The chosen site is on the ax of the Lake Shore Drive. It is the Center of the Site. Two aspects were quite important to locate the first building on this piece of land. The second aspect is the Ore Walls. Because of the uniqueness of these structures and the historical value was it an important landmark on the site that will have a connection with the city.

The chosen fragment to develop includes the harbor, the Ore Walls, park, and the Lake Shore Drive. The linear fragment connects the neighborhood with the waterfront. This is done thru a linear landscape that runs parallel with the Ore Walls, park, and the Lake Shore Drive. The linear fragment is divided in several strips: the Educational Strip, the Commercial Strip, the Educational Strip, and the Cultural Strip.

Program articulation
Program Strips
In this site there is a giant steel mill called South Works. Built in 1880 and strategically located at the mouth of the Calumet River, South Works would become the third largest steel mill in the world by the time it turned 100. During its roughly hundred-year lifespan South Works hired 10,000 workers and employed nearly 20,000 people as a part of local households. These cross connections run thru the walls.

Urban Mass
The other aspect is the Ore Walls. Because of the uniqueness of these structures and the historical value was it an important connection between the harbor and the campus. These structures provide a visual connection that can be repeated on the total length of the walls. Opposite to the long line wall structures, rises the vertical element of the design. This tower is located on the Lake Shore Drive and is a landmark and an urban icon that will be visible from any point east of the campus.

Resume
The Site
This site was home to a giant steel mill called South Works. Built in 1880 and strategically located at the mouth of the Calumet River, South Works would become the third largest steel mill in the world by the time it turned 100. During its roughly hundred-year lifespan South Works hired 10,000 workers and employed nearly 20,000 people as a part of local households. These cross connections run thru the walls.

Commercial strip
This strip contains the future faculty buildings of the IIT IIT Tech Center. This building strip is located between 87 streets and the Lake. The building gives an orientation to the street from the south side and an orientation towards the park on the North side. There are cross connections from the tower towards the campus. These connections run thru the walls.

Overall design
The South Works Technology center is a new institution of the school and the site development. This project involves several programs as; laboratory, library, conference center, lecture hall, community center and an art museum. The building itself is 13 meters high and provides a visual connection of the Harbor and the Lake. Total length of the building strip is 1,8 km. It starts in the center of the neighborhood and goes towards the Michigan Lake.

Landscape
The landscape in a linear park parallel with the Ore Walls located. This location is also important to locate the tower on this ax to create a crossing point between the harbor and the lakeshore drive. This strip acts as a street between the Ore walls. It is a public indoor street that can be used as lecturing en meeting areas.

Cultural strip
The cultural strip is a part of the site that will have a connection with the city. The vertical element of the design provides a visual connection that can be repeated on the total length of the walls. It is an important landmark on the site that will have a connection with the city.

Educational strip
This strip contains the future faculty buildings of the IIT IIT Tech Center. This building strip is located between 87 streets and the Lake. The building gives an orientation to the street from the south side and an orientation towards the park on the North side. There are cross connections from the tower towards the campus. These connections run thru the walls.

Design Location
The chosen site is on the ax of the Lake Shore Drive. It is the crossing point between the harbor and the campus. The building strip should have a direct connection with the site location. This location is the center of the Site. Two aspects were quite important to locate the first building on this piece of land. The first aspect is the orientation towards the Lake Shore Drive. There is a visual connection and a physical connection between the building entrance and the Lake Shore Drive. This is also important to locate the tower on this ax to create a crossing point between the harbor and the lake.

The program consists of a Technology center, library, conference center, lecture hall, community center and an art museum. The building itself is 13 meters high and provides a visual connection of the Harbor and the Lake. Total length of the building strip is 1,8 km. It starts in the center of the neighborhood and goes towards the Michigan Lake.

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Program articulation

The program is divided into a public and a private part. The high rise is enveloping the specific program as the laboratories and the studios for the students. These stacked programs result in a tower of 84m high. Vertical transportation is made possible by two cores with stairs and elevators. There are also some podiums stairs that connect two levels, which function as intermediate休息 areas generating interaction between the levels and creating a higher open space. The large stairs operate as podiums that can be used as lecturing and meeting areas.

The low rise contains the generic part as the exhibition areas, the indoor gardens and the planetarium for the visitors. The horizontal program is divided by transparent curtain walls. There are two levels, the ground floor and a work platform at the second level. In the work platform contains computer work areas, meeting rooms and large balconies. These balconies have a visual connection with the program on ground floor. The second level is a more intimate space because of the smaller distance between people, a place for work discussion and interaction. The ground floor is a more open large space, where the activity that is going on the central attention resides. The successive programs are organized in a linear way between the core walls. It is a public indoor street that is interrupted with curtain walls. This street is connecting the different functions and it also reflects the changing experience of light and space that fits the building.
Facade Fragment

Axometric
Materialization

The façade has got a diamond grid. This grid ensures a coherent body of the total design. The diamond grid is made up of a number of layers. The first layer is the diagrid structure. The second layer is the inner façade; with operable windows. The third layer is the ETFE pillows. These generate electric energy in day time and act as a shading system that protects the users from direct sunlight. There are 6 different pillows with different intensity of solar cells. These register the day lighting in the different program parts of the building.

Structure

The structure of the hall contains a steel three dimensional truss system made by Teka. The span length is 13 meter. The height of the heat pump on the middle is 12 meter. Because of the light material, it is possible to make the structure lighter and sustainable. The three dimensional truss systems are fixed on top of the concrete Ore walls.

The main structure of the lower structures is a diagrid 6.6 meter high. The diagrid is connected to the heat pump that holds the precast hollow core slab. The span length of the slab is 6.5 meter. The THQ beam has got a span length of 13 meter. The diagrid structure also contributes to the stability system of the building. It is also supported with the two cores. The horizontal forces are absorbed mainly by the cores in the tower.

Climate

Considering the large amount of roof and façade surface, it is quite important to be aware of the energy consumption and production of the building. The roof contains of solar pillows and has got a total surface of 8000 m². To be able to venturate the building, it contains 10 percent of the roof of operable windows. The roof has got 1800 pillows. These panels produce per year 8kwh/m² of electrical energy. The roof contains of solar pillows that gives a lower efficiency, i.e. between the 0.5 and 1 kwh/m². The building is heated by floor heating system that is connected to the heat pump. The heat pump uses the collected warm air that go through a heat exchanger. The heat exchanger is based on an air water mechanism. The supply heat is taken up in the indoor garden and passes through the other parts of the building. The material used will be absorbed by a mechanical system that is connected to the heat exchanger.

The climate of the tower is regulated by a double skin façade. The double skin façade operate in winter time as a closed system that acts as an air buffer between the façade. The heated air in the indoor garden and the outdoor air will be regulated by a heat pump. In the summer time, the heat pump is turned off and the façade will be opened. The heat of the air will be absorbed by the cooling system. The heat in the tower are also provided by floor heating system.

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