames and Hudson, cop., 1991.Pp.280



Fig. 3.14 Gas Natural Office Building and Arc de Triomf

height and volume.[6] In the design of Gas Company headquarter; the height becomes an object that is introduced into the design by an unusual manner which aims to bridge the connection between architecture and city. In other words, the height of the tower breaks the visual limitation of the common sense about the skyscrapers, the height differences and visual effect regulation about the farther the smaller both provide the bigger freedom to link the single building with fragment of the city. (fig. 3.14)

To use the collage method, architect firstly needs to observe and analyze the constructing site and its surrounding in a sensitive way in order to build the collage model that was comprised by three parts: observation point, new building and fragment of the city. In the meanwhile, the model has its own limitation. First, the collage relation is built on the specification of the location of observation point, different locations give different results to the final composition of image; that is to say, the chance to let people aware about the existence of that observation point is indeterminate, which depends on the activities of people. Second, the rely-

ing on the visual presence decides the fragment of the city in this method usually is city monument with its volumetric presence, which can catch the visual attention easier and more obvious. Lastly and the most important aspect is, there should be fragment around the site or inside the city where the new building locates, which can be used as collage elements in the design; the intentions of how to select and what to select those fragments as the design materials are decided according to those impacts such like the own understanding and self-interpreting of the city of the designers, the distance between the site and the object as the fragment and the volumetric dimension of the project itself, etc.

No doubt, those preconditions limit the using of the collage method in a wide range and popularity; however, they can demonstrate the practical principles of collage in design process as a user's manual. Base on this practical model, I will enlarge the content of the method into a wider sphere, which can bring more generality and utility into application. That is the streetscape, to be seen as an objective element, can be introduced into the architectural composition in order to achieve the collage effect in the organization of space.

In Enric Miralles and Carme Pinos's project Reconversion de la Fabrica la Llauna (1984-1986), the previous function as an old factory and the narrow street were problems that call the work of transformation mainly on the scale from the functional changes to fit the requirement of school uses. Adding a certain amount of small classrooms and office rooms are necessary. However, a series questions appeared when the architects wanted to apply changes into the old building, which were mainly caused by the lack of direct natural light and the lack of the intermediate space between street and classrooms.

For improve the quantity of natural light into the classrooms, the architects redesigned the main entrance of the building but still following the continuity of the division and proportion of the

Fig. 3.15 Interior of Fabrica la Llauna

whole street side façade, replaced parts of the original material of the external wall by the glass. The external wall where meets classrooms on the first floor are opened as windows; parts of the original dual slop roof of the factory is also replaced by glass panels but still supported by the original steel structure. (fig 3.15)

For the problem of lacking intermediate space, those classrooms are placed in the first floor which opens the ground floor space directly connected with the public space of the street by using the sliding doors designed with big dimension, which reduced the requirement of constructing a rigid and obstacle framework for placing a normal door there, so to erase the limit of the spatial division between inside and outside. And the more interesting point is the placement of a typical street lamp and other urban furniture that are ordinary objects familiar to people as the sense
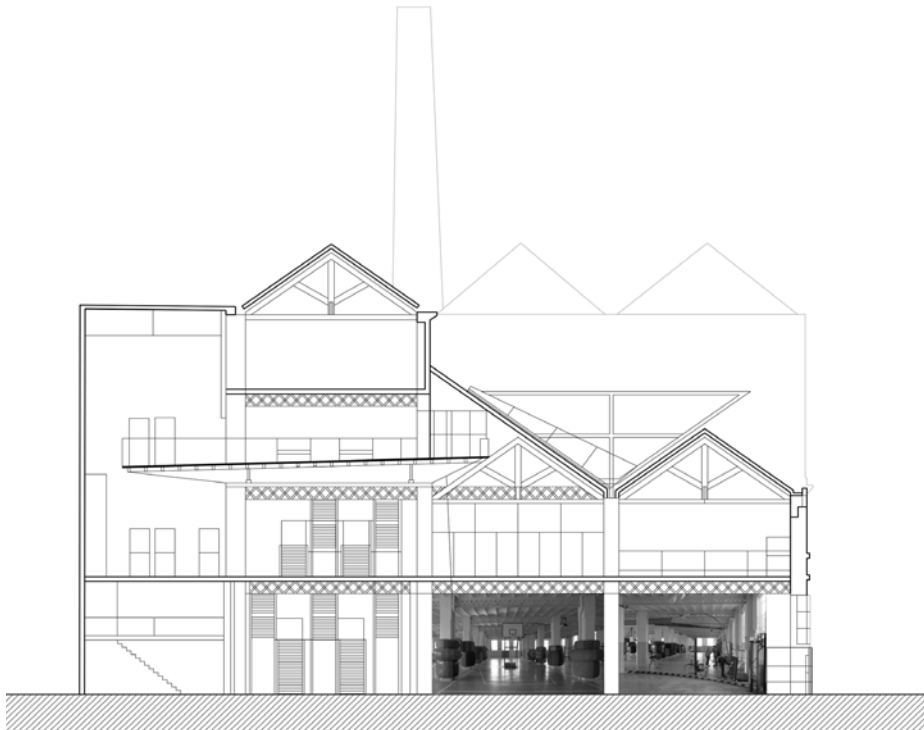
Fig. 3.16 Section of Llauna School

of being in outside on the street into the unique interior space of the ground floor, which emphasize the combination of the public and private spaces together on the ground floor. And not mention the big staircase with its full expressive character that links ground floor with the upper level, the handrails of the stair is covered with another layer of metal mesh, the surface material of those steps is wood, those materials are providing the people the perception that the public space is going to change into private, because the differences and conflictions in the mixture uses of hard and soft materials remind the spatial distance between downstairs and upstairs. In the part where the staircase nearly touches the concrete pavement of the ground floor, the surface area of the last step is enlarged and it has a perceptible inclination like a rump. It reminds people the feeling of walking on the barge springboard when the boat is going to park on the land,

Fig. 3.17  Josep Lluis Mateo, the Film Theater of Catalonia, Barcelona

which is absolutely distinct for the interior circulation. The students running up and down on the stair can get this feeling of the experience on the staircase is not only to go downstairs, but also to "return" to the public space, to the urban context. It is just like what the architects wrote: the ground floor space is "an outside porch with the dimension that are lacking on the street side."[7] (fig. 3.16)

In the Llauna School, the architects collaged the public space from the streetscape with the internal space of the architecture by using the method like breaking the boundary of in and out, inserting the street facility inside of the ground floor, emphasizing the gap of separation between upstairs' space and downstairs' space. We can find the similar strategy in the project designed by Josep Lluis Mateo, the Film Theater of Catalonia (2004-2011). (fig. 3.17) The architect also works on the collage made by public and private spaces by using large dimension glass windows to erase the architectural boundary, reducing the appearance of structural columns on the ground floor after a precise calculation and design of the special structure, continuing the pavement utilized for the exterior plaza into the ground floor. The public space in

the urban texture is collaged into the sphere that belongs to the architecture.

In this type of collage method, spaces as elements that can be used as the material of collage are not the ground floor open space after the action of bottom overhead, the spaces used in the method of collage apparently belong to the internal space of architecture. To achieve the effect of collage mainly relies on the ability of the architect who can reduce the distance between the urban context and the singular object, in order to give the "publicity" to the interior. Building is not a closed object, it is the extension of the urban texture, and that is the spirit this type of collage wishes to express.

Above all, collage is a way focusing on the method of borrow, the fragment of the city that is used in this method has to obtain its unique character that the intervention of the new building does not have, then it becomes a meaningful thing that the fragment can provide its character as new material attach to the building, which can enrich the content of the building itself and at the same time reduce the distance between architecture and city, architecture and site place.
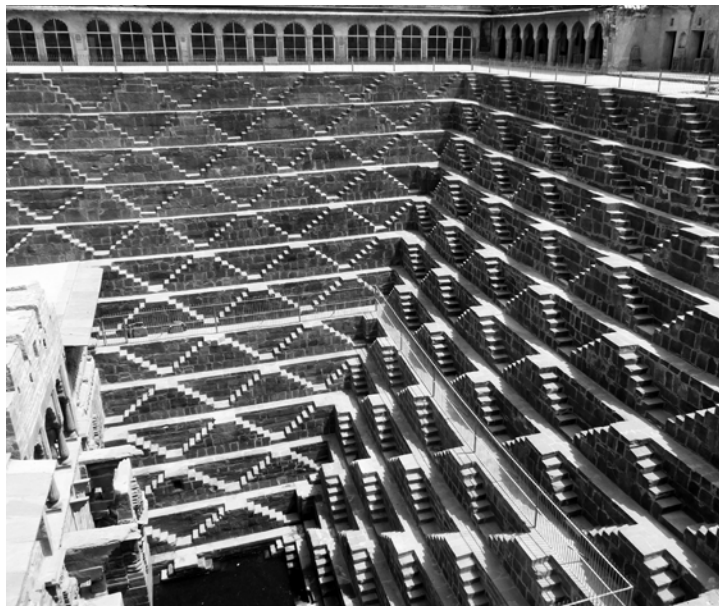
Fig. 3.18 Chand Baori, *Stepwell abhaneri india*, 9th

## 3.2 Scalalize

Scalalize (Latin Scalae = steps = stair) (fig. 3.18)means a method that used in the specific situation when the site has a certain topographical character, which mainly is to build the architecture as the connection that can bridge and use the height differences on the site. It is a good way to merge architecture with the site and to use that united combination to give architecture a particular character and a desire to be at one with nature.
The definition of "Scalalize" is to describe an action "to be as the stair". The reason to use that word is to express several ideas: first, architecture definitely is an artifact, which is a reform movement done by human beings to reform the nature; second, architecture has the function of staircase, used as the component that can deal with the height differences – the vertical distribution and relation - on the site; third, this method concentrating on the height condition also concerns about the horizontal expand, if we say the vertical relationship is the main structure which gives the project the character of vertical continuity, the horizontal expand on each level becomes the unit that composes the vertical continuity.

Dealing with height differences in architecture design can be found its records since the early period of human civilization, such like vand Queen Hatshepsut in Egypt, (fig. 3.19) or Trajan's Forum in Roma. With the assistance of highland, the visual perspective can increase the appearance of height to monumentalize

Fig. 3.19 Senemut, Mortuary Temple of Hatshepsut, Egypt

the architecture itself; in the meanwhile, the height difference in the topography of the land can naturally form a hierarchy system. In other words, the use of the mountainous occasion has the aim that to emphasize the artificiality by taking advantage of the topographical condition of the nature.

Accompanied with the higher hierarchy's demand of a better quality of life, a series of suburban gardens and summer palaces started to appear. In that natural environment far from the artificial context of urban, the consideration of natural landscape reappeared inside of the design. In many baroque gardens, the mountain in the background scene usually was used as the ending point positioned in the end of the view axis, such like the Palace of Caserta in 18th century Italy and the Schloss Sanssouci in Potsdam of German. In the meanwhile, that relation with the mountain appeared in some military architectures also during the industrial revolution period. (fig. 3.20)

Then we should be aware that, those projects mentioned above are the ones that are encouraged to borrow the mountain or the highland to realize some particular purposes, such like some

8. Luis Fernandez-Galiano, *Fire and Memory: On architecture and Energy.* Cambridge, Mass.: MIT Press, 2000. Pp.89-90

9. John Beardsley, *Earthworks and Beyond.* New York: Cross River Press, 1984



Fig. 3.20 Burg Hochosterwitz, Austria

seeks of some special forms, or to enhance the capability of defense intensity; the relation between the architecture and the physical is interdependent, the mountain, or the slope land was not only accepted only as the site to load the building itself. In other words, environment and building, both components together make up a continuum. With the development of science and technology, things had been changed since the 19th century: a series topographical works or mountain works done by Bruno Taut, Villoet-le-Duc and others appeared into the history. Although the outcomes of those works were different, the various special characters of the site in mountainous areas started to be discovered and directly influenced the architecture design. [8] At the beginning of 20th ,a serials of projects designed by F.L. Weight in America, such as Falling-water house and so on, showed a close relation between building and topography. This kind of practice, break with separating building from environment in Modern architecture movement, modern languages of design and artificial manner of using materials don't sharp the contradiction. Beside this, in 1960s, the new topographical work was widely accepted and discussed by the so call "land art": such like Robert Smithson, Harvey Fite and so on.[9]

But what has to be clear is, compare to the free and simple presence of land art and land form; the architecture has to face multiple actual requests from the program aspect, the interior height differences, some special geology condition and so on. So the mountain is the basic criterion of the site and we cannot avoid some transformation on the pre-existing environment.[10]

So this type of architecture has to face limits from various directions such as the building technique, the geologic condition and so on, which causes a relatively neglected situation. This needs to have comprehensive understanding, summarize unceasingly and accumulate experience, and to get good result. In Spain, because of the particular geographic condition of the peninsular which has many mountainous area and slope area, the Spanish architects are undertaking a lot of experiences and practices by well analyzing and using the landform to make the architecture communicate with the site. Like what Frampton said: "Unlike contemporary practice elsewhere where the freestanding object is given inordinate importance and the site is often treated in a cursory manner, Spanish architects habitually inflect the contours of the ground to reinforce the expressive attributes of the form."[11]  Alejandro de la Sota's work Gimnasio del Colegio Maravillas in Madrid built during 1960 to 1962, is the perfect work that shows the genius method of fitting the function and structure of architecture with the height difference on the site. Also in Cesar Manrique's works of the 70s, we can see the artist also architect's experiment on around the theme of the possibility of building in the mountain. The project Escaleras de la Granaja designed by Martinez Lapeña & Torres in Toledo (fig. 3.21) deliver the information that the human activities also can have a well communication with the topographical condition of the mountain.

In the Cemeterio Municipal in Igualada designed by Barcelona local Architects Enric Miralles & Carmen Pinos during 1983 to 1990, the landform is once again perfectly mixed with the program, function, even the metaphorical thinking about live and dead

10. "On a sloping site the level plane is achieved by terracing, retaining walls, the supported platform, or the cantilever. Imposed structures may hug the slope, rest on a platform, or stand completely free." John Ormsbee Simonds, *Landscape architecture: a manual of environmental planning and design*. New York, [NY] [etc.] : McGraw-Hill, cop. 2006. Pp.115

11. Luis Fernandez-Galiano. AV Monografías 113 Spain Builds: Arquitectura En Espana(1975-2005)[M]. Madrid: Arquitectura Viva, 2006. Pp.87

Fig. 3.21 Martinez Lapeña & Torres, Escaleras de la Granaja, Toledo,

of the architects. It is the ideal example of the category of scalalize.

This project began with a competition in 1984, before the competition, except some projects for competitions, this design studio had constructed only few projects individually: the renovation of fabrica la Llauna in Badalona and a series design of urban facility of plaza. But as for such young architecture studio, they show their extreme mature design ability in the project of Cemeterio Municipal en Igualada. The design method of minimalism learned from the working experience in Viaplana's studio and the using of symbolism criterion in architectural elements are well mix with the personal design character of the architect himself. (fig. 3.22)

The project locates in the outskirt of Igualada, in side of a piece of undeveloped land surrounded by industrial properties. The cemetery has two parts: the entrance area with helical curve
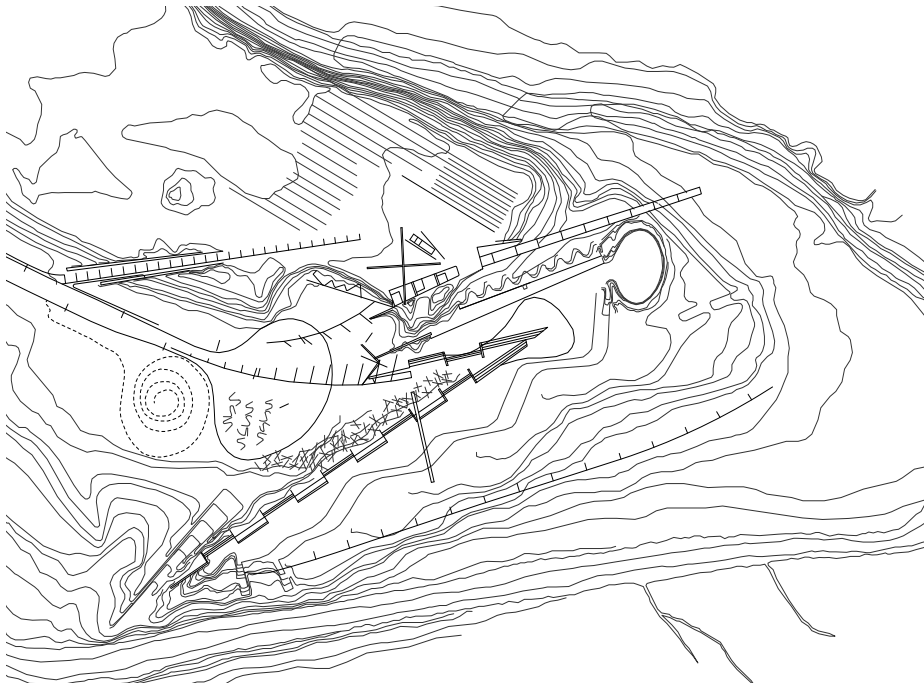
Fig. 3.22 Masterplan of Igualada Cemetery

form land art work and the cemetery area where to place coffins going downwards according with the lowering of the topography (although the original plan of the cemetery was in the shape of letter "Z", in the latter development of the design, the shape of "Z" was transformed into the shape of "S"), the whole arrange-ment of the coffin area followed the concept of a river of life as a "swirly stream that eroded the smooth curves of the banks of burial niches"[12] , at the same time, it was divided into two levels because of the height changing of the ground: the lower level belonged to the niches and tombs, and the higher level – the entrance level – was a still unfinished chapel and a mortuary building. That result of the division first was caused by the con-sideration of the function – the valley could help to create the distance between the cemetery and the industrial area, which kept the land quiet and peace; then, the distribution on the level of the entrance mainly had the idea from the concerns about the

Fig. 3.23 Enric Miralles, Igualada Cemetery, Igualada, 1990

circulation of people and cars during the time of ceremony process. (fig. 3.23 )

As architecture with special use, the aim of design not only has to satisfy the functional request as a cemetery, but also to consider rebuilding the characteristic of monumentality of the place. That monumentality comes from the uncertain of the future after death and the respect of the death as well. There, the architects broke the traditional plan of Catalan cemetery (the yard is completely closed by white walls), to use the natural height differences of the mountain to build cities of the dead. (fig. 3.24)

Since the Roman period, people started to place tombs along

Fig. 3.24 Boundary of Igualada Cemetery

13. " the dead were the first to have a permanent dwelling[…] the Jews claimed as their patrimony the land where the graves of their patrimony the land where the graves of their forefathers were situated; and that well-attested claim seems a primordial one…[Thus], the city of the dead is the forerunner, almost the core, of every living city." Lewis Munford, *The City in history : its origins, its transformation, and its prospects.*  Harmondsworth (G.B.) : Penguin Books, 1979. Pp.7

both sides of the road which leaded to the direction away from the city (Via Appia in Rome for example). Lewis Munford thought that city of the dead actually predated the city of the living.[13] In the lower part of Cemetery Igualada - the place for niches and tombs, the main materials are concrete and stone in metal web. Those materials were used not only as the retaining wall to strengthen the earth, but also reset the positions of niches by the artificial presentation, plus the long plaza in the middle of the valley which represent the structural distribution of city of the dead. In the ground of the plaza, the used rootstocks are paved inside of the cement, orderlessly, which tell the idea of showing the uncertain direction after death; on the upper level, the level of chapel and a mortuary building, compare to the "life of the death", it is the place to let the alive people to take the farewell ceremony of the people past away. The cross sign on the ceiling is made by two main beams to hold the entire roof. Four round section concrete columns are not placed in the center of the semi-outdoor space and arranged in the rule of following the line of Fibonacci Spiral, which recalls those columns that followed the similar strategy in the un-constructed project of Giuseppe Terragni – the Danteum. Moreover, the long and narrow stair to the side of the chapel reveals the existence of the roof garden. When you follow the circulation going up on the roof, except those free-placed holes that were used to let the light go down to the chapel, there is nothing else on the roof. So the surface of the roof horizontally

14. Claudio Vekstein explains his visit to the cemetery in the company of Miralles and how, as they made their way down the stairs, Miralles talked to him from behind (the stairs are so narrow that you have to go up or down them in single file). On beginning the descent, Enric began to whisper: "Now you are dead, now you are dead." On moving out of the first flight of the stairs and into the open he said "Now you are alive." On proceeding down the second "tomstonestairs" he repeated "You are dead, you are dead." and on getting outside again, onto the large esplanade, he looked at him and said: "Now you are alive again. Do you understand?" See D. Bestué, Enric Miralles a izquierda y derecha (también sin gafas). Barcelona : Tenov, DL 2010. Pp.70
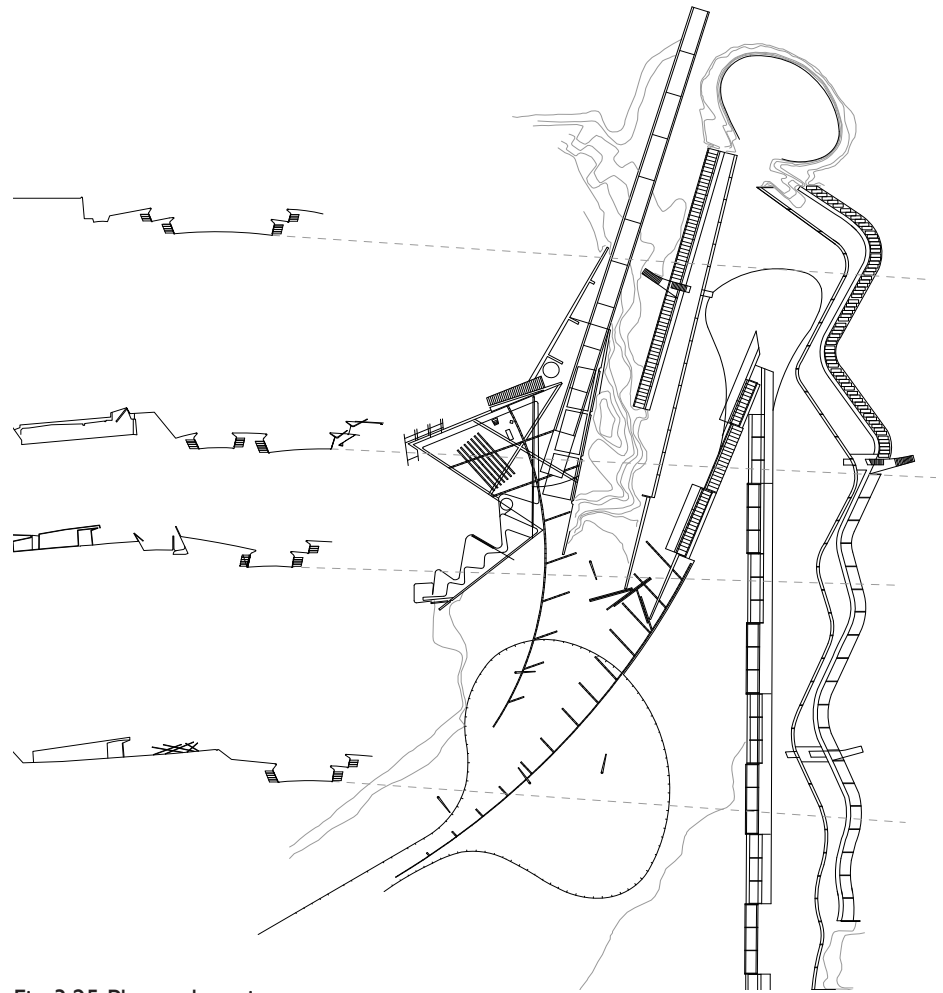


Fig. 3.25 Plan and section

connects with the outline of the mountains in the background; in the vertical direction, people can get the panorama view of the whole site.(fig. 3.25)

By using the natural topography, the architects created three totally distinct situations, to express their own understanding of the specific theme of cemetery architecture and landscape.[14] Apart from the decision of various situations in the design, there

Fig. 3.26 Enric Miralles, Club de Tiro con Arco, Barcelona, 1991

are many details explain the designer's ideas of how to transfer the visiting experience between those different situations. For example, the compact feeling when walk inside of the narrow staircase connecting the upper level and downer level; the foot perception and sound effect on those last several steps of the staircase that link the middle level with the plaza in the bottom of the valley, which are used to emphasize the interface between live and death. However, no matter the strategy of leveling the valley, or those well-defined details, are all controlled and merged inside of the topographical condition of the environment where the architecture is combined with the site perfectly. Through that combination, the architects redefine the initial interpretation of the ideal of "permanent dwelling": the history of buildings not just as the history of their own construction, but as the history of their sites.[15]

In Enric Miralles' following works, that relationship between architecture and topography had appeared many times. For instance, in Escuela Hogar de Morella, to better adapt into the place, the architect broke the program into parts and insert those parts into different single buildings which were unfolded along the contours. Also in the project Club de Tiro con Arco (fig. 3.26) in the Barcelona Olympic area Vall de'Hebron, the architect put the not so big facility building as cave pushing it into the slope

Fig. 3.27 Josep Mias, Pyrenees Golf Club and Social Centre, Girona

ground. In that project, the roof of the club extended the inclination of the slope; the gaps between folding panels of the roof gave the natural light into the interior space, which had center degree of similarity with the mortuary of the cemetery.

