

aquarium room

kyo kishimoto 08 august 2002

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08 august 2002

Professor Hunter Pittman: chairman

Professor William Galloway

Professor Heinrich Schnoedt

abstract

through designing an aquarium for my thesis project,
i was able to explore the basic ideas of making a room.

tons of thanks to hunter pittman, bill galloway, and heiner schnoedt for their kind guidance and patience. an ear-to-ear grin full of thanks to my classmates and friends. and a special thank you and big hug to my parents and my husband for their forever love and support.

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Professor Bill Galloway talked to the class about different approaches to a **THESIS PROJECT**.

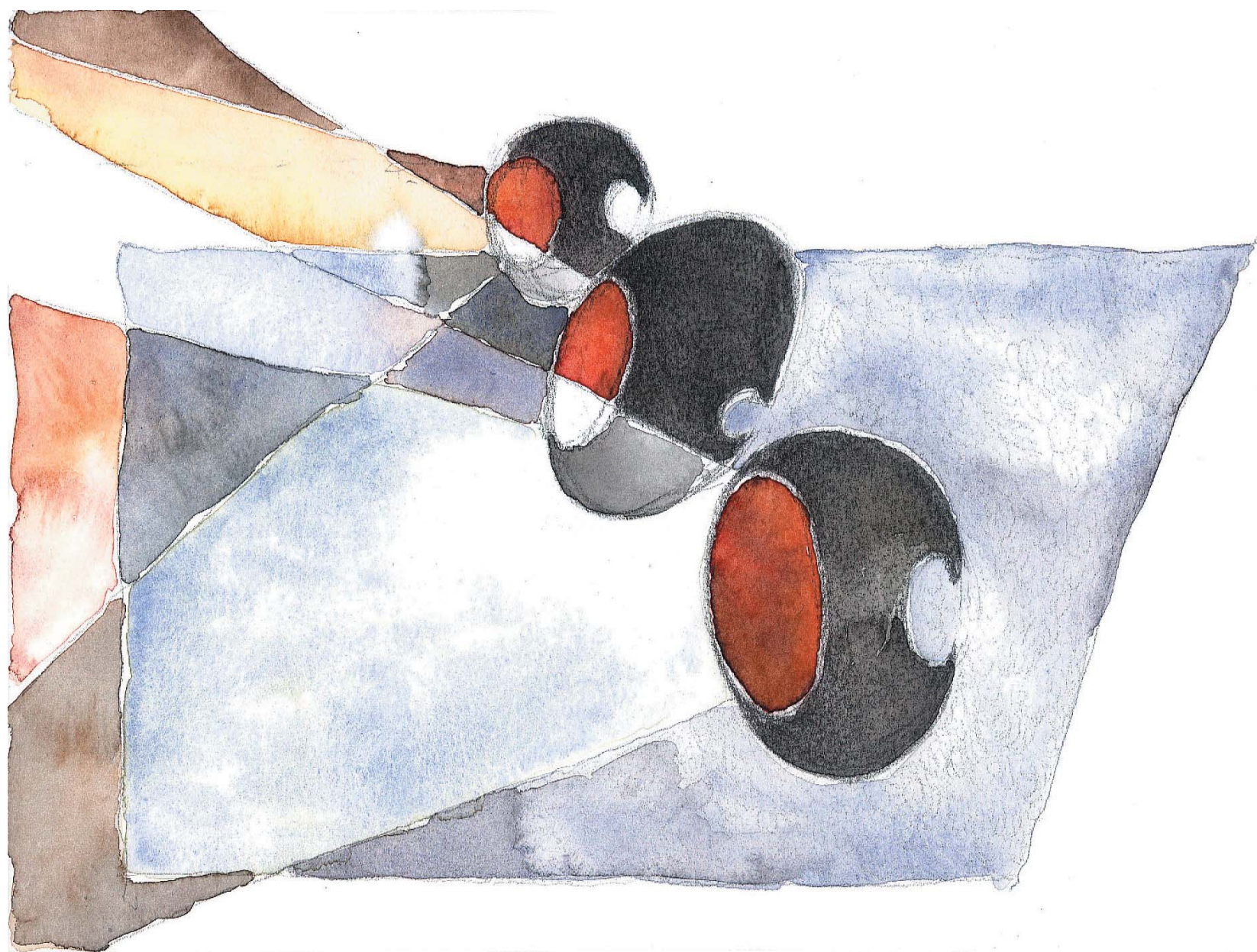
One option was to start with a **building type**:

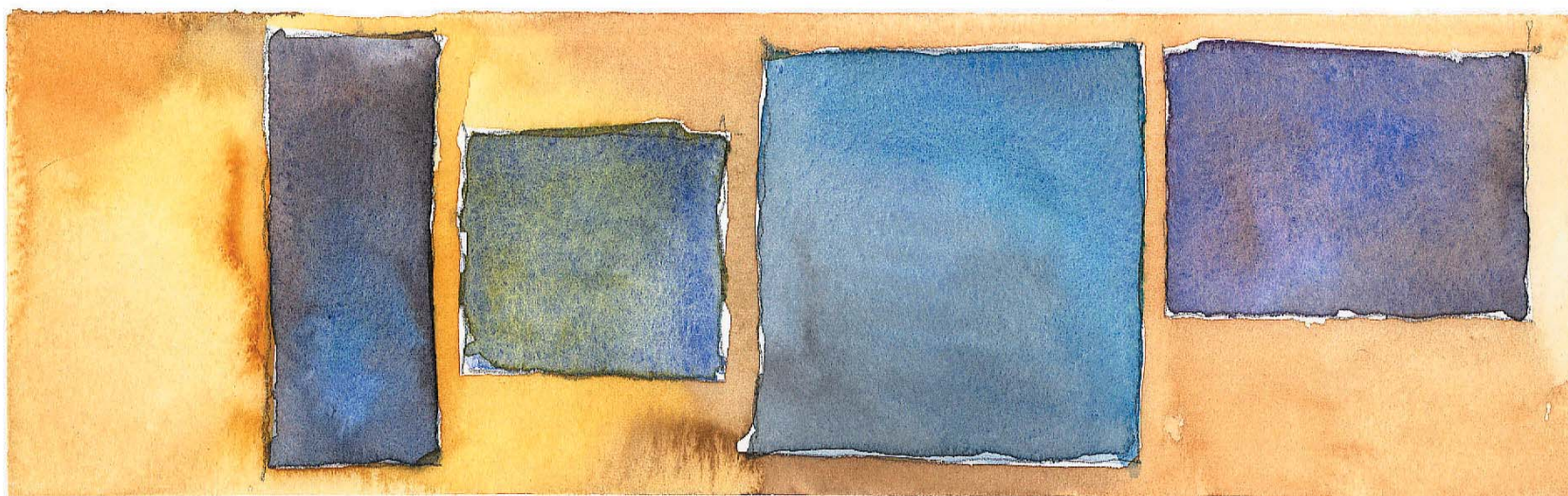
prepare a **program** for your project [a plan or system under which action
may be taken toward a goal].

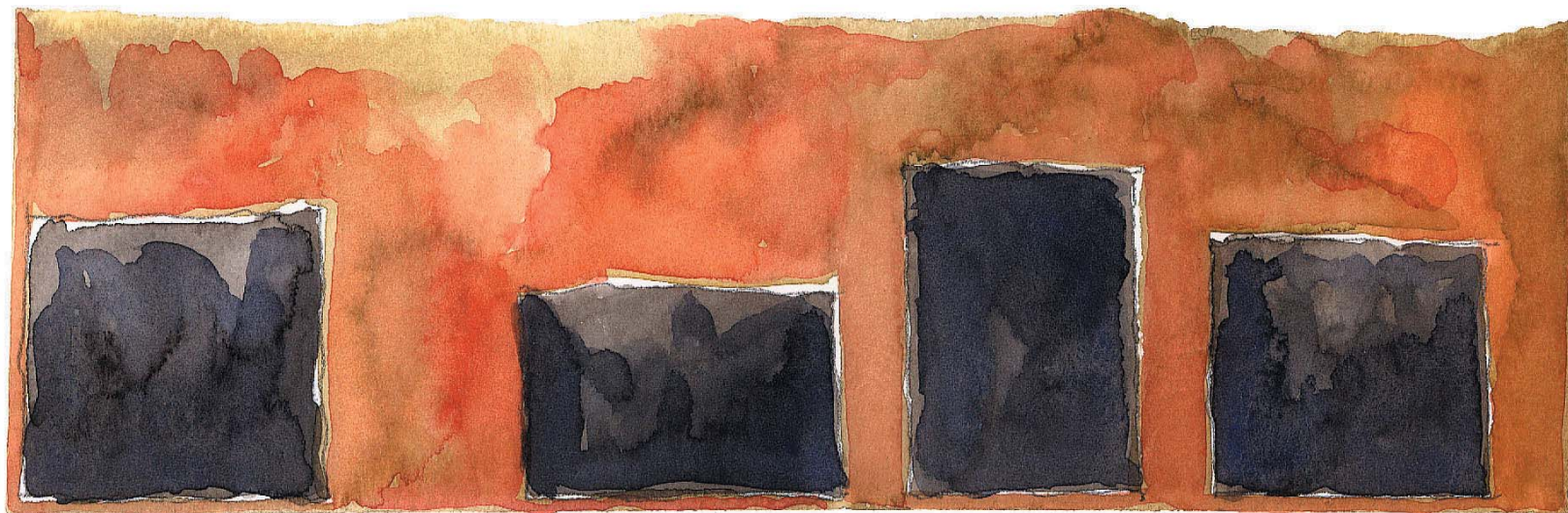
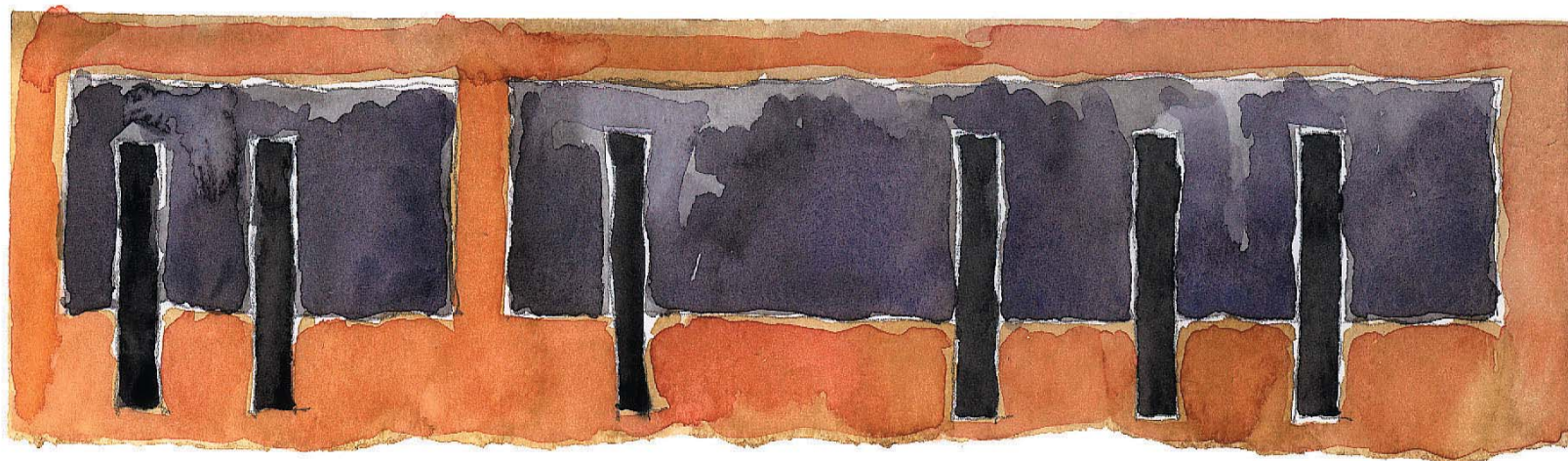
choose a **site**.

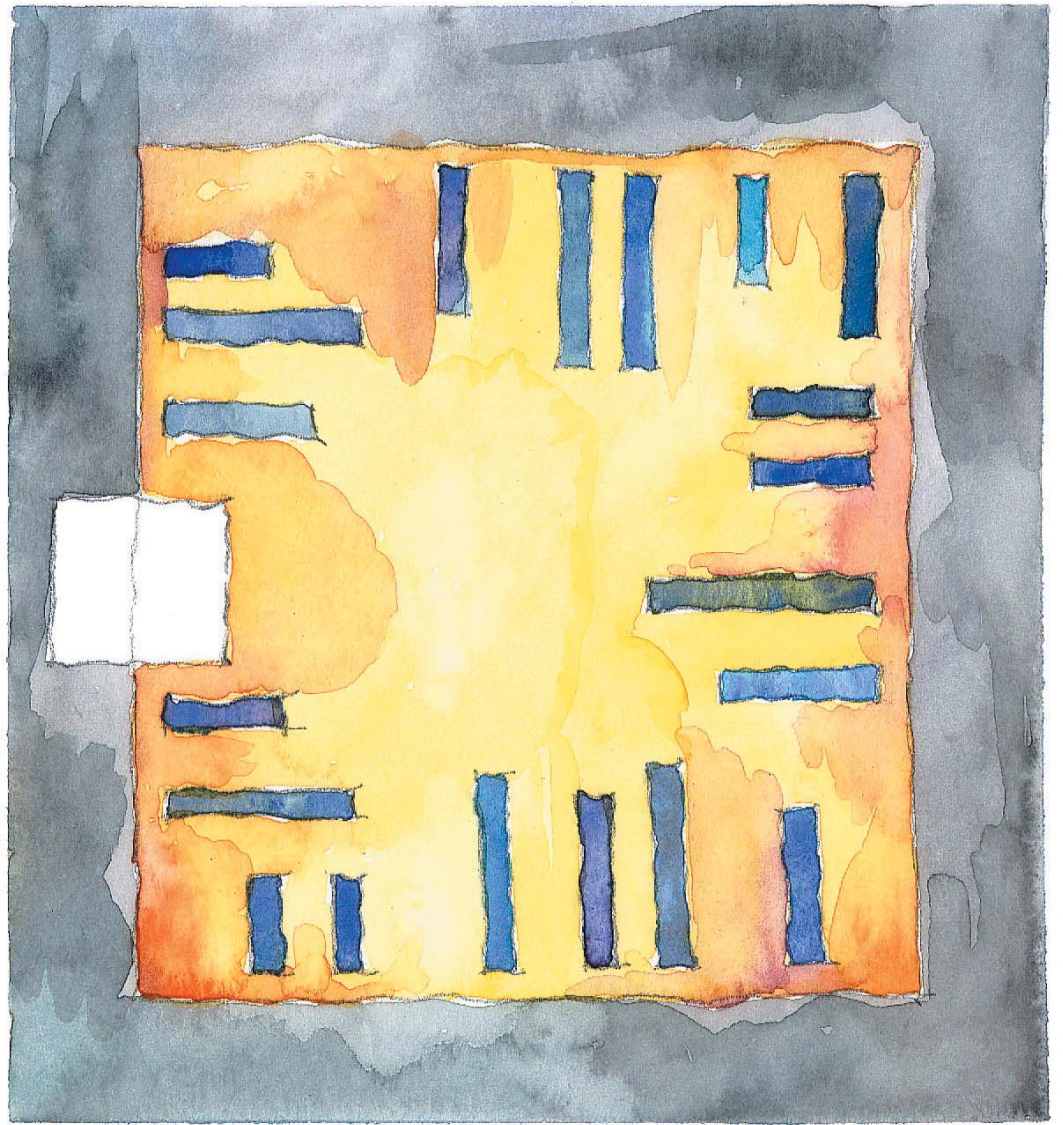
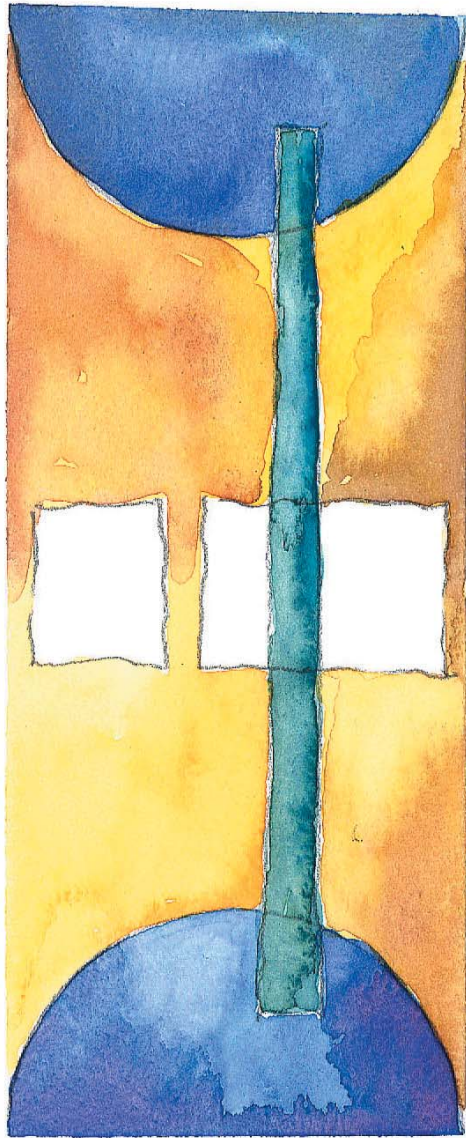
and **get rolling**.

