



# ESTERO de PROVVISOR

*revitalization of a city through water*



*“All we needed to do was look back and remind ourselves of what we’ve lost.  
We didn’t just forget the river, we also forgot to believe in ourselves, that together, the Filipino people can work miracles.”*<sup>1</sup>

*- Gina Lopez*

Estero de Provisor: Revitalization of a City  
Through Water

A thermal bathhouse on the Pasig River  
of Manila, Philippines

Mariel Estrada Deppner

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

Master of Architecture  
in  
Architecture

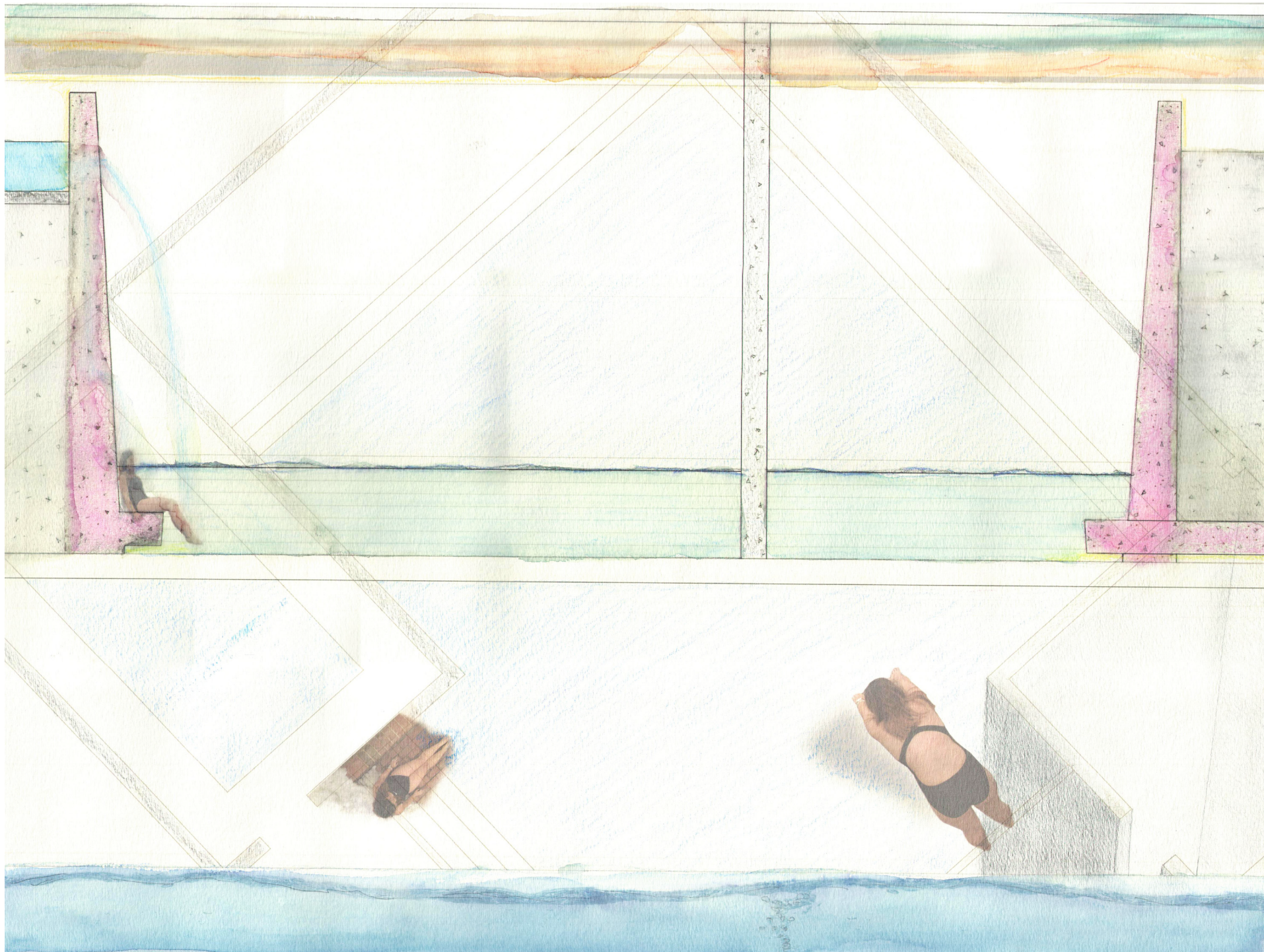
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Alexandria, Virginia

Keywords : Water, City, Culture, Landscape



# Abstract

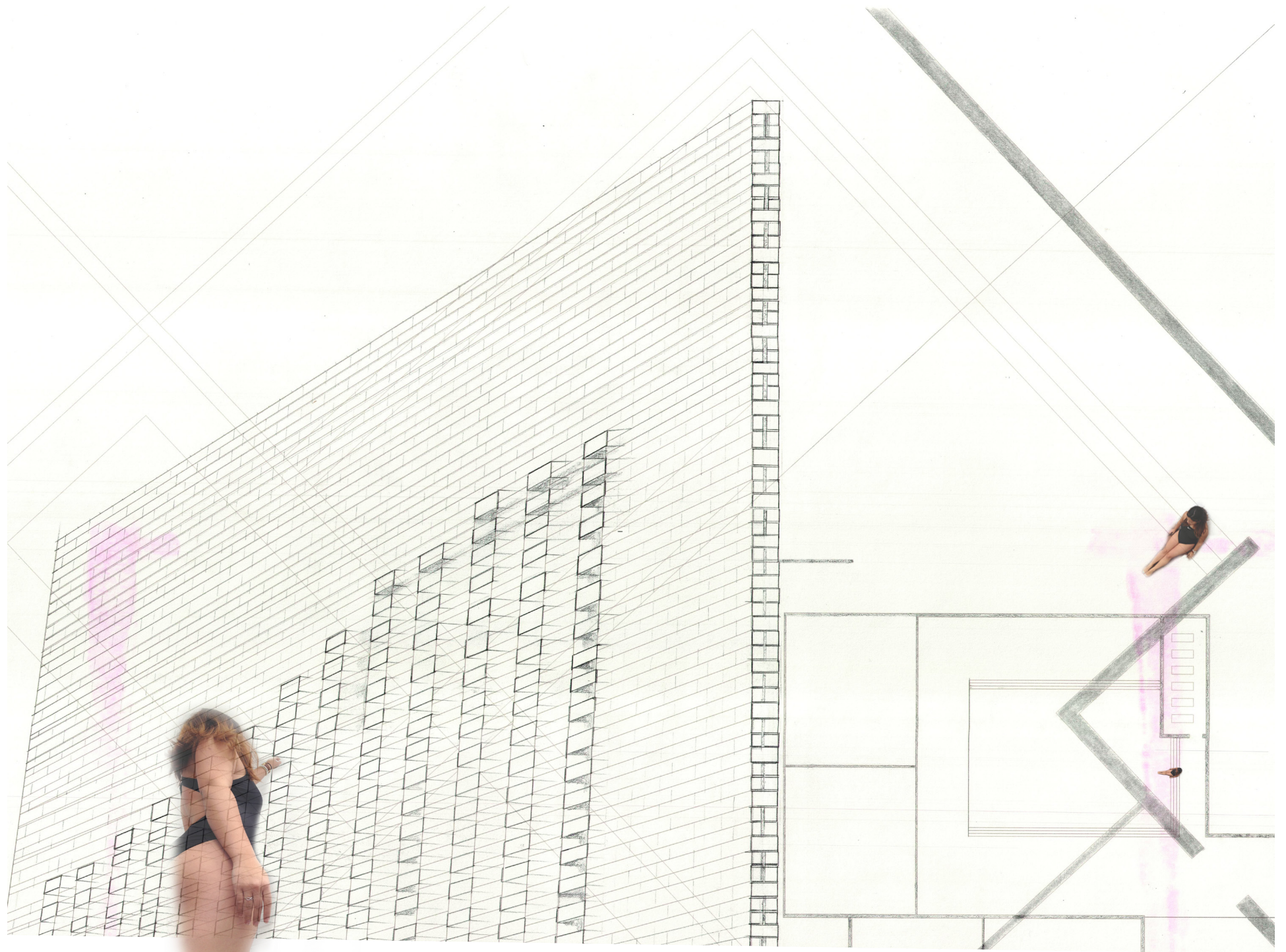
Estero de Provisor: Revitalization of a City  
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A thermal bathhouse on the Pasig River  
of Manila, Philippines

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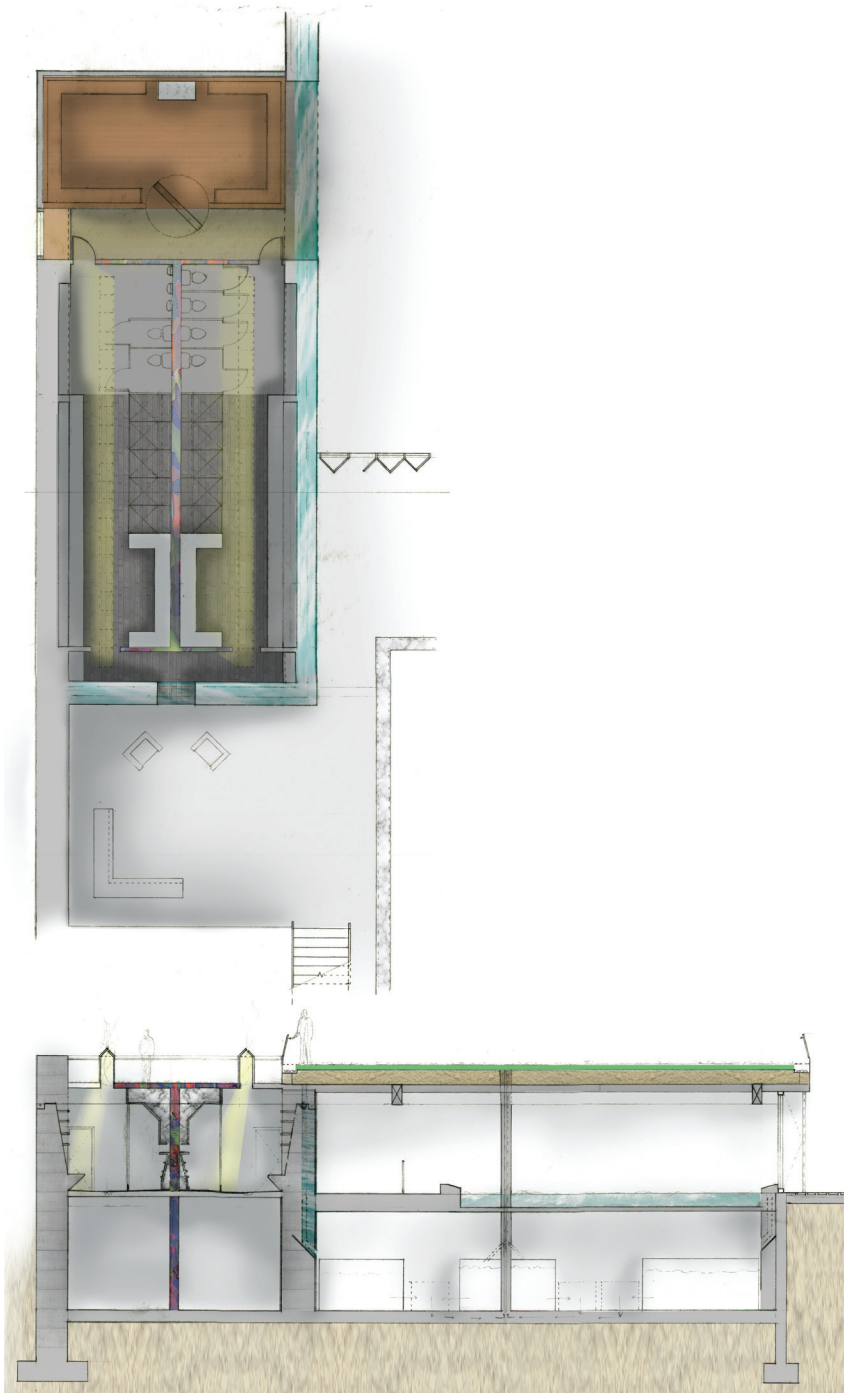
“Ang hindi marunong lumingon sa pinanggalingan ay hindi makarating sa paroroonan.” One of innumerable Filipino proverbs meaning bluntly, “if you don’t know how to look back to where you came from, you will not reach your destination.” While the city of Manila, Philippines cannot be summed into one simple phrase; its creation of history can be traced back to the city’s lifeline, the Pasig River.

Under Spaniard rule during the sixteenth century, Manila was known as “the Pearl of the Orient,” being the jewel of Spain’s empire in the Pacific. Before the mass urbanization of Manila, the Pasig River was the main connection to the rest of Asia and further into the rest of the world. The Pasig River was the city’s center of economic activity; it was Manila’s lifeline.



I wish to express my deep sense of gratitude and respect to all of my family, friends, and professors who have stimulated my design process and filled me with constant encouragement and support throughout my entire thesis journey.

