RECYCLING DISUSED SPACES: AN ALTERNATIVE TO TRANSFORM ARCHITECTURAL WASTE INTO RESOURCE

by
Meliha Çağlayan İnce

Submitted to Graduate School of Natural and Applied Sciences
in Partial Fulfillment of the Requirements
for the Degree of Master of Science in
Architecture

Yeditepe University
2019

RECYCLING DISUSED SPACES: AN ALTERNATIVE TO TRANSFORM ARCHITECTURAL WASTE INTO RESOURCE

APPROVED BY:

Assist. Prof. Dr. Moira Valeri .....
(Thesis Supervisor)
(Yeditepe University)

Prof. Dr. Murat Çetin .....
(Kadir Has University)

Assoc. Prof. Dr. Ece Ceylan Baba .....
(Yeditepe University)

DATE OF APPROVAL: ..../..../2019

ACKNOWLEDGEMENTS

It’s almost unbelievable for me to be able to finalize this thesis, which could have very easily been lost amongst a couple of unfortunate series of events during the past six years.

I would like to thank my thesis advisor Assist. Prof. Dr. Moira Valeri for not only introducing me to this topic, but also playing a crucial part to broaden my perspective on the practice of architecture.

I would like to thank Assoc. Prof. Dr. Ece Ceylan Baba for encouraging me to complete this thesis during very critical times.

I’m truly grateful for my colleagues and friends Pınar Lütfiye Alkan, Oya Babalı, Esra Nur Pelen, and my buddy Melis Oğuz for supporting me through thick and thin. Thank you, all, for believing in me even when I doubted myself in every aspect of life.

Most of this thesis was written during a time when I was either suffering from a herniated disk, or I was suffering from the aftermath of a surgery to remove the herniated part of that disk, which ended up being more painful than I can imagine. This unfortunate health issue made me realize how much love I was receiving.

I’m thankful towards my family, professors, colleagues and administrative staff in Yeditepe University Faculty of Architecture for their unlimited support.

Lastly, I’d like to thank both former and current students of Yeditepe University Department of Architecture. I had some of the best memories of my life with them during my work as a teaching assistant. I’m happy I was able to share their enthusiasm as well as their hardships, and learn from them.

ABSTRACT

RECYCLING DISUSED SPACES: AN ALTERNATIVE TO TRANSFORM ARCHITECTURAL WASTE INTO RESOURCE

Amongst the issues 21st century cities are facing today, abandoned and disused spaces have become a challenge for architects. Due to structural, economic and social changes cities went through in the last 50 years, rates of vacant structures have become drastic enough to be stated as a problem in many European and North American cities, and to be researched upon by professionals and scholars. Growing amount of ordinary disused and abandoned structures with no planned futures have created a stock of architectural waste all around the world. While conventional methods like demolition is the first approach in dealing with these type of structures, these methods can be costly and their results can make a considerable impact on the environment along with disrupting the memory of a space and its users. With the turn of the 21st century, architects have been working on an approach to recycle abandoned and disused spaces through tools of contemporary design, which would provide a new life cycle to the existing structure with a contextual basis and respect the memory of the space while giving it a new meaning during the process.

The aim of this thesis is to explore the phenomenon of rehabilitating disused spaces and getting them back into the city's circulation, through a series of key artists, architects, projects and events, which had noteworthy effect on the development of recycle approach around the world. Later, a series of studies, exhibitions and works made by scholars, professionals and institutes in the 21st century are presented to show the development of recycle approach in dealing with the issue of vacancy. Fifteen examples from a collected data of recycled projects from the literature are analyzed to show that recycle approach is a scaleless practice with no common design criteria, forming based on environmental factors on a contextual basis. The collected data from recycled projects is used to create an atlas and to present the global density of recycle approach. Based on the studies made in recent years, the possibility of recycle approach becoming a new aesthetic device and a prospective theory of architecture is evaluated in the thesis.

ÖZET

KULLANIM DIŞI KALMIŞ MEKANLARIN GERİ DÖNÜŞÜMÜ: MİMARİ ATIKLARI KAYNAĞA DÖNÜŞTÜRMEK İÇİN BİR ALTERNATİF

Yirmi birinci yüzyıl kentlerinin karşılaştığı sorunların arasında, terk edilmiş ve kullanım dışı kalmış mekanlar günümüz mimarları için üstesinden gelmeleri gereken bir zorluk haline gelmiştir. Kentlerin son 50 yılda geçirdikleri yapısal, ekonomik ve sosyal değişimler sonucunda Avrupa ve Kuzey Amerika kentlerinde bulunan boş yapıların oranı, uzmanlar ve akademisyenler tarafından bir problem olarak tanımlanarak, üzerine çalışma yapılmasını gerektirecek kadar yüksek olmuştur. Sayısı gittikçe artan ve halihazırda geleceğe dair bir planı olmayan kullanım dışı kalmış veya terk edilmiş sıradan yapılar, dünya çapında mimari bir atık yığını haline gelmiştir. Bu tarz yapılara çözüm ararken ilk akla gelen yıkım gibi alışılmış metotlar hem pahalı olabilip, hem de işlem sonucunda çevreye zarar verebilirken beraberinde mekanın ve kullanıcılarının anılarını da parçalayabilmektedir. Yirmi birinci yüzyıl ile beraber mimarlar terk edilmiş ve kullanım dışı kalmış mekanların çağdaş tasarım araçlarıyla geri dönüştürülmesini içeren bir yaklaşım üzerine çalışmaktadır. Bu yaklaşımın amacı, mevcut yapıya bağlamsal temeller üzerinden yeni bir yaşam döngüsü kazandırırken, mekanın anısına saygı duymak ve mekana yeni bir anlam kazandırmaktır.

Bu tez, dünya çapında geri dönüşüm yaklaşımının gelişimi açısından kayda değer etkiler bırakmış olan kilit sanatçılar, mimarlar, projeler ve etkinlikler ile kullanım dışı kalmış mekanların rehabilitasyonu ve kent sirkülasyonuna geri kazandırılma olgusunun araştırılmasını amaçlamaktadır. Devamında, yirmi birinci yüzyılda geri dönüşüm yaklaşımının boşluk sorunuyla nasıl başa çıktığına dair gelişmeleri içeren, uzmanlar, araştırmacılar ve akademisyenler tarafından yapılmış olan çalışmalar sunulmaktadır. Geri dönüşüm yaklaşımının ortak bir tasarım kıstası bulunmayan, ölçeksiz ve çevresel faktörlere göre şekillenen bağlamsal bir yöntem olduğunu göstermek için, literatürden derlenen geri dönüşüm projelerinden 15 tanesi seçilerek incelenmiş, toplanan veri ile bir atlas oluşturularak geri dönüşüm yaklaşımının küresel yoğunluğu belirtilmiştir. Son yıllarda yapılan araştırmalar göz önünde bulundurularak, geri dönüşüm yaklaşımının yeni bir estetik araç ve muhtemel bir mimarlık teorisi olması değerlendirilmiştir.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF SYMBOLS/ABBREVIATIONS

$	United States dollar (currency)
€	Euro (currency)
cm	centimeter
km	kilometer
m	meter
m²	square meter
mm	millimeter
AD	Anno Domini
AMO	The Research Team of Office for Metropolitan Architecture
BBSR	Bundesinstituts für Bau-, Stadt- und Raumforschung (German Federal Office for Building, Urban Affairs and Spatial Development)
BC	Before Christ
CIAM	Congrès internationaux d'architecture moderne (International Congresses of Modern Architecture)
EAA	Emre Arolat Architecture
ExWoSt	Experimenteller Wohnungs- und Städtebau (Experimental Housing and Urban Development)
MAXXI	Museo nazionale delle arti del XXI secolo (National Museum of 21st Century Arts)
NAI	Netherlands Architecture Institute
NDSM	Nederlandsche Dok en Scheepsbouw Maatschappij (Netherlands Dock and Shipbuilding Company)
OMA	Office for Metropolitan Architecture
RAAAF	Rietveld Architecture-Art-Affordances
UNESCO	United Nations Educational, Scientific and Cultural Organization

1. INTRODUCTION

When the topic of recycling is mentioned along with architecture, it is no surprise that the first idea surrounding it is generally associated with the recycling of construction materials. Considering the rising topic of *recycle* in the 21st century, architects sought out ways to provide more environment-friendly designs with less carbon footprint and more natural elements. While recycling on a material basis has provided different approaches for architects, it is not enough to cover the current demands of the changing environment in the 21st century on a spatial basis.

Today, cities are dealing with new urgencies concerning the lifetime of its built structures and their expired functions. Structures around the world are becoming vacant due to economic, social and structural changes in cities with an increasing rate. Vacant structures with no prospective agenda become disused or abandoned, creating a stock of architectural waste.

While each city and region is susceptible to vacancy based on global and local triggers, the vacancy rate in European and North American cities in the last 30 years has been evident enough to be researched and studied on by professionals and scholars. Researches show that economic triggers like deindustrialization along with social and political triggers affecting geographical boundaries are more dominant towards the formation of vacancy problem. Another trigger for vacancy is about the conditions concerning the preservation topic. In the last 200 years, while the jurisdiction of preservation practice expanded from preserving ancient structures to maintaining contemporary ones, it also started ignoring structures dating back to certain periods in favor of better cultural, social and economic opportunities, and leading them to become disused or abandoned, and even demolished without giving a second chance of survival.

With the turn of the 21st century, abandoned and disused spaces have become a new problem and a challenge for architects. From the conventional perspective, abandoned or disused structures are viewed as architectural waste and are primarily considered for demolition. While demolishing an existing structure and building a new one can be costly, it can also damage the existing characteristics of its environment or the memory of the space it occupies. Considering the circumstances of a built environment, it’s the architect’s initiative

to discover the potential of the architectural waste and transform it based on existing and required factors. Recycling in architecture on a spatial basis is an alternative to conventional design approaches practiced by architects. Recycling provides new life cycles to abandoned or disused structures while keeping their memory and giving them a new meaning within the present through contemporary design.

1.1. AIM

This thesis aims to research and investigate on the phenomenon of recycling in architecture on a spatial basis. Disused or abandoned spaces can be hard to work with due to their existing conditions of structural consistency or spatial attributes. However, they can also become a great resource for transformation and new life cycles. The research includes studying the architectural approaches in the second half of 20th century, a period when traditional methods in architectural design were challenged, which has a strong impact on the recycling approach in 21st century architecture. Vacancy, the leading cause to disuse and abandonment is studied to further understand the basis of current conditions which lead architects to look for alternative solutions to reuse existing spaces. The approaches of architects who worked on recycle projects are analyzed to understand the working design solutions on disused spaces. In the light of 21st century's issues and urgencies, this thesis aims to provide a basis for further researches on recycling of disused spaces.

1.2. SCOPE

Today vacancy issue can be observed due to varying reasons across the world. However, the rate of vacancy in Europe and North America after the turn of 21st century has been noticeable enough for scholars, researchers, architects and city planners to conduct studies on the issue. While the scope of vacancy issue in the thesis focuses on the triggers and researches made in Europe and North America, examples from all around the world are provided to emphasize the global effect of the research topic. The thesis also presents the studies done by scholars on the topic of recycle approach and its possibility to turn from being a spontaneous practice into a conscious aesthetic device in architecture.

1.3. METHODOLOGY

Considering the topical nature of recycling approach on a spatial basis in architecture, the research process for the thesis includes an extensive literature review on related architectural topics and movements in order to create a trace of events leading up to the recycle approach. Analysis of architectural exhibitions and projects are used to consolidate the thesis, along with references from art movements, related artists and their artworks. To visualize the rising density of recycled projects around the world, an abstract atlas of recycled projects dating from 1975 to 2018 is created based on the data collected from acknowledged architectural magazines. Projects forming the atlas are chosen based on their use of existing space, design approach and design significance. Selected number of examples varying from world-renowned architects to minor ones are given in the thesis to emphasize the diversity of design approaches and design scales in recycle, geographical variety and the density based on time.

1.4. OUTLINE

First chapter presents an introduction on the thesis topic along with the aim and scope of research, methods used for the study and the structure of thesis.

Second chapter briefly presents the change in architectural conditions following the crisis of the modern movement, which paved the way for new urgencies from an architectural perspective.

Third chapter presents the issues, which architects are dealing with under the current circumstances related with the topic of vacancy problem. A research on the studies, exhibitions and works of professionals, scholar and institutes dealing with vacancy is presented in this chapter, along with a retrospective research on the effects of expanding preservation criteria.

Fourth chapter presents the new approaches architects used to deal with vacancy. Fifteen example projects are selected from around the world based on variety of design approaches and diversity of implemented scales in recycling on a contextual basis along with geographical diversity and a vast range of architects from worldwide recognized to local ones.

Fifth chapter presents the conclusion that recycling of abandoned and disused spaces is a case-by-case and contextual topic, which is planned out based on the limiting and existing conditions of a project. The collected data from the recycled projects around the world is presented through an atlas, to show the development of the recycling approach on a global scale.

2. CORNERSTONES OF RECYCLE APPROACH IN ARCHITECTURE

In the 21st century the term *recycle* has mostly been related to the recycling of used materials, with the motivation of reducing pollution and carbon footprint left by the planet's inhabitants. Promotions of a cleaner, safer and sustainable environment eventually effected the practice of architecture. With the turn of the 21st century, architectural scholars and practitioners worked on creating a more sustainable built environment and looked for solutions to improve their projects by recycling materials or installing mechanical systems to reduce the impact of their buildings on the environment. Even though mechanical innovations brought various solutions on the topic, they overshadowed the architectural approach on a spatial basis.

While recycling is being treated as the invention of the century, the act of recycling from the functional and architectural perspective had already been used as a practice to design cities and keep settlements alive throughout centuries. Dating back to ancient times, the construction of a new structure would be done with materials salvaged from nearby ruined or demolished buildings, as well as reusing the former plot or foundations of previous ones. Recycling of durable structural components like stones or columns, which dates thousand years back, can be observed in historical centers. These approaches show that the urge to create something with existing elements is an old practice and served establishments as a tool of survival for centuries.

Historical centers, where architectural recycling of ancient times can best be observed, housed many types of buildings with different functions throughout centuries varying from residential to commercial and public buildings. For the purpose of accommodating its inhabitants' needs of the time, architectural structures forming the city center went through various transformations. Existing buildings losing their functions would be converted into new ones, using not only the existing site but also the existing structure. The transformation would not only effect the function of a structure, it would also effect its use based on requirements [1].

The Theatre of Marcellus (Figure 2.1), located in Rome, Italy, was completed in 11 B.C. and served its initial function until its abandonment in the 5th century due to floods. Most of the

structure was buried after the floods; later new residential units were built over the existing structure in the following centuries. From 12th century to 16th century, the houses on the plot changed owners multiple times and went through various reconstructions. In the beginning of 20th century the theater with the existing buildings in its perimeter were recovered and restored, presenting how the arches of the theater were used as foundations of the latter structures [1, 2, 3, 4].

(a) (b)

Figure 2.1. Theatre of Marcellus in Rome, Italy. (a) Reconstruction, 11 BC [5], (b) Current view [3]

Diocletian's Palace (Figure 2.2) located in the city of Split, in Croatia, which was initially built in 4th century, used to be a secured palace with military housing units. Today, the palace is considered to be the center of Split, housing many public spaces including shops and restaurants. Aerial views of the palace show that during all these years, the palace did not only managed to survive but it also managed to keep its urban pattern due to these continuous transformations and recycling of spaces, while becoming integrated with its environment. This example also shows that recycling is not only limited to an architectural scale and can be implemented on an urban level while respecting the existing heritage of space [1, 6].

(a) (b)

Figure 2.2. Diocletian's Palace in Split, Croatia. (a) Reconstruction, 305 AD [7], (b) Current aerial view [8]

While in ancient times, architectural recycling was used in a less conscious manner out of need to survive and to adapt spaces based on the requirement of the time, it is possible to observe the urge to use existing elements to form new aesthetics in art and architecture movements of the past century. The ideas behind the art movements like Dadaism and Pop Art, along with the reactions of architects towards the approaches of Modern Movement in the second half of 20th century, created a cultural basis for the recycle approach used by architects today to deal with architectural, urban and economic needs of 21st century.

2.1. THE END OF TABULA RASA IN THE MODERN MOVEMENT

In the beginning of 20th century, architectural scene was busy with the spread of modern movement throughout the world. Due to developments in industrialization, new and more durable materials were introduced to architectural design, as well as an admiration to machinery was reflected on architectural plans and design functions. Architects of that period started following certain design principles, like the expression of construction materials on façades, priority of functions during the design process and use of geometric designs avoid of ornaments, which became identified with the modern movement starting from 1920s. For the documentation and manifestation of these principles a group of European architects, led by Le Corbusier, established CIAM, *International Congress of*

Modern Architecture, in 1928, in Switzerland. Their focus would not be limited with the architectural scale, but it would also include the planning of the urban fabric [9, 10, 11].

CIAM aimed to integrate architecture with the society according to its social and economic traits, and their methodical design approach was based on a mathematical hierarchy of functions, which focused on re-establishing both cities and buildings from scratch, like a blank page, *tabula rasa* [12]. Example of this approach can be seen in Le Corbusier's proposal, *Plan Voisin* (Figure 2.3), for the redevelopment of central Paris in 1925. Le Corbusier's motive was to create an urban scenery devoid of the existing urban fabric, which he would define as too narrow, crowded and worn out. His design was focused on a high-rise business district with wide streets and vast green public areas where the city would benefit from maximum use of nature, while the buildings would maintain minimum footprint. Other functions would support the center from the periphery, through a network of vehicular transportation, which would be isolated from the pedestrian paths [13].

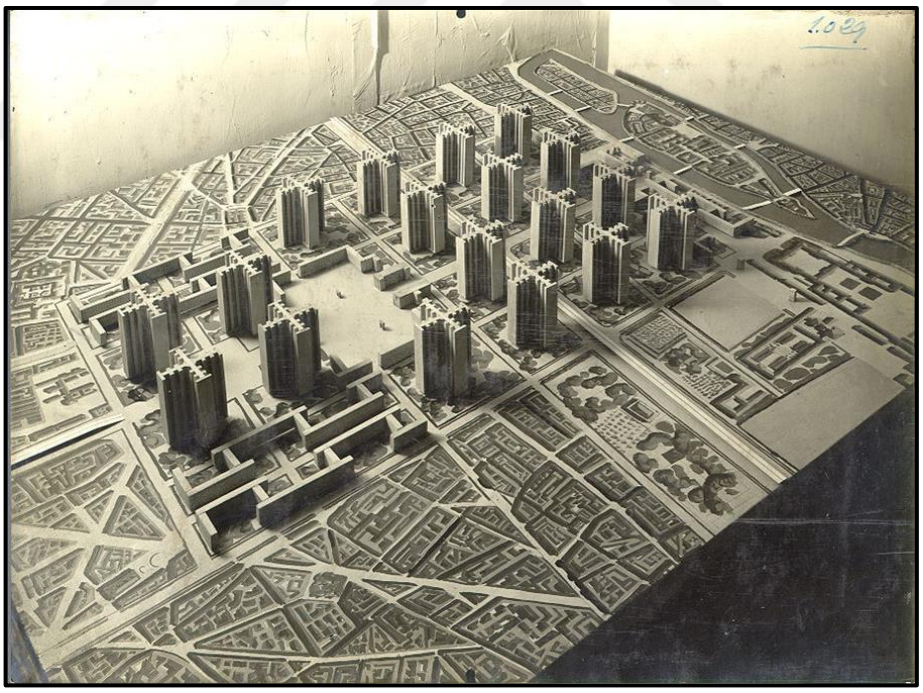


Figure 2.3. Model of Plan Voisin, redevelopment of central Paris, Le Corbusier, 1925 [13]

Later, Le Corbusier developed the principles of *Plan Voisin* further and designed *Ville Radieuse* (Figure 2.4), also known as Radiant City, which he presented in a CIAM meeting, in 1930 [14, 15].

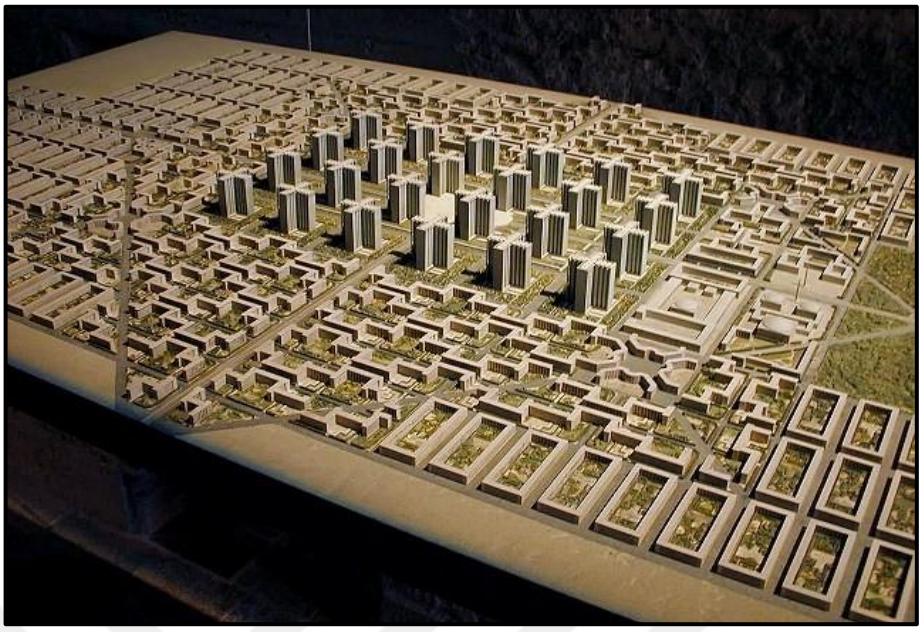


Figure 2.4. Model of Ville Radieuse, Le Corbusier, 1930 [15]

Modern movement's design approach received a lot of criticism concerning the social aspect of daily life. Leisure and public functions in the ideal city of modern movement were limited to the city center and closed spaces, which created a lack of communication and sense of belonging in the local public. In 1933, through the Athens Charter, leisure activity and public spaces were added to the basic principles of urban planning, but the base idea was still rooted to the *tabula rasa* principle, which fall short of providing sense of belonging to the society [9, 12, 16].

During World War II, many Europeans city centers suffered bombings and received a great amount of damage to their historical and characteristic structures. As an approach of reviving damaged cities, Le Corbusier proposed an urban plan in 1945 for bomb stricken city of Saint-Dié-des-Vosges in France (Figure 2.5), where he applied these principles while designing a public center. After the end of World War II, the society was more concerned for the revival of lost memories rather than creating new ones in new spaces with conceptual references to the past. Le Corbusier's approach of discarding ruins in favor of a new collective memory was not received well by the public and eventually it was never realized [16, 17, 18].

Figure 2.5. Le Corbusier's proposal for Saint-Dié-des-Vosges, France, 1945 [17]

At CIAM's first meeting after World War II in 1947, members were aware of the fact that parameters of the existing environment had been altered both physically and psychologically, and planning for the sole physical needs of a person was not enough to establish a sense of community in the society. In the following meetings, some CIAM members proposed that the modern design approach should be adapted according to the post-war conditions, and new projects should be integrated with the existing conditions to provide a sense of continuity. This proposition was not welcomed by all, creating a drift amongst the members of CIAM. In 1959, CIAM ended with one last meeting in Otterlo, Netherlands. After CIAM's disbandment, the members proposing the adaptation of modern design principles formed Team 10. Team 10 focused on improving existing design principles in order to provide spaces, which can be embraces by both individuals and communities until their last meeting in 1977 [9, 16, 19, 20].

Disbandment of CIAM can be perceived as a certain reaction to modern design approach in architecture as well as a turning point in architectural history. However, demolition of Pruitt-Igoe Housing Project (Figure 2.6) in 1972 is considered to be the end of modern architecture by architectural historian Charles Jencks [21]. Pruitt-Igoe, a public housing project for people with low income, was designed by architect Minoru Yamasaki based on the same modern design principles of Le Corbusier's *Ville Radieuse*. The project was completed in

1956, which seemed to be the beginning of a brand new life for its residents. However, in the following years, design gaps in the completed project joined with maintenance problems lead the complex to become a dysfunctional crime hub, resulting in its demolition [22, 23].

(a) (b)

Figure 2.6. Pruitt-Igoe Housing Complex, Minoru Yamasaki. (a) After completion in 1956, (b) Demolition in 1972 [22]

Modern movement is still criticized due to its strict functional approach from the architectural and urban point of view. It's because of this enforcement that the architects in the second half of 20th century focused more on fluid and free design ideas, and new manifestoes, some of which made significant impact on history of architecture even though they were not realized to begin with.

2.2. RADICAL APPROACHES IN THE SECOND HALF OF 20TH CENTURY

With the beginning of the second half of 20th century, while some architects were still staying loyal to the roots of modern movement, many architects from countries all over the world like England, Austria, Italy and Japan started reacting differently [24].

Japanese Metabolism, which started to occur at the end of 1950s in Japan, is one of these reactions developed to find a way to cope with the rising population of Japanese cities within the limited space [9]. Some projects under the metabolism movement were realized, while some were kept as propositions like architect Kiyonori Kikutake's Marine City (Figure 2.7), which was designed in 1958. Marine City proposed a flexible city consisted of megastructures, which would adapt to population demands with detachable units [25].

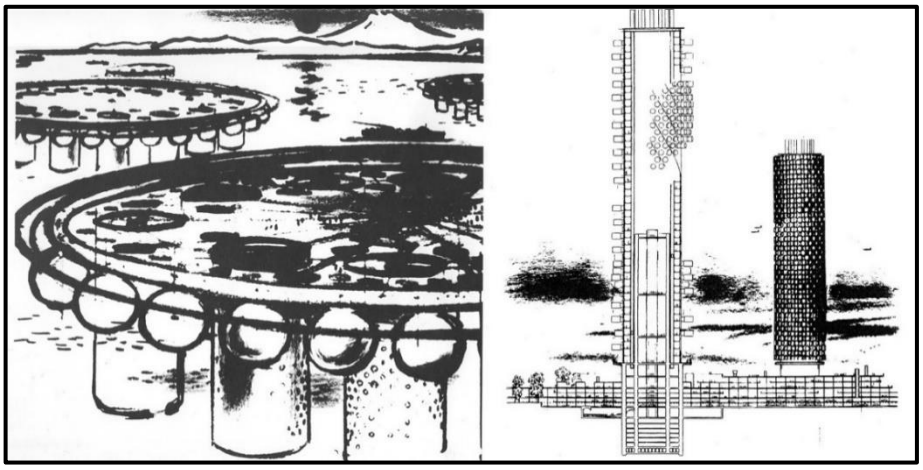


Figure 2.7. Marine City Project, Kiyonori Kikutake, 1958 [25]

Architect Kisho Kurokawa's Nakagin Capsule Tower (Figure 2.8), completed in 1972, is a realized example of the movement, which proposed single-use removable capsules as living spaces attached to a core in the center for circulation [26]. Even though Japanese Metabolism movement lost its popularity by 1970s in Japan, its contributions to architecture had been influential on some European architects during the 1960s and still, today, keeps on being an inspiration for architects.

Figure 2.8. Nakagin Capsule Tower, Kisho Kurokawa, 1972 [26]

In the beginning of 1960s in England, architects Peter Cook, Warren Chalk, Dennis Crompton, David Greene, Ron Herron and Mike Webb, started working as a group, compiling their ideas and criticisms against the rigid modern architectural scene they had to work in. Based in London, they referred to themselves as the Archigram Group, named after the Archigram magazines (Figure 2.9, 2.16), which was titled after the combination of the words *architecture* and *telegram*. They published the magazine from 1961 to 1974, by using collage and montage techniques influenced by the style of Pop Art. Archigram's approach against the dominant architectural movement was fluidity, flexibility and adaptability, which were reflected both in their student and professional works published in their magazines. Their focal point during the design process was being able to make a difference for the user who would face social changes in an extended period of time [24, 27].

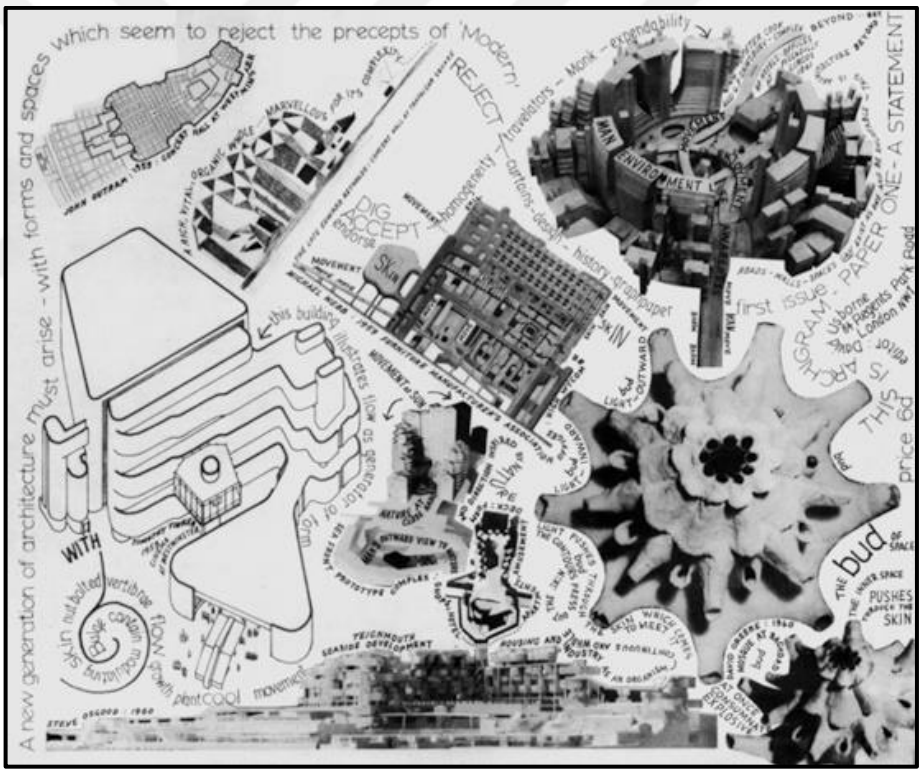


Figure 2.9. Archigram Magazine, first issue, main page, 1961 [28]

Even though Archigram group was consisted of six architects and all of them had been influenced by various art and architecture movements, they managed to establish a mutual perspective during the time they produced for the Archigram magazine. Dadaism, as an art

movement from the beginning of 20th century, along with Pop Art, which started its influence around mid-1950s, had been effective shaping the group's main approach in design [27].

Dadaism surfaced during the second half of 1910s, which manifested itself as a reaction to the alienated conventional art scene of 18th century along with the devastating outcome of World War I. Dadaism's aim was to make art an experience for the viewer and integrate it into life itself for improvement, instead of treating it like a tool for visual satisfaction. Based on its technique and aim, Dadaism can be considered as a radical art movement due to the starting point in a work's creation process, which includes using already existing art pieces or objects as a source and enhancing them with ordinary additions. The creation act promotes irrationality as a reaction to past art movements aside with taking a source out of its initial context and inserting it into a new concept, which is most likely an ironic one. Also, equipping adaptation, as a tool of survival towards the changing circumstances, is another attribute of Dadaism [29, 30].

One of the most influential artists of Dadaist movement was Marcel Duchamp. Duchamp's creations, he categorized as *readymade*, included mass-produced daily objects, which were reused by the artist out of their initial functions to create new art pieces within a new context [30]. Duchamp's work *Fountain* (Figure 2.10) was created by displacing a white porcelain men's urinal and positioning it on its back to represent a fountain-like image. The *Fountain* did not only became a reaction to conventional art scene with its use of material or context but with the rejection it received from Society of Independent Artists, which Duchamp was active during its foundation. *Fountain*, which was signed and submitted under the name of *R. Mutt* by Duchamp, challenged the ossified idea of art being the result of aesthetic concerns and use of conventional tools [31, 32].

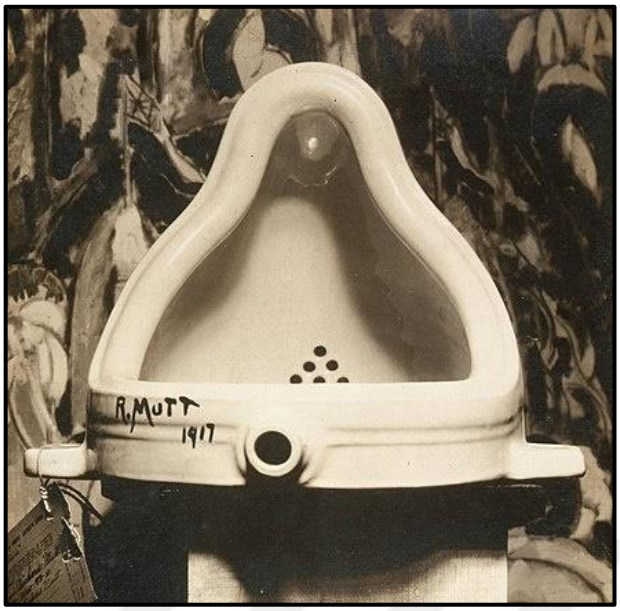


Figure 2.10. The Fountain, Marcel Duchamp, 1917 [33]

While Duchamp made a considerable impact on the art scene contextually, artist and graphic designer Kurt Schwitters' artwork is included in Dadaist movement on a personalized level where he succeeded to make art to be experienced spatially. Initially starting out with small-scale collages, Schwitters questioned the use of material in art as a reaction. During and after World War I, the artist was living in Germany, which was dealing with poverty and destruction. From the artist's perspective, an extraordinary situation like war called for an extraordinary reaction for one's survival. Instead of solely depending on a traditional tool like paint for his collages, Schwitters used discarded materials from the daily city life like thrown out wrapping paper from chocolate bars, clippings from old newspapers, scraps from advertisement posters, abandoned wood pieces or even used tickets, and combined them with paint on a canvas in an abstract manner. Not feeling like his artwork could be fit into any of the existing movements, Schwitters named his work as *Merz* after one of his collages, *Das Merzbild* (Figure 2.11), he made in 1919. The collage contained a bank advertisement, which originally had *Kommerz und Privatbank* written on it, and when completed only the word *Merz* could be seen as part of the final collage, hence the name [34].

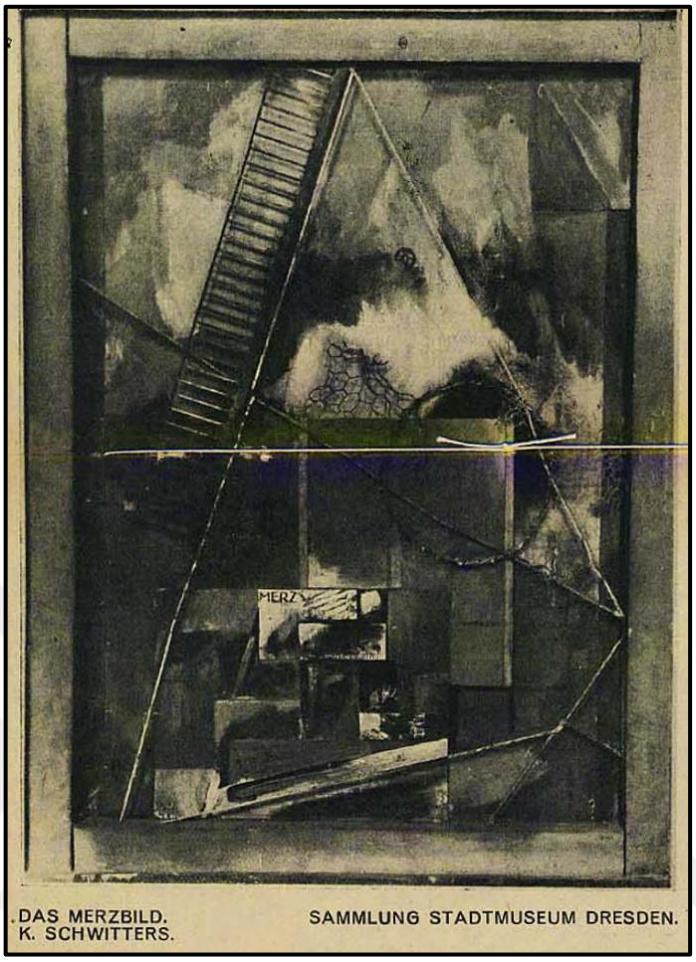


Figure 2.11. Photo of Das Merzbild, Kurt Schwitters, 1919, published in Merz Magazine No. 6 [35]

During 1920s, Schwitters extended his art into sculpture. He used the same approach with his collages and created large, almost column-like, sculptures from discarded materials. At the same time, he would publish *Merz* magazine where he expressed his approach on not only artistic level but also in literature, theatre and architecture. Having many architect friends, Schwitters had argued that architecture should also be an experience for the user, and he criticized modern movement due to its stance on the priority of functions. Eventually in the beginning of 1930s, Schwitters started integrating his sculptural work into his house in Hannover, with the aim of creating an artwork, which the viewer can experience spatially. In the beginning, constantly extending artwork started out in his studio and throughout the years, it enfolded three whole rooms joined with other various parts of the house. Schwitters

named his work as *Merzbau* (Figure 2.12, 2.13), combining his *Merz* with the German word *bau* for construction [34].

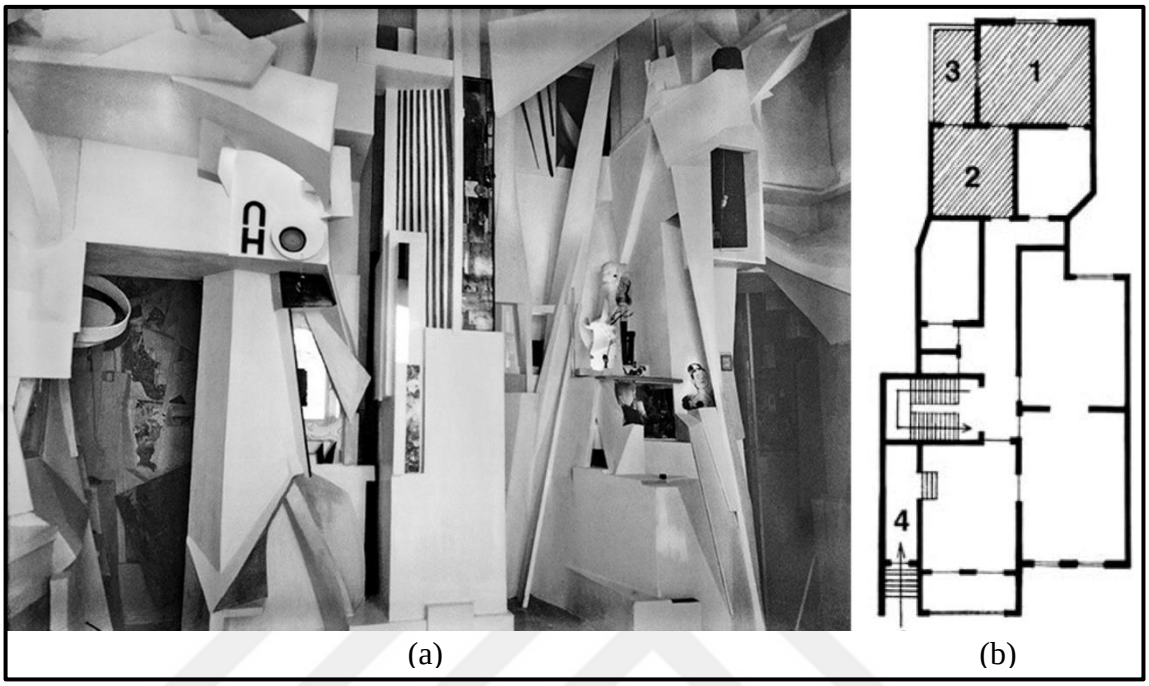


Figure 2.12. Merzbau, Kurt Schwitters. (a) Photo of Merzbau, 1933 [36], (b) Floor plan of Merzbau, Kurt Schwitters' house, Room 1 is Schwitters' studio, Room 2 is anteroom and Room 3 is the balcony [34]

Until 1937, the year Schwitters had to leave his home due to war in Germany, he kept working on *Merzbau*. Even though, in 1943, *Merzbau* was demolished during an attack of World War II, its photos taken in 1933 and 1935 are proof of the artist's work of his idea on the integration of experience and space. For *Merzbau,* Schwitters emphasized that it was not an architectural work. However, he also defended his approach saying architectural designs should have the element of adaptability and should leave the opportunity to compromise, as he did with *Merzbau* [34].

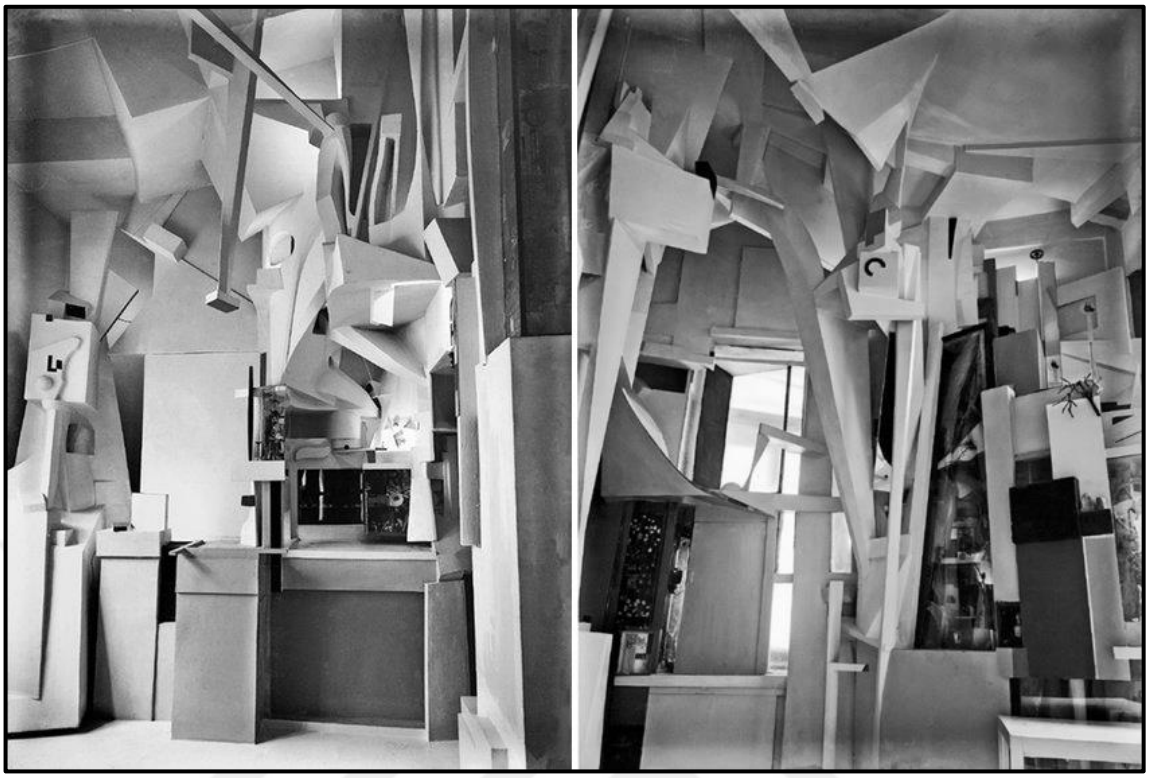


Figure 2.13. Photos of Merzbau, Kurt Schwitters, 1933 [36]

While Dadaism affected Archigram's designs about fluidity, adaptability and steered them equipping a radical design approach, the method they used to express themselves was highly influenced by the Pop Art movement [24]. Pop Art movement, which surfaced around 1950s in Britain, was based on the creation of collages with a critical approach. The collages were created using references from the mass production craze, which dominated the US at the time, like cutout pieces from newspaper and magazine ads. Using existing images to create a new work with a new context was also an approach Pop Art movement adapted from Dadaism. The emergence of Pop Art in Britain was highly related with the works of the Independent Group, which was consisted of designers, architects and artists from different practices like Eduardo Paolozzi and Richard Hamilton [37, 38]. Eduardo Paolozzi's collage *I was a Rich Man's Plaything* (Figure 2.14), dated 1947, is considered to be one of the earliest creations of the movement, and it was created using images from American magazines [39].

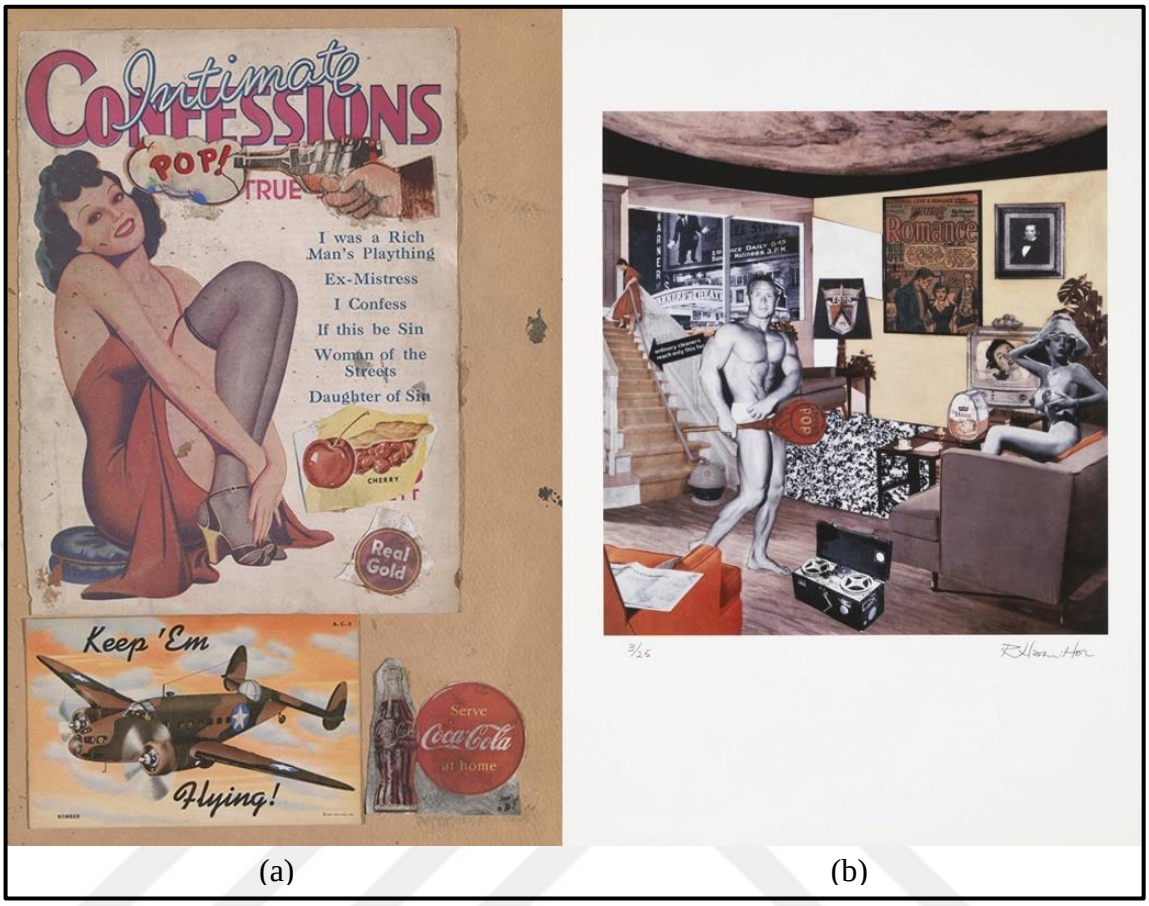
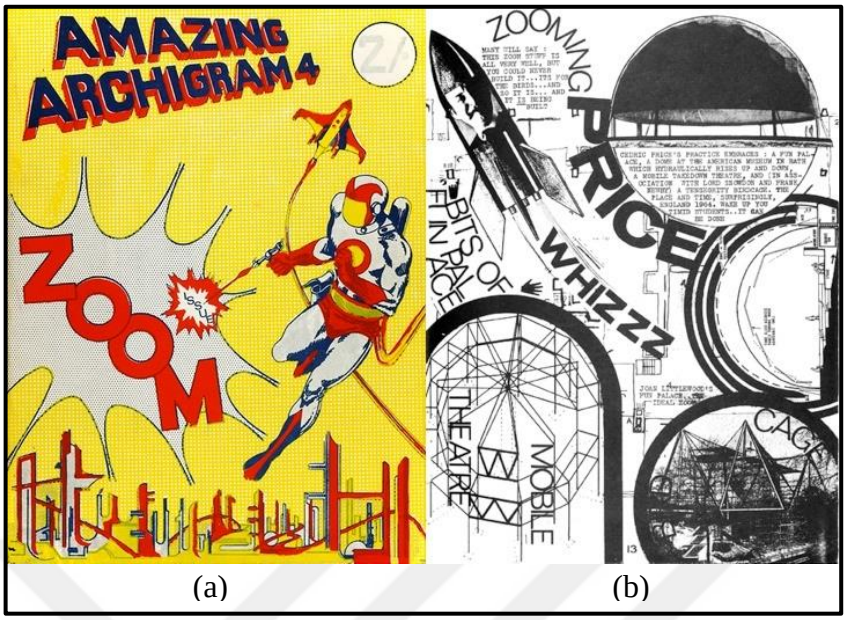


Figure 2.14. (a) I was a Rich Man's Plaything, Eduardo Paolozzi, 1947 [39], (b) Just what was it that made yesterday's homes so different, so appealing?, Richard Hamilton, 1956 [40]

The Independent Group's *This is Tomorrow* exhibition, dated 1956 in London, presented a series of artworks representing the Pop Art movement and became a cornerstone for the advancement of Pop Art. Richard Hamilton's collage, titled *Just what was it that made yesterday's homes so different, so appealing?* (Figure 2.14), which was one of the artwork presented during the exhibition, was again created using clippings and references from American magazines. The collage depicted the living room of 1950s, criticizing the desire to furnish a small living space with the materials of mass production [37, 40].

Figure 2.15. Campbell's Soup Cans, Andy Warhol, 1962 [41]

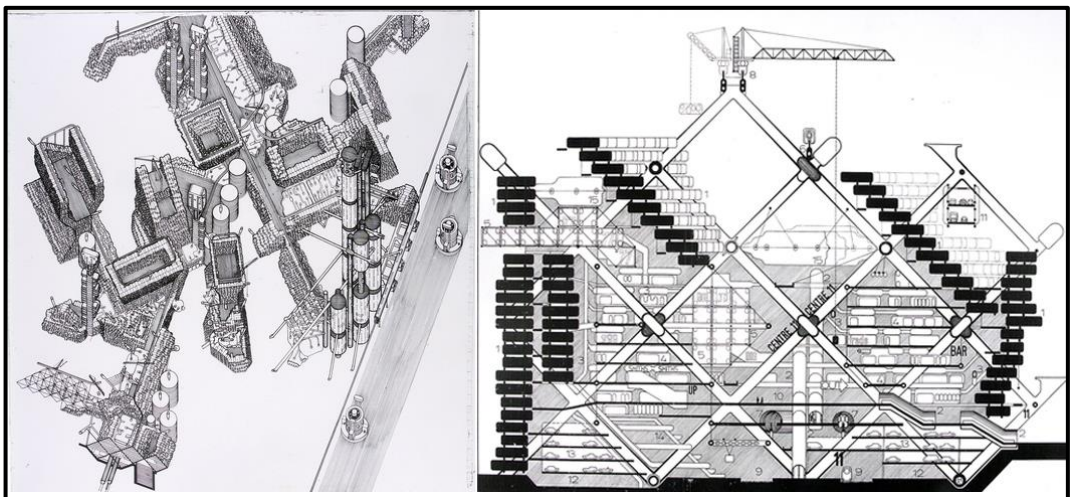
A strong representative of Pop Art was Andy Warhol, during the 1960s in US. Initially working in advertisement business, Warhol was affected by the movement and produced a series of artwork equipping daily and common images to create pieces with an underlying critical tone. Warhol created *Campbell's Soup Cans* (Figure 2.15) in 1962, hand-printing 32 different flavors of Campbell's canned soup, which he consumed on a daily basis during that period. Through *Campbell's Soup Cans*, Warhol presented that the origin of a creation can be based on an existing ordinary object and the object becoming a piece of art lies within the choices the artist makes [37, 38, 41]. Influence of Pop Art can be seen in the collages and montage techniques Archigram used to visualize their ideas and projects. (Figure 2.16)



(a) (b)

Figure 2.16. Archigram Magazine, fourth issue, 1964. (a) Cover page, (b) Page 13 [42]

Architecturally, Archigram was influenced by many architects and movements. The influence of Japanese Metabolism can be observed in their approach to design for the needs of the user on various scales. While the structural works of architect and engineer Buckminster Fuller inclined them to work on mega-structural designs, architect Yona Friedman's work on mobile architecture inspired them create dynamic designs [9, 27].



(a) (b)

Figure 2.17. Plug-in City, Peter Cook, Archigram, 1964. (a) Axonometric view, (b) Typical section [43]

Archigram's project, Plug-in City (Figure 2.17, 2.18, 2.19), started off from Peter Cook's idea of an adaptable, mega-structural city, which would be installed over a long-termed infrastructure, with short-termed living units, which can be replaced as they expire. The project was bound to provide a flexible agenda based on the requirements of its inhabitants, and allowed for possible expansions or reductions. Archigram members worked on Plug-in City in a span of four years, but the most recognized image of the project was completed in 1964. Due to its flexible nature, some proposals of Plug-in City were even designed to be integrated with existing urban fabrics, like United Kingdom [24, 27].

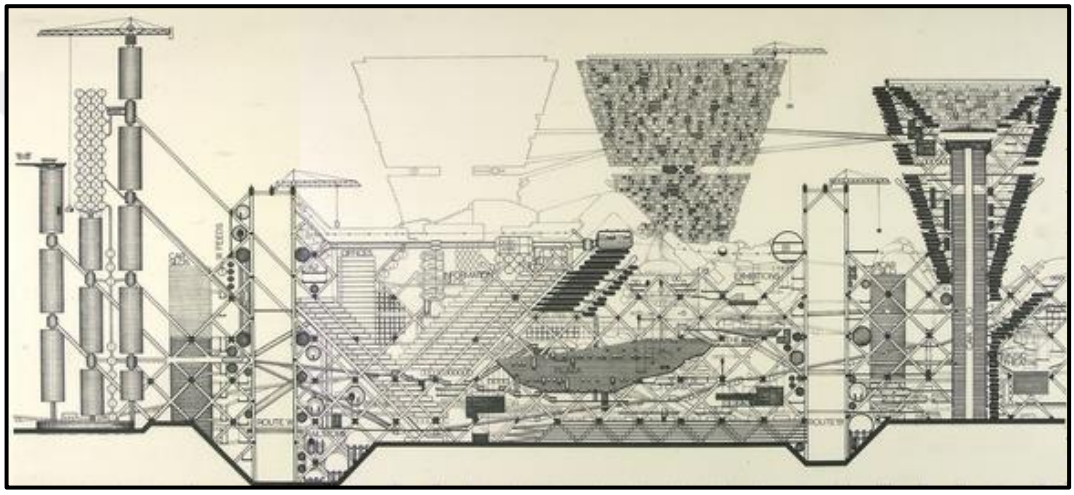


Figure 2.18. Maximum pressure area section, Plug-in City, Peter Cook, Archigram, 1964 [43]

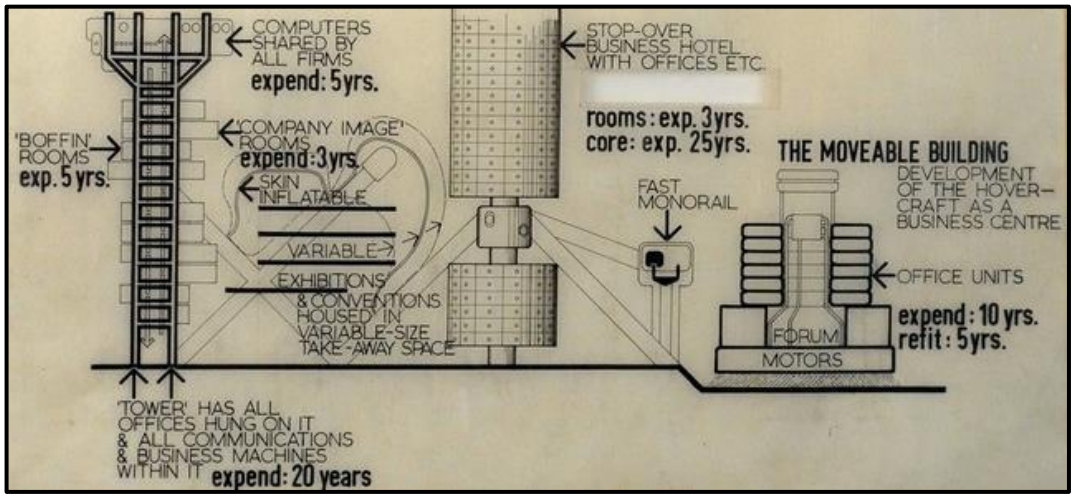


Figure 2.19. Simplified Guide Sections, Plug-in City, Peter Cook, Archigram, 1964 [44]

Walking City project (Figure 2.20), designed by Ron Herron in 1964, advanced Archigram's motto of flexibility and adaptability to another level by proposing a mobile mega-structure of a city, which could relocate in case of need and could survive anywhere with enough resources [24, 27]. While Archigram's works were never realized, their approach left a considerable impression on latter architects.

Figure 2.20. Walking City, Ron Herron, Archigram, 1964 [45]

Around the same time as Archigram, architect Cedric Price was also contemplating the idea of flexibility, and even one of his articles on the topic was published in Archigram magazine. Price had the opportunity to implement his ideas through Fun Palace (Figure 2.21), a project he designed for theater director Joan Littlewood in 1964. Fun Palace was supposed to serve as a center for leisure with an educational purpose in London. The most striking feature of the project was its flexible spaces, which could be altered based on the required program and the users. In addition, the structure of Fun Palace was designed so that it can be taken apart once the structure fulfils its service. While this project was fully planned to be realized, its construction was canceled due to bureaucratic reasons [27, 46, 47].

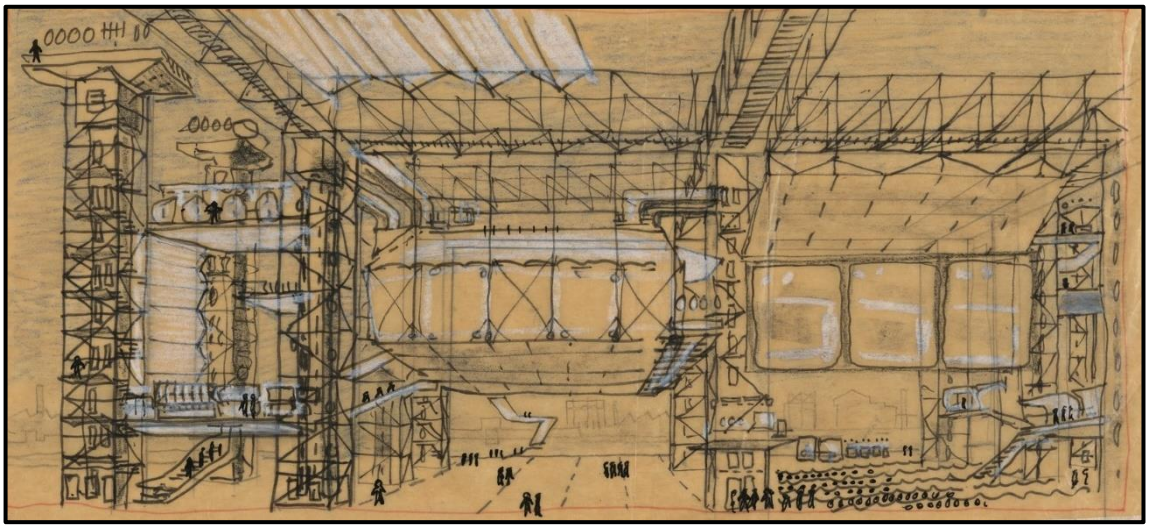


Figure 2.21. Fun Palace, Cedric Price, 1964 [48]

This approach of Archigram and suchlike architects on architectural design in the first half of 1960s introduced an alternative to architecture students in Florence, Italy, who were protesting the strict teachings of modern movement based design of architecture schools in. Some of these students later went on and formed their own groups or practices, while following up on a radical approach, who came to be known as the Italian radicals [24, 49, 50].

