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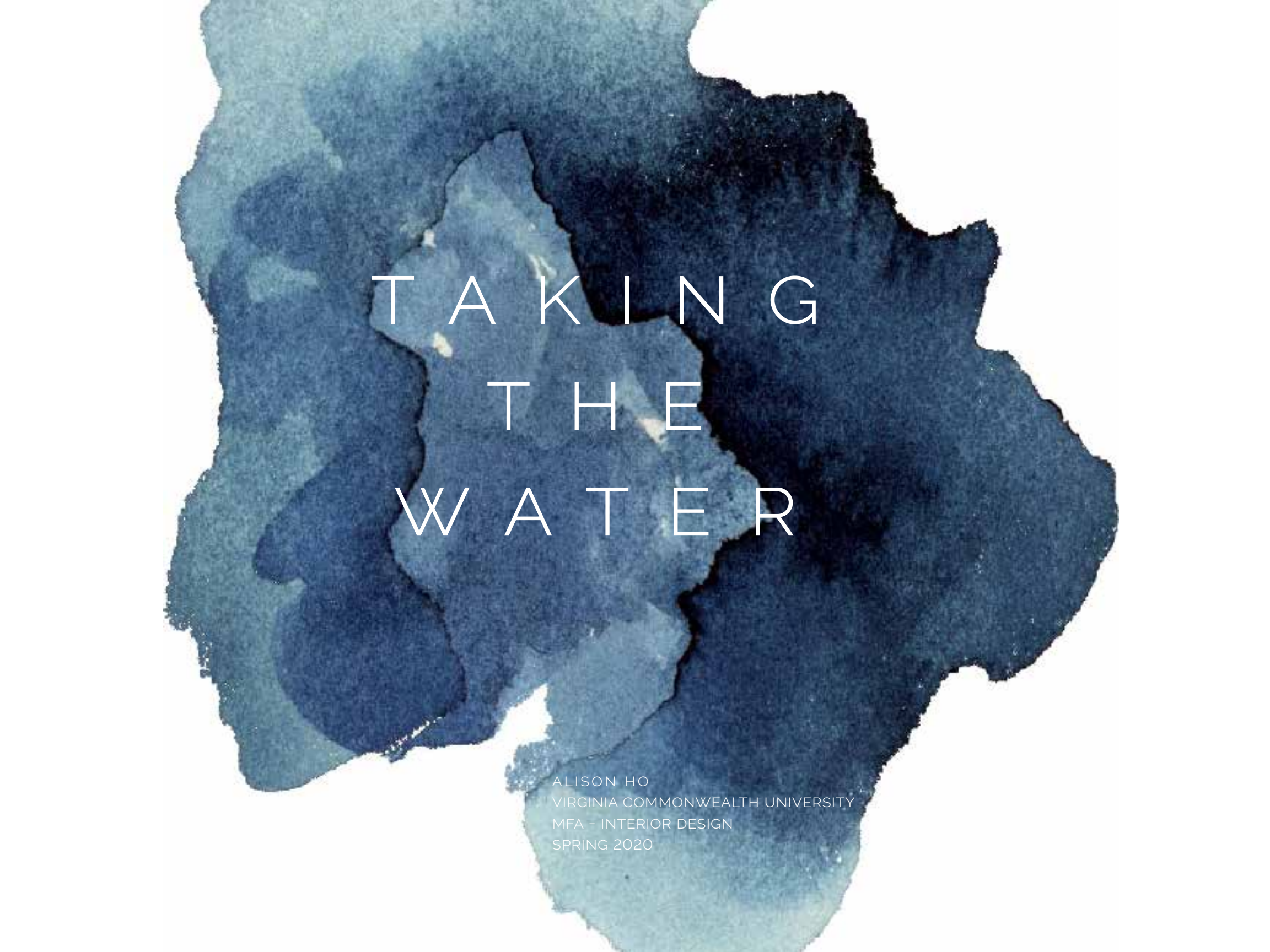
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TAKING  
THE  
WATER

ALISON HO  
VIRGINIA COMMONWEALTH UNIVERSITY  
MFA - INTERIOR DESIGN  
SPRING 2020

#### TAKING THE WATER

Although a landlocked nation, Hungary is well known for its water wealth. Its capital, Budapest, is often called the 'City of Baths' and due to its unique geological location, there are almost 125 thermal springs that feed the city's famous bathhouses and pools. Bath culture and 'taking the water', has been a part of the Hungarian lifestyle for hundreds of years.



SWIMMING POOL, ANNA VAIVARE, 2015



# TABLE OF CONTENTS

|     |                                 |
|-----|---------------------------------|
| 7   | DESIGN ETHOS                    |
| 15  | ABSTRACT                        |
| 21  | RESEARCH                        |
| 27  | SITE VISITS + INTERVIEWS        |
| 35  | PRECEDENTS                      |
|     | ESKISEHIR HOTEL AND SPA         |
|     | THERME VALS                     |
|     | CRANBROOK NATATORIUM            |
| 53  | NEIGHBORHOOD + BUILDING HISTORY |
| 59  | PHOTOGRAPHIC STUDIES            |
| 65  | EXISTING BUILDING DOCUMENTS     |
| 73  | PROGRAM + CODE                  |
| 77  | CONCEPT                         |
| 83  | SPACE PLANNING                  |
|     | PARTI DIAGRAMS                  |
|     | ADJACENCIES                     |
|     | BUBBLE DIAGRAMS                 |
|     | PLAN DIAGRAMS                   |
|     | USER EXPERIENCE SKETCHES        |
| 93  | DESIGN                          |
|     | FLOOR PLAN                      |
|     | SECTION                         |
|     | SECTION PERSPECTIVES            |
|     | PERSPECTIVES                    |
|     | FF+E                            |
|     | DETAILS                         |
|     | CONCLUSION                      |
| 120 | ACKNOWLEDGMENTS                 |
| 123 | BIBLIOGRAPHY                    |



# DESIGN ETHOS

**DESIGN ETHOS**

FUN

VISUALLY STUNNING

GREEN

CREATIVE

PEOPLE ORIENTED

**FUN**

NANJING GALAXY

KINDERGARTEN

LACIME ARCHITECTS

This kindergarten in Nanjing, China features a tree house built by a shallow water pond. The mini shape of the house is filled with imagination and allows children to climb, hide, and run. Fun design encompasses spatial variation, evokes moods of play/exploration and skewed function. Skewed functions such as the netting that must be climbed to get into the space, the shallow height of the ceiling and the bean bags in the space allow the user to be entertained and experience a sense of amusement.



NANJING GALAXY KINDERGARTEN TREEHOUSE

SOURCE: QIANXI ZHANG, 2019

## VISUALLY STUNNING

### GLENSTONE MUSEUM THOMAS PHIFER/CHARLES GWATHMEY

Glenstone is a contemporary art museum in Potomac, MD that opened in 2006. Designed by Thomas Phifer and Charles Gwathmey, the space offers visitors a seamless integrated experience of work from its architecture, landscape and collection. A series of buildings makes up the museum facilities which sits on 300 acres of land. Each building is built into a rise in the landscape which gives the impression of discrete buildings rising out of the earth. The exterior of the main Pavilion is made of cast concrete and is seamlessly integrated into glass panels as large as nine feet by thirty feet tall. Other materials include, white maple, steel, teak, zinc and granite.



GLENSTONE INTERIOR

SOURCE: IWAN BAAN, 2018

## GREEN

### HERMAN MILLER GREENHOUSE WILLIAM MCDONOUGH

Sustainable design seeks to produce minimal impact on the environment and to its users and therefore improving building performance as a whole.

In 1995, William McDonough designed Herman Miller's GreenHouse which featured storm-water management, air-filtering systems, and 66 skylights. Within a year, the facilities energy bill decreased tremendously, and productivity of its employees doubled. The GreenHouse facility was considered ahead of its time and helped launch the green-building industry. This project helped set the standards for the U.S. Green Building Council LEED Certification.



HERMAN MILLER GREENHOUSE INTERIOR

SOURCE: HERMAN MILLER, 2019

## CREATIVE

### PAN TREETOP CABINS ESPEN SURNEVIK

Design should make users think of the program of the space in a new way. Creative design is smart, unique, encompasses all, should be efficient and transformative.

Oslo-based architect Espen Surnevik designed treetop cabins that stand on stilts in the woodlands of east Norway. The cabins are made of black metal structure with black cladding. Surnevik hoped for a "man-made" aesthetic that stands apart from the landscape it sits on. The cabins have a tent-shaped form which model A-frame lodges. The interior is clad with pine-wood floors and walls, and all textiles are made from local wool dye. Beds are hidden among the cladding and each cabin features a kitchen, mezzanine and bathroom. The angles of the cabin are built to maximize natural light and allow the sun to heat the cabins.



PAN TREETOP CABINS EXTERIOR

SOURCE: RASMUS NORLANDER, 2019



PAN TREETOP CABINS EXTERIOR

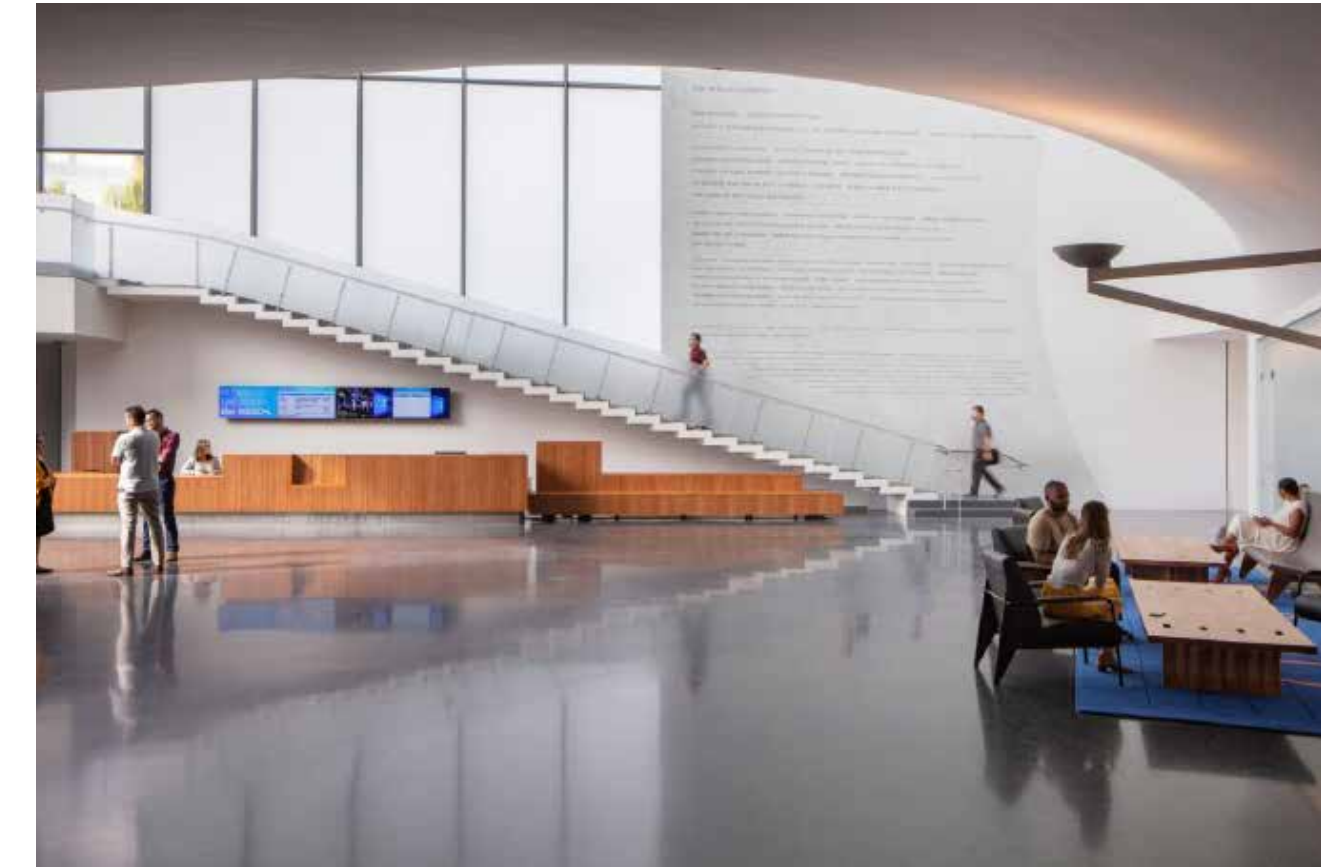
SOURCE: RASMUS NORLANDER, 2019

## PEOPLE ORIENTED

### THE REACH AT THE JOHN F. KENNEDY CENTER FOR PERFORMING ARTS STEVEN HOLL ARCHITECTS

People oriented design should have a positive impact in people's lives, help solve societal problems and be built with the community in mind.

The REACH is the first ever expansion in the Kennedy Center's 48-year history. The aim of the REACH was to open the Kennedy Center to the surrounding city and riverfront and is a nexus of arts, learning, and culture for people to engage with the performing arts. The REACH consists of rehearsal and educational spaces with flexible indoor and outdoor areas, including a narrative reflecting pool, mahogany landscape deck, green roof, three interconnected pavilions and more. The spaces will be used for open studio classes, performance spaces and dedicated arts learning spaces for the community. This project is a great example of people oriented design because it was built for the community, with the community in mind and is a place that houses community.



THE REACH INTERIOR

SOURCE: RICHARD BARNES, 2019





# ABSTRACT

Baby boomers, a cohort group of nearly 76 million people, are those born between 1944 and 1964. Today baby boomers are the age range of 56 to 74 and consist of nearly 76 million people in the United States. In 2012, there were 43.1 million people in the United States that were aged 65+ and it is predicted that by 2050, that number will rise to 83.7 million (Ortman, Velkoff, Hogan, 2014). The baby boomer generation is of great interest to gerontologists because it is numerically a very large group that is sandwiched between two smaller generations. There will be a growing demand for recreational resources utilized by physically fit, health-conscious consumers, who happen to be of retirement age. My thesis aims to address this shifting demographic and their need to stay physically active and socially engaged post-career and children.

As a group, baby boomers are said to be defined by shared values and history more than any other demographic. Boomers do not associate age with disease and disability; indeed, they have every reason to expect to live longer and healthier than their parents. But they do not take their health for granted and, for them, wellness is very important. They are more physically active than previous generations and many will now live 20% - 25% of their lives in active retirement and are living longer

than before. "An obsession with fitness is said to be one of the main defining characteristics of this generation. An explanation for this may be that while previous generations primarily received their physical activity from work, boomers seek physical activity through leisure" (Sperezza & Banerjee, 2010, p. 199-200).

The top leisure activities that interest baby boomers the most were researched, and I have narrowed this to aquatics. My thesis proposal is to place elements of a natatorium and a spa under one roof. This aquatic center will be open to all, but my design and research is focused on the baby boomer demographic. As the third age demographic enters into a life of leisure, this space hopes to celebrate and encourage them to stay integrated in their community, sustain their social life, and keep their minds and bodies active.

**THE BABY BOOMER  
GENERATION IS ABOUT  
TO TRANSFORM INTO  
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WILL DIRECTLY AFFECT  
RECREATION AND LEISURE  
PROFESSIONALS ESPECIALLY  
IN LEISURE PROGRAMMING.  
SPEREZZA AND BANERJEE**



UNTITLED, JESSICA BRILLI, N.D.

# PERCENTAGE OF 65+ POPULATION IN THE UNITED STATES



### 65+ POPULATION INFOGRAPHIC

The infographic on the left shows the percentage of the 65+ population in the United States. As you can see, the percentage is increasing and by 2050 22% of the population will be 65+, which equates to about 84 million people. For the first time in history, older people will outnumber younger people.



# RESEARCH



UNTITLED , SAMANTHA FRENCH, N.D.

In the 1940s, the return of World War II soldiers and the desire to start a family resulted in the birth of the largest generation in U.S. history, the baby boomers, born between 1946 and 1964. A positive economic climate, changing societal values, and the acceptance of large family sizes contributed to the baby boom. The end of the boom came about due to the introduction of birth control, increased education and a upswing in the number of women entering the workforce (Sperazza and Banerjee, 2010).

The baby boomer generation is of great interest to gerontologists because it is numerically a very large group that is sandwiched between two smaller generations. Today baby boomers are the age range of 56 to 74 and consist of nearly 76 million people in the United States. In 2012, there were 43.1 million people in the United States that were aged 65+ and it is predicted that by 2050, that number will rise to 83.7 million (Ortman, Velkoff, Hogan, 2014).

As a group, baby boomers are said to be defined by shared values and history more than any other demographic (Sperazza and Banerjee, 2010). "Baby boomers are the most educated, influential and prosperous generations in the United States" (Sperazza and Banerjee, pg. 197). Boomers have experienced greater competition

for education and jobs due to their sheer size as a group. They have a higher divorce rate and fewer children than their parents. The baby boomer generation was the first to have women entering the workforce long enough to retire in large numbers (Winston and Barnes, 2007). As a more highly educated group with longer life expectancy than their predecessors, it appears boomers want to push back old age as long as possible (Winston and Barnes, 2007). There is also much desire to keep working or to re-enter the workforce in an entirely new career. Boomers are also experiencing financial concerns in retirement due to the rising costs of prescription drugs and healthcare and the strained Social Security system. Despite this concern, studies find that baby boomers are looking to a new model of retirement because of the new paths they have forged in their life.

Baby boomers are more physically active than previous generations, are living longer than before and many will now live 20% - 25% of their lives in active retirement. They do not associate age with disease and disability and have every reason to expect to live longer and healthier than their parents. Boomers intend on feeling younger, being healthier and living longer, and to them wellness and health are very important. "An obsession with fitness

is said to be one of the main defining characteristics of this generation. A significant number of boomers are proving they are more physically active than previous generations, as reflected in the increased number during the past 12 years of health club memberships for those age 55 and older" (Sperazza and Banerjee, 2010, pg. 198).

An important part of this research is acknowledging the transitional period that baby boomers will experience between retiring from their careers and children and entering into a life of leisure for themselves. Boomers must anticipate their new roles as empty nesters and retirees. As baby boomers enter into a life of leisure they are finding themselves with ample time due to the disappearance of obligation and responsibility to their careers and children. Studies show that those over the age of 65 devote about seven hours a day to socializing, relaxing and participating in leisure activities, almost three hours more than those aged 25 to 54 (Miller and Washington, 2018). Leisure and recreational programming include a wide variety of activities such as art, entertainment, fitness, social activities, outdoor recreation, travel and tourism, games and sports. A study done by Sperazza and Banerjee shows that leisure programming related to arts, aquatics, sports, outdoor activities, social recreation, health/wellness, and

travel/tourism was of most interest to baby boomers. This information is extremely valuable as it helps dispel myths that boomers enjoy and are only capable of reading, playing bingo and watching television (Sperazza and Banerjee, 2010). Understanding the culture and values of this demographic is vital to leisure programming success.

Baby boomers are unlikely to perceive leisure with the same limits and mindset as the current group of older adults and will not be satisfied with the "regularly scheduled program." Another important factor is that due to an increase in this demographic, there is an immediate need for leisure and recreation professionals to be cognizant of being able to differentiate between boomers and older seniors (Sperazza and Banerjee, 2010). By legal definitions, baby boomers and seniors share the same age category (65 and older) however, their leisure values are different. Boomers cannot be categorized into one category called senior citizens, and leisure and recreational practitioners today must acknowledge and focus on the idea that the demographic they are trying to serve are more active than current leisure and recreation programs offer (Sperazza and Banerjee, 2010). It is essential that our society be able to provide services, programs, and facilities that baby boomers are interested in.



UNTITLED, JESSICA BRILLI, N.D.

**FROM A PROGRAMMING  
PERSPECTIVE, WE MAY  
ANTICIPATE THE GROWING  
DEMANDS FOR RECREATIONAL  
RESOURCES WHICH ARE  
UTILIZED BY PHYSICALLY  
FIT, HEALTH-CONSCIOUS  
CONSUMERS WHO HAPPEN TO BE  
OF RETIREMENT AGE.**

**NO LONGER CAN IT BE ASSUMED  
THAT BINGO, CHURCH  
SERVICES, AND VAN RIDES TO  
VIEW SPRING FLOWERS WILL  
REPRESENT THE COLLECTIVE  
LEISURE INTERESTS OF THE  
BABY BOOMERS IN RETIREMENT.  
SPEREZZA AND BANERJEE**

How one spends their newly found leisure time can greatly affect their social, mental, and physical wellness. Many studies indicate that leisure and recreational activities positively relate to happiness, quality of life and life satisfaction (Plys, 2017). These activities can promote self-efficacy, sense of self and self-growth. Leisure and recreational activities are positively related to happiness, quality of life, life satisfaction and are negatively related to depression (Plys, 2017). Leisure and recreational professionals today face the challenge of being able to provide a diverse selection of experiences to meet this not only growing, but active population (Sperezza and Banerjee, 2010).

When specifically trying to narrow down who this thesis project is targeting, the term third age demographic came to the surface. The third age demographic, a term coined by Peter Laslett, describes the period for those who are post-career and post-children, but before the onset of illness and physical decline (Hostetler, 2011). It is a period when one is free of obligations and responsibilities to their career and children, and when good health makes it possible to enjoy leisure time.

For this thesis, the design of an aquatic center will be the focus. The space will include a lap pool for fitness, a leisure

pool for group aquatic activities and hot, cold and warm baths for relaxation. The therapeutic use of water dates as far back as 4500 B.C. with steam, bathes and aromatic massages being used to relieve discomfort and promote physical well-being (Martin and Grey, 2005). Hot water is known for its relaxing properties and is said to help stimulate the immune system whereas cold water is selected to reduce inflammation and tepid water is used for stress reduction. Alternating through the three can help stimulate the circulatory system and improve the immune system (Martin and Grey, 2005). Supporting areas of programming will include aromatherapy pods, a juice bar, open lounge area and spaces for socializing, and gathering. Each of these spaces look to promote health and wellbeing while providing this demographic with the fitness aspects they crave and the relaxation they so deserve.

This thesis will examine and explore third agers and leisure and recreational activities and how to bridge the two. This space hopes to celebrate this population while keeping them integrated into their community, sustaining their social life, and keeping their minds and bodies active.



# SITE VISITS + INTERVIEWS

A series of site visits and in depth interviews with professionals in the field of aging, senior citizens and aquatics were done as primary research for this project.

The YMCA is a nonprofit organization that provides healthy and fun programs, services and facilities for children and families. The YMCA of Greater Richmond has been helping the local community since 1854. There are 17 locations in the Greater Richmond area, 15 of which have pools. I met with the YMCA of Greater Richmond Association Aquatics Director, Chrissy Fandal, along with three other Senior Aquatic Directors to discuss aquatic center programming, services, activities, and goals. I also met with Faithea Foster, the YMCA of Greater Richmond Association Director of Aging Well.

Westminster Canterbury is a local retirement community in Richmond, VA. The community has over 900 individuals living in memory care, independent living and hospice care at the facility. I met with the Taryn Young, Fitness Specialists at Westminster Canterbury to discuss the community's aquatic center needs and goals.



# WESTMINSTER CANTERBURY

RICHMOND

LIVE  
LIFE  
WELL.™

1600 WESTBROOK AVE  
RICHMOND, VA 23227

## TARYN YOUNG, FITNESS SPECIALIST AT WESTMINSTER CANTERBURY

Westminster Canterbury is a local retirement village in Richmond, VA that houses 900 residents. About 100 of those residents cycle in and out of the pool and attend the classes offered.

They are planning on building a brand new pool facility to replace the existing one. The new facility hopes to offer more spa like amenities, and the rehab department will be joining the aquatics department. Features like massage therapy will be offered at this new facility. This new facility will offer fitness aspects of aquatics in addition to relaxation offerings.

More younger baby boomers are moving into Westminster's retirement village and the aquatics department is looking to change their class offerings and schedule to better fit this growing demographic. The current class

offerings and services are out of date and don't seem to appeal to younger baby boomers as much as the aquatics department would like.

## SPECS OF THE POOL & HOT TUB

- 1 indoor pool & 1 hot tub
- 27' x 40', 32,000 gallon pool
- 10,000 gallon hot tub
- 3.5' - 4.5' deep pool
- Max Pool Capacity: 34 people
- Max Hot Tub Capacity: 9 people
- S.R. Smith Chair Lift
- Pool has two stair entries
- Hot tub has one stair entry
- Average user of the pool is 85 years old
- Programs and services offered include water aerobics, open swim, deep water aerobics and other high and low intensity water activities.



INDOOR POOL AND HOT TUB AT WESTMINSTER CANTERBURY





**CHRISSY FANDAL**  
**ASSOCIATION AQUATICS DIRECTOR**  
**YMCA OF GREATER RICHMOND**

- YMCA has 17 locations in the Greater Richmond area
- 15 of those locations have pools. I visited five of those pools.
- YMCA aquatics seeks to serves everyone and includes classes such as:
  - 6 Month Old + Parents
  - 2-3 Year Old + Parents
  - Youth Swim
  - Masters Swim
  - Power Scholars
  - Private Swim
  - High and Low Intensity Classes
- Goals: Diversify YMCA's swim lessons to include classes for people with autism.

**SPECS OF THE YMCA DOWNTOWN INDOOR POOL**

- 1 indoor pool
- 3.5 lanes
- 80,000 gallon pool
- 3.5' - 9' deep pool
- Built in 1940's
- Steam room + sauna

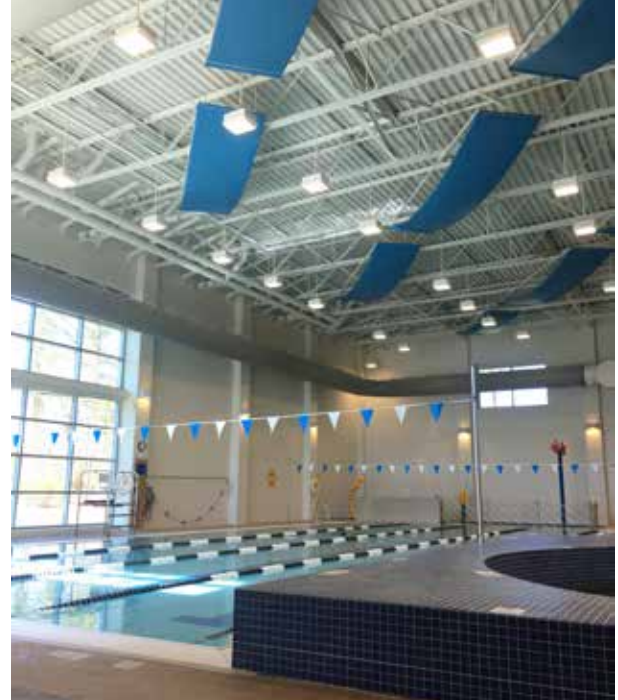
**SPECS OF THE NEW HENRICO COUNTY INDOOR POOL**

- 1 lap pool and 1 family pool
- 8 lane lap pool, 25 yards for competitive swimming, 3.5' - 6' deep lap pool
- Family pool with beach slope entry, and 18" deep area of water for children, 2.5' - 5' deep.
- Lap pool is 180,000 gallons
- Family pool is 75,000 gallons
- New center will have a mens, women and family locker room.