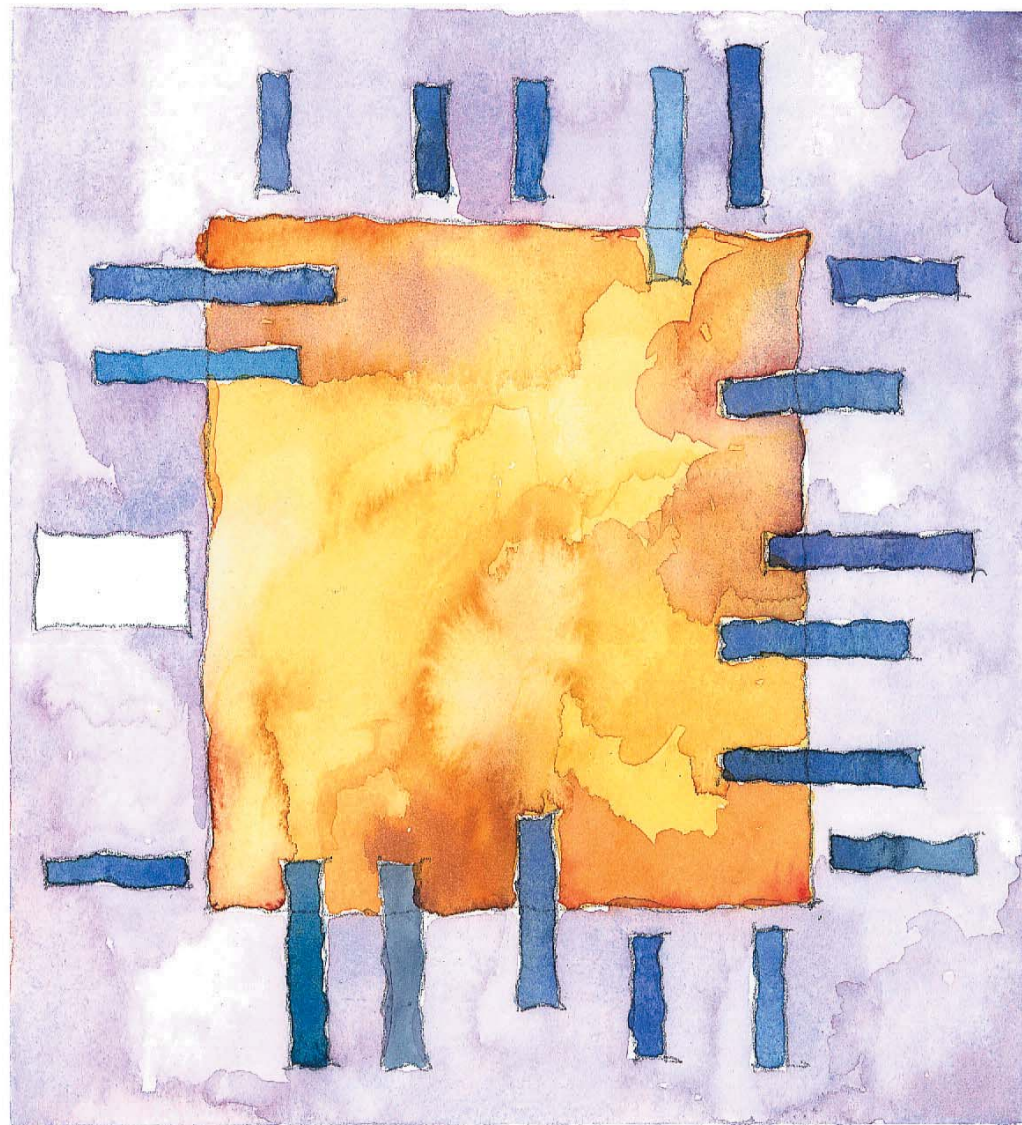
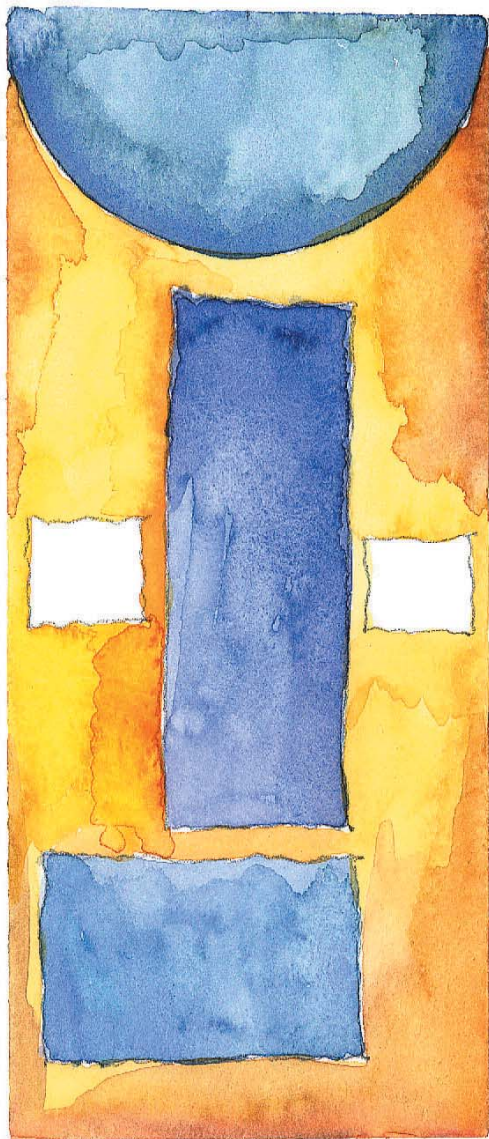
(The "thesis" will develop as you work through your new project.)

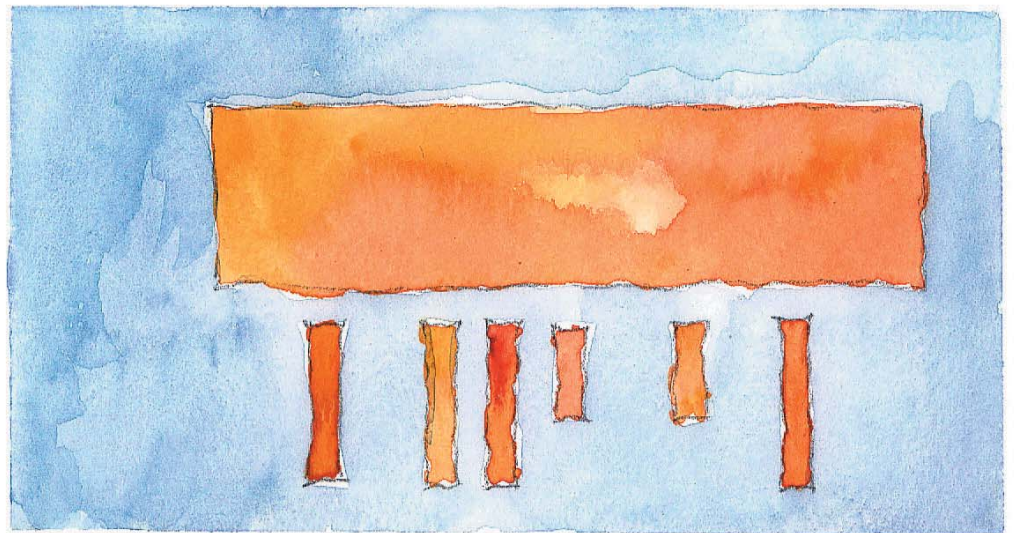
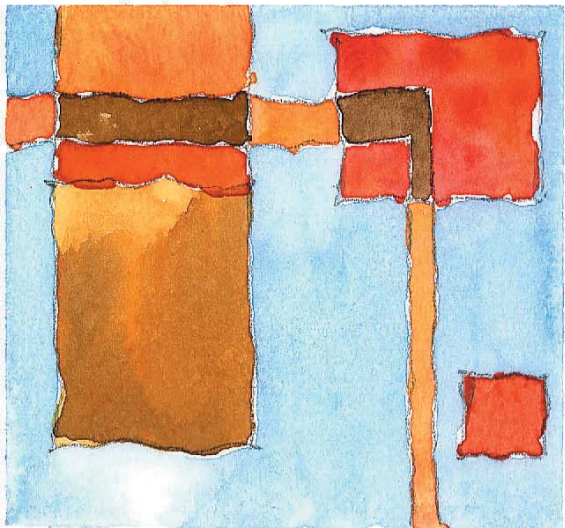
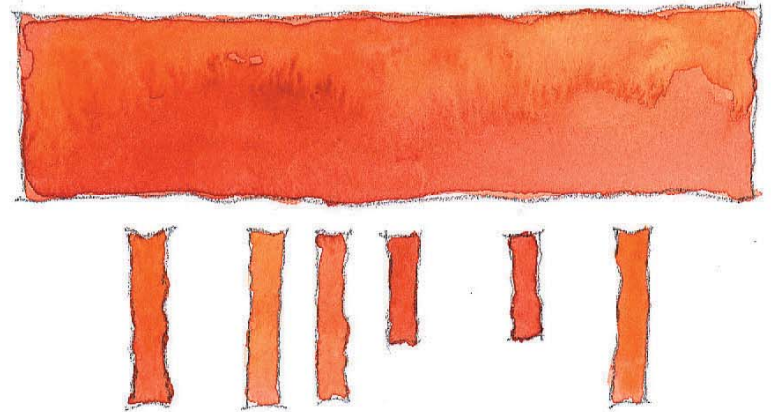
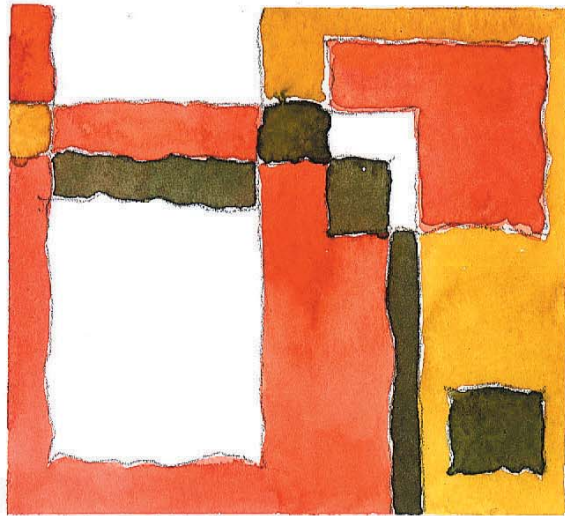














the building type is an aquarium.

an **aquarium** is a place where things that live in water are showcased. there are millions of organisms that inhabit the waters. animals with scales, without scales, animals with bones, without bones, animals that take on different forms during the stages of their life, animals that use lungs, animals that use gills, animals that prefer groups, animals that work solo, animals that can bite, animals that rely 100% on camouflage, animals that are speedy, and those that are slow to move; an abundant variety of plant life; and those organisms that seem to border animal and plant. and there is still so much more to be discovered in the waters and about the waters.

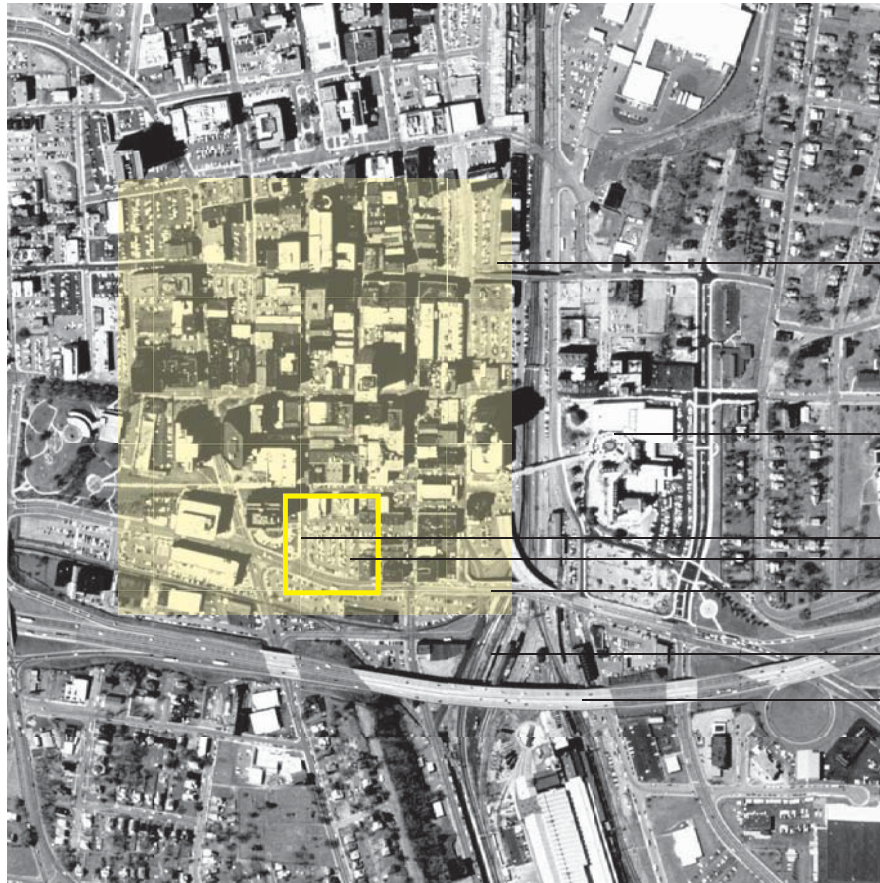
in an aquarium, **water** is also on display.
water can envelope,
water can clear,
water can distort,
water can react,
water can spread,
water can shimmer,
water can be a ceiling.

water is different at varying scales;
from the intangible enormity of the ocean
to the solid object-ness of a glass of water.

water as an object. an object is a
material thing that can be touched and
seen from different positions.
in a container water can be a touchable
perceptible large object.

the tanks as opportunity to experience
large contained water
as well as the organisms within it.





downtown area

hotel roanoke

church street
aquarium site

willamson street

railway

highway 581

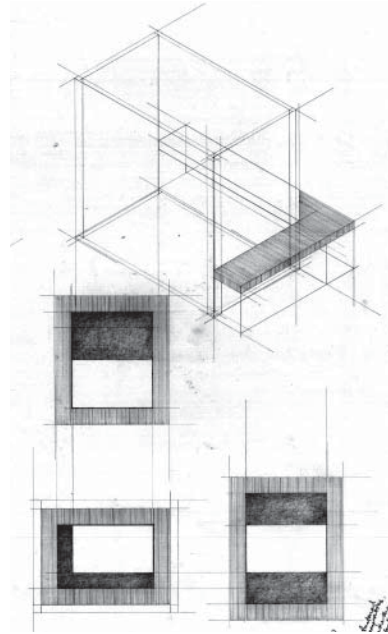
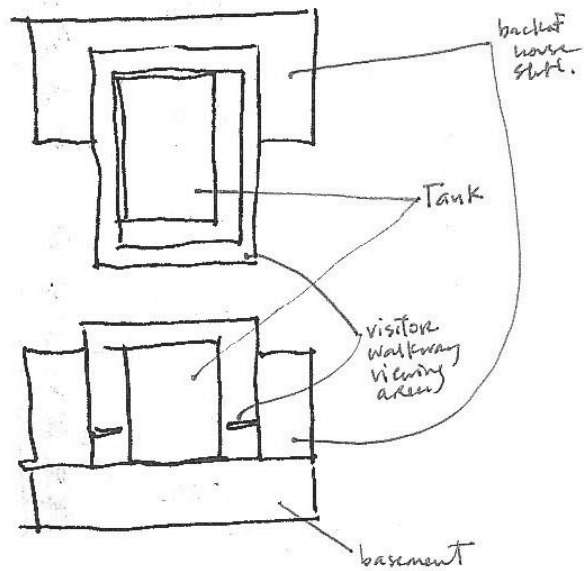
aquariums are mostly built in cities with a large natural body of water close by. this direct connection of the city to water makes the association of the aquarium to the city very easy. for example: monterey bay aquarium - pacific ocean, tennessee aquarium - tennessee river.

however, if it is proposed that an aquarium is a museum for people to see aquatic life in person, then the city-water connection becomes less of a requirement. aquariums make aquatic life accessible to everyone. for example: the georgia aquarium - atlanta, georgia.

the site is in downtown roanoke, virginia. roanoke is a mid-sized landlocked city in the southern end of the shenandoah valley. one of its many attractions is the 88' tall illuminated star on mill mountain that can be seen from 60 miles away.

