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The intent of the building is to satisfy the needs of the community. The idea of creating a linear organization, manifest the relationship between a person and life.

The concept idea of the design developed from understanding the phrase “to cross a threshold”. What is a threshold? What defines the beginning and the end of a threshold? How long does it take to cross it? The transformation in human life will be reflected in the design of the building. The spine of the building represents the main path of a human journey through a twelve year period. It manifest each and every stage of our educational life.
School began with a man under a tree, who did not know he was a teacher, discussing his realization with a few, who did not know they were students. The students aspired that their sons also listen to such a man. Spaces were erected and the first school became. It can also be said that the existence-will of school was there even before the circumstances of the man under the tree.

Louis Kahn
INTRODUCTION

Miami, Florida is becoming a major city. With people migrating from all over the world, the population has doubled in the past 15 to 20 years. New and improved learning environments are in demand. I was raised in Miami and attended a prototype school. The school environment relates more to a “prison” than a learning environment. The students’ interaction with nature was minimal. There were no outside windows or open corridors. The students have to spend the day inside a box of concrete.

The daily increase in population has created a problem for the existing schools. There is an overload of students in the classrooms. Building portable classrooms was the quick and easy solution. What happened to the learning environment? Portable classrooms are built on existing playing field grounds.

There are many other reasons why we should rethink the way schools were designed. Schools should encourage students to perform learning experiences and stimulate students to achieve their goals. Schools should create a sense of academic community. It should also reflect the pattern of society. Involving the community might be the key to creating the school of the future. Urban schools should make the most of the available site while being appropriately scaled and in context with the neighborhood. The design of the school should complement the conditions of the climate. The school as a building should also satisfy the needs of the community. Parts of the schools could be shared with the community while not in use by the students.

EXISTING SCHOOL CONDITIONS

View of existing school playground.

View of the main front facade of a prototype school.

Architecture is the reaching out for the truth
Louis Kahn
Views of main commercial boulevard. Located accros the street from the proposed site.
The unique layout of the city is very interesting in the way the streets shape a spiral. The main road runs North-South on a straight line which is interrupted by a portion of the site. Here the street creates a slight double curve to avoid the site and returns to the straight grid.

This main street is one of the three ways to enter this neighborhood of Miami Lakes and, more interesting, the only North-South street.

The neighborhood is composed of many little villages, all of them connected by a single street creating the spiral. The outer loops of the spiral are mainly residential while the inner loop is retail/commercial and office buildings. These conditions make this site the focal point of the neighborhood.

Throughout the years, this neighborhood has increased in population, attracting people from all over Miami. Today, it is one of the most desirable areas of Miami.
The intent of this project is to create a building that responds to the environment. The school should respond to the climate. The location of the site allows for the perfect open environment. Taking advantage of the sun was the most important idea in the process of the design. The need for shade, ventilation, and protection from the rains were chief concerns in the functional and design solutions.

The perfect examples on designing with the environment are The Falling Water and The Salk Institute. Two building of completely different program and site however both address the needs to relate with nature and the environment.

We must begin note of the countries and climates in which homes are to be built if our design for them are to correct. One type of house seems appropriate for Egypt, another for Spain... one still different for Rome... It is obvious that design for homes ought to comfort to diversities of climate.
This first sketch makes use of the whole area. The layout of the city and the surroundings of the site were taken in consideration in developing the first thoughts. The location of the site allows for the developing of a public institution.

This site is an ideal place for a public institution. It is surrounded mainly by residential homes. It is located at the center of the neighborhood creating a hierarchy point.

The idea of the project is to create an institution that will house the three main school levels (Elementary, Middle and High School) in one main campus. The school will become the center of this small neighborhood.

The project will be organized around four main elements:
The center pool becomes the main architectural element in the design of this urban institution. The library/research center along with the exhibition hallway acts as the connection between the outside and the inside of the building. It also becomes the spine of the project. There are three courtyards that define each school level. Each courtyard becomes the center and therefore the main element within each cluster. Here students can interact between classes. The auditorium is where graduation takes place, marking the end of the students’ twelve year journey.
A series of ideas arise to create a sacred space that will unify the city and the building. A sacred place can be created in many ways and scales. A sacred place could be created by the forces of nature. Any place or room can be sacred if the voice of our soul allow us to shape the walls. Architecture should become the tool for integrating private needs and public areas.

The project began with a close look at the city. An urban design develops from the understanding of the surrounding needs. The first idea is to create a place for the community to relate and interact. This space would become the hierarchy element of the design.

The layout of the city allows for the perfect opportunity to create an open area at the center of the spiral. This area will be used by the community and will also create a point of hierarchy for the school. A circular pool of water was introduced to the plaza. A path is created along the edge of the water and the building allowing pedestrians to cross from either side of the site without going inside the building.

An early sketch developing the relation between the site and the city. The spiral shape of the streets are further emphasized in the site. To incorporate the golden section in the project will help to develop the proportions and scale of the spiral.

This sketch shows the initial thoughts in creating the sacred space

Architecture is born in the heart

Frank Lloyd Wright
The building begins to shape according to the conditions of the site. Therefore the building will be unique to the site.