Amongst the Italian radicals two Florence based groups, Archizoom and Superstudio, gathered noticeable attention and became an inspiration source for latter architects. Both groups were established in 1966 around the time they prepared the *Superarchitecture* Exhibition (Figure 2.22) in Pistoia, Italy. Archizoom and Superstudio interpreted architectural design as a source to make a difference in human life and environment, hence their radical and utopian approaches on their works. Through the *Superarchitecture* Exhibition, they had the chance to kick off their practices with small-scale works, which revolved around installations of interpreted daily products. The exhibition theme focused on defusing the hype created by the consumption craze with a utopian approach on product design [49, 51, 52].

(a) (b)

Figure 2.22. Superarchitecture Exhibition, 1966. (a) Exhibition poster, (b) Exhibition photo [53]

Archizoom, which's name was a reference to Archigram, was formed by architects Andrea Branzi, Paolo Deganello, Massimo Morozzi and Gilberto Corretti whom were later joined by designers Lucia Bartolini and Dario Bartolini in 1968 [49, 51]. During their seven active years, Archizoom members focused on urban and architectural projects devoid of an urban hierarchy, which would provide free customization and equal standards to its inhabitants. Archizoom is most known for their project, No-Stop City (Figure 2.23), which they produced its first version in 1969. No-Stop City proposed an urban pattern with no specific beginning or end, which could be integrated anywhere. Archizoom's approach on the project was creating customizable spaces for the city's inhabitants, supported with the innovations of latest technological developments. Archizoom worked on No-Stop City for three years and produced its various renditions [49, 50].

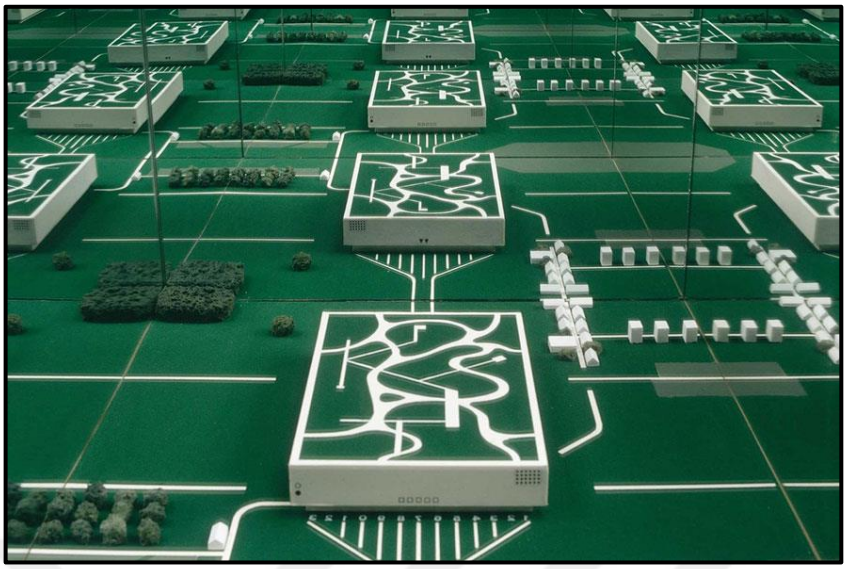


Figure 2.23. Model of No-Stop City, Archizoom, 1969 [50]

Superstudio, which was established by architects Adolfo Natalini and Cristiano Toraldo di Francia, expanded in following years by the addition of Roberto Magris, Alessandro Magris, Gian Piero Frassinelli and Alessandro Poli. Like Archizoom, Superstudio's focus was on utopian projects, which would keep a critical stance towards the conventional architectural approaches. Additionally, Superstudio also focused on the perception of fundamental architectural elements and the power they had on the society [49, 51].

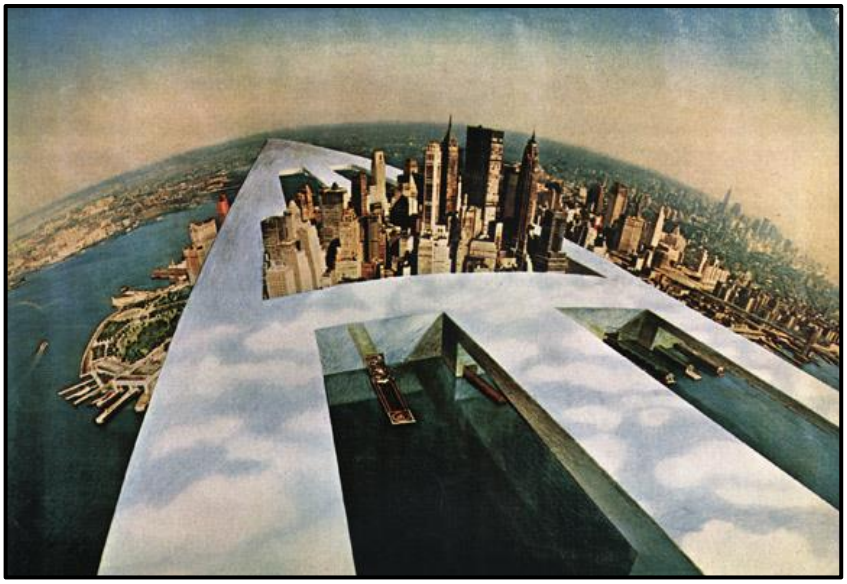


Figure 2.24. New New York, Continuous Monument, Superstudio, 1969 [54]

One of the topics Superstudio worked on was the perception and impact of monuments and monumental structures on the society. Throughout the time, structures with monumental attributes have not only reflected history, but also helped fulfill the sense of belonging in societies. In 1969, Superstudio presented their project Continuous Monument (Figure 2.24, 2.25) for the first time. Continuous Monument was created from the repetitive use of a single square unit, which represented the basic element of an architectural design. The single unit created endless variations, ready to take over any space on earth. While the project had a mega-structural scale, the main approach was designing a familiar form for the users who would feel the sense of belonging wherever they go. Superstudio emphasized their assertiveness with the collages they prepared for Continuous Monument. While in some of them, the project was integrated with a rural landscape, in other various variations of the Continuous Monument was inserted onto existing cities like New York or Rome [49, 51].

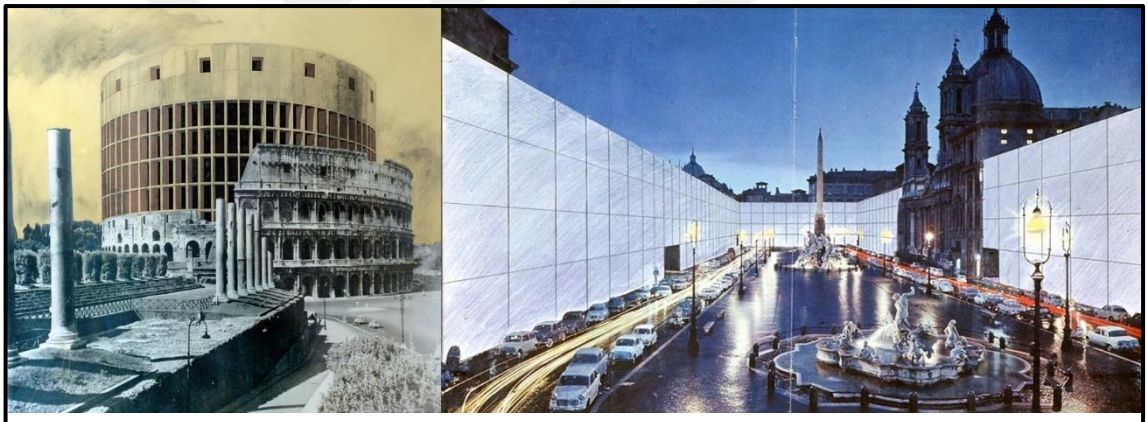
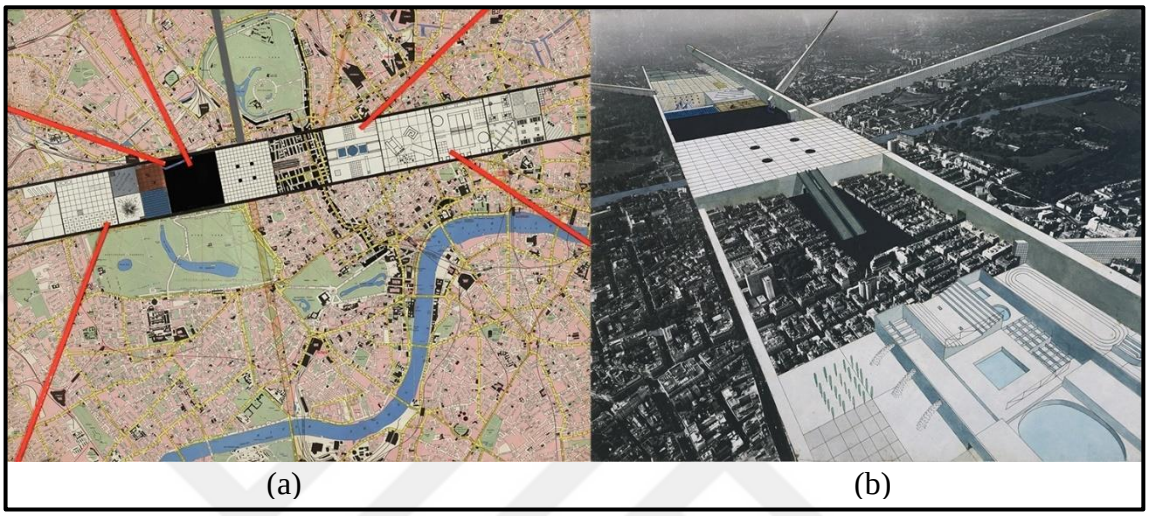


Figure 2.25. Continuous Monument, Superstudio, 1969. (a) Grand Hotel Colosseo [55], (b) Piazza Navona, Rome [56]

The radical attributes surrounding Continuous Monument and its influence was evident on Rem Koolhaas' work as a student. In 1972, Koolhaas submitted *Exodus, or the Voluntary Prisoners of Architecture* (Figure 2.26) to *The City as Meaningful Environment* competition of Casabella architecture magazine, along with architects Elia Zenghelis, Zoe Zenghelis and artist Madelon Vriesendorp. *Exodus, or the Voluntary Prisoners of Architecture to The City*, which was also part of Koolhaas' graduation thesis from Architectural Association, presented invasion of a monumental structure on the existing fabric of London. The project, originated from the division and circumstances of the Wall of Berlin, created an ironic utopia

where inhabitants of London would give up their freedom of space in order to fulfill their personal yearnings, thus becoming *voluntary prisoners* of the new structure. This project does not only criticize the effect of architecture on society from both negative and positive aspects, but it also reflects the architectural pursuit of its time [57, 58, 59].



(a) (b)

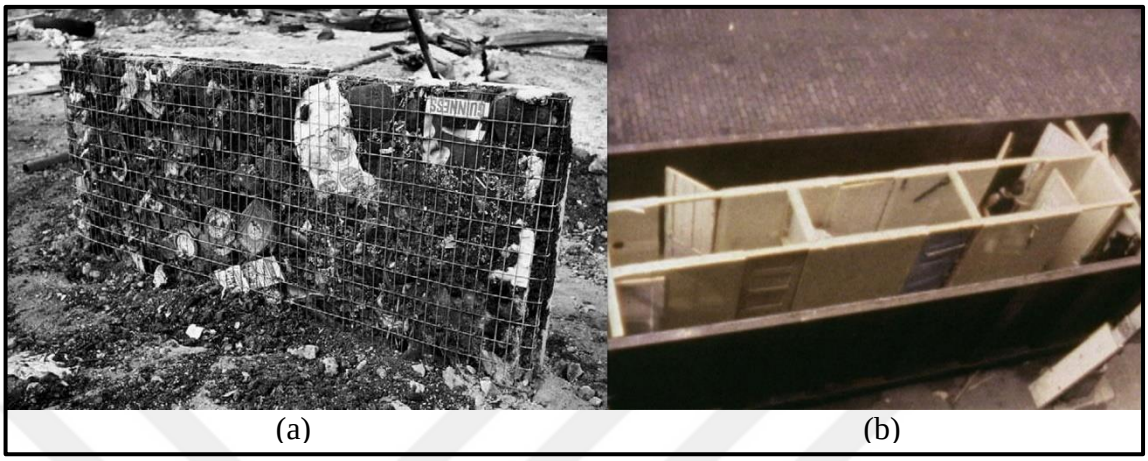
Figure 2.26. Exodus, or the Voluntary Prisoners of Architecture, Rem Koolhaas, Elia Zenghelis, Zoe Zenghelis and Madelon Vriesendorp, 1972. (a) The Strip plan [60], (b) The Strip aerial perspective [59]

2.3. RELATIONSHIP WITH WHAT IS ALREADY THERE: INVESTIGATION THROUGH ART AND ARCHITECTURE

While the radical, utopian ideas and approaches of 1960s were too experimental and demanding to be realized, they accumulated a basis for the architects of the 1970s who were questioning the confines of existing architectural practices. Hence, towards the end of 1970s architects started fusing those radical ideas into their works.

Gordon Matta-Clark, who was both an architect and an artist, was interested in challenging the defined limits of architectural space early on his career as an artist. So far, what he experienced as an architect had been concerned with designing new structures while ignoring existing or abandoned ones. Another concern Matta-Clark tended was including the user

during the creation of a space, which was generally overseen by the architectural training he received [61].



(a) (b)

Figure 2.27. (a) Garbage Wall, Gordon Matta-Clark, 1970 [62], (b) Open House, Gordon Matta-Clark, 1972 [63]

Matta-Clark's early sculptures like *Garbage Wall* in 1970 and *Open House* in 1972 dealt with creating spaces from discarded materials. *Garbage Wall* (Figure 2.27), which arose from his observations of homeless people living on the streets, devoid of the comfort of an enclosed space, aimed to create a shelter to anyone in need without the necessity of certain construction materials. Matta-Clark used chicken wire for the wall's frame while inviting passing people to participate in his work by throwing away their trashes in it, creating an architectural element made of urban waste [63, 64, 65]. *Open House* (Figure 2.27), which was consisted of a dumpster turned industrial container and scrap materials like discarded doors or timbers from closed down businesses around the installation location, was built on Greene Street, in SoHo, New York, and gained a lot of interest from the neighbors and passersby. Using an adjustable architectural element, like door, Matta-Clark presented varying spaces while defying the static nature of a designed space [61, 63, 66].

Figure 2.28. Splitting, Gordon Matta-Clark, 1974 [67]

In 1974, Matta-Clark implemented his challenge on an architectural scale with *Splitting* (Figure 2.28, 2.29). For *Splitting*, Matta-Clark worked on a two-story suburban house without any insulation on the façade, which was assumed to be built in 1930s. Located in New Jersey, the house was planned to be demolished along with neighboring houses for a new development project. With the help of a chainsaw and various tools, Matta-Clark started his work by cutting out a one-inch slice from the surface of the structure and dividing it in half. Then, by tilting one half's foundation about five degrees with lifting jacks, Matta-Clark created a visible slit on the house's façade. The slit did not only let the sunlight illuminate the enclosed space from an unexpected direction unlike the doors and windows, but it also provided its hidden parts, like its foundation and roof, to be perceived. In *Splitting*, while Matta-Clark was transforming a traditional living space with an unconventional approach, he also highlighted the memory of an about-to-be demolished structure by reinterpreting the existing space [68, 69, 70].

Figure 2.29. Interior of Splitting, Gordon Matta-Clark, 1974 [71]

Following year, in 1975, Matta-Clark worked on two 17th century buildings, which were planned to be demolished for redevelopment of Les Halles-Plateau Beaubourg area in Paris, France. Buildings located in 27-29 Rue Beaubourg were adjacent to the ongoing construction of Centre Georges Pompidou, which was also part of the redevelopment project. Matta-Clark cut out a conical shape from the two buildings. The base of the cone was cut out from one of the buildings' north façade, which had a diameter of four meters with a span from one floor to another. Rest of the shape was cut out from inside the buildings, which would include the upper floor and attic of the adjacent building. During Matta-Clark's intervention, which was later titled *Conical Intersect* (Figure 2.30, 2.31), one of the many spectators, a 70-year-old French woman working as a concierge in a neighboring building, described Matta-Clark's work as *a way to introduce light and air into spaces, which never had enough of either*, confirming the artist's intention for *Conical Intersect* [69, 70].

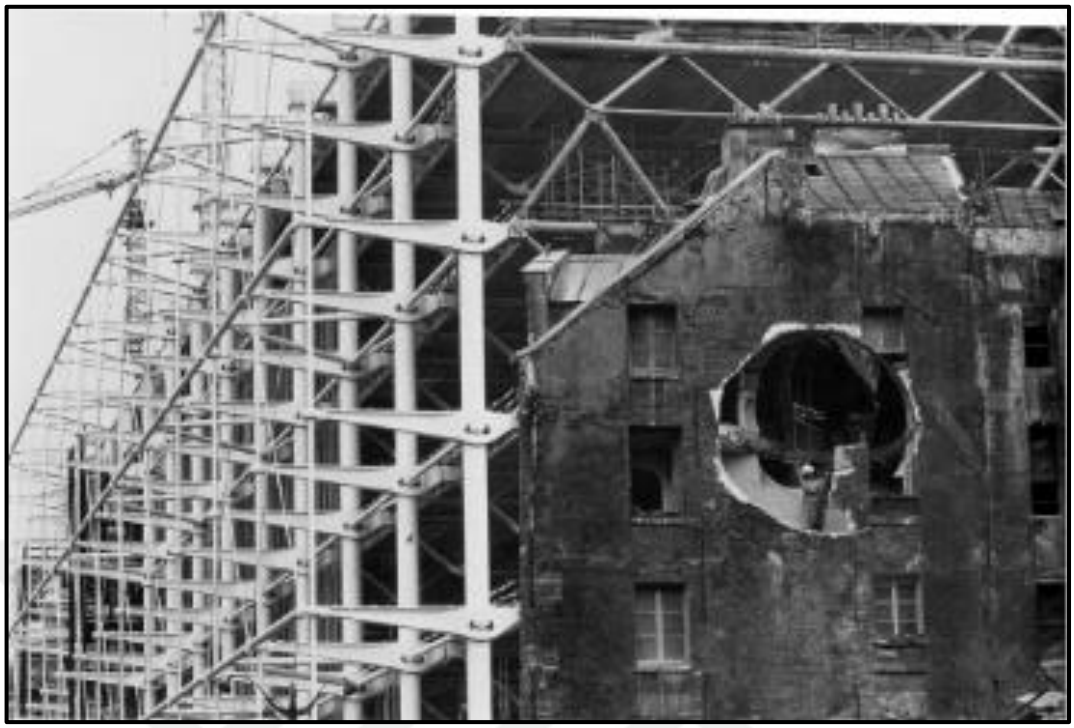


Figure 2.30. Conical Intersect, Gordon Matta-Clark, 1975 [72]

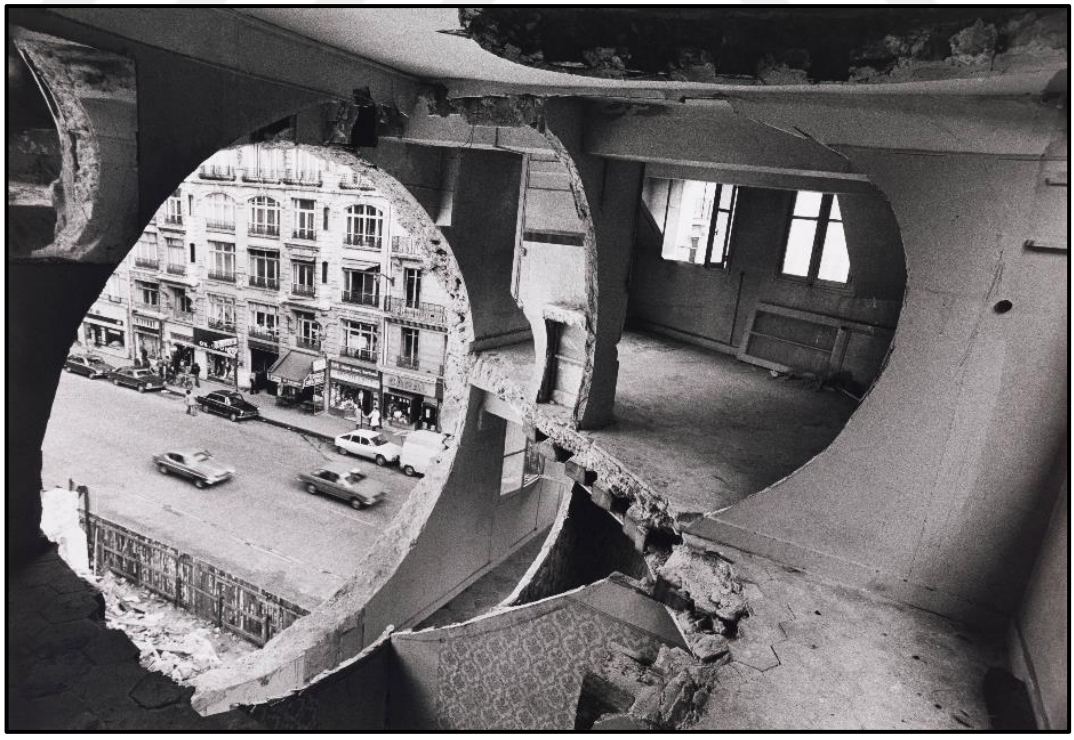


Figure 2.31. Interior of Conical Intersect, , Gordon Matta-Clark, 1975 [73]

In several interviews dating from 1974 to 1977, Matta-Clark gave hints about his contextual approach towards his art, stating that he wanted to use the existing frame of thought and image during the creation of his works, and his acts should not be considered as conservation, since he aimed to provide more than that [68, 69, 70]. Even though Matta-Clark worked on architectural spaces as an artist, his approach left considerable impact on practice of architecture.

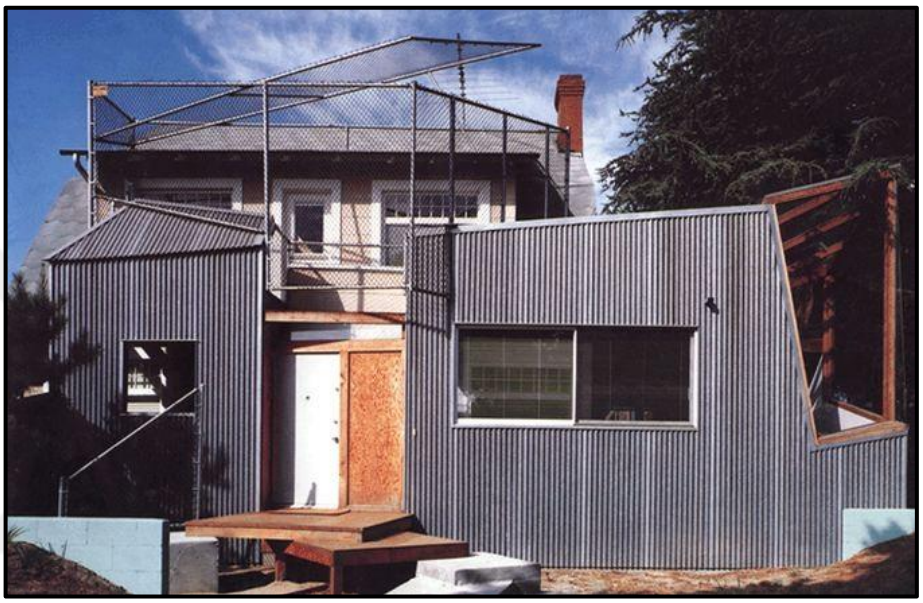


Figure 2.32. Front façade of Gehry Residence, Frank Gehry, 1978 [74]

In 1978, architect Frank Gehry worked on his two-story house (Figure 2.32, 2.33, 2.34) in Santa Monica, California, in a similar way as Gordon Matta-Clark did with his work. When Gehry purchased the Dutch Colonial style house in 1977 to accommodate his expanding family, it was a period the architect was more concerned about making a living rather than making a statement of his architectural approach. However, from Gehry's perspective, the existing house, which was assumed to be built in 1920s-30s, was suitable for experimenting due to its lacking of a dominant architectural style. The design period was a work in process for Gehry, since he altered with the final design until the last minute, even after the building permit was taken. Gehry didn't set any architectural criteria for the house, on the contrary he believed designing something in his own style would have been the easy way out. Rather he focused on working in and around the existing building and compromising with its current attributes [75, 76].

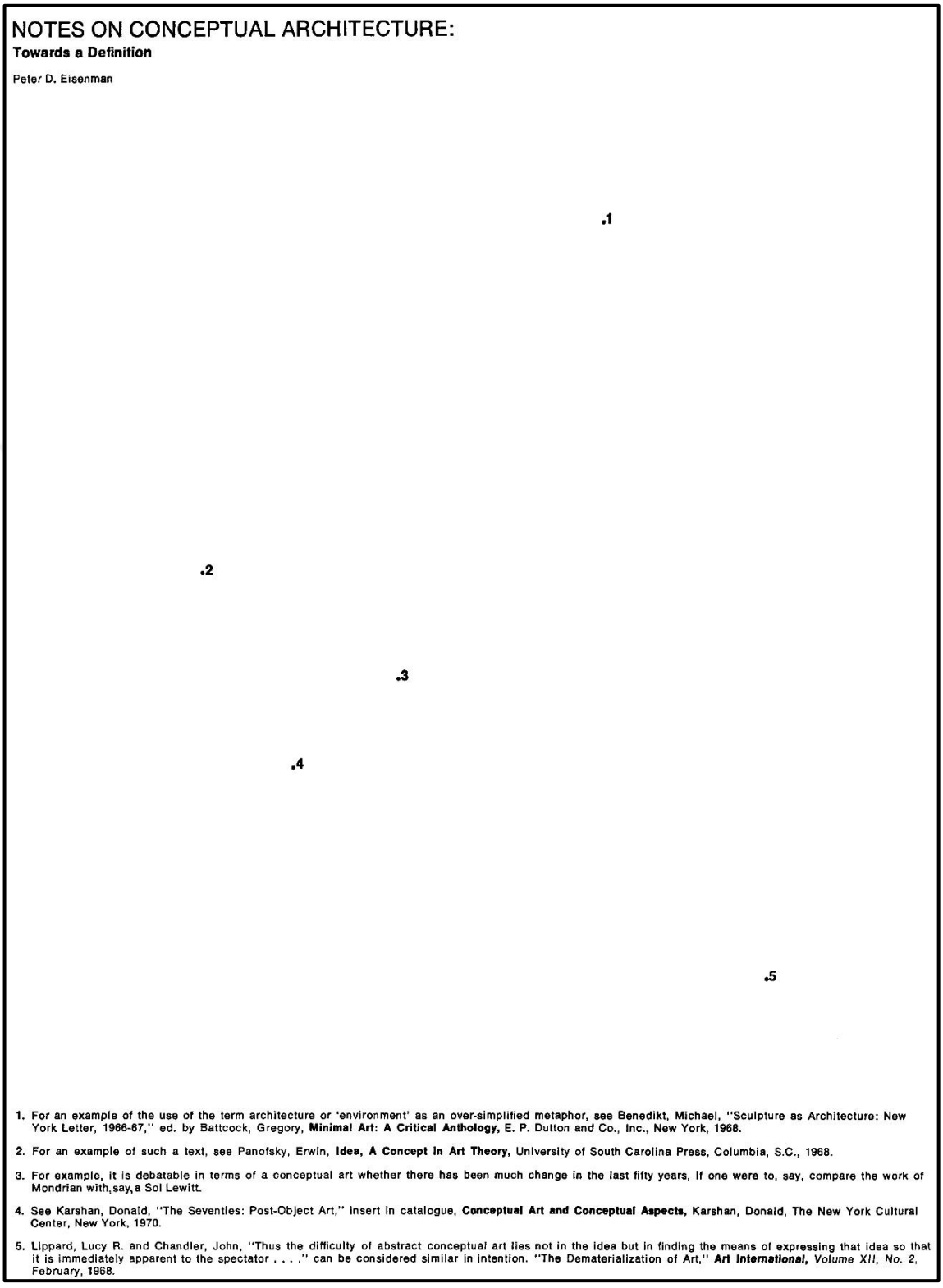
Figure 2.33. Street façade of Gehry Residence, Frank Gehry, 1978 [77]

Gehry kept the existing façade of the house but he stripped most of the walls and ceilings down to their frames, which provided him to intervene on the existing small rooms of the house. Exposing the existing framework and keeping it as it is, especially on the ceiling helped Gehry to keep the memory of the existing house. On the new façade, Gehry used corrugated metal, aluminum profiles, naked wood frames and chain link fences. Some spaces were provided with skylights, which looked like cubes dropped on the house, to maximize the benefit of natural lighting. The choice of materials for the expansion and how Gehry used them, not only blurred the distinction between the old and new, but it also created the house looking like it's still under construction. For Gehry, creating the unfinished feeling was a way to keep the design of the house viable and open to change, reflecting a continuous cycle of life. Following his initial approach, Gehry made several alterations based on his family's needs through the years, biggest one being in 1991 [74, 75, 76, 78].

Figure 2.34. Interior of Gehry Residence, Frank Gehry, 1978 [77, 79]

During the time Gehry was working on Santa Monica house, he designed three other houses with a similar design approach but none of them was realized. Another house Gehry was supposed to renovate at the time was designer Christophe de Menil's town house in Manhattan, New York. Gehry proposed Menil to remove the interior elements of the existing house and insert a new structure while keeping the old façade. He even planned to invite artist Gordon Matta-Clark to participate in the removing process, but the project was never realized [75].

Around the same time with Matta-Clark and Gehry, architect Peter Eisenman had been questioning the restriction of form taking shape based on function, which was inherited from the modern movement design approach in architecture. Starting early on from his doctoral studies in 1960s, Eisenman had focused on studying the architectural norms represented by form in architectural design. Eisenman's pursuit in freeing architectural design from conventional approaches directed him towards an approach where he suggested that form should be the mediator between the inside and outside of a structure rather than a stance of its functions [80, 81, 82, 83].



NOTES ON CONCEPTUAL ARCHITECTURE:

Towards a Definition

Peter D. Eisenman

.1

.2

.3

.4

.5

1. For an example of the use of the term architecture or 'environment' as an over-simplified metaphor, see Benedikt, Michael, "Sculpture as Architecture: New York Letter, 1966-67," ed. by Battcock, Gregory, **Minimal Art: A Critical Anthology,** E. P. Dutton and Co., Inc., New York, 1968.
2. For an example of such a text, see Panofsky, Erwin, **Idea, A Concept in Art Theory,** University of South Carolina Press, Columbia, S.C., 1968.
3. For example, it is debatable in terms of a conceptual art whether there has been much change in the last fifty years, if one were to, say, compare the work of Mondrian with, say, a Sol Lewitt.
4. See Karshan, Donald, "The Seventies: Post-Object Art," insert in catalogue, **Conceptual Art and Conceptual Aspects,** Karshan, Donald, The New York Cultural Center, New York, 1970.
5. Lippard, Lucy R. and Chandler, John, "Thus the difficulty of abstract conceptual art lies not in the idea but in finding the means of expressing that idea so that it is immediately apparent to the spectator . . . ." can be considered similar in intention. "The Dematerialization of Art," **Art International,** *Volume XII, No. 2,* February, 1968.

Figure 2.35. First page of article Notes on Conceptual Architecture: Towards a Definition, Peter Eisenman, 1970 [82]

Another aspect of Eisenman's works was focused on evaluating a design based on a contextual process instead of focusing solely on the end result. Influenced by works of philosopher Jacques Derrida, through the end of 1960s, Eisenman approached architecture as a *palimpsest* where existing elements like time, memory and history were part of the design unlike the modern movement design approach. Eisenman represented this approach through his article *Notes on Conceptual Architecture: Towards a Definition* (Figure 2.35) published in 1970, which was only consisted of references without any written text as the article body [80, 81, 82, 83].

Eisenman's design for Cannaregio Town Square project (Figure 2.36, 2.39, 2.40) in Venice was a representation of his *palimpsest* approach. In 1978, the architect was invited to develop an open public space for city of Venice, in order to improve spatial attributes of the city against the decreasing population. While the expected approach from an architect would be proposing a design akin to the existing architecture of the city, Eisenman preferred to create a distinctive design, which would appreciate the memory of the city while highlighting the change it was going through in time [81, 84, 85].

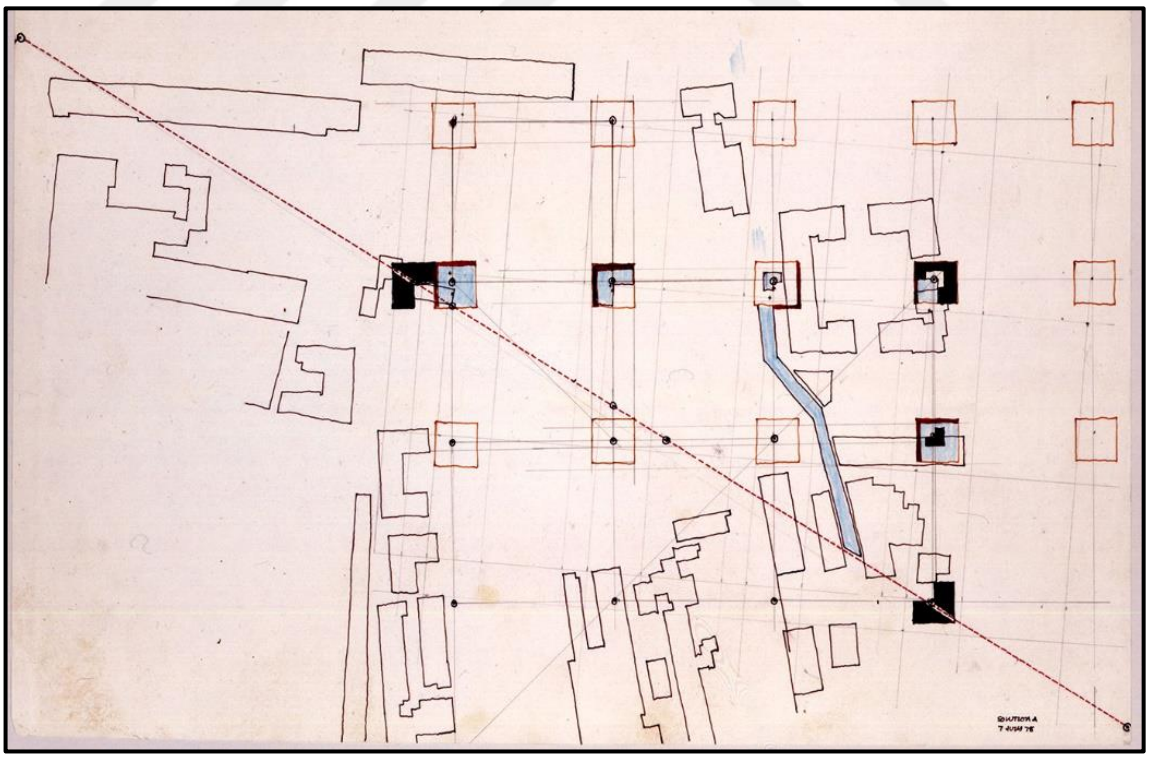


Figure 2.36. Concept of Cannaregio Town Square project, Peter Eisenman, 1978 [84]

For Cannaregio project, Eisenman superimposed three design layers, which represented *future*, *present* and *past*. The *future* was represented by the unrealized hospital project (Figure 2.37) of Le Corbusier in Venice, dated 1965. The hospital project, which was also considered one of modern movement's last designs, was scaled and inserted over the project site in Cannaregio to set up a grid as a base for the design. Some points on the grid were excavated to create voids, which represented the removal of human as a means of dimensional measurement and autonomy. From Eisenman's contextual approach, the fact that Le Corbusier's project was designed for Venice held enough grounds to provide a new future for the city, being unrealized didn't mean the idea was never existent [81, 84, 85, 86].

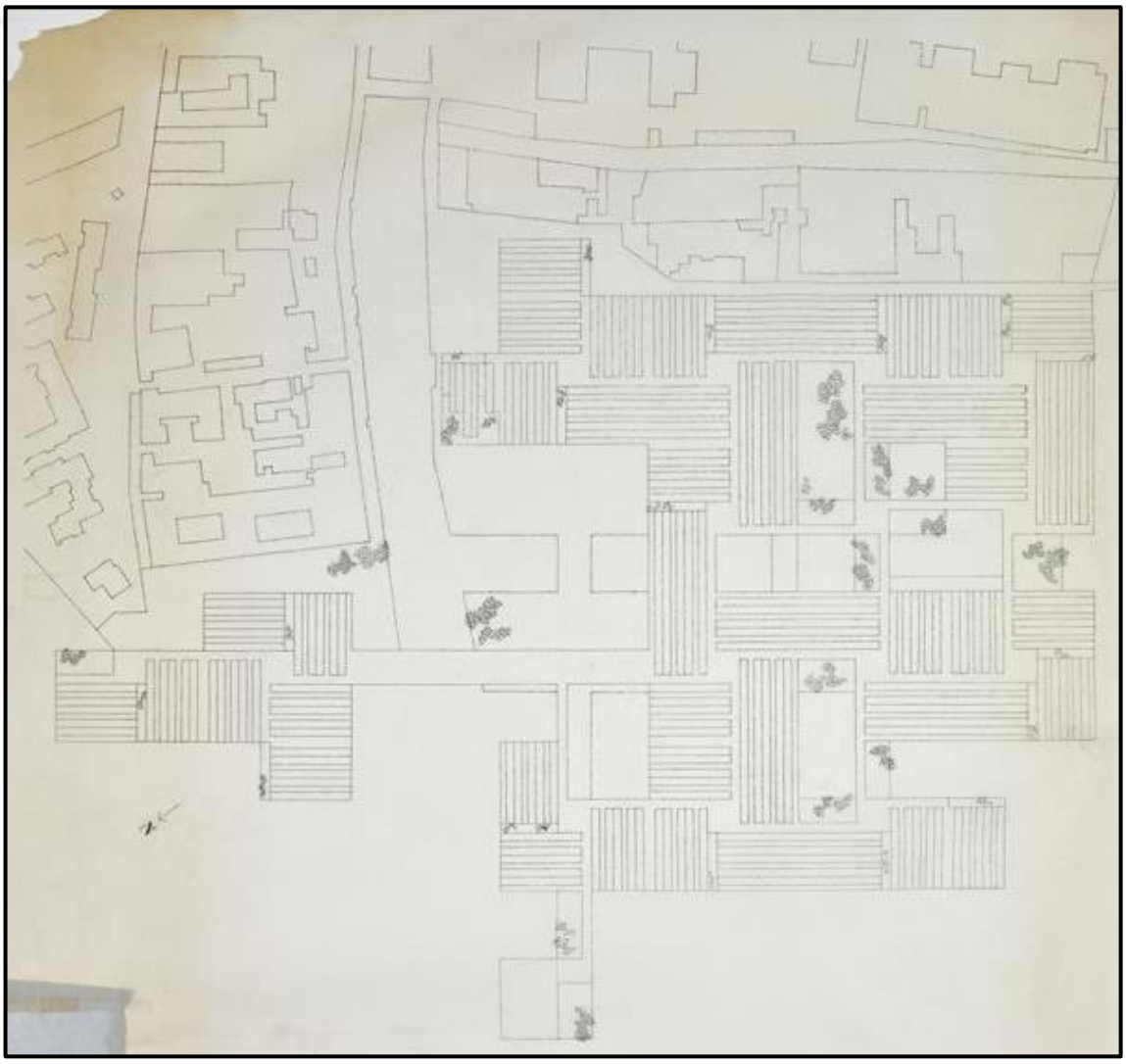


Figure 2.37. Site plan, unrealized hospital project of Le Corbusier in Venice, 1965 [87]

The *present* layer included *House XI* (Figure 2.38) in various scales, one of Eisenman's previous designs, which represented the possibility of any architectural structure being inserted over the grid. The *past* layer was a cut placed diagonally over the grid, which would reflect sections from the past into the present and future. In the end, Eisenman's work on Cannaregio was never realized [81, 84, 85].

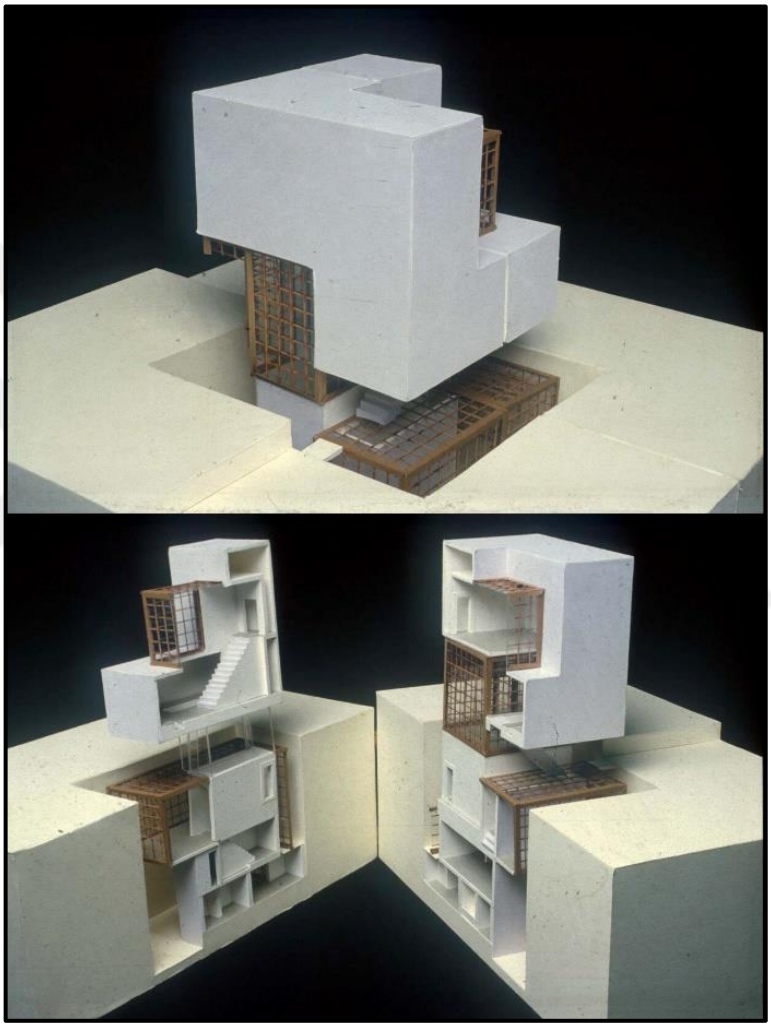


Figure 2.38. Model of House XI, Peter Eisenman, 1978 [88]

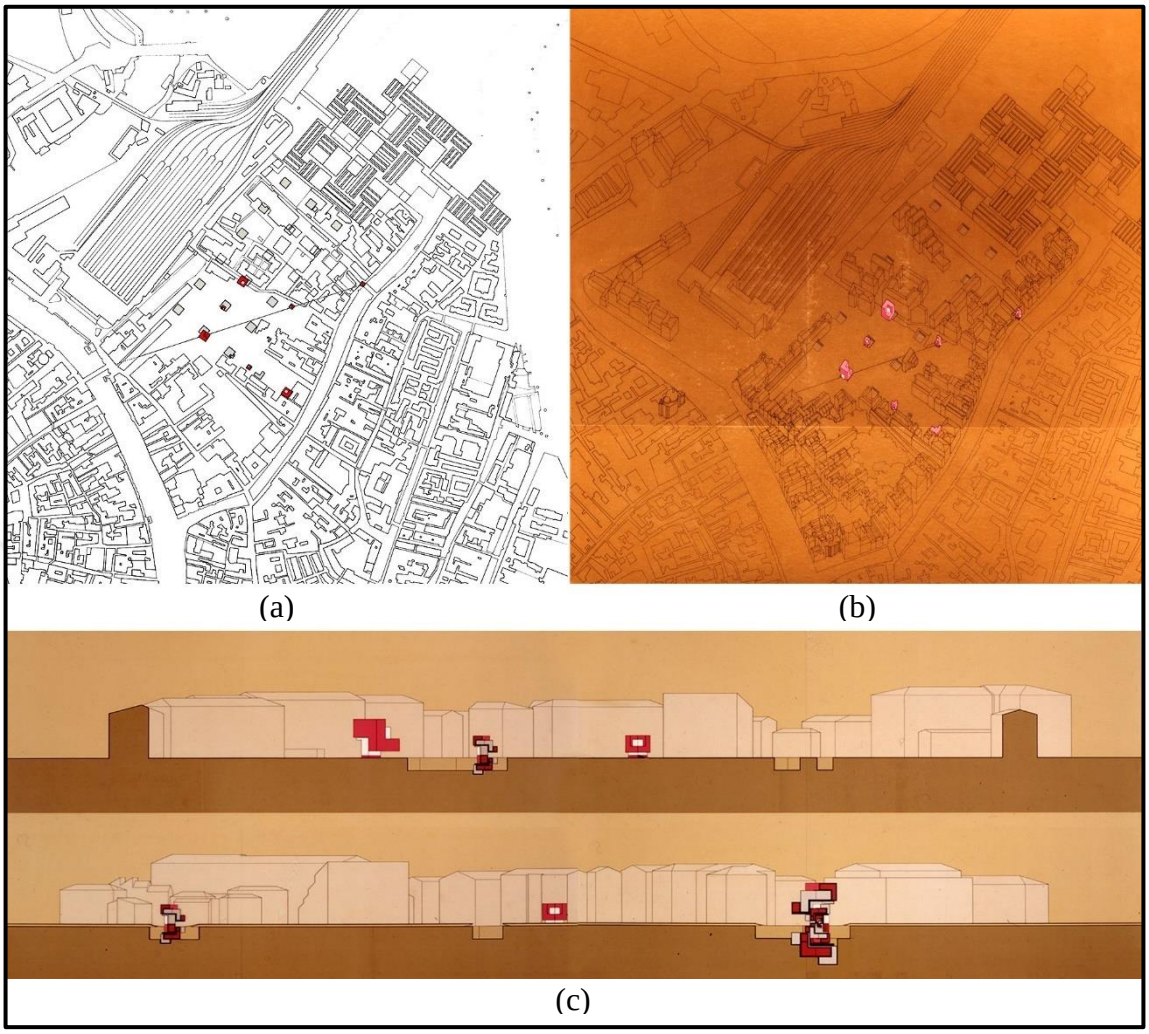


Figure 2.39. Cannaregio Town Square project, Peter Eisenman, 1978. (a) Site plan, (b) Axonometric view, (c) Section [84]

Figure 2.40. Model of Cannaregio Town Square project, Peter Eisenman, 1978 [84]

While Eisenman's take on form during 1970s was based on an autonomous approach where existing conditions were leading elements for a the idea of a particular design, architect Bernard Tschumi started questioning autonomy in architecture through a series of essays he wrote from 1975 to 1976. From Tschumi's point of view, existing conditions should not be enough for the architect during the creation process. On a general approach, the architect was considered the sole decision maker even from an autonomous perspective. Tschumi suggested that an architect should approach a design like an explorer and use the experiences he encountered during that process to uncover his design. Tschumi expressed his idea through the creation of event, which focused on the experience provided by the space rather than the space itself [89, 90].

Tschumi started visualizing his theoretical work on his essays through a series of advertisement-like photomontages called *Advertisements for Architecture* (Figure 2.41), dated from 1976 to 1977, where he emphasized the effect of experience in space in an ironic manner. A striking aspect of *Advertisements for Architecture* was the architect's use of negative themes like death and decay reflected on existing, even iconic, structures to counter attack the recognized flawless image of architecture [89, 91].

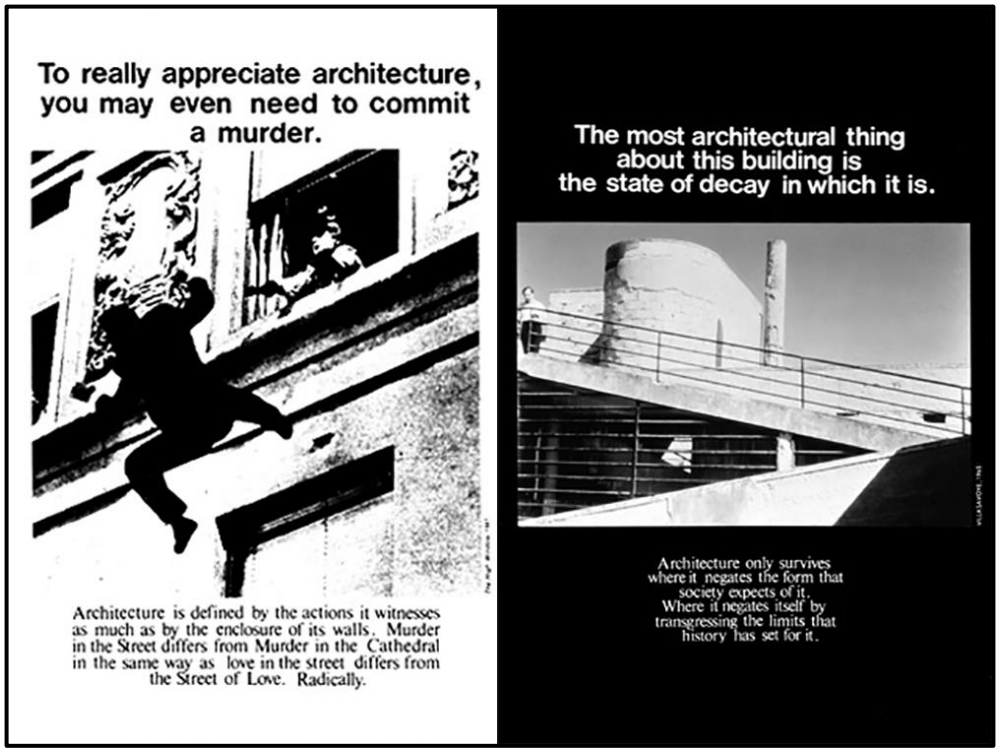


Figure 2.41. Advertisements for Architecture, Bernard Tschumi, 1976-1977 [91]

While *Advertisements for Architecture* focused on the experience of an existing singular architectural space, like Le Corbusier's *Villa Savoye*, later Tschumi expanded his focal point to an urban scale, which provided more opportunities in case of the *event* he was studying. During the period from 1976 to 1981, Tschumi analyzed the Manhattan borough of New York city in his work, *The Manhattan Transcripts* (Figure 2.42), from three distinct perspectives; the first analysis was based on photographic evidence, the second one was analysis of that existing space through its architectural drawing, while the third one was a traced path of the experiencer reflecting the actual event occurring in the space. The first two perspectives represented the traditional architectural approach with clearer limits of space, while the third one was reflecting the action of the experiencer, which was more fluent and at the same time wasn't prone to boundaries [89, 92].

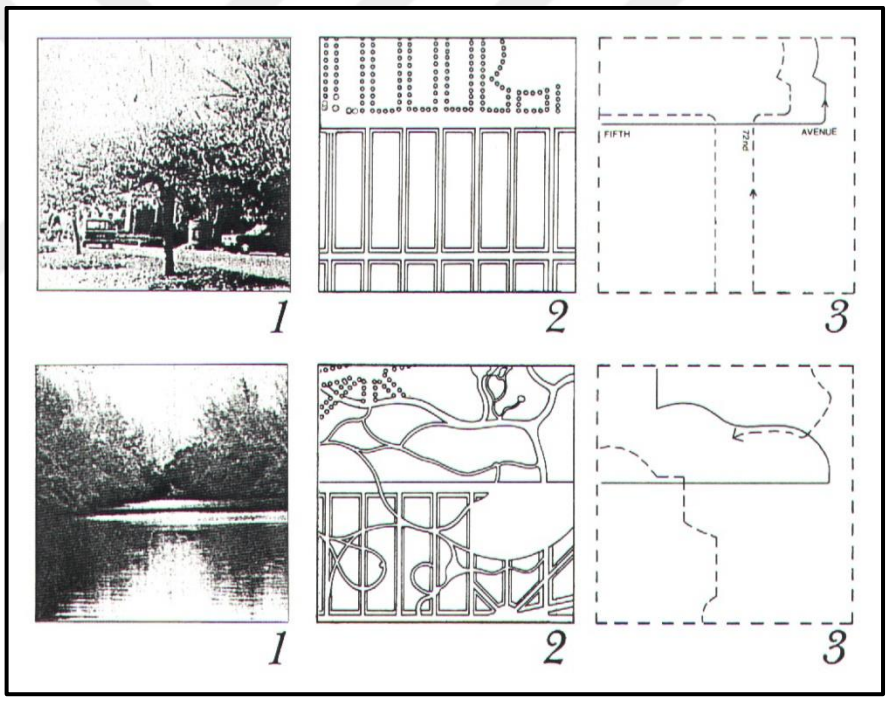


Figure 2.42. The Manhattan Transcripts, Bernard Tschumi, 1976-1981 [92]

Tschumi had the opportunity to realize his theories with the Parc de la Villette project (Figure 2.43, 2.44, 2.45) in 1982, through a competition the French Government organized. During the beginning of 1980s, the municipality of Paris was motivated to make the city more culturally cultivated and tourism oriented. The disused plot of Paris' previous cattle market and slaughterhouse along with some of the existing structures on it were decided to be developed as a city park with various cultural and leisure spaces, including a museum of

science, concert and exhibition halls, multipurpose spaces for workshops, along with cafes and restaurants [89, 93, 94].

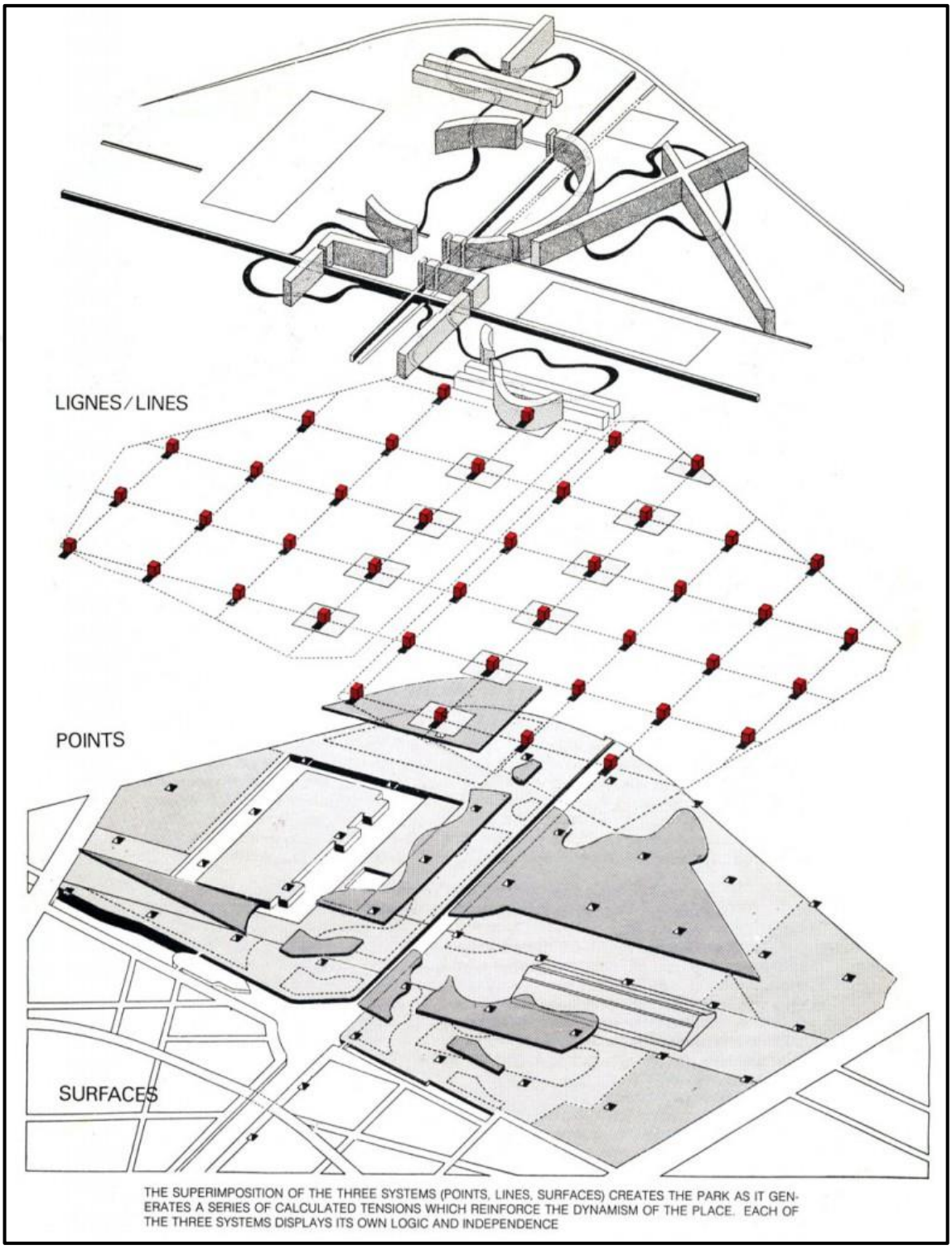


Figure 2.43. Concept of Parc de la Villette, Bernard Tschumi, 1982 [95]

For the submission with his office, Tschumi designed Parc de la Villette based on three topics, *points*, *lines* and *surfaces* (Figure 2.43, 2.44, 2.45), superimposing on the existing site. The architect inserted a grid of 120-metered spacing over the 125-acre site, creating *points*, which were represented by *folies* (Figure 2.46), ready to be adapted, based on its required program. With their red color and specific dimensions, *folies* were not only a characteristic feature of the design, but they were also the catalyst of the *events* and experience, Tschumi advocated, with their functions. Next, *lines* representing the flow of visitors, the experiencers, through the park were inserted over the grid. *Lines* would both function as passages through the park, and would give the possibility of discovery and experience of new spaces to the visitor. Lastly, *surfaces* were inserted over the plot, providing vast spaces for multiple leisure activities and visitors. Tschumi's proposal was selected for realization in 1983 amongst 471 submissions, which included projects by OMA and Zaha Hadid Architects. Parc de la Villette was opened to public in 1987, while the complex was fully completed in 1998 [89, 93, 94, 96].

