

CANON CAMERA MUSEUM

(An Architectural Tribute to Canon Cameras)

Jiazhen Sun

Thesis submitted to the faculty of Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of:

Master of Architecture in Architecture

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ABSTRACT

CANON CAMERA MUSEUM **(An Architectural Tribute to Canon Cameras)**

Jiazhen Sun

This thesis is a study of creating a camera museum by using unique building forms and structural elements, as well as water and light features. Additionally, throughout this thesis project, I would like to celebrate the Canon franchise with all the camera enthusiasts and express my personal appreciation to Canon camera who has always been a companion in my entire architecture journey.

The building site, shape and location allow a discovery of the building elements and shape consequently while participating in the building visit. From far beyond, the building can be seen as a simple sculpture piece as an iconic gateway of this Canon park. While approaching and pursuing the passage into the museum, building shape and components start to build the experience more than just a museum. Different lighting conditions, vertical and horizontal circulation methods, building form and structure are used to direct not only the journey of Canon camera, but also an experiment of my own architectural language.

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All computer renderings, drawing and photos are made by author.
*All graphics from other sources are one-time use, educational purpose only.

CANON CAMERA BACKGROUND



The Kwanon camera prototype,
1934



The Kwanon symbol that was engraved
into the top of the camera body

CANON CAMERA BACKGROUND

Canon Inc. (キヤノン株式会社, Kyanon Kabushiki-gaisha) is a Japanese multinational corporation specialized in the manufacture of imaging and optical products. The company was originally named Seikikōgaku kenkyūsho (精機光学研究所, Precision Optical Industry Co. Ltd.). In 1934 it produced the Kwanon, a prototype for Japan's first-ever 35 mm camera with a focal plane based shutter. In 1947 the company name was changed to Canon Camera Co., Inc. Over its 80 year history, Canon has continuously innovated to fulfill the company's never-ending ambition to create the world's finest cameras. Through generations of effort, Canon has evolved from a small studio with less than thirty employees, which could barely produce several 35mm film cameras in 1930s, to the largest camera manufacturer dominates the global digital camera market. Leveraging the technologies and know-how it has acquired over its history, Canon will continue contributing to the development of the photographic and video imaging culture through its technologies and products designed to satisfy the expectations of all customers



Most recent DSLR camera flagship EOS-1DX with EOS-EF 50mm F/1.2L

CANON CAMERA BACKGROUND



Milwaukee art museum, EOS-60D with EOS-EF 16-35mm f/2.8L HDR image

To myself, no matter where I go and what I am going to visit, Canon is always there to give me a second vision of seeing and experiencing all the great architectures. Through the tiny square frame and the lens, I have learned a lot that my naked eyes would not pick up and it pushes me to explore further.

CANON CAMERA BACKGROUND



As my passion for architecture has thrived, the love and excitement for Canon cameras has increased dramatically as well. One of my goals in this thesis project is to express my great appreciation to Canon, since it represents the summit of imaging technology and the highest level of industrial design. More importantly, it has always been closely bonded to my architectural dream.

Shanghai Pudong Business District, EOS-1DX with EOS-EF 16-35mm f/2.8L



Jokhang Temple, Lhasa, Tibet, EOS-5D Markii with EOS-EF 16-35mm f/2.8L

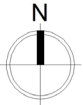
Farnsworth House, EOS-60D with EOS-EF 16-35mm f/2.8L




PROJECT LOCATION AND SITE PLAN

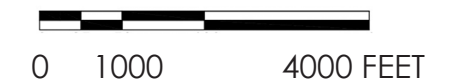
PROJECT LOACTION

SITE PLAN



Project Location:
1 Canon Park, Melville, NY 11747
Coordinates:
N40° 46.7459', W073° 25.7398'

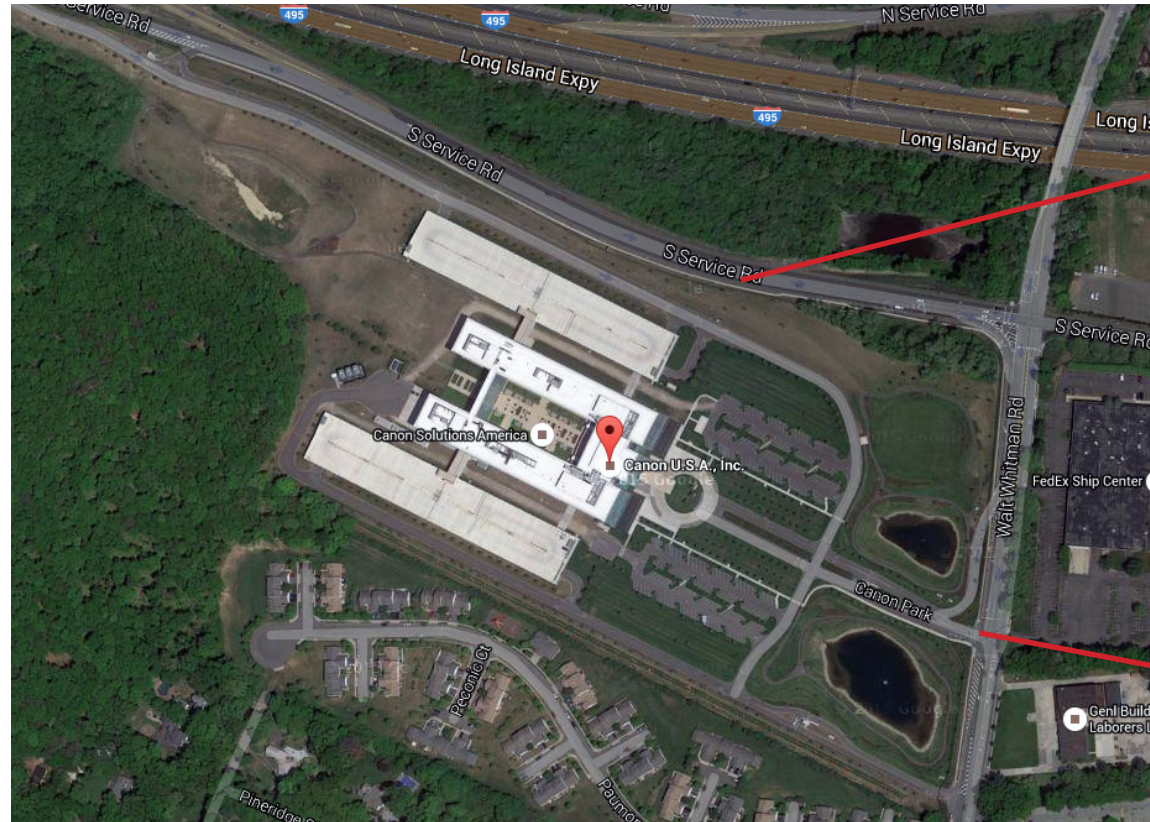
 Canon Inc. north America
headquarters (Canon park)
current condition, 52 acres
under development



The project is located in Melville, Long Island, where Canon has recently completed their North American headquarters building, along with the surrounding Canon park. The site used to be part of the Pine Ridge conservation area. Being in the suburbs and close to highway 495, the site provides easy access. As a new addition to Canon park, the camera museum will be more than just a one-time attraction for visitors. My goal is also to highlight this entire area for the people who live in the neighbourhood, as well as all the employees who work here on a daily basis

PROJECT LOACTION

SITE PLAN



Canon park current condition



Street view from S Service Rd



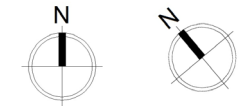
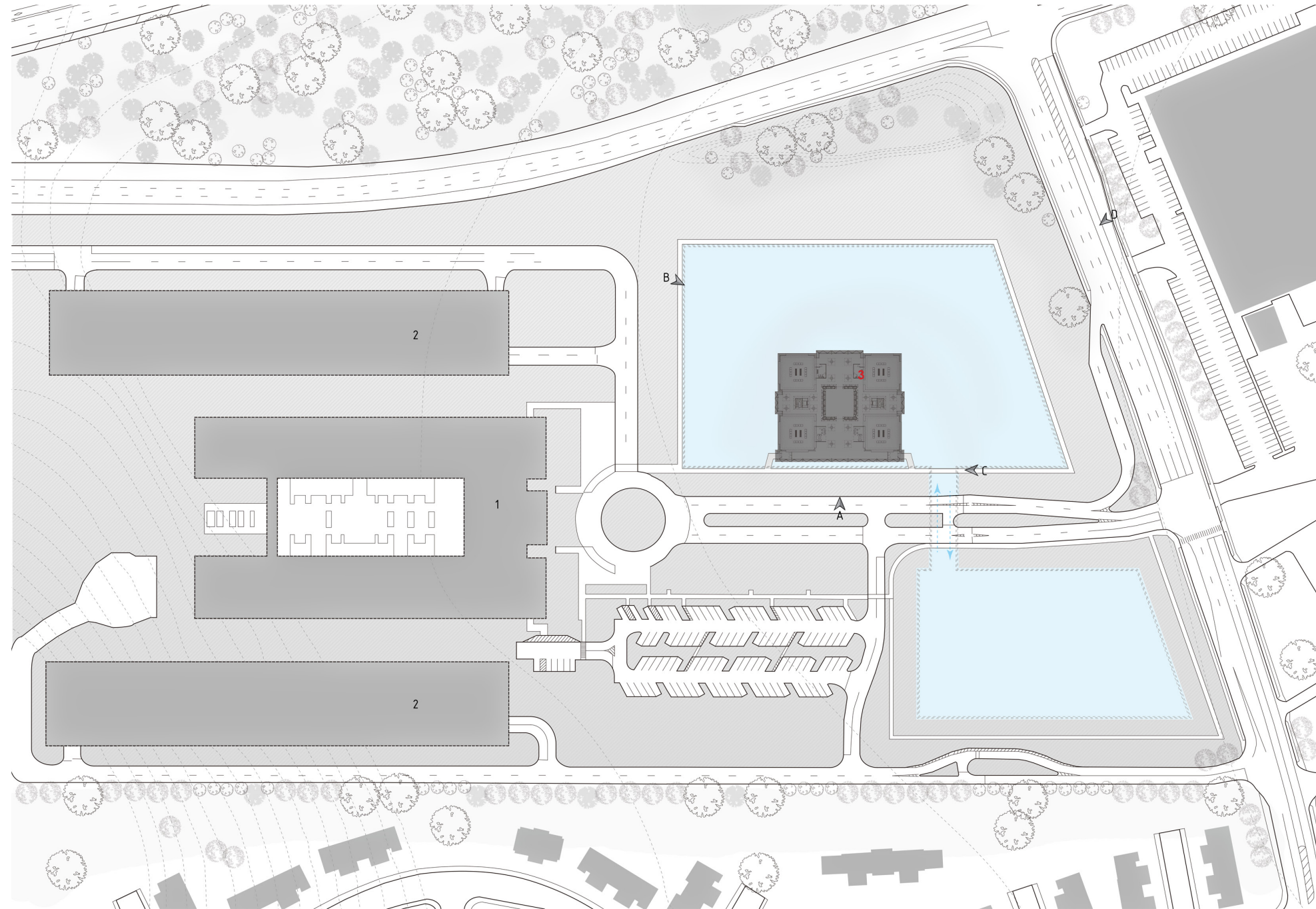
View from Walt Whitman Rd entrance



