M.S. Advanced Architectural Design
Graduate Portfolio
GSAPP | 2022 - 2023

CHENGYU ZHANG

CHECK OUT THESE NEW DIGS

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Chengyu Zhang

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Chengyu Zhang

00 Statement

"View from the painter's studio" comes from Caspar David Friedrich. It nicely explains the embarrassment of today's architecture. The grid in the painting is a window. At first, the grid has no meaningful tendency, but it suddenly has life when the grid is given a specific environment. Indoor and outdoor are separated. Indoor belongs to the human world, and outdoor belongs to the natural and objective world, but they are separated. Today's buildings and cities are a patchwork of many of these paintings. Before the pandemic, we saw that even though everyone in big cities lived with thousands of people, they were all prisoners of the life grid. Grid infinitely dilutes social significance and humanistic activities. At the moment of the pandemic, we can see that buildings and cities lack adaptability to the environment in terms of spatial transformation, redistribution of circulation, and reorganization of programs. Or, more specifically, variability. For architecture, this is not only an alarm but also an opportunity. The 21st century is like an ignited ammonium dichromate, and it is beautiful but precarious. Under the current complex situation formed by the interweaving of various fields such as human society, natural environment, Internet, and global economy, humanity has to face so many challenges and such an uncertain future. We may have entered the post-human period from now on. As a student in architecture,

I cannot help thinking whether there is a model buried in the architecture, which can adapt to this changeable and unstable environment and continue and affect social civilization. There is a future where this utopia is decided that maybe it becomes its own kind of archive.
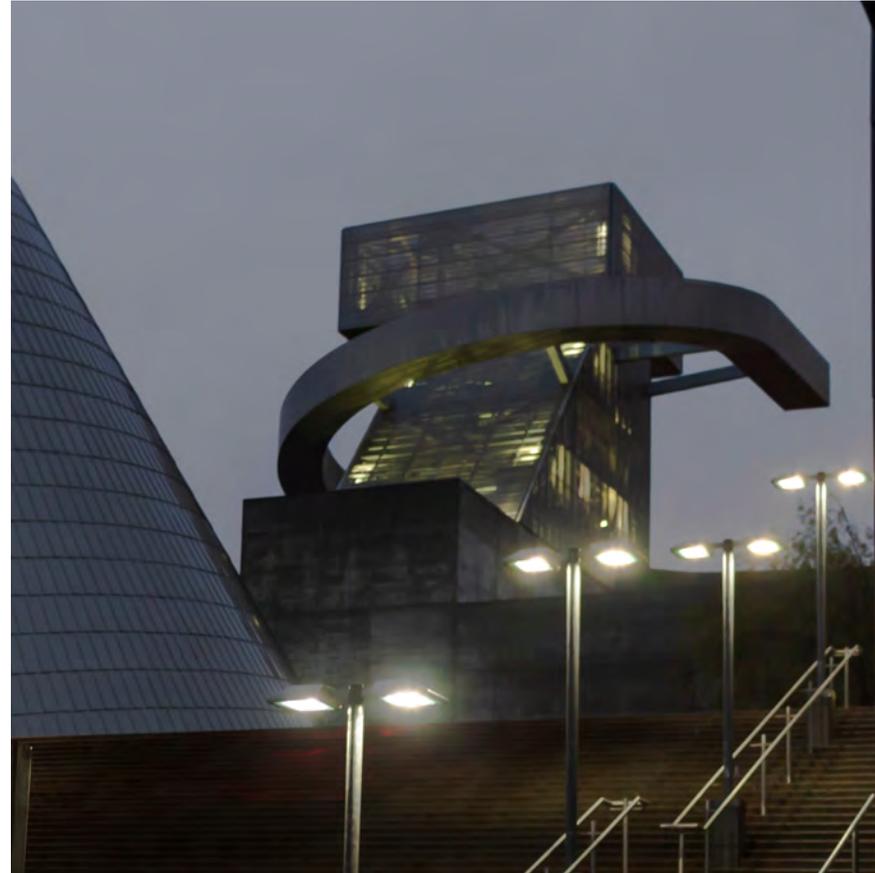
01 Urban Images

Architectural Photography:
From Models to the Built World
**Michael Vahrenwald (Instructors)**
Spring 2023
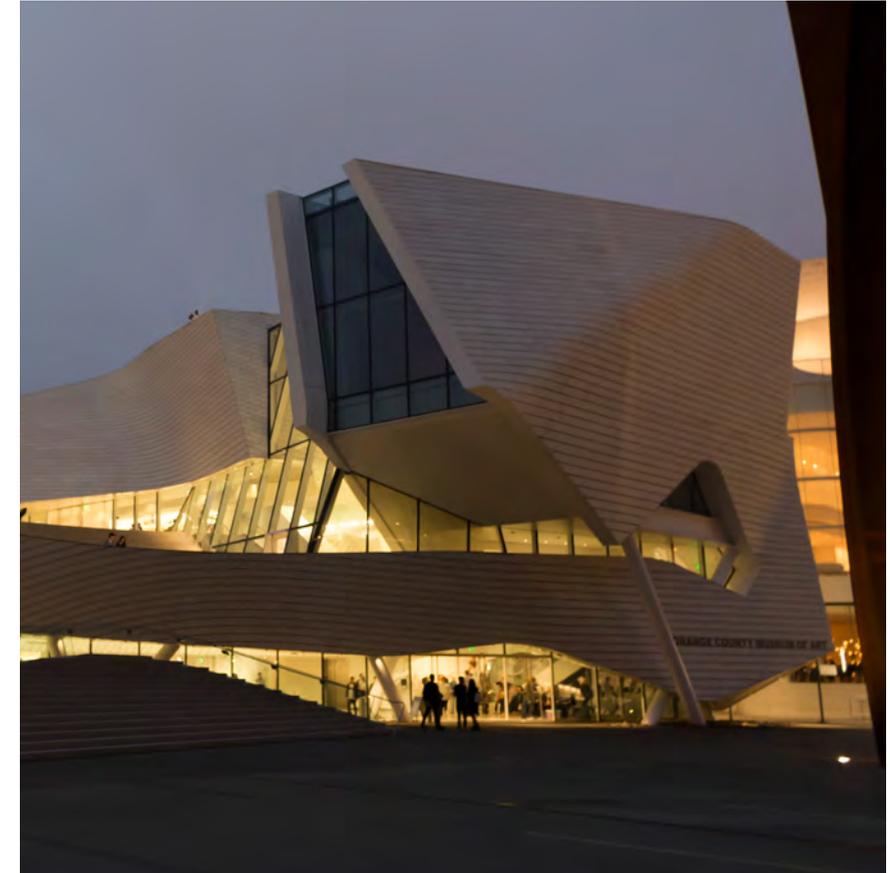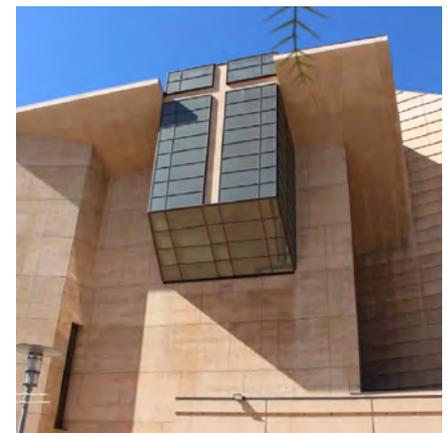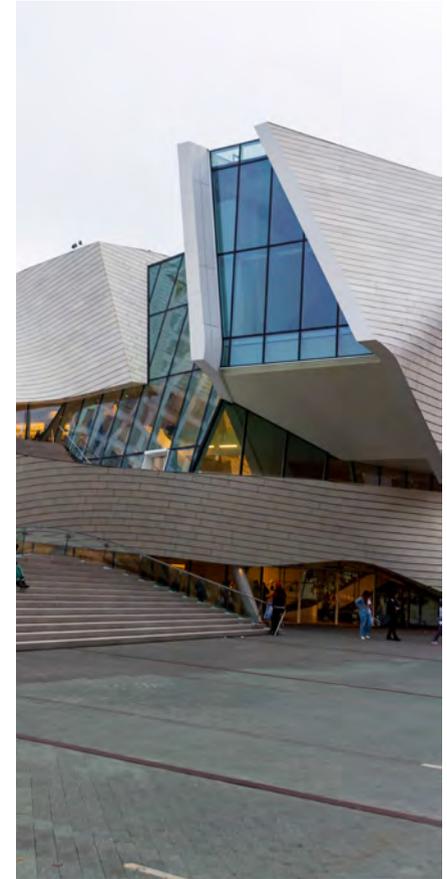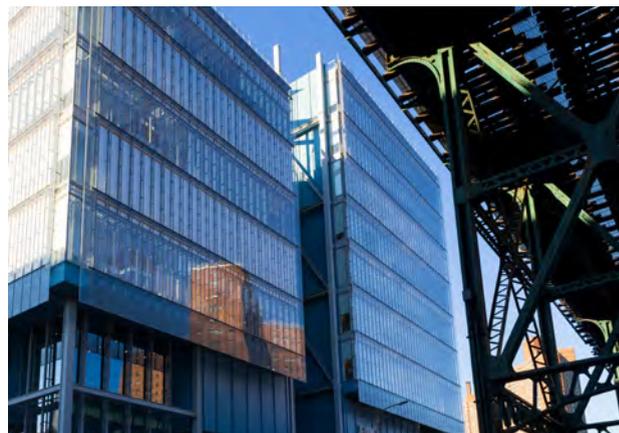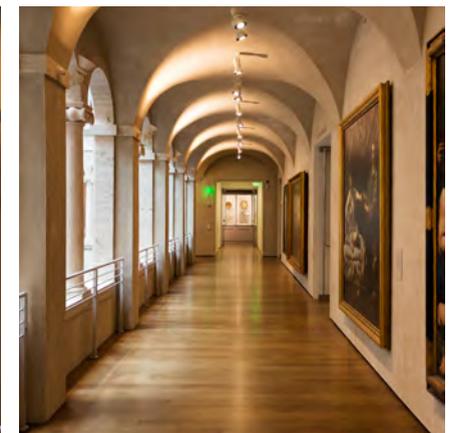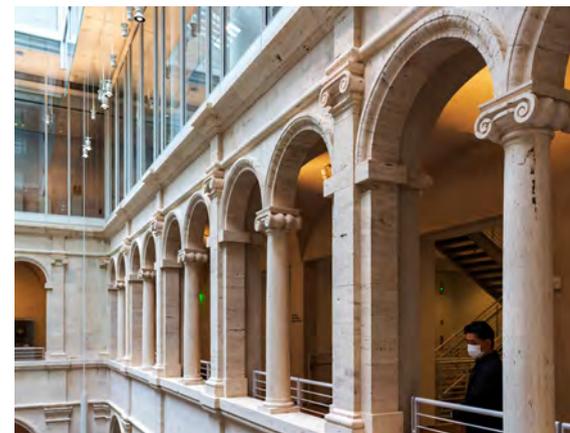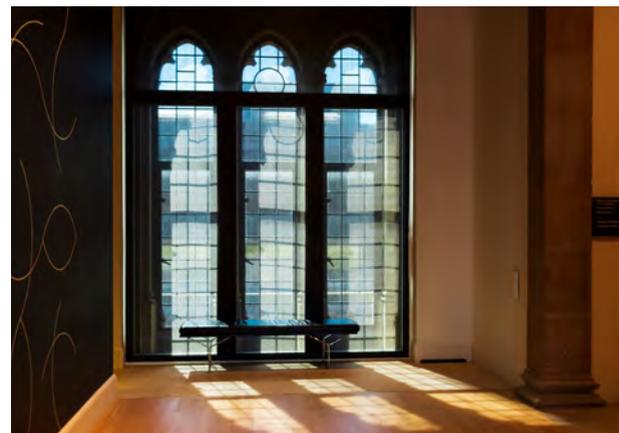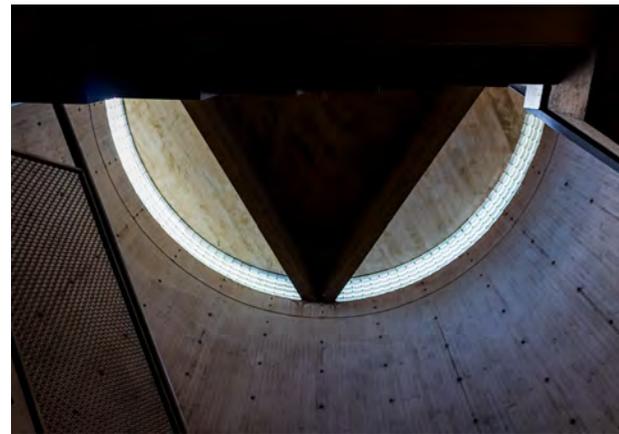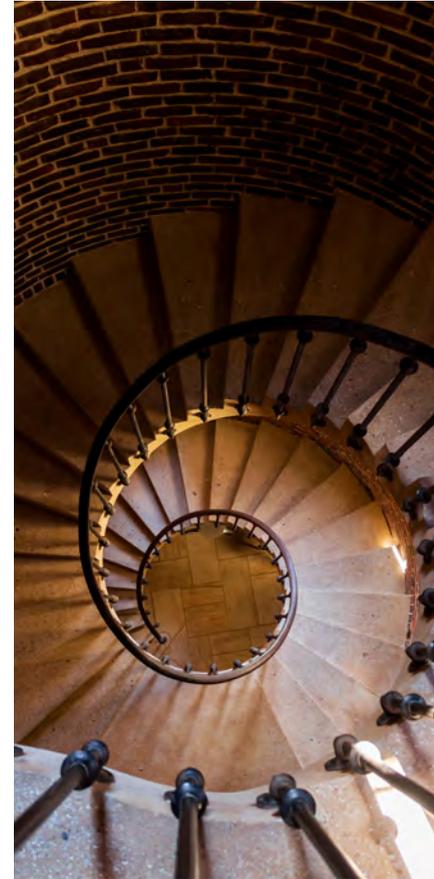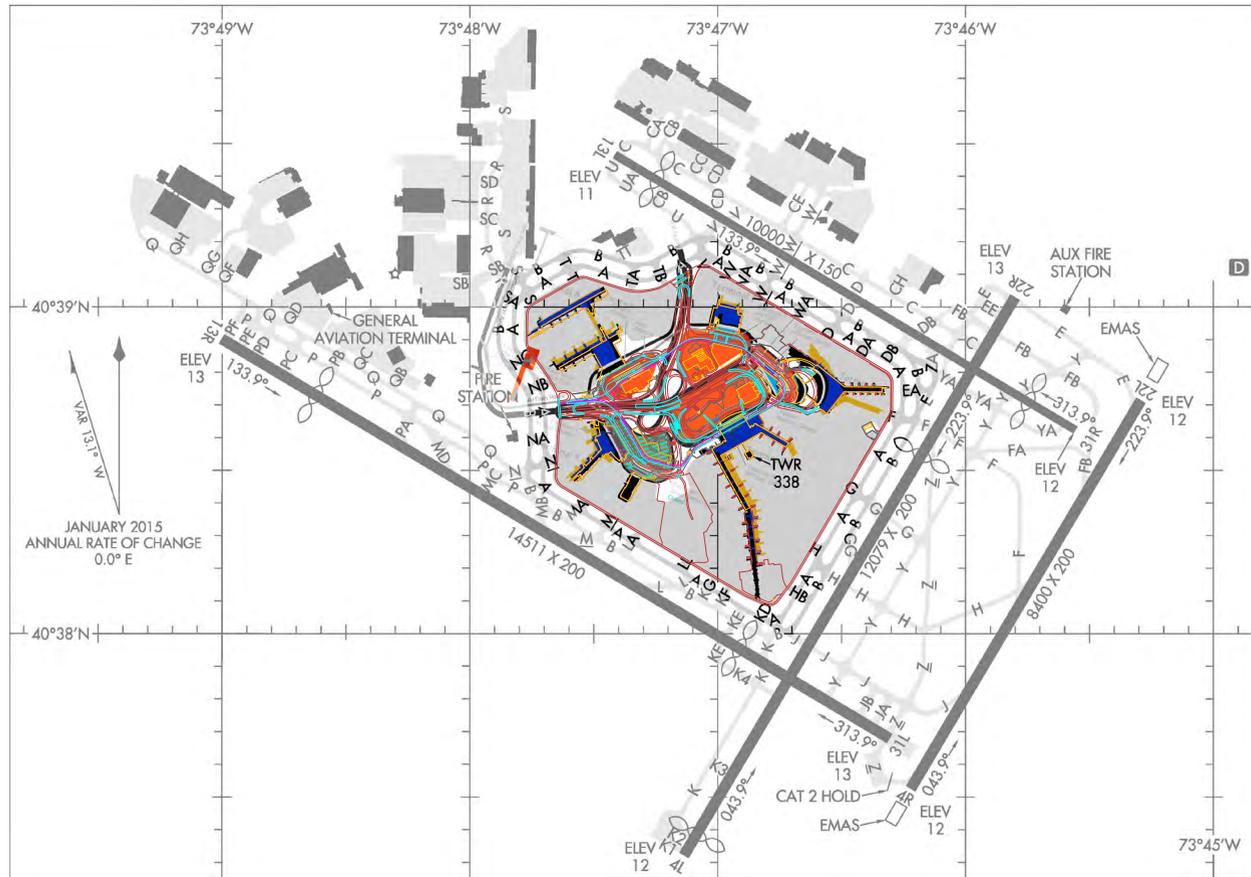
JFK Airport Map Analysis and Imaging
2023

02 My Home JFK

Radical Re-use, built matter as finite resource
Site: New York, NY
Olga Aleksakova, Joel McCullough (Instructor)
ADV VI Studio | Spring 2023

Abandoned airports are more common than people think. Before the COVID-19 pandemic, many airports were abandoned due to financial difficulties, conflicts, or planning mistakes.

Such as Tempelhof Airport in Berlin, Kai Tak International Airport in Hong Kong, Sukhumi Babushara Airport in Abkhazia, and Ciudad Real Central Airport in Spain.

In the United States, at least 2671 airports have disappeared or been abandoned before 2022.

The vacant, dilapidated spaces are occasionally used as movie sets or for scrap metal. Others, the disused airports are torn down to make way for shiny new developments. However, more are still vacant.

Today, the global pandemic has brought a heavy blow to many industries, but it can be said that air travel has suffered one of the most severe blows.

Due to COVID-19, the global revenue loss of the entire aviation industry is estimated at 370 billion dollars. Although air travel has recovered slowly from the trough, air passenger traffic has not yet fully rebounded.

In 2021, the number of passengers will only reach 47% of the 2019 level. Although the recovery in different regions is different, it is expected that the passenger capacity level of air lines will recover to 111% of the level in 2019 by 2025. However, the forecast does not consider the potential impact of the Russian-Uzbekistan conflict and other geopolitical issues, which may profoundly impact the global aviation industry in the next few years.

More importantly, the energy crisis is imminent. Before 2022, there were 13513 airports in the United States, more than three times that of Brazil, which has the second largest number.

As the two largest civil aviation markets in the world, China and the United States emit about 40% of the carbon emissions of the world's civil aviation industry.

The cost of air travel will be higher and higher due to the impact of global warming and the energy crisis. It is a more scientific development direction in the future to take high-speed rail or other low-carbon alternative ways to reduce the service of short-distance flight.

The vast land of the existing abandoned airport and those inactive in the future has great potential to be transformed into an eco-friendly new community.

1. Johnston Atoll Airport, US

Located on an atoll in the Pacific Ocean south of Hawaii, Johnston Atoll Airport was used as a US military headquarter until 2005 and has since been left in complete decay.

A strategic hub during the Second World War, by 1944 it was one of the busiest air transport terminals in the Pacific. It was later bombed by Japanese submarines.

While in service, the airport was home to some 400 men and featured an underground hospital. Despite its current derelict state, it is still considered as a preferable landing location in times of emergency over the more dangerous water landing.

2. Floyd Bennett Field, US

In the 1930s, Floyd Bennett Field was New York's first ever municipal airport, strategically located on Barren Island and within reasonable distance from Manhattan.

During its early days, the airport became renowned for witnessing the exploits of Amelia Earhart and hosting spectacular races but was later turned into a naval air station.

It was eventually shut down in the 1970s in favour of New Jersey's Newark Airport. However, contrary to many other closed airports, it was not entirely abandoned.

Since 1972, it has been put under the management of the National Park Service and has hosted cycle races, as well as meetings organised by the Amateur Astronomers Association of New York.

3. Croydon Airport, UK

It may no longer be in use, but London's Croydon Airport is still remembered and celebrated for pioneering new technologies in the early days of aviation and for playing a crucial role during the Second World War.

Once London's most important hub and Britain's first international airport, it was in operation between 1920 and 1959.

During its remarkable life, the airport was the first in the world to introduce an air traffic control tower as well as the concept of airport terminals. Over the years, it survived copious bombings during WWII.

It has now been partially turned into a museum and a hotel, though the former control tower and terminal building can still be seen.

4. Berlin Tempelhof Airport, Germany

Inactive since 2008, Berlin's Tempelhof Airport was the world's largest building until the construction of the Pentagon.

Lying on grounds previously belonging to the Knights Templar, Tempelhof was inaugurated in the 1920s and served as a key Nazi military base during the Second World War. It was also a vital drop-off point in West Berlin in 1948-1949 when the US took over the airport to bring supplies to locals in the Berlin Airlift.

Emblematic Nazi architecture and design are predominant in the airport's indoor areas, which have remained in a good state after operations ceased in 2008. This was made possible by Berliners, who now use it as a public park in the city and to host a range of activities including festivals and fashion shows.

5. Ellinikon International Airport, Greece

Formerly known as Kalamaki Airfield, Athens' Ellinikon International Airport was built in 1939 and soon became a Nazi base until 1945. At the end of the war, it was then deployed by the US for air transport command between Italy and the Middle East until the early 1990s. Up until its closure in 2001, it was Greece's only international airport, with a maximum capacity of 11 million passengers.

It was then replaced by the new Athens International Airport in anticipation of the 2004 Olympics. The runway was turned into a venue for a range of sports including hockey and baseball, while its hangars hosted basketball competitions. Despite the city's initial plans to turn it into a park, it was instead abandoned to its own fate as the financial crisis took over Greece.

6. Nicosia International Airport, Cyprus

Once a key driver of tourism and economic growth for the island of Cyprus, Nicosia International Airport is now a mausoleum of abandoned chairs, rusty aircraft, and broken glass. Located in the centrel of the island, this derelict airport is a testament to the political divisions currently hitting the former British colony of Cyprus.

Having become independent in 1960, it was invaded by Turkish troops in 1974; Since then, separate airports have been built at the two ends of the island, leaving Nicosia Airport to rot in no man's land.

Over the past few years, however, the hub has been included in the buffer zone and used by the United Nations to hold intercommunal talks between opposing communities. As discrepancies continue, not much is left of its 1970s style.

7. Yasser Arafat Airport, Palestine

Inaugurated in 1998 by US President Bill Clinton and Palestinian leader Yasser Arafat, Gaza's International Airport was meant to become an emblem of Palestine's independence but instead lived, a rather short life.

Now, a golden dome and white columns are the only survivors of the airport, which was designed to serve 700,000 passengers per year and allowed for the birth of local airline Palestinian Airways.

In 2001, Israeli forces air-bombed its controled tower and radar station and bulldozed the runway, making it effectively inoperative from early 2002. It now sits in a desert land at the border with Egypt.

8. Kai Tak Hong Kong Airport, China

Having been built in close proximity to one of Hong Kong's busiest residential areas, Kai Tak airport was one of the most dangerous airports in the world. Landing at the airport implied flying low over the island's buildings, as well as enacting a series of complicated maneuvers amid Hong Kong's frequently windy weather and surrounding mountains. Concerns about noise pollution and lack of privacy for locals added to the airport's miseries.

Unsurprisingly, these issues and a series of accidents that saw a plane ending up in the harbor led to Kai Tak's closure in 1998, 73 years after its opening.

Since then, it took the city 15 years and countless proposals to eventually decide to turn it into a cruise terminal and a new residential area.

The birth and the fall of JFK Airport
1948-2023

Grand Plans (Planning and Construction)

A map showing the location of the future Airport and the then planned connections between the airport and Manhattan. These were deemed critical to the airport's future as a lack good surface transport connections led to the failure of Floyd Bennett Field, which is located in the bottom center of the image. Airport is located in the top centre of the map.

1948-1954

Opening and Early Years

FIRST PERMANENT BUILDINGS
In 1951, the first major permanent structure opened on the airport's periphery, the federal building, housing Federal Aviation Administration (FAA) employees overseeing operations at and other New York area airports.

1955-1956

The Birth of Terminal City

THE NEED FOR EXPANSION
During the 1950s, traffic at was growing at a rapid pace. 1957, the airport handled 5 million passengers. According to traffic projections, by 1965 annual traffic would grow to 11 million passengers, of which 3.3 million overseas passengers. It was clear that modern and expanded facilities were necessary for the rapidly expanding airline operations.

1957

The International Arrivals Building

Stretching for eleven city blocks and containing nearly 600,000 square feet (55,742 square meters), the first permanent passenger terminal at Kennedy Airport was an elegant composition of three linked buildings with the central U-shaped International Arrival Building (IAB), which was flanked by two Airline Wing Buildings.

1958

Idlewild Enters the Jet Age

The 'Jet Age' presented a huge paradigm shift in air travel. Jet airliners were able to fly much higher, faster and farther than older piston-powered propliners, making transcontinental and intercontinental travel considerably faster and easier.

1959

The Eastern Air Lines Terminal

Eastern Air Lines commissioned architect Chester Lindsey Churchill to design the terminal. Churchill designed a building that had a rectangular landside block, a fan-shaped main section and gate concourse. The terminal was characterized by the use of glass curtain walls, a ribbed roof and the use of lots of marble and granite.


CENTRAL TERMINAL CONCEPT
American Airlines suggested a tangential runway system with 10,000 foot and 6,000 foot runways, surrounding a central terminal served by an underground railway. It was anticipated that there would always be five take-off and five landing runways, more or less into the wind.

Another major milestone was reached in 1952, with the opening of an 11-floor permanent air traffic control tower, from which ground movements, and landings were controlled. This tower was planned to become integrated into the future passenger terminal complex.

The planners decided that each major US airline would operate its own terminal. This scheme made construction more practical, made terminals more navigable and introduced incentives for airlines to compete with one another for the best design. The concept would be called " Terminal City".

THE WING BUILDINGS
Joining the International Arrival Building at each end were the Airline Wing Buildings. The Wing Buildings housed ticket counters, lobbies and offices for the more than 20 foreign flag airlines using the airport. Each of the carrier's blocks had an attractive custom-designed interior layout.

Terminal City opened just as the Jet Age began in the United States. Idlewild was not the first Jet Age airport. Neither the British-built Comet 1 nor the Russian Tupolev 104 served the airport when first entering service in the 1950s.
Introduction of commercial jet service was hampered by noise, runway length and aircraft range problems.

THE LARGEST PASSENGER TERMINAL
Unlike other airline terminals the concourses had a simple one-level design and no boarding bridges were provided.

1959 — The United Airlines Terminal

DESIGNED FOR THE JET AGE
United and Eastern were the first airlines to secure site leases with the Port Authority. United had an 11-hectare(27-acre) site in the northwest area of Terminal City and commissioned Skidmore, Owings and (SOM), who also planned the IAB, to design the terminal.


SOM came up with an elegant, two-level, crescent-shaped building providing 250,000 sqft of floor space. The facade, which spanned 691, was constructed entirely of glass panels and aluminum frames. A double-height check-in hall in the center of the building was flanked by baggage claim areas.

1960 — The American Airlines Terminal

Having put in an initial order for 30 Boeing 707-123s for its transcontinental routes, American Airlines wanted a terminal that would match the prestige of its jets. The carrier leased a 29-acre site next to United. It commissioned New York firm Kahn Jacobs to design its terminal.

The architects produced a design featuring a three-level central section with two-level concourses and wings on either side, offering a total of 186,500 square feet of floor space. The central section of the terminal included a huge panoramic window overlooking the ramp.

1960 — The Pan Am Terminal
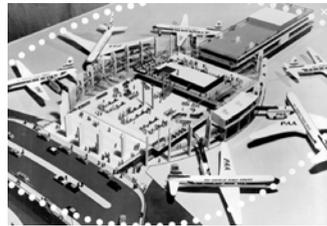
A DESIGN CHALLENGE
Pan Am's site was only 17 acres. To add to the challenge, the site had a particularly short landside frontage due to the strong curvature of Terminal City in that location.
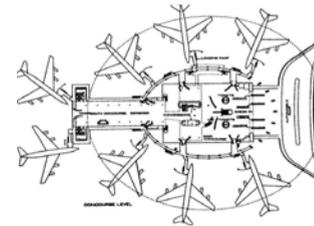
The architects decided to do a new take on an existing concept: a large roof overhanging the aircraft ramp. As it turns out, it was pioneered by Nazi-era architect Ernst Sagebiel at Berlin's Tempelhof Airport in 1941. In the design concept, the roof would provide a canopy under which airplanes could park, enabling passengers to stay dry in inclement weather.

1960s — Traffic Booms at Kennedy
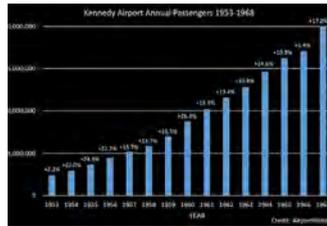
Traffic booms at Kennedy
In the 1950s, during the postwar economic expansion millions of Americans took to the skies for the first time. Between 1951 and 1957, passenger traffic at Kennedy doubled. Between 1957 and 1961 traffic doubled again, making the airport the first in the world to break through the 10 million passenger mark.

THE NEED FOR EXPANSION
Movements could still be handled comfortably, as the airport was planned for future growth. However, that in the mid-1960s. Between 1961 and 1967, traffic doubled from 10 to 20 million passengers, beating even the most optimistic projections. Traffic was expected to double again by 1975.

