

## ABSTRACT

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URBAN LANDSCAPE

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Directed By: Julie Ju-Youn Kim, RA  
Lecturer  
School of Architecture, Planning and Preservation

The visual sense has been given predominance in many parts of experience in the Western culture. The commodity of visual images has resulted in architecture being critiqued primarily in the form of printed and digital media, designed with only one sense in mind. However, architecture is inescapably sensual by nature and building cannot be reduced as objects to depict abstract architectural ideas.

The intent of this thesis explores the sensual experiences of space through a series of choreographed moments. The qualitative aspects of light, sound, materiality, and water are studied and cued within these moments to enrich our bodily dialogue with space. This sequence will occur in Downtown Silver Spring, MD where a proposed civic park and spa will induce a multi-sensorial experience while integrating architecture to its urban landscape.

A SENSUAL RETREAT FROM AN URBAN LANDSCAPE

By

Jason Cheung

Thesis submitted to the Faculty of the Graduate School of the  
University of Maryland, College Park, in partial fulfillment  
of the requirements for the degree of  
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2009

Advisory Committee:

Lecturer Julie Ju-Youn Kim, RA, Chair

Professor of the Practice Peter Noonan, AIA, LEED AP

Associate Professor Brian Kelly, AIA

Professor Jack Sullivan, FASLA, Advisor

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## Dedication

To my family and friends, this would not have been possible  
without your support.

## Acknowledgements

For all your knowledge and guidance

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Peter Noonan  
Brian Kelly  
Jack Sullivan

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My fellow thesis classmates of '09

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*“The hands want to see, the eyes want to caress”*

*J.W. von Goethe<sup>1</sup>*

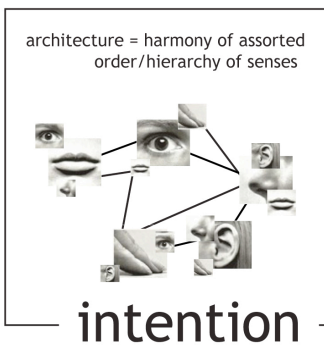
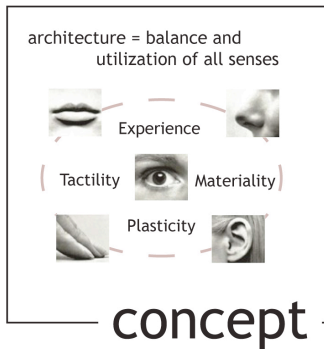
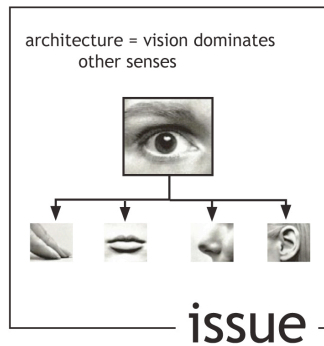


Figure 1. Initial Framework for Thesis

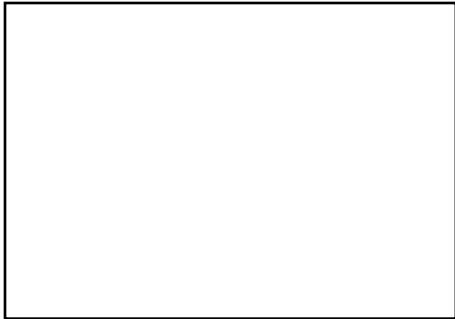
## Introduction

This thesis aspires to investigate human senses and multi-sensory aspects of design. While the practice of architecture appears to be inextricably linked to the visual in the design process, the remaining human abilities for sensing her/his environment present the designer with a variety of experiences to choreograph. The project will also explore the qualities of light and materiality as major elements that connect our bodies with space.

This thesis will question how one can become fully aware of the multiple dimensions of sensory experience of architecture. Consequently, the thesis will propose a study of architecture that embraces principles to generate gratifying sensual experiences at multiple levels.

*“Instead of experiencing our being in the world, we behold it from outside as spectators of images projected on the surface of the retina.”*

*Juhani Pallasmaa<sup>2</sup>*



**Figure 2:** view of WGBH Headquarters from highway, Polshek Partnership, Boston, Massachusetts



**Figure 3:** view of WGBH Headquarters of screen, Polshek Partnership, Boston, Massachusetts

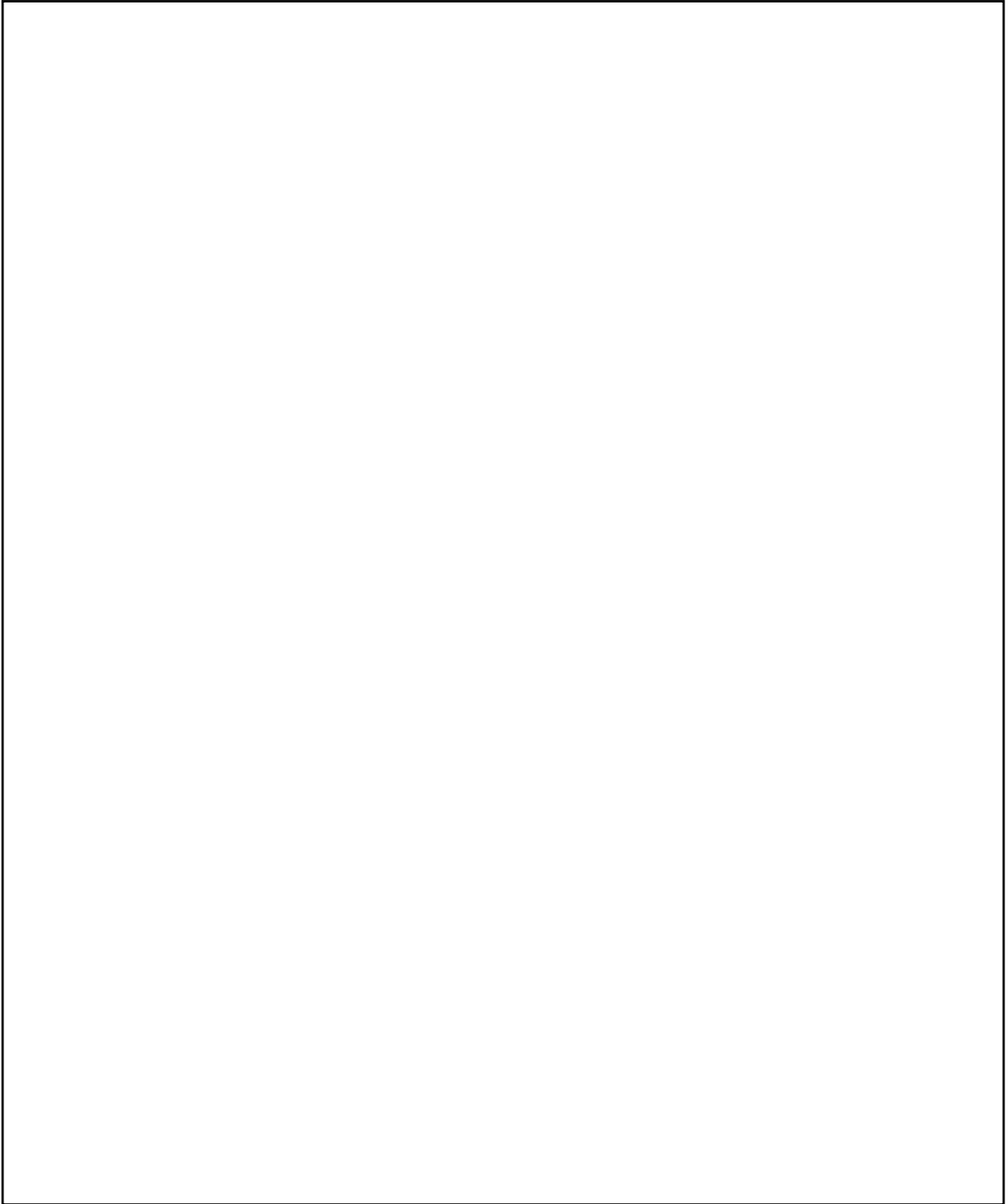
## **Dominance of the Visual Sense**

Our experience of the world has become bombarded by series of images that are presented to us as pictorial representations in printed or digital media. We give in to these images that flatten our world and distance ourselves from it. The thriving digital realm of televisions, computers, and cellular phones has contributed to our alienation to the world by making images readily available to us at our finger tips. Instead of traveling to visit a grand piece of architecture, we turn to our computers where images and virtual tours walk us through the building in vivid high-definition color.

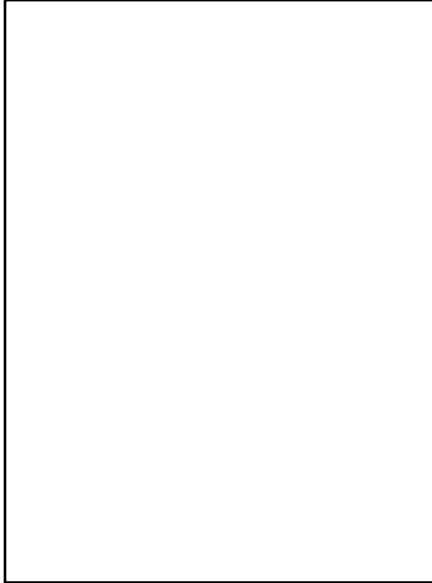
On the other hand, vision is the one sense that allows us to perceive the world. Medical evidence has supported that the eyes' ability to transmit information to the brain far exceeds that of the other sense organs, giving vision a deserved importance that should be appreciated<sup>3</sup>. However, the issue

lies in the emerging trend this dependency in vision removes the involvement of our other senses. As a result, our perception becomes constrained by the limit of vision, distancing us from other qualities of the world. Our haptic engagement with our surroundings becomes stifled and alienated, and we experience the world in a way that might as well be flattened onto the pages of a magazine or a television screen.

This issue transfers over to architecture. It usually follows the traditions of arts of painting and sculpture, designed as a means of visual display, surveyed by the eyes and analyzed by the mind. The habitual design process with only the visual sense in mind usually separates the body from the essence of additional levels of architectural meaning. It defeats the purpose of an architectural experience, which immerses its audience as an active participant engaging all the senses. Nevertheless, buildings are often designed to translate well onto printed pages, to look good on presentation boards, posters, and books.



**Figure 4:** Various cities displaying flashy billboards and signs. Images and videos are flashed through billboards and sign allow people in fast-paced cities to receive messages instantaneously.



**Figure 5.** GreenPix: Media Wall by Simone Giostra & Partners (Zero Energy Media Wall)

Advanced digital technology fuels this issue of visual dominance. The GreenPix is a groundbreaking project applying sustainable and digital media technology to the curtain wall of Xicui entertainment complex in Beijing, near the site of the 2008 Olympics Games. Featuring the largest color LED display worldwide and the first photovoltaic system integrated into a glass curtain wall in China, the building performs as a self-sufficient organic system, harvesting solar energy by day and using it to illuminate the screen after dark, mirroring a day's climatic cycle. Similar projects like this exist all over the world and only adds to the popular trend of visual stimulation, a synaesthesia of moving lights and figures. With the addition that these installations are environmentally friendly and cheap to manufacture, it gives more of an incentive to build more of these buildings.<sup>4</sup>

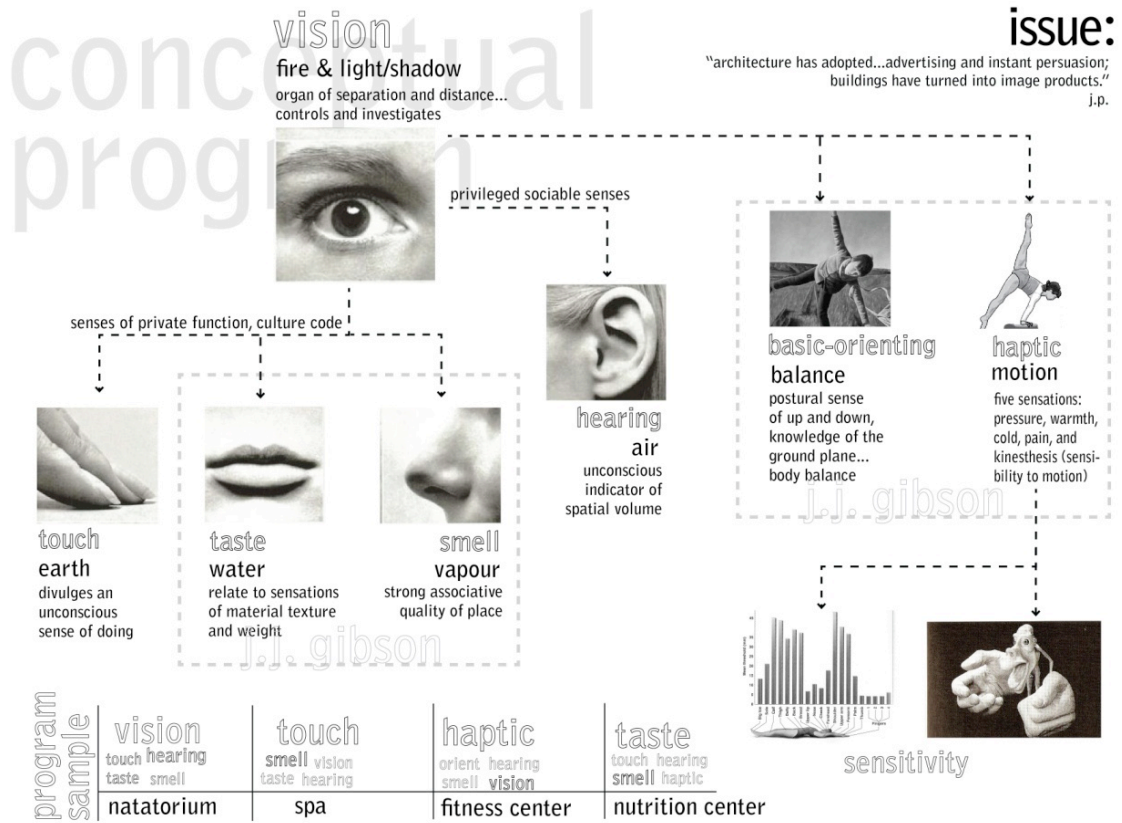


Figure 6: Depiction of concepts from Bloomer, Pallasmaa, and Gibson.



## **Psychology**

Science has also tried to rationalize the senses to describe the human experience of the world. Thorough research and in depth studies have encompassed a wide range of sensory modes. Human sensory capabilities go well beyond the basic five senses, it is well established that we are sensitive not merely to touch, but to a considerably wider set of stimuli—pain, pressure, temperature, and vibration. In addition, vision has two subsystems—relating to day and night vision—and the ear is responsive to information that allows us not only to hear but also to keep our balance<sup>5</sup>. Psychologists now believe there are at least a dozen distinct senses, all of which are interrelated.

### **Absolute Threshold**

This concept is an understanding of when is a stimulus strong enough to be detected by our sense organ. It is the smallest intensity of a stimulus that

must be present for it to be detected. Consider the following examples of absolute thresholds for the various senses<sup>6</sup>:

*Sight:* A candle flame can be seen from 30 miles away on a dark, clear night. *Hearing:* The ticking of a watch can be heard 20 feet away under quiet conditions.

*Taste:* Sugar can be tasted when 1 teaspoon is dissolved in 2 gallons of water. *Smell:* Perfume can be detected when one drop is present in a three-room apartment

*Touch:* A bee's wing falling from a distance of 1 centimeter can be felt on the cheek.



**Figure 7.** Sigurdur Gudmundsson, Collage, 1979. Galerie van Gelden, Amsterdam. (Zsa-Zsa Eyck, Sigurdur Gudmundsson, Malmö: Malmö Konsthall, 1991)

## **“Atmospheres” by Peter Zumthor<sup>7</sup>**

The following are a few concepts drawn from Peter Zumthor’s self-observations in architecture. It categorizes the different fields our senses encountered when experiencing any space. The thesis will attempt to integrate these concepts that will help generate spatial qualities of the design. The following paragraphs list spatial qualities manifested from his observations:

### **The Body of Architecture:**

“Architecture is a collection of different things in the world, different materials, and combines them to create spaces. It is a bodily mass, a membrane, a fabric, a kind of covering, cloth, velvet, and silk. Architecture should be the literal physical body itself and not just an idea of the body.”