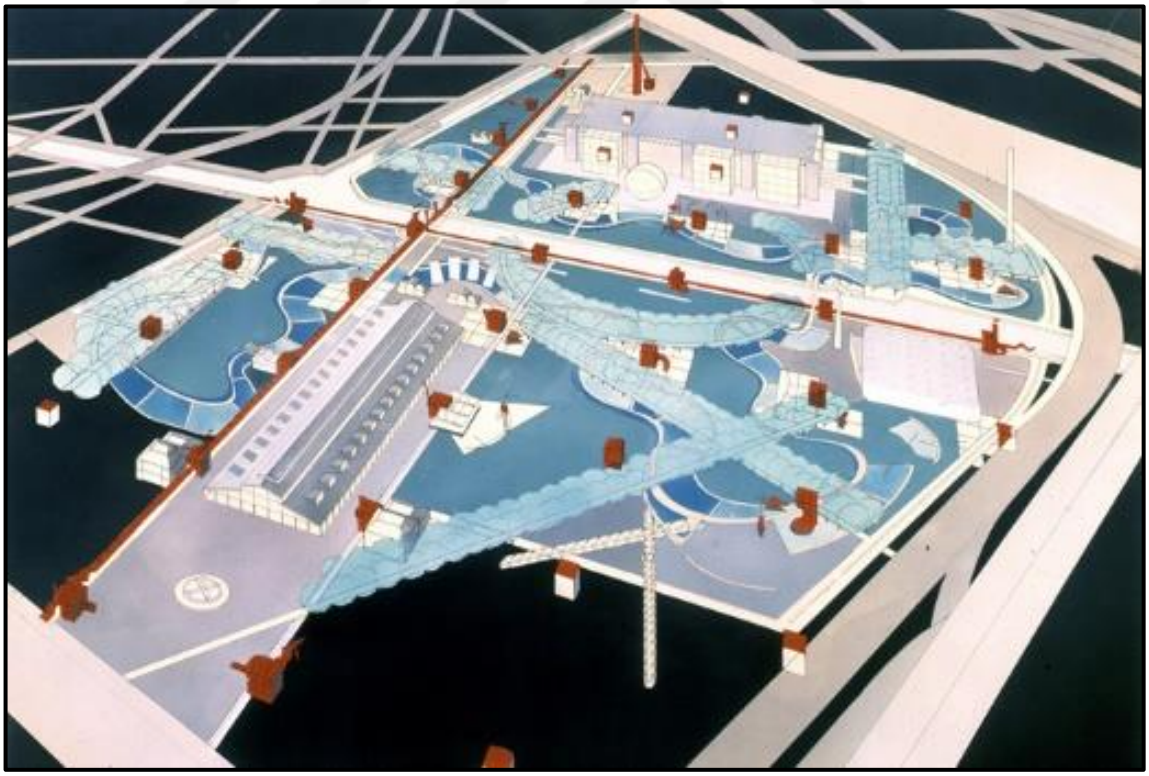


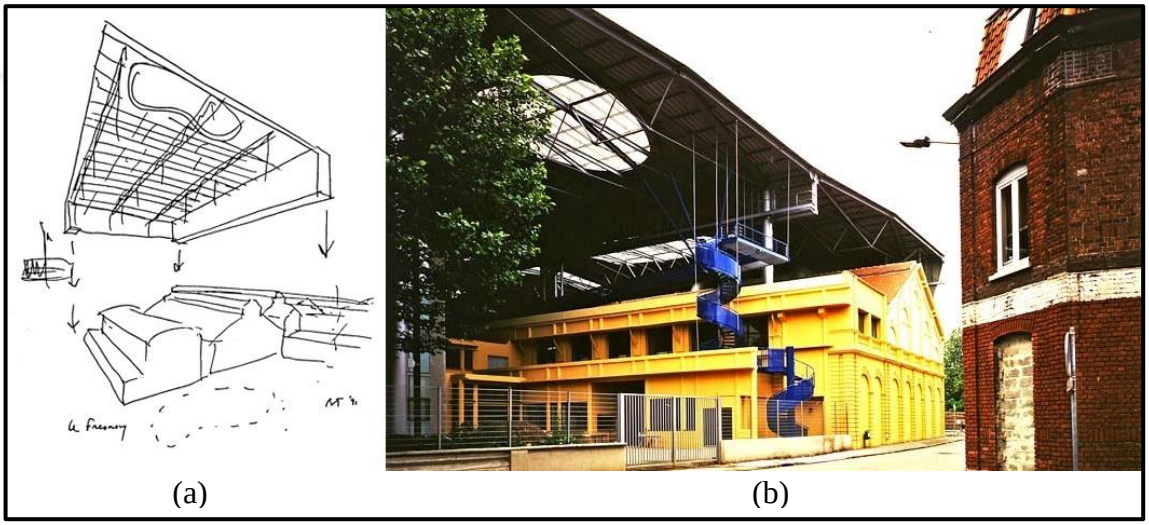
Figure 2.44. Axonometric view of Parc de la Villette, Bernard Tschumi, 1982 [97]

Figure 2.45. Aerial view of Parc de la Villette, Bernard Tschumi, 1995 [98]

Figure 2.46. Folies of Parc de la Villette, Bernard Tschumi [99, 100]

When Tschumi designed the Le Fresnoy Art Center (Figure 2.47) in 1991, in Tourcoing, France, the architect managed to combine his approach on *events* and experience with the theme of decay he worked on back in 1970s. Le Fresnoy Art Center was planned to be designed and built on the plot of a former leisure complex, which was initially built around 1920s. Due to its initial program, the existing building was consisted of broad indoor spaces,

suitable for conversion if necessary. The new program required many facilities for teaching, including laboratories, classes and offices, as well as exhibition and gallery spaces. Tschumi, restricted by the limited budget for the center, opted out from demolishing the existing structure and reused it in his design. The architect proposed the insertion of a new steel roof over the existing structure along with various new volumes to support the new functions. The new roof would also benefit the center a new space that Tschumi would refer to as *in-between*, where the existing structure's roof became the slab for the new *in-between* floor. The construction of Le Fresnoy Art Center was completed in 1997 [89, 101].



(a) (b)

Figure 2.47. Le Fresnoy Art Center, Bernard Tschumi, 1997. (a) Concept, (b) Completed project view [101]

Following the contextual approach, the *Bilbao Effect* and the emergence of *star architects* dominated 1990s and early 2000s in architecture. Ignited by architect Frank Gehry's design for Bilbao Guggenheim Museum in Spain, cities became eager to house designs with outstanding characteristics in order to gain cultural popularity, leading to a boom in *starchitecture* [102, 103]. With the turn of 21st century, cities started dealing with new issues and urgencies. Because of social, economic and structural changes, existing structures in cities all around the world started losing their original functions they were designed and built for, and created a rise in the rate of vacancy. While the vacancy problem is not so evident in parts of the world, in European and North American regions it became drastic enough for scholars and institutions to research upon the topic and look for alternative solutions to conventional approaches architects had been using so far.

3. FROM SPONTANEOUS PRACTICES TO A CONSCIOUS DESIGN STRATEGY

With the turn of the 21st century, cities across the world started confronting new problems and challenges based on social, economic and structural changes they went through. One of them was the issue of vacancy. While vacancy in cities can occur due to various reasons, mainly it emerged as existing buildings started outliving their original functions. In the past 30 years, the vacancy rates in European and North American cities increased drastically, which lead scholars and professionals to study the changes leading to vacancy in these regions. Aside from social and economic changes, the effect of deindustrialization on the vacancy of European and North American cities is observed to be stronger than other leading causes. Cities, which were developed based on traditional principles of urbanism dating back to modern movement, were no longer able to keep up with the needs of the 21st century cities, especially in dealing with the vacancy issue. These changes coaxed professionals to improve their approach on existing sites, rather than leaning towards establishing new spaces [1, 57, 104].

Another issue the cities started facing was the growing criteria of heritage preservation towards the end of 20th century, which lead to a debate of *what to keep* and *what to demolish* in cities, questioning the lifespan of a built structure and its functions. While heritage preservation and the current issues can be seen on a global scale, the dynamics of the topic in Europe are more evident [105, 106].

It's observed that authorities, architects and planners have been actively researching and working on these issues as of 21st century in means to provide future solutions to these urgencies.

3.1. VACANCY EXPOSED

Vacancy in cities can occur due to various economic and social reasons, based on global or local effects. In case of Europe and North American cities, the rate of vacancy skyrocketed after the social and economic changes cities faced during the deindustrialization period. Starting from the early 19th century, industrialization led cities towards an economic and

social growth with many job opportunities for their habitants. City centers would accommodate both housing areas and work places for habitants in a close proximity. With the advancement in technology and development in both communication and logistics, investors started relocating their production sites towards countries with cheaper labor and production costs, which resulted in the deindustrialization of well-known industrial centers in cities [104].

One of the first researches focusing on the vacancy issue was a project called *Shrinking Cities*, which was started by German Federal Cultural Foundation in 2002. The project investigated the reasons and aftermath of shrinkage in city centers across the world, whereas vacancy issue was studied as a reason of the shrinkage phenomenon [107].

Throughout the industrialization period, industrialized cities continuously grew in population and area. Manchester, being the first city to become industrialized in the world, was also the first city which had to deal with deindustrialization after the side effects of social and economic changes during 1970s. Once a city known with its harbor for trades and a developed center later became abandoned due to lack of jobs. At this period, people had already become more autonomous with the help of individual vehicle ownership and they started moving to the periphery of the city where more affordable housing opportunities and new jobs existed. This type of abandonment lead to an increase of vacancy in deindustrialized cities of various European and North American countries like Germany, Italy, England and US [104].

Depending on the severity of the situation, vacancy can lead to serious security problems, raise in crime rates and vandalism, neglect, social and economic decline in an area. During 1980s, city of Manchester had lost almost half of its population in the past fifty years, and became a ghost town with inadequate safety for living. [104, 108] City of Detroit was one of the biggest manufacturers in the automobile industry of the world in 1950s. While a decline in the industrial economy had already started due to political and racial reasons after 1960s, last blow occurred after the economic changes in 1980s. Similar to Manchester, during 1980s manufacturers moved productions to countries with cheaper work force, which ended with a drastic job loss for the habitants of Detroit. By 2000s, Detroit was an abandoned city fighting with serious poverty and improper physical conditions [104].

While social and economic changes were strong causes for deindustrialization, in case of Germany different causes were effective during the deindustrialization process. City of Leipzig, being an industrial hub starting from 19th century, was also affected negatively after the unification of East and West Germany in 1989. During the beginning of 1990s, a migration of manufacturers to western parts of Germany began with the support from the government. At the end of 1990s, Leipzig was suffering from a great population loss joined with an increasing vacancy [104, 109].

The project, *Shrinking Cities*, was also prepared to become an exhibition (Figure 3.1) under the curatorship of architect Philipp Oswalt. The exhibition was held in numerous countries including Germany, Italy, US and Japan. It was also invited to be exhibited in the Italian Pavilion of *10th International Architecture Biennial of Venice* in 2006 [107, 110]. Seeing that traditional approaches on architecture and urban planning were not enough to deal with the issues of shrinking cities, as a follow up to the initial project, a research, which compiled different types of approaches and interventions, from different architectural, urban, social, political and economic perspectives, was published [111].

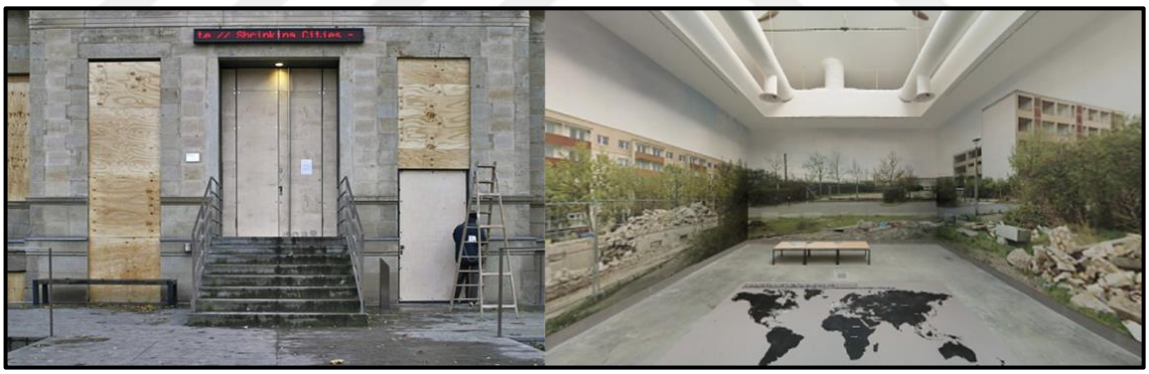


Figure 3.1. Shrinking Cities exhibition, 10th International Architecture Biennial of Venice, 2006 [112]

Germany, being one of the first countries to notice the need for transformation against suburbanization and vacancy in urban developments, also participated in the *10th International Architecture Biennial of Venice* in 2006 with the exhibition *Convertible City*, which was presented in the German Pavilion in Venice [113].

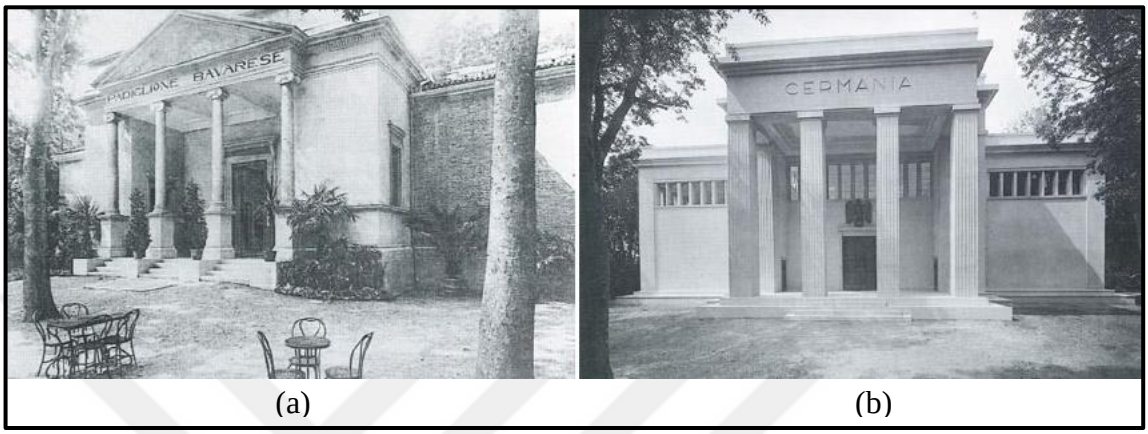
After the deindustrialization of German cities at the end of twentieth century, suburbanization and urban sprawl could be observed almost at any deindustrialized area. At

the time, German families preferred the comfort of the suburbs compared to hectic and expensive life in city centers. However, after almost 20 years, the demographic of German cities shifted. The number of traditional families with kids decreased while single parents and singles were on the rise. Aging demographic started find the life in the suburbs tiring and moving back to the city center where one can have their daily needs, housing and work in walking distance became more appealing [114].

Figure 3.2. Convertible City, German Pavilion render, 10th International Architecture Biennial of Venice, 2006 [113]

Convertible City exhibition (Figure 3.2, 3.4, 3.5) aimed to evaluate this post-sprawl period of 21st century German cities, where vacant city centers could be revived and upgraded to

meet the demands of the new demographic and their social, economic changes. Curated by architects Armand Gruentuch and Almust Ernst, the exhibition presented 36 projects, which dealt with buildings with expired functions, conversion of existing buildings, transformation of buildings with strict codes and transformation of disused urban spaces [113, 115].



(a) (b)

Figure 3.3. German Pavilion in Venice. (a) Pavilion in 1909, (b) Pavilion in 1938 [113]

The exhibition represented the main idea of this project through design of German Pavilion for the Biennale. Initially, German Pavilion was built with ancient architectural elements to reflect the characteristics of an ancient temple in Venetian style. (Figure 3.3) In 1938, the pavilion went through various renovations to adapt the structure to include German architectural elements. (Figure 3.3) The pavilion had some more renovations around 1960s, until the authorities decided to keep the pavilion without further changes during 1990s. For the *10th International Architecture Biennial of Venice*, the pavilion (Figure 3.2) received an upgrade to reflect main approaches presented in the exhibition. With the addition of a staircase and various platforms, the inert roof of the pavilion was revived to host events and serve as an observation deck. Additional structures were highlighted with the color red to be distinguished from the original pavilion and to emphasize their temporary use [113, 114].

Figure 3.4. Convertible City, German Pavilion, 10th International Architecture Biennial of Venice, 2006 [116, 117]

Figure 3.5. Exhibition from Convertible City, German Pavilion, 10th International Architecture Biennial of Venice, 2006 [117]

The Netherlands was one of the countries which saw the great potential in temporary use of vacant governmental and public buildings across the country to create workspaces for creative economy investments. NAI, Netherlands Architecture Institute, commissioned RAAAF to curate an exhibition on this topic for the *12th International Architecture Biennale of Venice* in 2010 [118, 119].

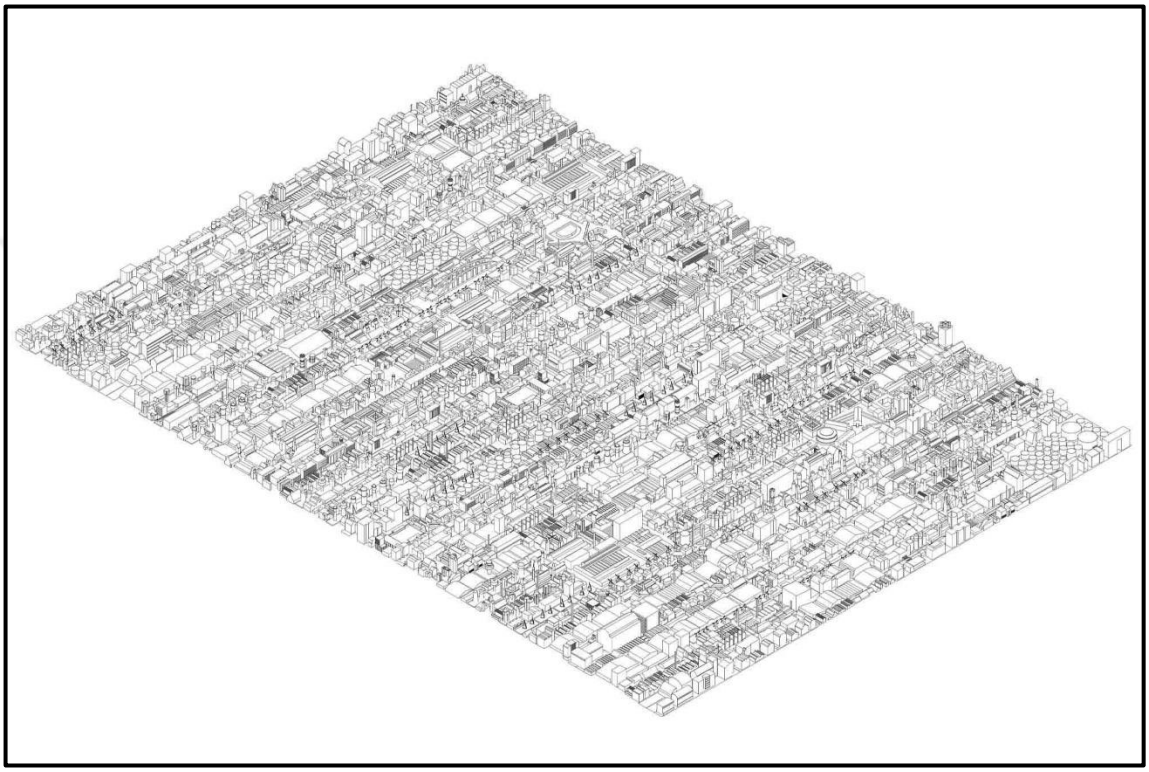


Figure 3.6. Drawing of vacant buildings in the Netherlands, catalogued in Dutch Atlas of Vacancy, RAAAF, 2010 [119]

With the beginning of 2000s, many buildings under the jurisdiction of Dutch government dating from 17th century to 21st century were vacant due to their expired functions. (Figure 3.6) These buildings included a variety of structures like airports, factories, hospitals, bunkers, etc. While the fate of some of these buildings are decided as a part of urban development plans like renovation or demolition, some are empty without proper maintenance and yet they require a certain amount of expense from the public budget to keep them secure [120].

Figure 3.7. Dutch Atlas of Vacancy, RAAAF, 2010 [119, 121]

Vacant NL exhibition aimed to draw attention to the existing vacancy phenomenon and the heritage they represent. Each public and governmental vacant building in the country was catalogued in the *Dutch Atlas of Vacancy* (Figure 3.7) and a scaled model (Figure 3.8) was installed to represent the greatness of the phenomenon. The *Dutch Atlas of Vacancy* also included with a detailed analysis of each vacant building, and possible approaches on the reusing them. Their main approach in dealing with vacancy is the use of *strategic interventions*, which can recycle the existing space without radical changes while paying homage to its memory and heritage. Through this exhibition, the curators did not only brought out the issues related with vacancy but they also suggested temporary use as a flexible solution [120].

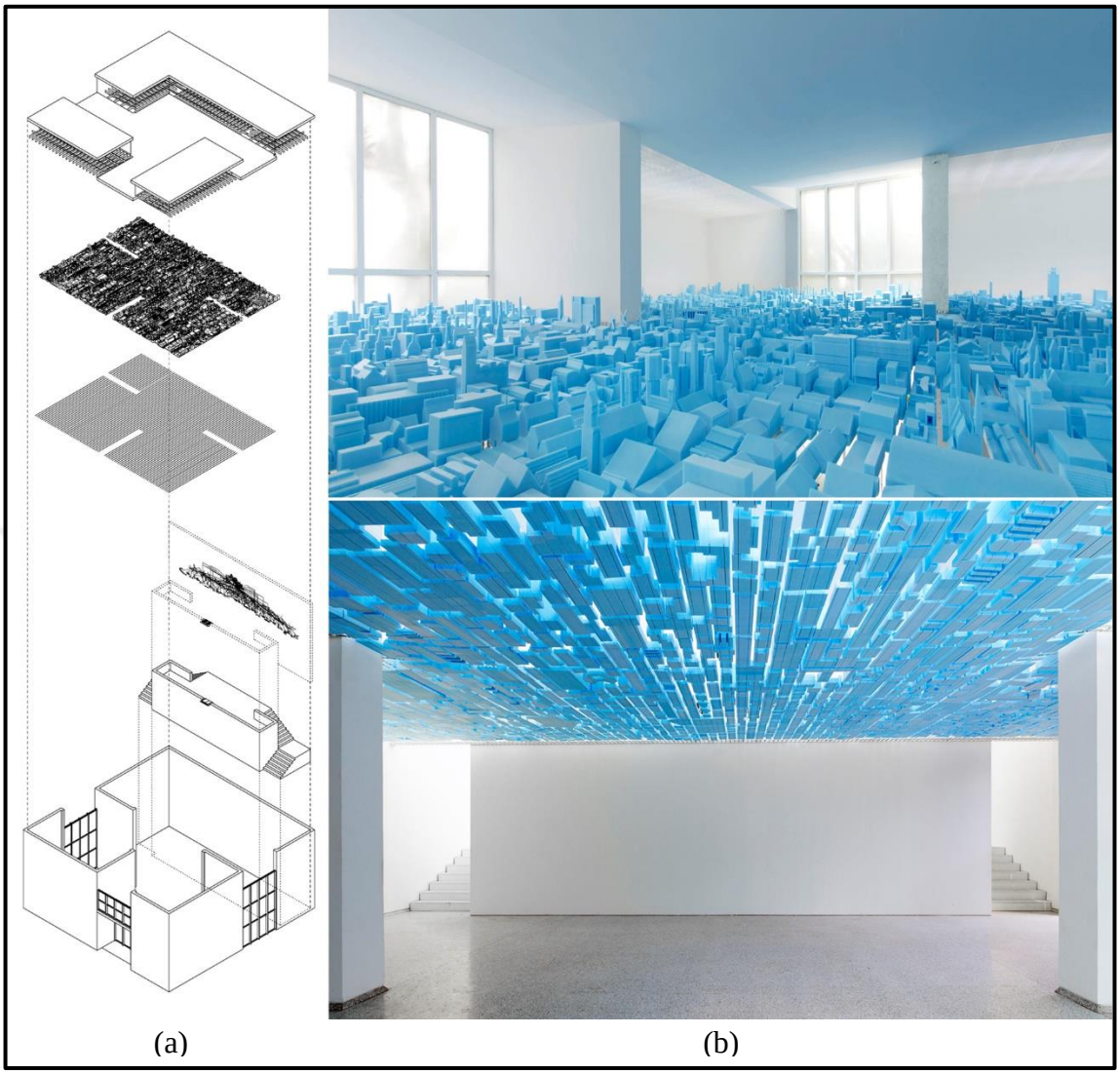


Figure 3.8. Vacant NL exhibition, 12th International Architecture Biennale of Venice, 2010. (a) Gerrit Rietveld Pavilion, exploded axonometric view of the exhibition installation, (b) Scaled model of vacant buildings [119]

Gerrit Rietveld Pavilion (Figure 3.9) in Venice, where the *Vacant NL* exhibition took place, is also a Dutch government building which is vacant for one-third of the year. Curators used this opportunity to bring attention to the vacancy issue for the visitors [120, 122].

Figure 3.9. Gerrit Rietveld Pavilion from Vacant NL exhibition, 12th International Architecture Biennale of Venice, 2010 [119, 122]

Considering these approaches surfaced out of need in each region, in means to deal with the ramifications of urban sprawl and vacancy, the studies and researches made on the topic were carried on as individualized or specified cases.

When Senior Curator of MAXXI Museum Pippo Ciorra curated the *Re-cycle. Strategies for Architecture, City and Planet* exhibition (Figure 3.10) in MAXXI Museum, Rome, in 2011, his focus was to represent how these topical issues were global problems, which were not limited to a certain scale or to the architecture discipline [1].

Figure 3.10. Re-cycle. Strategies for Architecture, City and Planet exhibition in MAXXI Museum, Rome, 2011 [123]

This exhibition took shape during a time when material recycling and introduction of simple nature elements into spaces were the trending solution to architectural issues of an already built environment. Through his work as an academician, Ciorra was aware that these approaches were not radical enough to make an impact on topical issues and the current approach was overlooking the fact that architectural space itself can be used as a resource for possible transformations. Focusing on this perspective, Ciorra worked on this idea with the thought of this approach becoming an experimental study on theory of architecture [1].

Selection of the exhibited work was decided upon a certain theme; the work needs to be able to represent the *spirit* of its time and it needs to be part of a new life cycle with the aid of a *"re-" device* which can both reference to its past and open up to new possibilities of life. This strategy creates new opportunities for a wide range of existing spaces to be recycled and revived including disused, abandoned and ordinary spaces [1].

Figure 3.11. Music on Bones [124]

Various striking works from art and architecture disciplines were presented during the exhibition. One of the exhibits was *Music on Bones* (Figure 3.11), which displayed how recycled x-rays were used to create illegal long play records of western artists like Ella Fitzgerald, Elvis Presley in Soviet Russia, to bypass the government's ban on western music. Reusing the discarded x-rays from hospitals, records were copied with the help of a press machine used in shaping vinyl. Production of these illegal records continued from 1946 to the beginning of 1960s until laboratories producing them were raided and closed down [1, 124, 125]. *Music on Bones* provided banned entertainment in Soviet Russia by transforming a material with a finished life cycle into a creative gesture through functional reuse.

Figure 3.12. Scenes from the film Steps, Zbigniew Rybczynski, 1987 [126]

Filmmaker Zbigniew Rybczynski's experimental film *Steps* (Figure 3.12), dated 1987, was part of the exhibition due to its use of scenes from the 1925 film *Battleship Potemkin*, directed by Sergei M. Eisenstein. Rybczynski reused the scene of Odessa steps from *Battleship Potemkin* film and inserted new characters, which were filmed in front of a blue curtain. With Rybczynski's editing, new characters fully interacted with the recycled scenes, creating a new plot for the film which made it possible for the director to experiment with the past and present on the same platform [1, 126, 127].

The exhibition included many architectural projects, focusing on the recycling of disused spaces. One of them is Alvéole 14 (Figure 3.13), which was initially built around the time of World War II by the German Naval Forces in harbor area of Saint-Nazaire, France, to serve as war bunkers and naval warehouse. In an attempt to transform the harbor area and create a connection between the center and the harbor, Alvéole 14 became part of the Ville-Port urban redevelopment project, which began in 1994. Final transformation of Alvéole 14 was completed in 2007, through minimal intervention strategy by LIN Architects. Staying loyal to the existing form and material of the structure, designers initiated a connection between the new functions by inserting new access paths and ramps. Developing the structure with new public functions like galleries and multi-use spaces provided a new life cycle, which would be available to the users [128, 129].

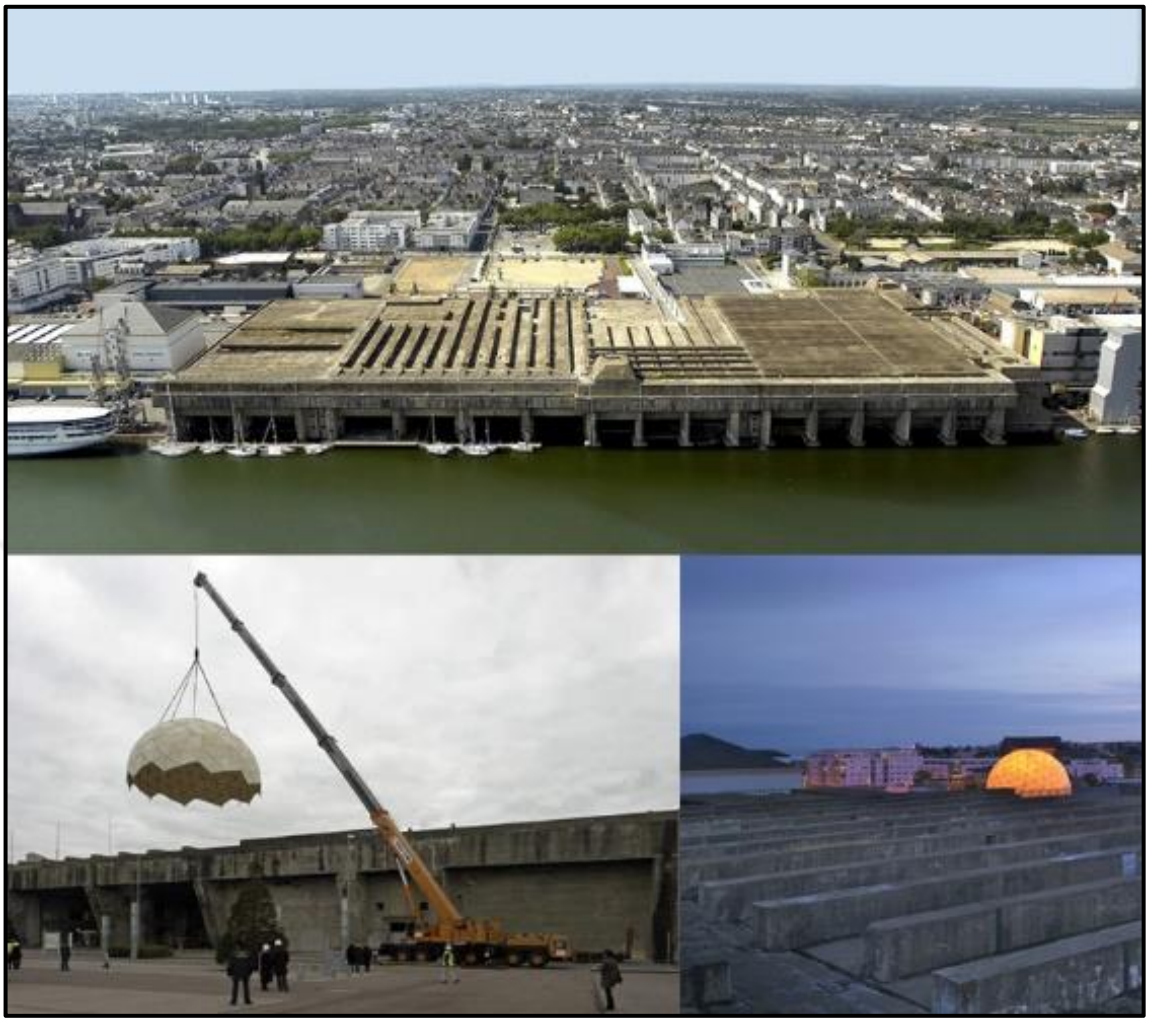


Figure 3.13. Transformation of Alvéole 14, LIN Architects, 2007 [128, 130]

Following the *Re-cycle. Strategies for Architecture, City and Planet* exhibition, a new research project in Italy, in 2013, titled *Re-cycle Italy* took off which included the joint work of municipalities, universities, associations and professionals from different disciplines and establishments. *Re-cycle Italy* research aimed to provide solutions for Italian cities, which were suffering from urban shrinkage and abandonment, even in recently built urban regions. While the research focused on developing recycling in architectural space as a strategy to improve the condition of Italian cities, another aspect of the research was proposing efficient building codes to support this strategy. The research was completed with a final presentation in MAXXI Museum, in 2017 [131, 132].

Figure 3.14. Re.architecture, Re.cycle, Re.use, Re.invest, Re.build exhibition photo, 2012 [133]

In 2012, the Pavillon de l'Arsenal in Paris organized the *Re.architecture, Re.cycle, Re.use, Re.invest, Re.build* exhibition (Figure 3.14, 3.15) under the direction of former First Deputy Mayor of Paris, Anne Hidalgo. Since Paris was one of the European cities dealing with vacancy and sprawl, the exhibition aimed to explore alternative solutions for the city. The exhibition was held with the participation of fifteen architectural establishments from Europe, which have experiences on reclaiming abandoned or disused spaces. The thirty projects exhibited in *Re.architecture, Re.cycle, Re.use, Re.invest, Re.build* exhibition presented different approaches on reclaiming various urban spaces [133, 134, 135].

Figure 3.15. Re.architecture, Re.cycle, Re.use, Re.invest, Re.build exhibition photos, 2012 [133]

Project Passage 56 (Figure 3.16, 3.17) was brought to life in 2006 through the collective work of its neighbors and Atelier D'architecture Autogerée. The project lot was a former alley opening up to Saint-Blaise Street in Paris, which had to be closed off on the other side due to a new construction. Afterwards, the lot was abandoned and future development was considered problematic due to adjacent buildings having window openings on façades facing the lot. Atelier D'architecture Autogerée was invited by Paris City Hall in 2005 to develop an urban space in the empty lot, which would create a hub for the neighborhood. Atelier D'architecture Autogerée erected a raised structure facing the Saint-Blaise Street, which would also provide entrance to a community garden located inside the lot. Initial project was completed in 2006 with the potential of becoming a more established neighborhood center, which can provide more leisure activities for the residents. By 2009, Passage 56 became a community, which would organize workshops, seminars, concerts with an established public garden. Passage 56 is still active, directed by a local group consisted of the neighborhood residents [136, 137, 138].

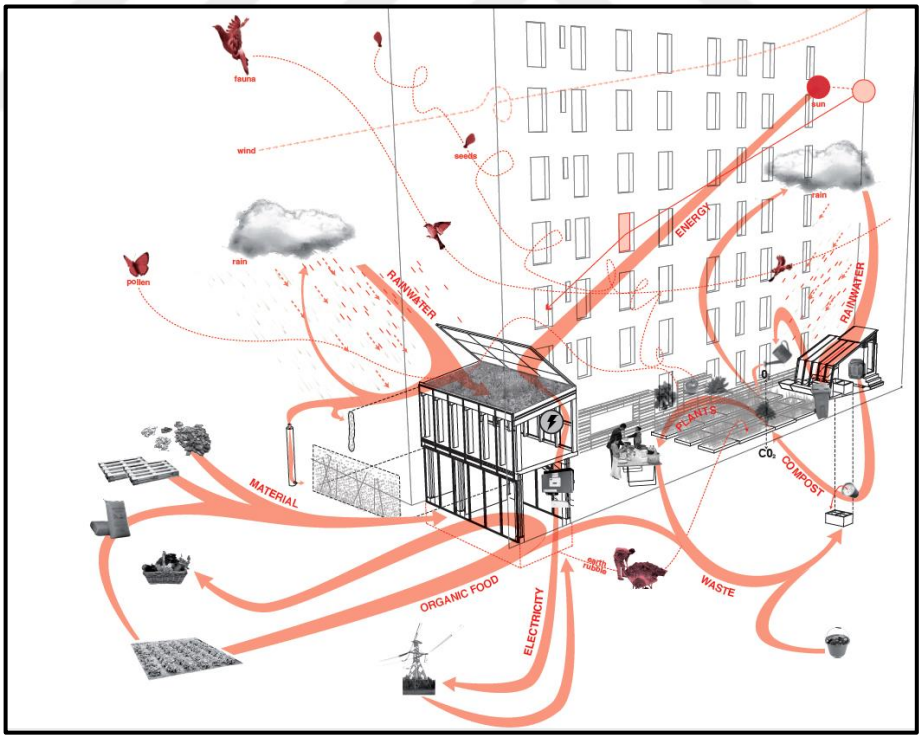


Figure 3.16. Concept of Passage 56, Atelier D'architecture Autogerée, 2006 [136]

Figure 3.17. Photos of Passage 56, Atelier D'architecture Autogerée, 2006 [136]

In 2012, Germany participated to the *13th International Architecture Biennale of Venice* with *Reduce / Reuse / Recycle* exhibition (Figure 3.18), which was curated by architect Muck Petzet. Germany, being a country that is actively dealing with vacancy and urban sprawl due to its demographic changes in the last 10 years, supported Petzet's research on adapting the reduce-reuse-recycle motto of 21st century sustainability phenomenon on the practice of architecture. With the exhibition, Petzet drew attention to the fact that Germany, being an urbanized country, spends most of its funds on construction for the existing buildings instead of funding new ones. Considering the expiration date of an ordinary building from a sustainable perspective, the best approach proposed by Petzet was prolonging the lifetime of a structure with the help of strategic and minimal interventions [139, 140].

Figure 3.18. Reduce / Reuse / Recycle exhibition, German Pavilion, 13th International Architecture Biennale of Venice, 2012 [141]

In the exhibition, under the reduce-reuse-recycle motto, eleven strategies focusing on bringing out the potential of the existing buildings with minimum effort are proposed. *Reduce* proposes *perception*, *behavior* and *maintenance*, suggesting that reclaiming an existing structure doesn't have to include huge additions or interventions all the time. A simple change in the way one perceives a space, approaching the space with a different manner or simply taking care of the existing shortcomings of the structure can prolong the lifespan of a building. *Reuse* proposes all types of *renovation*, *conversion*, *infill* solutions, *redesign*, *subtraction* and *addition*. From a simple addition to a radical one, if the proposal is giving the existing building a second chance, the design solution should be applied. *Recycle* proposes *material recycling* and *Gestalt recycling*, which focuses on both a materialistic and a conceptual recycle based on the status. Specifically, structures with a certain historical past are considered to be evaluated under this topic [139, 140].

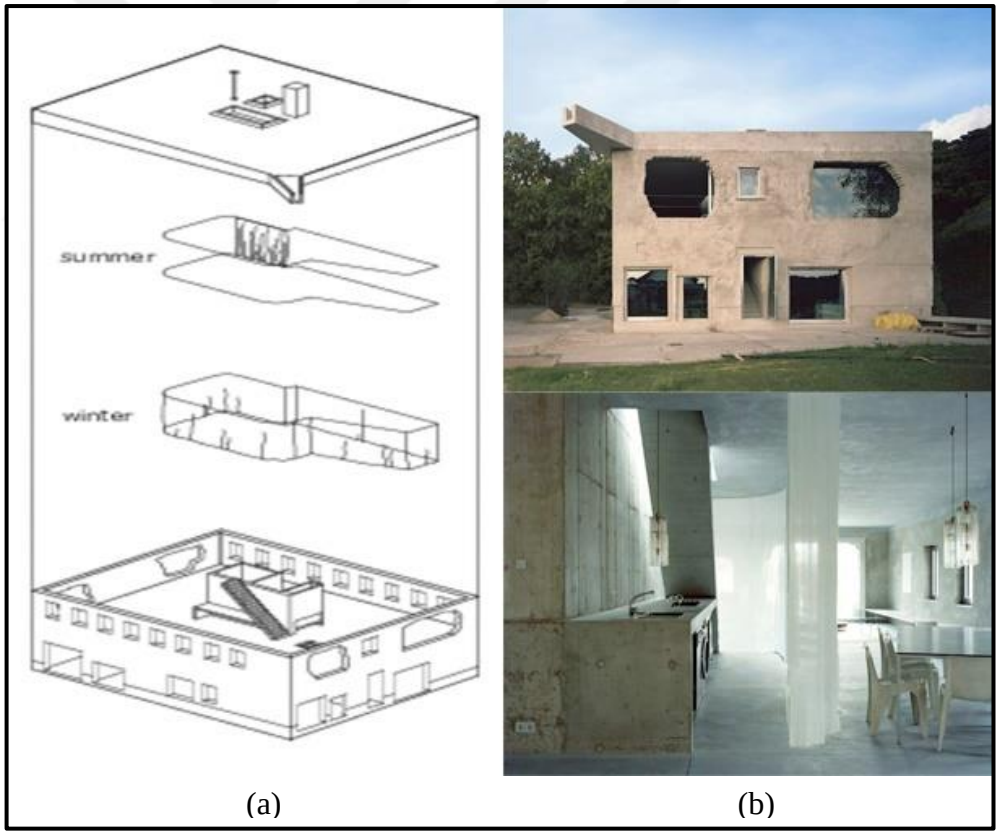


Figure 3.19. Antivilla, Brandlhuber+ Architects and Urban Planners, 2015. (a) Concept, (b) Project photos [142]

An example project from the *Reduce-behavior* category is the housing project Antivilla (Figure 3.19) by Brandlhuber+ Architects and Urban Planners, which was completed in 2015. Antivilla was initially built under German Democratic Republic in Potsdam, Germany, as a lingerie factory and later abandoned. Since demolition of the existing factory would cost greatly, joined with a strict construction area limit in case of rebuilding, it didn't gather much interest from potential buyers. Brandlhuber+ proposed inserting a residential space inside the existing factory building while minimizing the budget. A new roof was installed which was supported with a new structural core. New openings were created on the existing masonry façades in favor of the view [142, 143].

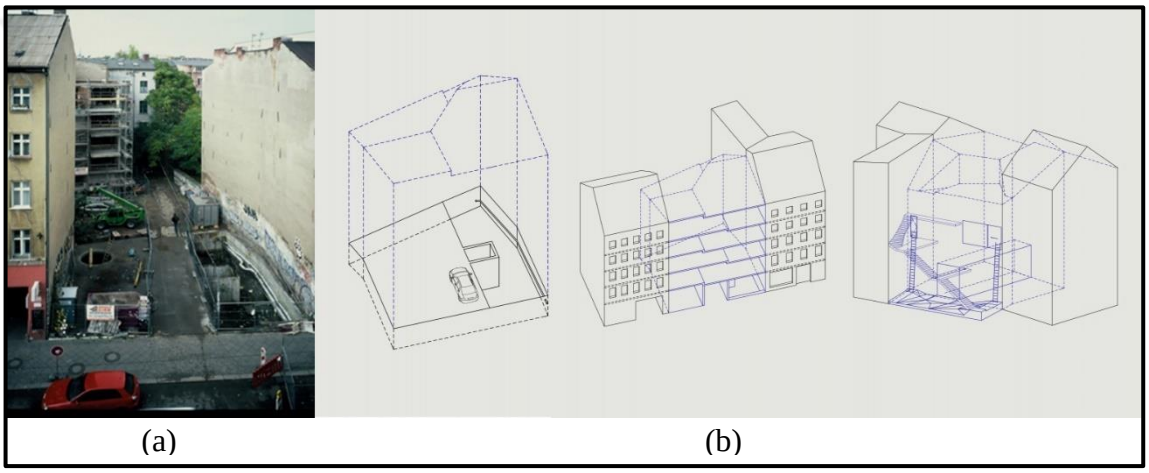
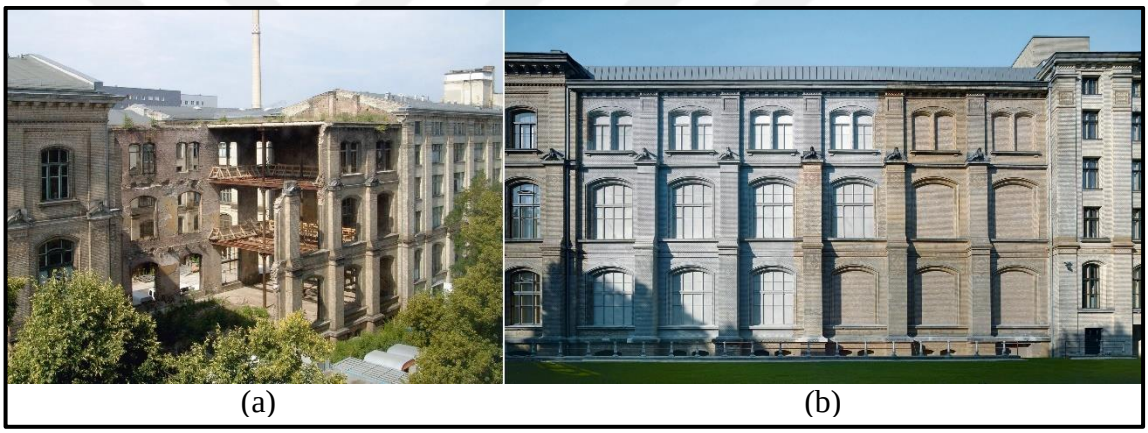


Figure 3.20. Brunnenstrasse 9, Brandlhuber+ Architects and Urban Planners, 2010. (a) Existing site, (b) Concept [144]

Figure 3.21. Brunnenstrasse 9, Brandlhuber+ Architects and Urban Planners, 2010 [143, 145]

Brunnenstrasse 9 (Figure 3.20, 3.21), which falls under the *Reuse-infill* category, was another project completed in 2010 by Brandlhuber+ Architects and Urban Planners. Located in Berlin, Germany, the construction of the initial building had started in the beginning of 1990s but left abandoned after the completion of its basement in 1994 due to financial problems of its former owner. The plot was located between two buildings and it already had a passage connecting the main street to a path leading to a courtyard. Brandlhuber+ proposed a design based on the environmental restrictions. Keeping the existing basement and elevator shaft, the new design used the existing structure for support. Floor heights of the new building was decided according to the adjacent buildings to make it able to blend in with the existing street façade. Now, Brunnenstrasse 9 houses KOW Art Gallery along with a publishing house and residential units [144, 145, 146].



(a) (b)

Figure 3.22. East Wing, The Museum of Natural History, Diener & Diener Architekten, 2010. (a) Before, (b) After [147]

The Museum of Natural History in Berlin, Germany, houses an example from the *Recycle-Gestalt recycling* category with the recovery project of its East Wing. (Figure 3.22) The initial museum building was built in 1889 with three wings. During the World War II, a bomb attack destroyed most of the East Wing to ruins, which was kept untouched until 1995. With the need of a new section to house the wet collection of the museum, recovering the East Wing was commissioned to Diener & Diener Architekten. Museum's wet collection required a temperature and light controlled space. Diener & Diener proposed recovering the demolished wing by keeping the existing façade as it is and rebuilding the demolished parts according to the original. For the rebuilding, molds from the opposite wing were prepared

and the new façade was cast in reinforced concrete in full detail. Window openings of the existing façade was closed using a similar material to the existing one to provide light control. East Wing was completed in 2010. While the form of East Wing is preserved, the demolished part is highlighted with the use of a different material, helping its memory to survive [147, 148].

With the *Reduce / Reuse / Recycle* exhibition and his academic work, Petzet promoted the use of existing architectural stock as a resource for recycling. In 2016, Petzet started an online archive presenting projects from *Reduce*, *Reuse* and *Recycle* categories as a continuation of *Reduce / Reuse / Recycle* exhibition [149, 150].

While vacancy can occur due to various social and economic effect, in case of Spain the economic changes following the European financial crisis in 2008 triggered rates of vacancy in the country. Spain, being a country with high rate of homeownership, had a growing housing market starting from 1980s. Long-term mortgage opportunities in the country led to excessive housing constructions and dramatic increases in house prices. When the financial crisis hit Spain in 2008, most of the ongoing constructions in the country came to a halt, starting with the housing complexes. One of the best representations of the abandonment in Spain can be observed in Spanish photographer Markel Redondo's photography project *Sand Castles*. (Figure 3.23) The project includes photos of abandoned residential areas, unfinished housing units and various abandoned public structures in Spanish cities, dating from 2010 to 2012 [151, 152, 153, 154].

Figure 3.23. Unfinished houses of Spain, Sand Castles, Markel Redondo, 2010-2012 [154]

Spanish Pavilion for the *15th International Architecture Biennale of Venice* in 2016 covered the abandonment issue Spain was facing after the economic crisis through the *Unfinished* exhibition. (Figure 3.24) After 2008 crisis, Spain was left to deal with two main problems regarding from the architectural perspective; first problem was the excessive amount of unfinished constructions, which were left to their demise due to insufficient funds, while second problem was existing buildings getting abandoned due to expired functions or due to high management costs. The curators of *Unfinished* exhibition, Inaqui Carnicero and Carlos Quintans Eiras, aimed to present these issue via selected photograph series during the exhibition [155, 156].

Figure 3.24. Unfinished exhibition, Spanish Pavilion, 15th International Architecture Biennale of Venice, 2016 [157]

One of the photograph series was *Spanish Dream* (Figure 3.25) by Cadelasverdes Collective consisted of Architects Ana Amado, Marta Marcos, Luz Paz. Photos from the series present the abandoned and unfinished housing units after the 2008 economic crisis in Spain, staged to reflect the daily routines of their hypothetical residents. The work aims to criticize the desire of homeownership of Spanish people, similar to the American Dream and how people forgot to realize having a home has nothing to do with the space but with the families forming it. While the photos for the series were taken in Galicia region, in 2011, it managed to represent the overall problem the country was facing [158, 159, 160, 161].

Figure 3.25. Spanish Dream, Cadelasverdes Collective, 2011 [159]

Under these circumstances, *Unfinished* proposed architects to reevaluate the conditions of design and encouraged them to work with existing structures by presenting 55 realized projects from Spanish architects, which focus on recovery of abandoned or unfinished buildings. While the selected 55 projects vary in types of construction or intervention, they hold a common point of reviving passive structures back to life. Selected projects were gathered under nine categories based on the intervention approach, as *consolidate*, *reappropriation*, *adaptable*, *infill*, *reassignments*, *naked*, *perching*, *guides* and *pavements* [155, 162, 163].

Consolidate category includes projects which went through a phase of getting rid of certain existing parts in able to create a more stable space. *Reappropriation* category includes the transformation of existing disused and abandoned buildings varying from industrial spaces to churches, factories and stations. *Adaptable* category presents spaces, which can be transformed for their new use by rearranging the existing elements of the space. *Infill* category includes interventions with new elements, which depends on the existing space to exist. *Reassignments* category includes projects, which make new uses of traditional and existing materials in order to revive spaces. *Naked* category includes projects, which encourage an incomplete approach, which can appeal to the circumstances based environmental conditions. *Perching* category presents projects, which become hosts to the additional construction to recover itself. *Guides* category presents projects, which are the result of a certain juxtaposition of the existing space with a new design pattern. *Pavements* category presents public spaces, which manages to keep up the memory of the space along with the new intervention [155, 162].

Figure 3.26. Barberi Space, RCR Arquitectes, 2006 [164]

Barberi Space (Figure 3.26), a project from the *Reappropriation* category, was initially built as a foundry in the beginning of 1900s in city of Olot, Spain. The abandoned foundry was in a state of decay and neglect when RCR Arquitectes purchased it in 2004 to convert it into their main office. The existing structure included traditional building elements like stone walls, wood beams and ceramic works. By using modern materials like steel and glass, architects transformed the space into an efficient work environment while reflecting the memory of the existing structure. Transformation of the foundry was completed in 2006 and RCR Arquitectes have been homed here since then [164, 165, 166].

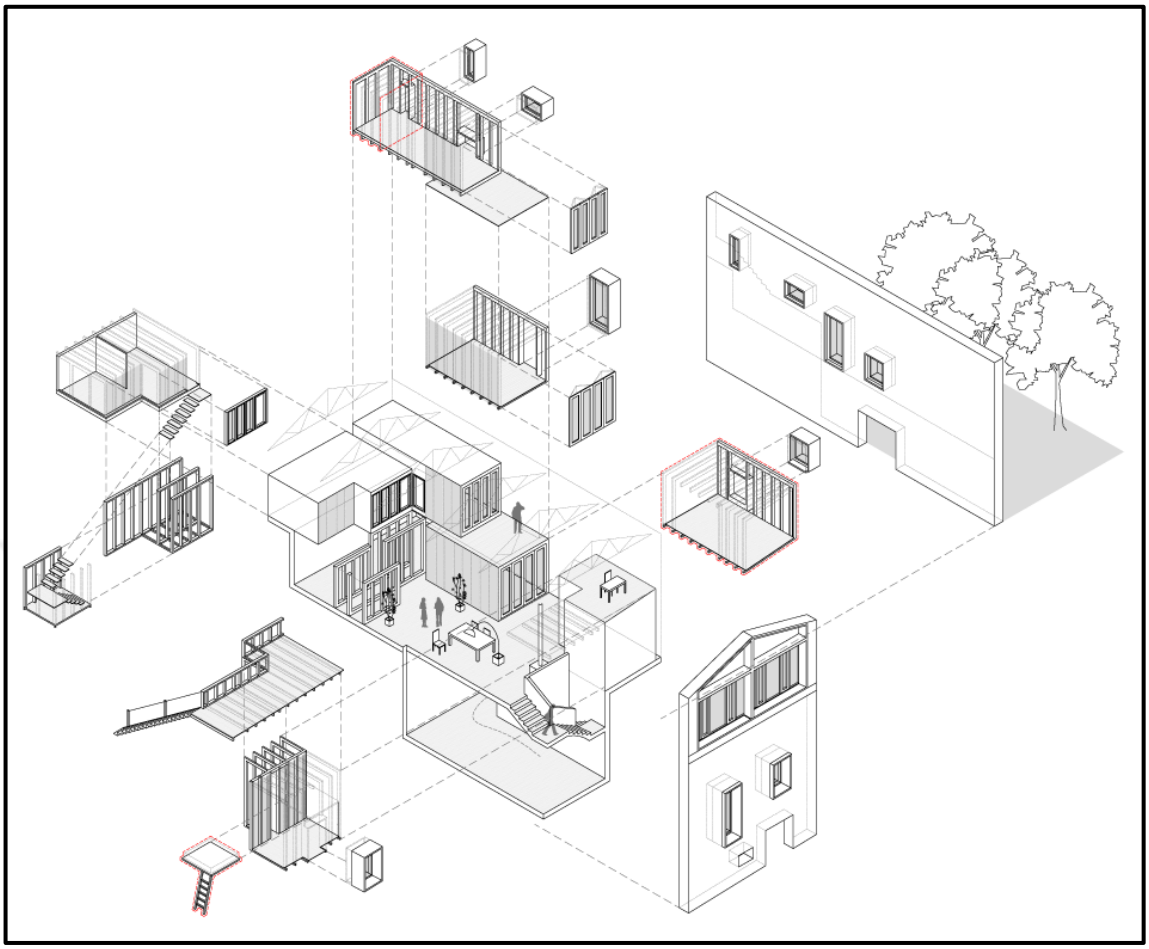


Figure 3.27. Exploded axonometric view of Cinema Lidia, Nuria Salvado and David Tapias Monne, 2005 [167]

A project from the *Adaptable* category is Cinema Lidia (Figure 3.27, 3.28) by architects Nuria Salvado and David Tapias Monne. Located in Riudecols, Spain, the project building was initially used as a gathering space for the town and later turned into a cinema. When the owner bought the property in 2003, the cinema had long been out of use and abandoned. Even though the condition of the abandoned cinema was not the best for inhabiting, the owner wanted to turn it into a home and a live-in studio within her budget. Architects Nuria Salvado and David Tapias Monne proposed the insertion of container sized wooden structures in the existing space, which could be replaced or moved in need due to their lightweight nature. The project was completed in 2005, but an additional unit inside the house was later designed by the architects per the owners request in 2011 [167, 168, 169].

Figure 3.28. Cinema Lidia, Nuria Salvado and David Tapias Monne, 2005 [167]

While vacancy in European and North American cities had been remarkable enough to be researched on it, it's an ongoing global issue. Vacancy occurring due to local reasons can be observed almost anywhere around the world.

3.2. PRESERVATION RELOADED

Preservation of architectural heritage is a vast practice, which focuses on various approaches from conservation to restoration of architectural assets with cultivated historical backgrounds or structures with monumental values of the past. Even though preservation practice handles structures with historical significance, the tool of preservation is considered an invention of modernity; a tool working towards keeping the image and features of a built structure, which dates back to a certain time in the past [105, 106, 170, 171].

Preservation practice was recognized as a law for the first time during the end of 18th century in France, setting the criteria for preservation, conservation and restoration based on the historical and monumental significances of built structures. However, in the last two hundred years, criteria for architectural preservation broadened in a drastic manner. One of the most comprehensive and early preservation laws was *Ancient Monuments Protection Act* of 1882, in Britain, which was passed for the protection of artifacts and monuments dating back to prehistoric times. After a short time, the law had a revision in 1900 to include structures dating till the beginning of 1700s under its protection. While further revisions were being made through the first half of 1900s, with the *Historic Buildings and Ancient Monuments*

Act of 1953, 20th century structures were included under the protection of preservation law in Britain [170, 172].

With the growing attention towards preservation and every country following their own approach on the practice, the need for an international guideline was brought up in the *Second International Congress of Architects and Technicians of Historical Monuments* in 1964, Venice. The congress resulted with the preparation of *International Charter for the Conservation and Restoration of Monuments and Sites*, also known as the *Venice Charter*, which broadened the usual preservation criteria from the sole preservation of an architectural work to the preservation of urban and rural sites with significant cultural attributes [173, 174, 175]. Following the *Venice Charter*, UNESCO's *Convention Concerning the Protection of the World Cultural and Natural Heritage*, dated 1972, redefined the criteria of preservation in a much broader sense, which included the expanded environment of an architectural work, industrial sites, works of vernacular architecture, natural and cultural sites or routes with significant features [106, 171, 176]. After the Convention in 1972, many revisions and developments were made to improve preservation of heritage sites. Especially during 1990s, preservation of modern structures, dated to the first half of twentieth century became a hot topic, which resulted in the establishment of various institutes and organizations specialized in this area [177]. However, the protection of contemporary developments was officially introduced on an international level in UNESCO's *Vienna Memorandum on World Heritage and Contemporary Architecture - Managing the Historic Urban Landscape* in 2005 [178].

While the starting point of these criteria expansions on preservation comes from a professional approach and most certainly with good intentions on conservation of built heritage, the decrease of the period between the realization of a structure and its preservation became a topical issue on the 21st century. Architect Rem Koolhaas drew attention to this circumstance in 2004, at a conference he gave in Columbia University, *Graduate School of Architecture, Planning and Preservation*, stating that in the last two hundred years we jumped from preserving ancient structures to the very contemporary ones regardless of history, heritage or function. (Figure 3.29) As a result of this approach, he stated that not only every built structure is now *susceptible to preservation*, but also preservation practice started to become overwhelming and started dominating the architecture scene so much that once known as a retroactive practice might no longer be one [105].