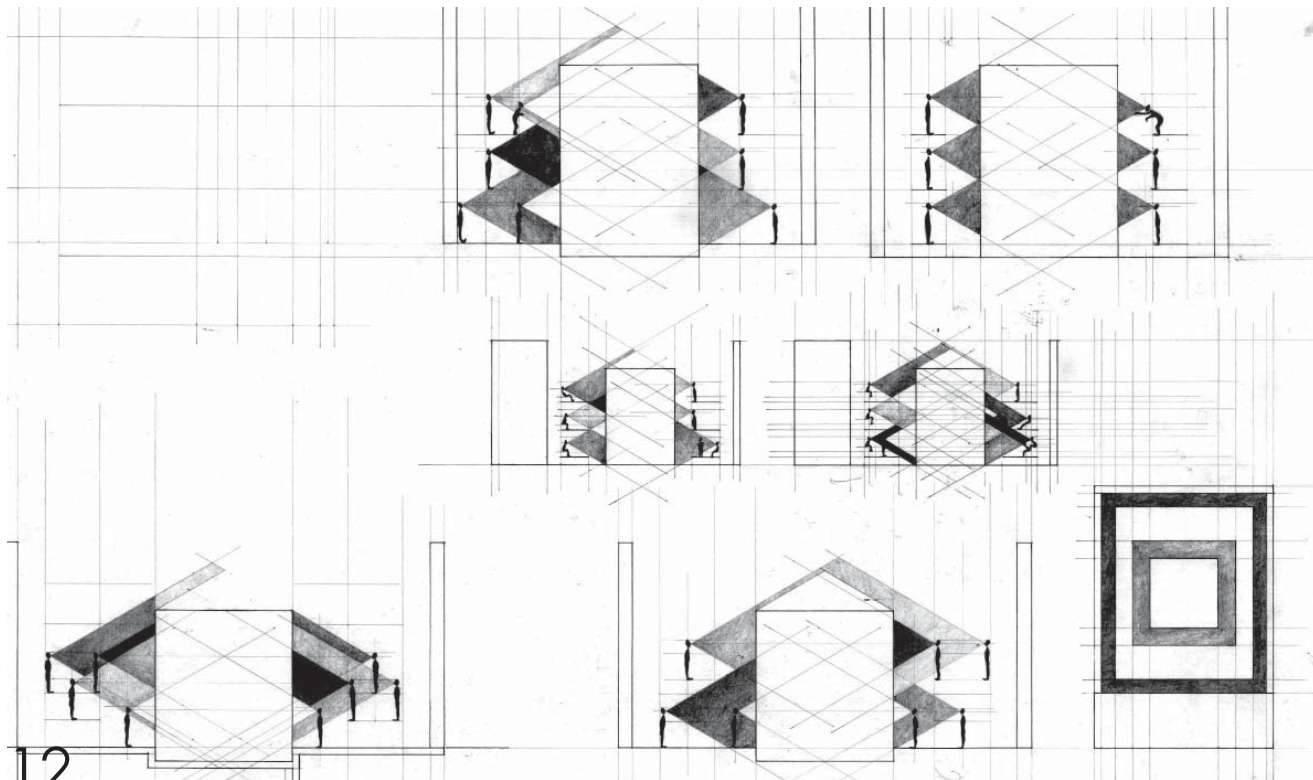
the corner of williamson road and church street is the aquarium site. it is one block over from market square, the cultural center of town. there are museums, theaters, shops, restaurants, cafes, and a farmers' market. right now the site is a parking lot flanked by old brick buildings to the right and new high-rise buildings to the left. the aquarium will help vitalize the downtown area more and also fill in a gap to bolster the density of buildings.





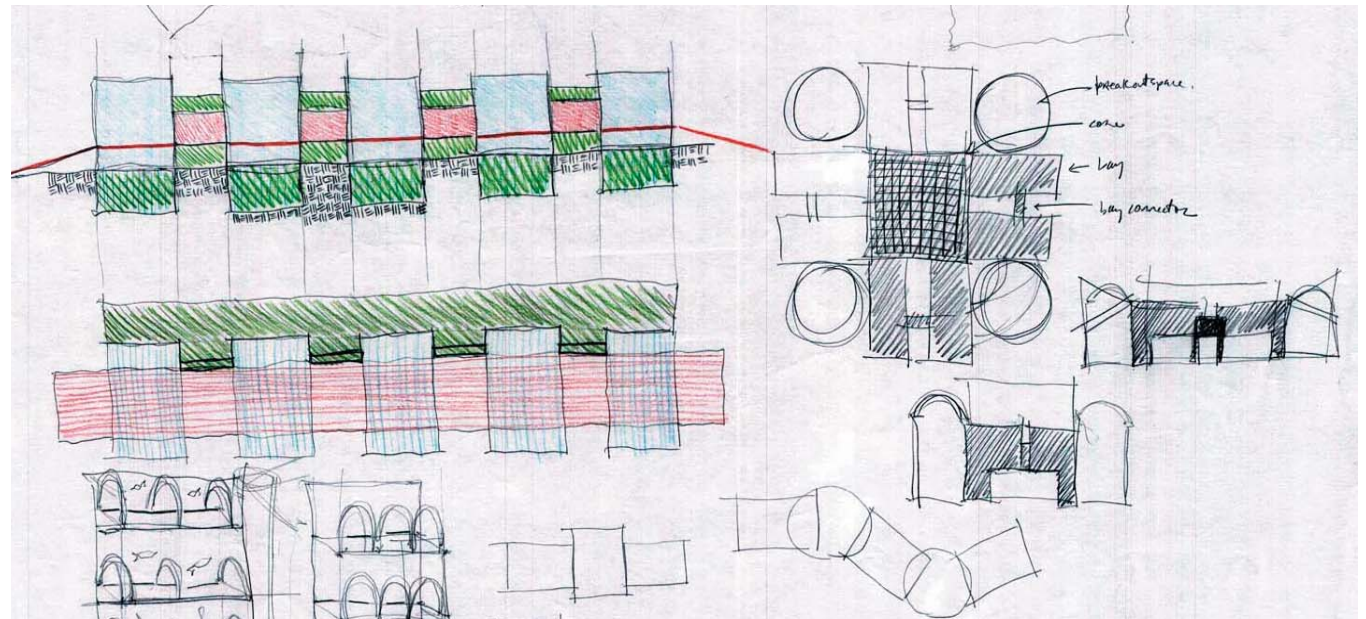
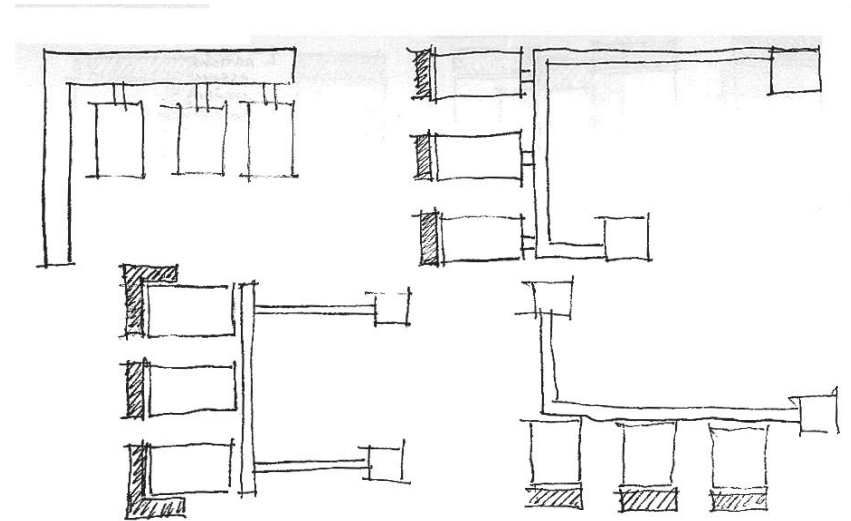
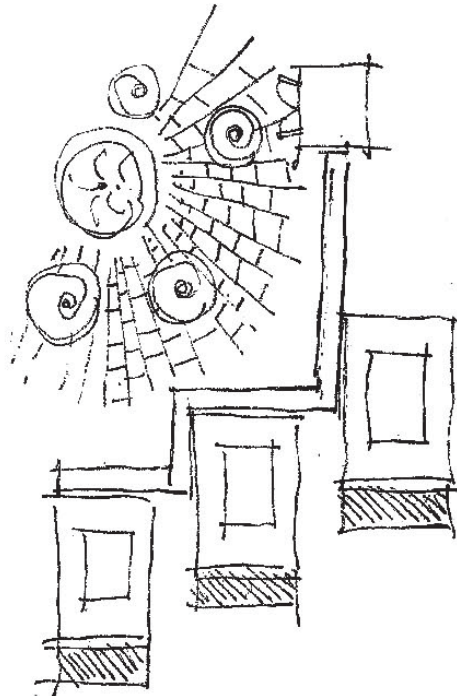
the tanks of water are the objects.
the tanks have to be designed,
and then placed,
and then housed,
and then serviced.

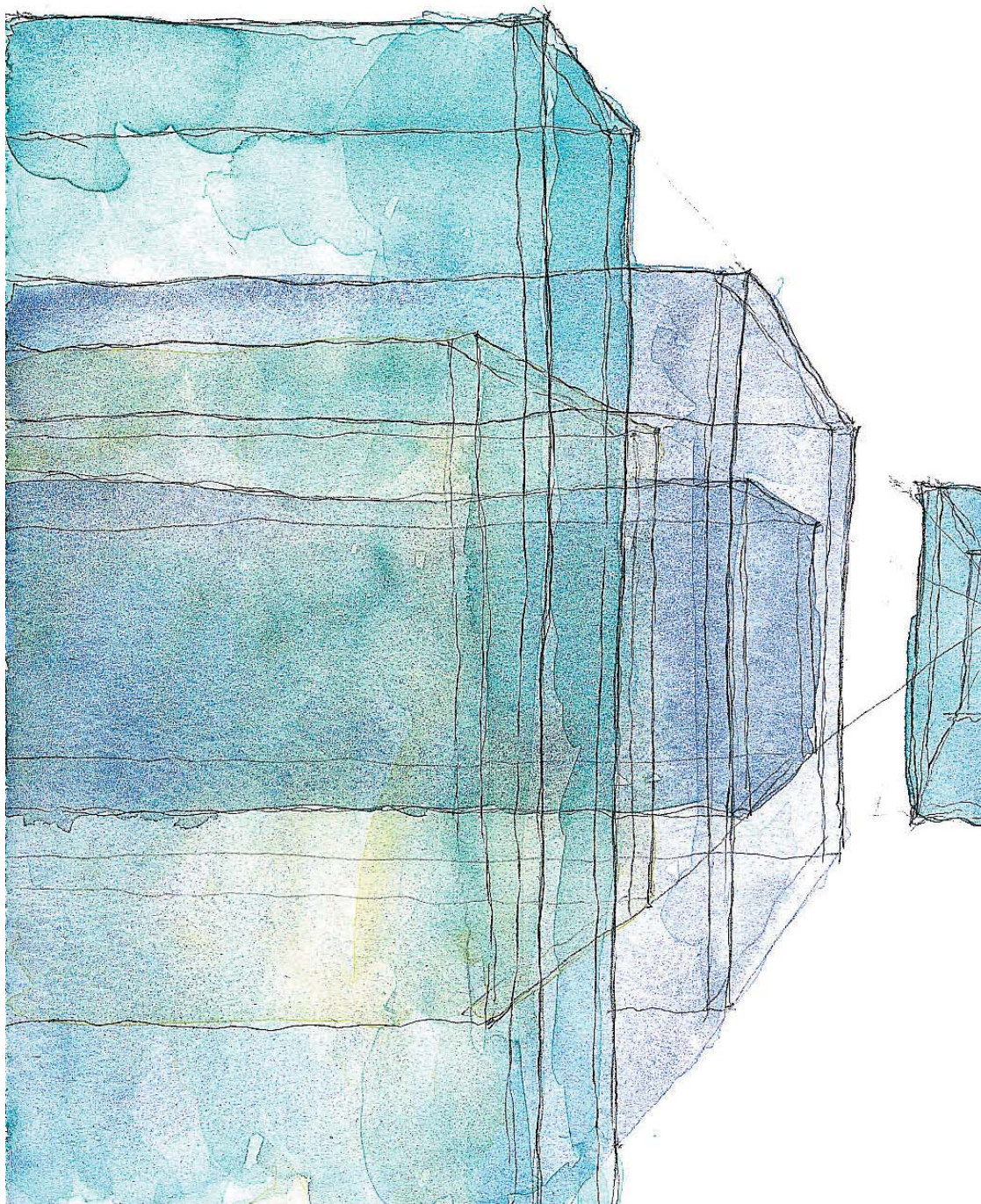
it is important that the viewer can walk
around the tank and see from different
heights in order to perceive it as an object.



the initial ideas proposed **ONE** large tank in each room; the jewel box.

some quick studies:
total number of tankrooms,
configuration of the rooms on the site,
how they might be connected to make
one building.





one engaging quality of water is
transparency (and translucency).

you can see through water.
you can see what is in the water, though
this can be restricted by the clarity of the
water. and sometimes you can even see
what is making the water murky.

water reacts. and so water will **wiggle**.
looking through moving water at swimming
fish, the view is slightly or greatly distorted.
looking deeper into the water
the undulating movement can be
entrancing.

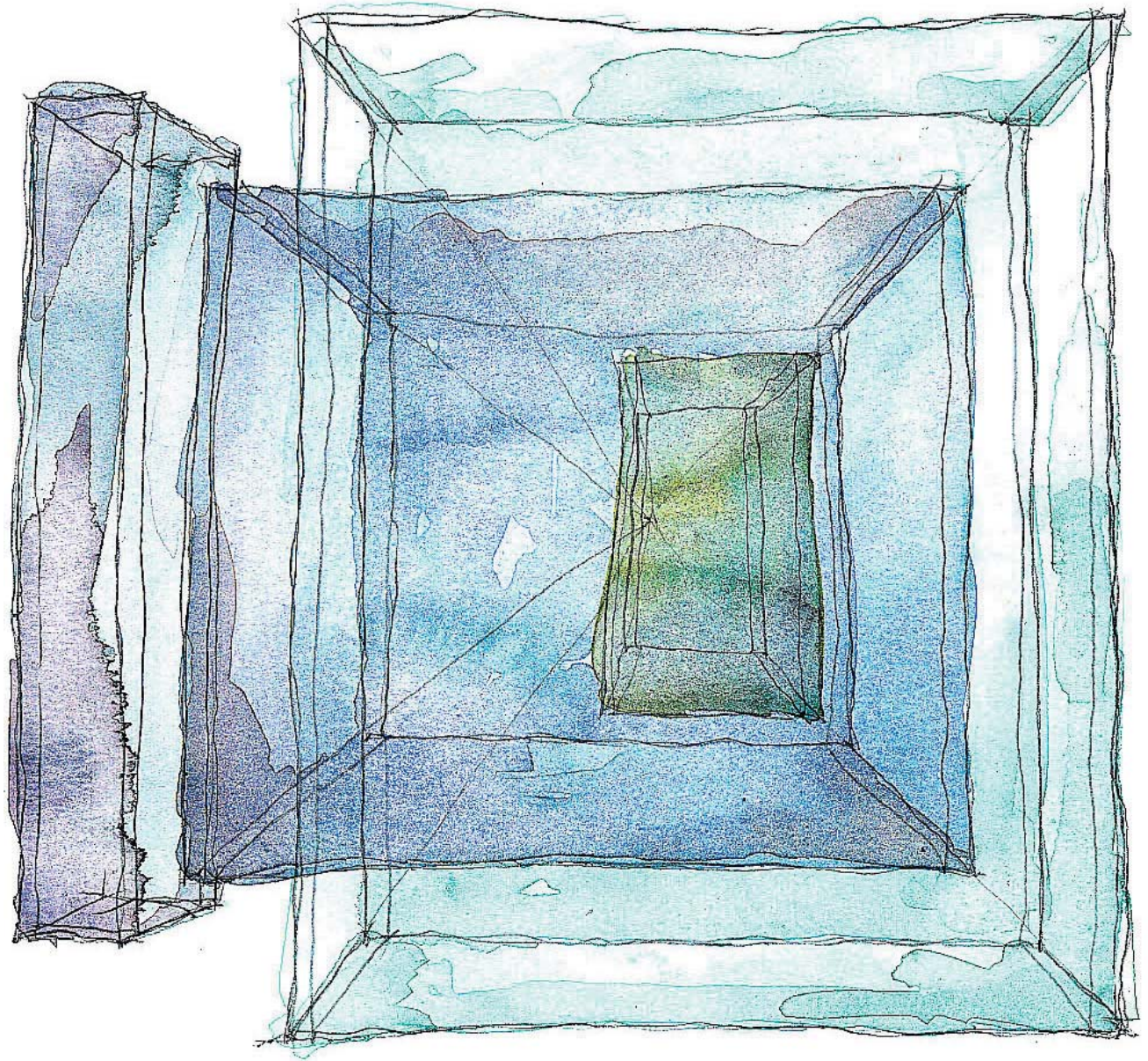
look into one tank of fish and plants.
and then look beyond that tank into
another one.

this second tank that you are looking into
will be a little less clear, as you are looking
through glass - water - glass - air - glass.