1962 — The TWA Flight Center UNDER REVISION

While New York International Airport at Idlewild had been operating since 1939, the need and site for a Trans World Airlines (TWA) terminal was laid out in a 1955 plan in which each major airline would build its own terminal, while smaller airlines would be served from an International Arrivals Building.

After the opening of the International Arrivals Building in 1957, the major US airlines each built their own terminals at Idlewild. United Airlines and Eastern Air Lines opened their own terminals in 1959, followed by American Airlines and Pan American World Airways (Worldport) in 1960, Northwest Airlines and TWA in 1962. The National Airlines Sundrome would be last, in 1969.

1962 — The Northeast/ Braniff/ Northwest Terminal

A MODEST DESIGN
After a 17.8-acre site between Pan American and Eastern was rejected by American for being too small, the Port Authority offered it to Northwest Airlines, which had been in operation at Kennedy since 1949. Its operations only required a handful of gates.

The three carriers made a statement by not making the architectural statements of the majors: their terminal was the cheapest in Terminal City.
Covering 250,000 square feet, it was a simple, functional design by the Washington DC-based firm White Mariani, with the only special feature being a parasol canopy over the curbside.

1969   The Sundrome

I.M. Pei markedly simple design featured a straight, flat, 600 foot aluminum-sheathed roof, supported at the edges by concrete pylons two levels high. The building was enclosed on all sides with glass for a feeling of openness.


In the original design, the main lobby contained both check-in and baggage claim. The mezzanine level, which contained a restaurant, shops and services was connected to two linear gate concourses by means of bridges and airside corridors.
A basement level 15 feet deep was planned to contain the baggage handling system, offices and a staff cafeteria.

1970   The BOAC Terminal

GMW designed a functional three-level structure of reinforced concrete and tinted glass, in the style of Brutalism, which was popular in Europe at the time. The terminal featured a flat overhanging roof and inward sloping walls.
In the initial design, the 300,000 sqft terminal featured a pier which could accommodate six BOAC VC-10s.

JFK's Master Plan was altered to make room for a ninth terminal.
In the initial design, the 300,000 sqft terminal featured a pier which could accommodate six BOAC VC-10s. Air Canada's three gates were directly attached to the main building. If needed, a second pier featuring five gates for BOAC could be added in the future.

A Forgotten Plan to Expand the TWA Flight Center

The entry hall of the newer Gensler designed terminal wraps around former terminal in a crescent shape. Although the old satellite buildings, called "Flight Wing One" and "Flight Wing Two", were demolished, the original tube connectors leading passengers from the terminal building, called the " head house", were retained.

After standing empty for nearly two decades, the TWA Flight Center found a new life. In May 2019, the TWA Hotel opened to the public. Although commercially the hotel has had a bumpy take-off, it has become a place of pilgrimage for aviation geeks from around the world.

40.64' N

PROJECT: **NYC2073 MY HOME JFK**

LOCATION: New York, NY [USA]

YEAR: 2023

73.77' W
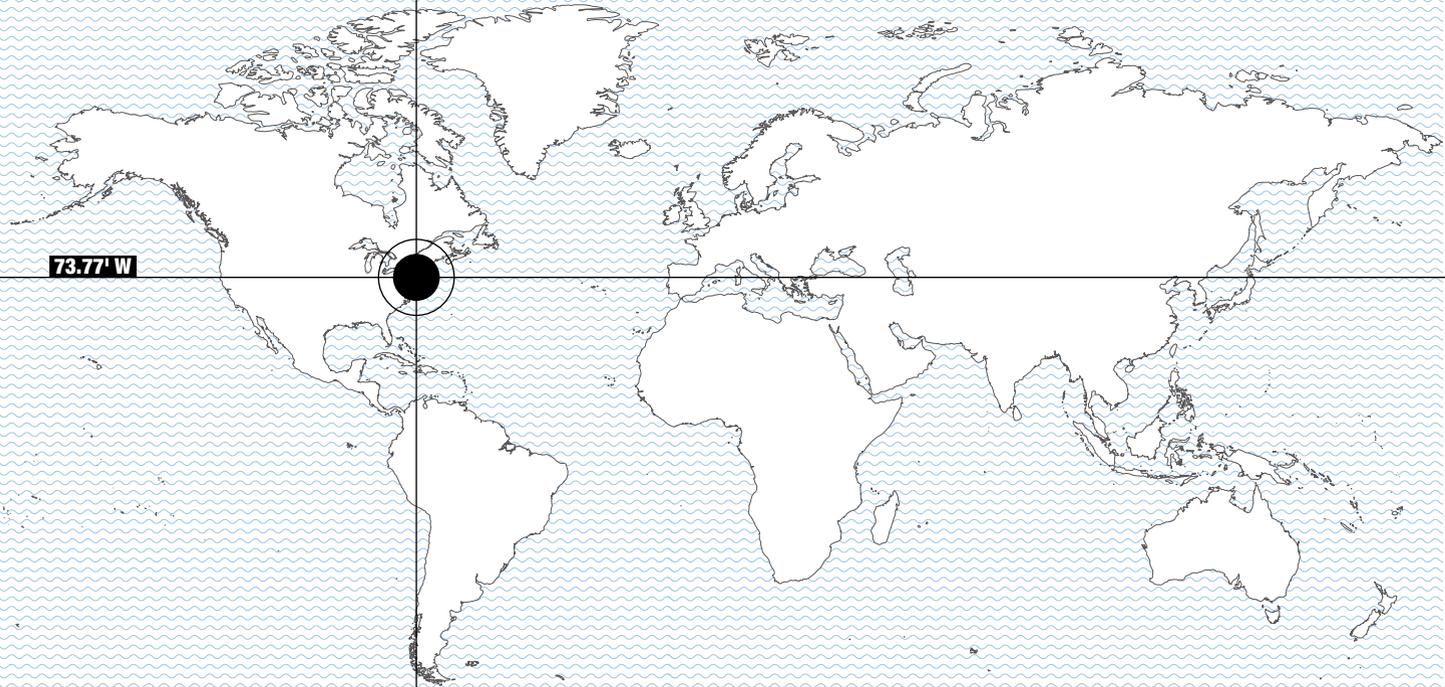
DATA:

AREA OF SITE

4930 acres

PROGRAM

total area: 11,150,541 FT2 (771,857 M2)

built: 9,435,130 FT2 (597,843 M2)

open: 9,435,130 FT2 (597,843 M2)

TYPE

880 acres of parkland, mixed-use residential
(6,854 housing units / 27,420 residents),
marina, cinemas, retail, restaurants,
recreational facilities, office, fire and
police stations, parking, etc.

MIN. SCENARIO 1

5,152 apartments; 1,702 condos; 1,626 hotel rooms

1,000,846 square feet of office space

118,436 square feet school to accommodate 1,184 students

503,786 square feet of community-oriented retail

88,547 square feet of art and gallery spaces

MANHATTAN

QUEENS

JFK

2.5 MILES

UPPER NEW YORK BAY

BROOKLYN

10 MILES

STATEN ISLAND

LOWER NEW YORK BAY

JFK Airport Redeveloped Master Map
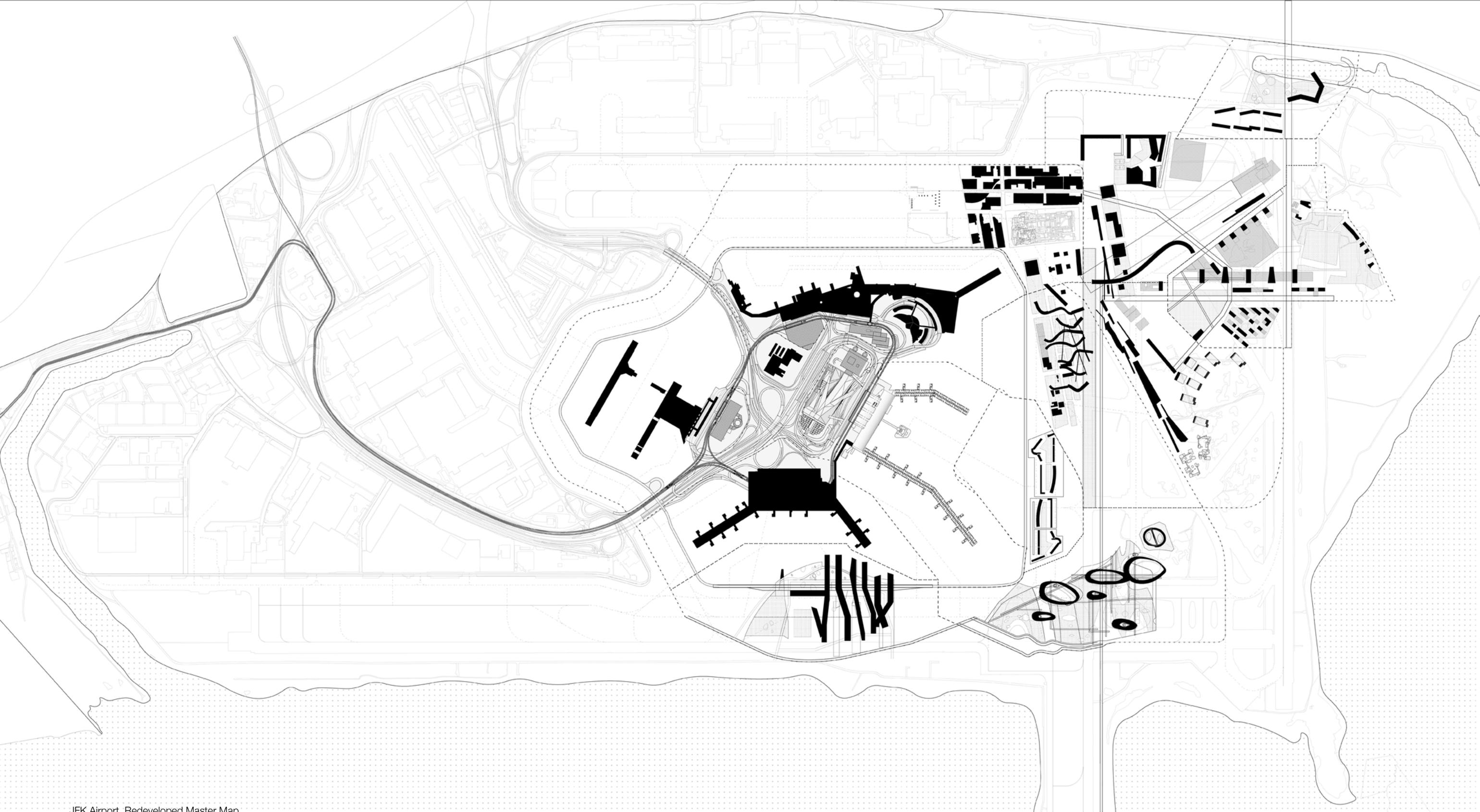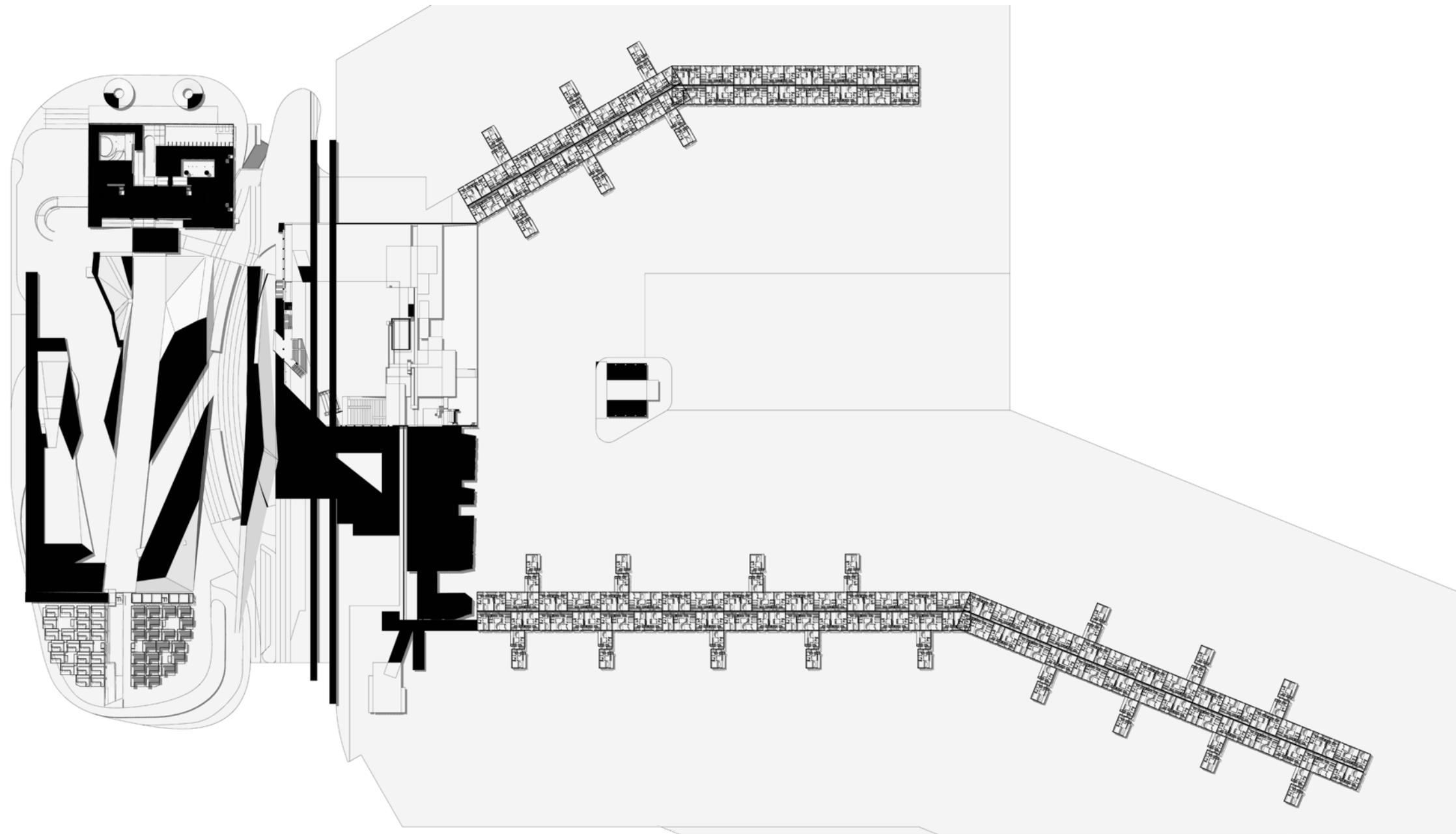
Terminal 4 Typical Floor Plan
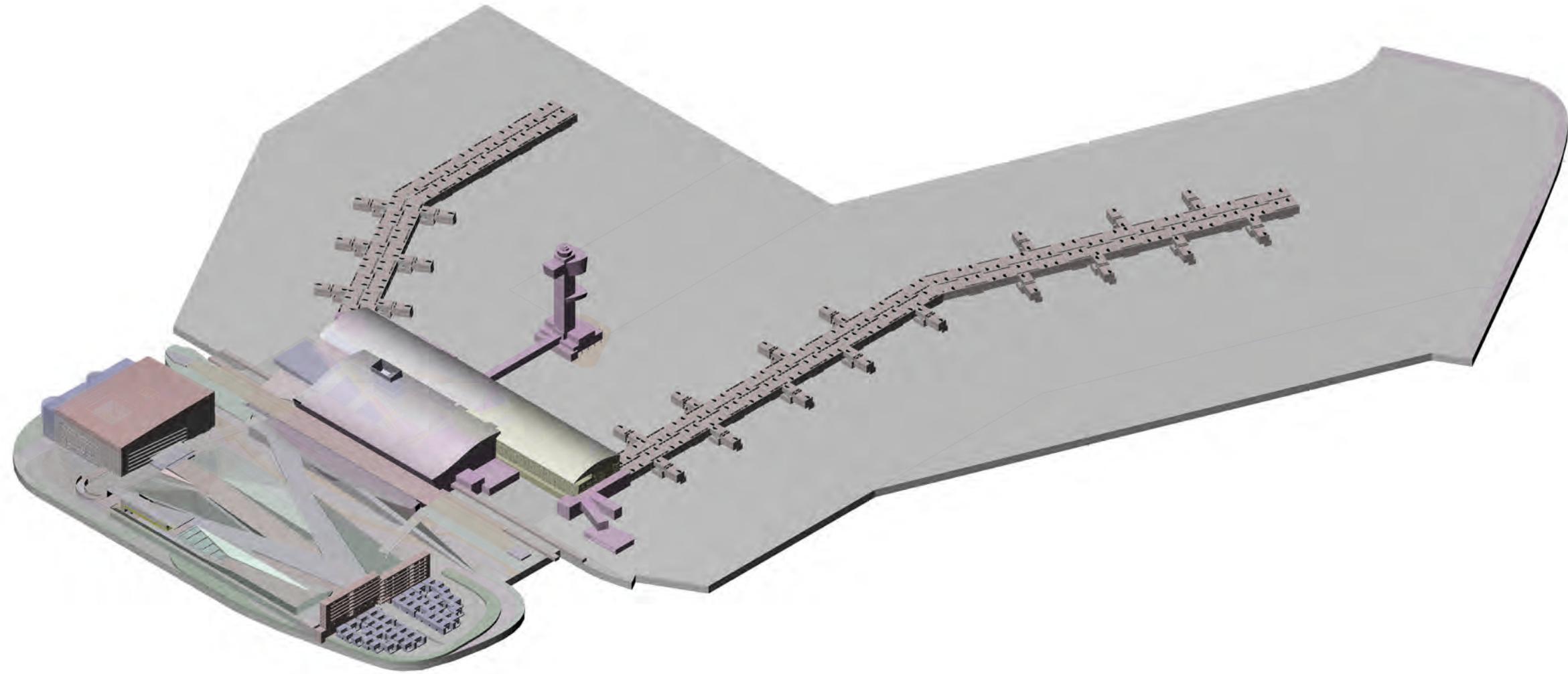
Terminal 4 Color Circulation and Program Axon
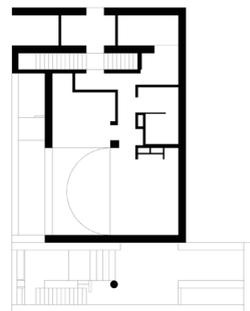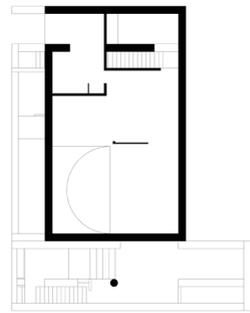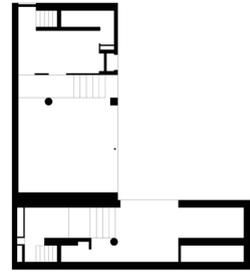
Typical Multi-Family Units
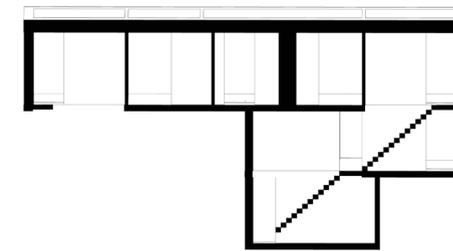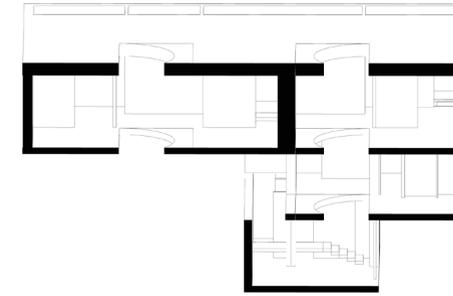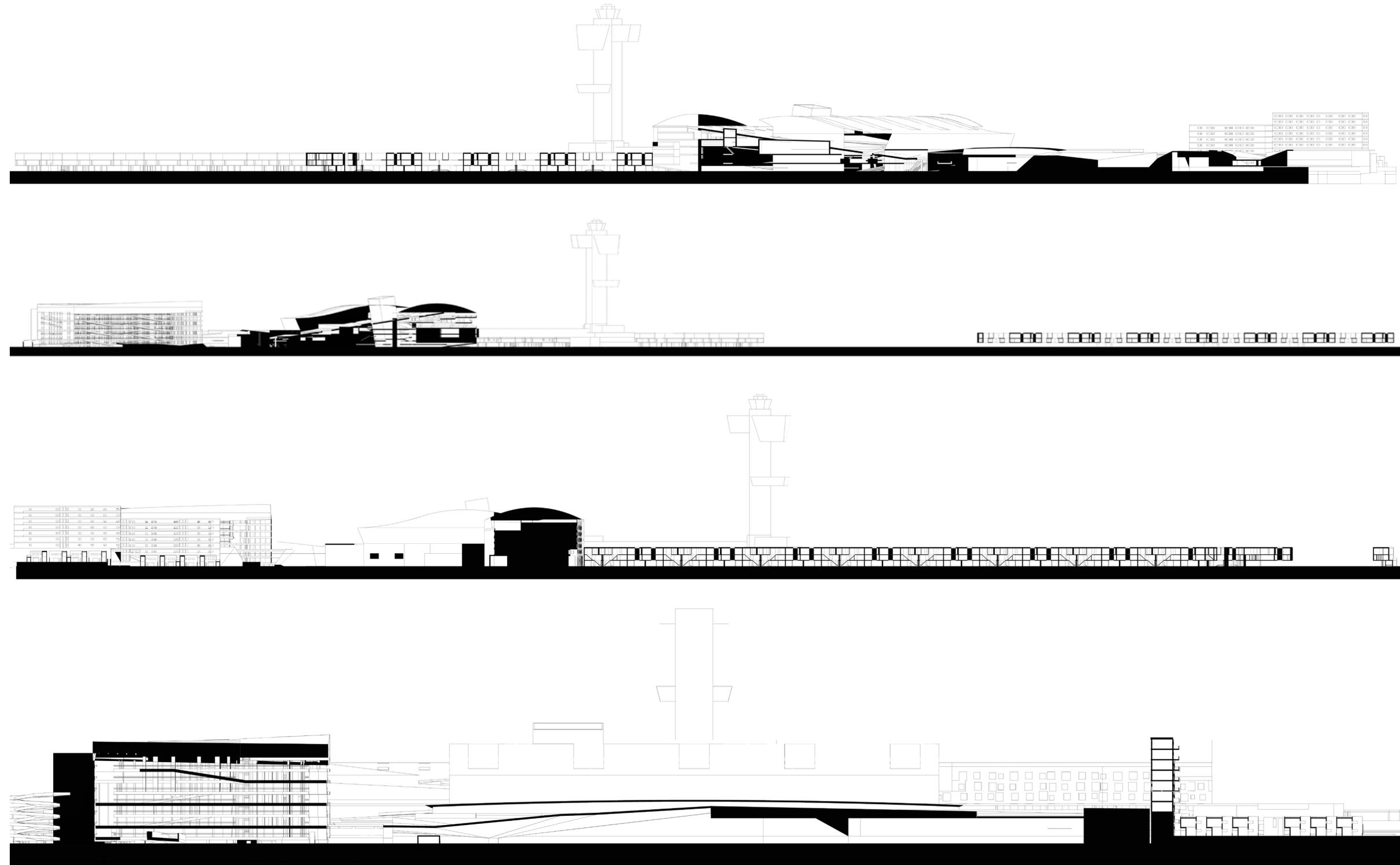
Terminal 4 with New Central Greens Space and Parking Sections
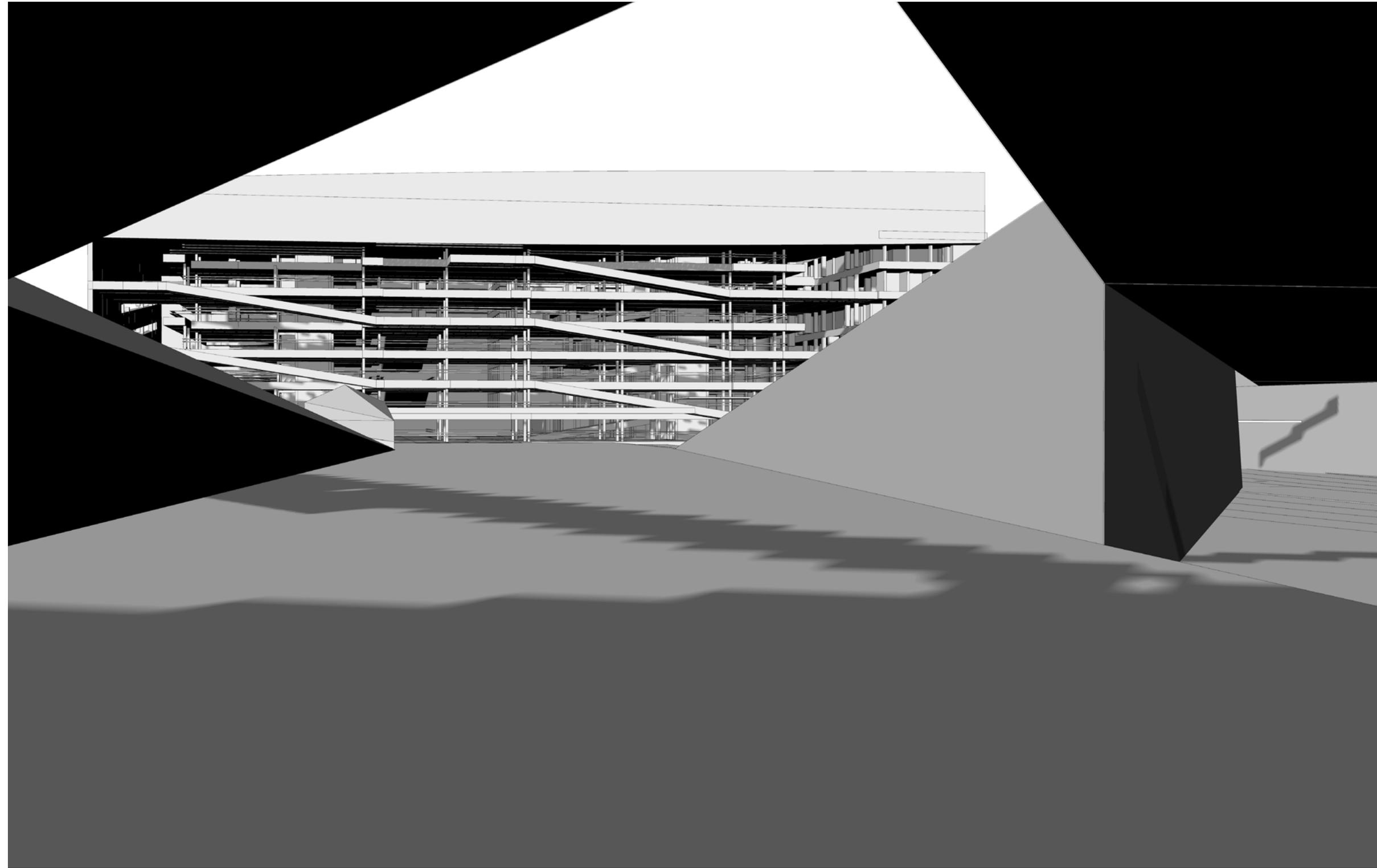
Render View from Main Entrance
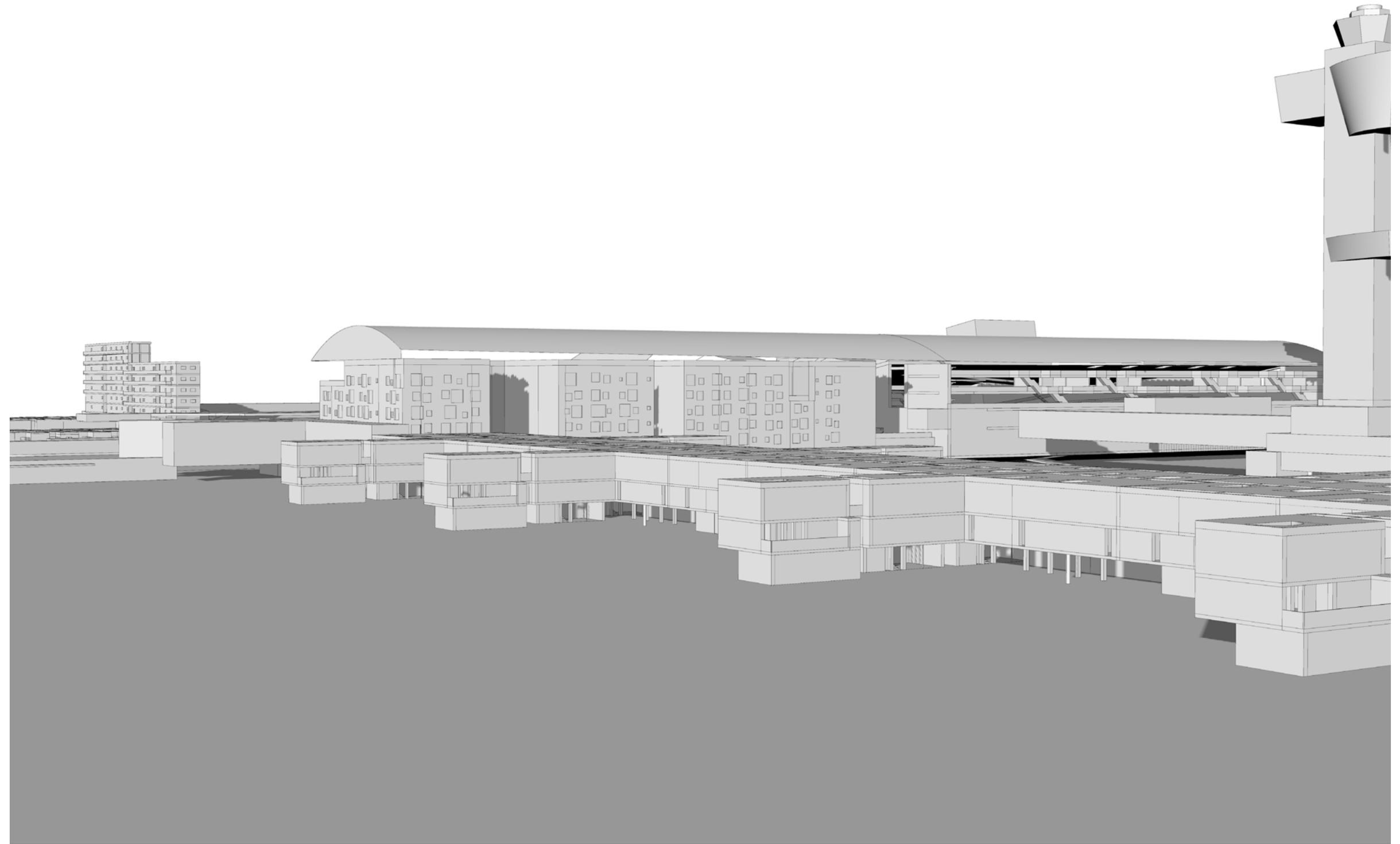
Render View on Back of Terminal 4
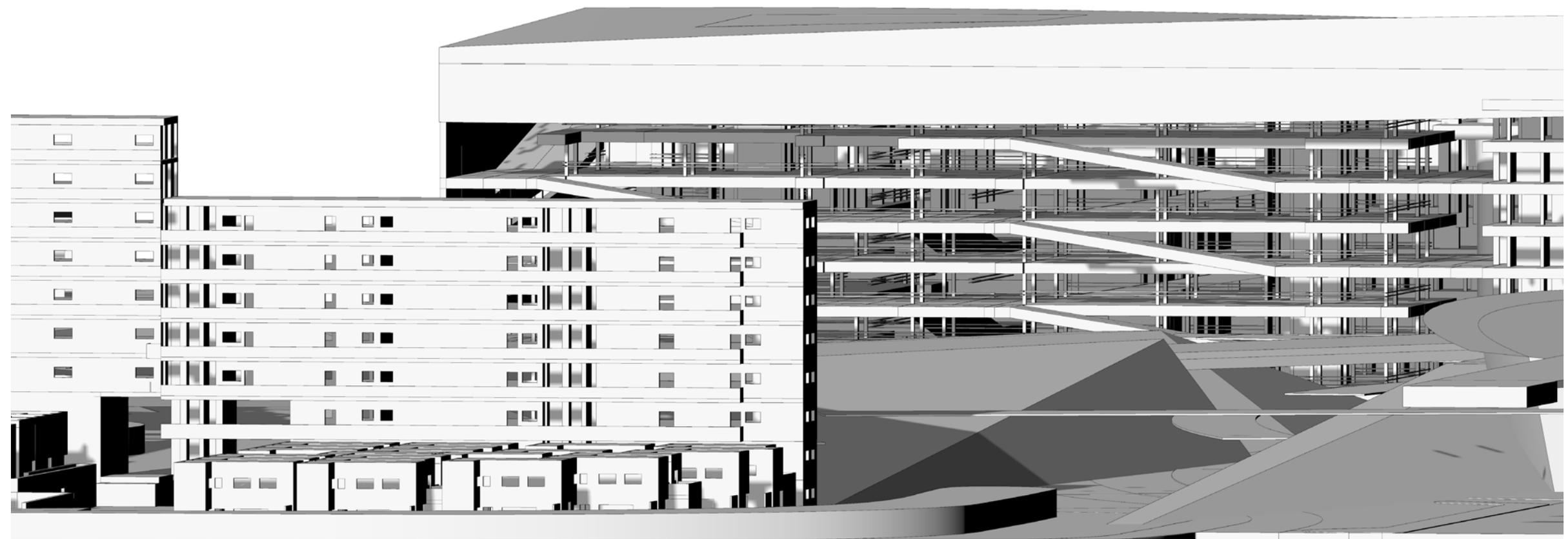
Render View from Highway Entrance