**FAITHEA FOSTER**  
**ASSOCIATION DIRECTOR OF AGING WELL**  
**YMCA OF GREATER RICHMOND**

- Faithea's job has two aspects, supporting active older adults (AOA), and serving community partners who serve seniors.
- One of the YMCA's biggest partnerships is with local nonprofit, Senior Connections. Together they hosts classes at 22 sites and have over 500 seniors involved.
- YMCA and Senior Connections work together to offer classes that ensure four aspects of aging well to seniors.
  1. Physical activity
  2. Staying socially connected - to avoid and prevent social isolation
  3. Mental fitness
  4. Fall prevention
- Classes are about two hours long, and the breakdown of the class is as follows:
  - Social time (cards/brain games/puzzle/books), group fitness (exercise and components of fall prevention), social and mental activity (bingo or guest speaker).
- Average age of attendee is 70-79.
- Average class size is 15 to 30.
- Active older adults are who Faithea works to serve. The YMCA is very purposeful in not describing who an AOA is. Instead they describe the event and the offering and they let people decide if they want to

- come or not. If you are interested in 1) physical activity, 2) social connections, 3) staying mentally fit, 4) staying agile with a focus on balance, then this event is for you!
- Goals: Transportation is needed for some. How can they reach rural communities? How do they reach people who do not live in senior villages? How do they reach people who have medical needs?

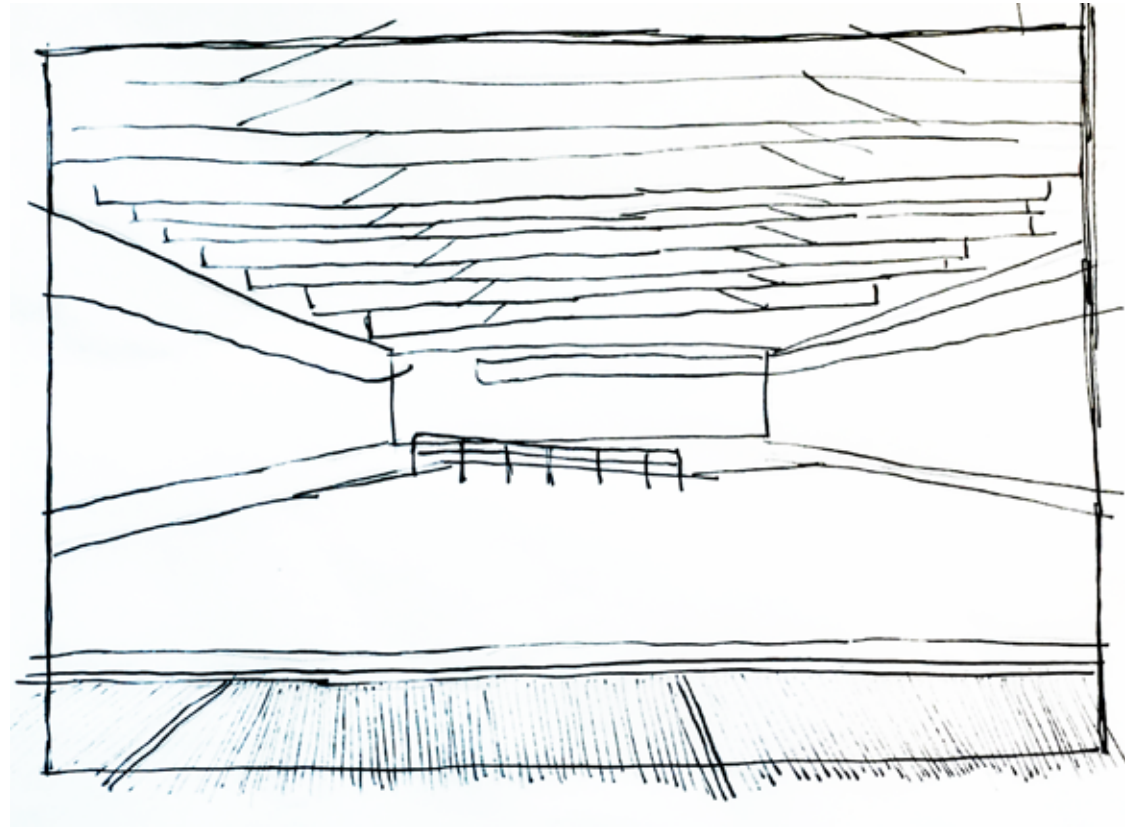


YMCA SWIFT CREEK

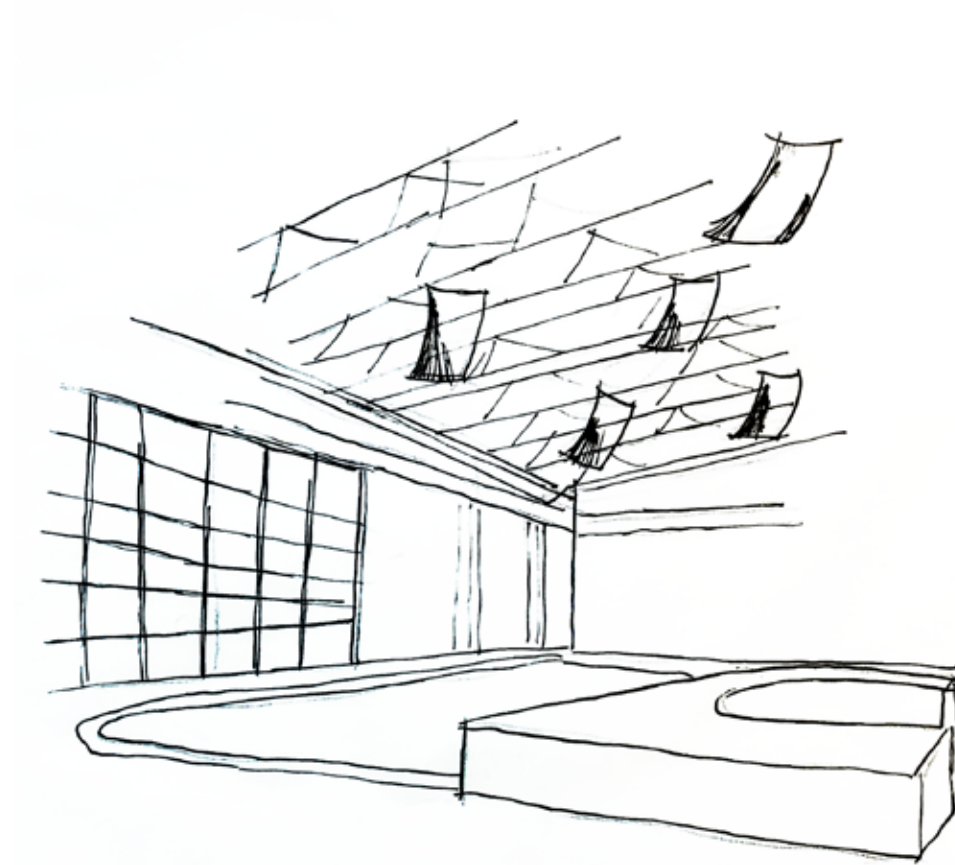


YMCA DOWNTOWN

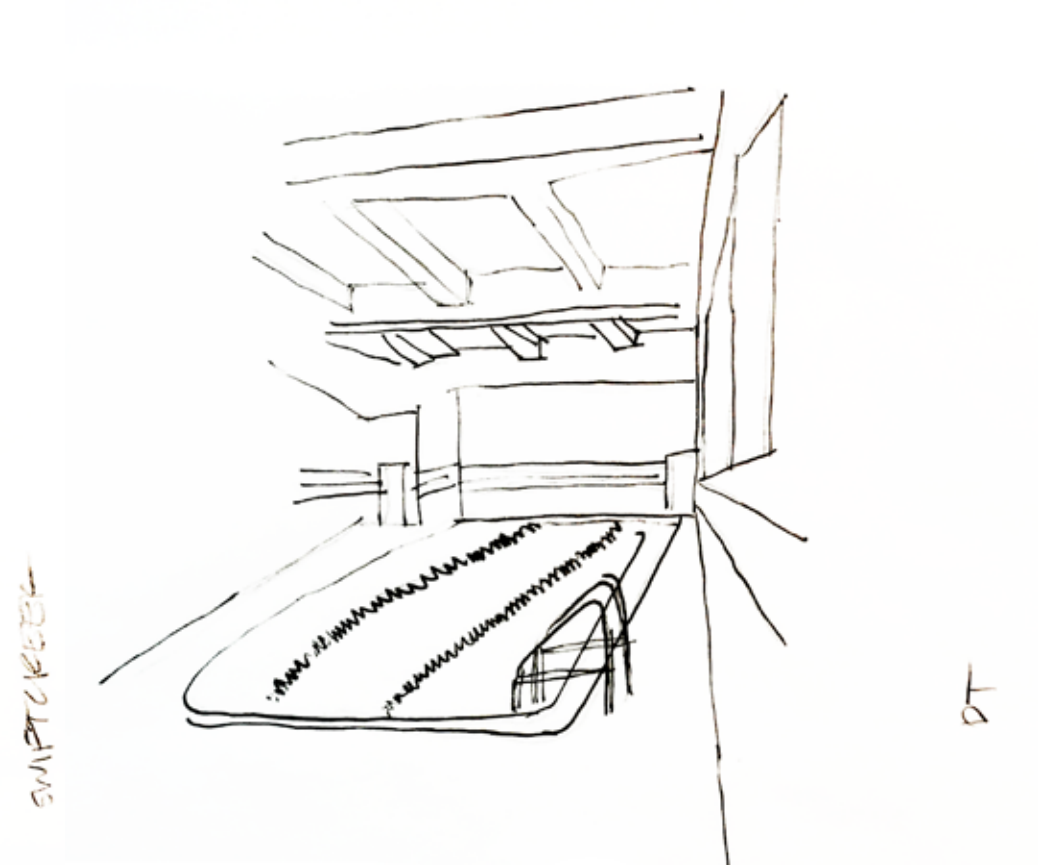
YMCA SITE VISIT  
SKETCHES



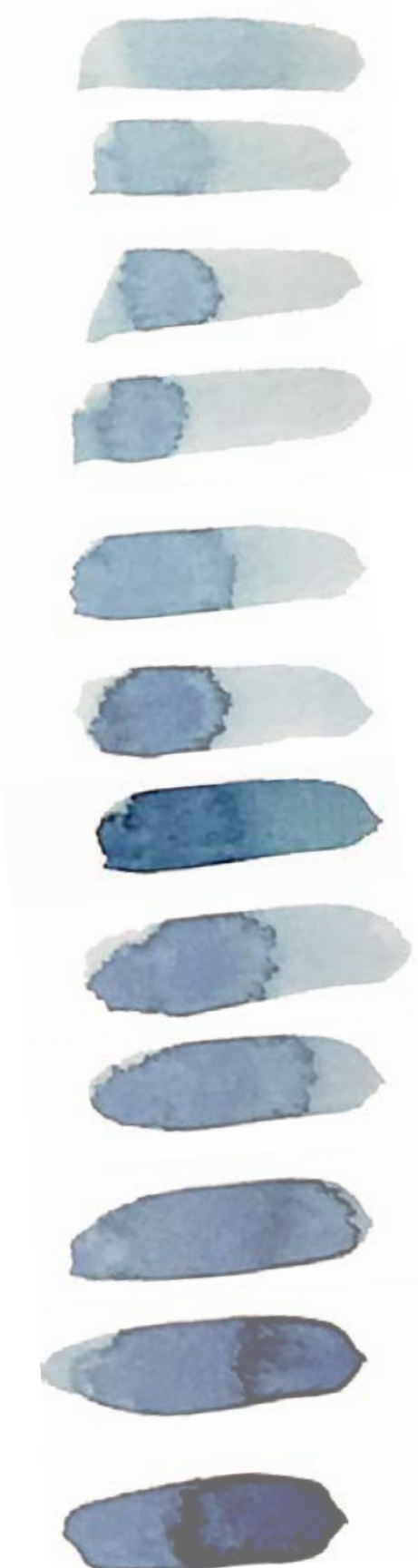
YMCA MANCHESTER



YMCA SWIFT CREEK



YMCA DOWNTOWN



# PRECEDENTS

ESKISEHIR HOTEL  
AND SPA  
GAD ARCHITECTURE

ESKISEHIR, TURKEY  
COMPLETED IN 2014

This hotel and spa by GAD Architecture is located in Eskisehir, Turkey and completed in 2014. The spa was highly inspired by the city's thermal water resources. Locals have long believed that hot water has healing powers and would improve health for anyone who rests in the water (Archdaily, 2014).

The entire complex consists of a hotel, spa, wedding and event rooms, and guest bungalows. The spa and wellness center sit buried in the ground to benefit from the geothermal water source. The spa area houses two large pools, hot tubs, spa pods, thermal pools of different temperatures, thermal jacuzzi, steam baths, saunas, and a shock pool (Archdaily, 2014).

Above one of the indoor pools are large domes with openings which allow natural light to enter into the space. The organic shape of the pool, dome, and benches provide for a relaxing backdrop for the user. The enclosed relaxation and spa pods provide users with privacy and intimacy for small group gatherings.



ONE OF TWO POOLS IN THE SPA +HOTEL.

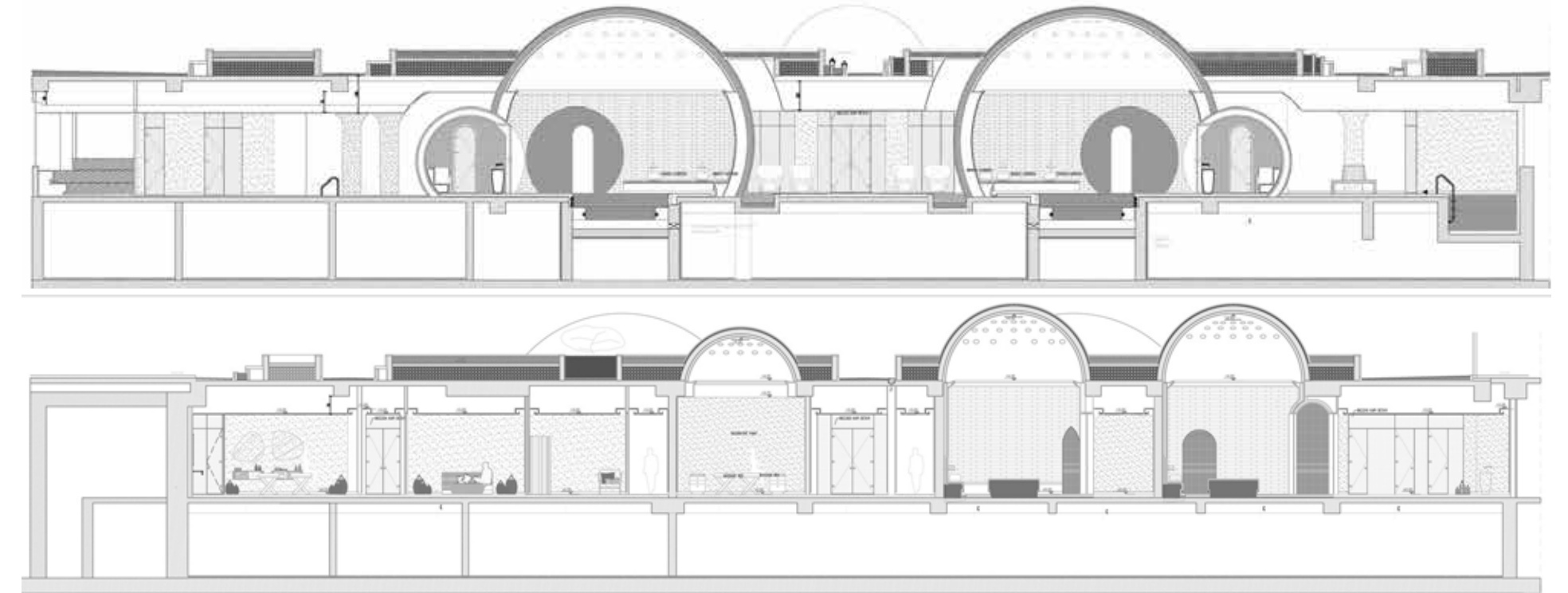
SOURCE ALTKAT ARCHITECTURAL PHOTOGRAPHY, 2014



THERMAL JACUZZI POD. THE DOME ABOVE THE POOL HELPS ADD HEIGHT TO THE INTIMATE SPACE.

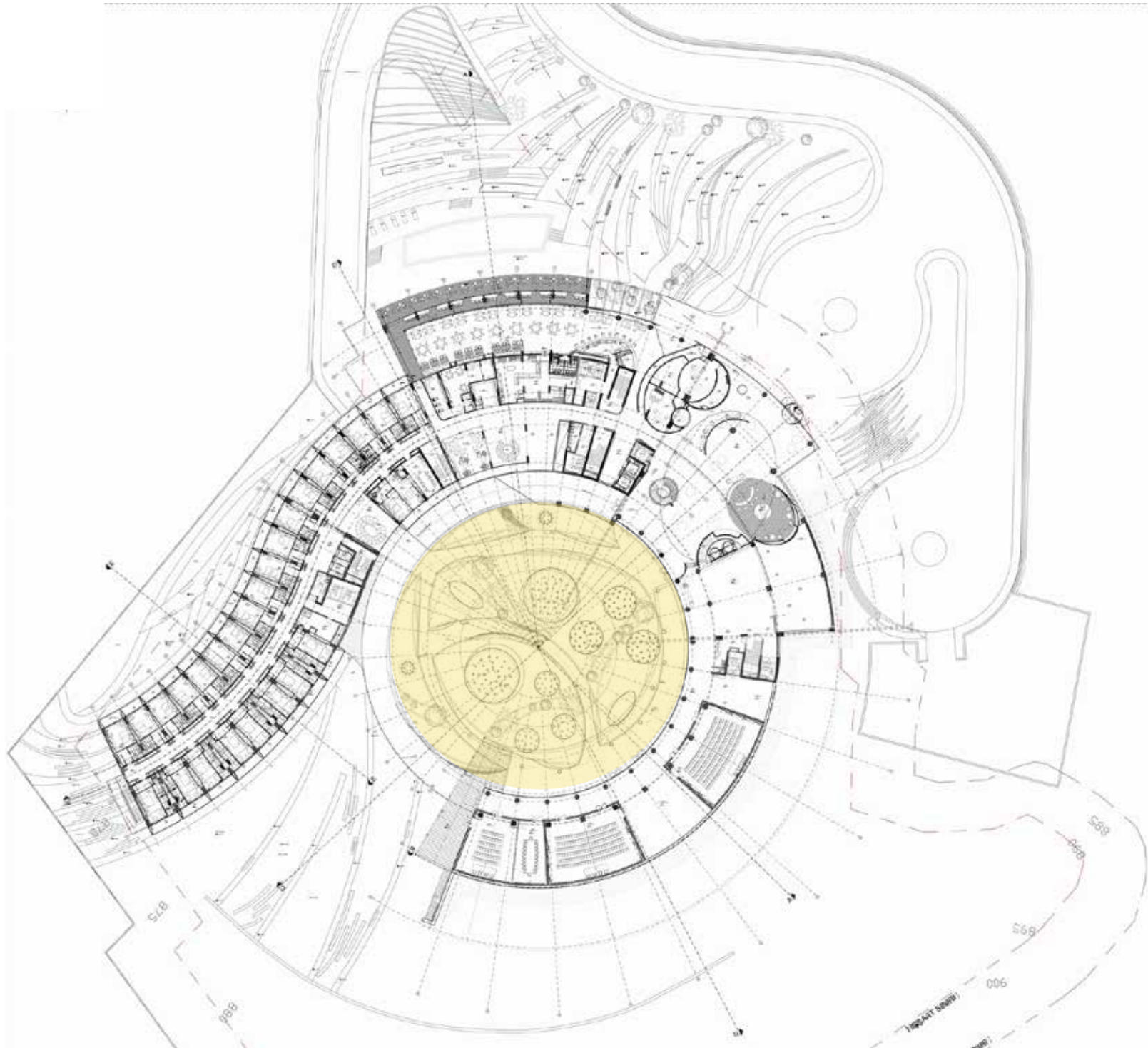
SOURCE ALTKAT ARCHITECTURAL PHOTOGRAPHY, 2014

This section cuts on the right show the added height that the architectural domes provide to the spa and thermal pods. Although the spa and relaxation pod is quite small, the domes allow the perception of openness and help add height to an intimate space. The shape of the domes also allows for acoustical forgiveness, which is often a problem in natatoriums.



SECTION CUTS OF THE SPA.

SOURCE: GAD ARCHITECTURE, 2014



This floor plan shows the complexities of the site, and how the spa, pool, and wellness center is anchored in the center, while all other supporting accommodations, such as the hotel and wedding venue surround it. Since this entire property was built off of the city's thermal water resources, the spa, pool and wellness center are the most important spaces. This is a great example of hierarchy in a floor plan.

FLOOR PLAN OF THE SITE.

SOURCE: GAD ARCHITECTURE, 2014

## THERME VALS PETER ZUMTHOR

GRAUBÜNDEN, SWITZERLAND  
COMPLETED IN 1996

The Therme Vals is a 22,000 square foot spa located in Switzerland, built on top of the only thermal springs in Switzerland's Graubünden Canton. Completed in 1996, the Therme Vals was designed by Peter Zumthor, and is one of the most widely regarded projects to his name.

The building is partially built into the hillside, which makes it invisible from one side (Dezeen, 2016). The walls are made from locally quarried quartzite stone and windows are set back, which reveal the unusual thickness of the walls.

The concept of the space is for it to feel like a cave or quarry. The use and combination of light, shadow, space, and materiality make for a highly sensory experience for its user. As users enter the space, they are met with a very dark interior and a series of saunas, spas and changing rooms.

Users naturally gravitate towards the light, which helps lead them through the space. The pools in the Therme Vals spa include an indoor and outdoor pool, fire and ice pool, blossom, spring, and sound pool. The pools range from 57 degrees Fahrenheit to 107 degrees Fahrenheit. Bathers move from warmer temperature baths to cooler. Spaces in the spa expand and contrast, and go from light to dark, which provides the user with a highly sensory experience.



THERME VALS INDOOR BATH SITS AT 89.6 DEGREES FARENHEIT. BEYOND THE ENTRANCE TO THE POOL, YOU CAN SEE THE PROCESSIONAL STAIR AND GALLERY LEVEL.

SOURCE: FERNANDO GUERRA, 2016



ENTRANCES TO THE INDOOR BATH. THIS IMAGE ALSO SHOWS THE LOCALLY QUARRIED VALSER QUARZITE SLABS THAT ARE LAYERED UP ON ALL THE WALLS.

SOURCE: FERNANDO GUERRA, 2016

The dominant material in the space is locally quarried Valsler Quarzite slabs which are built up in layers on the wall and create a multi-toned stripe (Dezeen, 2016). All the walls are covered in this Quarzite and almost feels overwhelming, especially in areas that have high ceilings and small corridors. Homogeneous concrete, polished terrazzo, red mahogany, brass, and bronze are supporting materials in the space.

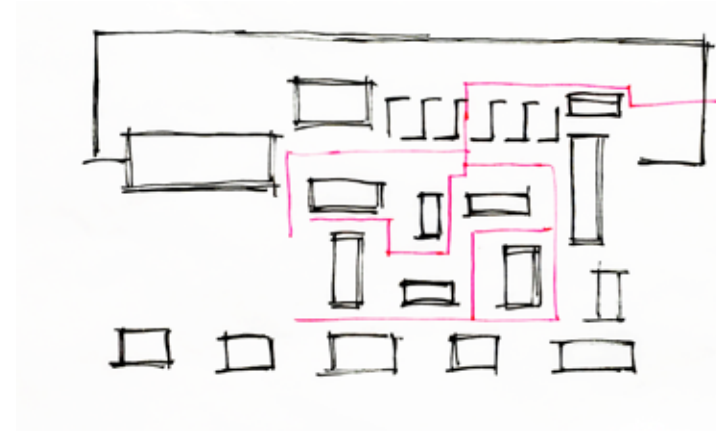


BOTH THESE IMAGES SHOW THE NARROW CORRIDORS AND ENTRANCES INTO BATHS.

SOURCE: FERNANDO GUERRA, 2016

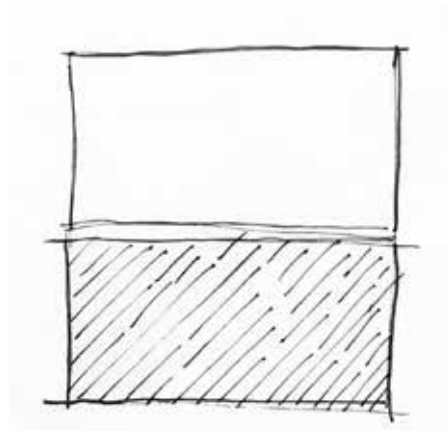






#### **PATHS**

The layout of the interior of the Therme Vals is a carefully modeled path of circulation which leads bathers to certain predetermined points but also allows the user to explore the space for themselves. The black lines represent the multiple baths, and changing rooms and the red lines show the different path of circulation users can take. The paths lead the user from changing rooms, to different bathes and pools.