Thank You





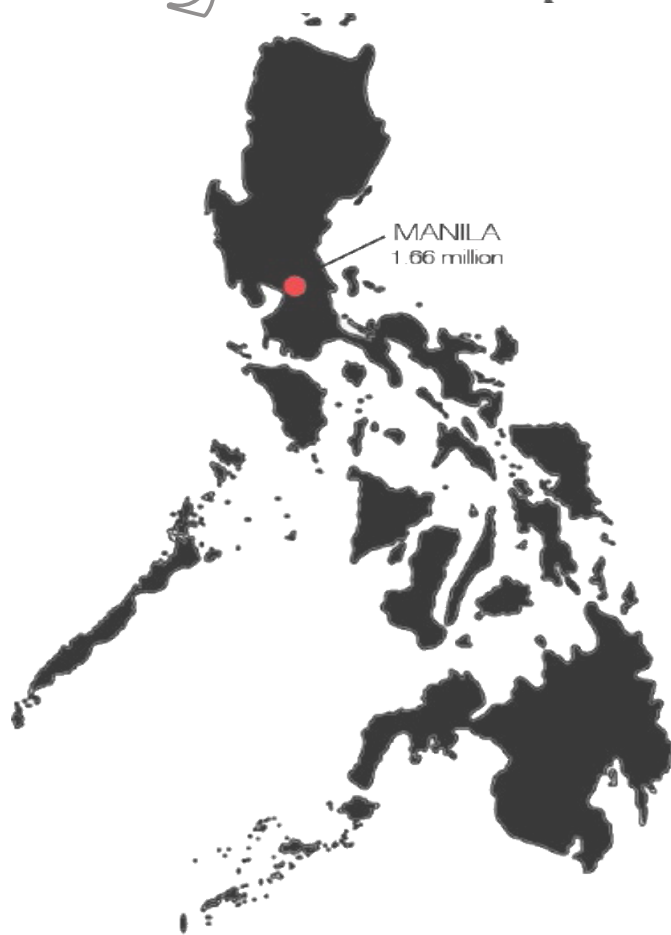
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# Site



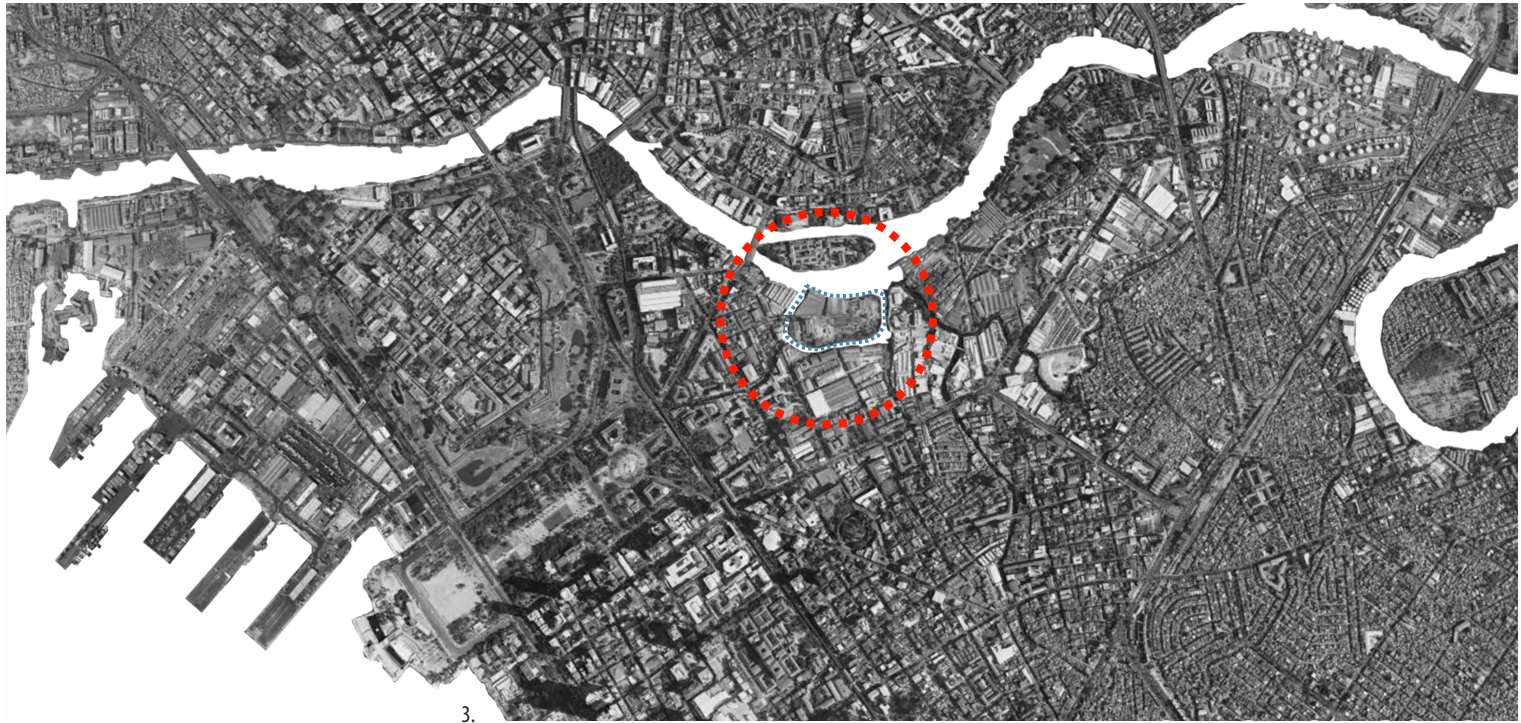
PHILIPPINES  
96.71 million



MANILA  
1.66 million

The site of the bathhouse is found along the Pasig River in Manila, Philippines - one of the most polluted rivers in the world. The river runs throughout the commotive city of Manila, beginning at Laguna Bay on the northeast and emptying into Manila Bay, which eventually touches the China Sea on the west. The link between Laguna Bay (the city's main source of water supply) and Manila Bay, serves as the country's connection to the rest of the world. The Pasig river has always been an essential path and resource of the Philippines. Inside of the river are many Esteros (estuaries) which are creeks that usually surround smaller islands.

With the continued urbanization of Manila and surrounding districts, rivers and esteros became important economic infrastructure. Before the proliferation of motor vehicles, the esteros were highways of the city transporting people and commerce. Estero de Provisor is within a vital location to Manila having the historic post office, the country's fortification walls (Intramuros), Manila Cathedral, and local universities nearby to name a few. Using the existing bridge and topography of the estero, the journey begins upon entry and serves all aspects of the city.



3.

Present Day Aerial View of Manila, Philippines



4.

1945 Overlay Map to Present Day Map of Manila, Philippines

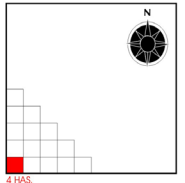
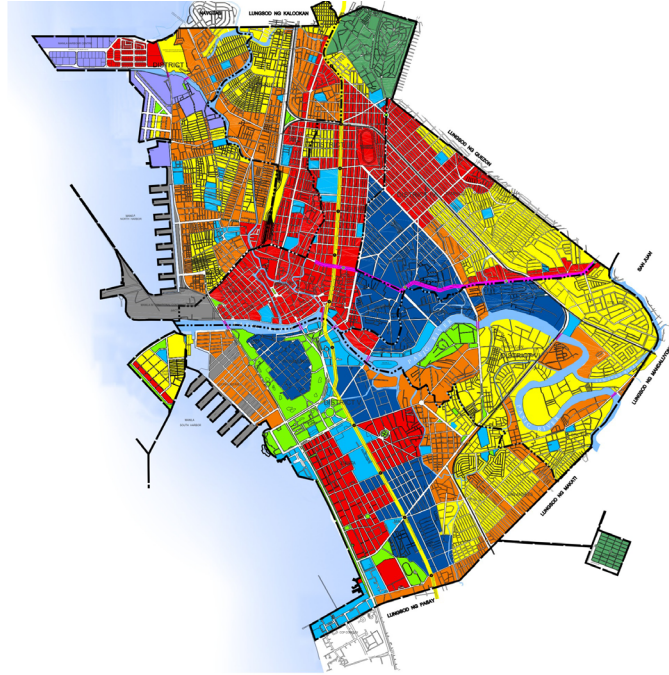


# Surroundings



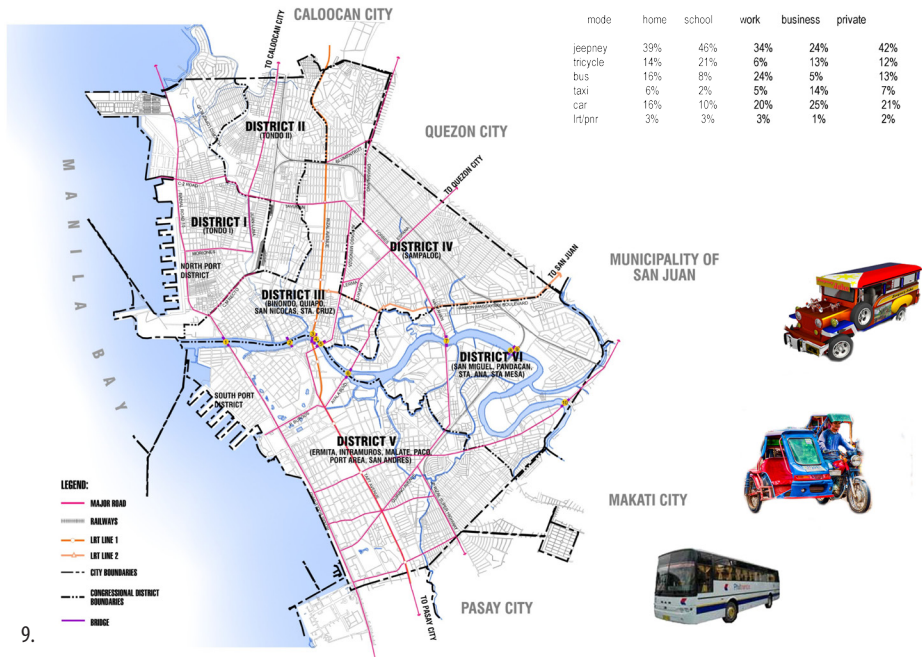
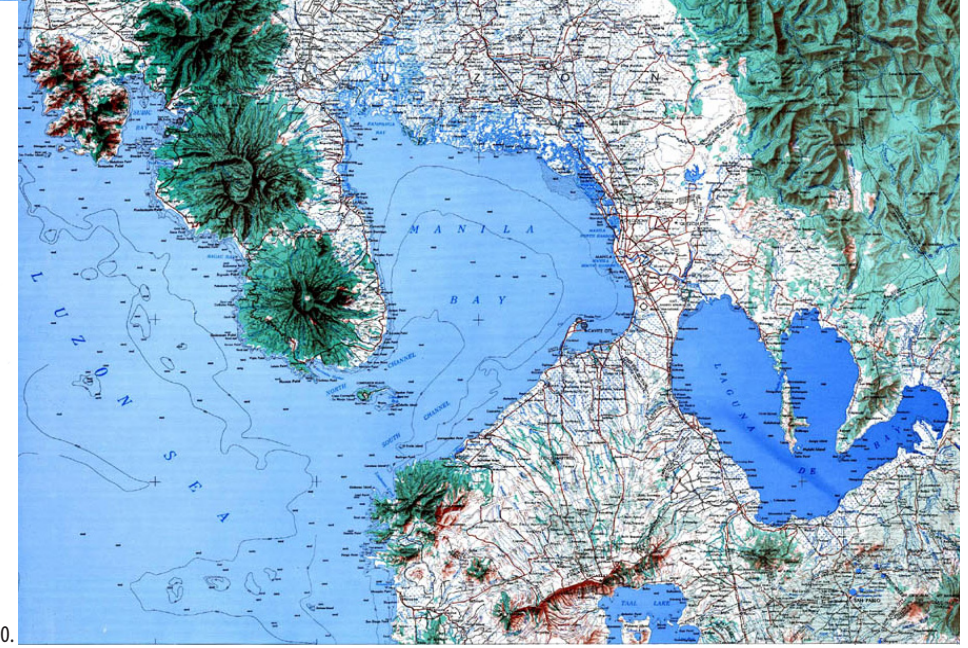
LEGEND:

- HIGH DENSITY RESIDENTIAL / MIXED USE ZONE (R-3M2D)
- MEDIUM INTENSITY COMMERCIAL / MIXED USE ZONE (C-3M2D)
- HIGH INTENSITY COMMERCIAL / MIXED USE ZONE (C-3M2C)
- LIGHT INTENSITY INDUSTRIAL ZONE (I-1)
- GENERAL INSTITUTIONAL ZONE (INS-G)
- UNIVERSITY CLUSTER ZONE (INS-U)
- GENERAL PUBLIC OPEN SPACE ZONE (POS-GEN)
- CEMETERY ZONE (POS-CEM)
- UTILITY ZONE (U-1)
- WATER ZONE (WTR)
- CITY BOUNDARY
- CONGRESSIONAL DISTRICT BOUNDARY
- LRT1
- LRT2
- RAILWAYS



8. SCALE 1 : 40,000 METERS

10.



11.