03 Arguments

Jessica Ngan (Instructor)
Summer 2022

Combination of Rationality and Emotion

Today's social needs are constantly changing and developing. So far, most preset models have been exhausted, and new models are required. The same thing also happens in building materials, which must be redesigned to meet new needs. Material practice in architecture is the combination of rationality and emotion. When reason is imposed on materials, it is considered rationalism, the functional reason for its existence, but this does not mean that it will be removed from all the most sensitive parts. On the contrary, when the emotion contained in materials is higher than rationality, the relationship between architecture and art is closer because its primary purpose is to arouse emotion, which does not mean that it does not conform to the use plan of relevant buildings. The material practice in many works of Frida Escobedo proves that the two can coexist and influence each other well and finally sublimate the original value of the works.

Frida Escobedo, a renowned Mexican architect, works in her studio within a theoretical framework that involves time, not as a historical calibration but as a social operation. The scope of work of Escobedo studio ranges from art installation and furniture design to residential and public buildings. These works are characterized by the combination of tradition and modernity, making space a sensory experience. She tries to make the project more social, compact, and plastic through materials, intending to provide users with a complete sensory experience, not just a visual experience. Many of Escobedo's works like straightforward shapes and methods. The material becomes a continuous thing, so it is not a decoration on the surface but an expression of material life itself; For example, the texture in wood or marble only shows the structure of this material, but the accumulation of material layers is composed of people's lifestyle, time, history, culture, etc. Furthermore, many conceptual works of Escobedo take advantage of waste materials or materials that are ordinary to people's minds, find meaning in the gaps in our living environment, and at the same time give consideration to technology and practicality.

In 2010, Escobedo's studio won a pavilion project, which was initiated by Museo Experimental El Eco and TOMO, aiming to dialogue with the contemporary architecture in the museum project. This Eco Pavilion stood out in the competition with the other four cause of her connection with the museum to explore the history of modernism and her interest in the exchange of various arts. According to the principle expounded by Brazilian concrete poet Ferreira Gullar, "a maximum expression, a minimum of words." Escobedo wants this pavilion to be read as a specific poem that strives to achieve

maximum expression with minor language.

The gray concrete hollow brick is been chosen as the "minimum of words." Such materials can be seen anywhere in Mexico City because they can be used to make balconies, grids, stairs, and walls. The use of this kind of material not only skillfully demonstrates the mobility and plasticity of the material itself, but also represents a part of the urban cultural color. The pavilion is a kind of architectural intervention in the museum's central courtyard. It is made of movable bricks and can create different spaces according to the needs of the scheduled activities of the museum. This project's hidden and exposed ideas are not limited to the facade. Although the project is unfavorable, you can see the two layers happening simultaneously, whether through programming or spontaneously. The bricks are laid according to a strict pattern, the user can move the bricks at will to show the occupation and occupation of the space; The form is formed through the use and spontaneous play of each visitor, and these bricks can also be moved, replaced, and re-adapted. The project size is just right, and the layering effect of use and misappropriation does not take long to create things that clearly express ideas within the scope. Escobedo establishes a connection between architecture and poetry through materials. Each piece in the pavilion can be read like an open text. Through the resonance between the two languages, the pavilion weaves a constructive, poetic, practical field.

Escobedo has given a satisfactory answer on unfolding materials at the Eco Pavilion. However, at the Serpentine Pavilion in 2018, she has another opinion on the selection and application of materials. The 2018 Serpentine Pavilion is a nest of two rectangular volumes at an angle, implying two traditions of Mexican architecture. One is that the intersection plane generated by this simple rotation produces a series of irregular shapes and clear boundaries. It is designed as a theater or natural stage. The smaller modules are programmed as children's play areas, and the daily activities of the main space will not be interrupted.

The other comes from the selection of Pavilion materials and the design of lattice walls; It is inspired by a traditional breeze wall Celosia in Mexican family buildings. In this pavilion, they are replaced by cement roof bricks commonly used in the United Kingdom. The stacked British roof tiles are arranged in a pattern that distracts visitors' sight. A public space with a half-open and half roof is created in the wide range of the park. Light and breeze enter through the gap between the tiles, not only alleviating the heat of summer, And attenuating the sound from the next road. The use of materials cleverly uses light, shadow, and reflection to create a series of interrelated spaces while maintaining the visual connectivity with the park. Escobedo challenges users' perception of architectural forms and functions by using everyday materials innovatively and creatively.

The meaning of the unit should not depend on the material nor just on the material, but at the same time, the material tells a large part of the story. Escobedo mentioned how Carl Andre used materials to frame a specific moment in time in the interview. For her, the materials tell about their production process and the specific moments of their production. There is a unique story behind the bricks used by Eco Pavilion in Mexico City; The serpentine Pavilion is looking for some modular things to weave to create an open lattice. Material practice is a way of communication, just as craftsmanship usually has a great relationship with the craftsman. Each material in Escobedo's works has a particular story to tell and also brings something to its composition. Unfolding material is always a combination of rationality and sensibility.

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04 Distorted Interlock

MAKE.
Ada Tolla, Giuseppe Lignano (Instructors)
Fall 2022

Wood Cube 1

Plastic Cube 1

Wood Cube 2

Plastic Cube 2

Matel Cube 1

Ground Cube 1

Matel Cube 2

Fabric Cube 1

Section Drawings
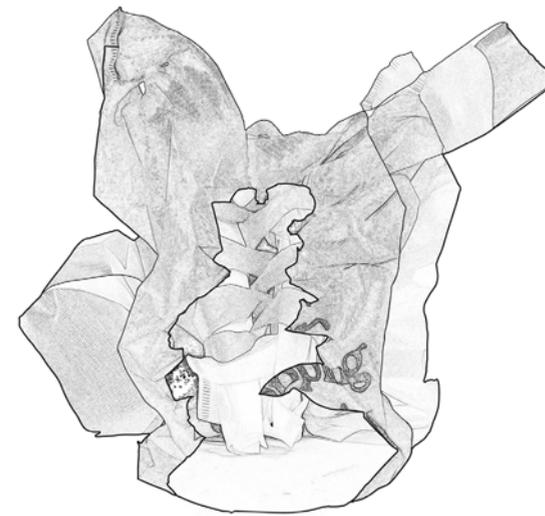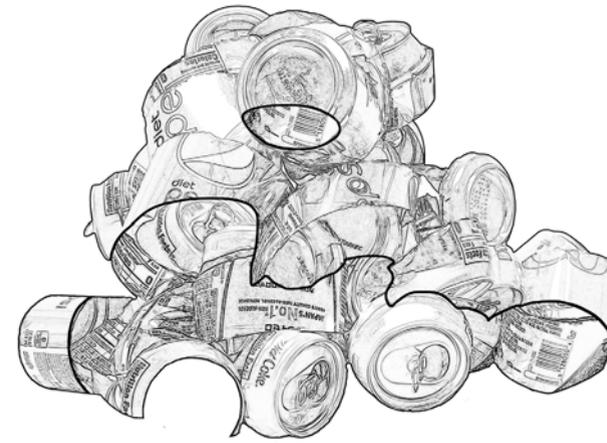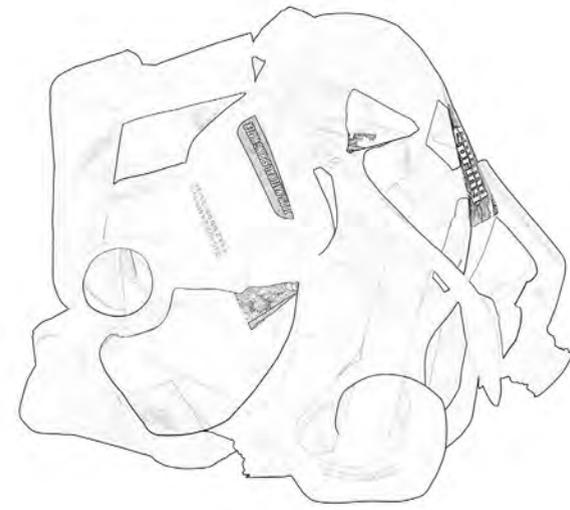
05 Recombinant Renaissance

Transformative Modes of Authorship

Mark Rakatansky (Instructor)
Spring 2023

Ask the Corners

The word problem in the phrase "corner problem" is problematic. This issue is not a real one. In pursuit of history, it can be questioned that some so-called corner problems were artificially designed. Even as Peter Eisenman quotes Derrida to question the one-to-one relationship between signifier and signified in rhetoric, the essence of the corner can be shaken, and its existence can be questioned. The source of the problem does not exist, and the problem itself cannot be corrected. This paper is not intended to eliminate the corner problem, nor to question the corner itself, but to re-sort out its origin, trace back how the materiality, form, scale, space, and social effects of different periods (especially in the Renaissance period) affect the architects' handling of corners, at the same time understand and explore its potential from a new objective perspective.

The corner is commonly read as the real intersections of walls, ceilings, and floors. Corner conditions are an inevitable part of architectural design and can occur under internal and external conditions. It also can be seen as both an object and a concept. A question raised by the corner people is when the architecture of the Doric Temple changed from wood to stone. From a historical perspective, a corner is often considered a detail. Appropriate adjectives are usually added when it is considered, so people at that time believed it was necessary to address it aesthetically.

Initially, the triple reliefs on the forehead of the Greek facade were located at the end of the wooden beams and arranged equidistantly before the centerline of the columns (Fig. 1). When stone replaces wood, the load on the forehead beam is transferred to the last outer column. This creates an unequal gap between the triangular prism and the eccentric relationship between the outer triangular prism and the outer column (Fig. 2). Subsequently, two aesthetic solutions were proposed, and the grammar of this corner was introduced. The first type is a triangular relief that can be widened at the ends to maintain internal spacing between the triangular relief (Fig. 3). The second method is to move the outer columns into and away from the center of the triangular relief, similar to the Parthenon temple (Fig. 4). When this movement repeats at the corners of the side facade, the corner bays on the front and side become equal but different from other bays. The roof around the building appears to be continuous, but since the centerline of the bay cannot pass through the centerline of the columns, the gaps in the corner bay have slightly narrowed on both the front and sides (Fig. 5). This slight difference can only be appreciated from a favorable position of 45 degrees, where the viewer can understand both the front and side of the temple. When viewed only from

the front or side, the corners of something considered irregular are symmetrical (Fig. 6). The change from wood to stone affects the structure of the temple, which in turn affects the corners. From a perspective of forty degrees, the Greeks maintain symmetry at the corners, and the front looks irregular. Such a favorable position not only has an impact on the viewer but also has an impact on his or her concentration in the corner. The relationship between the audience and the building based on corner conditions is used for social and political purposes. The Greeks planned to conceptualize space and allow the audience to view it from a 45-degree angle to the building. Approaching the Acropolis at a 45-degree angle creates a deliberate alignment with the Sun, which signifies directionality and spatial and political hierarchy. This diagonal relationship has attracted attention to corners, showcasing a particularly advantageous position known as Greek space. This solution in turn grants corner privileges, which becomes the conceptual basis of the term Greek space.

The difference in architectural form lies in the relationship between the building and the viewer. This can be particularly true regarding the apocryphal distinction between the visual use in Greek and Roman space. In Roman space, partly due to the limited location of the Roman wall church, the building needs to address thematic issues on an axis perpendicular to the facade. This leads to the concept of a positive relationship between the subject and object, as well as the concept of facade positivity. In this case, the corner becomes a secondary issue. The Romans maintained equal spacing and columnar distance on the front when dealing with external corner issues. This requires moving the outer triangular prism inward to align with the centerline of the outer column (Fig. 7). However, due to the fact that corner issues in Rome were rarely viewed from a circular or 45-degree angle, the difference in the relationship between the front and side triangular lines was not significant, so the Romans chose a pure front or aesthetic perspective.

From Greece to Rome, it can be seen that the corner problem has evolved from external to internal structural problems originating from Greece to the transition of site conditions in Rome. When architects began building private palaces in the Quattrocento, they followed the idea of internal courtyards in ancient Roman houses. The internal space is designed as a square open to the sky, and in many cases, both sides are composed of open arcades with rounded arches. The Romans attached importance to positivity in their alternative solution to corner problems. Since the Roman ruins were mostly enclosed, the gap between the triglyphs on the front and sides at the corners was barely noticeable, opposite the open ruins of the Greeks. Therefore, the Romans liked the perpendicular relationship between the viewer and the facade to maintain aesthetic purity. As the city becomes the center of the building, and with the development of loggias and internal courtyards as urban public spaces, the rhetoric of corners in the urban environment shifts from outboard or exterior corners to inboard or internal corners. The reentrant corner was extensively used for conceptual and aesthetic purposes during this period.

During the Renaissance period, the processing on the internal corner will largely depend on the limit of the site and the setup of people's perspective view. The courtyard of Palazzo Ducal of Urbino, by Luciano Laurana, is a prominent precedent. This courtyard, called Cortile d'Onore, connects the three-sided Palazzotto della Iole with the central mountain range of Laurana. Its massive scale reflects the scale of the entire palace. The internal courtyard opens to the sky and is a circular Corinthian arcade that supports the two floors above. The spatial measurement from columns to walls is spread throughout the entire building, giving people a sense of visual unity. Before the addition of attics at the end of the 16th century, courtyards were only two stories tall, and this lower height would make their spacious proportions appear more spacious (Fig. 8).

In Urbino, the courtyard in the north-south direction is one columnar wider than the courtyard in the east-west direction. Therefore, five pillars are between the corner pillars in the east and west. At the same time, in the south and north, there are only four pillars, with a ratio of 6:5. Another issue with the symmetrical arrangement of the rows of arcades is that the north foyer and the south opposite corridor where leading to Cortile del Pasquino are not entirely on the same axis, and their axes are also slightly off-center from the respective courtyard wings. This makes the arrangement of the columns difficult while also considering the opening of the two vestibules. Laurana decided to move these openings to the axis of the courtyard, successfully achieving a cable arrangement where the central columns on the north and south sides align with the positions of the two central openings (Fig. 9).

Due to the entrance being located on the central axis, the façade of the Urbano courtyard has become a focus of Laurana's attention in its design, and its treatment of the corner has naturally become an aid in emphasizing the idea of façade and support (Fig. 10). He reinforced the corners by causing the corner arches to fall or pop out from the Corinthian columns attached to a pier. This allowed him to retain the rounded arches and enhance the impression of corners through two circles, two engaged or connected columns, and two pilasters. The spandrels are the space above and between two arches, and the white moldings form a circle within the spandrels (Fig. 11).

Laurana took a critical step in addressing the issue of using independent columns in the corners of the palace courtyard. He created a visually richer layout that did not crowd the windows by using right-angle piers instead of single columns. He supported the corner of the second floor with two pilasters connected at the bottom. The pilasters connected the vertical lines of the columns and corner pilasters upwards, linking the enclosed upper layer with the arcade below. Repeating the joint pilasters between the second-floor windows continues the theme of square support.

In the corners of the courtyard of the Ducale Palace, the innermost pilasters on each side are higher in-plane than the other pilasters. Laurana uses the entire pilaster sandwiched between the narrow part of the lower relief pilaster. The corner space is distinguished from the other parts of the arcade, allowing the viewer to interpret the building as it has strong enough supporting parts to support the rest.

The intersecting courtyard facades each end with complete pilasters. This implies the termination of the facade at the corner point. At the same time as the corner is emphasized, its relationship with the facade is cut off, which instead emphasizes the integrity of the facade itself and caters to the perspective view of the viewer entering from the central entrance (Fig. 12). The final result is that each facade ends with a column, which forms the intersection of two columns at the corner (Fig. 13). In order to maintain a formal relationship at the corner, Laurana combined structure and decoration, doubling the columns to form an L-shaped pier. However, in this process, he created another problem that needed to be solved. His turning angle doubles, forcing the capitals of the first-level pilasters to occupy the same space as the spandrel roundels. This coexisting unease can be seen in a 45-degree corner. The spandrel roundels look like parentheses adjacent to the capital of the pilaster. Overlap does not fully work, which raises questions for the audience about the accurate measurement of other arcades (Fig. 14).

Unlike Laurana's move at Urbino, Bramante solved the corner problem by preserving a formal relationship of part to the whole at the Palazzo Santa Maria Della Pace. The corner issue of Palazzo Santa Maria Della Pace is also primarily limited by the size of the site and the viewer's perspective. More importantly, it is Bramante's decision in design. In the drawings placed by Bramante, the architect is creating a complex problem to solve (Fig. 15).

In S. Maria della Pace, after noting the physical limitations of the site, Bramante must first consider developing an overall scale system that can adjust the

position and size of each part in the plan and elevation views. Due to the limited height of the space available for construction relative to the gap space in the courtyard, a four-bay solution has emerged. The position of supports in the corridor is a natural result of fundamental geometric decisions. The outer row of smaller squares determines the opening of the corridor, covered by the groin vaults, and the subdivision of the central space determines the position of the piers of the arcade. Subdivide again to obtain the position of the same square module's upper pier and column—fixed height. A complete side of the courtyard, including the end bays, with a rectangular scale of 1:2. Each wall of the courtyard forms a rectangle with a ratio of 3:4. Now, the height of the entire building is divided into two floors in a ratio of 1:2 (Fig. 16).

In this courtyard, Bramante demonstrates the correct way to use perspective to express the vision of the Renaissance. The fact that the traditional and logical courtyard entrance that should provide the best perspective is not in line with the perspective scheme at all. Bramante found it impossible to solve this problem in a consistent manner, and his only choice was to minimize the entrance as part of the gap space in the corridor, which placed it in a corner. In this way, the audience's first line of sight is directed toward the corner of the courtyard, making it impossible to view the corridor from a prescribed perspective while the central space dominates.

On the other hand, once the overall and lower proportions of the cloister are determined, Bramante will encounter a severe problem when he arrives at the pier in the corner. Imaginary lines and points can represent the proportion scheme, but the building is composed of walls and columns, composed of physical elements, and they occupy a position. In the cloister, in order for the grid of the plan to be entirely and only composed of squares, the supports, especially those at the corners, must have the same size. When faced with the difficulty of reconciling mathematical abstractions with the physical reality of materials, the

architect used a point to determine the space occupied by the structure on the plan and only used columns or piers of the same volume in the corners. Just as the difference will occur when the 3D rhino model is directly transformed into a physical paper model, the paper thickness must be considered in reality, even if it is 0.1mm (Fig. 17).

Suppose you want to emphasize the importance of corners, as Laurana did in the courtyard of Urbino, by using a stout pier while maintaining the position of other supports and the proportion of space between columns. In that case, it is impossible to distribute the modular square grid throughout the entire area as planned (Fig. 18). In theory, to develop a modular plan, the total volume of corner piers must be included in a square with sides equal to the front width of other piers. In contrast, the spacing between piers remains unchanged, even at corners, and their centers continue to align. Nevertheless, this is impossible considering the rectangular plan of the standard pier of the cloister (Fig. 19). Suppose the centers of the supports need to be aligned even at the corners. In that case, the compression of the corner pier must be much greater than that of a regular pier, so Ionic pilasters on the foundation cannot be handled in the usual way. Bramante reduces the size of the corner piers as small as possible by reducing the Ionic pilasters on the base to a so-called "threaded" form by Bruschi while maintaining the structure between the columns. Its width does not exceed its depth, and the bottom and column head is also reduced to fragments, making it difficult to identify the abstract elements on other pilasters (Fig. 20). Subsequently, the arrangement of other elements also had unsettling consequences. In the top layer of the column, the corbels are displaced and contracted when they protrude above the bridge piers and columns in the upper layer. On the first floor, the impost moldings of the arch, as we can see, act as capital and are confused with the linear Ionic pilasters in the corner, which have a relatively low degree of prominence and therefore break the continuity. Impostor

moldings have a visual advantage over ionic pilasters. In the corner, the system derived from the order on its base suddenly weakens (Fig. 21).

It can be said that in order to ensure the absoluteness of the structural proportion system on the original set plane, there are constant problems and compromises in other aspects. Although Bramante's diagram requires a series of grammatical responses to questions that cannot be predicted in advance, to maintain the space between the columns unchanged, he had to reduce the corner piers and the Ionian pilasters to a trace. This solution is, to some extent, determined by Bramante's desire to maintain a strict, in a sense, classic, part-to-whole relationship in the cortical loggia. However, this assumption conflicts with the actual site conditions, ultimately leaving a mark, which Peter Eisenman referred to as a "rhetorical angle," raising questions about whether Bramante's constructed grammar is correct.

Compared to the courtyards of the Palazzo Ducale of Urbino, the treatment of the corners of the Santa Maria della Pace presents different spatial logic. In Laurana's design, the arches meet at the corner and pass through without the intersection of pilasters, leaving only a small fragment as a hint. This can be seen as the continued extension of the atrium facade at the corner (Fig. 22). Bramante emphasized the centrality of the courtyard, where two continuous, uniform, and vertical walls intersect, each with its three-dimensional perspective organization. These walls form the spatial boundaries of the corridor. Laurana emphasized the facade of the courtyard, where two distinct, discontinuous, and vertical walls do not intersect because the corners are separated from the walls (Fig. 23). However, both methods of solving corner problems may not seem satisfactory. In fact, there are crude and obvious ways to solve this visual suggestion; just let the problem itself disappear.

The corner problem in Santa Maria della Pace is caused by reducing the Ionic pilaster on a pedestal. Removing the most

prominent corner pilers, called the 'thread' form, can solve it (Fig. 24). After all, two Ionic columns merge into each other and are not very visually abrupt (Fig. 25). Similarly, in the corner problem of Urbino, the problem can also be solved by removing spandrel roundels obstructed by pilasters (Fig. 26). Even a method can be extended to eliminate fundamental grammar settings, removing all spandrel roundels (Fig. 27); Alternatively, by removing pilasters and allowing the corner itself to disappear, it can enhance the corner itself while also breaking the relationship between the facade and the corner (Fig. 28). These reckless practices require certain compromises in complete order and logic, but they effectively eliminate the problem of architects setting corners themselves.

Compared to Greece and Rome, contemporary corners are neither limited to a physical intersection nor a form of rhetoric. As an architectural system that can influence spatial perception, it may have taken a step further than during the Renaissance period. Like Louis Kahn's Dominican Motherhouse arises, two fundamental architectural systems, the framework and the volume (Fig. 29). The plan has begun to exude a sense of dynamic and social living, closeness, expansion, and contraction. Although the orderly framework will function as cells for the sisters, the massing architect placed in the courtyard can be described as an entity. Each part is independent and irrelevant. The so-called corner problem solved by Louis Kahn is directly related to the intersection of multiple geometric shapes. It can be questioned from the order or ideology it follows, whether it is relational or non-relational. In contrast, In James Stirling's Science Research Center, the intersection of multiple objects is carefully expressed in defining the relationships between objects (Fig. 30). When the hexagonal geometry contacts the rod, the left side of the connection is perpendicular to the corridor, while the right vertex of the hexagonal is aligned with the corridor. SANAA's Lens Louver is another way to solve corner problems. They did not use poche to represent intersecting objects but applied

doors and stairs as tangible connection details (Fig. 31). In other words, uncertain quality manifests as subtlety and ambiguity.

Throughout history, the importance of corners depends on the architect's intentions and how he implements conditions in his architectural grammar. The corner itself has no problems, and it is just that the architects keep asking about the corner itself.

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[4] Bruschi, Arnaldo, and Peter Murray. Bramante. London: Thames and Hudson, 1977.

06 Archive the Post Office

Extreme Scales
Site: New York, NY
Laurie Hawkinson (Instructor)
ADV V Studio | Fall 2022

"The Eiffel Tower is not monumental, for it was not built to last for ever, but as an attraction for a World's Fair; it is not a solid unbroken mass, but a tapering column in open construction; here we are citing a work whose total effect certainly not easy to grasp. But for us monumental does not imply a work which will stand there for a year or a hundred years or a thousand years, but the perpetual expansion of human achievement."

By Lissitzky el, A. and Pangeometry, 1925

Rethinking the Post Office as a space not just for public usage, but also as an important space for archiving.

It gives a completely new role and life mission to the Post Office, and even more, specifically in this main post office, it needs to collaborate with a new train hall.

New Train Hall Conceptual Image

1911-1914	1932-1935	1973	1990	2001	2006	2006	2010	2017	2020	2021

McKim, Mead & White Opening

355' x 322' (114,310 sqft)
400,000 sqft
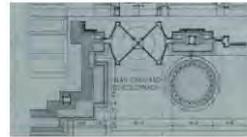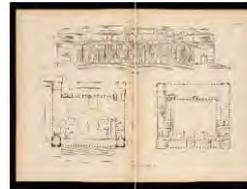
McKim, Mead & White Expansion:
Morgan Station (parcel post station)
Total: 1,400,000 sqft

National Register of Historic Places
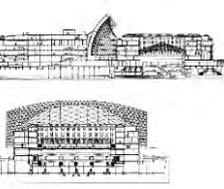
Daniel Patrick Moynihan:
plan to rebuild a replica of the historic Penn Station

backup to operations for the Church Street Station Post Office opposite the WTC

sold to the New York state government
$230 million

sold to the New York state government
$230 million

Reused
1st phase
(houses Amtrak and the Long Island Rail Road)

Retail Space 120,000 sqft
Leased building 99 years
Vornado Realty Trust (landlord). Related Companies and Skanska have finalized a deal with the state to build a $1.6 billion train hall at James A. Farley Post Office, paving the way for construction to begin.

