A BRIDGE TO EQUALITY

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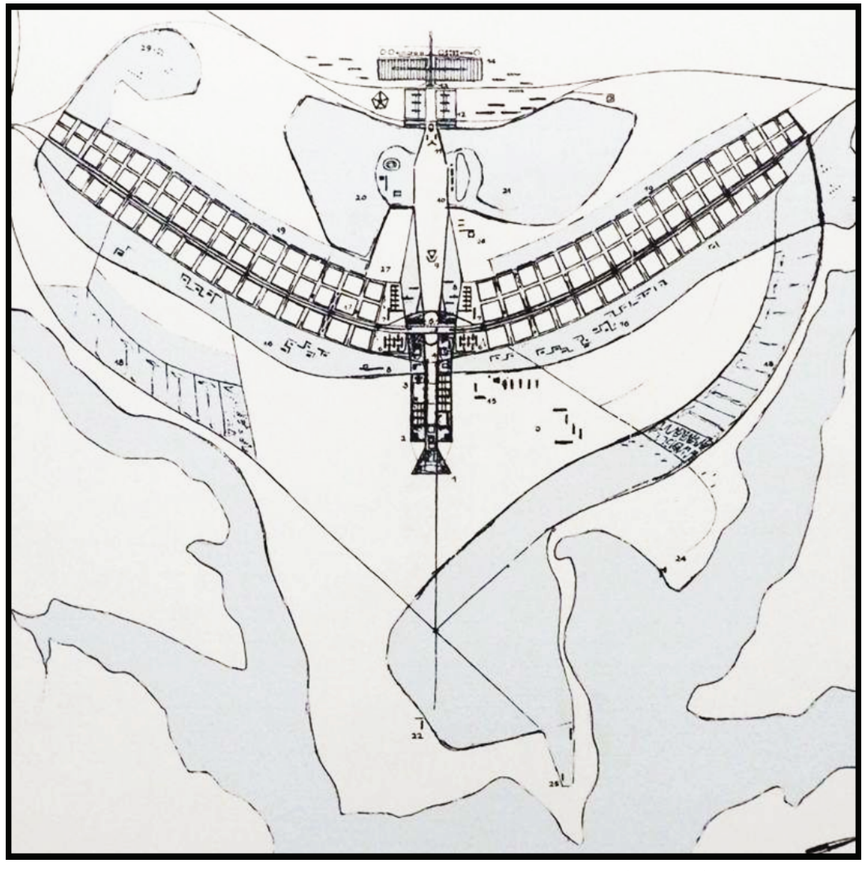
UNPLANNED

REALITY

CONCEPT STATEMENT

Brasilia was conceived in the 1950s as the ideal capital for a new and modern Brazil that was beginning to be developed. The concepts that were used to plan the city sought to bring development and wealth to the central portion of the country which, up to that point, was composed of small villages and farms. The masterplan of the city was created following Corbusian-Modernist ideals and at first, seemed to be leading to the construction of the "Radiant City" that Le Corbusier had always dreamed of. However, sixty years after its inauguration, the reality of the city is not the one that was planned by the government and architects in charge of the project. The rigidity of the Corbusian-inspired, sectorized masterplan of Brasilia ended up creating another sector, that surrounds the city, and is the home of poor families who can not enjoy the monumental promises of the new capital. Later, that rigidity was reinforced by the UNESCO World Heritage Listing awarded to the city in 1987.



Brasilia's Original Masterplan by Lucio Costa

PROJECT STATEMENT

After analyzing and criticizing the aspects of the Modernist architectural concepts that were used to create Brasilia and that led to the creation of invisible boundaries that push the poor out of the city and comparing the architecture employed in the planning of Brasilia with that of other Modern Brazilian architects like Lina Bo Bardi, Joao B. Villanova Artigas, and Paulo Mendes da Rocha, who were able to achieve social justice and mobility through their designs, an architectural proposal will be developed to try to mitigate the social division and distance that exists between Brasilia and its surrounding cities, specifically in the Rising Sun settlement in the city of Ceilandia.

One of the architectural elements that will be explored is the **Neighborhood Unit** concept which creates small cities within cities that can become self-sufficient and free from the dependency of having a centralized downtown area. It allows residents to have education, health services, commercial spaces, police stations, all within walking distances from home. The project objective is to use that modern concept and merge it with ideas coming from the Brazilian Brutalist movement in order to make it more socially just and bring better living conditions to the people living in the Rising Sun area.

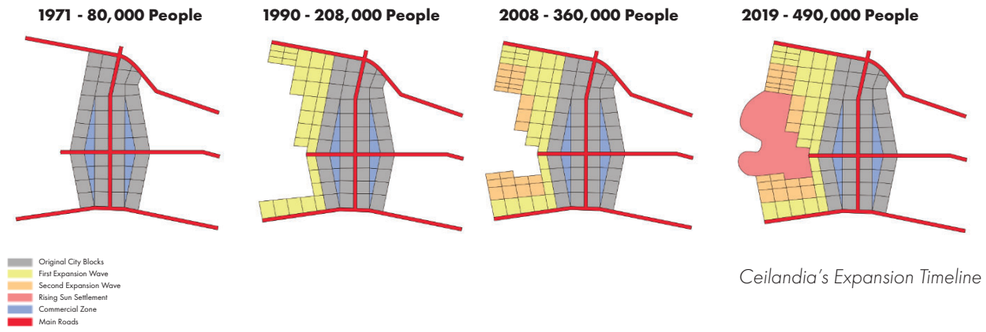
Brasilia's Neighborhood Unit Layout

SITE STATEMENT

CEILANDIA

The city of Ceilandia was planned in the end of the 1960's as a governmental project to remove urban, informal settlements that had been spreading through Brasilia. By 1969, nearly 80,000 people were living in Brasilia's streets. Most of these people were construction workers who moved to Brasilia to work on its construction and found themselves left aside by the government once the city was completed. In 1971, Ceilandia was created and became the home of those poor families.

Since its inauguration, Ceilandia has gone through two great expansion waves and now, is home to over 490,000 people. However, that expansion was not followed by infrastructure development in the entire area. As more people moved to Ceilandia over the years, an irregular settlement named Rising Sun started to be formed and now, it became the largest *favela* in the world housing almost 100,000 people.



Ceilandia's Expansion Timeline

RISING SUN

Rising Sun is an invasion that was formed in the middle of the bushes in the outskirts of Ceilandia, the largest satellite city of Brasilia. In the beginning, there was only candlelight available, water had to be fetched from relatives or acquaintances, and public transportion would not arrive there. The bus companies refused to open a new line and claimed that it would be too dangerous to operate a line in that area which holds the highest violence rates in the greater Brasilia region. Today, less than 20 years after it started to be formed, Rising Sun is the largest *favela* (slum) in the world.

The horizontal slum, just 35 kilometers from the Planalto Palace and the National Congress, is constantly growing. Despite the supervision of the Federal District government, which has already toppled houses and shacks on the site, the Rising Sun is spreading beyond the official size, still delimited in 2009, of 934.4 hectares - size of almost 1,000 soccer fields. It is estimated that today 100,000 people inhabit the invaded area. These are people who, despite their proximity to power, generally only circulate in the palaces, monumental buildings, and planned blocks of Brasilia providing low-skilled services such as maids, masons, scullery and street vendors.

RISING SUN:

Area: 2300 Acres
Population: 100,000
Population Density: 27,000 /sqmi
Average Per Capita Income: US$120.00 / Month
HDI: 0.411
Population Growth Rate: 7% / Year

PLANNED

DREAM

CHAPTER 1

PLANNING THE DREAM

1.1 - The Influence of Corbusian Ideas in the Planning of Brasilia

Charles-Édouard Jeanneret, known as Le Corbusier (Fig. 01) played an essential role in the development of the Brazilian Modernist Movement. Jeanneret traveled to Brazil many times and there are traces of his work all over the country. One of the greatest expressions of Le Corbusier's impact in the Brazilian Modernist Movement is found in the city of Brasília. That city, which would become the new capital of Brazil, represented the arrival of a new society, new ideals, and new ways. That was the perfect setting for leading architects Oscar Niemeyer and Lúcio Costa to express their connection with Le Corbusier's principles. Their plan for the new city would be a reinterpretation of Le Corbusier's Ville Radieuse (The Radiant City), a model of how a Modern city should be planned, created between 1924-1935. Brasília is filled with Modernist buildings and even its plan reveals ideals from that Movement. The city and its relationship to Ville Radieuse (Fig. 02) is so strong that Le Corbusier called Brasília "the green Ville Radieuse" after visiting it in 1962 . The relationship between Jeanneret and Brazil brought changes to his own style and influenced his second period of work which lasted until his death in 1965.

Fig.01 - Le Corbusier's ID

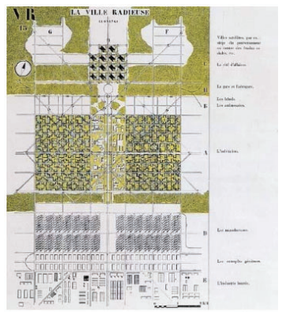


Fig.02 - Ville Radieuse's Plan

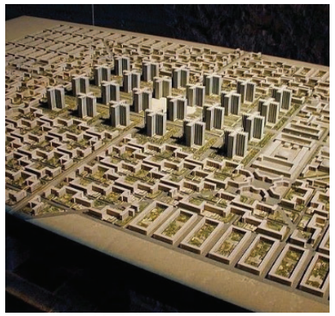


Fig.03 - Ville Radieuse's Model

In his book Towards an Architecture , Le Corbusier listed the five points of the new architecture which are the pilotis *7*, the free design of the ground plan, the free design of the facade, the horizontal window, and roof gardens. These points guided Modern architecture and set the parameters architects needed to create new ways of thinking about buildings. As Alan Colquhoun wrote in his book, Le Corbusier's five points for a new architecture were "the purification of architectural traditions, not its abandonment." . Le Corbusier had been experimenting with urban prototypes in order to find the perfect layout for a Modern, machine-age city. These experiments led to the conception of the Ville Radieuse (Fig. 03), a classless, decentralized city, surrounded by service bands. These bands supplied the city with everything that it would need: education, businesses, transportation, hotels, embassies, residences, green areas, industrial plants, and warehouses. The concept of dividing the city into functional zones would be later applied to Brasília's plan by Lucio Costa.

1.2 - Brasilia and Ville Radieuse Relationship - Plan

Brasília's location was strategically set in the center of the Brazilian territory in order to bring modernity and advancement to the interior regions of the country. The masterplan designed by Lucio Costa is a reinterpretation of the five fundamental points in urbanism expressed by Le Corbusier in his Ville Radieuse (Fig. 04). These points are the city's main schematic organization, the circulation system, zoning, neighborhood social clubs, and buildings standing over pilotis. Brasília's schematic plan was designed in the shape of an aeroplane. It is called Plano Piloto (Pilot Plan), a term derived from letters written by Le Corbusier, related to the construction of the city.

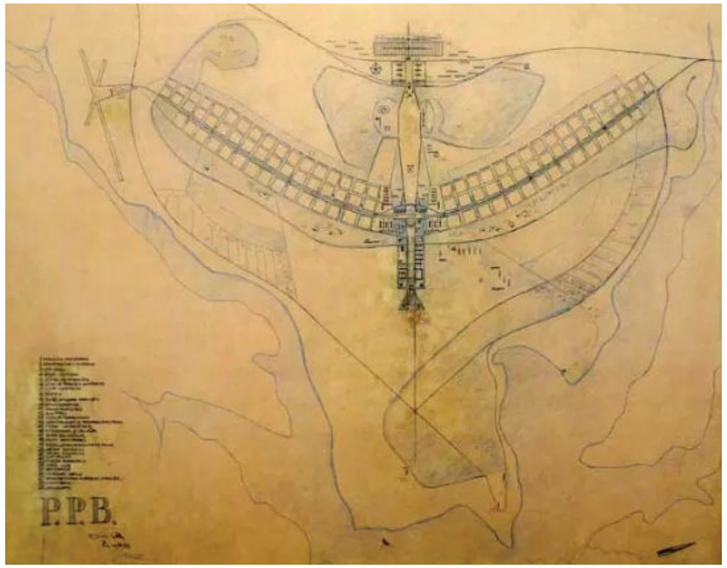


Fig.04 - Brasilia's Original Masterplan by Lucio Costa

The plan holds strong relationship to the Ville Radieuse anthropomorphic schematic organization which divided the city in five areas. The head would be the city's business center, the lungs would be the residential areas, the column would be separated for large public buildings and hotels, the stomach would be the small factories area, and finally, the lower members would be the designated area for large industrial complexes and commercial buildings. In the Ville Radieuse project, Le Corbusier organized what he considered the four main urban functions (living, working, circulating, and cultivating the body and spirit) by superimposing two geometric grids, one of which, was inspired by Tony Garnier's Industrial City . As Curtis mentioned in his book, the Ville Radieuse plan sought to establish balance between private and public, buildings and open space, city and nature. That balance added to other Corbusian ideas led to the development of an unique city plan . In the words of Frampton, "a typical section through the entire city showed all structures raised clear of the ground, including the garages and the access roads. By virtue of elevating everything on pilotis the ground surface would have become a continuous park in which the pedestrian would be free to wander at will." .

The schematic organization of Brasília (Plano Piloto) is based on two large axis which cross each other at a 90° angle. The first sketch was basically the shape of a cross (Fig. 05). After, inspired by Le Corbusier and even by Leonardo da Vinci's Vitruvian Man, Lucio Costa transformed one of the axis into an arch which represents the wings of an aeroplane. Both axis are inscribed in an equilateral triangle and were further developed in order to achieve optimal water drainage and the best fitting to local topography.

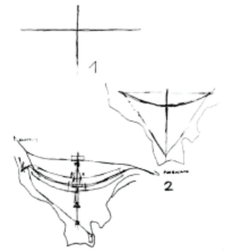


Fig.05 - First Planning Sketches


Fig.06 - Monumental Axis


Fig.06 - Highway Axis

The first axis is called Eixo Monumental (Monumental Axis) and it holds similarities to the body axis in the Ville Radieuse. This axis (Fig. 06) is filled with governmental buildings and palaces, public monuments, and hotels. The other axis (Fig. 07) is called Eixo Rodoviário (Highway Axis) and it is related to the lungs area in the Ville. Residential buildings are distributed along this axis surroundings. The anthropomorphic schematic organization continues to happen through Brasília's administrative area where the Senate and Congress buildings act as the head of the body and the adjacent Ministry buildings function as its arms. The center of that area is the Praça dos Três Poderes (Three Powers Square), a large, central, open space where executive, legislative, and judicial powers come together (Fig. 08).

Monumentality is highly explored in this area of the city which is filled with large Modern palaces made out of concrete and glass (Fig. 09, Fig. 10, and Fig. 11). As Ana Helena Fragomeni stated in her book, "Brasília seems to suffer from Pharaonic Syndrome: everything must be huge and monumental." . The way in which Lucio Costa and Oscar Niemeyer arrayed these monumental, governmental buildings, wisely choosing the centralized perspectives that they create, express the idea of them wanting to create a Versailles for the people. Like it happens in Le Corbusier's Chandigarh, hierarchy is subtly expressed through architecture with the use of verticality and large scale. As Michael Fazio wrote, "Le Corbusier designed the symbolic governmental buildings, which he located on the highest ground at the head of the scheme with majestic foothills of the Himalayas beyond, in a manner that recalls the Acropolis in Athens. He grouped four major buildings around a great ceremonial plaza" , a very similar scheme to the one applied on the Praça dos Três Poderes in Brasília.