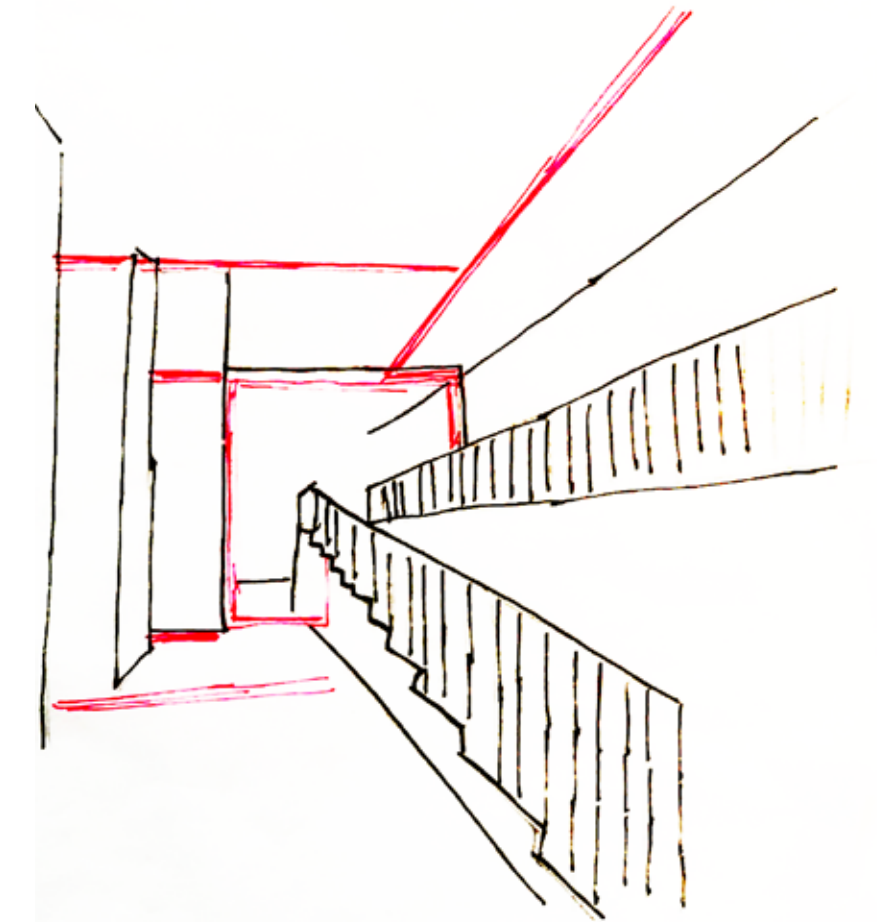
#### **PRIVATE VS. PUBLIC**

Zumthor placed building and support systems on the lower level of the building and primary bathing facilities on the upper level. Similar to the space planning on my thesis building, I am looking to have public facilities on the upper levels and more private and utilitarian facilities on the lower levels.



THIS IMAGE SHOWS THE SPECIFIC USE OF LIGHT IN THE THERME VALS.

SOURCE: FERNANDO GUERRA, 2016



The interior itself is very dark and Zumthor uses light very specifically in this project. Light is let into the space by slits in the ceilings through skylights which help create a dramatic line of lights that reflects off the water. When looking at sight lines in the space, the end of most corridors lead to a large

window. That sudden bright light, in a corridor of dark, helps lead the user through the space and allows for a highly visual sensory experience. The red lines in the drawing on the right represent areas of light.

CRANBROOK NATATORIUM  
TOD WILLIAMS & BILLIE TSIEN

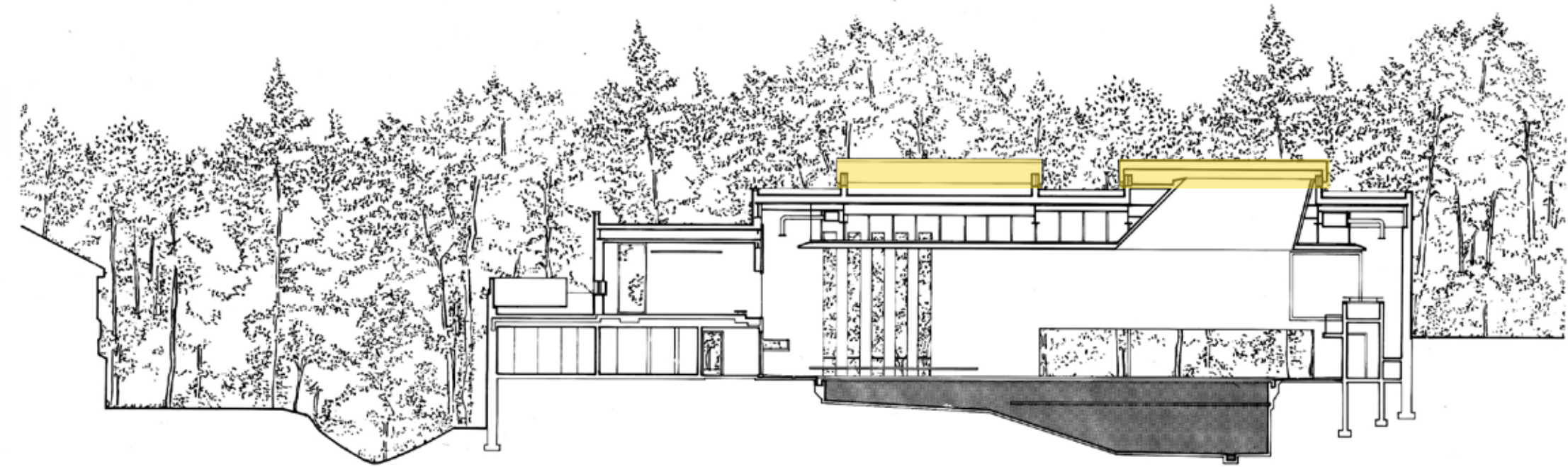
BLOOMFIELD HILLS, MI  
BUILT IN 1999

The Cranbrook natatorium is 22,000 square feet and located at Cranbrook Schools in Bloomfield Hills, Michigan. It was completed in 1999, designed by Tod Williams and Billie Tsien. This natatorium houses a competitive swimming pool and can hold up to 200 spectators (Tod Williams, Billie Tsien Architects, n.d.).



THE 22,000 SQUARE FEET COMPETITIVE SWIMMING POOL AT CRANBROOK NATATORIUM.

SOURCE: MICHAEL MORAN, N.D.



THIS SECTION CUT SHOWS THE OCULI AND 20' NARROW WINDOWS.

SOURCE: MICHAEL MORAN, N.D.

This natatorium features a number of elements that connect the inside to the land and sky outside. The night-sky blue ceiling has a scattering of lights whose random pattern emulates the stars above. The ceiling's striking features are two 30' oculi (highlighted in yellow above) that can slide and open to reveal

the sky above (Tod Williams, Billie Tsien Architects, n.d.). Swimmers enjoy the circulation and connection to the sky above. The oculi allow considerable light to enter and help with ventilation and cooling which eliminates the need for air conditioning in the building.



20' HYDRAULIC WINDOWS AND MAHOGANY PANELS.

SOURCE: MICHAEL MORAN, N.D.

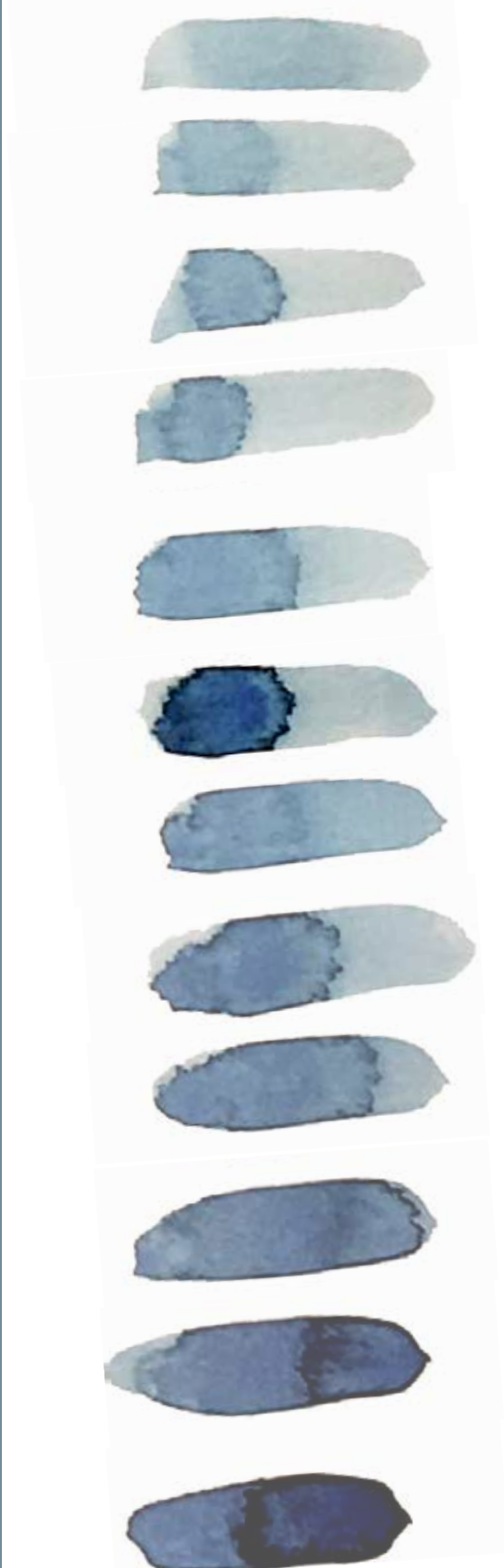
There are also a series of twenty-foot tall narrow windows with mahogany panels open hydraulically to reveal the outside landscape (Tod Williams, Billie Tsien Architects, n.d.). Interior walls are clad with concrete blocks and blue and green glazed tile, while mahogany is used on walls, railings, and vertical paneling.

What interests me the most about this space is the minimal use of materiality and the openings throughout the space that connect the inside to the land and sky outside.

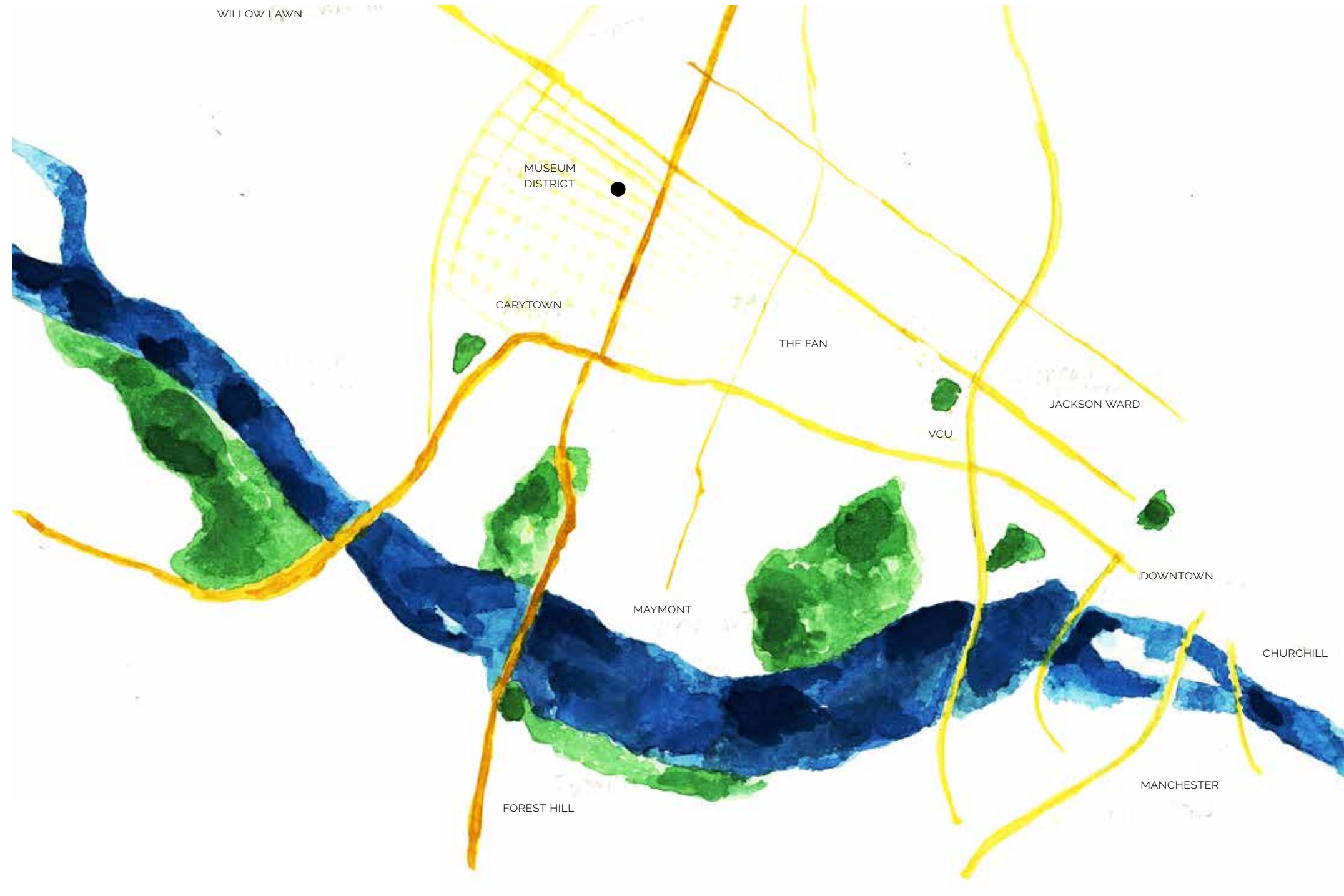


INTERIOR MATERIALITY OF THE CRANBROOK NATATORIUM.

SOURCE: MICHAEL MORAN, N.D.



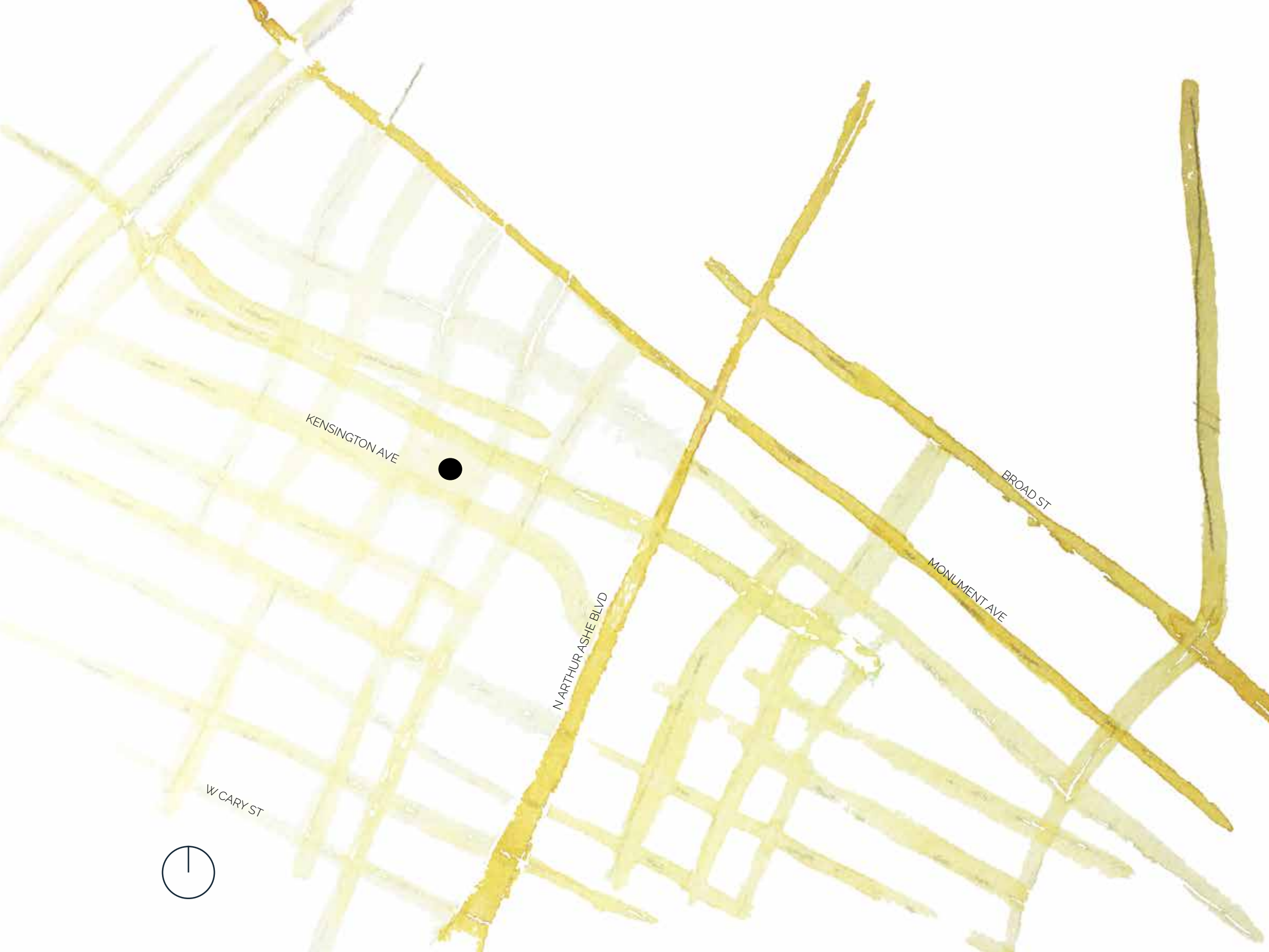
# NEIGHBORHOOD & BUILDING HISTORY



The Museum District, formerly known as West of the Boulevard, is nestled between the Fan and Richmond's West End. It is bounded by N Arthur Ashe Boulevard, I-195, Monument Avenue, Broad Street, the Fan and Carytown.

In 1887, the City Railway Company extended its horsecar line into the Museum District thus extending city limits. The District became home to some of the first large suburban homes in Richmond. Due to electricity and streetcars, Richmond experienced large expansions of residential settlement patterns. School and church buildings began sprawling up, some of which still exist today such as St. Mary's Catholic Church and Albert H. Hill Elementary School. The district was added to the National Register of Historic Places in 1994.

The Museum District is home to the Virginia Museum of Fine Arts, Virginia Historical Society, and the Virginia Museum of History and Culture. Architectural features include apartment buildings, brick row homes, town homes and commercial buildings such as churches, shops, restaurants and schools. The streets of the Museum District are very walkable, due to its tree-lined sidewalks. The District is within walking distance to nearby Carytown and the Fan District.



## 3101 KENSINGTON AVE RICHMOND, VA 23220

3101 Kensington Avenue was built in 1917 by architect Charles M. Robinson and was originally designed and used as an elementary school. The building operated as a school until 1986 and in 2001 the building was converted into apartment buildings. Today, the building has forty private units.

3101 Kensington Avenue is a colonial revival brick, three-story plus basement, 66,000 square foot building. Features include a flat roof, Corinthian columns and double story arched windows. Flanking either side of the front of the building are two tall towers with copper domes at the top.



3101 KENSINGTON AVE | FRONT VIEW FROM KENSINGTON AVE



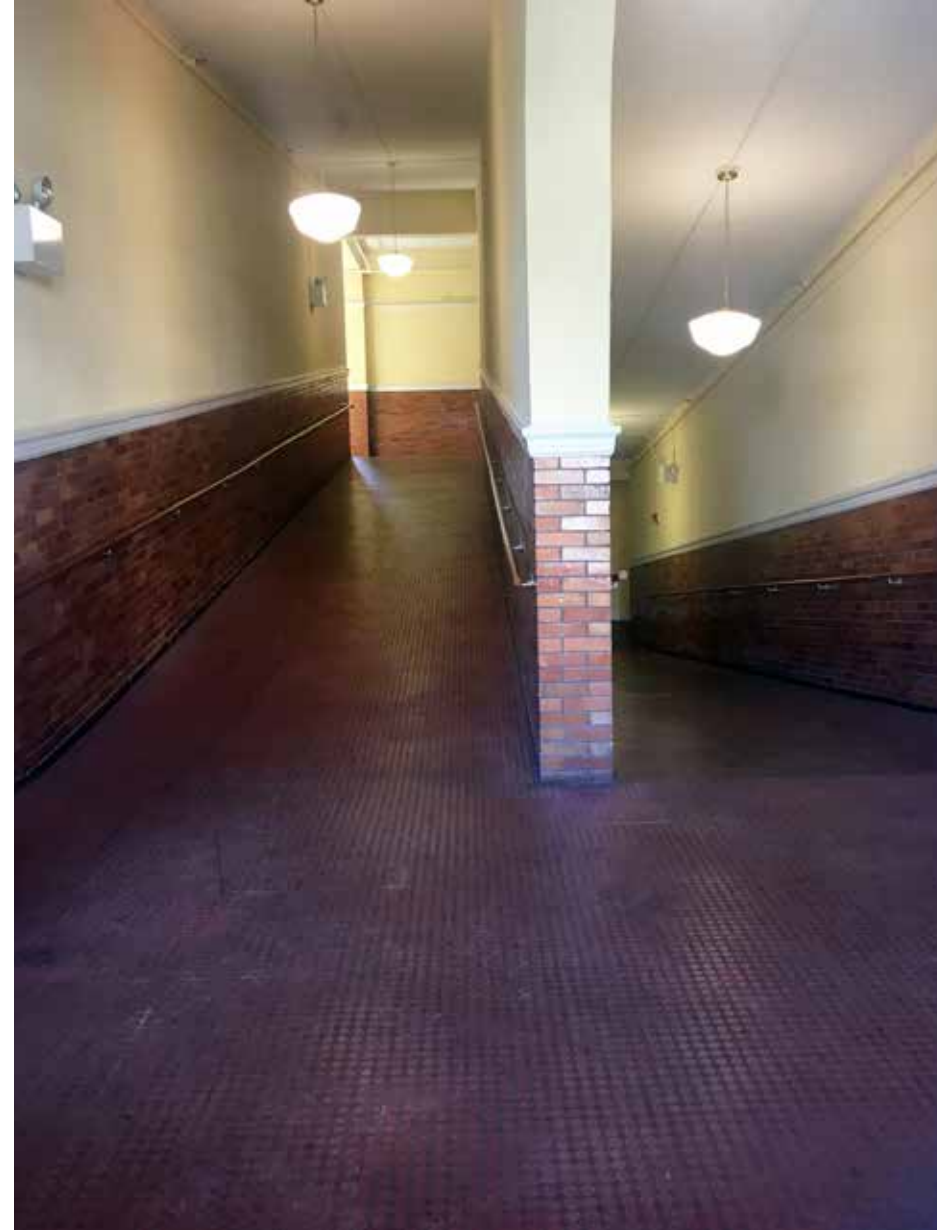
# PHOTOGRAPHIC STUDIES



FRONT VIEW OF 3101 KENSINGTON AVENUE



ONE OF TWO FRONT TOWERS



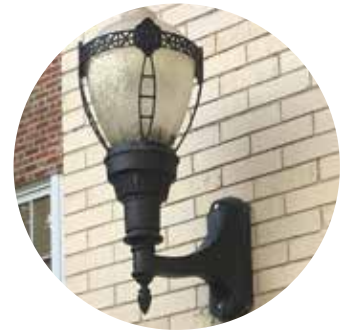
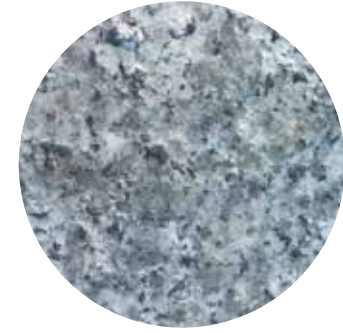
INTERIOR RAMPS AND LANDINGS



INTERIOR STAIRS & HALLWAY

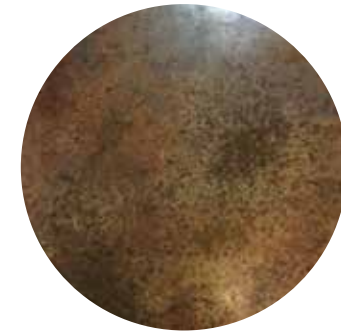
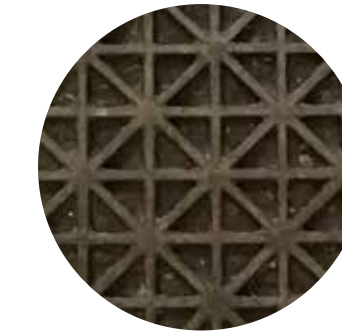
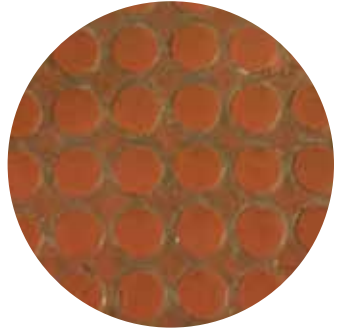


EXTERIOR MATERIALITY



Exterior materiality of 3101 Kensington Avenue includes brick, metal, granite, glass, steel and wood.

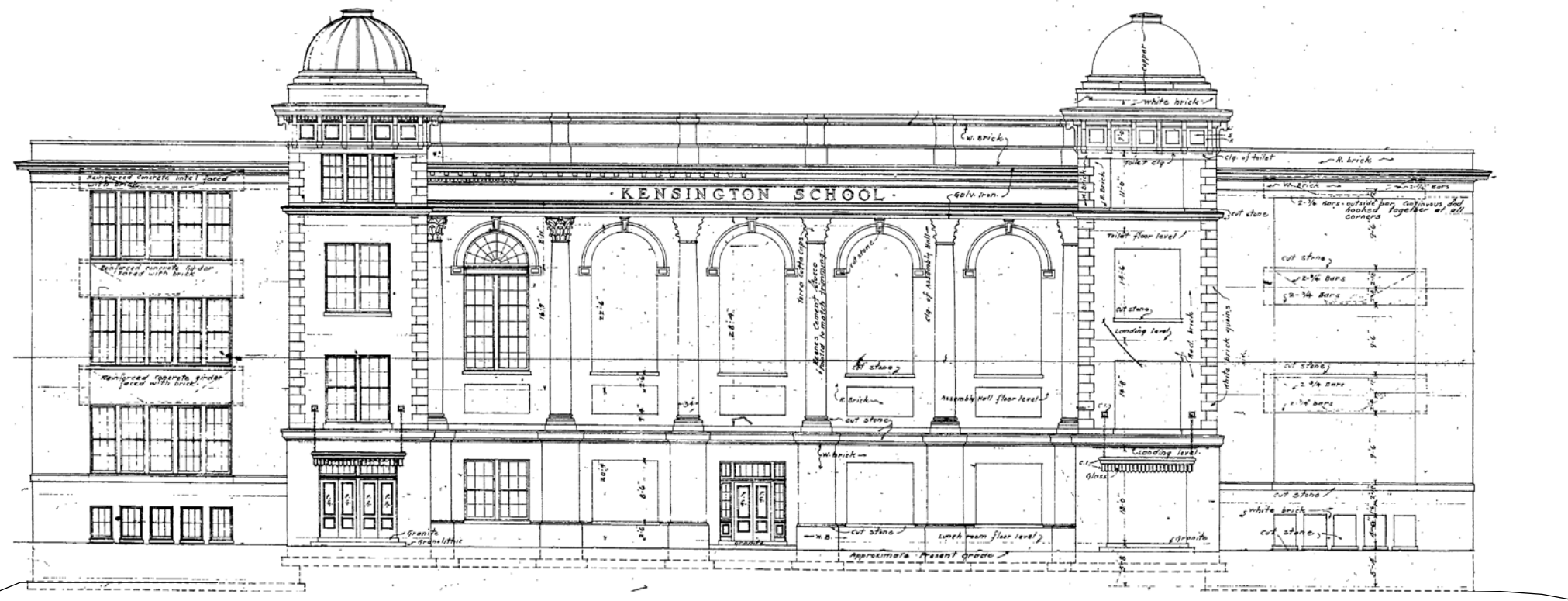
INTERIOR MATERIALITY



Interior materials includes steel trusses, glazed brick, plaster, stone, concrete, brick, wood and terrazzo.