Office Space
Leased 730,000 sqft
Meta Platforms (Facebook)

Moynihan Train Hall Completion
SOM
Gross Area: 255,000 sqft

James A Farley Building Timeline
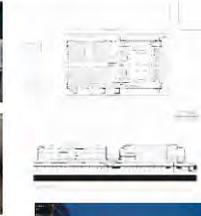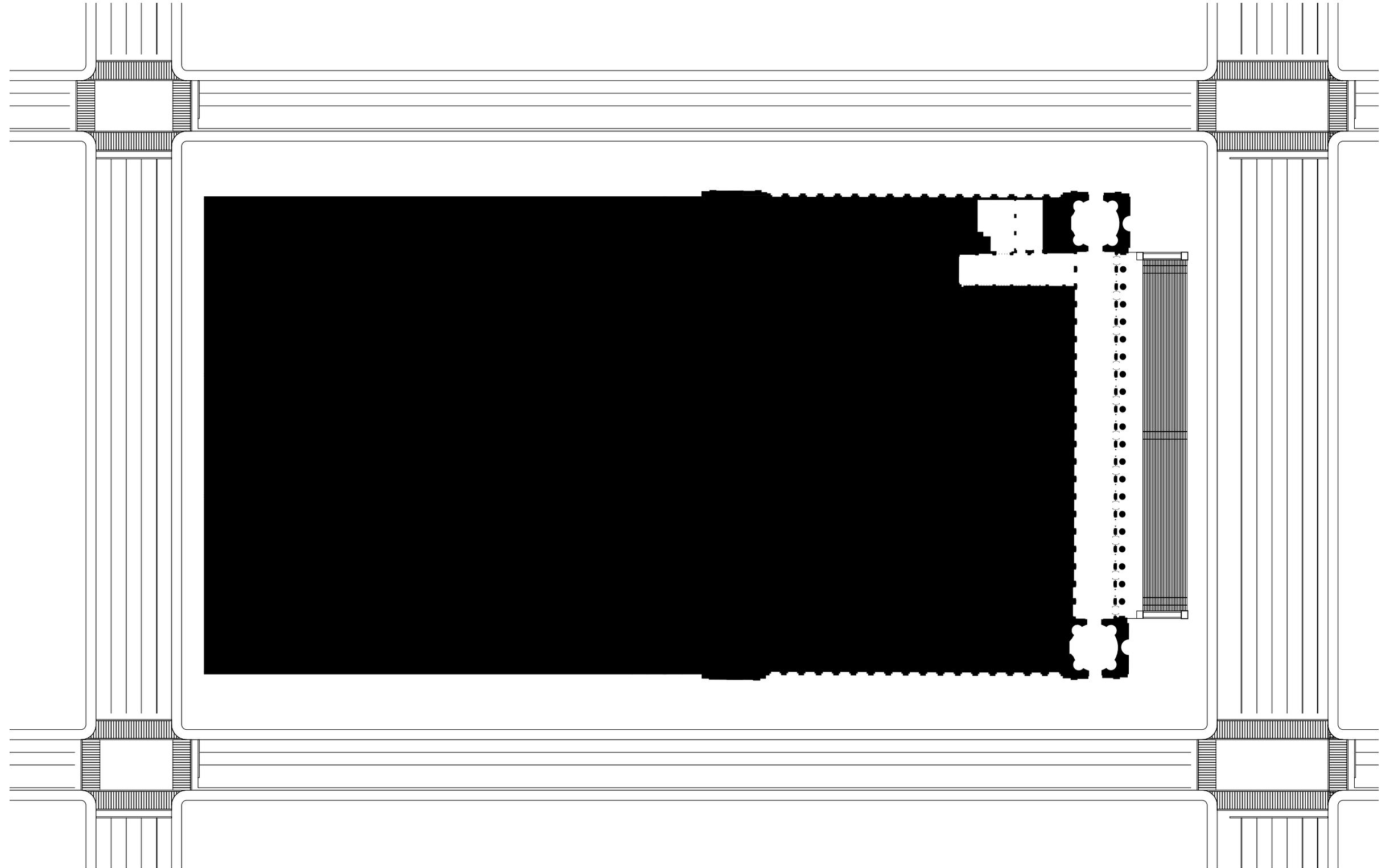
Nolli Floor Plan

1

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12

James A Farley Building Archive Parts Separation

New Circulation Paper Model

New Circulation Concept Diagram

Train Hall Wall Concept Drawings

Train Hall Roof Concept Drawings

New Train Hall Compositions
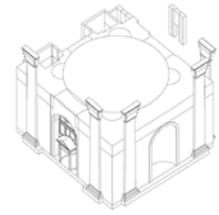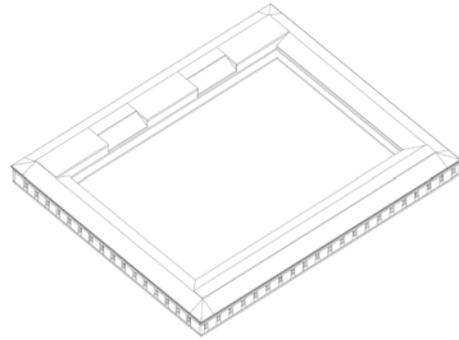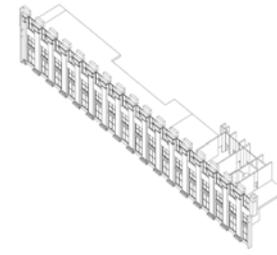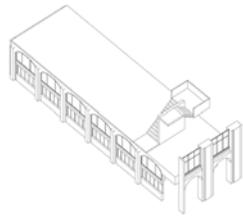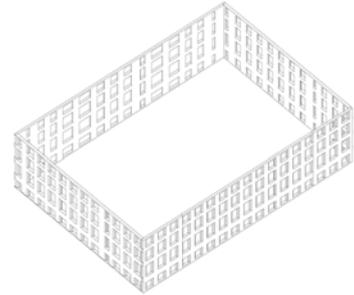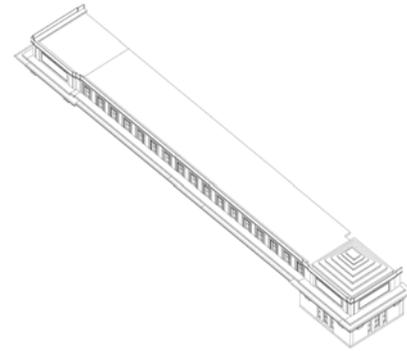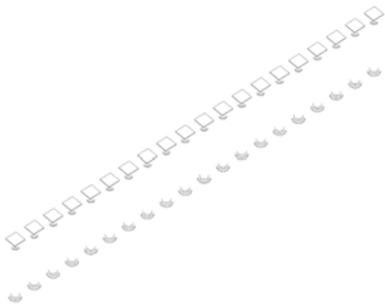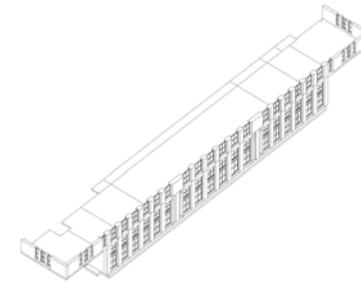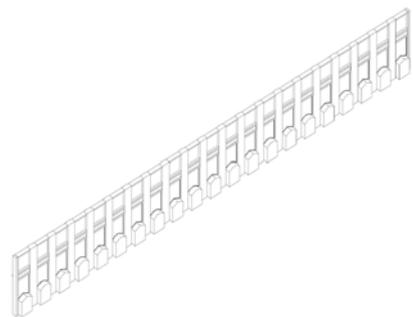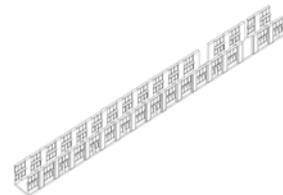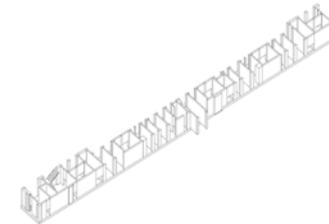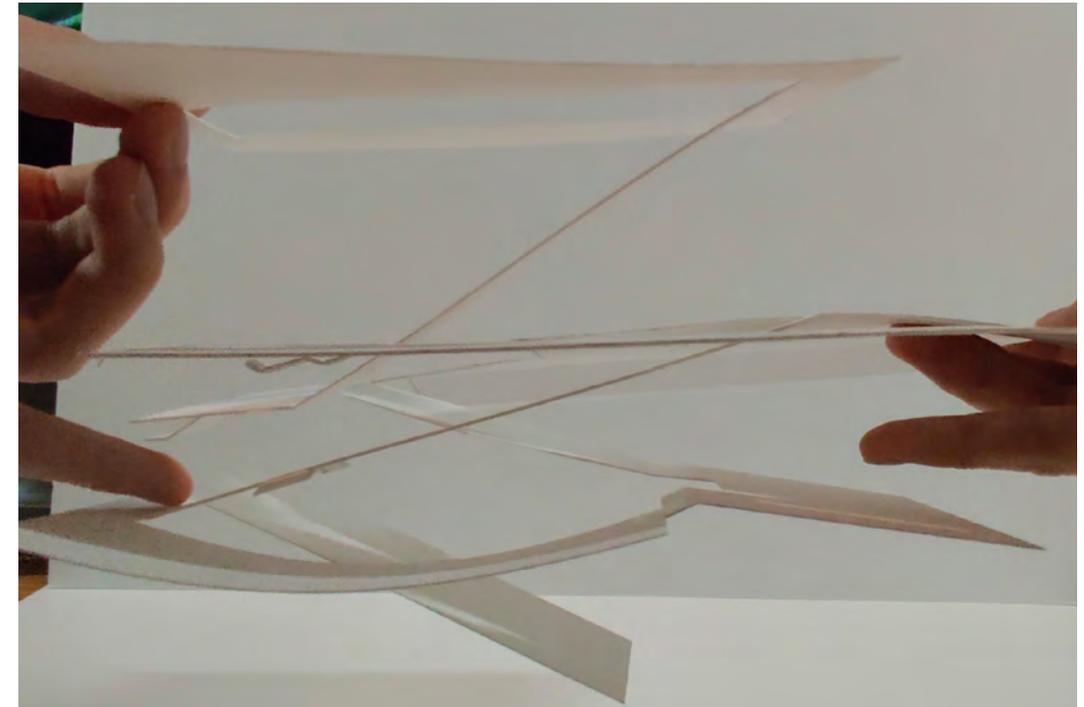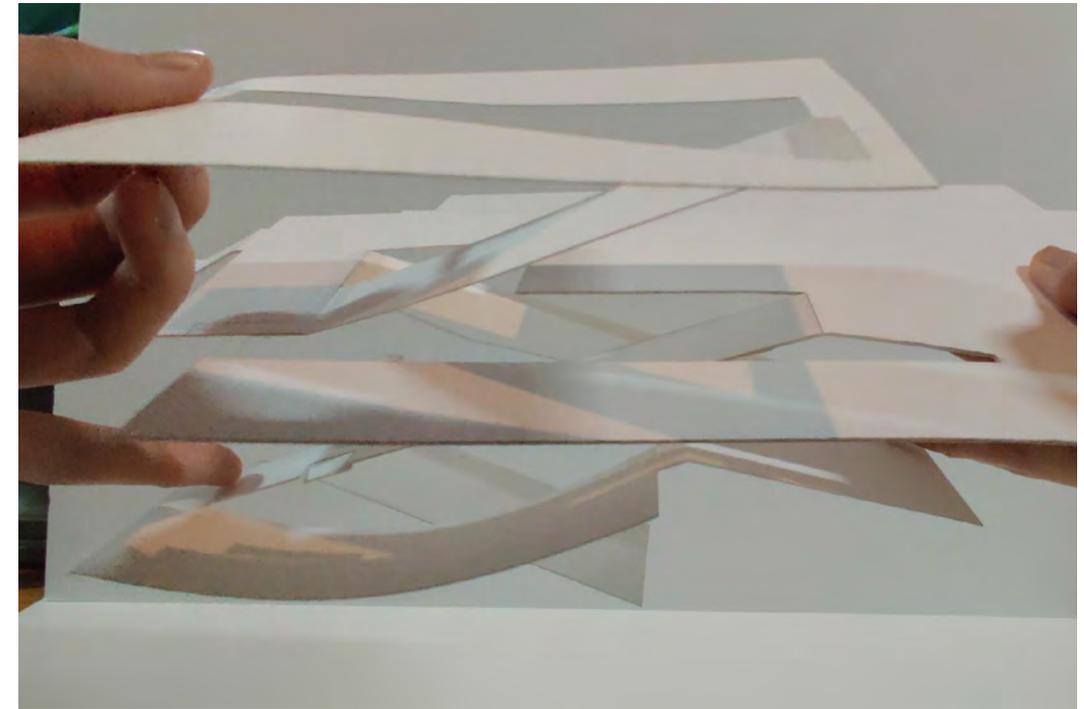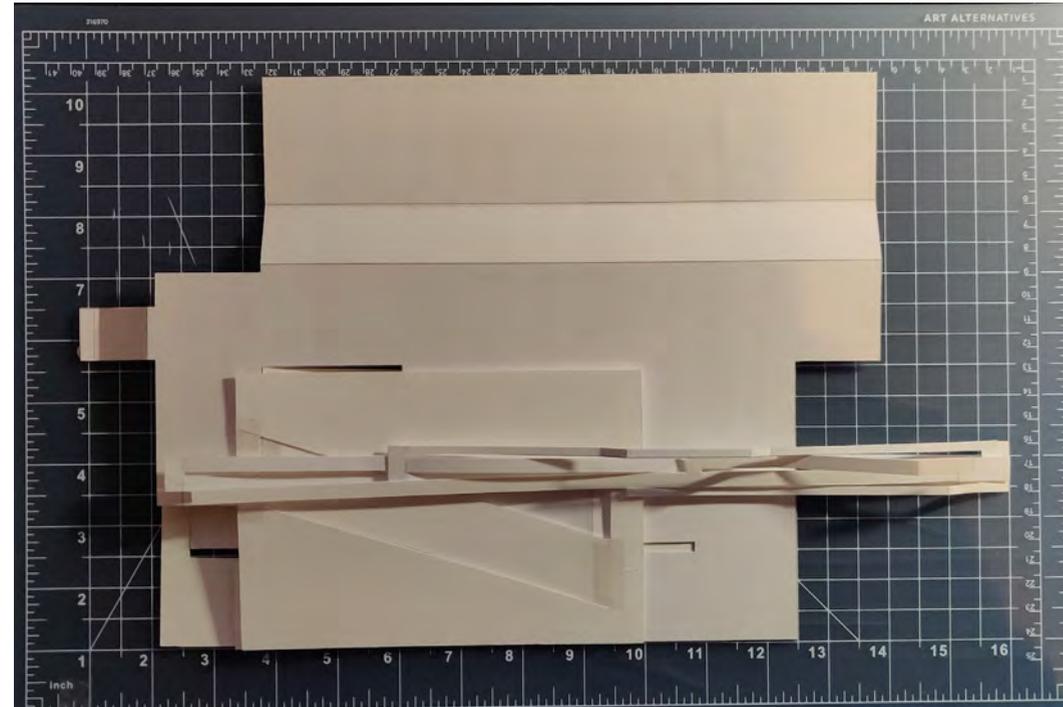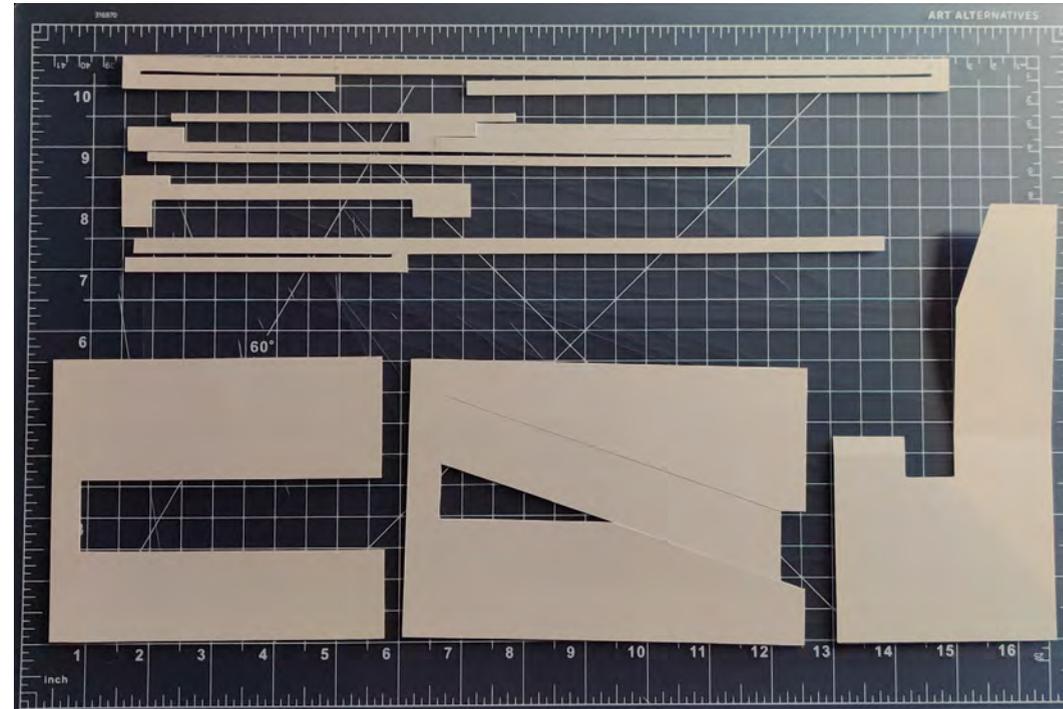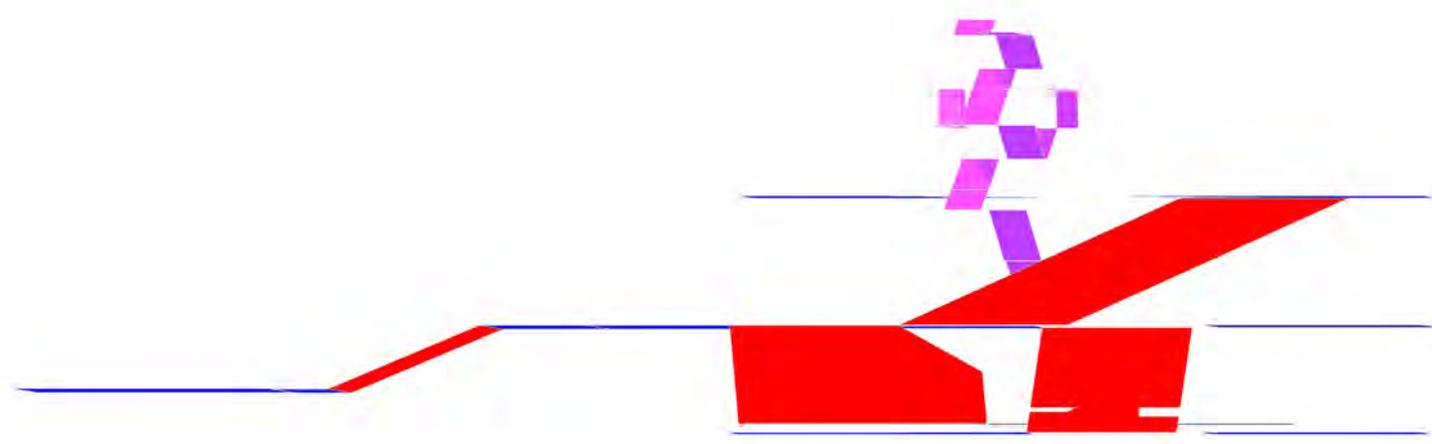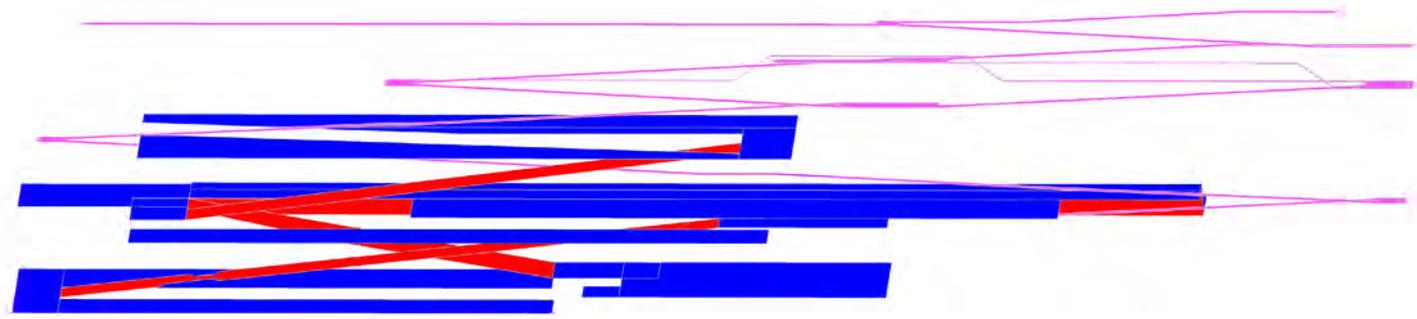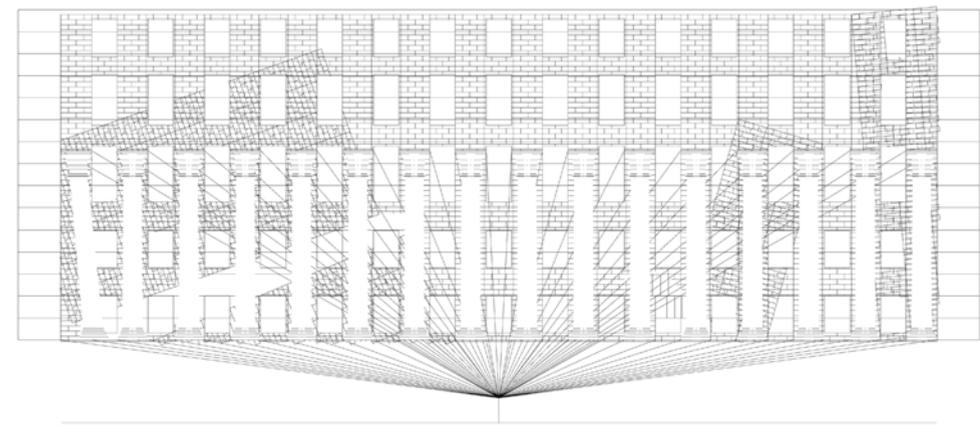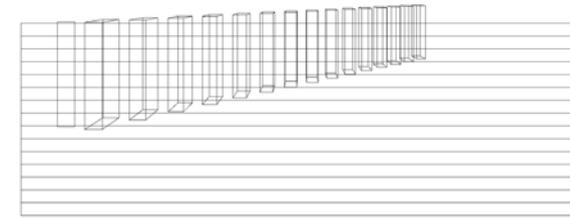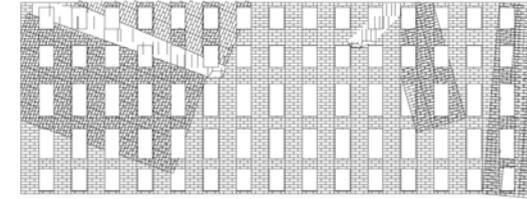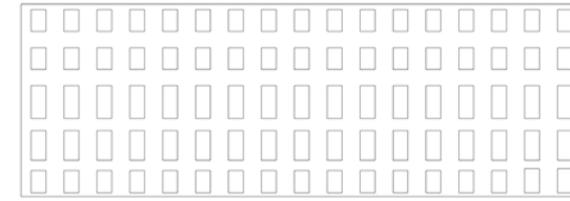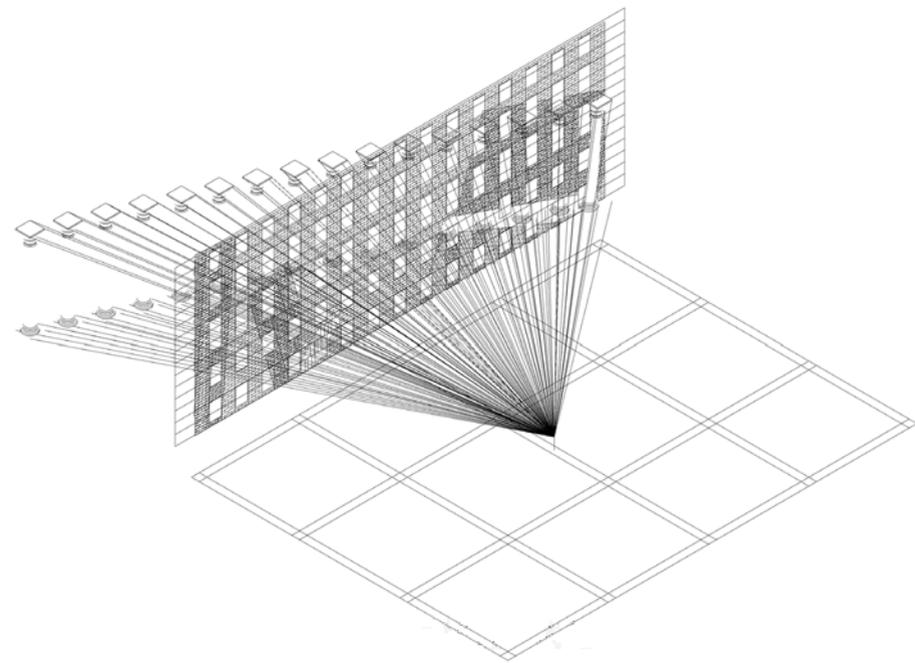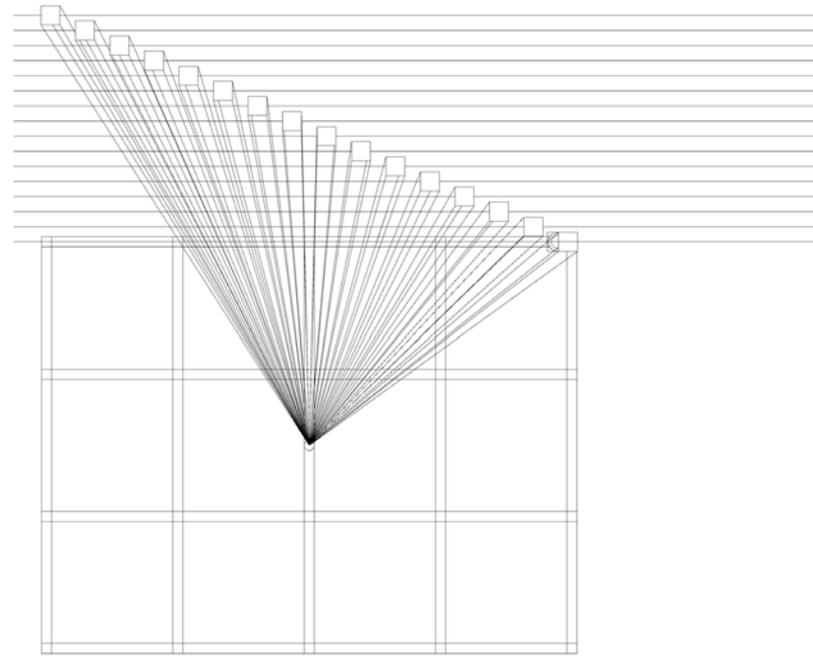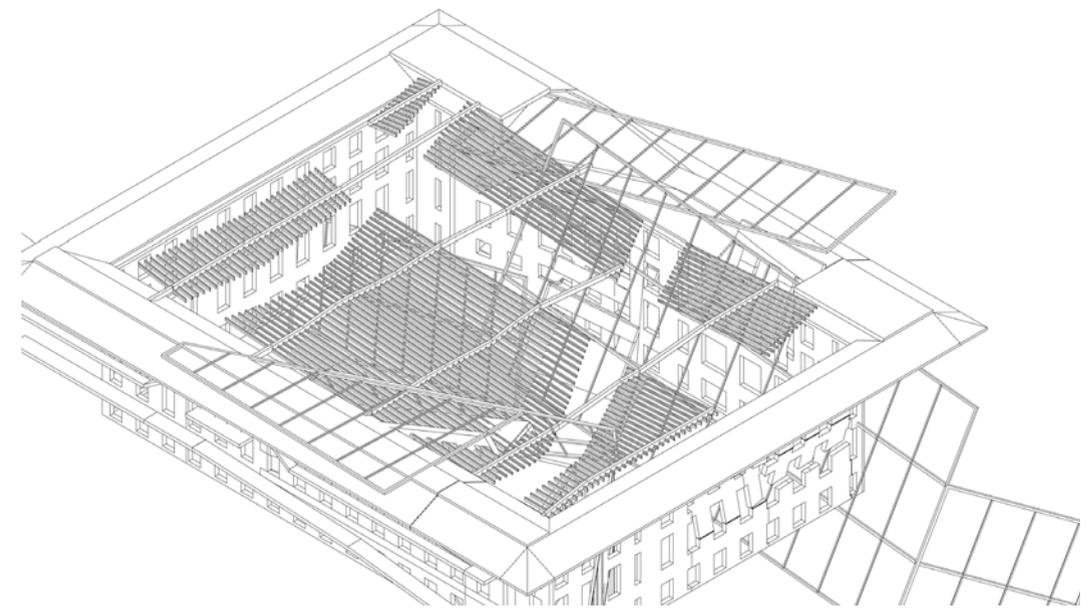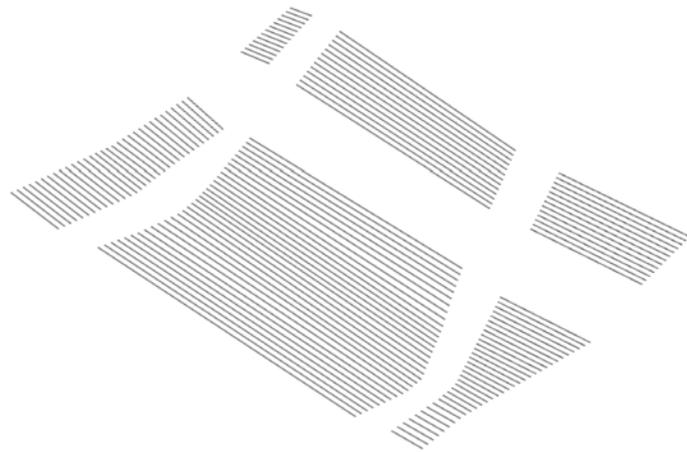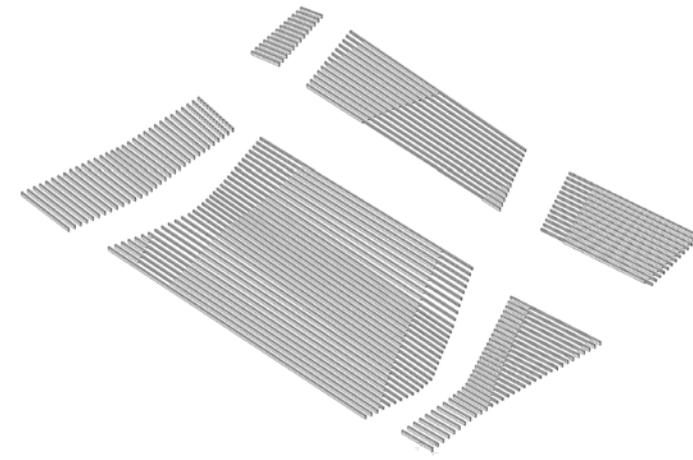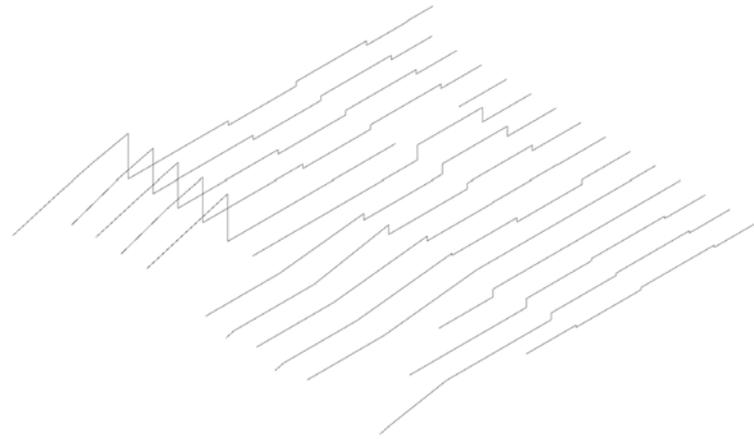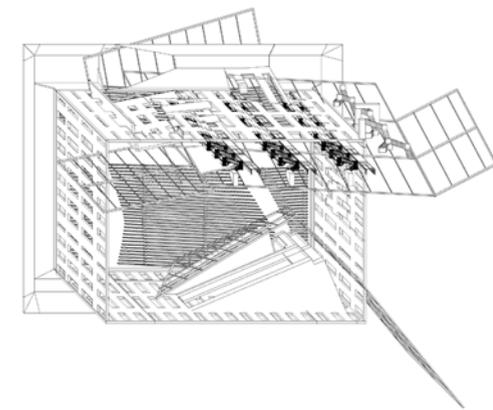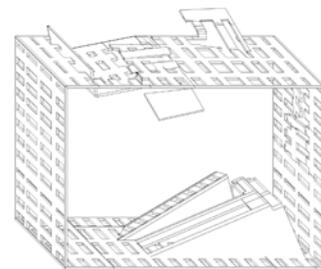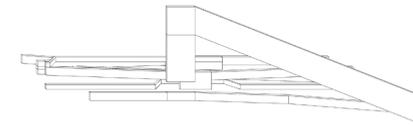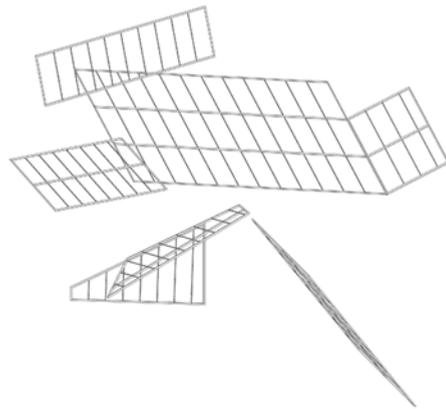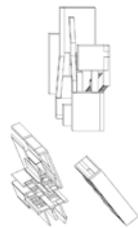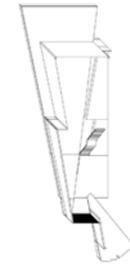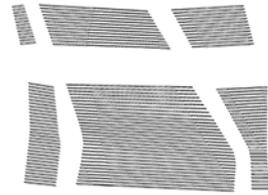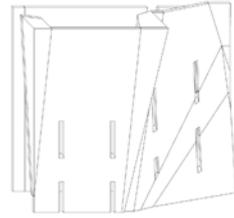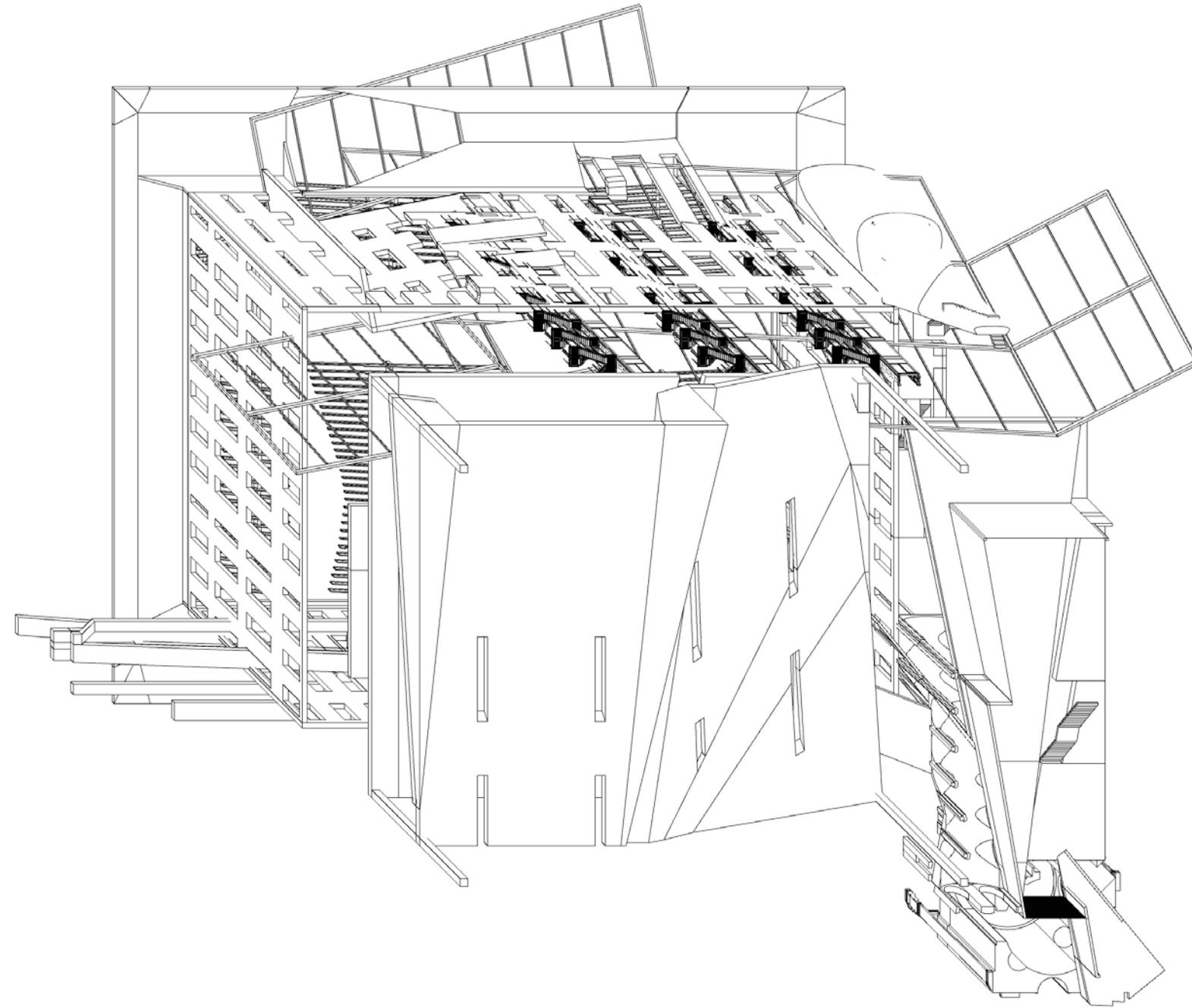
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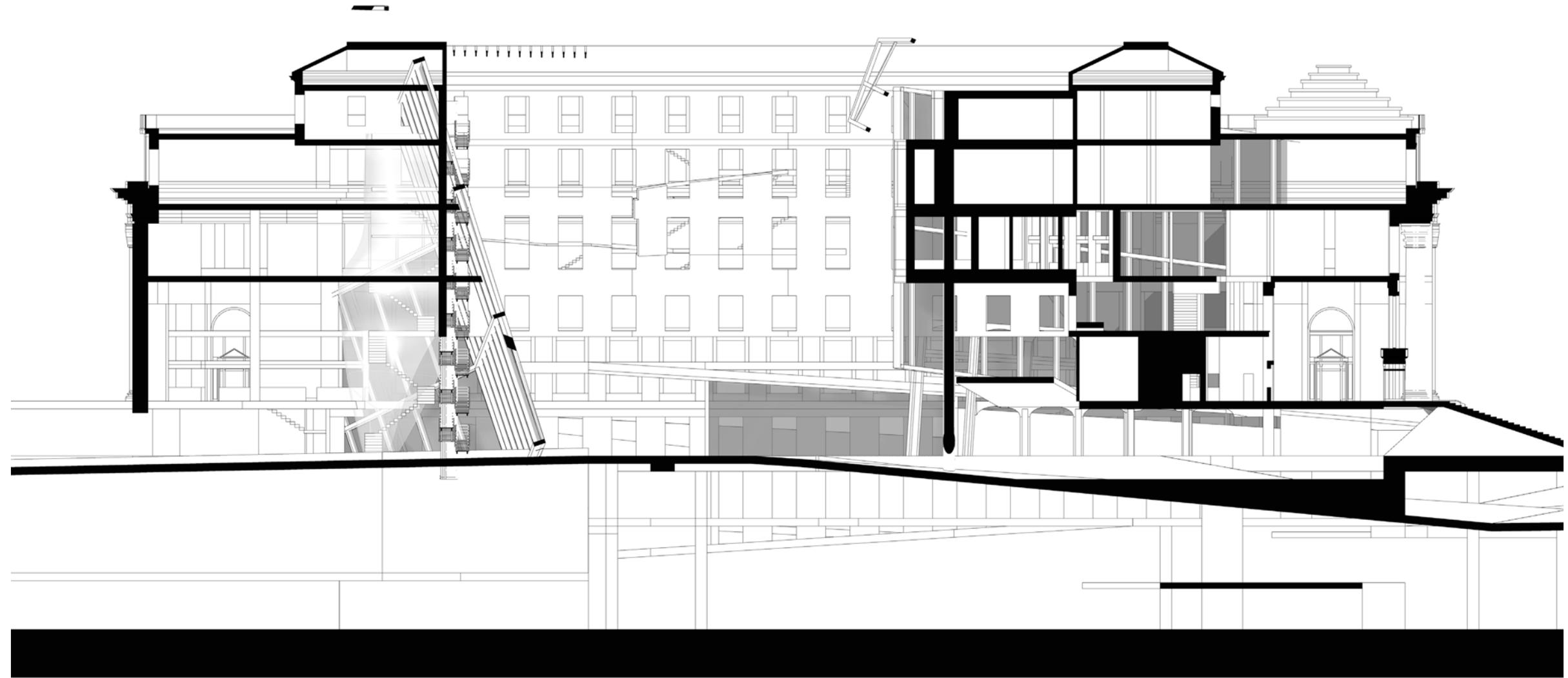
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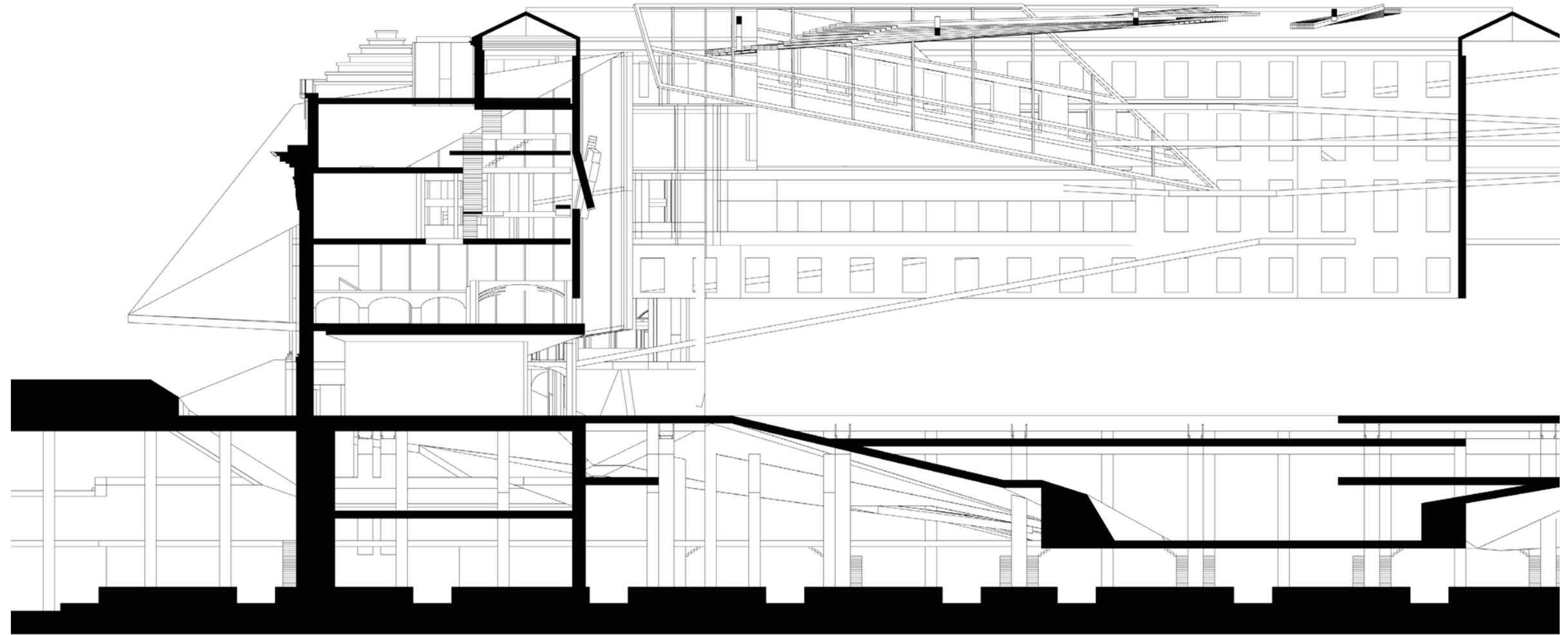
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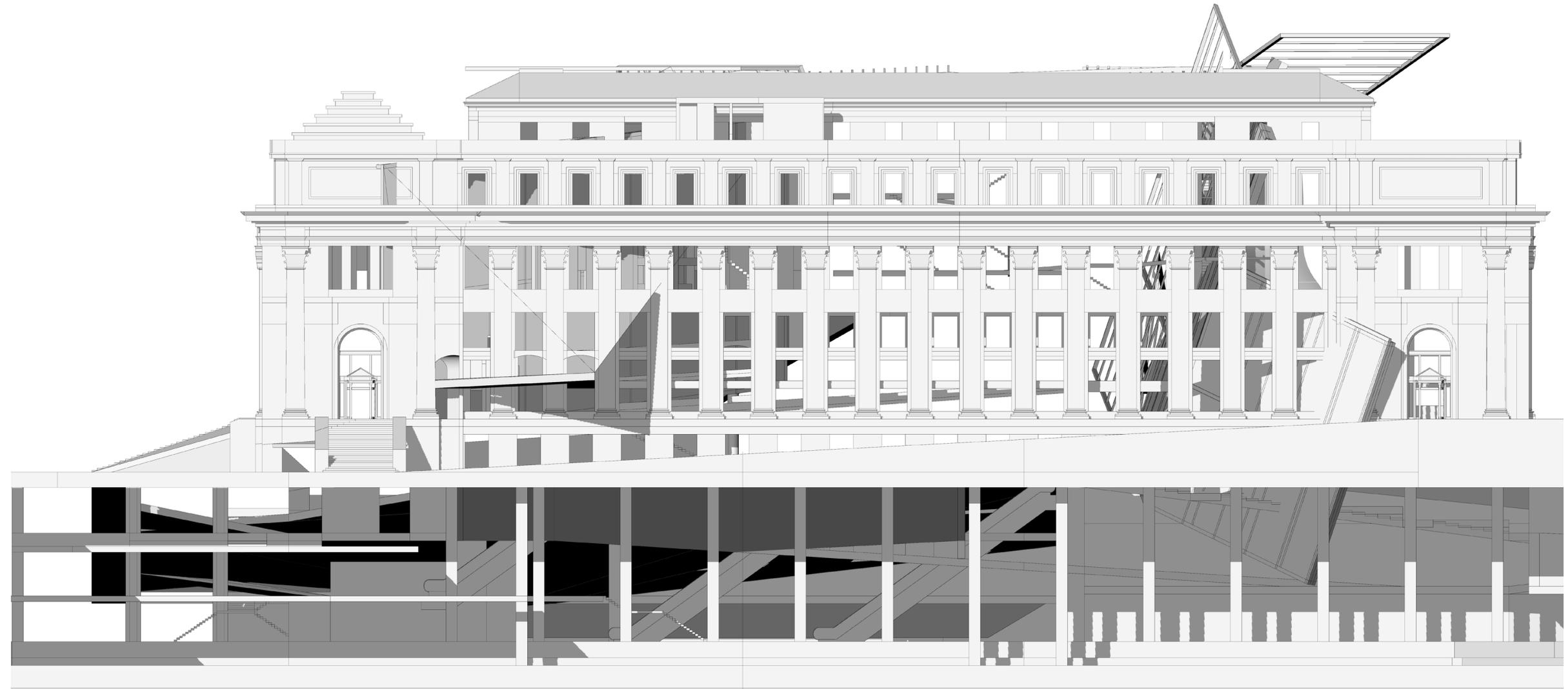
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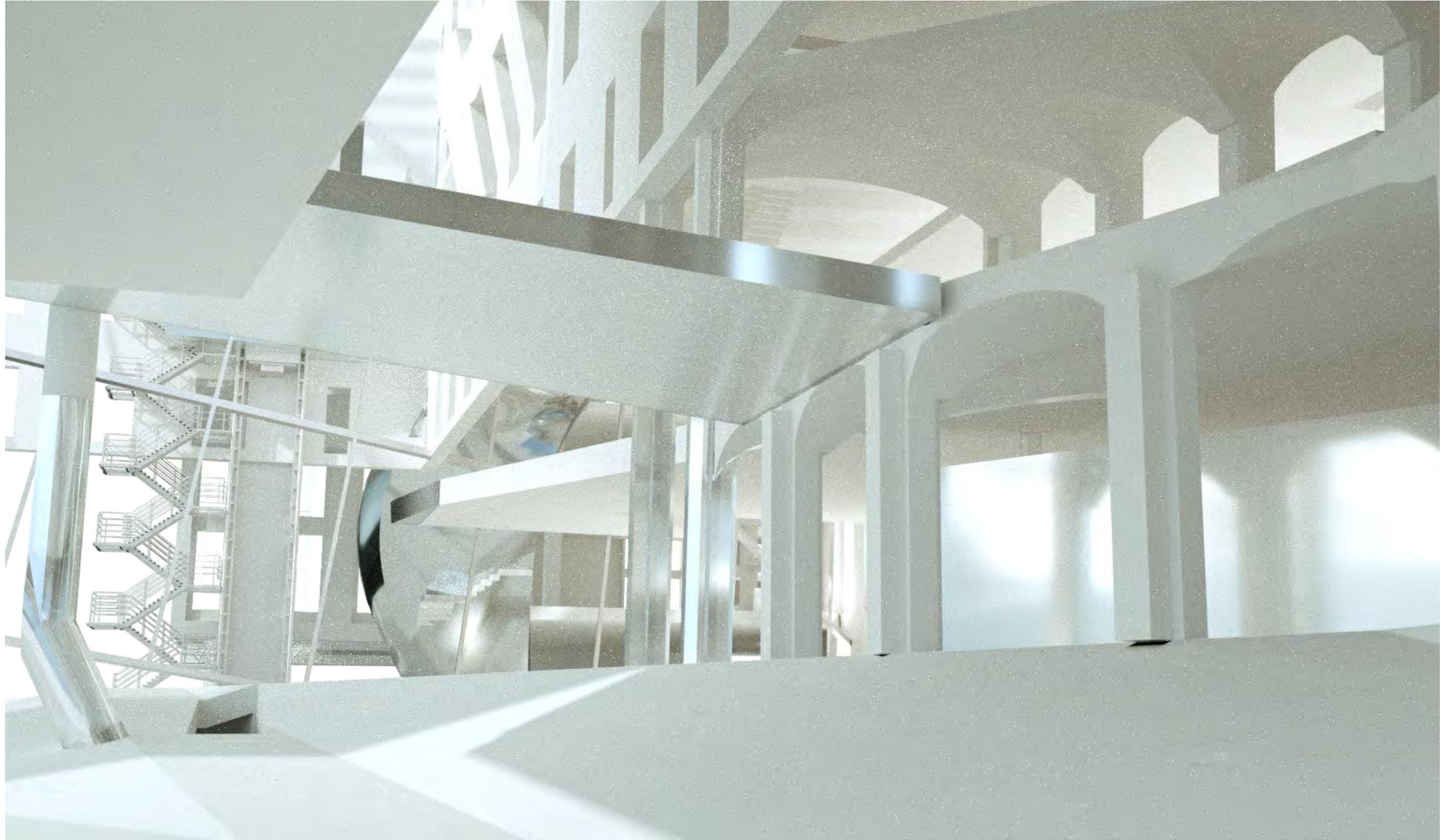
Render View on Train Hall Main New Entrance