**Figure 8.** Lawrence Halprin, Auditorium Forecourt Plaza, Portland Oregon, 1961. Photo Felice Frankel. (Felice Frankel and Jory Johnson, *Modern Landscape Architecture*. New York: Abbeville Press, 1991)

### **Material Compatibility:**

“Materials are endless. Every little alternation to a material can transform its presence into something completely different. A thousand different possibilities exist in one material alone. The interaction, combination, and proximity of materials are also crucial. When combining certain materials, the reaction between the two can be different depending on how far they are placed from each other.”

### **The Sound of a Space:**

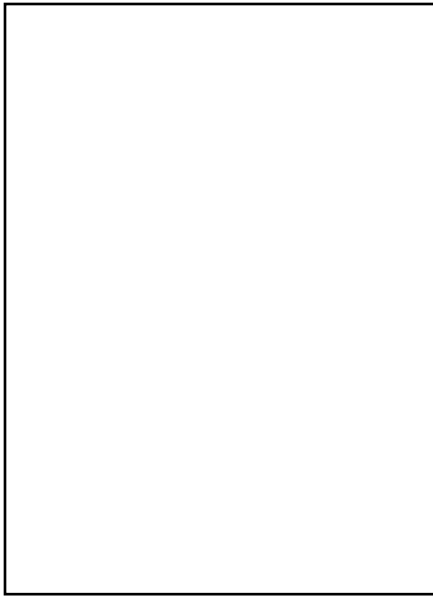
“The peculiar shape to each room and with surfaces of materials transmits different qualities of sounds in an interior space. Sounds also trigger memories; we make associations with sounds that remind us of the past.”

### **The Temperature of a Space:**

“Every building has a certain temperature; materials more or less extract the warmth from our bodies. Steel for instance, is cold and drags the temperature down while wood promotes warmth. Temperature is both physical and presumably psychological, seeing a type of material can provoke a range of temperatures.”

### **Surrounding Objects:**

“The job of architecture to set itself up to create receptacles to house objects. Objects create a sense of home.”



**Figure 9.** Dani Karavan, Homage to Walter Benjamin, Port Bou, Spain, 1990. (Arkkitehti ARK 5-6: 1996, Helsinki)

### **Between Composure and Seduction:**

“Architecture is a spatial art. Architecture thinks about the way people move in a building, and there are poles between which I like to place my work. It is important to find a way of bringing separate parts of the building together so that they formed their own attachments. There are practical situations where it is more sensible and far cleverer to induce a calming effect, to introduce certain composure rather than having people running around and looking for the right door.”

### **Tension between Interior and Exterior:**

“Threshold, crossings, the tiny loop-hole door, the almost imperceptible transition between the inside and the outside, an incredible sense of place, an unbelievable feeling of concentration when we suddenly become aware of being enclosed, or something enveloping us, keeping us together,

holding us—whether we be many or single.”

**Levels of Intimacy:**

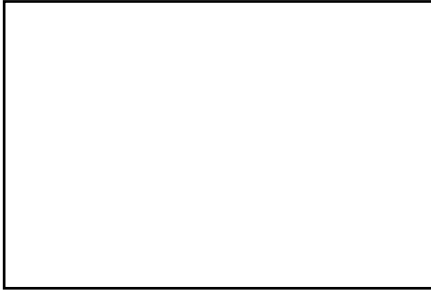
“Proximity and distance, different scales and dimensions. Impact of creating buildings where interior form, or the empty interiors is not the same as outdoor form. The thickness of the walls is also programmed.”

**The Light on Things:**

“It is important to bring in natural sunlight into a building rather than utilizing artificial lighting. Thinking about daylight and artificial light I have to admit that daylight, the light on things, is so moving to me that I feel it almost as a spiritual quality.”

## **Precedents**

Precedents for this thesis include formal precedents that are described within the framework of how the body interacts with water.



**Figure 10.** Main elevation

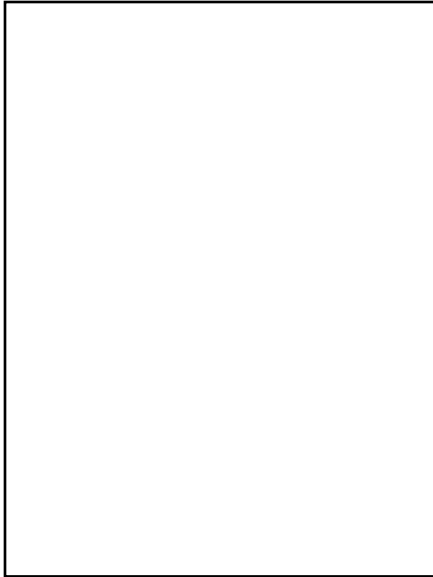


**Figure 11.** Water passageway between indoor and outdoor

## **Therme Vals, Switzerland by Peter Zumthor**

The Thermal Bath in Vals is a great example of what this thesis is trying to portray. Built in 1996, the Therme is the hotel/spa complex built over the only thermal springs in the Graubunden Canton in Switzerland. The thermal bath was built as an addition to a hotel complex to take advantage of the naturally occurring thermal springs and the sources. However, the baths were designed to look as if they pre-dated the hotel complex, formed in the shape of a cave or quarry-like structure. Built using locally quarried Valser quartzite slabs, the spa building is made up of 15 different table-like units, 5 meters in height, with cantilevered concrete roof units supported by tie-beams. To avoid spoiling the view of guest in the main the hotel, the commission refused to allow the architect to build upwards. Zumthor responded to this disparity by sinking his building into the slope. There are no doors in this building, to enter the building one has to use the main hotel and follow a corridor in the basement that passed through the mountain.<sup>8</sup>

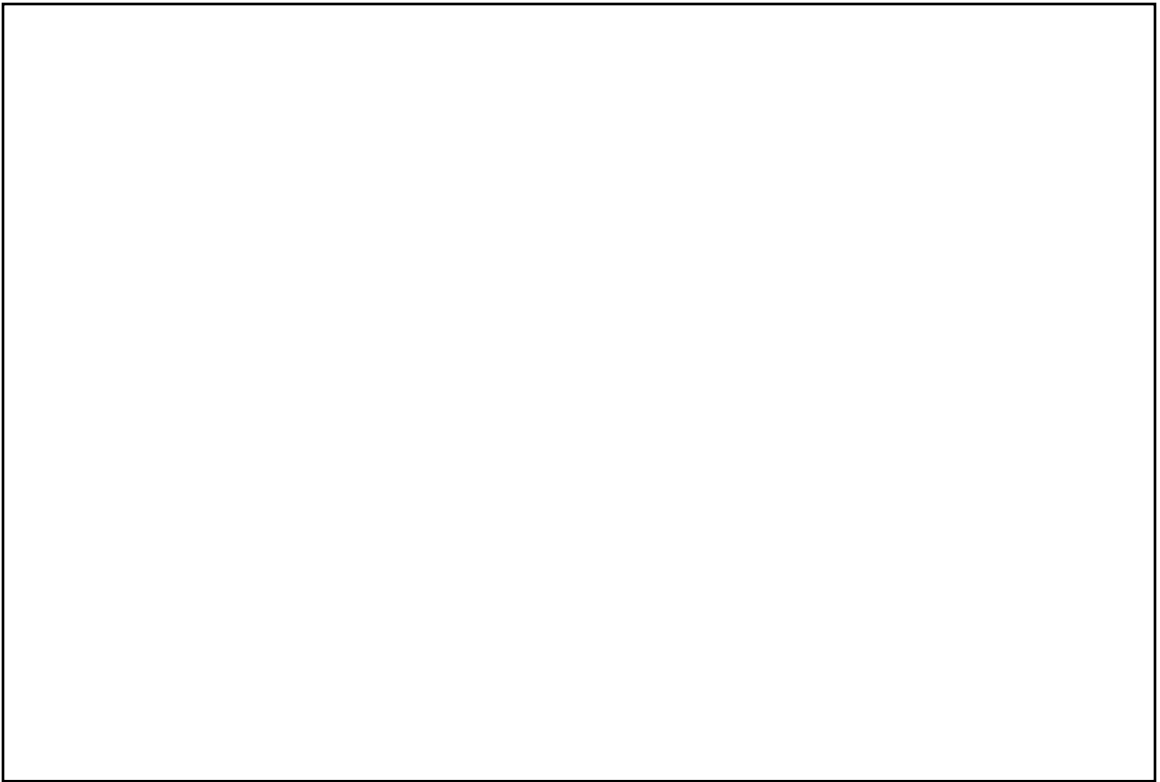




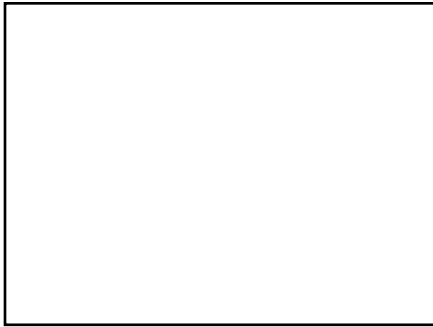
**Figure 12.** Entry into lobby of bath

The experience of Peter Zumthor's thermal baths in Vals created such an impact on visitors that the phenomenal revitalization of the surrounding area has been referred to as the "Bilbao effect before Bilbao." An immersive, sensual encounter of a well-crafted building within a beautiful mountain setting, this spa creates something extraordinary that communicates in an instinctual, human level.<sup>9</sup> The power of the architecture in Vals is striking to many beyond the frequent architecture pilgrims: "for the layman, this creates an exciting, awe-inspiring atmosphere."<sup>10</sup> A self-described designer of atmospheres, Zumthor delights the senses, provoking vivid emotional responses.

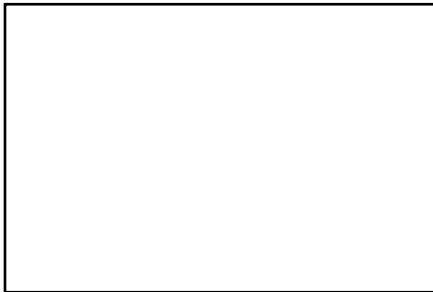
The spa area revolves around two large irregular-shaped pools, one in the center of the building and the other in the open area. The outer pool is enclosed with high walls making it seem that the pool is carved out of the mountain. Flat stones and benches just below the surface make it look like a natural pool fed by the mountain. To move from the indoor pool to the outside pool, one must swim pass through an open space to a more intimate space with a play of shadow and light.



**Figure 13.** Main floor of Thermae Bath (Binet, 2005)



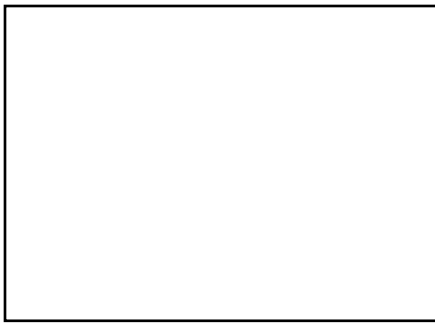
**Figure 14.** Exterior showing outdoor thermal bath (Simma, 2000)



**Figure 15.** North elevation with landscape (Simma, 2000)

## **Thermal Baths, Meran/Merano by Cornelia Muller & Jan Wehberg**

A competition was held in Meran/Merano for a design that called for a thermal bath and hotel situated in an urban surrounding. The design by Cornelia Muller and Jan Wehberg won the competition of over 100 entries, which presented a present spa structure situated in the center of Merano, at the edge of the old town and south of the River Passirio. The objective of the competition was to create a new progressive image for the city of Merano with the aid of an architectural statement. While respecting the necessary communication and free spaces of the thermal baths, the structure, including those portions accessible to the public, must fit into a delicate urban environment. The new architectural structure should facilitate the interaction between town, the public sphere and the thermal baths.<sup>11</sup>



**Figure 16.** View of the indoor hot spring in the column bath and wind hole bath (Shop Design Series: Leisure & Wellness Facilities, 1994-1999)



**Figure 17.** View of outdoor pool area (Shop Design Series: Leisure & Wellness Facilities, 1994-1999)

## **Spa Resort Kannabe Yunomori, Yutorogi, Japan by Atelier Zoo**

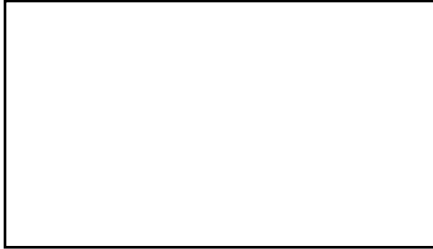
This spa resort was built in the Kannabe highlands near the Seto Inland Sea. The architect wanted to respect the surrounding landscape and designed around an existing old forested landscape around the site. The architect did not build one large building, but designed several small ones that dotted along a slope to fit into the landscape. There comfortably ran a hot spring flow, which was surrounded by a reception and an entrance lounge and three baths: a bath room with big columns designed upon a concept of “ten heaven,” a bath room with bubbling nozzles, and a bath room designed upon an idea of “chi (the earth).”



**Figure 18.** Cross section showing the main space of the column bath  
(Shop Design Series: Leisure & Wellness Facilities, 1994-1999)



**Figure 19.** Floor Plan (Shop Design Series: Leisure & Wellness Facilities, 1994-1999)



**Figure 20.** Floor Plan (Shop Design Series: Leisure & Wellness Facilities, 1994-1999)

### **Blur Building by Diller & Scofidio**

The Blur building demonstrates the act of weakening our visual sense and heightening our other senses.

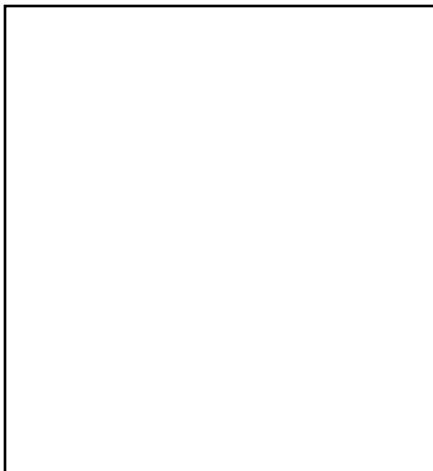
The building is a media pavilion for the Swiss Expo in 2002. It is located at the base of Lake Neuchatel in Yverdon-les-Bains, Switzerland. The primary building material is water which is pumped from the lake and vaporized around the promenade deck. The building has been described as “an anti-event or anti-spectacle, where all that is visible to us is or reliance on vision itself.”<sup>12</sup> The vaporized water is shot as a fine mist through 13,000 fog nozzles creating an artificial cloud that measure 3000 feet wide by 200 feet deep by 65 feet high. The public can approach the Blur Building by a ramped bridge which deposit visitors at the center of the mass of fog. Visual and acoustical references are erased along the journey toward the fog, leaving only an optical “white-out” and the “white-noise” of pulsing water nozzles.