# EXISTING BUILDING DOCUMENTS

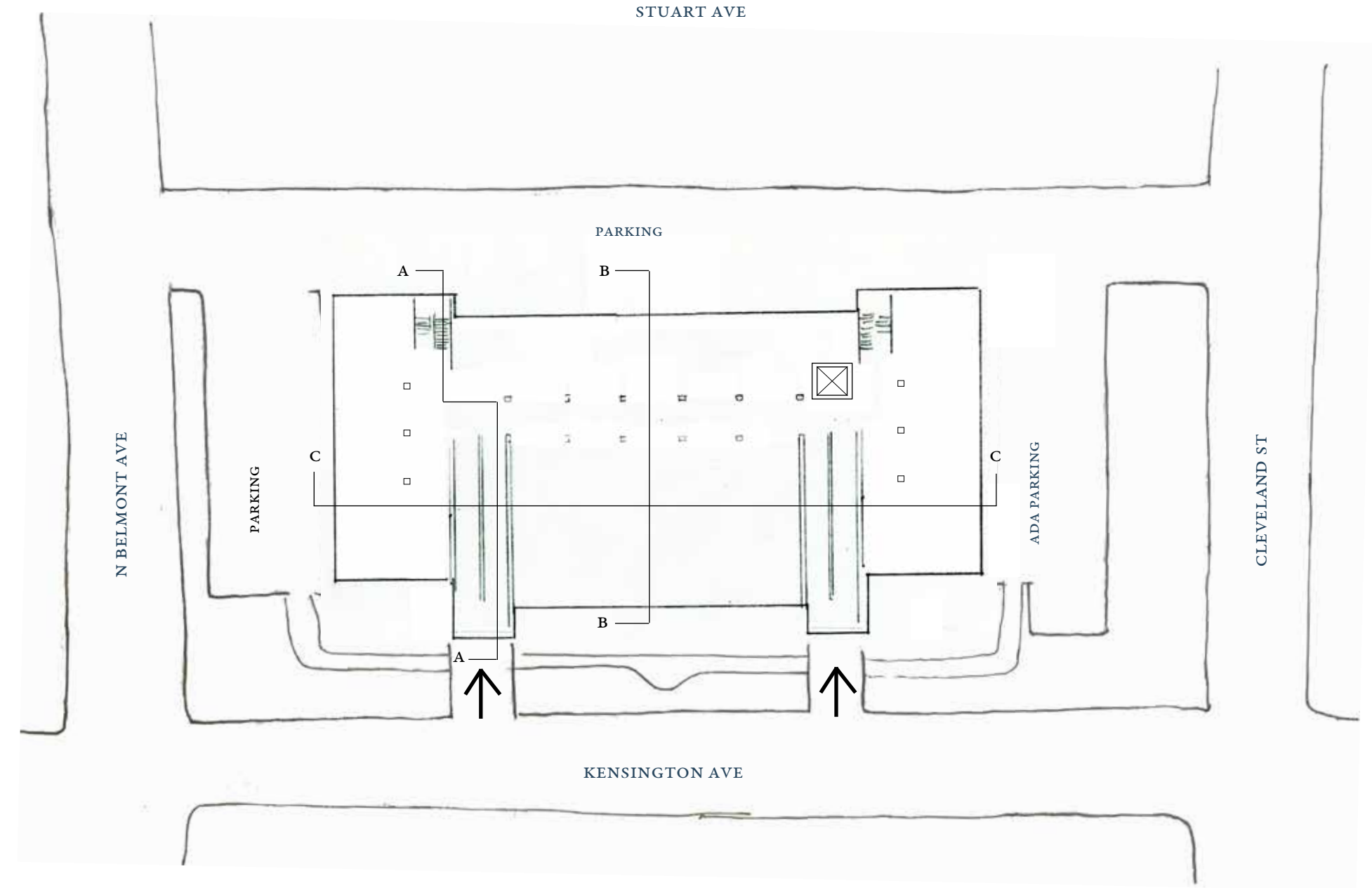




0' 5' 10' 20'



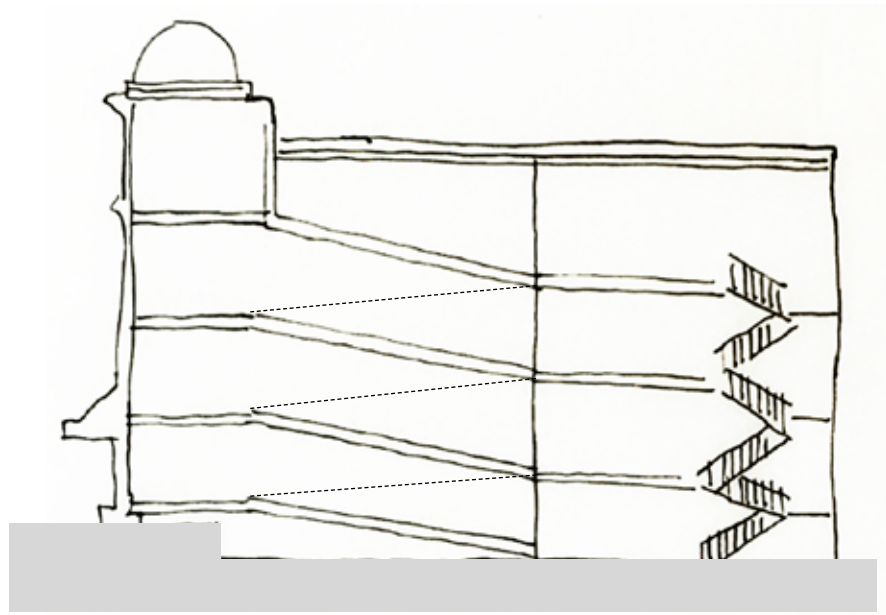
FRONT ELEVATION



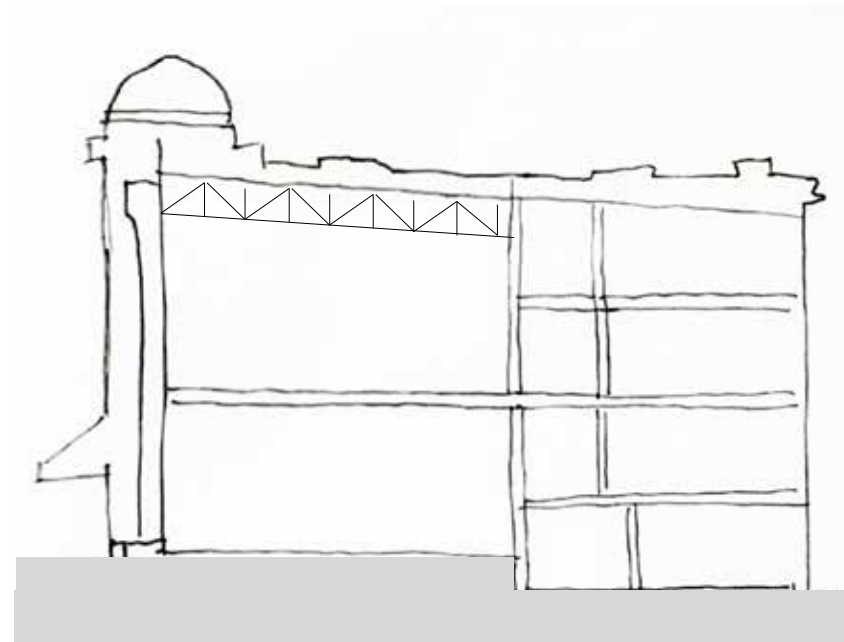
0' 5' 10' 20'



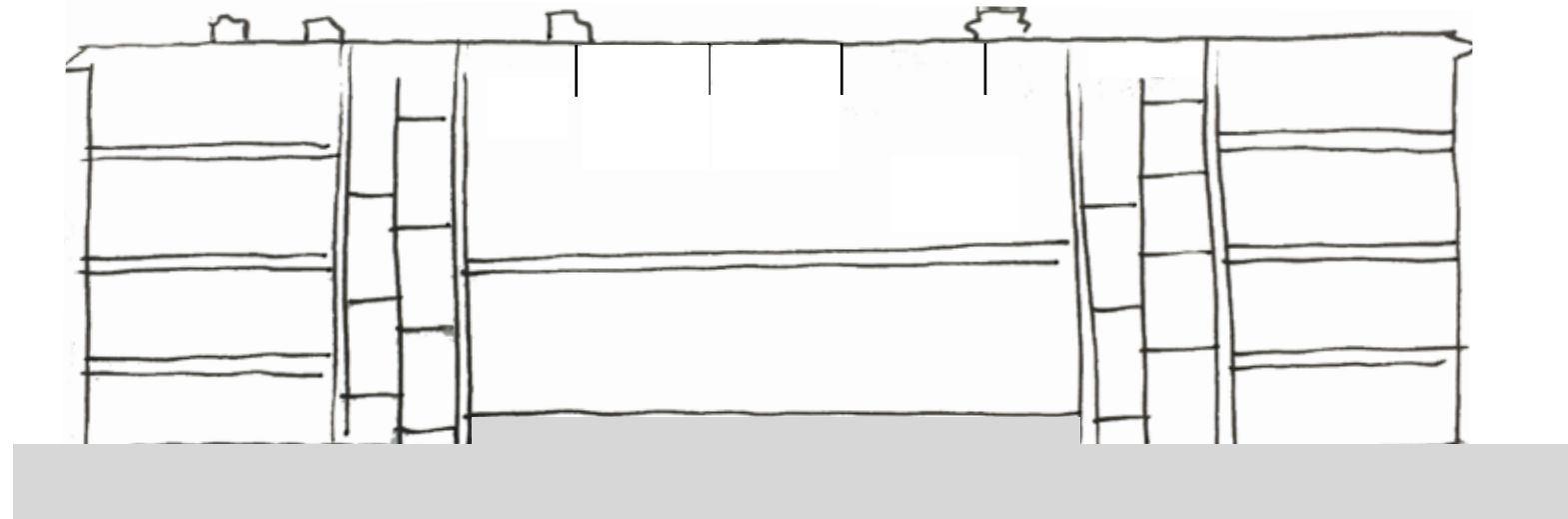
FLOOR PLAN



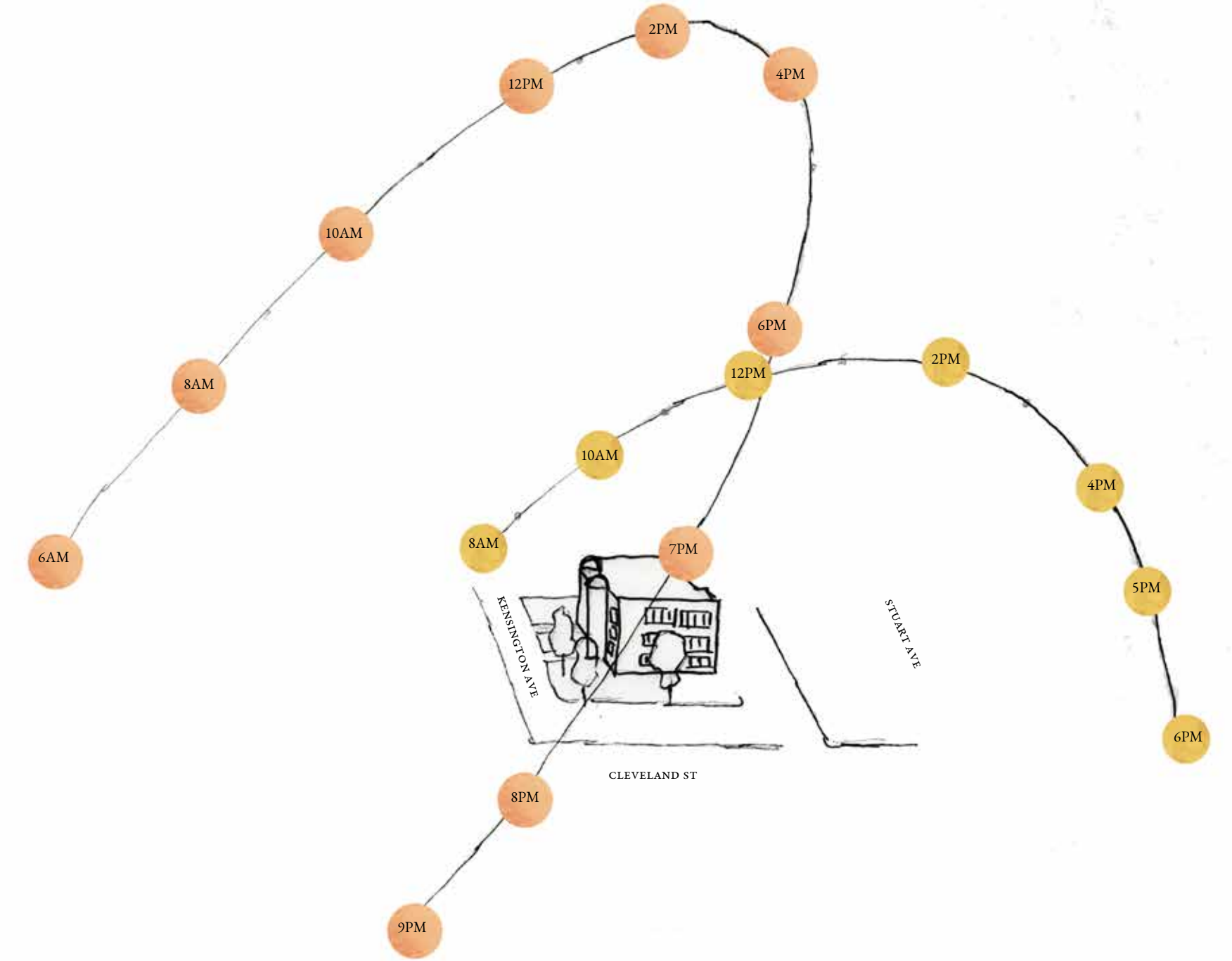
SECTION A



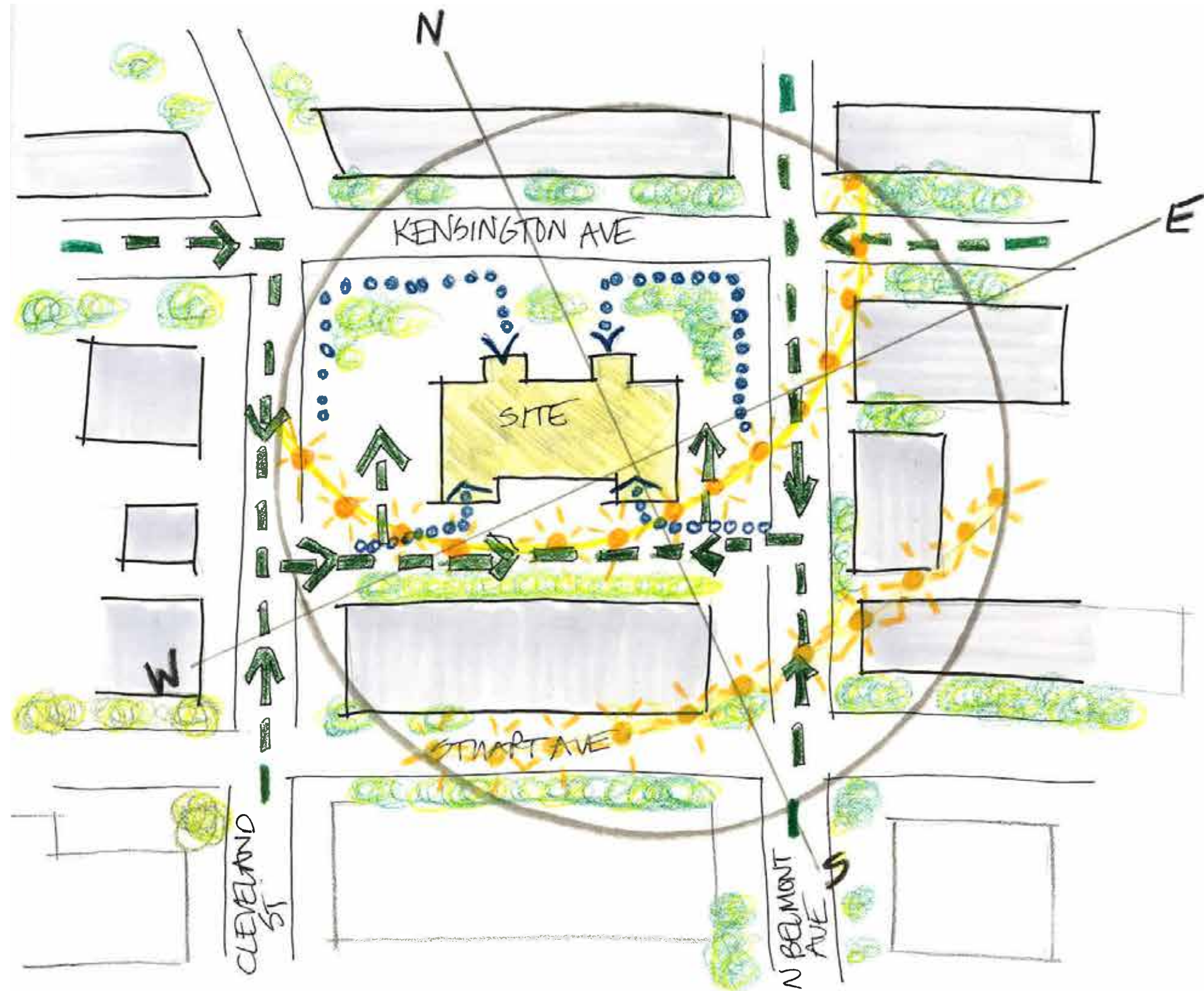
SECTION B



SECTION C



SUN STUDY



## SITE ANALYSIS

The building sits in the Museum District neighborhood in Richmond, VA. The building is near main veins in Richmond such as N. Arthur Ashe Blvd, Monument Dr. and Broad St. Surrounding buildings around 3101 Kensington Avenue mainly consist of residential homes, town homes and apartment buildings and small businesses, restaurants and bars.

Neighborhood Laundromat, Cleveland Street, Chiocca's, Black Hand Coffee are nearby small businesses. The Virginia Museum of Fine Arts (VMFA) and the Virginia Museum of History and Culture is less than two blocks from this building. The surrounding area is very walkable and bikeable and the building has a number of available parking spaces. The building has a walk score of 94 and a bike score of 81.

The front of the building faces shy of north, which means the back of the building receives the strongest sun.



# PROGRAM + CODE

## OVERALL BUILDING

Type of Construction: Type III - A  
Assembly Group: A-3  
Occupant Load: 677

Total Gross Area:  
Basement - 16,500 sq ft  
Level 01 - 8,723 sq ft  
Level 02 - 14,228 sq ft  
Level 03 - 8,270 sq ft  
47,721 sq ft gross

Total Net Area:  
Basement - 6,320 sq ft  
Level 01 - 5,749 sq ft  
Level 02 - 8,386 sq ft  
Level 03 - 6,547 sq ft  
27,002 sq ft net

Efficiency Ratio: 60%  
47,721 sq ft x 0.60 = 28,623 sq ft

Total Net Area Used: 25,900

Toilets  
M: 338/75 = 4.5 --> 5  
F: 338/40 = 8.45 --> 9

Lavatories  
M: 338/200 = 1.69 --> 2  
F: 338/150 = 2.25 --> 3

Water fountains: 2

## LOBBY

The lobby and reception is where guests are greeted by a receptionist and are given a towel and robe.

Group B Occupancy  
1,000 square feet  
Occupant Load: 50

## ADMINISTRATIVE OFFICES

Open offices for staff, includes a small kitchenette. There are two meeting rooms used for staff meetings and life guard trainings.

Group B Occupancy  
2,000 square feet  
Occupant Load: 20

## CHANGING + SHOWER ROOMS

Individual changing rooms include a walk in shower, sink, toilet, built in bench, and wall hooks.

Group B Occupancy  
2,000 square feet  
Occupant Load: 40

## LAP POOL

25 meter lane lap pool consisting of three lanes that is six feet deep. The lap pool is perfect for fitness enthusiasts.

Group A-4 Occupancy  
5,000 square feet  
Occupant Load: 100

## LEISURE POOL

Open pool for leisure and group exercise and water activities such as water yoga, water aerobics, and water weightlifting. The leisure pool is zero entry, has an adjacent hot tub with built in seats and jets, and an 18" deep area with built in lounge chairs.

Group A-4 Occupancy  
5,000 square feet  
Occupant Load: 100

## BATHS

There are three different baths, hot, warm and cold. Each bath has built in benches and jets and can fit 15 people. There is also an adjacent lounge space.

Group A-4 Occupancy  
2,300 square feet  
Occupant Load: 45

## AROMATHERAPY ROOM

The aromatherapy room is divided into three rooms, each with different essential oil scents, that can fit 15 people. There is also an adjacent lounge space.

Group A-4 Occupancy  
2,300 square feet  
Occupant Load: 45

## LOUNGE

Open lounge space with ample seating. The lounge also includes a juice bar and a small cafe that serves sandwiches, coffee and tea. A part of the lounge area can double as private event space.

Group A-2 Occupancy  
4,000 square feet  
Occupant Load: 266

## KITCHEN

Commercial kitchen for the juice bar and cafe which includes a stove, oven, refrigerator, freezer, and dishwasher. There is also a service station and pantry.

Group A-2 Occupancy  
1,000 square feet  
Occupant Load: 5

## STORAGE + MECHANICAL CLOSETS

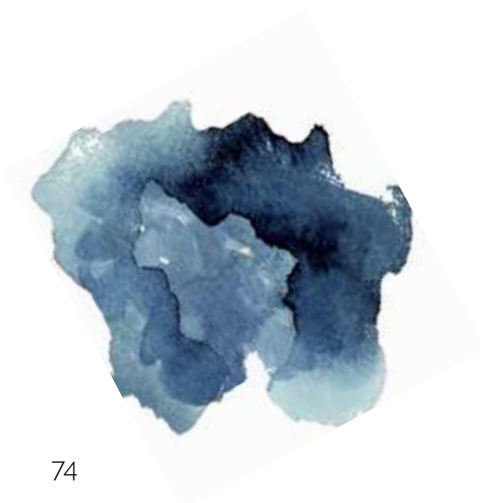
Storage space for aquatic activity equipment. There is also a mechanical and chemical closet and water pump closet.

Group S-2 Occupancy  
1,000 square feet  
Occupant Load: 3

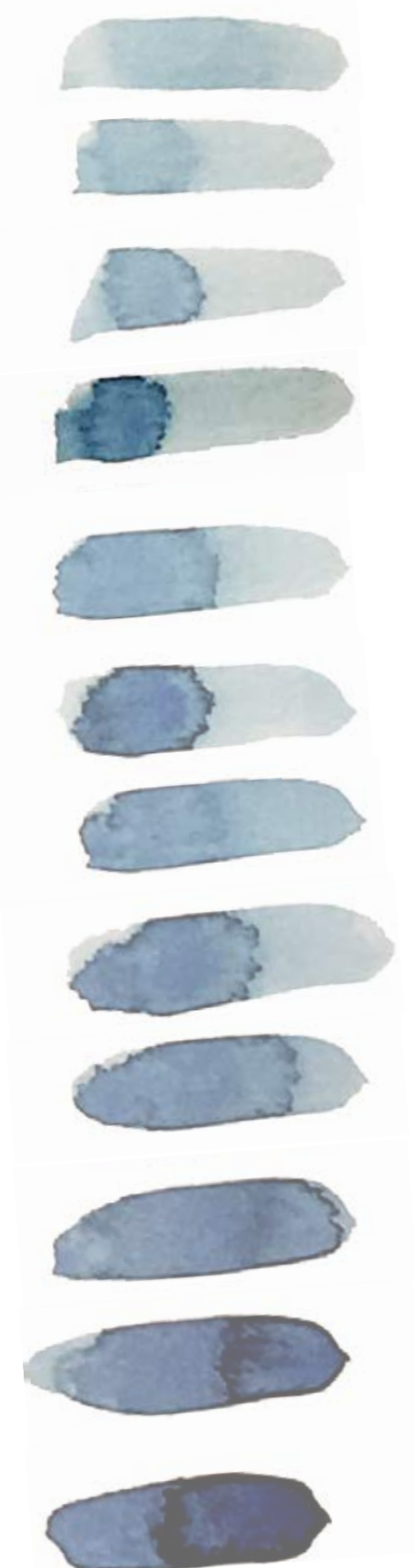
## LAUNDRY

Commercial washer and dryer and storage for clean towels and robes.