The building started with the main programmatic elements grouped into different clusters. Every cluster is independent from each other set along a common architectural element. The result is the creation of three courtyards geometrically tied to the spiral of the city. This simple solution solved the problem of keeping each school level as independent as possible.

Furthermore, the main architectural elements of the building such as geometry, circulation and structure were taken into consideration while developing the shape of the building.

Parti model showing the first thoughts on the building.

The sketch shows the introduction of the spiral as the main element.
The first architectural element in the design is the water. The water edge dictates the boundary of the pool. The preliminary study shows how the water will meet the building. The pathway along the edge of the building will gently slope towards the water creating an invisible edge. Even though the pool is a circle in plan, the water edge will determine the shape according to the wind and weather.

The model above shows the first thought of the design of the building in relation to the pool. The sketch below shows the cross section of the pool.

Existing condition of the site. The diagram shows the relation between water and land. Houses are set around a lake creating a hierarchy element. This concept was further explored in the project.
The sketch shows the front of the building, overlooking the center pool. The idea is to integrate the community as part of the project. A narrow pathway along the building and the water expresses the sacredness of the space. The intention of the pathway is to connect the existing walkway across the street.
The initial idea of the project is to create a dialogue between the building and the site. The wall expressing the spiral layout of the city becomes the main element in the design of the building. Therefore, the main circulation in the building. This element acts as the spine of the building. The main stairway is set as part of the spine connecting every level. The spine also serves as the threshold between the public area of the school and the classroom area.
The model shows the development of the main structure of the building. The structure walls are radiating from the center of the pool expanding out into the city.

The sketch shows how the buildings are connected through exterior corridors and bridges.
COURTYARD

Perspective sketch of the interior corridors

Exterior photograph of the wall that intersects the main spine of the building

Wall section of the open corridors
Early sketches developing the interior courtyard. The stair or ramp becomes the main architectonic element of the courtyard.

Forms and material will establish the design image and character of the building relating it to the local architecture.

The need for ventilation, open space and shade defines the shape of the campus. The courtyard developed from the design of each cluster. Each courtyard is independent but linked by open covered corridors and hallways. Students can interact and play in the courtyards. The concrete building contains a single corridor of classrooms with exterior covered walkways which serve as circulation and gathering spaces.
Early sketches of the first ideas of the auditorium
The structure of the building is formed by walls radiating from the center pool. These walls also serve as rain leaders taking water collected from the roof back into the center pool.
The design of the campus responds to the environment of the site. Due to the great amount of rain, the copper and steel arch roof structure allows for rain water to run down the sides keeping the roof dry at all times. The use of glass throughout the building allows for natural light to penetrate the building. Metal louvers are set to minimize direct light into the classrooms. The upper floor serves as a roof patio, shading the floors below and also allowing for natural ventilation. The concrete walls, which serve as the structure of the building, are also air shafts that allow air to filter through the walls keeping the inside of the building cool. The massive vertical elements on the elevation define the geometry and proportions of the building. These are further emphasized by the light horizontal steel louvers. Exterior corridors and open courtyards allow for shade and ventilation in the building.
Building Section at Auditorium

View of the Auditorium

View from the inside of the Auditorium to the central pool

Front view of the Auditorium
Section through the spine showing the circulation between the public areas and the private.
The central plaza of The Salk Institute manifests the concept of the architectural space.
The campus is designed to promote a sense of community. Each school level is organized around a courtyard. The linear organization of the exhibition hallway leads to several private entrances to these courtyards.

The classroom building is divided into three floors. The first floor serves as laboratories and art classes while the second and third are the lecture classrooms which are level with the library and research center. Classrooms are open to daylight on two sides for adequate lighting and to make the world a part of every student’s learning adventure.

The volume and proportion of the building is emphasized with the integration of a covered roof patio, which serves for students to gather and have open lectures. The mass and volume of the two classroom buildings assent the presence of the courtyard making it the dominant element in the design. The courtyard engages in a dialogue with the center pool by the creation of a rain gutter, radiating from the pool on the concrete floor. The profile of the concrete walls at each end of the courtyard addresses the hierarchy of the courtyard. Furthermore, the integration of the stairs at each end gives the sense of a symmetrical space. The placement of these two stairs as well as the exterior corridors allow for circulation to be around the courtyard. The entrance to the classrooms are facing the courtyard. The exterior corridors allow for shade and ventilation in the classrooms as well as canopy for the lower floor.

The classrooms are the place where students spend most of their time. Therefore, the design of the courtyard becomes eminent in addressing the needs of the students.

Longitudinal Section
Perspective view of the courtyard. Vertical circulation is emphasized by the placement of the stair in the courtyard.
Between each courtyard there is an activity building. This rectangular shaped building is oriented to the center of the pool creating a visual axis radiating from the pool. The geometry of the master plan is a semicircle; therefore, the activity building acts as the keystone between each courtyard. The building sits between corridors that connect every area of the school, creating spaces where students can gather. There are two entrances to the building, one from each side creating a symmetrical piece.