Fig.08 - Three Powers Square


Fig.09 - Planalto Palace


Fig.10 - Alvorada Palace


Fig.11 - Itamaraty Palace

1.3 - Brasilia and Ville Radieuse Relationship - Circulation

Another aspect of the city of Brasília, which was borrowed from the Ville Radieuse plan is the circulation system. They share an hierarchized system of roads and access points which, following the ideals of Modern urbanism, separates the circulation of pedestrians and vehicles. In the Ville Radieuse plan, Le Corbusier created an orthogonal circulation system, structured around a complex grid filled with crossings and intersections which separated pedestrians and vehicles along different levels. In Brasília, Lucio Costa applied highway designing techniques to his urbanistic plan and created a circulation system analogous to the act of sewing. By doing that, he eliminated the highway crossings and developed an unique traffic layout (Fig. 12).

The city's roads and highways are divided based on their speed limits and function. The large arched axis (Eixo Rodoviário) acts the datum for the high speed highways. It is the fastest road and sits on a higher level when compared to the other areas of the city. Parallel to it, there are medium speed roads, the Eixinhos (small axis) which are used for local traffic and provide access to the residential areas, located in lower levels, through descending passages. Following the sewing analogy, these interlevel passages are called Tesourinhas (small scissors - Fig. 13) and Agulhinhas (small needles). The other large axis (Eixo Monumental) is a long, straight highway which descends from Brasília's highest point and leads to the Praça dos Três Poderes, center of the governmental area. The intersection between the two large axis is articulated by the central bus station which is divided in two levels, and separates pedestrian and vehicular access to it. There are also a series of autonomous pedestrian ways which provides free flow of people between the residential areas, away from vehicles and danger. That sense of freedom is enhanced by the use of the pilotis which provides free pedestrian circulation under the buildings and visually, allows green spaces to flow and merge with constructed spaces.

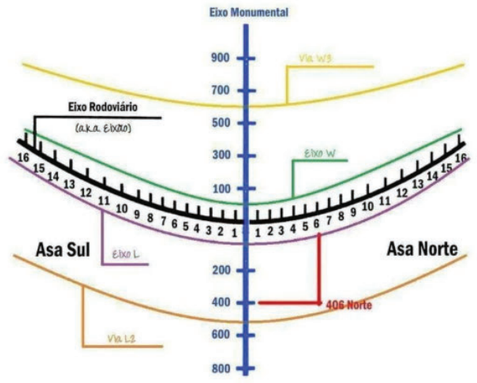


Fig. 12 - Brasilia's Traffic Layout


Fig. 13 - Brasilia's "Tesourinhas"

1.4 - Brasilia and Ville Radieuse Relationship - Urban Zoning

The ideas of the Ville Radieuse were also applied in Brasília's plan by the use of the Corbusian concept of zoning. That zoning was applied in four different scales, monumental, gregarious, bucolic, and residential. The Eixo Monumental (Monumental Axis) highway is the expression of the monumental scale. It brings the powers of federal and state governments together. On one end of the axis, there is the Palacio do Buriti (State Governor Palace), center of the state power (Fig. 14). On the other, there is the Praça dos Três Poderes, surrounded by Niemeyer's federal palaces. Between these two points, closer to the federal power, there is a sequence of eight-story high buildings, the Ministries (Fig. 15), which are displayed in a scenographic manner, and are loaded with horizontality and Modern elements. The center point of this axis is marked by the central bus station, hotels, and commercial centers. The area between the central bus station and the Governor's palace is dedicated for sports, stadiums, and it is where the television tower is sited. Brasília's television tower (Fig. 16) is often related to the Eiffel Tower and s a symbol of the support and celebration of telecommunications.

The gregarious scale is expressed around the other axis (Eixo Rodoviário) and along the aeroplane's wings. Around the axis, there are banks, hotels, cultural centers, hospitals, embassies, and radio and television businesses. On the wings, there are residential buildings, social and leisure clubs, and commercial centers. By creating large, open, green spaces which were destined for leisure, Lucio Costa explored the bucolic scale. The large amount of green, public spaces, led Brasília to being recognized as the parks city. Finally, the residential scale, which happens on the city plan's wings, was based on the concept of the Neighborhood Units , an expression of the new, Modern way to live, and became a symbol of Brasília.

Fig. 14 - Buriti Palace

Fig. 15 - Brasilia's Ministries

Fig. 16 - Brasilia's TV Tower

1.5 - Brasilia and Ville Radieuse Relationship - Neighborhood Units

As it happens in the Ville Radieuse plan, Brasília's residential areas are based on the concept of the Neighborhood Units (Fig. 17). That concept develops self-sustaining residential areas which provide all amenities and services required by urban life. All services should be accessible by foot and would promote sociability among people exploring neighborhood daily activities. As Michael Wesely stated, "The solution found by Lucio Costa for Brasília's habitational functions attributed a new manner of living to the city and was his greatest contribution to the country's urban culture and landscape." . Wesely also stresses that Costa merged concepts from the American urbanism, Ebenezer Howard's Garden City, European height standards, in order to design his fundamental Neighborhood Unit layout which is called Superquadra (Superblock) . In the words of Lucio Costa, "The residential scale, with its innovative concept of the superquadra (Fig. 18), the urban serenity brought by the residential buildings uniform, six-story high layout, the free flow of people granted by the use of the pilotis, and predominance of green spaces, developed an embryo of a new way of living, singular to Brasília, and completely different from other Brazilian cities." .

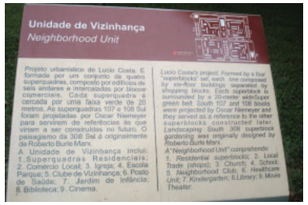


Fig. 17 - Neighborhood Unit Layout

Fig. 18 - Brasilia's Superblock

Le Corbusier believed that urbanism should start by developing an habitational cell (a single home) and its insertion within a group of other cells would create a properly dimensioned habitational module, the neighborhood unit. In his Ville Radieuse, these modules were conceived as a large, public garden, structured over an orthogonal grid measuring 1300 feet by 1300 feet. Costa reinterpreted the Corbusian neighborhood unit and created the concept of the superquadras (superblocks). Each superquadra can be considered one cell and it consists of a large block measuring about 1000 feet by 1000 feet, with its own public school, commercial buildings, and homes for 3000 people. The neighborhood unit is formed by four adjacent superquadras, and houses 12000 people. Between these superquadras, there are social clubs, movie theaters, churches, small hospitals, and commercial buildings.

The superquadras are the greatest expression of the Garden City ideals employed in Brasília, as they are filled by green public spaces destined for leisure, tree-lined boundaries providing shade, comfort, and articulation with the city's monumental scale, as well as very organic internal roads. They represent Costa's opposition to the traditional, private, closed, apartment complexes, being a series of open spaces that flow within each other and provide free circulation of people . As Wesely states, "The use of the pilotis provided freedom for the ground and created a green continuum which is extended along the entire Eixo Rodoviário (Highway Axis). Freed from physical barriers inherent to traditional cities, Brasília's ground is accessible to everyone. A grid of pedestrian pathways, independent from automotive highways, provides access to commercial buildings and other services existing in the neighborhood unit." .

1.6 - Brasilia and Ville Radieuse Relationship - Residential Typology

Both Brasília and the Ville Radieuse use the typology of buildings standing over pilotis in their residential areas. The effect brought by the use of that typology is expressed by Jorge Torres in his book, where he states that "architecture floats over a continuous garden which is a fundamental component for the city's geometrical system understanding.".

The only residential type in the Ville Radieuse is the bloc à redent, defined by Torres in his book as a huge, continuous building, standing over pilotis, with a public roof garden which contained playgrounds for children, bars, hydrotherapy installations, showering zones, dressing rooms, solarium, running tracks, and artificial mountains covered by vegetation. As Kenneth Frampton states, in order to control solar super exposure, Le Corbusier developed two distinct sections for the bloc à redent buildings. Whenever the building's orientation faced the east-west direction, the building would have a central corridor. On the other hand, if the building was oriented towards the north-south direction, it would have a lateral corridor in order to eliminate the north oriented apartments from the plan 28.

In Brasília, the city's masterplan stipulated various residential building configurations, all of them six-stories high, perpendicular to the Eixo Rodoviário (Highway Axis), and standing over pilotis. These buildings architecture is loaded with formal accuracy and they are usually uniformly heightened, rectangular prisms (Fig. 19 and Fig. 20). Their facades are composed of long, rectangular, glass panels on one side, and traditional, Brazilian, cobogó 29 (Fig. 21 and Fig. 22) mosaics on the other. In the words of Danilo Matoso, "The residential superquadras and its buildings compose one of the most successful urban spaces in the world.".

Fig.19 - Brasilia's Residential Building

Fig.20 - Brasilia's Residential Building

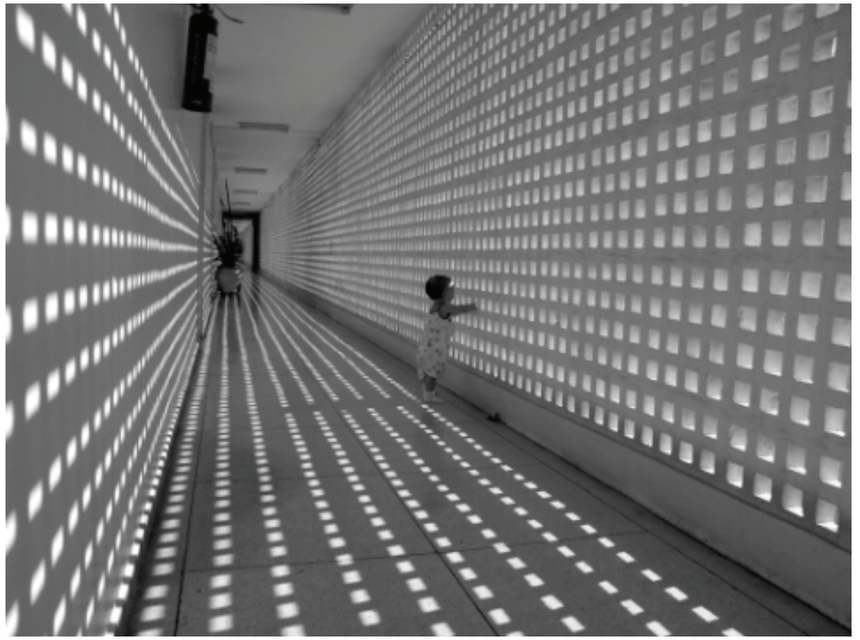


Fig.21 - Interior View of Cobogo Mosaic

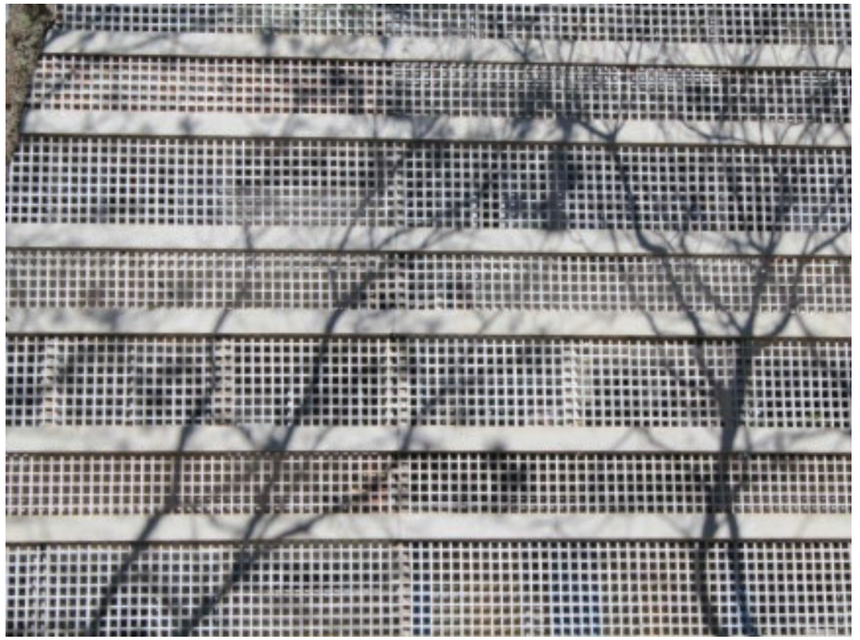


Fig.22 - Exterior View of Cobogo Mosaic

THE PLAN THAT FAILED

CHAPTER 2

UNPLANNED REALITIES

2.1 - Social Divisions Within the New Capital

Thousands of construction workers were brought to Brasilia in the 1950's in order to have the ambitious dream of President Kubitschek (Fig. 23) fulfilled. He wantes the city to be built in four years and that demanded a huge workforce to be placed in site. His objective to have the modern, new capital done in such short time was reached but he never planned for what would happen after that. The thousands of workers that had come to Brasilia were now, left with no job, opportunites or a place to live. That led to the creation of thousands of slums (Fig. 24 and Fig.25) accross the newly built city which intended to be the starting point of a new, more developed, modern Brazil.

Fig.23 - President Kubitschek at Brasilia's Site

Fig.24 - Slums in Brasilia (1960's)

Fig.25 - Slums in Brasilia (1960's)

As poverty belts increased in Brasilia, the government started to think about ways to solve that problem and "clean" the city, leaving only the monumental architecture to be seen and experienced by those walking around town. Police force and other governmental agencies started to eradicate these settlements by the use of force (Fig. 26) and at the same time, creating camp-like settlements for the displaced families to live which later started to develop into satellite cities (Fig. 27 and Fig. 28).

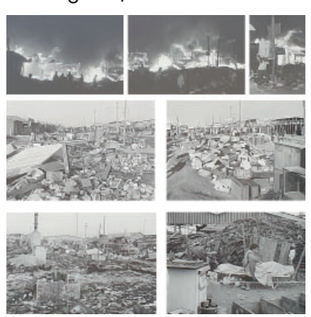


Fig.26 - Destruction of the Urban Settlements

Fig.27 - Camps for the Displaced Families

Fig.28 - Beginning of Satellite Cities

2.2 - The Creation of Ceilandia

As the population living on the streets of Brasilia was reaching 80,000 people only nine years after its completion, the government decided to create an agency to move those families away from the downtown area. That agency was called CEI (Invasions Eradication Center). That agency, which later on gave name to the city of Ceilandia (CEI+Land), found a rural area, about fifteen miles away from the center of Brasilia, and developes affordable housing for those who had been living on the streets. By the time Ceilandia was created in 1971, it already had 80,000 inhabitants and that number only grew from that point over time.

Fig.29 - Creatiion of Ceilandia (1971)

Fig.30 - Ceilandia'a Central Market (1972)

Fig.31 - Aerial View of Ceilandia (2015)

After its inauguration, Ceilandia has gone through two large waves of expansion which were limited by an enviromental protection area. The population increased at a very fast pace but the infrastructural development did not follow it. Lots of streets did not have electrical power, sewage system, or pavement available. To make the growth problem even worst, as more and more people kept coming to the region searching for a place to build their home, the environmental protection area was invaded and the Rising Sun slum (Fig. 32) was created. The Rising Sun slum population has been growing at a rate higher than any other city in the world (7% per year) and its inhabitants have to deal with terrible living conditions, high crime rates, and lack of opportunities (Fig.33).

Fig.32 - Rising Sun Slum

Fig.33 - Rising Sun Slum Conditions

2.3 - Invisible Borders

The rigidity of the Corbusian-inspired masterplan of Brasilia led to the creation of invisible boundaries that pushed low-income families away from the monumental structure of Brasilia. As of 2019, only about 300,000 people live in Brasilia while nearly 2.5 million people live on the outskirt cities which are called satellite cities (Fig. 34). Even though most of the population live around Brasilia'a area, most of them have to commute every day to the city in order to find job opportunities and some kind of income. That separation created by the sectorization of Brasilia was renforced by the UNESCO World Heritage Listaing awarded to the city in 1987 and that forbids any kind of changes to be done in the city masterplan. That listing made the housing stock impossible to be increased and therefore, housing prices have risen very much over the years.