Master Drawing
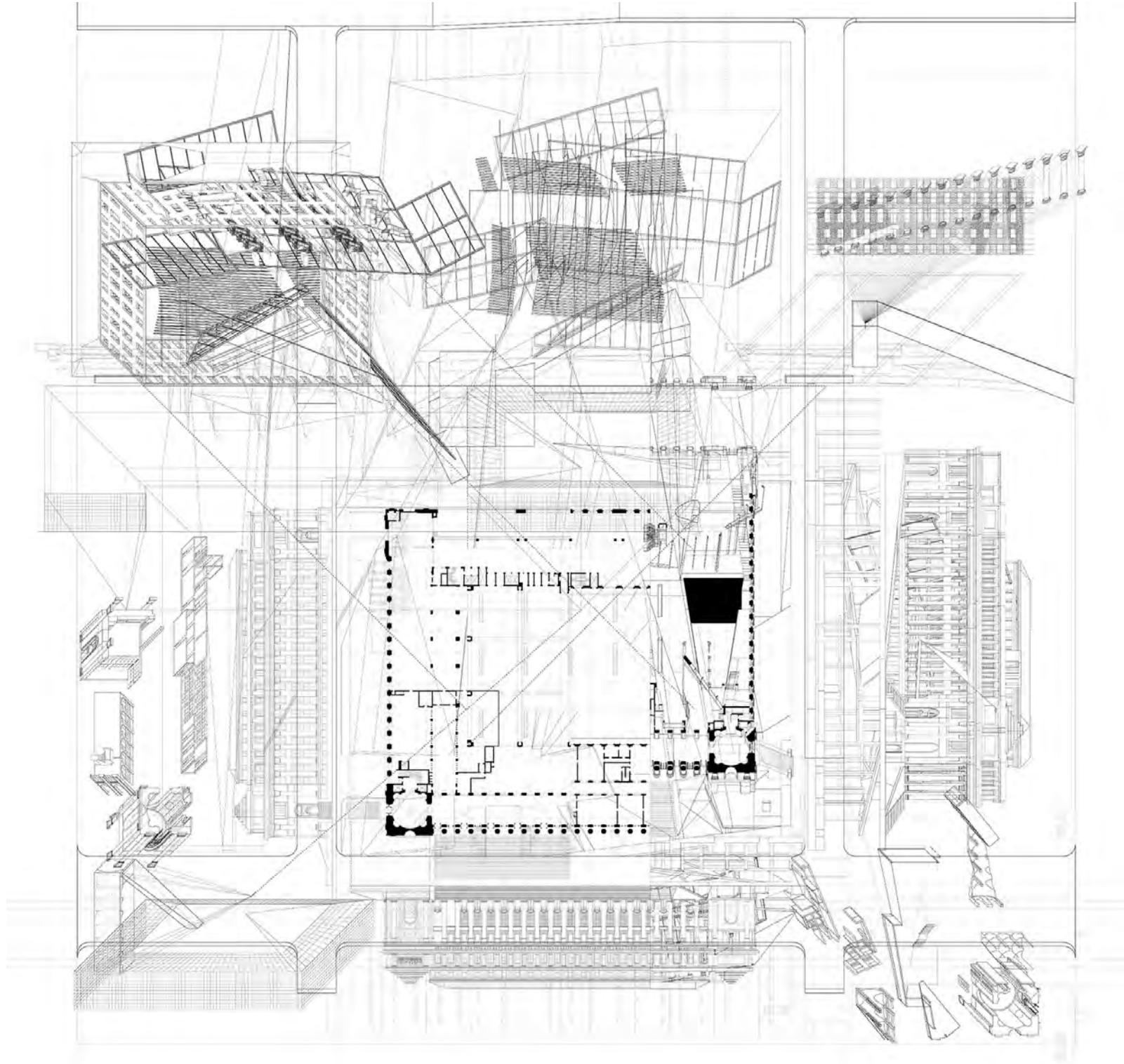
07 Transscalarities

Alex Kim (Instructor)
Summer 2022

Case Study 1: EJHNMC

In the center of Cali, Colombia, sits Edificio Jardín Hospedero y Nectarífero para Mariposas de Cali (EJHNMC), a building-scale multimedia device that not only establishes a symbiotic relationship between commerce and cities, but also realizes the symbiosis between users, animals, and plants. Such a huge ecosystem makes people think about its long-term management, maintenance measures and sustainability.

When the EJHNMC was established, Cali was the area with the most butterfly species on the earth. This environmental condition featured heavily in the project goals of Husos, the architecture firm behind EJHNMC, to strengthen the existence of biological corridors. The project not only serves a small clothing and decoration company but also has housing, a sewing workshop, sales, marketing, cultural and social space. It is a boarding and nourishing garden for Cali butterflies.

As a smart garden or a biological community, it can stimulate the animals and insects in the area by living in and feeding on climbing plants supported by different types and colors of grid facade on the building shell. Where the first-floor grille has a working space, an expansion net with small holes is used to prevent intruders (insects and small animals); while on the top floor of the house, a larger opening is reserved to collect the fruits of some climbing plants. In addition to the ordinary grille, there are also grille boxes to provide services for special climbing plants. Around the building, there are 20 bulbs of different sizes growing in them. Tropical shrub plants complete the host and nectary system of butterflies.

The host plants in the building are the homes of butterflies and other insects in the egg stage, larval stage, and pupal stage. Their leaves are also specially used for larvae. Adult butterflies visit nectar-producing plants to feed on nectar. The nectar plants are mixed with the host species, so when the leaves of the host plant are eaten, the nectar plants still provide vegetation cover.

EJHNMC also adopts a subtle cooling strategy, which is necessary for a hot tropical climate like Cali. The partition wall of the building is 1.2 meters high, covered with climbing plants, creating a layer of leaves, which helps to keep the indoor temperature low and also provides shade. Matte silver in the choice of walls and structures helps to avoid heat absorption. The balcony with plants provides shade for the windows and is the space for planting flower pots. A drip irrigation system is designed on the facade of the sky garden, which is connected with the flower bed like the maintenance system. Although this small sprinkler network can easily and conveniently control watering, it is inevitable that it will be blocked or damaged

during long-term operation. The maintenance of equipment, as well as the necessary construction and planting of plants, will be carried out through two horizontal corridors and several vertical ladders of the facade.

In the past decade, EJHNMC has proved the long-term reliability of architectural garden design and management through practice. Distribute and explain the seeds and small plants of local species to tourists, organize a seminar with neighbors, explain the functions of buildings to residents and other tourists through information transmission, etc. These actions have maintained the green corridor in the city, encouraged the people receiving seeds to plant them in all parts of the city, and finally maintain the ecosystem of EJHNMC's own buildings on a macro level.

1.REVISTA COLOMBIANA DE ENTOMOLOGÍA, "Revista Colombiana De Entomología Vol 35 No. 2 Julio - Diciembre 2009," Revista Colombiana De Entomología 35, no. 2 (2009): pp. 105-288, https://doi.org/10.25100/socolen.v35i2.9237.

2 . Igor Fracalossi, "Bioclimatic Prototype of a Host and Nectar Garden Building / Husos Architects," ArchDaily (ArchDaily, August 21, 2015), https://www.archdaily.com/772039/bioclimatic-prototype-of-a-host-and-nectar-garden-building-husos.

3 . Edificio Jardín Hospedero y Nectarífero Para Mariposas / Entrevista a Camilo García. AD57 Cultura De Arquitectura y Diseño En Colombia, 2012. https://www.youtube.com/watch?v=YZr241bPhtQ.

Case Study 2: Clean Air Pod

After World War II, American industry recovered from the Great Depression. With the increase in industrial energy consumption and the automobile industry booming, pollution began to intensify. In September 1955, the most severe photochemical smog pollution incident occurred in Los Angeles. More than 400 people over 65 died of respiratory failure within two days. Everyone was forced to realize that air pollution was a pressing problem, and the situation had become an unbearable part of American daily life. On April 22, 1970, 20 million people held a massive march across the United States, calling for environmental protection. This action finally reached Capitol Hill, and the legislature realized the urgency of environmental protection. Later, this day was designated as "Earth Day" by the U.S. government. Against this historical backdrop, Chip Lord and Doug Michels founded Ant Farm, a collective of activists of designers.