In the works of young architect Josep Mias, the Topographic House in suburban of Barcelona, the similar way of using the relation between architecture and topography to emphasize the relation between building and place appears. The entire body of the house goes horizontally along the linear orientation of the mountain chain. The linear geometry of the architecture corresponds to the geographical trend of the mountain, which forms a continuous opening to the sea view. In section, the architecture used the height difference of the site to place parking space and living space in different levels. And this idea was continued in the Pyrenees Golf Club and Social Centre of Girona built by the same architecture during the same period. (fig. 3.27)

In those projects mentioned above, we can see there are two requests when we try to achieve the intervention of architecture into the body of the mountain in a good way: the first one is the degree of the limitation of program, because it is easier to find the scalalize projects in landscape architecture category than single house projects; the second request is the degree of the limitation from the land inclination. In some program with more com-

Fig 3.28 MBM, Disseny Hub Barcelona, Barcelona, 2013

plex requirement, the architecture will have the consideration of the topographic condition of the site, but such consideration is hidden under the presence not as obvious as the landscape projects we talked before.

The recent work of MBM in Plaza Glories of Barcelona, the Disseny Hub Barcelona is one of those examples. The architecture occupies one side of the new plan of Plaza Glories, which declare the boundary of Plaza with Pobleu Nou quarter. It is also the end of Carrer d'Avila. The whole architecture has to face the complexity of the urban condition around the neighborhoods including the contract of different urban texture of two quarters, the plan of the circulation of various transportation crossing over at this point of the site and the height difference of 7,5 meters between two longitude sides of the site. (fig. 3.28)

There are two public entrances, one from Carrer d'Avila (+7m), and the other one from Plaza Glories (+ 14,5m). The entrance from Carrer d'Avila leads to a public library and the entrance of the main exhibition space. The exhibition space in the +7m level is lightened by six holes on the roof which bring the nature light
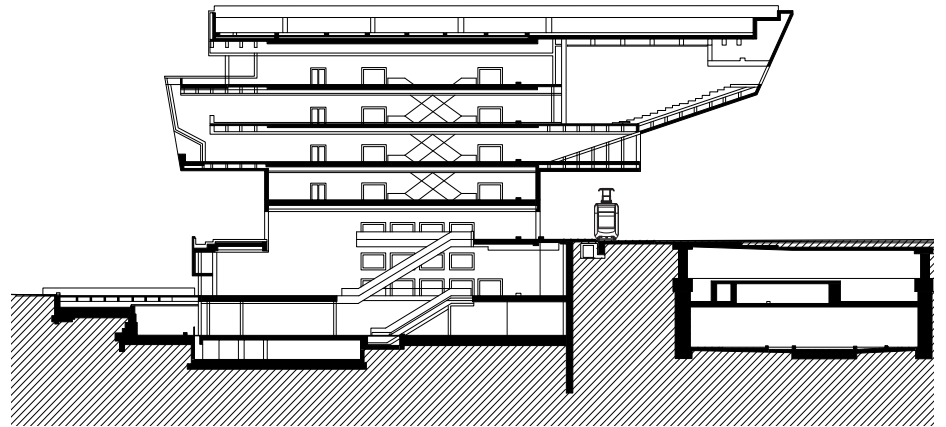
Fig. 3.29 Section of Disseny Hub and city inflastructure

direction into the exhibition hall. The entrance on the plaza leads to the entrance of lifts and staircases going up to the exhibition rooms and one auditorium on the upper floor. The whole up-ground area which stays upper than the level of the plaza mainly use the structure of a giant cantilever, which free the ground space to out-door use for public occupying the minimum in-door area. And the roof area of the parts buried under the plaza level is opening to the public use with pavement and green area. Also in the 7m level, beside the entrance, there is a long water pool surrounded by wooden pavement platforms which are offered to public use as well. So even if there are large amount of large-scale in-door spaces for the exhibition use, the whole architecture still present its main characteristic of the publicity. (fig. 3.29)

In the meanwhile, in order to solve the problem of height difference between the two sides, the architects directly connect the two public entrances on different level by using the escalator. Compare with a normal circulation in plan of a museum: the entrance always connectes with a reception hall used for offering people short stay in order to start the visiting, here in this project, when people enter the main entrance , part of the circulation is leaded directly to the escalator going up or down to the other public entrance, which emphasize the use of this building as the

urban escalator to cross two different levels, in the meanwhile, link the entrance of building tightly with the urban structure, similar with the entrance of Teatro Carlo Felice in Genoa by Aldo Rossi with its surrounded urban context. Here the final advantages of this building can be shown in different aspects: the different levels in elevation explain the swift of different city quarters; the Carrer d'Avila has a double-code meaning in this design because the building itself can be seen as the mark of the ending point of that street, and also the new architecture extend the end of the street as the part of the continuity until meet with the plaza; the going up and down on the main escalator gives people's walking experience inside of the building a feeling that the urban view is slowly opening to the visitors, which bring the whole underground space of the building a unique feature that it has the urban character merged perfectly with the surroundings.

We can see the idea of scalalize in Eduard Bru's two projects in UAB campus in Cerdanyola of Barcelona: the Doctorate School and the Residental building – the Villa of UAB. The former is an extension project that built base on an old farmhouse Can Miro locating on the upper part of a little hill. The extension part of the building has an oval shape plan which clearly distinct from the historical house regarding to the form base on plan. But the material and color of the new part follow the same things that appear in the existing part. Considering about the height difference, the highest point of the new session equals to the lowest point of the old building, in the interior of the combination of the both parts, a big staircase is following the inclination of the slope land which connects the downer part of the hill – the entrance – with the upper part of the building, and at the same time be the circulation core to link difference part of the interior space on different levels.

In the latter project – the student residential building of UAB – the linear shape of the architecture has two totally distinct sides of view: one facing to one plaza of the campus on the upper
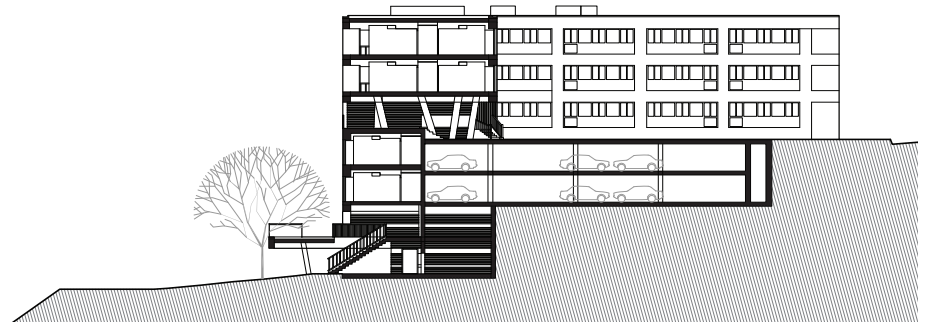
Fig. 3.30 Eduard Bru, Valla of UAB, 2009



Fig. 3.31 Section of the Villa of UAB

level, the other facing to the pure nature forest in the void space. The architect put all the rooms that need to get the sunlight on the nature side, in the mountain side, because of the change on elevation, he buried the corridors and all the rooms of equipment inside of the topography. (fig. 3.30,3.31) That method of dealing with the mountainous situation also appeared in the project of Vall d'Hebron.

The new Joan Maragall Library was completed in 2014, designed

Fig. 3.32 BCQ Arquitectura, Joan Maragall Library, 2014

by studio BCQ Arquitectura, located in the zone of Gracia, where has the maximum gradient in Barcelona. In that project, basically there are two different problems to solve about the heights.

On the north, the distribution of the volumes follows the direction of Sant Gervasi de Cassoles Street which lies besides the site. But the Castanyer Street which goes perpendicular to Sant Gervasi de Cassoles stands its ending point cross the site, and the Castanyer Street itself has a sharp inclination on a slope, so compare to the importance of the existing of Sant Gercasi Street near the site, how to deal with the connection to the ending point and the topographical condition of Castanyer Street are the most important problems which cannot be ignore; moreover, on the south side, there appears a garden on a different level above the site, which becomes another element has to be taken account in the design. In other words, the new library stands under the floor level of the old garden of Florida Villa, which gives the library its role of acting as a node entering in the continuous natural slope from Castanyer Street to the graden. (fig 3.32)

The building is particularly related with Sant Gervasi de Cassoles Street. The gap between the garden and Sant Gervasi Street
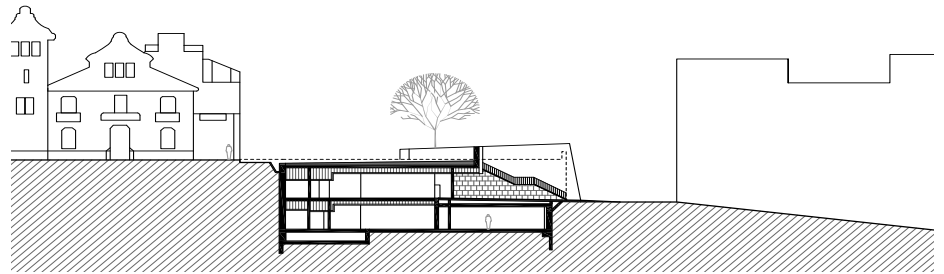
Fig. 3.33 Section of Joan Maragall Library

allows a natural access to the new facility. In order to achieve the height change and show the presence of the Castanyer Street, the main form of the building has a certain slope, which also makes the build similar with a big stone. An expressive exterior staircase which located next to the entrance connects two different levels and at the same time maintains the continuity of the land.

The green roof at the same level as the old garden can be seen as the extension of the garden and the civic center. The original trees of the old garden have been replanted on the roof of the new library, so the new library is like in the shade of trees, and become as a part of the whole landscape.(fig. 3.33)

In order to integrate with the territory, the windows opened to the street are strictly controlled. Then a series of "light and silence courtyards" with glass is designed to satisfy the needs of the daylighting of this building. It can also isolate the interior of library apart from the street.

The method of scalalize also can be found in the project of Martínez Lapeña & Torres. In their works the architectural form, the plan and the topographical condition of the mountain all had been tightly related with each other, like the Vivienda en Segur de Calafell(1968-1970), the axis of the group of housing are perpendicular with the contours, and the whole program of architecture is organized around the core of staircase. Later in the Casa Van Den Driesche en Cala Molím (1969-1973), the whole plan was

divided into two main volumes based on different elevation; people's movement and the distribution of functionality were around those two centers. Later in the project of Casa en Cap Martinet, that kind of character still can be found.(fig. 3.34)

Although most of their buildings were constructed in Ibiza, Barcelona still was the center of their activities because of the studies and practices were all taken in Barcelona; from the other hand, the geographical condition of Mallorca has its similarity with Barcelona. So they still can be include inside of the case analysis.

In total, in cities that are built on slow slope land such as Barcelona, furthermore with several hills appearing inside of the urban area, the geographical condition is the problem architects have to face in the first place during the design process. Scalalize exactly conclude the character of design method that the respect of the site is the answer to the specific condition, which demonstrates the concerns of architects, in the contemporary context, about the relationship between territory and architecture have already transformed from the idea of "on the land" in Modern period into the idea of "with the land" and "a coupling of landform and build-form."[16]  Here, the city fragment is the fragment of topography. By using the fragment of topography, the local architects can find a fundamental rule of form or rule of frame, which is not the physical performance of "permanent" outcome, but in the contrary, the form of architecture can obtain an unexpected result of "spontaneity in presentation" by cooperation with the strategy of scalalize.

16. Frank Lloyd Wright, *The Living City*. New York : New American, 1970. Pp.112
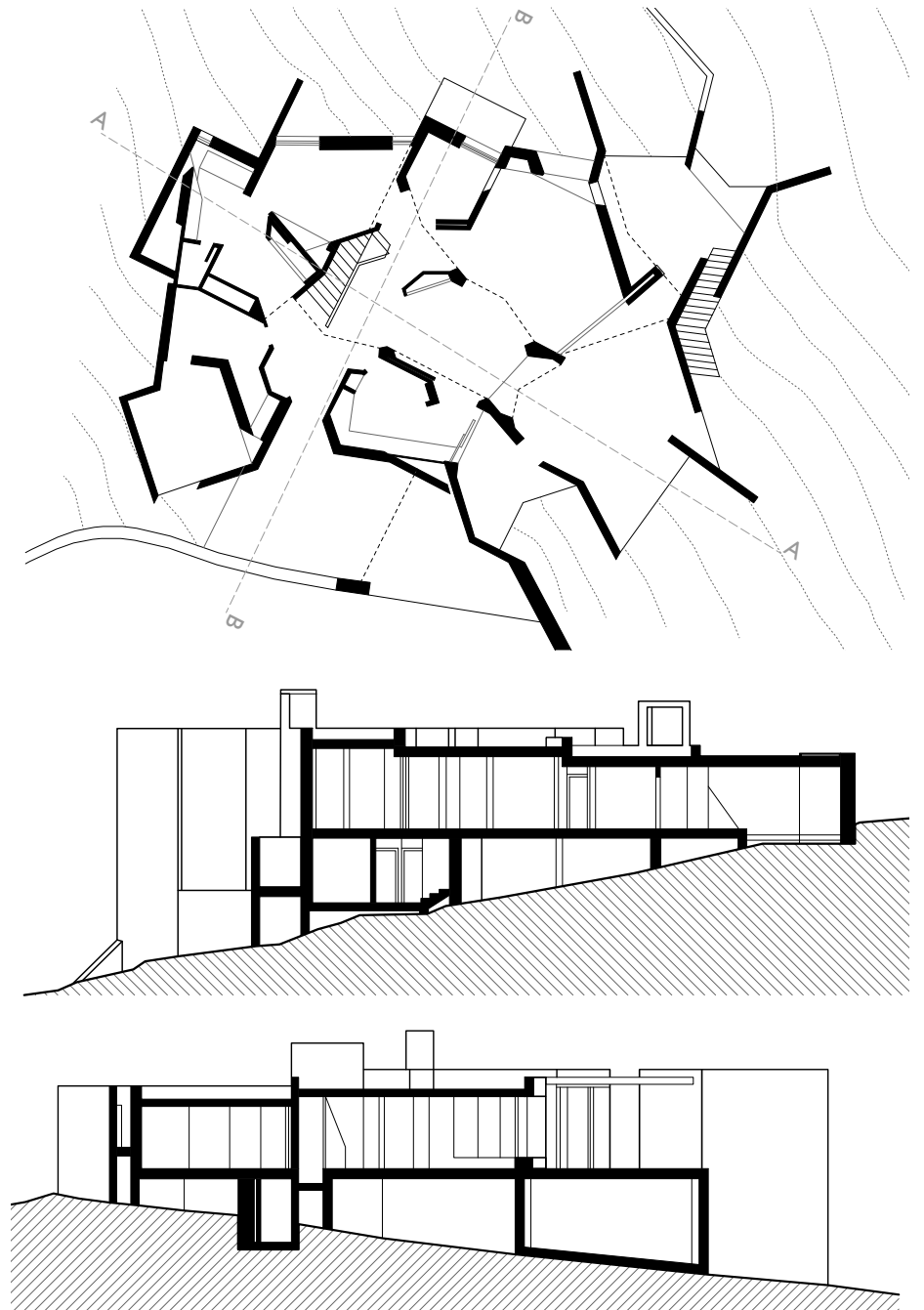
Fig. 3.34 Plan and section of Casa en Cap Martinet
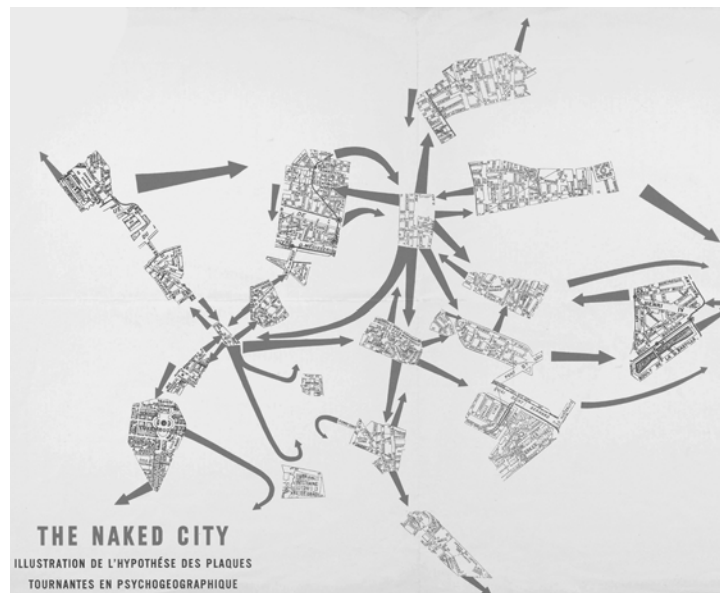
Fig. 3.35 Naked City, Guy Debord, 1968

## 3.3 Detournement

Detournement, (fig 3.35)using by Situationist International in the 1950s, with the definition of "[t]he integration of present or past artistic productions into a superior construction of a milieu".[17] In this thesis, it means using architecture itself to reform the distribution of a larger area so to express the personal understanding of the location related with a larger scale of urban and regional structure. The difficulty of this method is the giant gap of the scale between urban and single building. So most projects including this manner have a limit of certain requirement on dimension and scale.

Apart from the plan, the dimension of architecture volume can influence the urban structure, which becomes more obvious in those examples in contemporary cities – the dimension of project is growing larger. In Medieval Age, the buildings that can play the role of reform mostly were monuments - religion architecture, defensive architecture and so on. Although in Renaissance Time, when the private housing became magnificent important to the city, for example, those Renaissance palaces in Strada Nuova of Genoa, the impact from those private properties were still not enough or not obvious to generate the urban development of the city. Even if the analogy between house and city appeared in the writings by Alberti, the relationship between single building and the structure of the city still stayed analogous regarding to the level on the theory of structuralism.

Along with the progressive development of modernization and public awareness, a series of new public buildings with complex composition of programs, such like schools, hospitals, transportation hub and so on, started to appear. In the works of Claude Nicolas Ledoux, Etienne Louis Boullée and so on during the approximate period, some large-scale buildings and compound projects had come into public eyes.[18]  In the meanwhile, when the dimension of architectural volume gradually was growing larger and larger, the urban aspect of the building was gaining more and more strength to be aware in side of the urban context, also more capability to influence the reforming of urban structure. Since the beginning of 19th century, that transformation had become obvious. Architecture had already obtain enough ability not only well connect with the intersection of urban structure in plan, but also affect the urban transformation by a higher level of general plan and organization of urban fabric.

In the project done by Lluís Domènech i Montaner, the Hospital de Sant Pau (1901-1930), (fig. 3.36) the architect had to face an area of nearly 400m * 400m inside of the city. He turned the main orientation of groups of buildings 45 degree different with the direction of the Cerda's grid of Barcelona. The rotation emphasized the unique and importance of existence in the urban grid; the single building inside of the architecture groups followed the same orientation of the site plan, so the block of buildings became the extension of the urban street; linked by Av. de Gaudi, together with Hospital de Sant Pau and Sagrada Familia, a complete sequence of urban space was formed by the two monuments, which totally jumped out of the limit bounded by the Cerda grid.