Group B Occupancy  
300 square feet  
Occupant Load: 3



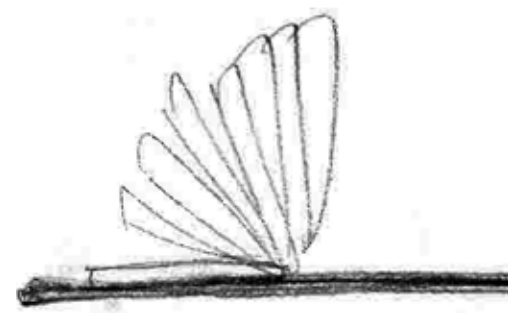
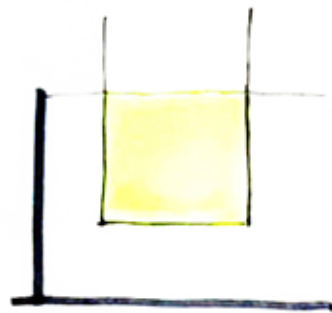
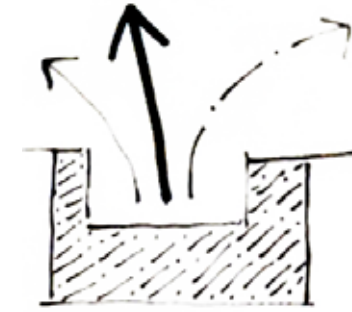
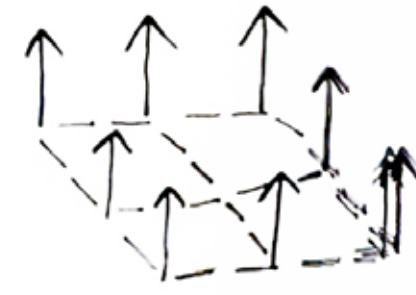
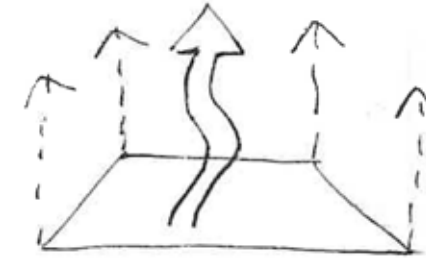
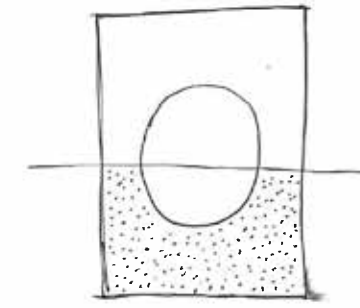
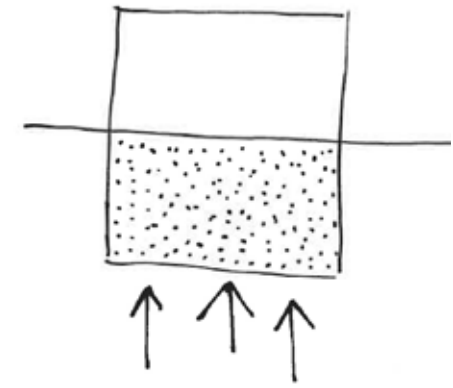
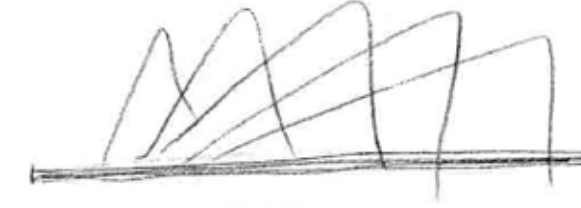
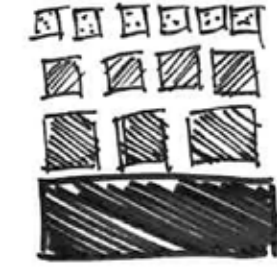
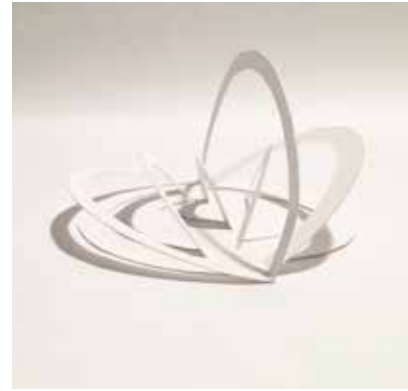
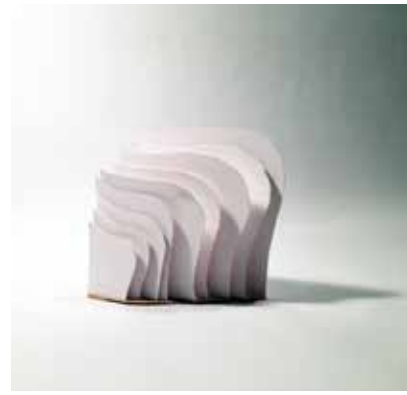
# CONCEPT





# BUOYANCY

These concept models and diagrams represent buoyancy, rising up, floating to surface, upward force, heavy to light and levitating.

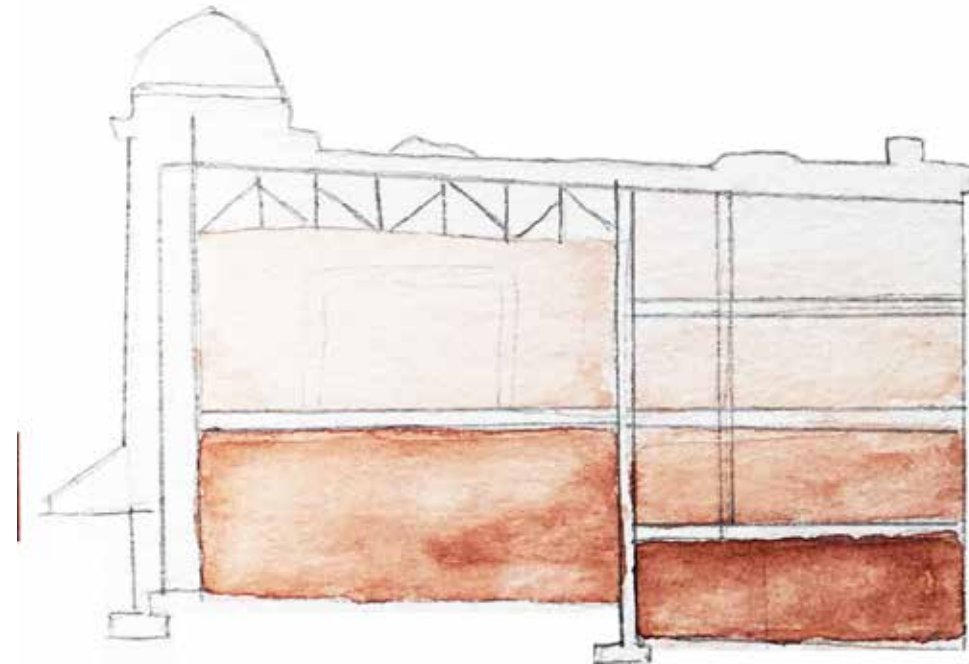
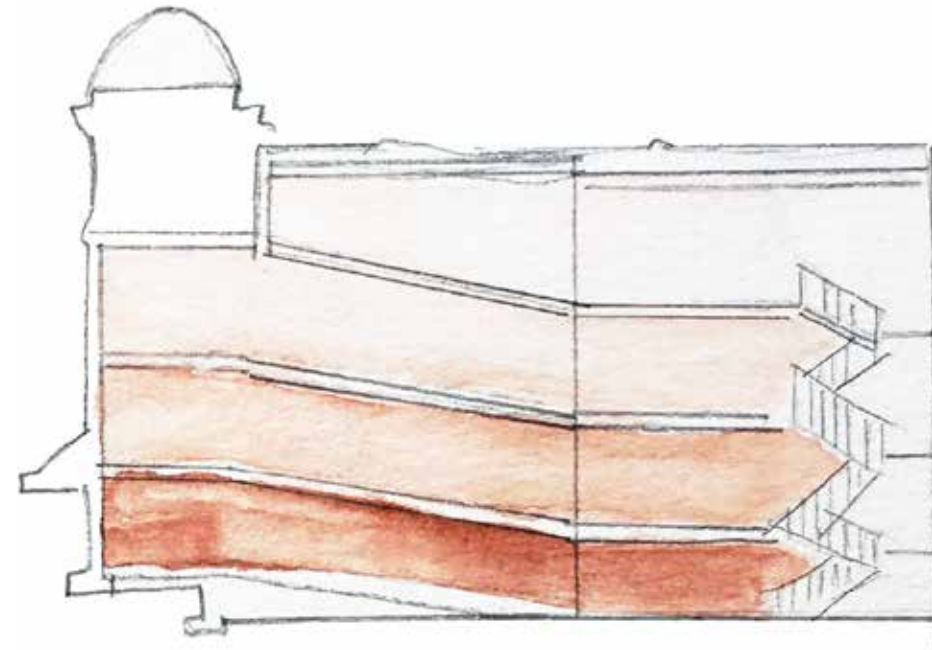


This project celebrates buoyancy.

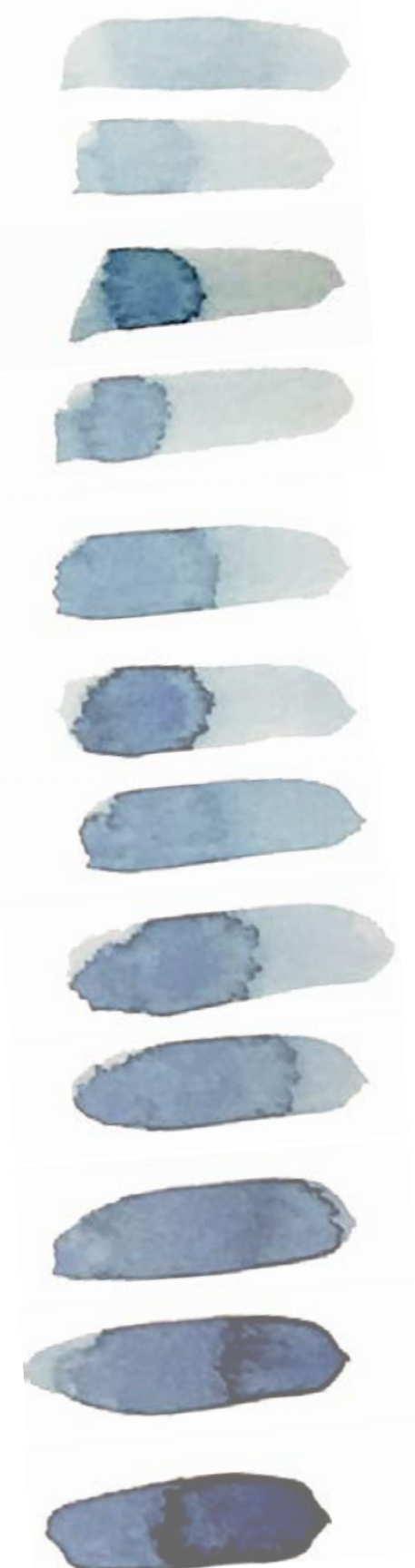
Buoyancy is the force that pushes something up through a medium. The building as a whole is a body of water, and the user is the object. The force, buoyancy, is pushing the user through the building.

As you enter the building, it will feel as if the you are deep under water and as you go higher in the building, it will feel like you are reaching the surface of the water.

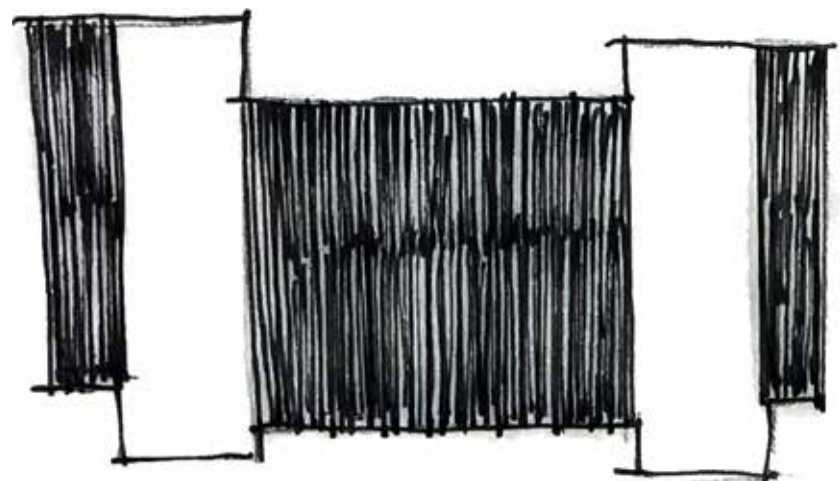
Imagine you are under water. When you reach the surface of the water you catch a breath of fresh air and you feel that sunlight hit your skin. That feeling of freeness and lightness relates well to the demographic I am studying. This demographic is free of stress and responsibilities that comes with work obligations and family.



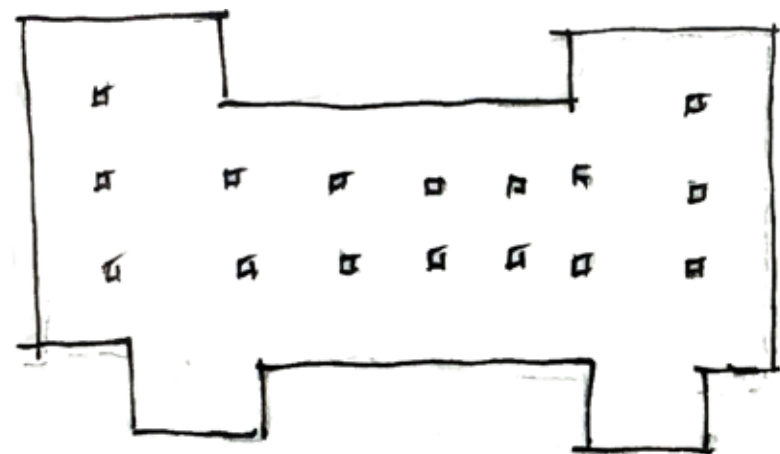
# SPACE PLANNING



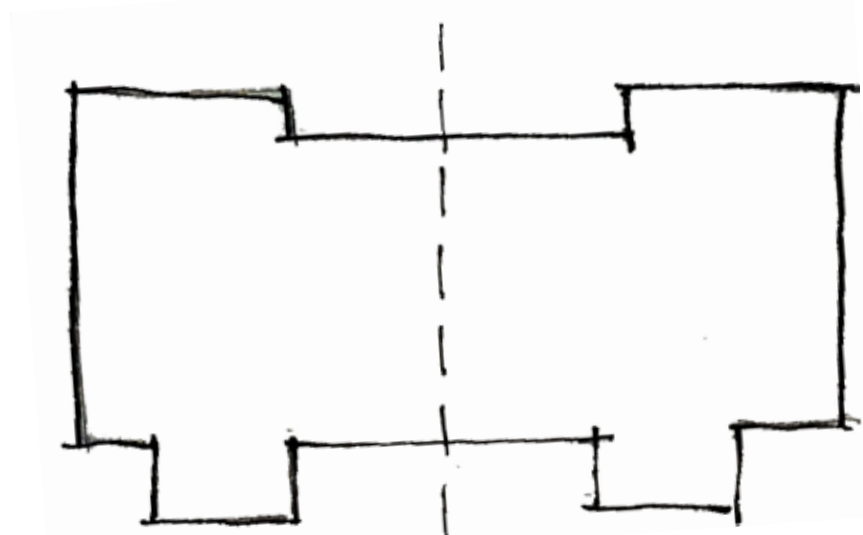
PARTI DIAGRAMS



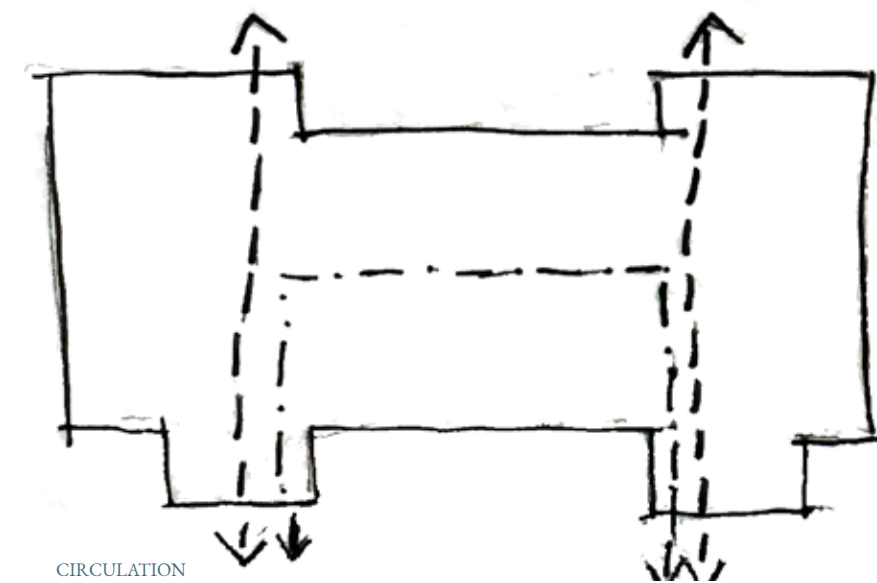
ENTRANCES



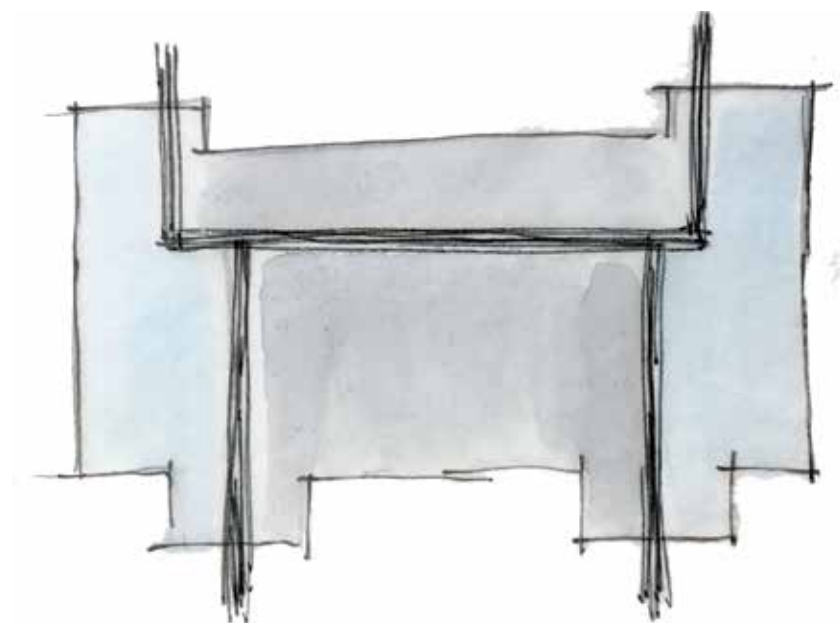
STRUCTURAL



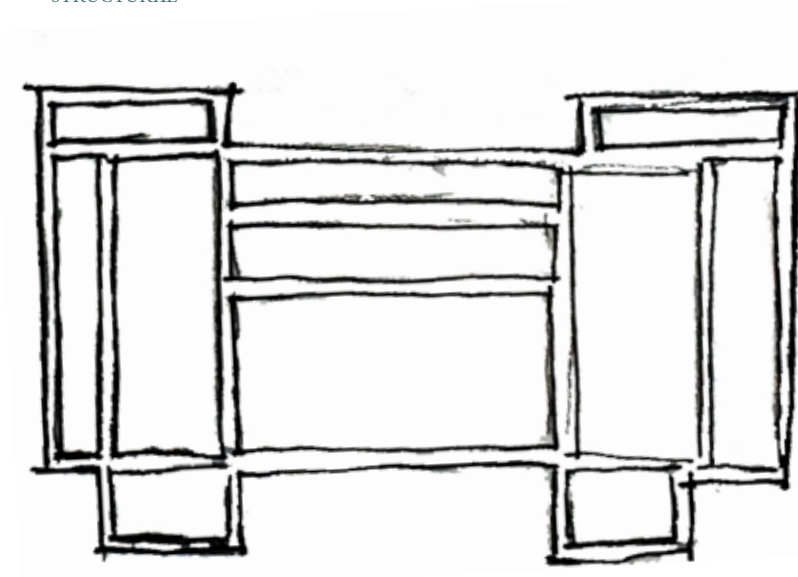
SYMMETRY & BALANCE



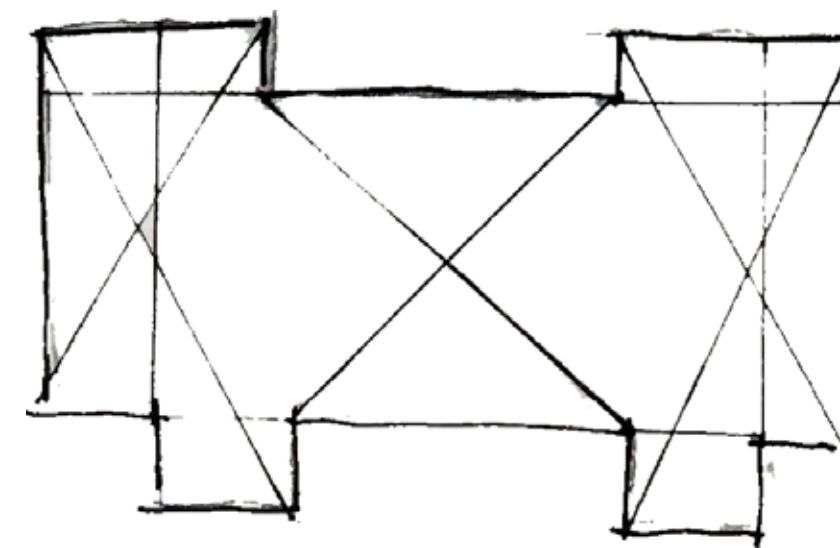
CIRCULATION



EGRESS

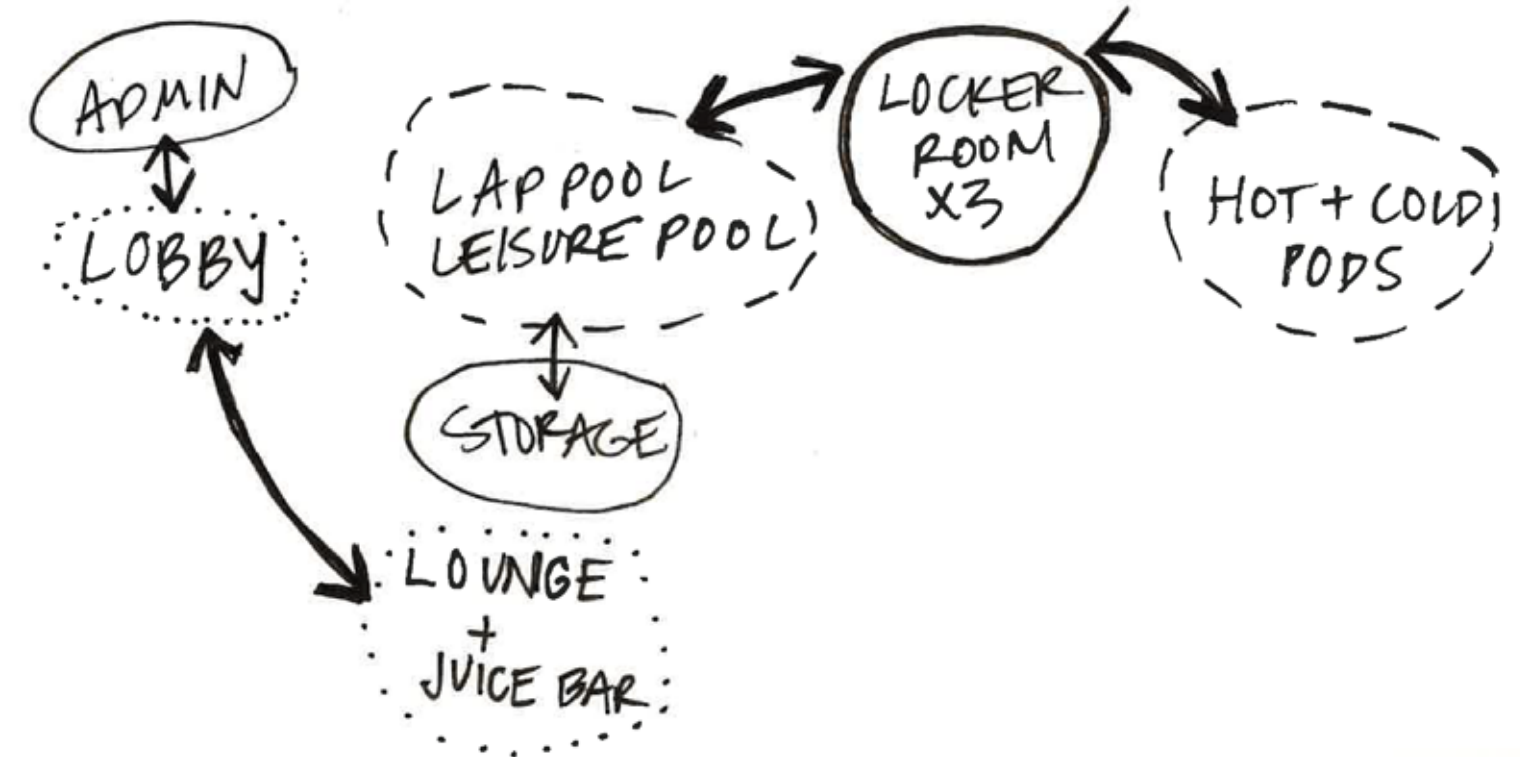
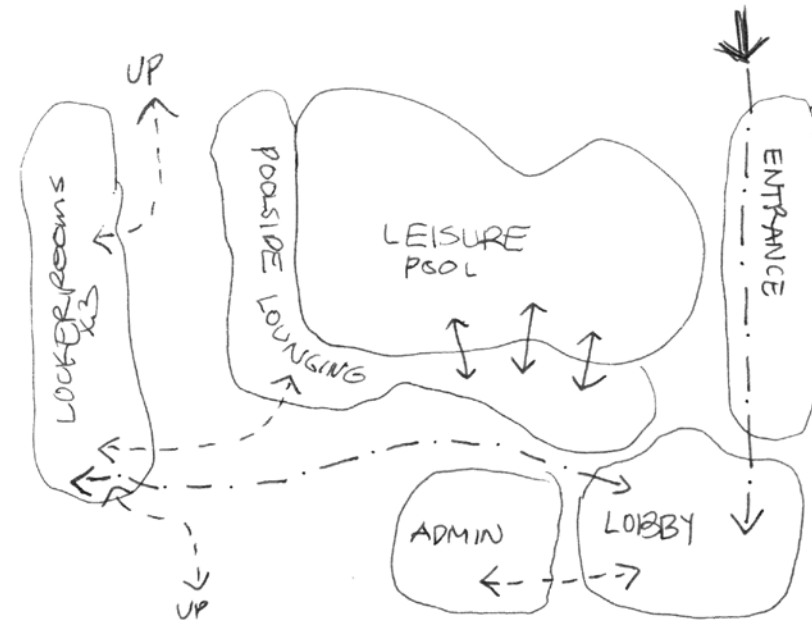
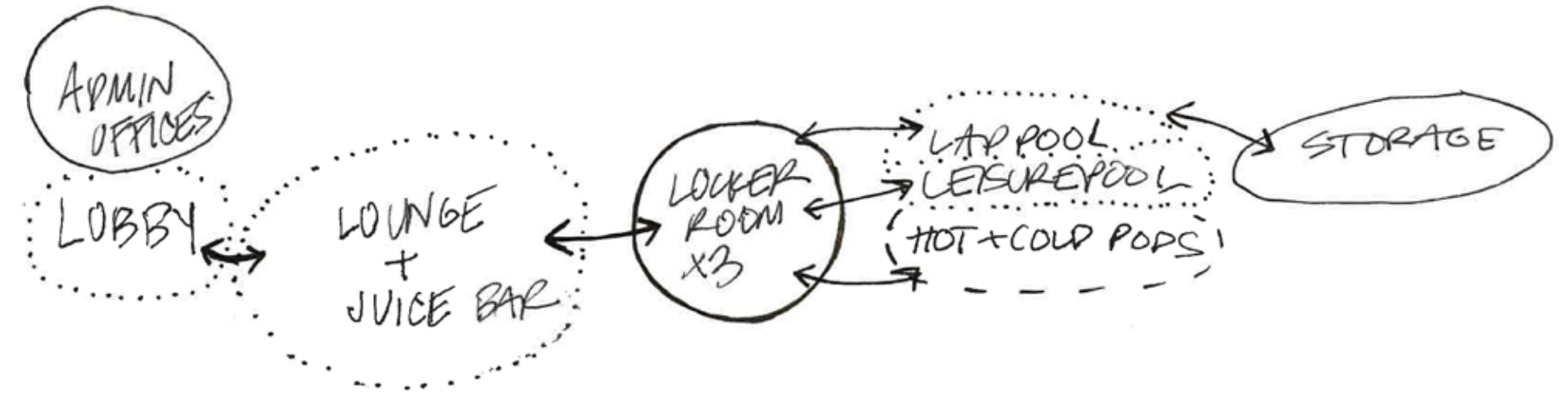
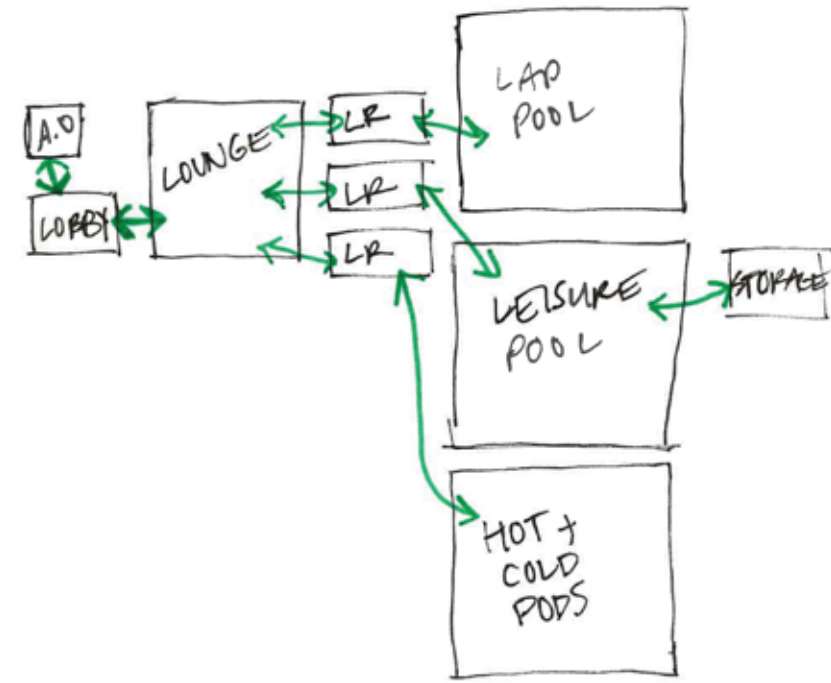