Ant Farm created many mobile communes to express their idea and passion. They adopted inflatable buildings that were cheap, easy to transport, and quickly assembled, which enabled them to create facilities to a large extent without the material restrictions of capitalist consumer society. Ant Farm paid special attention to the interaction between human beings, the building environment, and the surrounding media ecology. Their works reflect people's preliminary understanding of environmental impact; one theme is that the inflatable offers immunity from contaminated environments. This is most clearly articulated in Ant Farm's Clean Air Pod (Cap 1500), first installed and performed on the Sproul Plaza within the University of California Berkeley campus in 1970, the first Earth Day.

Clean Air Pod is a utopian closed inflatable plastic building experiment and a tool to promote environmental awareness. While wearing white protective equipment and gas masks to deal with outdoor air pollution, the members of the Ant Farm called on everyone to avoid it in the inflatable cabin. Finally, people entered this 40x40 foot plastic bag device to breathe safely and isolate themselves from external air pollution, reflecting the urban environment's toxic air, smoke, and suffocation fear. But paradoxically, the gas fans and materials of the equipment are not exclusively environmentally friendly. Gas masks, the convenient and plastic inflatable that can be bought for only 1 dollar all seem to contain other meanings.

Conceptual art is considered a critical response to social and political conditions. Here, Ant Farm introduces the relationship between architecture and environmental politics. Still, it is not only people's response to air pollution but also a

complaint against the government's violent enforcement against protest groups. About a year earlier, a National Guard helicopter sprayed tear gas on students and anti-Vietnam war protesters in Sproul Plaza at UC Berkeley. Understanding this social history and environment, it is not difficult to deduce the other layer of Clean Air Pod.

The inflatables that Ant Farm was making did not conceptualize as the architect's final product; instead, they wanted to provide all the information to the people. They have produced a manual for making its pneumatic structures (Inflatocookbook). The inflatable no longer relies on expert knowledge. The inflation equipment constitutes a participatory architecture that allows users to control their environment.

The description of the relationship behind the politics of the ecological movement seeks to diversify society's anti-war ideology into a living state and serve as the evidence behind the practice of contemporary environmental architecture. Ant Farm uses inflatable structures to express their protest against the current institutional behavior and reform society by raising public awareness rather than establishing actual structures.

1.Jess McNally, "July 26, 1943: L.A. Gets First Big Smog," Wired (Conde Nast, July 26, 2010), https://www.wired.com/2010/07/0726la-first-big-smog/.

2 . "How about a Smog Observance Day in Los Angeles?," Los Angeles Times (Los Angeles Times, September 17, 1998), https://www.latimes.com/archives/la-xpm-1998-sep-14-me-22627-story.html.

3 . "Today in History - April 22," The Library of Congress, accessed July 22, 2022, https://www.loc.gov/item/today-in-history/april-22/.

4 . "180spatial Agency," Spatial Agency: Ant Farm, accessed July 22, 2022, https://www.spatialagency.net/database/why/political/ant.farm.

5 . "Clean Air Pod," closedworlds, accessed July 22, 2022, https://www.closed-worlds.com/clean-air-pod.

6 . Ant Farm Inflatocookbook: A Pneu-Age Techs Book (Sausalito: Ant Farm, 1970).

7 . Beatriz Colomina, Craig Buckley, and Urtzi Grau, Clip, Stamp, Fold the Radical Architecture of Little Magazines, 196X to 197x (Barcelona, Spain: Actar, 2010), 410.

8 . "Helicopter Drops Tear Gas on Sproul Plaza," The Berkeley Revolution, June 15, 2017, https://revolution.berkeley.edu/helicopter-drops-teargas-sproul-plaza/.
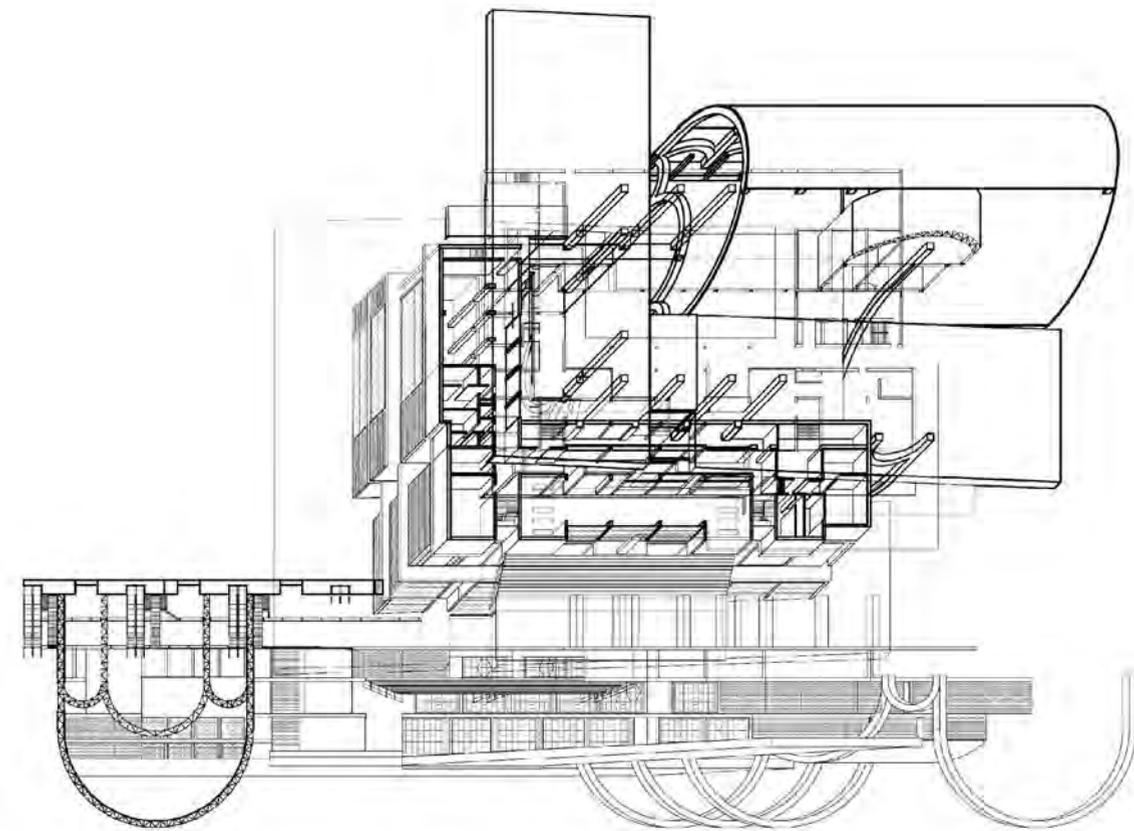
Learning Center and After School Program

08 Transient Processor

(re)Situating Trans-scalar Urban Constructs
Site: New York, NY, Manhattan
Karla Rothstein (Instructor)
ADV IV Studio | Summer 2022
Yilin Zheng (Team)

This project traverses the history and future of Penn Station and the situation of homelessness in New York City. We've identified gaps that occur in society – in memory and physically – unseen by most people, yet with impacts that cross simultaneous scales in space, time, and humanity.

Homelessness is a crisis in New York City. By mapping the number of homeless individuals and their geographic locations, we observed that New York City's family shelters, parents and children, are concentrated in Penn Station's neighborhood, while larger homeless populations congregate in various subway stations. Current measures are both ambiguous and ineffective, leading suspended students and unsheltered homeless to unknown voids (space) and chaotic gaps (time + distance). Though demolition erased the monumental infrastructural depot, Penn Station occupies a potent void in urban memory. As a centerpiece of a coordinated and thoroughly modern transportation system built for the needs of the 21st Century, infrastructure is reimagined to include supportive housing, after-school programs, and public space.

The new Penn Station accepts the potential generation of urban chaos and the irrationality of its surroundings. Compared with the internal complex procedures, it uses strategic subtraction and reconfigures the facilitate spatial and lighting quality to deal with the realities. The intersection of different lines, spaces, and circulation systems produces fragments and sections related to the cognition and orientation of internal and external space. Chaos and randomness have injected new vitality into buildings and cities. In contrast, the pure twisted roof and the ordinary tube have become the second perspective of the city.

This is a large-scale navigation device. It aims to aggregate gaps with different properties to produce new effects in voids and be redirected to the true path. The abstract system determined by a series of rigorous and complex functions (circulation, program, form, light) is the root of these phenomena. The vitality generated by metabolism makes this chaos and irrationality no longer hostile, and the final solution will not tend to be one.

NEW YORK CITY

MANHATTAN

Penn Station

40°43′

PF. APPX.671,558

PF. APPX.671,558

Location

Penn Station/ Grand Central/Post Office

34th ST ---29th ST street obsevation

Middle of Manhattan

1.42st Station   2.Penn Station   2.Penn Station   3.Grand Central   4.Post Office
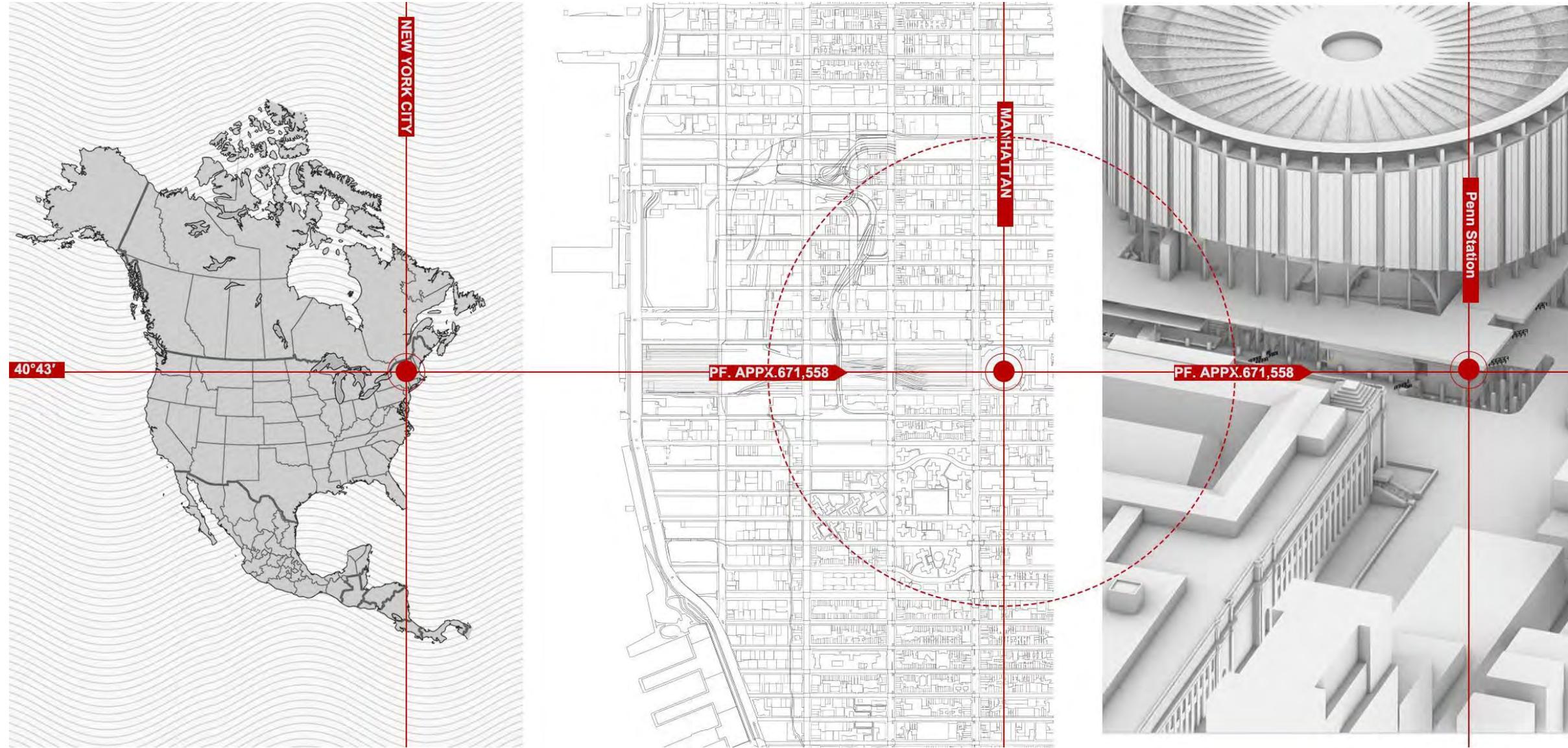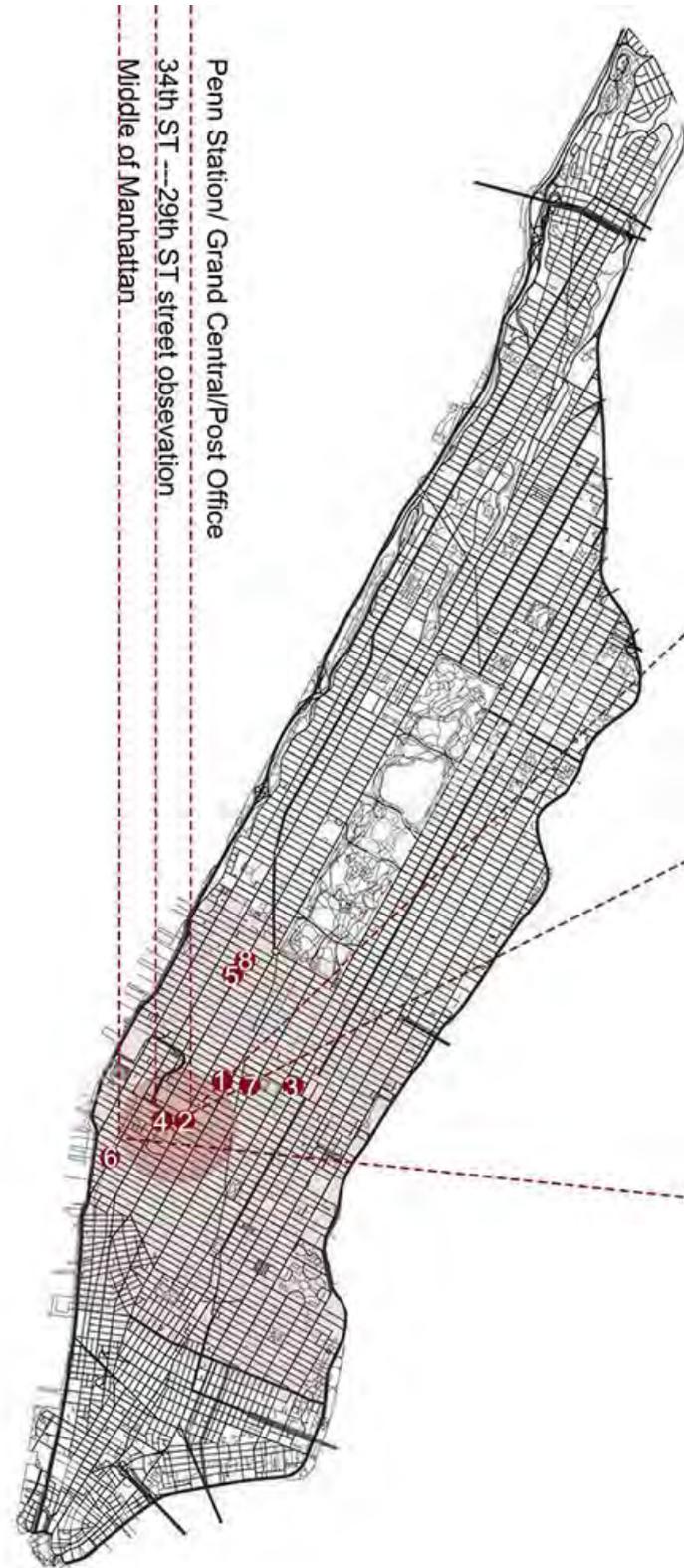
light qualities in Penn Station / subway station/ MDS square / Grand Central/ Post Office
---the way of light comes into the interior space and the shape of the opening

facade,structure and interior space design of Penn station and Grand Central
---programs, space qualities compared with the internal complex procedures, it uses strategic subtraction
and reconfigures the facilitate spatial and lighting quality to deal with the realities.

5.FWC Shelter   6.Highline   6.Highline   7.Timesquare   8.53th ST

public space and shelters, homelessness on the street
---programs, the way to gather people, exploring in larger urban scale, it aims to aggregate gaps with
different properties to produce new effects in voids and be redirected.

Manhattan Discovered

Urban Urgency Mapping

Rail Line
Subway Lines
Building Footprints
Roadbed
Homeless Observed / Station (High >3)
Homeless Observed / Station (Normal 1-3)
Homeless Observed / Station (Low <1)
Unsheltered Homelessness &
Have been Engaged by Street Outreach (2020-2022)
DHS Shelter - Single Men (SM)
DHS Shelter - Single Women (SW)
DHS Shelter - Families with Children (FWC)
DHS Shelter - Adults Families (FA)
DHS Shelter - Other (LGBT, Elder, etc.) (OT)
Individuals and Families that Utilize DHS Shelters
Public School - Elementary school (E)
Public School - Middle School (M)
Public School - High School (H)
Student Number
Low-Income Homeless Percent
Homeless Students Percent
Suspension Rate
0.5 miles from FWC Shelters
FWC Shelters to E School
FWC Shelters to M School
FWC Shelters to H School
5 minutes Walk to Food Pantry / Soup Kitchen

Urban Urgency Mapping in Details

Urban Imagery

TYPE #A

TYPE #B

Diagram of Recover the Old Peen Station Elements
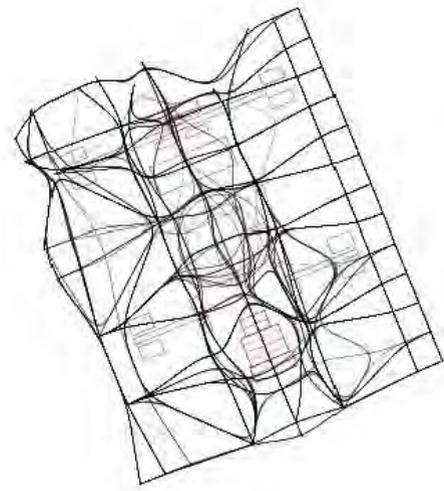
ACCESS
TENSION
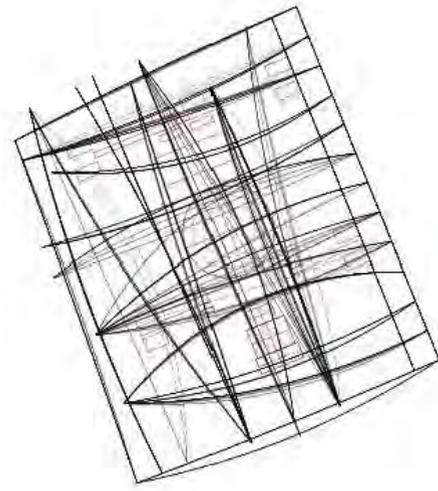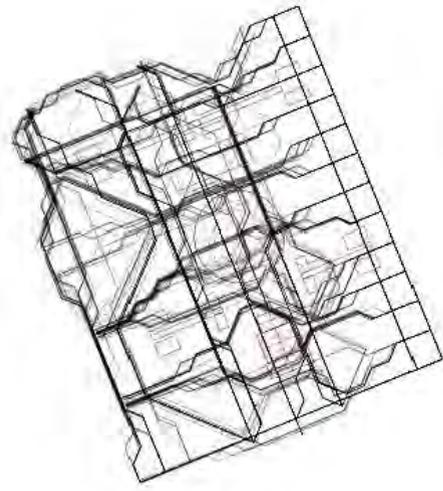
LANDSCAPE V.S
GROUND V.S
UNDERGROUND