The first floor houses a small auditorium which can be used for music classes or any small presentation. The auditorium is not a perfect rectangle due to acoustical reasons. Therefore, the design of this small auditorium is what dictates the shape inside the building. The angle wall runs from one end of the building to the other creating a hierarchy element.

The hierarchical offices are accommodated on the second and third floor, which is level with the library and research center. The upper floor is used for recreational activities, housing a small gymnasium and the students' activity room in one building and swimming pool in the other. Exterior bridges and corridors connect this level to the roof patios overlooking the city and the inside courtyard.
The entrance to the auditorium, set on an axis from the center of the pool, creates a dialogue between the inside of the building and the exterior. The connection is further emphasized by the placement of the stair creating an architectural element that defines the shape of the building.

The wall is visually attached to the center of the pool, which is emphasized by its massiveness, becoming appropriate to the scale of the building and the site. The elevation of the building also reflects the intentions of the design; creating voids in the wall, allows for architectural moments to occur.
The auditorium is set as a free standing volume allowing access and circulation around it. The shape and orientation is set to take advantage of the natural light and acoustical reasons. The result is a neutral and luminous interior space whose only contact to the outside is from the spectacular opening at the stage wall overlooking the pool. The wall made of stainless steel acts as a huge gate door swinging out into the exhibition hallway creating a dramatic view.

The auditorium is raised up to the second level creating a unique visual connection towards the pool. The building structure is set on three main columns, expressed in the design of the interior, and walls at each side emphasizing the shape of the building. These walls act as a circulation for the auditorium as well.

The multipurpose room is set at the lower level. The structural columns are placed in a way that gives the feeling of a symmetrical space. The main stair is set next to the multipurpose room oriented in such a way that will attract visitors unconsciously towards the upper levels.

The round metal columns supporting the slab and the structure of the building also serve as architectural elements in the design. The column projecting to the second floor and supporting the mezzanine level acts as a projection booth for the stage.
The plan of the building undoubtedly reflects the concept of the design. The site is expressed in the shape of the building. Furthermore, the volume of the school has been treated with rigor and precision allowing the site to be part of the design. The main corridor or exhibition hallway defines the boundary of public and private areas. Each cluster level is tied to the spine that serves as the main circulation. The main entrance is located at one end of the exhibition hallway at the first floor. The second and third floor of the spine is occupied by the library and research center. To capture the view of the pool, the north facade of the spine is made of glass curtain wall. This creates a beautiful sight as the sun sets to the west.

Classrooms are rectangular in plan. However, they are placed in relation to the center of the pool. The arrangement of the classrooms also creates independent courtyards known as clusters. The activity buildings act as a connection between these clusters. The auditorium is set at the opposite end of the entrance and marks the end of a student's life journey. Here is where graduation will take place.

Classrooms and educational facilities occupy the first, second and third levels while the floors above are use for recreational activities. The cafeteria is placed along the top of the spine overlooking the pool and the courtyards.

The bus drop area is set at an axis in relation to the center of the pool and the main entrance. The axis is further emphasized by the extension of a monumental wall up to the street. The parking is aligned with the edge of the street creating a boundary between the street and the playground.
Architecturally, the project begins to reflect the definition of a threshold. A definite beginning point is established by the main entrance of the school while the auditorium marks the end point of the threshold. The complex geometry of the building allows for the symmetry and balance to be the dominant architectural element in the design. Indeed there are architectural needs in our society. Architecture could be the answer to shape communities,
I came to this country when I was fourteen years old. Learning and adapting myself to a new culture was not easy. I came with my mother and older brother leaving behind my father, who I never saw again, and a younger brother and sister. The beginning was hard for us. The need for helping my mother made me mature early in my life. Although, now I thank my mother for giving me this great opportunity.

After completing school, a professional career was not my first choice but I always dreamed to be an architect. I began my educational career at a community college, which was probably what I could afford. Even though I never ask my parents for financial assistance to pay my tuition, I was always encouraged by my mother and wife to pursue my dream.

Now, I take this opportunity to thank the most wonderful people in my life. My mother who is always teaching and encouraging me to pursue my goals in life. My wife, who has been with me since the beginning helping me and encouraging me to continue. For the days and night that I needed her the most she was always there. My beautiful daughter who without her knowing, encouraged me and gave me strength to finish what I had already started.

I also need to mention my peers from the center. I thank to those who we share many ideas and moments as architect students.

Thanks to the faculty of Virginia Tech. They were always there when I needed them. To my professor Susan Piedmont-Palladino who still encourages me to keep working my best. Thanks to Jaan Holt who with his beautiful analogies knew how to teach me some of his knowledge. Marco Frascari who always knew the answers to my questions. Last but not least to Paul Emmons who I always enjoy listening to his great advice. I thank those who made this project possible.
VITA

Education

1999  Master of Architecture
      Virginia Polytechnic and State University

1997  Bachelor of Design in Architecture Studies
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Experiences

2000  Perkins and Will
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BIBLIOGRAPHY