The rotation of 45 degree also can be found in the plan of Mercado de Sant Antoni which was built in 1882, even more obvious. To be as the first phase of the buildings constructed inside of the grid plan, the axis of architecture did not follow the main orientation and direction of the urban grid, but with a rotation of 45 degree again, with the shape in plan as a Greek cross inserted in the

18. "the new types had a representational intent: they were, in a genuine sense, new 'organs' of the city-secularised and democratised versions of the old theocratic or aristocratic institutions." Alan Colquhoun, *Collected essays in architectural criticism*. London: Black Dog, cop., 2009. Pp.70

19. "The housing scheme
for low income families,[...],
is adopted to climate of
Barcelona. These apartment
units with their community
services form a small neigh-
bourhood unit. The widely
spaced wings of these block
and semi-enclosed open
space between them are
reminiscent of the traditional
Mediterranean patio and to
a certain extent reconstruct
this element on an urban
scale. Josep L. Sert, *Can our
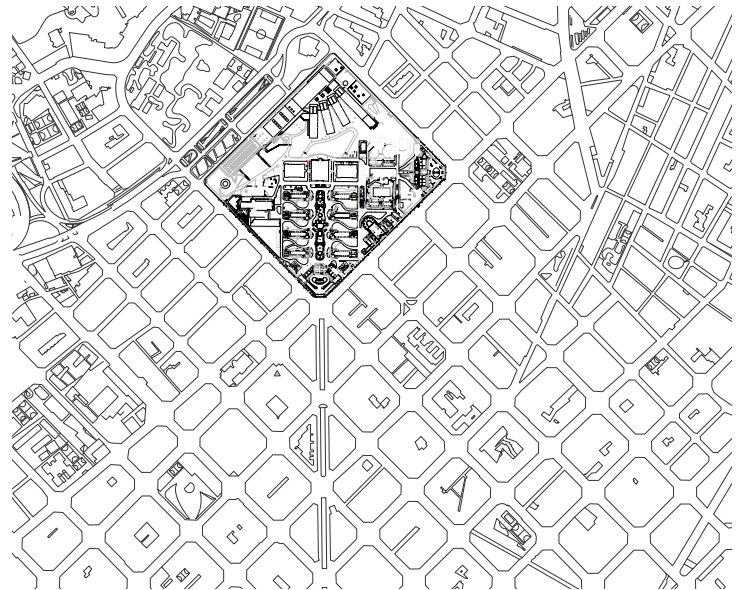cities Survive*. Cambridge:
Harvard University Press,
1947.

Fig. 3.36 Masterplan of Hospital de Sant Pau

boundary between the old quarter of Barcelona and the Eixam-
ple grid plan. The plan of the new market on one hand shows its
relation with the orthogonal grid of the street in Cerda's plan; on
the other hand it showed a kind of continuity between the plan
of the market and the urban texture of the old quarter. In that
way, the market had its function as the intermediate to relieve the
contradiction of different textures between old and new quar-
ters, and at the same time as a new landmark inside of the city to
reveal its own existence.

In the project Casa Bloc design by Josep Sert and Torrres Clavé
in 1932 – 1993, (fig. 3.37) the whole distribution in plan had tight
relation with the existing buildings and street in the surroundings.
Two semi-opening courtyard although have the influence from
the traditional courtyard in Mediterranean housing, because of
the big dimension of the building, that two semi-open spaces can
be seen as the public spaces which provide the open space for
activities in that industrial area.[19]  Here in Casa Bloc, the social
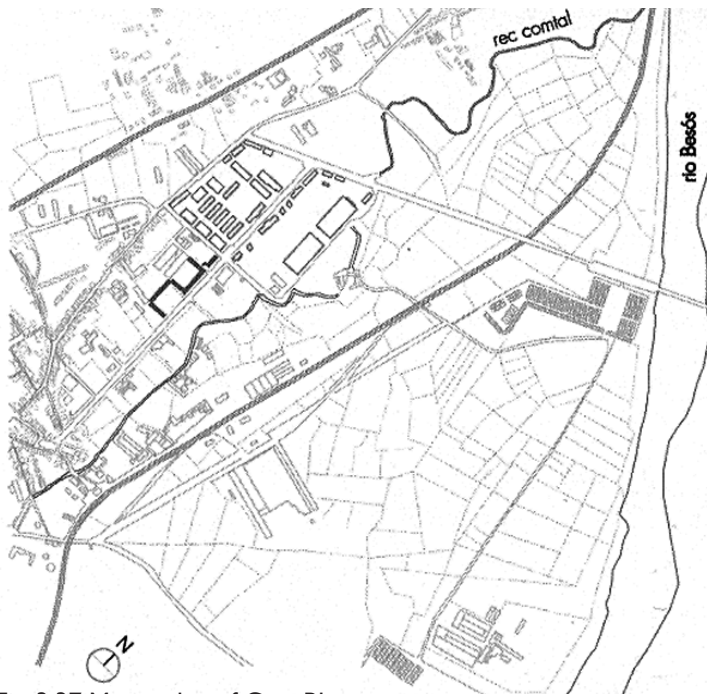
Fig. 3.37 Masterplan of Casa Bloc

housing for workers working in the nearby factories was not a new building typology. The architects used the reform method - such as overhanging the bottom part of the building in order to let the passengers easily pass by and the semi-open courtyard brought in the multiple uses of public spaces in the industrial area - to let the project improve the life quality of the neighborhoods, which made the urban spaces in that area more useful and reasonable.

Since the end of 19th century and the beginning of 20th century, lots of new projects built in side of the Barcelona city had delivered the notice that to think about how to link the architecture with the urban fabric, even how to use the architecture to reform particular session of urban structure, which had been well carried on during the latter urban transformation and new single buildings projects.

Fig. 3.38 Carlos Ferrater, Instant City, Ibiza, 1971

To be as the architecture studio which has the most amounts of realized projects with their most diversity, the works of architect Carlos Ferrater and his later studio Office Architecture in Barcelona (OAB) have demonstrated their interpretation about the urban issue as one of the important brunch of the main clue.

In the earliest experimental work of Carlos Ferrater - the Instant City in Ibiza built in 1971 (fig. 3.38) - the architect used an instant building to simulate the urban structure and daily life. And we can see easily the awareness and understanding of urban issue through this temperate project. In his project of 3 manzanas en el ensanche Cerda built inside of the Villa Olimpica during 1989 – 1992, the architect had based on the original urban fabric of Cerda's grid to input some partial converses: the placement of towers in the corner of the block emphasized the importance of the position; the pedestrian passage crossing through the center of three blocks broke the traditional typology of the courtyard

Fig. 3.39 Carlos Ferrater, Hotel Carlos I, Barcelona, 1992

placed inside of the building block, which transformed the pedestrian into the typical public space with the contemporary identity of city Barcelona. Inside of this project, we can see, the way Carlos Ferrater used to select the fragment of city to interpret the urban fabric has its own specialty, which mainly can be explained in the way of a kind of selective character – in the meanwhile to inherit some important identity, to admit the possibility of changes according to the actual fact. His way of breaking the existence model of the grid in order to reform the new connection inside of the place has its similarity with the method adapted in the project of Hospital of Sant Pau. The project during the same age, the Hotel Carlos I locating in the upper end of Diagonal street is another example of the reform method used by the same architect. (fig. 3.39) Although the site of the hotel is not closed to the Diagonal street of Barcelona, the architect used the advantaged of the dimension and height of the building to expand the influence of the building to its environment and to emphasize the relation between site and the city by the manipulation of the architecture form: the whole volume of the building stays in the shape of two

open hands with the gesture orienting to the Diagonal street and the Tibidabo mountain in the background; about the materials which used on the man façade, the part of "hand" was covered with solid concrete and in the middle part between the two hands, it was covered with glass surface. On the functional point of view, the glass part of the façade can provide the maximum passage of the natural light into the lobby of the hotel and the well communication between the in and out; the concrete part of the façade can offer a good cover to the rooms of facilities and emergency transportation. And from the consideration of the meaning of form, the comparing between different materials can well demonstrate the main orientation of the building as well.

The later projects of Villa Olimpica del Vall d'Hebron and the Palacio de Congresos de Catalunya which were built during 1990-1992 and 1996-2000, both express a kind of professional manipulation of the way that when the architect faced to the irregularity of the urban block, he used the urban street as the main instrument to organize the distribution of single buildings and in the meanwhile inserted the traditional element of patio in Barcelona into the organization in order to play its role as the inner center of the composition of interior spaces. But what has to be claimed is that way of manipulation has its extreme condition of operation, which revealed at the same time the architect's methodology of design was gradually going neuter. In the project of Palacio de Congresos de Catalunya, the main orientation of the building stays perpendicular with the iconic element of the city the Av. Diagonal. However, apart from that, in the relative void area, the architect doesn't do any action to communicate with the Diagonal Street. And the window shade system is similar with the project Casa Alonso-Planas built in the suburban of Barcelona during 1994-1998. Furthermore, the use of white concrete wall although creates the silence and series ambiance, it easily recalls the Japanese minimalism architecture such like the works of Tadao Ando.

In the later built projects of Carlos Ferrater in Barcelona, we can start to find his interest in topography and landscape, such as the Fitness center built duting 1993-1996 and the Jardin Botanico de Barcelona built during 1989-1999. Moreover, there are several project locating in the center of other cities which have more casual design of the elevation of the building, such as the Edificio Administrative del Gobierno de Cantabria in Santander since 2001 and the Rehabilitation del Antiguo Edificio de la Basf built during 2004-2006.

The appearance of those projects, on one hand improves the expressive ability of the building form which provide the architect a wider market in contemporary society; on the other hand, it caused the absence of Barcelona identity inside of the project, although that kind of absence usually was made by the specific condition of the program and site from different aspects. Not until the recent work of Torre Mediapro in 22@ zone of Barcelona, the architect suddenly gave up the usual manner of using folded line and multi-material's collage on elevation, in order to adapt the ordinary modernism method to replace the pursuing of simply visual impressive affect. Borrowing the fragment of city to guide the generation of the architectural form and the converse method reappeared in his works again. (fig. 3.40)

Torre Mediapro locates in the new developing district the 22@ in Barcelona. In the beginning of 21th century, the government of city Barcelona started to promote the transformation of 200 ha's area of Poble Nou district which mainly were abundant warehouses and factories into a new innovative district that can host new technology companies and design industry. The site of Torre Mediapro is locating inside of that area. The tower building of Mediapro has 17 floors, with the total constructive area 18.000 m$^2$. The façades of the tower seems to have the influence from Mies, which base on the dark lines going vertically with geometric division of the windows. Those vertical lines on the façade also have the structural function to be as the main frame on the out

Fig. 3.40 Carlos Ferrater, Torre Mediapro, Barcelona, 2008

surface in order to let the interior space free of columns. Torre Mediapro is the headquarter of the new media industry which also provide spaces for related education and practice activities. (fig. 3.41)

From the urban point of view, the project is facing Av. Diagonal, placed as the end section of series high-rises with the starting point from Torre Agbar, which gives Torre Mediapro the duality inside of the environment: the group of high-rise towers staying in line along the direction of Av. Diagonal, and the rest of the
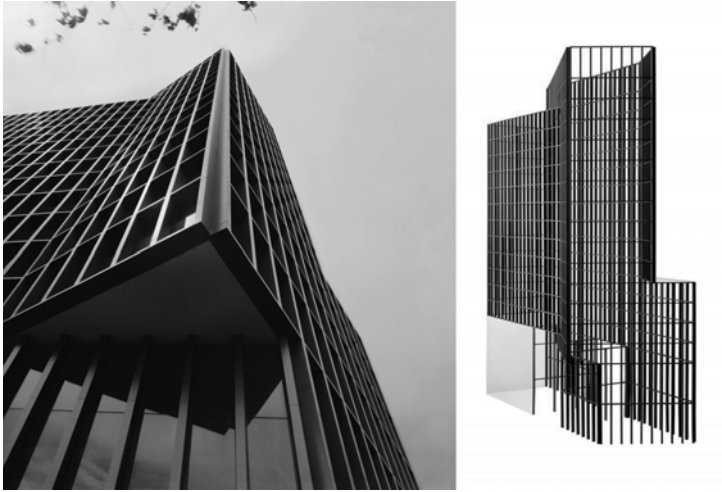
Fig. 3.41 Construction system of Torre Mediapro

surroundings are in standard height of 6-floor-house full filling the Cerda's grid. The contradiction of those two rhythms of urban textures was observed by the architect of Torre Mediapro, which became the key point that confirmed the design of site plan and architectural form.

If we isolate the plan of the building out of its context, there is not any obvious difference between Torre Mediapro and those previous works of the same architect: the shape of the main body of the tower gets the influence from the direction of the axis of the closest street, and at the same time, the concept of patio is introduced into the plan. Now if we jump out of this project, think parallel about the most important urban texture of the city - the Cerda's plan in 1859. In side of Cerda's plan, the grid by 113 each side of the square formed the basic rhythm and direction of streets and housing blocks. But above the basic rhythm, the appearance of Av. Diagonal and Av. Meridiana broke the homogenous situation with wider dimension of the street section and more complicated request of the circulation of transportation inserting into the area when they meet the orthogonal grid with strong gesture. A paradox appeared: which was more important

to concern about when we meet the intersection caused by the crashing of two completely different systems: the homogenous texture of the fundamental urban identity of the city or the directions of the two main avenues on a higher hierarchy?

In Torre Mediapro, the shape and direction of the podium go parallel with Cerda's grid, so the outline of the lower part of the building follows the orthogonal direction referring to the extension line of Calle Bolivia and the boundary of Calle de la Llacuna. Then the upper part of the building in contrary has the influence from the Diagonal Avenue. (fig. 3.42) By those actions the contradiction between two textures from the context of the site seems to be mediated, but the question of how to join the two representing parts together inside of one building hadn't been solved yet. In order to find the solution, the architect used a rotating gesture – the upper part continued the lower part's direction going parallel with the orthogonal grid, only on the edge where meet the Diagonal Avenue, the volume was "cut" by the other direction which goes parallel with the Diagonal; and when the floor goes up, the more amount of volume go to the Diagonal direction, so the whole body of the tower seems like turning to the Diagonal, which means the main axis of the building in the upper part turns perpendicular to the axis of Diagonal Avenue. This turning had solved the previous mentioned contradiction in its maximum capability. In other words, the hidden complexity and contradiction beneath the urban fabric give the fundamental
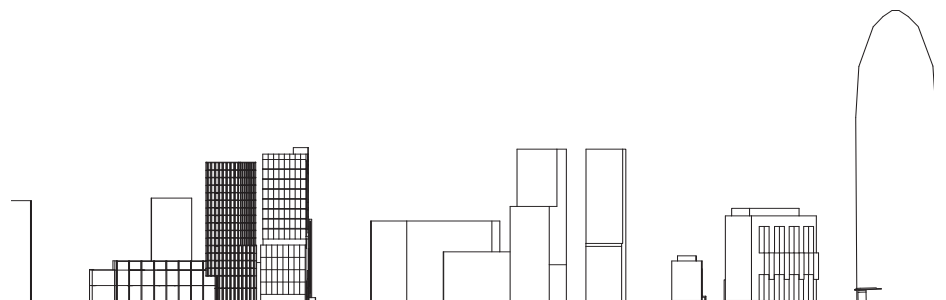


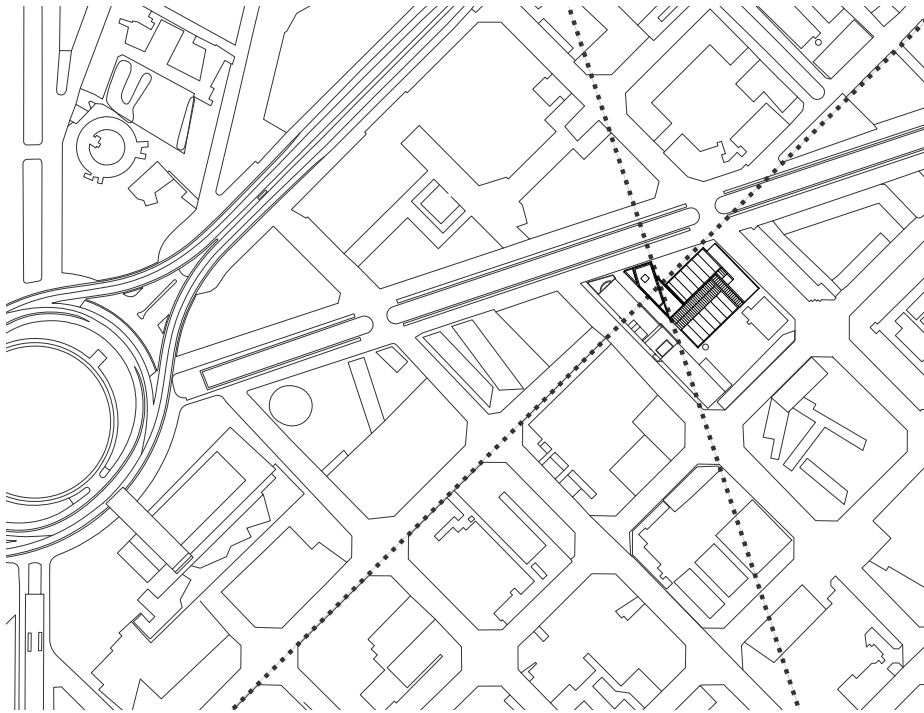Fig. 3.42 Elevation to Av. Diagonal

Fig. 3.43 Masterplan of Torre Mediapro

rule and principle as the formal basis to the architecture design. (fig. 3.43)

We have to notice in the meanwhile that the architect had drew five types of plan to achieve that action of turning gradually from lower section to higher section until the roof terrace under the precondition of keeping the fluidity of the connection between the podium and the tower. That slight changes between every each floor reveals its tradition from the step-back action in the design of high-rise building under the regulation of giving enough natural light to the bottom surface on the street, which can be seen as a kind of recall and respect paid from the architect of our age. His method of precisely decomposition of a simple move-ment of turning made me remember the movie of Jean-Pierre Melville filmed in 1970 - Le cercle rouge. In that movie, the direc-
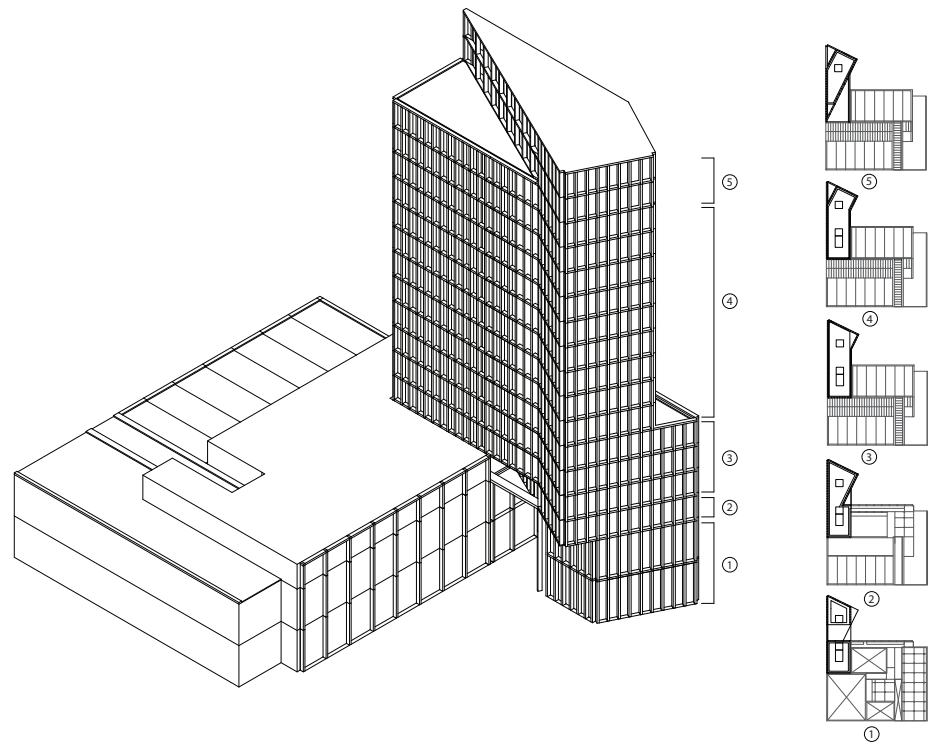
Fig. 3.44 Five different plans of the tower

tor used a 20 minutes' long film to reappear the process of a jew-elry robbery completely without omissions. The decomposition of the actions in details and the graduation of the transformation brought a rich readability into the project, also gave a well expla-nation about the tight relation between architecture and the city. (fig. 3.44)

In the other high-rise tower which is not far from Torre Media-pro – the Torre Telefonica, we can also see the reform method in the design that the architect used the single building to reform the urban structure. (fig. 3.45)

Torre Telefonica locates in the ending point of Diagonal Avenue where the most important street as a monument meets the see,

Fig. 3.45 EMBA, Torre Telefonica, Barcelona, 2010

which reveals the meaning of the circle that the city was born from the sea and then returns to the sea again. However, because of the master plan of the 2004 Universal Forum of Cultures in this area and the appearance of a triangular building - the Forum designed by Herzog & de Meuron (now it is the Museo Blau de Barcelona), the Diagonal Avenue hasn't actually realize the connection to the Mediterranean Sea, which causes the "being disappeared" of the ending gesture of the avenue. So as the first new building that was built beside the triangular one after the big event of Forum 2004, Torre Telefonica was facing a crucial problem of how to reform the existence of the important avenue in this area.

Actually the project was started before the master plan of Forum 2004, but it had been getting through a complicated period of discussion about various aspects, which directly leaded to the final assignment of the site that had been changed dramatically no

Fig. 3.46 Masterplan of Torre Telefonical and the Forum Building

matter in program or in dimension, even the bigness of the site area had been reduced in certain amount. But the initial idea of the architect Enric Massip Boch has never changed: to redefine the end of Diagonal with several obligated changed according to the new environment after the Forum master plan. (3.46)

In the final proposal of the project, the single tower has 110m high with 24 floors without podium, which will be used as the corporate headquarters in Catalonia of Telefónica Group, as well as its Research and Development Center. The plan has a diamond shape; the structure uses the type of tube-in-tube, with the model of 135cm to balance the functional requests.

The architect uses an unusual shape in plan, which will cause some deficiencies to the interior function. But if we make the topological drawing on the site plan with the urban texture as the background, it is not difficult to find out that the diamond shape appears as a sign of arrow usually can be seen in some traffic signal icons and that sign suddenly emphasizes the existence

Fig. 3.47 Diagonal between Torre Telefonical and the Forum Building

of Diagonal in plan. In the meanwhile, the diamond shape can be divided into the composition of two triangular shapes. The position of one triangular is just located at the mirror place of the Herzong & de Meuron's triangular and in their middle; the mirror axis must be the axis of Diagonal Avenue. The same happened in Piazza Popolo of Rome, the double triangular composition in plan strength the importance of the axis of the street in the center. From this point of view, we can understand the thinking of the urban character behind of the diamond shape. (fig 3.47)

That thinking not only pays the attention on the adjustment in plan in side of this urban area, but also relates with the action what the volume does to the urban structure. The verticality of the building volume produces a kind of effect of against in cross-shape regarding to the horizontal layout of the Forum building. By that power of confrontation, the topology in vertical dimension is created. The transparency created by the glass surface of the building, together with the vertical dimension and the interior lighting during the night, give the tower an allusion effect of light house, which implies the existence of Diagonal Avenue, or the relation between Barcelona and the sea.

Apart from those urban characters, the structural function of the surface frees the interior distribution of the plan without any column. And the use of the printed glass, on one hand is to control the percentage of the transparent referring to the un-transparent area; on the other hand, the printed texture can reduce the cleaning frequency and the spots texture can also create a visual effect of salt attaching on the glass. The entire building chooses the white color and light steel structure system, both of which can make the building lighter, producing a feeling of "floating". That weightless compares to the real dimension of the tower is like the result of "aquatic petrifaction" expressing its self-contradiction in senses of light and heavy. Those ideas and effects are all based on the reading of the site and the re-thinking of the urban structure. No matter the initial drawings and the final outcome, the architect has well defined the ending point of Diagonal Avenue by this project.