Headquarters office building and parking structures

PROJECT LOACTION

SITE PLAN



Project north True north

1. Headquarters building

2. Parking structures

3. Camera museum

➤ Perspective view point

---> Underground water-flow

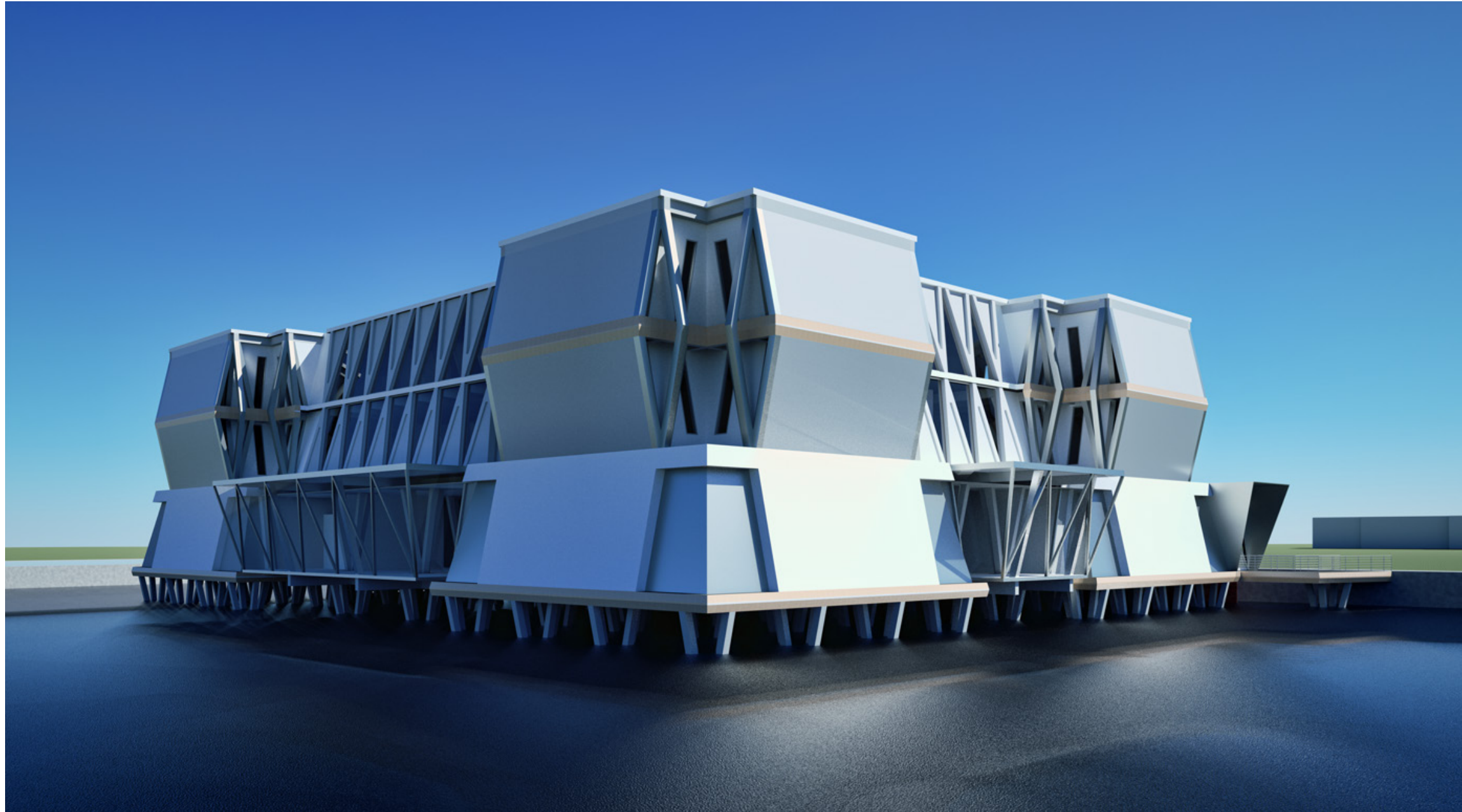
Proposed artificial lake

Canon park

To match up the overall orientation of the headquarters building and Canon park, the museum is shifted 41° from true north. The existing irregular water pond will be replaced by two new artificial lakes connected by an underground system. The new artificial lakes will serve as a source of the water features in the museum as well as part of the landscape.

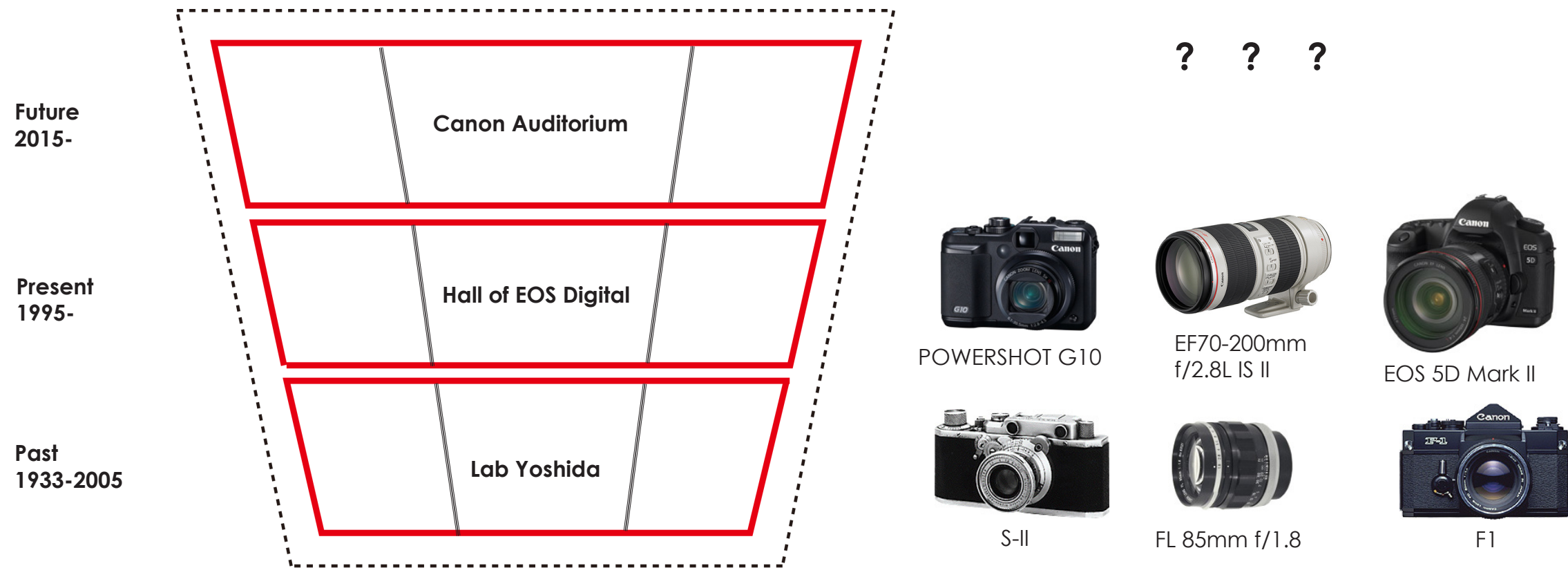
0 50 200 FEET

DESIGN CONCEPT



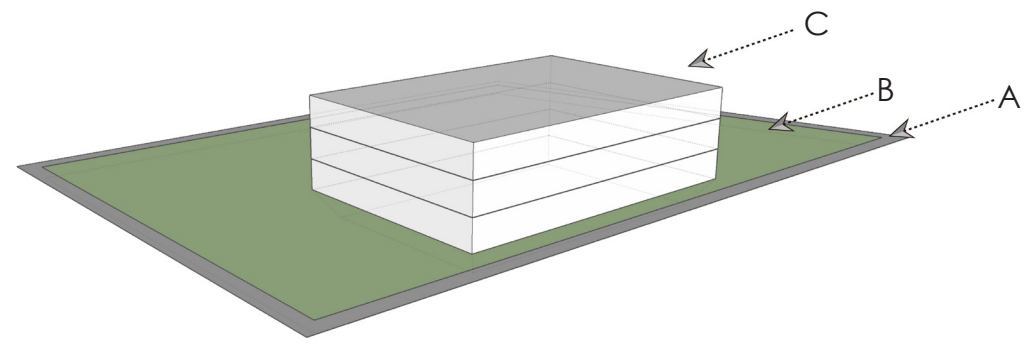
B. Exterior perspective from northwest

DESIGN CONCEPT

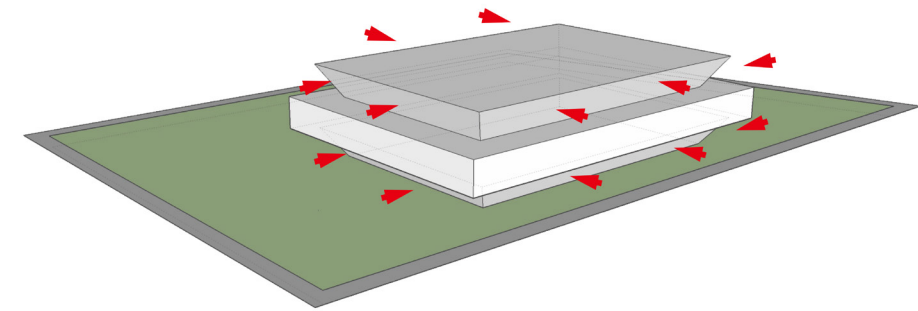


The exhibition spaces are arranged in chronological order, ascending from the first level to the third level. The first floor will display film cameras and related lenses from 1933 to 2005. The second floor contains all the digital compact cameras and interchangeable lens digital cameras with related lenses. The third floor will mainly be an auditorium for future product announcements. The most important functions/exhibitions on each floor will be located in the center of the building.

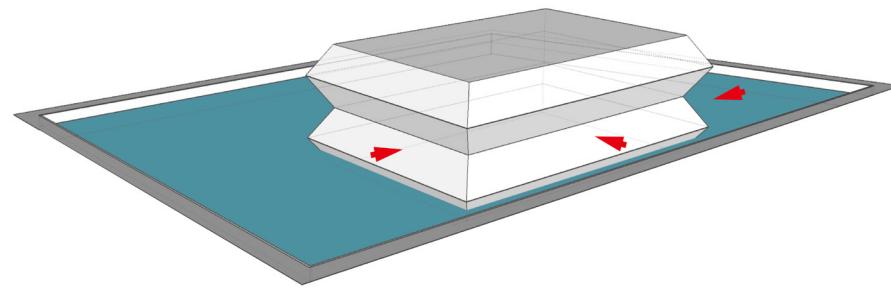
DESIGN CONCEPT



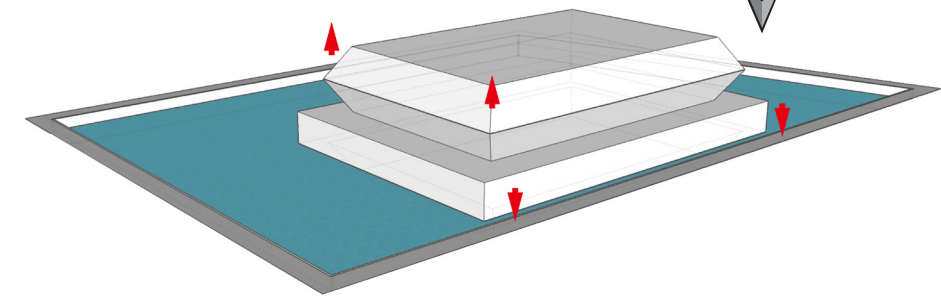
- A. Pedestrian path
- B. Existing site
- C. Three story mass



Angled enclosure profile to create a unique building form which challenges the very conventional look of headquarters building.

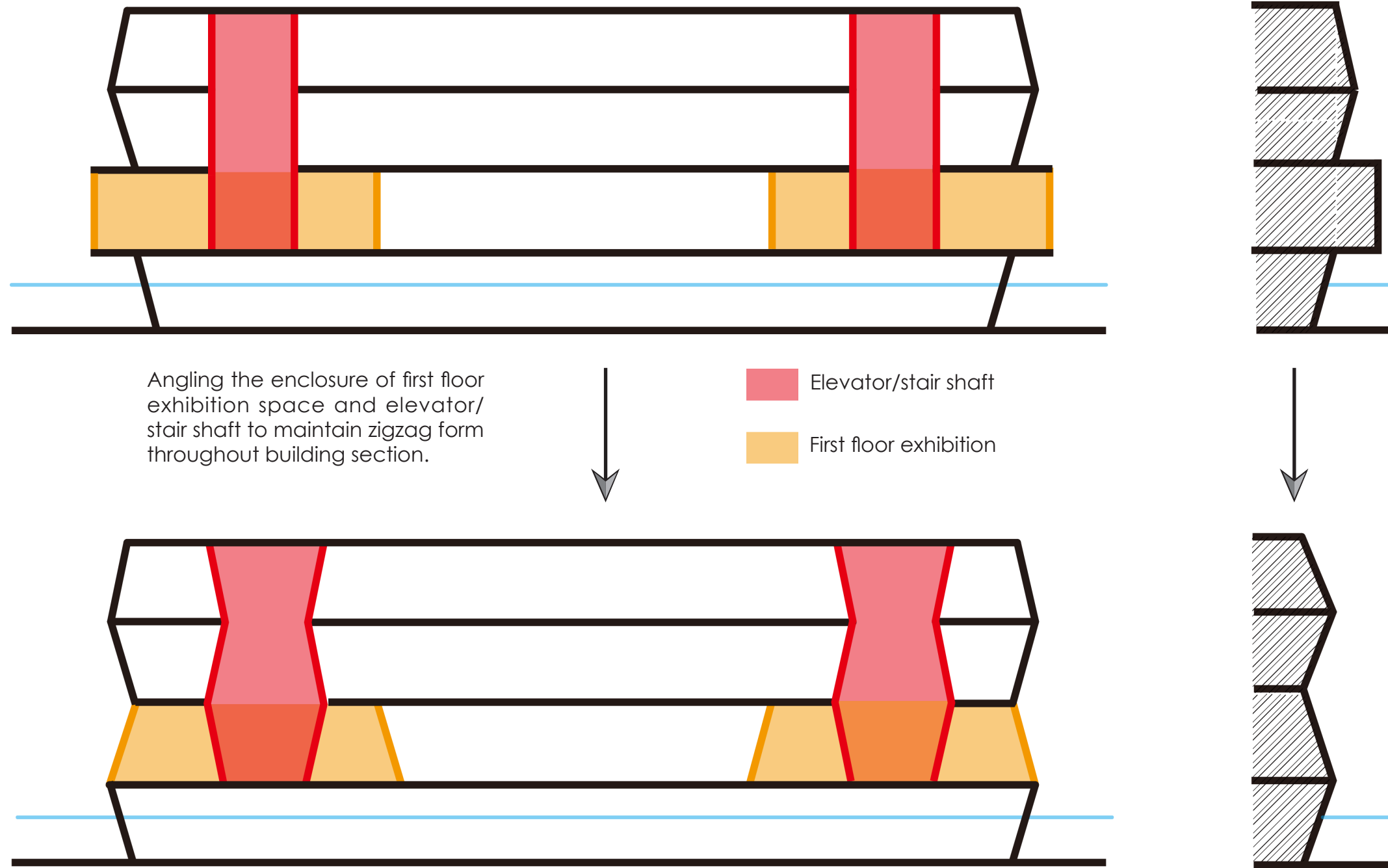


Changing the angle of enclosure profile to zigzag form.