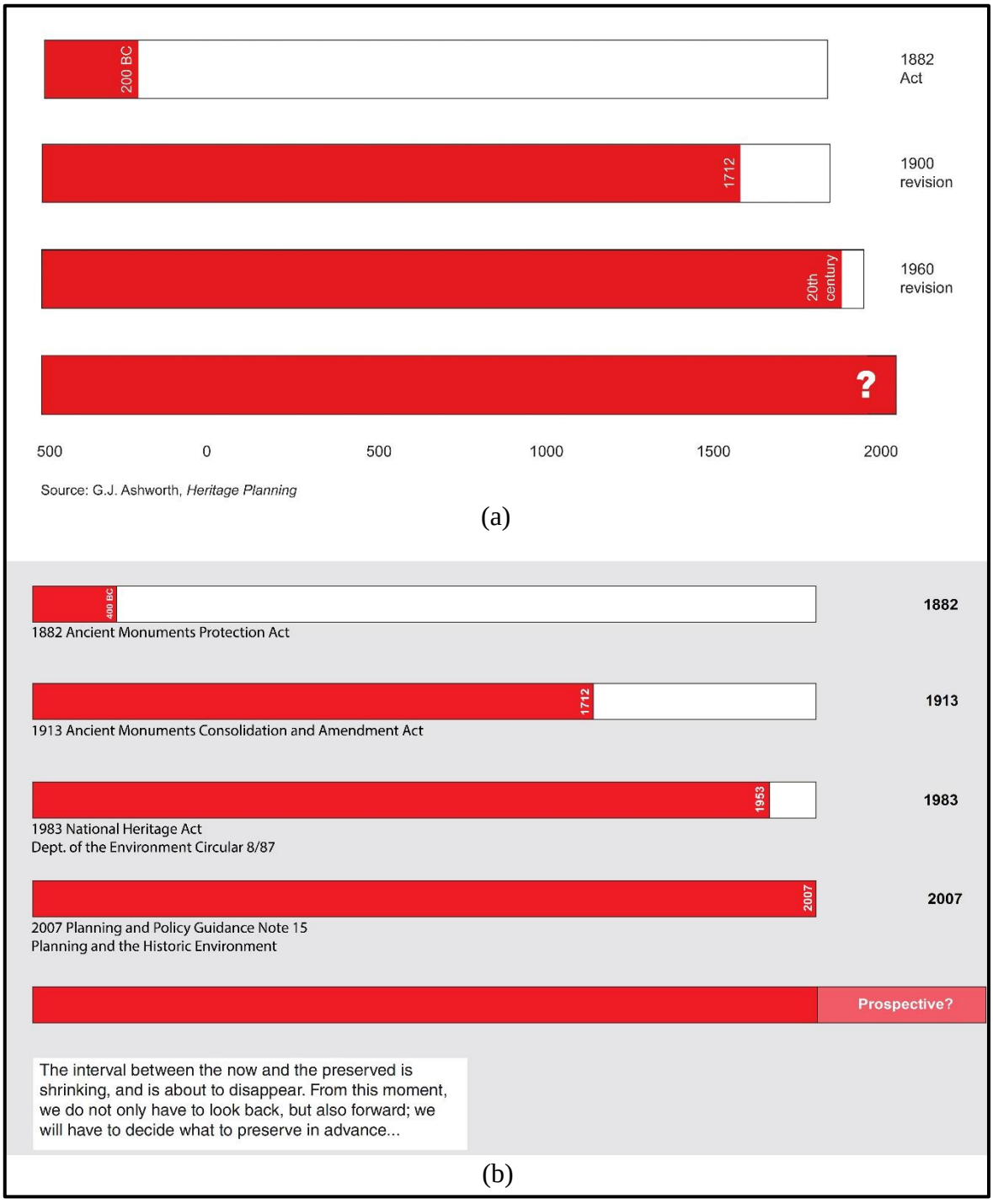


Figure 3.29. Interval chart of preserved structures based on the time they were built and the time they were preserved, Rem Koolhaas. (a) Chart presented in the conference at Columbia University, Graduate School of Architecture, Planning and Preservation, 2004 [179], (b) Chart updated for Cronocaos exhibition, 2010 [180]

> We then looked at the history of preservation in terms of what was being preserved, and it started logically enough with ancient monuments, then religious buildings, etc. Later structures with more and more (and also less and less) sacred substance and more and more sociological substance were preserved, to the point that we now preserve concentration camps, department stores, factories, and amusement rides. In other words, everything we inhabit is potentially susceptible to preservation. That was another important discovery: The scale of preservation escalates relentlessly to include entire landscapes, and there is now even a campaign to preserve part of the moon as an important site [105].

Apart from his research, Koolhaas is no stranger to the overwhelming circumstances of preservation. Bordeaux House (Figure 3.30), Koolhaas designed with his office, OMA, for editor Jean-François Lemoine, was announced as a *Monument Historique*, a historical monument, by the Ministry of Culture in France in 2002, only four years after its realization. Due to the client becoming disabled after a car accident, Koolhaas based the design of the house on an evolving machine, which would cater to his client's needs, and could be adapted and altered within time. Koolhaas' approach to the Bordeaux House was deemed *experimental* and the house became a national historical monument under the late 20th century architecture category [181, 182, 183, 184].

Figure 3.30. Bordeaux House, OMA, 1998 [182]

In 2010, with the *Cronocaos* Exhibition (Figure 3.31, 3.32) at the *12th International Architecture Biennale of Venice*, Koolhaas had the opportunity to present how preservation was not only overtaking the architectural scene but it had also become a worldwide political and economic epidemic. The exhibition, which was prepared by Koolhaas' office, OMA and his research team, AMO, focused on various issues about the conflicting series of events surrounding preservation and demolition of built architecture, at that moment [185].

Figure 3.31. Cronocaos exhibition, 12th International Architecture Biennale of Venice, 2010 [185]

Figure 3.32. Photos from Cronocaos exhibition, 12th International Architecture Biennale of Venice, 2010 [180]

After UNESCO's *Convention Concerning the Protection of the World Cultural and Natural Heritage* in 1972, World Heritage Sites became elements of prestige for hosting countries from a political perspective. Especially, after the increase in mass tourism towards the end of twentieth century, World Heritage Sites became the main income source for some historical areas, boosting their economy. Koolhaas' research for the exhibition showed that in 2010, protected cultural and natural sites in the world would make up 12 percent of the world surface area, while one and a half times of the protected area was already awaiting to become heritage sites [106, 170, 172, 180].

Figure 3.33. Bunker 599, RAAAF, 2010 [186]

RAAAF's intervention on Bunker 599 (Figure 3.33) aimed to question the monumental status of heritage structures with the spread of preservation. Located along the New Dutch Waterline in Netherlands, Bunker 599 was one of the military bunkers used during the World War II. Before RAAAF's intervention, the bunker was under the municipal protection due to its history. In 2010, RAAAF intervened the existing structure by splitting and inserting a walking path through the bunker. The aim was to activate an immutable structure of a historical value by providing a new approach to experience it. Two years after RAAAF's intervention, Bunker 599 was upgraded from being a municipal monument to a national one, and got included in UNESCO's World Heritage Tentative List as part of the New Dutch Waterline [120, 186, 187, 188, 189, 190].

Figure 3.34. Cronocaos Exhibition, 12th International Architecture Biennale of Venice, 2010 [180]

Cronocaos Exhibition also drew the attention to the contradiction between the great effort put into preserving the cultural and natural heritage sites against the lack of attention towards certain types of architectural work, like post-war architecture in Europe. (Figure 3.34) A huge number of structures dating back to the post-war period was demolished in the last ten years due to various reasons. Robin Hood Gardens, a social housing complex built during the post-war era in London, was demolished in 2017 after being rejected various times for preservation by authorities in Britain [185, 191, 192]. (Figure 3.35)

Figure 3.35. Robin Hood Gardens got demolished in 2017 [192]

The Netherlands Dance Theatre, designed by Koolhaas, was demolished after 28 years of its realization in 2015, due to not being able to accommodate its initial function [193, 194]. (Figure 3.36)

Figure 3.36. The Netherlands Dance Theatre, demolished in 2015 [195]

For the exhibition, AMO prepared *Convention Concerning the Demolition of the World Cultural Junk* [180], which criticized and adapted UNESCO's *Convention Concerning the Protection of the World Cultural and Natural Heritage* of 1972, bringing attention to not what should be preserved but what could be demolished under these circumstances. Through

Convention Concerning the Demolition of the World Cultural Junk, AMO emphasized the fact that the increase in preservation is challenging social and economic structures of countries along with the perception and requirement of history and memory. While preservation is an effective tool for keeping the memory of a place safe, the increased amount of preserved spaces had started to demean significance of historical preservation. Another fact, they wanted to draw attention to is the perception on structures with not-so-favorable backgrounds; these structures become ignored and eventually demolished for the sake of better social and economic opportunities [180, 196].

While the practice of preservation have been holding its benefits on preserving historical spaces, the changing and expanding criteria, and the discrimination towards certain structures is creating a contradiction between the purpose of preservation and its current practice.

In the 21st century, recycle approach has become an alternative method in dealing with the vacancy issue triggered by various factors like social changes, economic effects or the overwhelming influence of preservation on existing structures. While ordinary structures don't hold the same significance compared to ones with historical backgrounds, it's important to cherish and integrate the memory of a space for better design solutions. Recycling on a spatial basis in architecture provided architects the opportunity to keep the memory of an existing structure within the moment while intervening it with contemporary design tools. Recycle approach has also been preferred and practiced by architects due to its flexible and scaleless nature, which feeds from the existing surrounding conditions of each project.

4. OVERWRITING AND STRATIFICATION: NEW APPROACHES AND EXAMPLE PROJECTS

Architects have practiced recycle approach in architectural design for a while as an alternative to conventional design approaches while dealing with disused or abandoned structures. Collected data from acknowledged architectural magazines (Appendix A) show that even though there are few examples dating back to the second half of 20th century, the number of structures recycled through this approach has increased and reached a new peak in 2010s, indicating architects have been using this alternative approach actively to deal with spatial needs of 21st century. (Figure 4.1)

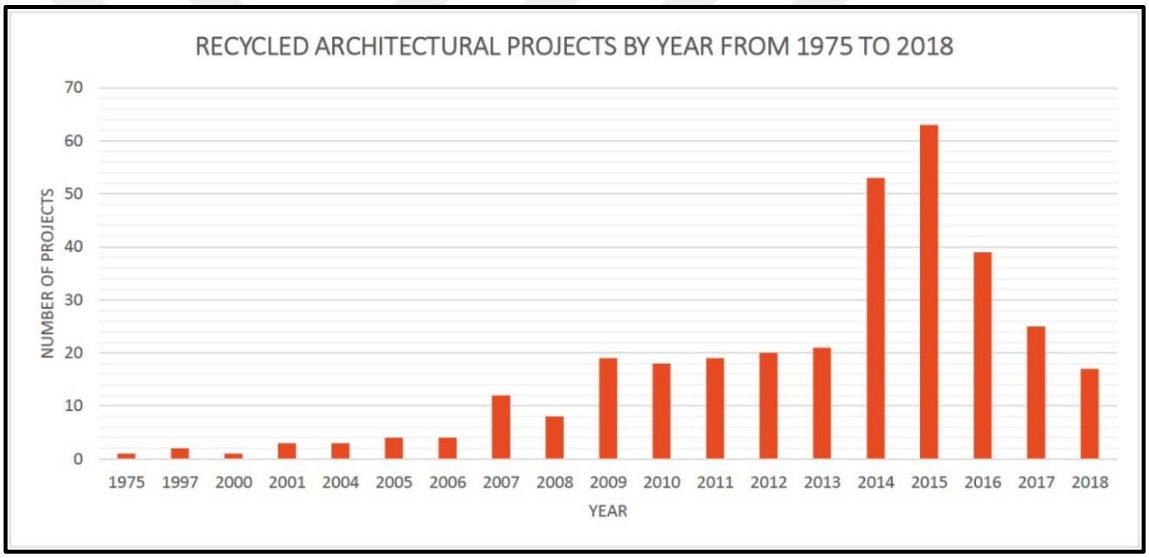


Figure 4.1. Graph of recycled architectural projects by year from 1975 to 2018 (Prepared by author based on data presented in Appendix A)

Compared to conventional design approaches, recycle approach stands out with its use of the existing structure in order to create a new space with a new meaning and a new function through contemporary design tools, while respecting the memory of the existing space. During the process of providing a new life cycle to the existing structure, the design elements determining the recycling are chosen based on the surrounding conditions, which makes this approach operational on a contextual basis [1].

> Re-cycle…that doesn't refuse the past, that recognizes its cyclical and re-generating nature, which, however contains a "re-" device that makes it possible to always keep up the distance required to save ourselves from the reactionary implications of conserving and looking back [1].

Recycle approach is not equal to practices such as restoration, reconstruction or any type of interventions that try to embalm the image of the building; rather it's a conscious alternative and aesthetic device for new life cycles [1].

Collected data (Appendix A) on recycled structures shows that recycling approach can be implemented on any type of abandoned or disused structure from different scales, varying from schools, airports, prisons to houses, tunnels and bunkers. Even though the density of recycled projects are higher in some countries of the world due to high rates of vacancy like Spain, France, Italy or The Netherlands, recycled projects are also existent in still growing countries like Turkey or China.

Fifteen examples from the collected data (Appendix A) are chosen and analyzed to show that recycle approach has no common design criteria, works on a contextual basis, is scaleless and is actively being practiced by architects all around the world in recent years.

4.1. THE FACTORY, RICARDO BOFILL TALLER DE ARQUITECTURA, BARCELONA, SPAIN (1975)

Spanish architect Ricardo Bofill, set up his professional practice during the 1960s in Barcelona, Spain. Bofill, looking for a suitable space, which can accommodate both his residence and practice, came across an active cement factory in Barcelona in 1973. Soon after, Bofill learned that the factory is about to be closed down and move. The same year, Bofill purchased the factory's land and started on its transformation [197, 198, 199]. (Figure 4.2)

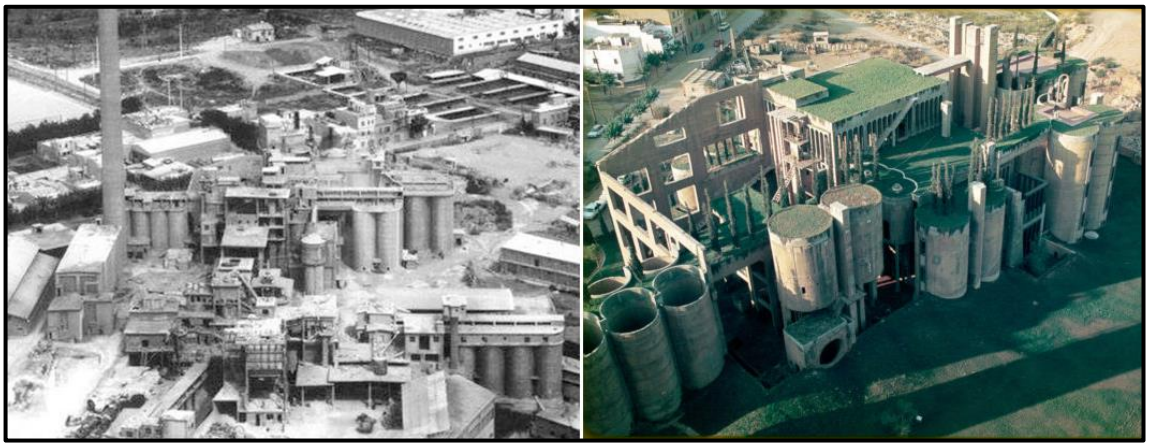


Figure 4.2. The Factory, before and after its transformation [198, 200]

The Cement Factory (Figure 4.2, 4.3) was built at the end of 19th Century, during the beginning of industrialization in Catalonia. Originally the factory was a huge complex which included more than 30 cement silos, a chimney which can be perceived from all over Barcelona, underground galleries and tunnels about four km long, huge production units. The original complex was also reflected the industrial vernacular architecture of Catalonia due to its construction period and most of its parts were additions which were built throughout the years as they become necessities [197, 201].

When Bofill purchased the cement factory, original structures were made of naked reinforced concrete and included various architectural elements like stairs leading to nowhere, various sizes of openings with unusual proportions and narrow pathways, which created a sense of abstraction in the spaces, reflecting signs of brutalism and surrealism [197].

Figure 4.3. Aerial view of existing cement factory, 1970s [200]

The architect pursued the idea of minimum intervention during the factory's transformation process and approached the complex as a sculpture. Most of the additions to the original complex were demolished in the first stage including cement filled silos and production spaces. Some of the original silos were emptied for further transformation. With the addition of the most necessary architectural elements like windows, doors and stairs, transformation of existing structures were completed [197, 200]. (Figure 4.4, 4.5, 4.6, 4.7, 4.8)

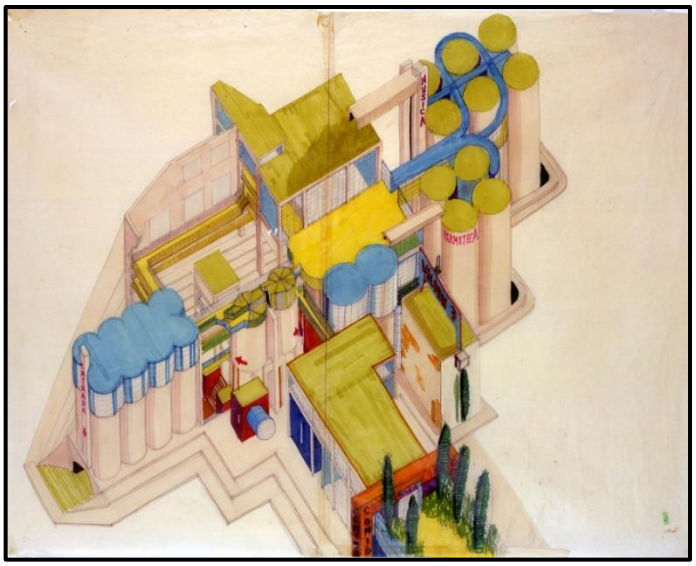


Figure 4.4. Axonometric view of The Factory, Ricardo Bofill, 1975 [202]

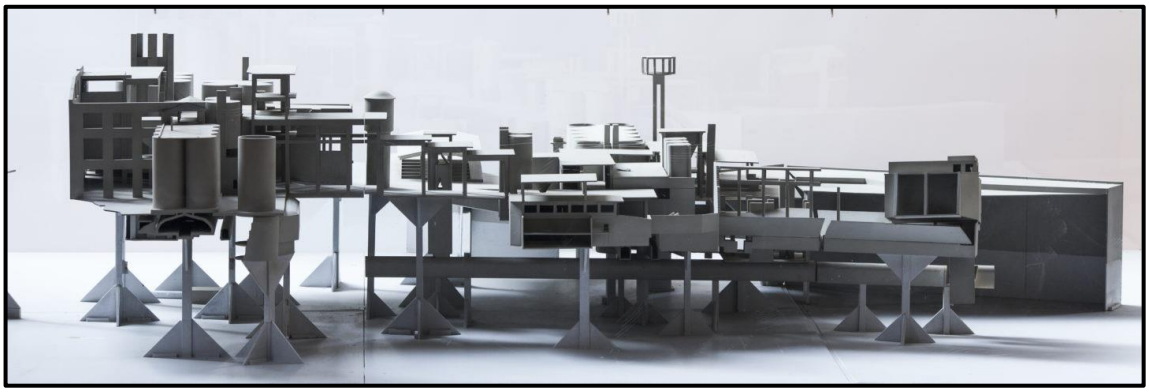


Figure 4.5. Model of The Factory, Ricardo Bofill, 1975 [202]

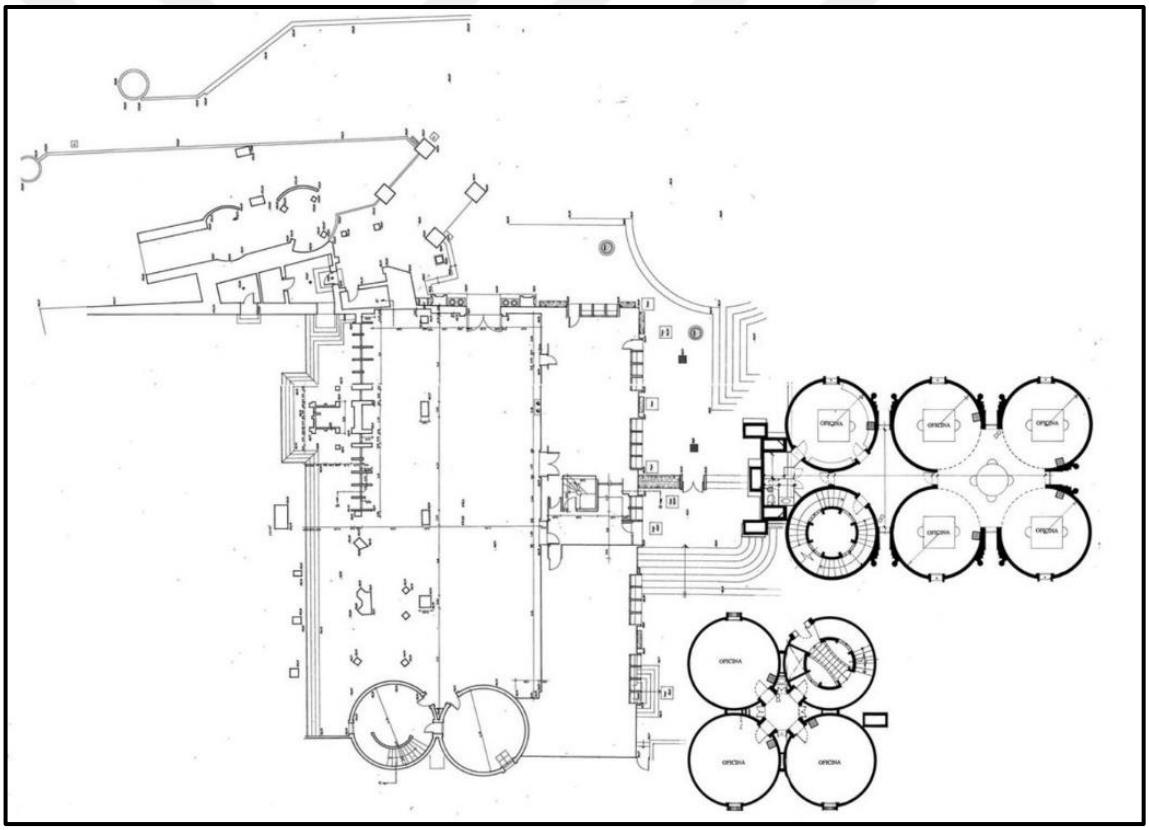


Figure 4.6. Floor plan of The Factory, Ricardo Bofill, 1975 [200]

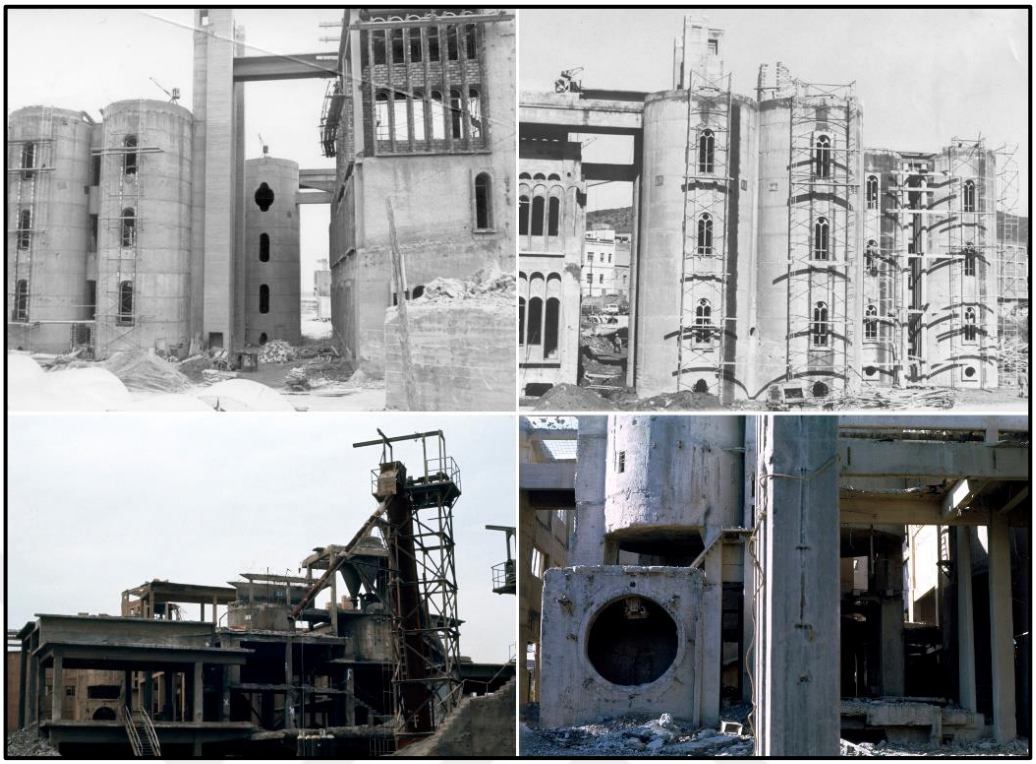


Figure 4.7. Construction process of The Factory, Ricardo Bofill, 1975 [200, 202]

Figure 4.8. Photos of The Factory after its completion, Ricardo Bofill, 1975 [197, 200, 202]

Figure 4.9. The Cathedral entrance, The Factory, Ricardo Bofill, 1975 [202]

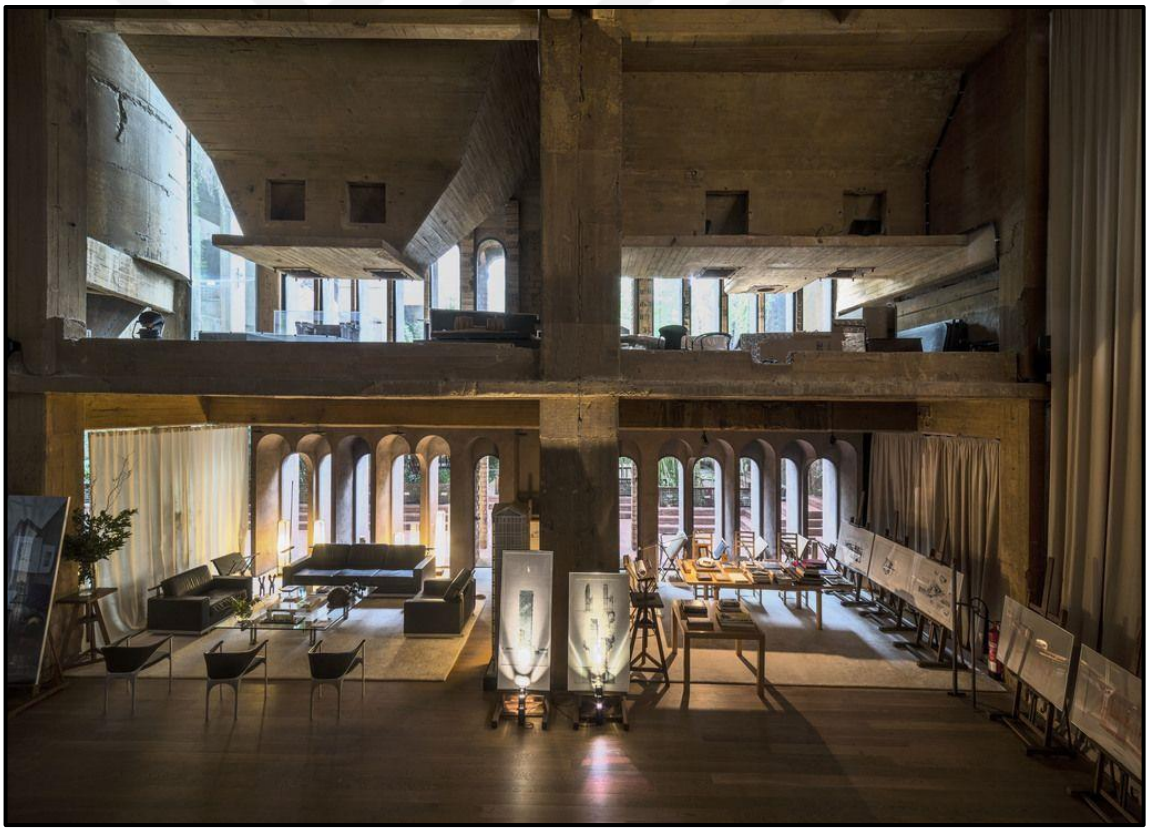


Figure 4.10. The Cathedral, The Factory, Ricardo Bofill, 1975 [200]

The factory is consisted of Bofill's residence, his studio and the Cathedral. The Cathedral (Figure 4.9, 4.10) is a multipurpose hall, which serves as an exhibition space and a conference hall when required. It's formed by the transformation of the main factory hall

and has an 11 m ceiling height with a mezzanine floor. Bofill's residence (Figure 4.11) is also located in the main building. Space over the Cathedral is turned into the main living room, while other rooms are distributed in the space next to the Cathedral. In the ground floor, there's the kitchen and dining room, while on the middle floor private quarters like bedrooms and guest rooms are located. Remaining silos are converted into Bofill's studio. (Figure 4.12) One of the silos is installed with stairs for circulation [197].

Figure 4.11. Residence, The Factory, Ricardo Bofill, 1975 [202]

Figure 4.12. Studio offices, The Factory, Ricardo Bofill, 1975 [202, 203]

With the cement factory initially being a source of pollution for its neighborhood, the architect wanted to reverse this memory and planted various trees and climbing plants, and let them grow over the existing structure, blurring the line between concrete and nature. (Figure 4.13) He also kept the factory chimney as a memory [197].

Figure 4.13. The Factory, Ricardo Bofill, 1975 [202, 203]

Bofill completed the initial transformation in 1975 but the Factory kept transforming through the years based on the needs of its program. The architect managed to maintain an unfinished feeling on the structure creating a contrast with its original style. (Figure 4.13)

Bofill's approach on the Factory can be considered innovative for its period. He did not only managed to preserve the memory of spaces and give them a new lifespan with the insertion of new functions, he also broke through strict design approach based on modern style.

> The result proves that form and function must be disassociated; in this case, the function did not create the form; instead, it has been shown that any space can be allocated whatever use the architect chooses, if he or she is sufficiently skillful [197].

The Factory is still occupied by Bofill, his family and his office, and keeps transforming every day.

4.2. LE FRESNOY ART CENTER, BERNARD TSCHUMI ARCHITECTS, TOURCOING, FRANCE (1997)

Creation of Le Fresnoy Art Center, officially named as Le Fresnoy National Studio for Contemporary Arts, started with the idea of establishing a multidisciplinary international arts school in northern regions of France with the support of the French Ministry of Culture and Communication. During the scouting for school space in 1987, deputy of culture in Tourcoing Municipality invited the committee to establish this arts school in Tourcoing and directed them to the abandoned Le Fresnoy leisure complex [204]. (Figure 4.14)

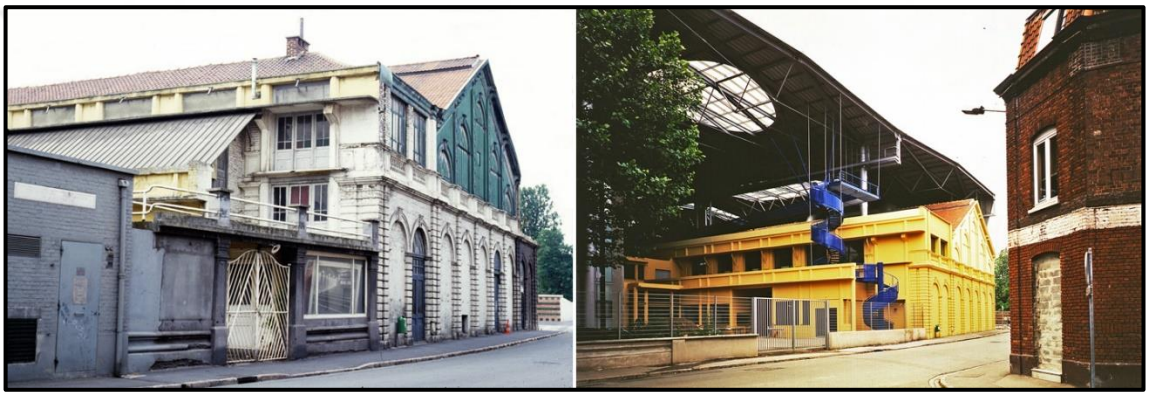
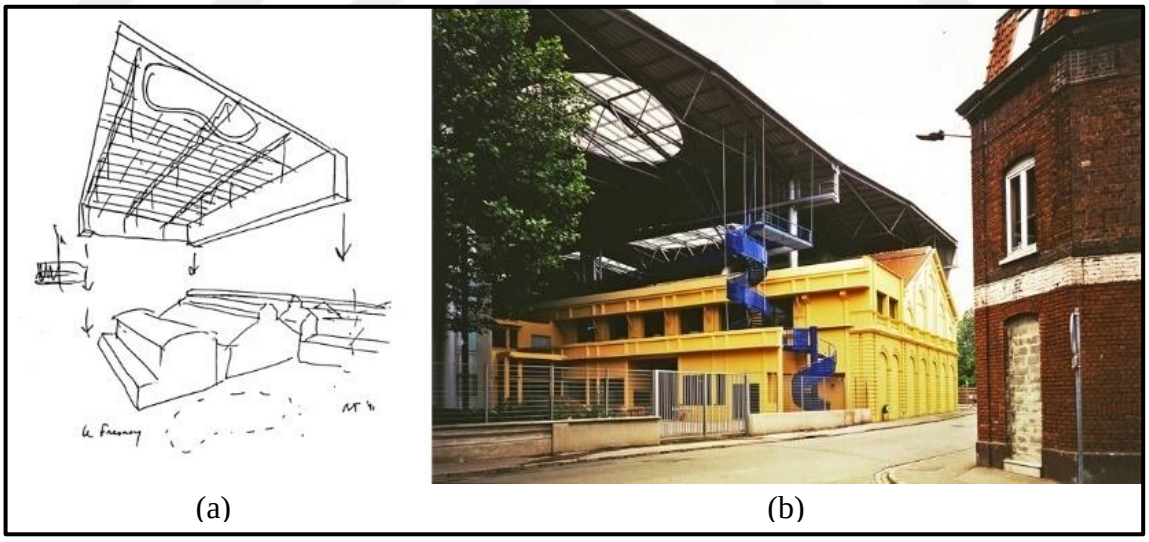


Figure 4.14. Le Fresnoy Art Center, before and after its transformation [205]

The leisure complex (Figure 4.15) was initially built in 1905 on a 1.100 m² site, which included a dancing hall, a roller-skating rink, a pool which was later converted into a space for pony rides, a cinema with a thousand seats, performance halls, arcade rooms, bars and restaurants. It had been an actively functioning entertainment center until it was closed down in the beginning of 1970s. When the committee was introduced to Le Fresnoy, after almost 15 years of its abandonment, they were affected by the history and character of its existing buildings and decided that the integration of existing buildings into the new design would be stated as a criterion in the competition specifications [204].

Figure 4.15. Existing leisure complex in Tourcoing, France [89, 205]

The design competition for the new arts school was held in 1991. Besides regular teaching facilities, the new program required a film studio, two cinema halls, a media center, exhibitions halls, performance halls, production and sound laboratories, offices for administration, housing space and a café/restaurant. Bernard Tschumi Architects won the competition in 1992 [204].



(a) (b)

Figure 4.16. Le Fresnoy Art Center, Bernard Tschumi Architects, 1997. (a) Concept, (b) Realized project [205]

Even though the condition of existing buildings weren't the best, they contained vast spaces which would be beneficial for the new design. In case of demolition, construction costs would have increased in great amounts. Another option, restoration, was also overlooked

due to being economically infeasible. So, to provide enough space for the new program with adequate technical infrastructure, the architect proposed an 80 m by 100 m corrugated steel roof with openings in certain places, which would cover the existing buildings and the northwest façade, while providing enough space for the new wirework, ventilation and heating system to be distributed to the existing and new buildings. (Figure 4.16) Other three facades were left uncovered, providing transparency [204].

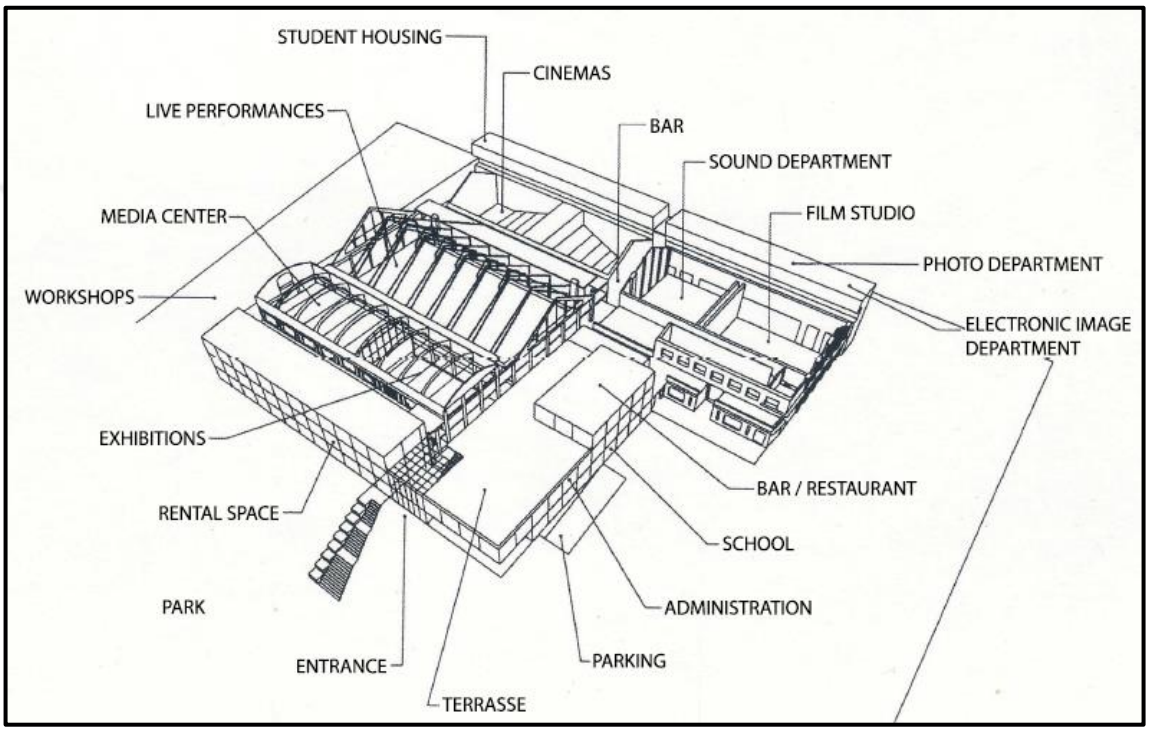


Figure 4.17. Program, Le Fresnoy Art Center, Bernard Tschumi Architects, 1997 [89]

Only a few parts of the existing buildings were demolished due to being too ruined to be salvaged. All existing buildings went through a series of reinforcements. While inserting the new functions, all departments were placed accordingly to be able to function as autonomous as possible. (Figure 4.17) Performance halls, cinema halls, media center, exhibition spaces, sound department and film studios were inserted in the existing structures. A new building on the northwest façade was constructed to accommodate photo department, electronic image department, laboratories and housing for students and instructors. Two new buildings facing southeast and northeast facades were built for the school, administrative offices, rental spaces for artists and professionals, and a restaurant. Main entrance to the complex is also provided through the new building, from the southeast façade [204].

Figure 4.18. Steel roof installed over the existing building, Le Fresnoy Art Center, Bernard Tschumi Architects, 1997 [205]

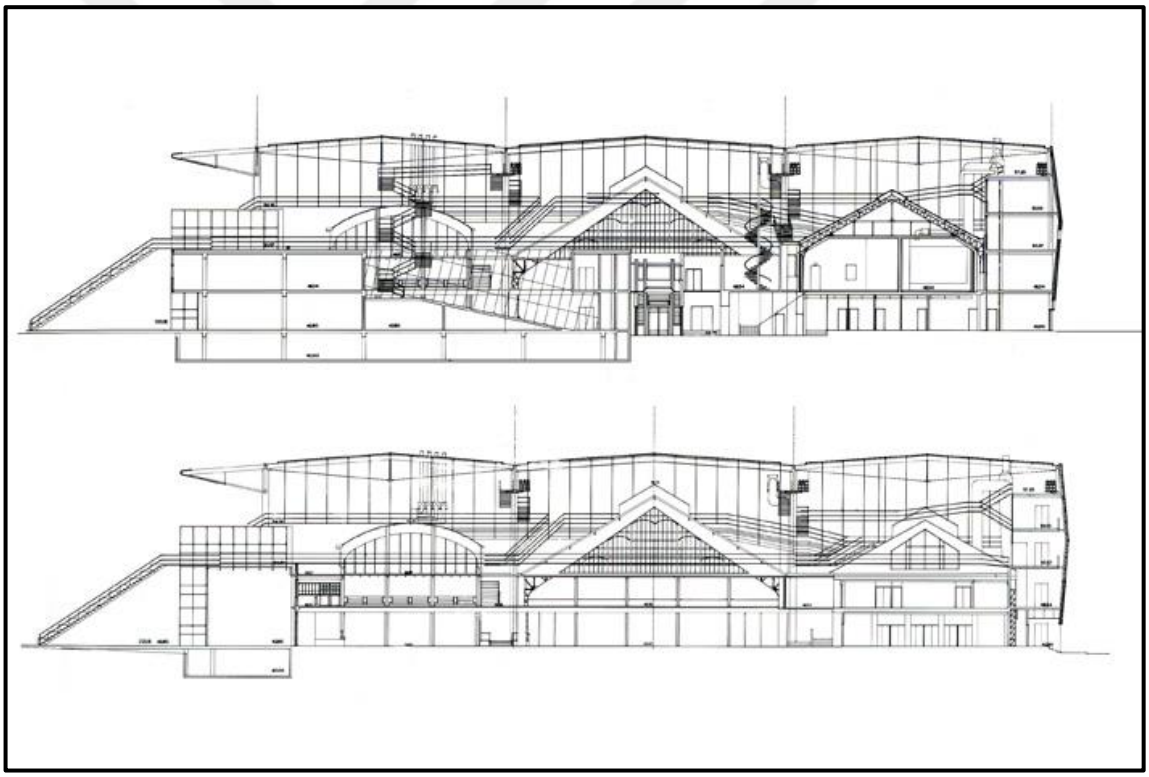


Figure 4.19. Section of steel roof and integrated circulation system, Le Fresnoy Art Center, Bernard Tschumi Architects, 1997 [205]

What makes Le Fresnoy unique is the use of spaces between the buildings and the new steel roof. (Figure 4.18, 4.19) Designing this roof did not only provide shelter for existing and new buildings, but it also created new spaces in between the roof and the buildings. This

unexpected space is supported by a new circulation system to make it accessible to users, creating opportunities for new experiences [204]. (Figure 4.20)

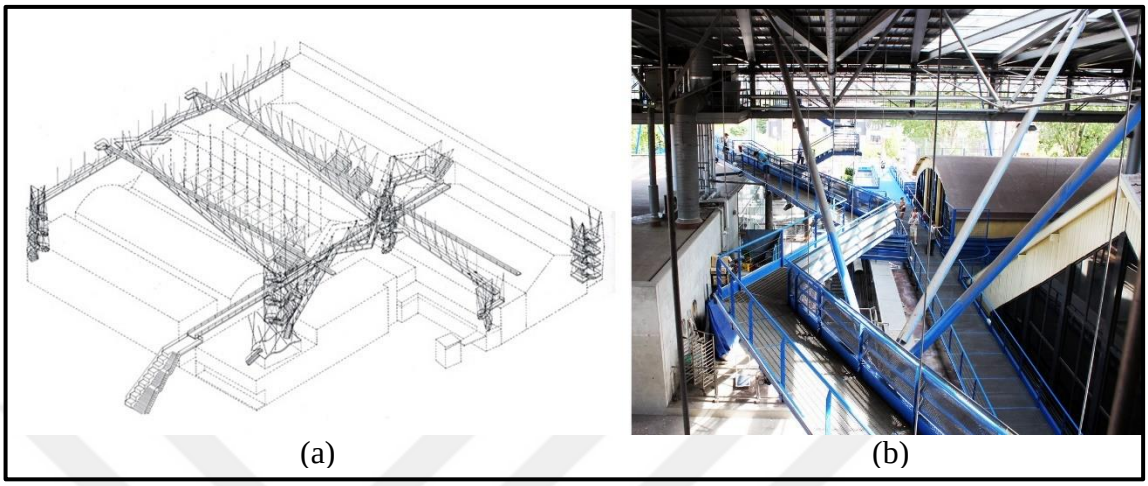


Figure 4.20. Integrated circulation system, Le Fresnoy Art Center, Bernard Tschumi Architects, 1997. (a) Axonometric view [205], (b) Photo from inside [206]

The construction for the arts school was completed in 1997. Today, Le Fresnoy National Studio for Contemporary Arts functions as a post-graduate school and exhibition space [80, 207]. (Figure 4.21)

Figure 4.21. Le Fresnoy Art Center, Bernard Tschumi Architects, 1997 [205]

4.3. PALAIS DE TOKYO, LACATON & VASSAL, PARIS, FRANCE (2001)

Palais de Tokyo was initially built for *International Exposition of Art and Technology in Modern Life* in 1937, in Paris, France. Palais de Tokyo was designed by architects Dondel, Viard, Aubert and Dastugue, consisted of two separate wings with a joined entrance to house Paris Museum of Modern Art on east wing and National Museum of Modern Art on west wing. Palais de Tokyo was named after the Tokyo Avenue, along the Seine River, due to being located on it. While the name Palais de Tokyo remained for the building through the following years, Tokyo Avenue was renamed to New York Avenue in 1945 [208, 209, 210].

Figure 4.22. Palais de Tokyo, before and after its transformation [208, 211]

While Paris Museum of Art located on the east wing of the building still maintains its presence, the west wing had a continuous change in functions throughout the years. West wing opened in 1937 as National Museum of Modern Art, but due to Second World War, most of its collections had to be relocated between 1939 and 1945 and its basements were used as warehouses during this period temporarily. After the end of Second World War, National Museum of Modern Art had a second opening in 1947 in the west wing and remained so until the construction of Georges Pompidou Center in 1976. When Georges Pompidou Center was constructed and became the new hub for modern art in Paris, National Museum of Modern Arts' collections were relocated to the new center, while the museum got closed down. From 1978 to 1998, the west wing housed different foundations and projects like Museum of Arts and Essays, Palace of Image, which included the French

Cinemateque, National Center of Photography and National Institute for Training in Image and Sound Trades, Institute of Advanced Studies in Plastic Arts. In the beginning of 1990s, a project to turn part of west wing into a cinema museum was pursued, but in 1998 the projects was canceled, leaving the interior of the building stripped to its structure and in an unusable state [208, 210]. (Figure 4.22, 4.23, 4.24)

Figure 4.23. Palais de Tokyo, International Exposition of Art and Technology in Modern Life, 1937 [208]

In 1999, Ministry of Culture decided to turn part of west wing into a contemporary art center, considering that Georges Pompidu Center was no longer able to carry on multiple functions and the city needed a new space for contemporary arts. About 7.800 m² part of the west wing was appointed to be transformed into an arts space, which would not include any permanent exhibitions. Lacaton and Vassal's proposal was chosen for Palais de Tokyo's renewal considering their strong approach on maximizing the available space with flexible solutions and minimizing the available budget for the transformation [210].

Figure 4.24. Aerial and exterior view of Palais de Tokyo, 2002 [211]

Palais de Tokyo's original design was consisted of vast spaces, which received natural lighting as much as possible through its large windows and skylights. Lacaton & Vassal wanted to keep the original space with minimum interventions. (Figure 4.25, 4.26) They wanted the space to work in favor of the user, free to roam and easily shaped when needed, almost acting like a public square. During the design process, they referenced the openness and permeability of Jemaa el-Fna square in Marrakech, Morocco and Alexanderplatz in Berlin, Germany [210].

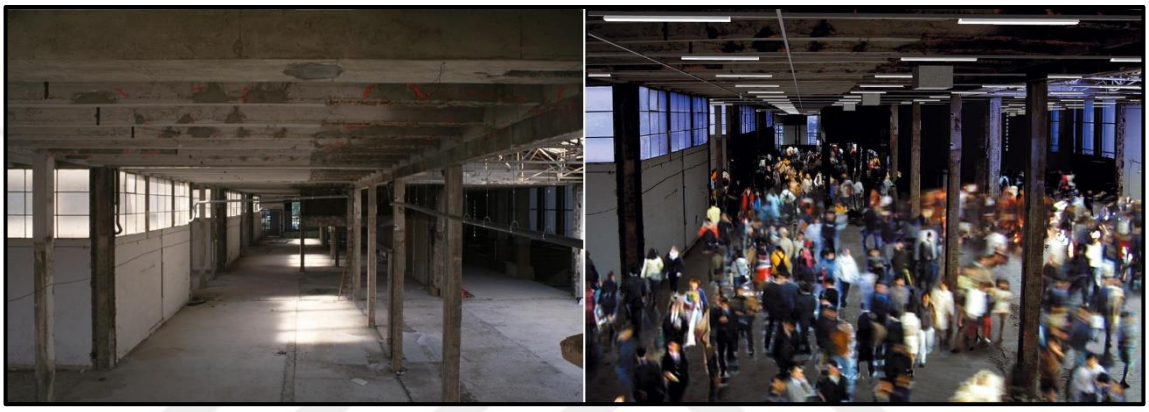


Figure 4.25. During and after the intervention on Palais de Tokyo, first phase, 2002 [211]

Figure 4.26. During and after the intervention on Palais de Tokyo, first phase, 2002 [211]

For Palais de Tokyo, Lacaton & Vassal didn't approach the space as a standard renewal project, they rather followed the mentality of a squatter, where they can start off with a certain space which they feel secure and then extend their territory from there on. Therefore,

instead of acting right away on a certain radical intervention, they focused on preventing the building from deteriorating any further. Most of the repair work done was for structural reinforcement. Repairing period supported Lacaton & Vassal's intentions of minimum intervention. The original structure was enough to provide for its new functions and its features would be presented best as they were. Other than structural development, replacement of windows and skylights, fireproofing the building did not receive any repairing, leaving half-demolished columns or walls as they were. Budget restrictions were also effective during the design process [139, 210].

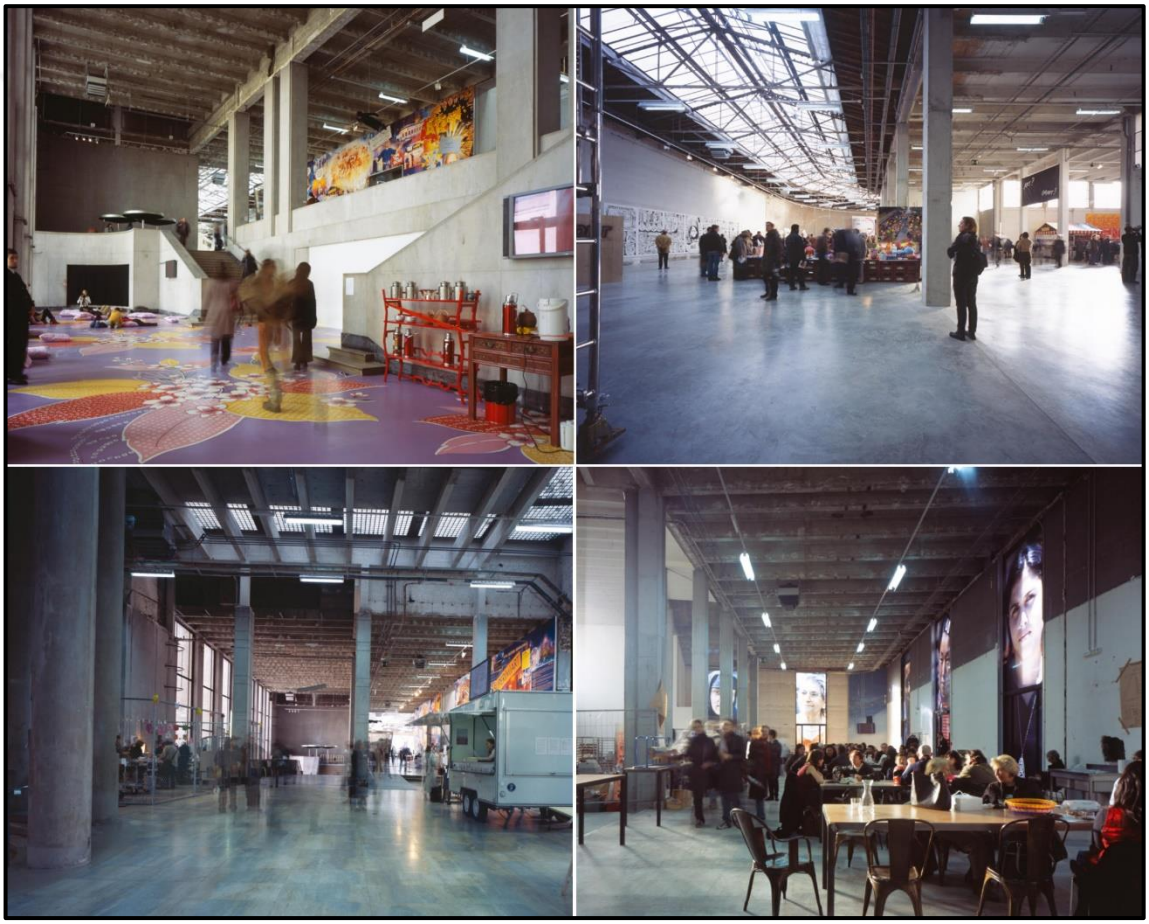


Figure 4.27. Palais de Tokyo, first phase, 2002 [211]

To strengthen the openness of the space and for easier access additional openings were created, ramps were installed. To support the temporality of space, main functions were setup with light interventions, a caravan was used for ticket sales and the bookshop was defined by hoarding panels. (Figure 4.27, 4.28) On the outside, new staircases and footbridges were installed for safety and to improve accessibility [139, 212].

First phase of Palais de Tokyo, which was consisted of 7.800 m² of the west wing, was completed in 2001 and opened to public in the beginning of 2002. The contemporary arts center had exhibition spaces suitable for various forms of art, cinema and fashion exhibitions, included a restaurant and some shops [208, 211].

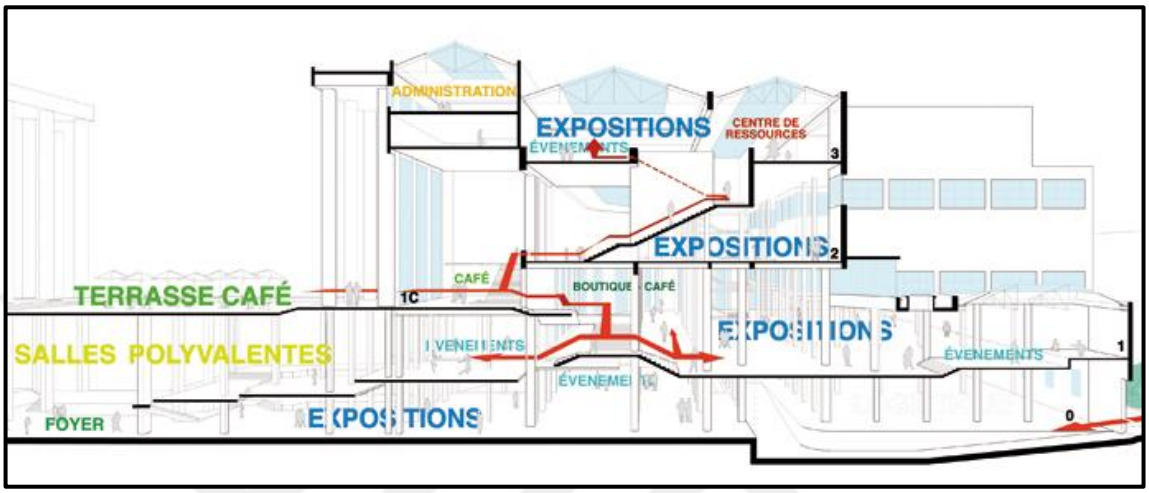


Figure 4.28. Updated program for the second phase of Palais de Tokyo, 2011 [211]

In 2011, Lacaton & Vassal was again appointed for the transformation of rest of the west wing. They followed up on their same design approach for the new 16.500 m² space. Second phase of Palais de Tokyo was opened to public in 2012, making it one of the biggest spaces in Europe dedicated to contemporary arts [213]. (Figure 4.29, 4.30)

Figure 4.29. Construction of Palais de Tokyo, second phase, 2011 [211]

Figure 4.30. Palais de Tokyo, second phase, 2012 [211]

4.4. FROSILO – GEMINI RESIDENCE, MVRDV, COPENHAGEN, DENMARK (2005)

Islands Brygge area in Copenhagen, Denmark, had been the house of Danish Soybean Cake Factory complex until 1991, when active production came to an end. (Figure 4.31, 4.32) The complex was abandoned for about 10 years, until the owner company decided to redevelop the area, which was advantageous due to its location being close to city center and having a waterfront view as a former harbor site [214].

Figure 4.31. Frosilo – Gemini Residence, before and after its transformation [215, 216]

The district containing the factory complex was redeveloped with a new name, Havnestad, Harbor Town (Figure 4.33), and the new masterplan was design by PLH Arkitekter in 2002 with a zoning of 70 percent housing and 30 percent retail and offices. PLH Arkitekter's

masterplan was realized in 2003 and most of the existing buildings in the masterplan were refurbished considering the history of the former factory complex [214].

Figure 4.32. Islands Brygge area in Copenhagen, Denmark, before redevelopment [217]

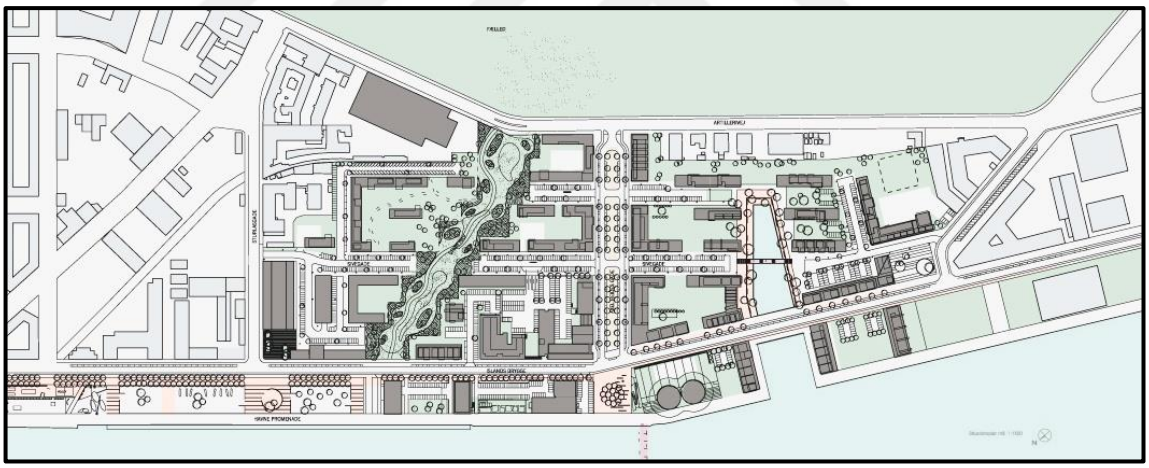


Figure 4.33. Havnestad, Harbor Town Masterplan, PLH Arkitekter, 2003 [217]

The seed silos of soybean cake factory were built in 1960s along with its neighbor, Wennberg Silo. (Figure 4.34) The two seed silos were made of bare concrete and each one had a height of 42 m and a diameter of 25 m [218, 219, 220].