**Figure 21.** Interior of Cranbrook Natatorium (Cranbrook Natatorium, 2008)



**Figure 22.** Entry into natatorium (Cranbrook Educational Center)



**Figure 23.** Main interior ramp to natatorium (Cranbrook Educational Center)

## **Cranbrook Natatorium by Tod Williams and Billie Tsien**

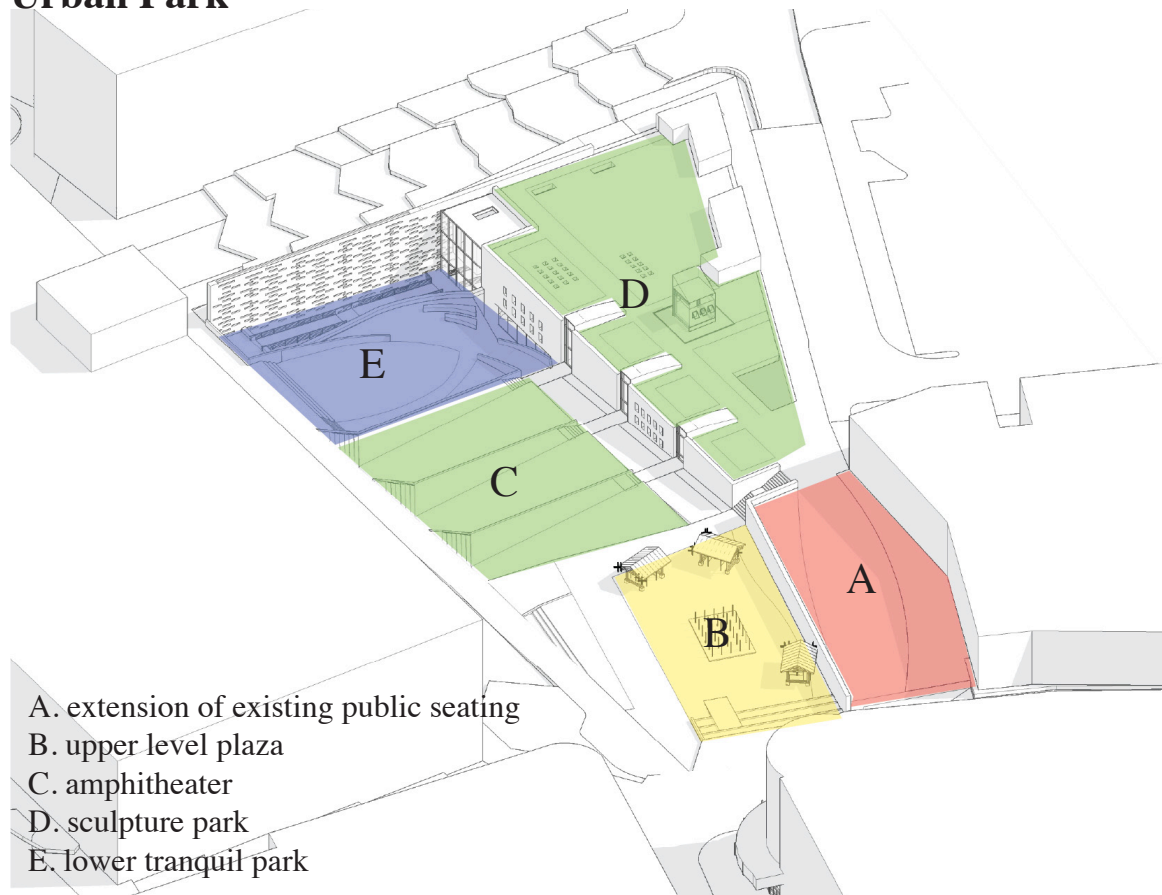
The natatorium at Cranbrook University utilizes materiality as a source to give regular visitors an enhanced tactile experience. The indoor pool also has large openings that allow sweeping views of the campus, giving swimmers the sense of swimming outside. The natatorium was designed to integrate quietly into the rich fabric of the Cranbrook campus, designed over twenty-five years by Eliel Saarinen. The pool is clad in a dark iron-spot brick in a Norman size—slightly longer in length. The mortar is raked, so that horizontal joints are in shadow, giving a sense of compression and density to the building. The interior of the pool is a warm toned ground-face concrete block, and thermal finish gray stone provides a non-slip surface for the pool deck. Shades of blue and green glazed tile lend color, while mahogany—used for walls, railings and vertical panels—offers warmth. The ceiling is painted a rich dark blue.<sup>13</sup>

## **Program**

The site contains two major programmed spaces, a public civic park and a spa. The civic park intends to accommodate the heavy pedestrian traffic that flows into the site from Ellsworth Drive. The civic park acts as an “urban living room” containing spaces that range from noisy gathering spaces to an indispensable place of tranquility and contemplation. The park is designed to encourage pedestrian traffic through the site and through the spa. A path is laced into the park and generates a series of thresholds to prepare visitors for a sensual experience of bathing, relaxing, and exercise.



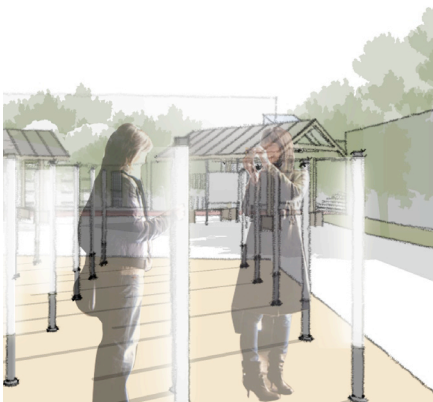
## Urban Park



**Figure 24.** Placement of major public spaces of civic park



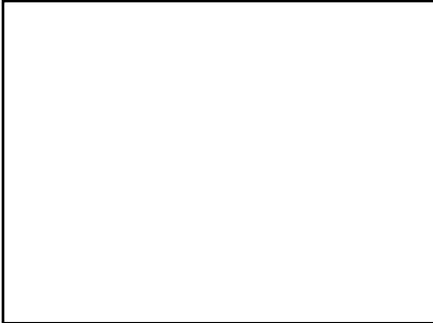
**Figure 25.** View of the upper level plaza with information kiosks



**Figure 26.** Temporary light installation on upper level plaza

## Upper Level Plaza

The upper level plaza is located at the corner of Fenton Street and Ellsworth Drive to receive pedestrians coming down from Ellsworth Drive. The plaza will be a noisier gathering space since it corners a popular movie theater and (The Majestic Theater) and the entrance to City Place Plaza. Art installations can be added into the space to liven the space and attract pedestrians to walk through the urban park. During warm weather, seating from the extended seating area spills out onto the plaza with movable chairs and tables.



**Figure 27.** Scott Outdoor Amphitheater by Thomas W. Sears

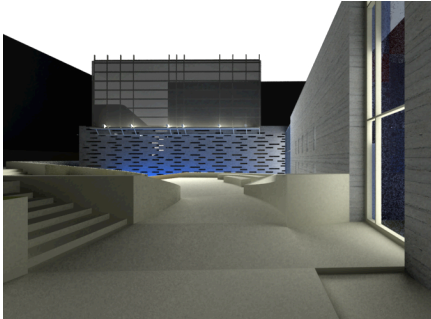


**Figure 28.** Olympic Park by Weiss Manfredi

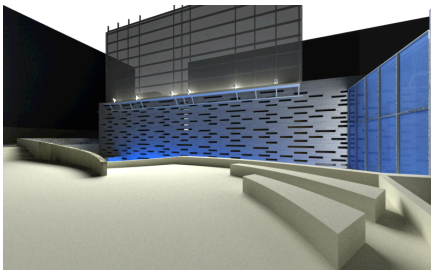
## **Amphitheater and Sculpture Park**

Before the ground break of Veteran’s Plaza, the site was covered temporarily with green artificial turf. It turned out that the green-carpeted space was well received by Silver Spring residents, workers, and shoppers. Many events occurred in that space as a result. An annual jazz festival in 2006 (figure 54) and was a huge success. A lot projection screen was often put up to screen movies for the public.

Keeping with the idea of the great green space, the design proposes a green amphitheater area that allow the previous activities to continue. Adults meet and socialize, sunbathe, read or pass time people watching, while kids frolic or just hang out. The green space steps down towards the tranquil park area, which can be transformed into a large audience seating area during events.



**Figure 29:** Approach to lower level plaza

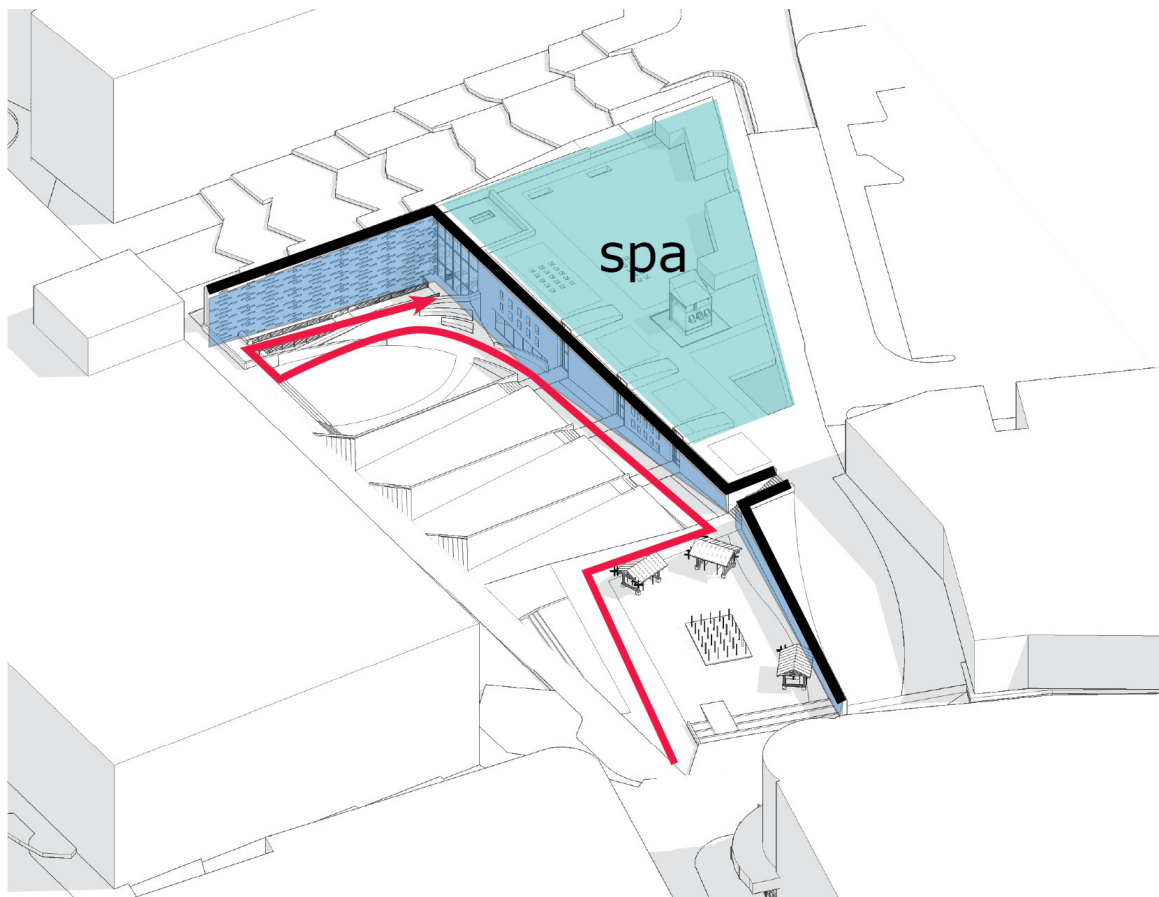


**Figure 30:** Lower plaza with Water Wall

### **Tranquil Plaza with Water Wall**

The lower tranquil plaza is located on the north end of the site, terminated by a thirty feet water wall. The plaza is located away from the noise of cars and pedestrians on Fenton Street. The open paved space is meant to be flexible enough to be used as a place of retreat for visitors, but also as a stage or event space. The plaza also serves as a final gathering area before visitors begin the procession down into the spa.

## Spa



**Figure 31.** Placement of major public spaces of civic park. The spa complex occupies the northeast portion of the site and is pushed into the ground toward the deepest part of the site. It is a sensuous subterranean experience that is about filtering light into the spa through its green roof. In terms of the usage of the spa, it is neither all public nor exclusive. The idea of the spa is about a space of retreat and privacy has to be respected, but the spa is open for anyone to use. However, the spa is restricted to only paid users and certain areas are more private than others (i.e. treatment areas) if users decide to pay for the services.



**Figure 32:** Section of steam tower



**Figure 33:** Entry of the steam tower



**Figure 34:** Main lobby



**Figure 35:** Entry to changing rooms

## Steam Tower

The steam tower serves as a visual beacon for the entire site, as well as provides the vertical circulation for the spa. The tower is a double-layered glass tower filled with rising and circulation steam. Shadowy figures of the bathers are within. Bathers may enter the steam tower at different entry points on all levels, where the intensity of steam increases as one moves up the tower. Colored lights within each level indicate the varying temperatures of the tower.

## Entry Lobby

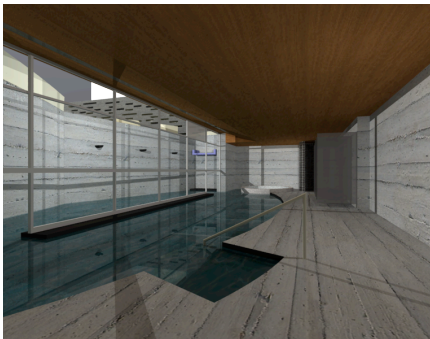
After descending down a wooden ramp from the lower plaza, the entry lobby is meant for visitor to feel as if they have just reached the deepest part of the site. The proportions of the space are more wide than tall to express the feeling of being compressed. The ceiling has several punch holes, which reveal the lap pool above. Rippling shadows cast through the water lens, giving the lobby an aquatic sense of being underwater.



**Figure 36:** Changing units



**Figure 37:** Inside changing unit



**Figure 38:** Ground level massage pool

## Changing Area

The changing room is a private place where one can remove their clothing. The room should be a place of darkness with slits of light marking the beginning and ending of the room and induce a sense of security and warmth. The changing area also serves as the zone between the “real world” and the spa.

## Massage Pool

The massage pool is located in close proximity to the different gender changing rooms. It provides convenient place for visitors to hop into water before or after the entering the steam tower. Located below the grade level of the lower plaza, the exterior wall pushes out toward the plaza to allow natural lighting into the pool.



**Figure 39:** Lap pool looking out to city

## Lap Pool

The lap pool is standard twenty-five meter one-lane pool. It is meant for only one person to use the pool at a time. It is located directly above the entrance of the spa. Similar to Tod Williams and Billie Tsien's Natatorium in Cranbrook University, there are skylights above the pool which open to the outdoors. In addition to giving swimmers natural lighting, the slow and gradual movement of spotlights create a dramatic effect of slowing down time.