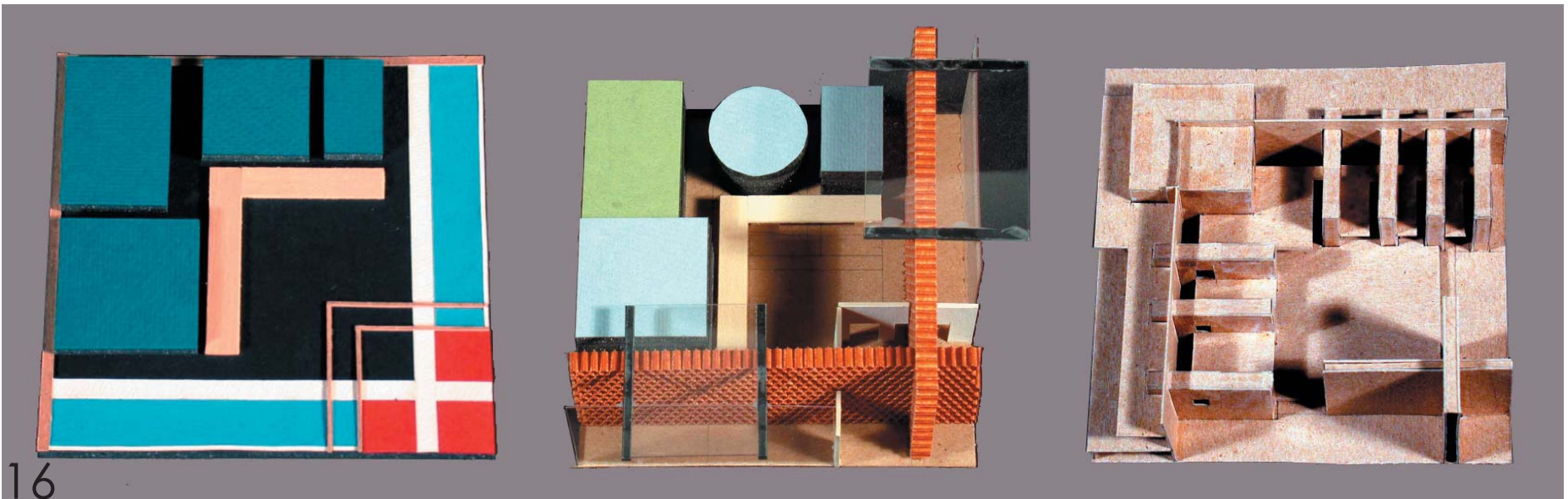
and there is a third tank.
and may be another.

each tank is a layer of aquatic life.
looking through one tank to the next, the
aquatic environments are collapsed on to
each other. scenery on top of scenery.
this created view is something unique.

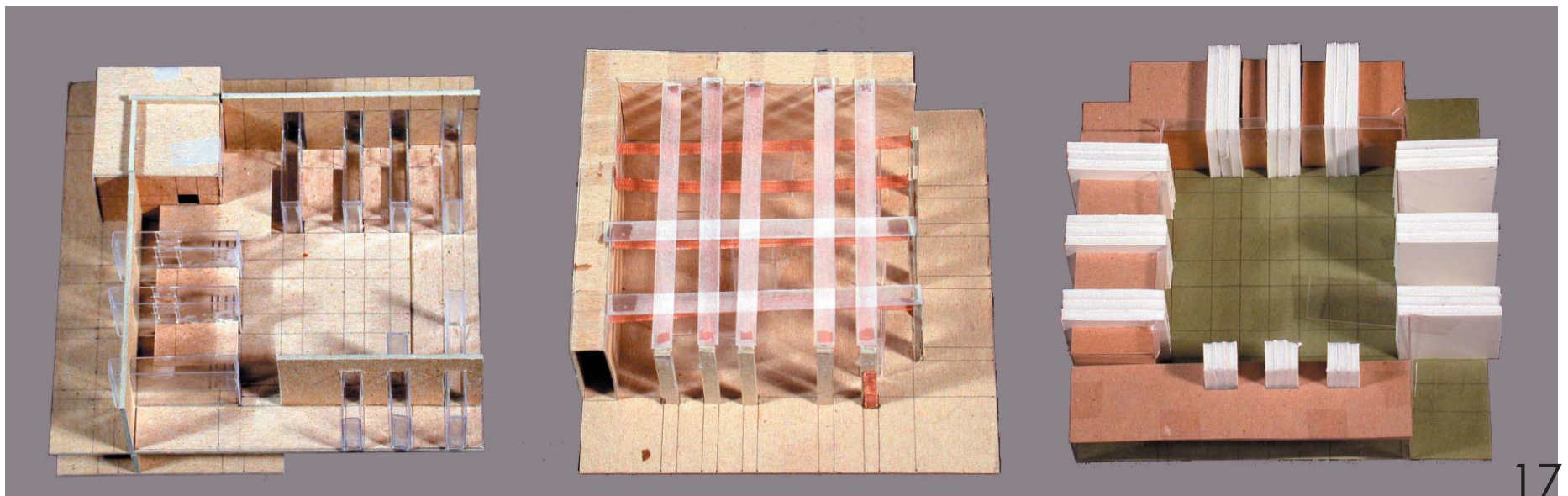
in this aquarium all the tanks need
to be in one room.

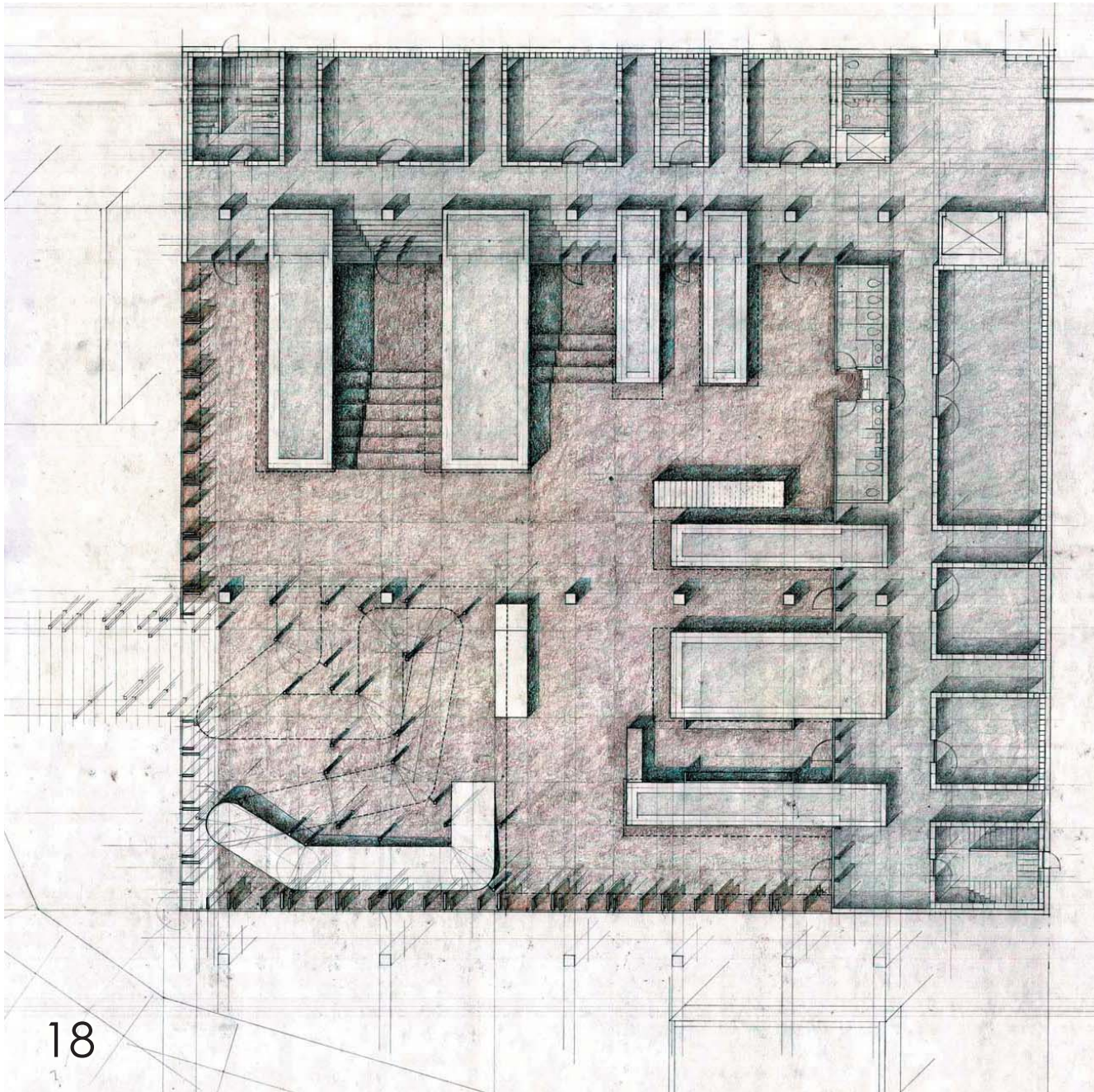


study models

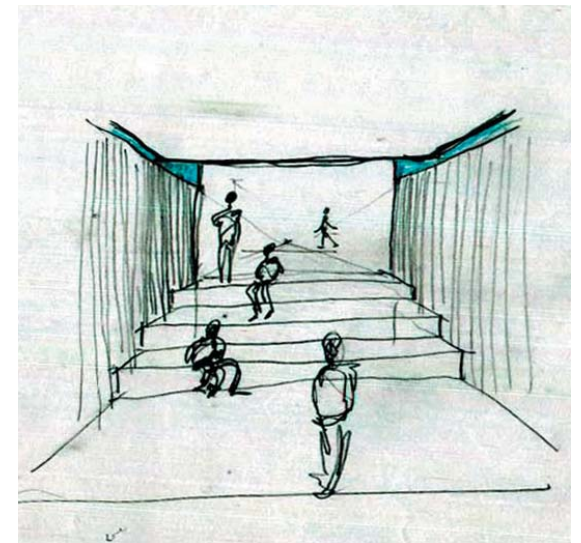


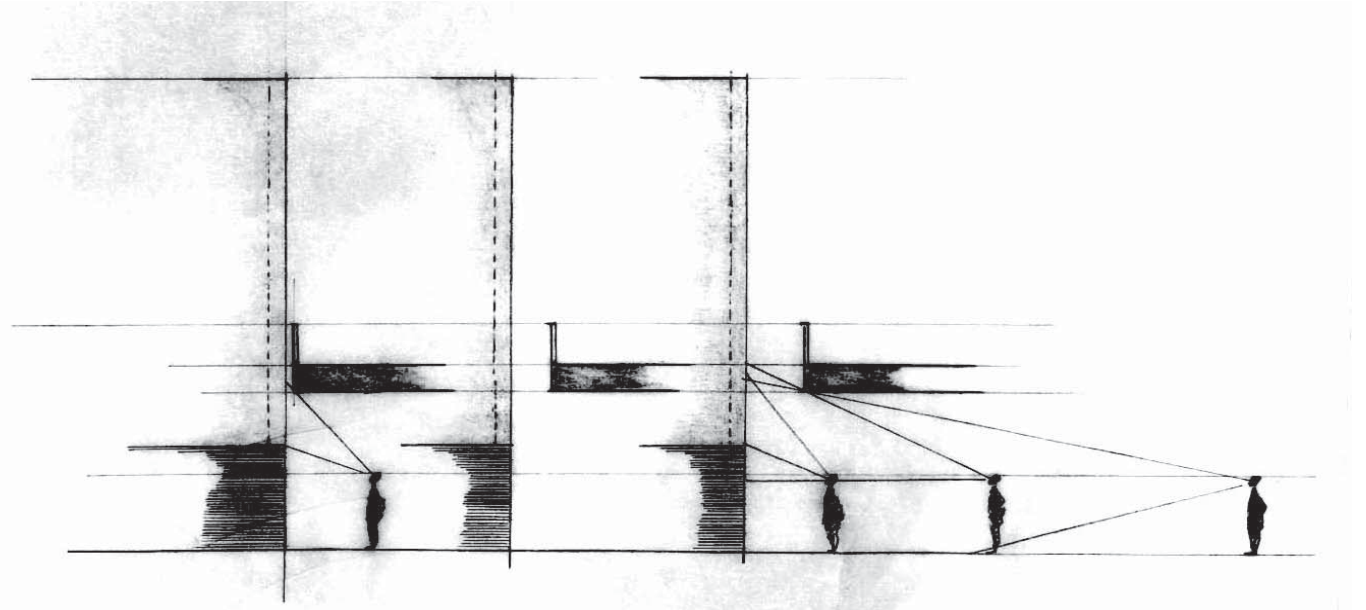
putting four tanks in one room. and putting
seven tanks in one room. and putting nine
tanks in one room.

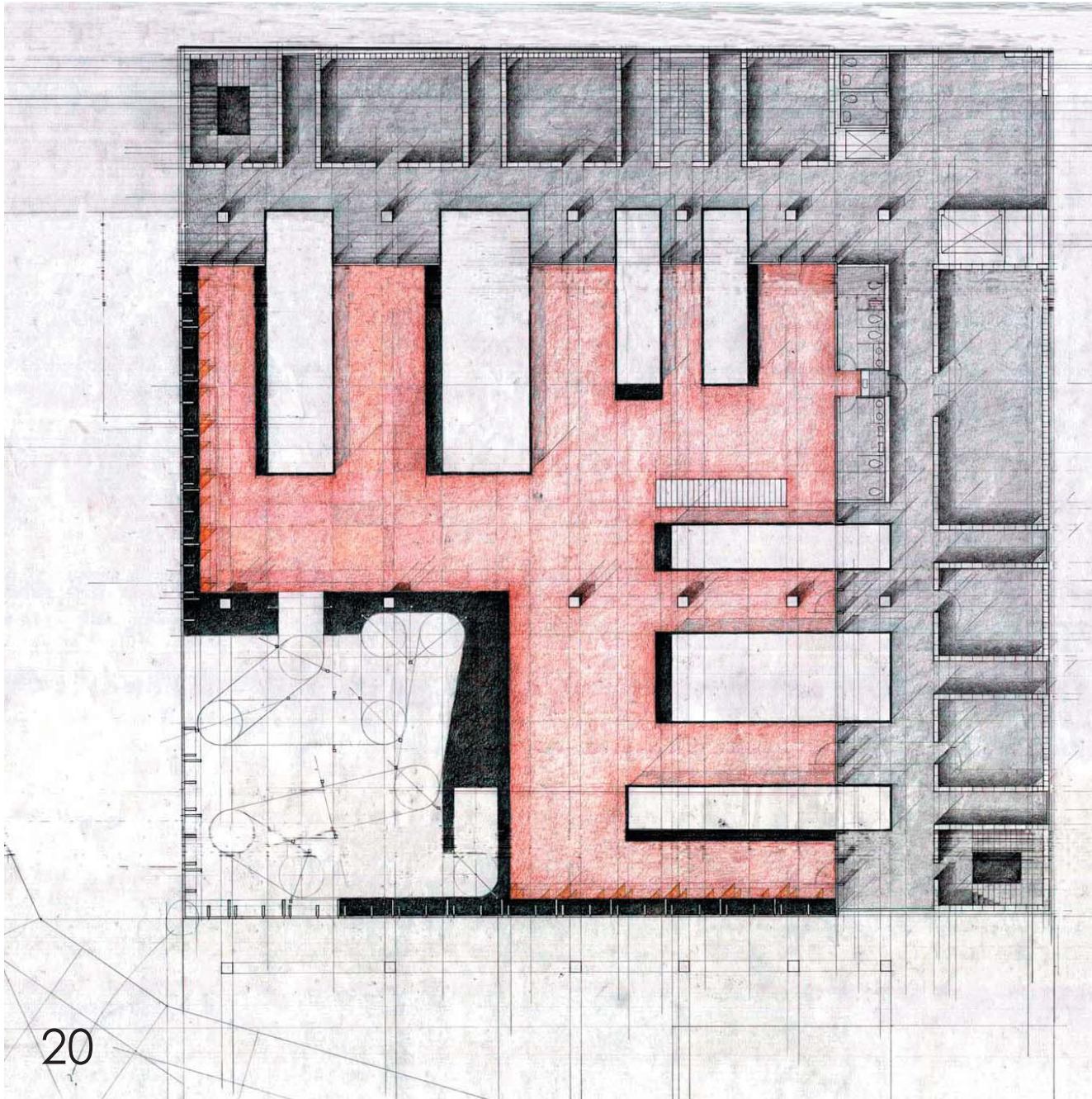




ground level of the big room.
 enter the room of tanks. there are seven,
 varying widths and lengths. the heights are
 all the same.
 there is a mezzanine level above.
 the long rectangular tanks are supported
 by heavy concrete bases. at this level you
 can walk between the bases and look up
 into the bottoms of the tanks. the space
 between the concrete bases is a little
 dark. in two of the spaces there are over-
 sized steps for people to sit or for a class to
 gather. the light from the tanks above glow
 blue and sway.