The largest satellite city in Brasilia's area is Ceilandia with almost 500,000 inhabitants. Even though the population in Ceilandia is close to twice as much as the population in Brasilia, Ceilandia has less than half of Brasilia's square footage and that leads to a lot of problems that generate lower living quality. The dependancy of the satellite cities to Brasilia is enormous both in jobs oppotunities as in health and education options. There are only about 25,000 formal jobs available in the city of Ceilandia whereas in Brasilia, there are about 660,000 formal jobs. For that reason, added to the lack of higher education degrees in the Ceilandia population, people need to commute to Brasilia day after day seeking for informal jobs like cleaning houses, taking care and washing cars, selling goods on the street, etc.

Fig.34 - Satellite Cities Around Brasilia

2.4 - 15 Miles - 2 Different Worlds

Even though Brasilia and Ceilandia are only 15 miles apart from each other, the reality experienced by people living in these two cities are completely different. Ceilandia had the largest crime rates in the state and yet, no development in security has been experienced over the past years. Most of the crimes commited in Brasilia are commited by people who live in the outskirts of the city and go there to make some money out of robbery, kidnapping, and other crimes. That scenario is created by the lack of education, job opportunities, and income available for the residents of the satellite cities.

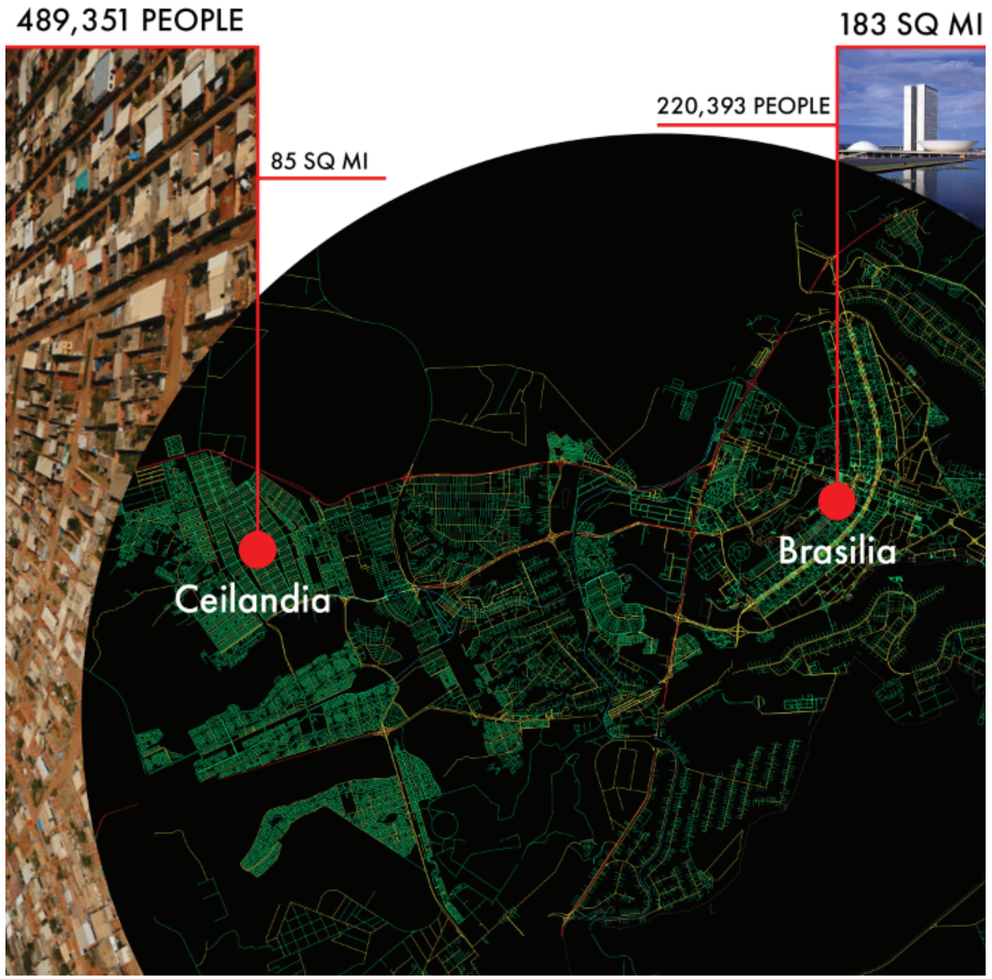


Fig.35 - Area + Population Comparison - Brasilia / Ceilandia

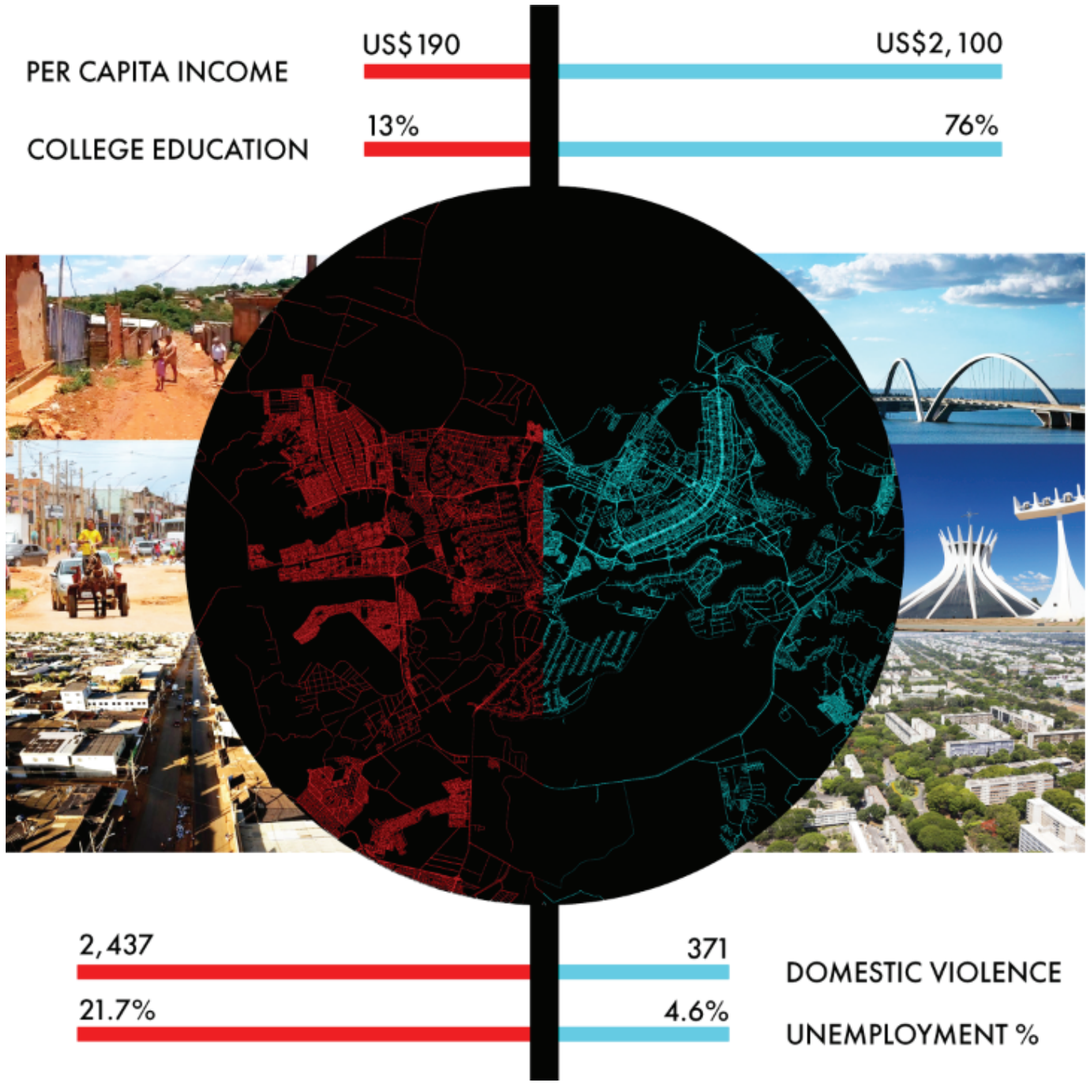
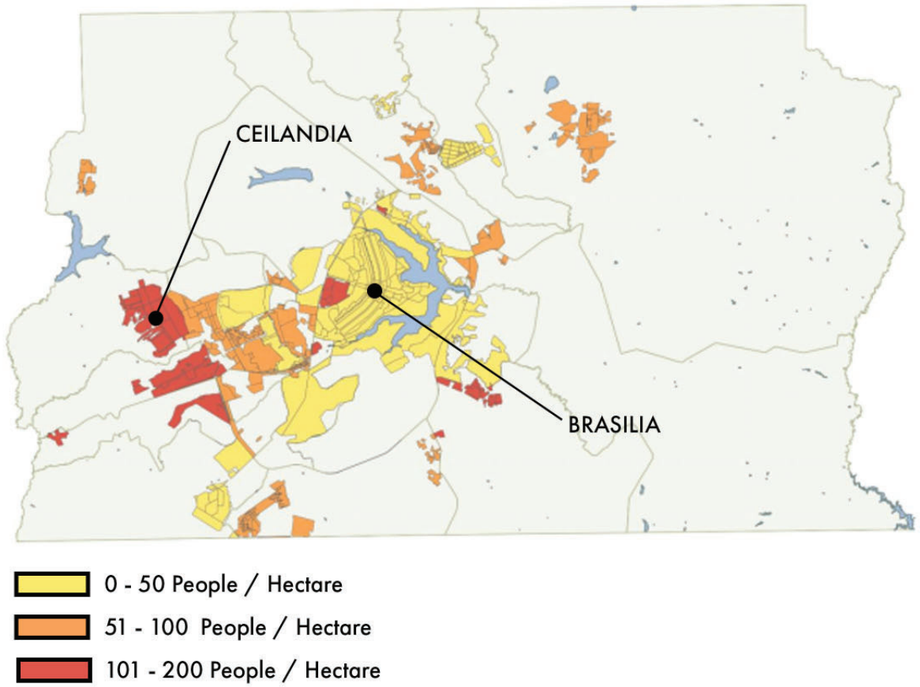