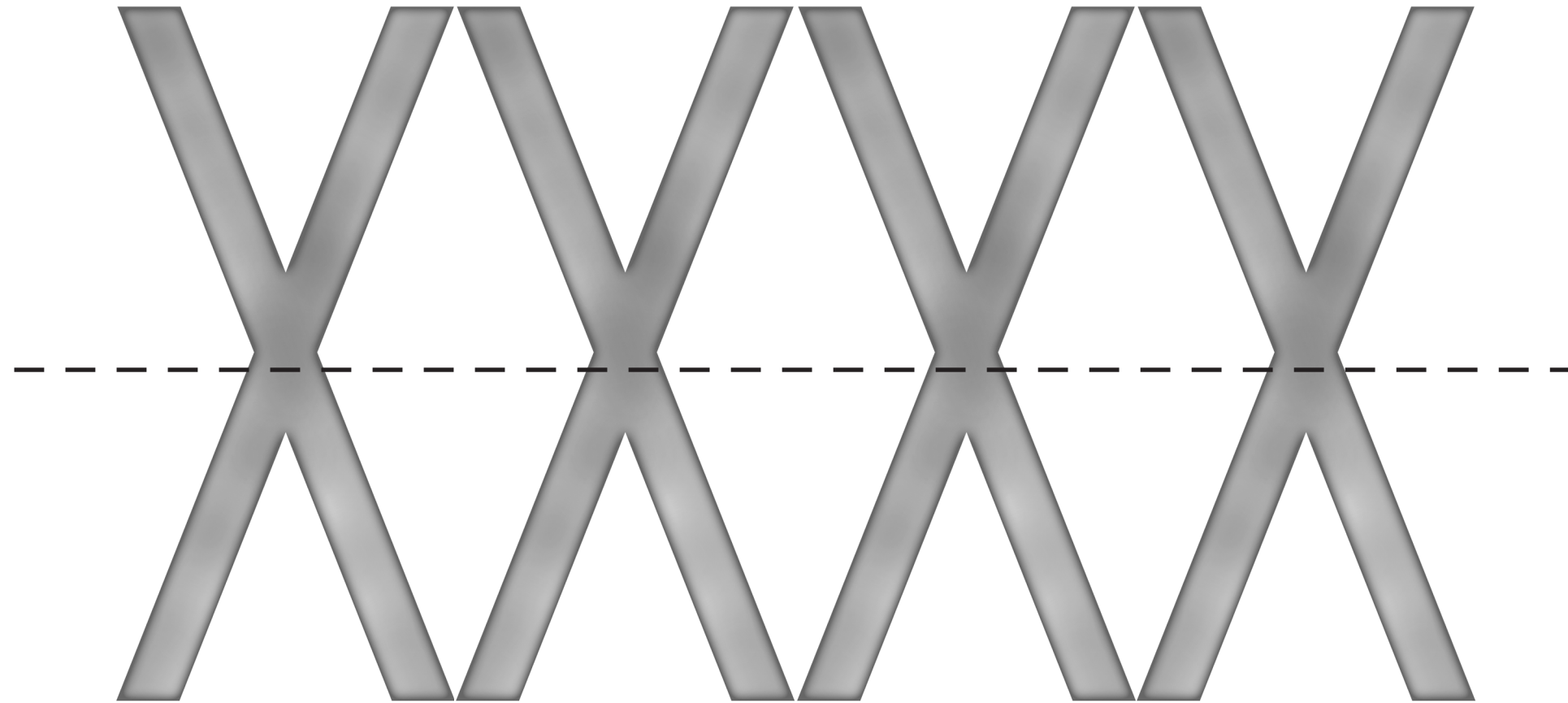


The building has been placed in the artificial lake (8'-10' deep), using a structure of concrete pilings and piers to lift the first floor above the water level.

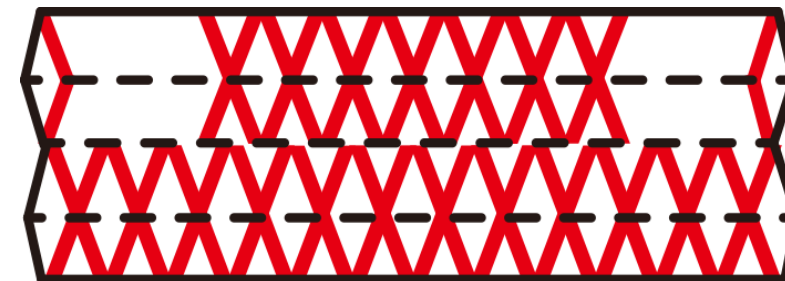
DESIGN CONCEPT



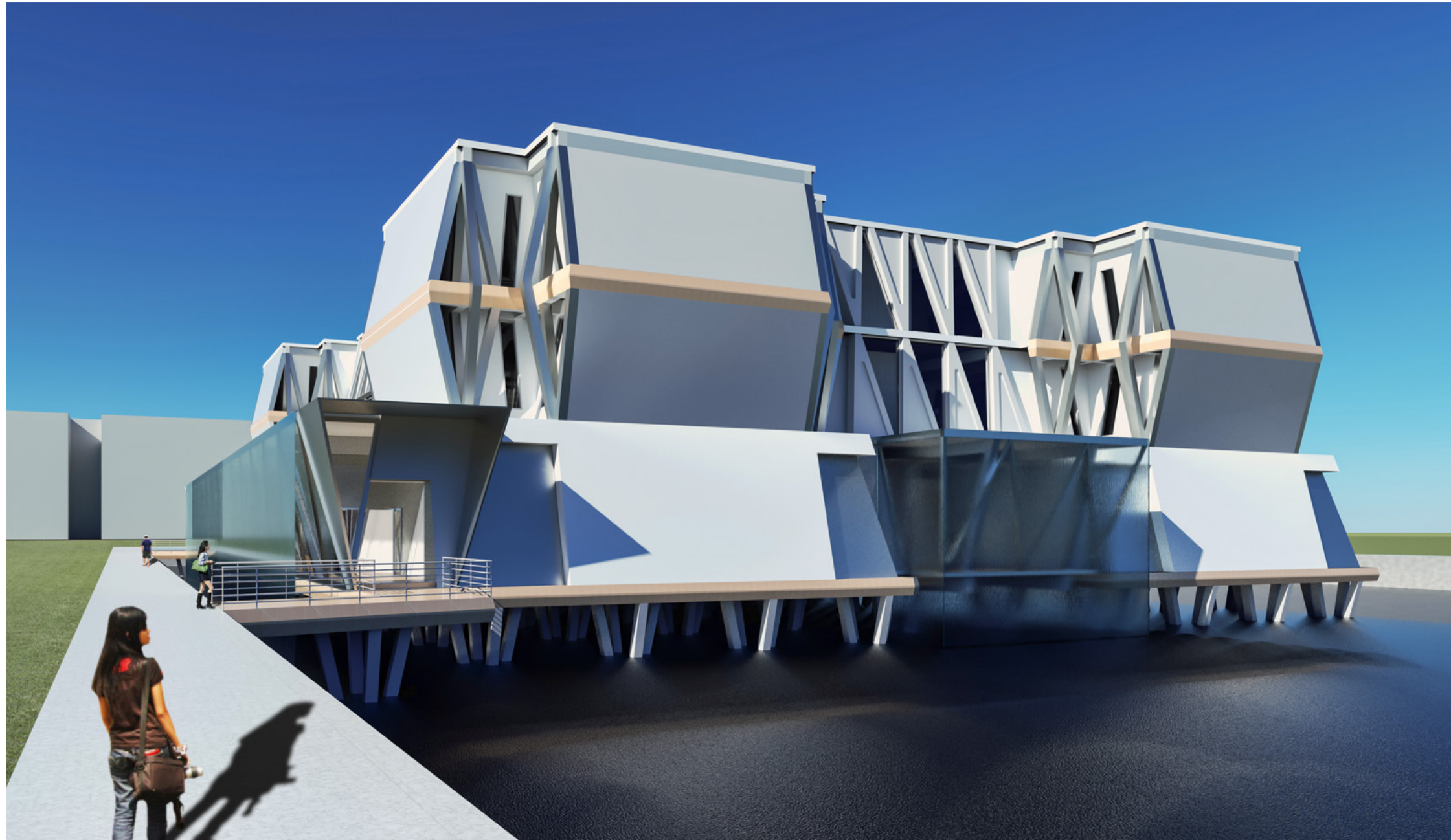
DESIGN CONCEPT



The crossing diagonal shape is applied to the exterior enclosure system, differentiating the building elevations from a conventional right angle window/curtain wall building.

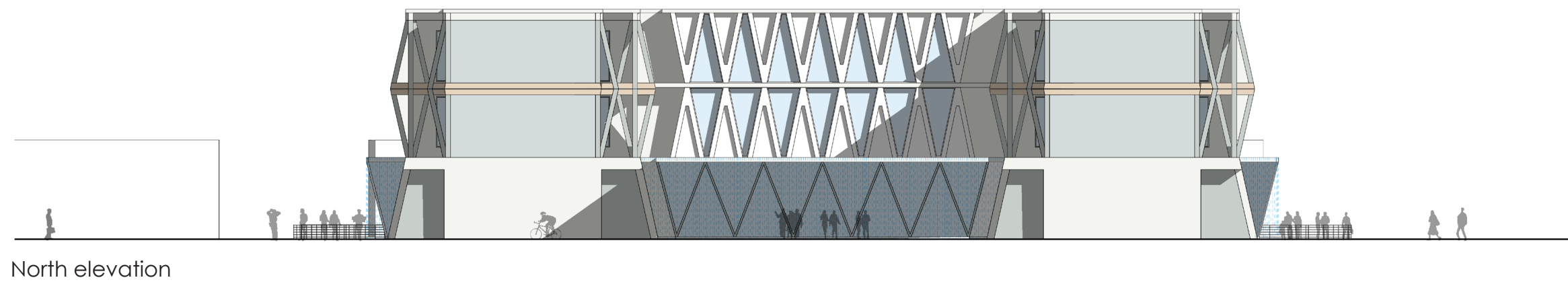
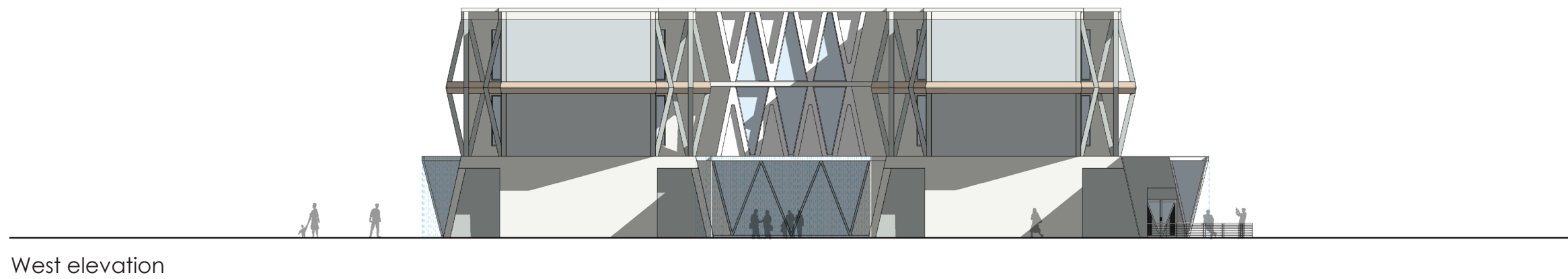