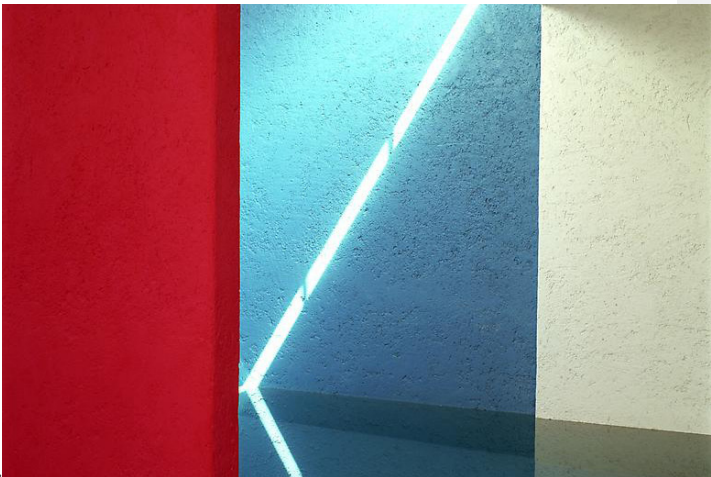




12.

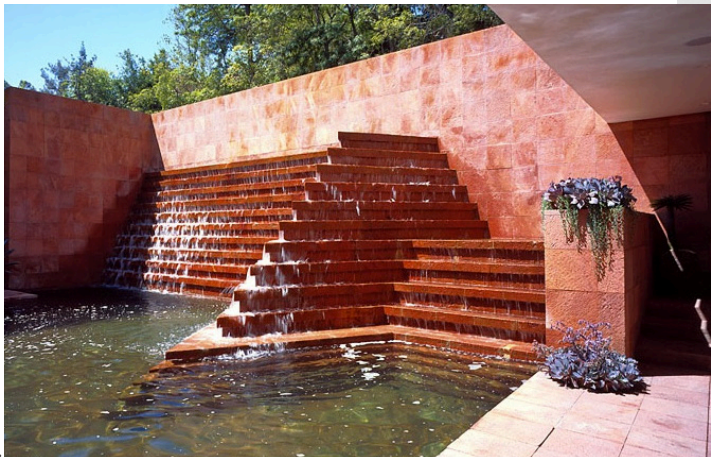
The works of Luis Barragan helped solve the question of dealing with water run off and recycling throughout the bath house. A trough dissects the building and takes you from interior to exterior releasing the water that follows you throughout the journey. As the central focus of my thesis is about water, I decided to highlight the quality of one of the irrigation pools in a greater scale. Manipulating different materials and depths allows you to visualize and feel the structure of the trough and the materials that make up the filtration methods of the irrigation pond.

Luis Barragan - Fuente de los Amantes, Los Clubes



13.

Luis Barragan - Casa Gilardi

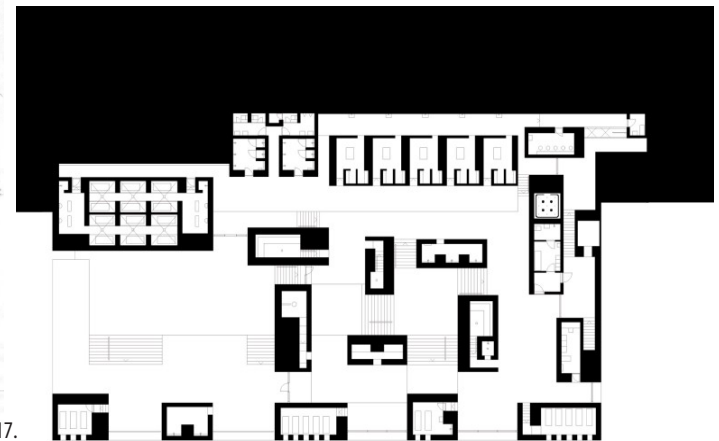
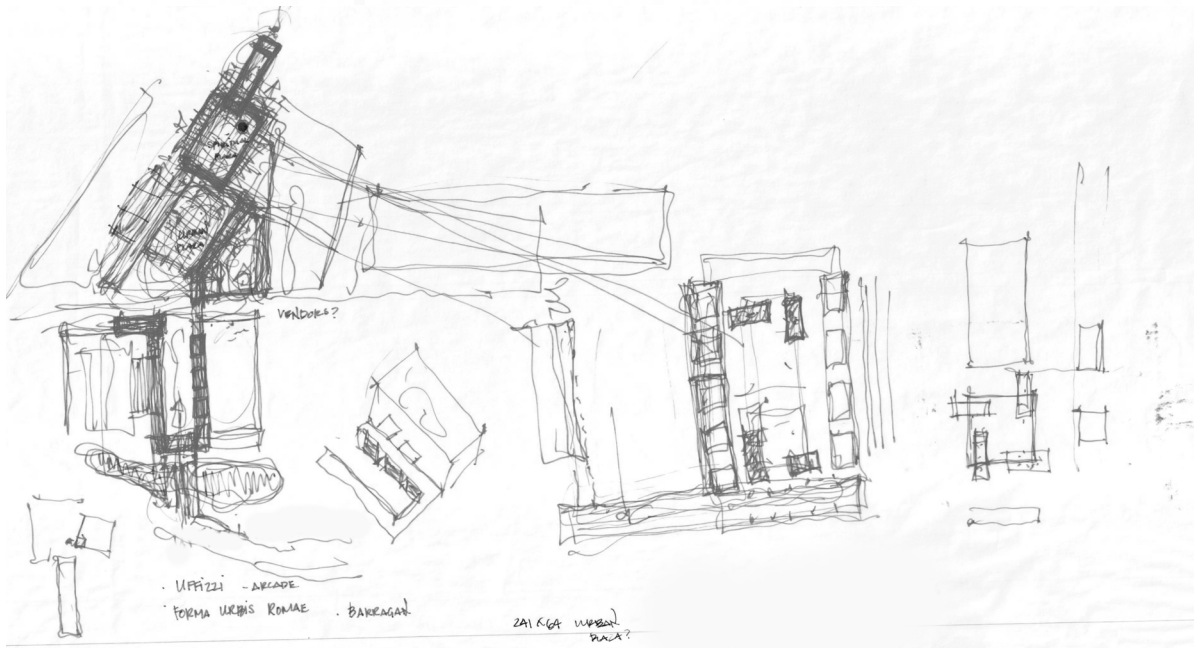
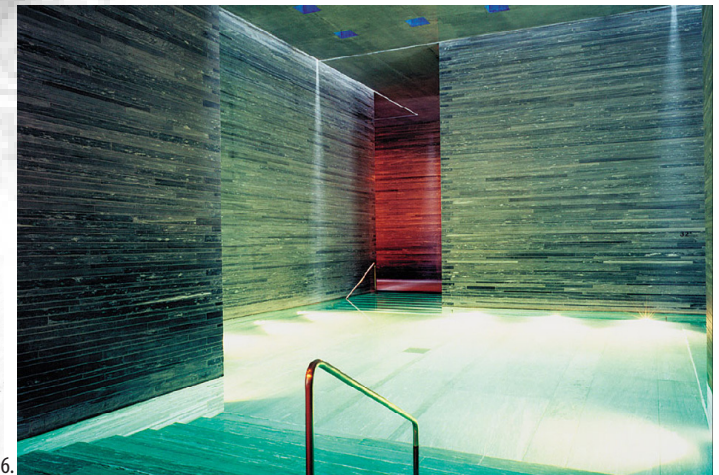


14.

Luis Barragan Fountain Home - Bel Air, Los Angeles, California

*Precedents*

Peter Zumthor's Therme Vals fit naturally into the landscape of a cave/quarry like structure. Molding the building into the slope of the mountain to create a complete sensory experience for guests is what I wanted to invent in the bath house. How you experience the natural and organic elements in the world is not always explicitly thought about. When you attempt to see the topography of a site, the 2-dimensional lines in plan don't quite illustrate the 3-dimensional quality of the land. It is not until you combine the dimensions in addition to your own intuition and imagination that a place or destination can become reality. The grandeur in structure of columns and bearing walls seen in Zumthor's plan helped in my planning process both in a master plan layout and also within the structure of pool placement and experience from one pool to the next.



Peter Zumthor - Therme Vals - Switzerland

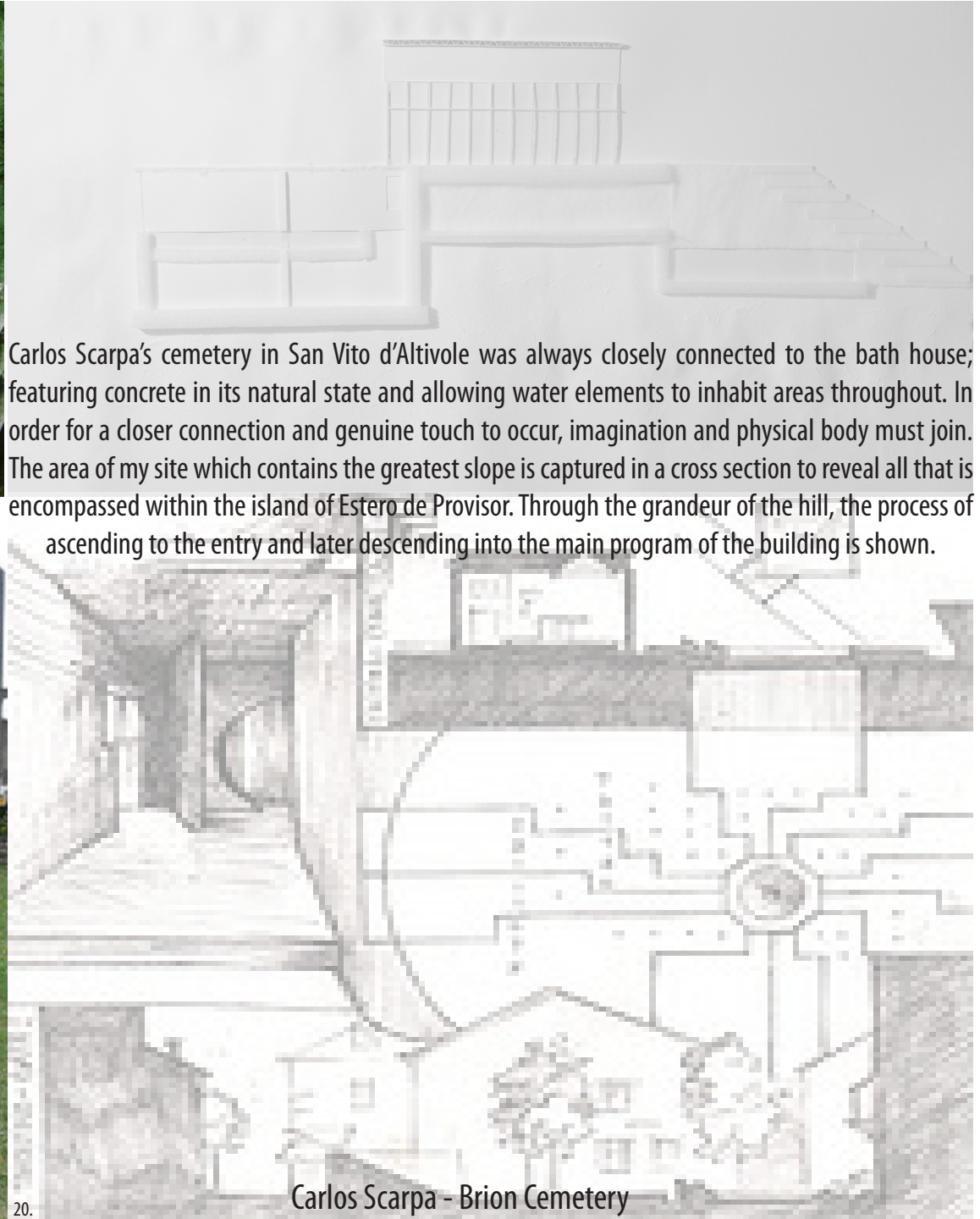


18.

Carlos Scarpa's cemetery in San Vito d'Altivole was always closely connected to the bath house; featuring concrete in its natural state and allowing water elements to inhabit areas throughout. In order for a closer connection and genuine touch to occur, imagination and physical body must join. The area of my site which contains the greatest slope is captured in a cross section to reveal all that is encompassed within the island of Estero de Provisor. Through the grandeur of the hill, the process of ascending to the entry and later descending into the main program of the building is shown.



19.