The reform method does not only appear in the cases of high-rise buildings. We can see the same approach of design in the project of Mercado de Barceloneta(fig. 3.48) done by Josep Mias during 2001 – 2006. It is a renovation project basing on the existing market which was built in 1884. The original market was



Fig. 3.48 Josep Mias, Mercado de Barceloneta, Barcelona, 2007

one of the covered markets, which was destroyed during the civil war period. Even though it was reopened in the 60s, the need of enlargement had always been considered as the main problem in that district since the population boom in 50s and 60s of Barcelona.

In the renovation project, the architect kept the original structure of the market and added two extra parts on the ends of the longitude axis. On the side behind the plaza, A row of shops are build independent from the main body of the market, to provide a certain amount of commercial services when the market is closed in mid-day or weekend. On the plaza side, the styles of the additional volume are different: a restaurant specialized on seafood cuisine is constructed by metal structure and covered by glass skin; it can be as the mark of the seafood market tradition of this place. Meanwhile, on this side of façade, a cantilevered canopy with exaggerated curve extended out from the central part, to be as the new entrance of the market. The new entrance is enhanced by the special structure and the previous entrance which located at the short sides of the basilica plane of the market is no longer can be perceived as the main entrance. This kind of axis-swift creates a new relationship between the market and the plaza, and a new structure of the composition of the urban space is re-built.

The new-added structure does not directly replace or overlap the original structure, but stays in parallel with the old one. Instead of emphasizing the difference between old and new, the architect painted the new structure the same color with the old one, which is to express the thinking that he prefers to erase the chronological gap between the old and the new, in order to unify the two together as a whole thing.

That unification between old and new is also to reduce the previous identity of the orientation that not being the side of the whole volume but entering the vestibule hall from the center of

Fig. 3.49 Mercado de Barceloneta and Plaza del Poeta

the new axis, which rebuild the symmetrical distribution of the new plan. This perception of axis-swift of shows the intention of the architect that to re-adjust the main orientation of the building. So the result of the additional part is to rotate the main axis of the market in 90-degree, which solves the old problem of lacking open space outside of the main entrance to the narrow streets on three sides of the old market in Barceloneta District and finally creates an big entrance plaza – Plaza del Poeta Bosca (fig. 3.49) in front of the new entrance so to release the crowding flow of people and to give back the public space to the city.

The orientation of the new building axis fits the orientation of the urban structure of Barceloneta District and goes parallel with the pedestrian area on Passeig Don Joan Borbo Comte Barcelona. The open plaza linking with Carrer de Meer, together form the view passage from the new entrance of the market to the seafront area. That urban transformation breaks the old enclosure space surrounds the market and creates a new landscape identity to that area: the relation with the Mediterranean Sea. (fig. 3.50)

The method of detournement is a kind of way that the architect borrows the characteristic advantage and disadvantage to orga-
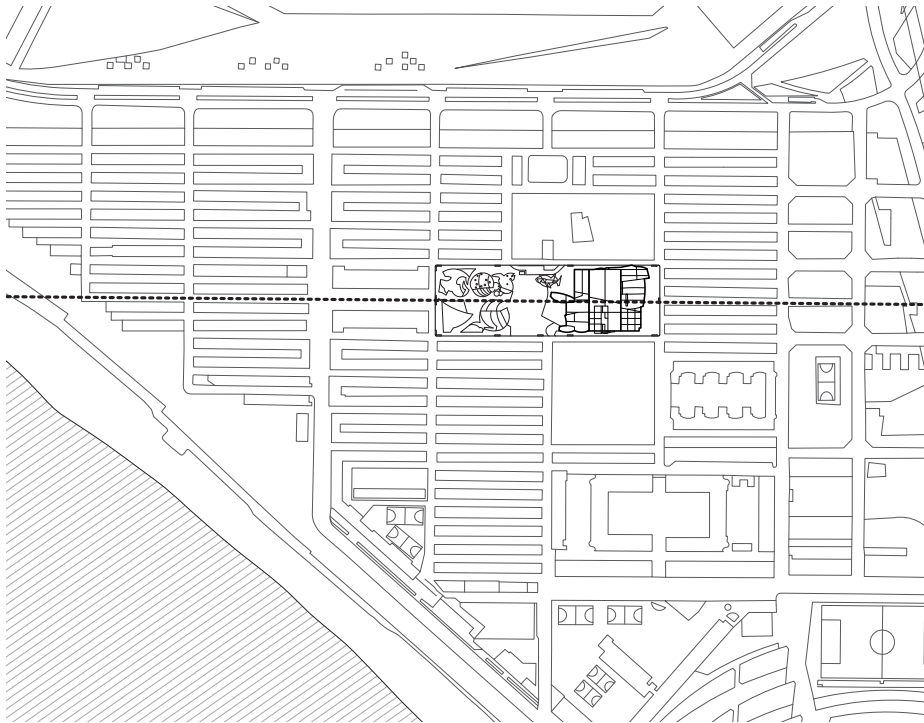
Fig. 3.50 Masterplan of Barceloneta Market

nize the whole composition of the architecture. Compare with the problem of long-term and complex organization of systems to solve the request of urban renew by the urban planning approach, the architectural strategy can realize a kind of smaller but efficient transformation in certain scale, which can better fit the public request from contemporary society and citizens.
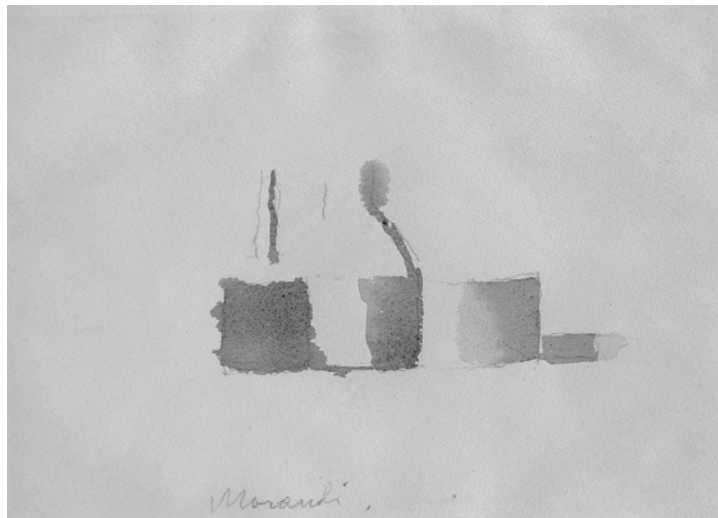
Fig. 3.51 Giorgio Morandi, *Still Life*, 1960

## 3.4 Interface

Here interface (fig. 3.51) means the way architecture façade plays in handling the relationship between architecture and city. Compare to the original role of enclosing the elevation surface of architecture volume, façade also has its essential duty of forming the outline boundary of urban public space. In these cases we are talking here, by projecting fragment of the city onto the building façade, the urban characteristic of the architecture is emphasized. Compare to other figures we discussed about previously, this method of representing city fragment on the exterior surface can only be encountered in small scale operations. In order to give façade its independent and consolidate identity, firstly, the architecture façade has to jump out of its traditional function that only be the cover of building or wall of interior space, secondly, think it as an independent object which plays important role in the organization of urban fabric, which is to say to see the façade as one object which helps to generate the urban form that can bear the responsibility of maintaining the continuity of the enclosure of urban public space.

From the historical point of view, the independency of building elevation could hardly achieve because of lacking the structural technique. In ancient Greek architecture, the elevation was presented as what the structure appeared from the outside; the mathematic relation of n and 2n+1 in elevation was firstly based on the proportion according to the plan; the heights in the eleva-
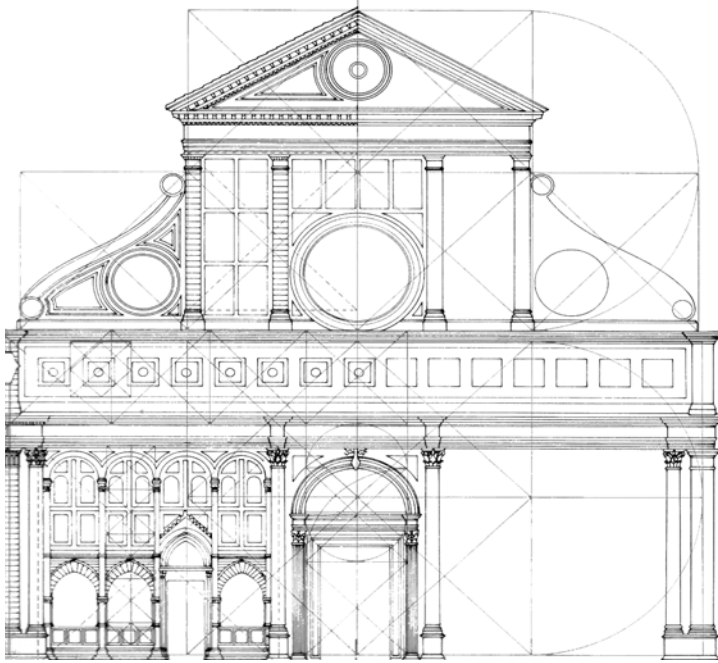
Fig. 3.52 Leon Battista Alberti, Santa María la Novella, Florencia

tion were generated from various regulation and principles such as orders of column.

Not until the Renaissance, in the architecture theory of Leone Battista Alberti, the elevation and surface of building had started to be separated from the structural system as the "art of architecture". But technically speaking, the building surface cannot escape from the building to be as a self-independent element, the surface of building was seen as a certain ornament element inside of architecture. In the hierarchy of Albini's theory, the structure went first to the surface. (fig. 3.52) In the later period of Mannerism and Baroque, the architecture elevation had gradually detached from the architecture structure, becoming an individual element. The Mannerism architecture tried to free the elevation out of the limitation of the classical principles; so as to Baroque architecture, movement and fluidity of architecture elevation had

Fig. 3.53 Vilhelm Hammershøi, Interior with Young Woman from Behind , 1904

become the element to keep the continuity of urban space, which introduce the urban character in to the elevation of architecture.

The separation of architecture façade itself from the bundle relation with the functional distribution was taken places later than the detachment between structure and façade. In 19th century's Haussmann's renovation of Paris, the architecture façade along both sides of boulevards was strictly regulated by numbers of height, inclination angle of the roof, material of the exterior surface, ornament types, and so on. Although that uniform-style strategy of Georges Haussmann had been criticized a lot, there is one thing that can be no doubt is the starting point of making the new elevations beside both sides of the street was not much concerning about the interior functional uses of different buildings, but more concerning about the interface of the open space from the urban point of view, the façade of the street, the boulevard. In the painting of Danish painter Vilhelm Hammershoi who lived in the same period of Haussmann, we can always find the similar interior space painted as the background, but he used

different settings of people's movements and actions to give the similar space different functions, which from the other point of view we can say the background interior wall is totally liberated from the existing of the room. In other words, it is the certain human activity defined the function of the interior space, not the form, color and decoration details of the interior wall, in that way, the interior wall can be seen completely free from the responsibility of defining the functional character of the room.(fig 3.53)

Jumping out of the limitation bounded by requirements from structure and function, design of building façade had its freedom and individuality. No matter the Art-Deco movement in the early 20th century, or Corbu's free façade manifesto, both of them were all based on the same principle of defining its independent figure of building façade. In the 50s, urban issue had come back into the sight of our field and been seen as the more crucial topic in our discipline, more discussion and practices related with the building façade from urban point view became more popular. In Smithson's project Robin Hood Garden, the formal operation in that project was started from the urban scale research work. Same thing we can find in Carlo Aymonino's housing estate in Monte Amiata, also Rob Krier's Urban Space, in which he made a typological discussion about the emphasis building façade could make onto the urban public space. (fig. 3.54)

So take the urban issue as the starting point of design, although we might meet some limits playing as obstacles on the way to a kind of absolute freedom in designing the building façade, concerning about the diversity of the urban character of the public space itself, the building façade still can obtain its diversity through the urban approach. Those designs which created by the urban prospective, have various aspects that initiate the design process, for example, some take volumetric balance as the starting point, some take the issue of continuity of urban elevation, some consider about the material combination in a larger scale, so on. If we see the city Barcelona as the example, architects who
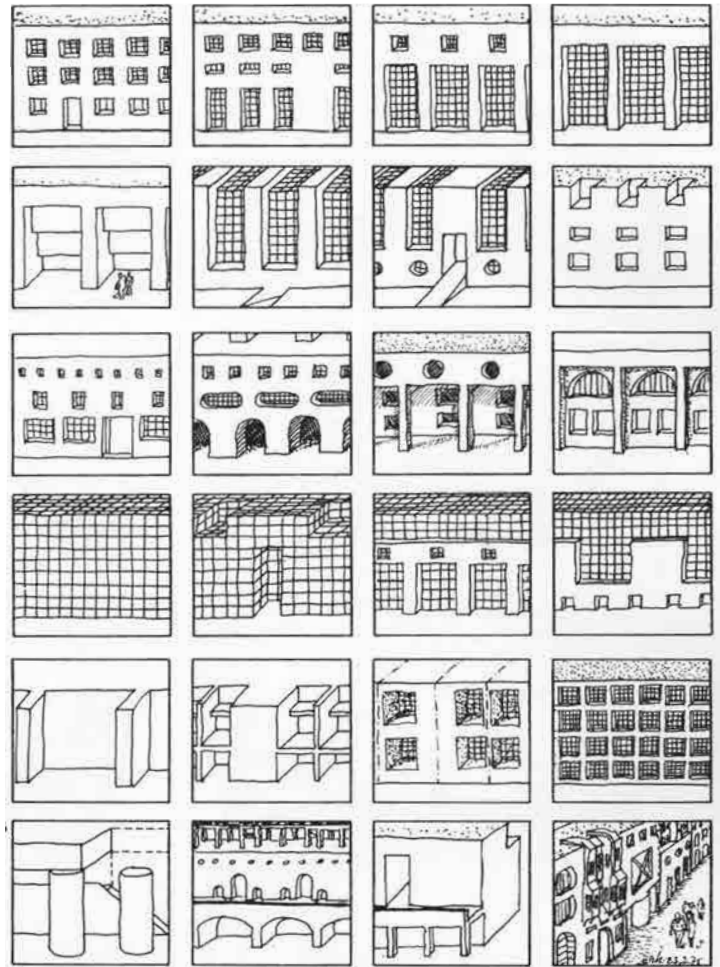
Fig. 3.54 Rob Krier, *Urban Space*

practicing there adopt another special method to realize and form the continuity of urban public space, which can build the relationship between city fragment and architecture itself.

There are two requirements to achieve the previous hypothesis: the first one is building the relatively independency of the façade, the second is to establish the relation between the fragment of city with the façade. In the late period of the career life of Viapla-

Fig. 3.55 Viaplana&Piñon, Edificio de viviendas y oficinas en calle Galileo, Barcelona, 1974

na & Piñon studio, we can see various experiments related with this theme.In their early works, there wasn't many works that showed the interest in the independency of the building elevation. The fan-shaped plan of the project Casas Busquets built in 1968 has the resemblance with Aalto. In the project Casa Reig built in 1970 in Barcelona, the transportation was seen as the essential core to control the heights in different layers, which was similar with the design method of Loos, also with the works of MBM in their early period. In the project Edificio de la Cooperativa de la Caja Rural built in 1971 in Castelló, the diagonal axis in plan showed its influence from the plan of Josep Cderch, so as to the façade of that building which told the reality of the interior situation – a staircase with full expressive and transparent character links the superposition of three distinct interior spaces. But in the project apartment on Galileo street in 1974, the façade start to separate from the non-orthogonal plan. (fig. 3.55)

The moment when they started to pay interest into the charac-

ter of the independency of building elevation also related with the discovery of the reflection of mirror in the architecture. In the competition of Palacio de la Diputacion de Huesca in 1974, the architects used a continuous glass inclined plane in side of the architecture to be as the separation of two interior spaces. Later in the competition of the extension part of Colegio de Arquitectura of Barcelona, the glass wall was brought to the entrance space. They put the mirror on to the ceiling surface of the entrance corridor which has the ritual sense on a corner of urban public space. Along with the people entering the reception hall of the new architecture, the reflected image will appear on the top; furthermore, when people climbing up the entrance staircase reach the main gate of the building, the reflection shadow also accompanying the movement until the two points meet together in front of the main gate. That situated moment well realizes the urban character of architecture between the different scales of city and building. In the meanwhile, the reflection effect of the mirror as a special material can bring interaction between the user and that specific part of architecture. The realization of that interaction does not ask for the assistant from the settlement of interior objects but from the character of material on the façade, which encourage the interest of the architects to practice various possibilities on the quality of building elevation itself in their later works: in the Annex Centre d'Art Santa Monica in Barcelona built between 1987-1992, the contradiction between the new cantilever of folded panel and the original outline of the old building which emphasizes the character of being as surface of the building elevation; in the project of Hotel Hilton built between 1987-1990, the two different faces on the façade shows the contradiction between the surface and the structure;( fig. 3.56) in the library project of Sant Feliu de Llubregat in Barcelona built during 1990-1993, on the façade facing to the street view, the curve shape of the surface of the elevation gives a hugging gesture to the public space on the street without any special intention related with the interior space, which in the meanwhile exposes the appearance of the building structure to the exterior which shows

Fig. 3.56 Viaplana&Piñon, Hotel Hilton, Barcelona, 1990

even more clearly that the separation between surface and structure by using two kinds of glasses materials with different reflection effects. In the series of works done by Viaplana & Pinion, we can see they were trying to experiment various methods to split the elevation away from the building volume in order to achieve the independency of the elevation. However, that chase for the independency also expresses the tendency of the pure expressionism in the design attitude of the architects. Apart from those cases, in the Centre de Cultura Contemporania in Barcelona built between 1990 and 1993, the use of mirror to reflect the fragment of the urban context in the architecture realized the duality of building elevation which emphasizes the relation between building and city.

Centre de Cultura Contemporania (CCCB in short) was located in the Raval quarter which is the center of the old city of Barcelona. It was built on the existing part of Casa de la Caritat almshouse of 19th century. In 1956, the almshouse transferred to the Llars Mundet residences and kept without changes until the urban renew plan of the old city of Barcelona which was taken places from 1989. In the new master plan, it was planned as a
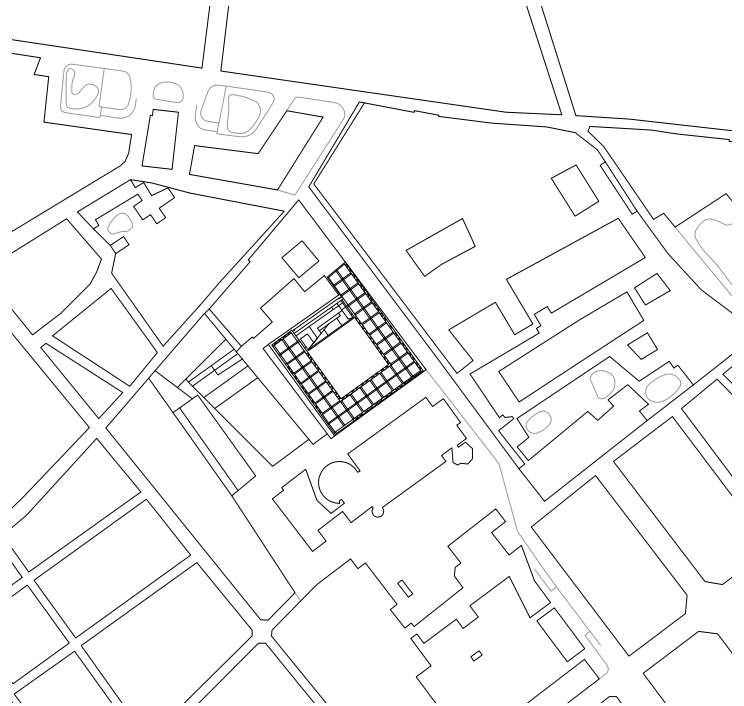
Fig. 3.57 Masterplan of CCCB

modern arts center. (fig. 3.57)

Facing to the historical pre-existence, along with adding new function into the old building, the architects keep the original part of a U shape building, use the renovation technique to reappear its look in 19th century by the restoration of those damages caused by the 30-year abundant. The three parts of the U shape are used for reception, offices, shop, restaurant and rooms for seminars separately. The auditorium is on the ground and underground floor. The 1200m$^2$ exhibition space is on the basement, second and third floors. The only new construction is to replace the north wing of the original building.

Inside of that completely historical environment, the first thing come to the architect was to decide the style issue of the new

Fig. 3.58 Viaplana& Piñon, CCCB, Barcelona, 1993

building. The architects continue their rational style that has been gradually formed since the early 80s using a complete modern language to deal with the problem between new and existing.[20] The additional part is in rectangular shape, attached on to onside of the courtyard. The elevation of the additional part folds its upper section with an inclination downwards to the courtyard. The interior space of the additional part is the transportation center of the whole museum, which connects the underground part with the upper two floors' exhibition space. The façade of this session is covered by glass with high reflection index. Because of the folded upper part of the glass façade, the people standing inside of the courtyard can see a reflected panorama scene of the roofscape of the old quarter of the city center, which cannot be seen from any other position. (fig. 3.58)

There in the CCCB project, the architects have inherited the previous method to keep the independency of the elevation: the transition of the structure that separate the slabs of floors with the self-standing glass wall, which let a unique space through the whole height of the additional part inserted into the gap between floors and façade as the transportation hub inside of the museum. The positions and directions of those elevators inside of the hall
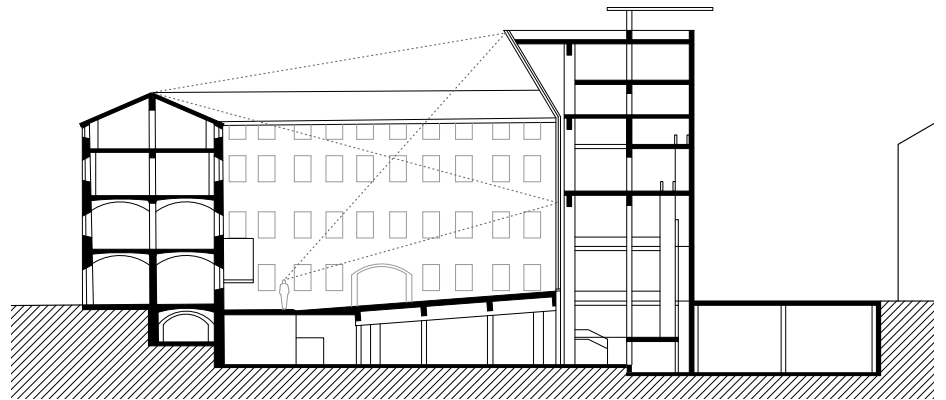
Fig. 3.59 Section of CCCB and vision analysis

have be settled according to the best view of the courtyard and the reflecting effect from the outside, which give the opportunity to the visitors to perceive the distance between two structural system by moving inside of the gap space going parallel with the inclination of the glass wall. In the meanwhile, we have to notice the importance of the courtyard. In its history, the courtyard had been always seen as the most importance place of this institute, which has been preserved in the new design and in some certain degree, the new design opens more utilities and possibilities to this courtyard: the courtyard not only locates the ramp going downwards to the entrance of the museum, but also through the reflection effect and the inclination of the glass, it becomes a new observation place where can reappear the unusual vision about the city and this old historical building. (fig. 3.59)

We have to talk about the conditions of using the glass reflection in that design: the surface of glass is on long the medium to give the interaction between people and his own image in the mirror, which is lack of a certain purpose with the idea of giving urban character to the architecture; it defined clearly the meaning of reflection and revised its presence in a particular form with incli-nation angle, in which the folding gesture combines the fragment image of the city with the elevation of the architecture. That com-

Fig. 3.60 Urban panorama through reflection

bination by reflection immediately gives the monotonous façade a vivid decorative character, and more important, those operations surrounding this façade shortens the distance between architecture and the city and in contrary increases the distance between building surface and its inner structure, which fulfills the obstacle of meaning after the independency of the elevation through the visual ornament of city fragment and realized the initial aim of building the relationship between building and place. In others words, this façade does not work as an interface between interior and exterior, but as an skin, a carrier of urban environment. (fig. 3.60)

The way to make use of the reflection bases on the precondition of the reflecting character of the material. And the material which has this ability is not only glass but also metal materials, like the one B720 architecture studio uses as the reflecting material in the project of Mercat de Encants.