ARCHITECTURAL DRAWINGS

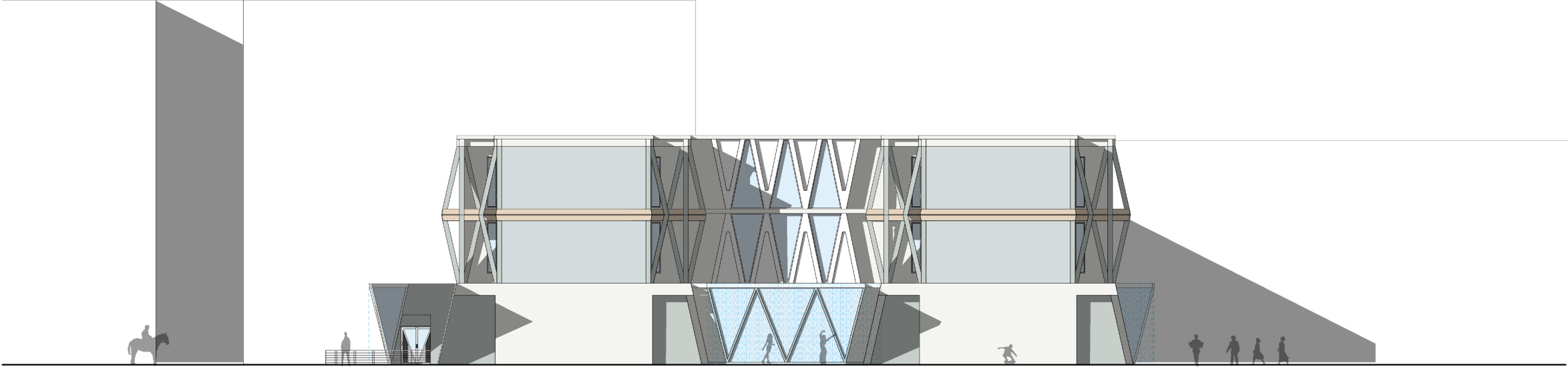


C. Exterior perspective from southeast

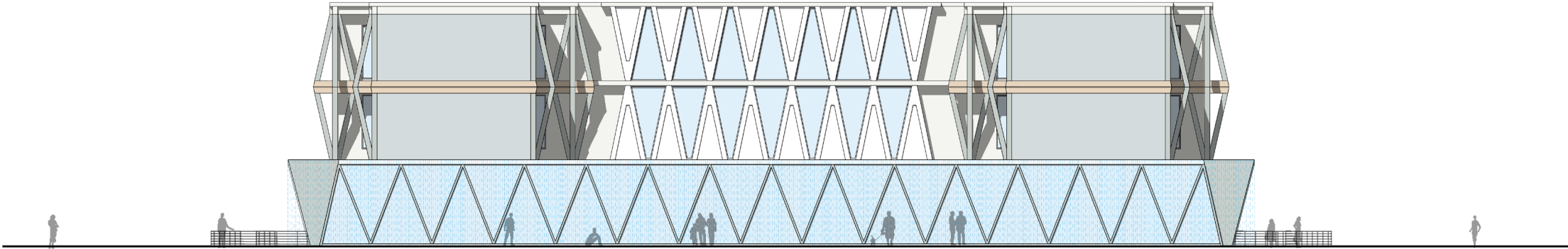
ARCHITECTURAL DRAWINGS



ARCHITECTURAL DRAWINGS

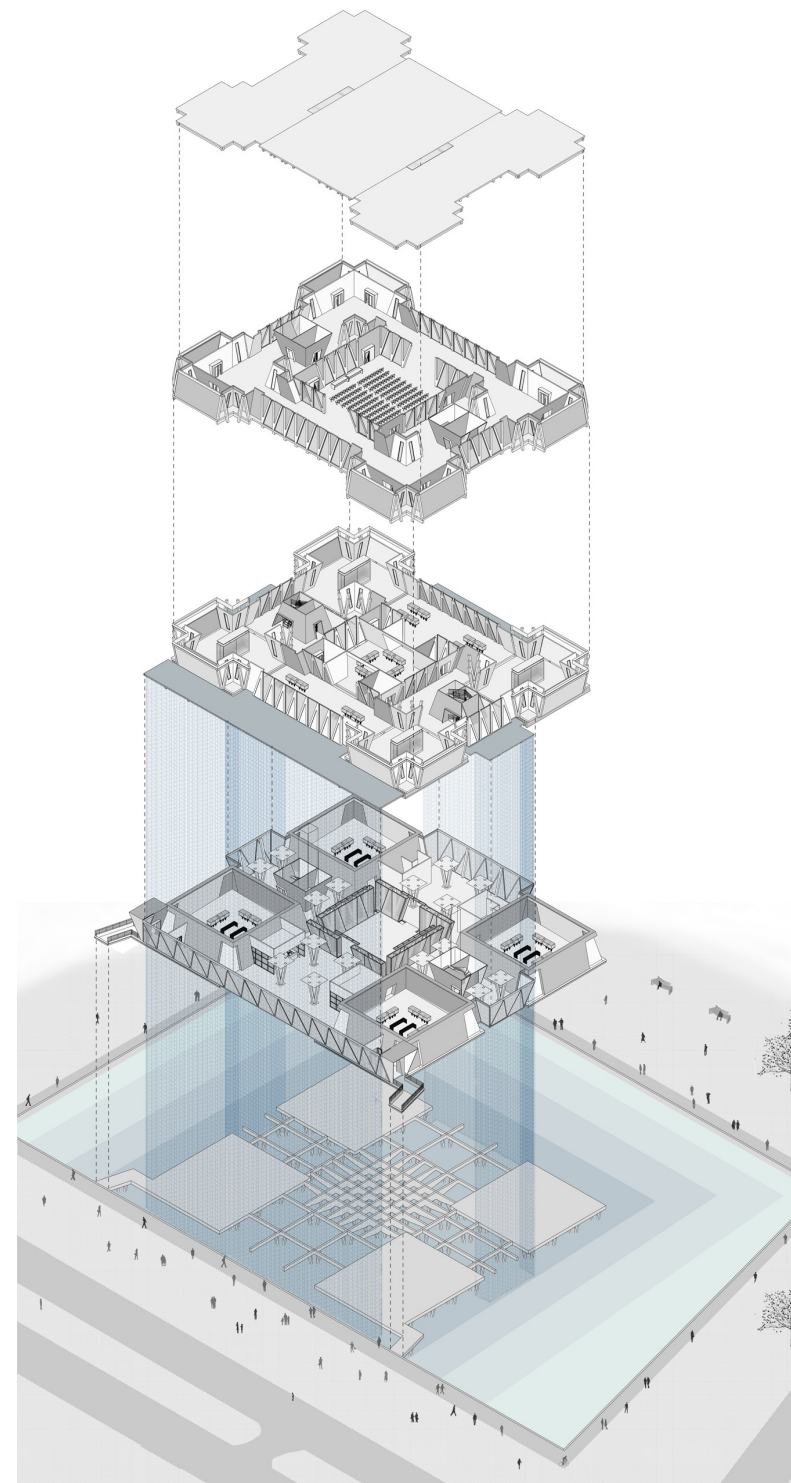


East elevation



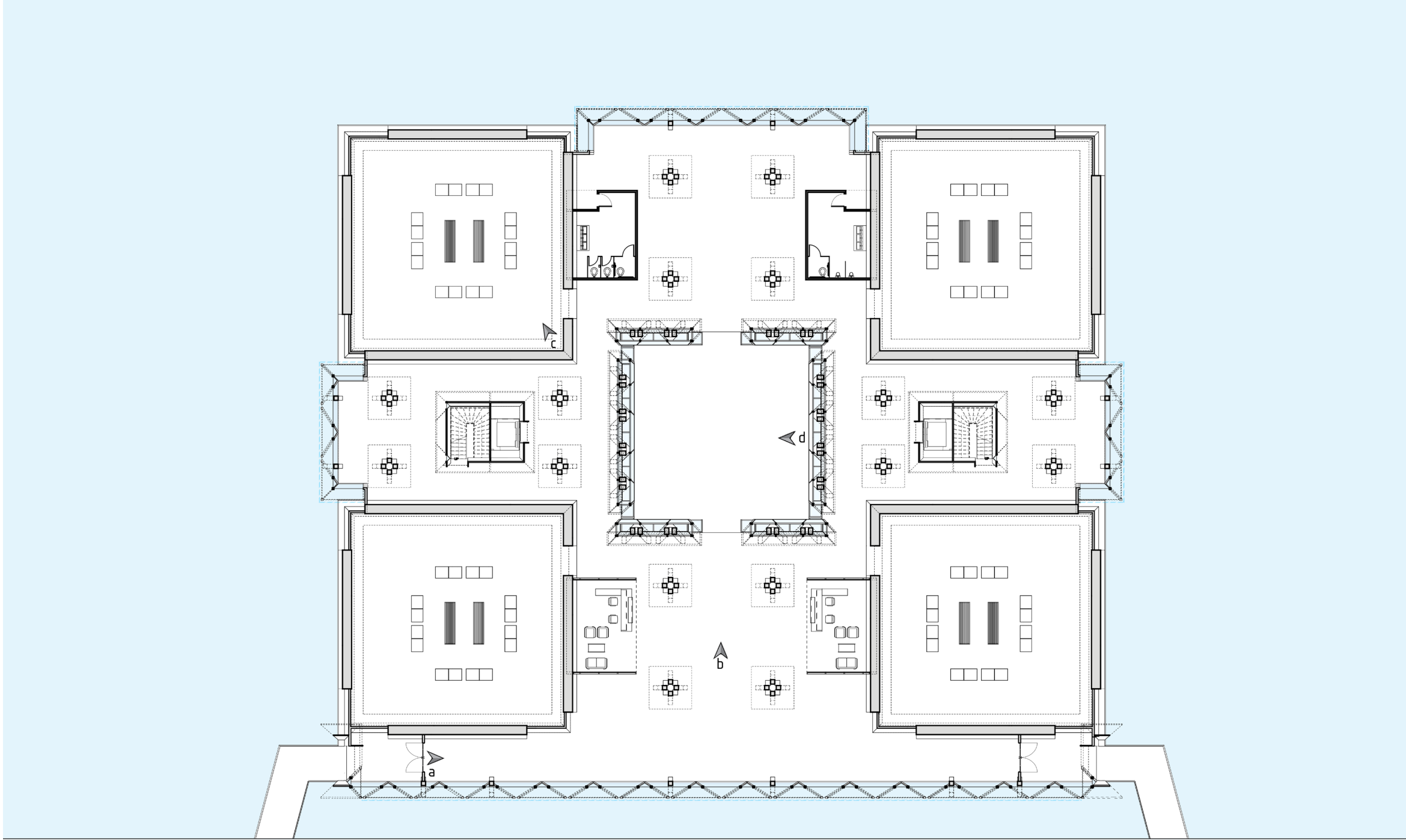
South elevation

ARCHITECTURAL DRAWINGS



Exploded floor plans

ARCHITECTURAL DRAWINGS



First level floor plan

0 5 20 FEET

ARCHITECTURAL DRAWINGS



b. Looking at Lab Yoshida from south

ARCHITECTURAL DRAWINGS



c. Film camera exhibition

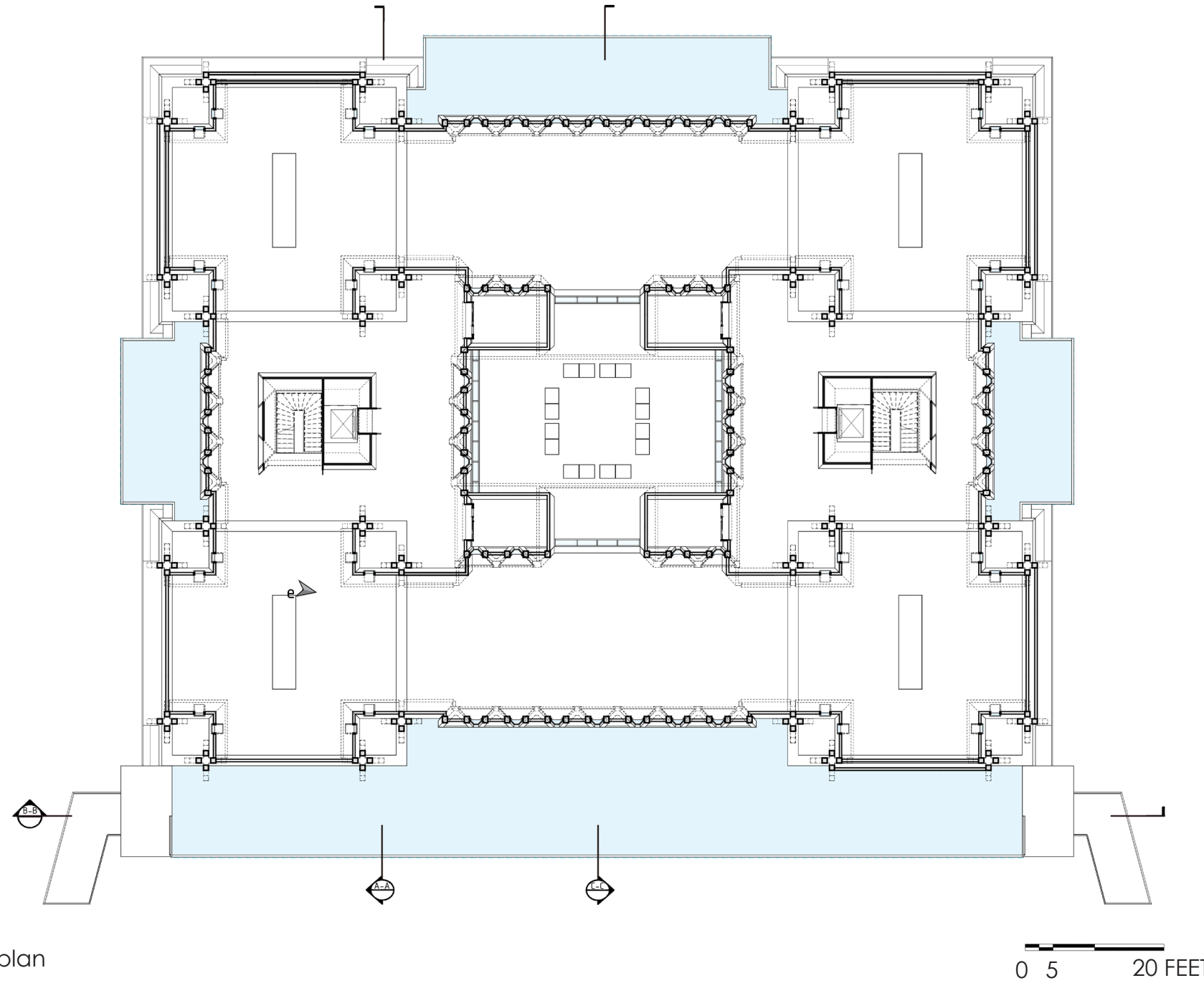
ARCHITECTURAL DRAWINGS



d. Looking at Lab Yoshida from east

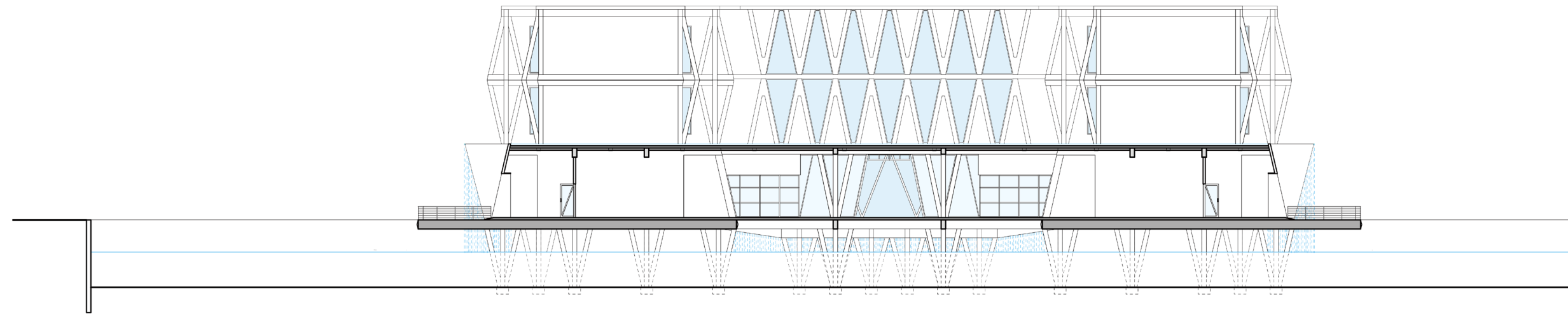
Mr. Goro Yoshida, co-founder of Canon, made the first ever Japanese 35mm film camera - Kwanon. His dedication and passion of making the finest camera in the world have been carried over through generations. The focal point of the Lab Yoshida is to let people see, touch, and even play with the pieces and parts that are used to put together a Canon camera. This idea of innovation generated from better understanding is derived from Mr. Yoshida's disassembling a German Leica camera in order to learn how to make the Kwanon.