COMBINAT
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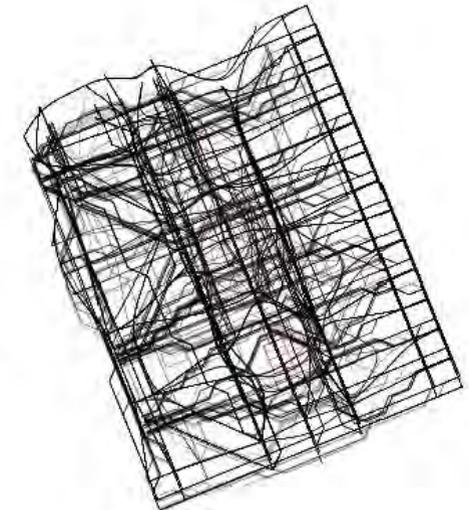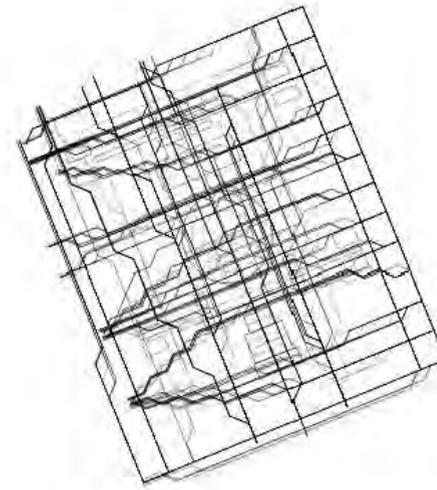
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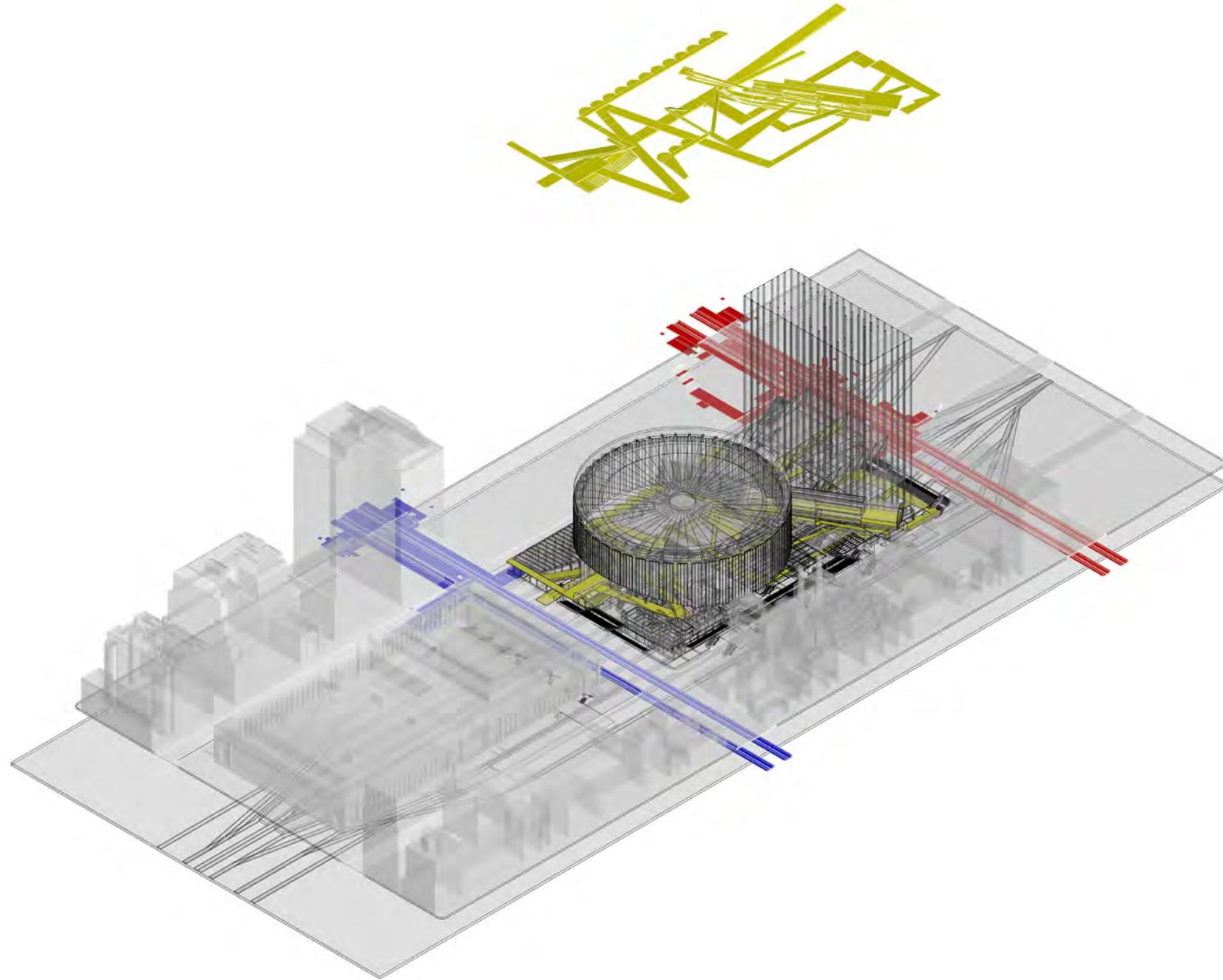
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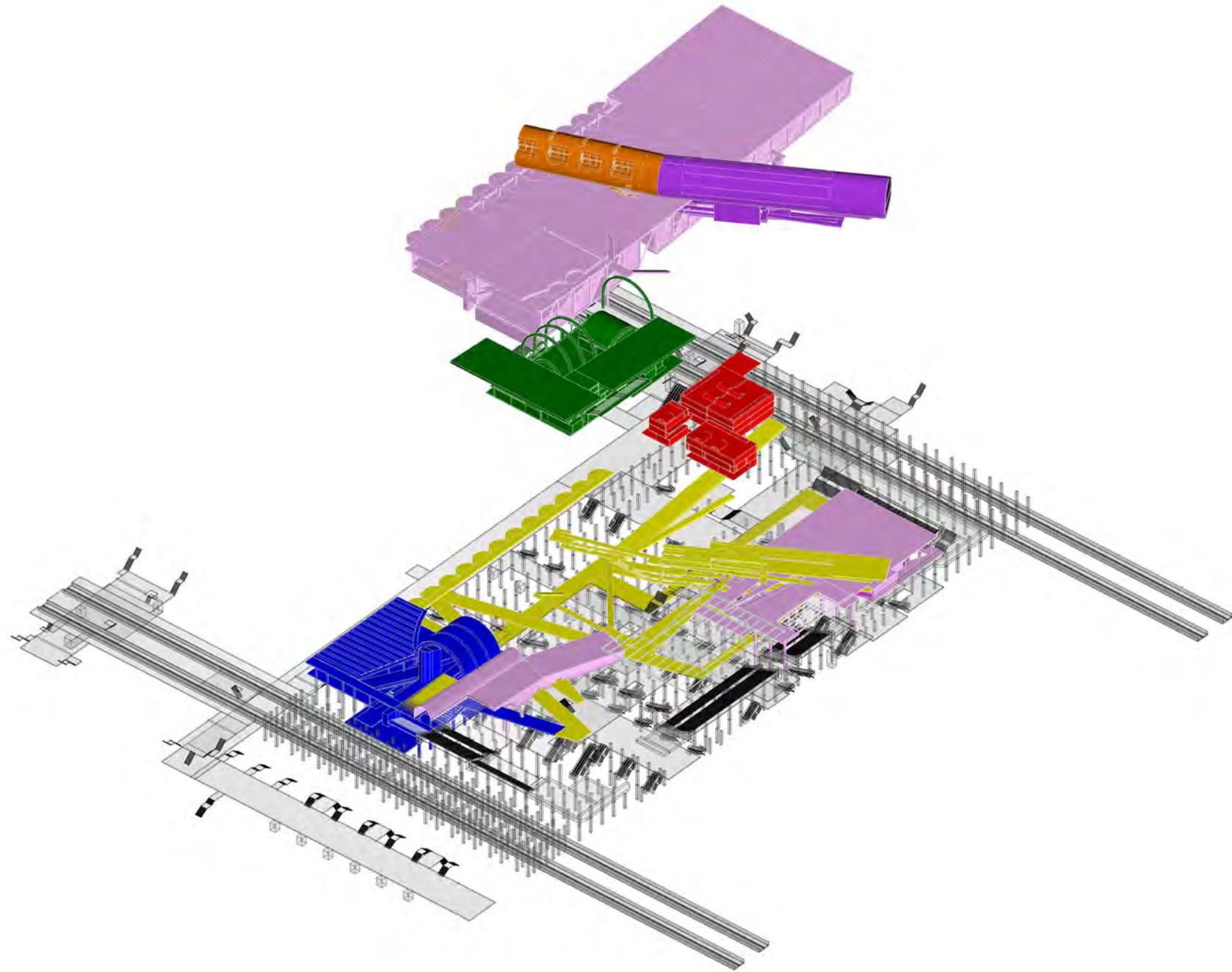
Program Diagram
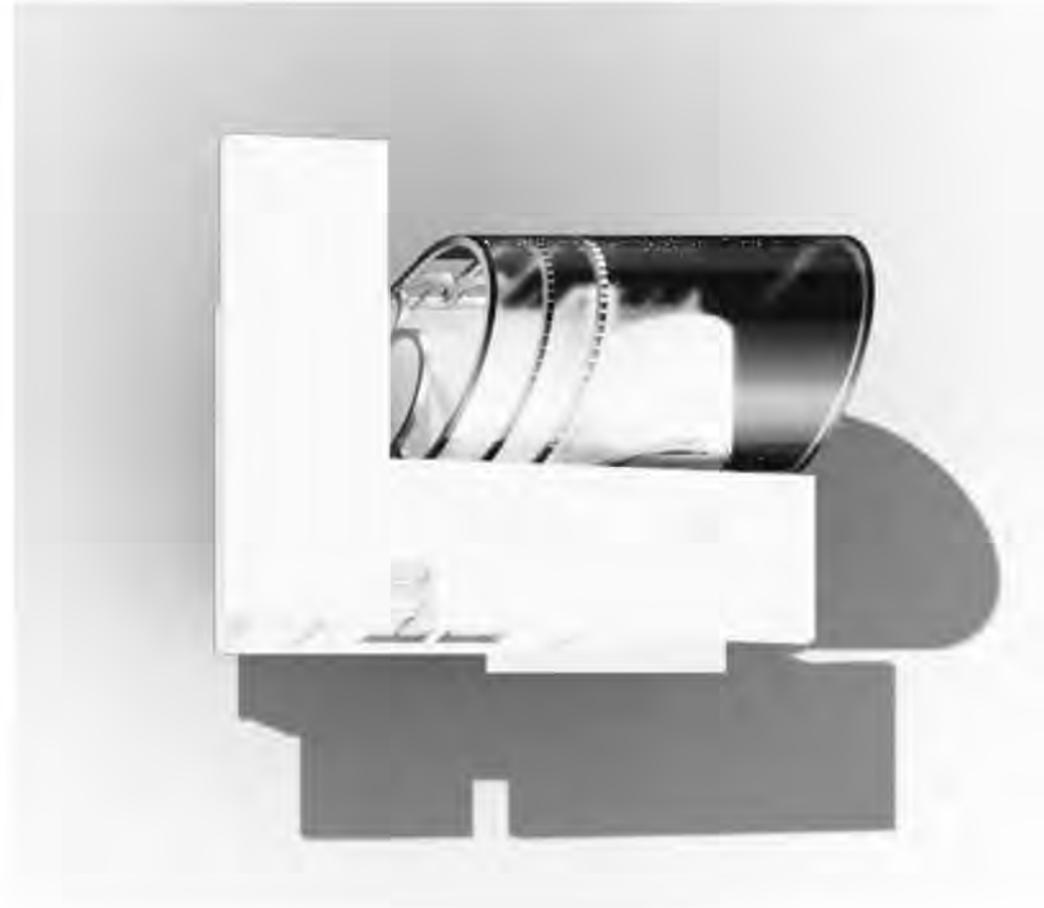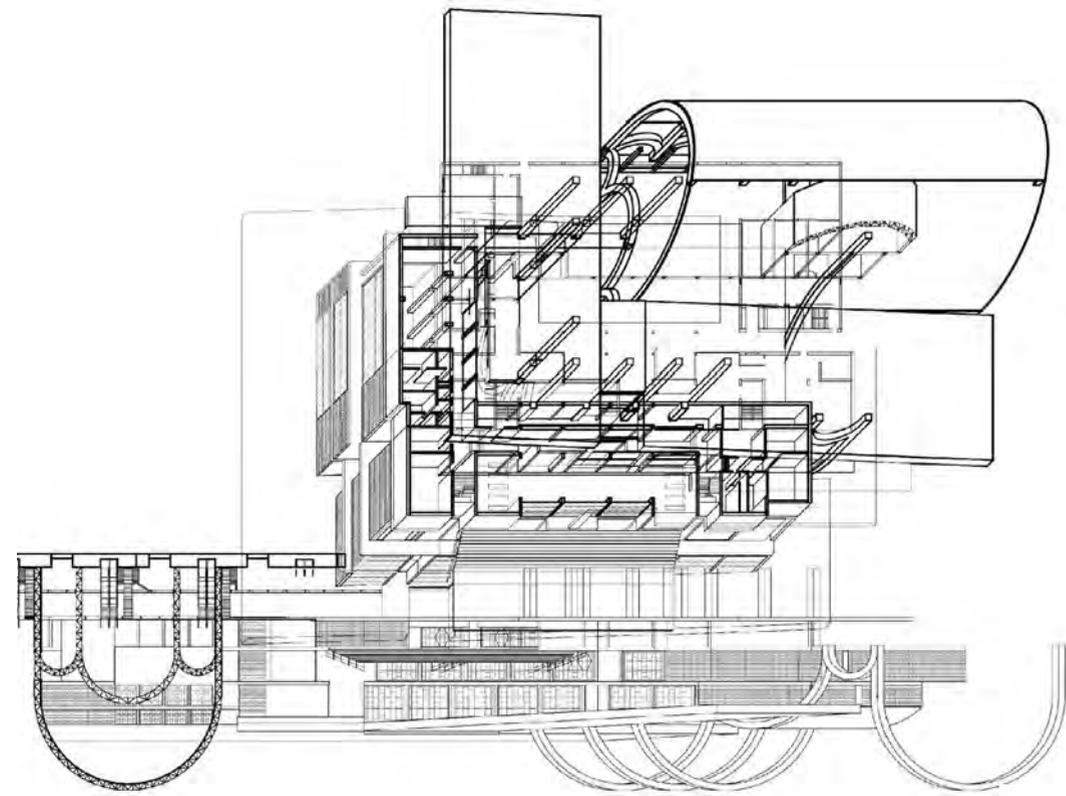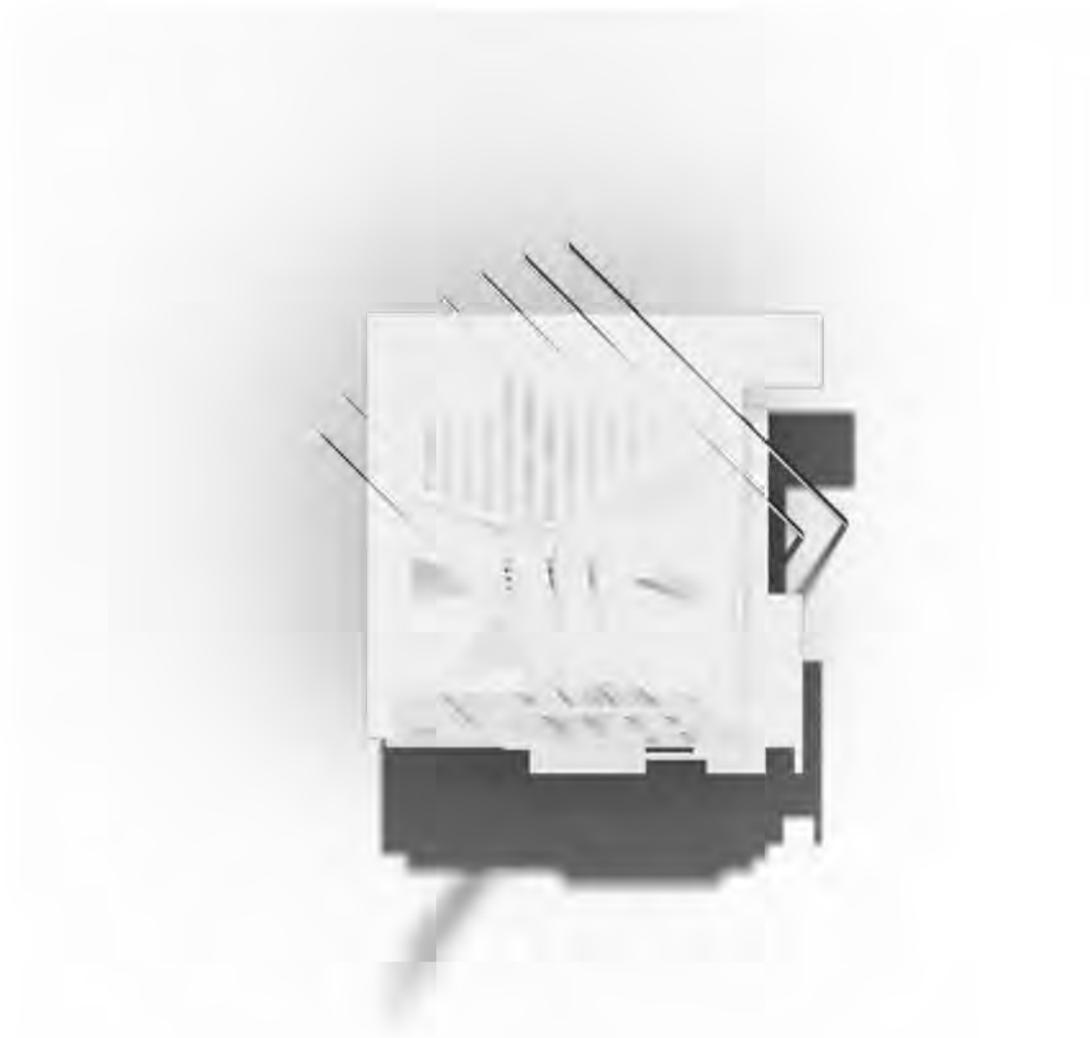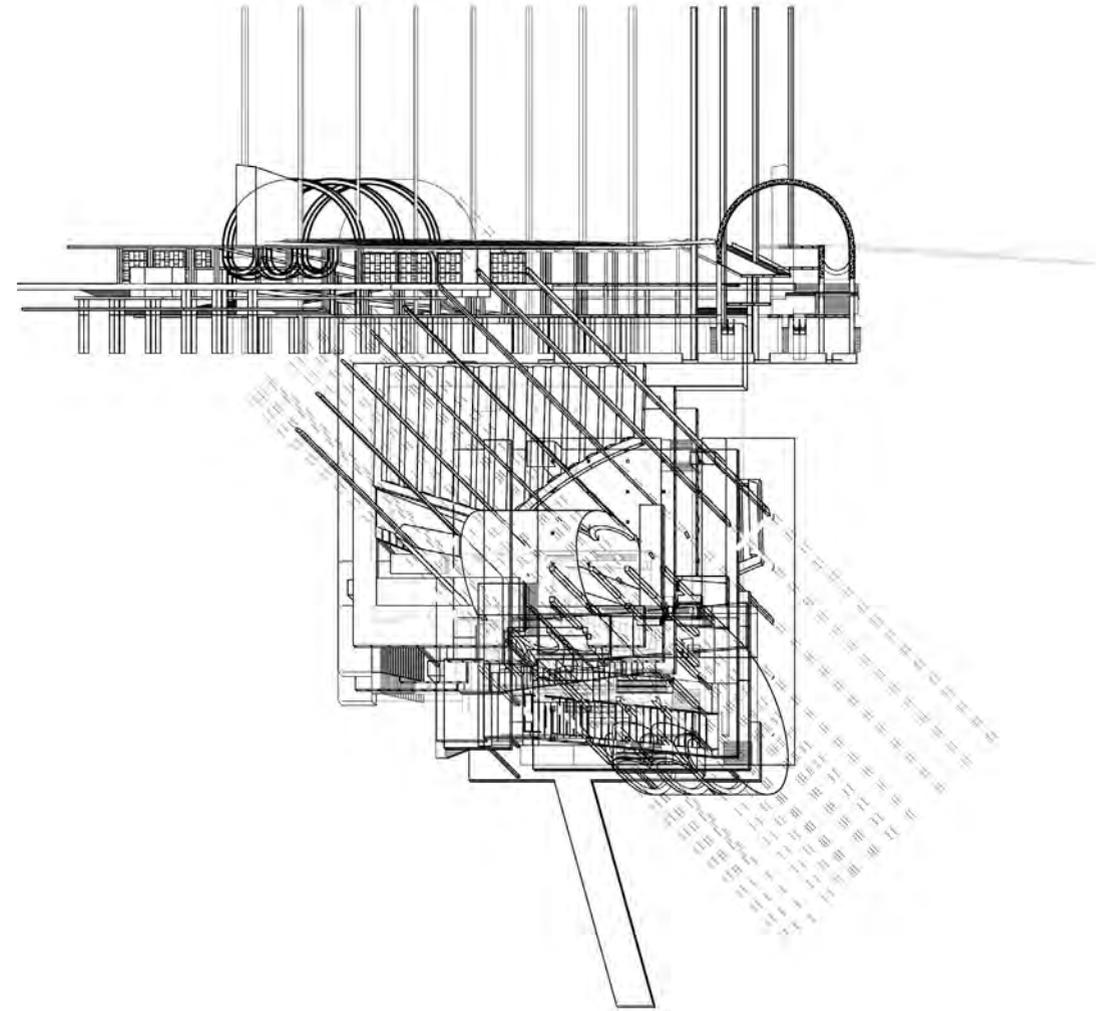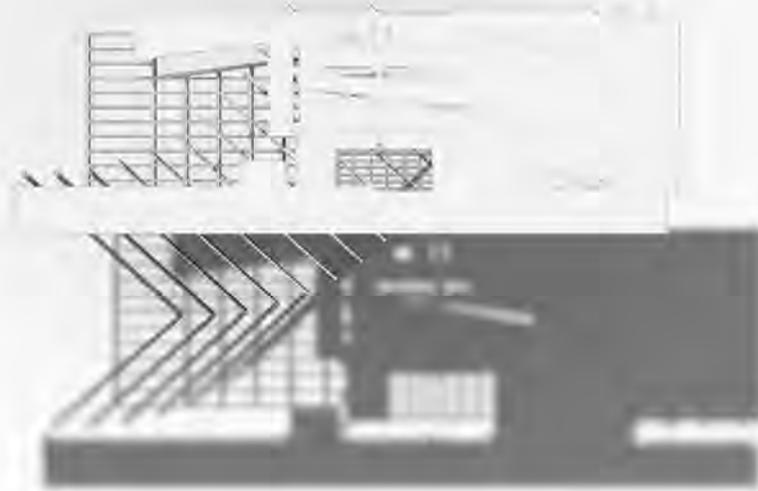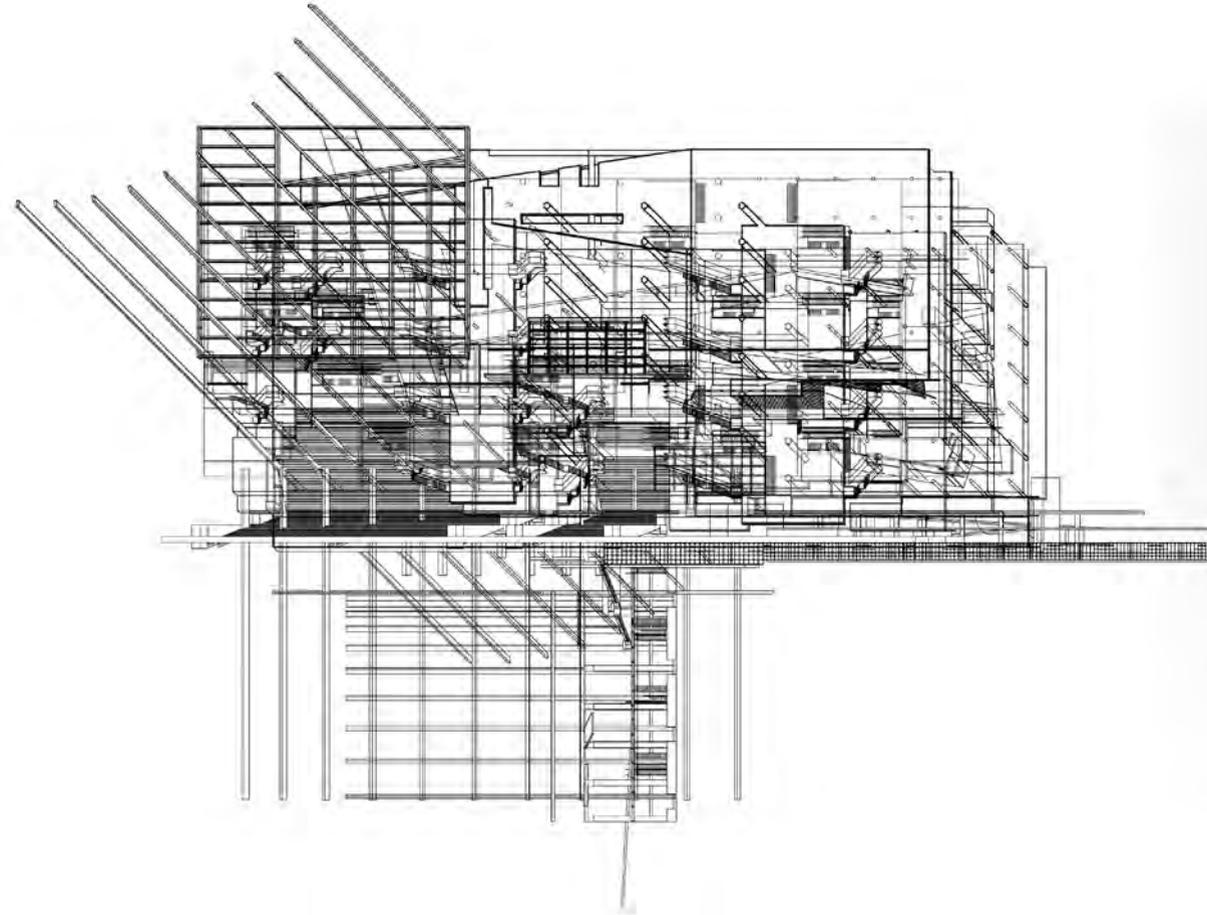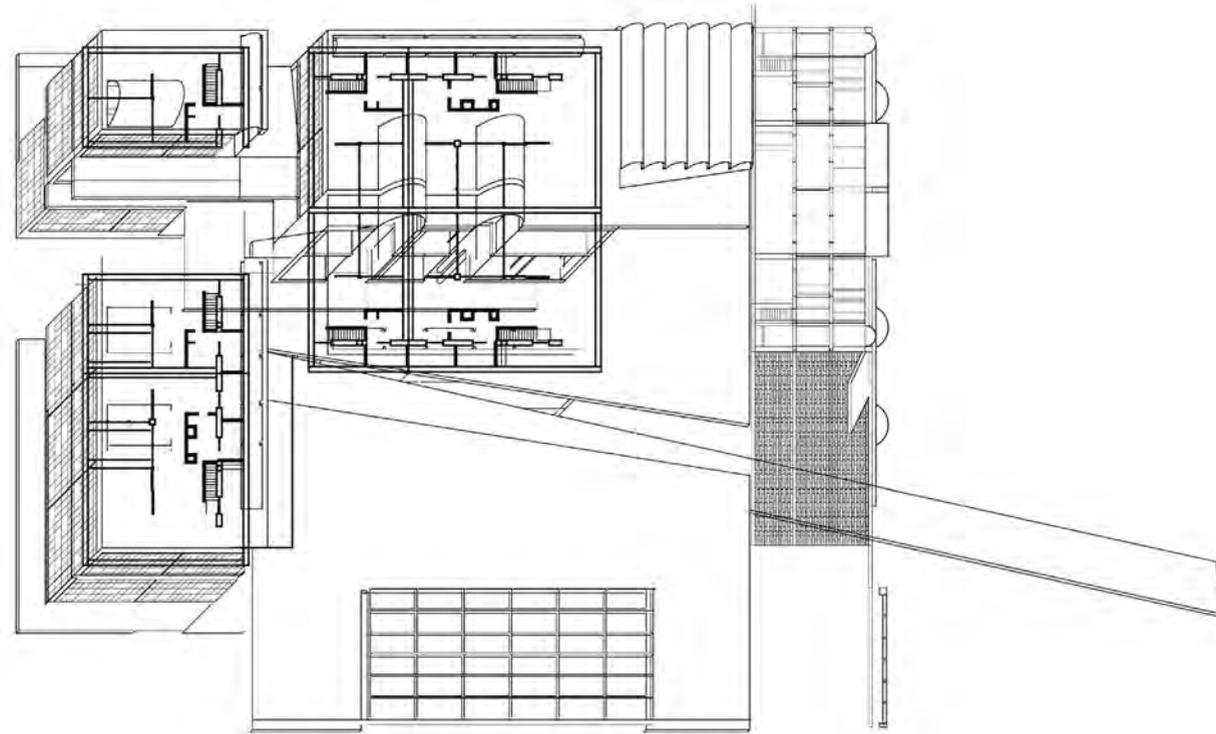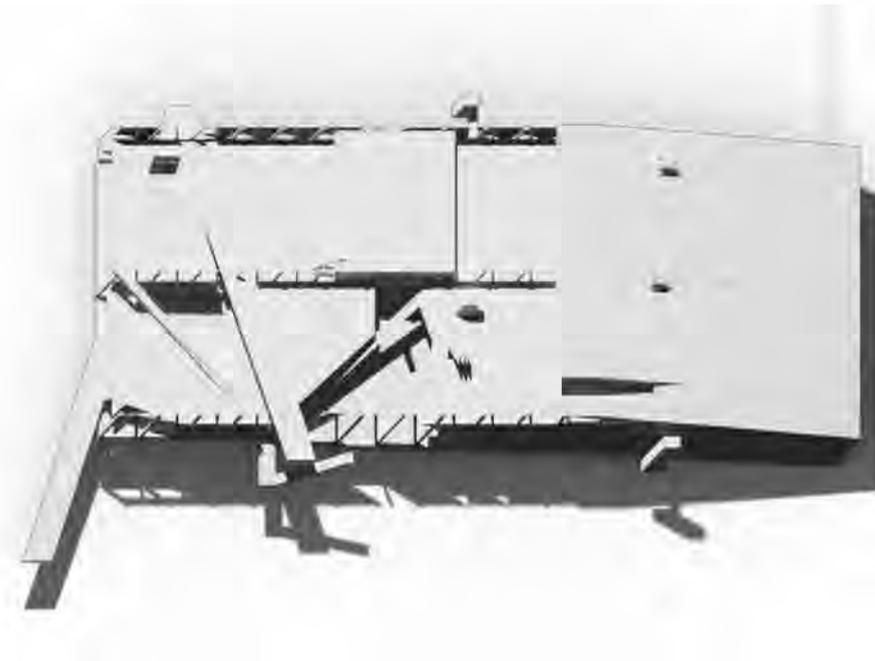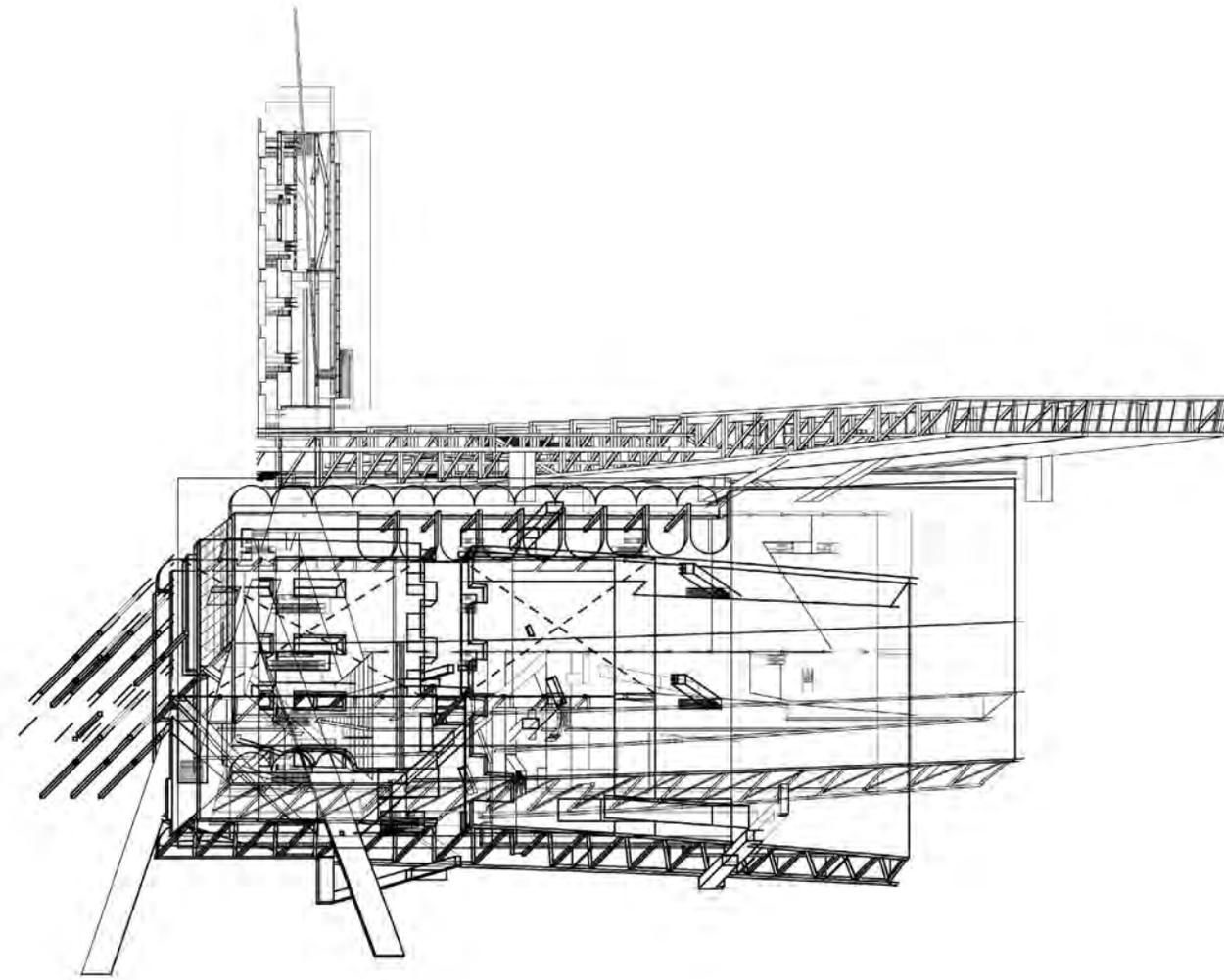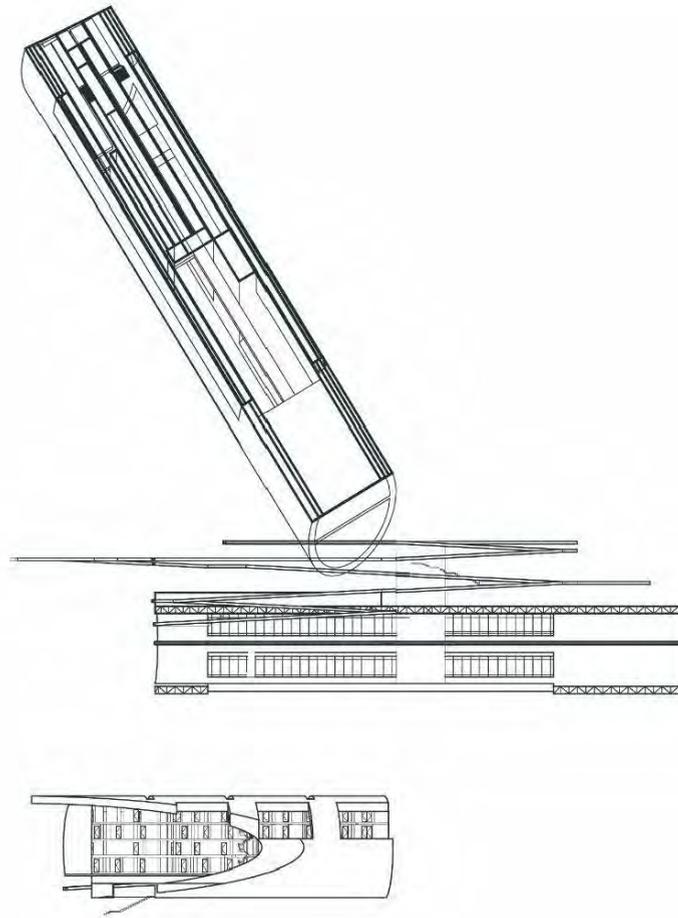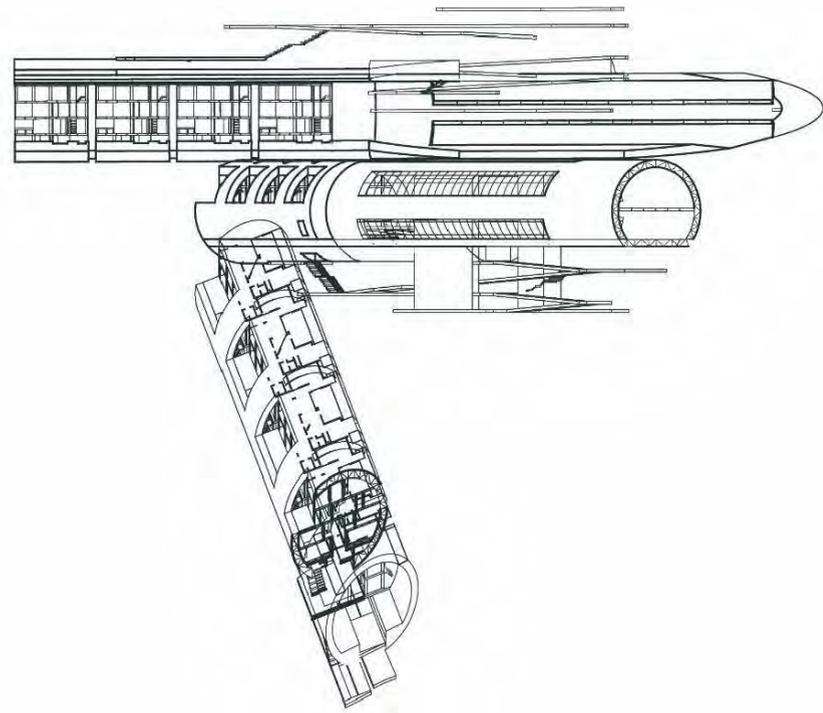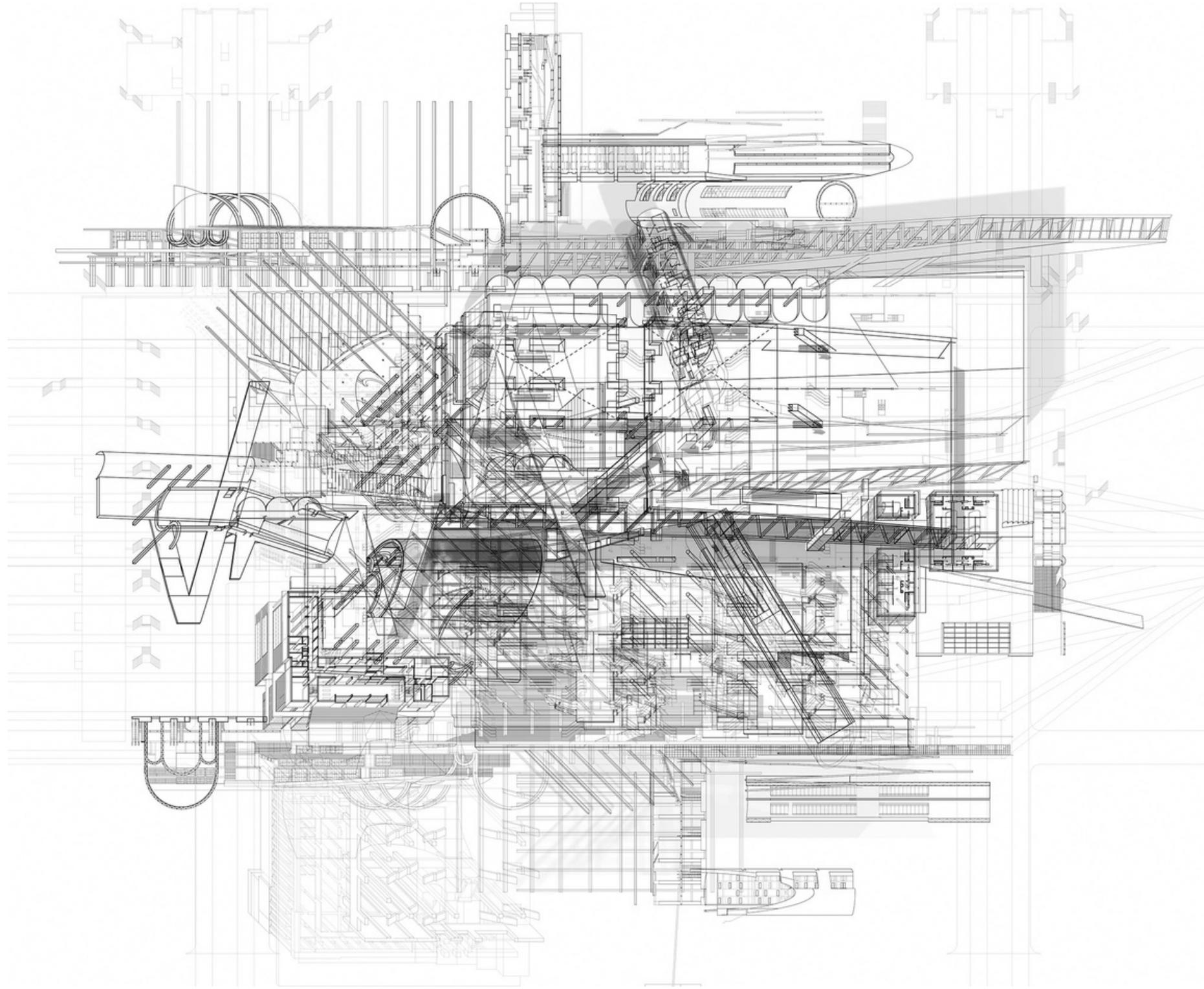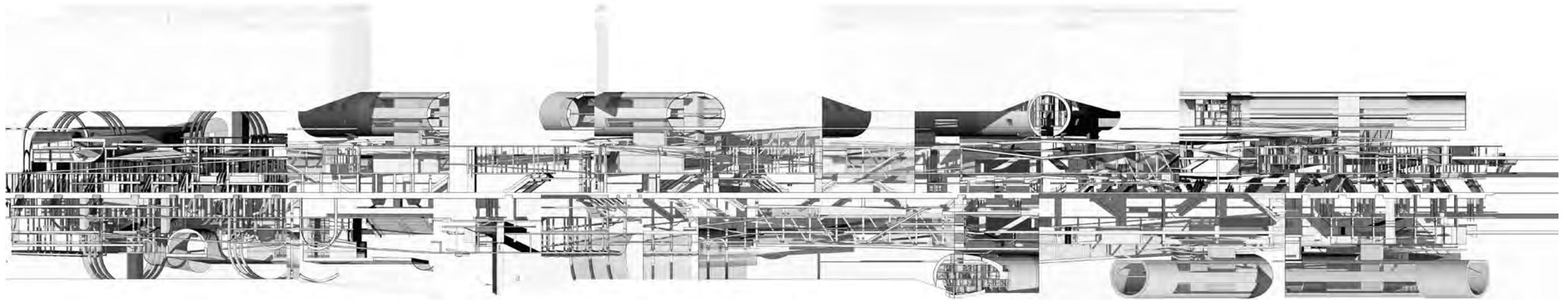
Master Drawing