<b>Entry</b>	<b>Square Footage/Quantity</b>
Check-in & Waiting Area	400
Administration/Offices	200
Staff Restroom	300 (2 @ 150)
Staff Lounge	300
<b>Total:</b>	<b>1,200 sf</b>

<b>Men's Changing Room</b>	<b>Square Footage/Quantity</b>
Lockers/Changing Area	840
Make-Up Area	144
Showers	132
Washroom/Toilet	300
Men's Wet & Dry Sauna	100 (2 @ 50)
Men's Warm & Hot Bath	146 (2 @ 73)
Cleaner's Storeroom	40
Laundry	100
<b>Total:</b>	<b>1,802 sf</b>

<b>Woman's Changing Room</b>	<b>Square Footage/Quantity</b>
Lockers/Changing Area	840
Make-Up Area	144
Showers	132
Washroom/Toilet	300
Women's Wet & Dry Sauna	100 (2 @ 50)
Women's Warm & Hot Bath	146 (2 @ 73)
Cleaner's Storeroom	40
Laundry	100
<b>Total:</b>	<b>1,802 sf</b>

<b>Communal Hall</b>	<b>Square Footage/Quantity</b>
Gathering Area	625
Café	225
Kitchen	225
Restrooms	300 (2 @ 150)
Rest/Sleep Areas	286 (2 @ 143)
<b>Total:</b>	<b>1,661 sf</b>

<b>Spa</b>	<b>Square Footage/Quantity</b>
Warm Pool 86°	800
Foot & Back Water Jet Pool	221
Hydration Area (water fountains)	81
Fire Bath 107°	100
Ice Bath 53°	100
Showers	73

Gold Sauna 190°	75
Salt Sauna 175°	75
Inhalation Sauna 120°	75
Ice Sauna 32°	75
Treatment Rooms	405 (5 @ 81)
<b>Total: 2,080 sf</b>	

<b>Fitness</b>	<b>Square Footage/Quantity</b>
Aerobics/Yoga	225
Weight/Gym	225
Lap Pool (25 m)	420
Shower Nook	100 (2 @ 50)
Restrooms	100
<b>Total: 1,070 sf</b>	

<b>Building Service</b>	<b>Square Footage/Quantity</b>
Electricity Plant	60
Sanitation Plant	625
Freshwater tank	800
Wastewater Tank	1600
Ozone Treatment	625
Air Conditioning Plant	625
Chemicals	300
<b>Total: 4,625 sf</b>	

**Total: Approx. 16,259 sf  
(not including  
circulation)**

**Figure 41.** Program specifications

## Methodology

The approach of the program began by establishing possible main spaces for the building. This includes a great outdoor space that gives back to the community, entry area, changing/locker room area, and centralized pool area. A matrix is created to link these program spaces to corresponding senses that will be experienced in that space. The senses selected to for this design are influenced by J.J. Gibson and uses the perpetual systems of visual, auditory, haptic, basic orienting, and smell-touch.










































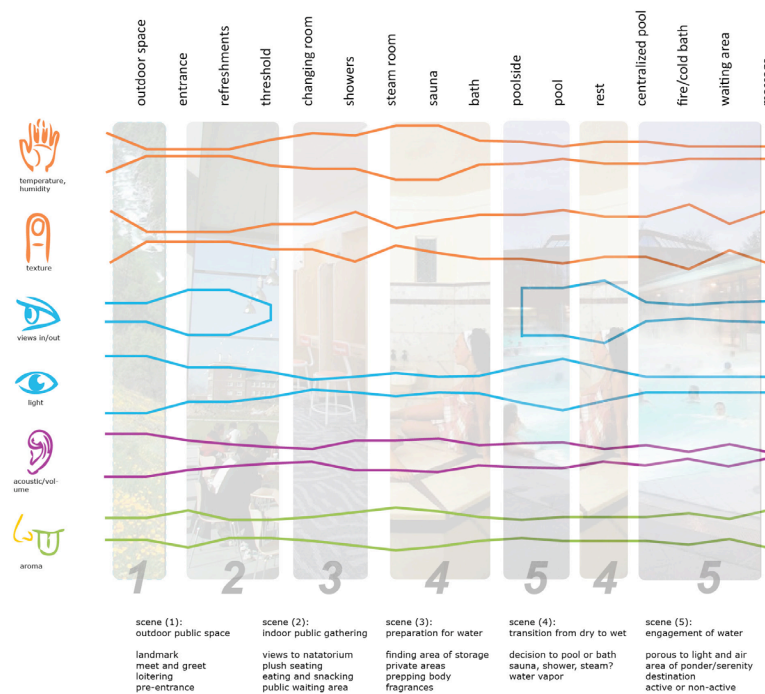
	park/outdoor space	entrance	cafe/vending	lockers rooms/change	competition pool	bathing pool	sauna	turkish showers	cold bath/hot bath	waiting	massage
 temperature, humidity	 exposed to weather			 high humidity		 warm humidity	 high heat	 medium humidity	 hot/cold		
 texture	 concrete fountain/garden			 intimate interaction with water	 active environment with water	 body against water and material	 wood/timber	 medium humidity	 body against water and material		 human touch
 views in/out		 transparency to outdoor space			 views out to nature	 mood provoking colored lighting		 natural lighting from skylights			
 light	 sunlight	 sunlight pouring into space			 filtered light coming in	 mood provoking colored lighting		 dimmed natural light		 dimmed natural lighting	 dimmed artificial lighting
 acoustic/volume	 traffic noise of cars/loud			 sounds of showers	 splashing of water	 echoes of murmur and water				 music playing while waiting	 music playing while massaged
 aroma			 food permeates lobby area		 smell of chlorine					 perfume smells	 smell of spa lotions

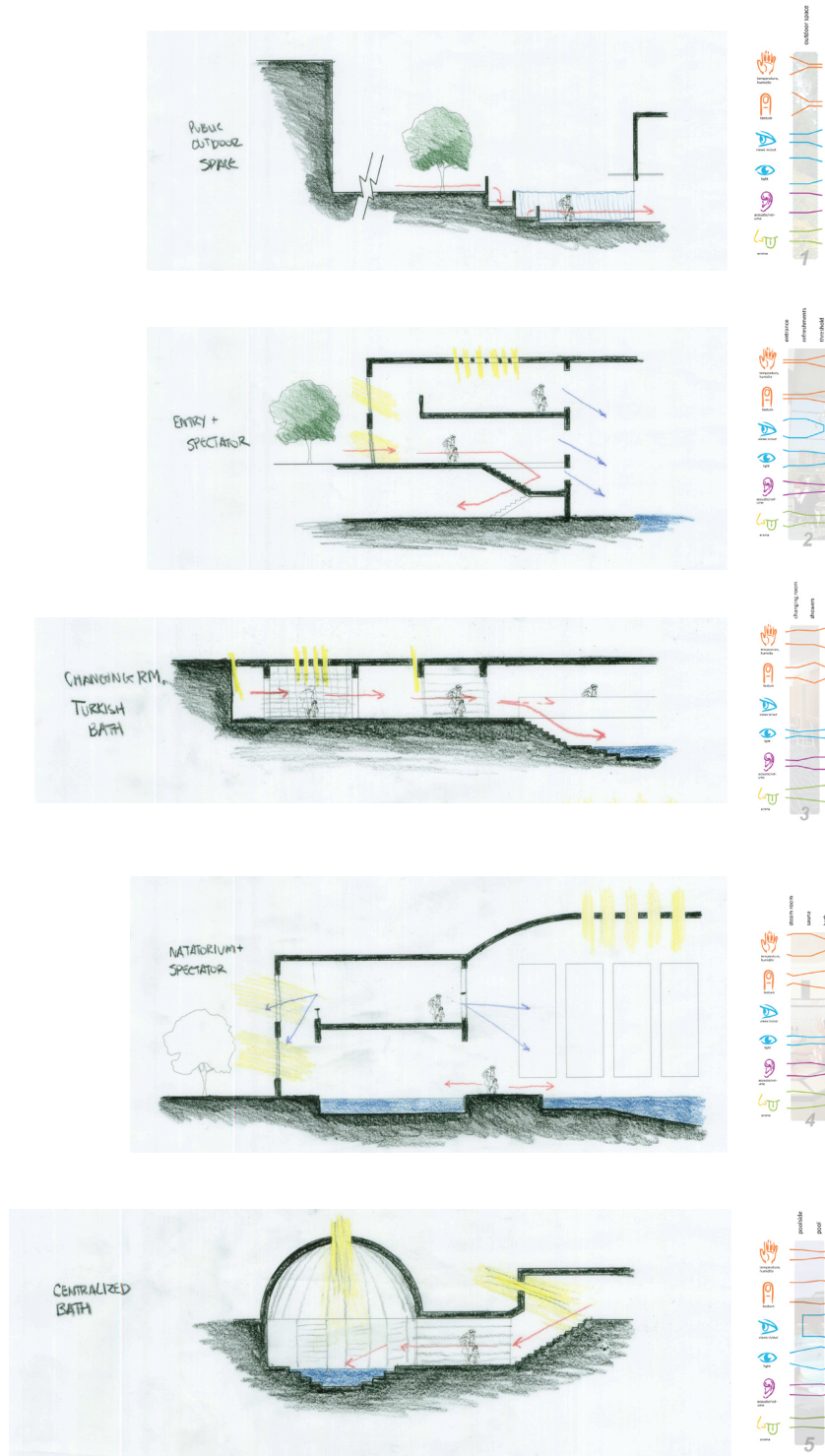
Figure 42. Matrix depicting program spaces vs. system of senses

The creation of this matrix allows for glimpses of what and how the space could ultimately “feel” like. It also generates ideas of how visitors would be able to sensually transition from space to another gradually, rather than abruptly turning some senses on and off.

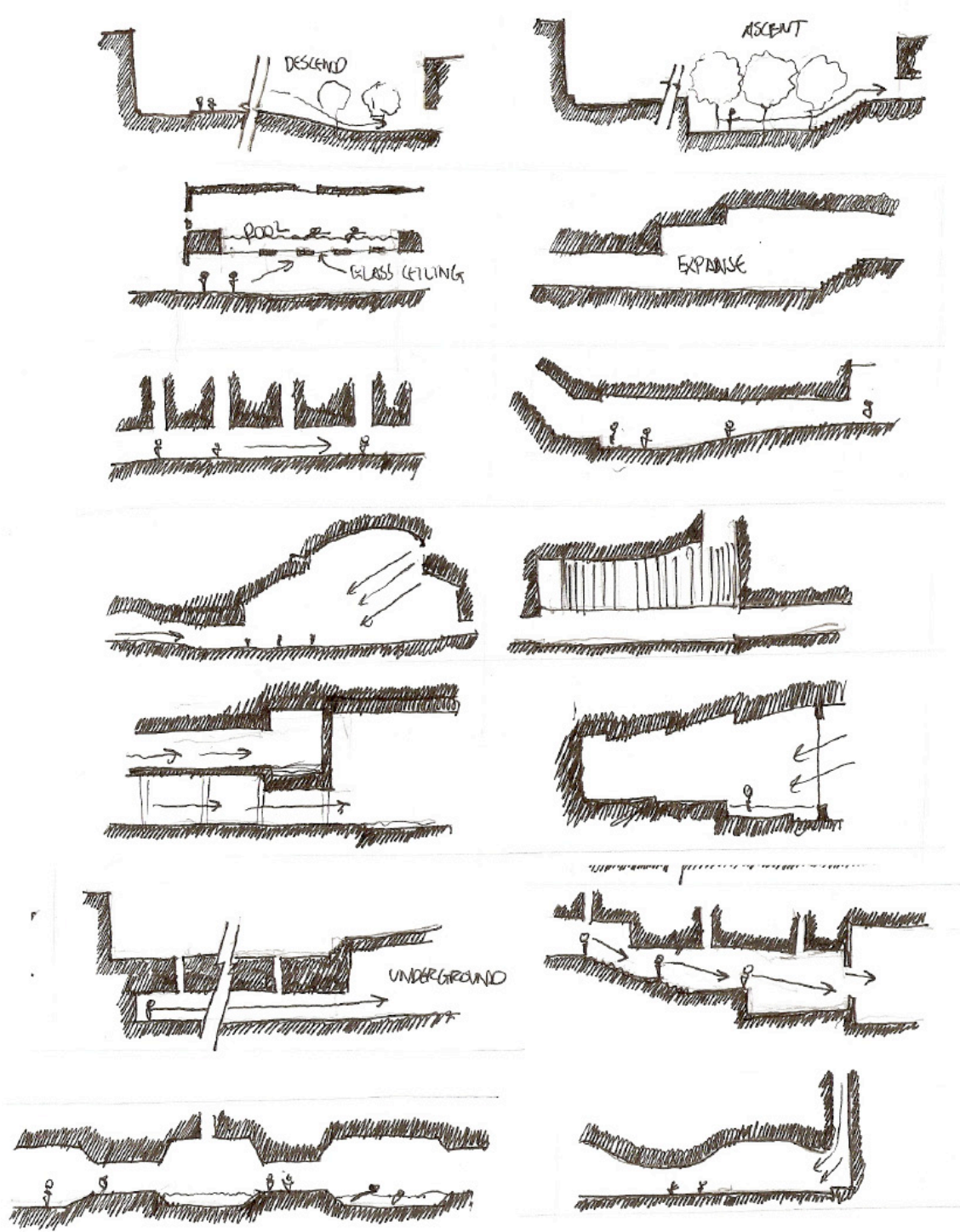
The matrix study is developed further with the idea of a visual soundtrack which timelines a sequence of amplified and suppressed senses as one would proceed through the building. The widening and narrowing of the lines represent the intensity of the corresponding sense in context on the programmed space.



**Figure 43.** Visual soundtrack representing crescendos and decrescendos of the sequence of spaces



**Figure 44.** Section study of particular moments in the building. While the visual and even tactile descriptions of space appear in drawings, the soundtrack and smell-track of movement through space should influence the conceptual development of a building, creating moments of forte, piano, and pause, as well as crescendos and decrescendos.



**Figure 45.** Section studies of procession through spaces (similar studies will continue in this direction via perspectives/models/sections)

## **Site**

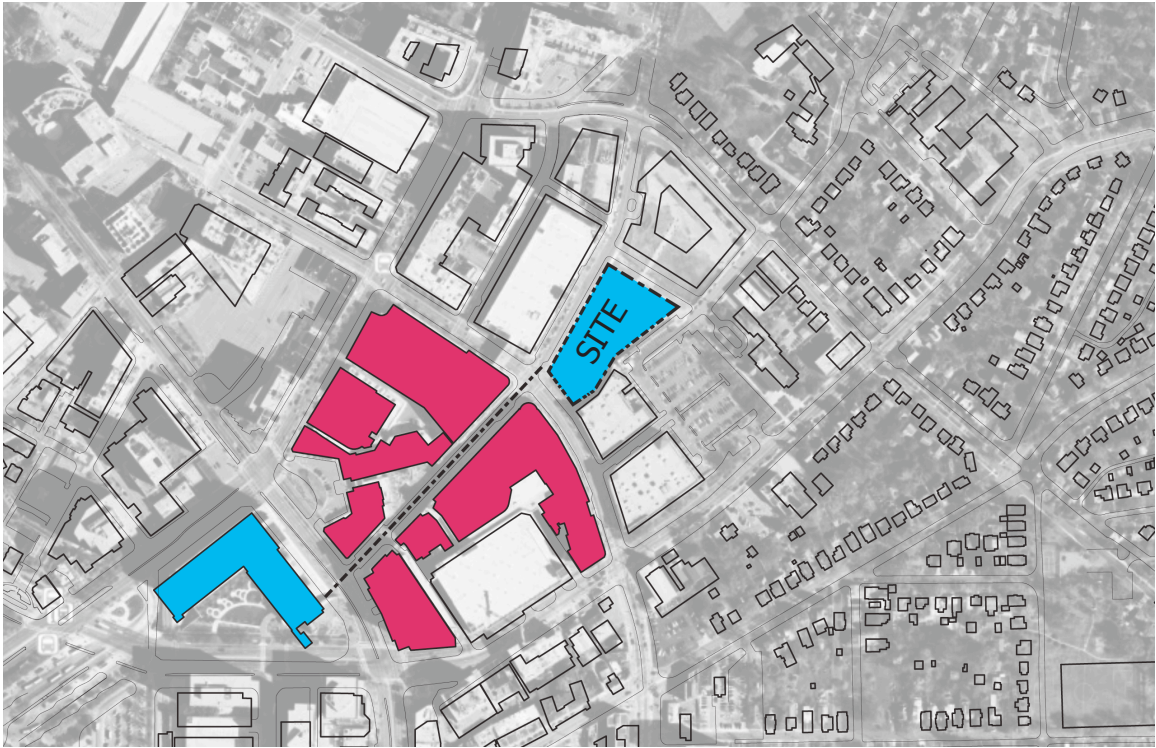
### **Existing Conditions**

The site is located in the Downtown Silver Spring Area at the major business that lies at the north apex of Washington, D.C. The site is less than a mile away from the Silver Spring Metro Station and is bounded by Spring Street, Ellsworth Drive, and Fenton Street. Surrounded by neighborhoods of a variety of densities including typical suburban single family homes to the north and high-rise condominium to the south, Downtown Silver Spring has potential in becoming one of Maryland best places.

The major events and activities of Downtown Silver Spring occur on Ellsworth Drive, in between Georgia Avenue and Fenton Street. A multitude of chain restaurants lines up and down the street on both sides. Ellsworth Drive is a narrow one way street that is only open on the weekdays and on weekends; it is closed off to vehicles and becomes a pedestrian street. The Downtown Silver Spring area



is distinguished by a variety of public institutions notably the Discovery Communications' world headquarters located a quarter mile south from the site.