The old Mercat de Encants was one of the oldest markets in Eu-

Fig. 3.61 B720, Mercat de Encants, Barcelona, 2013

rope, with its history as an open air market that can reach back to the 14th century. In 2008, the Barcelona city government held an international competition to build a new market on the same site and the young architect studio B720 won the final prize. (fig. 3.61)

The new market keeps the original commercial functions such as furniture pieces, books, records and so on with some fixed units. The organization of those units do not follow the same way of the some typical commercial complex in our contemporary society in which several floor with similar distribution linked by vertical transportation system, but used a continuous loop to link many platform on various heights which directly connect with the different heights of street level in the environment; the architecture does not close itself which keep its original form of an open air market in the history. As part of the new center of Barcelona, the new Mercat de Encants has its neighbors such like Torre Agbar, Disseny Hub, Teatre Nacional de Catalunya and so on those magnificent projects around. So putting less weight on its volumetric appearance can let the new market be "invisible" into its environment, at the same time, being a belvedere platform to observe the urban landscape in its surroundings.

However, the architect didn't give up the chance to create the own character of the architecture itself in that complicated and diverse environment. Those columns with 25m height support a very special roof: a roof composed by big amount of irregular panels according to the mechanic calculation; it is not closed, which can let the natural light and water enter freely; each unit of panel has been made by metal placed in various inclinations when they are joints together, so the reflections of the urban scene and people's movements underneath in the metal panels can be observed from the ceilings, which bring the surreal ambiance into the market. Like the project of CCCB, the form of the roof, the reflecting material and even the color all have obvious contrast with the material of the main body; but the difference from the previous case is, because of the openness of the structure, people can see the reflecting ceiling from far distance away and according to the different position of the observer, the superposition of images reflected from the ceiling are distinct, which cause the indeterminate result of the final presence of the reflecting image: the cityscape and the public activities are all overlapped on that medium and those composed images are reorganized by various direction that the observer's view angle can appreciate. In this sense, Mercat de Encants doesn't have its roof or elevation as the basic element of building anymore; it breaks the boundary of function, scale and method to produce the visual effect, which brings more freedom and arbitrary to the discussion of the relationship between architecture and the city fragment.(fig. 3.62)

In gener, Interface points to the role which building façade plays in the action of connecting that architecture makes with urban space. The priority of individuality of building façade breaks its traditional and functional quality of being the object to cover the building surface, in order to use city fragment to blow up its urban quality. Compare to the Postmodernism period, such as the concept of reflect mentioned by Venturi, the difference of the city fragment we are talking here is: it does not appear as an absolute figurative element to replace part of the elevation, but
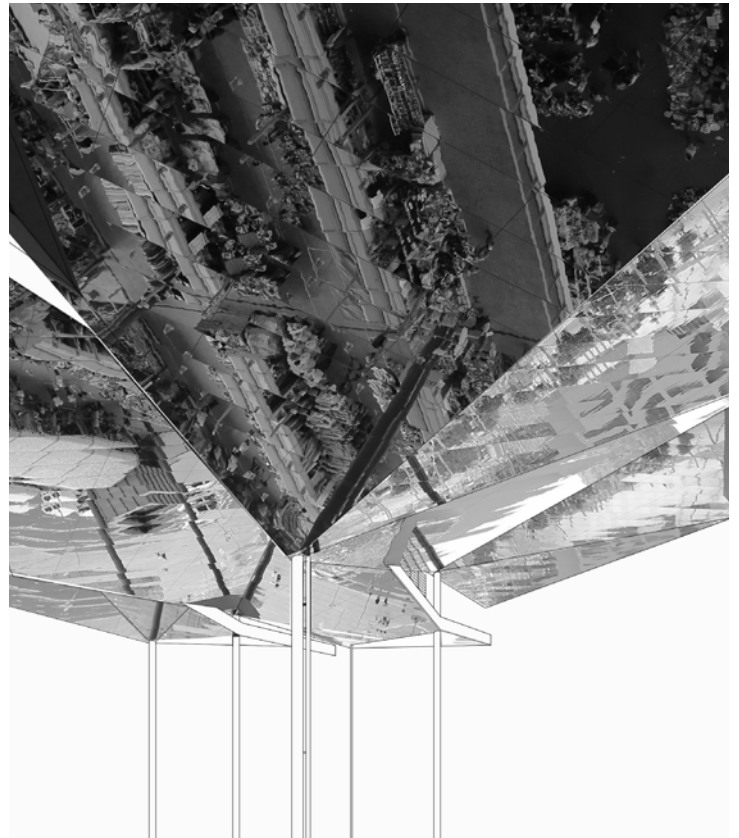
Fig. 3.62 Collage of reflection

be an independent layer to compose with the actual form of the façade. The composed façade simultaneously has two characters: the original property and character plus the new feature that the city fragment introduces; and each of the character can be clearly recognized. The method to reappear the historical ambiance through reflection will not make the architect step into the operative model in the Postmodernism period that to simply recover the historical form in order to build the relationship with the past; instead, it will balance the contemporary of the architecture with the historical building and its neighborhood. The method of reflect gives a well explanation to the concept of interface but we have to see its limit in the fact that to achieve that effect there

MACBA CCCB CCCB Theater

Fig. 3.63 MACBA & CCCB theater

will be so much relying on the physical performance and quality of the material, so in fact, there are some other operation related with the building elevation can be categorized into this chapter.

The CCCB Theater next to the previous case of CCCB museum, which was designed by Elías Torres y Martínez-Lapeña is another project that can be classified into this category. Like the CCCB project, the new theater is built based on the renovation of the old theater of Casa de Caritat almshouse. The theater opened 17 years later than the opening of CCCB museum, so compare to the purification of the historical environment 17 years ago, the new theater has to face a more complex environments. Beside the influences from historical requirement, in these 17 years, the CCCB had become one of the most importance center and institute for art related activities, with Macba designed by Richard Meier also situated in the same plaza together can be seen a new core of history zone since 90th. This determines that the duality of the influences from historical element and the location of the new landmark of the culture and art fields.(fig. 3.63)

In this new context, the architects do not adopt the same strategy that Viaplana & Pinon had been used to give a completely renovation of the entire historical house and a modern pattern

language of adding party 17 years ago.In contrary, they renovated the main part of the history building, erased the original color of the exterior and interior surface by white painting everywhere in order to show the pure architecture form of the pre-existent building. And of course to satisfy the new requirement of being a contemporary theater, they added some part onto the old structure. Only keep the form weakened party of the historic ambience, but these actions are critical in the discussion about the value of restoration on the existing building on one hand, on the other hand, more contemporary architectural form and the overall tone of white-painted can respond the style of Macba across the square.

Based on this façade, the architects incorporate the way of opening to draw CCCB these four letters into the white painted original wall. The inserting of the large letters is completely different from the formal language of the historical context, which precisely didn't cause any disturbing to recognize the original form. The same color let the two different parts as a unified style. Although letters as an ornament component in elevation can be found easily in history, this kind of method that using the form of letters as the main element to design façade is unusual. Letters have no only the traditional function reading, but also the feature of volume and form, like a object, which follow the pop art did. (fig. 3.64) Those letters as opening can provide favorable day
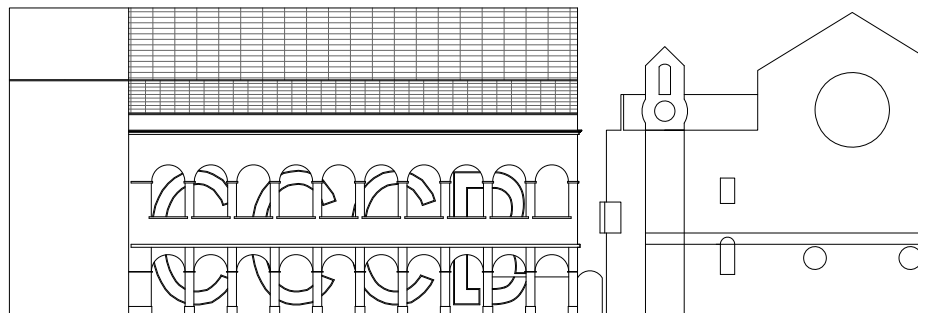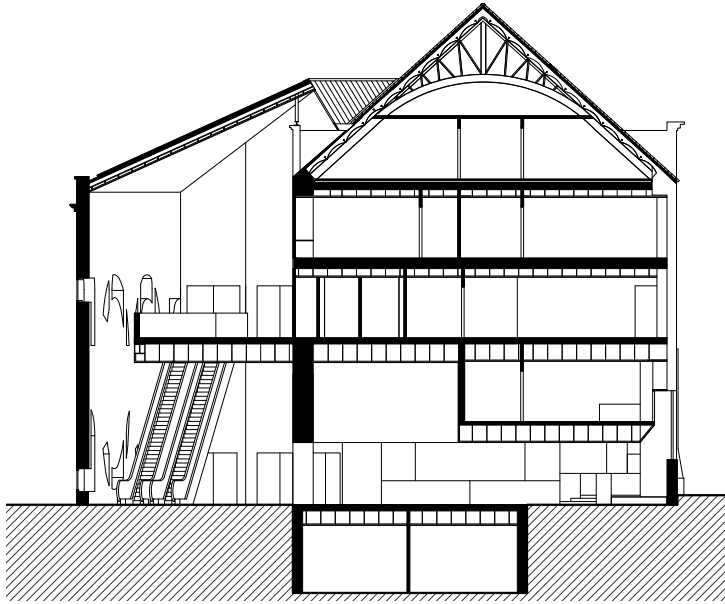


Fig. 3.64 Fachada of CCCB Theater

Fig. 3.65 Section of CCCB Theater

lighting result, as the effect of normal glass window, but the form of these opening works like a big logo, let the new façade from one side have kept its originality from the historical presence; from the other side, it replies the requirement of claiming the concept of the monument - CCCB in the new architecture and expresses the relationship with CCCB clearly. (fig. 3.65) Compare the difference between CCCB Museum and CCCB Theater is in the former one the architects used the contemporary method to bearer the image of the past, in the latter case, the architects used a historical form to bearer the reappearance of the new culture landmark.

The white painted main façade of the architecture changes into grey in the eastern façade, which forms a comparison. In this grey-painted façade, white color shows the reflection of theth-ickness of southern façade, emphasizes the dimension sense and independency of the new façade, divides the two different style-the superposition of renovation and letter on the south and the

free opening on the east at the same time.

Compare the manner of interface which limited by material mentioned before, here the method of interface is realized by the form processing. Although this manner can widen the use range of interface, the function also have some limitation because the independence of façade need to ensure.

The emerging of that operation expands the range of the concept of interface No matter borrowing the reflecting quality of the material to realize the mirror effect, or using the letters in the spelling of the architecture's name as the ornamental element to superpose onto the existent layer, the method of interface all talks about the operation on surface. Under the precondition of the limitation on volumetric dimension, structure, program and so on, the way of using the architectural surface can realize the aim of building the relation between architecture and city fragment. Of course, because of the disadvantages on dimension and width, to ensure the autonomy and independency of the surface itself is the key point to use this method in architecture design.

Fig. 3.66 Zhang Huan, *To Add One Meter to an Unknown Mountain,*
1995

## 3.5 Landform

21. "The little rustic cabin that I have just described, is the model upon which all the magnificence of architecture have been imagined." Marc-Antoine Laugier, *An Essay on Architecture*. Santa Monica : Hennessey & Ingalls, 1977. Pp.11

22. "[...]con estos principios severamente comprobados apliquemos abiertamente las formas que la nuevas experiencias y necesidades nos imponen enriquecien dolas y dandoles expresión con los tesoros ornamentales que los monumentos de todas las época y la naturaleza nos ofrecen. En una palabra, veneremos y estudiemos asiduamente el pasado, busquemos con firme convicción lo que hoy tenemos que hacer y tengamos fe y valor para llevarlo a cabo." Domènech i Montaner, *En busca de una arquitectura national-La Renaxenga,* 1878.

Landform(fig. 3.66) here points to the method that architects use to translate fragments of the city which have the natural character in order to make the new architectural form and presence. In the final outcome of the architecture, the origin of fragment can be trace by their similarities.

The method of landform comes from the relationship between artifact and nature. Finding form from circumstance is not rare in architecture history. In other words, the origin of the creation of architecture started from the enlightenment of nature.[21] Such as the architectonic relationship between primitive wooden hut and classic temple, the classical order and the human scale, architectural ornament and the natural plants, etc. many can be seen as the influences of simulating from nature to artificial. For the consideration of technology and so on, most natural elements are used as ornaments or materials of building, just like the movement of "modernism" which was raise in the end of 19th century.[22] In Antoni Gaudi's architecture, the impact from nature appeared visible and essential. In his work Park Güell (1900–1914), natural elements had no longer been interpreted by the form of capital or some architectural details, neither been seen as a kind of landscape that played the role as a platform for present the architecture above. What Gaudi did, according to the material and shape of his architecture, was not only limited the nature by the ornament of building's details, but also by the organic shape and

mechanic system of the structure. Gaudi's way of using the natural concept is closer to Laugier's discussion about the original relationship between nature and architecture

The most important work of Gaudi, the Sagrada Familia church, shows an even more independent attitude of the way building does to simulate the nature. Comparing with the apparent slope site of the hill where Park Güell located – the topographical condition became the absolute core of the context that should be considered first – the site of Sagrada Familia is not in the sub-urban sphere as where Park Güell stays; the site is inside of the urban fabric of the city. The former strategy that to build the relationship between form and nature by simulating the landform of the site had to change in the case of Sagrada Familia: the form of the architecture, especially the form of those towers, is very much similar with an ordinary plant in Europe: Sedum Acre. And the base of the architecture is close to the shape of caves. Apart from that, the interior of the church are closed with the shape of trees in the forest, so as the roof of the Design School with the form of a leaf, the formal relation between Pinnacle on the Apse and Lavender, so on. All those examples we can find in the project of Sagrada Familia explain the link between Gaudi's architectural language and nature. [23] (fig 3.67)

22. " Antoni Gaudi in Barcelona[…] turned to forms resonant with natural laws of growth to guide their guests for a vocabulary freed from the imitation of historic styles ." Barry Bergdoll, Dario Gamboni, and Philip Ursprung, *Nature design : from inspiration to innovation*. Baden : Lars Müller, cop., 2007. Pp.46



Fig, 3.67 Sagrada Familia church and Sedum Acre

24. Nature was no longer used only as ornament, but as a constituent element in the discover of form." Barry Bergdoll, Dario Gamboni, and Philip Ursprung, *Nature design : from inspiration to innovation*. Baden : Lars Müller, cop., 2007. Pp.46

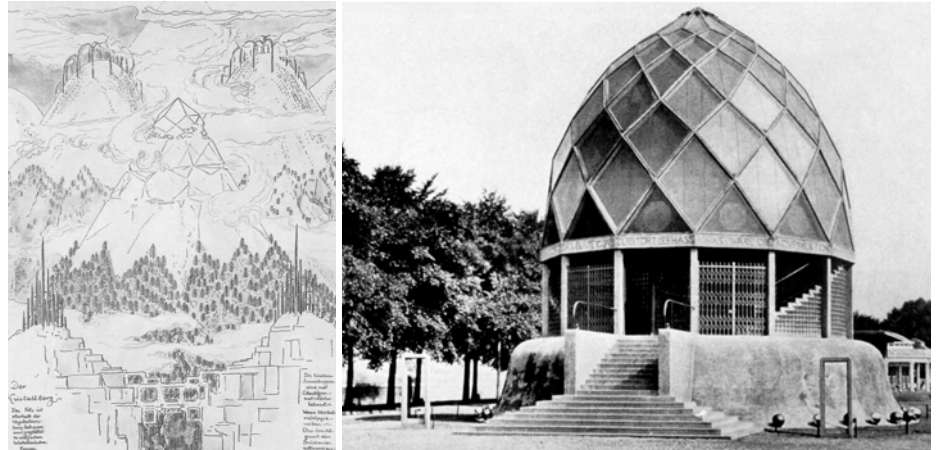25. Charles Jencks, *The language of post-modern architecture*. New York: Rizzoli, cop., 1991. Pp.132

Fig. 3.68 Bruno Taut, *Alpine Arcitektur*, 1919-1920 and Glass Pavilion

Those influences from nature are found not just in Gaudi himself, in the project and drawing of Bruno Taut, we can notice that the form of mountain is one of his most important design references. Translation the character of mountain to architecture, evoke the original model of Babel Tower. (fig. 3.68)

All those adventures of building a new relation between human-making and nature in the early of 20th century was accept by more architects in the name of organism and popularized. No matter in the case of Antoni Gaudi, Bruno Taut,or the organism represented by Jorn Utzon, the function of natural elements ready jump out of the uses of decoration.[24] Comparing with that building should work with territory in chapter of Scalalize, here, architecture is showed as a serial of geological form not by the depending of site, but by the translation from the environment of the site or the fragment of the city following the idea of architect himself. This kind of form constructs the connection between project and surrounding and conveys the understanding of that connection. Meanwhile, the various interpretations of diverse formal strategies can be discussed in a same level with the definition of the "double-code". [25]

With the help of contemporary digital technology, architectural form won an unprecedented degree of freedom. Landform is widely used around the world as a kind of increasingly vogue technique. In the post-modern urban context, architects in Barcelona inherit the romantic feeling from Gaudi and last generation, mix with new technology, era characteristics and architect's personal qualities to express their identity.

But according to the difference of the time, contemporary architect hardly used the natural element in a direct and figurative way as Gaudi does. They start to transform the strategy of simulating into a more abstract and metaphorical method. This method is frequently used by Josep llinas in several his recent works.

In the early period of Josep llinas' career, his work did not show much his interest about the nature. The sense of rational architecture was principle in his early period. For example, in the site of Single family dwelling in Begur (1978/1980), although the building located in a slope land of sub-urban area, the character of the slope - the inclination of the land – was erased by an artificial platform, by geometry of flat. The influence of modern movement can be seen in several parts of that building, such as the rectangular volumetric body of the building, the longitude window, all that suggest the influence from Mies van der Rohe and those modernism architects.

In his following works, the consideration of the site started to become more obvious, especial in the concerning about orientation and geometric operation. For example, the Dwelling on Carmen Street (1992/1995) in the Gothic quarter of Barcelona, in that project, the architect first set backwards to give the empty space on the ground floor and the first floor of Roig Street which only has 4 meters wide, in order to reduce the impact from pedestrian to the private sector; and under the precondition of saving the continuity of the façade, the public space on the first two floors opens the cross-corner between Carmen Street and

Fig. 3.69 Josep Llinas, Dwelling on Carmen Street, 1995

Roig Street, so to release the pressure of the narrow dimension of Roig Street; the part above the second floor is divided into three independent residential units, the gap between units can let the sunlight go into the rooms which betters the former dark environment. The series of actions show the mature design ability of Llinas as a professional architect. Although some details such as the corner window appear in this project, to see it as a whole, it still belongs to the rational style of the modern movement. (fig. 3.69)

Fig. 3.70 Josep Llinas Facultad derecho de UB, Barcelona, 1996

Between 1992 and 1995, Llinas renovated the Patronat Obrer Theater (1908) in Tarragona original designed by Josep Maria Jujol, so he did a deep research about Jujol and his architecture. This experience on one hand, freedom Llinas out of the insistence of using the orthogonal grid in his project but starting to accept the free arrangement of architectural volume, on the other hand, the tradition of the consideration and allusion of natural element in Mordernisme architecture had influenced the design of Llinas in the following projects.

In the project classroom and café building for a law faculty (1993/1996),(fig. 3.70) the architect buried half of the building underground and the composition of the volume is relative free. The copper folded roof seems like flooding above the rectangular volume as the extension of the slope surface, which shows partly its similarity with the ramp in the entrance part of Gaudi's Crisp of Colònia Güell. In the law faculty, the folding roof not only plays its function as part of the building itself, but also can be seen as part of the terrain that the building has as its environment. The same method Llinas did also in two of his libraries which were

Fig. 3.71 Josep Llinas, Jaume Fuster Library, Barcelona, 2005

built during 1996 – 1997 and 2001 – 2003.

In Jaume Fuster Library (2001-2005), (fig. 3.71)Llinas used a triangular shape in the section to deal with the transition from public area of the main street Av. de Vallcarca to private area of the residential area to the west of the site; he semi-closed a new plaza in front of the entrance, at the same time used a deep cantilever canopy to emphasize the main entrance of the library. Although the way of using canopy can be seen as following the model of traditional sloping roof of vernacular architecture, in other cover parts of the building, the folding roof seems gradually composed with the formal logic of the volumetric body underneath, which let the whole architecture obtain its formal continuity for the first time during his existing practices. The composition between the folding roof and the body was not simply a relationship of superposition of upper and downer parts, but replaced by a combined whole. There, the outline of the formal trend of the architecture became the leading role, which alluded the outline of the mountain in the background of the urban texture.