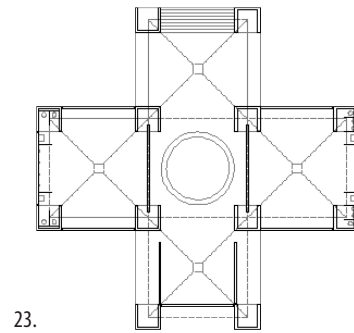
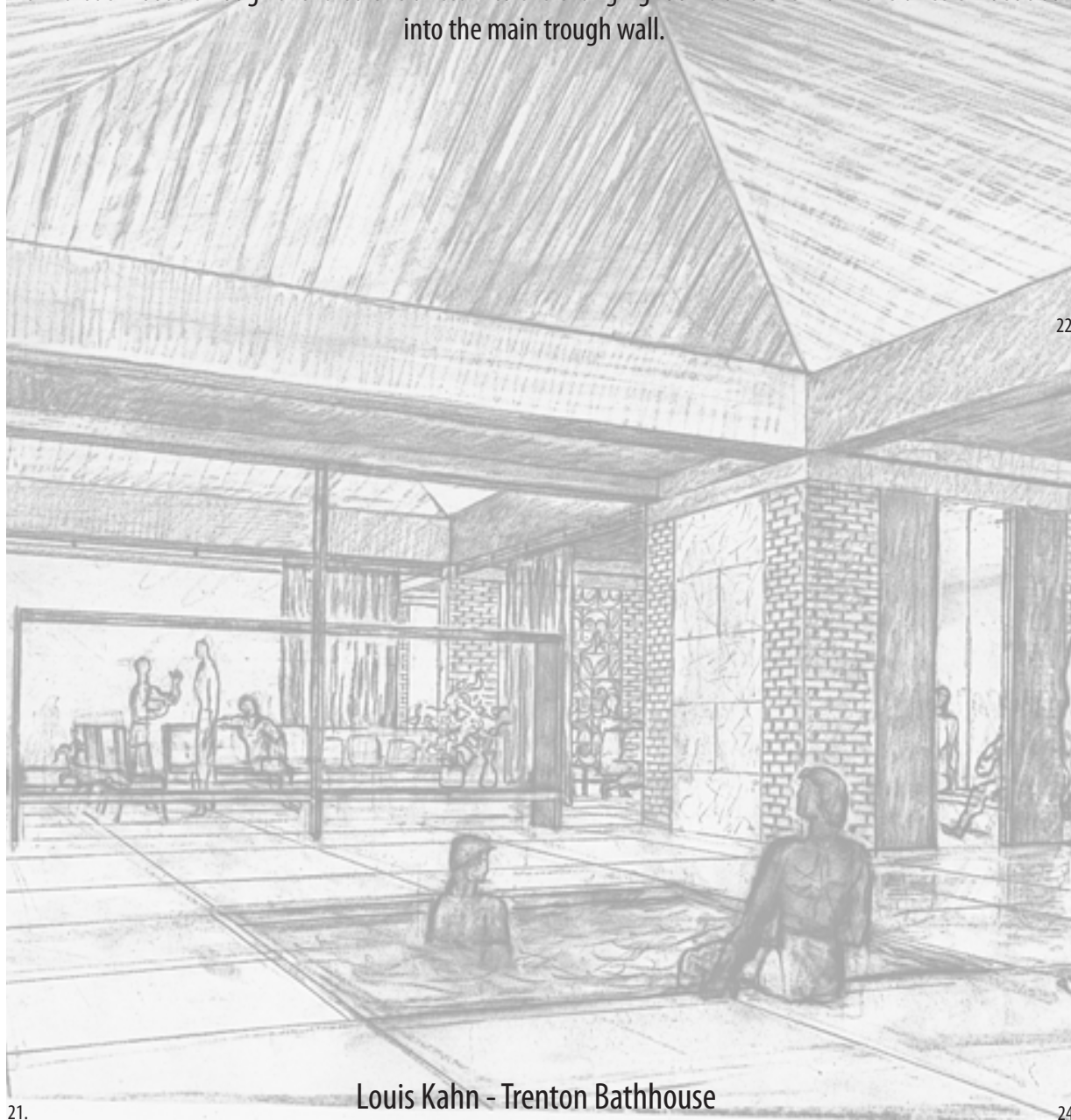


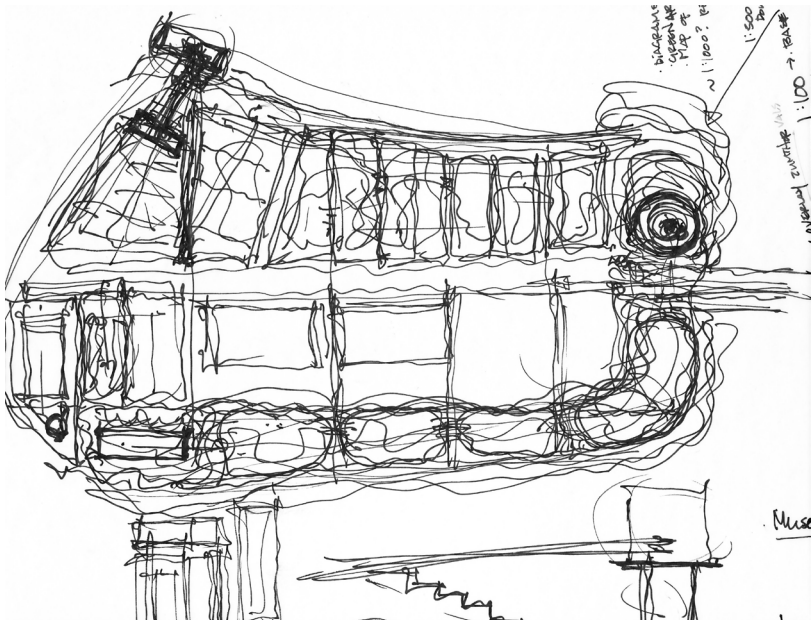
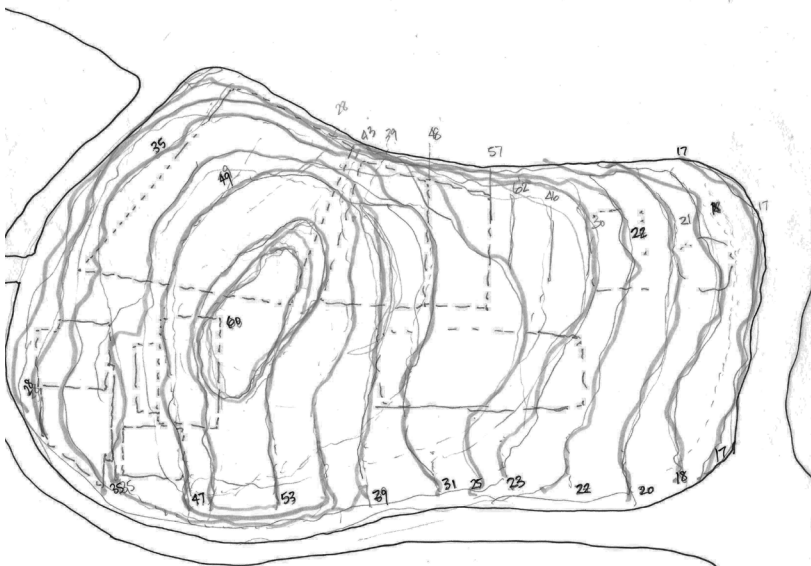
20.

Carlos Scarpa - Brion Cemetery

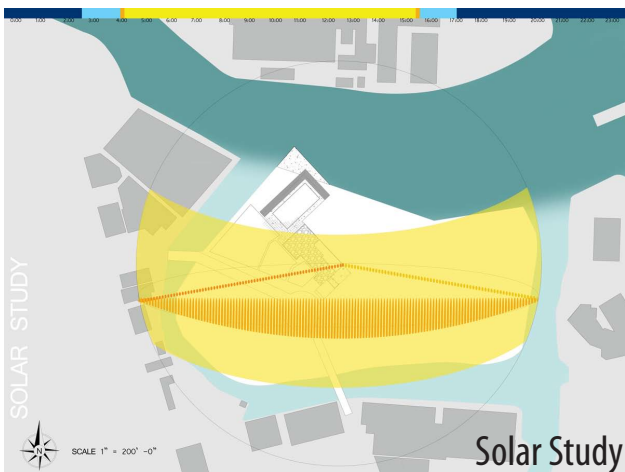
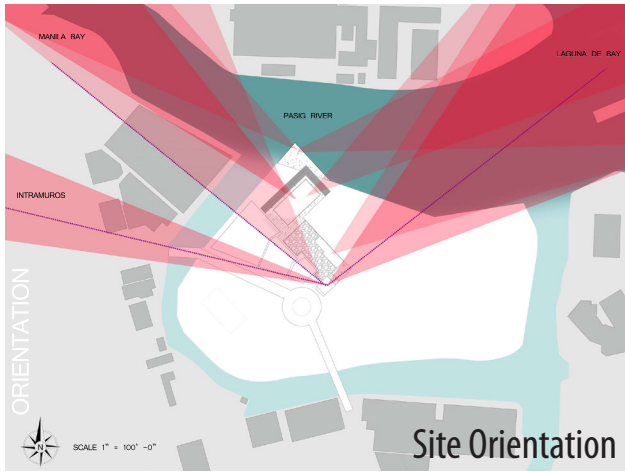


Louis Kahn's bathhouse uses modest materials to engage its inhabitants. Kahn's design resembles forgotten, windowless mechanical buildings that hide actual mechanical spaces and changing rooms within four hollow columns. The idea of placing dark, functional spaces hidden within the structure is used in the Manila bathhouse through slithered entrances into the changing rooms and the main entrance embedded into the main trough wall.





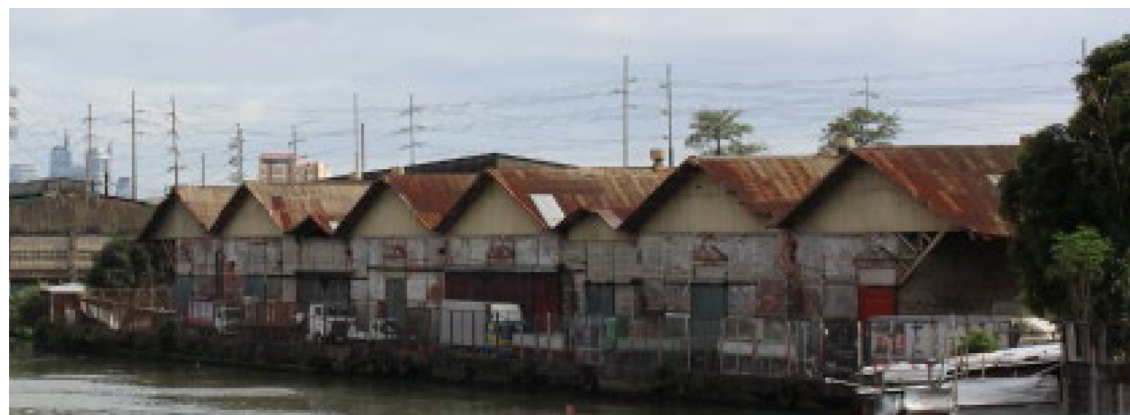
# Site Studies



Hospicio de San Jose located on Convalencia Island across the Pasig River

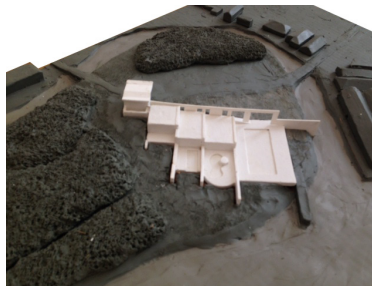
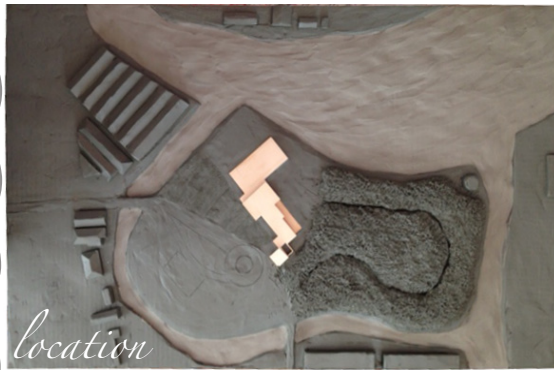
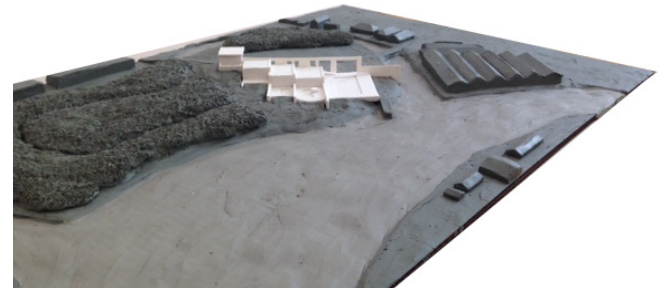
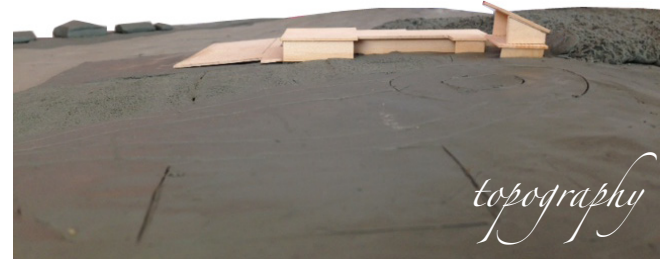
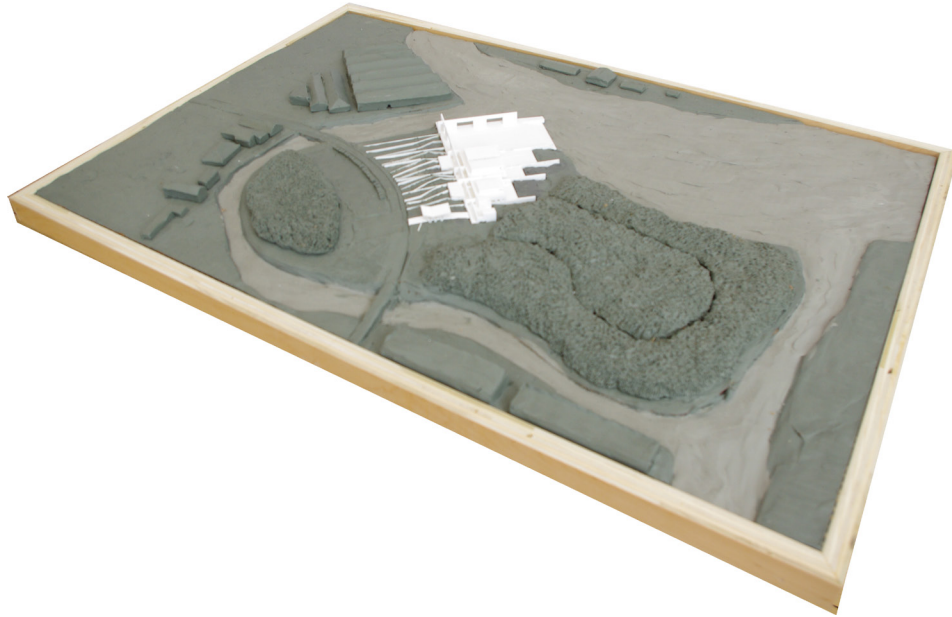