Fig.36 - Comparison - Ceilandia / Brasilia



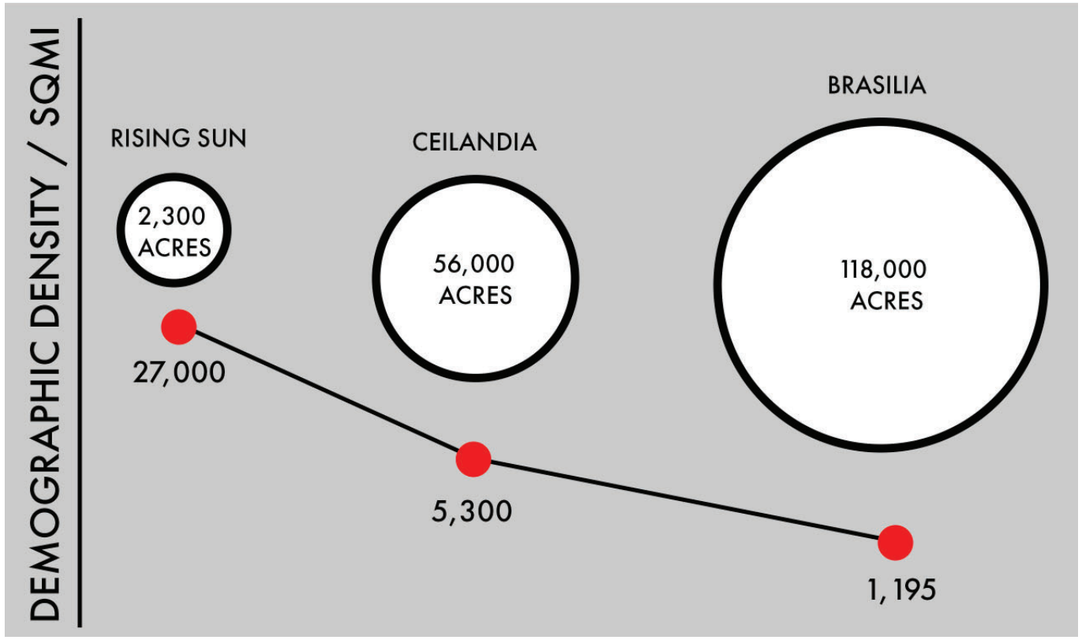


Fig.37 - Demographic Density Comparison

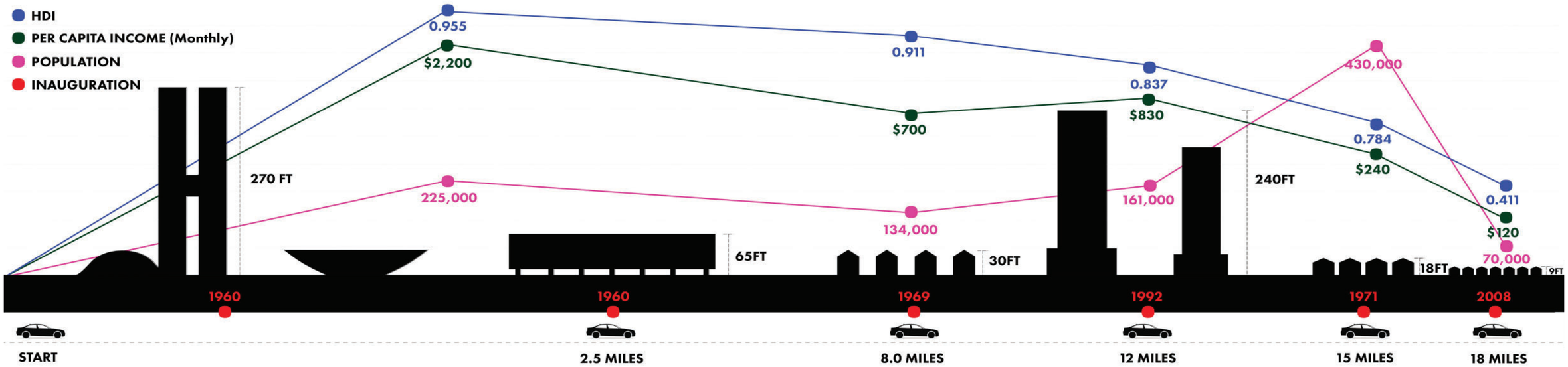


Fig.38 - Comparison - Ceilandia / Brasilia

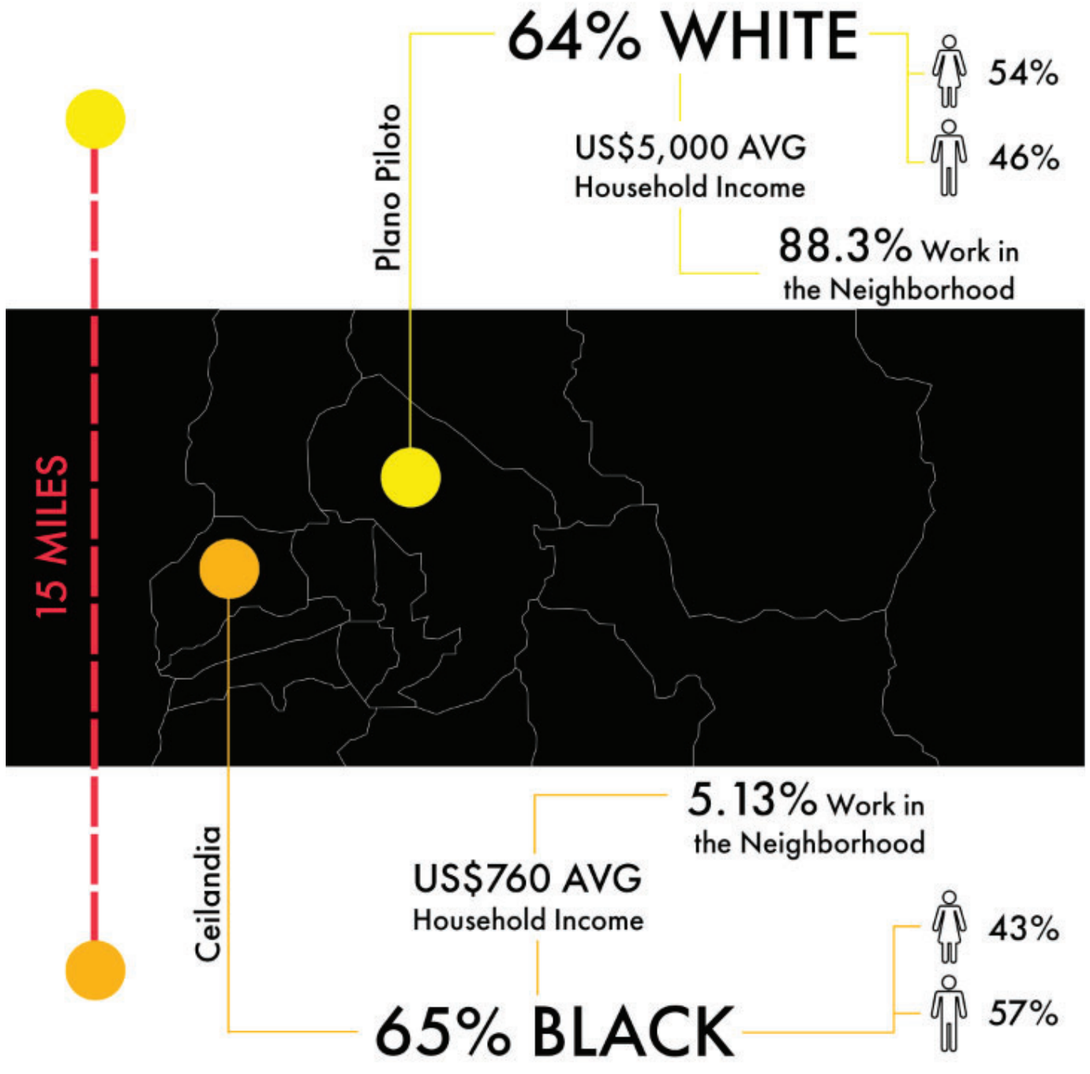


Fig.39 - Comparison - Ceilandia / Brasilia

Fig.40 - Comparison - Ceilandia / Brasilia

LEARNING

HOW

TO CHANGE

CHAPTER 3

REFERENCES FOR CHANGE

3.1 - Brazilian Brutalism - FAU-SP by Joao Vilanova Artigas

Artigas' interpretation of the tropes of international modernism sought to facilitate intellectual, creative and political community. At the FAU-SP building, he designed a vast concrete shell of fluid space, porous to light and air, designed to foster a new collaborative and interdisciplinary school.

OPEN AND ACCESSIBLE TO ALL

The vast atrium is illuminated from above through a sublime textile of interlocking concrete elements and surrounded by glass-enclosed rooms that support the idea that knowledge should be available for everyone (Fig.40).

There are no front doors to the architecture faculty, with the ground floor open to the south-west (Fig.41). A communal space that promoted interdisciplinary exchange. Artigas described the architecture as a test laboratory for his ideal community. "**I saw it as the spatialization of democracy, in dignified spaces, without front doors – a temple where all activities are valid**".

MATERIALITY: The use of rough, unfinished concrete is supposed to represent the rough, hardworking reality that most Brazilians have to endure. It is a hulking off-form concrete volume, at once open and closed, heavy and light: a communal, civic container of ideas.

Fig.41 - FAU-SP Atrium

Fig.42 - FAU-SP Doorless Entrance

3.2 - Brazilian Brutalism - SESC Pompeia by Lina Bo Bardi

THE FACTORY OF LEISURE

The communal is again king, yet in a different, more complex manner than at FAU-USP, with the emphasis on accommodating all people of all ages and inclinations.

The ethic and aesthetic of the Paulista Brutalist School is present again in the huge concrete towers that house a sport for every taste: a grand hall for gatherings (Fig.42), a swimming pool on the ground floor, with levels of basketball, soccer, volleyball, dance and yoga above.

MATERIALITY: At SESC, the concrete is not precast but poured on site, the windows are irregular, primitive "holes" in the concrete facade and the forms of the sports towers take on an anthropomorphic quality, like a mismatched couple dancing on an industrial site (Fig.43).

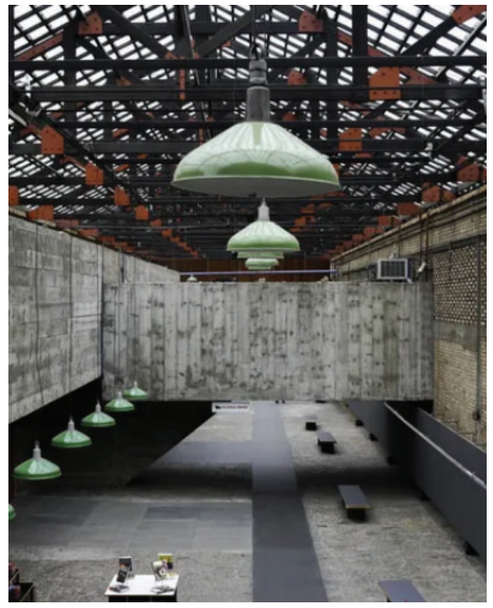


Fig.43 - SESC Pompeia Grand Hall

Fig.44 - SESC Pompeia Exterior View

3.3 - Brazilian Brutalism - MASP by Lina Bo Bardi

THE FACTORY OF LEISURE

MASP is the Museum of Modern Art of Sao Paulo. The museum is composed of a two-level volume of glazed gallery space which is "hung" off two huge off-form concrete portals, with administrative offices terraced into the north side beneath the plaza and invisible from Avenida Paulista (Fig.44).

Here, Bo Bardi created a new, unprogrammed public square that retained upper level views over the native Atlantic forest of Trianon Park to the south, and plaza-level views over downtown São Paulo to the north.

"**I tried to create an atmosphere,**" Bo Bardi wrote in 1968. "**I'd like for the common people to go there and see outdoor exhibitions and chat, listen to music, watch films.**"

TRANSPARENCY...ALWAYS!

Inside, Bo Bardi eschewed a traditional wall-hung curatorial method in favour of hundreds of custom glass easels that suspended the artworks throughout the centre of the glazed hall (Fig.45). The effect was a kind of artistic disembodiment that anticipated the non-linear, non-chronological, self-directed exhibition design of our current era.

The design is intentionally anti-institutional and anti-elitist, its object to "**to destroy the aura that surrounds museums...to present the artwork as work and as a prophecy within everyone's reach**".

Fig.45 - MASP Exterior View

Fig.46 - Glass Easels in the Exhibition Hall

MAKING

CHANGE

A REALITY

CHAPTER 4

RISING SUN RENEWAL PROPOSAL

4.1 - The Neighborhood Unit Reimagined

The neighborhood unit concept brings most of the required programs in a city to a smaller scale, more intimate area. It worked well in Brasilia's region, allowing its inhabitants to have all of their basic need met within walking distance from home. However, the same idea could not be simply dropped into the Rising Sun settlement for there are various differences between a planned city and an unplanned settlement. One of the main differences between Brasilia and Rising Sun is the demographic density in each area. Nowadays, Rising Sun has a density of 27,000 people per square mile and for that reason it would be very hard to simply apply a formula that has been used in Brasilia to that region.

My proposal consists on containing the growth of the settlement and creating Neighborhood Unit Centers that would function as triggers for social development and better life quality. These centers would have all the programs found in a neighborhood unit - schools, trade schools, libraries, health care centers, commercial spaces, police stations, leisure centers, and residential spaces - but in a single vertical building. The neighborhood unit centers would be placed in four different sites along the Rising Sun region and would help its inhabitants to be trained, educated, and have a better life standard.

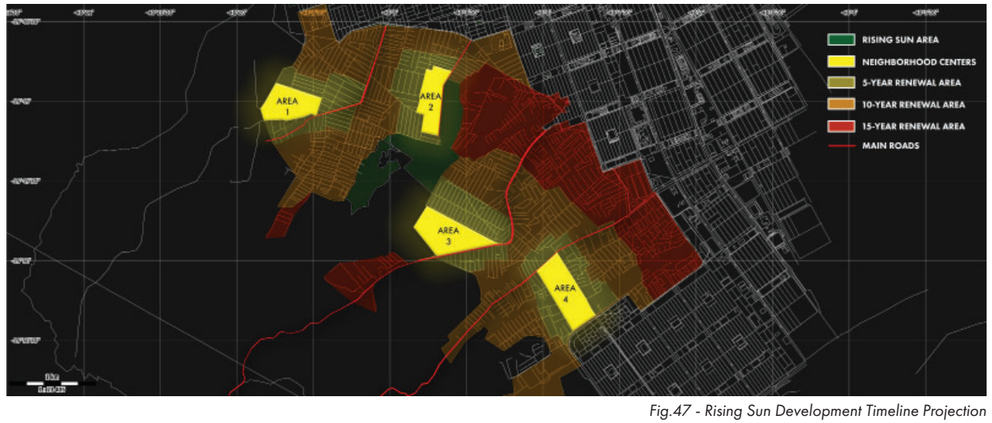


Fig.47 - Rising Sun Development Timeline Projection

The idea for the placement of the centers came from bringing development from within, as it happened when selecting the location of Brasilia. They would be placed on the borders of the Rising Sun settlement that are the farthest from Ceilandia because these are the areas that need the most support and intervention. The centers would function as development activators, bringing new money and job opportunities into the region, and reducing the dependency from both Ceilandia and Brasilia.

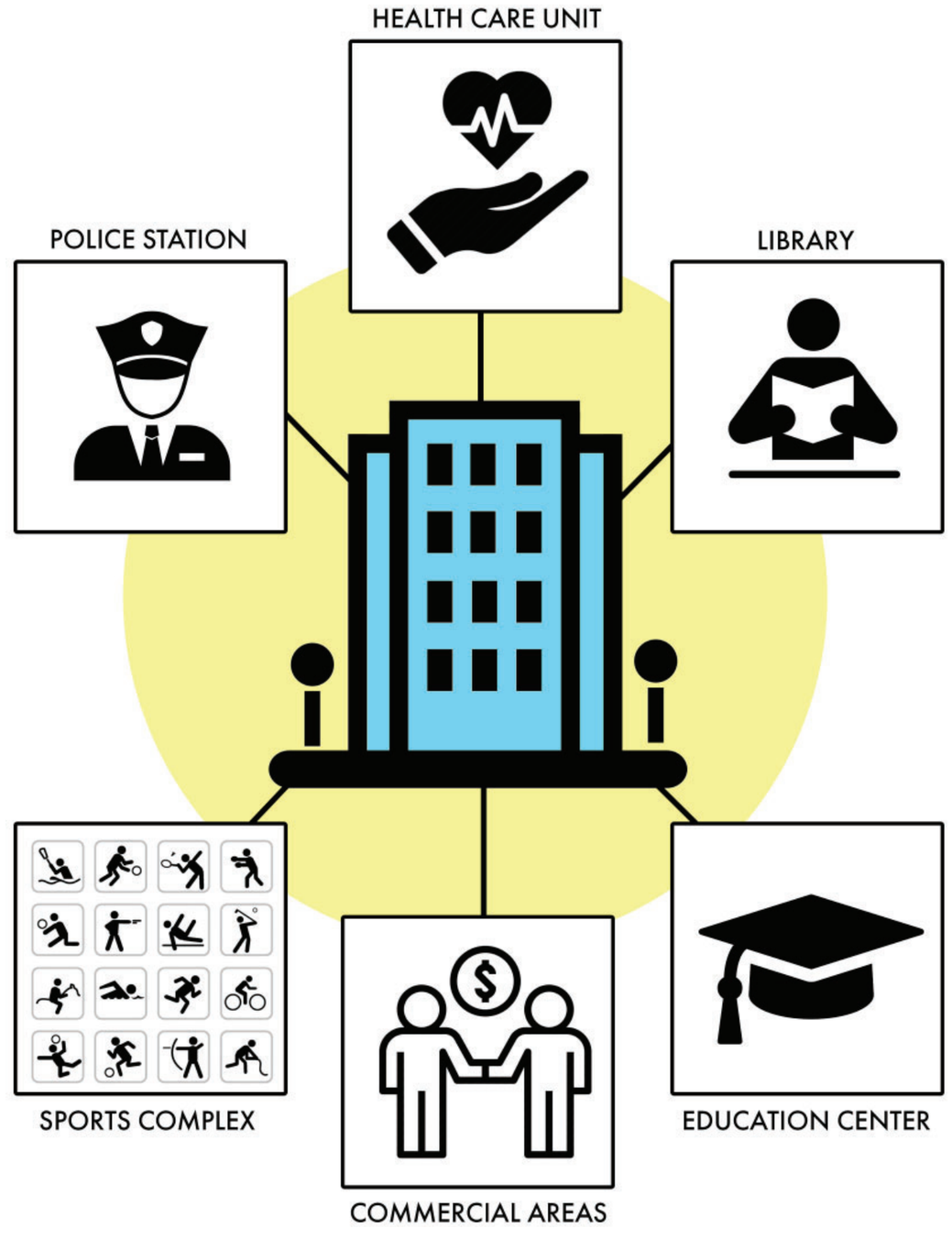
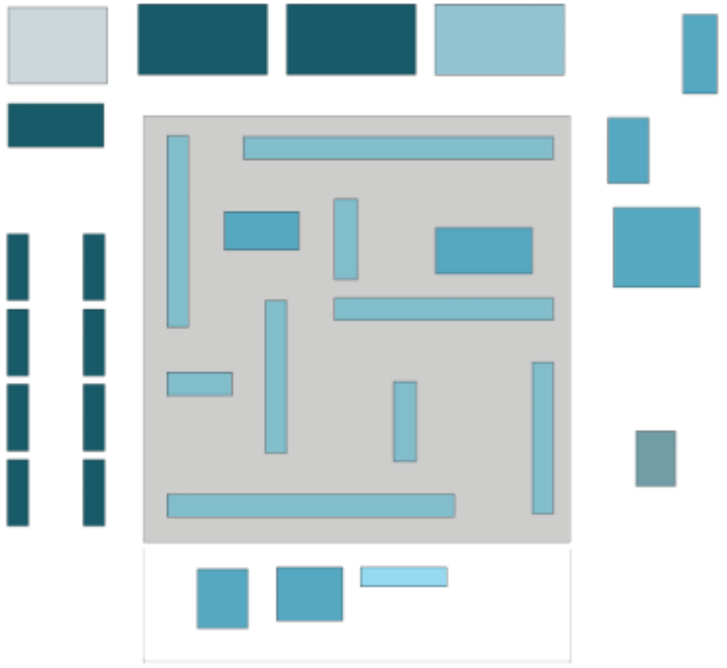