GEOMETRY

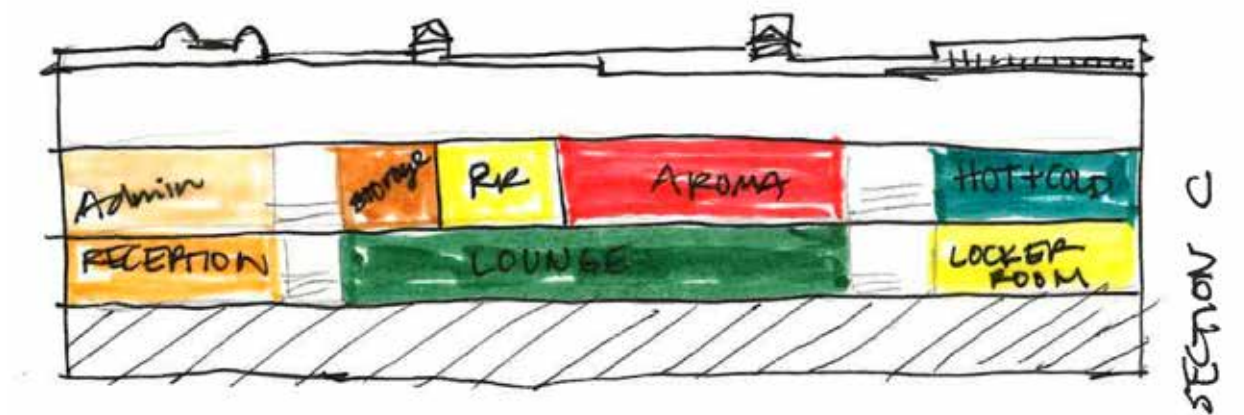
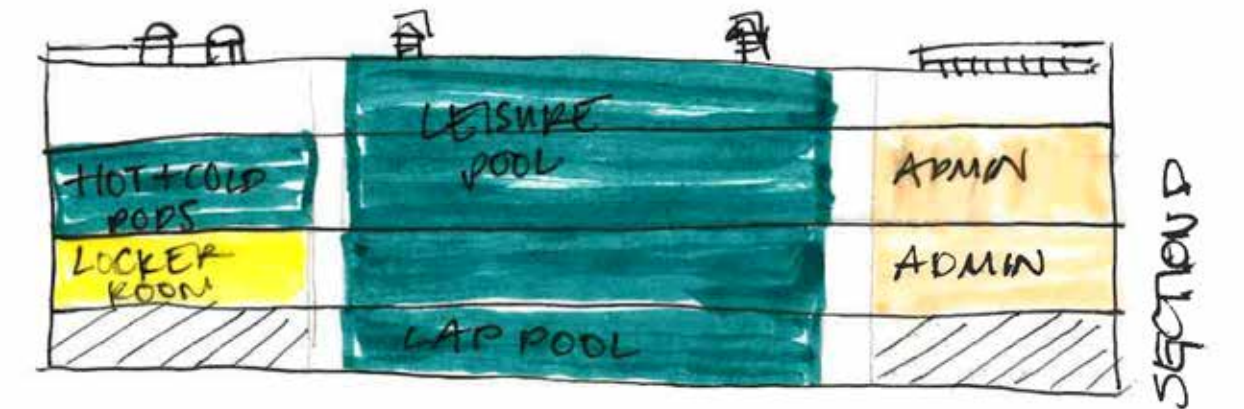
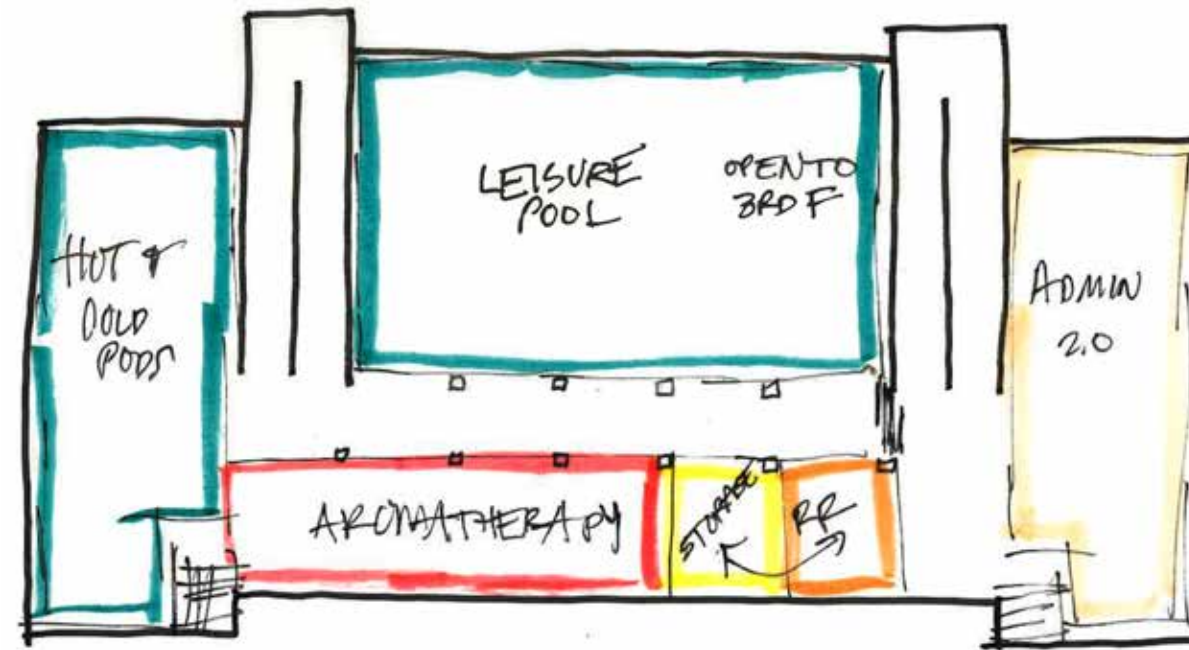
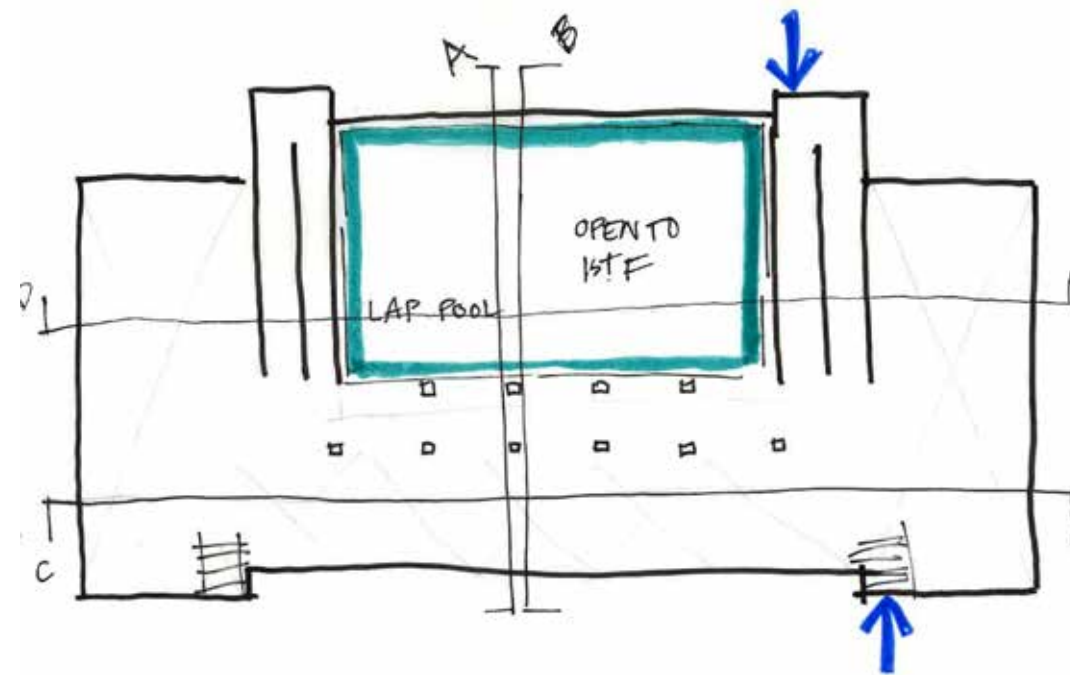
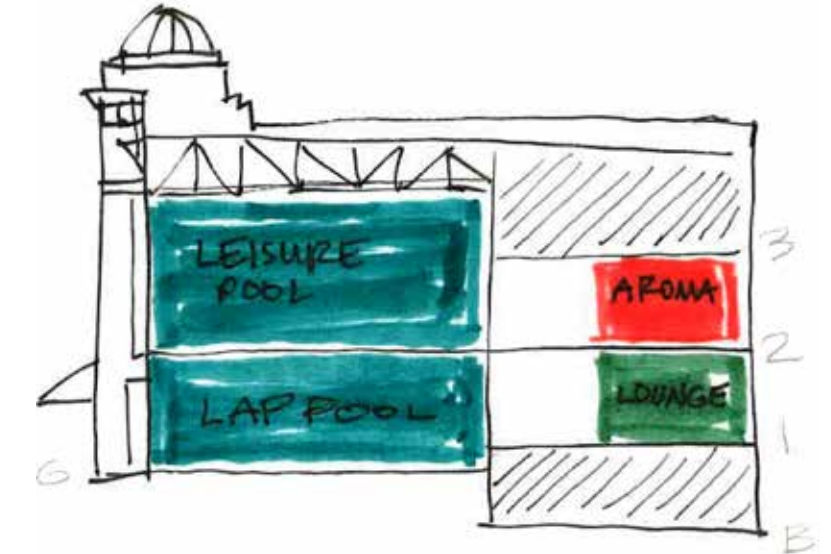
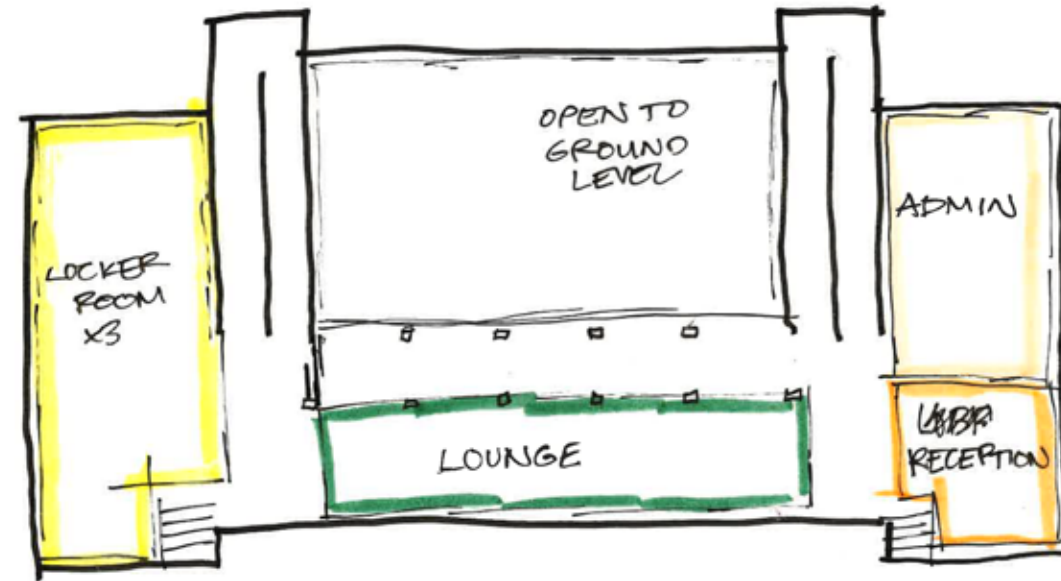