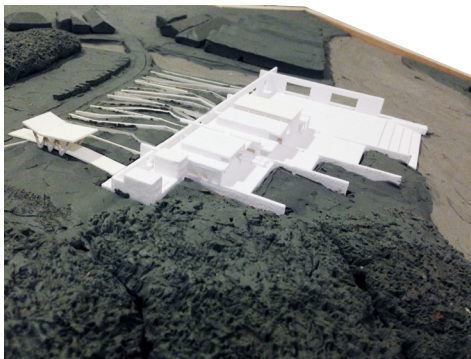
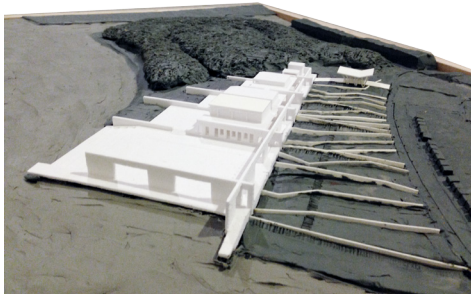
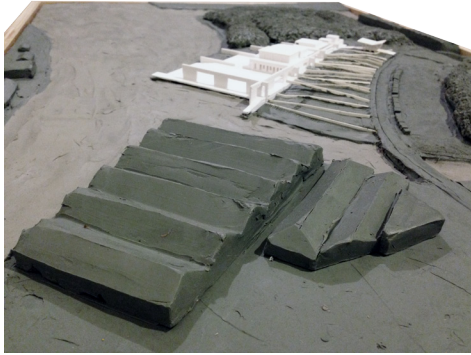
Pasig River south of Estero de Provisor



Cebu Oversea Hardware Company, adjacent Estero de Provisor

# Process





*Final*



The use of clay helped manipulate the topography of the site through a series of model studies developed over time. Originally stemmed from a base site model of clay, various schemes were explored in plaster massings and later developed into the final building.



# Site Plan

The revival of the Pasig River, esteros, and other bodies of water around Manila is critical to the region's sustainability. Uncontrolled urbanization have led to the deterioration of the city's quality of life. In 1999, the Pasig River Rehabilitation Commission was created with one purpose - to rehabilitate the Pasig River to its previous pristine condition for recreation, transportation, and tourism. Though many efforts have been made through various associations to clean up the Pasig, it was not until most recently in 2009 with the Estero de Paco Project that lifestyles began to change. To date, 1,400 families have been relocated from the estero since efforts began in 2009. The relocation stemmed a change in daily habits. While the estero could not escape the pollution, an area that became infested with thieves, drugs, and filth is now a new, clean home to reformed inhabitants that continue upkeep of the area. Coco Coir is used to mix with a helpful bacteria to decompose garbage left in the estero and to treat the waste water and sludge. Air is being pump in so that the water can sustain life and fish can be placed back into the river.

# ESTERO de PROVVISOR

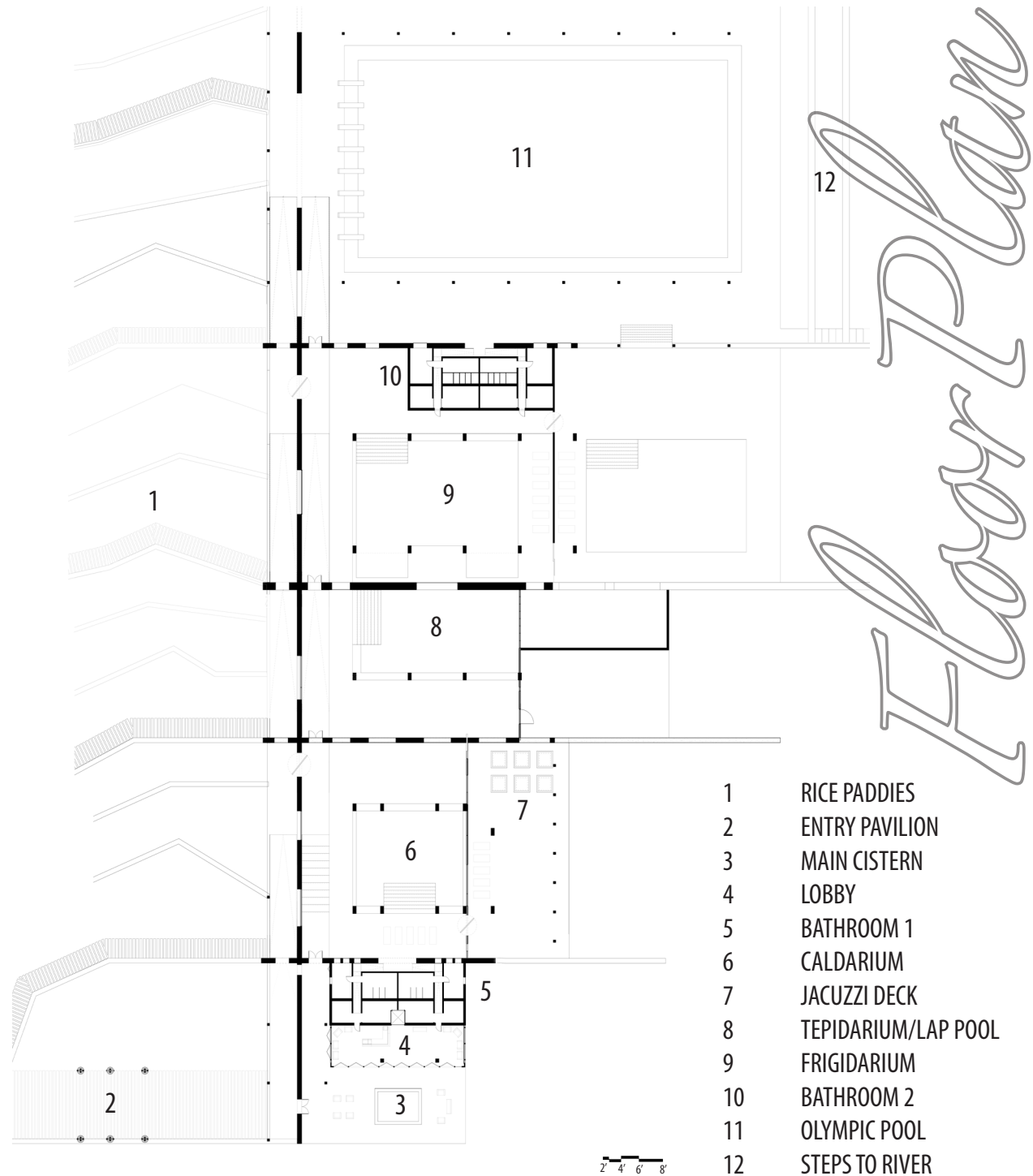
*Architectural Studio*



Concrete, brick, water – building in the terraces, building with the estero, building up to the pavilion, building underground – how these words architecturally come together is an exploration done through a thermal bathhouse in Manila, Philippines. As you enter the long, concrete building, the ever-present brick retaining wall guides your path through the central circulation. Above, the green roofs are pierced through 4-inch thick glass skylights, allowing direct sunlight to penetrate and continue you through each pool.

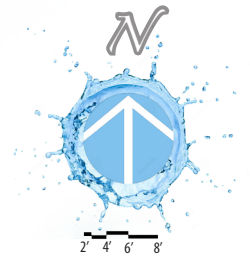
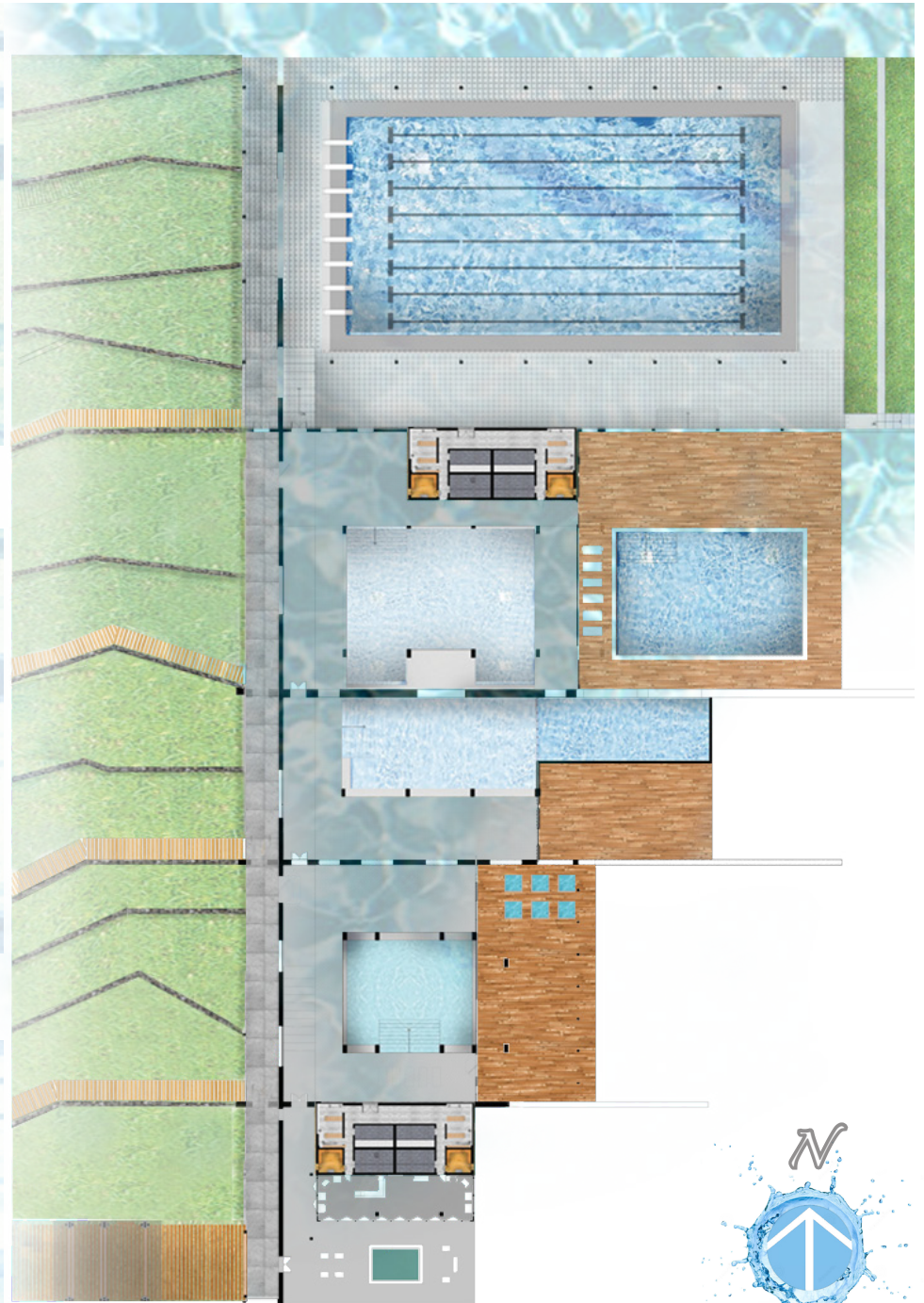
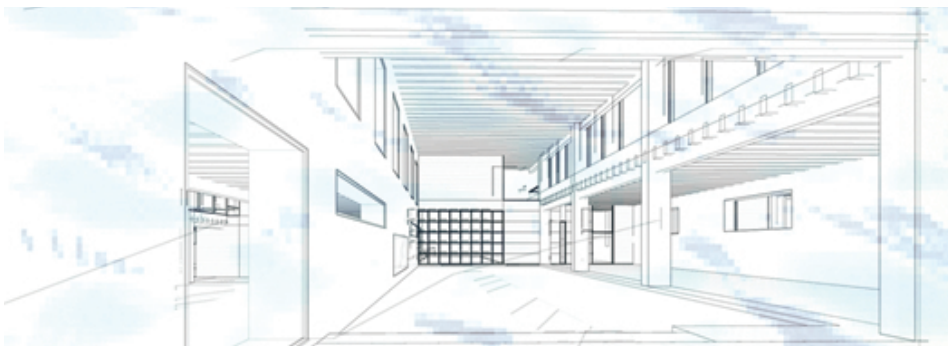
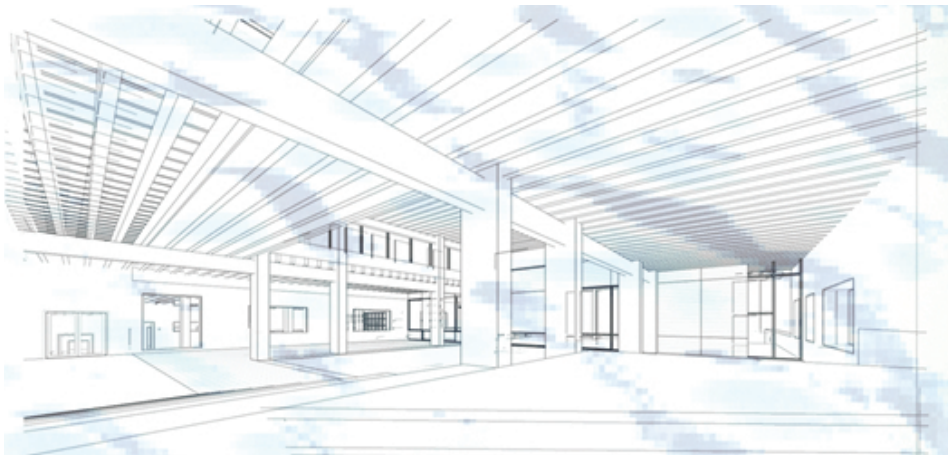
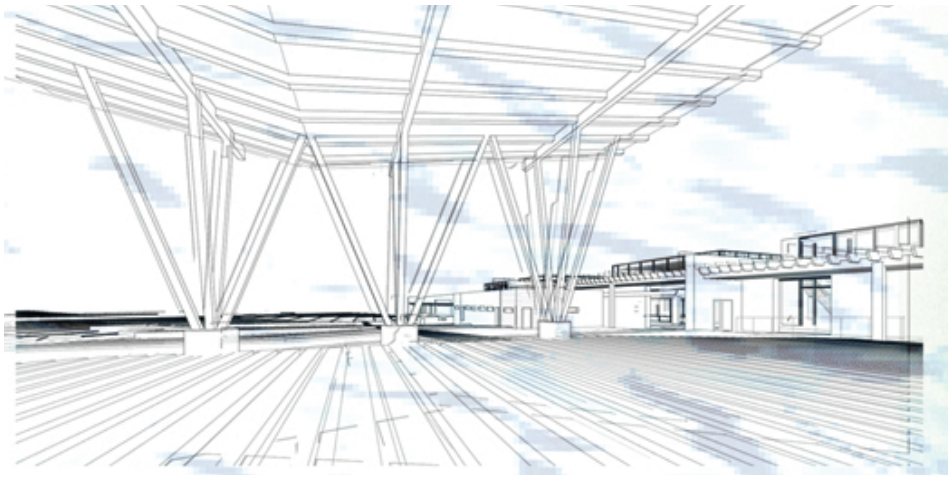
The brick retaining wall runs two feet thick throughout the entire length of the building, piercing both the pavilion on the southeast corner and the outdoor event pool on the northwest end. The wall is designed with both sides in mind. On the inner side, you experience the wall as what holds you as you descend levels from pool to pool. You are able to feel the solidity and mortar of the bricks. On the opposite side, you must pass through the openings of the wall and feel the bricks start to spread out and contain more spaces in between. These spaces allow storage for belongings left behind that you would not need in order to bathe.

