Directing Space
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MASTER OF ARCHITECTURE

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Farnsworth House isn’t an object that lives up to the commonplace notions of the citizen or the architect. What’s missing are the “nonessentials.” The essentials for living are floor and roof. Everything else is proportion and nature. Whether the house pleases or not is inconsequential. What’s important is that it remains an archetype, a carrier of inspiration, with high standards for the building volume.

Mies van der Rohe on the Farnsworth House
The following presents an investigation into questions of spatial direction and continuity. This includes the directing of people via a choreographed sequence of architectural spaces through a site and a building. It further investigates a concept of continuity at various scales. A proposal for an art gallery in downtown Washington DC becomes the vehicle of exploration. The urban scale of this proposal seeks a continuity of relevant existing conditions while also creating opportunities to experience the city as well as the gallery. A serpentine-like continuous band or ribbon becomes the physical element responsible for direction and continuity for the building itself.
Directing Space

The control of shape and proportion is one approach which can be employed to direct the architectural character of a space. Both shape and proportion have a major influence on the interior and exterior rooms. The Beyeler Foundation by Renzo Piano for example is an elongated building placed parallel to the street. This position guides visitors along the street facade towards the entrance on the other end of the building. From there one can walk in a reverse direction through the exhibition. The backside of the building offers a wide view that frames a field with trees.
Spatial Continuity

Continuity:
uninterrupted connection, succession or union
uninterrupted duration or continuation especially
without essential change

Translation into Architecture:
continuing urban conditions onto the site
continuous exterior room
continuous interior space
continuous experience of the exhibition
Location

An art gallery is proposed on a site located on Pennsylvania Avenue. Three blocks away, the White House and the George Washington University campus are important landmarks.
Two Different Conditions

Two different urban conditions are bordering the site. The blocks to the east comprise mainly ten story buildings which occupy their entire sites and are relatively closed to the street. Most of these buildings are offices with some commercial use on the ground floor.

On the west side, the blocks are more open, offering green spaces or court yards, with the buildings reduced in scale. The facilities of George Washington University and retail stores occupy a large part of this area.

The challenge for the presented site is to mediate these two different conditions by offering open green spaces on the one hand but also preserving the long closed facades towards Pennsylvania Avenue.
Two elongated volumes define two major spaces on the site: one, a triangular plaza in front of the main building on Pennsylvania Avenue and two, a courtyard-like situation between the two building volumes. The main building, the gallery is aligned with the rectilinear grid of the city, so the street can open up and provide an exterior space, the plaza. This open room is an area for people to meet similar to two small parks adjacent to the site. It also serves as a layer between the street and the building to approach and enter the gallery. (1)

The interior courtyard includes an open green space, the sculpture garden in which to rest while also offering a connection between this part of the block and the small park to the east. (2)

A restaurant, which is part of the courtyard and also open to non-visitors, helps to attract people to the area in the evening hours as well. (3)
A strong geometric volume is defined by a clear, simple form with plain surfaces. It stands out as an independent and self-confident object. It differentiates itself from the ground and defines a clear space around it. The interaction of two such volumes requires careful consideration with regards to their relative placement. In this project, the placement of the building volumes resulted in two exterior rooms with different qualities: a public plaza along Pennsylvania Avenue and a more private courtyard in-between the two building volumes with a sculpture garden and terrace.
Directing The Site

The open space that is created by the plaza on the long and narrow street calls one’s attention and directs people towards the site. The gallery itself is only visible from the surrounding blocks; further along the street only a long water basin and the plaza can be seen. The plaza itself serves as a layer between the street and the building to approach and enter the gallery. The two long buildings direct the site from east to west, with different spatial layers developing from north to south. It forms a logical sequence from public to private, from plaza, to exhibition, to sculpture garden and terrace, to offices and shops. A pool of water and a connecting hallway placed perpendicular to the main building volumes divide this sequence in the east-west direction into smaller scale spaces. The courtyard continues the green space of the two small parks next to the site “into” the building. The opening between the two buildings visually connects the adjacent sites.
A ribbon, forming both structure and space literally guides visitors through the sequence of exhibition rooms. The vertical and horizontal nature of the ribbon amplifies the spatial continuity between the three floor levels.
Generally we understand a ribbon as an element with a continuous motion through varying direction changes. On the scale of a building these directional changes can raise an awareness of one’s position relative to the entire building and also relative to the site. While moving through the three different floor levels, different views of the site and its surroundings are offered. To amplify vertical continuity, rectilinear subtractions of ten by ten and ten by twenty meters in the floor visually and acoustically connect the three floor levels. The elimination of partition walls also supports the impression of one continuous room.
reversing direction of the two ribbons
The overlapping of two ribbons which move against each other, offers a certain dynamic. This condition becomes most apparent in the courtyard between the two buildings. Several other perspectives inside the building also reveal that the two ribbons are running in opposite directions. The intention of this opposition was to offer an indication of the different uses of the two buildings and to continue a spatial movement from one part of the site to the other.
Water seems to be an enjoyable element in architecture. It changes the atmosphere of a space and provides a source of calm energy. A long, flat water basin crosses the site in north-south direction. It begins outside on the plaza, runs through the gallery lobby on the ground floor, divides the court yard into terrace and sculpture garden and terminates in the administration building separating lobby and gallery store.

This continuous water surface adds two major qualities to the project. On the outside, it provides a sense of coolness on a hot day, on the inside it generates reflections and changes the smell, humidity and the acoustics of the space. The gallery benefits from these changing conditions as the water creates a certain dynamic.
view from second floor gallery onto water surface

view across the water into the lobby
I would like to think of this as the creation of “a place of possibility” or “a place of mutual discovery.” In other words, I see it as the making of a “space” to inspire visitors and even expand their consciousness. I wanted to create a very stimulating place, where works of art are not exhibited merely as specimens but can speak to us as living things.