ARCHITECTURAL DRAWINGS

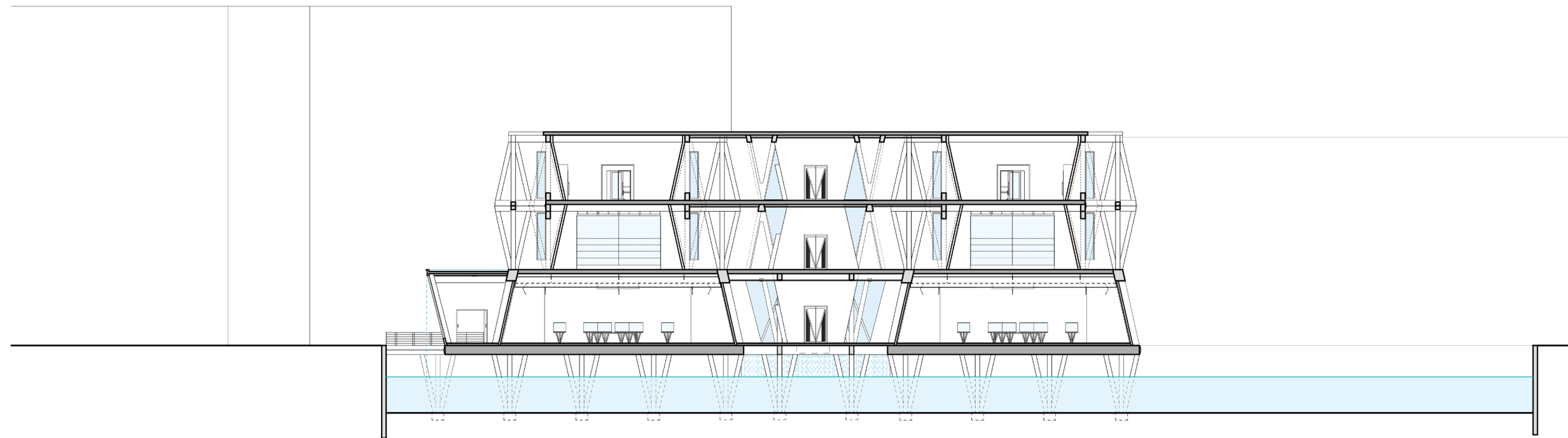


Second level floor plan

ARCHITECTURAL DRAWINGS

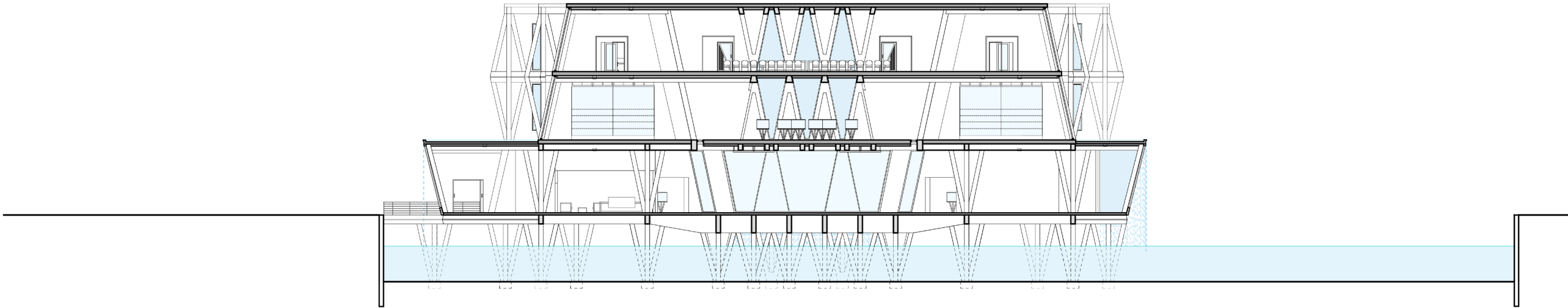


Section B-B



Section A-A

ARCHITECTURAL DRAWINGS



Section C-C

ARCHITECTURAL DRAWINGS



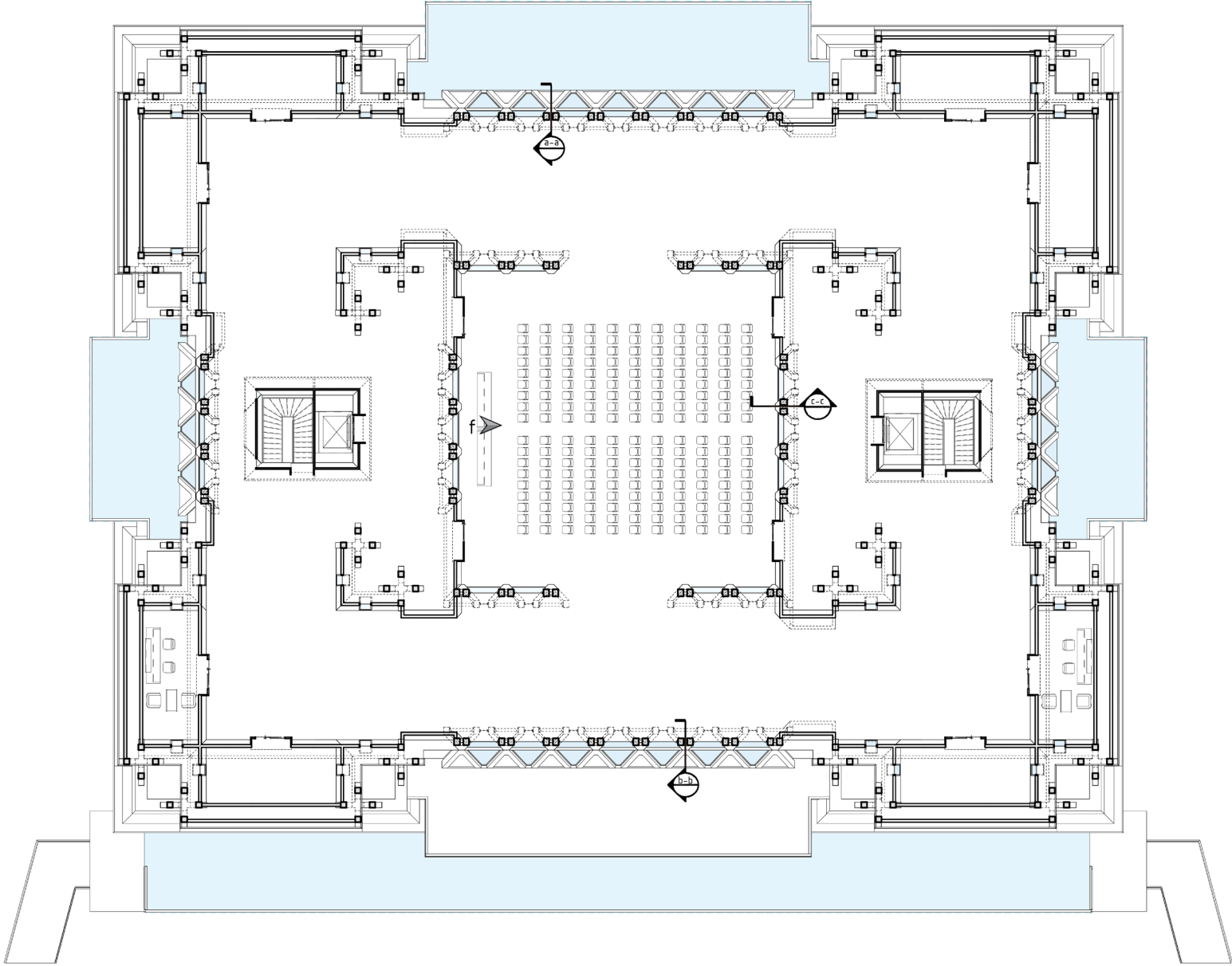
D. Exterior perspective from northeast

ARCHITECTURAL DRAWINGS