In 2001, MVRDV was commissioned for the conversion of twin concrete silos into residences. Throughout the design process, architects were challenged by the structure of silos. Creating enough openings on the existing structure to allow proper daylight inside was not possible without compromising the stability of the structure. Even when the architects

were allowed to create openings, they weren't allowed to make ones bigger than a door frame and more than a certain number of them. These limitations lead the architects to use the empty space inside the silos as a circulation shaft, which would connect the residences attached onto the silos from the façade [215, 221, 222]. (Figure 4.35, 4.36)

Figure 4.34. Silos of Soybean Cake Factory before transformation [215]

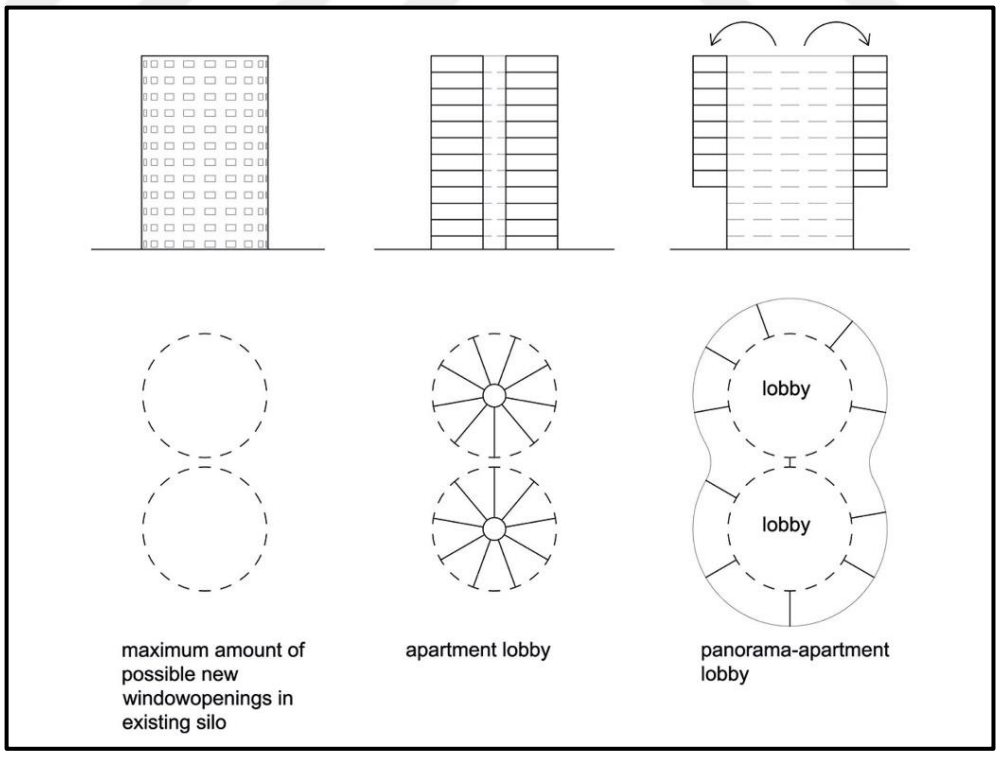


Figure 4.35. Concept of Gemini Residence, MVRDV, 2005 [215, 221]

Keeping the insides of the silos empty does not only provide a functional feature but it's also a remembrance of their previous functions. The architects also didn't make any additions on the ground level and showed the original structure to remind the user of the silos initial purpose [216, 222]. (Figure 4.37, 4.38, 4.39)

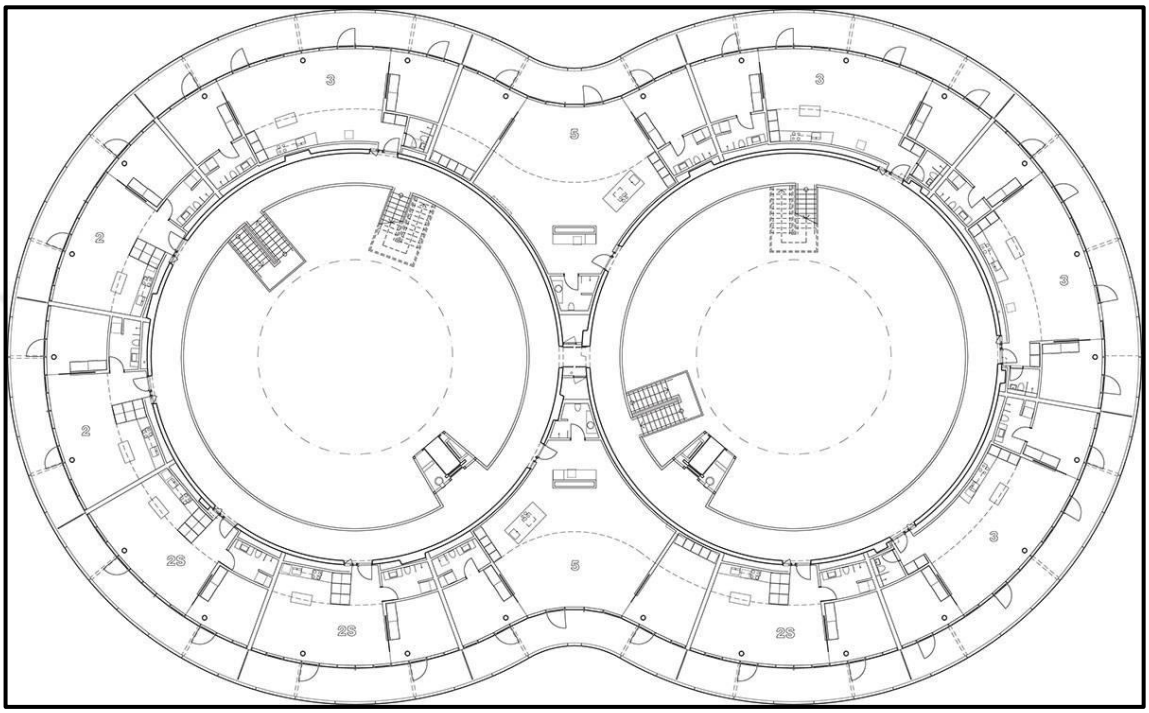


Figure 4.36. Typical floor plan, Gemini Residence, MVRDV, 2005 [223]

Figure 4.37. Aerial and exterior view, Gemini Residence, MVRDV, 2005 [216, 217]

Today, former seed silos are known as Gemini Residence, which are consisted of 84 apartments varying in floor areas from 90 m² to 200 m² [218]. (Figure 4.36, 4.39)

Figure 4.38. Lobby, Gemini Residence, MVRDV, 2005 [216]

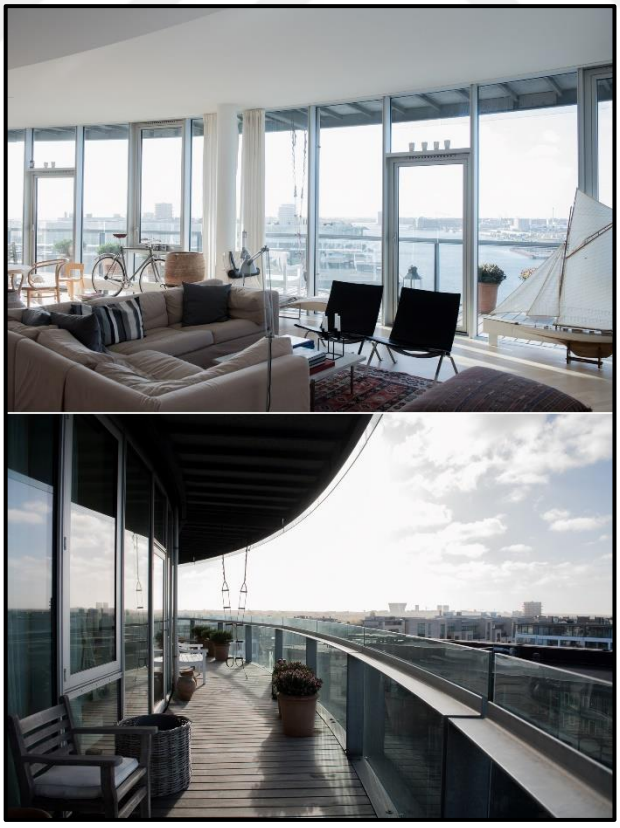


Figure 4.39. Interior of Gemini Residence, MVRDV, 2005 [224]

4.5. S(CH)AUSTALL, NAUMANN ARCHITEKTUR, RAMSEN, GERMANY (2005)

In 2004, Naumann Architekten worked on the renovation of Seehaus Forelle Hotel and an addition to the resort, the Haeckenhaus with 12 guest-rooms. Located in the Pfalz Forest, in Ramsen, Germany, the resort is famous for being close to Eiswoog Lake and North Vosges Nature Park [225, 226].

Figure 4.40. S(ch)austall, from left to right, before, during and after its transformation [1]

A rundown former pigsty, built in 1780, was situated 250 m far from the main hotel building. During the renovations, Naumann Architekten was also expected to rehabilitate the pigsty into a showroom for a goldsmith. After its construction in 1780, the former pigsty was severely damaged during the attacks on World War II, but it was reconstructed in the following years [1, 227, 228]. (Figure 4.40)

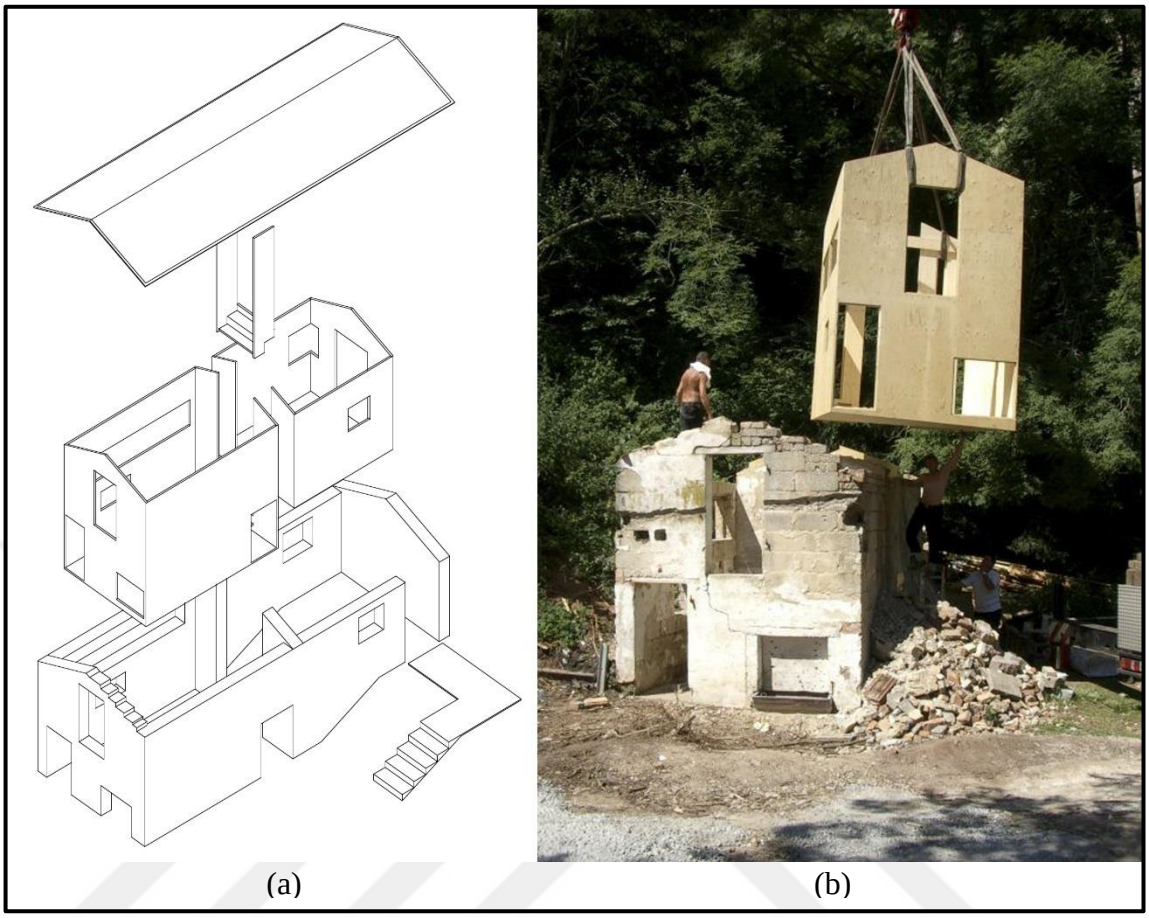


Figure 4.41. S(ch)austall, Naumann Architektur, 2005. (a) Exploded axonometric view [228], (b) Insertion of the new volume into the existing structure [229]

Demolishing the existing structure and building a new one was prohibited by the zoning laws of the area, and the structure being situated right next to a country road was another issue that limited the design solutions. Architects, initially, focused on renovating the building, but the structural durability of the stone walls were compromised too much for a recovery and this type of application would be over the client's budget. Instead of mending the existing structure, they decided to create a second volume, which would fit inside the existing walls, with the same door and window openings, while making no contact with it [227, 228]. (Figure 4.41, 4.42)

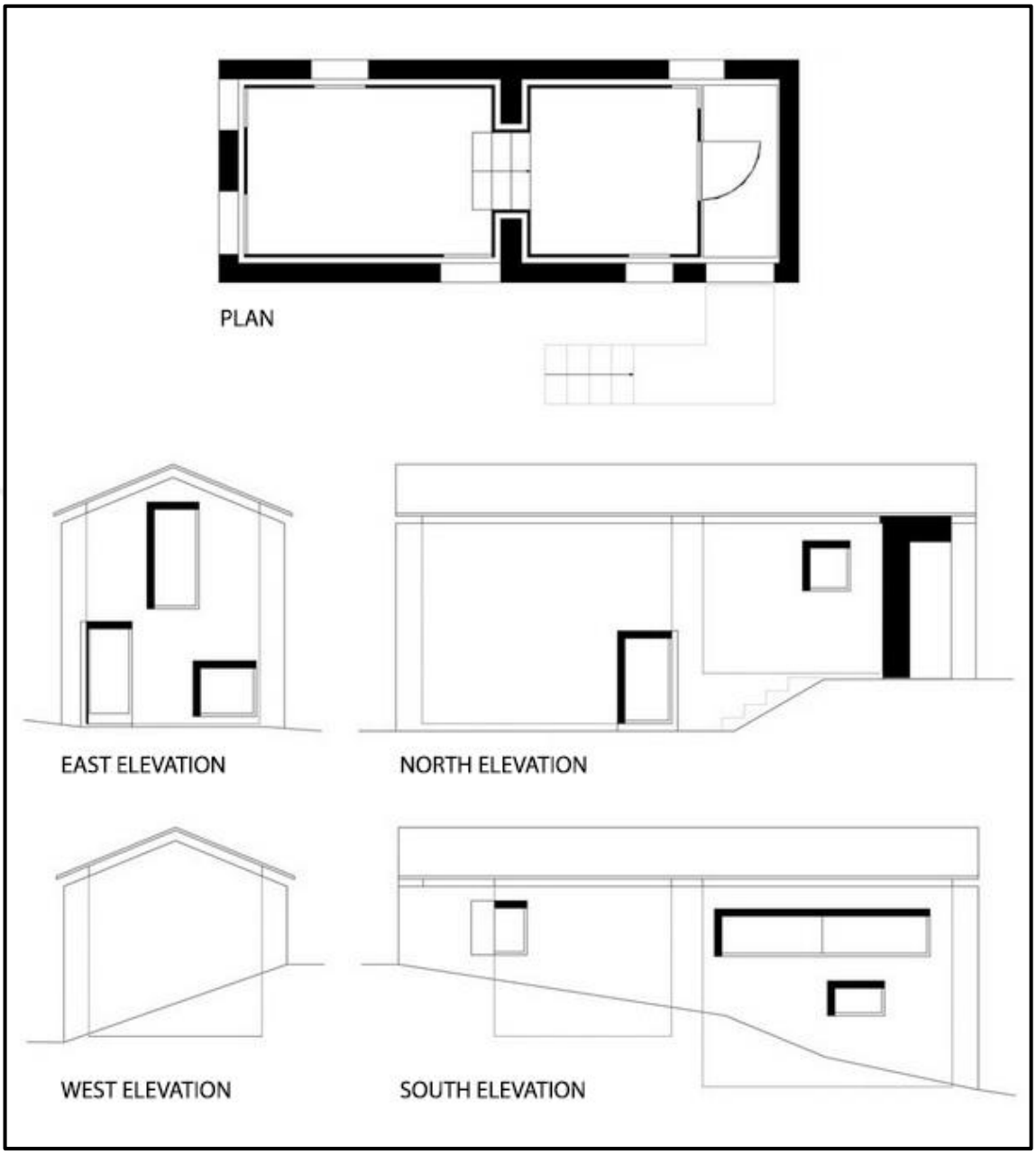


Figure 4.42. Plan and elevations of S(ch)austall, Naumann Architektur, 2005 [230]

The inside volume was built from 39 mm-thick laminated veneer lumber, called Kerto which is known for being strong and durable. (Figure 4.43) Two concrete slabs were installed to keep the lumber volume lifted from the ground. It was also designed to leave 8 cm gaps between the existing walls and the new volume itself. Leaving these gaps would provide a natural airflow and minimize the future constructional problems due to deterioration. A roof made of zinc sheets was installed on the lumber volume to keep the rainwater having direct contact with the structure [228].

Figure 4.43. Inside volume constructed from Kerto lumber, S(ch)austall, Naumann Architektur, 2005 [229]

Using a combination of the words *saustall*, meaning pigsty in German, and *schaustall*, meaning showroom in German, architects called the rehabilitated structure S(ch)austall and it was completed in 2005 [1]. Naumann Architektur's approach on S(ch)austall, managed to keep its centuries-long memory while reclaiming a disused pigsty and giving it a new function. (Figure 4.44)

Figure 4.44. S(ch)austall, Naumann Architektur, 2005 [229]

4.6. 798 SPACE, BEIJING, CHINA (2006)

After the proclamation of People's Republic of China in 1949, Chinese government launched industrial based projects to supply technological and military needs of the Chinese army. 718 Industrial Complex, located in Dashanzi District of Beijing, was part of this plan and it was supported by the Soviet Union. However, Soviet Union not being experienced on this type of industrial establishments, lead the 718 Industrial Complex to be planned and built by engineers from East-Germany, German Democratic Public. As a result, the industrial complex was built in the Bauhaus style, with open floor plans, plain and bare architectural elements, consisting an area of 500.000 m². The construction began in 1954. While the complex was opened in 1957 with the factories completed so far operating, it was fully completed later in 1964 [231, 232]. (Figure 4.45)

Figure 4.45. 798 Space, before and after its transformation [233, 234]

Figure 4.46. Exterior view of Factory 798 and surrounding industrial structures [235]

Factory 798 (Figure 4.46) was one of the factories built as part of 718 Industrial complex. It was completed and opened in 1957 and it produced electronic military products for socialist countries for the next 25-30 years [231].

During the 1980s, private companies were allowed in China, which resulted in increasing the competition for state-owned factories like 798. Furthermore, the decrease in need of military products after the rearrangement of Soviet Union, lead 798 to halt production entirely at the end of 1980s. In the beginning of 1990s, most factories inside the 718 Industrial Complex were abandoned causing more than 10.000 factory workers to lose their jobs [231].

Abandoned factories of 718 Complex, first attracted artists in 1995. Having vast and unobstructed spaces with huge skylights, providing enough natural light, with low rent prices, these factory spaces were ideal for artists living on a limited budget. Another factor was the Central Academy of Fine Arts moving near the complex. One of its professors looking for a suitable place for both work and living, ended up renting the storage area of factory 706 in the complex, which triggered other artists looking for similar accommodations [231].

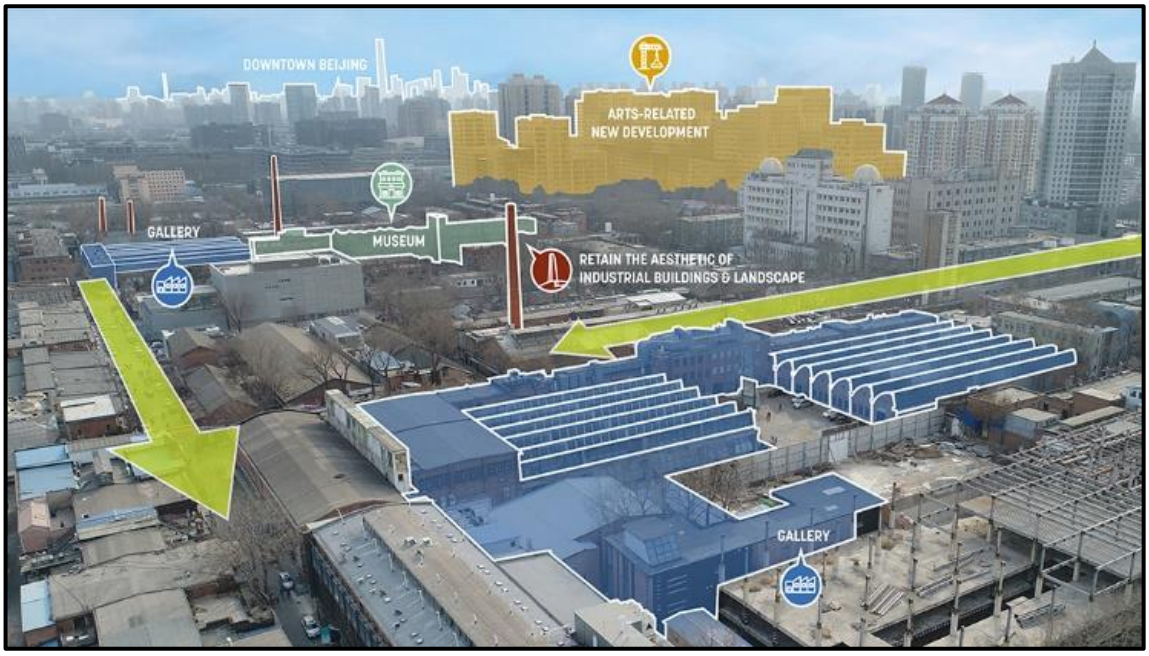


Figure 4.47. Development concept of 798 Art District, Sasaki Associates, 2006 [235]

In 2000, the ownership of 718 complex buildings were transferred over to a state-owned establishment called Seven Star Group from the government. During 2003-2004 Seven Star Group wanted to demolish the existing buildings to create an area for manufacturing of electronic goods. However, by 2003, the complex has already gained enough popularity to be perceived as an artistic hub by the public. With the support from the artists, public and the media, Seven Star Group had to cancel its plans for demolition, and the complex was recognized as an industrial heritage site by the Chinese Government. Named after the central factory of 798 in the district, 798 Art District was commissioned to Sasaki Associates in 2006, an office for urban planning and landscape design, to design a vision plan for the district. Sasaki designed a masterplan (Figure 4.47, 4.48), which would preserve the industrial character of the district while integrating it with various creative industries, museums and galleries. Sasaki kept the existing factory buildings along with the existing railroad, cranes and pipework inside the site as a part of its original memory. In 2008, the government recognized the 798 Art District officially as a hub for creative and cultural establishments, which guaranteed its preservation [231, 235].

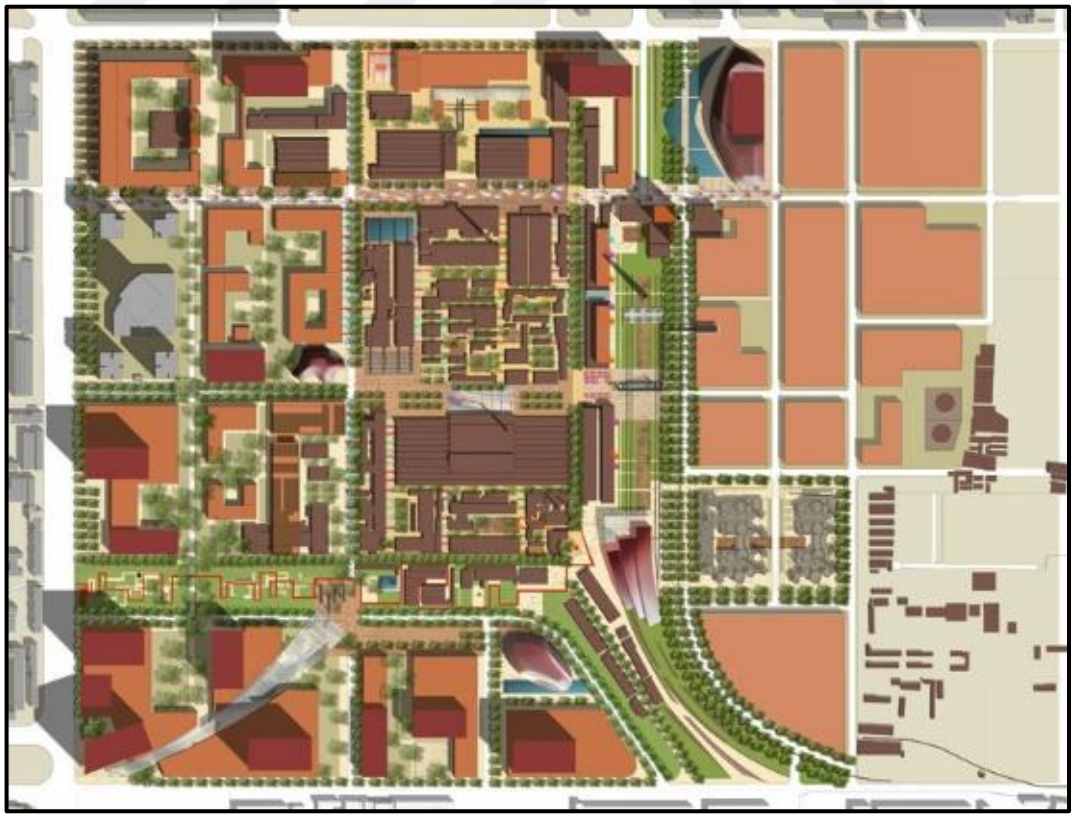


Figure 4.48. Masterplan of 798 Art District, Sasaki Associates, 2006 [235]

Factory 798 (Figure 4.45, 4.46), inside the complex, was transformed along with the district. Named as 798 Space, its initial transformation occurred like an improvisation; it was used to host various exhibitions and events without having any architectural interventions, even keeping the Maoist slogans painted in red on its walls, during the beginning of 2000s [231, 232].

In 2005, part of 798 was rented by Beijing Tokyo Art Projects to be used as an art gallery. (Figure 4.49) The transformation was commissioned to MAD Architects [236, 237].

Figure 4.49. Beijing Tokyo Art Projects, MAD Architects, 2005 [238, 239]

Yang Gallery, which was established in 2005, also set up its Beijing gallery in 798 Space. (Figure 4.50) They almost did nothing with the existing space, keeping its memory intact, even with the communist slogans on the factory walls [240, 241].

Figure 4.50. Yang Gallery, 2005 [240, 242]

After Sasaki's vision plan for 798 Art District, Ullens Center for Contemporary Art opened in 798 Space in 2007 which was consisted the factory's three chambers. (Figure 4.51) The renovation of Ullens Center for Contemporary Art was designed by Wilmotte & Associates [243, 244].

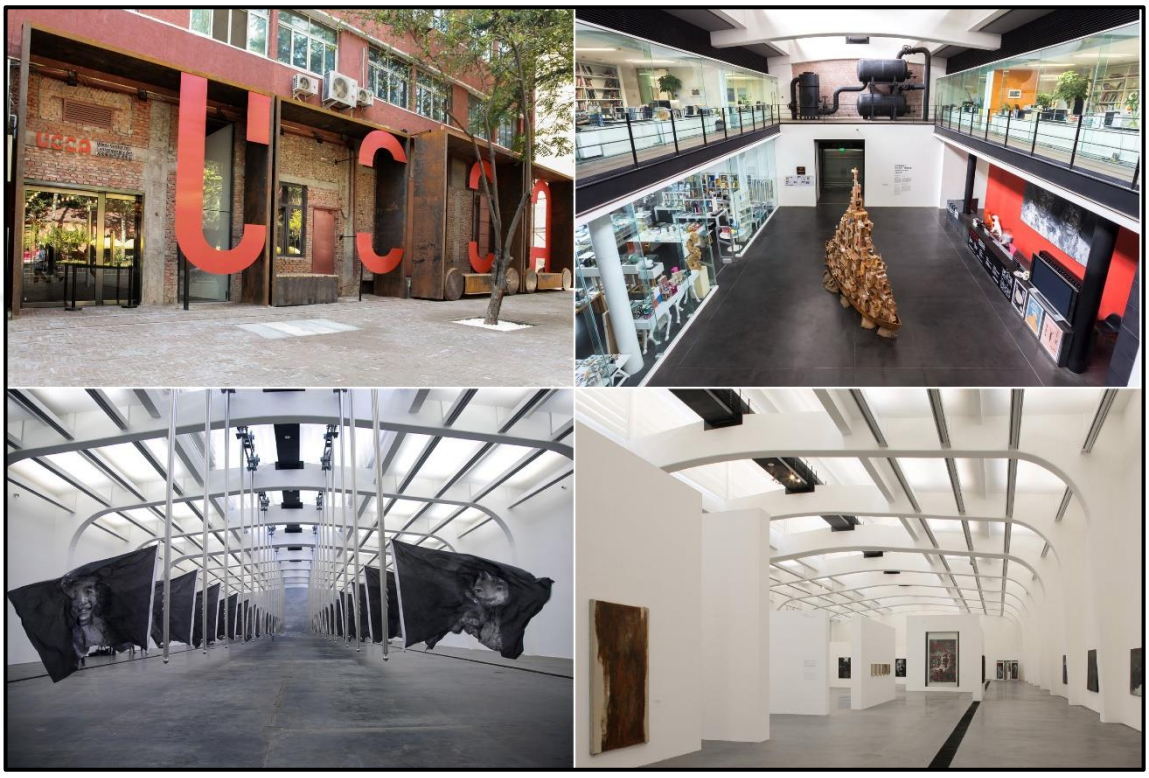


Figure 4.51. Ullens Center for Contemporary Art, Wilmotte & Associates, 2007 [245, 246]

798 Space also houses a restaurant and café. 798 Art District is now a tourist attraction and consists an area of 798.000 m².

4.7. KRAANSPOOR, OTH ARCHITECTEN, AMSTERDAM, THE NETHERLANDS (2007)

Transformation of Kraanspoor Office Building was initiated and realized by great efforts of its architect Trude Hooykaas of architecture firm OTH Architecten. Located on the northern bank of IJ River in Amsterdam, Kraanspoor was initially a crane way coupled with a jetty for ship repairing [247]. (Figure 4.52, 4.53)

Figure 4.52. Kraanspoor Office Building, before and after its transformation [247]

The crane way was built in 1952 by architect J.D. Postma under the jurisdiction of NDSM, Netherlands Dock and Shipbuilding Company, and was used as a base for two industrial sized cranes, operated for loading/unloading ships. During the 1970s, shipbuilding industry in the area declined and in 1978 NDSM closed down leaving the crane way abandoned. Later in 1980s, with the relocation of ports in the area, it was certain for the abandoned crane way that it would not be serving its initial function again. In 1995, a new zoning plan for the IJ riverbank area was prepared by the municipality to turn the area into a new residential and retail zone. The new zoning plan foresaw the existing crane way to be demolished as a part of the development [247, 248, 249, 250].

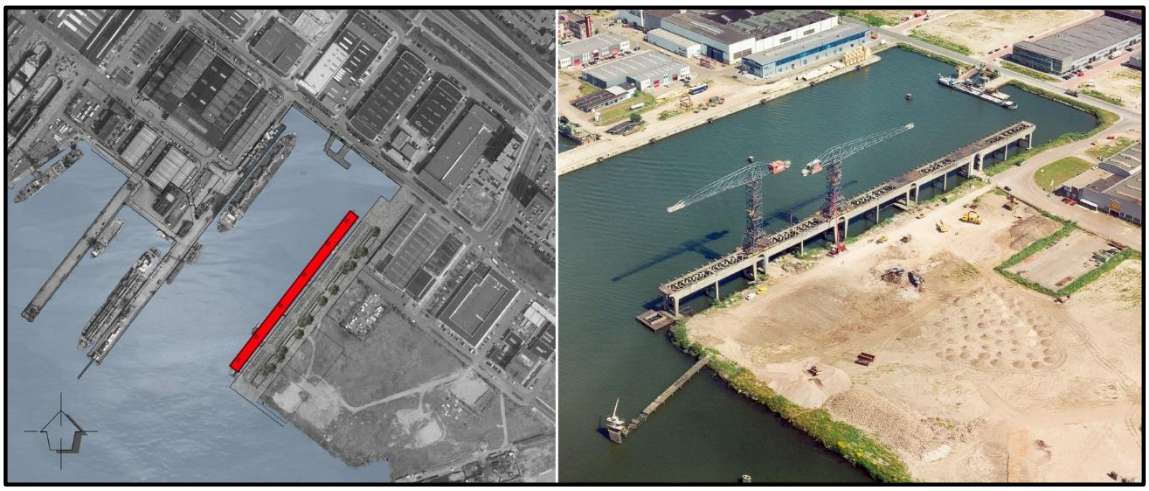


Figure 4.53. Kraanspoor, located on the northern bank of IJ River in Amsterdam, before its transformation [247]

Architect Trude Hooykaas, noticed the abandoned crane way, with two cranes on it, in 1997 while she was cycling on the IJ riverbank. She saw a certain potential in the abandoned infrastructure and thought it was worth preserving considering its industrial heritage. When she applied the municipality for the cancelation of demolition, she was rejected for her transformation plans not being feasible enough. Two years later in 1999, she succeeded in changing the existing zoning plan with the support of politicians and citizens, and saved the crane way from the verge of demolition. The same year, existing cranes on the structure were removed in preparation of transformation [247, 248, 249, 251].

Architect approached the crane way with the aim of preserving the original structure and using it as a foundation of the new one she would design. (Figure 4.54) She aimed to make as little alterations to the crane way as she can, not to repress the structure's memory. (Figure 4.52) Even though this approach limited the maximum weight the structure can bear, it was also a design challenge for the architect, which she had to come up with alternative solutions. Another restriction was that the original crane way was built on a 12 m deep harbor, and the load distribution was uneven on the structure, weighing more on the waterside [247, 248].

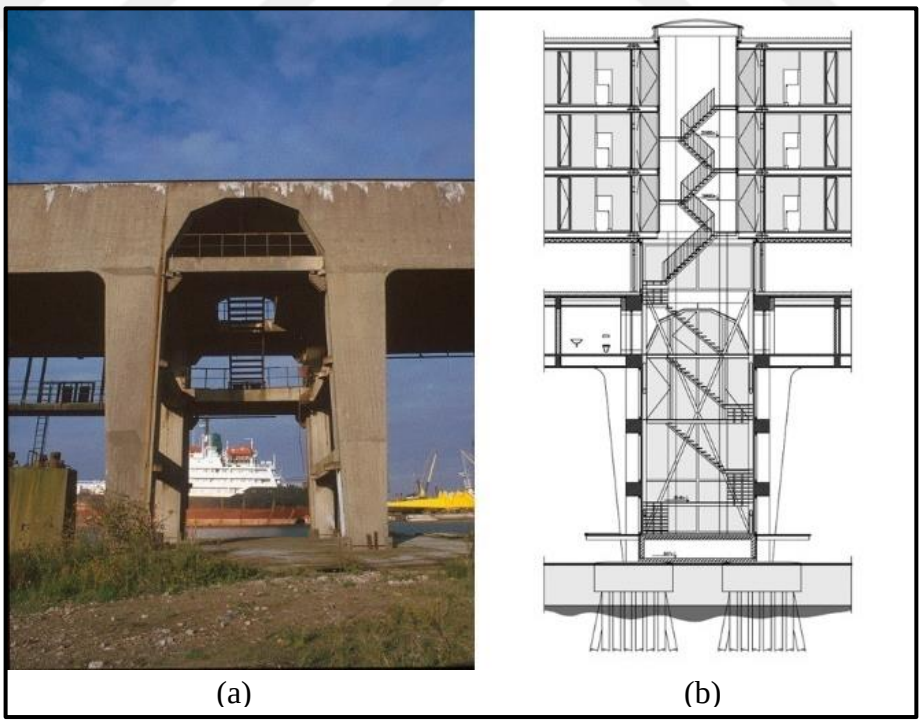


Figure 4.54. Existing structure of the craneway was used as foundation for the new office building, Kraanspoor, OTH Architecten, 2007. (a) Existing structure, (b) Section of the office building [247]

Transformation of Kraanspoor Office Building started in 2006 and it was completed in 2007. The architect designed a new structure lifted above the original one with 3-meter-high steel columns. The new structure was built with steel frames and prefabricated floors called Infra+, which is made of thin concrete slabs supported with steel girders, to have maximum usable floor space with minimum load. This type of construction gained the architect three new floors, increasing the total gross floor area up to 12.500 m². Four existing stairwells on the original structure were supported with new stairs and elevators to provide better circulation, at the same time serving as entrance points to the building. While the new three floors were designed to be open office spaces, a level on the original structure was designed to contain storage areas and archive rooms. Existing catwalks on the original structure were kept and transformed into fire escapes [247, 248, 252]. (Figure 4.55)

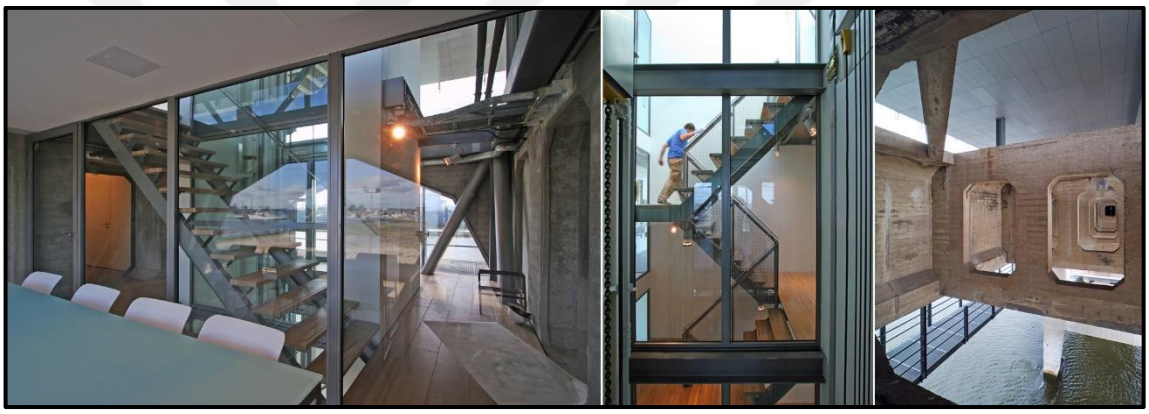


Figure 4.55. Existing stairwells were supported with additional stairs and elevators, while the existing catwalks were turned into fire escapes, Kraanspoor, OTH Architecten, 2007 [247]

Infra+, hollowed precast floor system also allowed the necessary wirework and piping to be installed inside the floor slabs. Acclimatization of office spaces are provided through the heating and cooling pipes inside them. The water for heating and cooling pipes is provided directly from the IJ River [248].

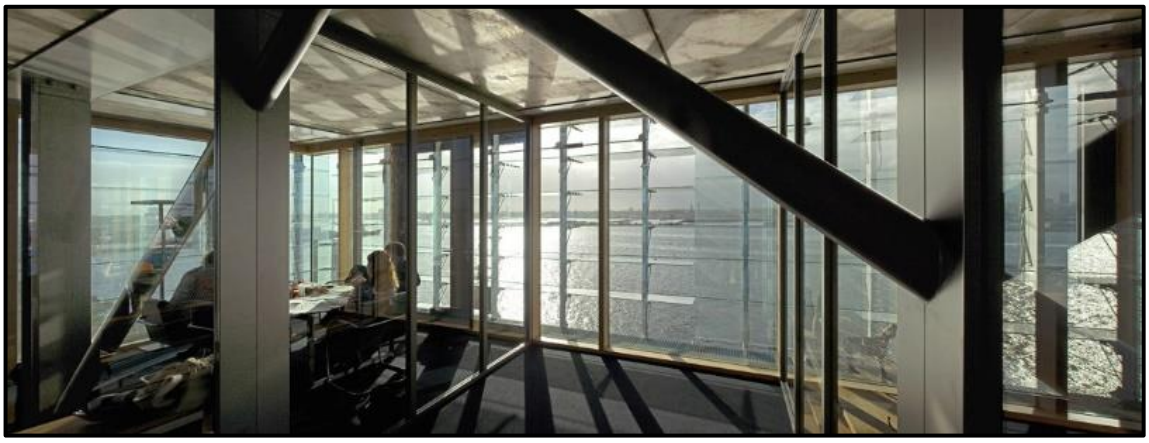


Figure 4.56. Interior view, Kraanspoor, OTH Architecten, 2007 [247]

Considering the vast river view, a double-skinned glass façade was designed for Kraanspoor. (Figure 4.56) External side of the glass façade consisted glazed parts, which can be electrically controlled for reflecting sun's ray throughout the daytime. Internal side of the façade is consisted of floor-length windows, which can be operated manually for natural ventilation. The double-skinned façade also functions as a buffer zone for the building and helps contain the cool or warm air inside longer [248, 250, 252]. (Figure 4.57)

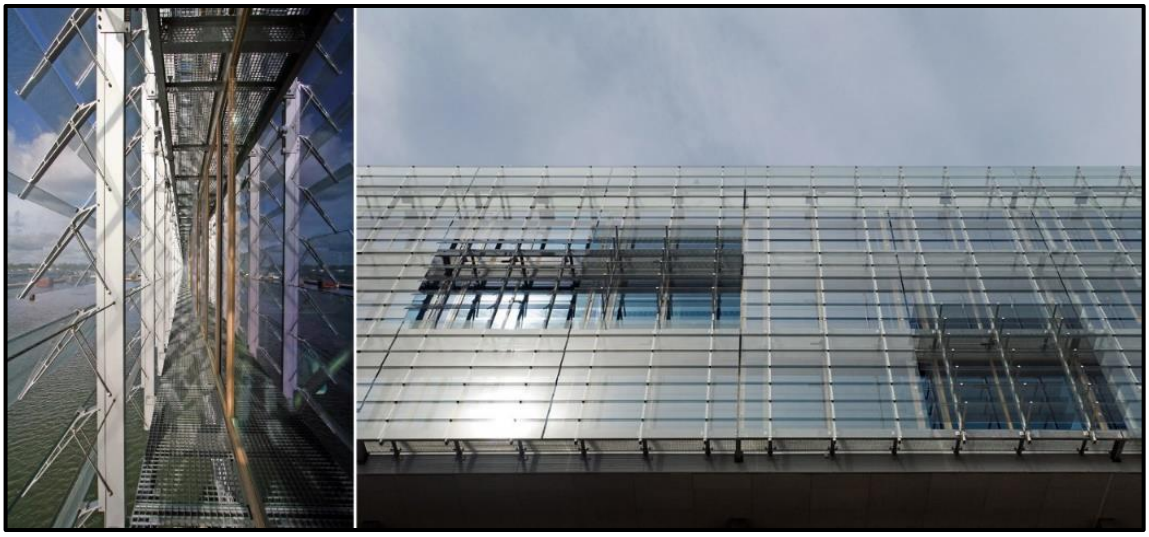


Figure 4.57 Double-skinned façade, Kraanspoor, OTH Architecten, 2007 [247]

The new structure was designed to be in accordance with the existing structure dimensionally, to respect its memory. Lifting the new structure 3 m above the original one

was also used to create a distinction between the existing and the new structures. (Figure 4.58) As a result, architect's transformation not only preserved the existing structure, but also preserved its memory with minimum interventions and saved the municipality from demolition costs. Even though the new function of Kraanspoor is office space, the architect planned it with minimum separation to create future opportunities for changes in function [248].

Figure 4.58. Kraanspoor, OTH Architecten, 2007 [247]

4.8. CAIXAFORUM MADRID, HERZOG & DE MEURON, MADRID, SPAIN (2008)

The site of CaixaForum Madrid was initially home to a candle factory called La Estrella which was opened in 1857. Later, in 1899, architect Jesus Carrasco-Munoz Encina and engineer Jose Maria Hernandez designed Central Electrica del Mediodia on the same site, a coal powered power plant, which would provide electricity for southern-central Madrid. (Figure 4.59, 4.60) It was opened in 1901 and it functioned actively during the first half of 20th century. When the plant fulfilled its duties, it was closed down and left abandoned until la Caixa Foundation bought the site in 2001 [253].

Figure 4.59. CaixaForum Madrid, before and after its transformation [254, 255, 256]

Figure 4.60. Aerial and exterior view of Central Electrica del Mediodia, before transformation [257]

La Caixa Foundation is a social works foundation, which has programs dedicated to a diverse range of cultural activities from arts, music, and theater to literature. As a part of their *Social*

and Cultural Outreach Projects, the foundation wanted to create a platform for all ages, which would focus on the promotion of cultural activities through exhibitions, performances, concerts and educational workshops [253].

The old Central Electrica del Mediodia was not only located in a culturally encouraging place, being in close proximity to Reina Sofia National Art Museum, Prado Museum and Thyssen-Bornemisza Museum, but it was one of the rare examples of early industrial architecture in Madrid, having a strong memory [253].

Figure 4.61. Exterior view of Central Electrica del Mediodia, before transformation [257]

When the foundation bought the power plant, it was in a neglected state, its interior and roof was highly damaged, but its four facades were listed as grade three historical elements which has to be preserved in case of a transformation. (Figure 4.61) Another issue concerning the transformation was that the new program for the center required almost five times the original 2.000 m² space [253].

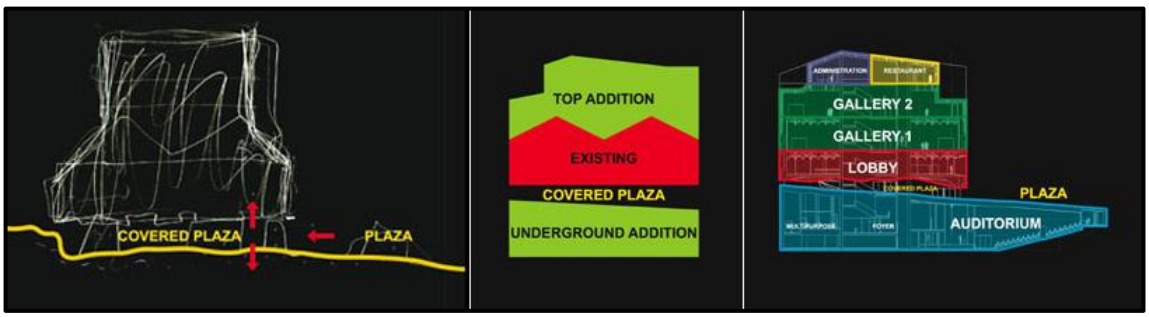


Figure 4.62. Concept and function section of CaixaForum Madrid, Herzog & de Meuron, 2008 [257]

Herzog & de Meuron was commissioned in 2001 for the transformation of old power plant. The design process was completed in 2003. Transformation project for CaixaForum Madrid was not limited with the old plant, but it also included transformation of a gas station into a public square, which would provide a connection with the building and the main boulevard, Paseo del Prado [253]. (Figure 4.62)

Herzog & de Meuron approached the old power plant in an untraditional manner and stripped the building off all structural elements except the façades. By removing the existing stone base, they managed to create a semi-open space, which would both act as a continuation of the square and provide entrance to the building. To provide enough space for the new program, they added upper and basement floors, increasing the total floor area up to 10.000 m² [253].

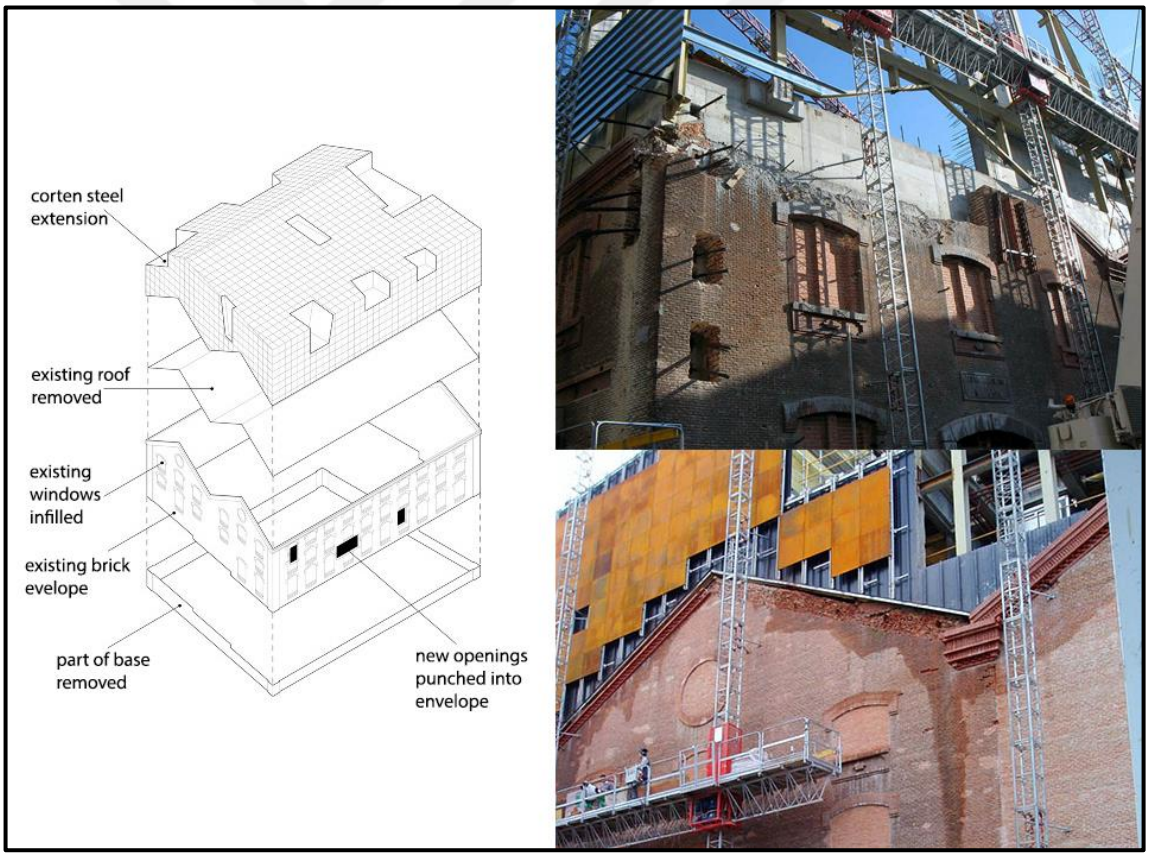


Figure 4.63. Construction process of CaixaForum Madrid, Herzog & de Meuron, 2008 [258, 259]

Preservation of the old facades required a meticulous work. A new reinforced structure was installed inside the existing facades to support the new building. Using that structure as a base, the four facades were restored with the use of traditional techniques and with bricks recovered from the old building. Thirty five percent of the bricks had to be replaced for structural stability. Window openings on the original facades were also covered with original bricks from the old building, and new window openings were created on the facades based on the requirements of the new program [253]. (Figure 4.63)

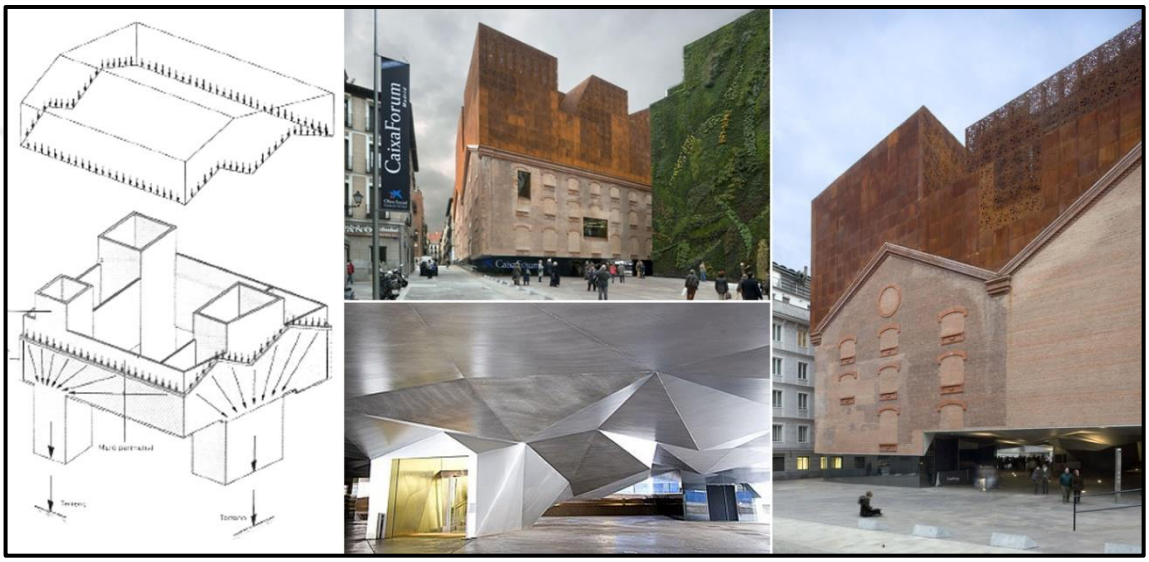


Figure 4.64. New design is supported by three main pillar, which also creates a semi-open space following the main square [257, 259]

The building is supported on three main pillars, which also helps the continuation of the square under the semi-open space of the building. (Figure 4.64) While the upper floors of the building are made of reinforced concrete, two basement floors are made of expanded sheet metal mesh. Basement floors also take up the area beneath the public square. To accommodate the program, architects raised the existing height of the building from 17 m to 27 m by adding new floors [253].

Top addition of the building was designed with niches and was created with volumes based on the neighboring buildings' roofs. For finishing material, perforated cast iron panels made of corten steel (Figure 4.65) were used which get a rusty look when exposed to air in time. Both the shape for top addition and the finishing material were chosen specifically to blend the building into the existing urban fabric [253].

Figure 4.65. Corten steel panels were used on the top extension of CaixaForum Madrid, Herzog & de Meuron, 2008 [257]

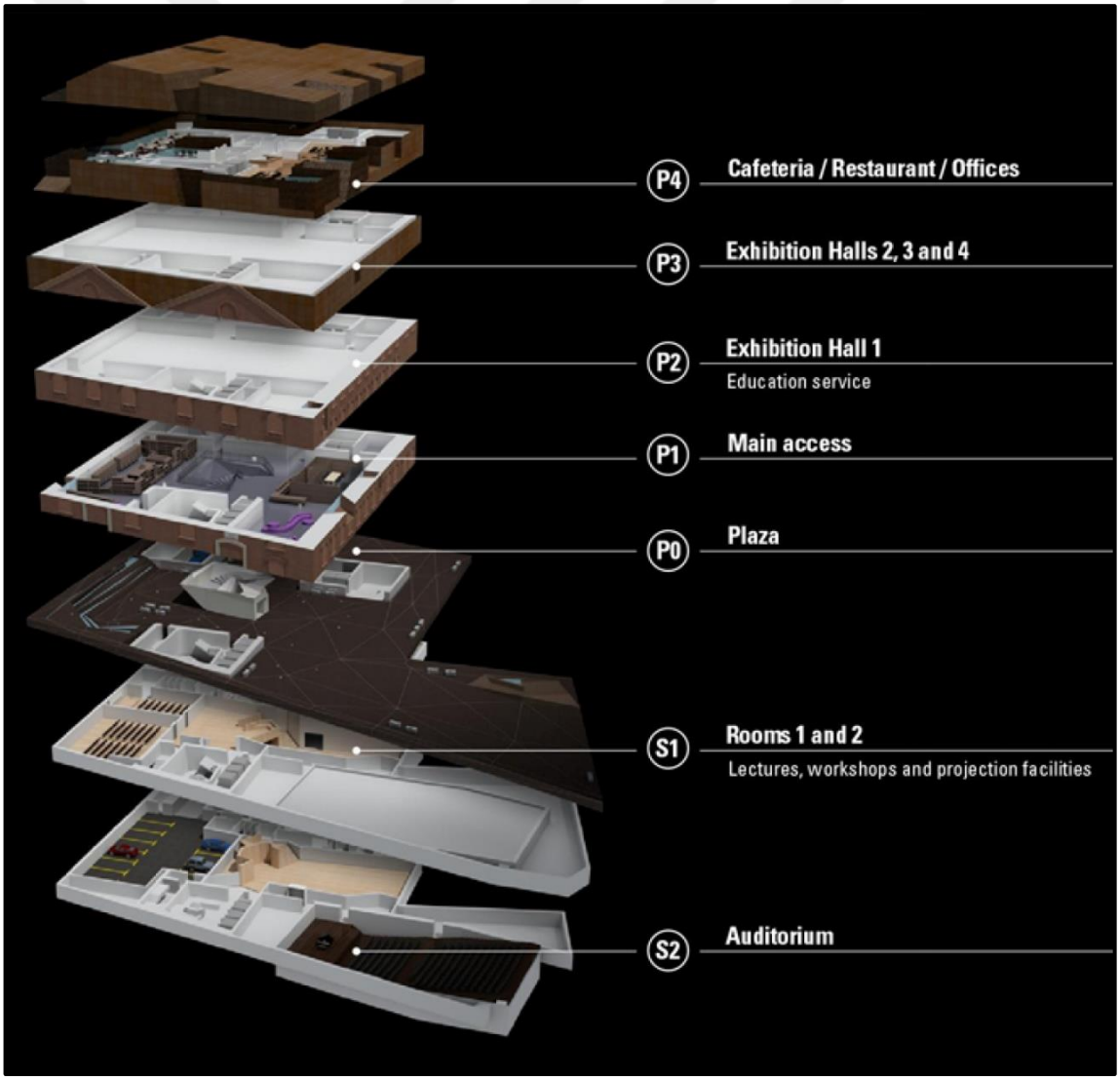


Figure 4.66. Building program, CaixaForum Madrid, Herzog & de Meuron, 2008 [253]

CaixaForum Madrid is consisted of seven floors. (Figure 4.66, 4.68) The building is accessed via ground floor, which is on the same level as the public square, through stairs or elevators. Service stairs and elevators also are accessible from ground floor. First floor has the lobby, reception and info section, security, VIP room and bookshop. Second floor and third floor have exhibition spaces, rooms for educational activities and workshops. Fourth floor has the restaurant and administrative offices of the building. Two basement floors include the 311-seat auditorium and its foyer, a shop for art works, maintenance rooms and private parking area [253].

Figure 4.67. Vertical garden facing the square, CaixaForum Madrid, Herzog & de Meuron, 2008 [260]

The total area of the new public square is 2.500 m², including the previous gas station area, under the main building and the old power plant's courtyard facing Gobernador Street. The public square is also complimented with two fountains and a vertical garden designed by botanist Patrick Blanc. (Figure 4.67) It holds the title of being Spain's first vertical garden with an area of 460 m². The vertical garden houses 15.000 plants varying from 250 different species [253, 260]. The construction of CaixaForum Madrid started in 2003. It was completed and opened to public in 2008 [261].

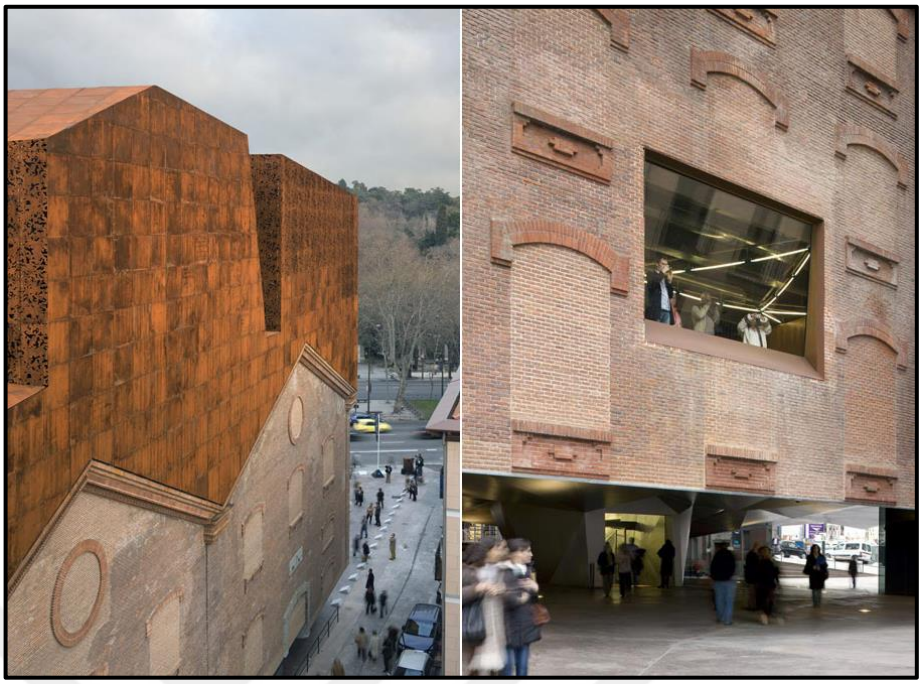


Figure 4.68. Façade views, CaixaForum Madrid, Herzog & de Meuron, 2008 [262]

4.9. HIGH LINE, DILLER SCOFIDIO + RENFRO, NEW YORK, USA (2009)

High Line was initially built in 1847 as a railway on street level in Manhattan, New York, for the transportation of various goods from the docks on Hudson River into the factories and warehouses inside Manhattan. (Figure 4.69) Due to railways following a common path along the streets of West Manhattan, pedestrians were frequently involved in train accidents, which would mostly result in death. In 1929, the city decided to elevate the train tracks to prevent casualties. New tracks were built as a part of West Side Improvement Project, nine meters above the street level, and it was completed in 1934. (Figure 4.70) High Line functioned actively in the next 20 years, and the line passing directly through the factories was a great opportunity for unloading transported goods. When transportation via trucks started increasing and becoming more beneficial in 1950s, High Line was faced with a progressing decline. In 1961, High Line lost part of its southern section after its demolition. With the deindustrialization of city centers, High Line lost its function entirely and the last train to function was in late 1980. For the next 20 years, High Line was abandoned waiting

for its demise while the nature took over the tracks, creating an unexpected flora, three floors above the ground [263, 264, 265, 266]. (Figure 4.71)

Figure 4.69. High Line, before and after its transformation [267, 268]

Figure 4.70. Aerial view of the railway before transformation from 1990s, when railway was abandoned [269]

During the 1990s, developers and contractors were insistent on the abandoned railway to be demolished for development purposes. However, two West Manhattan neighbors, Josh David and Robert Hammond, who met during a community meeting, decided that the High Line was worth preserving and if the neighborhood needed any development, it was certainly not a private property but a public space like a city park. In 1999, David and Hammond founded a non-profit organization called Friends of the High Line to raise awareness about the preservation of abandoned tracks and fund its transformation. Being located in a culturally diverse area based of artists, architects and art galleries, High Line gained a huge popularity and support from the public. In 2001, mayor of New York City, Rudy Giuliani, approved the demolition of High Line. Later in 2002, with a lot of pressure from the community of Friends of the High Line and the public, new mayor, Michael Bloomberg, drew back the demolition approval and supported that the neighborhood indeed was in need of a public park. In 2004, Mayor Bloomberg also provided a $50 million funding for High Line's transformation [263, 266, 270].