Tadao Ando on The Pulitzer Foundation for the Arts

Architecture is as much about the event that takes place in a space as about the space itself.

Bernard Tschumi in Event-Cities
The Exhibition Space

Program For A Gallery
entrance hall / lobby
ticket counter and information desk
wardrobe
rest rooms
exhibition rooms
gallery space for
George Washington University
courtyard
shops
classrooms
cafe / restaurant
terrace
museum shop
offices
rest rooms
technical rooms
storage

combining the idea for the urban
design with the program of the gallery
Basement & Ground Floor

1. Gallery Lobby
2. Restaurant
3. Terrace
4. Sculpture Garden
5. Gallery Shop
6. Administration Lobby
7. Parking Garage
8. Loading Area
Second & Third Floor

- 9 Exhibition Space
- 10 Classroom
- 11 Workshop
- 12 Conference Room
- 13 Office Space
second floor exhibition space

view from first floor office building into courtyard
Two Planes Defining Space

The gallery space is defined by two planes: floor and ceiling. One floor of the building forms a single room, penetrated by two small cores and the main staircase. The distance between floor and ceiling determines the appearance of the room.

One room is one hundred meters long but only fifteen meters wide. The proportion of this room emphasizes a clear and strong horizontality. Relative to the height of a human, the six meter distance between floor and ceiling should avoid an overt sense of compression.
Two Planes Defining Space

A Proportional Study

A height that seemed reasonable at first was four and a half meters. This distance most supported the horizontal appearance of the room. But since the building is one hundred meters long, the two planes got too close to maintain the openness of his large space. At a height over seven and a half meters, the room began to lose its definition and to merge with the environment. Finally, with a distance of six meters, although the horizontality was not as strong, the space became more “comfortable” and appropriate for exhibition. Since each floor is enclosed on three sides by glass, the boundary had to be defined by floor and ceiling. And even though the gallery should offer large open spaces for exhibition, the definition of a room was necessary to provide a backdrop for the exhibited pieces.
To find a structure that supported the strong appearance of the ribbon, a study of different structural systems was performed. The first system was a sequence of walls which could also be used as surfaces for exhibition. With this system, the vertical appearance was too strong and the ribbon almost disappeared. The second approach was two rows of columns with a 10 meter span. The ribbon became more clear but there were still too many vertical lines interrupting the planar nature of the ribbon. Therefore the columns were reduced to every second one in a diagonal rhythm. In this way, the supporting structure became less visible and the ribbon could stand out as the main element.
The primary load bearing structure of the two buildings is steel. The columns are continuous over three floors with main beams running in-between with a 20 meter span and the secondary beams sitting on top of the main beams. In each building there are two rows of columns that are offset by half the span. The intention was to have as few columns as possible to not interrupt the horizontal direction of the building. For the same reason the columns are set back from the facade by about 2.5 meters. To keep the columns to a minimum they are enclosed in white plaster tubes.

On both ends of the building, one of the two main beams cantilevers half the span. To keep the height of the beam as low as possible, an additional flanch is welded on top of the secondary beams which are connected to the main beam. Thereby these three elements function as a Veerendael truss.

Two cores in each building stiffen the structure longitudinally. In the gallery, the cores are circular to stay within the language of the columns. The structural part is made of concrete with the rest made of fire-proof glass blocks. Both cores contain a fire stair case with the one next to the entrance containing an elevator and the inner part of the other core used to run technical supply.
Facade

A space and a surface, the interface between the building and the outside world acquires a certain autonomy, a three-dimensionality that structures the three-dimensional building itself.

Gerhard Mack in Building with Images, Eberswalde Library by Herzog and de Meuron
Facade Elements

The facade is dominated by the ribbon. The ribbon is made of insulated steel panels that wrap around the slab. To emphasize the outline of the ribbon, those steel panels are “folded” in a way that they form two edges and a surface in between so that three lines of the ribbon are showing.

To further enforce the continuity of the ribbon the glass facade is set back by half a meter. To keep the horizontality of the building the glass is held by horizontal mullions connected to tensile members. The vertical joints of the glass panels are filled with silicon. One glass pane, two meters high and five meters wide, is supported by three tensile members to keep these cables as slim as possible.

Since the structure of the slab is framed in steel all technical supply like air condition, electrical wiring and plumbing runs within the cavities of the frame.
visible facade elements: mullions and lateral members
main entrance from plaza on Pennsylvania Avenue

view into lobby and courtyard
extending the green space “into” the building

view from connecting hallway into sculpture garden
It is clear that architecture can be achieved in many ways. In this case the architectural intention was to create a continuous room, interior and exterior, which provided various opportunities for exhibition as well as guidance through the space.

The idea of a continuous ribbon is one possible approach of directing space and toward an architectural continuity. The ribbon was chosen because of its potential to direct space with a continuous motion and simultaneous guidance through the project. Decisions about structure, enclosure, surface qualities and arrangement were made in support of the clarity of the ribbon. The result was open, flexible space which enabled the accommodation of various kinds of exhibitions.

The focus on one strong architectural idea can guide the design process in a way that results in a clearly defined artifact with an unassailable position in its architectural context. It is very clear however, that the obligation of an architect has to go beyond the formation of an interesting object. Aside from the definition of formal characteristics, Architecture demands an excellent response to a well defined program as well as accommodation of human spatial desires. Even though a building might change its use over the years, its valued architectural qualities should ensure its continuity over time.
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