**Figure 46.** Diagram depicting site and Discovery Channel Headquarters serving as anchors for Downtown Silver Spring



**Figure 47.** Site Panorama looking from top floor of parking garage west of site. Ground is already broken for new Veteran's Plaza



**Figure 48.** View looking south down Ellsworth Drive. Main pedestrian passage away from site

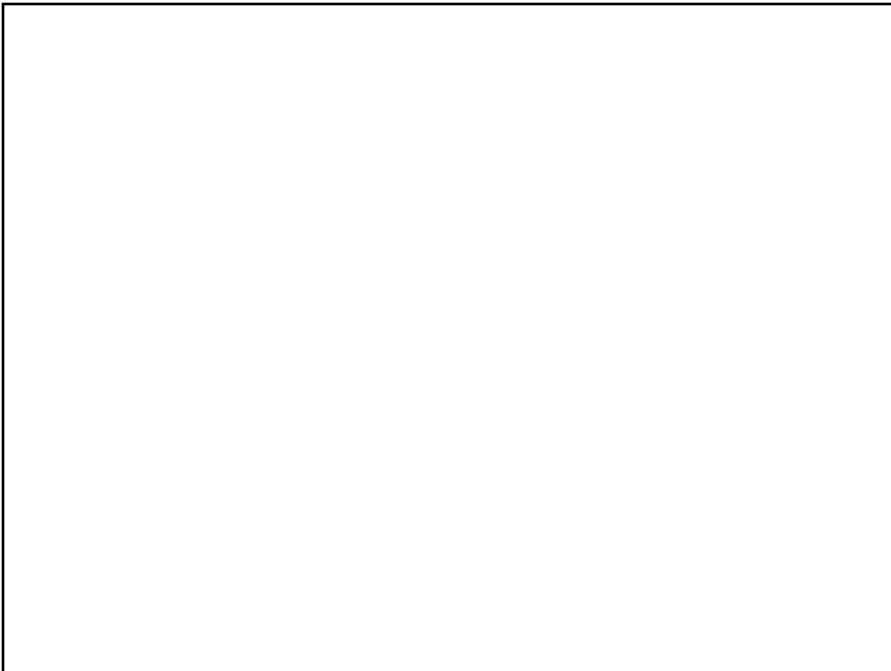


**Figure 49.** Night view of Ellsworth Drive looking north towards site.



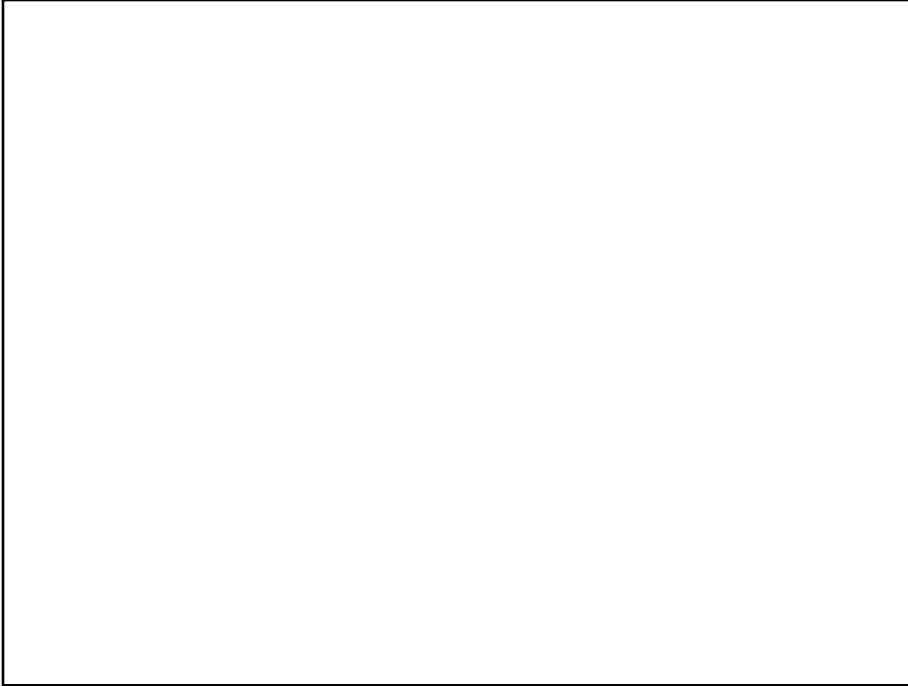
**Figure 50.** Downtown Silver Spring, 1995

For over two decades, built environment was in a state of constant change. The car repair station on Georgia Ave and Wayne Ave (center) was to be the site of the Discovery Channel Headquarters ten years later

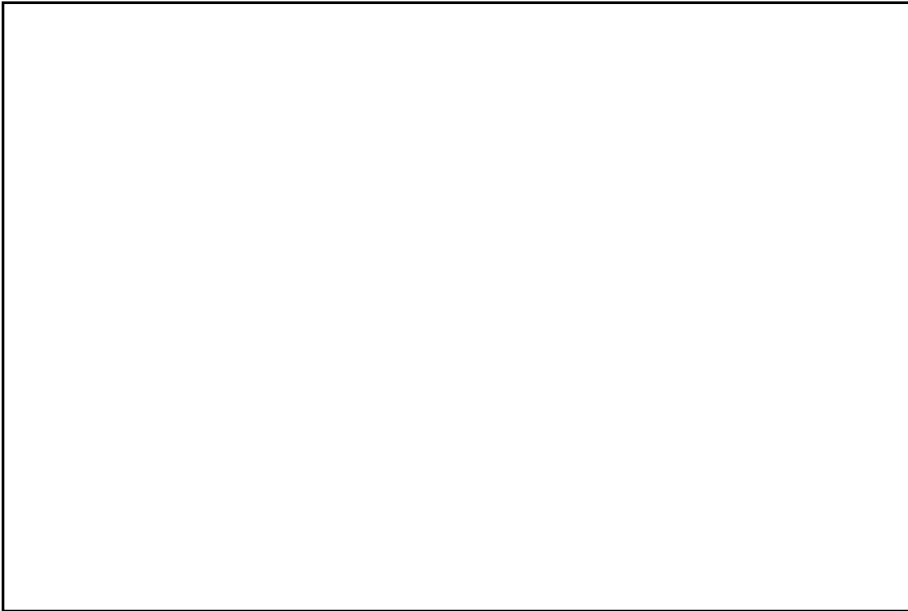


**Figure 51.** Downtown Silver Spring, 2007

The new master plan of Silver Spring bought a great number of chain restaurants and boutique which livened up the night life of Downtown Silver Spring



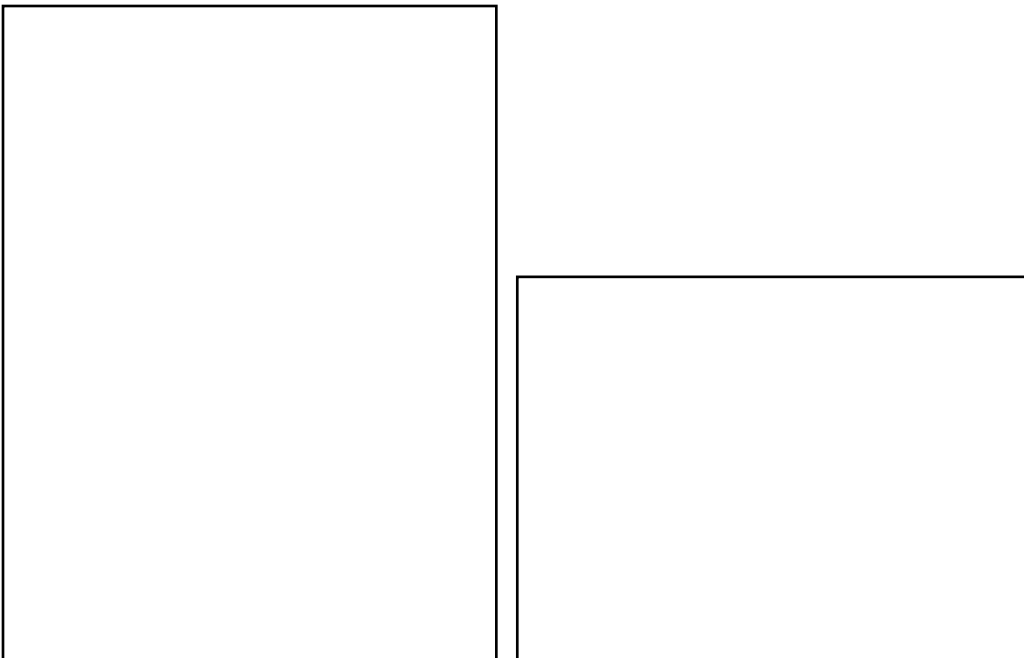
**Figure 52.** Saturday Morning Farmer's Market, July 2008  
Fenton Street between Wayne Ave and Ellsworth Drive is closed to car traffic on Saturday mornings and for special events. Each week the farmer's market draws a larger and larger crowd.



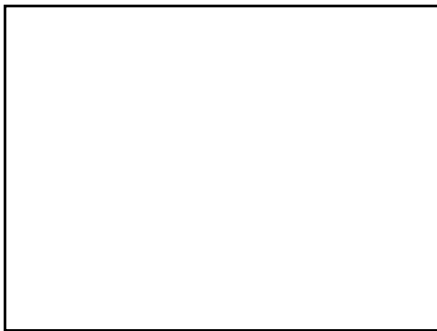
**Figure 53.** Ellsworth Drive block vehicular traffic on weekends



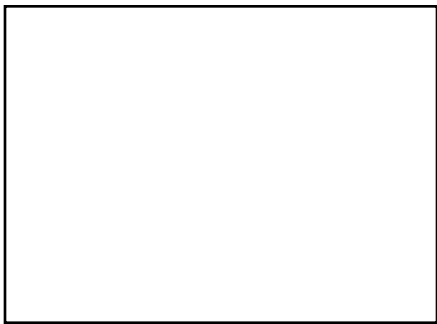
**Figure 54.** AstroTurf Plaza, Jazz Concert Series, September 2006  
The Annual Jazz Festival drew over 10,000 people



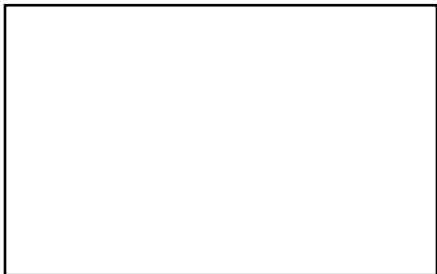
**Figure 55.** Artificial turf, August 2006  
The Astroturf was planned to be removed after the Jazz Festival in 2005, but was kept because it became a popular spot for the community.



**Figure 56.** Winning entry of Veteran's plaza by Machado and Silvetti



**Figure 57.** Competition entry by Grimm and Parker



**Figure 58.** Competition entry by Muse Architects

### **Proposed Plan: Veteran's Plaza, Civic Center and Ice Rink**

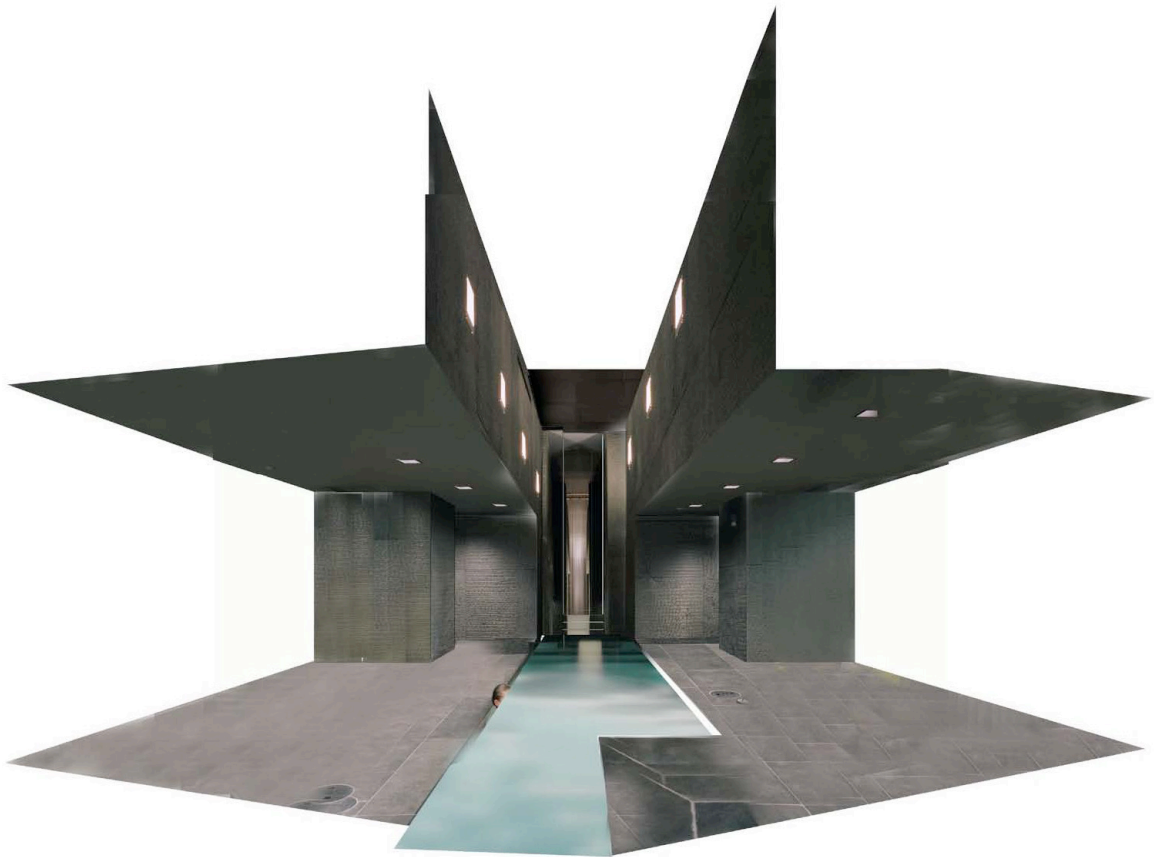
The Master plan for the Downtown Silver Spring redevelopment calls for a new Civic Center and public plaza on the South-East corner of Ellsworth Drive and Fenton. This was initiated after the community agreed to relocate the current Armory on Wayne Avenue to a closer proximity to the heart of Downtown Silver Spring. In preparation for the Jazz Festival in September 2005, the site was cleared and carpeted with artificial turf.

## Qualitative Spaces

The initial studies of the design process began with an attempt to capture potential moments of experience within the spa. A series of images were loosely created using different types of media to test materials and lighting effects. The following images were created by selecting a space from the program and then piecing together pieces of texture that convey the feel or experience of the space. The collages were meant to raise questions of how materiality, lighting, and spatial volume generate different moods in a space: What does an elongated space feel like? How does a hard concrete surface affect your experience as compared to a softer wood surface? How does lighting affect the mood of the space?



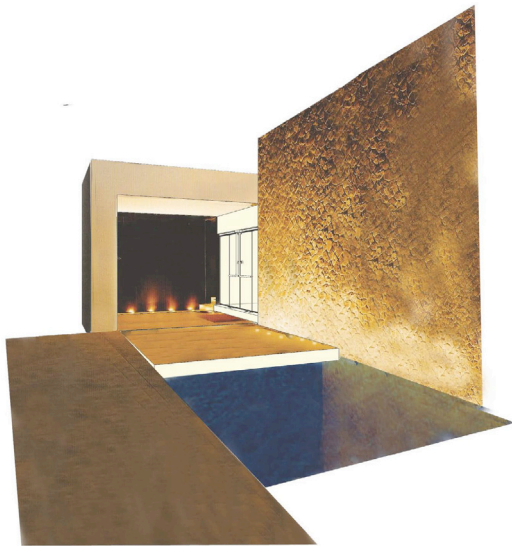
## Digital Collages



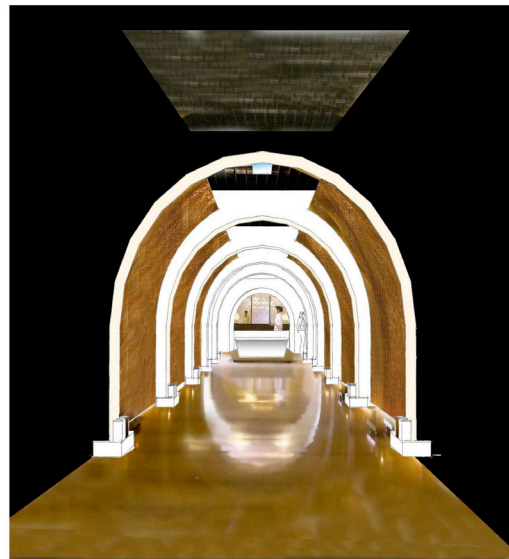
**Figure 59.** Small Interior Pool. The program calls for a pool area designated to only either males or females. Only stone is used in this space to give a heavy cavernous feel. The ceiling above the pool is pulled up to accentuate the verticality of space.