Figure 4.71. Views of abandoned railway before transformation [267, 269]

During 2002-2003, a feasibility study was made to make sure High Line's transformation into a public park while reusing the existing infrastructure would be feasible, especially from an economical perspective. After getting the required approval for transformation, an open design idea competition was held. In 2004, James Corner Field Operations in collaboration with Diller Scofidio + Renfro won the competition amongst 720 submissions from 36 countries. Designs of Zaha Hadid Architects, Steven Holl Architects, Michael Van Valkenburgh and Skidmore, Owings & Merril were amongst the finalists [264, 266, 271, 272].

Figure 4.72. Map highlighting the railway area for transformation [267]

Design process for High Line started in 2004. (Figure 4.72) While the final project was being developed, the original owner of the High Line, CSX Transportations Inc. transferred the line's ownership to the city of New York in 2005. In 2006, the construction for High Line's transformation started [264].

Figure 4.73. Concept for High Line, Diller Scofidio + Renfro, 2004 [267]

For the design, an interdisciplinary team based of architects, engineers, landscape architects and horticulturists were formed by James Corner Field Operations and Diller Scofidio + Renfro. The biggest design inspiration was the plantation, which took over the abandoned infrastructure. (Figure 4.73) Architects wanted to interpret this overtaking into their design and give the park's users a unique experience. (Figure 4.74) A secondary motivation for High Line's design was the continuous New York cityscape and Hudson River view, which the user can enjoy [271, 272].

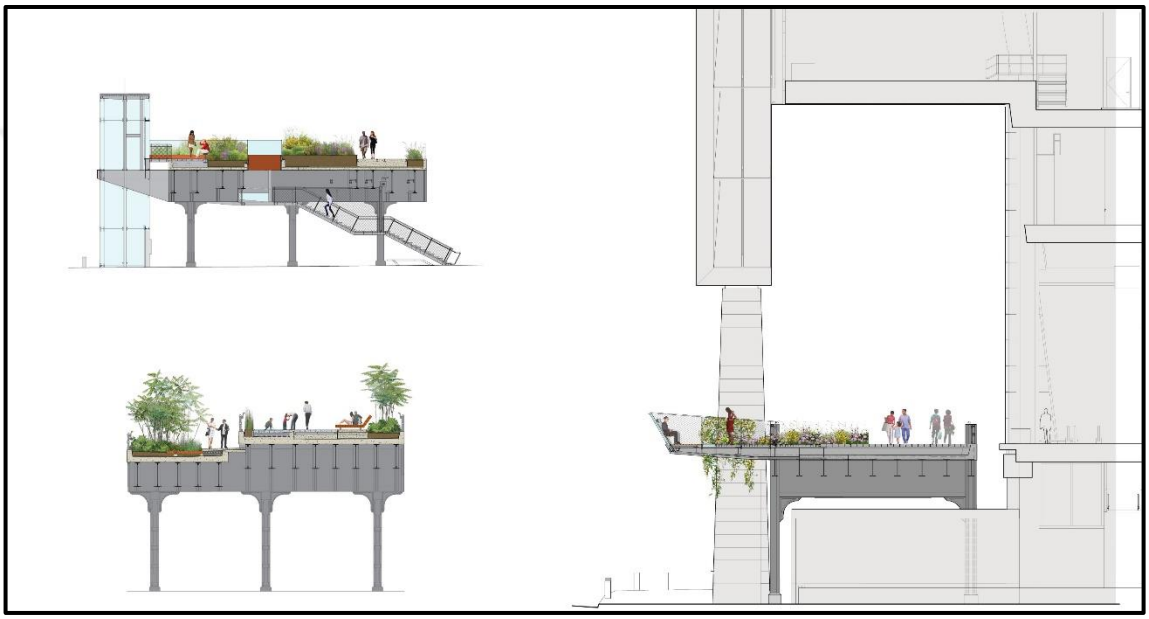


Figure 4.74. Concept sections for High Line, Diller Scofidio + Renfro, 2004 [267]

Existing rail tracks were dissembled and treated for sustainability. Later they were returned to their original places and used as planting elements integrating with the plantation and acting as a reminder of High Lines initial function [271]. (Figure 4.75)

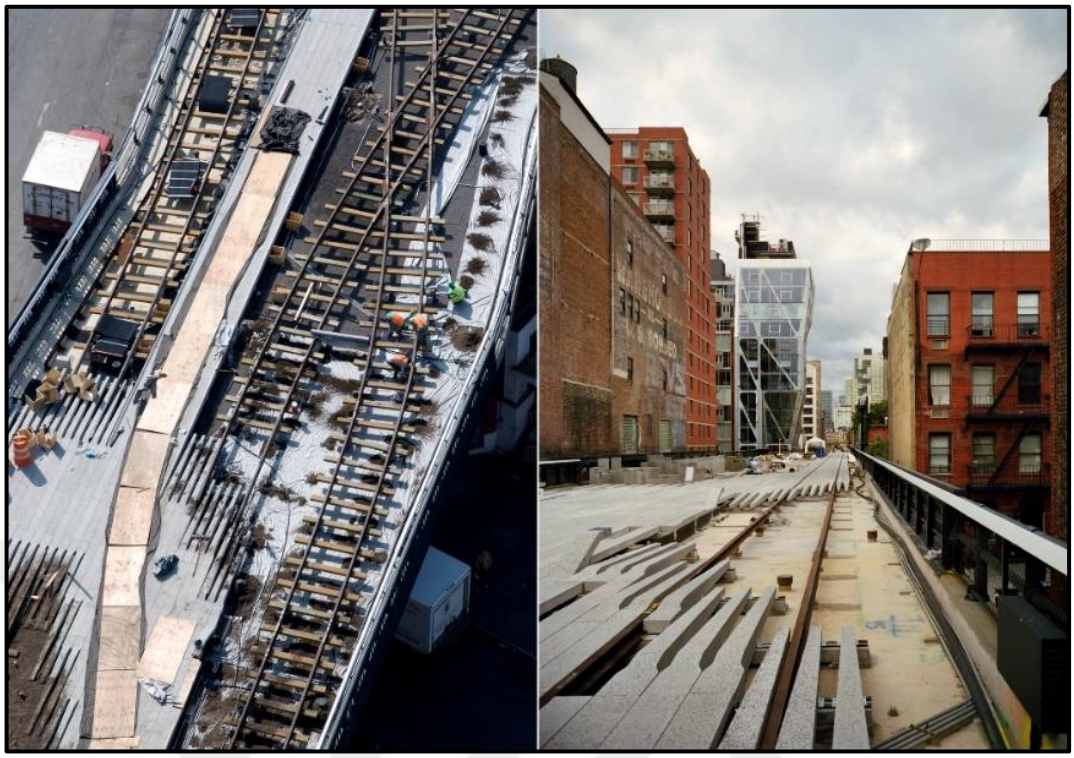


Figure 4.75. Existing rail tracks were treated and reinstalled to their previous places to be used as planting elements [267]

Architects' key design element for High Line was the modular pre-cast concrete pavement planks with tapered finishes, which allows plants to grow amongst the pavement. This integration between the greenery and the walking path helped the architects to design a gradual path, which would cooperate a balance with the nature and the park [271, 272]. (Figure 4.76)

Figure 4.76. Pre-cast concrete pavement, High Line, Diller Scofidio + Renfro, 2009 [267]

For plantation, architects collaborated with horticulturists and garden designer Piet Oudolf. For the new park, most plants were selected amongst the local ones, which have naturally grown on the abandoned tracks. Plants like perennials, trees, shrubs and grasses were selected for their durability and sustainability [264, 271]. (Figure 4.77)

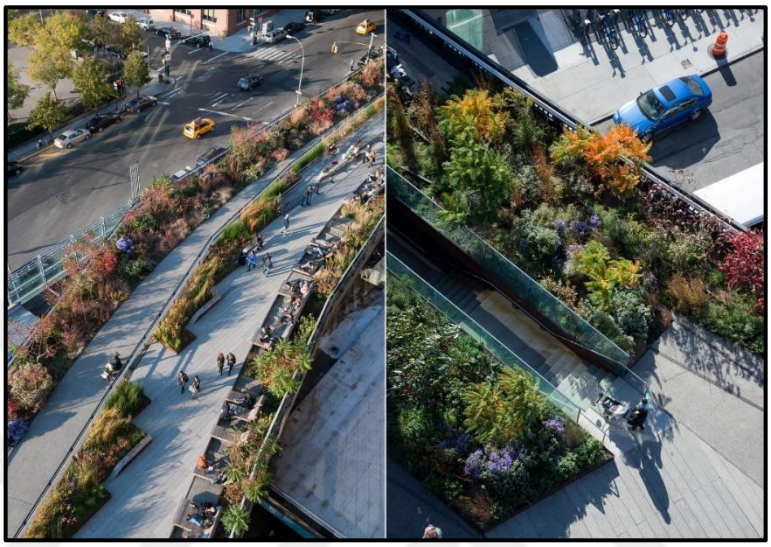


Figure 4.77. Plants were selected based on the local flora, High Line, Diller Scofidio + Renfro, 2009 [267]

High Line is 2.4 km long and passes through 22 blocks. For providing proper accessibility, it has 12 access points, six of which are suitable for handicapped users. High Line includes open lawns, seating steps, water features, sun decks and viewing areas as well as small shops and snack bars [267, 271]. (Figure 4.78)

Figure 4.78. High Line, Diller Scofidio + Renfro, 2009 [267]

Construction of High Line was completed in three sections. The first one started in 2006 and was completed and opened in 2009. The second section was opened in 2011 and the third section in 2014. Even though initial program for High Line was consisted of these three sections, the railway has a branch at the end of second section, called the Spur. The Spur, which includes spaces for activities of Friends of the High Line organization, gardens and space for public art display, was opened in 2019 [267, 264, 273]. (Figure 4.79, 4.80)

Figure 4.79. Section of the Spur, High Line, Diller Scofidio + Renfro, 2019 [269]

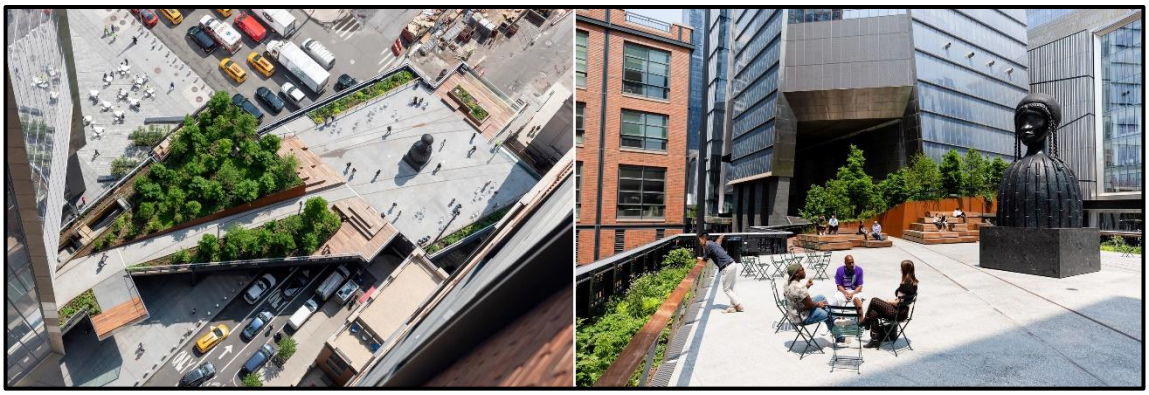


Figure 4.80. Photos of the Spur, High Line, Diller Scofidio + Renfro, 2019 [267]

Transformation of High Line did not only helped the city of New York gain a public park, but it also revived the architecture in its neighborhoods. After High Line's increasing popularity, neighboring buildings were developed with designs from known architects like

Frank Gehry, Zaha Hadid and Bjark Ingels making the district an architectural hub and a tourist attraction. Initially High Line was thought to attract 300.000 tourists a year. In 2016, High Line was visited by 8.000.000 tourists, which was 25-times more than originally planned [271, 272, 274]. (Figure 4.81)

Figure 4.81. Aerial views of High Line, Diller Scofidio + Renfro, 2019 [267, 271]

High Line's popularity caused a global effect by igniting the start of similar infrastructure transformations around the world [272].

4.10. OPEN AIR LIBRARY, KARO ARCHITEKTEN, MAGDEBURG, GERMANY (2009)

Salbke district, located in city of Magdeburg in Germany, used to be dominated by the industrial areas in the vicinity. After the withdrawal of industrial production in the area during the 1990s, Salbke became one of the many districts that had to face a vast amount of vacancy due to loss of job opportunities. In the following 15 years, Salbke struggled with shrinkage in population and its center was left with a poor local economy, which was bereft of liveliness [275].

In the beginning of 2000s, the German Federal Office for Building, Urban Affairs and Spatial Development, BBSR, started a research program called ExWoSt, Experimental Housing and Urban Development, to develop urban planning and quality of life throughout Germany [276]. One of the program's research fields was called *Innovations for Family and Senior Friendly Neighborhoods* which focused on improving the local communities in shrinking areas by implementing one of the 27 model projects, particularly developed for these types of areas [277, 278].

Figure 4.82. Open Air Library, before and after its transformation [279, 280]

In Salbke's center, there was an empty lot, which used to house the former public library but it was demolished after a fire in the 1980s and was never revived. (Figure 4.82) Project called *Bookmark* seemed to fit best in case of Salbke, which aimed to create a 24-hours-available open-air library providing a selection of books free to exchange, reading areas for the locals, a stage area for small performances and an information board for the district [275, 278].

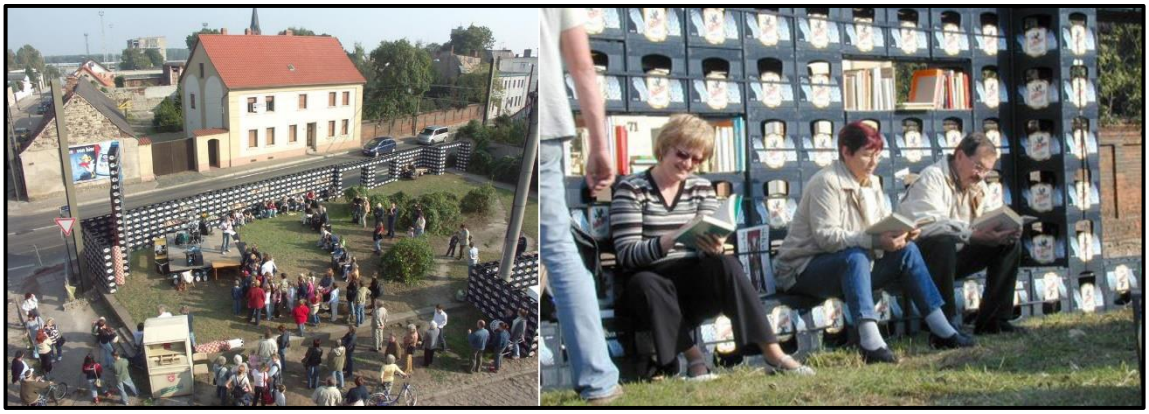


Figure 4.83. Temporary library in Salbke, made of beer crates [281]

In October of 2005, a temporary library made of 1.000 beer crates and plywood was installed in the site of former library on 1:1 scale with the help from the locals to test out the *Bookmark* project. (Figure 4.83) It was organized as a two-day book festival and with the participation of the locals, 1.500 books were collected for sharing. *Bookmark* experiment got positive feedback from the locals and after the festival, locals carried on this idea of a public library in an available shop in the Salbke center [275, 277, 278].

After the success of temporary *Bookmark*, the research program, ExWoSt, classified it as a model project to develop inert centers and started the process of planning a permanent public library for Salbke in 2006. Task of designing the permanent *Bookmark* was commissioned to Leipzig based architectural office KARO Architekten [280].

Figure 4.84. KARO Architekten's workshop invitation, 2007 [281]

In March 2007, KARO Architekten organized a workshop (Figure 4.84) with the locals on planning the permanent public library. The whole process of design was carried on with the feedback from the locals. Three design proposals, based on the previous temporary structure and public opinions, were made by the designers in May of 2007 [281].

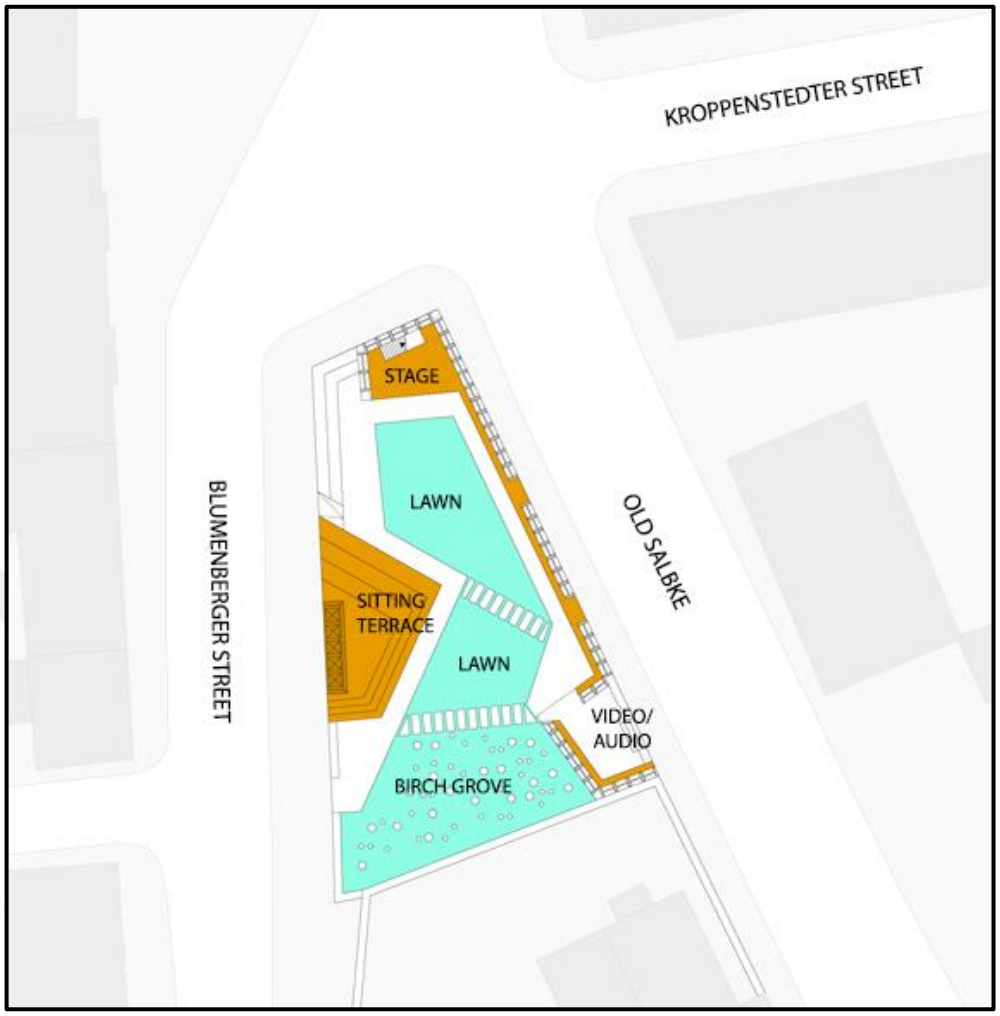


Figure 4.85. Proposal I for Open Air Library, KARO Architekten, 2007 [281]

Proposal I (Figure 4.85), focused on a continuous surface with green areas on the inside, with urban furniture made of timber, while on the outside a recycled façade made of aluminum molds, which were reclaimed from an about-to-be demolished department store, was preferred by the public forum of locals. Final presentation of the chosen proposal was exhibited on June 2007 in Bürgerfest and a 1:1 scale model of the urban furniture was presented to the locals for testing [281]. (Figure 4.86)

Figure 4.86. Final presentation of Proposal I, with a 1:1 scale model of the urban furniture planned to be built in Open Air Library, 2007 [281]

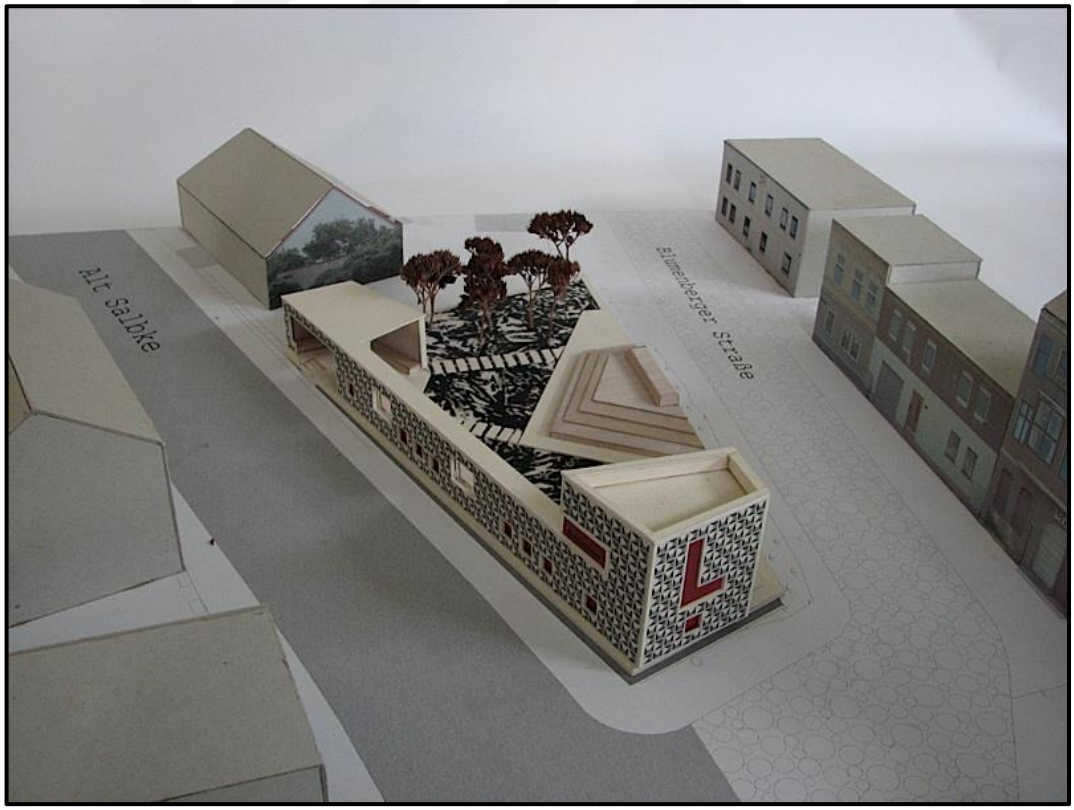


Figure 4.87. Model of Proposal I was exhibited during the final presentation, 2007 [281]

Working plans and model of the permanent library were made public on July of 2007 and the building permit for the library was issued on February of 2008 [281]. (Figure 4.87, 4.88)

On June 2008 in Bürgerfest, aluminum façade molds, which were planned to be used on the permanent library, were presented to locals. (Figure 4.89) At the same time, excavation for the future construction made a start. On December 2008, the foundations of the library were cast in a public event with the participation of the officials and the locals [281]. (Figure 4.90)

Figure 4.88. Model of Proposal I was exhibited during the final presentation, 2007 [281]

Figure 4.89. Aluminum façade molds from previous Horten Department Store were presented at Bürgerfest, 2008 [281]

Figure 4.90. Construction of Open Air Library, KARO Architekten, 2009 [281]

A competition for choosing the graffiti, which was planned to be applied on the library's façade, was held on May of 2009. (Figure 4.91) Designers applied their winning designs on sixth of June in 2009 and the *Bookmark* opened to public on 20th of June in 2009 [281].

Figure 4.91. Winners of the graffiti competition applied their designs, 2009 [281]

Completed open-air library, *Bookmark* is designed in an introverted manner on its east façade to create a noise barrier from the busy street. On the west façade, a more open and inviting approach is used with a sitting terrace. On the north, a stage is installed for performances. The closed part of the east façade is installed with bookshelves on the inside for library's book collection, while on the outside it has information boards and advertisement spaces. Inside the open space timber was used for wall coverings and seating areas to create a warmer feeling. On the outer façade aluminum mold, which were dismantled from the demolished Horten Department Store in 2007 are used to create a firm and sheltered feeling [280]. (Figure 4.92, 4.93)

Figure 4.92. Views from the completed project, Open Air Library, KARO Architekten, 2009 [280]

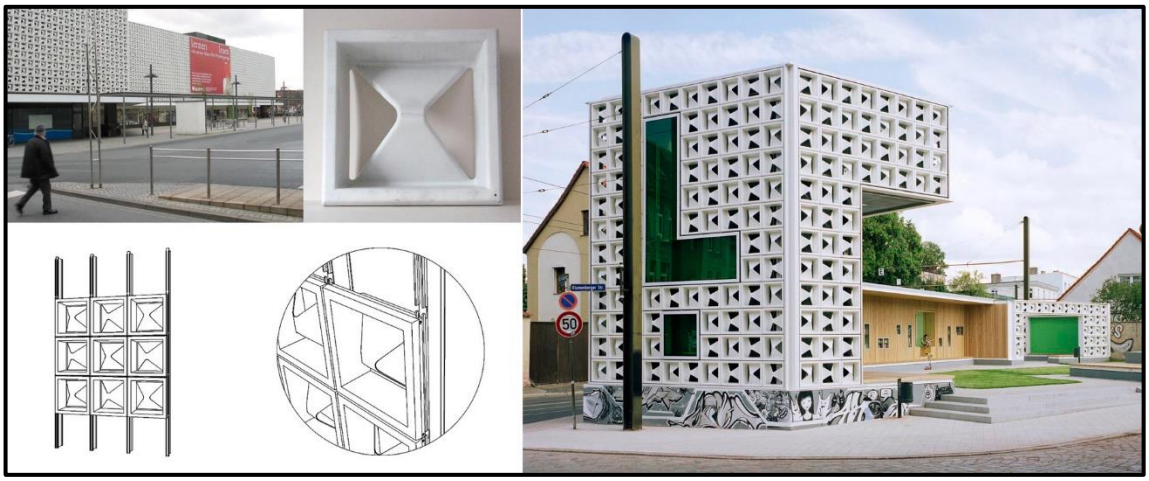


Figure 4.93. Façade molds from the demolished Horten Department Store was used on the Open Air Library [280]

Horten Department Store was built in 1966 by Rhode Kellermann Wawrowski Architektur in Hamm, Germany. During the design process of the *Bookmark*, KARO Arckitekten contacted the demolishers and requested for the façade molds of Horten. Considering the designers' intentions of recycling disused materials and the library being a social project, demolishers of the department store sold the aluminum façade molds for a much lower price than their value to the officials [275]. (Figure 4.93) Today, *Bookmark* holds more than 30.000 books, all collected through donations, and serves the locals free of charge while providing them a safe and cultural public space [275, 280]. (Figure 4.94)

Figure 4.94. Views from the completed project, Open Air Library, KARO Architekten, 2009 [280]

4.11. TRENTO HISTORY MUSEUM, STUDIO TERRAGNI ARCHITETTI, TRENTO, ITALY (2009)

Trento Tunnels were initially built in the beginning of 1970s to connect the main highway coming from North Italy to Austria, through Dolomite Mountains in Trento, Italy. Tunnels pass through Doss Trento, a hill with a height of 309 m. Two 300 m long, 10 m wide and 6,5 m high tunnels were opened to traffic in 1974. When the new highway was built on the outer part of Trento, Trento Tunnels became disused and they were closed to traffic in 2007 [282, 283, 284]. (Figure 4.95)

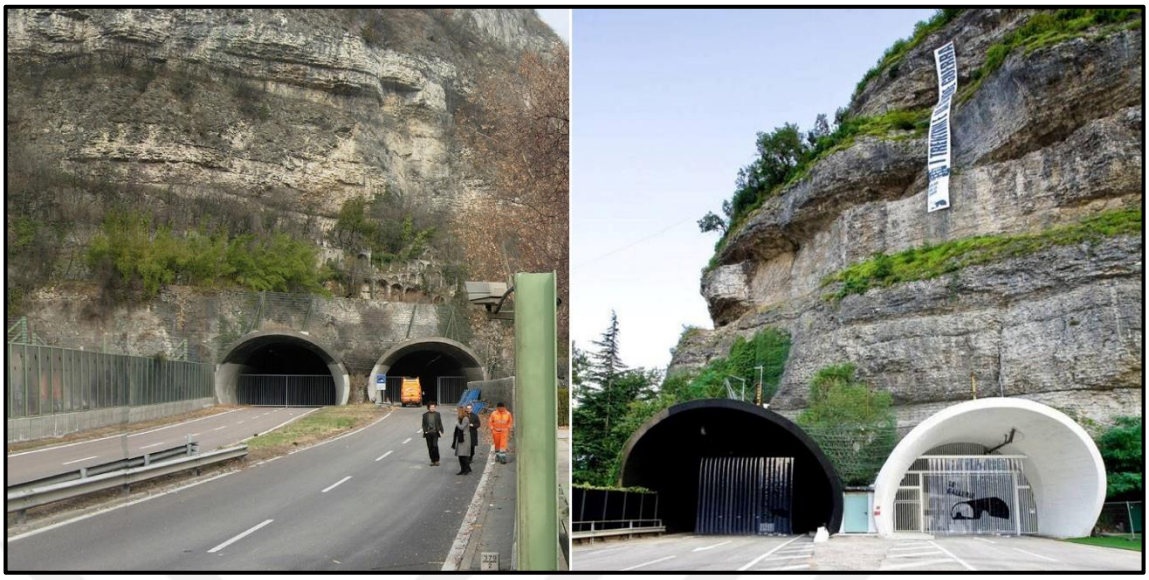


Figure 4.95. Trento History Museum, before and after its transformation [285, 286]

When the tunnels were first built in 1970s, one of Trento's neighborhoods were demolished to make way for this passage. 30 years later, the tunnels becoming disused after such a sacrifice by the region, would be pointless. As a result, the authorities started looking for possible solutions even before the tunnel was closed to traffic and they included the public opinion during the process. Starting from the idea of tunnels becoming a passage between the Mediterranean regions to transalpine Europe, and taking into account the need of an institution, which would both research and collect data on the history of Trento region during World War I, the authorities decided on converting the tunnels into an experimental regional history museum [283]. (Figure 4.96, 4.97)

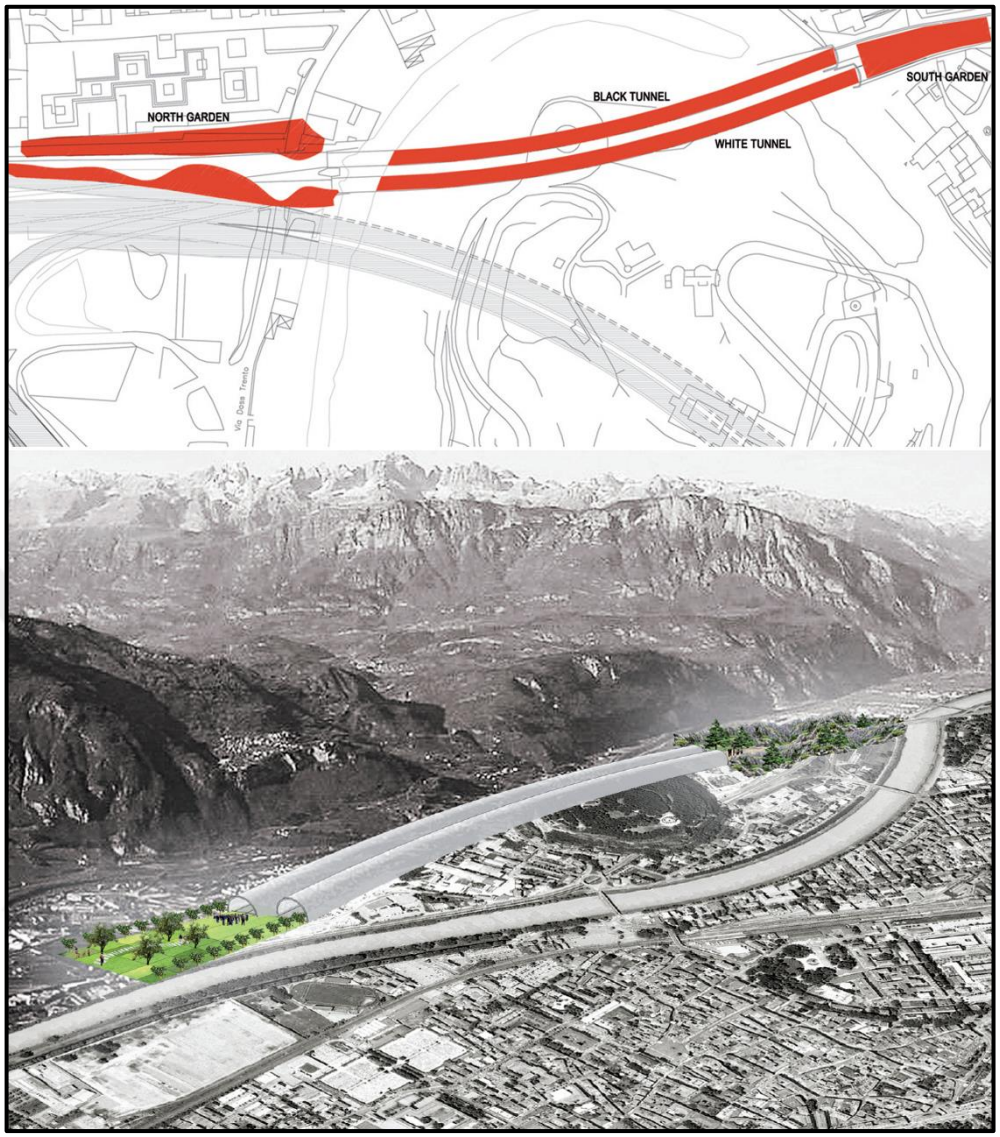


Figure 4.96. Tunnels were transformed along with their entrances, two gardens were added to each end [287]

During the design process, professionals from various disciplines were involved. Architectural designs and installations were prepared by architect Elisabetta Terragni. The existing tunnels were kept as they are, especially their asphalt floorings to keep their memory alive. But they were kept separate both physically and functionally; one tunnel painted in black which focused more on exhibiting archived materials about Trento region from the World War I, other tunnel painted in white which focused on the documentation of exhibited information, temporary exhibition space and activity spaces. After the first conversion, Trento Tunnels opened its doors to public on August 2008 [283].

Figure 4.97. Trento History Museum entrance, day and night time [287, 288]

After its opening, Trento Tunnels received positive feedback, which led the client, Trento History Museum Foundation to develop the program of the museum. Program of the permanent exhibition in the black tunnel was rearranged to accommodate possible additions in the future. Terragni redesigned the permanent spaces for the black tunnel and she inserted modular spaces for the white tunnel while tweaking its program to include a ticket counter, a meeting hall, a classroom, a bookshop and a temporary exhibition space. (Figure 4.98) The most significant change on the second conversion was connecting the two tunnels to create a U-shaped circulation throughout the museum. Trento Tunnels re-opened its doors on December 2009 [283, 289].

(a) (b)

Figure 4.98. Trento History Museum. (a) Views from white tunnel, (b) Views from black tunnel [287, 288]

4.12. TOUR BOIS LE PRETRE, LACATON & VASSAL, PARIS, FRANCE (2011)

Tour Bois le Prêtre was initially designed by architect Raymond Lopez as a 17-story social-housing block in 1959 and it was completed in 1961, in Paris. (Figure 4.100) During 1980s, the block's existing façade was renovated for heat insulation, at the same time replacing its windows with smaller ones. (Figure 4.99) This renovation did not only receive negative response from its residents, it also ended up hindering the view of its flats [139, 290, 291].

Figure 4.99. Tour Bois le Prêtre, before and after its transformation [290]

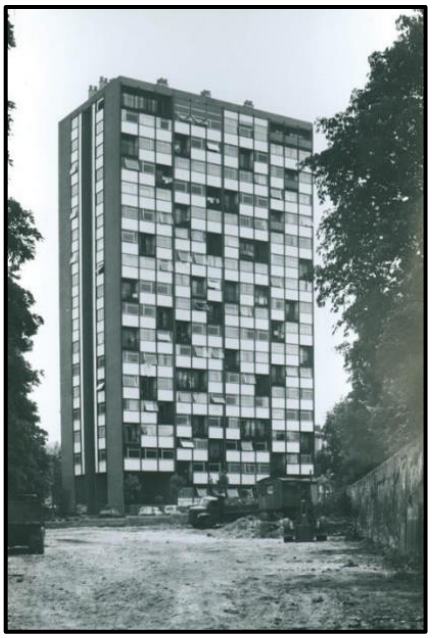


Figure 4.100. Tour Bois le Prêtre in 1960s [290]

In 2000s, Paris Habitat, a public social housing company in France, started looking for solutions on providing better housing, considering the existing stock of houses were not up to that times' standards. Paris Habitat owned Tour Bois le Prêtre, and their initial approach towards the building block was demolishing the existing structure to make way for a new housing unit. However, this approach would have cost the company €20 million without including the temporary housing of its residences during the construction period. Since the original structure was intact, owners decided to pursue a different approach and refurbish the existing block [291].

In 2005, Paris Habitat organized a competition for the block's refurbishment, inviting several architects to develop design solutions for Tour Bois le Prêtre. Frederic Druot and Lacaton & Vassal's proposal was selected and the transformation was completed in 2011 [290, 291].

> We're always very curious about what we are going to find. We think that there's a lot of potential in what already exists. Every existing situation has its own special quality, and you have to take your time and be curious in order to understand it. The phase of observing and talking to local residents is very important to us. Only then do we consider what could be done. I think it's very important today to take the existing situation as a starting point – this includes existing buildings and the existing atmosphere [139].

Architects started the design process by focusing on the shortcomings of the building about providing a habitable space. Their second priority was proposing a design solution, which would let the block's residents to keep living in their homes during the transformation. They offered those conditions at a smaller budget than demolishing and rebuilding the housing block. [139, 290] As a result, they offered floor extensions with self-supporting steel structures on each façade, constructed with prefabricated building components, increasing the floor area of each flat and these extensions would be applied while the residents kept their accommodation in the building [290]. (Figure 4.101)

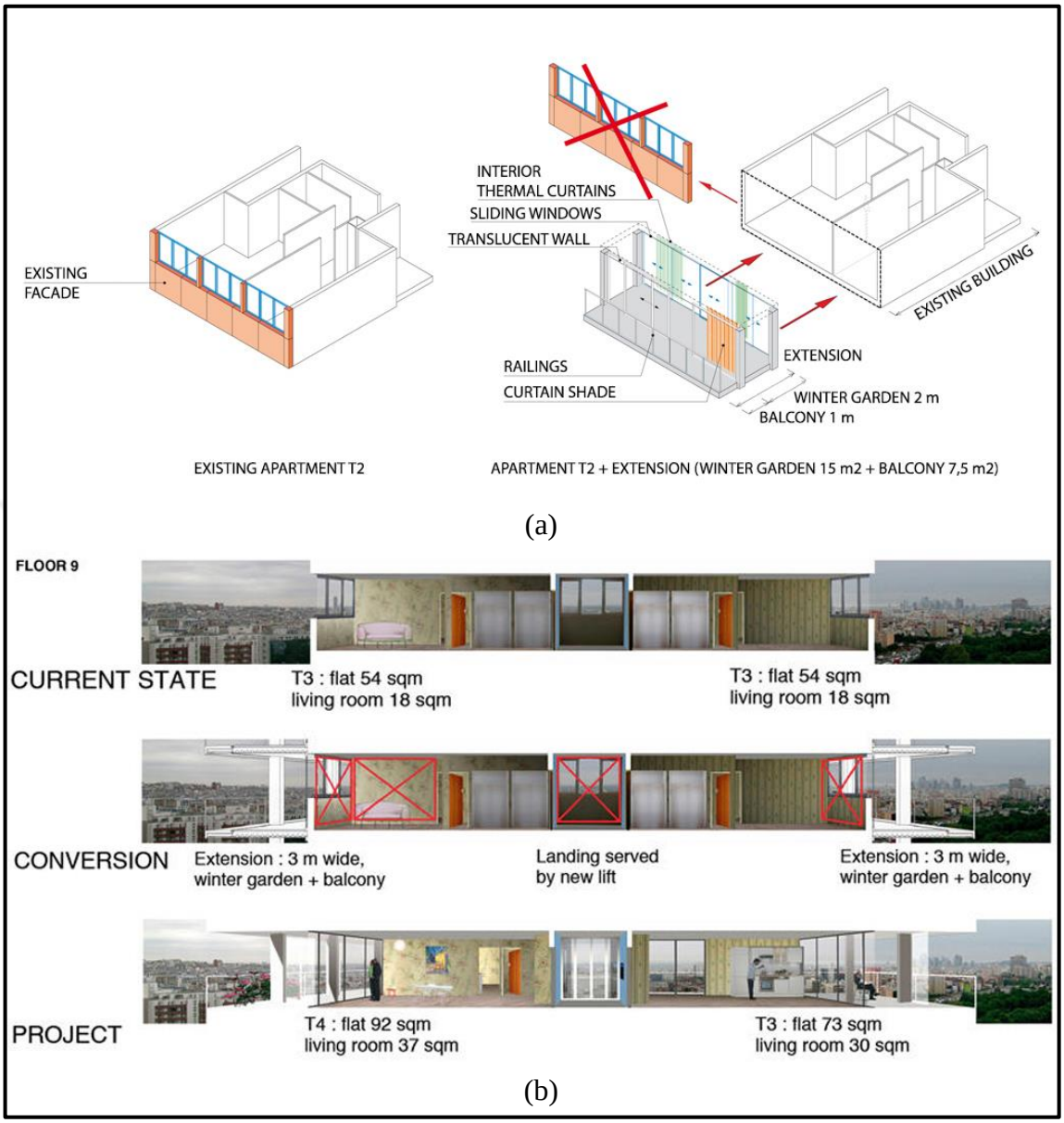


Figure 4.101. Concept for transformation, Tour Bois le Prêtre, Lacaton & Vassal, 2011. (a) Diagram showing the insertion of extension module on the façade, (b) Section diagram showing the extension on nineth floor [290]

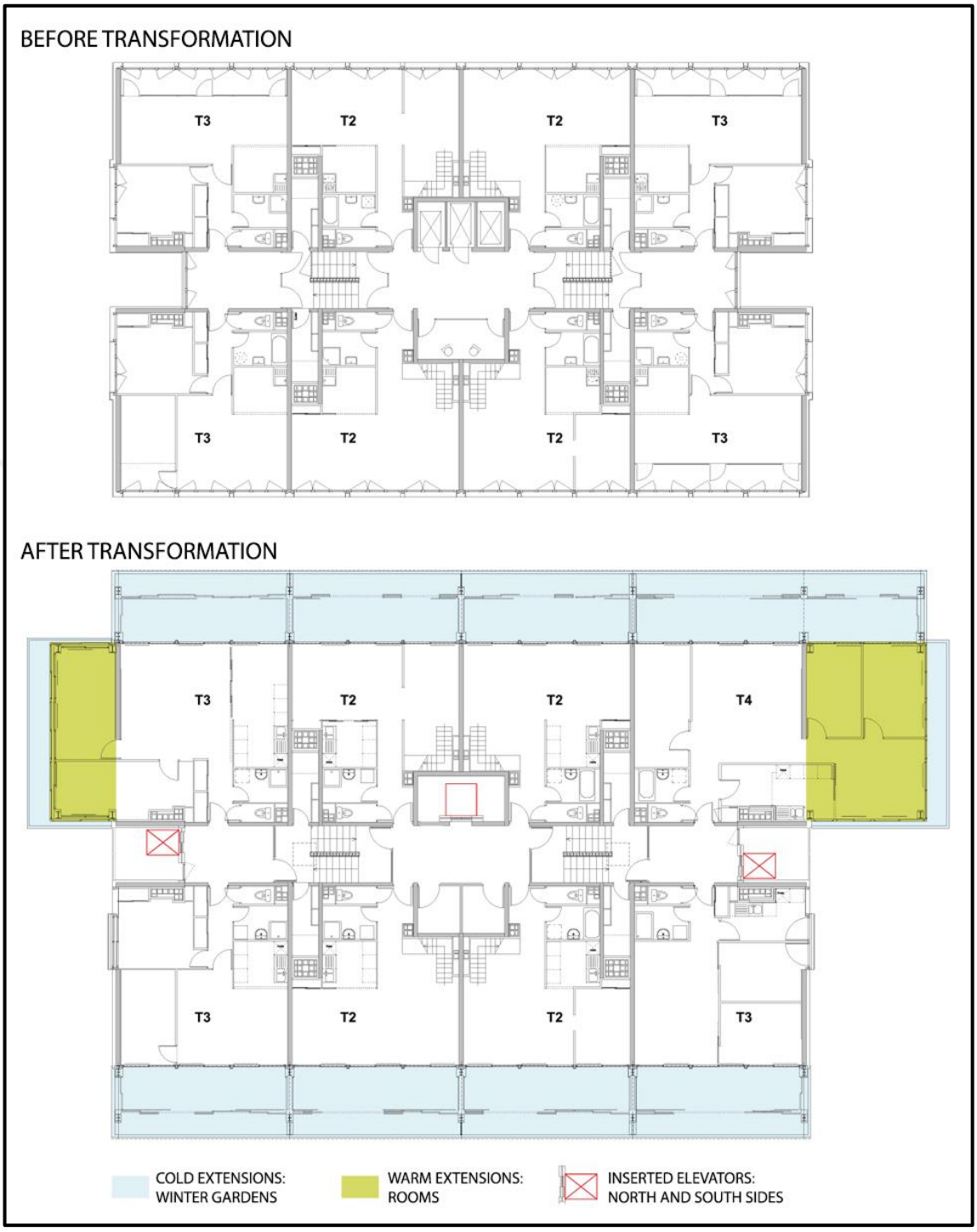


Figure 4.102. Floor plan transformation, Tour Bois le Prêtre, Lacaton & Vassal, 2011 [290]

Original program of the building contained 96 flats in three different types consisted of 36 two-room flats, 28 three-room flats and 32 six-room flats, which totaled up to 8.900 m². On both north and south facades, a new room was added, providing each floor 2 more rooms. On east and west facades, winter gardens of 2 m in depth were added which would open to

balconies with 1 m depth. As a result, the new program was arranged to include 100 flats, consisted of seven types which would vary from one-room to seven-room. Extensions made to the block sum up to 3.560 m², bringing the total area of the building up to 12.460 m² [291]. (Figure 4.102)

Figure 4.103. Construction stages of transformation, Tour Bois le Prêtre, Lacaton & Vassal, 2011 [290]

Stripping Tour Bois le Prêtre's existing façade and replacing it with floor-to-ceiling glass windows or sliding glass doors did not only provide the residents a better view of the city, but it also increased the amount of natural lighting inside the residences. Using the winter gardens as buffer zones, architects aimed a more controlled climate inside the flats, keeping them warmer in winter and cooler in summer [291]. (Figure 4.103, 4.104, 4.105)

Figure 4.104. Façade views during and after the transformation, Tour Bois le Prêtre, Lacaton & Vassal, 2011 [290]

Extensions were not the only refurbishment made in the building. Common areas and lobby of the building were renovated, as well as the bathrooms, kitchens, plumbing, electrical wiring and ventilation of each flat. Two more elevators were added to provide better circulation inside the building [290, 292].

Transformation of Tour Bois le Prêtre cost Paris Habitat €11.25 million, €8.75 million less than the expected amount in case the building got demolished and rebuilt. Using the existing structure did not only cut costs but it also gave the building an opportunity to keep its structural memory as well as the memories of its residents, some of which have been living there for 30 year. After the transformation, the feedback from the residents have been positive as expected. Spaces that are more habitable were provided to the residents, giving them the opportunity to plan their extra space according to their needs. Quality of the residences were increased with the renovations [291, 292].

Figure 4.105. Interior views from before (left) and after (right) the transformation, Tour Bois le Prêtre, Lacaton & Vassal, 2011 [290]

4.13. 77 CULTURE PARK, ORIGIN ARCHITECT, BEIJING, CHINA (2014)

In 2006, Chinese government started on a project to develop creative and cultural industries in China and they encouraged industrial production in city centers to relocate to new industrial zones on city peripheries. Due to this relocation, many former industrial spaces were converted to accommodate the promising creative and cultural activities. 77 Culture Park used to be the home of an offset printing factory in Dongcheng District of Beijing, China. After relocation of the printing factory, the space was commissioned to Origin Architect to be developed as a creative and cultural space in 2012 [293, 294]. (Figure 4.106)

Figure 4.106. 77 Culture Park, before and after its transformation [293]

Figure 4.107. Offset printing factory, before transformation [293]

Existing industrial (Figure 4.107) complex was consisted of several three-story-buildings, which gathered to form an enclosed courtyard in the center, and two-storey-structures were located in the courtyard. Buildings in the complex were initially built in 1960s and had several additions according to the factory's needs in 1970s and 1990s [293].

Figure 4.108. Transformation render, 77 Culture Park, Origin Architect, 2011 [293]

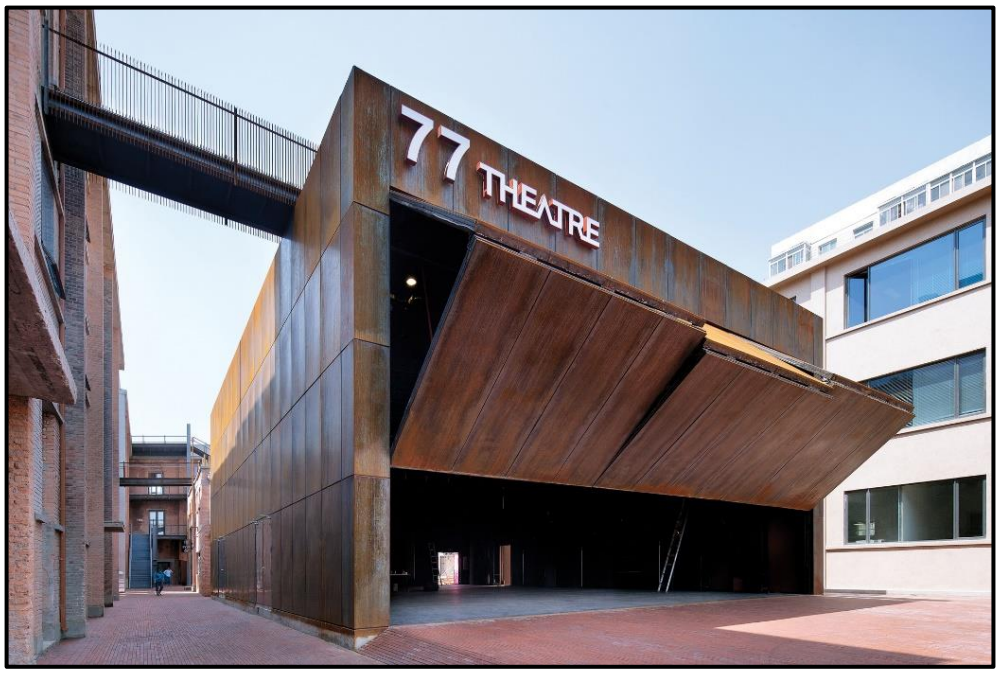


Figure 4.109. 77 Theatre, 77 Culture Park, Origin Architect, 2011 [293]

Origin Architect wanted to keep the original form and memory of the existing space, so they started the conversion process by removing the various layers of plaster from the facades of existing buildings. They exposed the main structural materials of the buildings, like reinforced concrete bearing walls, red brick walls and steel beams. Interior of the buildings were modified to suit studios and gallery spaces for artists. two-storey-structures inside the courtyard were demolished and a multi-purpose theatre with folding facades were built instead [293, 295]. (Figure 4.108, 4.109, 4.110)

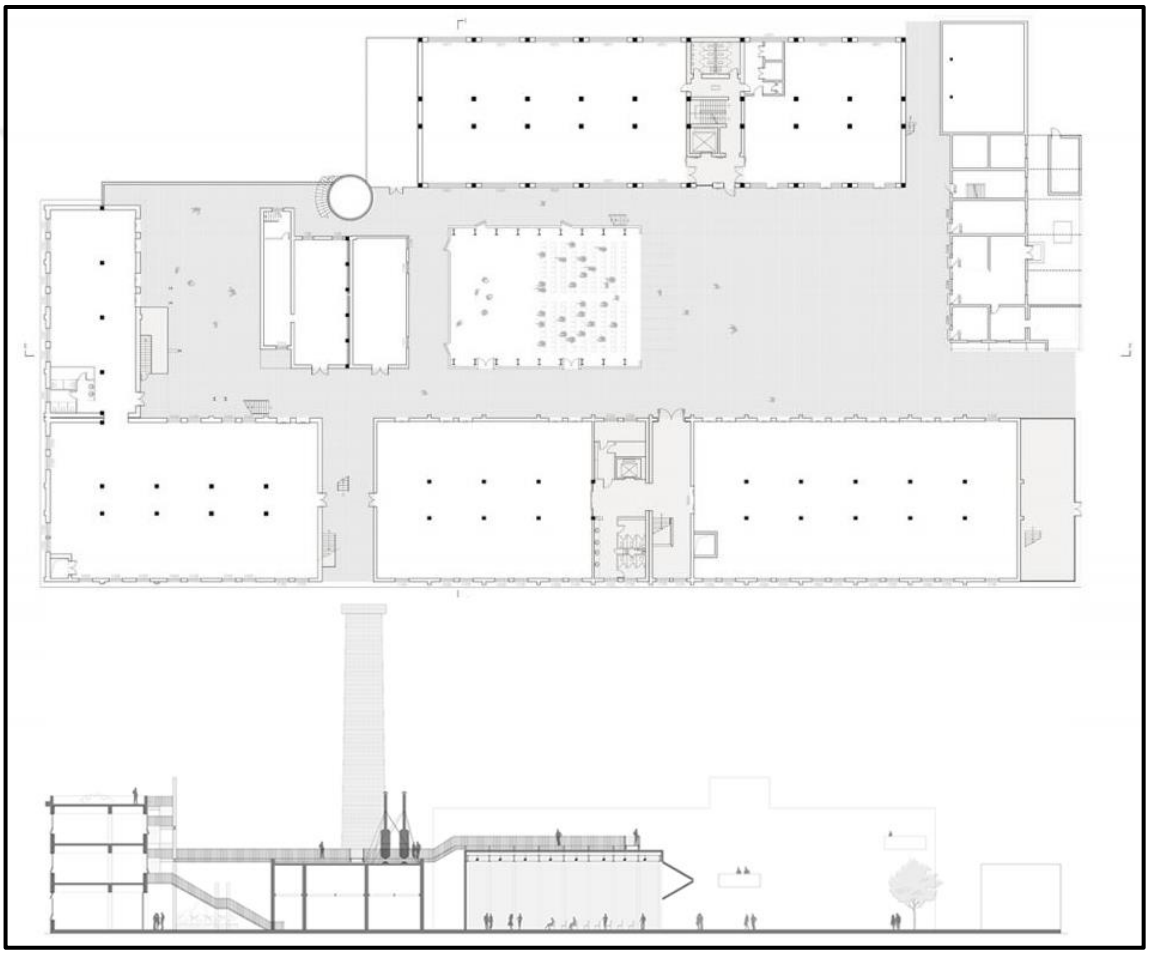


Figure 4.110. Ground floor plan and section, 77 Culture Park, Origin Architect, 2011 [293]

Folding façade of the theatre on the east façade provided the theatre to have an outdoor space when needed. The courtyard flooring was paved with red brick tiles matching to the exposed façade, to create a more unified feeling in the open space. Blocked alleys and streets were cleared to provide a better access to the courtyard. Open staircases were installed in the complex to provide not only better circulation but also to activate desolate rooftops of the

buildings into terraces and semi-public gardens. (Figure 4.111) Additional spaces, like the multi-purpose theatre, and some façades were covered with corten steel panels, due to its weathered and rusty texture [293, 295].

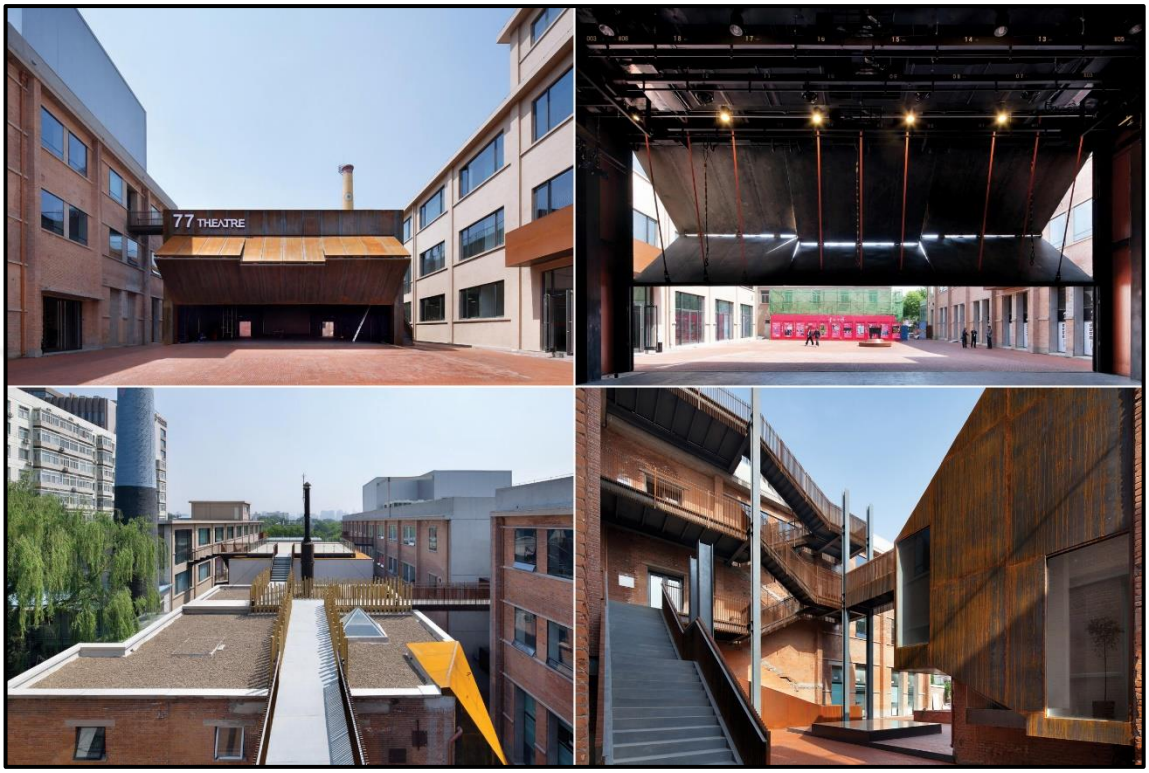


Figure 4.111. 77 Culture Park, Origin Architect, 2011 [293]

Construction of 77 Culture Park was completed in 2014 and it's functioning as it was planned, housing artists, designers and developers in the studio/office spaces while the theatre is being actively used by various troupes.