But there is a problem we need to see: in the urban context of

Fig. 3.72 Josep Llinas, IMO, Barcelona, 2011

Jaume Fuster Library, because of the high density of the residential building occupying the slope land with sharp inclination, the allusion of mountain's outline in that project can be rarely noticed by people, which is solved perfected in the project of Institute of Ocular Microsurgery of Barcelona. There, the whole building locates outside of the ring road of Barcelona center, closer to the nature, with a clearer outline of the mountain in its environment and low density housing area around, its same formal strategy with Jaume Fuster Library is easier and better explained by the comparison between natural form of mountain and the shape of architecture.

The building of Institute of Ocular Microsurgerylocates under the foot of the mountain chain surround the Barcelona urban area, the inclination of the ground grow larger from south to north on the site and it is bounded by the Ronda ring road on the south and the low density housing area on the north. (fig. 3.72) The ring

road Ronda represents the result of the struggling between the expansion of urban area and the limit and geographic condition of nature, which brings the project the main contradiction on the site. [26]

Llinas divided the whole plan into two parts: functional rooms which relate to clinics, offices, parkings were buried into the mountain; public areas such like reception, waiting area and so on were placed on the ground out of the slope. In that way, the sense of the building dimension is reduced. The part to the public, which appears outside of the mountain, follows the usual formal character with the specific identity of the architect – the folding roof that takes the reference from his former projects built on the slope. But the difference here in the Ocular Institute is that the method of how to fold the roof shape is divided into three types: first is the metal panels that covering all the principle rooms of the building; second is the metal net that appears between the metal panels covering the semi-open space underneath; the third is the glass rood covering the reception hall and other meeting interior place. Three different materials refer to different functional spaces. Furthermore, they give different meanings to demonstrate the idea of the architect: the metal panels control the main orientation of the form as the letter Z, together with the relative heavy material showing the simulation of the mountain; the metal net covering the sloping roof and being inserted inside of the metal panels gives the roof system its continuity by the similar material as a whole, also provide the open space underneath enough sunlight and shadow; last the glass roof directly leads the natural light crossing two floors buried in the mountain and reaching the ground floor, which maximizes the brightness of the interior space on the lowest floor.(fig. 3.73)

In the project of Ocular Microsurgery Institute, the architect has set up a complex system, which can balance the relation between function and form in a specific way. At the same time, that complex system was built base on the symbolism that the architec-
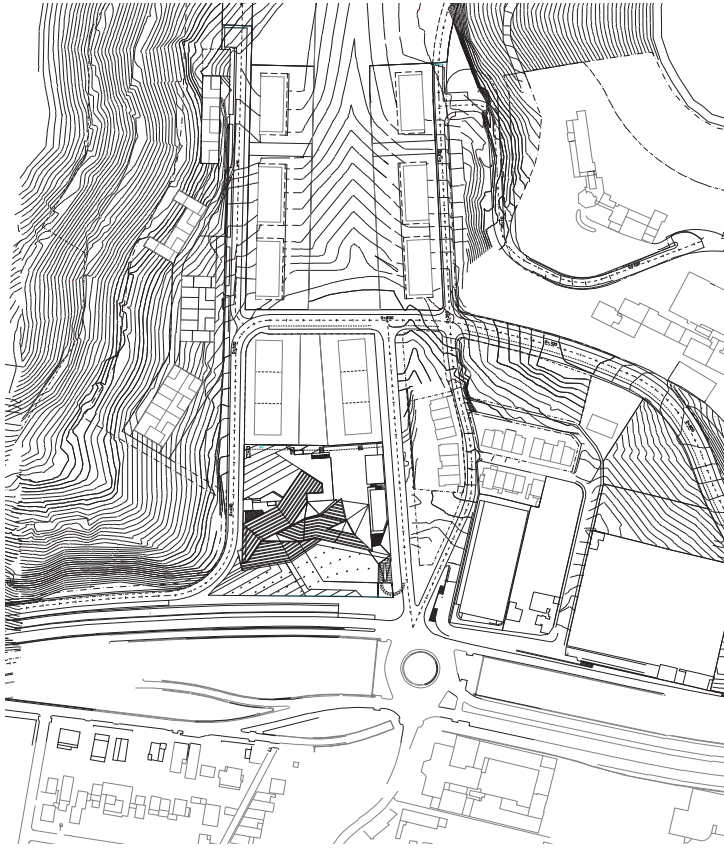
Fig. 3.73 Masterplan of IMO

tural language had in the initial idea of the design. From the professional point of view, on one hand, this project well explains its functionality and complexity; on the other hand, it well answers the request from the natural geography that mixes perfect with the topographic condition of the mountainous environment. It is not only an expression of "double-code", but also a way of translation that translates the geographic character of the place into architecture, which enhances the relationship between building and place, architecture and city.

Base on the analysis of the simulation between the form of roof and the natural form of mountain, we can easily find out: the
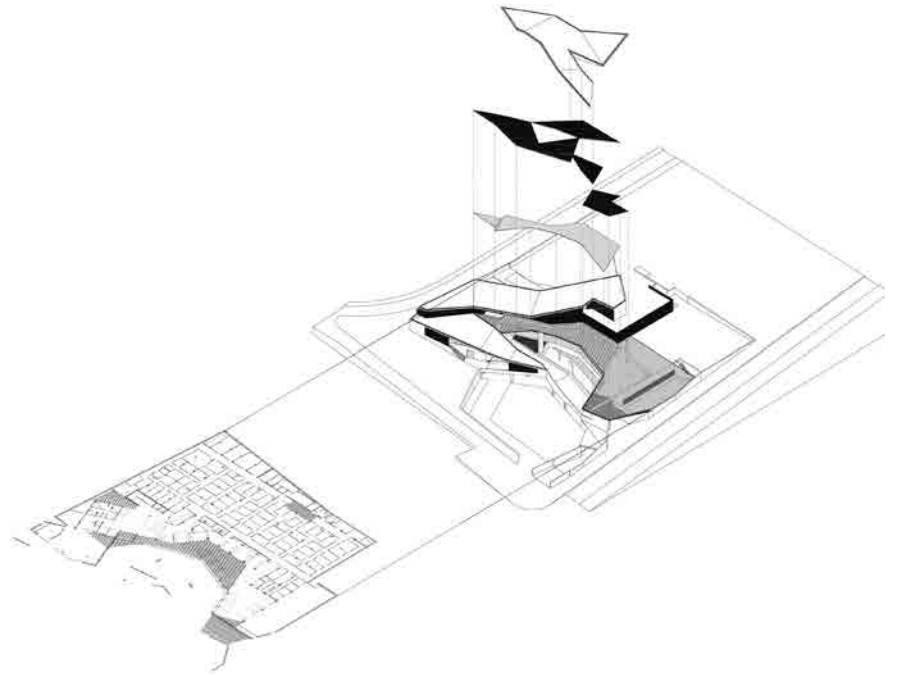
Fig. 3.74 Levels of roof and plan of Yin-Yang

outer part of the building (the part that is not buried into the mountain) has a relatively free plan with its column system, which provide the possibility to support the dynamic folding of the roof; but the inner part of building which buried inside of the mountain has in contrary, a regular column network with orthogonal grid. The swift from orthogonal grid to freelance axis is like the philosophical distribution of plan of "Yin-Yang", which completes his personal interpretation of contradictions and conflicts between urbanization and native nature. (fig. 3.74)

In Barcelona, with the typical Mediterranean climate – warm and dry in the summer, the use of folding roof by Llinas cannot be seen as a typological method of the design classified by the sloping roof, in the contrary, it is the method to solve the demand that the architecture should build its relationship with the place – the mountain and the inclined terrain in the case of Llinas - by

Fig. 3.75 Enric Miralles, Public library, Palafolls, 2007

the expression of symbol. From this point of view, the Llinas' folding roof has already lost its functional meaning to a slope-roof-house, but a manipulation of semiology. And that is what similar we can find in the project of another Barcelona studio EMBT, the Library in Palafolls.(fig. 3.75)

The new library locates in a small town near Barcelona, so the geographical environment of the site is similar with Barcelona. The building was built outside of the town center, on its periphery area, surrounded by low-rise residential houses; express motor way and agriculture fields. Base on the idea of paying respect to the environment, the library is half buried under the ground level, so to show harmony which mainly concerns about lower the height comparing to the existing heights all around. The action of bury from the other side, leave a gap that limits the communication between the inner part of the library and the outer activities on the ground level, which protects the reading will not be disturbed easily. The architecture used the reinforced concrete frame structure; the interior walls are settled relatively independent with the structure and the exterior wall. Those walls follow the direction like radial pattern running from the inner core of
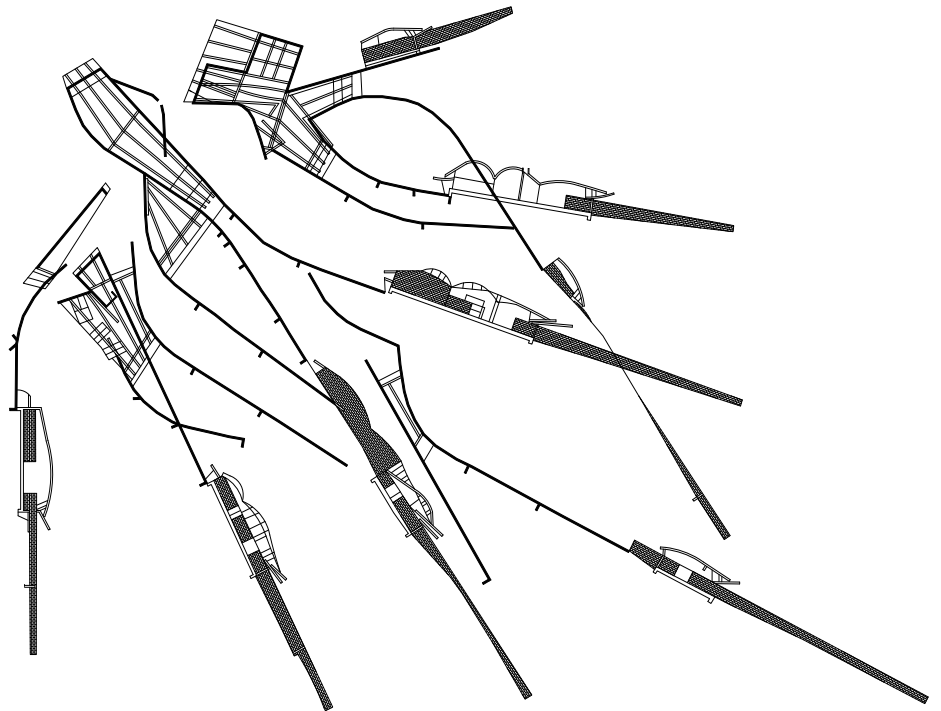
Fig. 3.76 Plan and section of Public library

the architecture to the outside landscape, to the void space in its surroundings, which like the similarity with the Brick House of Mies. The material covering the exterior wall, the brick like ceramic tile, also is similar with the color and texture of the exterior walls of the nearby housing. At the same time, the movement of the roof shape, those curving lines are simulating the outline of the mountain in the background scene. The whole piece of the roof, together with the curving exterior walls simulating the mountain and the river canal which express fully the allusion of Mediterranean geographical character.(fig. 3.76)

Compare with the works of Llinas, those works of Miralles did not deliver a continuity that explain the evolution of the method of transformation and simulation of the natural form – the mountain, with only exceptions that in some specific works, such as
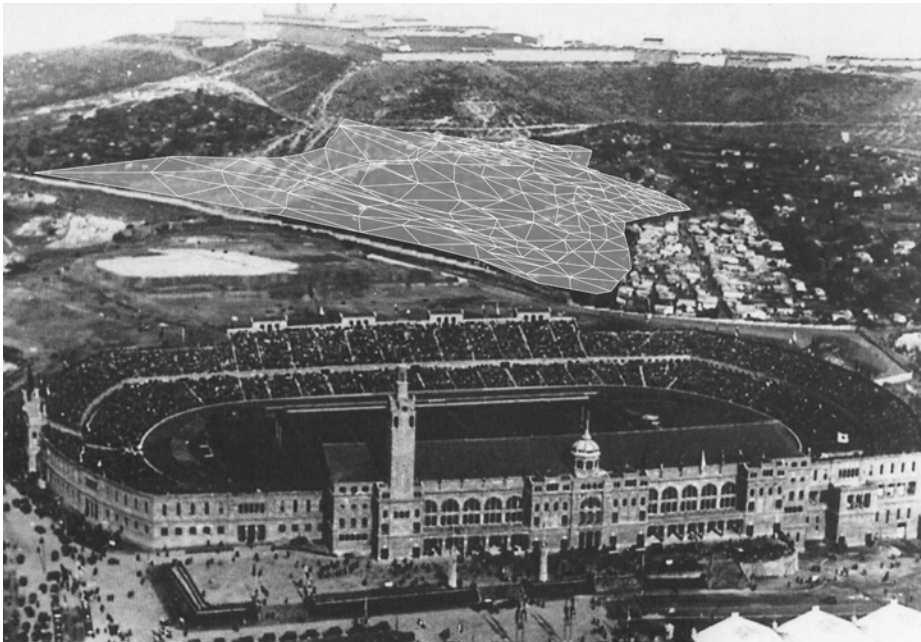
Fig. 3.77 Triangle meshes on Montjuic

the Sport Center of Alicante. The outline of the mega structure
of the sport facility clearly shows its impact from the reference
of the shape of the mountain chain. The similar situation happens
in Alicante because the geographical environment where the
sport center locates is alike the context in Palafolls. This coinci-
dence usually explains that the design method of simulation is not
caused by the special favorite and often used manner of the ar-
chitect, but caused by the physical condition of the site and place
where the project locates.

This close relationship between architecture and nature has
another specific expression in Carlos Ferrater's Barcelona Bo-
tanical Garden (1989-1999). The project locates in the most
important hill inside of the urban area of Barcelona, the Montjuic
Hill. Different from the previous examples that mostly built with
a relative artificial context, the botanic garden was built in side of
an absolute nature environment. The architect did not adapt the

traditional manner of design a botanic garden which directly sim-
ulates the nature form, but draw a net system generating based
on triangular units to simulate the topographical feature of the
land and pave the net system with concrete to reform the sur-
face of this piece of slope land of Montjuic Hill. (fig. 3.77)Different
categories of Mediterranean climate plants from different regions
and countries are growing in side of that triangular net as pieced
of mosaics together with those artificial plazas and platforms. The
use of triangular unit from one hand can give a clear classification
and demonstration of the biology category; from the other hand
it is easy for future reparation and renovation. There, the entire
outcome of the new intervention of the artificial form feet the
topographical information of the hill. And the simulation by the
use of concrete this kind of absolute artificial material and ratio-
nal triangular model of the network breaks the traditional way to
insert artifact into the pure nature environment, which receives
an unusual effect of difference and contrast. The contrast in
harmony makes the new landscape architecture fit well into the
existing context, at the same time keep its own personality. In this
contradiction, the eternal theme of struggling between human
and nature becomes evident.

Using the artificial material to simulate the nature can be found
in another Carlos Ferrater's project the West Beach Promenade
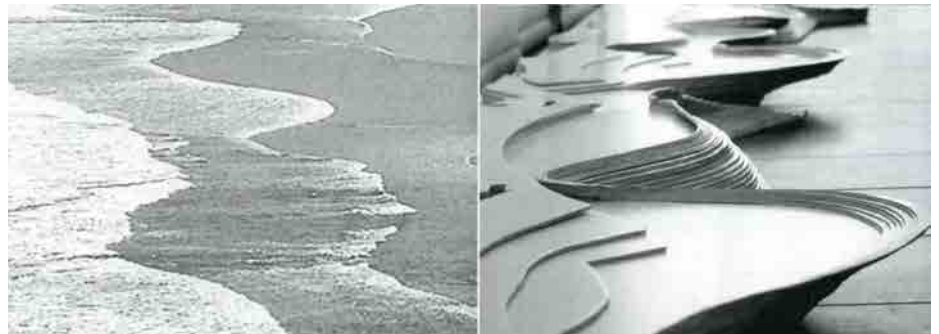(2005-2009) in city Benidorm. (fig. 3.78) Facing to the Mediter-



Fig. 3.78 Relation between form and wave

Fig. 3.79 Arriola & Fiol, Jardin al Carrer Madrid, Badalona, 1989

ranean Sea as the main role in the environment, the architect simulates the waving shape and reforms it by using the material of concrete. The strategy is similar with the Botanic Garden.

Arriola & Fiol's project the Jardin al Carrer Madridin city Badalona likes the previous method of intervention, this group of architects use bricks and graduation transformation rectangular shape reconstruct a gentle slope, the whole composition of rectangular has the reflection of the Campidoglio by Michelangelo. In this project, landform is realized by a serial of traditional material.(fig. 3.79)

Landform architecture is more interested in a kind of imitation of natural form in the period of Gaudi and Taut. But this interesting is decreasing in those examples build in contemporary Barcelona, replaced by a creative making of artificial terrains. This kind of changing releases the restricted by making a simulation form, and free the design progress of landform building.

Although building technique plays a more and more important role in nowadays landform projects that does not mean that technique can lead the design progress. How to design landform

architecture has been influenced more by the understanding of the site and the movement of the people.

In general, landform is a method not only relation in form, but also in technique, material, man's movement and so on, to build a geological form artificial environment. This kind of geological form is translated from pieces of city fragment instead of general requirement like function. That means even the translation progress is limited by volume or character of site, the architect's personal understanding of surrounding and city is more important. Basing on this understanding, the operation of landform can connect the building and the site, be out of stiff and rigid form made by a direct simulating, and realize the diversification of the form with the support of a variety of materials and technology. Compare to the previous categories of inclusion in which the city fragment are interpreted in a direct way, in landform, fragment appear with a new look inside of the new architecture by the translation of architect, which can fully express the strong personality of the designer.
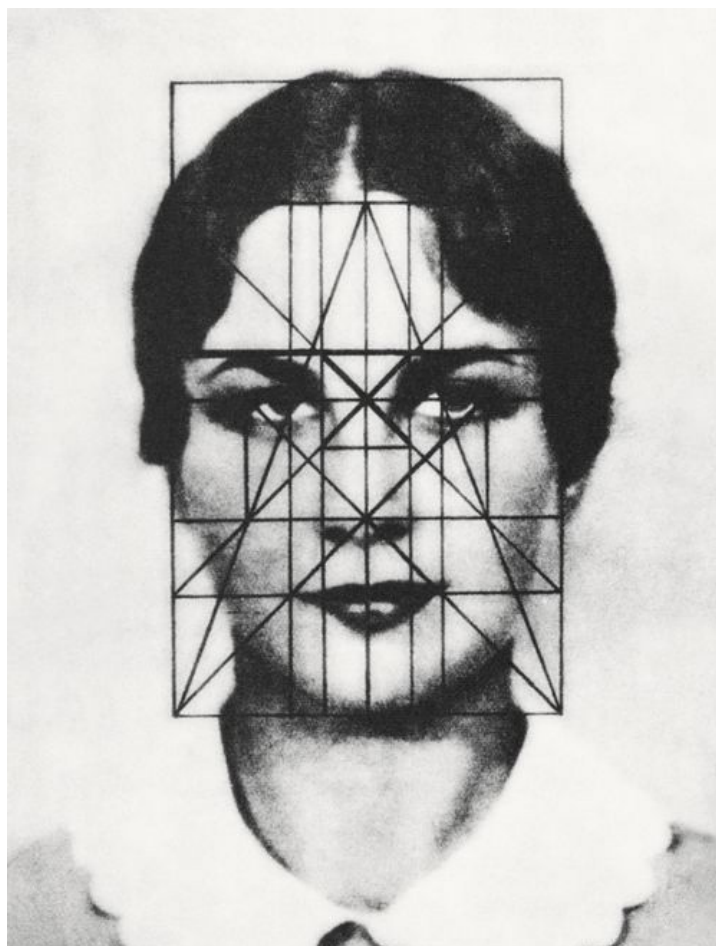
Fig. 3.80 Matila Ghyka, Proportional Analysis of Helen Wills' Face, 1931

## 3.6 Superposition

Superposition(fig.3.80) talks about the design method that su-perposes multiple layers during the architecture design. Every layer comes from one meaning that is translated from specific information, keeping independent between each layer in its trans-lating approach and the final appearance. And the final outcome of the whole design relies on the superposing action that over-laps all layers together. Distinct from the fragmental composition of collage, every unit of superposition,, every layer has its own autonomic system. While the superpose action happen, there will be situation of overlapping that leads directly to the final result defined by the relation and appearance crossing over layers. So if we say collage introduces the two-dimension composition in plan, superpose pay more attention on the vertical interactions between layers.

The method of superposition can be found in the early period of the literature history. We used Palimpsest to describe the action that to remove the written letters from papers or books and to add new writing on the original place where the former letters appear. The investigator discovered that fact in the experiment of recovering the original writings underneath through new technol-ogy, in that case the old layer of letters and graphics overlapping with the existing, the new ones which explains the effect done by superposition. Also the similar research had been done in histori-cal research and renovation project of ancient paintings.
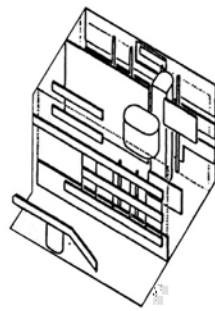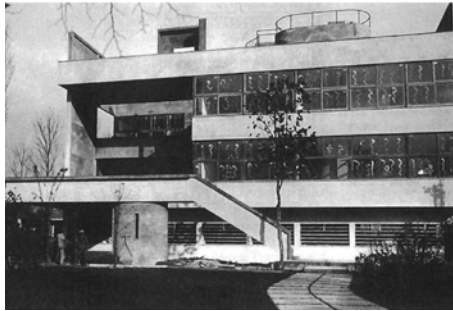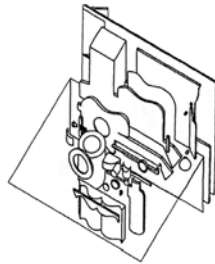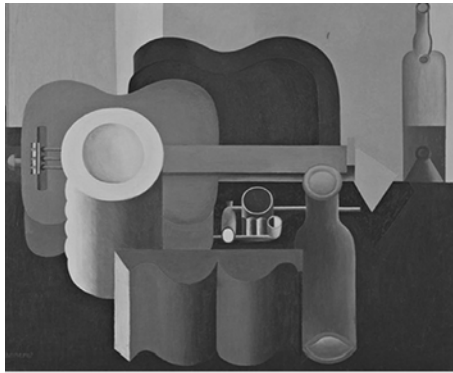
Fig.3.81 Le Corbusier's Still Life, 1920
Fig.3.82 R. Krauss, Axonometric of Le Corbusier's Still Life, 1980
Fig.3.83 Le Corbusier, Villa Stein, Garches, 1928
Fig.3.84 R. Krauss, Axonometric of Le Corbusier's Villa Stein at Garches,1980

In architecture sphere, because of the dimension and scale of architecture project, superposition happens more frequent in that field. In the beginning of Modern Movement, the five point of new architecture declared by Le Corbusier actually had already defined the new architecture as the result of the superposition of three layers: the ground floor overhead open space, the upper layer of rooms and the top layer of the roof garden. The aim of function, the building appearance and the architectural form of these three parts stay in a comparatively independent condition; in side of each layer, the neutral character of the network of column that based on the research of Domino House gives the possibility of free plan arrangement, in the meanwhile separates the plan into two layers: the column network and the placement of

27. Colin Rowe, *The Mathematics of the ideal villa and other Essays.* Cambridge, Massachusetts: The M.I.T. Press, 1978. Pp.6
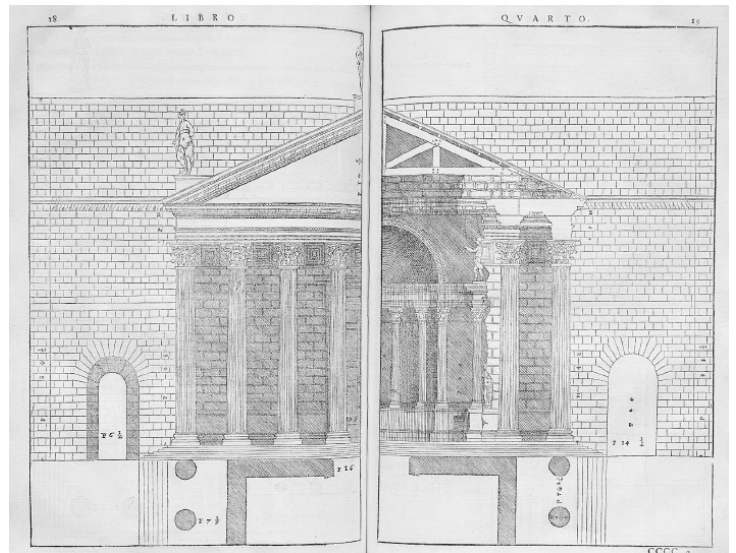


Fig.3.85 Andrea Palladio, *I quattro libri dell'architettura,* 1570

walls. In Corbu's design of Villa Stein, the plan is superposed by at least four layers: the columns, two staircases, windows and walls, the Z shape circulation, and so on.[27]  In Mies' German Pavilion in Barcelona, although what we face is a one-floor building, but there are still several layers can be split out: the structure, walls, pavement and so on.