ANGLES

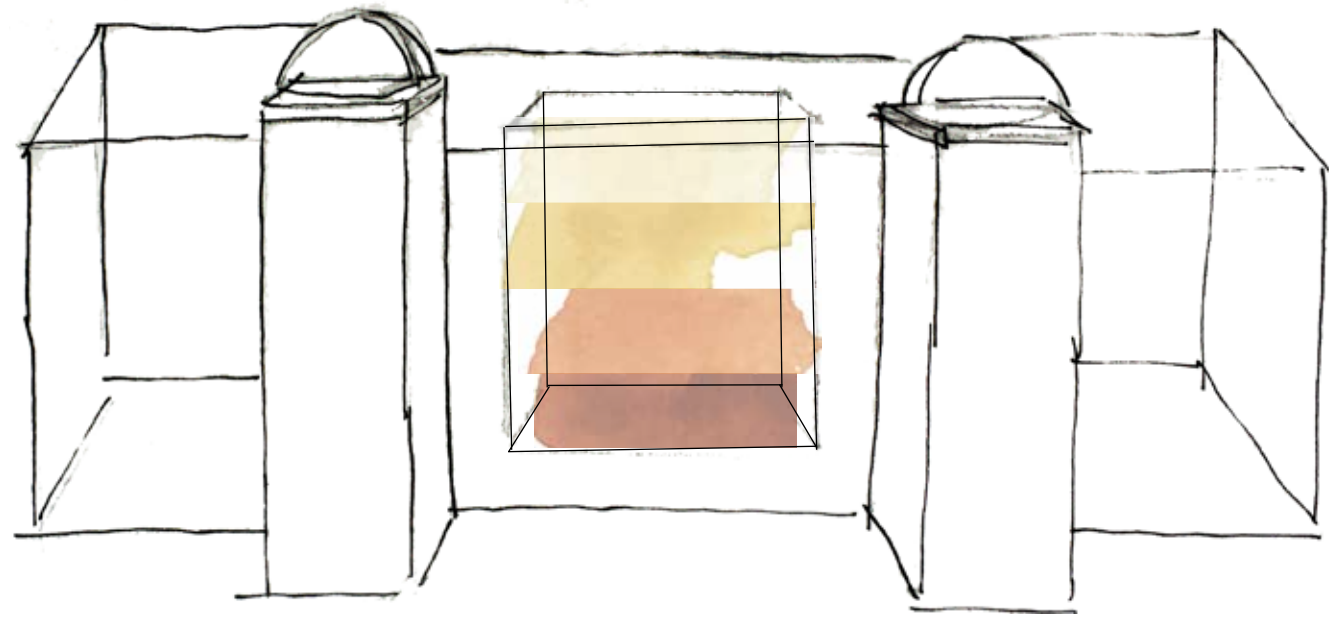
ADJACENCIES & BUBBLE DIAGRAMS



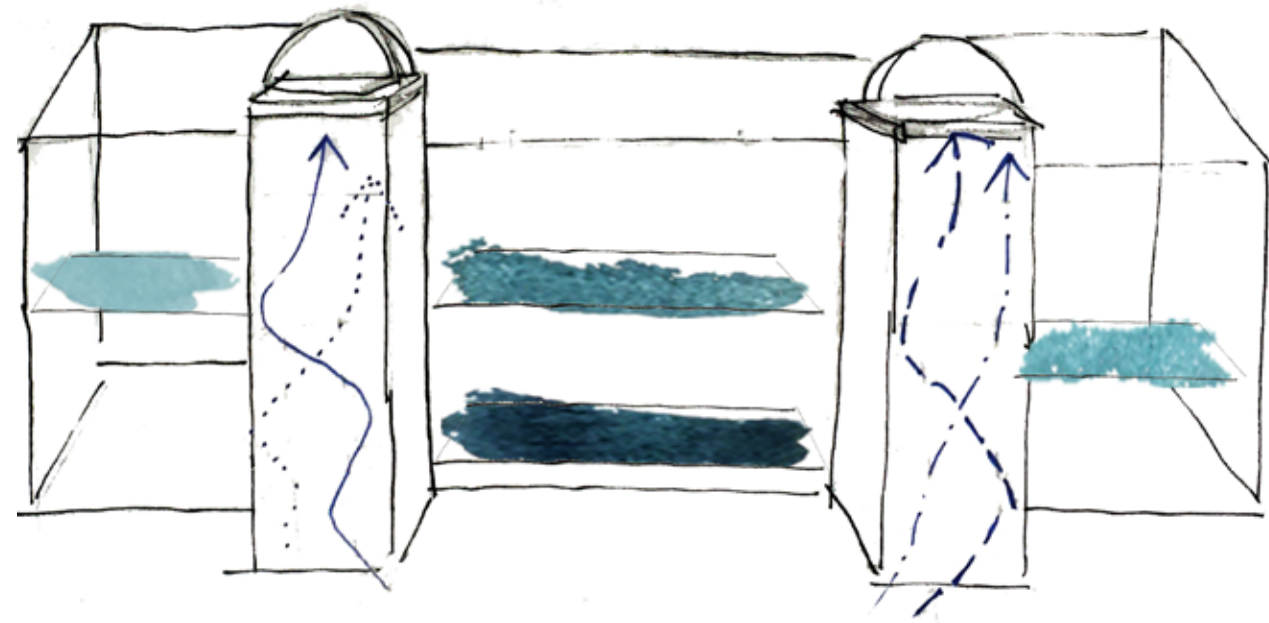
PLAN DIAGRAMS



SPACE PLANNING  
DIAGRAMS



LIGHT ENTERING THE BUILDING THROUGH THE ATRIUM

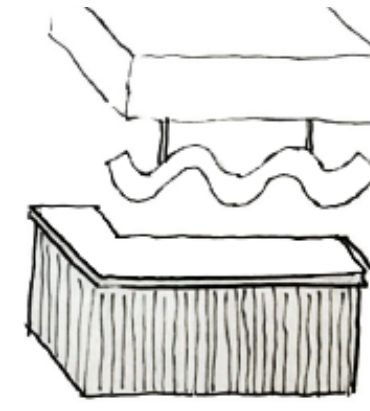


STACKING OF BODIES OF WATER

USER EXPERIENCE  
SKETCHES



RAMP ENTRANCE



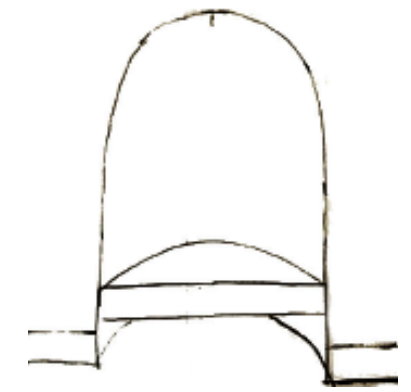
RECEPTION



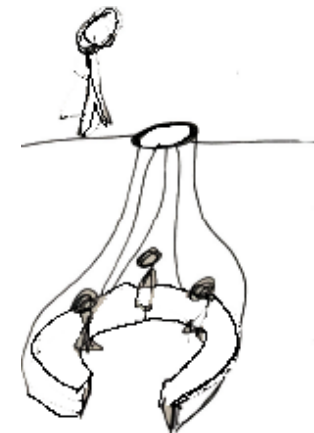
JUICE BAR SEATING



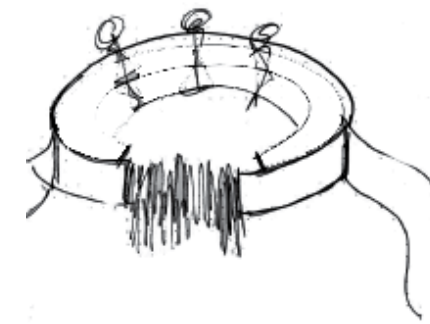
POOL CEILING UNDULATIONS



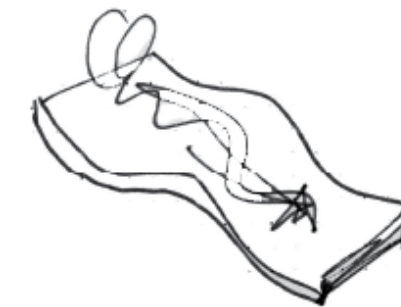
POOL LOUNGE NOOKS



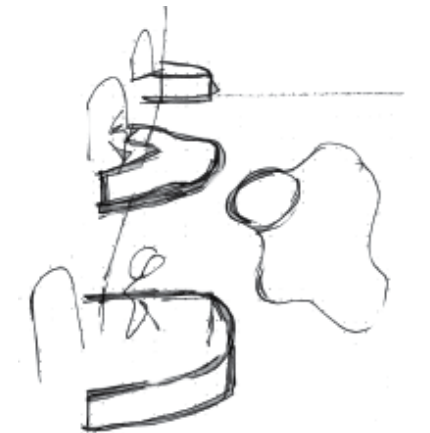
HOT + COLD + WARM BATHS



HOT + COLD + WARM BATHS



POOL LOUNGE CHAIRS

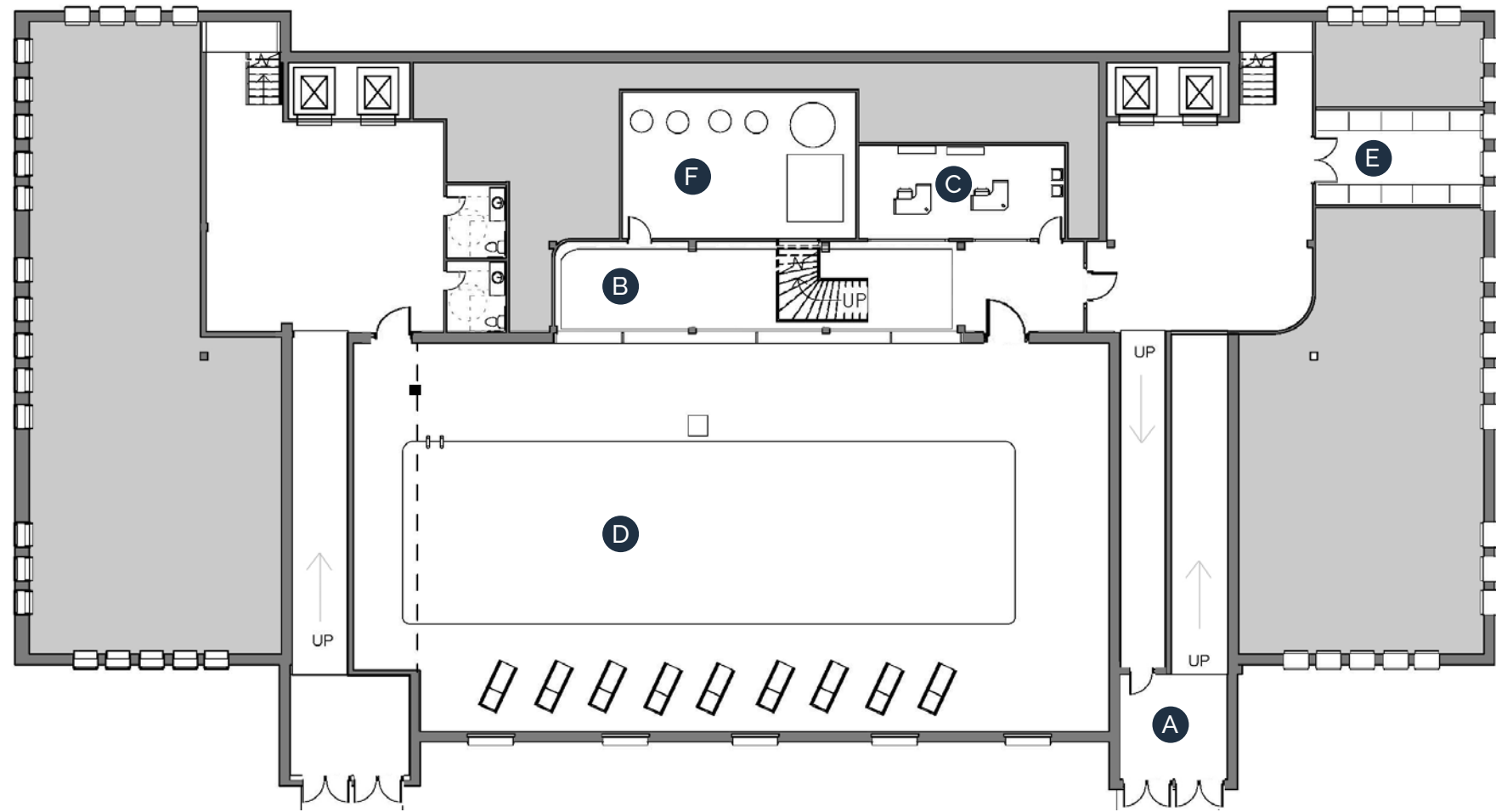


POOL BALCONY OVERLOOK

# DESIGN





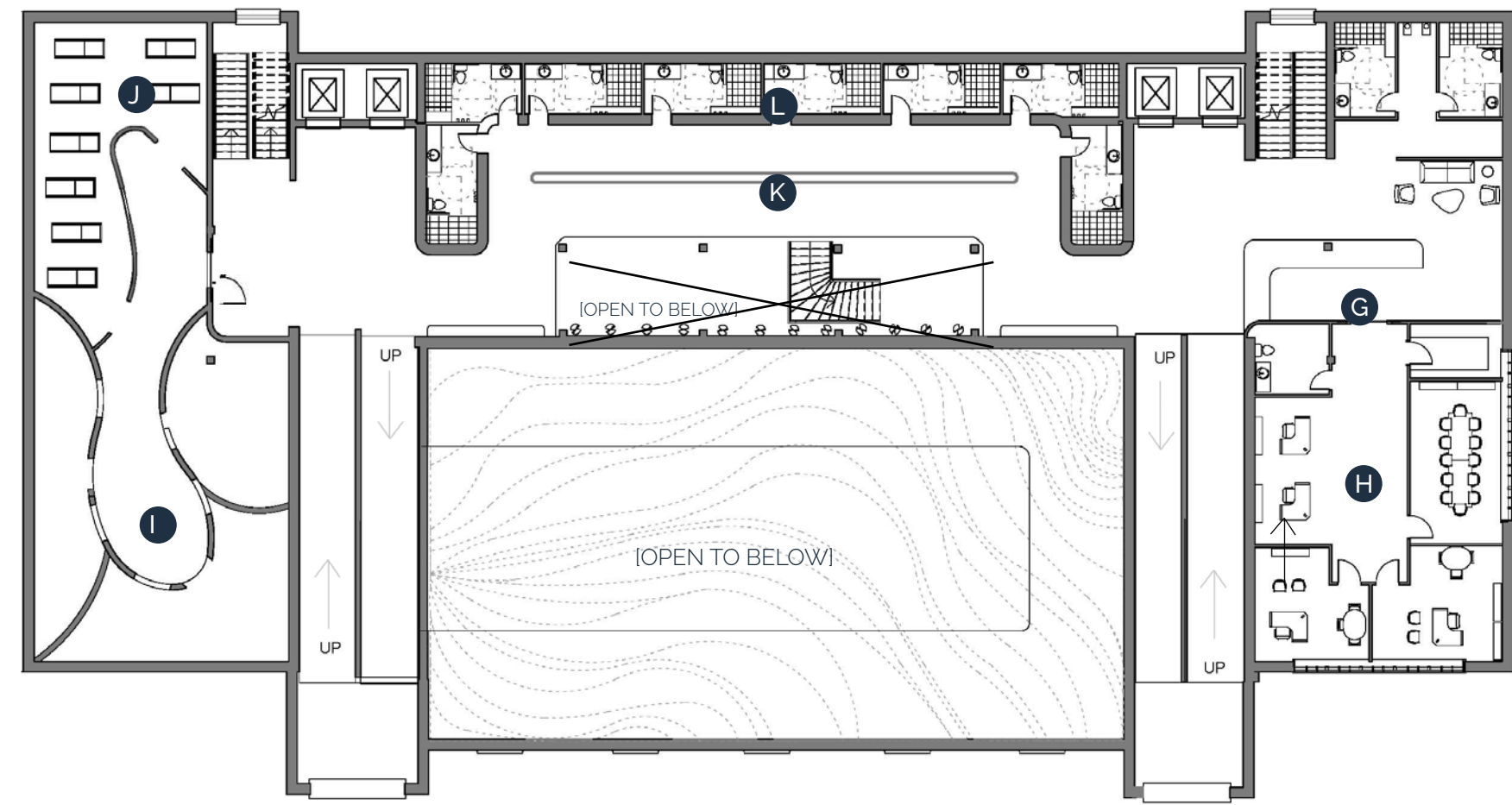


PLAN KEY

- A** Main Entrance
- B** Atrium
- C** Admin Offices
- D** Lap Pool
- E** Laundry
- F** Mechanical & Pump Room
- Out of Scope

0' 5' 10' 20'

BASEMENT LEVEL

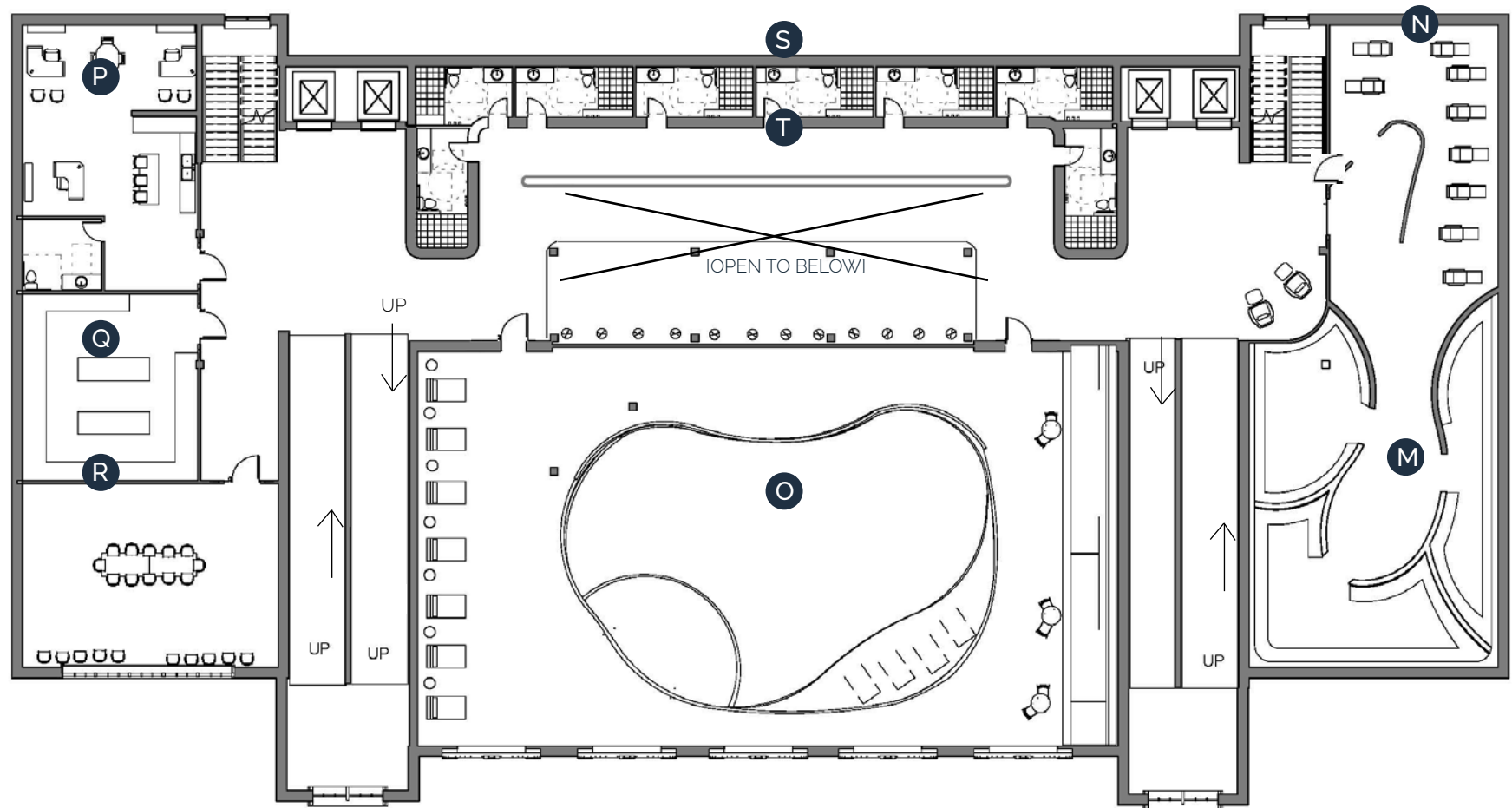


PLAN KEY

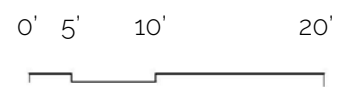
- G** Reception
- H** Admin Offices
- I** Baths
- J** Lounge Space
- K** Lockers
- L** Changing & Shower Rooms

0' 5' 10' 20'

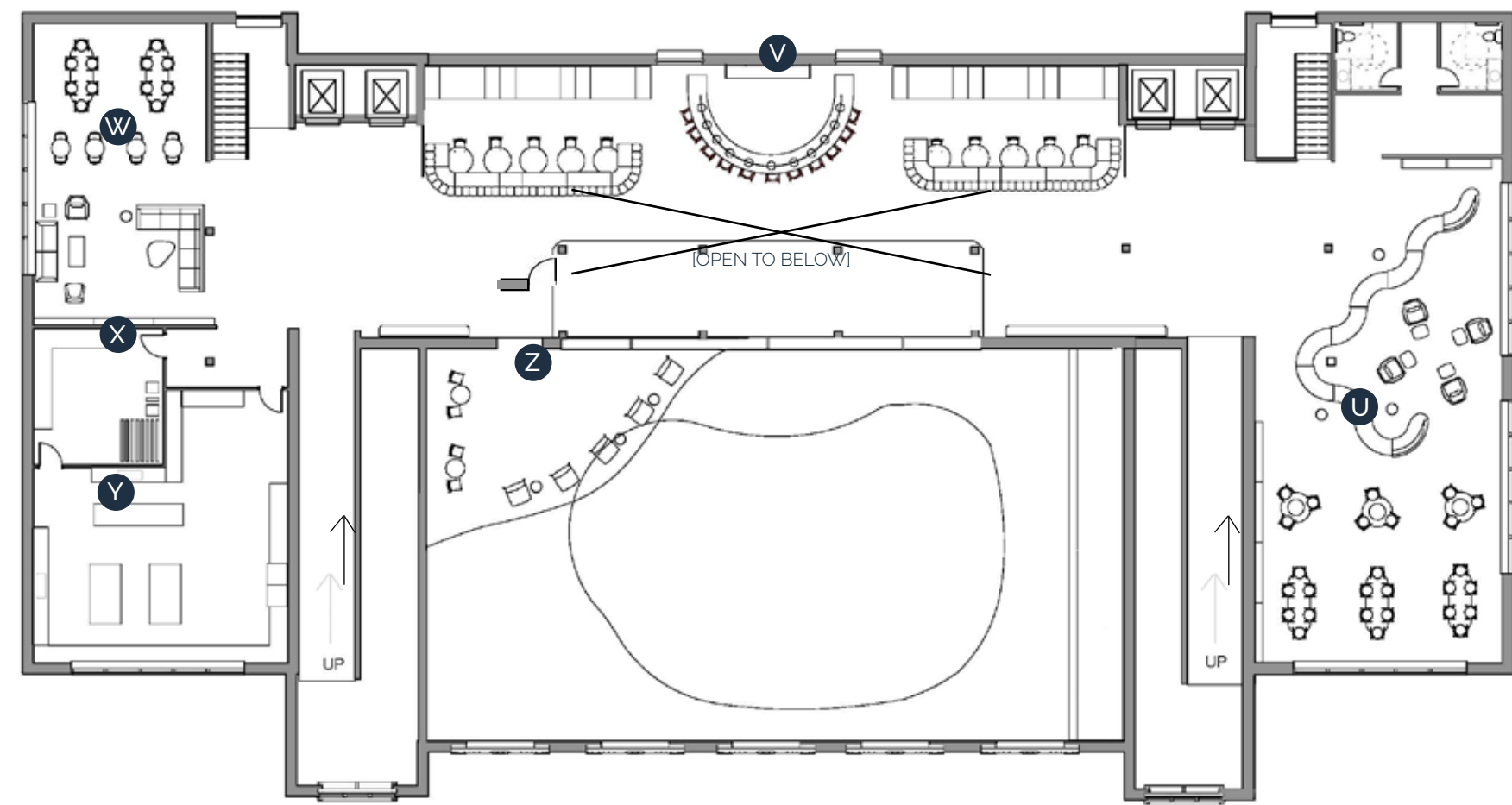
LEVEL 01



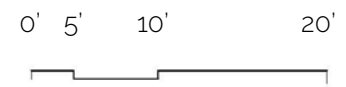
- PLAN KEY
- M** Aromatherapy Rooms
  - N** Lounge Space
  - O** Leisure Pool
  - P** Admin Offices
  - Q** Storage
  - R** Meeting Room
  - S** Changing & Shower Rooms
  - T** Lockers



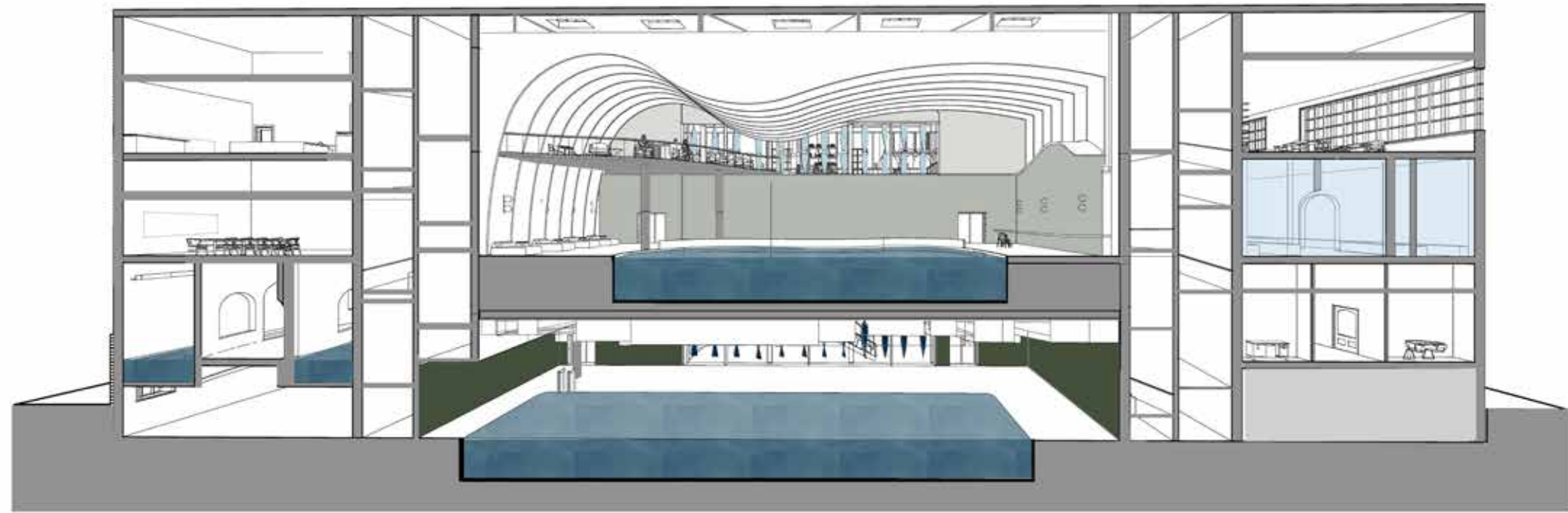
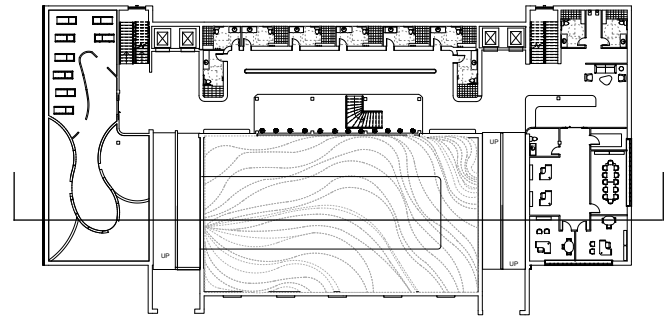
LEVEL 02



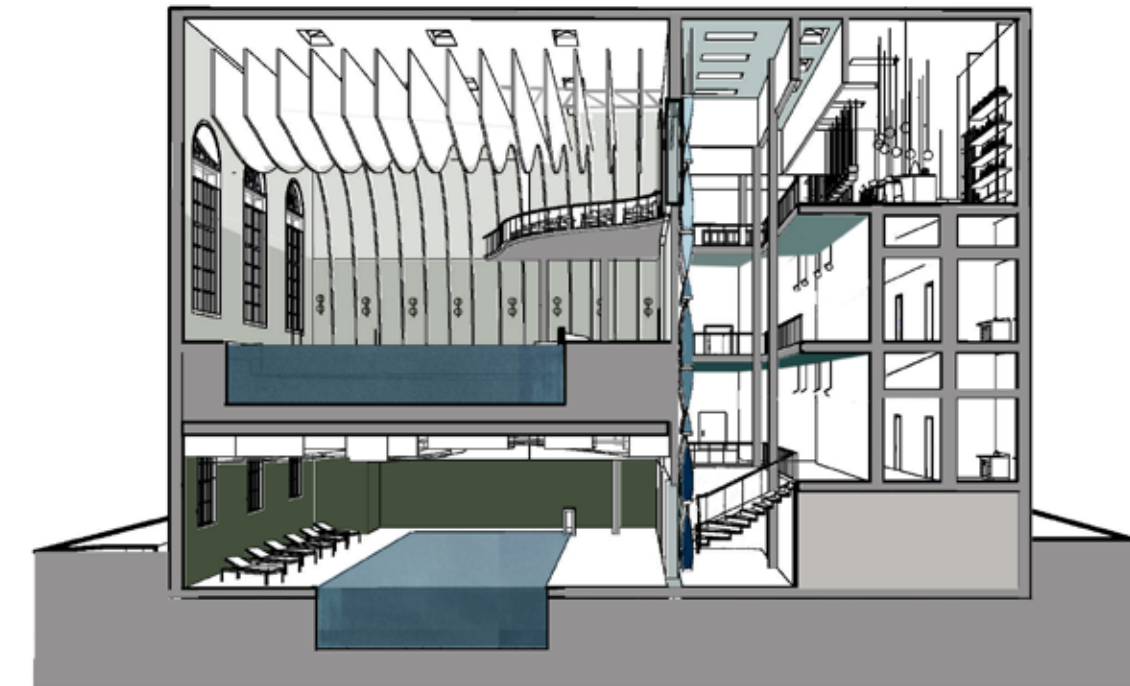
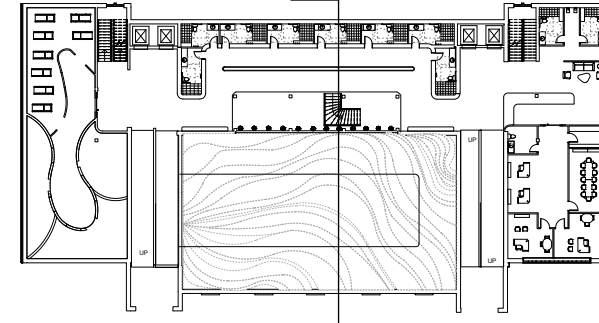
- PLAN KEY
- U** Lounge
  - V** Juice Bar
  - W** Event Space
  - X** Storage
  - Y** Commercial Kitchen
  - Z** Balcony



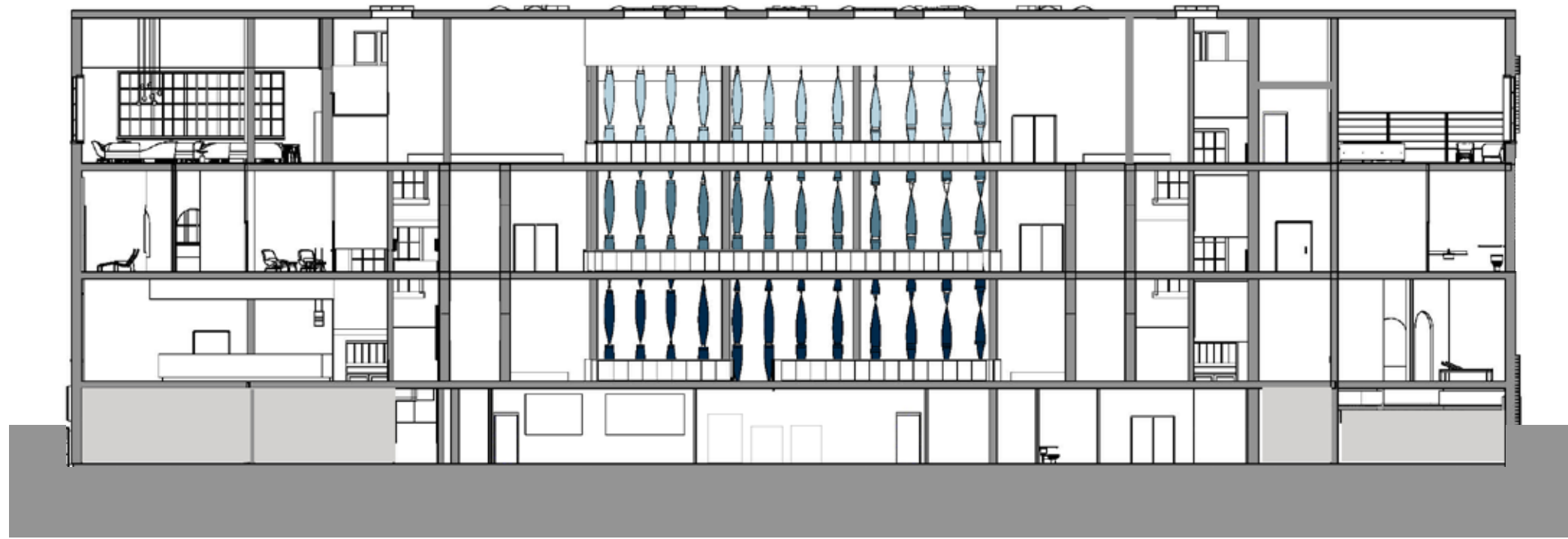
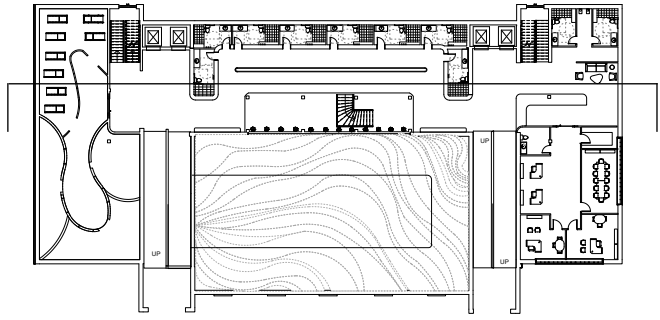
LEVEL 03