Fig.48 -Neighborhood Unit Reimagined as a Building - Programs

TYPICAL SUPERBLOCK - BRASILIA - THE NEIGHBORHOOD UNIT

500 RESIDENTIAL UNITS

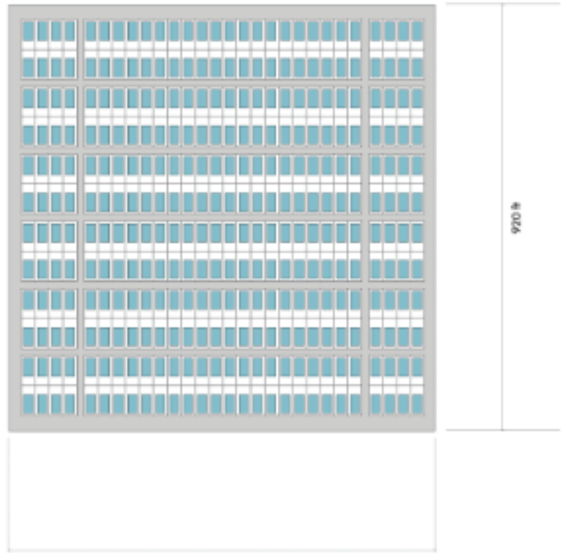


PLAN VIEW

RESIDENTIAL
COMMERCIAL
EDUCATIONAL
CULTURAL
HEALTH CARE
PUBLIC SAFETY
RELIGIOUS
PUBLIC SPACE

TYPICAL RESIDENTIAL BLOCK - RISING SUN - CEILANDIA

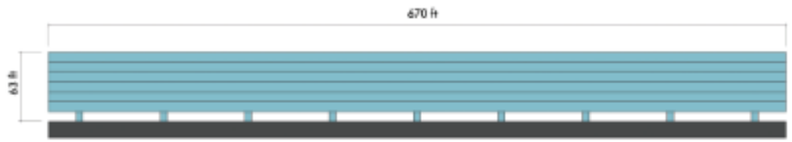
340 RESIDENTIAL UNITS



PLAN VIEW

TYPICAL RESIDENTIAL TYPOLOGY - BRASILIA

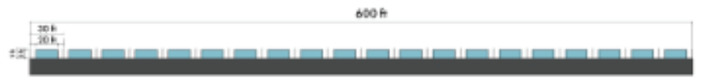
ELEVATION



- 6-STORY RESIDENTIAL BUILDINGS (63 FT TALL)
- 4 TO 16 APARTMENTS ON EACH FLOOR
- TYPICAL APARTMENT SIZE: 1,700 TO 6,500 SQUARE FEET
- TYPICAL APARTMENT OCCUPANCY: 2-5 PEOPLE
- COMPLETELY OPEN GROUND LEVEL (PILOTIS)
- ABUNDANCY OF PUBLIC GREEN SPACES / RECREATION AREAS
- ALL BASIC SERVICES SUPPLIED WITHIN WALKING DISTANCE

TYPICAL RESIDENTIAL TYPOLOGY - RISING SUN - CEILANDIA

ELEVATION



- 1-STORY HOUSES (8 FT TALL)
- TYPICALLY 40 HOUSES ON EACH BLOCK
- TYPICAL HOUSE SIZE: 400 TO 800 SQUARE FEET
- TYPICAL HOUSE OCCUPANCY: 6-8 PEOPLE
- COMPLETELY ENCLOSED GROUND LEVEL (MASONRY WALLS)
- BASICALLY, NO PUBLIC GREEN SPACES / RECREATION AREAS
- MOST BASIC SERVICES SUPPLIED OUTSIDE THE NEIGHBORHOOD

Fig.49 -Neighborhood Unit vs. Typical Residential Blocks

4.2 - A Bridge to Equality - The Project

The Bridge to Equality project proposes the creation of community centers in the Rising Sun favela area that would house all of the programs that exist in the neighborhood unit concept applied in the city of Brasilia - schools, trade schools, kindergartens, health care centers, social services, commercial spaces, leisure areas, sports centers, libraries - and would mitigate the social distance between the capital of Brazil and the largest favela in the world which is just fifteen miles away from it.

The different programs existent in the centers would be connected by elevated boardwalks that create a new ground plane that allows the community to experience the beauty that surrounds them, develop different programmatic areas, and promote the sense of elevating the community feeling.

4.2.1 - The Site

The Rising Sun favela is one of the fastest-growing settlements in the world (around 7% per year) and it is the home to approximately 100,000 people. However, the population of the favela is mostly uneducated, rely on informal job opportunities that are offered outside their community, and has one of the lowest HDI's (Human Development Index) in the world. It is located in the city of Ceilandia (the largest satellite city in Brasilia), and its sprawl has been held only by the natural barriers that surround it - there is a series of ravines full of beautiful natural spaces that hold and divide the different sectors of the favela. However, the population of the favela is held back from enjoying those natural spaces by nine-feet tall masonry walls, unpaved streets, and basically no communal spaces (Fig.50 to 53). Also, there is a complete lack of social services in the rising sun area. There are no schools, no hospitals, no libraries, no sports centers, no police stations, nothing. The residents rely on help provided by the hundreds of churches that are in the region and on the services existent in the cities of Ceilandia and Brasilia (Fig.54).

For that reason, the site selection was made by searching vacant lots that were close both, to the residential area and to the ravine, and that would function as a social integrator for the community and the beautiful natural spaces, a social developer providing the community with the services that lack in that area, and also, a container of the favela sprawl. Similarly to what happened in the decision of placing the city of Brasilia in the center of Brazil, the community centers in the Rising Sun area would be placed on areas that are the farthest from the city of Ceilandia and its services in order to bring development and better life quality to the community from within.

These centers would be placed in 4 different strategic areas that are separated by the ravines so that social improvement could be brought to the entire population of the favela.

The Bridge to Equality project would finally, rise the sense of community in the Rising Sun area by creating safe gathering spaces, allowing its population to fulfill their basic needs, providing job opportunities, education, and training for them to be able to pursue their dreams, and becoming triggers for new development in the area.

Fig.50 - Existing Conditions - Rising Sun

Fig.51 - Existing Conditions - Rising Sun

Fig.52- Existing Conditions - Rising Sun

Fig.53 - Natural Beauty Around the Rising Sun Area

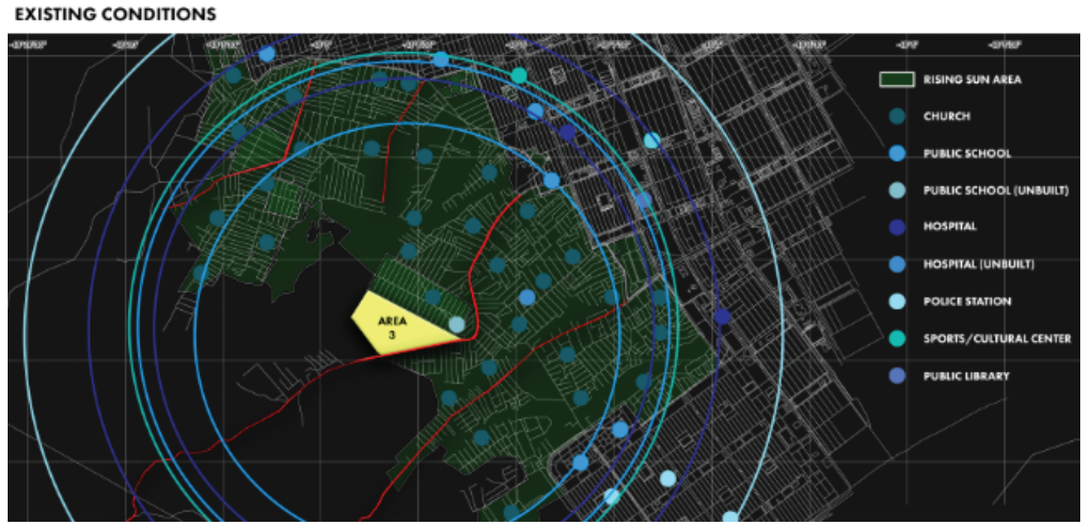


Fig.54 - Existing Conditions Around the Rising Sun Area

4.2.2 - A Bridge to Equality - The Design

The design development of the project went through a series of attempts to incorporate the necessary programmatic buildings, the distance to nearby residential areas and how far they are from the lacking public services and the relationship to the ravines that act as natural containers of the Rising Sun favela sprawl.

Since the community is composed of low-rise buildings that range between eight to 30 feet in height, it was decided that building a project much taller than those heights would be oppressive and disruptive to the existent urban fabric of the area. Another important aspect that was analyzed in order to define how tall the project would be was the creation of a sense of accessibility. The project should appear to the community as something open and accessible to all. For those reasons, it was decided that all of the programmatic spaces would be primarily accessible through the ground floor and would reach the maximum height of forty feet.

The distribution of the buildings throughout the selected lot followed the logic of creating three different areas: the health care, social services, and provisions area, the educational area, and the leisure and sports area. The health care, social services, and provisions area was placed closer to the residential area so that it becomes more easily accessible, the educational area was placed in the center and faces the main entrance to the complex so that it welcomes people to come in and learn, and finally, the sports and leisure complex was placed facing the ravine so that larger, noisier events won't distress the community.

Finally, it was decided to connect all of the buildings of the community center through an elevated boardwalk that creates a new ground floor and becomes a processional circulation path that allows the residents of the Rising Sun favela to experience their neighborhood and its natural beauty in a different, special way.

The elevated boardwalk peels down in specific areas to create different access points to the buildings, its shape was thought to frame special views of the surrounding nature as well as to facilitate the connection between the elevated ground to all of the three different areas of the community center. Also, the elevated boardwalk in pushed and folded in certain points to create seating and gathering spaces while elevated thirty feet above the ground. Both, the buildings and the elevated boardwalk are connected to new landscaped moments that enhance the experience of the users by concealing and revealing specific moments of the project, create different heights in a site that is basically flat, and allow for the creation of ponds and pools that help to bring humidity to an area that is very dry.

The project's materiality was inspired by the social ideals of the Brazilian Brutalist movement which turns architecture into an expression of what society is and what it should be. The main building materials will be concrete - representing the rough life that the community has to deal with - and glass to bring in the idea of transparency, connectivity between people, and lack of hidden intentions. New environmentally friendly technologies were added to the visual language of the project. There will be energy generation and consumption reducement through the use of photovolaic panels and low-e glazing, permeable pavers will be used all over the landscape and will be connected to water retention tanks.