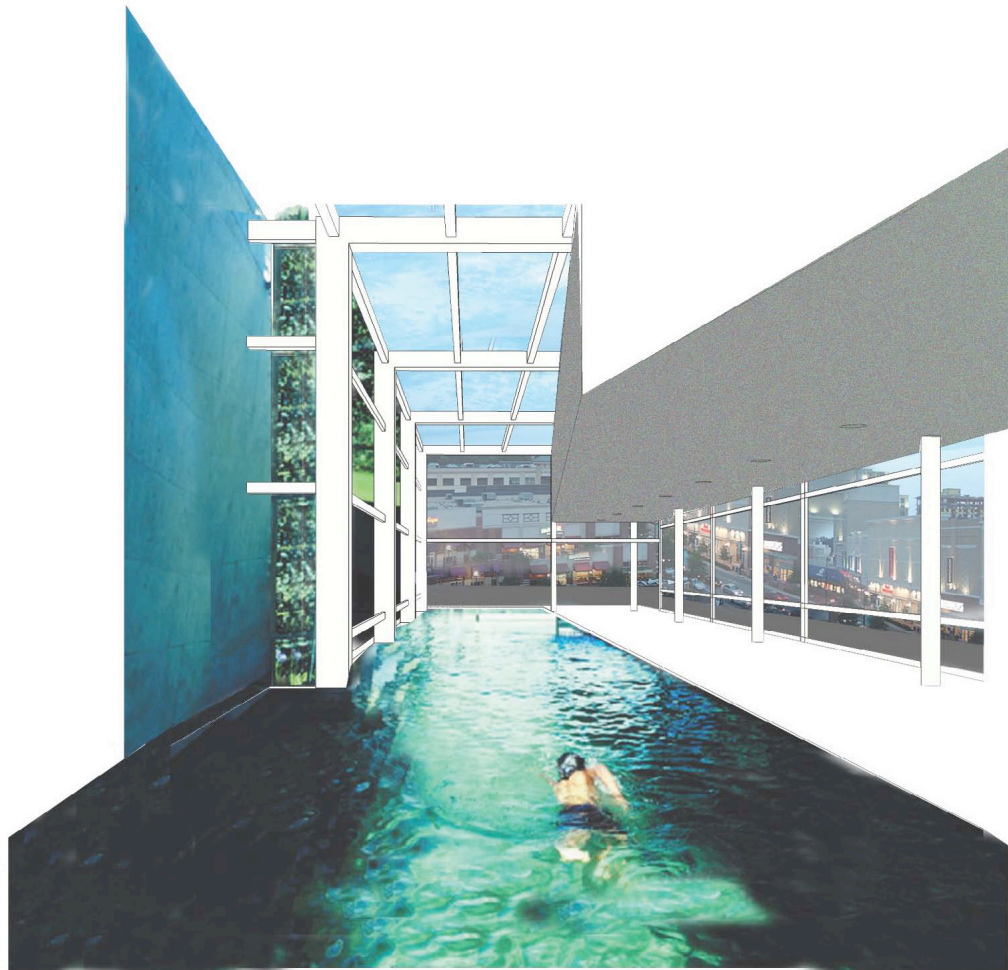
**Figure 60:** Entry Lobby. Light filters in behind the lobby desk. Wooden floor are laid beside stonewalls to juxtapose hard and resilient materials.



**Figure 61:** Entry into spa



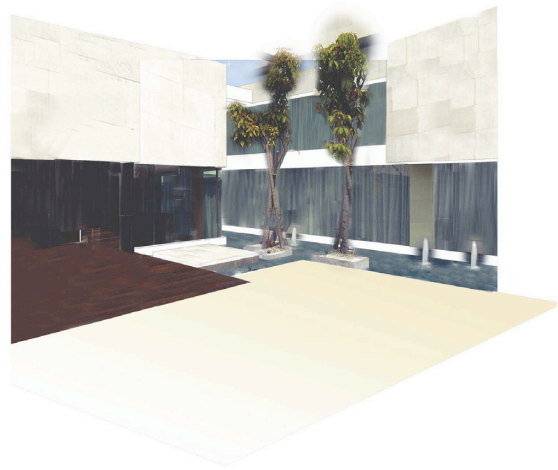
**Figure 62:** Foyer into spa



**Figure 63.** Lap pool with views out to Downtown Silver Spring

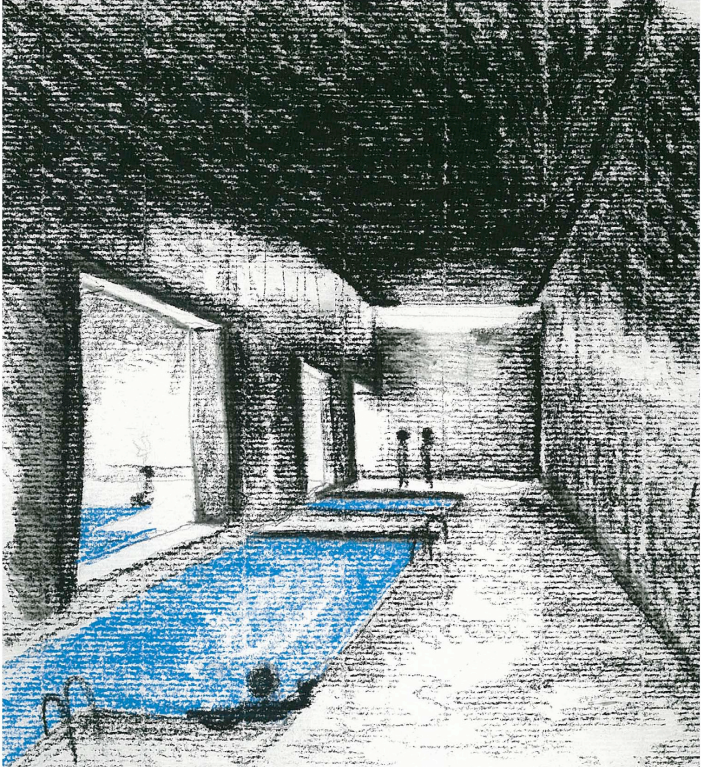


**Figure 64.** Enclosed pool area

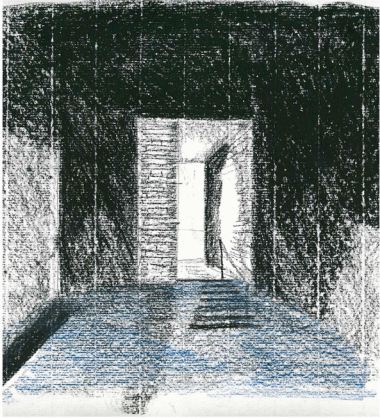


**Figure 65:** Exterior courtyard

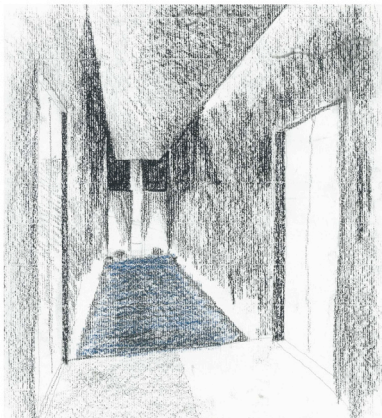
**Charcoal Drawings**



**Figure 66.** Charcoal drawing of pool area. Charcoal media was used to highlight the roughness vs. softness of materials and how light is spent of the wall and floor surfaces.



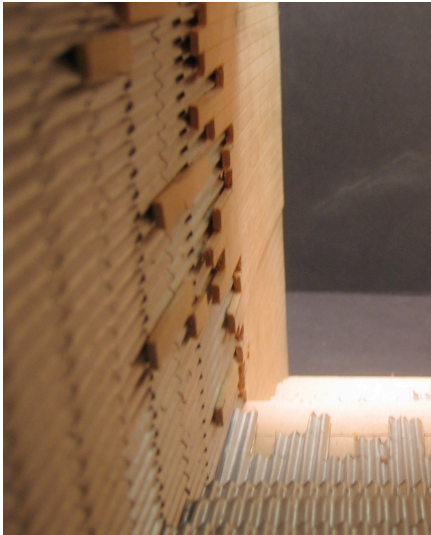
**Figure 67.** Cold bath



**Figure 68:** Treatment room corridor



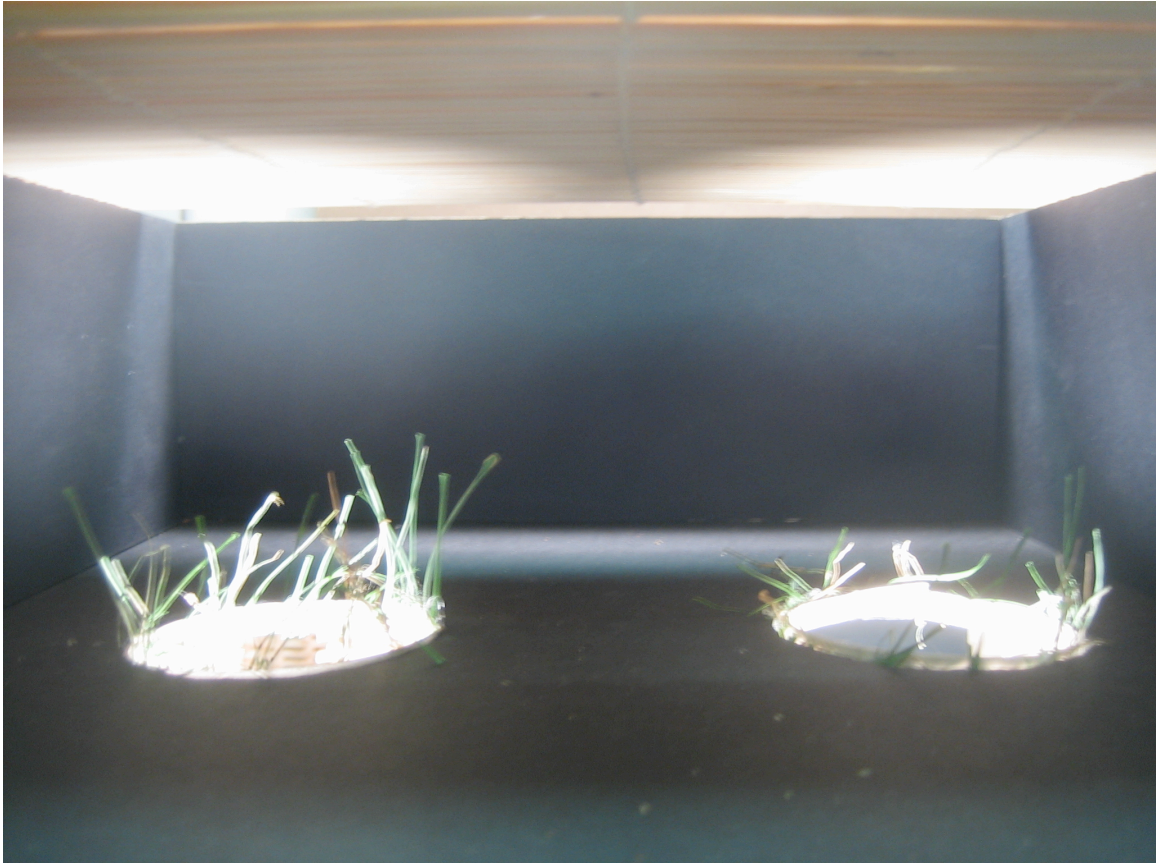
**Figure 69.** View of physical model conveying entry to changing room from lobby



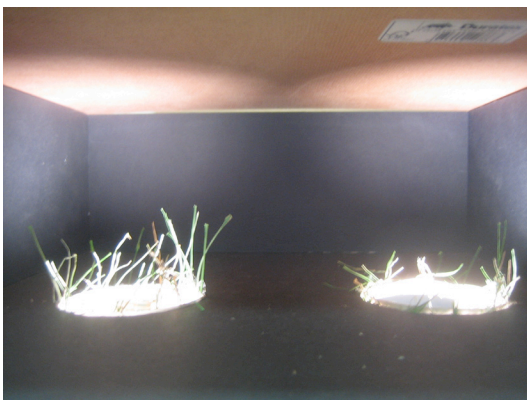
**Figure 70.** View of physical model illustrating gradual change of materials

## Conceptual Models

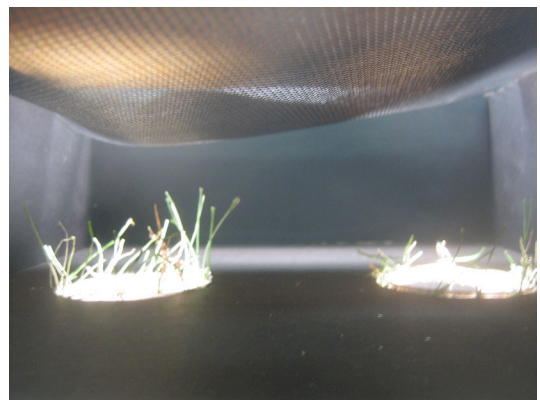
The moments from the digital collages and charcoal drawings were then furthered by creating a series of physical models. This allowed the design process to continue by easily manipulating lights and materials and how that could affect different moods of a particular space.



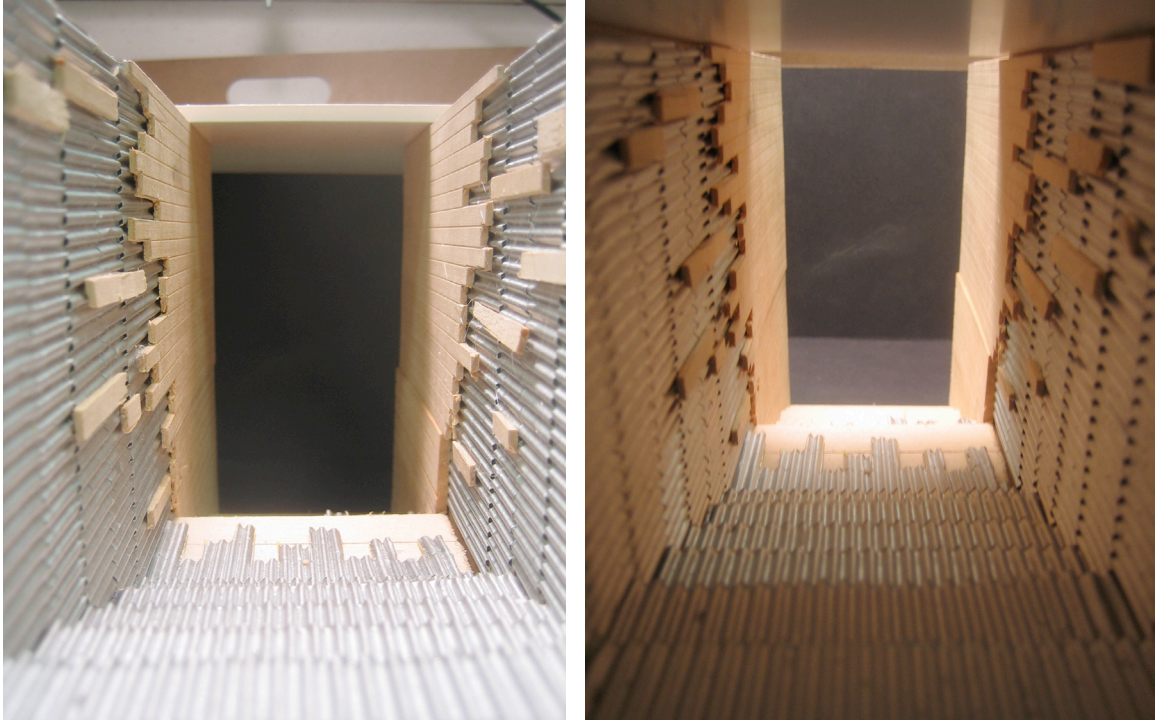
**Figure 71.** Entry lobby conveyed as a dark and heavy space with sheets of light cascading down the walls. The wells of light on the floor suggest the descent to the male/female changing rooms.