Of course, we cannot limit the operation of superposition only in plan, the same happens in elevation. There is this kind of superposition in elevation in Le Corbusier's Cubism paintings and his architecture projects. (fig. 3.81,3.82,3.83,3.84) And even in Palladio's drawing, the similar operation can be found.(fig. 3.85)

These examples of superposition basically show the essence of this operation: a systematic logic thinking and operation model, in order to realize superposition, architect has to go through a process starting from splitting, then building a new form that has the characteristic of multiple layers according to the personal idea of the architect himself. That kind of systematic operation is obvious
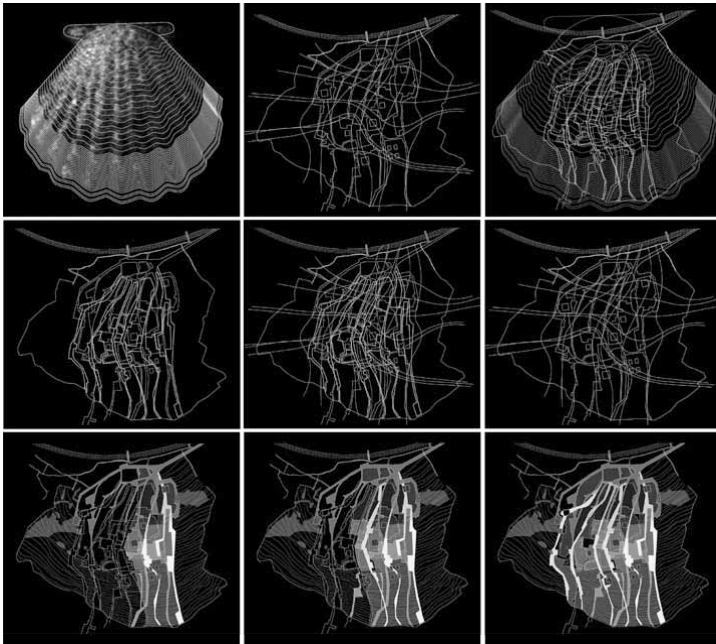
Fig.3.86 Levels of Ciudad de cultura

in Eisenman's works. For example, in his early design of House II in Hardwick, Vermont(1969-1970), two sets of connected but independent systems - a grid of columns and a set of planar walls – overlap with each other, which demonstrate his talent of ability of control systems and his critic of Functionism which hidden behind of the contrast systems. However, in his recent works, especially the project of Ciudad de la cultura de Galicia since 2001, his complex systems are built based on the city fragment: the typical icon of city Santiago – shell shape together with the urban context of the old town are translated as separate layers; then they are superposed; and then the imposed layers are mixed with the natural orientation and direction of the mountain which generate the basic form of the mega building complex. (fig. 3.86) Compare with his previous projects, in Santiago, the layer of architecture comes from not only the architecture language itself, but also from the historic fabric related with the urban context and the symbolic shape of the identity of the city. These layers translated

from city fragment are superposed together express a meaningful and complex result that reveals the designer's ideology, design method, using of materials and so on, on the other hand, link the architecture project with the specific place and city. The combination made by rational thinking and very much concerning about the city is also one of the most important characteristic of the architecture of Catalan architect Eduard Bru

The characteristic of Rationalism architecture can be found in Bru's early works. In the competition of Parc de l'Escorxador in 1979, Bru linearized the park facilities and vegetation of the green area into strips going parallel inside of the site – a complete Cerda's block. Then he put only one diagonal street cross the whole site.

The plan of this project (fig. 3.87) has some similarity in the strips texture of the whole with Rem Koohaas's proposal for the competition of la Villette Park (1982-1983) (fig. 3.88) that came out even few years later. In Koolhaas' plan, the arrangement of different elements and the crossing through each other shows their impact from his conclusion in "Delirious New York" – the
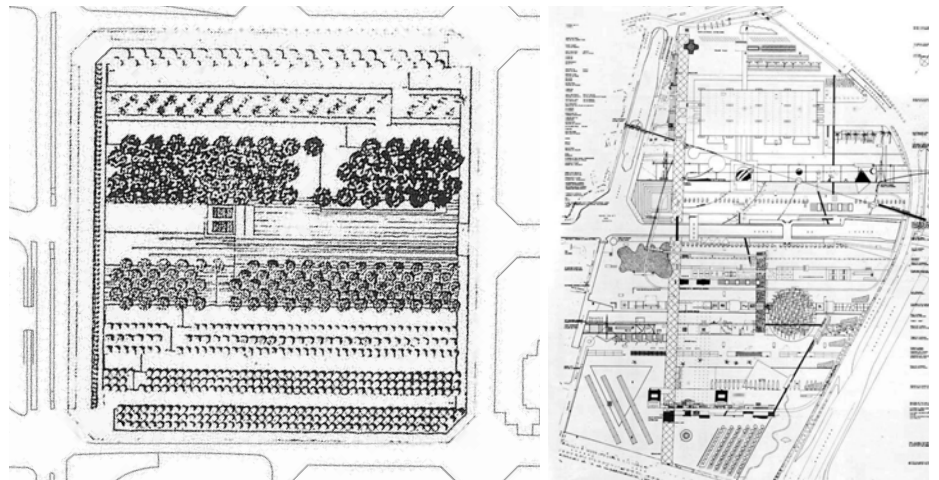


Fig.3.87 Eduard Bru, Plan of Parc de l'Escorxador, 1979
Fig.3.88 Rem Koohaas, Plan of Villette Park, 1983

"Grid+Lobotomy+Schism" model. However, in Bru's plan, the equality of the scale in the texture and the specific understanding of the diagonal line can be read as one kind of translation of the characteristic of urban context of city Barcelona. In the meanwhile, the systematic tendency rooted inside of the plan is another creative thinking in this design: various plants and vegetation were drawn under exact same dimension, which much reduced the diversity of the biological materials, so as to provide the fundamental base for building a system. This parade layout in strips might be an expression of rationality, or perhaps can be seen as the allusion of agriculture fields in cultivation culture. Then one unexpected diagonal line broke into the equal grid, which from the graphic point of view disturb the regularity of the ordinary plan, but it is because of the both strong the actions: the order of the stripes and the disorder of the diagonal have made the two elements keep independent and dis-cooperated to each other, which achieve the operation of superposition in the design.

We have to recognized also, in Parc de l'Escorxador, Eduard Bru had already introduced the method of superpose into his design, but regarding to the meaning and presentation of each layer, he did not show some clear intention to link them with the city. The equality of the arrangement of strips and the diagonal interaction can be seen as a kind of interpretation of the urban texture of Barcelona, but it is not so evident.

In one article where Bru discussed about his design of Parc de l'Escorxador after the finish of the competition, he created the concept of "Void Space".[28] As the first group of architecture theorist who started to talk about the topic of urban void. And the research surrounding that concept marked the real starting point that Eduard Bru began to think about the contemporary urban issue and how to face various interconnected problems. Then in those thinking and experiment of the superposition as one of design method were all approved in his Olympic urban design project - Vall D'Hebron. (fig. 3.89)

28. This concept was emphasized by Eduard Bru, Bernardo Secchi and Stefano Boeri former or later in the 80's of last century. Their aim is to develop new ways of reading that are specifically tailored to the diffuse urban landscape sprawling over a vast territory and to share of unbuilt space in this landscape. After them, Rem Koolhaas and West 8 also mentioned about the same idea but with different interpretations and explanations. Ghent Urban Studies Team, *The Urban condition: space, community, and self in the contemporary metropolis*. Rotterdam : 010, 1999. Pp. 237

Fig. 3.89 Eduard Bru, Vall D'Hebron, Barcelona, 1991

In order to host the 1992 Olympic in Barcelona, the whole city had been undertaken an ambitious urban transformation plan since the end of 80's, which included the construction of four Olympic areas, new transportation system, public parks, urban facilities and so on.

Eduard Bru was in charge of the urban design of one Olympic area in the planed four, which had been built during 1986 to 1992. It is a periphery area - Vall D'Hebron - in the north of Barcelona called for the functional use not only for hosting the Olympic facilities, but also can be transformed into urban park. (fig. 3.90)

The site locates beside the main ring road enclosing the urban area of Barcelona, in the boundary where the city meets its limit with the nature. It is a slope land with the average degree of inclination larger than the city area. All these preconditions together deliver the request for a new strategy to deal with the problematic and complex situation of the place, which can from one side give the city identity to this void space, from the other side find the solution to fix the contradiction between nature and artificial environment inside of this area. (3.91)
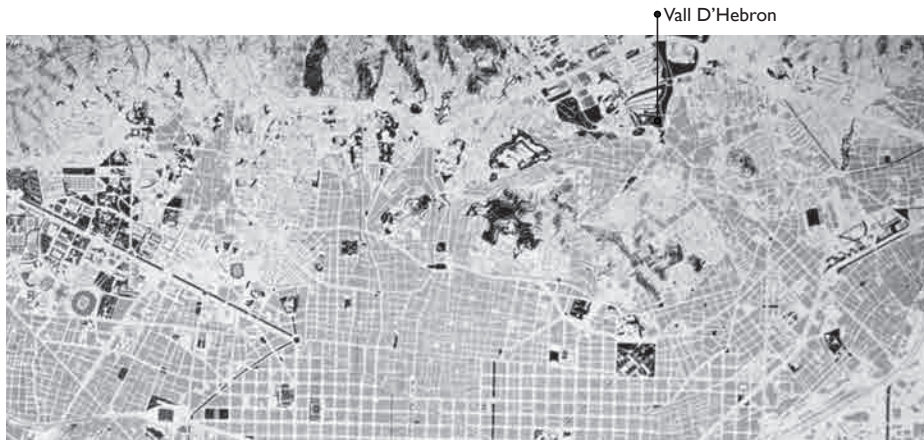
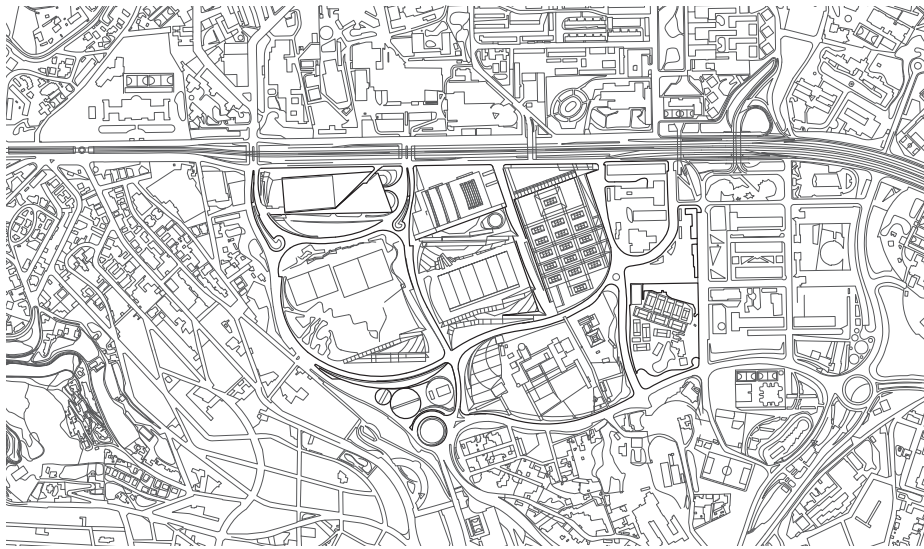Fig. 3.90 Four Olympic area and the location fo Vall D' hebron



Fig. 3.91 Masterplan of Vall de´Hebron

Compare with previous project of Eduard Bru, this one was fac-
ing an extreme complicated program and a large area of planed
district. However, in Vall de'Hebron, the continuity of the use of
superpose was clear, even more evident. In the master plan of this
Olympic area, the whole project was divided into three layers: a
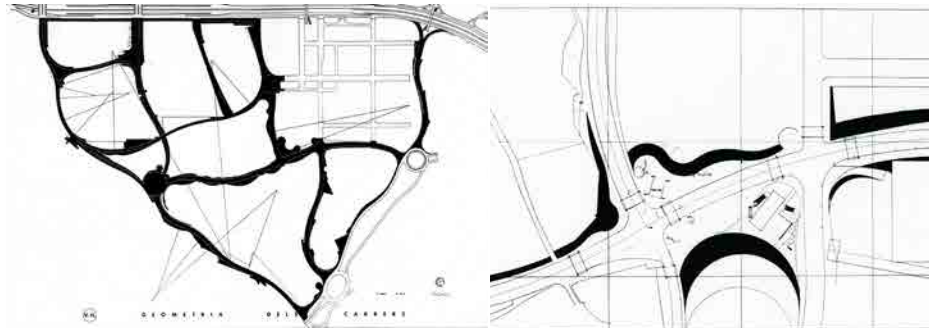north-south direction orthogonal grid, whose orientation follows

Fig. 3.92 Road system and detail

the regulation of sport facility and gives the maximum freedom to the possibility of future extension; the second layer is also in grid, whose orientation follows the axis line of the ring road - la Ronda, to conclude those buildings doesn't have restrict request of specific orientation and in the meanwhile keep the continuity referring to the main axis of urban transportation and urban texture; the third layer is the one made by the new road system inside of the site, which was translated from the paths of the ancient stream system in Barcelona's history. This new road system was composed by curve lines, roundabout and street corners, which can reduce the traffic speed by the not-straight direction of the road so to reduce the frequency of traffic accident; from the other hand, these roads together with the topographical characteristic of the site can recall the memory of the historical image of the ancient geographical condition. Under this design, the sharp inclination of the site did not become the obstacle problem that the designer had to face urgently, in contrary, the dynamic movement of the water course caused by this sharp inclination was well and smartly perceived by the drivers and people walking inside. (fig. 3.92)

The entire system of the urban design of Vall de'Hebron Olympic area is composed by three layers' grids in plan, with an equally height division in section. The cross areas where the different directions of grid overlapped were designed as the green area and

public space. If we treat the first two grids as the outcome from the analysis referring to the surrounding environment, then the third layer, the layer of water course can be seen as the personal interpretation of re-finding the Genus Loci of the place and the city. In this irrational orientated layer made by dynamic shape brought a kind of active atmosphere and common memory into the rigid network of the main structure. In the meanwhile, the contradiction of system in different systems naturally came out, which created the tension between rationality of human's mind and the natural geometry of the environment, which helped to reform the site without destroying the independency and autonomy of each layer. (fig. 3.93)

Although here came a lot of problems into Vall de'Hebron area during the post-Olympic period, such as the maintenance of the public facility, the housing project, and so on, which brought a great depress. But if we only discuss the design from the prospect of design method, compare to the superposition experiment of Parc de l'Escorxador, Bru's design for Vall de'Hebron, the super-position approach found its better field to be cultivated, a field full with complexity from every direction of the reality. Under this systematic plan, the functional need from the program, the connections from the surrounding context, the personal understanding and translation of the city fragment on the site, and so on, all can be presented in the form of layers. Although a system like this cannot satisfy every urban design project similar to this one, the trying of superposition system opens more opportunities to architect to solve more complex problems.

In the following projects of Eduard Bru, the method based on systematic solution can be often encountered, but none of them is using the way of superposition. In the North Square in the UAB Campus (1996-1997), the architect designed a standard plan, locating it on one layer which is lifted above every pre-existing layer which is taken from the extension of the existing architecture. However, there, instead of paying specific attention to
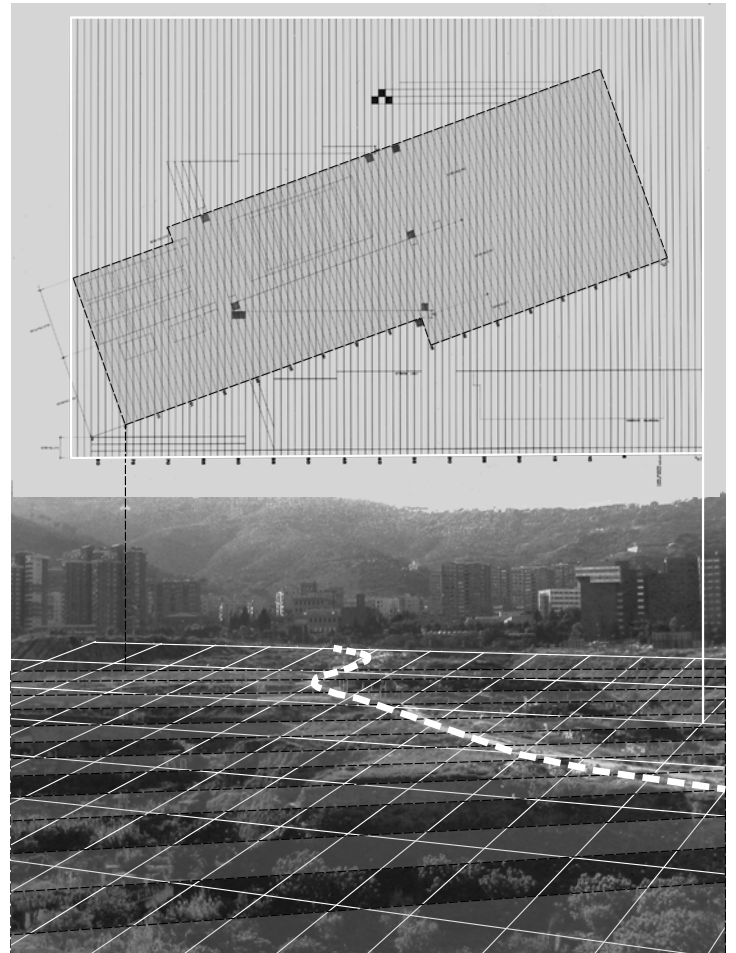
Fig. 3.93 Grid system of Vall de´Hebron

the final complex condition resulted from the superposition of multiple layers, the architect compact all the height differences and contrasts in the boundary area through the way of playing with the heights. So the final outcome is closer to the one of the proposal for Parc de l'Escorxador, not Vall de'Hebron. In Eduard's recent work, the proposal for urban renew of Plaza Glories,  the same approach appeared again, but in the urban design category, apart from one more project – the urban design of Beirut old city center - he didn't apply this approach often.

In fact, superposition has been often used by the group of so called urban architect, such like another Catalan architecture studio Arriola & Fiol. The urban renovation project of pedestrian area in Mercadal area of city Girona is one of them done by that studio in 1994. Facing the problem that active atmosphere of Mercadal district was gradually fading away, the architects used the superposition method to impose the diagram of the old context of the street with the rotated grid based on the River Onyar as its rotating center. So the urban fabric of the north bay of the river was overlapped onto the open space on the south bay. The grid texture of the new layer is demonstrating by the paving texture of the pavement. The architect wished to use this sort of superposition method to introduce the more vivid quality of public space and the historical context of the ancient town on the north shore onto the public area of the south shore, so to digest a bit the singularity of the large-scale streetscape, in order to recover the popularity of the open space where the project's site located. The work of A&F basically solve the problem through applying the method of superposition, but, because both of the superposed layers were abstracted and translated from urban context, which definitely will reduce the effect received from inserting contradiction and conflict.(fig. 3.94)

Similar approach can be found in Plaza d'Islandia done by the same studio. Compare to the rotating method that they used in Girona, in this project, they adapted another way on the transla-
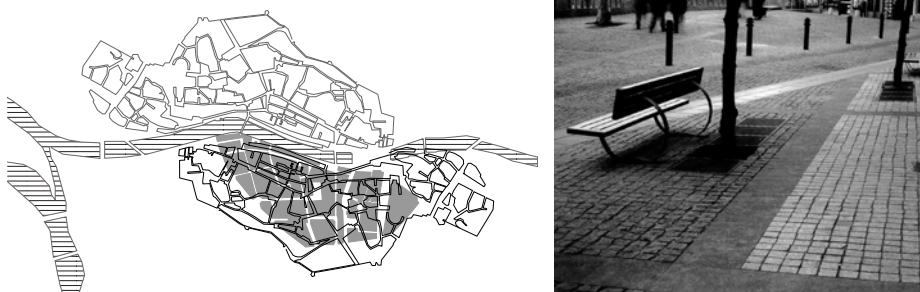


Fig. 3.94 Pedestrian area in Mercadal, Girona, 1994

Fig. 3.95 Pedestrian of Carrer de Bofarull,Barcelona, 1995

tion of layers. The project is located in the north part of Barcelona; it belongs to part of the renovation projects of public spaces along Carrer de Bofarull, which included two sub-projects: the urban facilities on the pedestrian of Carrer de Bofarull, and the triangular zone enclosed by Carrer de Bofarull, Carrer de Palencia and Carrer d'Espronceda. (fig. 3.95)

Carrer de Bofarull was the pathway of the water course of Canal Rec Comtal, which transported the water from Besos River to

the city center nor until the construction of Plan Cerda in which the entire course was deleted. So the site stands on the place where the canal was covered. With time pass by, the history of Canal Rec Comtal and the story of the birth of Carrer de Bofarull had gradually been forgotten by the citizens. (fig. 3.96)So that was the starting point where the architect did want to bring back to this area, the using of water, a change of material which can simulate the ambiance of the running of river water with a fountain pointing out the end of the street where has a triangular enlargement of a little square. The basement of the fountain is made by steel in the form that acts like the water is rushing out of the steel panels (running out of the earth in its metaphorical meaning). The series of water establishments recall the relation between the old street and the canal, the history is superposed inside of the project and the most important thing is the contradiction between the form of the grid and the shape of the canal was recorded. Base on the main idea related with the canal, the architects also introduced the urban texture of the 18th century around that residential district into the site. So the residential texture had become the third layer that overlapped on the site, which at the same time well controlled the outline shape of the fountain. (fig. 3.97)

Three different textures: the historical canal, the Cerda's grid and the 18th century context of Sant Marti district, all were borrowed or translated into individual layer emphasized on to the whole site. Each layer had its unique presence, its resource of this kind of diversity guaranteed the independence and meaningful of the layer, so to guaranteed the fertile of the final outcome after the action of superposing.