As you proceed to bathe, you enter the first pool, the caldarium bath of the hottest temperature (103 degrees Fahrenheit). The steel and glass rail that guide you into the hot water is attached to the tilted marble concrete wall and becomes a wrap around seat to pause and inhale the vapors of the water. The concrete serves as the pool structure as well as a ledge for the lower pool, cascading to below.



# Floor Plan





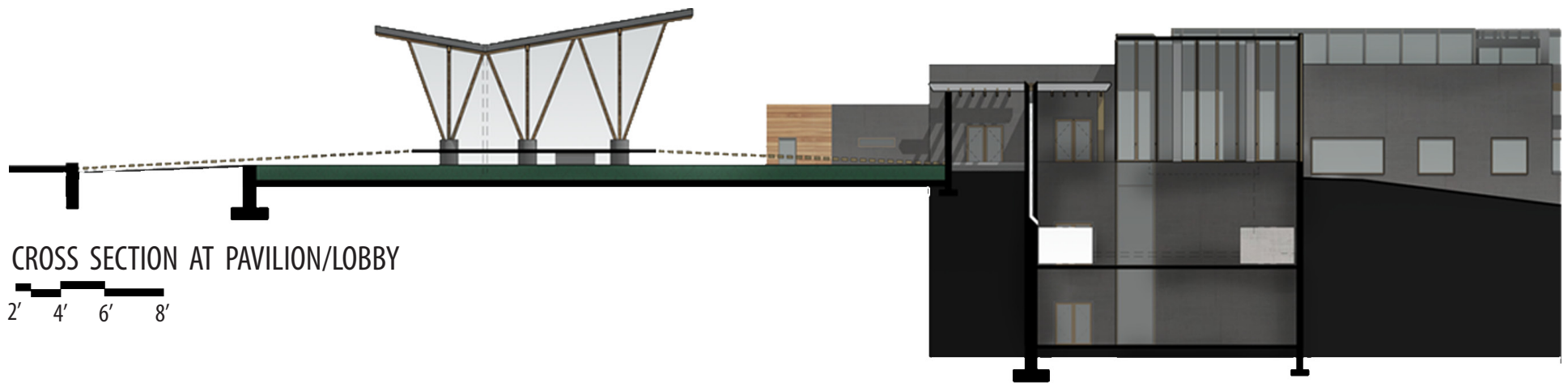
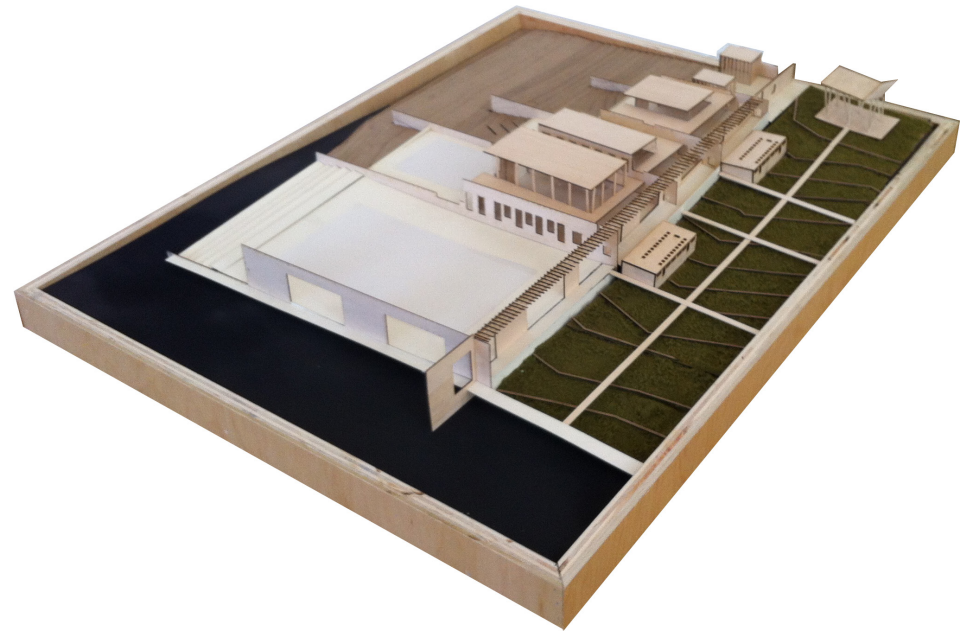


## Comfort Room

Toilet, restroom, lavatory, baño, out house, toire, comfort room, etc. – however you decide to refer to it, toilets come with all forms and rituals. The toilet is usually the least thought about space in a project mainly because we are taught to have them hidden as an unseen place. In Manila, the common term used is comfort room, or simply put, the “CR”. To my knowledge, this is the only place in the world where this name is used yet the origin has no direct find. When we go about our daily routines, we might not always stop and realize how much time is actually spent seeking comfort in this room. It is a room for preparing, cleansing, healing, rejuvenating, and much more.

In designing a bathhouse, the comfort room is quite an important area of preparing one’s body, mind, and soul to embark on the entire cleansing process throughout the terraced pools. The project as a whole remembers the ancient process of bathing wherein you enter the dressing area, disrobe, shower, then begin to work up a sweat either exercising or engaging within the sauna, you then proceed into the hottest temperature pool and continue to the rest of the pools along the sky lit path. In this exaggerated detail, entering into the comfort room, a rose scented water wall secludes the room from the lobby space adjacent, filtering any unwanted sounds from the plumbing system beyond. As you pass through the black slate floor, your shoes are placed in the first shelf of the rose water concrete wall and the long, slanted concrete bench leads you into the dressing area.

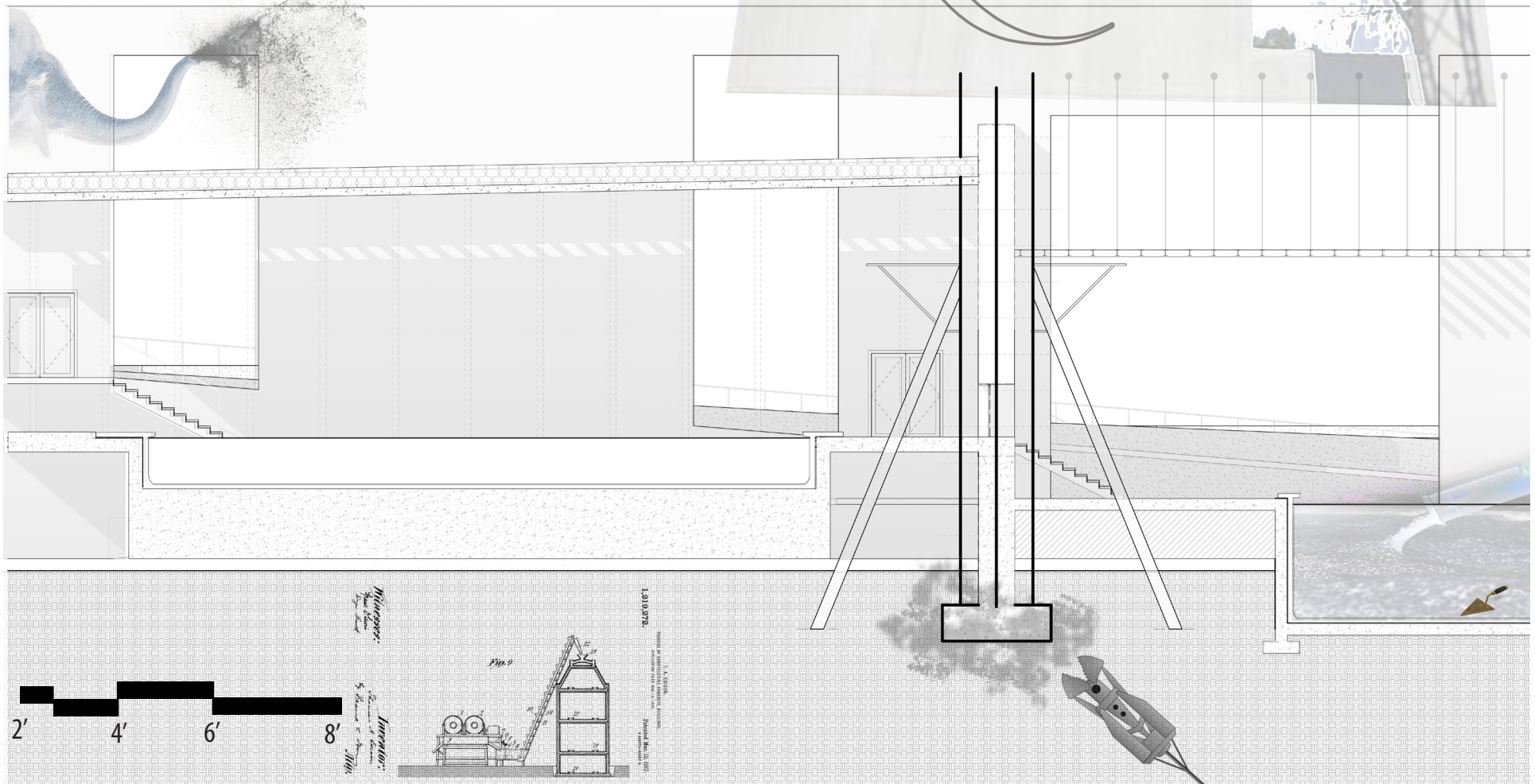
The healing and cleansing elements such as eucalyptus, jasmine, and ginger, overpower the dark scents in need of evacuation. The unpleasant odors are allowed to exit through skylights above with operable windows releasing into the open air above the green roof. Using some planted elements of the green roof, the scent of the roses and jasmine flowers are caught through the inevitable rainfall of the tropical climate and passed through the structural system of the building. While the unpleasant odors are ejected from the building, the desired freshness for the comfort room is well maintained through concrete floor slabs and inserted into wall thicknesses.



Cooking inspires creation both in the kitchen and in studio.