**Figure 72:** Wood ceiling expresses warmer sense of space



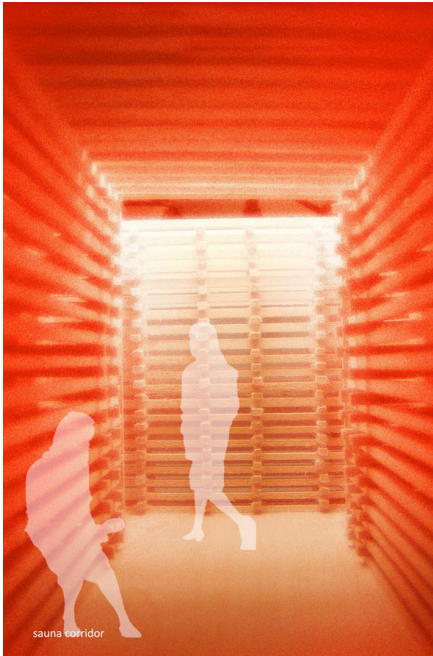
**Figure 73:** Wood ceiling expresses warmer sense of space



**Figure 74.** Descent from urban park to spa. This model suggests the existence of multiple zones within the transition from one space to another. This is accomplished through gradual material changes.



**Figure 75.** Central pool area with different lighting



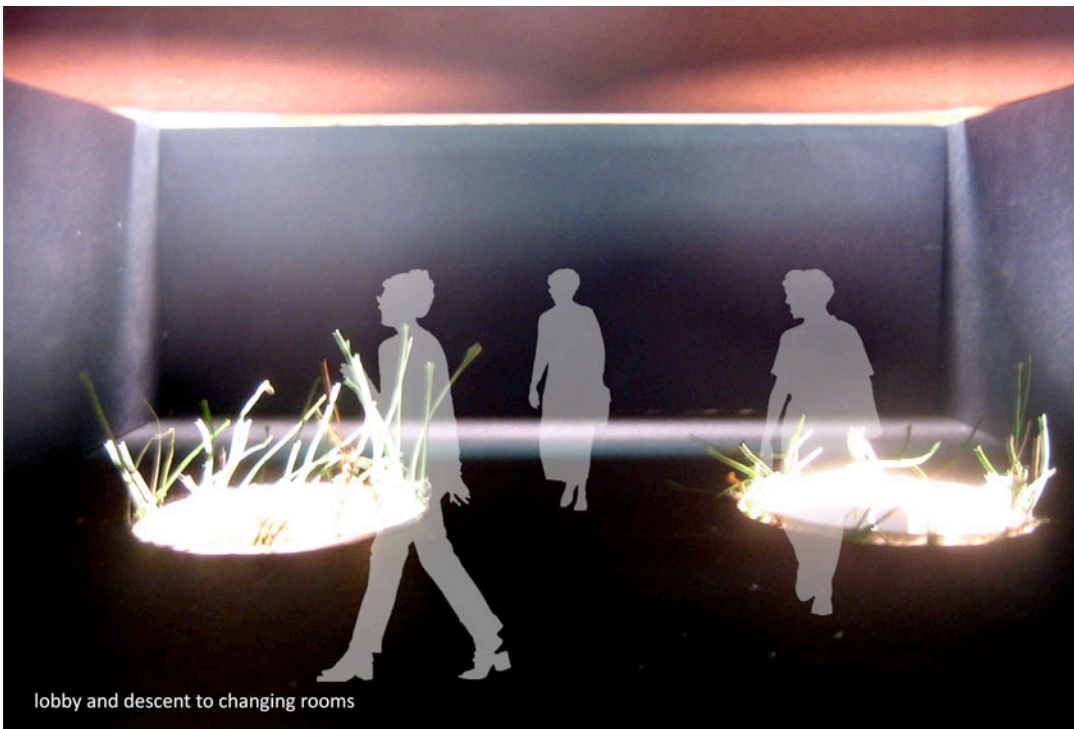
**Figure 76.** Left: Physical model conveying warmth  
**Figure 77.** Below: Physical model conveying coldness







**Figure 78.** Left: Physical model conveying descent  
**Figure 79.** Below: Physical model conveying heaviness



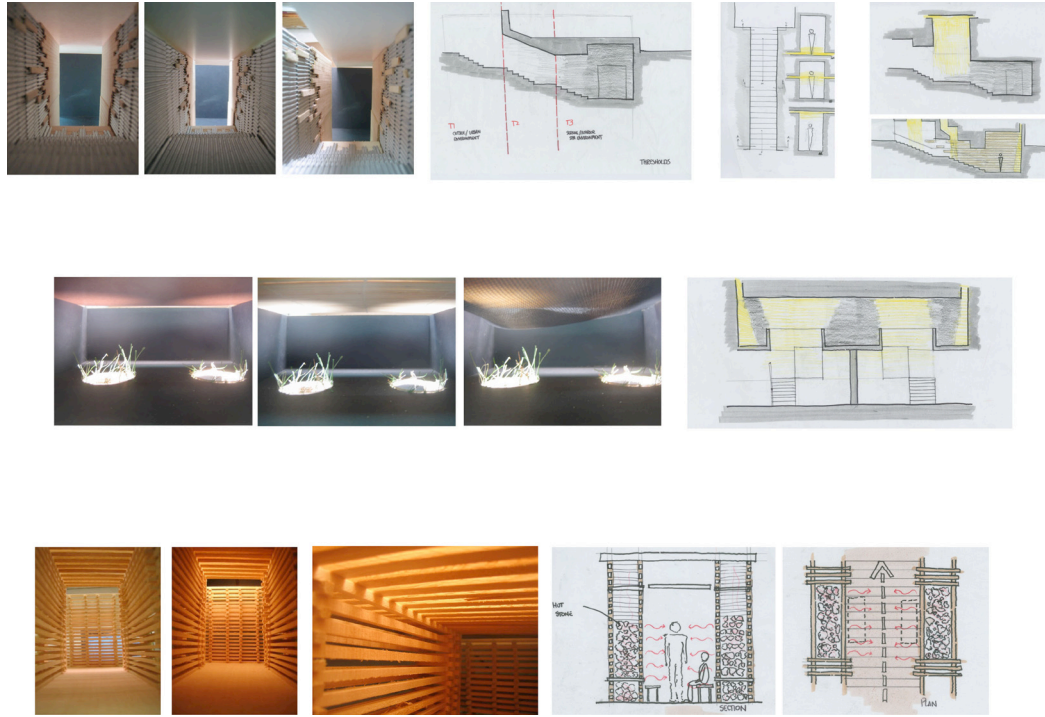


Figure 80. Process of dissecting conceptual models and studying them in plans and sections

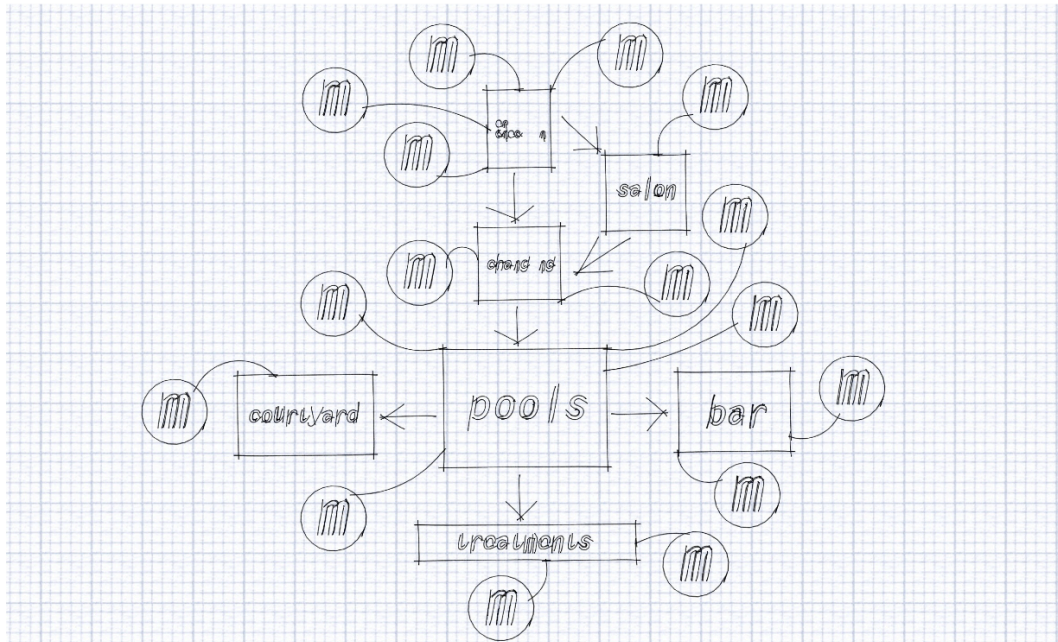


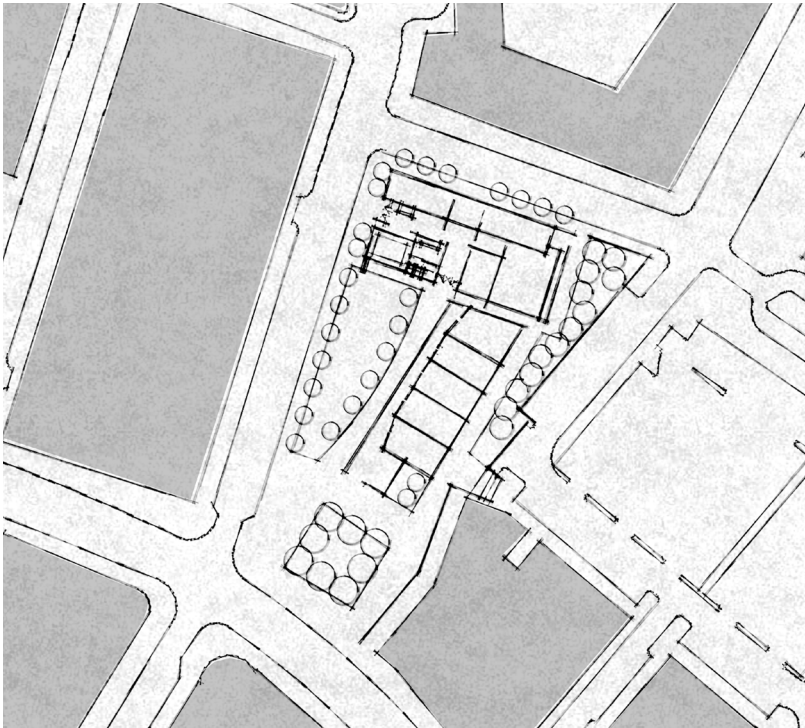
Figure 81. Diagram depicting potential moments within program of spa

## **Design Approach**

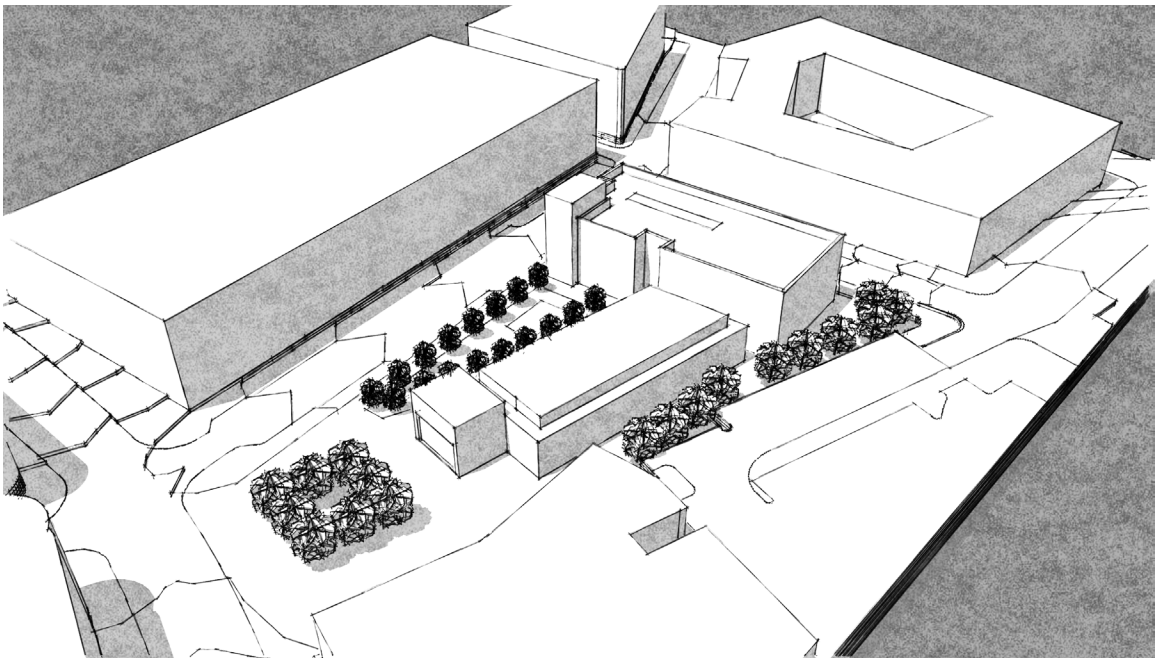
The two major questions of the initial design of the spa was how big will the spa be and where will it be placed on the site? After several meetings with the jury, the footprint of the spa would not take over the entire site, but only about 1/3 of the site. The residual space would become an urban park that gives back to the community with flexible spaces to promote activities. The urban park would not only be used as a public park, but also as a mediating place between the busy and noisy streets of Downtown Silver Spring and the quiet tranquil spaces of the spa.

The idea of the spa as a place of retreat makes it necessary for the spa to be placed completely underground. The topography of the site allows the site to be pushed to the deepest part of the site. This enables one facade to be exposed to the surface and a green roof that will permit apertures of light to filter down into the spa.

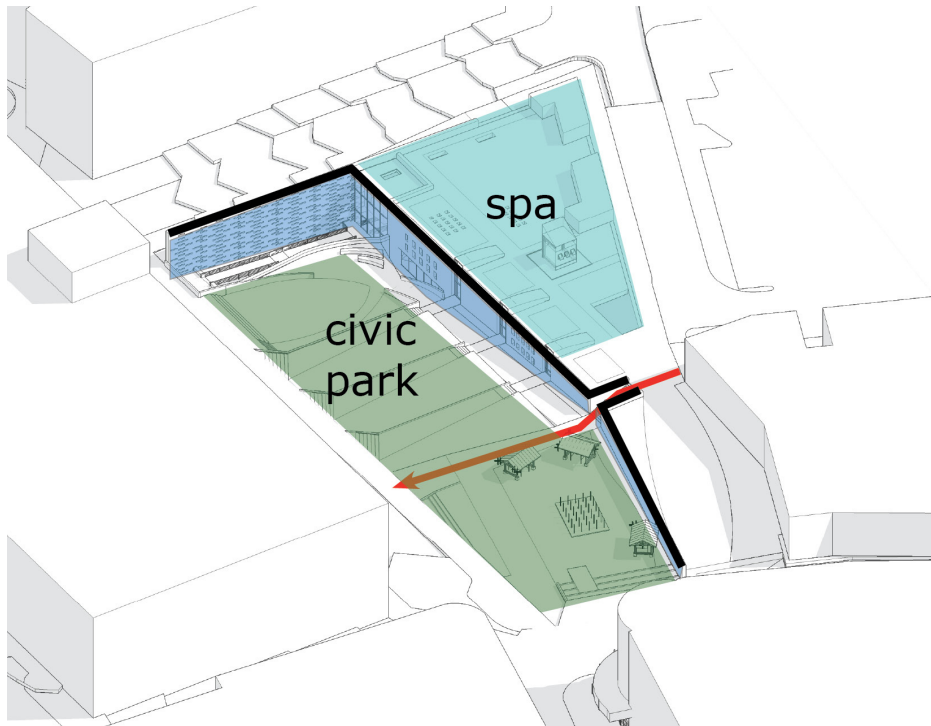
## Initial Proposal



**Figure 82.** Early site plan. With the spa located underground, the rest of site needed to be programed in some way. One thought was to add more commercial/retail space on the surface. This site plan proposes a hotel to the north with shops on the east.