e. Digital compact camera exhibition space

ARCHITECTURAL DRAWINGS



Third level floor plan

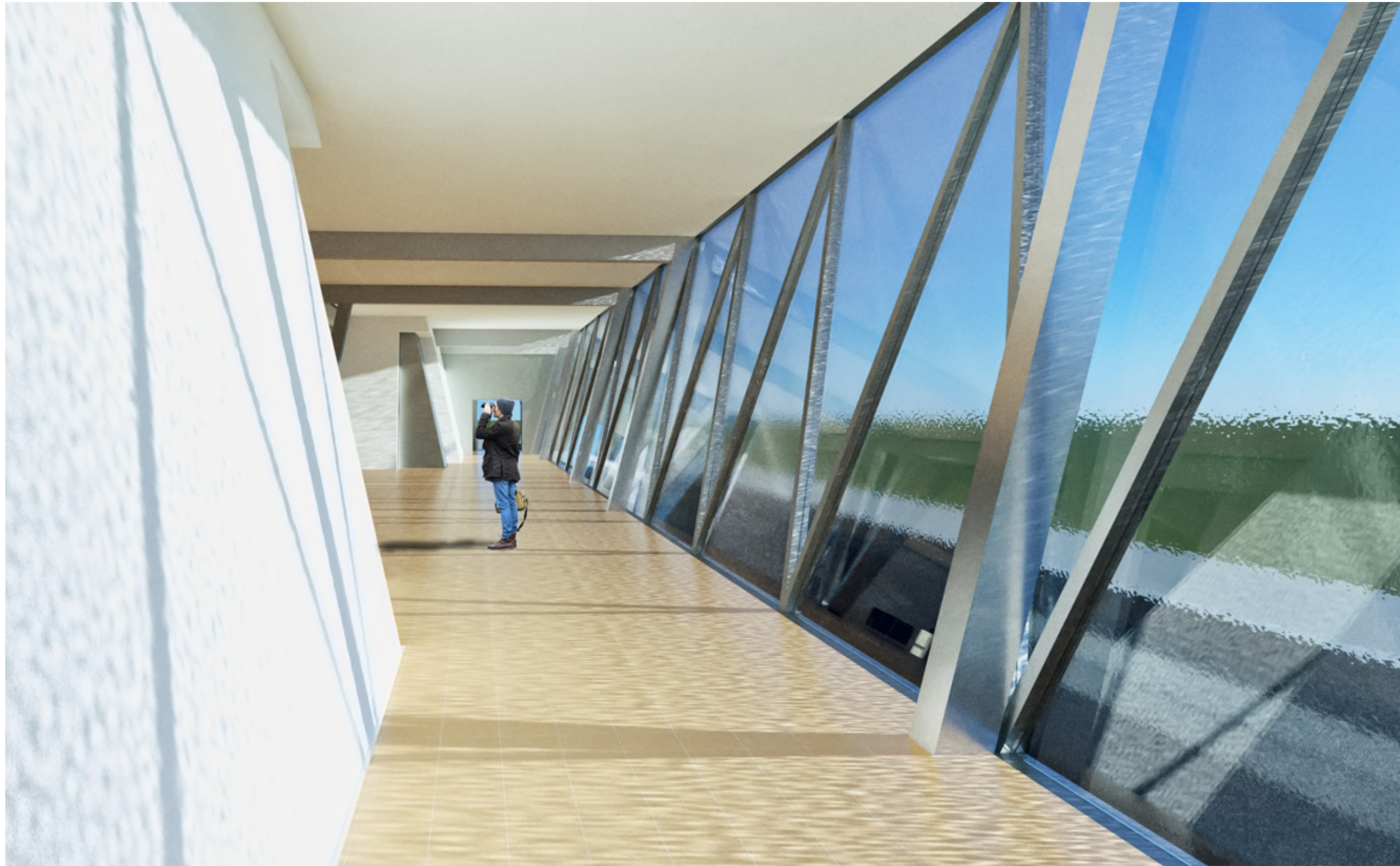
0 5 20 FEET

ARCHITECTURAL DRAWINGS



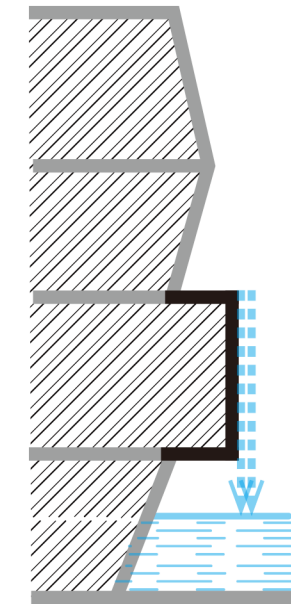
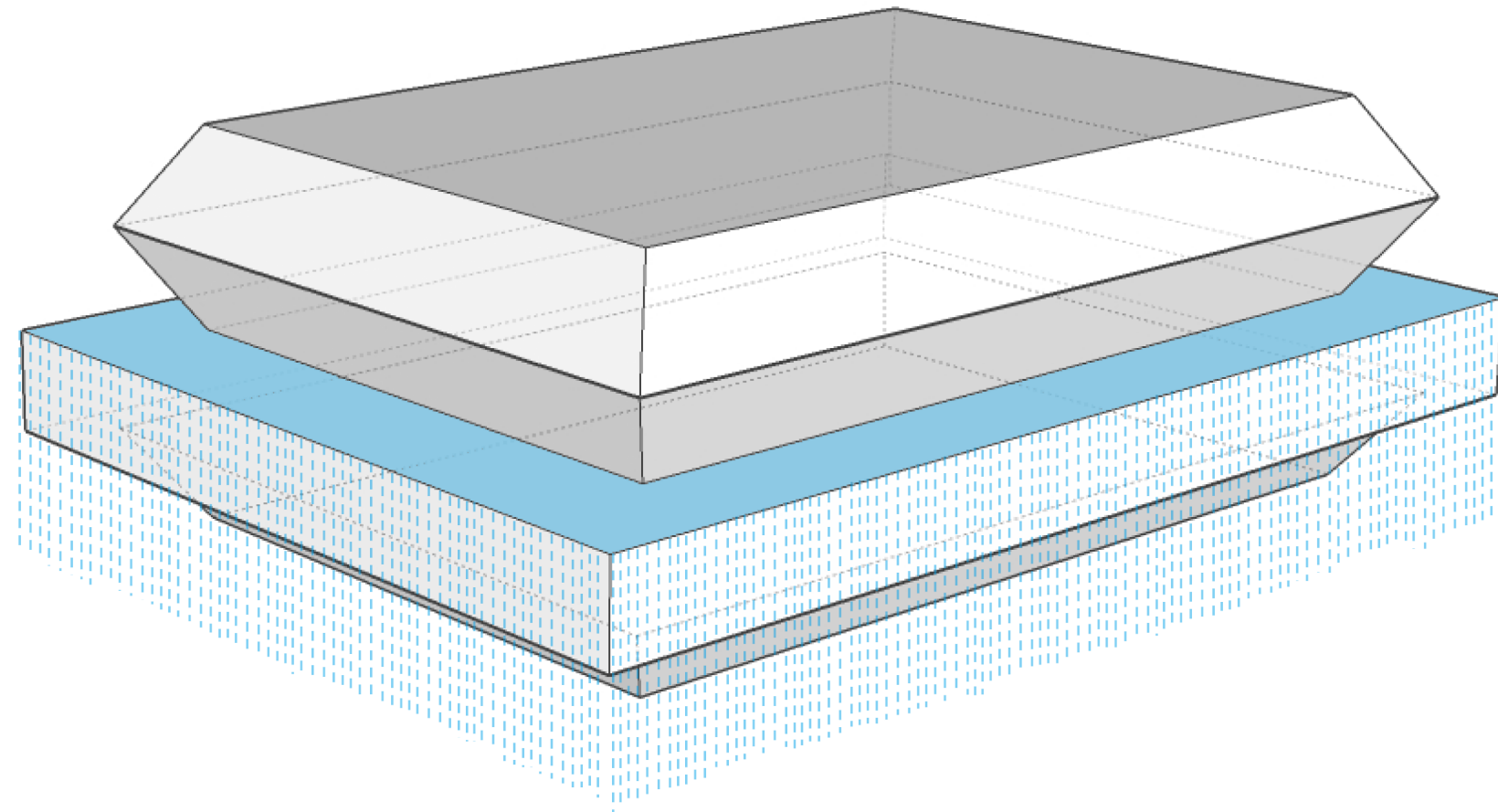
f. Auditorium on third floor

IMPRESSION OF WATER



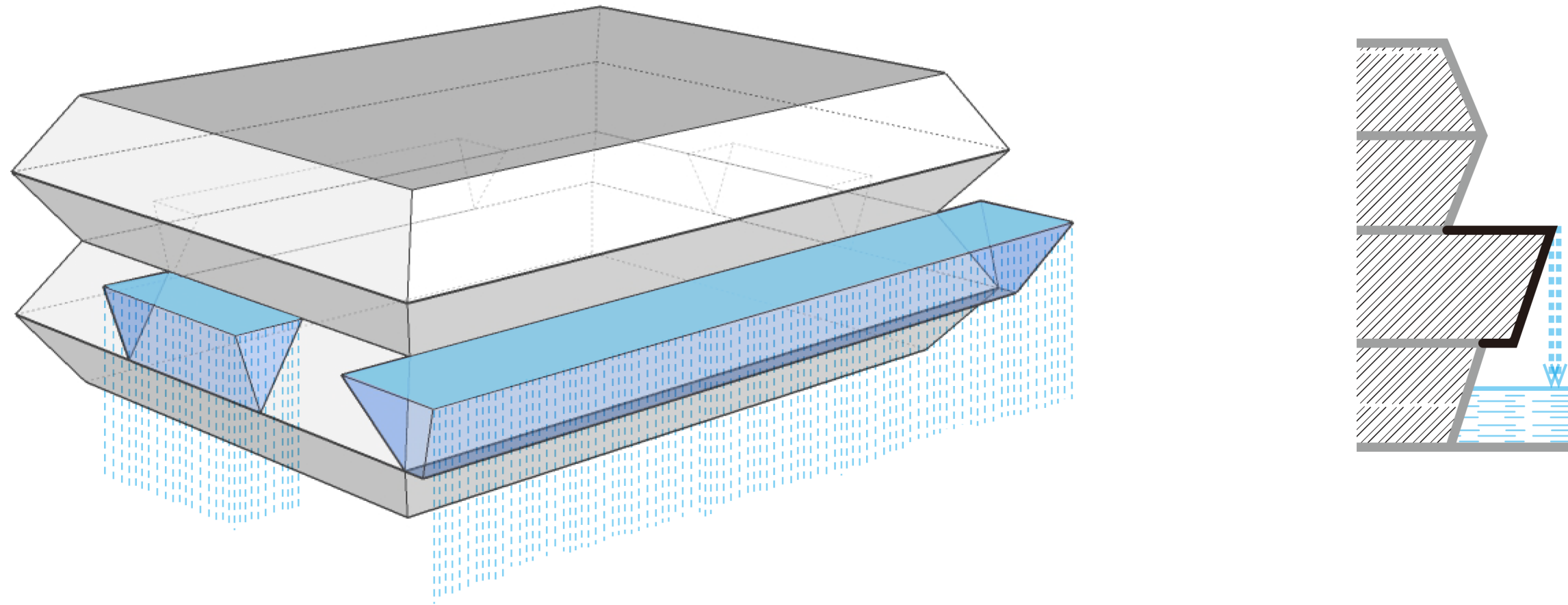
a. Interior perspective from west entrance