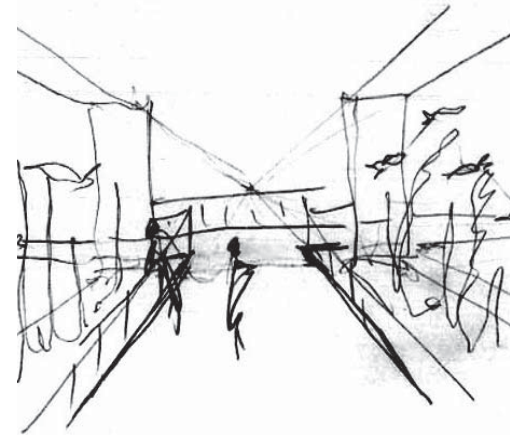


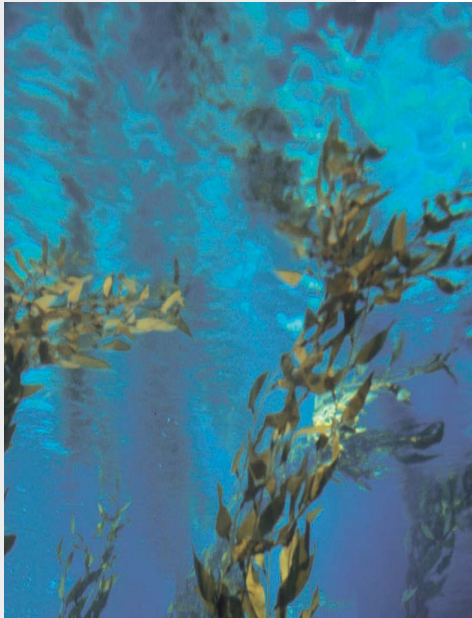




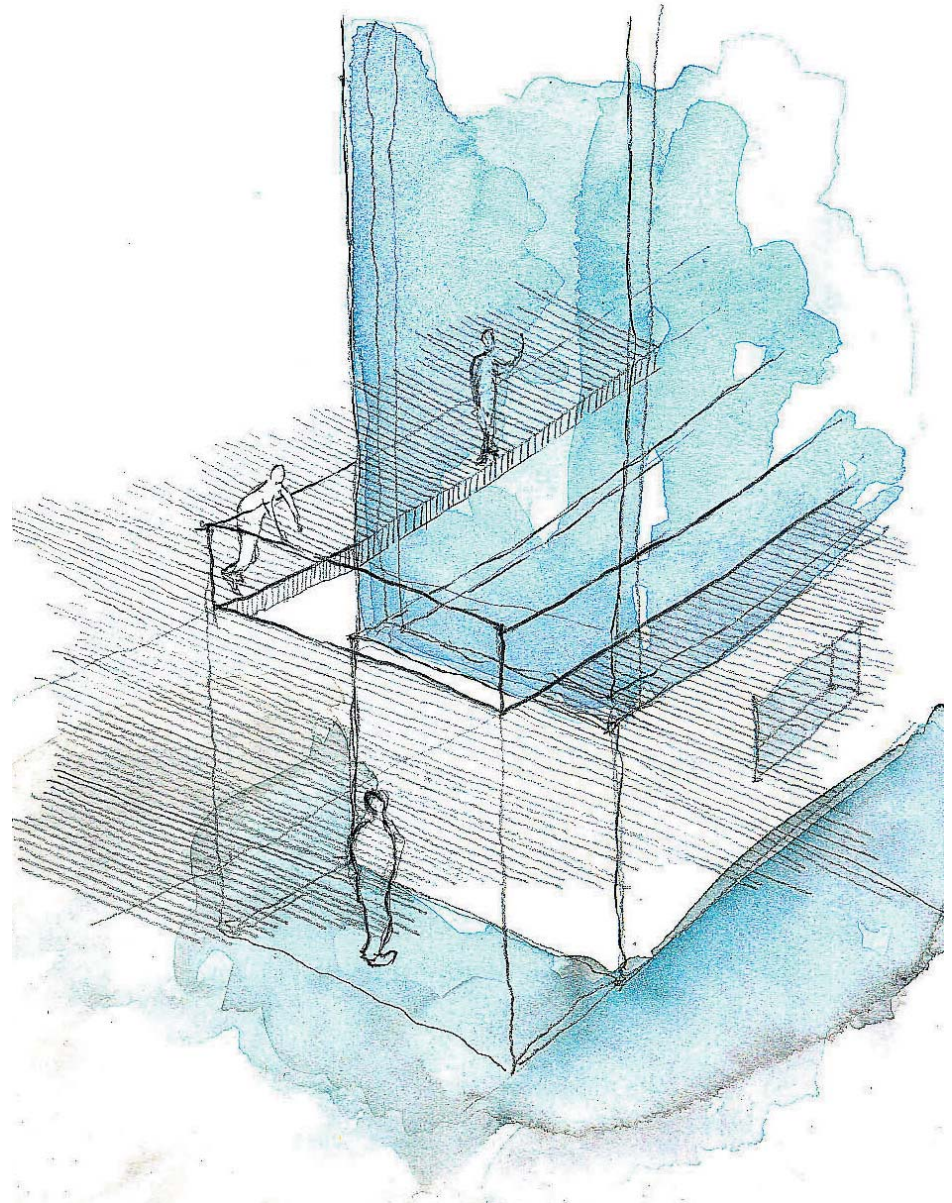
you get to the mezzanine level via a wide and generous stair. from the top of the stair you see seven tall tanks of water growing up through the floor, 22-feet. these tanks whose concrete bases you just walked in between. The mezzanine floor is pulled away three-feet from one side of every tank. allowing a little more light to seep to the ground level.

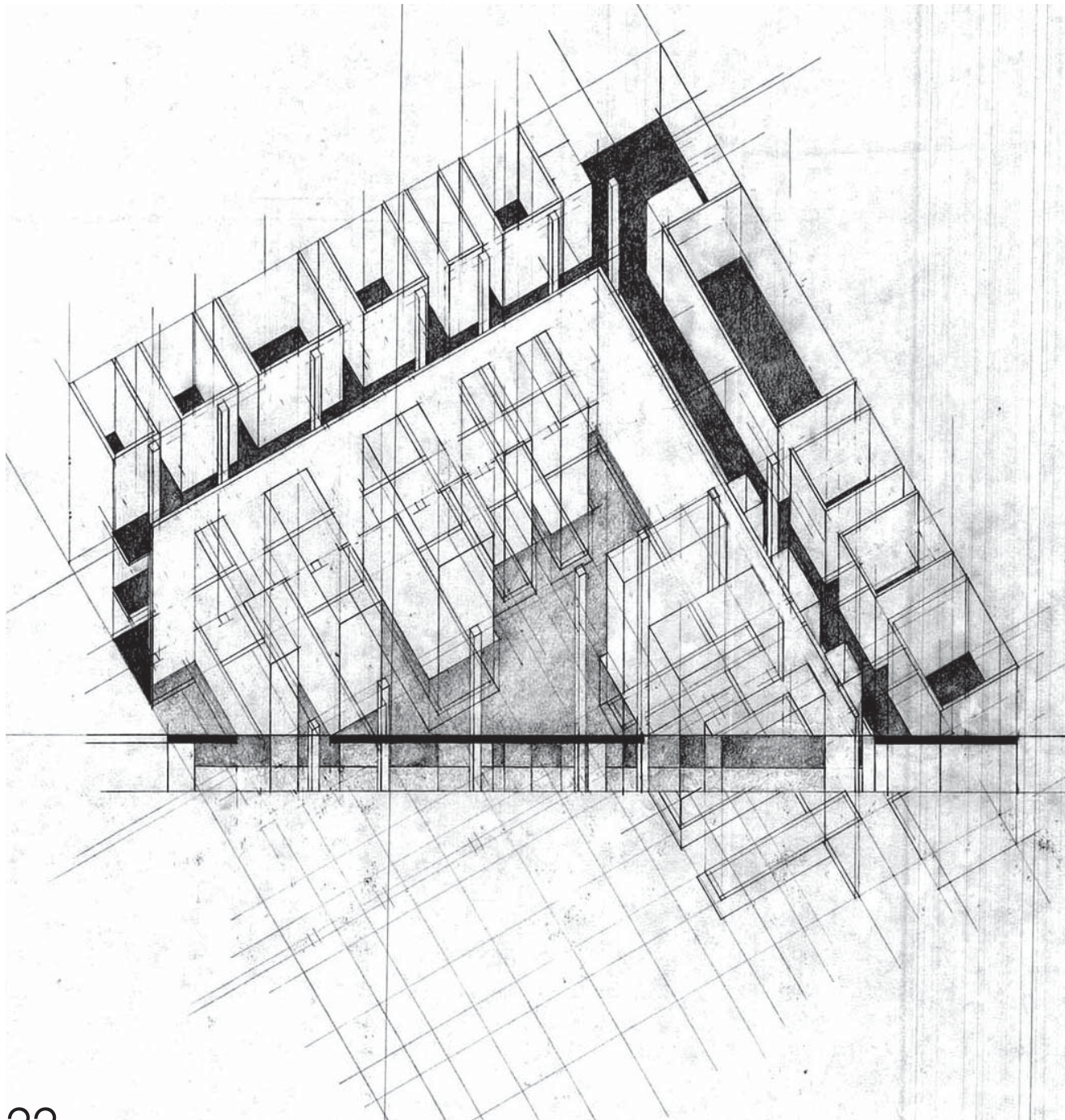
this is the place where you can experience the layered aquatic worlds.





the water inside the tank is,
however faintly or vigorously,
always in motion with the swimming of fish.
it's the same weirdness as watching a block
of gelatin jiggle.





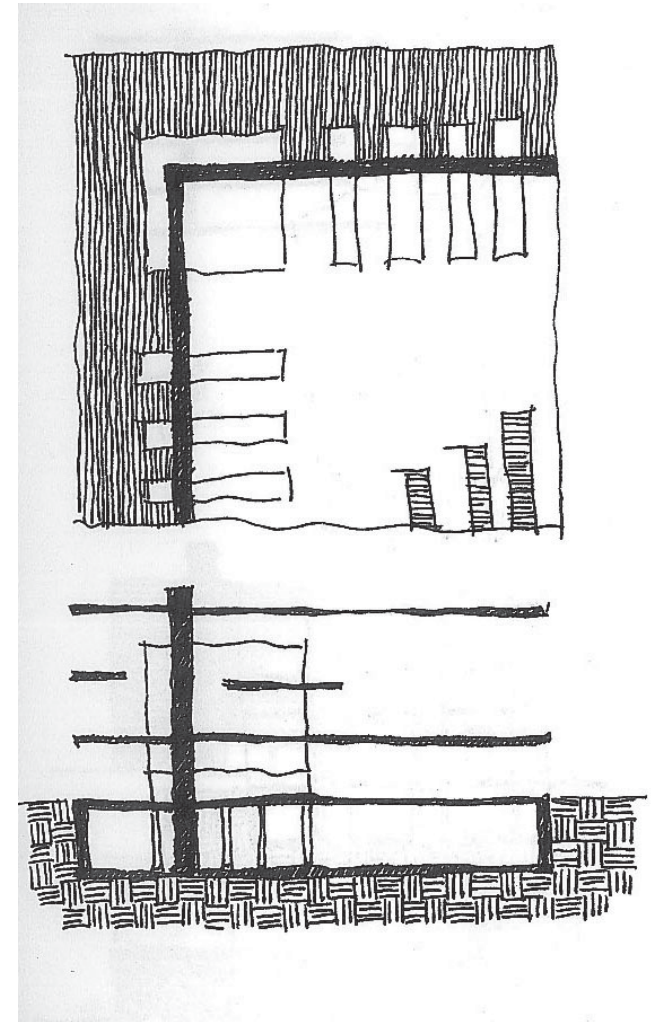
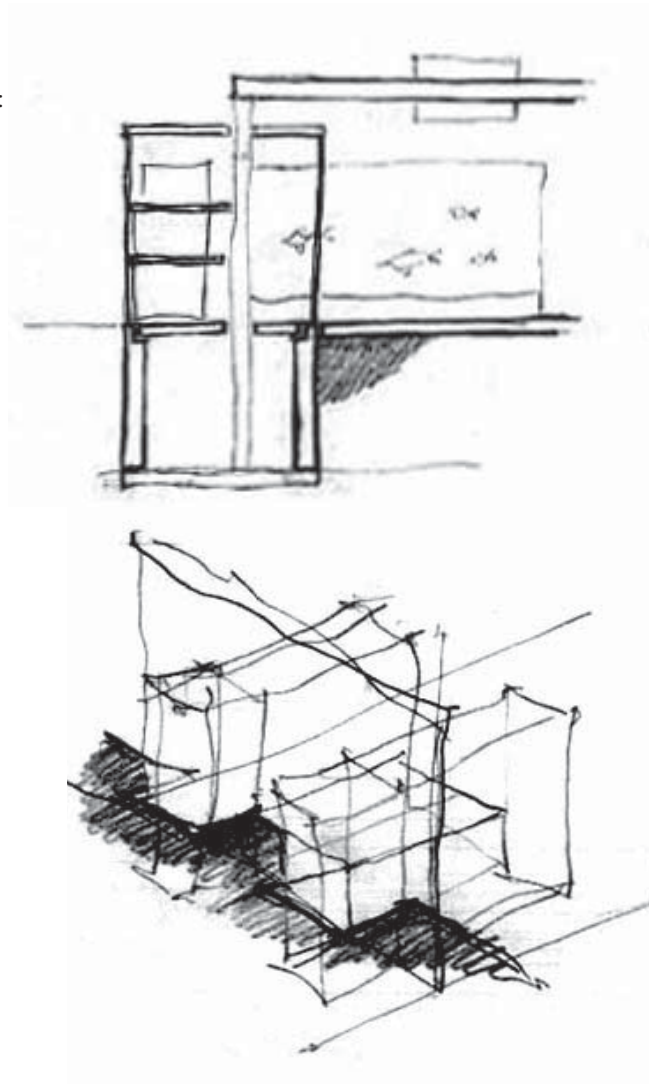
the aquarium can be divided into two parts. the **exhibit** and the **support**. the exhibit is the tank room. the support is the L-shaped back wall of the room.

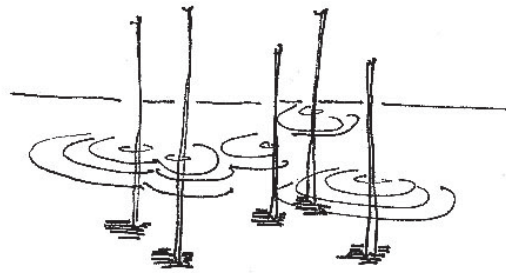
along the walls between the exhibit and the support there are tall rectangular openings to allow the tanks to pass through to the support side. the tanks are part of both the tank room and the support wall. visitors and workers can see the tanks from where ever they are in the building. the tanks also serve as windows from the tank room into the support wall and vice versa.

the support wall is the back corner of the aquarium.

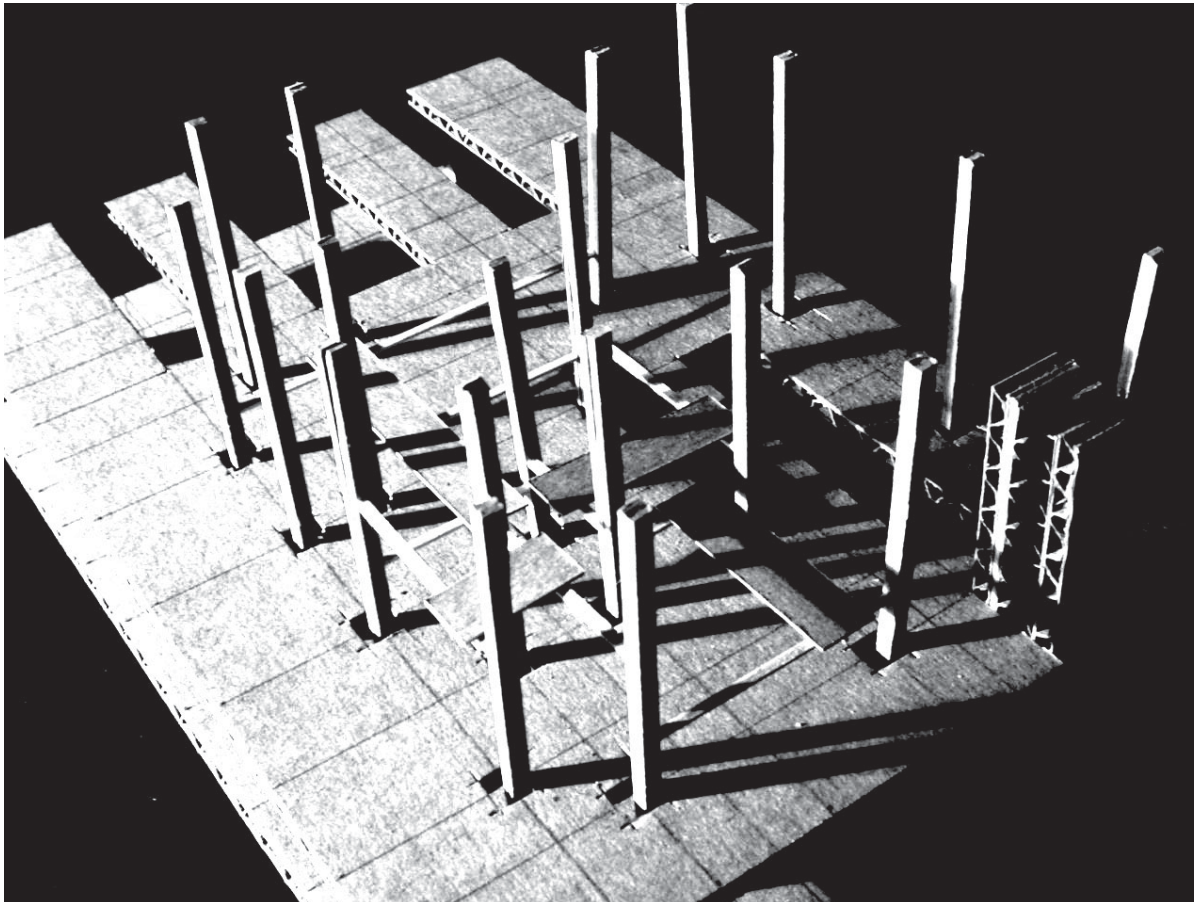
this support wall is where all the necessary offices, rooms, and equipment are located:

- pumps and filters room
- reserve water tanks
- quarantine room
- chiller room
- emergency generator room
- security room
- offices for staff
- control room
- locker rooms
- breakroom
- food preparatory room
- diver preparatory room
- veterinary rooms
 - treatment
 - surgery
 - pharmacy
- library resource room
- storage





reeds in a pond.
water really on floor?
probably not.



there need to be columns and columns have responsibilities. they are part of the structure of the building. the columns need to hold up the mezzanine floor and the roof.

they are also a presence in the building. to accentuate their vertical quality, the columns have been made to be slender and there are more of them.

the columns will be experienced from both above and below the mezzanine floor. from both above and below the surface of the water.