4.14. PRADA FOUNDATION, OMA, MILAN, ITALY (2015)

Prada Foundation was established in 1993 by Italian fashion brand Prada to promote contemporary art, including architecture, cinema and different cultural activities. While in the beginning the foundation was housed in Venice, in 2008 they commissioned architect Rem Koolhaas of OMA for a new venue in Milan [296, 297, 298]. (Figure 4.112)

Figure 4.112. Prada Foundation, before and after its transformation [299, 300]

The foundation acquired an old gin distillery complex consisted of brewing silos, various warehouses and laboratories situated around a courtyard in the southern part of Milan. The distillery was initially built in 1910s and located in the Largo Isarco industrial area [198].

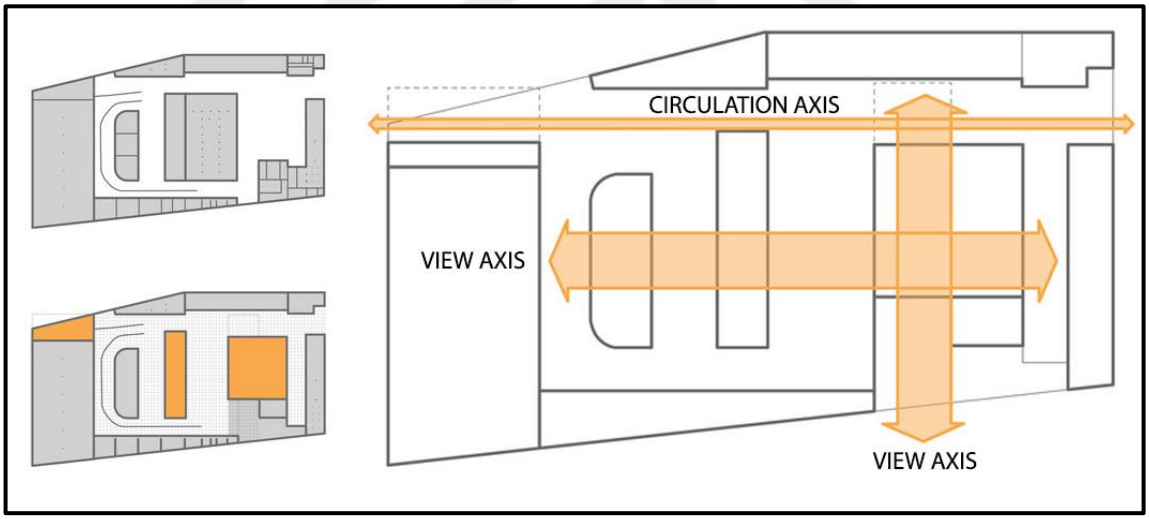


Figure 4.113. Concept, Prada Foundation, OMA, 2015 [301]

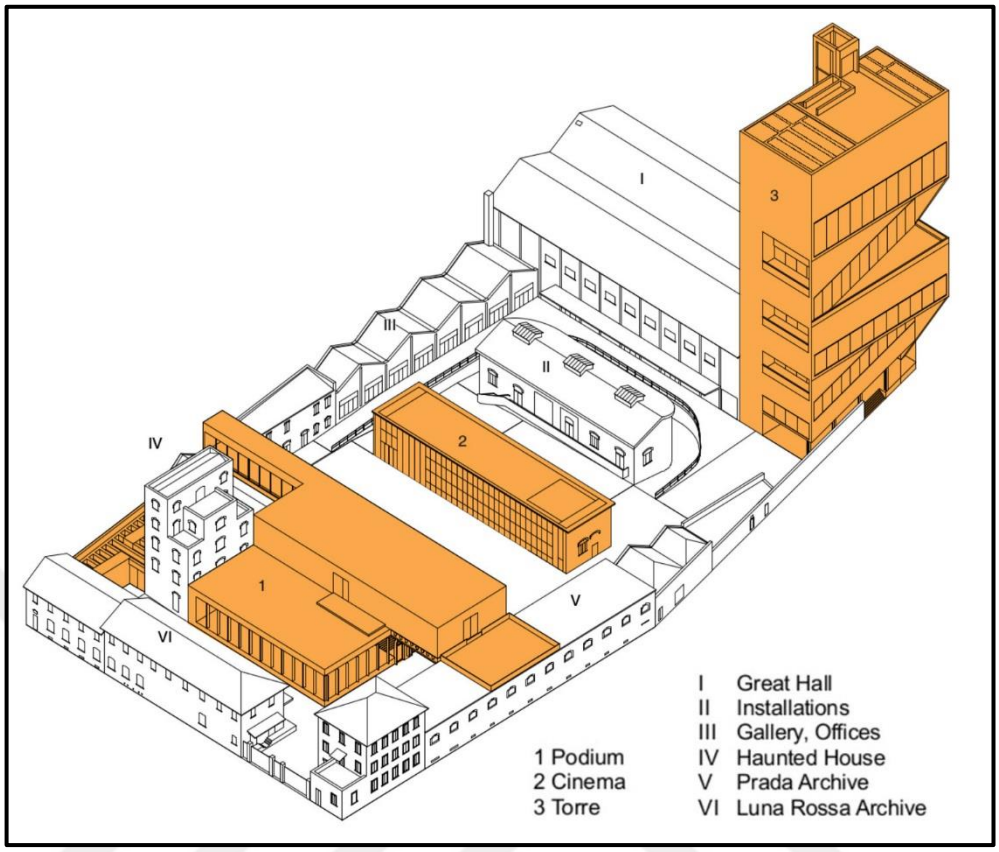


Figure 4.114. Concept and new functions, axonometric view, Prada Foundation, OMA, 2015 [302]

During the design process, Koolhaas focused on two aspects; including the existing structures as much as possible while creating an interaction between the old and new, and benefiting from the varying sizes of existing buildings to create different exhibition spaces, which can accommodate any type of artwork. Koolhaas' encounter with the Hermitage Museum in Russia in 2000, gained him the experience that art do not have to be confined within the familiar volumes of museums and galleries, so various exhibition spaces from various volumes were necessary [105, 298, 303].

> We didn't work with contrast but on the contrary, we tried to create a situation where old and new can work very seamlessly together and are sometimes actually merged together so that you cannot tell at any one moment whether you are in a new or an old situation [303].

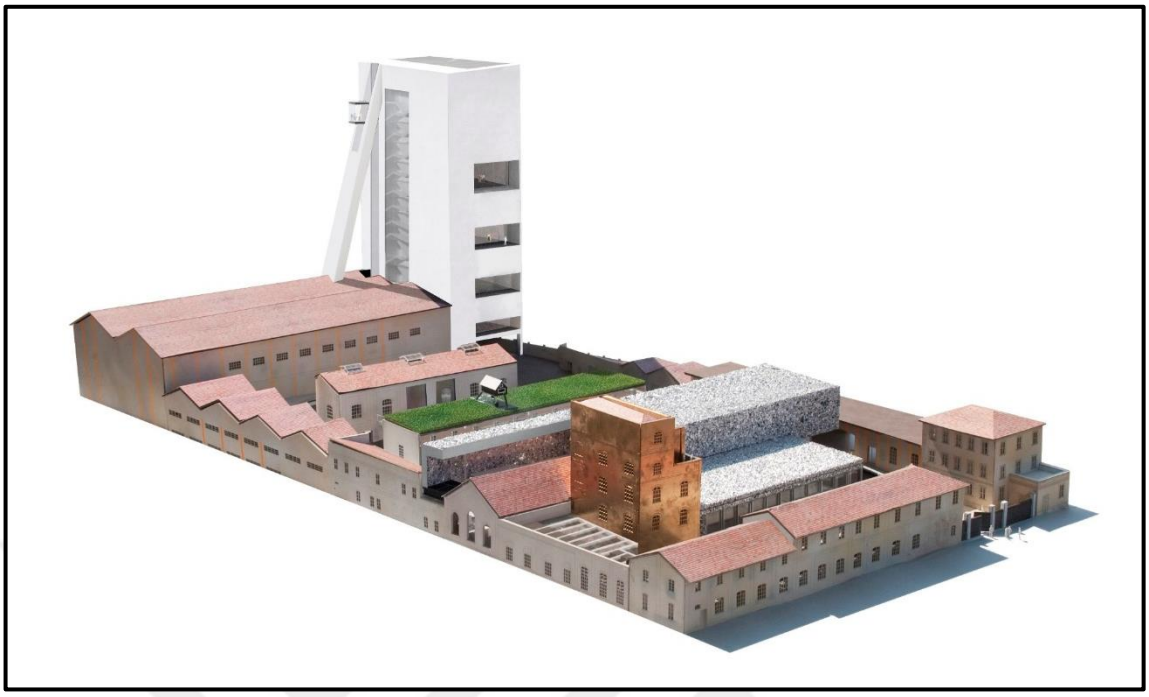


Figure 4.115. Model, Prada Foundation, OMA, 2015 [302]

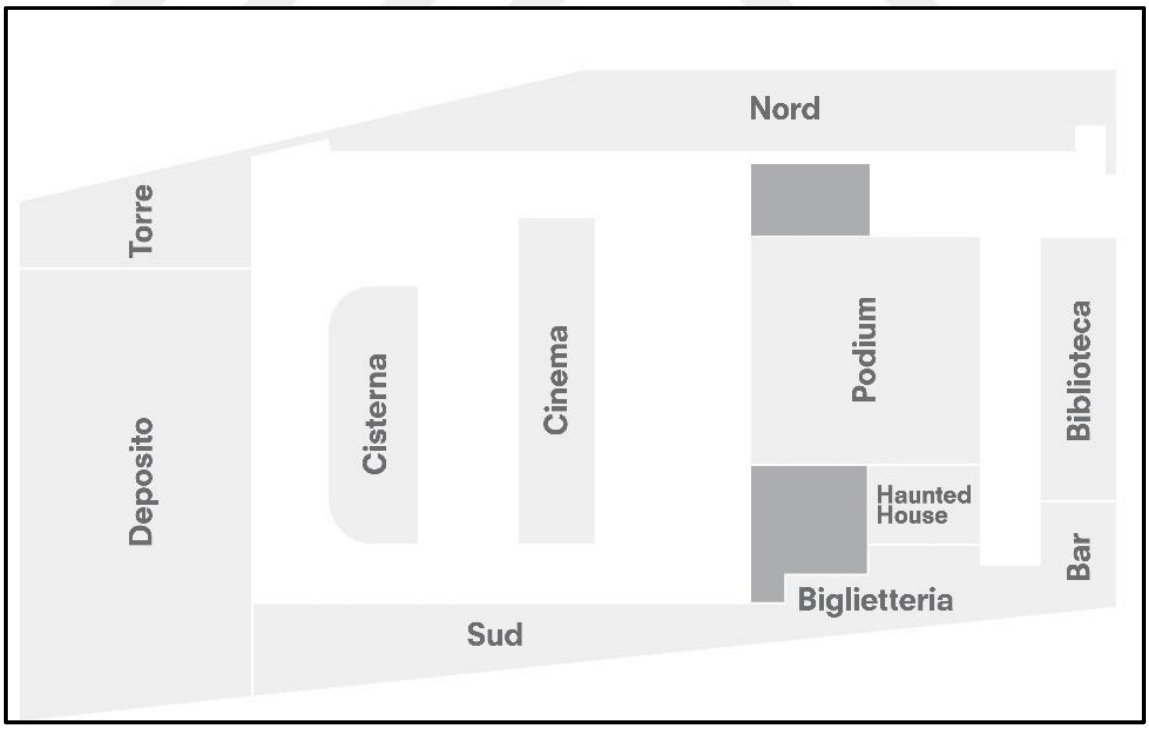


Figure 4.116. Functions, Prada Foundation, OMA, 2015 [297]

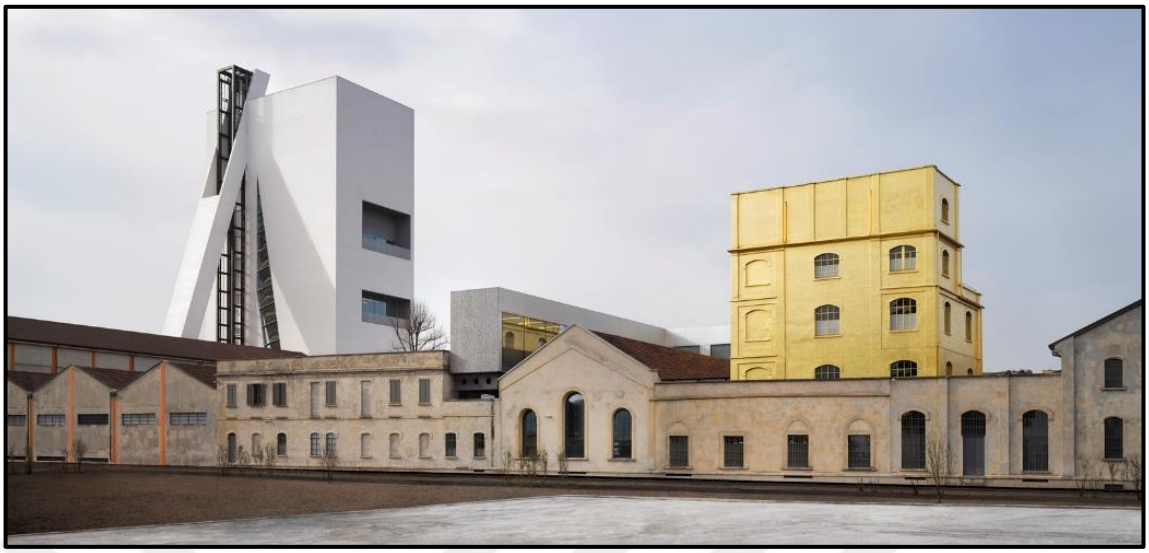


Figure 4.117. South façade, the Torre on the left, Haunted House on the right, Prada Foundation, OMA, 2015 [297]

The architect kept the existing seven buildings and demolished a short one situated inside the courtyard to make space for two of the three new additional structures. (Figure 4.113, 4.114, 4.115, 4.116) Existing warehouse on the west called Deposito was turned into a both storage and exhibition area. Cisterna, located inside the courtyard, was transformed into an exhibition space for the foundation's collections. On the façade, the Cisterna is covered with mirrors. (Figure 4.118) While the building located on the north edge of the complex was turned into galleries, the buildings located on the south edge housed the entrance, ticket office, administration offices and galleries. The buildings located on the east side include the bar and café (Figure 4.120) designed by film director Wes Anderson, and the foundation library. Another existing building located on the south-west of the courtyard, called the Haunted House, was covered with real 24-carat gold leaf on its entire façade. The Haunted House was turned into an exhibition space for permanent collections [298, 303, 304, 305]. (Figure 4.117, 4.119)

Figure 4.118. Cinema and Cisterna, located inside the courtyard, Prada Foundation, OMA, 2015 [301]

Figure 4.119. Haunted House, Prada Foundation, OMA, 2015 [301, 306]

Figure 4.120. Bar Luce, Prada Foundation, OMA, 2015 [307]

The Cinema, Podium and Torre were the new additions to the complex. The Cinema, which serves as an auditorium, was designed with folding doors, which open up to the courtyard. (Figure 4.118) The slanted seating area inside can also be turned into a flat surface which is useful for accommodating different types of events. The Podium situated on the east side of the courtyard is consisted of two volumes. The lower volume provides a continuous space without columns and the façade is finished with a glaze. The upper volume is consisted of galleries and its façade is covered with aluminum foam. Both spaces are suitable for various events and temporary exhibitions. The Torre, located on the northwestern part of the complex is a tower, which provides exhibition spaces with varying floor heights. Each floor is built to be one meter higher than the previous one. Prada Foundation was opened to public in 2015, while the Torre was opened in 2018 [298, 303, 304, 305, 308]. (Figure 4.121)

Figure 4.121. Torre, Prada Foundation, OMA, 2015 [301]

4.15. İSTANBUL MUSEUM OF PAINTING AND SCULPTURE, EMRE AROLAT ARCHITECTURE, İSTANBUL, TURKEY (2019)

Salıpazarı warehouses and office blocks located in Karaköy, İstanbul, Turkey, were designed by architect Sedad Hakkı Eldem in 1955 to serve as a trading port for city of Istanbul. (Figure 4.122, 4.123, 4.124) Initially planned as three main warehouses and supporting office blocks on the north façade, the project was later expanded with the addition of four more warehouses in 1958. The project was built in 1960, and served for its primary function until 1970s. Later, with the decline in trading traffic, two of the warehouses were converted into customs buildings, while another one housed the Istanbul Modern Art Museum from 2004 to 2018 [309, 310, 311, 312].

Figure 4.122. İstanbul Museum of Painting and Sculpture, before and after its expected transformation [313, 314]

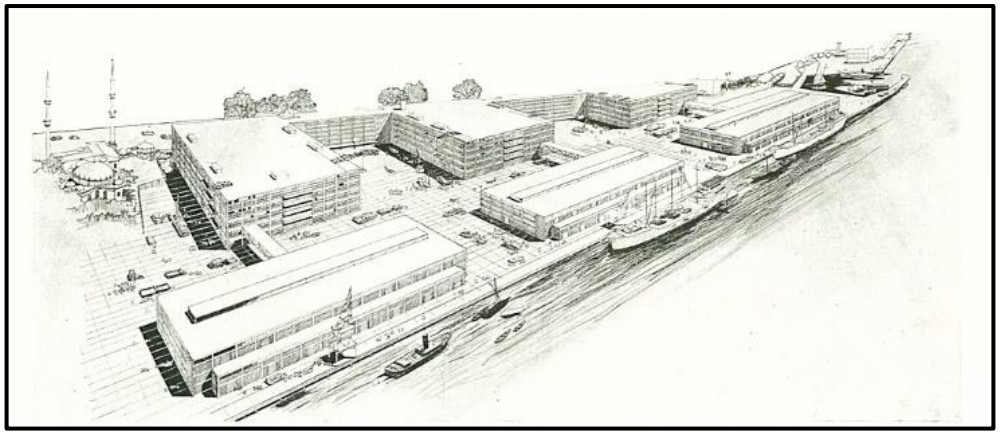


Figure 4.123. Salıpazarı warehouses and office blocks perspective drawing, Sedad Hakkı Eldem, 1955-1958 [309]

Figure 4.124. Aerial view 1950s, Salıpazarı warehouses and office blocks, Sedad Hakkı Eldem, 1955-1958 [315]

During 1990s, the site of warehouses were left in the middle of Istanbul city center, while most of the trading was relocated to other ports. This resulted in the existing warehouses and office blocks to lose most of their functions and operate with minimum workload. When warehouse number five was assigned to the use of Mimar Sinan Fine Arts University to be converted into a museum of Turkish art in 2011, the warehouse was mostly disused [311, 312]. (Figure 4.125)

Figure 4.125. Warehouse number five, before transformation [316, 317]

Transformation of the warehouse was commissioned to Emre Arolat Architecture in 2011. Initially the warehouse building was designed with a reinforced concrete frame which was reflected to the façade. During the design process, architect Emre Arolat wanted to keep the original structure as a reference to the building's and its architect Sedad Hakkı Eldem's memory. To emphasize the structure, Arolat stripped it naked, removing the existing walls and floors. Based on the required program to accommodate designated art pieces, containers were inserted into the naked structure. While the façade of the museum was designed to be as transparent as possible, to give its visitors the best views of the Bospohorus, inside the museum spaces were connected with the use of bridges and ramps to create a circulation flow. Construction of the museum started in 2012 and it's expected to be completed in 2019 [314, 318, 319, 320]. (Figure 4.126, 4.127, 4.128, 4.129, 4.130, 4.131, 4.132, 4.133)

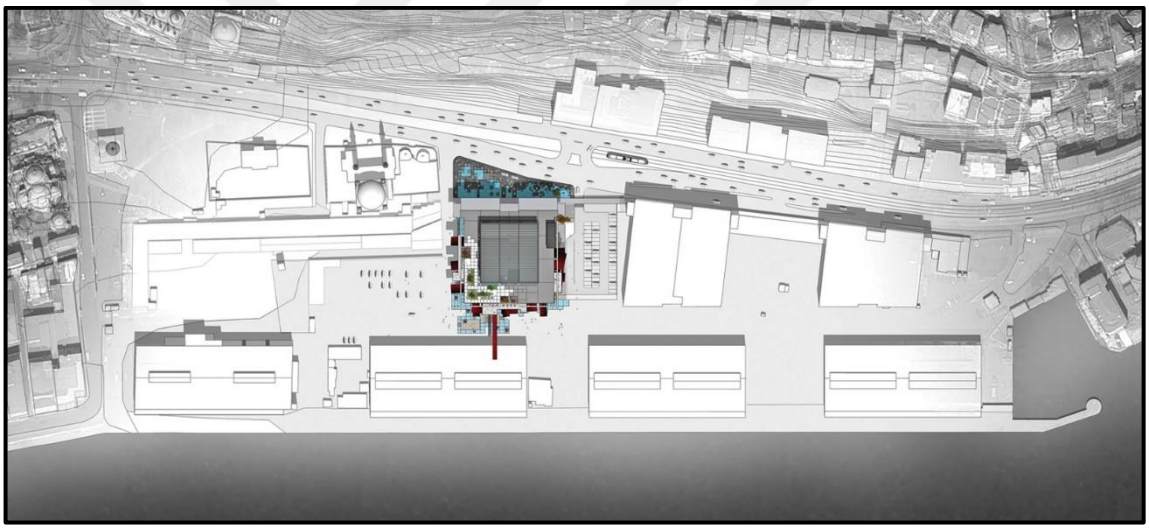


Figure 4.126. Site Plan, İstanbul Museum of Painting and Sculpture, Emre Arolat Architecture, 2019 [314]

Figure 4.127. Street façade render, İstanbul Museum of Painting and Sculpture, Emre Arolat Architecture, 2019 [314]

Figure 4.128. Sea façade render, İstanbul Museum of Painting and Sculpture, Emre Arolat Architecture, 2019 [314]

Through his design for Istanbul Museum of Painting and Sculpture, Emre Arolat managed to not only recycle an existing building in the heart of the city, but he also created an opportunity for a private structure with a limited access in the past 50 years, to be integrated into the city and the public [320].

Figure 4.129. Interior view renders, İstanbul Museum of Painting and Sculpture, Emre Arolat Architecture, 2019 [314]

Figure 4.130. Section render, İstanbul Museum of Painting and Sculpture, Emre Arolat Architecture, 2019 [314]

Figure 4.131. Photo of ongoing construction, İstanbul Museum of Painting and Sculpture, Emre Arolat Architecture, 2015 (Photo by author)

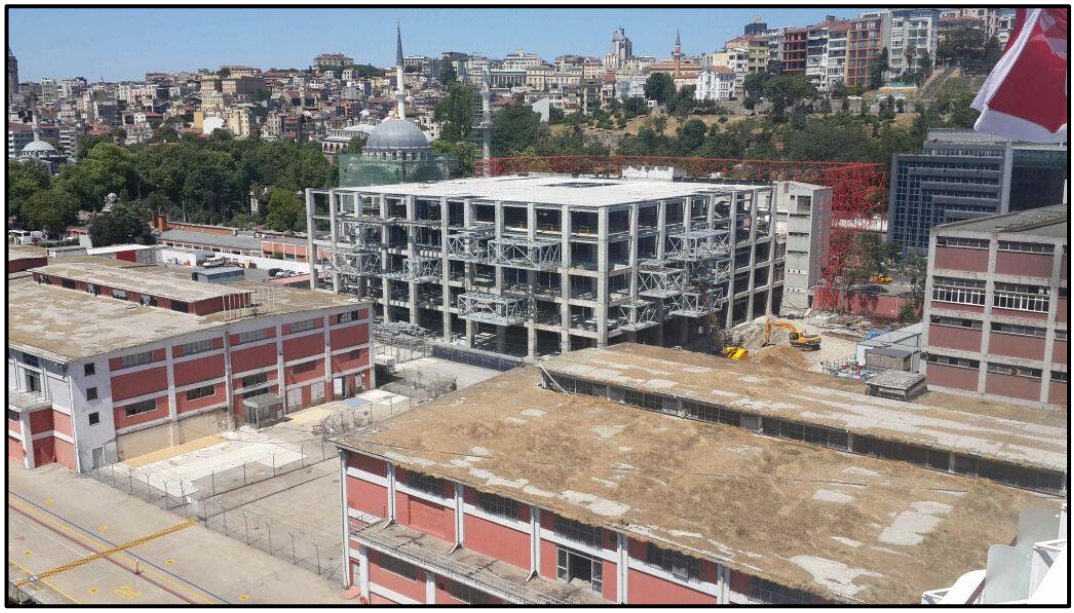


Figure 4.132. Photo of ongoing construction, İstanbul Museum of Painting and Sculpture, Emre Arolat Architecture, 2015 (Photo by author)

Figure 4.133. Photo of ongoing construction, İstanbul Museum of Painting and Sculpture, Emre Arolat Architecture, 2019 [320]

5. CONCLUSION

Recycle approach has become an alternative practice for architects in dealing with the spatial problems of 21st century. In the light of economic, social, political and structural changes, number of vacant structures have become critical enough in some parts of the world for architects, scholars and authorities to research and investigate on the issue and look for alternative solutions in dealing with them.

Supported with the advancements in building and construction technologies, joined with the fast development surrounding the cities, structures are prone to outlive the main use they were built for. Being disused with no immediate plan of development can make a structure become an architectural waste, which would not only take space without functioning in the life cycle of a city, but it would also become a burden due to safety and maintenance reasons. Sometimes conventional approaches like demolition, rebuilding or simple refunctioning can fall short in dealing with disused structures because of reasons like financial concerns or risk of destroying the memory of an existing space. In these cases, recycle approach can be implemented by architects to transform the existing waste and use it as a resource for a new design.

Collected data of recycled projects (Appendix A) show that even though the number of recycled architectural projects are much more and evident in 2000s, few examples dating back to second half of 20th century reflects the idea behind the approach was already being practiced on a lower frequency. (Figure 4.1) An abstract atlas based on the collected data (Appendix A) is prepared to show the density of recycled projects on a global scale. Even though the vacancy problem, leading cause to recycle approach, is prominent in European and North American cities, the atlas shows that projects transformed with recycle approach can be found all around the world. (Figure 5.1) Considering the topicality of this subject and limiting the data collection to the published literature, the atlas is still a work in progress and keeps growing as new recycled projects are designed and published.

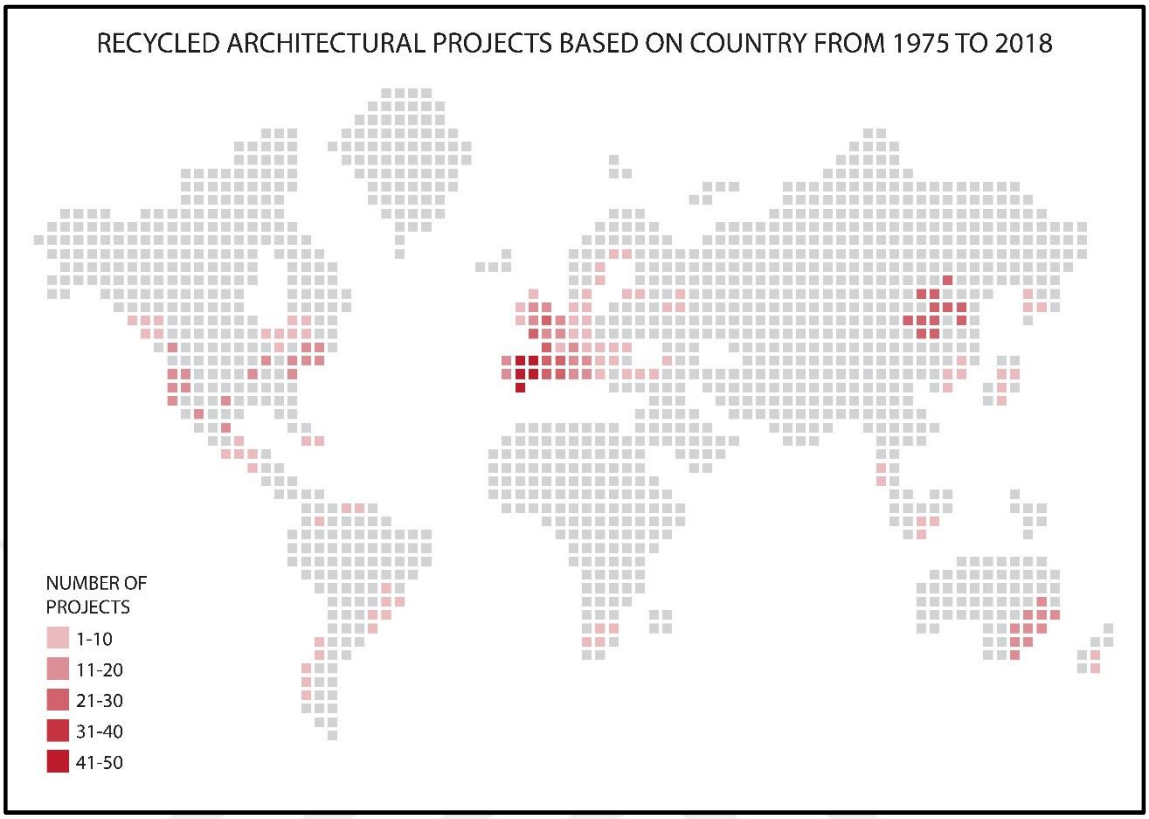


Figure 5.1. Atlas of recycled architectural projects based on country from 1975 to 2018 (Prepared by author based on data presented in Appendix A)

Recycle approach in architectural design has emerged from a practical perspective rather than a manifesto or a theory of architecture. The approach has been practiced by professionals out of the need and willingness to keep a contemporary approach towards the issues of current century. Architects and scholars who have noticed the issues concerning disused spaces have been working and studying this phenomenon actively in the last years. While researchers have their own categorization and intervention approach on recycling spaces, it is important that each project should be evaluated and intervened based on its own context for an effective recycle solution.

Recycle approach aims to give new life cycles to disused spaces and respect their memory while giving them a new meaning through the tools of contemporary design. There's no specific method for recycling, each project is unique based on existing conditions and circumstances surrounding the project, thus interventions need to implemented on a contextual basis. Almost in all examples given in Appendix A, recycling method serves as *a tool of survival* by bringing a disused space into life. The variety of collected recycled

projects in Appendix A also show that recycling can be implemented on projects varying in different scales, thus making this approach a scaleless practice [1].

> Architectural recycling, just like any form of reuse by virtue of a repositioning of material, meaning, relative positions, substantially builds a story, a tale in progress. You need to know what was there before the project, what the architect had to choose from and how he worked, the results he achieved and how the work that was done reacts to use, that is if you really want to understand the work that was done. This route is not aimed at sanctifying the past or the present, nor is it meant to open up the confines or skills – great technical skill is required to build a new architecture inside an architecture, you need to listen to the old to be able to shape the new – but rather at revealing how context and architecture, reality and interpretation, can still be used to build cities. Just like in physics, the fact that the datum and the phenomenon exists is not enough; the writings of translations, abstractions are needed as well, ones that produce clear figures, shapes, the rationale of restoration, but that can also act as the starting point for new manipulations, new formulas [1].

In recent years, the recycling approach has also started to be studied as a possible architectural device and theory beyond its practical scope [1, 171]. In 2016, architects Sara Marini and Giovanni Corbellini published *Recycled Theory: Illustrated Dictionary*, with an attempt to create a guide on recycle in architecture. The dictionary includes a systematic collection of researches and comments by various professionals, regarding the recycle approach, and presents a broad perspective with topics like *heritage*, *waste*, *restoration*, etc. In the dictionary, the word *recycle* is associated with the beginning of *a new cycle of life*, which emerges out of the existing conditions and the memory of space [321].

> …re-cycle as an invention of a new cycle of life starting from the existent yet together as a choice – radical though painful – to abandon to its fate the ballast which could threaten that new life. In other words, the conservation and enhancement of the heritage, but also the abandonment and destruction of what could choke that same heritage [321].

While *recycle* topic is highly associated with sustainability and material recycling in the 21st century, in this case, recycle approach favors the recycling of existing life cycles of spaces rather than recycling on a material scale.

> …an idea, which is also derived from a wholly individualistic matrix, substantially of material culture, but with virtuous potential also in the social sense, if only we consider it not so much as a mere technical operation of reusing wasted or abandoned materials but rather as a true re-invention of vital meanings, i.e. the reopening of completely new life cycles starting from the pieces of architecture or infrastructure or even from natural or geographical elements making the contemporary cities and territories, in the name of that keyword now on everyone's lips: sustainability [321].

Recycle approach has been a striking tool for architects to deal with the issues of 21st century, especially on the issue of vacancy. A significant contribution of this approach to architectural design and existing spaces is its ability to bring an alternative solution to demolition and provide a new life cycle while respecting the existing memory of the space. At times, this approach can act as a mediator on the topic of *memory* and *amnesia*, providing a chance to recuperate for spaces with difficult pasts and collective memories. Furthermore, this approach gives the architect the opportunity to contribute to the memory of a space with contemporary tools and designs [321].

Considering the topicality of the recycle approach, the research presented in this thesis aims to contribute to the ongoing studies on the topic by providing a timeline of important events, along with striking examples of recycle. As recycling ideas and approaches concerning spaces keep growing, the studies surrounding the recycle approach will also be developing each day.

REFERENCES

1. Ciorra P, Marini S. *Re-cycle. Strategies for architecture, city and planet*. Verona: Mondadori Electa; 2012.

2. Claridge A, Toms J, Cubberley T. *Rome: Oxford archaeological guides*. Oxford: Oxford University Press; 2010.

3. Rome and Art. Theatre of Marcellus; [cited 2019 13 May]. Available from: http://www.romeandart.eu/en/art-theatre-marcellus.html.

4. Piranesi in Rome. Afterlife, Theatre of Marcellus; [cited 2019 13 May]. Available from: http://omeka.wellesley.edu/piranesi-rome/exhibits/show/theatre-of-marcellus/afterlife.

5. Revista de Historia. El teatro Marcelo, el primero de Roma; [cited 2019 17 June]. Available from: https://revistadehistoria.es/el-teatro-marcelo/.

6. Diocletian's Palace; [cited 2019 13 May]. Available from: http://www.diocletianspalace.org/.

7. Diocletian's Palace. Reconstruction, 305 AD; [cited 2019 11 June]. Available from: https://en.wikipedia.org/wiki/Diocletian%27s_Palace.

8. Diocletian's Palace. Current aerial view; [cited 2019 11 June]. Available from: https://www.dalmatia.hr/blog/icons-central-dalmatia-diocletians-palace-split/.

9. Frampton K. *Modern architecture: A critical history*. 4th ed. London: Thames & Hudson; 2007.

10. Aras L. Günümüz mimarlık ortamına geçmişten katkılar: Pessac, CIAM ve Pruitt-Igoe. *Tasarım + Kuram*. 2016; 11 (20): 19-34.

11. Open University. CIAM (Congres Internationaux d'Architecture Moderne); [cited 2019 13 May]. Available from: https://www.open.edu/openlearn/history-the-arts/history/heritage/ciam-congres-internationaux-darchitecture-moderne.

12. Conrads U. *Programs and manifestoes on 20th-century architecture*. Cambridge: MIT Press; 1971.

13. Foundation Le Corbusier. Plan Voisin, Paris, France, 1925; [cited 2019 13 May]. Available from: http://www.fondationlecorbusier.fr/corbuweb/morpheus.aspx?sysId=13&IrisObjectId=6159&sysLanguage=en-en&itemPos=2&itemSort=en-en_sort_string1%20&itemCount=2&sysParentName=Home&sysParentId=65.

14. Kohlstedt K. Ville Radieuse: Le Corbusier's Functionalist Plan for a Utopian "Radiant City"; 2018 [cited 2019 13 May]. Available from: https://99percentinvisible.org/article/ville-radieuse-le-corbusiers-functionalist-plan-utopian-radiant-city/.

15. Merin G. AD Classics: Ville Radieuse / Le Corbusier; 2013 [cited 2019 13 May]. Available from: https://www.archdaily.com/411878/ad-classics-ville-radieuse-le-corbusier.

16. Lathouri M. Ciam meetings 1947-59 and the "core" of the city: the transformations of an idea. In: Deines K, Jones KB, editors. Published proceedings of *La Città Nouva: ACSA International Conference*; 29 May-2 June 1999; Rome. Washington: ACSA Press; 1999. 403-406.

17. Foundation Le Corbusier. Urbanisme, Saint-Dié, France, 1945; [cited 2019 13 May]. Available from: http://www.fondationlecorbusier.fr/corbuweb/morpheus.aspx?sysId=13&IrisObjectId=6332&sysLanguage=en-en&itemPos=186&itemSort=en-en_sort_string1%20&itemCount=216&sysParentName=&sysParentId=.

18. Vasiliu A. The Struggle of a Visionary-Le Corbusier and Saint-Die-des-Vosges` Utopic Reconstruction Plans; 2014 [cited 2019 13 May]. Available from: https://homesthetics.net/the-struggle-of-a-visionary-le-corbusier-and-saint-die-des-vosgesutopic-reconstruction-plans/.

19. Team 10 Online. Team 10 Meetings, Otterlo (the Netherlands) 7-15 September 1959; [cited 2019 13 May]. Available from: http://www.team10online.org/team10/meetings/1959-otterlo.htm.

20. Team 10 Online. Introduction, Looking into the mirror of Team 10; [cited 2019 13 May]. Available from: http://www.team10online.org/team10/introduction.html.

21. Jencks C. *The language of post-modern architecture*. New York: Rizzoli; 1977.

22. Fiederer L. AD Classics: Pruitt-Igoe Housing Project / Minoru Yamasaki; 2017 [cited 2019 13 May]. Available from: https://www.archdaily.com/870685/ad-classics-pruitt-igoe-housing-project-minoru-yamasaki-st-louis-usa-modernism.

23. Moore R. Pruitt-Igoe: death of the American urban dream; 2012 [cited 2019 13 May]. Available from: https://www.theguardian.com/artanddesign/2012/feb/26/pruitt-igoe-myth-film-review.

24. Cook P. *Archigram*. New York: Princeton Archiectural Press; 1999.

25. Nyilas A. On the formal characteristics of Kiyonori Kikutake's 'Marine City' projects published at the turn of the 50's and 60's. *Architecture Research*. 2016; 6 (4): 98-106.

26. Sveiven M. AD Classics: Nakagin Capsule Tower / Kisho Kurokawa; 2011 [cited 2019 13 May]. Available from: https://www.archdaily.com/110745/ad-classics-nakagin-capsule-tower-kisho-kurokawa.

27. Sadler S. *Archigram: Architecture without architecture*. Cambridge: MIT Press; 2005.

28. Archigram Archival Project. Archigram Magazine Issue No. 1; [cited 2019 11 June]. Available from: http://archigram.westminster.ac.uk/magazine.php?id=96&src=mg.

29. Hopkins D. *Dada and surrealism: A very short introduction*. New York: Oxford University Press; 2004.

30. Rubin WS. *Dada, surrealism and their heritage*. New York: Museum of Modern Art; 1967.

31. Tate Modern. 'Fountain', Marcel Duchamp, 1917, replica 1964; [cited 2019 13 May]. Available from: https://www.tate.org.uk/art/artworks/duchamp-fountain-t07573.

32. Girst T. (Ab)Using Marcel Duchamp: The Concept of the Readymade in Post-War and Contemporary American Art; 2003 [cited 2019 13 May]. Available from:

http://www.toutfait.com/abusing-marcel-duchamp-the-concept-of-the-readymade-in-post-war-and-contemporary-american-art/.

33. Fountain (Duchamp) ; [cited 2019 11 June]. Available from: https://en.wikipedia.org/wiki/Fountain_(Duchamp).

34. Luke MR. *Kurt Schwitters: Space, image, exile*. London: University of Chicago Press; 2014.

35. Merz No. 6; [cited 2019 11 June]. Available from: http://sdrc.lib.uiowa.edu/dada/merz/6/index.htm.

36. Orchard R. Kurt Schwitters: Reconstructions of the Merzbau; 2007 [cited 2019 11 June]. Available from: https://www.tate.org.uk/research/publications/tate-papers/08/kurt-schwitters-reconstructions-of-the-merzbau.

37. James J. *Pop art*. Singapore: Borders Press; 1996.

38. Shanes E. *Pop art*. New York: Parkstone Press; 2009.

39. Tate Modern. 'I was a Rich Man's Plaything', Sir Eduardo Paolozzi, 1947; [cited 2019 13 May]. Available from: https://www.tate.org.uk/art/artworks/paolozzi-i-was-a-rich-mans-plaything-t01462.

40. Tate Modern. 'Just what was it that made yesterday's homes so different, so appealing? (upgrade)', Richard Hamilton, 2004; [cited 2019 13 May]. Available from: https://www.tate.org.uk/art/artworks/hamilton-just-what-was-it-that-made-yesterdays-homes-so-different-so-appealing-upgrade-p20271.

41. MoMA. Andy Warhol, Campbell's Soup Cans, 1962; [cited 2019 13 May]. Available from: https://www.moma.org/learn/moma_learning/andy-warhol-campbells-soup-cans-1962/.

42. Archigram Archival Project. Archigram Magazine Issue No. 4; [cited 2019 11 June]. Available from: http://archigram.westminster.ac.uk/magazine.php?id=99&src=mg.

43. Archigram Archival Project. Plug-in City Study; [cited 2019 11 June]. Available from: http://archigram.westminster.ac.uk/project.php?id=56.

44. Merin G. AD Classics: The Plug-In City / Peter Cook, Archigram; 2013 [cited 2019 11 June]. Available from: https://www.archdaily.com/399329/ad-classics-the-plug-in-city-peter-cook-archigram.

45. Archigram Archival Project. Walking City; [cited 2019 11 June]. Available from: http://archigram.westminster.ac.uk/project.php?id=60.

46. Mathews S. The fun palace as virtual architecture: Cedric Price and the practices of indeterminacy. *Journal of Architectural Education*. 2006; 59 (3): 39-48.

47. Canadian Centre for Architecture. 1964: Fun Palace, A brochure by Cedric Price and Joan Littlewood; [cited 2019 13 May]. Available from: https://www.cca.qc.ca/en/issues/2/what-the-future-looked-like/32737/1964-fun-palace.

48. MoMA. Cedric Price. Fun Palace for Joan Littlewood Project, Stratford East, London, England (Perspective) 1959–1961; [cited 2019 11 June]. Available from: https://www.moma.org/collection/works/842.

49. Stauffer MT. Utopian reflections, reflected utopias: Urban designs by Archizoom and Superstudio. *AA Files*. 2002; 47: 23-36.

50. Branzi A. *No-stop city. Archizoom associati*. Orleans: HYX; 2006.

51. Lang P, Menking W. *Superstudio. Life without objects*. Milano: Skira; 2003.

52. Cristiano Toraldo di Francia. Superarchitecture 1966-1968; [cited 2019 13 May]. Available from: https://www.cristianotoraldodifrancia.it/superarchitecture-1966-1968/.

53. Poltronova. Superarchitecture; [cited 2019 11 June]. Available from: https://www.poltronova.it/1966/12/04/superarchitettura-1966-3/.

54. Cristiano Toraldo di Francia. Continuous Monument; [cited 2019 11 June]. Available from: https://www.cristianotoraldodifrancia.it/continuous-monument/.

55. Superstudio, “The Continuous Monument (Grand Hotel Colosseo, first version),” 1969; [cited 2019 11 June]. Available from:

https://archinect.com/news/gallery/149940553/7/here-s-a-dose-of-design-inspiration-from-superstudio-the-radical-1960s-anti-architecture-collective-whose-influence-continues-today.

56. Superstudio, "The Continuous Monument (Piazza Navona)," 1969; [cited 2019 11 June]. Available from: http://en.cafa.com.cn/the-power-station-of-art-presents-superstudio-50-in-shanghai.html/superstudio-the-continuous-monument-piazza-navona-1969-collage-archive-superstudio.

57. Koolhaas R, Mau B. *S, M, L, XL: Small, medium, large, extra large*. New York: Monacelli Press, 1995.

58. Böck I. *Six canonical projects by Rem Koolhaas*. Berlin: Jovis Verlag; 2015.

59. MoMA. Rem Koolhaas, and Elia Zenghelis, Madelon Vriesendorp, Zoe Zenghelis. Exodus, or the Voluntary Prisoners of Architecture: The Strip (Aerial Perspective). 1972; [cited 2019 13 May]. Available from: https://www.moma.org/collection/works/104692?artist_id=6956&locale=en&page=1&sov_referrer=artist.

60. MoMA. Rem Koolhaas, Elia Zenghelis, Madelon Vriesendorp, Zoe Zenghelis. Exodus, or the Voluntary Prisoners of Architecture: The Strip, 1972; [cited 2019 11 June]. Available from: https://www.moma.org/collection/works/104693?artist_id=6956&locale=en&page=1&sov_referrer=artist.

61. Walker S. *Gordon Matta-Clark. Art, architecture and attack on modernism*. London: I.B.Tauris; 2009.

62. Garbage Wall, Gordon Matta-Clark, 1970; [cited 2019 11 June]. Available from: https://www.muhka.be/collections/artworks/g/item/3375-garbage-wall.

63. Hinojosa L. Gordon Matta-Clark – Open House; 2007 [cited 2019 13 May]. Available from: https://www.museoreinasofia.es/en/collection/artwork/open-house.

64. Attlee J. Towards anarchitecture: Gordon Matta-Clark and Le Corbusier. *Tate Papers*. 2007; 7.

65. Canadian Architect. CCA Presents Absent Wall: Recalling Gordon Matta-Clark's Garbage Wall 1970; [cited 2019 13 May]. Available from: https://www.canadianarchitect.com/cca-presents-absent-wall-recalling-gordon-matta-clark-s-garbage-wall-1970/.

66. Mamco. Gordon Matta-Clark; [cited 2019 13 May]. Available from: https://archive.mamco.ch/expositions/encours/Gordon_Matta_Clark_EN.html.

67. Gordon Matta-Clark, Splitting, and the Unmade House; [cited 2019 11 June]. Available from: https://theibtaurisblog.com/2015/01/26/gordon-matta-clark-splitting-and-the-unmade-house/.

68. Bear L. Gordon Matta-Clark: Splitting (the Humphrey street building). *Avalanche Magazine*. 1974; 10: 34-37.

69. Wall D. Gordon Matta-Clark's building dissections. *Arts Magazine*. 1976; 50 (9): 74-79.

70. Crawford J. Interview with Gordon Matta-Clark. Internationaal Cultureel Centrum, Antwerp, Belgium; 1977.

71. The Metropolitan Museum of Art. Gordon Matta-Clark. Splitting; [cited 2019 11 June]. Available from: https://www.metmuseum.org/toah/works-of-art/1992.5067/.

72. Distorted Space. The affective politics of Gordon Matta-Clark's Conical Intersect; [cited 2019 11 June]. Available from: https://distortedspace.com/2016/12/12/the-affective-politics-of-gordon-matta-clark/.

73. SFMOMA. Gordon Matta-Clark, Conical Intersect, 1975; [cited 2019 11 June]. Available from: https://www.sfmoma.org/artwork/92.426/.

74. Archdaily. Gehry Residence / Gehry Partners; [cited 2019 13 May]. Available from: https://www.archdaily.com/67321/gehry-residence-frank-gehry.

75. Goldberger P. *Building art: The life and work of Frank Gehry*. New York: Knopf; 2015.

76. Gehry FO, Celant G, Andrews M. *Frank Gehry. Building and projects*. New York: Rizzoli; 1990.

77. LA Weekly. Meet an Artist Monday. Frank Gehry; [cited 2019 11 June]. Available from: https://www.laweekly.com/arts/meet-an-artist-monday-galia-linn-10155417.

78. Hoyt A. Frank Gehry's House; 2012 [cited 2019 13 May]. Available from: http://www.architectmagazine.com/design/frank-gehrys-house_o.

79. Kvadrat Interwoven. Uncanny comfort. Architects Victor Navarro and Maria Langarita on Frank Gehry's home in Los Angeles; [cited 2019 11 June]. Available from: http://kvadratinterwoven.com/fan-club-navarro-and-gehry.

80. Hays KM. *Architecture theory since 1968*. Cambridge: MIT Press; 1998.

81. Corbo S. *From formalism to weak form: The architecture and philosophy of Peter Eisenman*. London: Routledge; 2016.

82. Eisenman PD. Notes on conceptual architecture: towards a definition. *Design Quarterly*. 1970; 78/79: 1-5.

83. Fabrizi M. The Building is the City: Le Corbusier's Unbuilt Hospital in Venice; 2014 [cited 2019 13 May]. Available from: http://socks-studio.com/2014/05/18/the-building-is-the-city-le-corbusiers-unbuilt-hospital-in-venice/.

84. Eisenman Architects. Cannaregio Town Square 1978; [cited 2019 13 May]. Available from: https://eisenmanarchitects.com/Cannaregio-Town-Square-1978.

85. Cassara S. *Peter Eisenman: Feints*. Milano: Skira; 2006.

86. Fiederer L. AD Classics: Venice Hospital / Le Corbusier; 2018 [cited 2019 13 May]. Available from: https://www.archdaily.com/789025/ad-classics-venice-hospital-proposal-le-corbusier.

87. Fondation Le Corbusier. Hôpital, Venice, Italy, 1964; [cited 2019 11 June]. Available from: http://www.fondationlecorbusier.fr/corbuweb/morpheus.aspx?sysId=13&IrisObjectId=5784&sysLanguage=en-en.

88. Atlas of Interiors. Peter Eisenman, House XI, Unites-States of America, 1978 ; [cited 2019 11 June]. Available from: http://www.atlasofinteriors.polimi.it/2017/11/15/peter-eisenman-house-xi-unites-states-of-america-1978/.

89. Hays KM. *Bernard Tschumi (Architecture/design series)*. London: Thames & Hudson; 2003.

90. Tschumi B. *Architecture and disjunction*. Cambridge: MIT Press; 1996.

91. Bernard Tschumi Architects. Advertisements for Architecture, 1976-1977; [cited 2019 13 May]. Available from: http://www.tschumi.com/projects/19/#.

92. Tschumi B. *The Manhattan transcripts*. London: Academy Editions; 1994.

93. La Villette. History & Heritage; [cited 2019 13 May]. Available from: https://en.lavillette.com/page/history-heritage_a175/1.

94. Souza E. AD Classics: Parc de la Villette / Bernard Tschumi Architects; 2011 [cited 2019 13 May]. Available from: https://www.archdaily.com/92321/ad-classics-parc-de-la-villette-bernard-tschumi.

95. New Age Architecture. Concept of Parc de la Villette; [cited 2019 11 June]. Available from: https://commons.mtholyoke.edu/architectualblog/2015/12/12/parc-de-la-villette-bernard-tschumi/points_lines_surface_2/.

96. Bernard Tschumi Architects. Parc de la Villette, Paris, 1982-1998; [cited 2019 13 May]. Available from: http://www.tschumi.com/projects/3/.

97. New Age Architecture. Axonometric view of Parc de la Villette; [cited 2019 11 June]. Available from: https://commons.mtholyoke.edu/architectualblog/2015/12/12/parc-de-la-villette-bernard-tschumi/attachment/00352/.

98. Omrania. How the Parc de la Villette Launched a New Era of Urban Park Design; [cited 2019 11 June]. Available from: https://omrania.com/inspiration/parc-de-la-villette-launched-new-era-urban-park-design/.

99. Flickr. Zagreusfm. Folie N7, Parc de la Villette.; [cited 2019 11 June]. Available from: https://www.flickr.com/photos/zagreusfm/5726540935/in/photostream/.

100. Flickr. Hive Mind; [cited 2019 11 June]. Available from: https://hiveminer.com/Tags/de%2Cdeconstructivism/Timeline.

101. Bernard Tschumi Architects. Le Fresnoy Art Center, Tourcoing, 1991-1997; [cited 2019 13 May]. Available from: http://www.tschumi.com/projects/14/.

102. Moore R. The Bilbao effect: how Frank Gehry's Guggenheim started a global craze; 2017 [cited 2019 13 May]. Available from: https://www.theguardian.com/artanddesign/2017/oct/01/bilbao-effect-frank-gehry-guggenheim-global-craze.

103. Heathcote E. Age of the 'starchitect'; 2017 [cited 2019 13 May]. Available from: https://www.ft.com/content/d064d57c-df01-11e6-86ac-f253db7791c6.

104. Oswalt P. *Shrinking cities, volume i: International research*. Ostfildern-Ruit: Hatje Cantz; 2005.

105. Koolhaas R, Otero-Pailos J. *Preservation is overtaking us (GSAPP Transcripts)*. New York: Columbia Books on Architecture and the City; 2014.

106. Marini S. *Heritage. Orchestra rehearsal*. Venice: Bruno; 2017.

107. Shrinking Cities. Exhibition Catalogue; [cited 2019 16 April]. Available from: http://www.shrinkingcities.com/fileadmin/shrink/downloads/pdfs/Shrinking_Cities_Project.pdf.

108. Paxton F. "The Manchester miracle": how did a city in decline become the poster child for urban regeneration?; 2016 [cited 2019 16 April]. Available from: https://www.citymetric.com/business/manchester-miracle-how-did-city-decline-become-poster-child-urban-regeneration-2402.

109. Helmholtz-Center for Environmental Research, UFZ-Report 0 1/2011, Urban Shrinkage in Leipzig, Germany; [cited 2019 16 April]. Available from: https://www.ufz.de/index.php?de=20939&pub_data[function]=showFile&pub_data[PUB_ID]=10994.

110. Shrinking Cities. Venice; [cited 2019 16 April]. Available from: http://www.shrinkingcities.com/venedig.0.html%3F&L=1.html.

111. Oswalt P. *Shrinking cities, volume ii: Interventions*. Ostfildern: Hatje Cantz; 2006.

112. Studio Füsun Türetken. Shrinking Cities; [cited 2019 11 June]. Available from: https://www.fusunturetken.com/ft/exhibition/shrinking-cities/.

113. Convertible City. Press Folder; [cited 2019 16 April]. Available from: http://www.convertiblecity.de/CONVERTIBLE%20CITY_english.pdf.

114. Gruentuch A, Ernst A. Convertible city, modes of densification and dissolving boundaries. *Archplus: Journal for Architecture and Urbanism*. 2006; 180.

115. Convertible City. Press Folder – Press Conference; [cited 2019 16 April]. Available from: http://www.convertiblecity.de/documents/Pressemappe060627_en.pdf.

116. Parasitical architecture; [cited 2019 11 June]. Available from: https://www.domusweb.it/en/architecture/2010/05/10/parasitical-architecture.html.

117. Convertible City. Press Photos; [cited 2019 11 June]. Available from: http://www.convertiblecity.de/presse_fotos_en.html.

118. RAAAF. Vacant NL, where architecture meets ideas, Curatorial statement by Rietveld Landscape; [cited 2019 16 April]. Available from: https://www.raaaf.nl/downloads/Curatorial%20statement%20by%20Rietveld%20Landscape.pdf.

119. RAAAF. Vacant NL; [cited 2019 16 April]. Available from: https://www.raaaf.nl/en/projects/439_vacant_nl.

120. Rietveld R, Rietveld E. *Vacancy studies: Experiments & strategic interventions in architecture*. Rotterdam: Nai010 Publishers; 2014.

121. RAAAF. Dutch Atlas of Vacancy; [cited 2019 11 June]. Available from: https://www.raaaf.nl/en/projects/535_dutch_atlas_of_vacancy.

122. Etherington R. Vacant NL by Rietveld Landscape; 2010 [cited 2019 16 April]. Available from: https://www.dezeen.com/2010/08/31/vacant-nl-by-rietveld-landscape/.

123. Dietro le quinte. Re-Cycle Strategie per L'architettura, La Città e Il Pianeta. Mostra Di Ricerca al Maxxi; [cited 2019 11 June]. Available from: http://www.dietrolequintetv.com/wordpress/re-cycle-strategie-per-larchitettura-la-citta-e-il-pianeta-mostra-di-ricerca-al-maxxi-1-dicembre-2011-29-aprile-2012/.

124. X-Ray Audio by the Bureau of Lost Culture; [cited 2019 16 April]. Available from: https://www.x-rayaudio.com/x-rayaudiorecords/.

125. Bone Music from Russia; [cited 2019 16 April]. Available from: http://ppcorn.com/us/bone-music-russia/.

126. Zbig Vision. Steps; [cited 2019 16 April]. Available from: http://www.zbigvision.com/.

127. Cook DA, Sklar R. Battleship Potemkin, Film by Eisenstein 1925; 2010 [cited 2019 16 April]. Available from: https://www.britannica.com/topic/Battleship-Potemkin.

128. LIN Architecture. Alveole 14; [cited 2019 16 April]. Available from: https://www.lin-a.com/gallery/finn-geipel-france-lin-project-submarine-bunker-transformation/alveole-14.

129. LIN Architecture. Alveole 14, Project File; [cited 2019 16 April]. Available from: https://www.lin-a.com/sites/default/files/SNA-PDF_0.pdf.

130. Design Build Network. Alveole 14: The Art of War; [cited 2019 11 June]. Available from: https://www.designbuild-network.com/features/feature21270/.

131. Re-cycle Italy. The Project; [cited 2019 16 April]. Available from: https://recycleitaly.net/estratto/the-project/.

132. Marini S, Santangelo E. *New life cycles for architecture and infrastructure of city and landscape*. Roma: Aracne; 2013.

133. Pavillon de l'Arsenal. Re•architecture Exhibition, Re•cycle, Re•use, Re•invest, Re•build; [cited 2019 16 April]. Available from: http://www.pavillon-arsenal.com/en/expositions/9643-rearchitecture.html.

134. Pavillon de l'Arsenal. Re•architecture Exhibition, Itnernary Version; [cited 2019 16 April]. Available from: http://www.pavillon-arsenal.com/en/expositions/9814-rearchitecture.html.

135. Pavillon de l'Arsenal; [cited 2019 11 June]. Available from: http://www.pavillon-arsenal.com/en/.

136. Atelier d'architecture Autogérée / Studio for Self-managed Architecture. Passage 56; [cited 2019 16 April]. Available from: http://www.urbantactics.org/projets/passage56/.

137. Galante M. Le 56 – Ecointerstice; 2013 [cited 2019 16 April]. Available from: http://www.foodurbanism.org/le-56-ecointerstice/.

138. 56 St. Blaise; [cited 2019 16 April]. Available from: https://56stblaise.wordpress.com/.

139. Petzet M, Heilmeyer F. *Reduce, reuse, recycle: Architecture as resource*. Ostfildern: Hatje Cantz; 2012.

140. Reduce/Reuse/Recycle. Resouce as Architecture. Homepage; [cited 2019 16 April]. Available from: http://www.reduce-reuse-recycle.de/index_en.html.

141. Reduce/Reuse/Recycle. Exhibition Views; [cited 2019 11 June]. Available from: http://www.reduce-reuse-recycle.de/pdf/en/RRR_Bienn2012_exhibition_views_August2012.pdf.

142. Brandlhuber+. Antivilla; [cited 2019 16 April]. Available from: https://www.brandlhuber.com/0131-antivilla-krampnitz/.

143. Reduce/Reuse/Recycle. Resouce as Architecture. Antivilla; [cited 2019 16 April]. Available from: http://www.reduce-reuse-recycle.info/Projekt_3_0_id_203.html.

144. Reduce/Reuse/Recycle. Resouce as Architecture. Brunnenstrasse; [cited 2019 16 April]. Available from: http://www.reduce-reuse-recycle.info/Projekt_3_0_id_12 .html.

145. Brandlhuber+. Brunnenstrasse 9; [cited 2019 16 April]. Available from: https://www.brandlhuber.com/0113-brunnenstrasse-berlin/.