IMPRESSION OF WATER



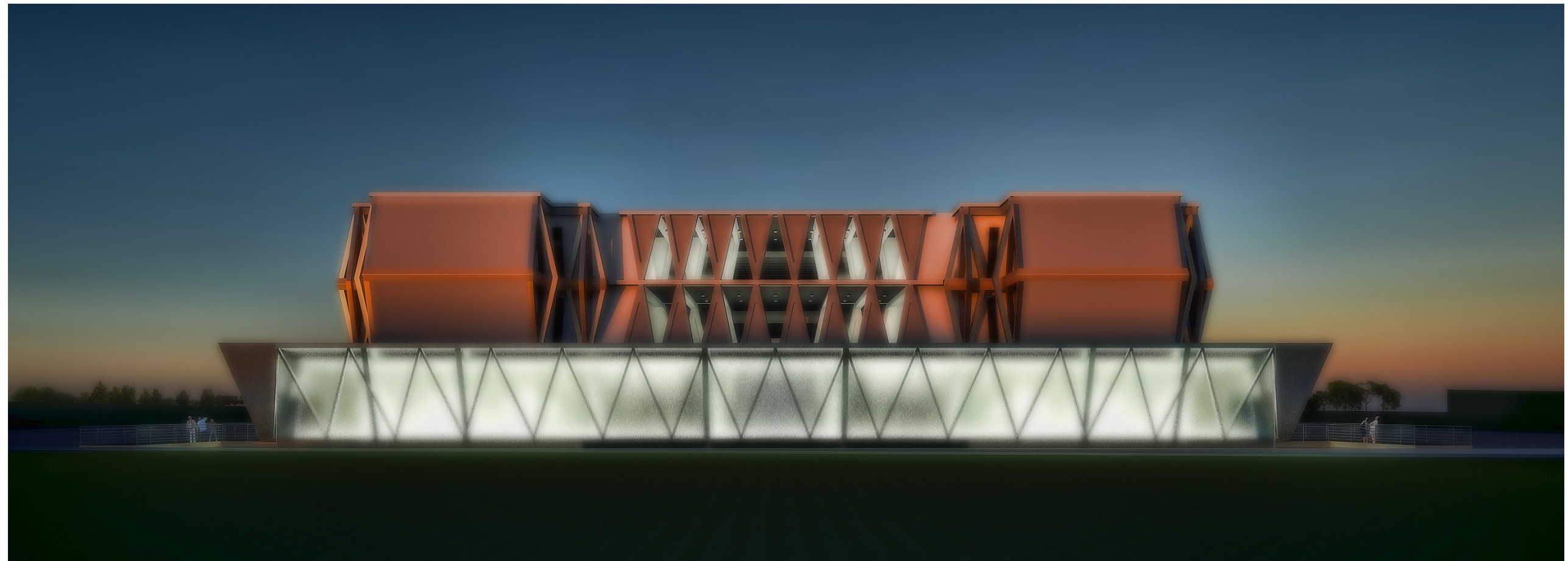
Water is as same as imaging of the single-lens reflex camera when light will pass through the lens and reflected into human eyes. The design intention to bring water as part of the building is to create interesting impression when light is interacting with water. This impression constantly changes at different times in a day, different seasons in a year and different areas in the building. The first design of water feature is to build a pool that cover the entire roof of the first floor. Water will be pumped up from the artificial lake to the pool and flow along the surface of the curtain wall, back to the lake to finish the cycle. Light will pass through the water and travel into the interior space of first floor as well as be reflected into the second floor.

IMPRESSION OF WATER



The second iteration separates the roof pool into four individual ones. By doing so, the amount of water that is used is greatly decreased while the overall water-light interaction will be maintained. After angling the first floor curtain wall, the water will fall directly into the lake instead of flowing on the glass surface. The waterfall will build a different experience than the previous design either when you walk behind it inside of the museum or looking at it from the outside.

IMPRESSION OF WATER

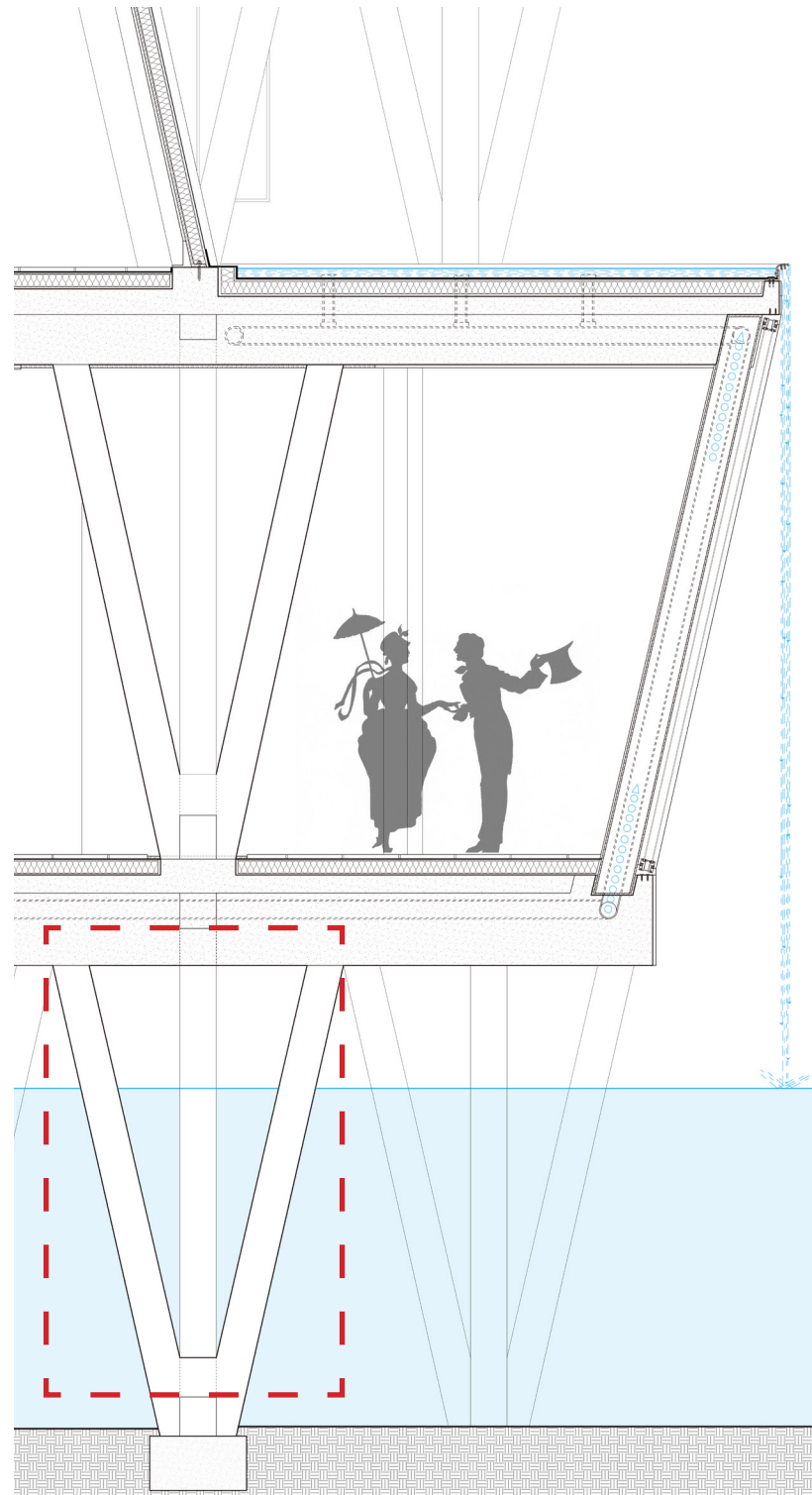
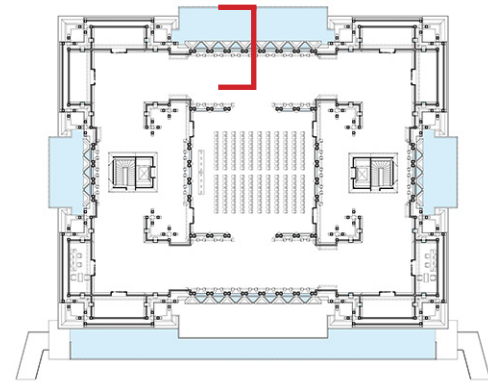


A. Exterior perspective looking from south

STRUCTURAL ELEMENTS AND DETAIL DRAWINGS

STRUCTURAL ELEMENTS

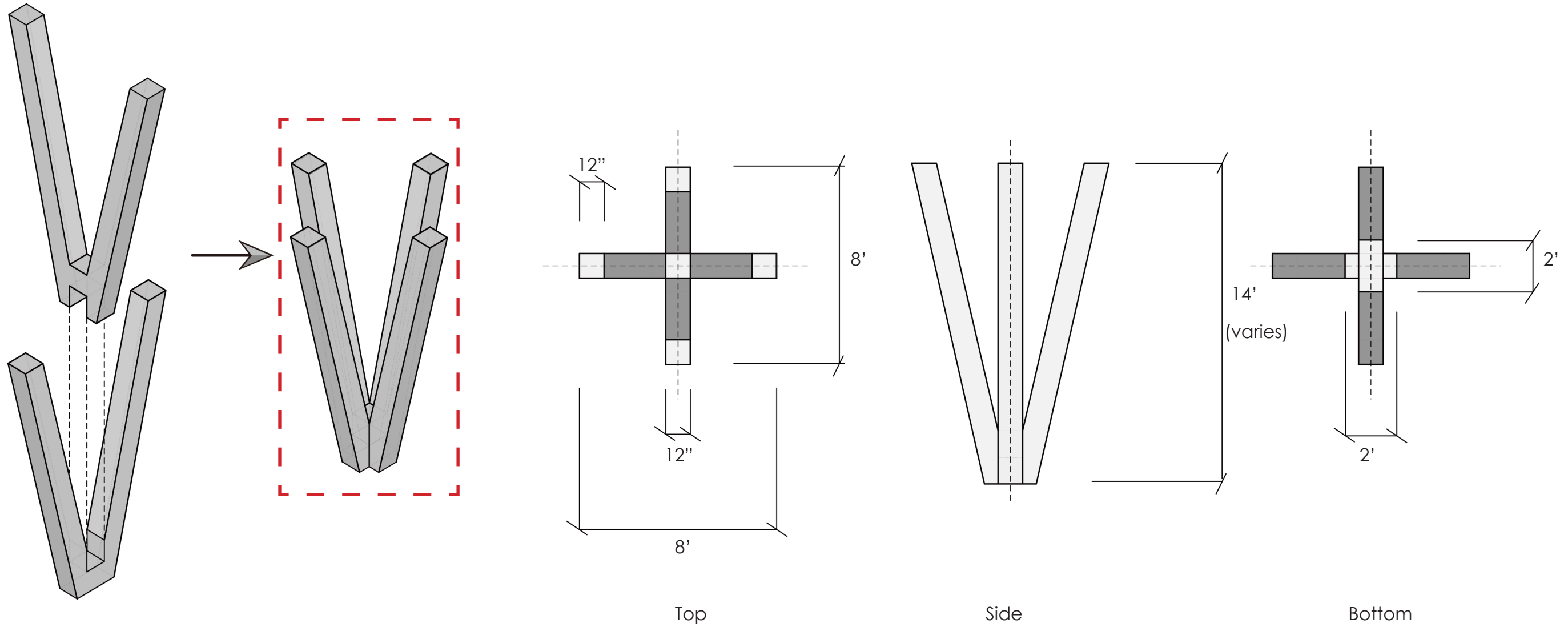
DETAIL DRAWINGS



Wall section a-a

STRUCTURAL ELEMENTS

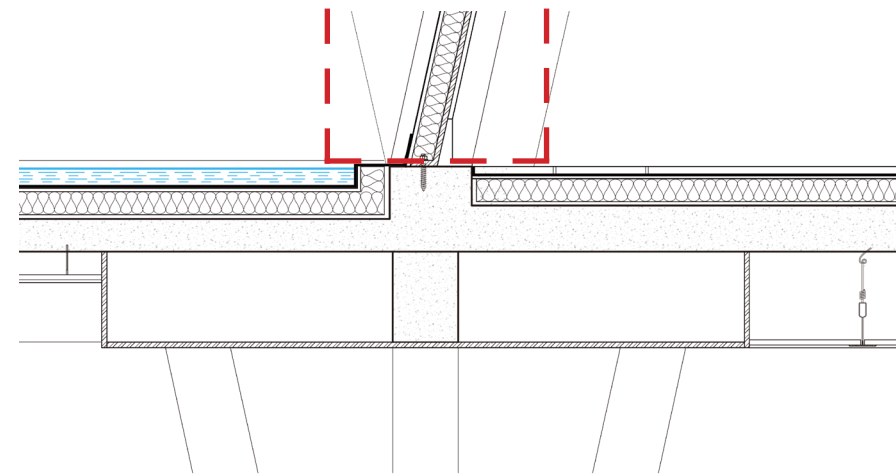
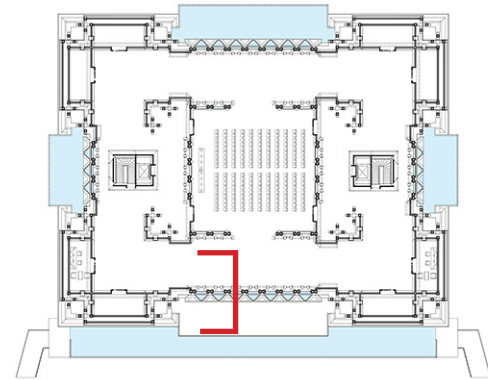
DETAIL DRAWINGS



Concrete column
The two parts will be precast and assembled on site.