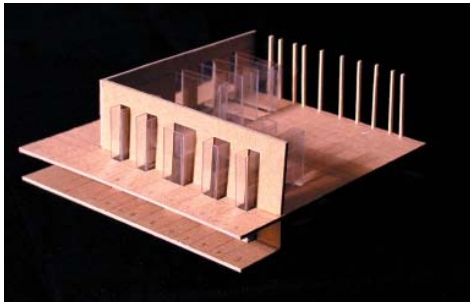
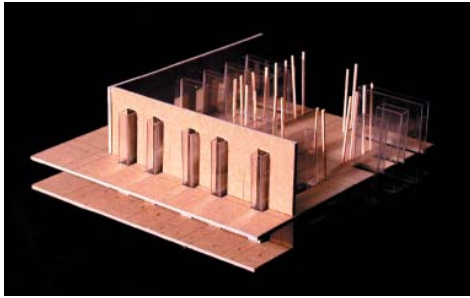
one big forest-like bundle of columns.

seemingly random placement of columns to resemble reeds growing in a pond.

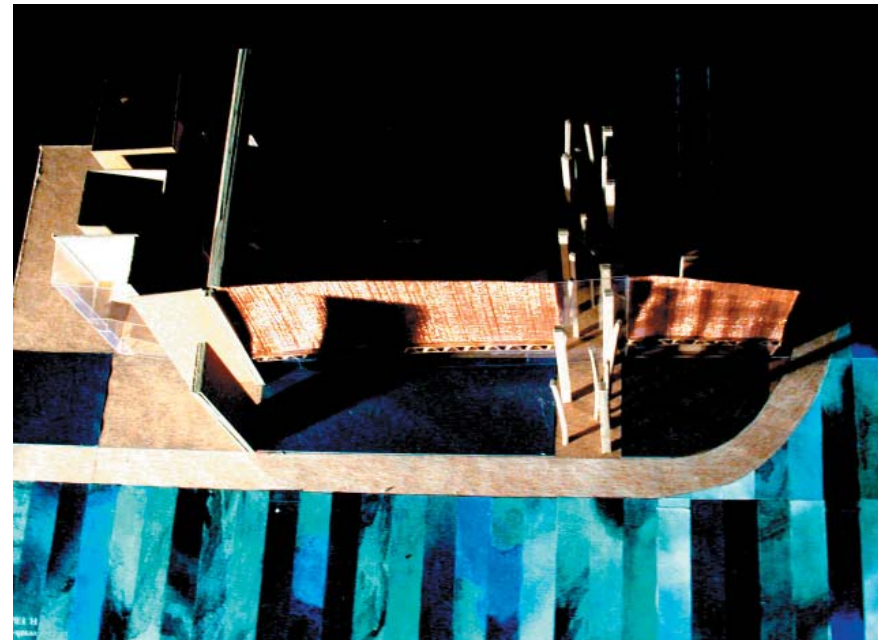
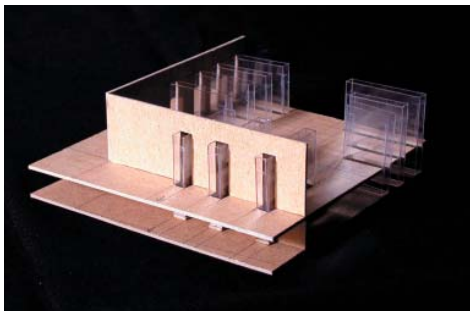
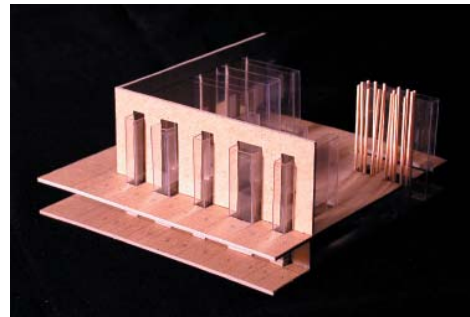
columns conforming to a rigid grid.

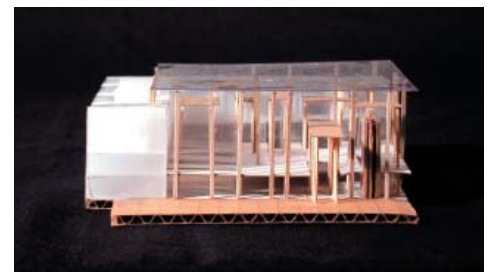
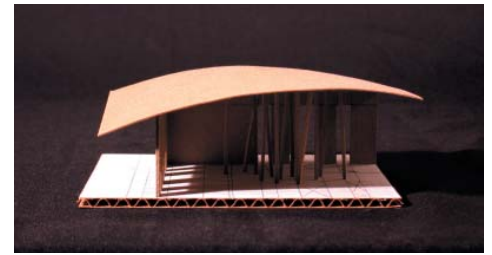
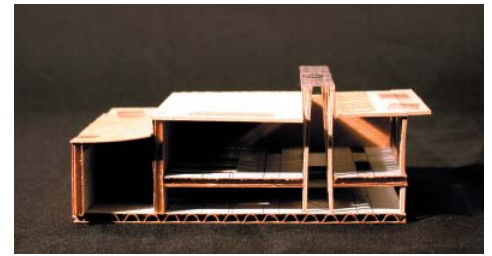
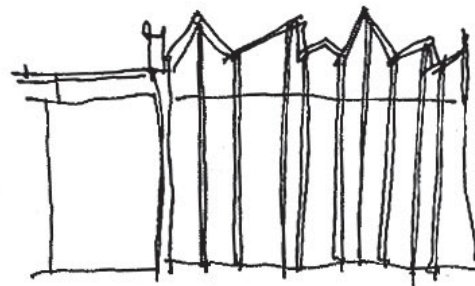
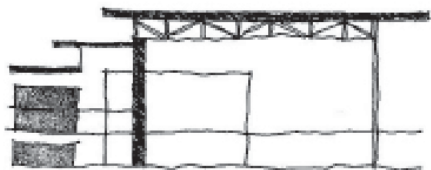
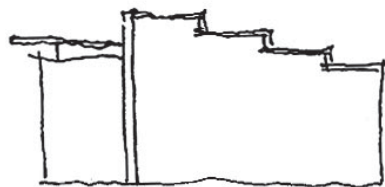
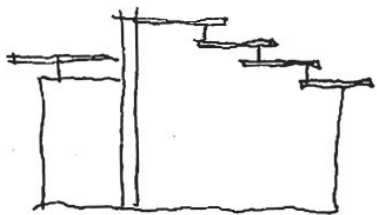
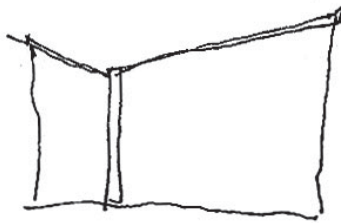
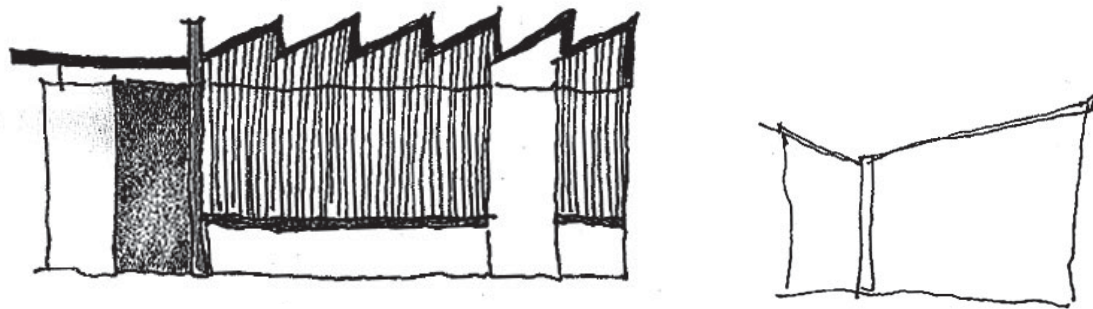
large tall columns marching in a line.





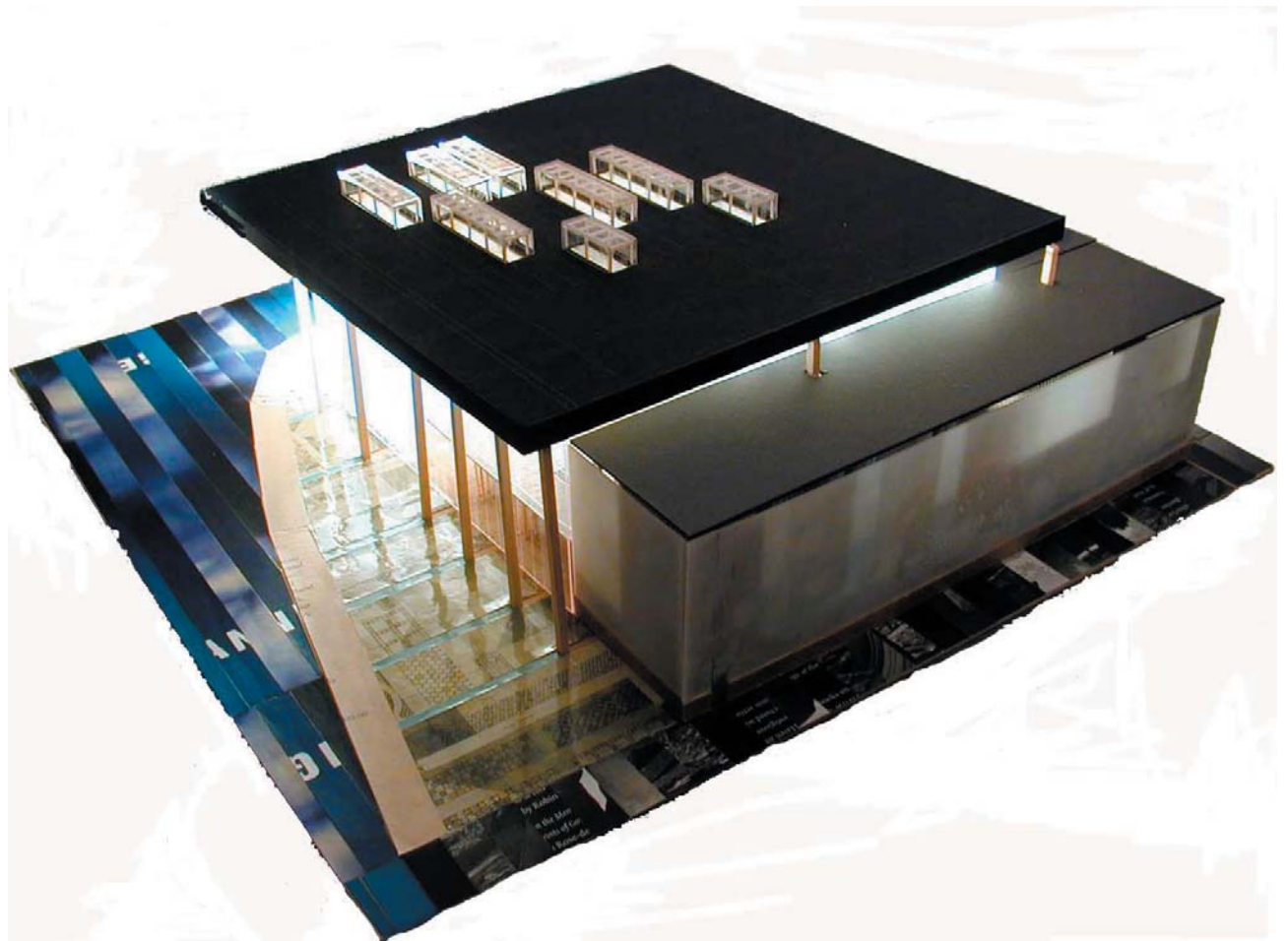
in the final iteration, the columns were given different responsibilities. three rows of big columns hold up the roof at regular intervals. small and skinny columns in groups of four hold up the mezzanine floor.

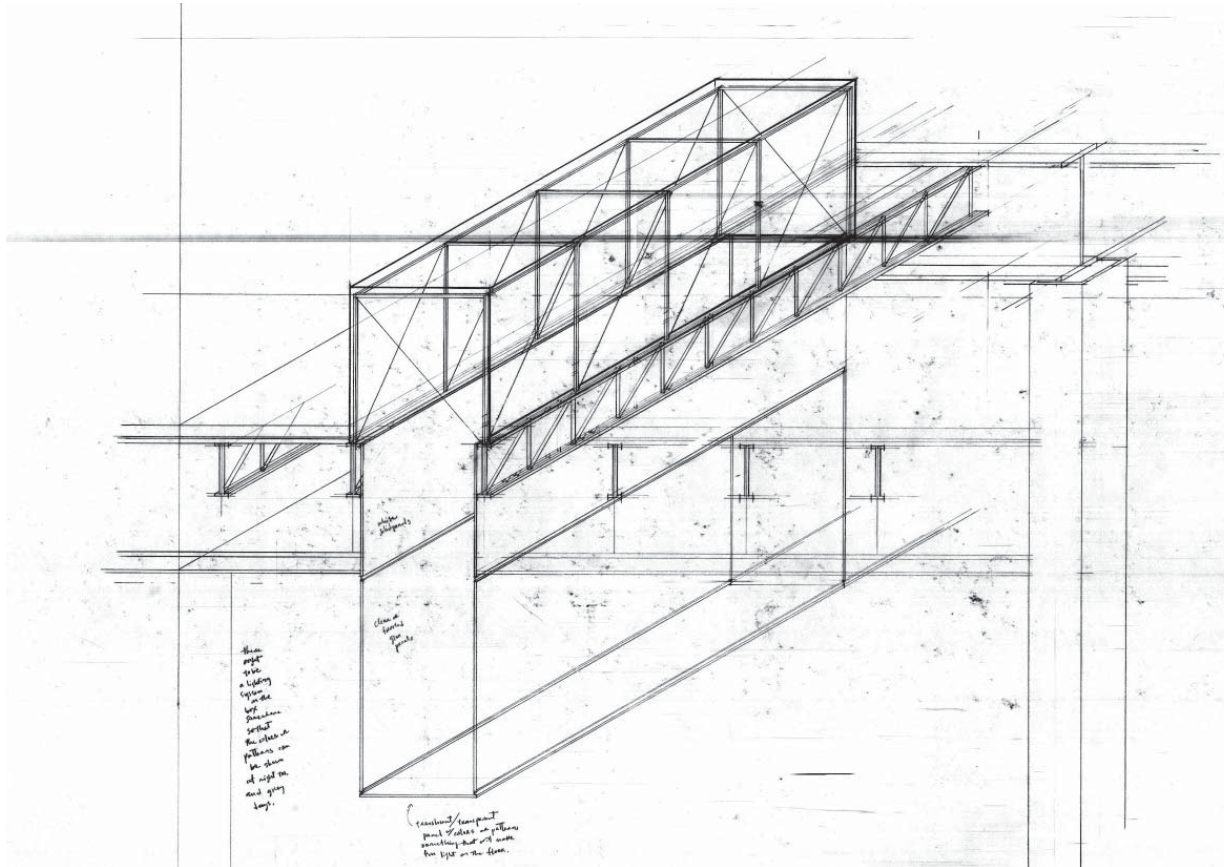




the roof needs to show that there are two parts to this building.

the big and horizontal and high roof held up by the tall columns covers the tank room and overhangs the perimeter.
the support wall roof edge aligns with the outside face of the walls and is only as tall as it has to be.