Master Section Drawing

09 The History of Architectural Theory

Dr. Mark Wigley (Instructor)
Fall 2022

Adapting Buildings

After World War II, in the middle and late 20th centuries, people realized that the war's end was the beginning of a new era. The city was destroyed and then needed to be rebuilt quickly. It is a turning point that architects are facing a spiritual adventure, and the construction industry is quietly ushering in a revolution. The arrogant capitalism could not be expected to carry out Cold War with the rising red Marxist communism for half a century; The orthogonal system, regarded as common sense in architecture, did not realize its foundation would be challenged.

In 1963, Claude Parent and Paul Virilio founded the Architecture Principle Group at this critical moment. Because their ideas were unpopular in European society and public opinion then, they used most of the remuneration they received for the design of the Church of Sainte-Bernadette du Banlay in Nevers for the self-publication of the theory they had been studying since 1963.

Here it is the ideal of Claude Parent and Paul Virilio's architectural idea, which was oblique architecture. It was all ramps, no flatness. "Oblique", here means non-horizontal architecture on a slant. There is no orthogonality, no right angle, and nothing on a flat or a vertical surface. But, human activities on these inclined planes.

However, the nine issues of Architecture Principe in five years without organizing and presenting their thoughts in a linear, structured, and systematic way; On the contrary, this is criticized by some people as a partial, intense, and disorderly utopia. Although their relationship ended suddenly in 1968, Parent and Virilio recognized the importance of each other in the theory construction from the beginning. In 1970, Claude Parent released Vivre à l'oblique separately. Two thousand one hundred copies of the first edition were printed. Hundred of these are also beautifully signed by Parent for Brigitte Benderitter on Lana Royal vellum. Although it is a publication exclusively signed by Claude Parent, the first paragraph confirms that the ideas reflected in it come from two people. This book integrates a huge amount of drawings and ideas in the Architecture Principle to a large extent. In Vivre à oblique, Parent has collected a series of ideas he worked out with Virilio a few years ago in a more orderly and systematic way; The banner that the Architecture Principle failed to set up in the past is hammered with a unique formula through its ambition, its declaration tone, and its internal strength. It combines graphic representation with different variants in an unprecedented way to re-show the oblique function mapping in front of people.

The first thing that needs to clarify is that we only analyze and understand the

central idea of the oblique function proposed in the book, and use the overview of Parent in the book to explain the cause and process of the oblique theorem formulated by him and Virilio. Parent explicitly placed the paper in the field of architecture itself, and most of the content in the book was mentioned in the Architecture Principle magazine in a very unordered and vague way. Therefore, this book is the first attempt to systematize the oblique function.

Before discussing the theory, it is necessary to clarify several essential points and origins that Claude Parent has an apparent attitude toward establishing the theory. The distinction between public and private is the beginning of everything. In other words, space needs to be partitioned. Parent believes that the origin of architecture lies in the delimitation of private space. The private space here is understood to protect the human living space from the invasion of nature and demarcate its part physically. At this point, a concept of entry and exit around this unique space was born. In the eyes of Parent, it is irreversibly divided into two parts in the orthogonal system, with absolutely opposite characteristics.

Secondly, it is not difficult to understand the concept of a fence, which is the physical materialization of the line separating the outside from the inside, and the outside from itself. It must be recognized that its construction becomes the first action to occupy space, which is also an action before using and manipulating the existing space. Boundaries and fences are generated after humans draw lines to separate them from the outside and establish relationships with the surrounding space based on their physical needs for protection.

In the established mode of Cartesian orthogonality and daily reality at that time, it was common sense to build walls to maintain the relationship of vertical intersection with the ground. But the space C formed by it constitutes an obstacle in the initial free path from point A to point B. The route of the direct loop drawing a straight line from A to B is interrupted by the insertion of fence C. Private space C must be bypassed

to go from A to B. In other words, there are obstacles to the fact that space C is set as private (Fig. 1). The construction of living houses with vertical intersection systems in the open area is bound to produce many such walls and pose as many obstacles to this initial free space. This kind of space configuration divides two completely different spaces: "dwelling" and "circulation". This system of separation of circulation and dwelling is the second problem that Parent thinks needs to be solved in the horizontal structure.

This horizontal spatial structure was the basis the city had always respected at that time, but in the 20th century, two factors significantly increased the scale problem. The first is that the migration to cities has displaced thousands of people. Due to post-war factors, a relatively flexible orthogonal structure will become a hardened, crowded collective with no development opportunities in just a few months. The second factor is that The rise of the automobile requires a complete redesign of urban traffic and accommodation space.

"Les villes horizontales étouffent par distension de leur structure hors des limites convenables , les villes verticales périssent par désintégration de la trame urbaine." The horizontal spatial structure could not support the new dense population growth structure of the metropolis at that time, and the floor area formed was in direct proportion to the concentration of vertical housing and could not solve the problems related to the complexity of circulation. The tower lost contact with the ground, forming a dead end at the height, and the space between the housing interrupted human contact and activities.

Therefore, Parent categorically confirmed that it was wrong for Le Corbusier to prove that the land consumption of high-rise buildings was less in the sketch. The principle of vertical concentration of cities supported by Le Corbusier will only aggravate urban problems, especially urban hardening. He insisted that vertical concentration did not reduce the land invested because it only invested differently.

space without control is not suitable for community space but devours residential space.

The architecture has been introducing continuous changes and possibilities on the exterior wall and roof plane, which has remained the original dichotomy between living and circulation. However, at that time, it was never seen that experiments were conducted on the "ground" that constituted space similarly. Except for a few exceptions pointed out by Parent and Virilio in the Architecture Principle, the horizontal plane of the ground was never explored in architectural history at that time. They listed a series of structures, which they defined as "oblique functional archaeology". They come from different fields: models of mountains and rivers naturally formed by nature, traditional civil engineering of dams and slope crops, and more.

It is obvious that the private space concept is the oblique function's entry point. The plan, that is, the floor plan, is the starting point of their proposal to take action to solve the problem of separation between residences and circulation in the city. "la seule structure d'investissement spatial en dehors de l ' horizontal caduque et de son corollaire abstrait et hérétique la verticale , est la structure oblique." Here begins Claude Parent's assertion and statement: in addition to the outdated horizontal lines and their abstract and heretical inference vertical lines, the only spatial investment structure is the oblique structure. This is the only structure left to conquer three-dimensional space.

For Parent, a loop is a moving and diffusing motion. Through this theory, he tries to create a new space occupation based on the body's experience in motion to allow the body to flow in circulation. Therefore, it is part of the conceptualization that seeks to support the individualization process. This space structure will completely change the population fixed in the territory and eliminate the boundary between circulation space and living space that has yet to be crossed. Circulation and dwelling are no longer independent and opposite structures but are integrated into an indivisible whole for the

first time.

Claude Parent's research does not involve the city's unique architecture but mainly focuses on the basic structure of the city, housing. They focus on a medium scale representing multiple housing groups and then extrapolate the results to the changes in urban scale and interior space of living. In his book Vivre à l'oblique, he provided detailed textual explanations. He also graphically demonstrated the possibility of using this unique space and the advantages and changes brought about by the precise application of the two fundamental principles derived from its oblique theorem: habitable movement and walkable closure.

The goal is to enable the house's enclosure to pass through the entire exterior wall. The same fundamental plane has dual functions of delimiting internal private rooms and supporting external public transport, and a single element integrates circulation and dwelling. This is a problem to change the spatial structure fundamentally and a revolution to find a new relationship between living and circulation. Change the way humans occupy space, thus determining their behavior. This proposal covers all scales of human habitat and stipulates the guiding principles guiding the formal development of each scale. It is always the same initial idea: to truly and practically replace the rigid Cartesian model, horizontal and vertical, and to adopt a new model dominated by oblique in the configuration of the environment we build.

It is worth noting that Claude Parent pointed out in his book that the function of the oblique acts as a starting assumption. It requires the science of futurology and absorbs the scientific process of hypothesis, experiment, and application; It uses a purely intuitive method as a prediction method, which does not limit anyone so that people can experiment at the theoretical level.

In order to eliminate horizontal and vertical destructive structures, Parent mentioned that people need to give up the basic logic of space division and enter the field of assumptions with the oblique

function as a starting assumption. From the fundamental point of view of space mechanics, the oblique structure has enough potential to support it. As can be seen from the drawings provided in the book, the first principle of oblique function is to overcome obstacles; There is no obstacle on the route from point A to point B because the initially inclined obstacle C becomes climbing. At the same time, there is no obstacle to the fact that space C is private (Fig. 2). In addition, the oblique structure integrates the mobile system into the dwelling instead of separating them because the public circulation becomes an integral part of the residential structure. It can be seen that the circulation is associated with the living space and is no longer separated as in the horizontal structure. Parent said that the second primer principle of oblique function is integrating circulation into residential space. Parent also emphasized that urban development and living space are treated equally at the structural level. This assumption is before taking into account the consequences implied by the oblique structure at the residential space level within the residential volume. To this end, the container and its contents are an indivisible whole; inside and outside are supports and elements. Therefore, the two abovementioned principles will be absolutely respected in private spaces. It is not difficult to imagine that the continuous sequence of these inclined planes will constitute a plane attached to human physics and space.

So far, the oblique function assumes a starting assumption: people will live on the slope; The argument for oblique can finally begin. Oblique means that its relationship with space and people's understanding of space will fundamentally change. Claude Parent's intention to oblique goes beyond the formalistic approach, not just to feel disoriented when encountering space. This theory's motivation is to influence how the body moves in space (Fig. 3).

From the perspective of physical mechanics, it is easy to understand that the slope changes the weight into "energy potential", making the downward slope

become "positive potential" (Fig. 6), a place of acceleration and euphoria, while the upward slope becomes "negative potential" (Fig. 5), a space of restraint, effort, and fatigue because gravity always follows us. Our bodies will feel different depending on the slope and our walking direction. Similarly, even on the inclined surface, people can feel and express their weight on the slope, and they must mechanically adjust their standing fulcrum and muscles to maintain their balance. Therefore, when moving on the oblique, this sense of immobility of the body becomes stronger. Each movement is accompanied by a feeling that horizontal displacement is bland and neutral.

The weight becomes an internal motor within the framework of the oblique structure, which is neutral to the static station and motion in the horizontal structure. As a restriction, the uphill and downhill will trigger acceleration; There is a permanent energy exchange between the human body and its support.

As we lean, our bodies intervene by becoming more aware of gravity. People who live on the oblique will not think the same way, nor will they make the same decisions, whether they are going up or down. The existence of slopes in human life will play a role in their choices and, thus, in their lives. Both mentally and physically, oblique can destabilize. Living on the oblique means we must adjust and change our morality, way of thinking, and way of looking at the world. As people have been accustomed to living in vertical and horizontal order, it is expected that the oblique is difficult to find its position. This also leads to another thinking about spatial distribution in design.

This oblique structure means that the usual way of designing space, the concept of threshold, and even objects will be reconsidered; downhill space, rising space, extruding space, or space between becoming components that can be imagined and created new space. The essence of the oblique leads to new possibilities and combinations (Fig. 4). Parent and Virilio understand the necessity and urgency of

activating and promoting human beings to avoid stagnation in physiology and psychology. The environment in which a person lives no longer conforms to the reality that he must live. The primary mission of the oblique function is to transform the concept of continuous imbalance or unstable balance into architecture by promoting inclined planes in the dwelling area.

Descartes' concept of space provides the sense of security and control human beings need. However, this static and unchanging position has gradually degenerated into adaptation and numb neutrality, which has delayed the development level of architectural space relative to other human activities. The oblique function proposed a new effort framework that will awaken people from a comfortable physical and mental slumber. As Parent said, a new "space-adventure" will replace the exhausted orthogonal space, presenting each step as a new challenge, a new possibility, and a new unknown for humankind.

The concept of adventure space, like a space generated from an inclined plane, creates a new image. The building is understood as a bottom-supporting structure, giving up the ideal of neutrality. Because of its uniqueness, it has generated a flexible accumulation of activities and tensions and obtained its instantaneous, constantly changing, and dynamic final configuration at every moment. On the one hand, compared with orthogonal, oblique comes into people's vision first, producing different spatial vision; On the other hand, because people's feet become terrain sensors, the relationship between space and body and people's physiological understanding of space is changed. Parent said that after introducing a new structure, we would enter the psychological world with all psychological and physiological interference complexities.

Using inclined surfaces instead of horizontal supports forces us to reconsider the two factors that still exist in the context of physical and mental perception of the environment: motor skills and adhesion to

the ground. Vision has been in a dominant position compared with other perceptual mechanisms. The potential energy of gravity generated by the inclined plane in the human body can be controlled, guided, and utilized from the specific characteristics of foot contact with the ground. An oblique environment has substantially changed human beings' physiological and psychological states. The line of sight must give way to a portion of its projection for touch.

During the years of Claude Parent and Paul Virilio's Architecture Principle activities, although they tried to display and spread their ideas across the times in numerous conferences, exhibitions, and activities held frequently throughout Europe, they only received four architectural commissions in a strict sense. To make matters worse, none of the four projects involved urban space planning and the allocation of collective housing. These issues are the fundamental focus of the team's theoretical thinking. Nevertheless, perhaps it is gratifying to see that they put into practice what Parent and Virilio called "the oblique function" from the Saint Bernardette church and the 1970 Venice Biennale.

Over the years, he began to use the language of oblique: he designed buildings characterized by sloping surfaces, which introduced the concepts of motion and imbalance in architecture and changed the perception and space traditionally determined by horizontal surfaces. The church criticized the verticality of Gothic-style high-rise buildings and the levelness of traditional buildings, which are two dominant architectural systems. At its height, the floor interacts with the moving human body rather than being kept under his feet. The inclined plane attracts our attention differently from the plane. Since the tactility of the slope keeps the strength of the feet and knees stable, the advantage of the eyes is related to the reduced world's information, and gravity is overcome.

People's sensory perception is replaced by their habitual economic concern for vision and expanded in their rough and

compact physical contact with concrete. Parent clearly stated that they reintroduced oblique function into their vocabulary rather than introducing this original function in architectural practice. However, there is no doubt that the oblique function will be sublimated after its preparation. Parent and Virilio's theory is no longer about the self-renewal of society or the adaptation of architecture to human beings; on the contrary, people adapt to architecture and recognize its variation.

Another architectural practice Claude Parent talked about in his book was the 1970 Venice Biennale. After several art critics withdrew, this was the first time that, unexpectedly, Parent was appointed the director of the 35th Biennial Exhibition in Venice, France. He has redesigned a natural environment, an almost mythical place where art and architecture are integrated.

Visitors must explore this dynamic new space by moving and climbing on the inclined plane. The purpose of space without an orthogonal system is to create the angle of body movement in challenging body movement. Forcing the users to explore the feeling of different sizes of gravity on their bodies, whether it is the effort of climbing, the pleasure of going downhill, or even the search for a stationary fulcrum. In these spaces, people can no longer identify typical architectural elements because these spaces become distorted due to the application of the idea of oblique. The new concept of living function was forced to be developed, and informal social interaction began to appear in the unfamiliar space.

Like people sitting together in public places and people walking by, they appeared on the oblique surface simultaneously, which also challenged the background and moral boundaries of the French capitalist society at that time. Although this was limited to the installation of ramps in the French exhibition of Parent at the Venice Biennale, it proved that their ideas about how to influence body movements were both physically and socially practical. Parent and Virilio successfully expressed their ideas on the role of oblique in architecture

through some of their architectural works, making it a practical concept rather than just a formless theory.

So far, we can make a simple summary. According to Claude Parent's Vivre à l'oblique, the oblique structure has the following advantages: oblique spaces and continuous spaces, where even easily accessible roofs are free of obstacles; the space dedicated to circulation is an integral part of residence; there is a permanent energy exchange between the body and space living in an oblique building and a unique experience.

On the scale of the city, living on the oblique means that the city will be built on an inclined plane, and the natural site must always be respected and used. Once again, in the book, Parent believes that urban development and dwelling space are treated equally at the level of the oblique structure. The oblique function has spatial continuity, characterized by creating continuity, permeability, and connection. The absolute goal of the oblique function is to connect space with people; also, the discontinuity in our city is due to the separation of transportation and housing. There needs to be more connection and continuity between public and private spaces. This means that there is a clear distinction between the two categories. This separation is rooted in our culture and the way we operate. The oblique function suggests linking the liquidity of circulation with the static state of private space and integrating them. Therefore, the concept of the "inhabited cycle" was born. From a social perspective, living on the oblique makes it possible to rediscover neighborhood connections through stratification, which also makes it possible to cancel the issue of co-ownership. At the same time, the city's appearance becomes infrastructure and circulation space, and the city will shrink. The structure realizes pedestrians' mobility and ensures the city's dredging (Fig. 7).

The orthogonal result is population dispersion, and the inclined result is population aggregation. People on the horizontal plane tend to be scattered there

to keep a proper distance between them so that one does not want to be disturbed or disturbed. The horizontal plane will not interact just because of its existence, and the willingness of people to interact with each other is necessary. Creating a slope on a particular plane will create a public rest area in a passing area and encourage people to sit down. It is the form of a new place on the oblique that will lead to the natural gathering of people. Here, we see the establishment of a natural community. We can never forget orthogonal, which is also what Claude Parent questioned. He explained in the book that orthogonal is also the root of division. A simple vertical wall divides people into two groups. As shown in the figure, verticality connects people with distant scenery. It is infinite and does not allow communication between residents on different floors, and they find themselves isolated from themselves. The use of a reverse oblique structure allows for the creation of visual communication.

Claude Parent's proposal of the oblique function was undoubtedly an innovation and revolution in theory at that time. This oblique hypothesis is beautiful on many scales and answers the problems in orthogonal structure cities. However, the actual effect of this hypothesis is also obviously questionable, and we cannot see the effect of proving the habitability of inclined surfaces and urban scale. In Parent practice, it is the most straightforward application in mobile areas. From the moment a person moves, the oblique will not interfere with it, nor will it become a problem for people to use it (except for facing accessibility rules). However, the oblique setting will be limited in the case of static posture.

Compare the relationship between the oblique function and the ground with the urban planning of the floor slab. These two systems respond to quite similar problems; they let pedestrians return to the living space on the ground, use the bottom of the floor slab as a residential function, let motor vehicles disappear when inclined, and hide them when flat. However, as far as the flat plane is concerned, these problems have yet

to be solved, and even new problems will arise. The floor solution may be too simple. It insists on fixing the solution to the problem without thinking in advance and does not try to get rid of the traditional space solution. The floor is still covered. It has a separation function, but it will cause the problem of unusable or almost unusable remaining space. Because the floor system only reflects the vertical structure of the building, it is more realistic.

Therefore, the study of oblique function brings us its unrealism, but its utopia inspires and inspires architectural research. It always exists in nature but is challenging to use in architecture. Parent and Virilio proposed modifying architectural space, a variable and complex parameter. In the 1960s, due to the environment and technology, they did not even have appropriate means of expression. On the other hand, this may be because our culture and habits still need to be integrated into our practice.

However, it should be noted that in his book, Parent pointed out that this assumption could not solve all problems; The oblique function requires the science of futurology and the scientific process of hypothesis, experiment, and application. In theory, it only assumes a starting assumption that a person's life in his residence will be carried out on the oblique. Parent intuitively confirmed the limitations of what he called the classic slope succession plan. Since its formulation, the oblique function has been aware of its difficulties, even on its behalf. Nevertheless, this will not change Claude Parent and Paul Virilio, who was the first person to define the oblique in the field of architecture and realized that the potential of the slope is a social power. Its role is not just a circulation or transportation device; it changes the potential of space and how we live and interact.

The conventional orientation of architecture in "right" angles, the space that is effectively accessible to the body that is shaped by the horizontal and the vertical planes was far more limited than this situation. This Claude Parent and

Paul Virilio's oblique idea opened a new conversation in traditional architecture, every architectural surface was a circulation space, and people could move through it, walk up the walls, over the roofs, and even have rest. It is at this point, that disorientation happens, the circulation functions get lost, and the walls and floors need to be redefined because of the oblique. This idea creates the image of a new sociality that emerges from architecture lived on the oblique.

1. Architect and theoretician of architecture, Claude Parent (1923-2016), in the sixties, systematized an unprecedented approach to architecture: the "oblique function" with the philosopher Paul Virilio (1932-2018).

2 . The oblique function and how their magazine was founded would be elaborated by themselves in the thread running throughout the nine issues of their magazine Architecture Principe, which were published between February and December 1966.

3 . CLAUDE PARENT, VIVRE À L'OBLIQUE (Paris: L'Aventure Urbaine, 1970): 5
 "Claude Parent and Paul Virilio put forward the Fonction Oblique hypothesis in 1964, which advocates that human life should be fixed on an inclined plane. The following texts present an explanation, try to reach a global urban concentration solution, and illustrate the infinite possibility of this new space occupation mode through some specific examples."

4 . Brigitte Benderitter (1952-2007) was an important figure in the French publishing industry. She started as a bookseller. In 1980, she participated in the creation of Moniteur Architecture Bookstore and created a news service in it. During this period, she met Claude Parent, and they were very close. Later, she worked in Flammarion and Maeght Editions and was responsible for disseminating the "La Pléiade" series and Gallimard's art book department.

5 . CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 5

6 . CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 59
 "L'espace communautaire d'accès réservé jusqu'alors à la circulation n'est plus canalisé entre les différents espaces privatifs."

7 . CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 59
 "Cette première proposition permet de distribuer les différents espaces privatifs par la surface extérieure que l'on utilise en complète liberté pour circuler."

8 . CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 13

9. Charles-Édouard Jeanneret-Gris, better known under the pseudonym Le Corbusier (1887-1965), was an architect, urban planner, decorator, painter, and sculptor.

10. CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 81

11. CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 15

12. CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 15
 "c'est à ce titre que la fonction oblique se réclame de la science de la futurologie et assimile le processus scientifique de l'hypothèse, de l'expérimentation puis de l'application."

13. CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 59
 "Le premier principe de la fonction oblique est donc celui de l'obstacle surmontable."

14. CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 59
 "L'espace privatif C peut être parcouru à sa surface extérieure puisqu'il est incliné donc «gravissable» sans plus faire obstacle au parcours direct de A à B."

15. CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 61
 "Avant d'envisager les conséquences qu'impliquent la structure oblique au niveau de l'espace vécu à l'intérieur des volumes habités, répétons que développement urbain et espace vécu sont identiquement traités sur le plan structurel."

16. CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 33
 "potentiel d'énergie", "potentiel positif", "potentiel négatif".

17. CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 23

18 . Two were acquired and built by Virilio (the Church of Sainte-Bernadette du Banlay in Nevers and Thomson Houston's office in Villacoublay); The other two are due to Parent (the cultural center in Charleville and the Mariotti House in Laye Saint Germain).

19. CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 33-35

20. CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 5
 "Since the Turkey of 7,000 BC through to the villages of today's southern Algeria, the oblique function's past exists"

22 . The 1970 Venice Biennale was opened with the symbol of "experiencing the international confrontation of art." The management now hopes to open the activities to more audiences through more concepts and actions for the audience, not just individuals in the art world.

22. CLAUDE PARENT, VIVRE À L'OBLIQUE, ibid: 73

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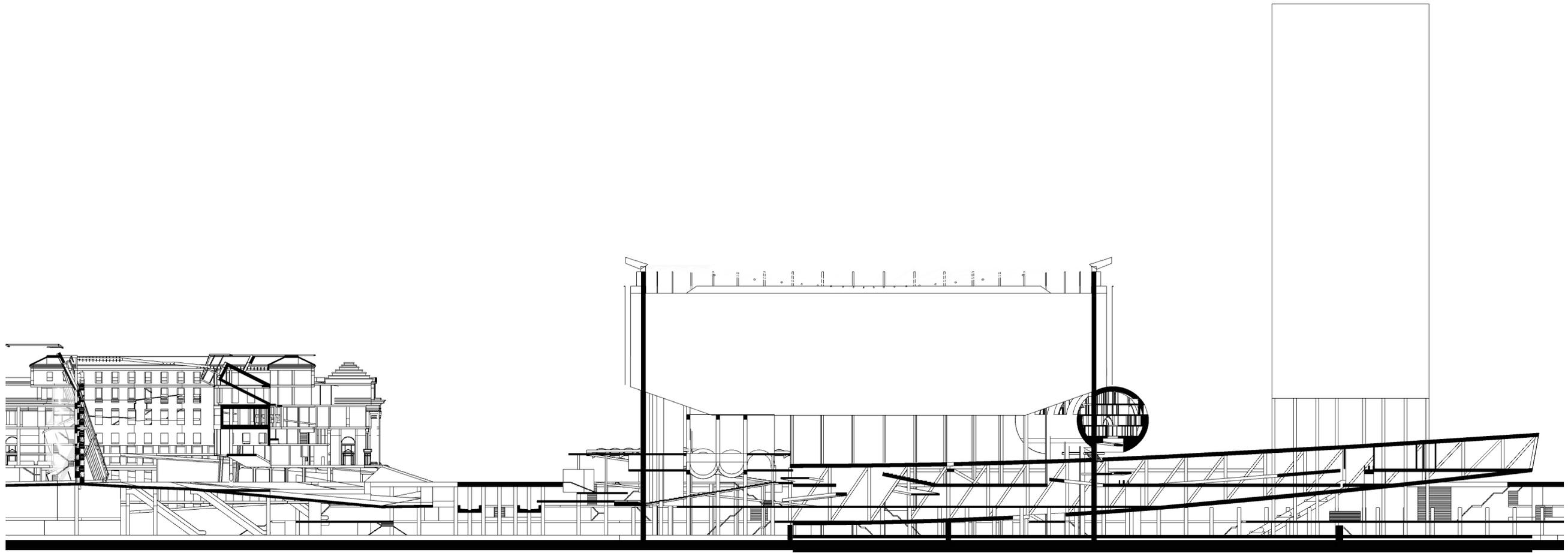
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