STRUCTURAL ELEMENTS

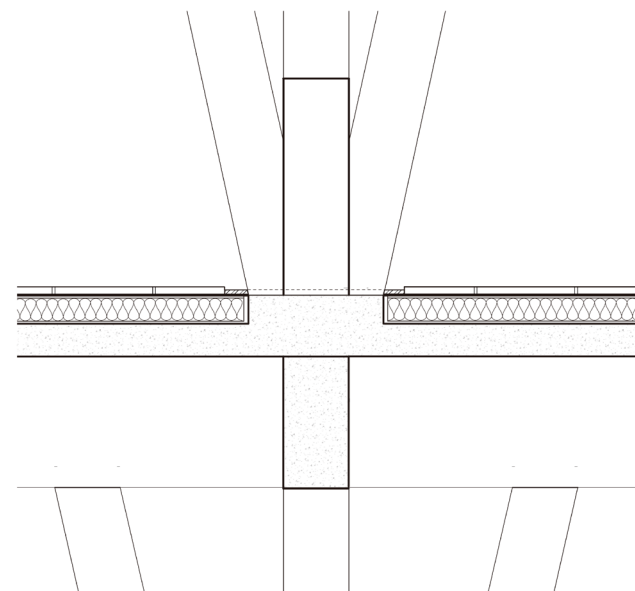
DETAIL DRAWINGS



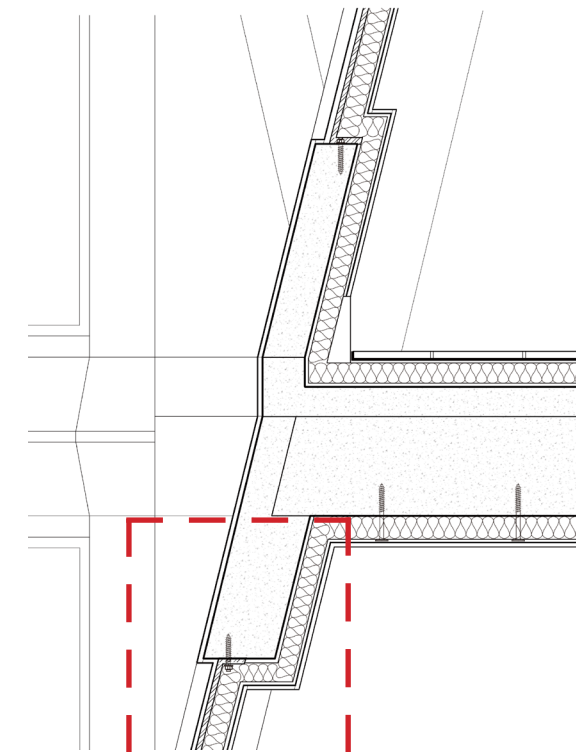
First floor to second floor



Roof and parapet detail



Column to first floor

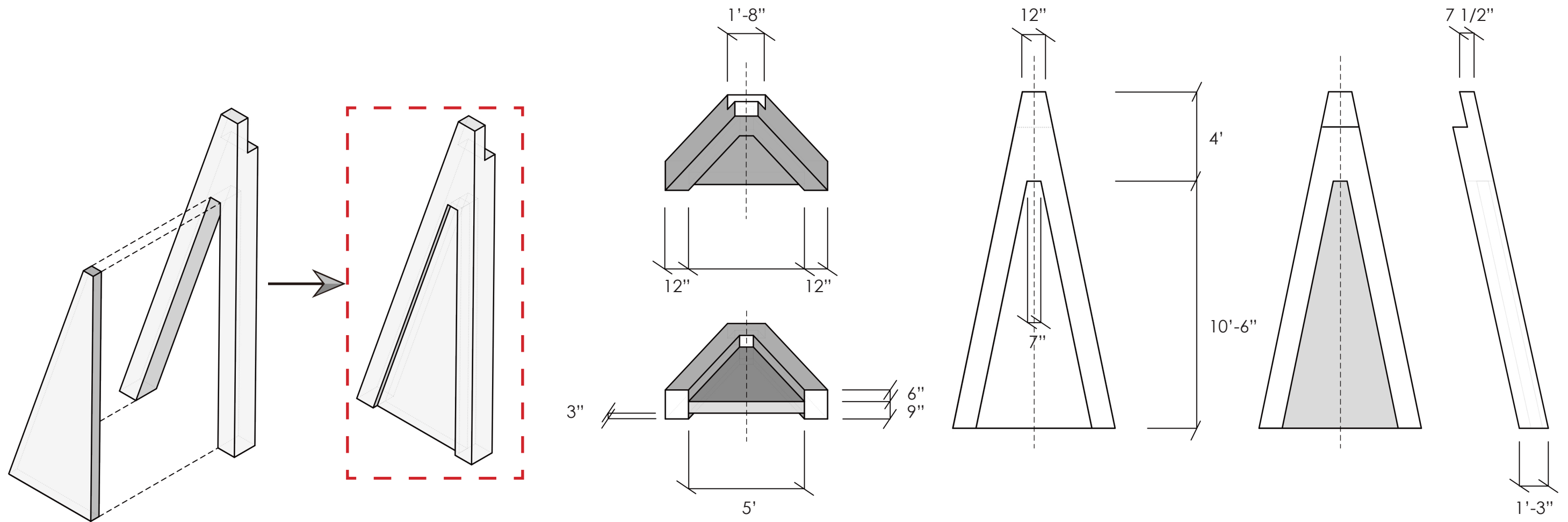


Second floor to third floor detail

Wall section b-b

STRUCTURAL ELEMENTS

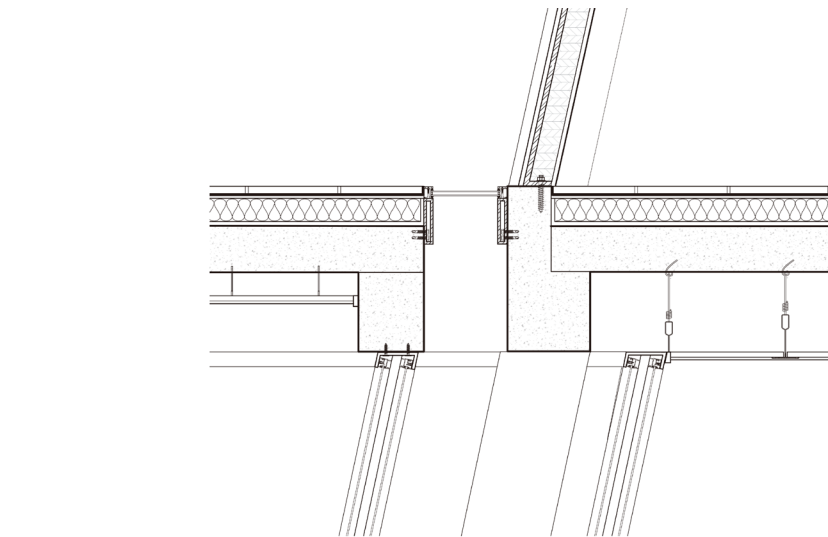
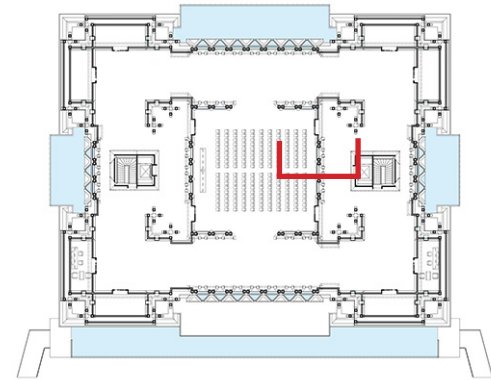
DETAIL DRAWINGS



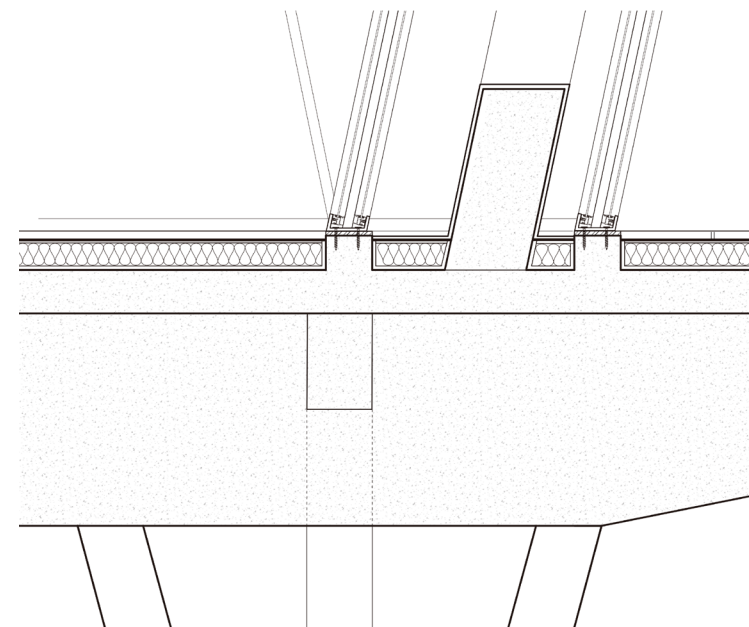
Concrete column/wall panel
The two parts will be precast and assembled on site.

STRUCTURAL ELEMENTS

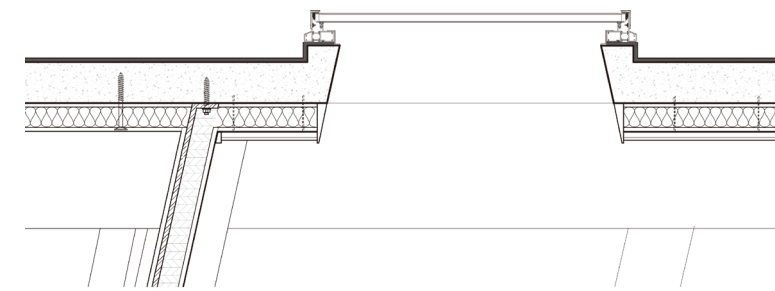
DETAIL DRAWINGS



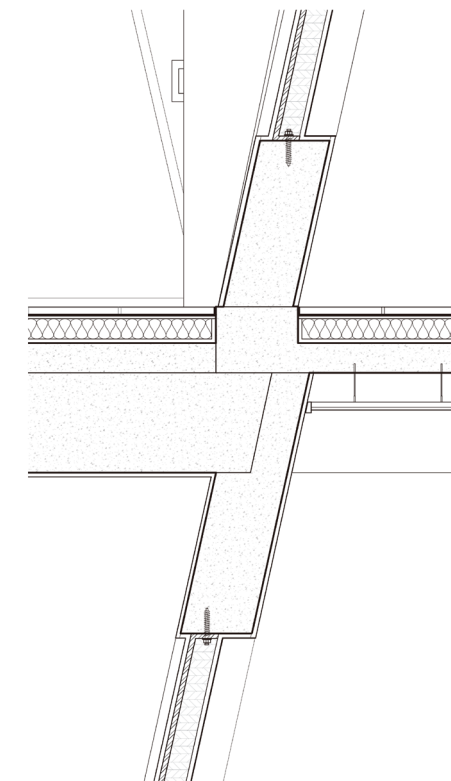
First floor to second floor



Column to first floor



Roof and skylight detail



Second floor to third floor detail

Wall section c-c

CONCLUSION

CONCLUSION

Being not a part of the initial design focus of this thesis project, I am very happy with the sense of brutalism from exaggerating the zigzag profile line of the museum contrasting the sophistication and precision of Canon cameras. Angling building elements are commonly seen in a lot of architectures. However, most of the walls and columns of a building being not perpendicular to the ground is quite unique and challenging. When creating angling building elements in my project, I learned a good lesson about how to maintain their structural functionality while pursuing an overall aesthetic appearance. Furthermore, I am very interested in what experience these elements (slanted wall, branched column, etc.) could bring to people and what reaction it may cause. The discovery will continue in the future and I am looking forward to find an answer.

The study of the water interacting with light in the project solely rely on renderings from a virtual computer program. The difficulty of assimilating water's motion limits the possible design that could be found solution for the waterfall. An actual physical model would help me explore much more in depth and perhaps yields better ideas.

Through this thesis, not only my love and passion for Canon cameras are fully expressed, but also, more importantly, a solid attempt to establish my own language has been made.

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BIBLIOGRAPHY

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1933-1936 The Birth of Canon. Retrieved

<http://www.canon.com/c-museum/en/history/story01.html>

Canon Camera Museum. Retrieved

<http://www.canon.com/c-museum/en/>

THE END

“I just disassembled the camera without any specific plan, but simply to take a look at each part. I found there were no special items like diamonds inside the camera. The parts were made from brass, aluminum, iron and rubber. I was surprised that when these inexpensive materials were put together into a camera, it demanded an exorbitant price. This made me angry”.

-Goro Yoshida

NEVER STOP EXPLORING!