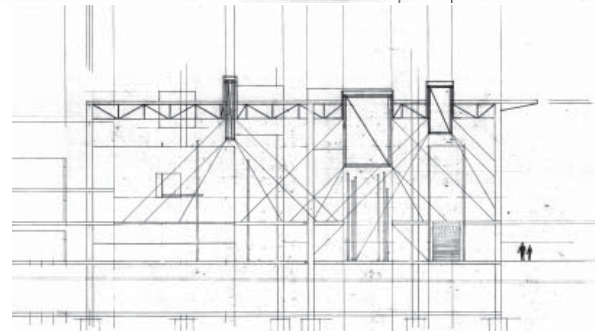


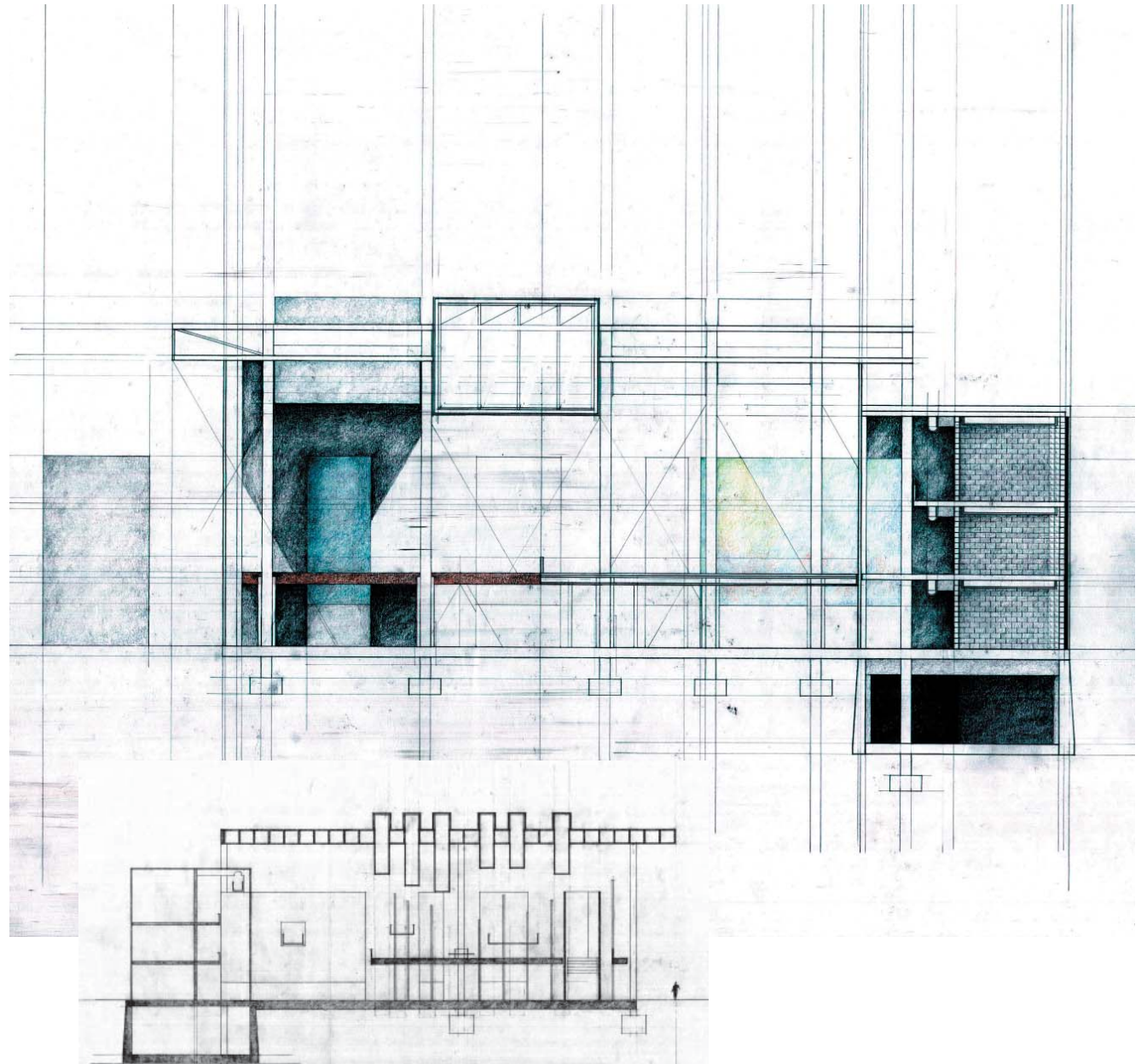
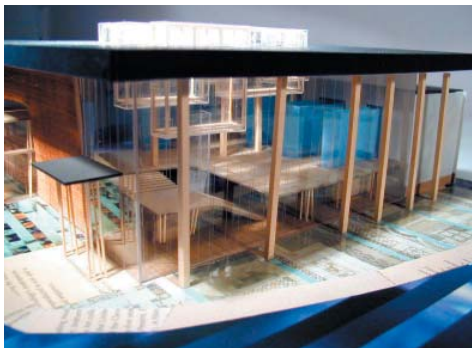


the tanks are big glass volumes growing up from the floor and filling the space in the tank room. there are also glass volumes pushing through the roof and ceiling into the room.

these are the skylight boxes.

during the day the skylight boxes are bright with natural light making light pools on the aquarium floor. at night the boxes are lit up from the inside and glow.



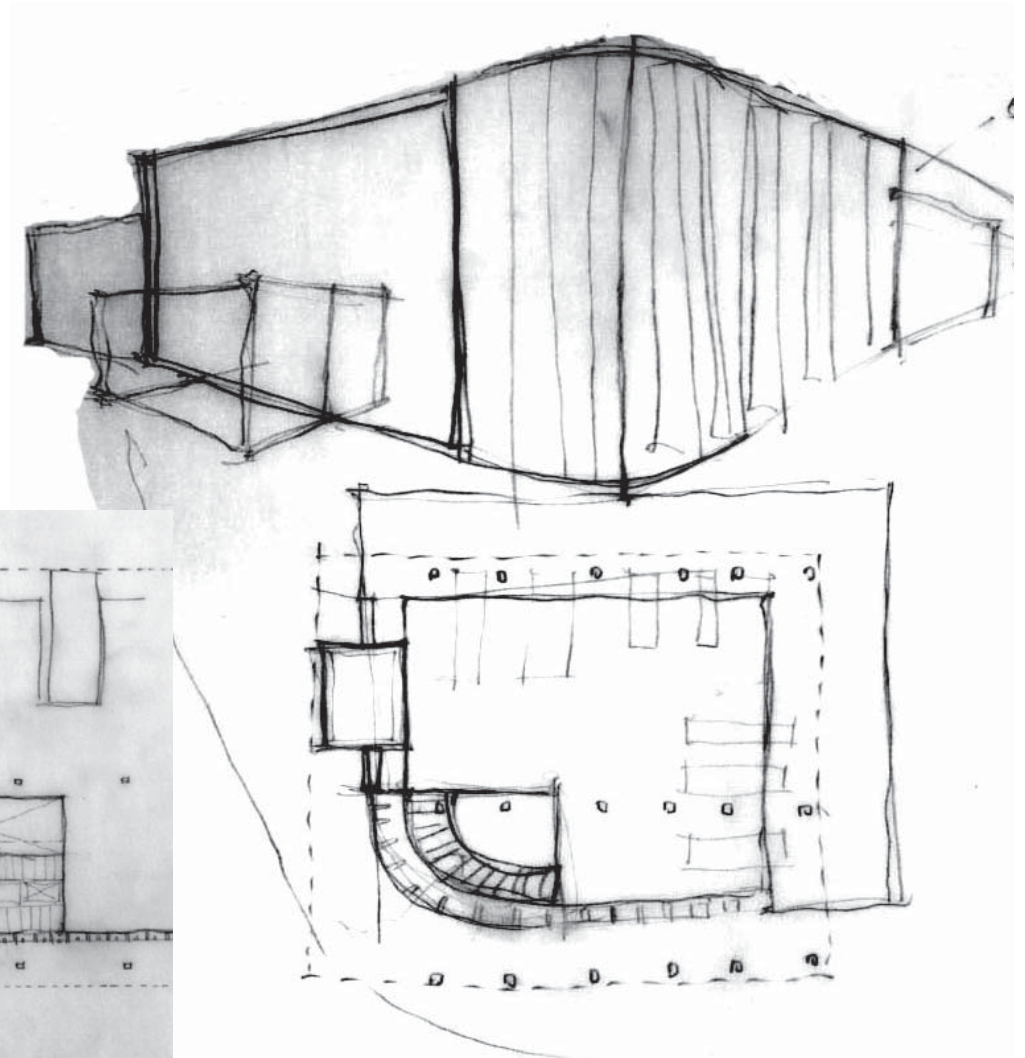
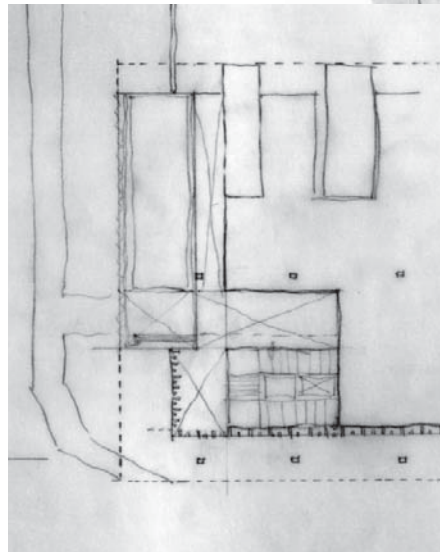
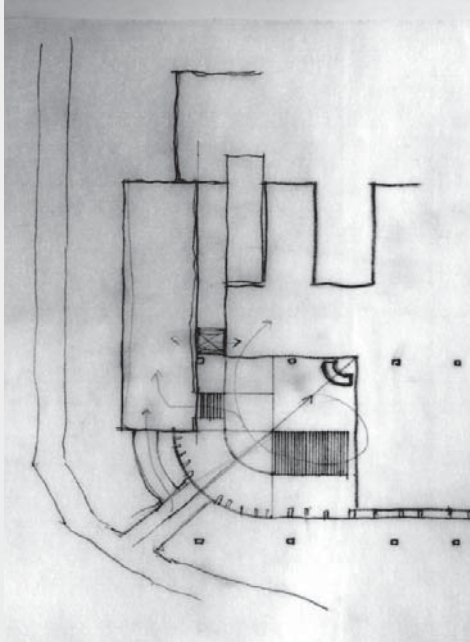


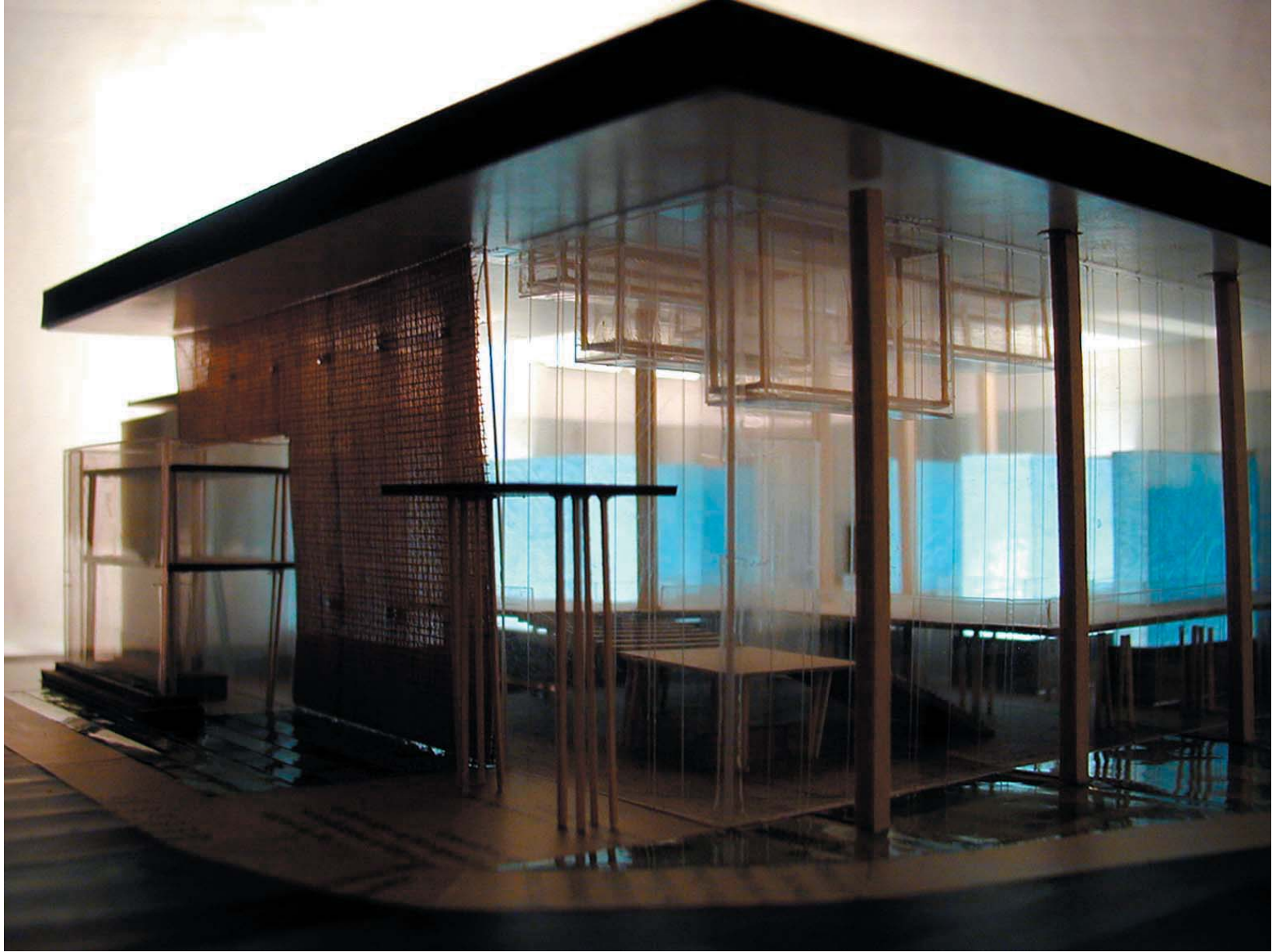


the building is a square plan on a corner site. this gives the opportunity for two street-facing sides and two back sides. the street-facing sides are the two public faces of the building; the aquarium interfacing with the city. all service related activities happen along the two back sides of the building; delivery, trash, maintenance, service.



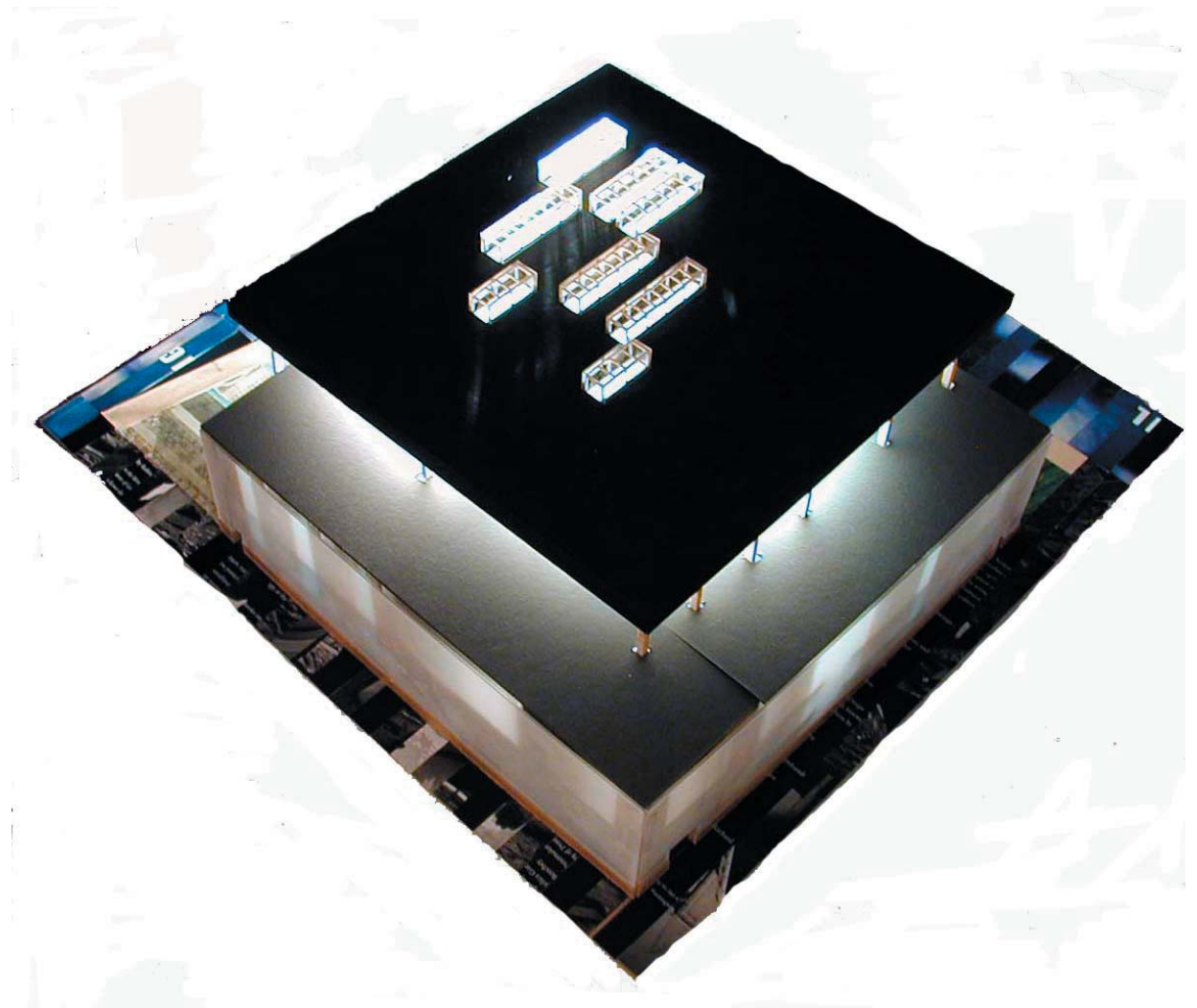
entering a corner site building.