Base on the above analysis of projects, we can conclude three preconditions for realizing the method of superpose. The first one is the translation of the layer, because not every fragment of city can be used as the material of superposition. And in the meanwhile, there are large amounts of elements which will limit
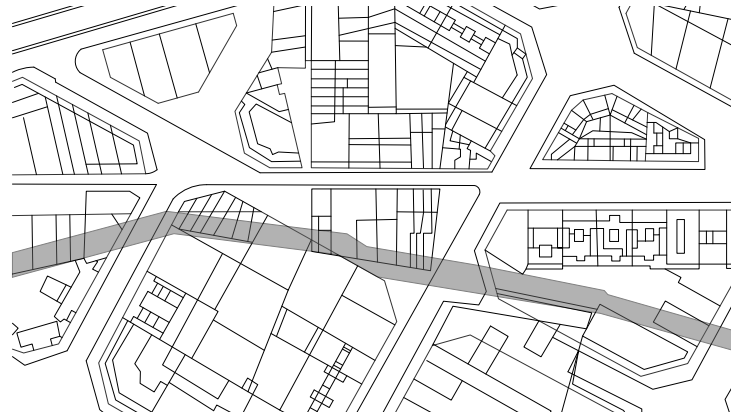
Fig. 3.96 history fabric with Canal Rec Comtal



Fig. 3.97 Masterplan of Plaza d'Islandia

the progress of re-use of each fragment. The second one is the establishment of the system. Because the action of superpose has to involve at least two layers participating inside of the design, so a clear system is obligatory to arrange the cooperation between each layer. The third one is the individuality of layer. If we say the precondition of system is to emphasize the common quality, the precondition of individuality is to protect the independence of layer that can avoid the disturb coming from other layers, in order to keep the contradiction between different personalities of

different layers.

All these preconditions bound the spread use of superpose. The way use the translation of city fragment as layer compose into the new architecture has its limits in many aspects, such like the perception of the people and so on. So to realize a relatively complete action of superpose require a certain amount of conditions to the project, like the dimension, the scale, the program and so on. In the recent proposals for renovation of Plaza Glories, to face with such a complicated site full of connections and axis, many proposals chose the method of superpose to deal with the problematic actual situation in a more systematic way. For example, the proposal of Torres & Lapeña Studio, the original plan of Cerda in Glories is translated into a transportation system: Av. Diagonal, Av. Meridiana and Gran Via these three big avenues compose the layer of road system which becomes the foundation of their entire design. The architects use the changing of the road's width to realize the individuality and difference between layers. Then architectures are located according to the foundation of the road system as another separate layer. In Eduard Bru's proposal of Plaza Glories, the historical information is also translated into an individual layer. In fact we can see, urban design and landscape design, the design of large scale, are easier to adapted with the superpose method, that is in contrary in design of single building, because in single building, the action of superposing takes places in a more hidden way.

In Thau School design by MBM during 1972 to 1974, the site has a similar environment with the urban design project of Vall de'Hebron: staying in the outskirt of the city, lacking of references of the urban context and the city labels. In some projects designed by MBM, such as school, the plan will express a unique characteristic of urban space's organization. And in this project, this urban character is hidden inside of the grid of interior columns. The architects translated Cerda's grid into the orthogonal grid of the structure and superposed it into the site as the fundamental
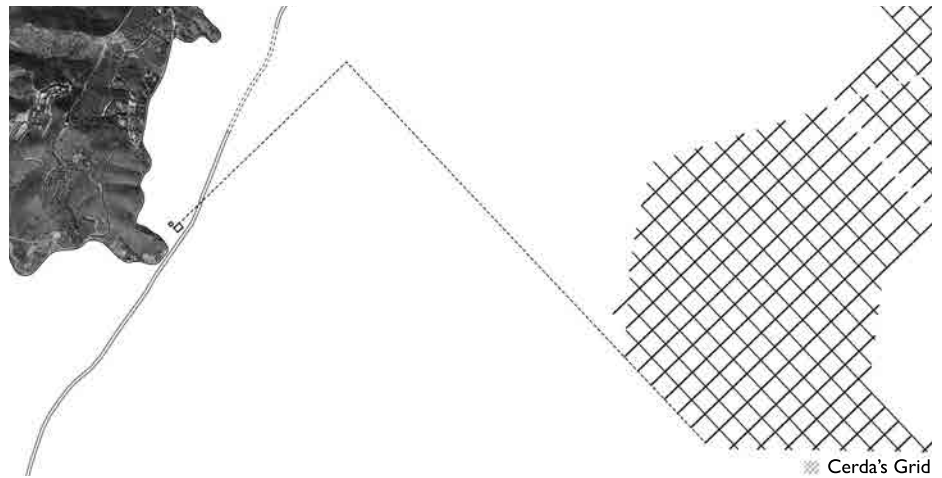
Cerda's Grid

Fig. 3.98 Plan of Escola Thau and its relation with Cerda's Grid

principle to control the orientation of the whole site plan. Here, because of the functional problem and other things, the amount of layers is not multiple, but the imposing of orthogonal grid of Cerda still built a well connection between the school and the city far beyond the physical boundary of the site's location. (fig. 3.98)

In Viaplana & Pinon Studio's proposal for the competition of the extension part of COAC (1976), the basic network of columns has its direction taken from Carrer del Arcs nearby, but on the corner where the new architecture gave its main entrance facing to Plaza Nova, the architects chose a unordinary way: insert a diagonal line as the shape of the entrance space into the architecture. Although in plan, we can see its influence from Melnikov's Soviet Pavilion in Paris of 1925, no matter respect to the scale or respect to the control of the main direction of the entrance opening, the space created by the diagonal line had its very strong urban characteristic. In other words, the architects translated the character of the closed plaza as one layer, to superpose on to the original network of the structure system. (fig. 3.99)

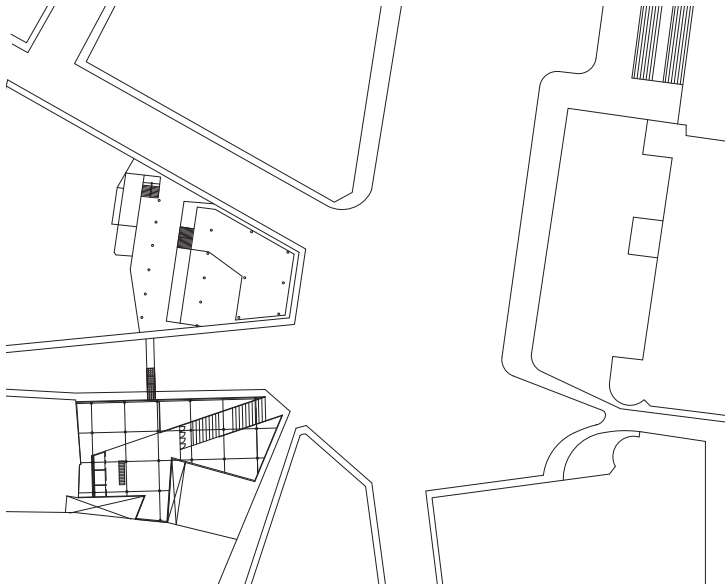These single buildings do not have the systematic complexity

Fig. 3.99 Plan of extension part for COAC and its relation with Plaza Nova

compare to large-scale projects. But the processes of translation and superposition are still obvious. In some certain degree of concern, it is the limit of the scale on the building itself increases the difficulty of the condition that can satisfy the action of superposition.

All in all, on one hand, superposition express the attitude of to make things systematically and search for the order inside of the comparative chaotic and complex situation. In the context of Postmodernism, the point of view that the architecture doesn't represent this or that kinds of form hasn't existed any more. All architectural projects are built basing on a complex system. There is no exact right or wrong standard to judge the good or bad of any system, instead, the system is treated as a part of a nexus of relationships.[28] On the other hand, superposition replies on a reasonable translation process. In the process, those city fragments are translated into one layer that waits for superposing by the personal interpretation of architects themselves. If borrow

the structure of linguistic theory to make the analogy to the superposition method, we can see the systematic organization of superposition a kind of syntax, so the principle of translation become a kind of grammar.

# Chapter 4     Epilogue

1. Peter Eisenman, *The formal basis of modern architecture*. Baden : Lars Müller, 2006. Pp.351

*It is not the role of the contemporary critic to interpret and direct architecture but rather to provide some order, some point of reference from which an understanding of the working may be evolved. Theory should abandon both the historical 19th century tradition and the polemical 20th century tradition. It must somehow establish a system of priorities based on a logical consistency if it is to have any validity. Theory in short, should be evolved, for the understanding of principles and not for the codifying of principles. It is a clarification of fundamentals, and it provides a language for the discussion and interpretation of these fundamentals. To this end, theory should not be considered as a set piece, a realty wrapped package, but rather as a continuously applicable and open-ended methodology.[1]*

In the previous chapters, I try to break the traditional model of categorization and composition and reorganize the types of the characteristics of architecture in Barcelona basing on the principle of the way to represent the inclusion of city as the design method.[2] However, the theory will not lead me to make a conclusion in this chapter; in other words, this research work cannot simply end in the form of a stop point without possibility to go further. My research work has an open-end conclusion. Because I cannot put all the architecture works into the discussion of this thesis; then in order to go deeper into the analysis of the inclusion method, I limit the selection of fragment elements inside the

area of Barcelona city, which give the pre-condition of the scope into the research's conclusion; the most important aspect is that the basic aim of discussion a relation between architecture and the city, is an dynamic and everlasting topic without its ending point.

No matter if we believe the hut of ancestor's living shelter is the prototype of architecture or not, the origin of the activities of building the shelter can be seen as the response to create a place to habitant in. Then from individual constructing activities to the group work of building the settlement, no matter the place human chose was on the tree or in the cave, no matter the scale is small or large, those activities related with architecture all reveal the process and development of the method to change and settlement the nature. Apart from the human being, other animals may also have the same capability.

When the settlement expanded in a larger area, the space between settlements started to be decided according to the natural condition or the consideration following the symbolic meaning. Buildings with different functions such like cemetery, shrine, and so on were connected by paths, so the city started to appear.[3] From that point of view, we can see the process of forming a city depends on the physical functions of the buildings and groups of buildings, from the other side also depends on the appearance of roads together with those buildings established the new system which is called the city. Architecture can be seen as individual object, also as element to compose the structure of city, which defines the duality of the nature characteristic of architecture itself.[4]

That tight connection can be found back to the writing of the classification of architecture types by Vitruvius in his "Ten Books on Architecture".[5]  Then in the Medieval Age, there were standardized rules to evaluate the degree of the goodness of city.[6] And later in Renaissance period, the architecture started to have

2. The common character of analogy in the metaphorical level of semiology theory is not the unique law to process the classification. For example, we can also see fragment as the rule to categorize the types: Collage, Detournement, Interface and Superposition belongs to the type of artificial fragment; Scalalize and Landform refer to the natural fragment. I use semiology theory as the guideline to undertake the classification more because of the study purpose of the relationship between city and architecture.

3. "The city is first of all a physical reality: a more or lee sizeable group of building, of habitations and public building…The city begins only when paths are transformed into road." Joseph Rykwert, *The Idea of a town: the anthropology of urban forms in Rome, Italy and the ancient world.* Cambridge  :MIT Press, 1988. Pp. 23

4. "As they saw it, architecture city could neither be considered a work of art nor the result of economic forces. Instead architecture was viewed as the product of the passage of time on certain formal structures. These formal structures mere what

architects had to learn about and explain in order to be able to intervene in a city." Rafael Moneo, *Remarks on 21 works*. Barcelona : Gustavo Gili, cop. 2010. Pp.15

5. "Building is, in its turn, divided into two parts, of which the first is the construction of fortified towns and of works for general use in public places, and the second is the putting up of structures for private individuals. There are three classes of public buildings: the first for defensive, the second for religious, and the third for utilitarian purposes." Vitruvius, *The Ten Books on Architecture*. New York : Dover Publications, 1960. Pp.1.3.1

6. later 14th century, Francese Eiximenis that […] described how to build a city that was beautiful and well-constructed. The city "must be established in the plain so that it can extend without obstacles; its ground plan should be square, with sides of one thousand paces, in the middles of each there shall be a main gate, flanked by two smaller doorways, reinforced like those of castles, the spaces too shall be fortified. From gate to gate, two broad streets will divide it into four quarters, each

the similarity with the structure of the city.[7] All those pieces in history can express the truth without any doubt that the architecture must have the indivisible relationship with the city.

However, in the later city development, the relation started to change. From one side because of the ability of self-expression in each architecture work increased and the image of the city was usually influenced by those representational builds architectures.[8] Although it enlarged the iconic character of the city by constructing those monumental artifacts, in the meanwhile, the organization of the city structure had already ignored that relation between normal building and the city - a kind of principle of hierarchy and subordination - which should be inherited from the Medieval and Renaissance Ages. From the other side, along with the opening of a new discipline - the urban planning and it sooner become popular and mature; the importance of architecture design could not avoid to be underrated.[9] Later when the Functionalism came along with the sense of Modernity, in the urban development of 19th century, the problem became more obvious that the transportation, sanitary, housing, etc. cause the efficiency first principle control the main stream of using the functional standard to guide the zoning of the urban area; the consideration about the relation between city and architecture was replaced by the Functionalism thinking.

Even though, architects never gave up the discussion about that relationship, moreover, they had been keeping trying to build an even more intimate relationship between architecture and the site. In the past hundred years, from the focus in the problem of Land in F. L. Wright's "The Living City" claimed in the mid of 20th century, to Rossi's emphasizing on Place in his book "Architecture of the City"; from Frampton's attempt to evoke the regionalism theory in his writing of "Toward a Critical Regionalism", to the searching of "Genius Loci" by Christian Norberg-Schulz, a great amount of architect and theorist were trying to discover more prospective thinking and ideas related with architecture and

place. Each thinking and idea came through personal practices, experiences, interpretations and philosophical theories in the same period.

Today we are staying in the contemporary context, so to rethink of the relation between architecture and city, is not trying to deny any effort related with the urban theory which appeared in the history, neither to struggle with the vain hope to get a unique and right answer, what I propose to do is to rethinking the relation once more about architecture, site and city, or furthermore the meaning of architecture under the actual culture and social context of complexity, fragmentality, diversity.[10] Like the fact that the Deconstruction Theory rebuilt the system of meaning basing on the Structuralism, when the contemporary philosophy is trying to transform the vertical tree of relation into horizontal system, the meaning of architecture now is unlike the absolute of Modernism and the chaos of Postmodernism; it demonstrates its diversity in clear system of definitions. Under that diversity, how to realize the establishment of that diverse system, is what I want to present in this research.

Of course, the number of project related with the idea of inclusion is not bounded inside of any specific restriction of function and dimension, neither bothered from any influence of style and chronological session, the selection of project only bases on the understanding of relation between architecture and city. The aim of this selection is to reorganize and categorized the contemporary architectures of Barcelona according to the analogical character of the common sense on the design methods which concern about the issue of the relation between architecture and city. In other words, this thesis is the deconstruction and alternative reappearance of contemporary architecture of Barcelona.

Although this thesis borrows the semiology theory to discuss the relation topic between architecture and city, I do not try to use that theory to generate architecture design. The design of project

with a spacious and beautiful square. The prince's palace, strongly build and in an elevated position, should rise on one side, with direct access to the exterior. The cathedral will stand in the vicinity of the junction of the two main streets; […] each district will have monasteries of mendicants and parish churches, butcher's fishmonger's corn exchanges and several shops. The hospitals, leper's colonies, gambling, dens, brothels and sewer outlets should be located on the opposite side to the direction from which the prevailing winds blow. People of a same profession shall live grouped together in a single district." F.Eiximenis: El Crestià Vol. XII. Els nostres clàssics. Barcelona, 1929

7. "If the city like some large house, and the house is in turn like some city." Leon Battista Alberti, *On the art of building in ten books.* Cambridge, MA ; London : The MIT Press, 1988. Book I, Cap 9.

8. "In the reconstructions of Jerusalem or Roma, the city is depicted as nothing but collection of public monument." Alan Colquhoun, *Collected essays in architectural criticism.* London: Black Dog, cop., 2009. Pp.66

9. Marcel Poëte, *Introducción al urbanismo*. Barcelona: Fundación Caja de Arquitectos, cop. 2011

10. "Thus the complex structure of the city emerges from discourse whose terms of reference are still somewhat fragmentary. Perhaps the laws of the city are exactly like those that regulate the life and destiny of individual men. Every biography has its own interest, even though it is circumscribed by birth and death. Certainly the architecture of the city, the human thing par excellence, is the physical sign of this biography, beyond the meanings and the feelings with which we recognize it." Aldo Rossi, The *architecture of the city*. Cambridge: MIT Press, 1984. Pp.163

11. Colin Rown, R. Slutzky, *Transparency*. Basel: Birkhäuser Architecture, 1997. Pp. 53

is not born from the theory, but from the realistic condition of specific demand of project. So the uniqueness and independency of every project are the reason to achieve the diversity of the project analysis. The classification in this thesis more bases on the conceptual ideas which aim to make a better conclusion about the methodological characteristic of the architect when they deal with the issues about the relationship. Certainly, those concluded characters of the design method cannot be seen as the only feature and virtue of the design.

Therefore, this research should be synthetically recognized as a work of discussion about the operative methods which deal with the relation between architecture and city.

It is in a new perspective angle, a piece of personal reading in the contemporary context. Like what Colin Rowe wrote in the last part of "Transparency": […]it is not intended to suggest that the phenomel transparency(for all its cubist descent) is a necessary constituent of modern architecture, nor that its presence might be used like a piece of limus paper for the test of architecture orthodoxy. It is intended simply to give a characterization of species and also to warn against the confusion of species.[11]

Chapter 5     Appendices

# Appendices

When I finished the first semester of the master courses, I started to have some basic knowledge of urban design, in the mean while, started to think and control the design from a larger scale. Compare to design of single building, urban design needs the urban designer consider more about those aspects like urban history, urban geography, urban context, human behavior and so on. The diversity and humanity consideration applied in the urban design can in certain degree call the rethinking of the strategy and method of architecture design. "Can we borrow some methods of urban design into the architecture design?" It is the question which initiated my doctoral research.

For the starting point of a doctoral research, a good question, or a good doubt, is very important. I thought I might have a good start. But in the following study, it became more and more tough. Basically because I met many problems in finding my research objects, more or less I spent one year and a half to discover suitable study objects. When I went through again and again those existing materials I had to search for a better composition, three books guided my direction: Aldo Rossi's "The Architecture of the City", Peter Eisenman's "The Formal Basis of Modern Architecture" and Roland Barthes's doctoral thesis "The Fashion System". Mostly because they three gave me the understanding of the importance of the methodology in a doctoral research. So I decided to use "semiotics and philosophy of language" as the fundamental meth-

odology in my research. Mainly because it is the normal way to discuss "meaning", and of course there were some other reasons that I will not explain more details here. After the trip of finding my methodology, I started to re-arrange and re-collect my study references. By a large quantity of reading and thinking, the main structure of the thesis was clearly built. One interesting thing was that those cases which started my interest about my topic were not selected inside of the final structure.

The final outcome of the book, I give 80% degree of satisfaction. Those 20% unsatisfying mainly focuses on two points.

First, to use a rational approach to analyze the changeable process of architecture design can be seen as a paradox. The most incredible beauty of architecture rely on the uncertainty of influences and interchanges from every aspect like political, economical, cultural, together with technical, functional, and at last, the personal will that possibly changes every part of architecture. However, consider about to make a relatively clear clue of the research topic, I had to fix most of those variable facts, in order to give a specific channel into the essence of the discussion, which somehow causes rigid and inflexible inside of the analysis. And in the theoretical part of the thesis, I paid much attention in the definition and discussion about methodology, which will probably be reduced its weight in my future publication edition or other extension research of my thesis, in the meanwhile, import more variable aspect which related with the architectural thinking.

Second point of the unsatisfying is the dislocation of the initial intention of the research, which I wrote in the Intention Chapter that the initial intention of this research was to point out the absence of urban context in the thinking of architecture design in China's high speed construction environment. But, different from my very fist intention, when I complete the writing of my thesis, I noticed that the first idea of recall the absence is in same way a bit naive. Barcelona not only has those magnificent diverse piece

of city fragment, but the sense of thinking always in a urban prospective in every fields and daily life, which let the citizen always pay their interest in their city is the most remarkable treasure of the city itself. Compare to the meaning of those physical fragment that I analyzed in my thesis, those invisible fragments existing in people's mind are the ones can not be copied and pasted to other cities. From another aspect, those architects in Barcelona are not satisfied by the existing urban culture and typical way of thinking, they are still trying to exploring with their own brave to read and create their new understanding of the site and context beyond the local identity. That point of view is basically got from a series of interviews I made with a group of Catalan architects.

My entire four years of doctorate study is the longest length of time that I fall inside of a complete freelance reading, study and writing period. The range of reading references jump cross fields of urban issue related with Barcelona city, fields of history, politic, philosophy and so on. I understand why the urban issue is a topic that is hard to write about, is because it contains too many related disciplines and fields. If to say I borrow the tool of City Fragment to explain how to use the method of urban design in the architecture design process, those cross-discipline readings give me hands to get into know the real urban problems. In China, there is a saying "If you know the enemy and know yourself, you need not fear the result of a hundred battles." To be an architect, urban problem is the issue we can not got rid of during the entire professional life, so my four-year study in Barcelona will be a good departing point of the future career.

## Acknowledgement

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