Growing up in my household, my mother would always make her own versions of pancit (she had more than one) for any birthday celebration or party because it was a great way of bringing people together for a good time. "Pampahaba ng buhay (for long life)", was always the saying that went with pancit and according to tradition, the noodles serve as a symbol of long life and you should never cut up your noodles.

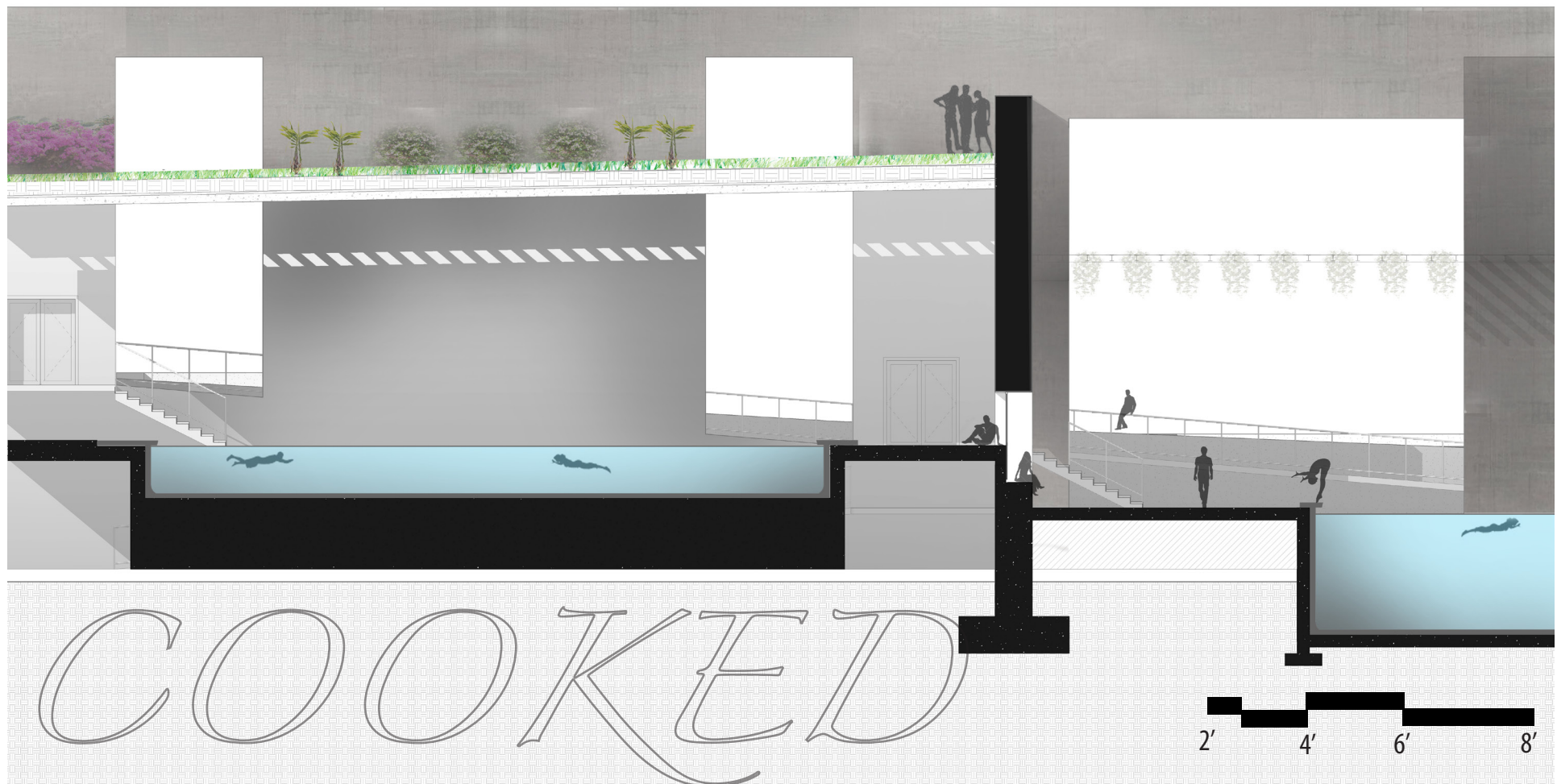
Just as the dish brings different people together, the ingredients bring together different herbs, vegetables, and even noodles.



In this drawing I chose chicken to resemble the meat of my structure in the concrete walls. In preparation of ingredients of this meal relate directly to how one would prepare to bath. Each ingredient begins as raw, stiff, and dry – similar to a person before they bathe.

Having the raw ingredients cut up and ready to go inspired me to show the fabrication of the concrete wall that exists between the frigid pool and the outdoor event pool. Showing the formwork, steel ties, and necessary materials of construction such as a trencher to dig the soil, the crane to lift the precast concrete wall, and the golden trowel. The drawing sets up the concrete wall to be poured and later inhabited. The green roof is also drawn raw, without vegetation and in need of watering in order to grow.

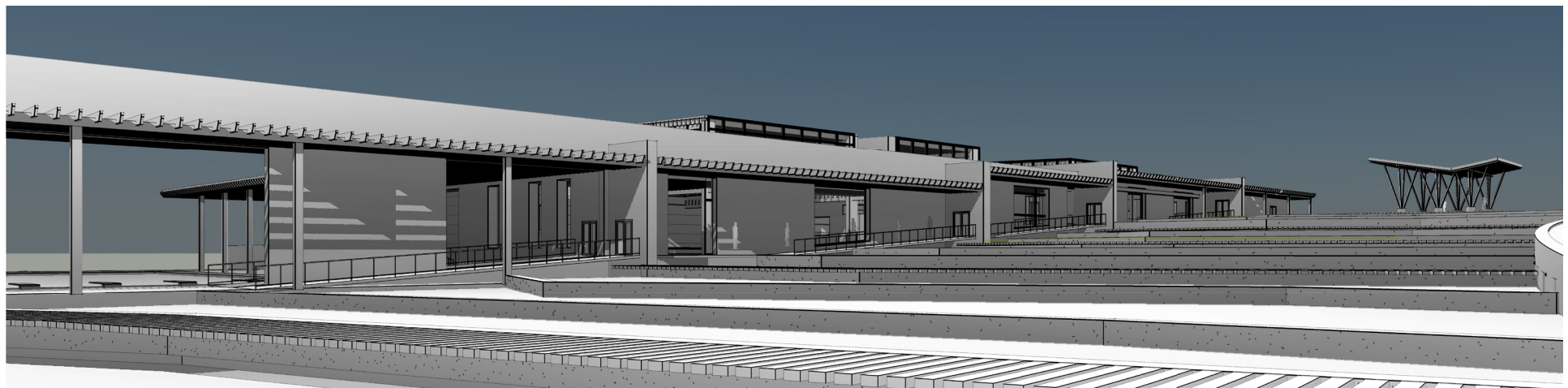
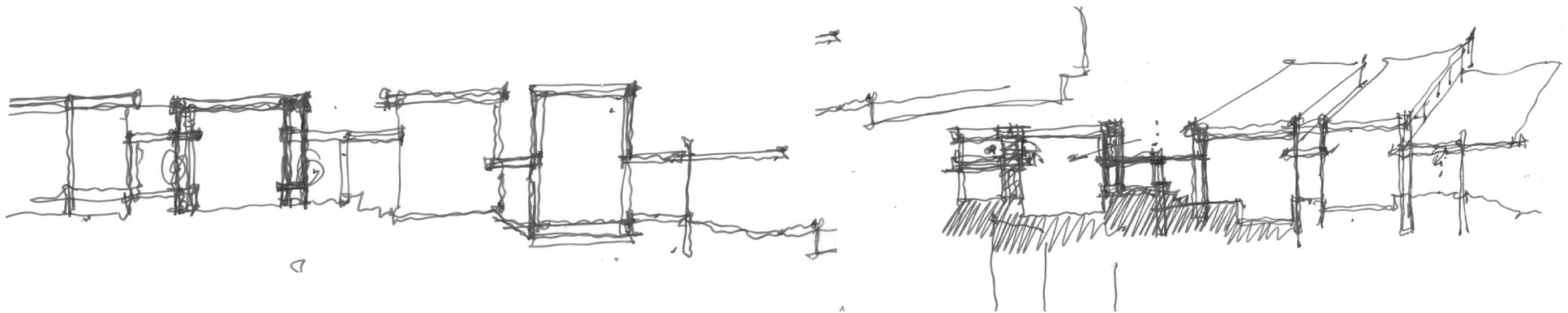
The “cooked” side of the drawing inhabits the same wall and pools. In the distance is the main concrete wall that runs the entire span of the bathhouse. The concrete wall being cut is 2 feet thick to allow two sided viewing ledges, one side looking out to the event pool and the other side at floor level of the frigid pool area. The green roof has grown its ginger, roses, and jasmine plants – all local inhabitants to Manila and the tropical climate. Having the cooked meal of pancit and the cooked side of the drawing allowed me to envision the process a bather goes through from being completely dry and stiff to a wet and playful state that would activate the entire building.



The process of entering the first pool from the restroom is a major threshold for the bather to transfer from dry to wet. As the bather enters the pool, the concrete steps into the water are dimensioned to maintain a steady pace at 12 inch treads and 6 inch rises.

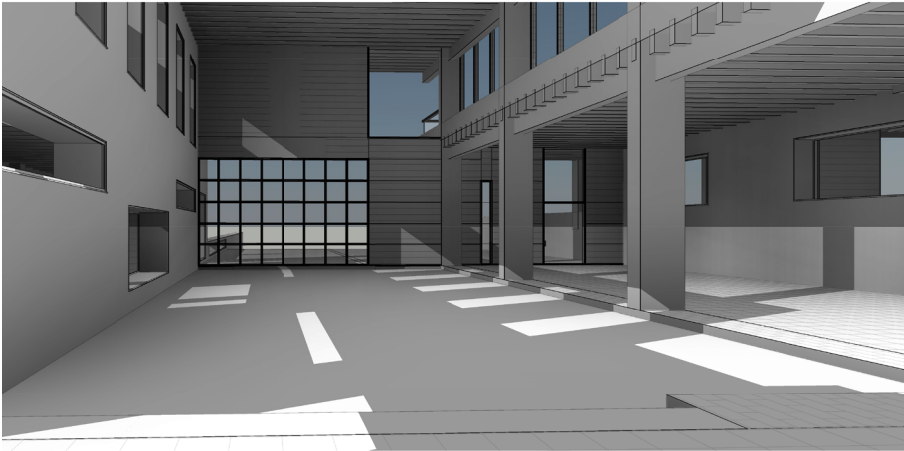
Walking downward into the pool, the bather passes a series of jets that stimulate body circulation and prepare the bather to become fully submerged. Using the average body of a swimmer, this drawing depicts a section of the tepid pool that is 80 degrees Fahrenheit and 3.7 feet deep, the average height needed for a swimmer to roll underwater. The inner length of the pool considers the average length used in the freestyle and backstroke swim routines.

At the edge of the water the pool is contained through a concrete column that also passes the dry/wet threshold in which the smooth concrete structure is exposed above water but becomes dressed with mosaic tiles underwater, relating to the bathing suit of a swimmer. The column as a whole models the proportions of the average height of a swimmer and holds beams above which support the green roof.