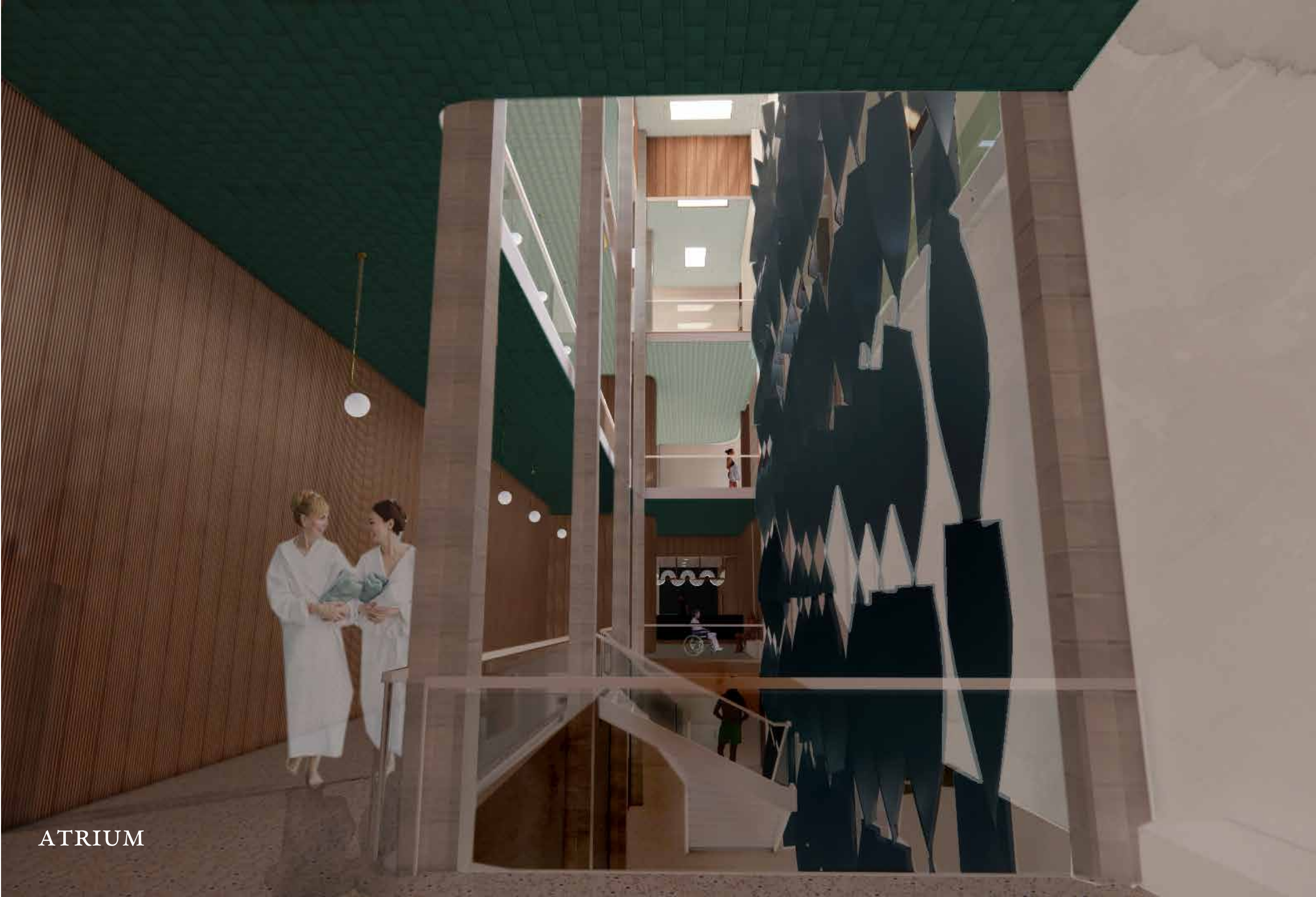
SECTION PERSPECTIVE  
NTS



SECTION PERSPECTIVE  
NTS

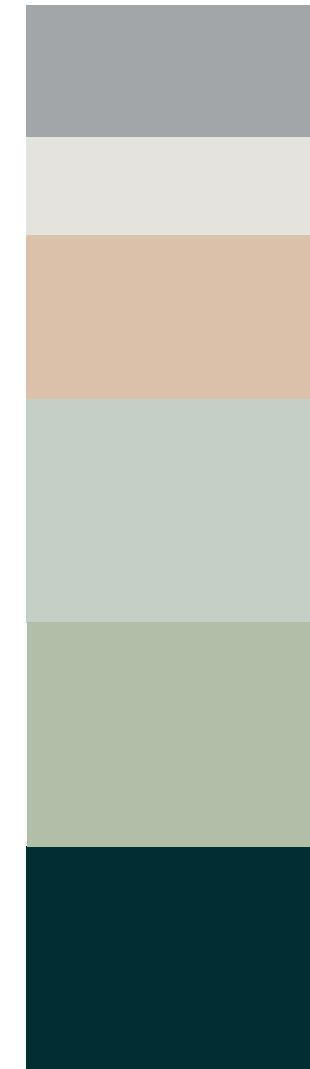


LONGITUDINAL SECTION  
NTS



ATRIUM

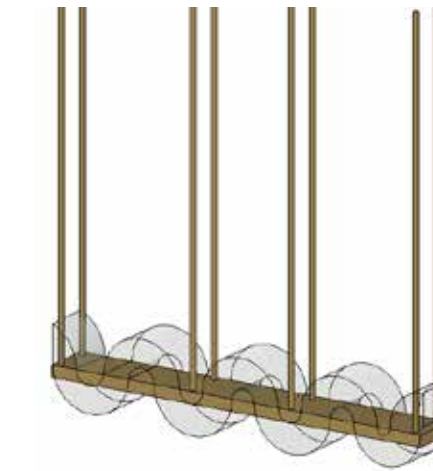
ATRIUM FF+E



3FORM



FLOS IC LIGHTS



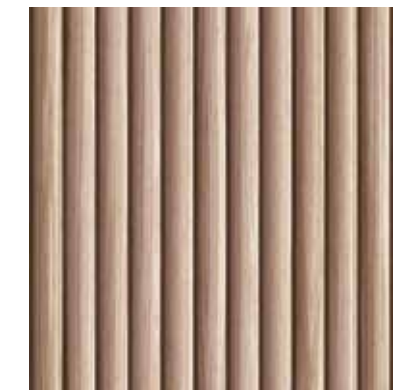
CUSTOM MADE LIGHTING



CONCRETE



TERRAZZO BY STUDIO GAMEIRO



CEDAR/IPE WOOD PANELING OR FAUX WOOD PANELING



FIRECLAY TILE



FIRECLAY TILE



FIRECLAY TILE

LAP POOL FF+E



BK14 SUNBED BY CARL HANSEN



DALTILE



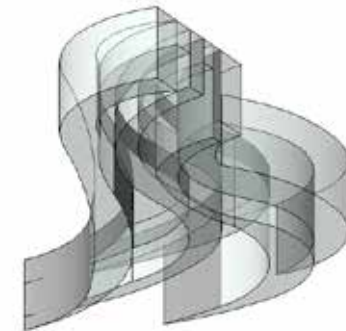
PORCELAIN TILE BY TILEBAR



CUSTOM LIGHT BY  
FAGERHULT



LINEACURVE LED WALL  
LIGHT BY PENTAIR



3FORM SHAPES SAILS



MERIDIAN SERIES  
LADDER BY S.R. SMITH



LAP POOL



HOT + COLD + WARM BATHS

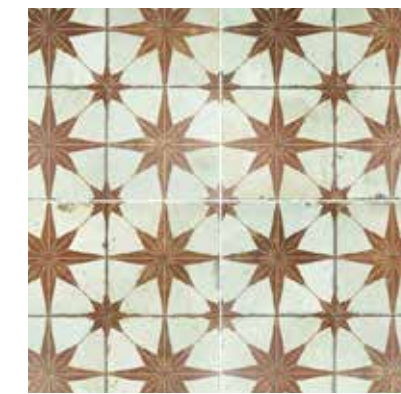
BATHS FF+E



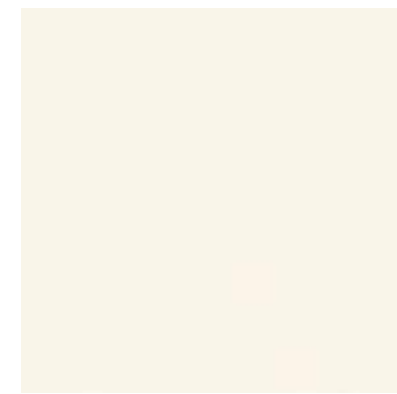
SOMMER ADJUSTABLE CHAISE

THIN-LED WALL BAR BY LED PROS

POOL RAILING BY S.R. SMITH



ROYALTY GELATIC



INTERNI BY CERAMICA VOGUE

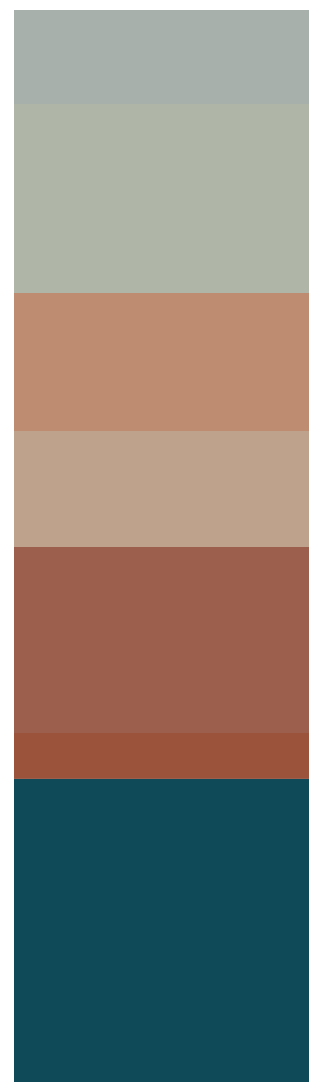


BRICK TILE



DALTILE

LEISURE POOL FF+E



BRIXX BY DEDON



THIN-LED WALL BAR BY LED PROS



DOUBLE SCONCE



POOL RAILING BY S.R. SMITH



COLORFADE SIDE TABLE



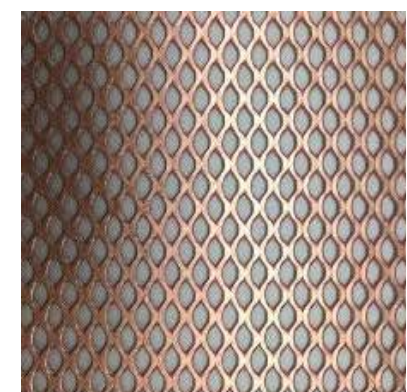
PORCELAIN TILE



CUSTOM TILE



FIRECLAY TILE



KINETIC NOISE CONTROL



FIRECLAY TILE



LEISURE POOL





BALCONY

BALCONY FF+E



HOT MESH CAFE TABLE BY BLUDOT



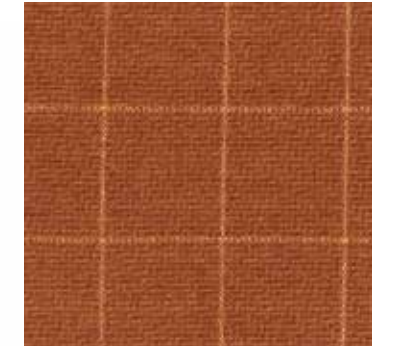
EMU HEAVEN SEATING



EMU TERRAMARE BY COALESSE



KINETIC NOISE CONTROL



SUNBRELLA



FIRECLAY TILE

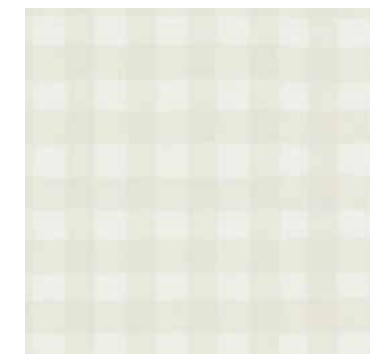
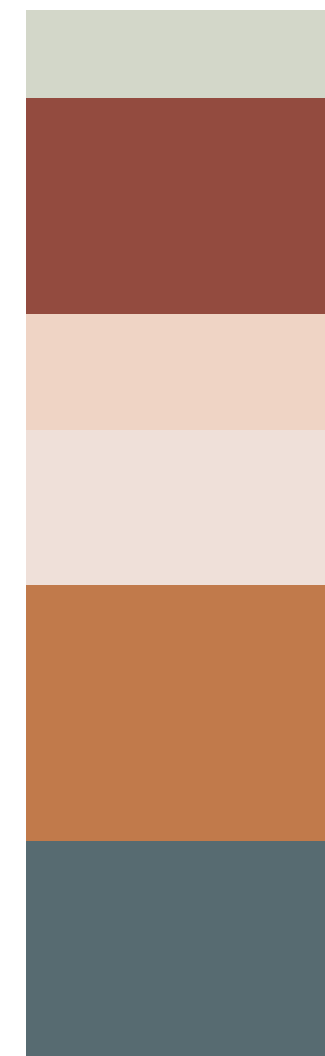


PORCELAIN TILE



JUICE BAR + LOUNGE

JUICE BAR +  
LOUNGE FF+E



PIERRE FREY



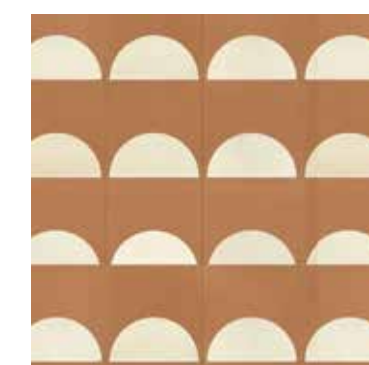
TERRAZO



ACOUSTICAL BAFFLE BY  
ARKTURA



CERAMIC FIELD TILE



CONCRETE  
COLLABORATIVE

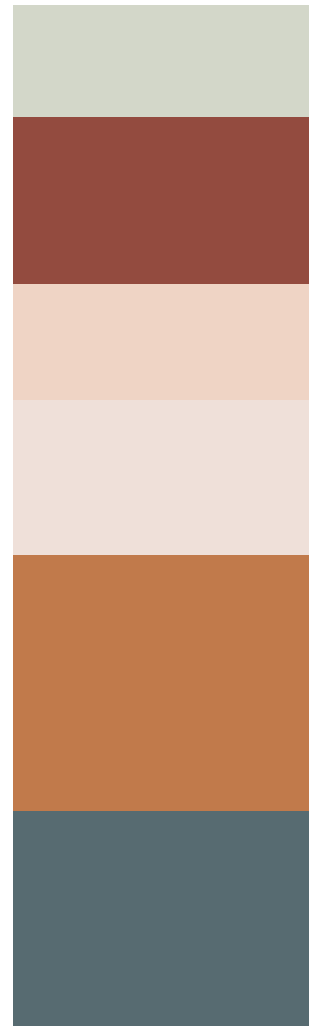


CONCRETE  
COLLABORATIVE



CANNETO BY INKIOSTRO  
BIANCO

JUICE BAR +  
LOUNGE FF+E



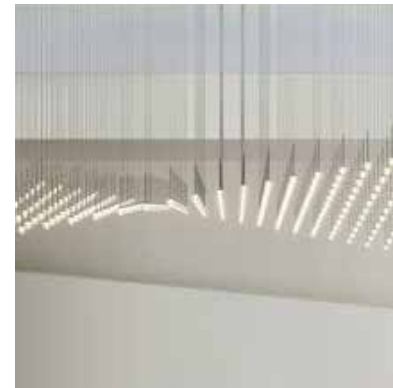
THONET VIENNA LOUNGE CHAIR



EMU HEAVEN TABLE



HEYWARD SECTIONAL BY WEST  
ELM WORK COLLECTION



HALO PENDANT LIGHTS



ELBOW STOOL BY HANS WEGNER



PEBBLE OTTOMAN



PUFF PUFF BY BLUDOT



APRIL TABLE



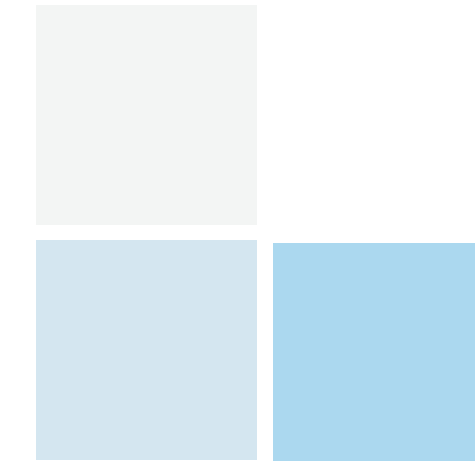
CUSTOM BAR & LIGHT

DETAIL: ATRIUM

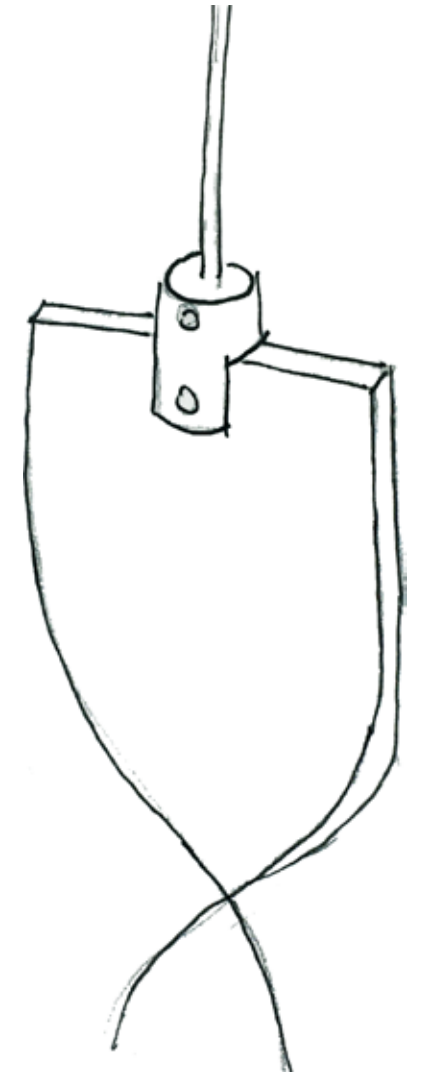
BASEMENT FLOOR TO  
LEVEL 03



3FORM SUSPENDED TWIST



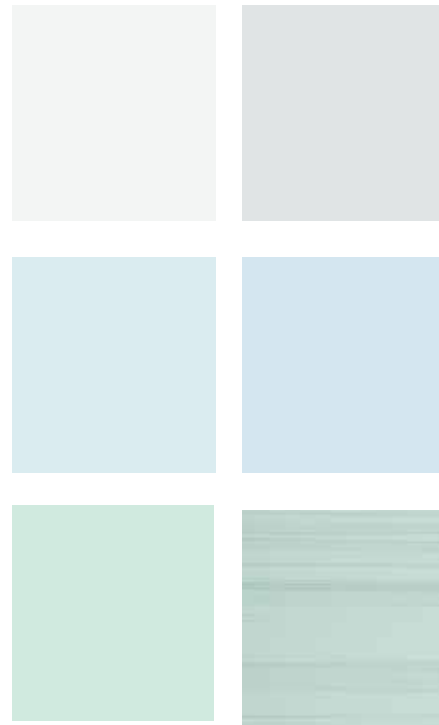
VARIA IN NEBULOUS, POND  
AND CLOUDLESS



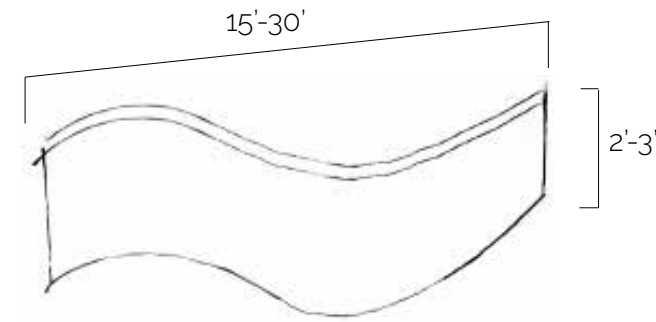
CEILING ATTACHMENT

DETAIL: LAP POOL  
CEILING

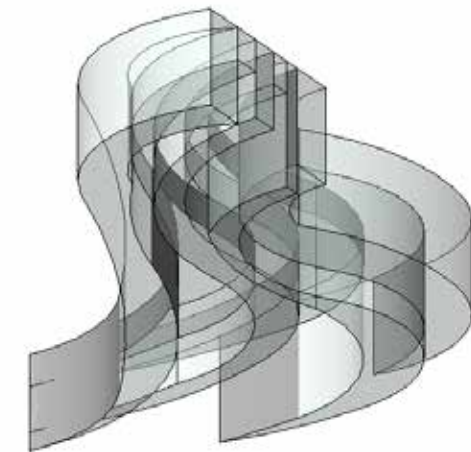
BASEMENT FLOOR



VARIA IN BUOYANT, OVERCAST,  
NEBULOUS, ASH, MIRAGE ICED  
MINT AND TIDE



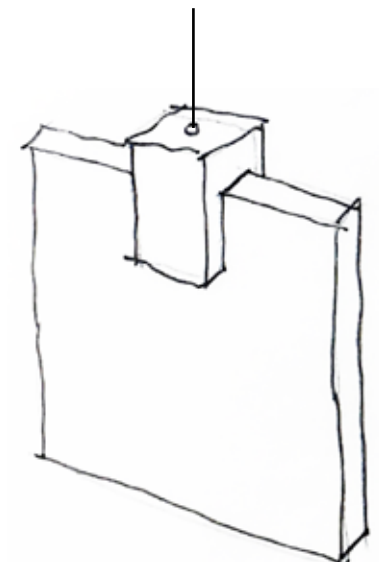
MEMTECH ACOUSTICAL WHISPERWAVE  
RIBBON BAFFLES  
3FORM SHAPE SAILES



MEMTECH ACOUSTICAL WHISPERWAVE  
RIBBON BAFFLES + 3FORM SHAPE SAILES



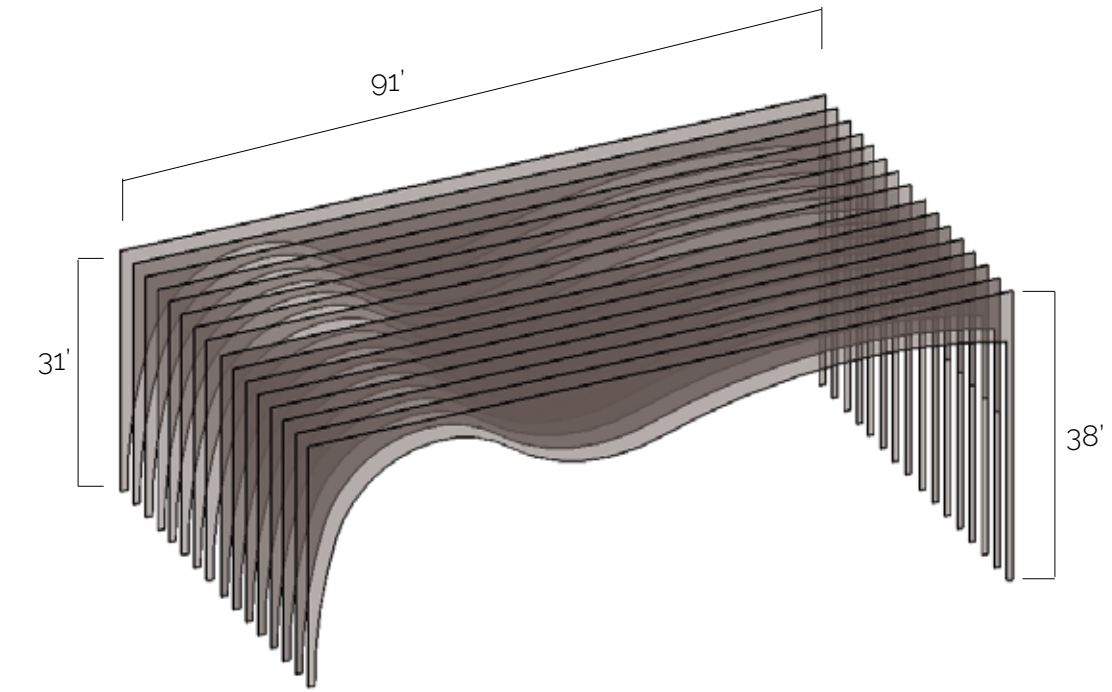
CEILING ATTACHMENT FOR  
MEMTECH ACOUSTICAL  
WHISPERWAVE RIBBON BAFFLES



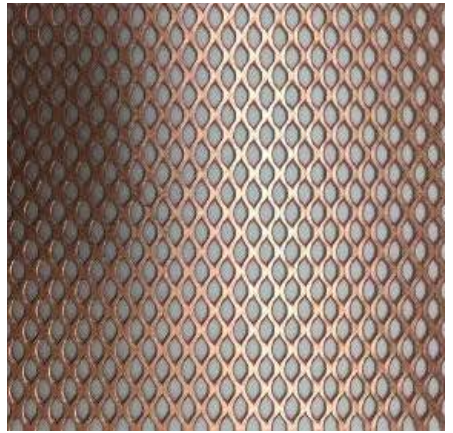
CEILING ATTACHMENT FOR 3FORM

DETAIL: LEISURE  
POOL CEILING

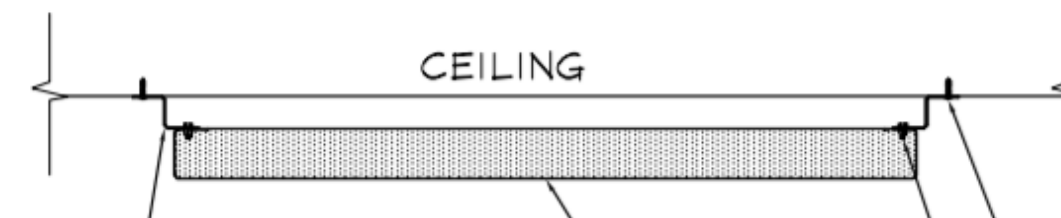
LEVEL 02-03



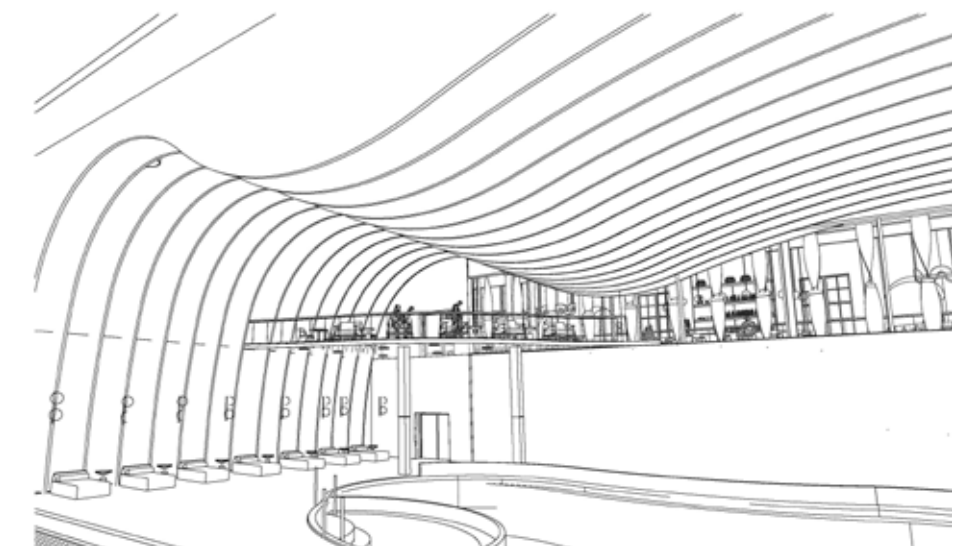
KINETICS NOISE CONTROL  
PERFORATED METAL ACOUSTICAL PANELS



ALUMINUM, POWDER COATED



CEILING ATTACHMENT



# ENTER INTO A LIFE OF LEISURE BY TAKING THE WATER

This project celebrates and makes space for a demographic that is entering a life of leisure and are lucky to have good health.

The amenities available in this space encourage this demographic to stay integrated in their community, sustain their social life, and keep their minds and bodies active.



SWIMMING POOL, ANNA VAIVARE, 2015

# ACKNOWLEDGMENTS

Much gratitude to the following people.

My friends & classmates:

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Houria Boumzairig

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Yen-fu Ho  
Chrystina Ho  
Derek Ho  
Nicolas Saavedra  
Matthew Moor

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Roberto Ventura  
Sara Reed  
Christiana Lafazani  
Emily Smith  
Robert Smith  
Camden Whitehead

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Faithea Foster, Association Director of Aging Well, YMCA of Greater Richmond  
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John Gallagher, Aquatics Senior Program Director, Midlothian Family YMCA  
Robert Britt, Aquatics Senior Program Director, Swift Creek Family YMCA  
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Missi Boyer, Director of Nutrition and Wellness, Senior Connections  
Ginger Thompson, Associate State Director/Communications, AARP Virginia



SWIMMING POOL GIRL, CORN SHUK MEI HO, 2017



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