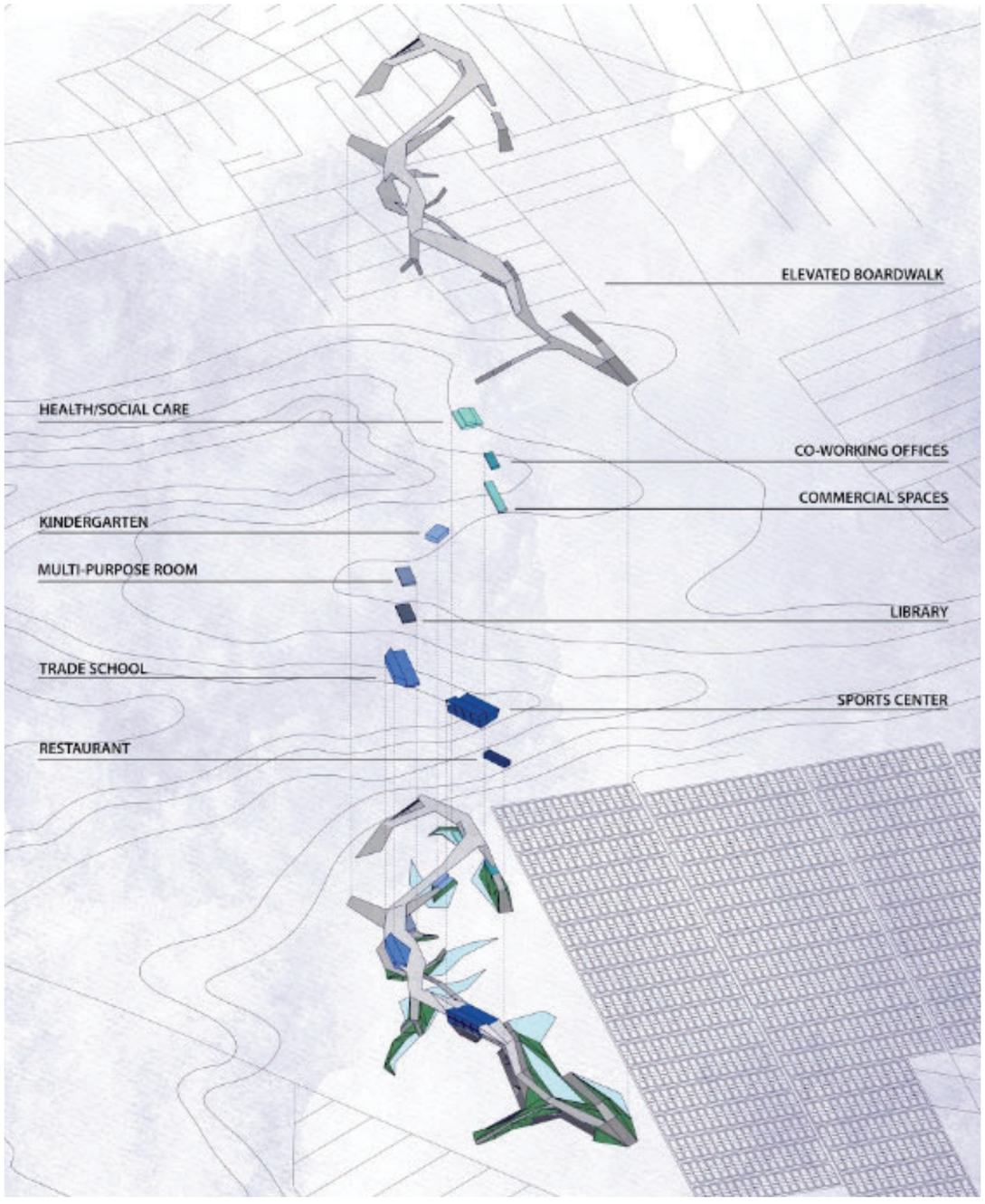


Fig.55 - Community Center Exploded Axonometric Diagram

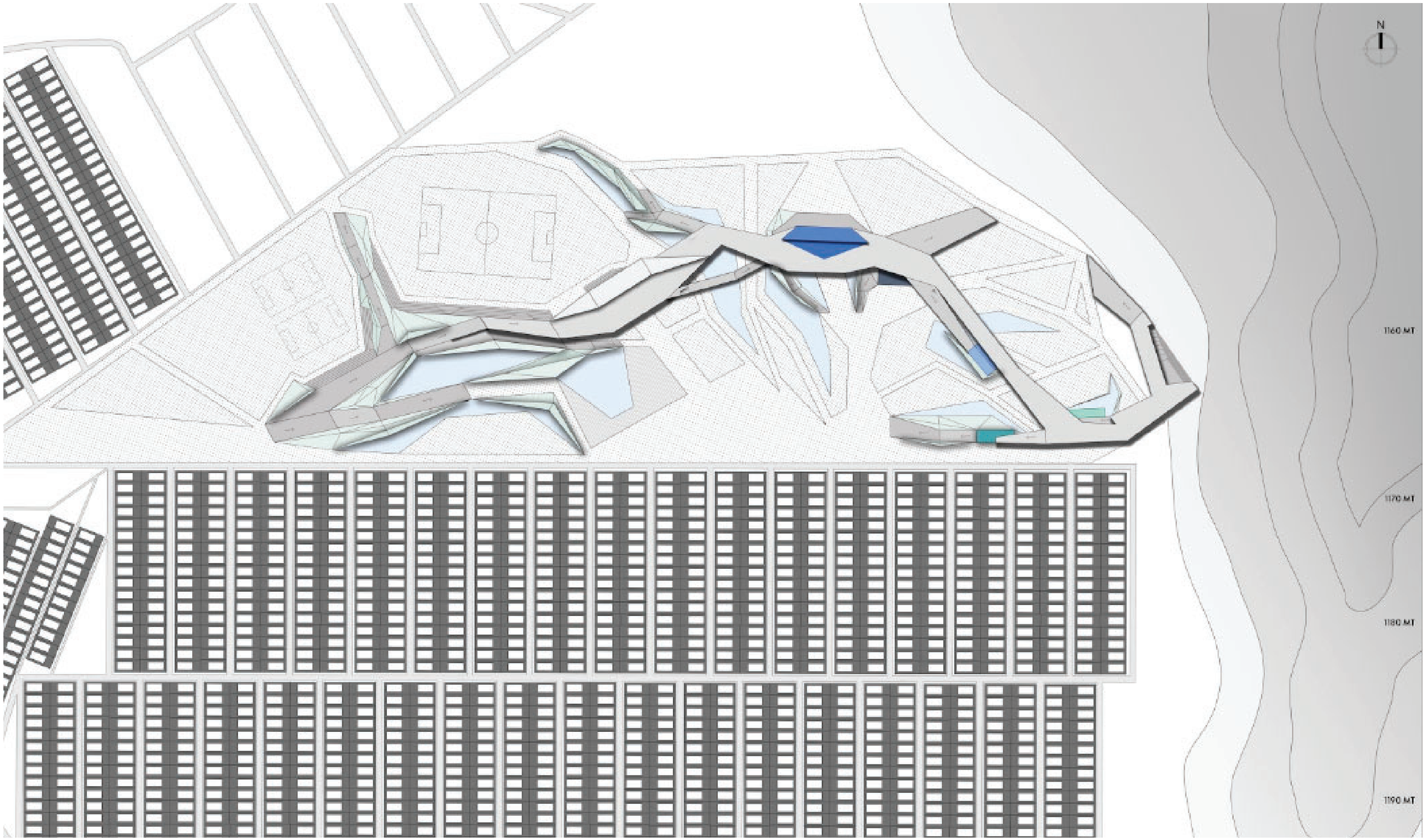


Fig.56 - Community Center Site Plan

RISING SUN
TRADE SCHOOL

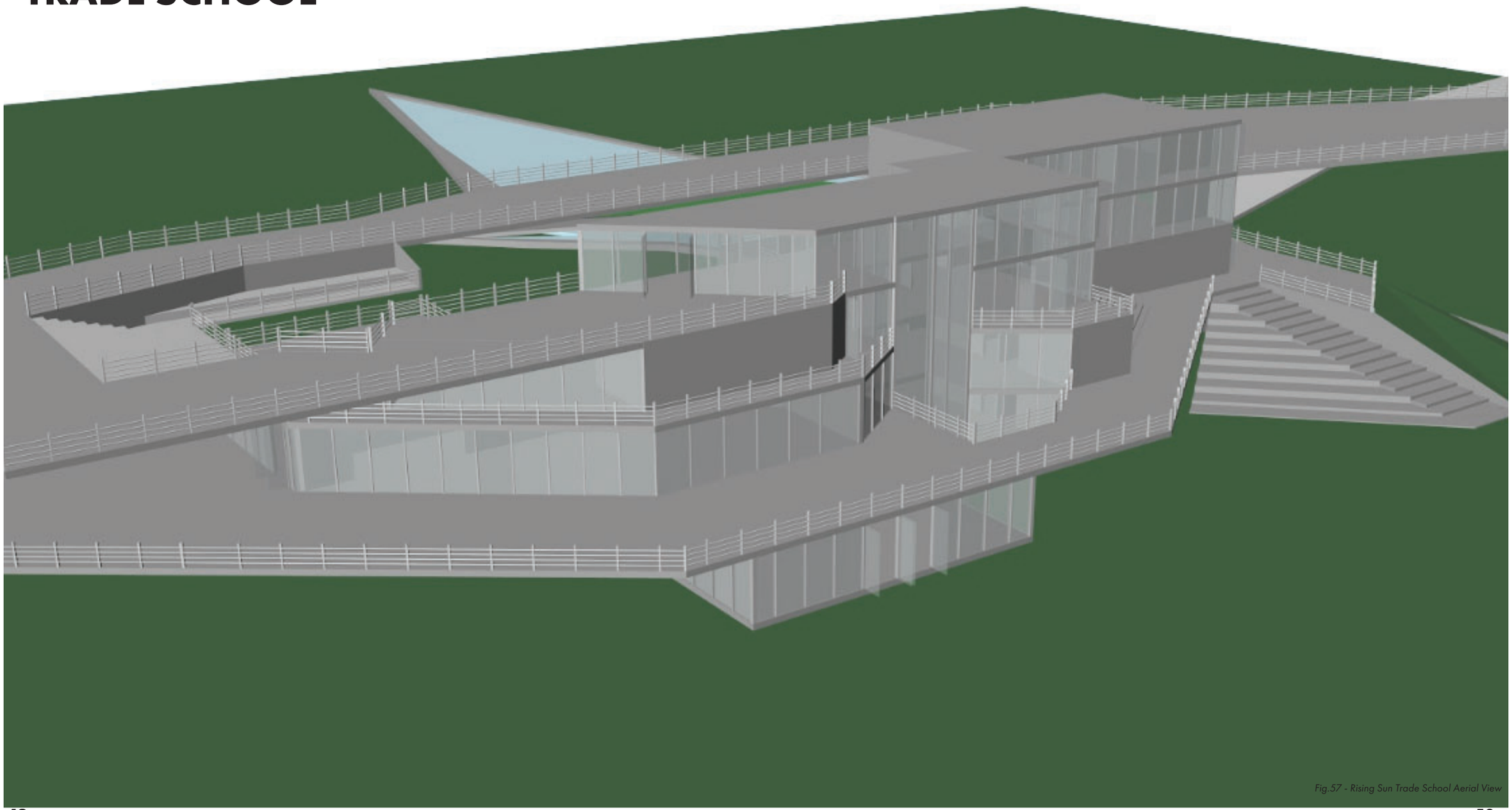


Fig.57 - Rising Sun Trade School Aerial View

4.2.3 - A Bridge to Equality - The Trade School

One of the most important programs that can lead to the development of the Rising Sun favela and would bring real change to its inhabitants is the trade school. Through education, people living there will be able to learn new skills, get better job opportunities, and find dignity in their future.

The trade school building is located in the center of the community center lot symbolizing its extreme importance as the core of the community's changing process. The building is embedded in the boarwalk and provides access points from different levels creating different experiences as people move through it.

The ground floor (Fig. 60) is opened both, to the main vehicular access and to the interior courtyard within the community center lot. It is composed of a meeting room, administrative offices, an interior cafeteria, an exterior cafeteria, and a kitchen which is used to produce food and drinks to be sold to the public and also, as a cooking school for those who dream about working in the restaurant business.

The first floor (Fig. 61) is directly connected to the lower level of the boardwalk and is accessible either by elevators, an exterior ramp that leads to the boardwalk, or by exterior stairs. It is composed of four classrooms (one of which has an exterior teaching area) and an workshop space.

The second floor (Fig. 62) is not directly connected to the boardwalk but it can be accessed by those who are walking in the boardwalk though an exterior staircase or by a ramp that leads to an exterior lounge area. This floor is composed of two classrooms (that open to the exterior terrace), an workshop space, and an exterior lounge area. The entire floor is surrounded by accessible exterior spaces that, even though are not physically connected to the boardwalk, are visually connected to it.

Finally, the third floor (Fig. 63) is, once again, directly connected to the boardwalk. It can also be accessed by an exterior staircase. It holds a multipurpose room intended to be used not only by the trade school students but also by the community. The design intent was to make this level part of the boardwalk as it wraps around and flows through the plan layout, bringing in the idea that this level is open to everyone.

The trade school has the potential to become the main driver of change and development in the community. People will be able to see a brighter future ahead of them, to pursue better opportunities, and to have better lives. I believe that by experiencing the possibility to build a better future the community will grow stronger and become an essential agent bringing change from within.

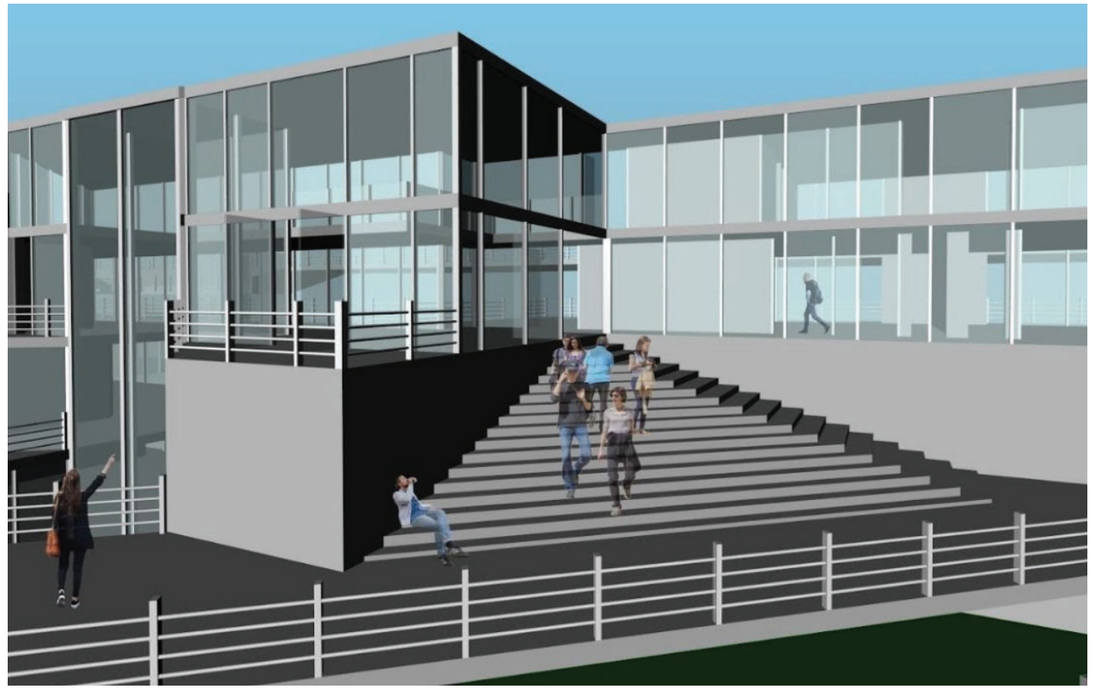


Fig.58 - Rising Sun Trade Boarwalk Connection - Lower Level

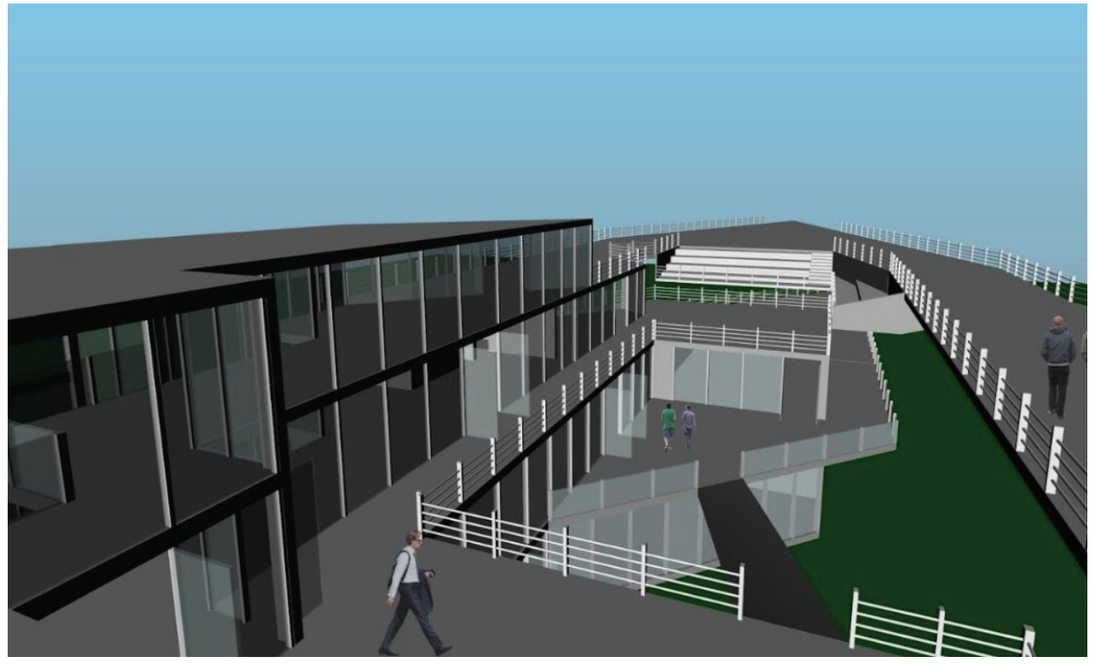
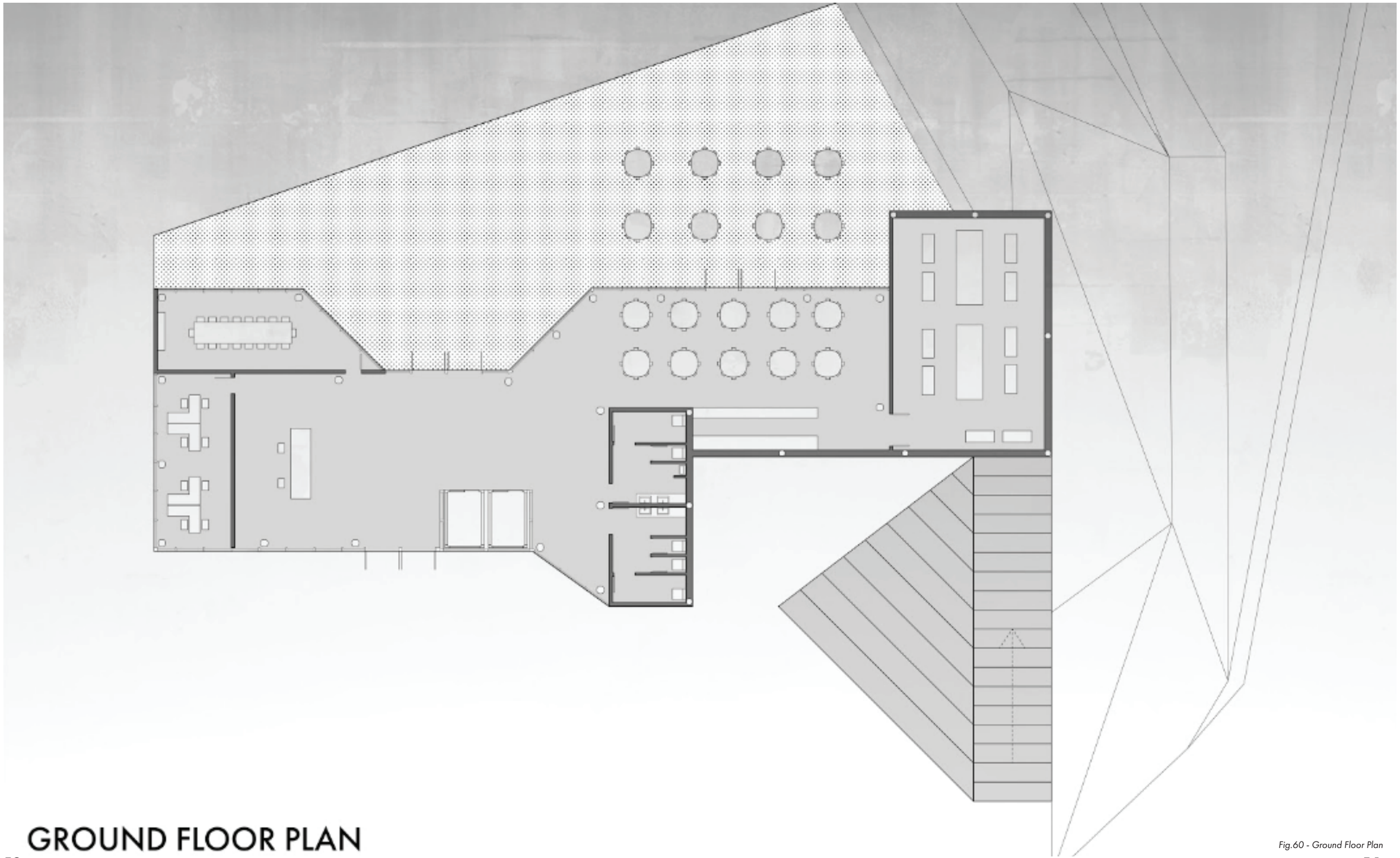
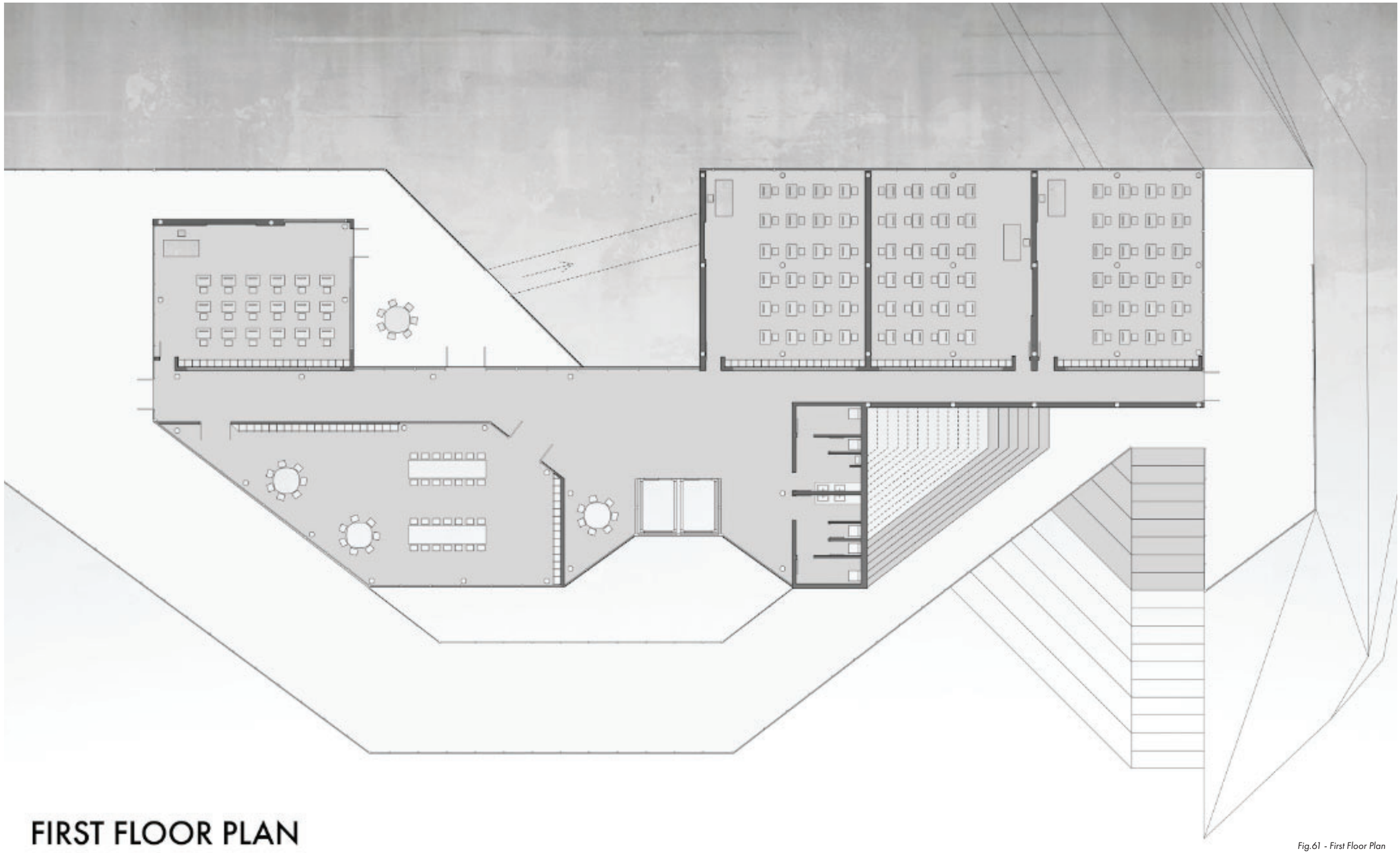