146. KOW Berlin Art Gallery. About; [cited 2019 16 April]. Available from: https://www.kow-berlin.com/about.

147. Diener & Diener Architekten. Renovation and Expansion of the East Wing of the Museum of Natural History, Berlin, 1995–2010; [cited 2019 16 April]. Available from: http://www.dienerdiener.ch/en/project/renovation-and-expansion-of-the-east-wing-of-the-museum-of-natural-history.

148. Reduce/Reuse/Recycle. Resouce as Architecture. East Wing of the Museum of Natural History; [cited 2019 16 April]. Available from: http://www.reduce-reuse-recycle.info/Projekt_3_0_id_20.html.

149. Muck Petzet Architekten. Research and Teaching; [cited 2019 16 April]. Available from: http://www.muck-petzet.com/research_19_1.html.

150. Reduce/Reuse/Recycle. Resouce as Architecture. Projects; [cited 2019 16 April]. Available from: http://www.reduce-reuse-recycle.info/.

151. Garcia-Herrero A, de Lis SF. The Housing Boom and Bust in Spain: Impact of the Securitisation Model and Dynamic Provisioning; 2008 [cited 2019 16 April]. Available from: https://www.bbvaresearch.com/KETD/fbin/mult/WP_0806_tcm348-212959.pdf.

152. Whigham N. This is what it looks like when a credit fuelled housing bubble bursts; 2018 [cited 2019 16 April]. Available from: https://www.news.com.au/technology/environment/natural-wonders/this-is-what-it-looks-like-when-a-credit-fuelled-housing-bubble-bursts/news-story/b3b877d3012fbeb35b2a7164ad2ec548.

153. Canto P. Spanish photographer's prizewinning images of Spain's burst housing bubble; 2018 [cited 2019 16 April]. Available from: https://elpais.com/elpais/2018/04/17/inenglish/1523962404_349458.html.

154. Markel Redondo Photography. Sand Castles 2010-2012; [cited 2019 16 April]. Available from: https://markelredondo.com/Projects/Sand-Castles/1.

155. Carnicero I, Quintans Eiras C. *Unfinished*. Barcelona: Fundación Caja de Arquitectos; 2016.

156. Unfinished. Views; [cited 2019 16 April]. Available from: http://unfinished.es/en/mirada/.

157. Winston A. Economic crisis made Spanish architecture more radical, says Biennale pavilion curator; 2016 [cited 2019 11 June]. Available from: https://www.dezeen.com/2016/05/31/unfinished-spanish-pavilion-venice-architecture-biennale-2016-economic-crisis-golden-lion-inaqui-carcinero/.

158. Unfinished. Spanish Dream; [cited 2019 16 April]. Available from: http://unfinished.es/en/mirada/spanish-dream/.

159. Collectivo Cadelas Verdes. Spanish Dream; [cited 2019 16 April]. Available from: https://veredes.es/blog/spanish-dream-2011-colectivo-cadelas-verdes/.

160. Barba JJ. Spanish Dream; 2013 [cited 2019 16 April]. Available from: https://www.metalocus.es/en/news/spanish-dream.

161. Ana Amado: Art & Architectural Photography. Spanish Dream; [cited 2019 16 April]. Available from: http://anaamado.com/indexhibit/index.php/spanish-dream/.

162. Unfinished. Works; [cited 2019 16 April]. Available from: http://unfinished.es/en/obra/.

163. Mora P. Details Revealed About the Content of the Spanish Pavilion at the 2016 Venice Biennale; 2016 [cited 2019 16 April]. Available from: https://www.archdaily.com/785399/detalles-de-los-contenidos-del-pabellon-de-espana-en-la-bienal-de-venecia-2016.

164. Archiweb. Barberi Space; [cited 2019 16 April]. Available from: https://www.archiweb.cz/en/b/espacio-barberi.

165. RCR Bunka Fundacio Privada. Barberi Space; [cited 2019 16 April]. Available from: https://rcrbunkafundacio.cat/fons-rcr/obres/o-iv-158-espai-barberi/.

166. Unfinished. Works. Espai Barberi, RCR Arquitectes; [cited 2019 16 April]. Available from: http://unfinished.es/en/obra/espai-barberi/.

167. Axiopluc. Cine Lidia; [cited 2019 16 April]. Available from: https://www.aixopluc.net/cine-lidia.

168. Unfinished. Works. Cine Lidia; [cited 2019 16 April]. Available from: http://unfinished.es/en/obra/cine-lidia/.

169. Nuria Salvado Architect. Cine Lídia; [cited 2019 16 April]. Available from: http://www.nuriasalvado.com/.

170. Glendinning M. *The conservation movement: A history of architectural preservation. Antiquity to modernity*. London: Routledge; 2013.

171. Valeri M, Eriş E. Heritage reloaded. In: Segantini MA, editor. Published proceedings of *AMPS Conference Series 15, Issue 2, Tangible–Intangible Heritage(s) - Design, social and cultural critiques on the past, the present and the future*; 13-15 June 2018; London. University of East London, AMPS, Architecture_MPS; Parade; 2018. 214-220.

172. Ashworth GJ, Tunbridge JE. *The tourist-historic city: Retrospect and prospect of managing the heritage city*. London: Routledge; 2011.

173. Jokilehto J. *History of architectural conservation*. London: Routledge; 2012.

174. ICOMOS. History of the Venice Charter; [cited 2019 16 April]. Available from: https://www.icomos.org/venicecharter2004/history.pdf.

175. ICOMOS. International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter 1964); [cited 2019 16 April]. Available from: https://www.icomos.org/charters/venice_e.pdf.

176. UNESCO. Convention Concerning the Protection of the World Cultural and Natural Heritage; [cited 2019 16 April]. Available from: https://whc.unesco.org/archive/convention-en.pdf.

177. Macdonald S. Modern Matters: Breaking the Barriers; 2013 [cited 2019 16 April]. Available from: http://www.getty.edu/conservation/publications_resources/newsletters/28_1/modern_matters.html#1.

178. UNESCO. Fifteenth General Assembly of States Parties to the Convention Concerning the Protection of the World Cultural and Natural Heritage; [cited 2019 16 April]. Available from: https://whc.unesco.org/archive/2005/whc05-15ga-inf7e.pdf.

179. Preservation is Overtaking Us – Columbia GSAPP; [cited 2019 11 June]. Available from: https://www.arch.columbia.edu/books/reader/6-preservation-is-overtaking-us.

180. OMA. Cronocaos Venice Biennale 2010 Catalogue; [cited 2019 16 April]. Available from: http://apps.o5.no.s3.amazonaws.com/oma/www/20160303165106-jo05/cronocaos-venice-2010.pdf.

181. Ministère de la Culture. Maison Lemoine; [cited 2019 16 April]. Available from: https://www.pop.culture.gouv.fr/notice/merimee/PA33000068.

182. Kroll A. AD Classics: Maison Bordeaux / OMA; 2011 [cited 2019 16 April]. Available from: https://www.archdaily.com/104724/ad-classics-maison-bordeaux-oma.

183. OMA. Maison à Bordeaux; [cited 2019 16 April]. Available from: https://oma.eu/projects/maison-a-bordeaux.

184. Filler M. House Life in a Koolhaas; 2010 [cited 2019 16 April]. Available from: https://www.nybooks.com/daily/2010/02/18/house-life-in-a-koolhaas/.

185. OMA. Venice Biennale 2010: Cronocaos; [cited 2019 16 April]. Available from: https://oma.eu/projects/venice-biennale-2010-cronocaos.

186. RAAAF. Bunker 599; [cited 2019 16 April]. Available from: https://www.raaaf.nl/en/projects/7_bunker_599.

187. Archdaily. Bunker 599 / RAAAF + Atelier Lyon; [cited 2019 16 April]. Available from: https://www.archdaily.com/256984/bunker-599-rietveld-landscape.

188. Griffiths A. Concrete bunker cut in half by RAAAF and Atelier de Lyon; 2013 [cited 2019 16 April]. Available from: https://www.dezeen.com/2013/12/11/movie-concrete-bunker-cut-in-half-raaaf-atelier-de-lyon/.

189. Artemel AJ. "Hardcore Heritage": How RAAAF is Redefining Historical Preservation; 2017 [cited 2019 16 April]. Available from: https://www.archdaily.com/802956/hardcore-heritage-how-raaaf-is-redefining-historical-preservation.

190. UNESCO. Nieuwe Hollandse Waterlinie; [cited 2019 16 April]. Available from: https://whc.unesco.org/en/tentativelists/5631/.

191. Mairs J. Bulldozers move in on Robin Hood Gardens; 2017 [cited 2019 16 April]. Available from: https://www.dezeen.com/2017/08/25/bulldozers-demolition-robin-hood-gardens-alison-peter-smithson-brutalist-estate.

192. Mairs J. Post-war architecture shouldn't take the blame for political failures, says Owen Hopkins; 2017 [cited 2019 16 April]. Available from: https://www.dezeen.com/2017/08/31/post-war-architecture-shouldnt-take-blame-for-political-failures-owen-hopkins/.

193. OMA. Netherlands Dance Theater; [cited 2019 16 April]. Available from: https://oma.eu/projects/netherlands-dance-theater?utm_medium=website&utm_source=archdaily.com.

194. Overstreet K. What The Demolition of OMA's Netherlands Dance Theatre Says About Preservation in Architecture; [cited 2019 16 April]. Available from: https://www.archdaily.com/785504/what-the-demolition-of-omas-netherlands-dance-theatre-says-about-preservation-in-architecture.

195. Afasia Archzine. OMA. The Netherlands Dance Theater in the Hague . Now and Then; [cited 2019 11 June]. Available from: https://afasiaarchzine.com/2016/04/oma-89.

196. Kim E. Rem Koolhaas / OMA: CRONOCAOS Preservation Tour, Part Three; 2010 [cited 2019 16 April]. Available from: https://www.designboom.com/architecture/rem-koolhaas-oma-cronocaos-preservation-tour-part-three.

197. Ricardo Bofill Taller de Arquitectura. La Fabrica. Read; [cited 2018 17 September]. Available from: http://www.ricardobofill.com/la-fabrica/read/.

198. Ricardo Bofill Taller de Arquitectura. Company Profile; [cited 2018 17 September]. Available from: http://www.ricardobofill.com/practice/company-profile/.

199. Nowness. In Residence: Ricardo Bofill. How the Spanish architect built an empire out of a disused factory; [cited 2018 17 September]. Available from: https://www.nowness.com/series/in-residence/ricardo-bofills-house-by-albert-moya.

200. Floornature. Ricardo Bofill and La Fàbrica: studio in a former cement factory; [cited 2018 17 September]. Available from: http://www.floornature.com/ricardo-bofill-and-la-fabrica-studio-in-a-former-cement-factory-10640/.

201. Youtube. A Converted Cement Factory in Barcelona; [cited 2018 17 September]. Available from: https://www.youtube.com/watch?v=s_7TLytDpK0.

202. Ricardo Bofill Taller de Arquitectura. La Fabrica. See; [cited 2019 11 June]. Available from: https://www.ricardobofill.com/la-fabrica/see/.

203. Arch2O. Spanish Architect Ricardo Bofill Transforms Old Cement Factory into Home and Workplace; [cited 2019 11 June]. Available from: https://www.arch2o.com/spanish-architect-ricardo-bofill-transforms-old-cement-factory-home-workplace/.

204. Tschumi B. *Tschumi Le Fresnoy: Architecture in/between*. New York: Monacelli Press; 1999.

205. Bernard Tschumi Architects. Le Fresnoy Art Center, Tourcoing, 1991-1997; [cited 2019 13 May]. Available from: http://www.tschumi.com/projects/14/.

206. Flickr. Mandy Thomas. Le Fresnoy Art Center; [cited 2019 11 June]. Available from: https://www.flickr.com/photos/abthomas/4919533685.

207. Le Fresnoy – Studio national des arts contemporains. Concept; [cited 2018 17 September]. Available from: http://www.lefresnoy.net/en/school/concept.

208. Palais de Tokyo. The Site & its History; [cited 2018 17 September]. Available from: http://www.palaisdetokyo.com/en/content/site-its-history.

209. Culturedarm. Art and Architecture Towards Political Crises: The 1937 Paris International Exposition in Context; [cited 2018 17 September]. Available from: http://culturedarm.com/1937-paris-international-exposition/.

210. Ayers A. Palais de Tokyo rejuvenated in Paris by Lacaton & Vassal; 2012 [cited 2018 17 September]. Available from: https://www.architectural-review.com/today/palais-de-tokyo-rejuvenated-in-paris-by-lacaton-and-vassal/8630777.article.

211. Lacaton & Vassal. Palais de Tokyo, Site for contemporary creation; [cited 2018 17 September]. Available from: https://www.lacatonvassal.com/index.php?idp=20.

212. Architectuul. Rehabilitation of the Palais de Tokyo; [cited 2018 17 September]. Available from: http://architectuul.com/architecture/rehabilitation-of-the-palais-de-tokyo.

213. Winstanley T. Palais de Tokyo Expansion / Lacaton & Vassal; 2012 [cited 2018 17 September]. Available from: http://www.archdaily.com/248026/palais-de-tokyo-expansion-lacaton-vassal.

214. Laegemiddel Styrelsen – Danish Medicines Agency. From old industrial plant to open workspace; [cited 2018 17 September]. Available from: https://laegemiddelstyrelsen.dk/en/publications/2011/from-old-industrial-plant-to-open-workspace/~/media/C5E9955E543345FBA76E2813A2659A4A.ashx.

215. MVRDV. Frosilo; [cited 2019 11 June]. Available from: https://www.mvrdv.nl/projects/143/fr%C3%B8silo

216. Dezeen. Frosilo apartments offer a "great combination of old and new" says MVRDV's Jacob van Rijs; [cited 2018 17 September]. Available from: https://www.dezeen.com/2015/08/14/frosilo-apartments-offer-great-combination-old-new-mvrdv-movie-jacob-van-rijs-copenhagen/

217. PLH Arkitekter. Havnestad; [cited 2019 11 June]. Available from: https://plh.dk/en/projects/havnestad/.

218. Danish Architecture Center. Gemini Residence; [cited 2018 17 September]. Available from: http://www.dac.dk/en/dac-life/copenhagen-x-galleri/cases/gemini-residence/.

219. Danish Architecture Center. Wennberg Silo; [cited 2018 17 September]. Available from: http://www.dac.dk/en/dac-life/copenhagen-x-galleri/cases/wennberg-silo/.

220. Arcspace. Gemini Residence; [cited 2018 17 September]. Available from: http://www.arcspace.com/features/mvrdv/gemini-residence/.

221. Winy M. *KM3: Excursions on capacities.* Barcelona: Actar; 2005.

222. Márquez Cecilia F, Levene R, Maas W. *El Croquis 173: MVRDV 2003-2014*. Madrid: El Croquis; 2014.

223. Area. Contemporary itinerary: Copenaghen; [cited 2019 11 June]. Available from: https://www.area-arch.it/contemporary-itinerary/contemporary-itinerary-copenaghen/.

224. Capital Homes. Luxury apartment in Gemini Residence; [cited 2019 11 June]. Available from: http://capitalhomes.dk/en/property/luksus-lejlighed-gemini-residence/.

225. Seehaus Forelle Haeckenhaus; [cited 2018 17 September]. Available from: https://www.seehaus-forelle.de/en/?lang=en.

226. Interior Design. Every Room Tells a Story: Germany's Seehaus Forelle Haeckenhaus Resort; [cited 2018 17 September]. Available from: http://www.interiordesign.net/projects/9456-every-room-tells-a-story-germany-s-seehaus-forelle-haeckenhaus-resort/.

227. Bravo A. Some pigsty. *Dwell Magazine*. 2008; 8 (7): 156-157.

228. Tectonica. Rehabilitación. S(ch)austall. naumann architektur; [cited 2019 11 June]. Available from: https://www.tectonica.archi/projects/rehabilitacion-s-ch-austall.

229. Bund Deutscher Architekten. S(ch)austall am Eiswoog; [cited 2019 11 June]. Available from: https://bda-bund.de/awards/schaustall-am-eiswoog/.

230. Majestic Plumage. FNP Architekten: S(ch)austall; [cited 2019 11 June]. Available from: http://majesticplumage.blogspot.com/2013/05/fnp-architekten-schaustall.html.

231. Dekker R. *798 Art Zone Beijing: Site of 'cultural revolution' or showpiece of city marketing?*; University of Ghent, Faculty of Political and Social Sciences, Master of Science in Conflict and Development Thesis. Ghent. 2011.

232. Expedia. 798 Space; [cited 2018 17 September]. Available from: https://www.expedia.com/798-Space-Beijing.d6061619.Vacation-Attraction.

233. Time Out Beijing. Factory 798; [cited 2019 11 June]. Available from: http://img.timeoutbeijing.com/201809/20180901050622939.jpg.

234. Travel + Leisure. 798 Art District; [cited 2019 11 June]. Available from: https://www.travelandleisure.com/travel-guide/beijing/things-to-do/798-art-district.

235. Sasaki Associates. 798 Arts District Vision Plan; [cited 2019 11 June]. Available from: http://www.sasaki.com/project/36/798-arts-district-vision-plan/.

236. Tokyo Gallery. Beijing Tokyo Art Projects; [cited 2018 17 September]. Available from: http://www.tokyo-gallery.com/btap/.

237. Divisare. MAD Architects. Beijing Tokyo Art Projects; [cited 2018 17 September]. Available from: https://divisare.com/projects/17847-mad-architects-beijing-tokyo-art-projects-b-t-a-p-renovation.

238. Tokyo Gallery. Gallery Information; [cited 2019 11 June]. Available from: http://www.tokyo-gallery.com/en/gallery-information/.

239. Art Link Art. Beijing Tokyo Art Projects; [cited 2019 11 June]. Available from: http://www.artlinkart.com/en/space/overview/13earC.

240. Yang Gallery Beijing; [cited 2018 17 September]. Available from: http://www.yanggallery.com.sg/gallery-beijing/beijing/.

241. Beijing LPS. Yang Gallery; [cited 2018 17 September]. Available from: http://beijing.lps-china.com/partners/yang-gallery/.

242. Twitter. Yang Gallery. Reestablish the Garden of Eden. Exhibition opening cocktail at YANG Gallery. Beijing 798; [cited 2019 11 June]. Available from: https://twitter.com/yanggallery/status/1045501062386352129.

243. UCCA – Ullens Center for Contemporary Art. About; [cited 2018 17 September]. Available from: http://ucca.org.cn/en/about/index/.

244. Wilmotte & Associates. UCCA; [cited 2018 17 September]. Available from: http://www.wilmotte.com/en/project/67/UCCA.

245. Sotheby's. UCCA Center for Contemporary Art; [cited 2019 11 June]. Available from: https://museumnetwork.sothebys.com/en/museums/ullens-center-for-contemporary-art.

246. Wilmotte & Associates. UCCA Pictures; [cited 2019 11 June]. Available from: http://www.wilmotte.com/en/project/gallery/67/UCCA-Art-Center-Pictures.

247. Archdaily. Kraanspoor / OTH Architecten; [cited 2018 17 September]. Available from: http://www.archdaily.com/2967/kraanspoor-oth-ontwerpgroep-trude-hooykaas-bv.

248. Government of the Netherlands. Kraanspoor in Amsterdam; [cited 2018 17 September]. Available from: https://www.rijksoverheid.nl/documenten/brochures/2009/09/03/voorbeeld-kraanspoor.

249. Architectuur Centrum Amsterdam. Kraanspoor; [cited 2018 17 September]. Available from: https://www.arcam.nl/en/kraanspoor/.

250. "Kraanspoor" office building in Amsterdam. *Detail Magazine: Refurbishment*. 2009; 11: 1206-1210.

251. I am Amsterdam. Kraanspoor; [cited 2018 17 September]. Available from: https://www.iamsterdam.com/en/see-and-do/amsterdam-qr/north/het-kraanspoor.

252. Archined. Kraanspoor - OTH; [cited 2018 17 September]. Available from: https://www.archined.nl/oem/reportages/kraanspoor/Kraanspoor_eng.html.

253. La Caixa Social and Cultural Outreach Projects inaugurates the CaixaForum Madrid, a new concept in social and cultural centres. Press Kit; [cited 2018 17 September]. Available from: http://press.lacaixa.es/socialprojects/la-caixa-social-and-cultural-outreach-projects-inaugurates-the-caixaforum-madrid-a-new-concept-in-social-and-cultural-centres__816-c-3730__.html.

254. Circarq. La antigua central eléctrica del Mediodía; [cited 2019 11 June]. Available from: https://circarq.wordpress.com/2013/10/21/la-antigua-central-electrica-del-mediodia/.

255. E-architect. CaixaForum Madrid; [cited 2019 11 June]. Available from: https://www.e-architect.co.uk/madrid/caixa-forum.

256. Cosas de Arquitectos. CaixaForum Madrid. Mucho más que un jardín vertical; [cited 2019 11 June]. Available from: https://www.cosasdearquitectos.com/2014/06/caixaforum-madrid-herzo-de-meuron-jardin-vertical/.

257. Arcspace. CaixaForum; [cited 2019 11 June]. Available from: https://arcspace.com/feature/caixa-forum/.

258. Chris Allen Studio. CaixaForum; [cited 2019 11 June]. Available from: https://chrisallen.studio/Caixa-Forum.

259. Kalam. CaixaForum Headquarters, Madrid, Spain; [cited 2019 11 June]. Available from: https://kalam.es/en/obra/sede-de-caixa-forum/.

260. Patrick Blanc. Vertical Garden. CaixaForum, Madrid; [cited 2019 11 June]. Available from: https://www.verticalgardenpatrickblanc.com/node/1414.

261. Herzog de Meuron. CaixaForum; [cited 2018 17 September]. Available from: https://www.herzogdemeuron.com/index/projects/complete-works/201-225/201-caixaforum-madrid.html.

262. Etherington R. CaixaForum Madrid by Herzog & de Meuron; 2008 [cited 2019 11 June]. Available from: https://www.dezeen.com/2008/05/22/caixaforum-madrid-by-herzog-de-meuron/.

263. Rawlinson L. From goods trains to green grass: The New York High Line; 2007 [cited 2018 17 September]. Available from: http://edition.cnn.com/2007/TECH/science/03/15/highline.biog/.

264. The High Line. About; [cited 2018 17 September]. Available from: http://www.thehighline.org/about.

265. The High Line. Fact Sheet; [cited 2018 17 September]. Available from: http://files.thehighline.org/pdf/high_line_fact_sheet.pdf.

266. Hynes T. Looking Back at The History of The High Line in NYC, New Video from Blueprint; 2015 [cited 2018 17 September]. Available from: http://untappedcities.com/2015/04/01/looking-back-at-the-history-of-the-high-line-in-nyc-blueprint/.

267. Diller Scofidio + Renfro. The High Line; [cited 2018 17 September]. Available from: https://dsrny.com/project/high-line.

268. Design You Trust. New York Secret Rooftop World; 2008 [cited 2019 11 June]. Available from: https://designyoutrust.com/2012/05/new-york-secret-rooftop-world.

269. The High Line. Photos; [cited 2019 11 June]. Available from: https://www.thehighline.org/photos-videos/.

270. Q&A: Friends of the High Line interview; [cited 2018 17 September]. Available from: http://edition.cnn.com/2007/TECH/science/03/15/highline.qa/.

271. Cilento K. The New York High Line officially open; [cited 2018 17 September]. Available from: http://www.archdaily.com/24362/the-new-york-high-line-officially-open.

272. Keskeys P. An Urban Masterstroke: The Complete History of the High Line; [cited 2018 17 September]. Available from: https://architizer.com/blog/the-complete-history-of-the-high-line/.

273. The High Line. The Spur; [cited 2018 02 June]. Available from: https://www.thehighline.org/design/spur/.

274. Bliss L. The High Line's Next Balancing Act; [cited 2018 17 September]. Available from: https://www.citylab.com/solutions/2017/02/the-high-lines-next-balancing-act-fair-and-affordable-development/515391/.

275. Karo Architekten. Lesezeichen Salbke – Freiluftbibliothek in Magdeburg; [cited 2018 17 September]. Available from: http://www.karo-architekten.de/cms/wp-content/uploads/2007/08/LZ-projekt-information-dt.pdf.

276. Federal Institute for Research on Building, Urban Affairs and Spatial Development. Experimental Housing and Urban Development; [cited 2018 17 September]. Available from: http://www.bbsr.bund.de/BBSR/EN/RP/ExWoSt/exwost_node.html.

277. Federal Institute for Research on Building, Urban Affairs and Spatial Development. Magdeburg: Lesezeichen und Stadtregal; [cited 2018 17 September]. Available from: http://www.bbsr.bund.de/BBSR/DE/FP/ExWoSt/Forschungsfelder/2005/InnovationenFamilieStadtquartiere/Modellvorhaben/10_MV-B_MagdeburgLesezeichen.html?nn=430172.

278. Federal Institute for Research on Building, Urban Affairs and Spatial Development. Dokumentation der Modellvorhaben aus dem ExWoSt-Forschungsfeld; [cited 2018 11 June]. Available from: https://www.bbsr.bund.de/BBSR/DE/Veroeffentlichungen/ministerien/BMVBS/WP/2010/heft71Anhang_DL.pdf?__blob=publicationFile&v=2.

279. Public Space. Open-Air Library; [cited 2019 11 June]. Available from: https://www.publicspace.org/works/-/project/f084-open-air-library.

280. Archdaily. Open Air Library / KARO Architekten; [cited 2018 17 September]. Available from: http://www.archdaily.com/39417/open-air-library-karo-architekten.

281. Lesezeichen Salbke; [cited 2018 17 September]. Available from: http://www.lesezeichen-salbke.de/.

282. Terragni E. Tunnel retrofit. *SLUM Lab: Sustainable Living Urban Model*. 2011; 11: 50.

283. Tunnel Revision; [cited 2018 17 September]. Available from: http://www.terragni.eu/inglese%20pagine%20web/pubblicazioni/2010%20Tunnel%20re%20vision/2010%20Tunnel%20re%20vision.html.

284. Gordan R. Tunnel Vision; 2010 [cited 2018 17 September]. Available from: https://archpaper.com/2010/03/tunnel-vision/.

285. Re-use Strategies. Museo Storico di Trento; [cited 2019 11 June]. Available from: http://www.reusestrategies.it/riusi-contemporanei/riusare-infrastrutture-3-museo-storico-di-trento/.

286. Floor Nature. RE-CYCLE Strategies for architecture, the city and the planet; [cited 2019 11 June]. Available from: https://www.floornature.com/re-cycle-strategies-for-architecture-the-city-and-the-planet-7531/.

287. Elisabetta Terragni. Trento Tunnels ”The ABC of the Trentino ”; [cited 2019 11 June]. Available from: http://www.terragni.eu/inglese%20pagine%20web/19%20le%20gallerie%20trento%202009/01%20le%20gallerie%20trento%202009.html.

288. Fondazione Museo Storico del Trento. Le Gallerie; [cited 2019 11 June]. Available from: http://fondazione.museostorico.it/index.php/Luoghi/I-luoghi-della-Fondazione/Le-Gallerie#descrizione.

289. Silva A. Filmwork / Schnapp / Terragni / Gruppe Gut – The Tunnels; [cited 2018 17 September]. Available from: http://www.abitare.it/en/architecture/2009/12/07/filmwork-schnapp-terragni-gruppe-gut-le-gallerie-the-tunnels-2/.

290. Lacaton & Vassal. Transformation de la Tour Bois le Prêtre; [cited 2018 17 September]. Available from: http://www.lacatonvassal.com/index.php?idp=56.

291. Ayers A. Lacaton & Vassal's revitalisation of a Parisian tower block; 2011 [cited 2018 17 September]. Available from: https://www.architectural-review.com/today/lacaton-and-vassals-revitalisation-of-a-parisian-tower-block/8624097.article.

292. Dana K. The risky business of meta-morphosis. *Daylight & Architecture Magazine*; 2011; 16: 56-71.

293. World Architects. Rebuilding in the Beijing Hutongs; [cited 2018 11 June]. Available from: https://www.world-architects.com/en/architecture-news/reviews/rebuilding-in-the-beijing-hutongs.

294. Xiao Y, Duo J, Yang L, Mcarthur I, Miller B. Shaping cultural and creative space: Beijing as a case study. In: Cleland K, Fisher L, Harley R. *Published Proceedings of the 19th International Symposium on Electronic Art, ISEA2013*; 7-16 June 2013; Sydney. Sydney: ISEA International; 2013. Available from: http://hdl.handle.net/2123/9756.

295. Archdaily. Refurbishment of the Offset Printing Factory / Origin Architect; [cited 2018 17 September]. Available from: http://www.archdaily.com/511311/refurbishment-of-the-offset-printing-factory-origin-architect.

296. Prada Group. History; [cited 2018 17 September]. Available from: http://www.pradagroup.com/en/group/history.

297. Fondazione Prada. Milan; [cited 2018 17 September]. Available from: http://www.fondazioneprada.org/visit/visit-milan/?lang=en.

298. OMA. Fondazione Prada; [cited 2018 17 September]. Available from: http://oma.eu/projects/fondazione-prada.

299. Designboom. OMA: Fondazione Prada Headquarters in Largo Isarco, Milan; [cited 2019 11 June]. Available from: https://www.designboom.com/architecture/oma-fondazione-prada-headquarters-in-largo-isarco-milan/.

300. Tory-Henderson N. Fondazione Prada; 2015 [cited 2019 11 June]. Available from: https://arcspace.com/feature/fondazione-prada/.

301. Archdaily. Fondazione Prada / OMA; [cited 2019 11 June]. Available from: https://www.archdaily.com/628472/fondazione-prada-oma.

302. Floor Nature. A renovated distillery becomes OMA Rem Koolhaas's Fondazione Prada in Milan; [cited 2019 11 June]. Available from: https://www.floornature.com/ceramic-innovation/architectural-solutions/renovated-distillery-becomes-oma-rem-koolhaasas-fondazione-p-13436/.

303. Frearson A. OMA's Fondazione Prada art centre opens in Milan; 2015 [cited 2018 17 September]. Available from: https://www.dezeen.com/2015/05/03/oma-fondazione-prada-art-centre-gold-leaf-cladding-wes-anderson-cafe-milan/.

304. Designboom. OMA-designed fondazione prada campus opens in milan; [cited 2018 17 September]. Available from: https://www.designboom.com/architecture/oma-fondazione-prada-milan-rem-koolhaas-05-04-2015/.

305. Abrahams T. Fondazione Prada in Milan by OMA; 2015 [cited 2018 17 September]. Available from: https://www.architectural-review.com/today/there-is-inherently-aplay-between-the-idea-of-private-wealth-and-public-display/8687397.article.

306. Fondazione Prada. Robert Gober / Louise Bourgeois; [cited 2019 11 June]. Available from: http://www.fondazioneprada.org/project/louise-bourgeois/?lang=en.

307. Fondazione Prada. Bar Luce; [cited 2019 11 June]. Available from: http://www.fondazioneprada.org/barluce-en/?lang=en.

308. Hernández D. Fondazione Prada Torre / OMA; [cited 2019 11 June]. Available from: https://www.archdaily.com/892898/fondazione-prada-torre-oma.

309. Salt Research. Gümrük ve Ambar Tesisleri ve Tophane Meydanı Düzenleme Projesi 1953-1960, Salıpazarı, İstanbul: evraklar; [cited 2019 11 June]. Available from: https://archives.saltresearch.org/handle/123456789/68618.

310. İstanbul Museum of Modern Art. History; [cited 2019 11 June]. Available from: https://www.istanbulmodern.org/en/museum/history_49.html.

311. Özdamar EG. Transforming the historical waterfront: An(r/t)repo in Istanbul. *On The Waterfront*. 2016; 44: 7-19.

312. Taheri AE. *Functional decline in the case of Salipazari, Istanbul*; Middle East Technical University, The Graduate School of Natural and Applied Sciences, Master Of Science in Urban Design Thesis. Ankara. 2013.

313. Radikal. 5 no'lu antrepo Sanat Limanı oldu; [cited 2019 11 June]. Available from: http://www.radikal.com.tr/kultur/5-nolu-antrepo-sanat-limani-oldu-1003369/.

314. Emre Arolat Architecture. Istanbul Museum of Painting and Sculpture; [cited 2019 11 June]. Available from: http://emrearolat.com/gallery/antrepo-5-msgsu-museum-of-painting-and-sculpture/.

315. Çimenoğlu G. *Kruvaziyer turizminin kent ile ilişkisi bağlaminda "Karaköy – Salıpazarı bölgesi"*; Yıldız Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Mimari Tasarım Yüksek Lisans Tezi. İstanbul. 2011.

316. Sanat Ajanı. İstanbul'un yepyeni şehir müzelerine hazır mısınız?; [cited 2019 11 June]. Available from: https://sanatajani.wordpress.com/2013/09/18/istanbulun-yepyeni-sehir-muzelerine-hazir-misiniz/.

317. Wow Turkey. Antrepo'ya yeni müze yolda; [cited 2019 11 June]. Available from: http://wowturkey.com/forum/viewtopic.php?t=114902.

318. Emre Arolat Architecture. Istanbul Museum of Painting and Sculpture, Project Data Sheet; [cited 2019 11 June]. Available from: http://emrearolat.com/eaa-projects_pdf/Istanbul%20Museum%20of%20Painting%20and%20Sculpture.pdf.

319. Yüksel HZ. "Müze yeni bir kültürel peyzaj oluşturacak"; 2017 [cited 2019 11 June]. Available from: http://www.arkitera.com/soylesi/979/muze-yeni-bir-kulturel-peyzaj-olusturacak.

320. Sezgin E. İstanbul Resim Heykel Müzesi ve Kamusallığı Tasarlamak; 2019 [cited 2019 11 June]. Available from: http://www.e-skop.com/skopbulten/istanbul-resim-heykel-muzesi-ve-kamusalligi-tasarlamak/4673.

321. Marini S, Corbellini G. *Recycled theory: Illustrated dictionary*. Macerata: Quodlibet; 2016.

APPENDIX A: LIST OF RECYCLED ARCHITECTURAL PROJECTS BY YEAR AND COUNTRY FROM 1975 TO 2018

Figure 4.1. Graph of recycled architectural projects by year from 1975 to 2018 and Figure 5.1. Atlas of recycled architectural projects based on country from 1975 to 2018 are prepared based on the collected data presented in Table A.1.

Table A.1. List of recycled architectural projects by year and country from 1975 to 2018

No	Project Title	Architect/Office	Country	Year
1	Factory, The	Ricardo Bofill, Taller de Arquitectura	Spain	1975
2	Le Fresnoy Art Center	Bernard Tschumi	France	1997
3	Essen Design Centre / Red Dot Design Museum	Foster + Partners	Germany	1997
4	Tate Modern London	Herzog & de Meuron	England	2000
5	Fitzroy Sheetmetal Factory	Kerstin Thompson Architects	Australia	2001
6	Gasometer City	Jean Nouvel, Coop Himmelblau, Manfred Wehdorn, Wilhelm Holzbauer	Austria	2001
7	Palais de Tokyo	Lacaton & Vassal	France	2001
8	Legal / Illegal	Manuel Herz Architects	Germany	2004
9	Kultur Bunker	Index Architekten	Germany	2004
10	Watertower of Living	Zecc Architecten	Netherlands	2004
11	Frøsilo	MVRDV	Denmark	2005
12	Performers' House	Schmidt Hammer Lassen Architects	Denmark	2005
13	S(ch)austall	naumann.architektur (FNP Architekten)	Germany	2005
14	Ilhavo City Library	ARX	Portugal	2005

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
15	Residence Wohlfahrt-Laymann	Meixner Schlüter Wendt Architekten	Germany	2006
16	House In Banzao	Frederico Valsassina Arquitecto	Portugal	2006
17	La Ruina Habitada	Estudio Castillo Oli	Spain	2006
18	Urban Outfitters Corporate Campus	MSR Design	USA	2006
19	Sjakket Youth Club	PLOT (BIG + JDS Architects)	Denmark	2007
20	Alveole 14	LIN	France	2007
21	Kolumba Museum	Peter Zumthor	Germany	2007
22	Zollverein Kohlenwäsche / Ruhr Museum	OMA	Germany	2007
23	Two TwentyTwo	Chris Briffa Architects	Malta	2007
24	Kraanspoor Office Building	OTH Architecten	Netherlands	2007
25	Church of Living	Zecc Architecten	Netherlands	2007
26	Navalmoral de la Mata	Matilde Peralta del Amo	Spain	2007
27	Intervention in the City Wall of Logroño/The Revellín Cube	UP Arquitectos	Spain	2007
28	Atelier VC	Vazquez Consuegra	Spain	2007
29	Santral Istanbul Museum of Contemporary Arts	Emre Arolat Architects + NSMH	Turkey	2007
30	McCarthy Residence	Stanley Saitowitz | Natoma Architects	USA	2007
31	Gabriela Mistral Cultural Center	Cristián Fernández Arquitectos + Lateral arquitectura & diseño	Chile	2008
32	Prato Lofts	MDU Architetti	Italy	2008
33	Inujima Seirensho Art Museum	Sambuichi Architects	Japan	2008

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
34	Caballero Fabriek	GROUP A	Netherlands	2008
35	Adaptation of Former Granary	medusagroup	Poland	2008
36	House in Sequeiros	Topos Atelier de Arquitectura	Portugal	2008
37	Caixa Forum Madrid	Herzog & de Meuron	Spain	2008
38	Cannon Design Regional Offices	Cannon Design	USA	2008
39	John Knox Church Residence	Williams Boag Architects	Australia	2009
40	Studio X Beijing	O.P.E.N. Architecture	China	2009
41	Shanghai MOCA	Atelier Liu Yuyang Architects	China	2009
42	A Studio	Kamil Mrva	Czech Republic	2009
43	Aldeburgh Music	Haworth Tompkins	England	2009
44	Sackler Building, Painting Department (RCA)	Haworth Tompkins	England	2009
45	Hunsett Mill House	ACME	England	2009
46	Dovecote Studio	Haworth Tompkins	England	2009
47	Rotermann Old and New Flour Storage	Hayashi-Grossschmidt Arhitektuur	Estonia	2009
48	Open Air Library	KARO Architekten	Germany	2009
49	Sea Pavillion	Stefano Boeri Architetti	Italy	2009
50	Trento Tunnels (Trento History Museum)	Elisabetta Terragni	Italy	2009
51	House In A Church	Ruud Visser Architects	Netherlands	2009
52	Espai Baronda	Alonso-Balaguer y Arquitectos Asociados	Spain	2009
53	8 B Nave	Arturo Franco	Spain	2009

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
54	Castle-Tower Regensberg	L3P Architects	Switzerland	2009
55	Tuzambarı / Salt Repository	Erginoğlu & Çalışlar Architects	Turkey	2009
56	High Line	Diller Scofidio + Renfro	USA	2009
57	Kolstrand Building	Graham Baba Architects	USA	2009
58	Evergreen Brick Works	Diamond Schmitt Architects	Canada	2010
59	Waterhouse Boutique Hotel at South Bund	Neri & Hu Design and Research Office	China	2010
60	Public Library and Music School	Donaire Arquitectos	Colombia	2010
61	Studio Posehuset	Svendborg Architects	Denmark	2010
62	Cineroleum, The	Assemble	England	2010
63	Zollverein Masterplan	OMA	Germany	2010
64	Bunker 599	RAAAF + Atelier de Lyon	Netherlands	2010
65	Urban Renewal Europarei	Atelier Kempe Thill	Netherlands	2010
66	The White House	WT Architecture	Scotland	2010
67	Refurbishment of an old Marketplace / Children Civic Center	Miquel Mariné Núñez + César Rueda Boné	Spain	2010
68	Reforma y Rehabilitación de la Nave Industrial Can Minguell	Toni Gironès	Spain	2010
69	Estate In Extremadura	Ábaton Arquitectura	Spain	2010
70	VIAS Space	estudioSIC	Spain	2010
71	Coracera Castle Rehabilitation	Riano+ arquitectos	Spain	2010
72	Studio in an Agricultural Building	Charles Pictet Architecte	Switzerland	2010

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
73	Refurbishment Viaduct Arches	EM2N	Switzerland	2010
74	Ruin Academy	Marco Casagrande	Taiwan	2010
75	Vakko Headquarters and Power Media Center	REX	Turkey	2010
76	Woesten Community Center	Atelier Tom Vanhee	Belgium	2011
77	Shops of Summerhill	AUDAX Architecture	Canada	2011
78	Conversion of Mies van der Rohe Gas Station	Les Architectes FABG	Canada	2011
79	Slotfelt Barn	Praksis Arkitekter	Denmark	2011
80	Anish Kapoor Studio I	Caseyfierro Architects	England	2011
81	La Sucriere	Z Architecture	France	2011
82	Tour Bois le Prêtre	Lacaton & Vassal	France	2011
83	Kanzlei Balkenhol	Ecker Architekten	Germany	2011
84	Museum Rüsselsheim	Heinrich Böll Architekt	Germany	2011
85	t Zand	OOK Architecten	Netherlands	2011
86	Easter Sculpture Museum	Exit Architects	Spain	2011
87	Factory, The	Pepe Gascón	Spain	2011
88	Masia Can Guasch	TwoBo Architecture + Luis Twose Architect	Spain	2011
89	Professional Cooking School in Ancient Slaughterhouse	Sol89	Spain	2011
90	Convent de Sant Francesc	David Closes Arquitecte	Spain	2011
91	Building no. 8	Skälsö Arkitekter	Sweden	2011
92	Färgfabriken Kunsthalle	Petra Gipp Arkitektur	Sweden	2011

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
93	Janus	:mlzd	Switzerland	2011
94	McAllen Main Library	MSR Design	USA	2011
95	Factory Life	Julie D'Aubioul	Belgium	2012
96	Paris Block Paris Annex	Gair Williamson Architects + Ankenman Marchand Architects	Canada	2012
97	Showroom Delineare	Cristián Irarrázaval Andrews + Leonardo Eyzaguirre	Chile	2012
98	Youth Centre in Roskilde	Cornelius + Vöge	Denmark	2012
99	Archway Studios	Undercurrent Architects	England	2012
100	Shoreham Street	Project Orange	England	2012
101	Seaplane Harbour	KOKO architects	Estonia	2012
102	Circus Arts Conservatory	ADH Architects	France	2012
103	Renovation of an old barn	Comac	France	2012
104	Warehouse transformation into Visual Arts School	Matthieu Place + Thomas Raynaud	France	2012
105	NOCKI	Leonard Hautum	Germany	2012
106	Tesa 105 Conversion	Estudio N	Italy	2012
107	Sekeping Kong Heng	Seksan Design	Malaysia	2012
108	Downtown	Cherem Arquitectos	Mexico	2012
109	God's Loftstory	Leijh Kappelhoff Seckel van den Dobbelsteen architecten	Netherlands	2012
110	N10-Eiras Sports Facility	Comoco	Portugal	2012
111	Convento Das Bernardas	Eduardo Souto de Moura	Portugal	2012

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
112	Refurbishment of the Old Benalúa Station and Insertion of Casa Mediterraneo Headquarters	Manuel Ocaña del Valle	Spain	2012
113	Rizza House	Studio Inches Architettura	Switzerland	2012
114	Overland Partners Office, Hughes Warehouse	Overland Partners	USA	2012
115	Wertheim Factory Conversion	Kerstin Thompson Architects	Australia	2013
116	Paramount Studios Building	Fox Johnston	Australia	2013
117	Social Housing Refurbishment in Izegem	Architect Lieven Dejaeghere	Belgium	2013
118	RedBull Station Sao Paulo	Triptyque	Brazil	2013
119	Allez UP Rock Climbing Gym	Smith Vigeant Architectes	Canada	2013
120	ACE Cafe 751	dEEP Architects	China	2013
121	Micro-Yuan'er	ZAO/standardarchitecture	China	2013
122	Stone Art Gallery	O-office Architects	China	2013
123	Labin City Library	SKROZ	Croatia	2013
124	North-Region FRAC	Lacaton & Vassal	France	2013
125	Business Incubator	h2o architectes	France	2013
126	Atelier Kitchen Haidacher	Lukas Mayr Architekt	Italy	2013
127	Technopole for Industrial Research Shed #19	Andrea Oliva Architetto	Italy	2013
128	Silesian Museum Katowice	Riegler Riewe Architekten	Poland	2013
129	Cehegin Wine School	INMAT Arquitectura	Spain	2013

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
130	Casa Sabugo	Tagarro - De Miguel Arquitectos	Spain	2013
131	Lime Barn, The	Skälsö Arkitekter	Sweden	2013
132	Conversion of a Chapel in Bern	Morscher Architects	Switzerland	2013
133	Kids Science Labs 02	Woodhouse Tinucci Architects	USA	2013
134	Framestore LA	DHD Architecture + Interior Design + RAC Design Build	USA	2013
135	Pybus Market	Graham Baba Architects	USA	2013
136	Art Gallery in Buenos Aires	Nicolás Fernández Sanz	Argentina	2014
137	Camperdown Childcare	CO-AP	Australia	2014
138	Farmhouse in Westerlo	Van Staeyen + Beutels/Apers	Belgium	2014
139	Outsider Store	BLOCO Arquitetos	Brazil	2014
140	60 Atlantic Avenue	Quadrangle Architects	Canada	2014
141	77 Theatre	Origin Architect	China	2014
142	Yun House Boutique Eco-Resort	Ares Partners + Atelier Liu Yuyang Architects	China	2014
143	Long Museum (West Bund)	Atelier Deshaus	China	2014
144	MJH Gallery of iD Town	O-office Architects	China	2014
145	Youth Hotel of iD Town	O-office Architects	China	2014
146	Xihe Cereals and Oils Museum and Village Activity Center	He Wei	China	2014
147	Aarhus Gymnasium	Cubo Arkitekter	Denmark	2014
148	The Village / &tradition Showroom	NORM Architects	Denmark	2014
149	Valencia	Dorte Mandrup Arkitekter	Denmark	2014

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
150	Bombay Sapphire Distillery	Heatherwick Studio	England	2014
151	Donmar Dryden Street	Haworth Tompkins	England	2014
152	House of Vans London	Tim Greatrex	England	2014
153	The Tervahovi Silos	PAVE Architects	Finland	2014
154	Old Mill Rigot Refurbishment	Coldefy & Associés Architectes Urbanistes	France	2014
155	Paul Sivadon Institute - Day Care Psychiatric Institution	ATELIER 2+1	France	2014
156	An Old Breton Barn Converted into an Artist Studio	Modal Architecture	France	2014
157	Docks Malraux	Heintz-Kehr architects	France	2014
158	Energeticon Alsdorf	Heinrich Böll Architekt + Atelier Brückner	Germany	2014
159	SoundCloud Headquarters	KINZO	Germany	2014
160	Antivilla	Brandlhuber + Emde, Schneider	Germany	2014
161	Art Loft Chai Wan	Mass Operations	Hong Kong	2014
162	Fukuchiyo Sake Brewery	yHa architects	Japan	2014
163	Enovos Luxembourg Headquarter	Jim Clemes Atelier d´Architecture et de Design	Luxembourg	2014
164	Niop Hacienda	AS ARQUITECTURA	Mexico	2014
165	Watch/Watertower Sint Jansklooster	Zecc Architecten	Netherlands	2014
166	Grenswerk Poppodium	van Dongen-Koschuch Architects and Planners	Netherlands	2014
167	War Bunker Refurbishment	B-ILD	Netherlands	2014
168	Wrocław Technology Park Complex Refurbishment	Major Architekci	Poland	2014

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
169	JA House	Maria Ines Costa + Filipe Pina	Portugal	2014
170	E/C House	SAMI Arquitectos	Portugal	2014
171	Pombal Castle's Visitor Centre	COMOCO	Portugal	2014
172	Arquipélago – Contemporary Arts Centre	João Mendes Ribeiro + Menos é Mais Arquitectos	Portugal	2014
173	DI Telegraph	Archiproba	Russia	2014
174	Bolshevik Factory-Museum of Russian Impressionism	John McAslan + Partners	Russia	2014
175	Mill, The	WT Architecture	Scotland	2014
176	Impact Hub Belgrade	URED architecture studio	Serbia	2014
177	Old Mill Hotel Belgrade	Graft Architects	Serbia	2014
178	Mill Junction	Citiq Students	South Africa	2014
179	Unforgettable-House	Studio GAON	South Korea	2014
180	Rehabilitation Ancient Royal Butcher XVI Century in Porcuna	Pablo Manuel Millán Millán	Spain	2014
181	Contemporary Art Space in the Old Convent of Madre de Dios	sol89	Spain	2014
182	Triana Ceramic Museum	AF6 Arquitectos	Spain	2014
183	Property Registration Offices in Vigo	Irisarri + Piñera	Spain	2014
184	Wooden Structure at Launchlabs	Stereo Architektur	Switzerland	2014
185	Courtyard House	Dotze Innovations Studio	Taiwan	2014
186	Glicinas Courtyard	Amelio-Ortiz	Uruguay	2014
187	SILO HOUSE	Kaiserworks	USA	2014

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
188	PCH International Innovation Hub	ChrDAUER Architects	USA	2014
189	#thebarnTAS	workbylizandalex	Australia	2015
190	Surry Hills Apartment	Josephine Hurley Architecture	Australia	2015
191	Brewery Yard, The	Tzannes	Australia	2015
192	The Condensery	PHAB Architects	Australia	2015
193	Residence DBB	Govaert & Vanhoutte Architects	Belgium	2015
194	AGO Office HQ	Steven Vandenborre architects	Belgium	2015
195	Kanaal' in Wijnegem	Stéphane Beel Architects	Belgium	2015
196	Maison Mentana	EM architecture	Canada	2015
197	Barn House at Lake Ranco	Estudio Valdés Arquitectos	Chile	2015
198	Crossboundaries' New Office	Crossboundaries	China	2015
199	PIFO New Art Gallery	archstudio	China	2015
200	Librairie Avant-Garde, Ruralation Library	AZL Architects	China	2015
201	Soyoo Joyful Growth Center	Crossboundaries	China	2015
202	Pod Gallery	Stonewood Design	England	2015
203	Chapel on the Hill, The	Evolution Design	England	2015
204	C-Space	BuckleyGrayYeoman	England	2015
205	Baylis Old School	Conran and Partners	England	2015
206	Radio Corse Frequenza Mora	atel'erarchitecture	France	2015
207	Former Hospital of Meursault's Conversion	JUNG Architectures	France	2015
208	JM0 open-space	FUSO atelier d'architectures	France	2015

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
209	Seegmuller Tower	Weber + Keiling Architects	France	2015
210	Tourist House in Tardets	V2S architectes	France	2015
211	G27 CIEE Global Institute	Macro Sea	Germany	2015
212	Torre del Borgo	CN10 architetti	Italy	2015
213	Prada Foundation	OMA	Italy	2015
214	Villa Brolo Saccomani Renovation	Bricolo Falsarella	Italy	2015
215	Residential Building Refurbishment in Murano	Studio Macola	Italy	2015
216	Scuola Grande Della Misericordia	TA Architettura	Italy	2015
217	KOYA	Issei Suma	Japan	2015
218	Farmus Kijimadaira	Starpilots	Japan	2015
219	Gearwheel Factory Reconversion	Ronald Janssen Architects + Donald Osborne Architect	Netherlands	2015
220	Student Housing in Elsevier Office Building	Knevel Architecten	Netherlands	2015
221	Theatre de Kampanje	van Dongen-Koschuch	Netherlands	2015
222	Zwarte Silo	Wenink Holtkamp Architecten	Netherlands	2015
223	‘t Karregat	diederendirrix	Netherlands	2015
224	Loft Office	jvantspijker	Netherlands	2015
225	Shoesme	Joris Verhoeven Architectuur	Netherlands	2015
226	RAG Building	Eek en Dekkers + Amvest	Netherlands	2015
227	Brothers Brewery + Juke Joint BBQ	MA Studio	New Zealand	2015
228	Leszczynski Antoniny Manor Intervention	NA NO WO architekci	Poland	2015

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
229	Hotel Vincci Porto	José Carlos Cruz	Portugal	2015
230	Breiner 310	EZZO	Portugal	2015
231	The Dovecote	AZO. Sequeira Arquitectos Associados	Portugal	2015
232	Nogueiras House	Sofia Parente + André Delgado	Portugal	2015
233	SARCO	HACEDOR:MAKER/arquitectos	Puerto Rico	2015
234	Point Theatre	Tudor Ciocanescu Arhitect + Lama Arhitectura	Romania	2015
235	Cultural Catalyst	ARROKABE Arquitectos	Spain	2015
236	Virgen del Carmen Bar	Estudio Arn Arquitectos	Spain	2015
237	TMOLO House	PYO arquitectos	Spain	2015
238	European Headquarters Of The Quality Leather Center	taller 9s arquitectes	Spain	2015
239	Single House Building	Lluís Corbella + Marc Mazeres	Spain	2015
240	A Door to the Landscape	Arnau estudi d'arquitectura	Spain	2015
241	New Arquia Banca Office in Girona	Javier de las Heras Solé	Spain	2015
242	Gabba Hey	CUAC arquitectura	Spain	2015
243	“La Llena” Equestrian Center	Vicente Sarrablo + Jaume Colom	Spain	2015
244	Iconweb Offices	NAN Arquitectos	Spain	2015
245	Octapharma Brewery	Joliark	Sweden	2015
246	Larch Barn, The	Alp’Architecture Sàrl	Switzerland	2015
247	Barn Conversion	Freiluft Architektur	Switzerland	2015
248	National Sawdust	Bureau V	USA	2015

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
249	Church Conversion into a Residence	Scrafano Architects	USA	2015
250	Cotton Gin at the Co-op District	Antenora Architects	USA	2015
251	Volland General Store	el dorado architects	USA	2015
252	Tangram	Architecten de Vylder Vinck Taillieu	Belgium	2016
253	The Waterdog	Klaarchitectuur	Belgium	2016
254	Stable in West Flanders	Studio Farris Architects	Belgium	2016
255	MALHA	Tavares Duayer Arquitetura	Brazil	2016
256	Wish School	Garoa	Brazil	2016
257	Zhujiadian Brick Kiln Museum	Land-Based Rationalism D-R-C	China	2016
258	Renovation of Wuzhen Beizha Silk Factory	DCA	China	2016
259	Ashton Old Baths	Modern City Architecture & Urbanism	England	2016
260	St Johns Ambulance Station	Marta Nowicka and Co	England	2016
261	THE 25	D.A Architectes	France	2016
262	Hydraulic and Electrical Installations	DATA	France	2016
263	Libergier Sports Centre	philippe gibert architecte	France	2016
264	La Cartoucherie	h2o architectes	France	2016
265	Chicken House	Büros für Konstruktivismus	Germany	2016
266	Elbphilharmonie Hamburg	Herzog & de Meuron	Germany	2016
267	De Tjolomadoe	Airmas Asri	Indonesia	2016
268	House EFFE-E	Archiplanstudio	Italy	2016
269	IT4FASHION	Studio Lauria	Italy	2016

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
270	Base - Center For Culture And Creativity	Onsite Studio	Italy	2016
271	Gucci Hub	Piuarch	Italy	2016
272	Conversion of a Sake Warehouse	Jorge Almazan + Keio University Almazan Lab	Japan	2016
273	Tiro al Blanco Art Gallery	Progresivo de Arquitectura	Mexico	2016
274	OMR Art Gallery	Mateo Riestra + Jose Arnaud-Bello + Max von Werz	Mexico	2016
275	Marine Base Amsterdam Building 27E	bureau SLA	Netherlands	2016
276	Lumière Cinema Maastricht	JHK Architecten + Verlaan & Bouwstra architecten	Netherlands	2016
277	The Dream Factory	Studio Roosegaarde	Netherlands	2016
278	Uniplaces Headquarters	Paralelo Zero	Portugal	2016
279	House in Melgaço	Nuno Brandao Costa	Portugal	2016
280	Rehabilitation_VL173	cra-de	Romania	2016
281	Cristalleries Planell Civic Center	H Arquitectes	Spain	2016
282	Art Gallery Aldama-Fabré	BABELstudio	Spain	2016
283	Burgos Railway Station Refurbishment	Contell-Martínez	Spain	2016
284	Casa Rojo Cellar and Headquarters	Srta. Rottenmeier Estudio de Arquitectura	Spain	2016
285	Chokladfabriken	Jagnefalt Milton	Sweden	2016
286	Lucerne School of Art and Design	EM2N	Switzerland	2016
287	Barn Conversion	Savioz Fabrizzi Architectes	Switzerland	2016
288	Restoration of a Farmhouse and Replacement of a Barn	Singer Baenziger Architekten	Switzerland	2016
289	A/D/O	nARCHITECTS	USA	2016

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
290	Cerro Mirador	Andrea Stanko Wolf + Sofía Paz + Rolando González Vargas	Venezuela	2016
291	Church House	DAHA	Australia	2017
292	Company Headquarter in Sydney	U+I Building Studio	Australia	2017
293	Corner House	Gijs Van Vaerenbergh	Belgium	2017
294	Rental House in Wellin	Jahnke-Ledant Architects	Belgium	2017
295	Gallery 6 One	Debaixo do Bloco Arquitetura	Brazil	2017
296	Pipe Shop Venue at the Shipyards	Proscenium Architecture + Interiors Inc	Canada	2017
297	Town Folktales	FON STUDIO	China	2017
298	Alila Yangshuo	Vector Architects	China	2017
299	Moling 9 Workshop	TR Architects	China	2017
300	Inlay Workshop of UABB	Studio10	China	2017
301	The Silo	COBE	Denmark	2017
302	Baltic Station Market	KOKO architects	Estonia	2017
303	Aripaev Office	Arhitekt 11	Estonia	2017
304	School Conversion into Housing Units	ACBS Architectes	France	2017
305	Fabrika Tbilisi	MUA	Georgia	2017
306	Medieval Mile Museum Kilkenny Ireland	Mccullough Mulvin Architects	Ireland	2017
307	Francesca Pasquali Archive	Ciclostile Architettura	Italy	2017
308	De poort van Borne Healthcare Center	Reitsema & partners architecten	Netherlands	2017
309	Gouda Cheese Warehouse Loft Apartments	Mei architects	Netherlands	2017

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
310	Sykepleierskolen The Nursing School	JVA	Norway	2017
311	Wejherowo	PB STUDIO	Poland	2017
312	Oromolu Office	DSBA	Romania	2017
313	The Mill	GutGut	Slovakia	2017
314	Zeitz Museum of Contemporary Art Africa	Heatherwick Studio	South Africa	2017
315	MASS MoCA Building 6	Bruner/Cott & Associates	USA	2017
316	102 The Mill	Carter Williamson	Australia	2018
317	REHAU Design Haus	Taylor Knights	Australia	2018
318	Bays 6-8 Heritage Warehouse Office	BJB Architects	Australia	2018
319	Rundherum	mia2/Architektur	Austria	2018
320	Cais do Sertão Museum	Brasil Arquitetura	Brazil	2018
321	The Renovation of CRRC 1897 Center	office PROJECT	China	2018
322	Hundun University Education Center	Vary Design	China	2018
323	Summer Stage at Kastav	Nenad Fabijanic	Croatia	2018
324	Boiler House	Atelier Hoffman	Czech Republic	2018
325	Battersea Arts Centre	Haworth Tompkins	England	2018
326	L'Atelier des Lumières	Atelier Silhouette Urbaine	France	2018
327	Covered Market and Exhibition Area in Schiltigheim	Dominique Coulon & associés	France	2018
328	Wine Tourism Building	Diogo Aguiar Studio	Portugal	2018
329	LoCa Studio Office	LoCa Studio	Spain	2018

Table A.1 (Continued)

No	Project Title	Architect/Office	Country	Year
330	Single Family House in Palau-Sator	Arquitectura-G	Spain	2018
331	ICA Watershed	Anmahian Winton Architects	USA	2018
332	LocHal Library	CIVIC architects	Netherlands	2019
333	Seong-Su-Yeon-Bang	FHHH Friends	South Korea	2019
334	Antrepo 5 - MSGSU Museum of Painting and Sculpture	Emre Arolat Architects	Turkey	2019