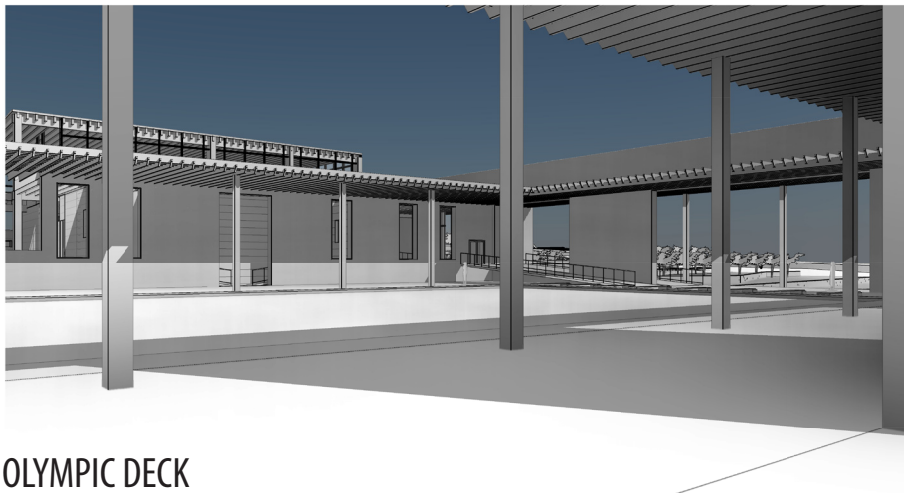




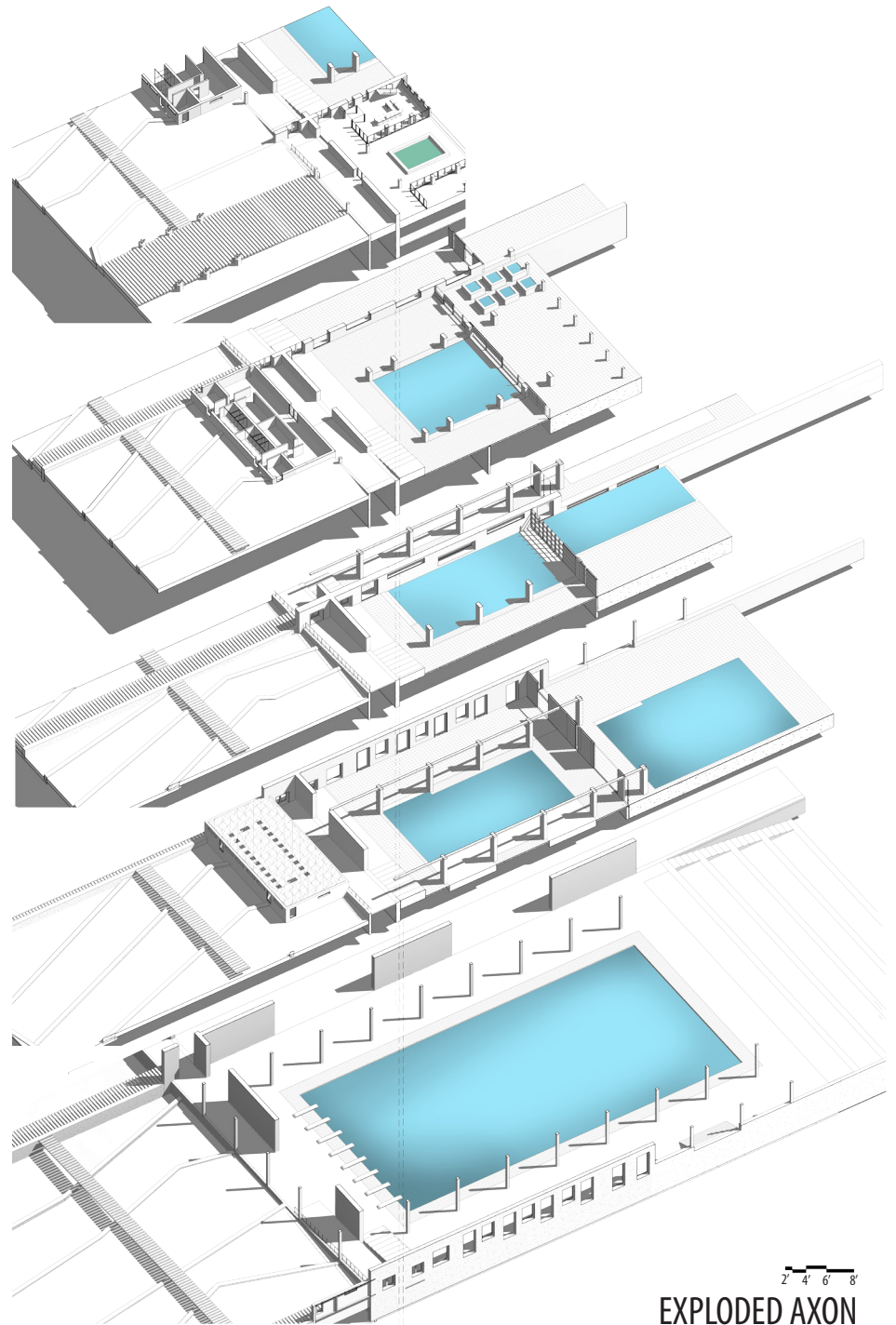
CALDARIUM



FRIGIDARIUM - LAP POOL

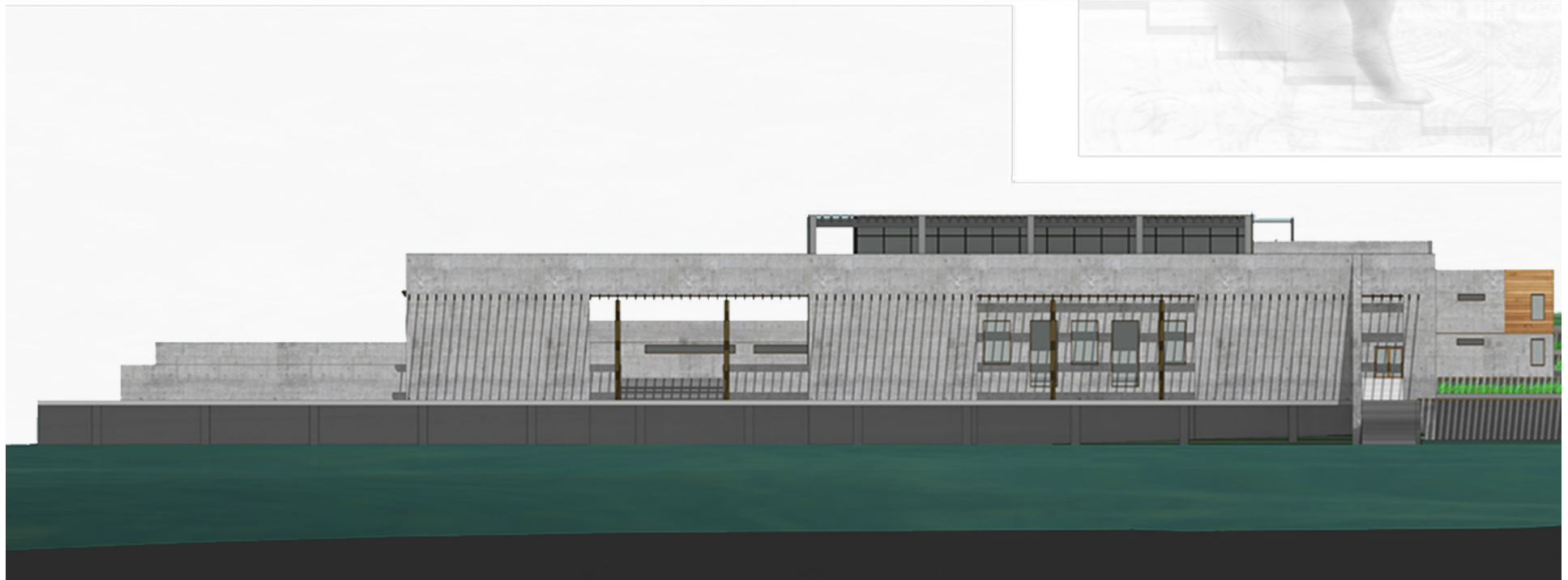


OLYMPIC DECK



2' 4' 6' 8'  
EXPLODED AXON

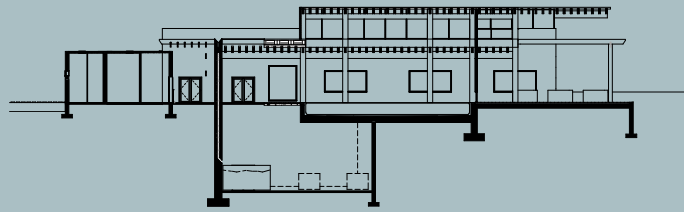
What makes a good swimmer? Olympic swimmer competitors have some of the strongest features in torso and wingspan and maybe these physical attributes are what bring them closer to the gold, but swimming is not about strength, speed, or even length. While these factors may have great impact on what a person does with them while submerged in water, good swimmers come in all shapes and sizes.



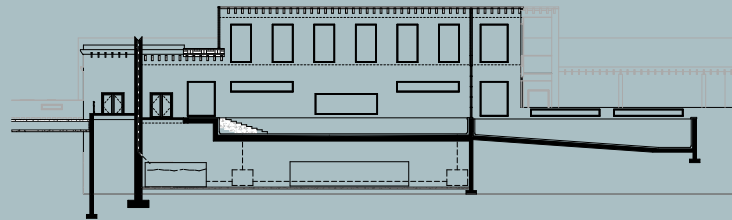




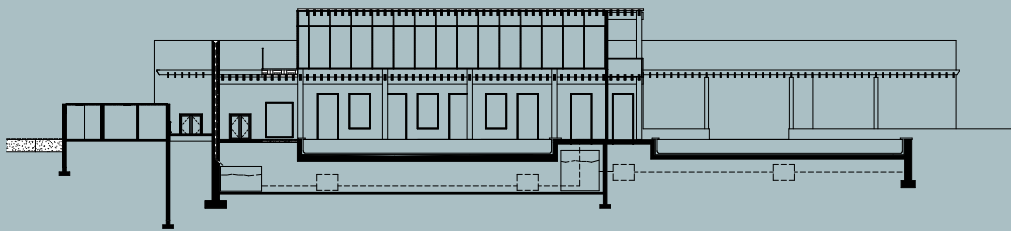
# Elevations



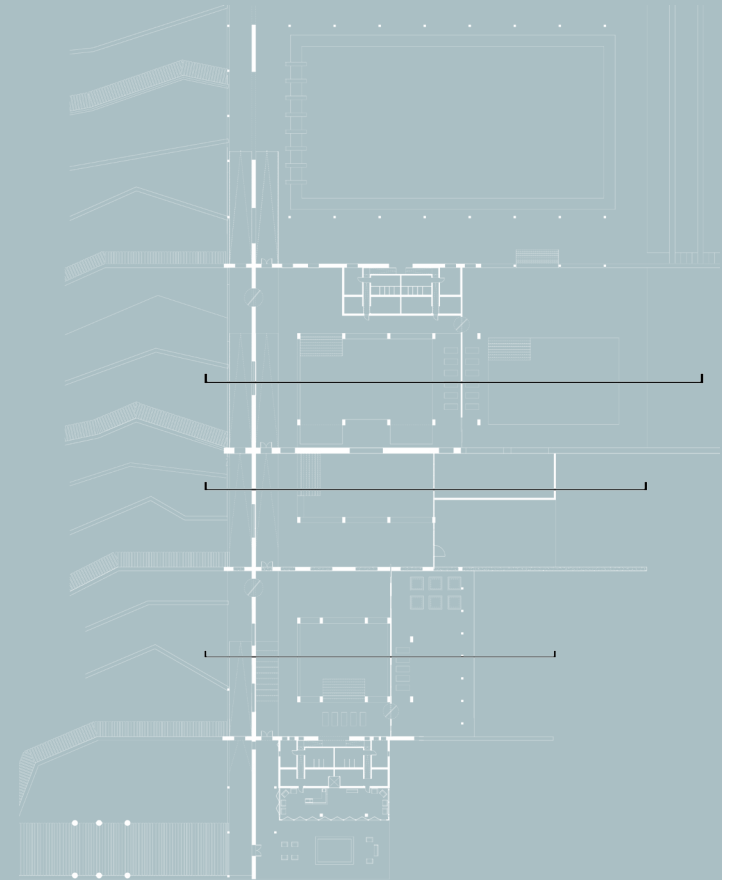
SECTION AT CALDARIUM POOL



SECTION AT TEPID POOL



SECTION AT FRIGID POOL



EAST ELEVATION

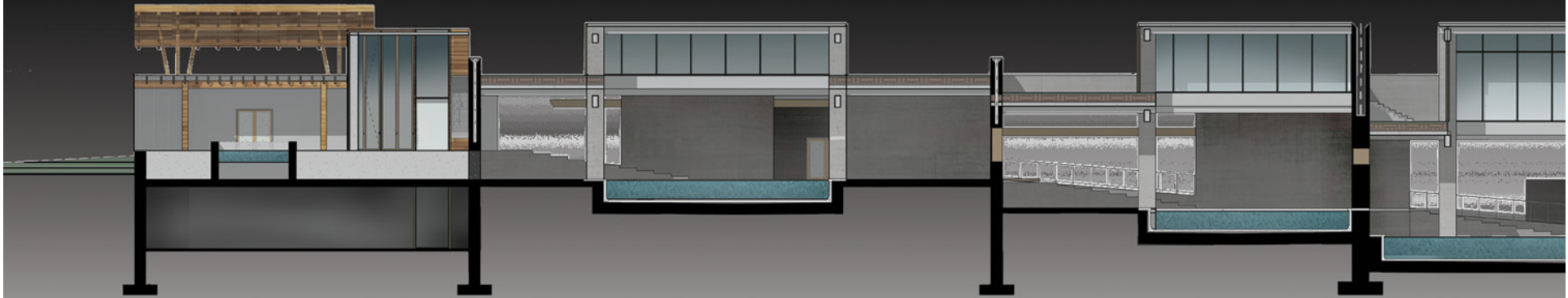
2' 4' 6' 8'





WEST ELEVATION

2' 4' 6' 8'



SECTION AT POOLS

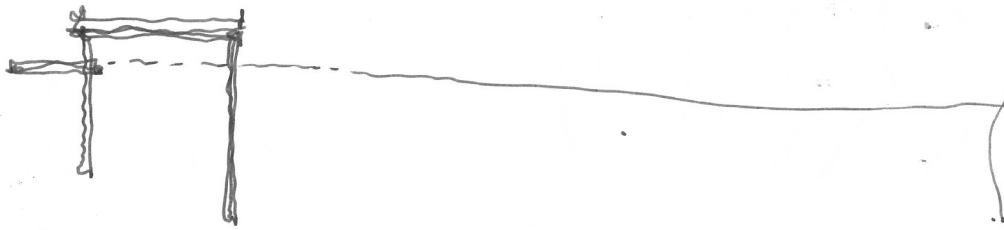
2' 4' 6' 8'



*"Our team set out to change the river but the river ended up slowly changing us" <sup>2</sup>*

*- Gina Lopez*





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