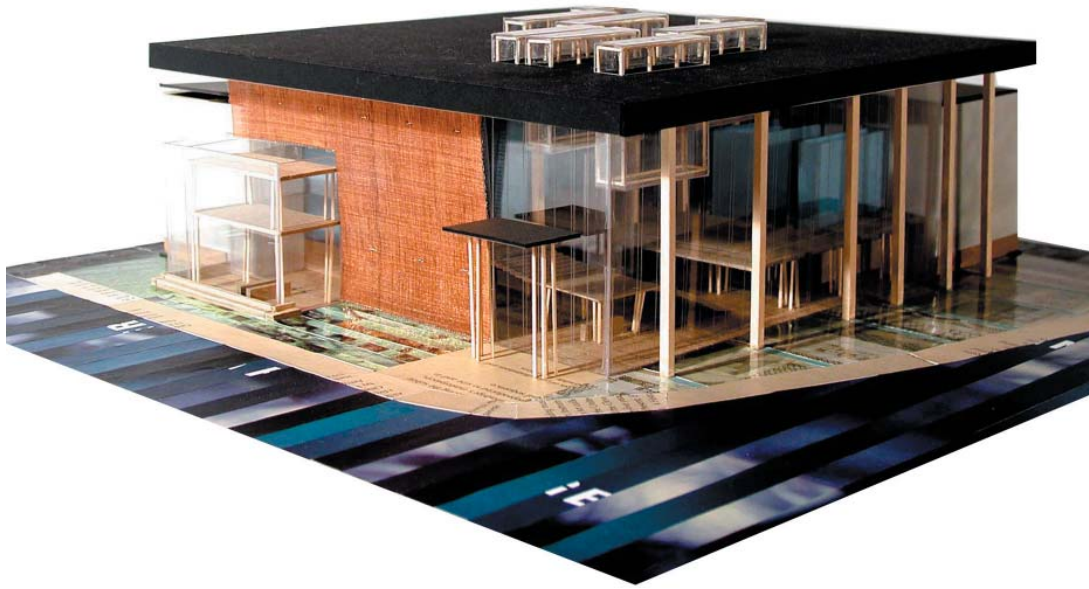




the front corner is the public corner. it is glassy and open and invites the public to stop by and look in and come in.
(left)

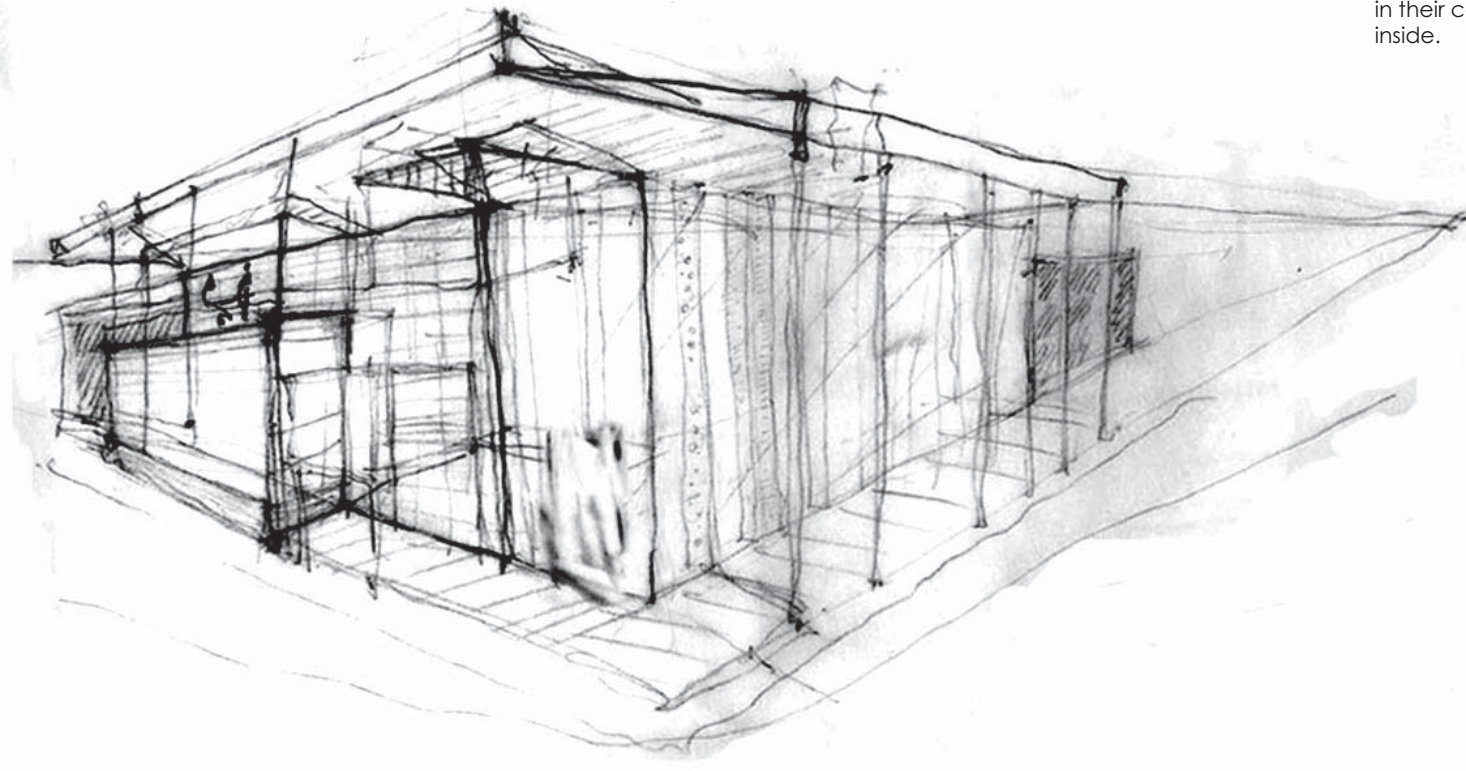
the back corner is closed and solid. there are no openings to see in, because there are no pedestrians walking past on this side to guess what might be going on inside.
(right)





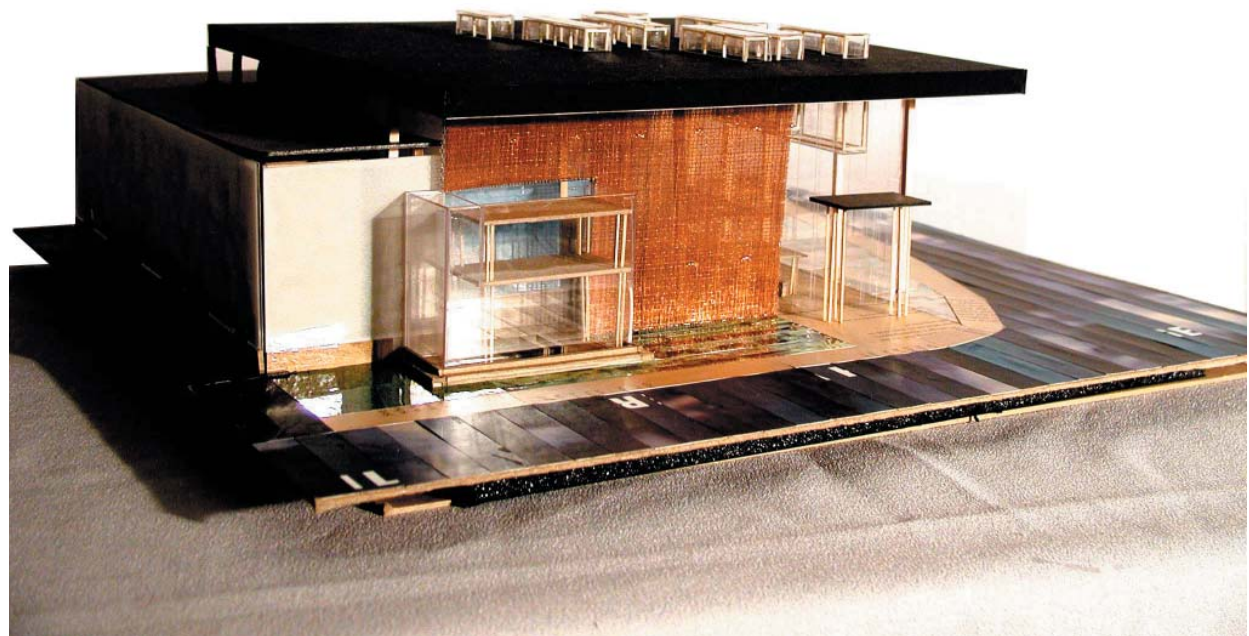
two public faces for two roads.

williamson road is a wider street and is very car busy. it also runs parallel with highway 581 which is elevated at this part of the city. the facade of the aquarium that faces this road is all glass; glass wall with glass mullions. the glass mullions are 3-feet and 4-feet deep, casting a faint rhythmic shadow on the floor. it is a huge window for people zipping past the aquarium in their cars to get a glimpse of the tanks inside.

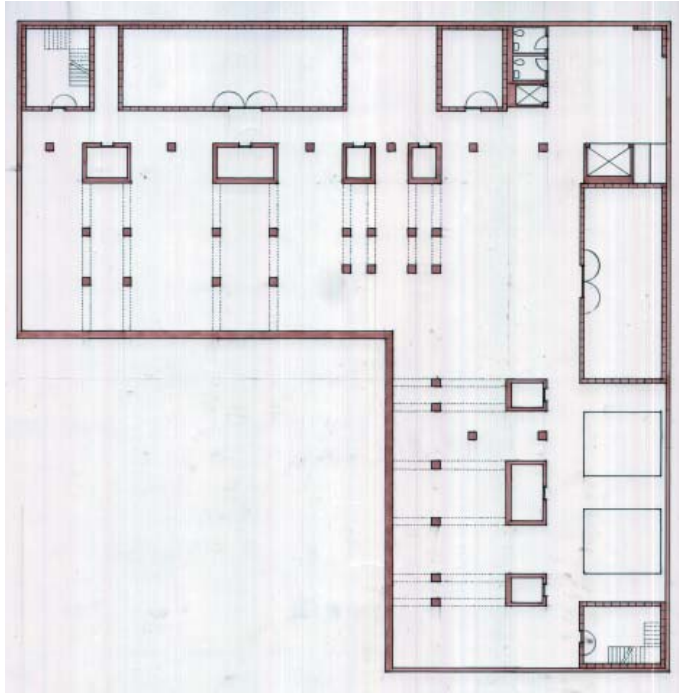


church avenue feels more pedestrian friendly. it is a narrower road with less vehicle traffic and slower moving cars and more people walking. people walking to the vegetarian restaurant down the street or to the farmers' market.

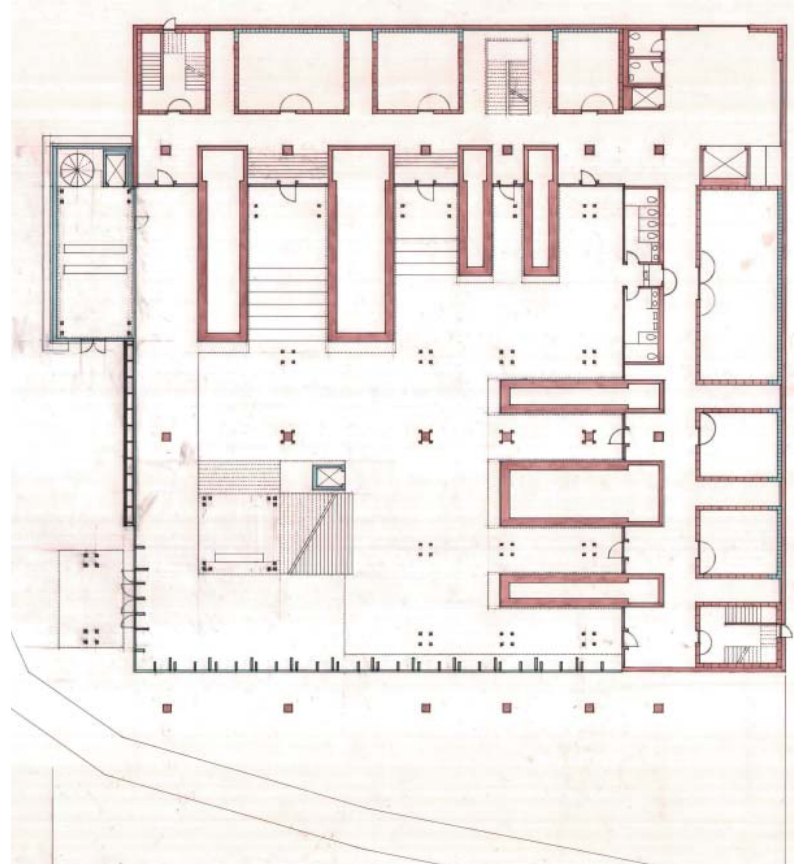
there is a glass tank protruding out from the building towards the sidewalk of church avenue. this is the coffee tank; a cafe for the downtown visitors and aquarium patrons. the facade of the aquarium that faces this road is a screening mesh wall; to add texture and tactile interest. the walking passerby can peek into the aquarium through the glass coffee tank. the entrance to the aquarium is also off of church avenue. signified by a low canopy.



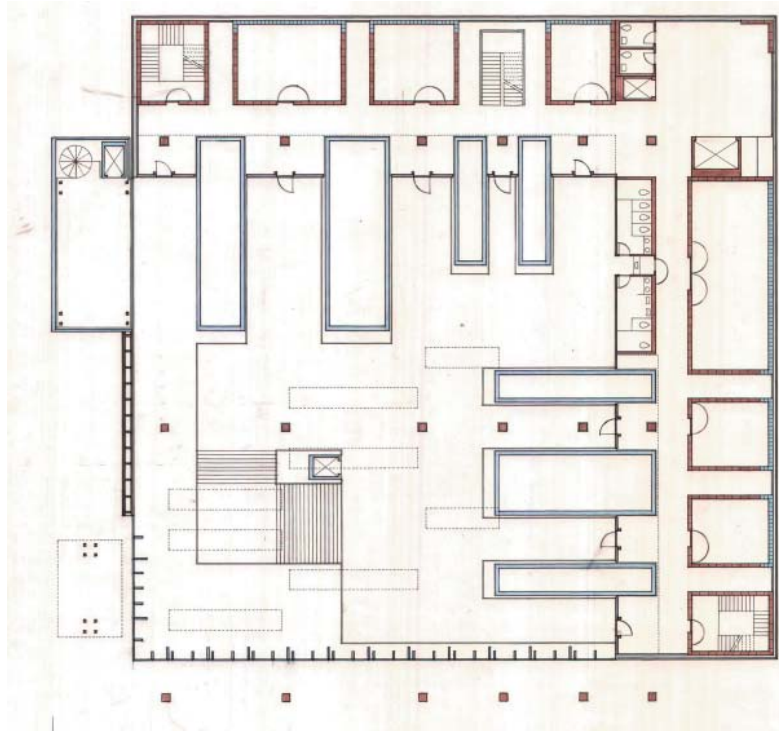
basement



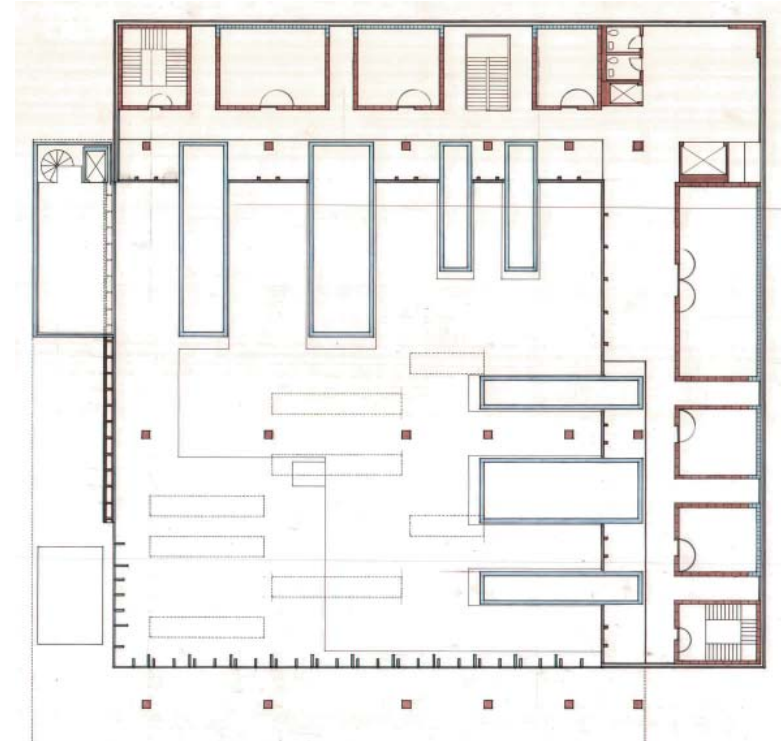
ground level - tank room
first floor - support wall



mezzanine level - tank room
second floor - support wall



third floor - support wall



i learned that:

this project was about making a room.

there are two ways of making a room. one is to make the room and place things inside it. and the other is to let the placement of the things determine the shape of the room.

this room is formed by the irregular spaces left over after the placement of the tanks. this room is made of the tanks, the glass wall, the screen wall, the solid wall, the glass skylight boxes, the roof, and the columns.

this room is open to the city of roanoke. it is available for the community to hold annual events and public and private functions. this room offers entertainment, education, and mingling. this aquarium can be a room for roanoke.

credits

1. photos by daniela bueter and mike temple (lisbon aquarium) page 08.
2. photo by david brown (osaka aquarium) page 09.

epilogue

it's now august 2005. after working on and presenting my thesis project to my professors and classmates in 2002, i was hired by the architecture firm tvs in atlanta to be on the georgia aquarium project team. what a rather rare and lucky opportunity to get to work on the same building type as your thesis project right out of school. I learned about the intricacies and involvements of this real life aquarium from colorful bubble diagrams on through construction. the scale of the georgia aquarium (6 acres of building and 5 million+ gallons of water) is far greater than my proposed aquarium in roanoke, but i discovered that one of the main ideas was the same. the georgia aquarium is laid out so that each gallery stems off of a main interior plaza space. this plaza is a public room for atlanta, much like the aquarium as a room for roanoke. the georgia aquarium plaza room is also made from leftover space as the galleries and function spaces were laid out according to required adjacencies. i am not proposing that my thesis project and the georgia aquarium are the same, or even that similar. what was exciting and encouraging, was realizing that the basic idea of "making a room" that i explored during my thesis year, applies to real world projects.