Fig.59 - Rising Sun Trade School - View from Boarwalk - Upper Level



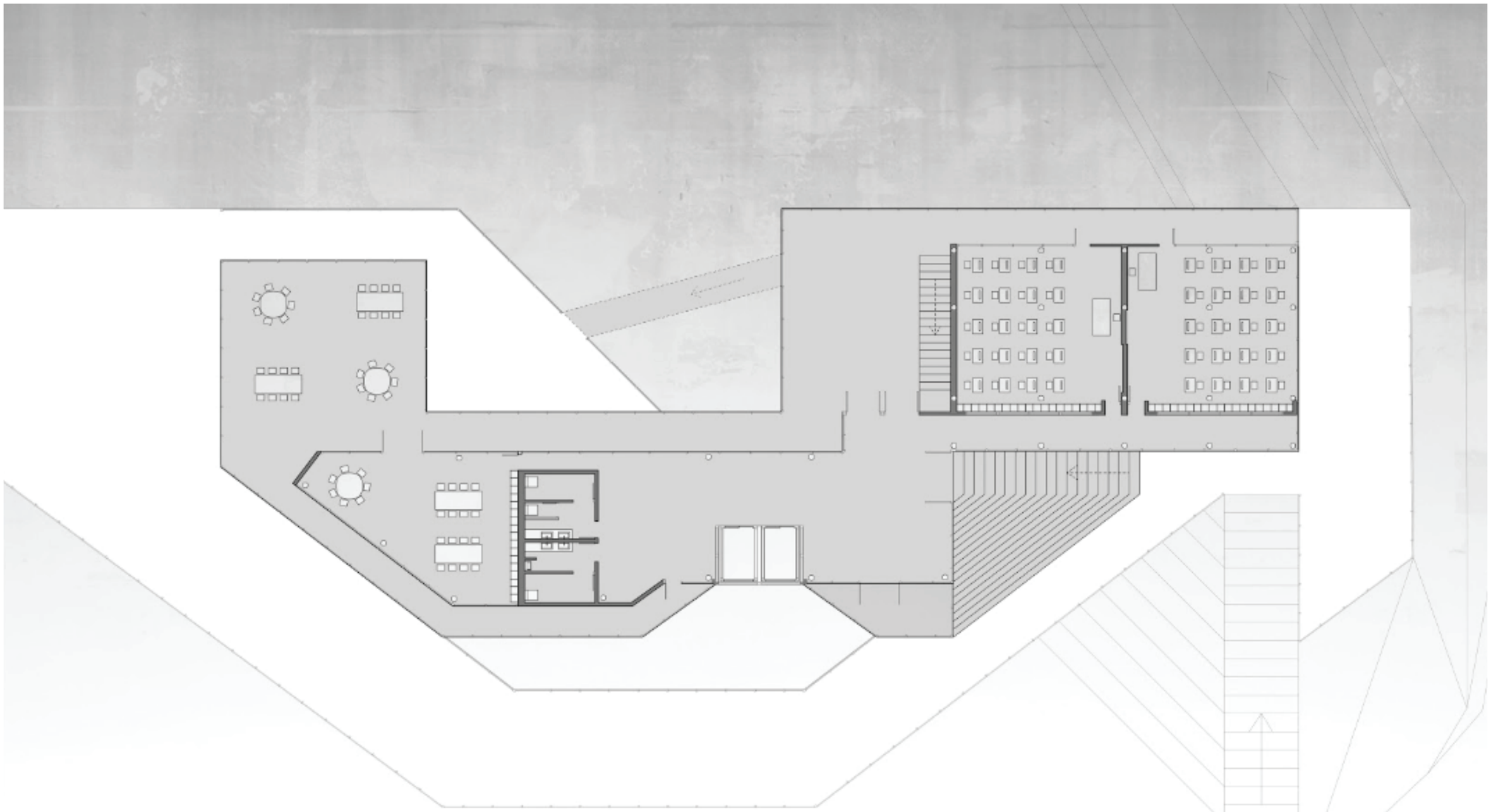
GROUND FLOOR PLAN

Fig.60 - Ground Floor Plan



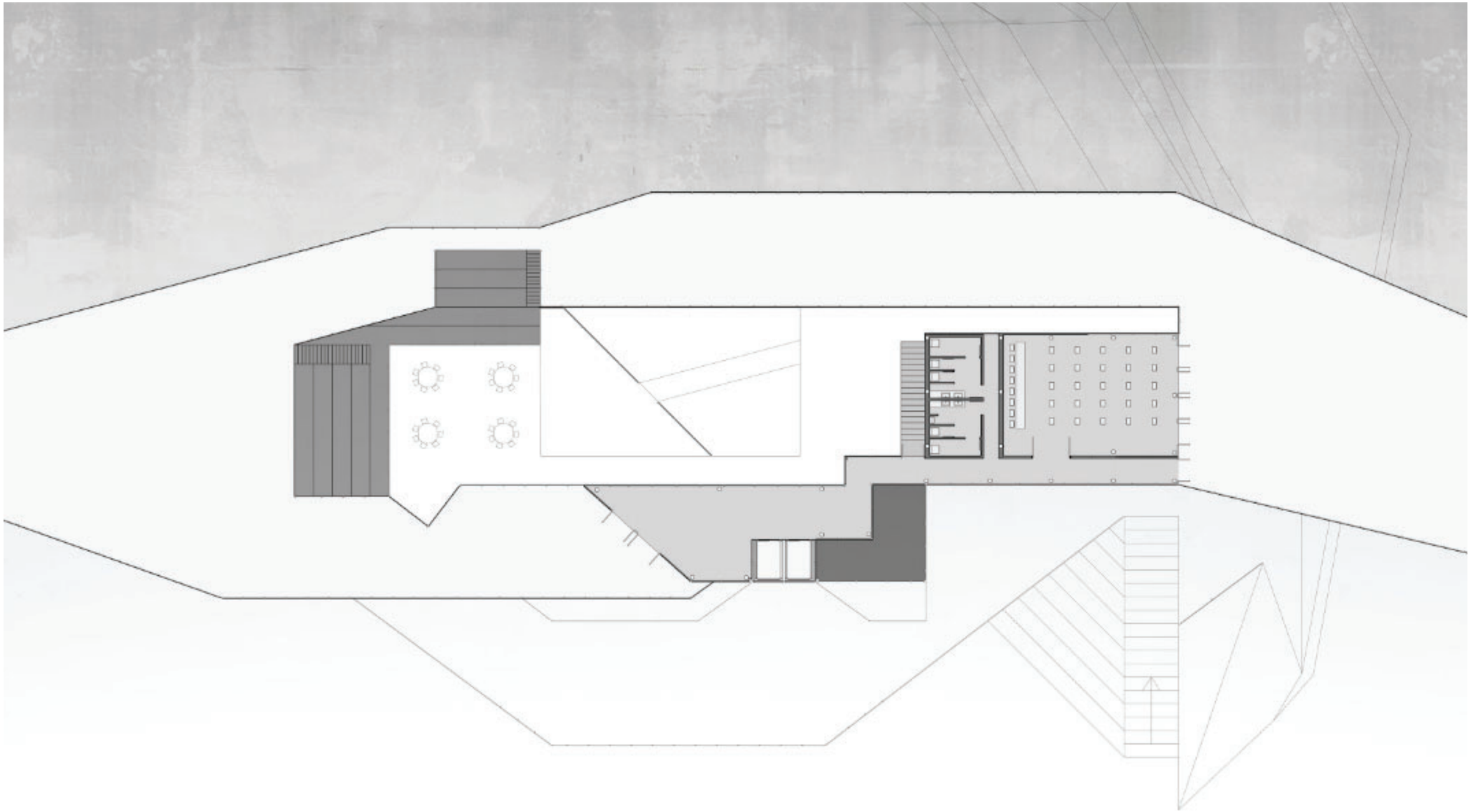
FIRST FLOOR PLAN

Fig.61 - First Floor Plan



SECOND FLOOR PLAN

Fig.62 - Second Floor Plan



THIRD FLOOR PLAN

Fig.63 - Third Floor Plan

Fig.64 - Section A

Fig.65 - Section B

Fig.66 - Section C

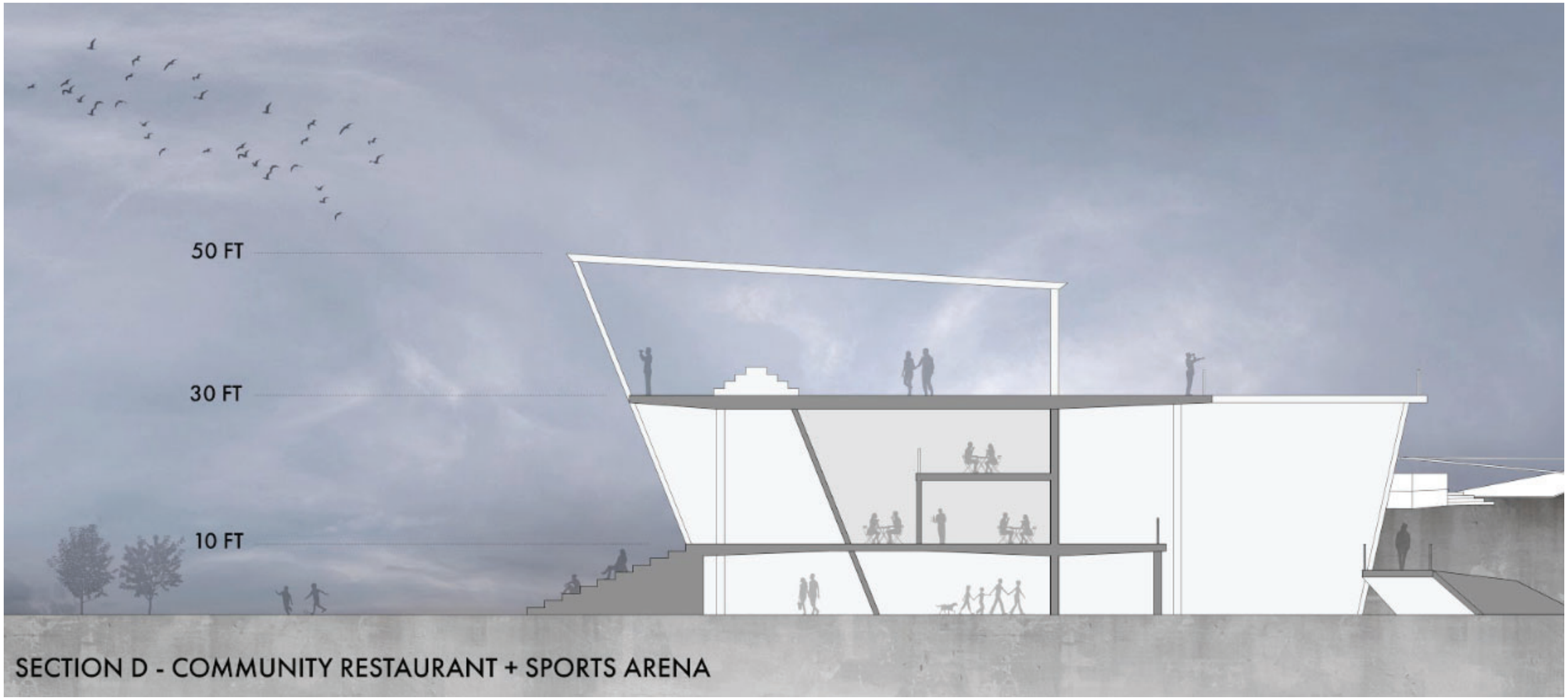


Fig.67 - Section D

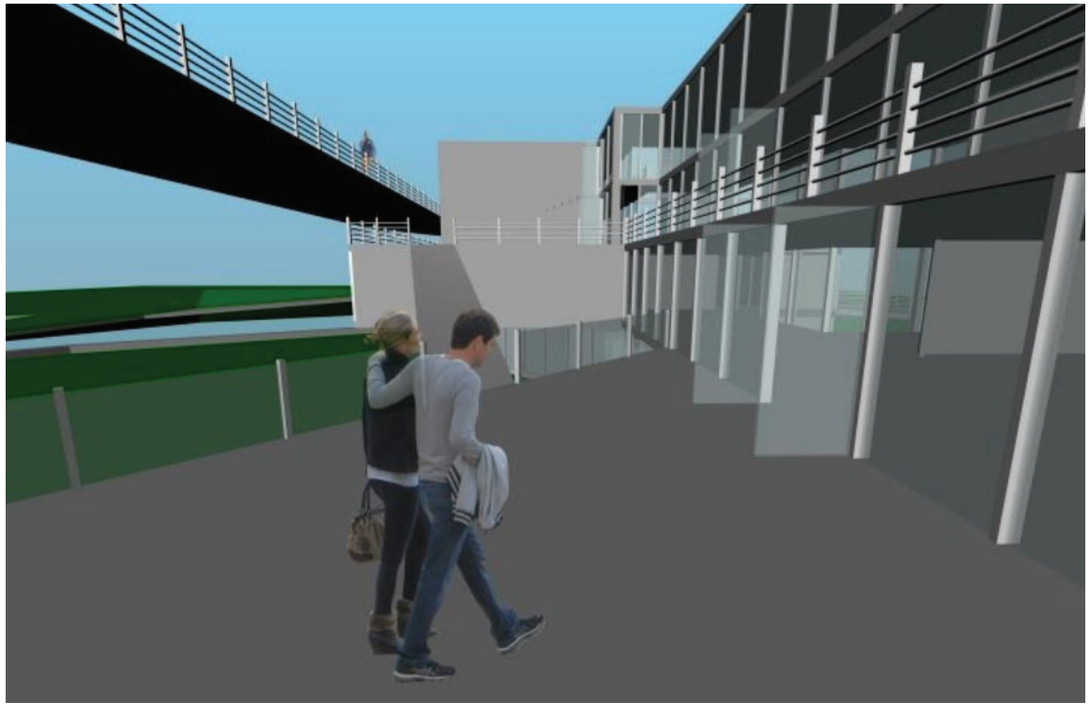


Fig.68 - Trade School - First Floor Exterior Access

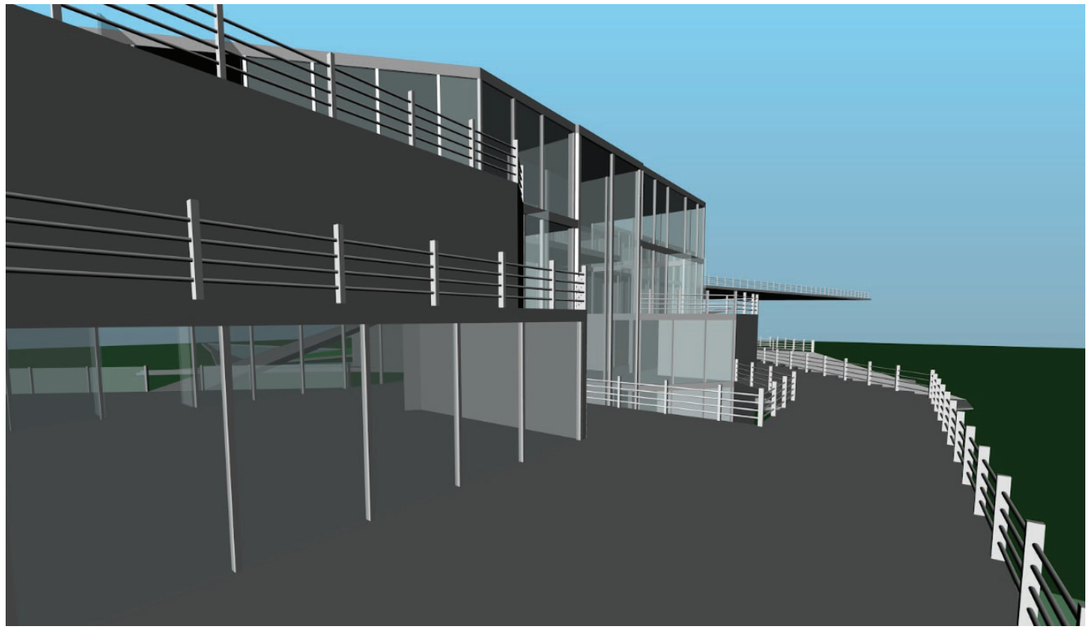


Fig.69 - Trade School - First Floor Boardwalk Connection

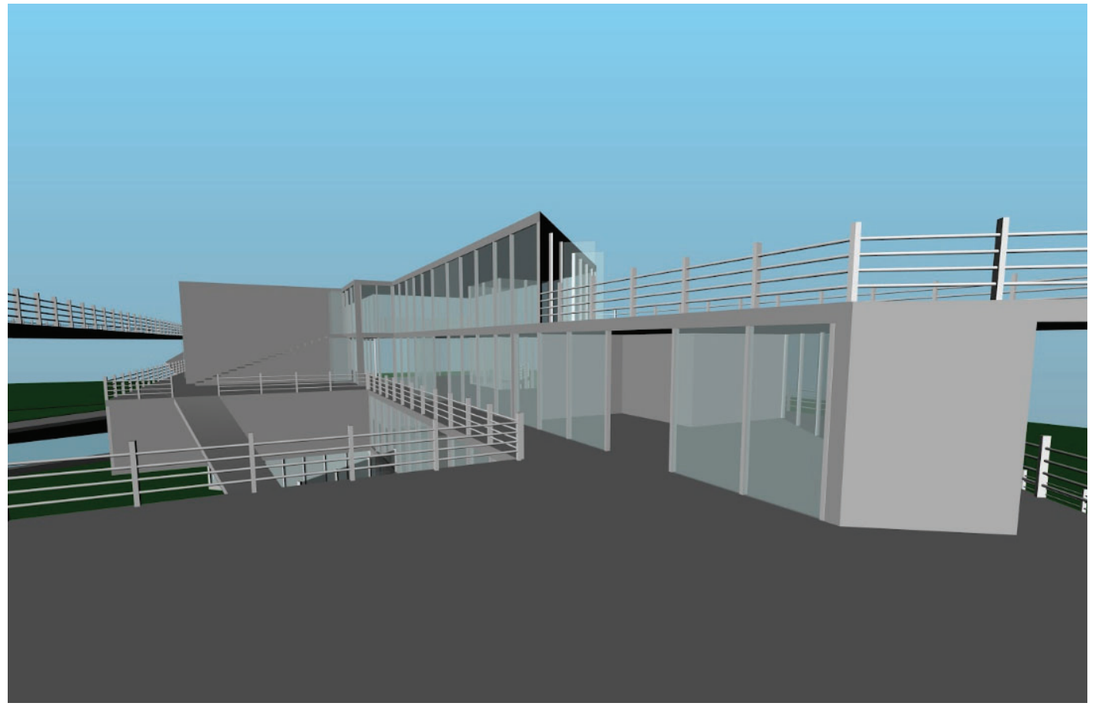


Fig.70 - Trade School - Second Floor Exterior Area

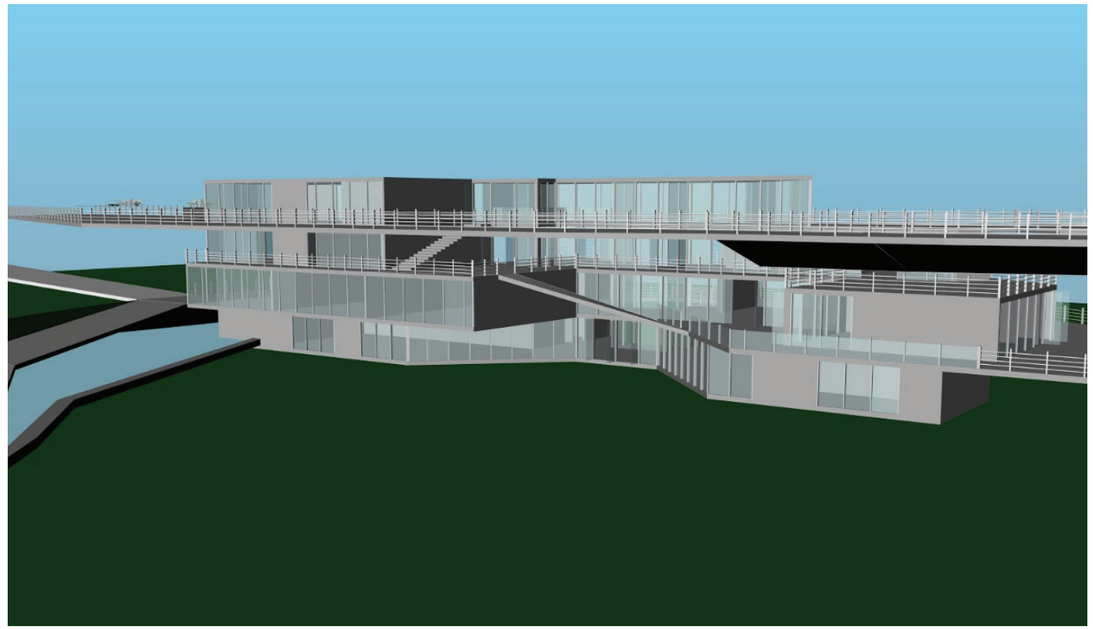


Fig.71 - Trade School - South View

Fig. 72 - Trade School - North View

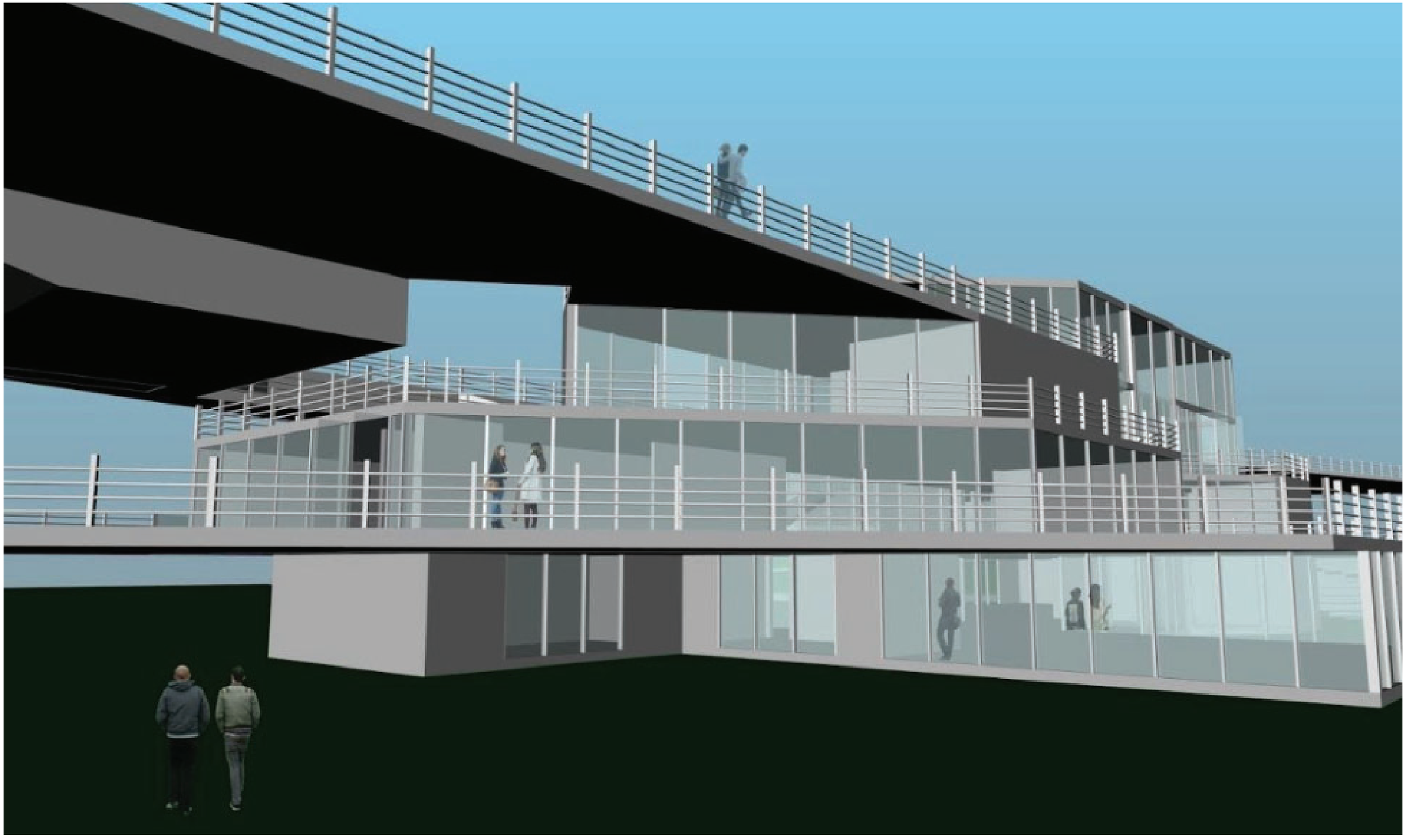


Fig.73 - Trade School - Ground Floor Perspective View

BIBLIOGRAPHY

Costa, Lucio. "Brasília Revisitada". Costa, Lucio. Web. Accessed November 14, 2017. http://www.cronologiadourbanismo.ufba.br/mais_info.php?idVerbete=1140&idMaisInfo=48.

Colquhoun, Alan. Modern Architecture. (London: Oxford University Press, 2002).

Curtis, William. Le Corbusier: Ideas and Forms. (London: Phaidon, 1986).

Fazio, Michael W. A World History of Architecture. (London: Laurence King Publishing, 2004).

Fragomeni, Ana Helena. Brasília - Não Vivemos em Cartões Postais. (Brasília: Gilgamesh, 2013).

Frampton, Kenneth. Modern Architecture - A Critical History. (London: Thames and Hudson, 2007).

Jeanneret, Charles-Édouard. Towards an Architecture. (Los Angeles: Getty Publications, 2007).

Matoso, Danilo. Bloco (7) - Arquiteturas de Morar. (Novo Hamburgo: Universidade Fevale, 2011).

Santos, Cecília Rodrigues dos. Le Corbusier e o Brasil. (São Paulo: Projeto Editora, 1987).

Torres, Jorge. Paris n'est pas Moscou. (Valencia: General de Ediciones de Arquitectura, 2015).

Wesely, Michael. Arquivo Brasília. (São Paulo: Cosac Naify, 2010).

IMAGE BIBLIOGRAPHY

Fig.01: Le Corbusier's ID card. Web. Fondation Le Corbusier. http://www.fondationlecorbusier.fr/corbuweb/morpheus.aspx?sysId=13&IrisObjectId=6747&sysLanguage=fr-fr &itemPos=111&itemCount=300&sysParentId=15&sysParentName=

Fig.02: La Ville Radieuse Plan. Gallery of AD Classics: Ville Radieuse / Le Corbusier - 9. https://www.archdaily.com/411878/ad-classics-ville-radieuse-le-corbusier/52001cc3e8e44e6db0000007-ad-clas sics-ville-radieuse-le-corbusier-image

Fig.03: La Ville Radieuse Model. Gallery of AD Classics: Ville Radieuse / Le Corbusier - 8. https://www.archdaily.com/411878/ad-classics-ville-radieuse-le-corbusier/52001cc3e8e44e6db0000007-ad-clas sics-ville-radieuse-le-corbusier-image

Fig.04: City plan of Brasília. https://concursosdeprojeto.org/2010/04/21/plano-piloto-de-brasilia-lucio-costa/.

Fig.05: Initial sketches of the plan of Brasília. https://concursosdeprojeto.org /2010/04/21/plano-piloto-de-brasilia-lucio-costa/

Fig.06: Monumental Axis in Brasília. https://tatianasaoli.wordpres.com/2009 /03 /25 /brasilia/.

Fig.07: Highway Axis in Brasília. http://cursovilabrasil.com.br/pt_BR/blog/20-fotos-para-voce-entender-brasilia/

Fig.08: Three Powers Square in Brasília. https://jornalggn.com.br/noticia/a-democracia-e-poderes-na-visao-de-montesquieu-para-entender-politica-atual.

Fig.09: Planalto Palace. https://en.wikipedia.org/wiki/Pal%C3%A1cio_do_Planalto.

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