**Figure 83.** Aerial perspective of initial proposal



**Figure 84.** Above: the spa is placed in the deepest part of the site and is separated from the civic park by a porous retaining wall



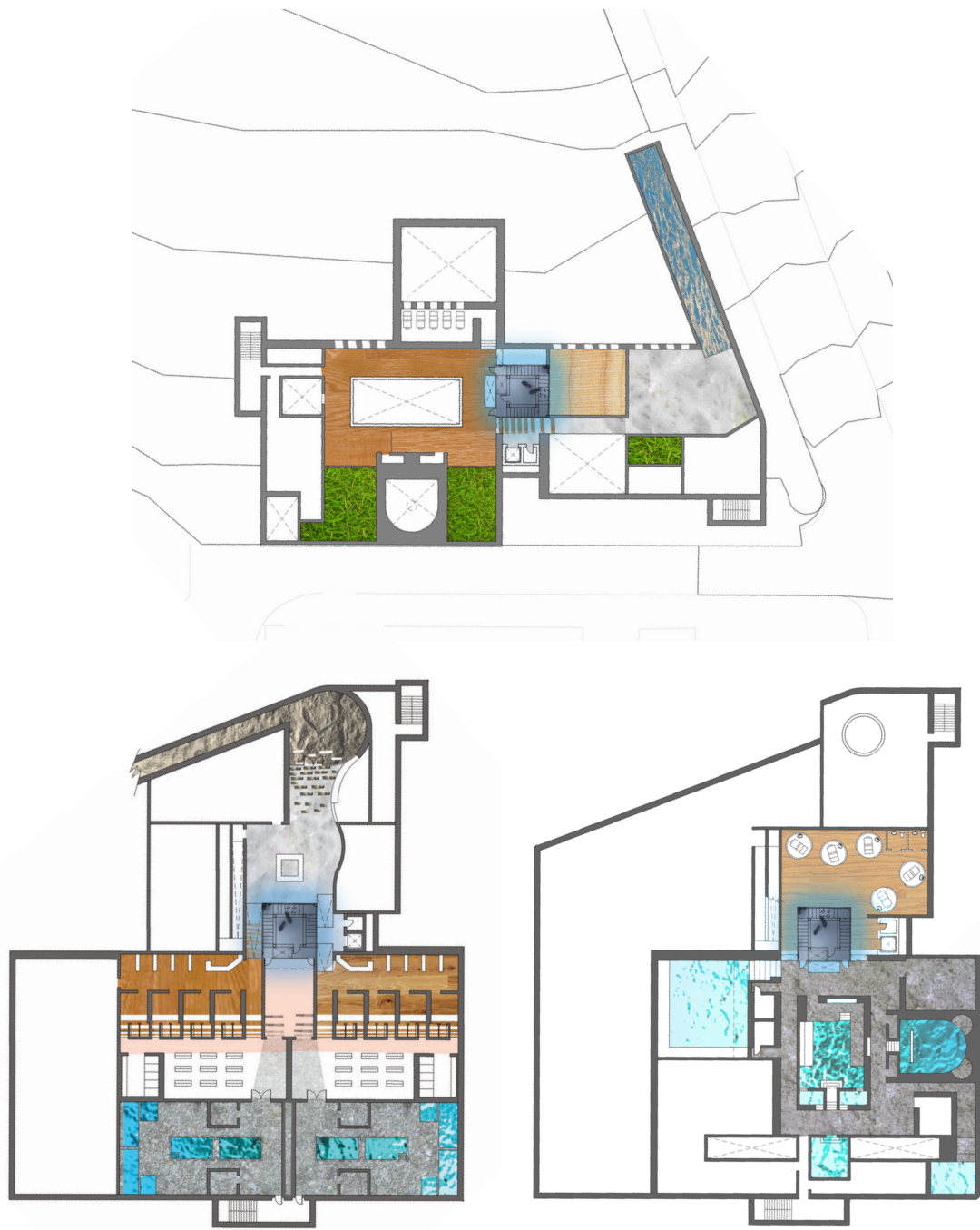
**Figure 85.** Left: Site also accommodates the restaurants and stores that align the site



**Figure 86.** Initial section study. Photographs from the matrix in figure 42 are collages within the section to illustrate mood of each programmed space.

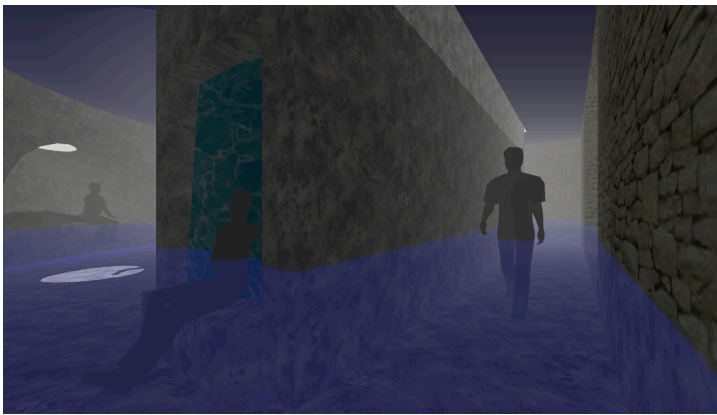
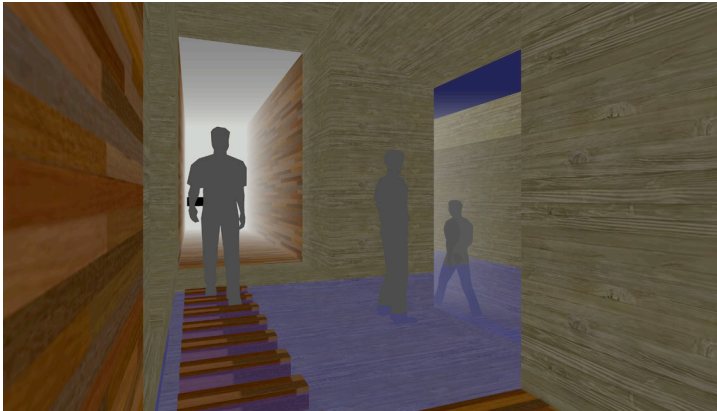


Figure 87. Cross section through steam tower

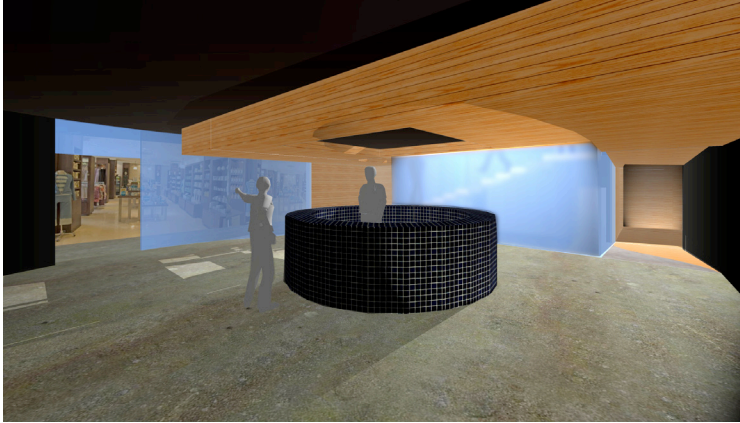


**Figure 88.** Initial floor plan studies

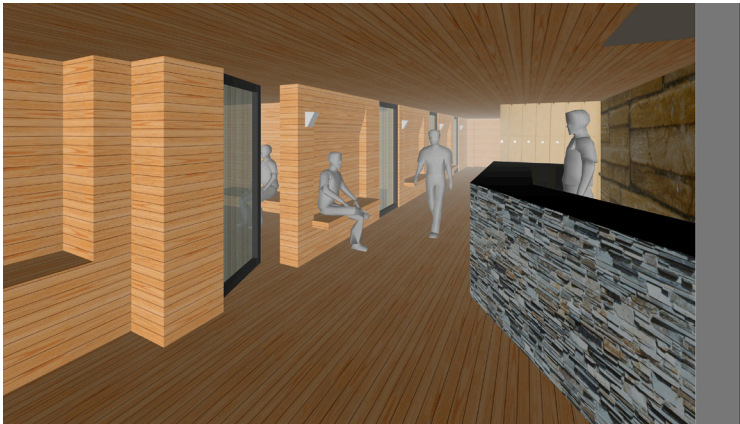




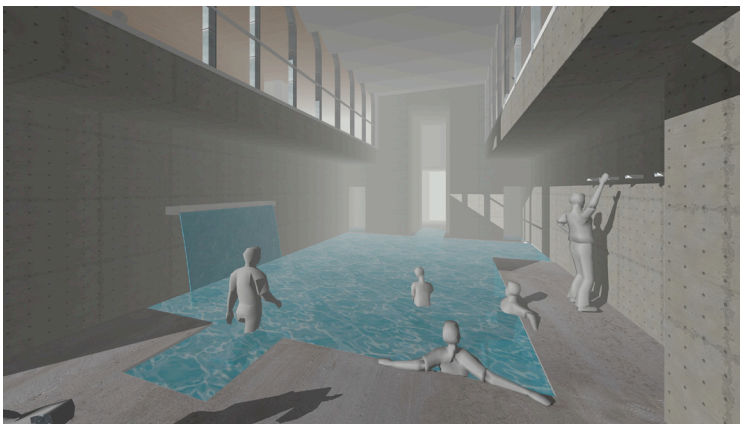
**Figure 89.** Pool of silence. This series of images depict a pool in the spa that transitions users into a pool of quietness.



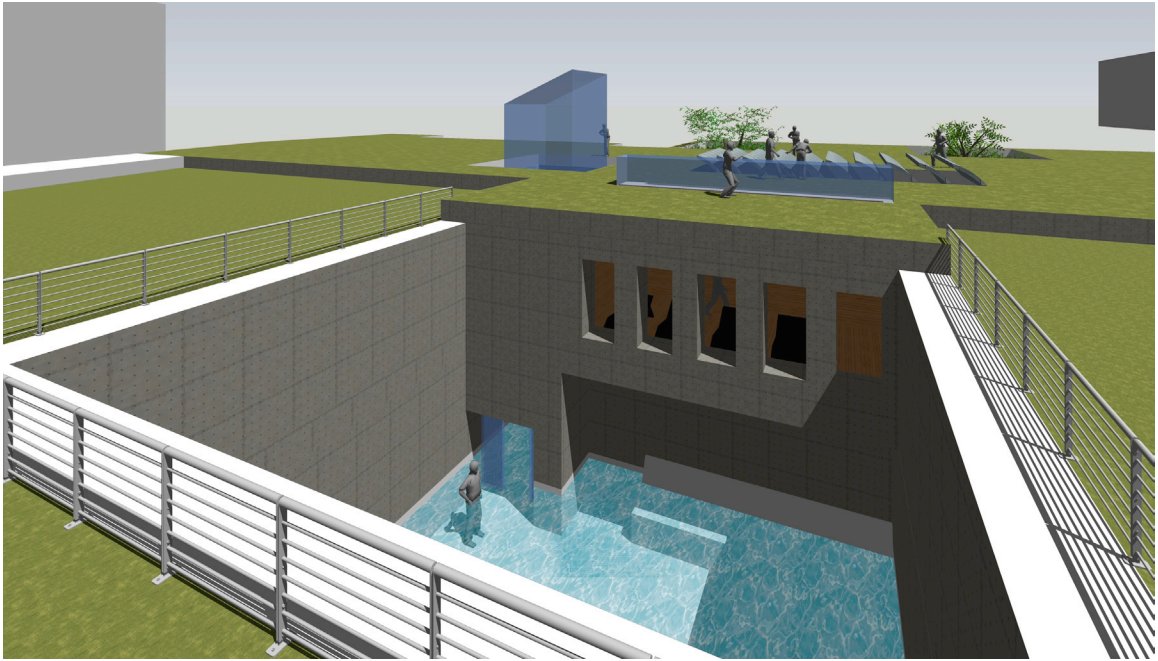
**Figure 90.** Initial entry lobby. Once visitors reach the lobby, the steam tower acts as a backdrop for the space with shadowy figures of bathers circulating up and down the stairs. The entrances to the changing rooms are on either sides of the tower.



**Figure 91.** Initial changing units. Using the wood concept model (figure 76.) the changing units were model to portray a sense of warmth and softness.



**Figure 92.** Initial central pool area. The contrast between water and heavy stone heightens the haptic sense of hard and soft.



**Figure 93.** View of the open to air pool



**Figure 94.** Section perspective of early spaces within the spa.

## Site and Program Organization

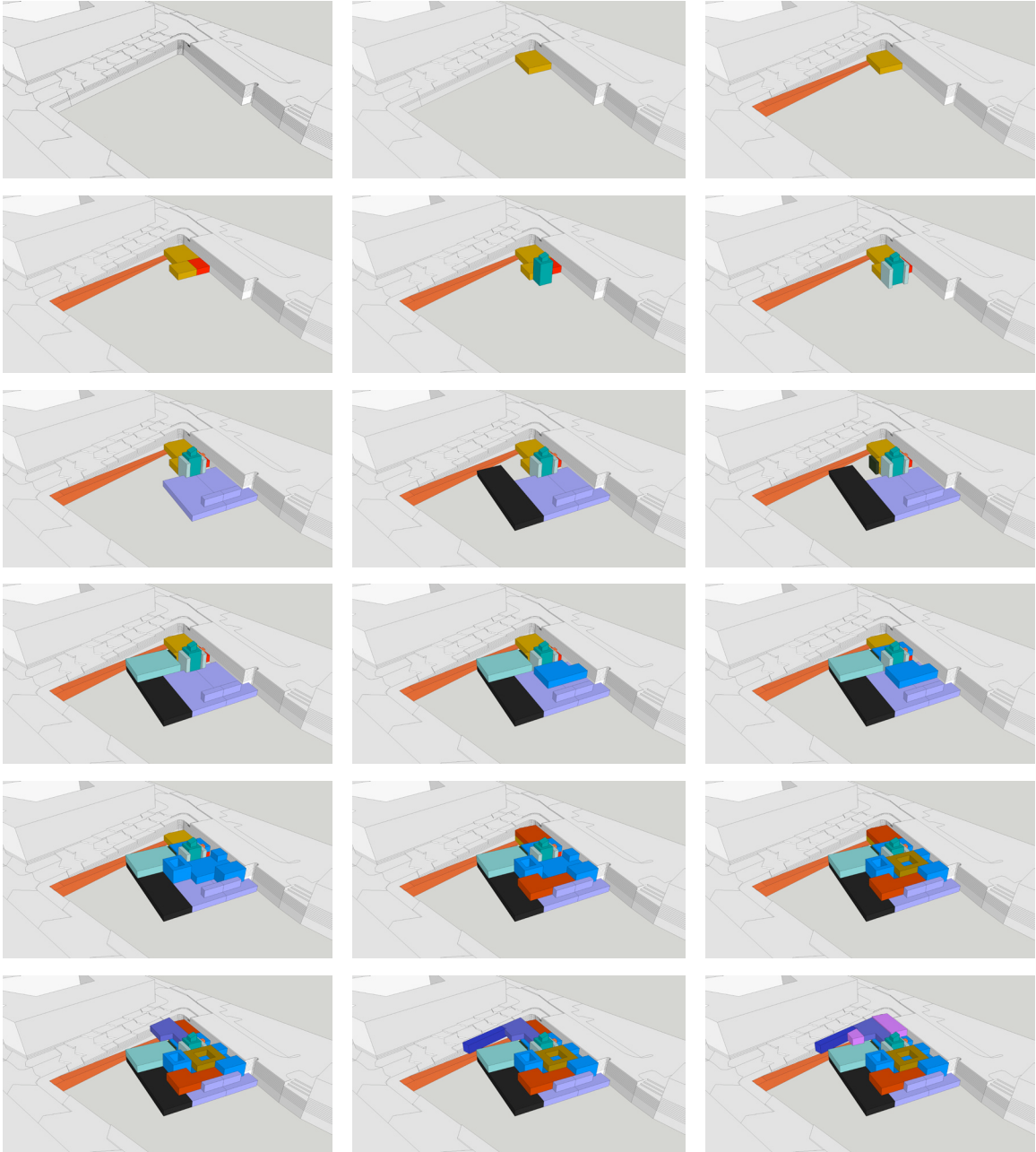
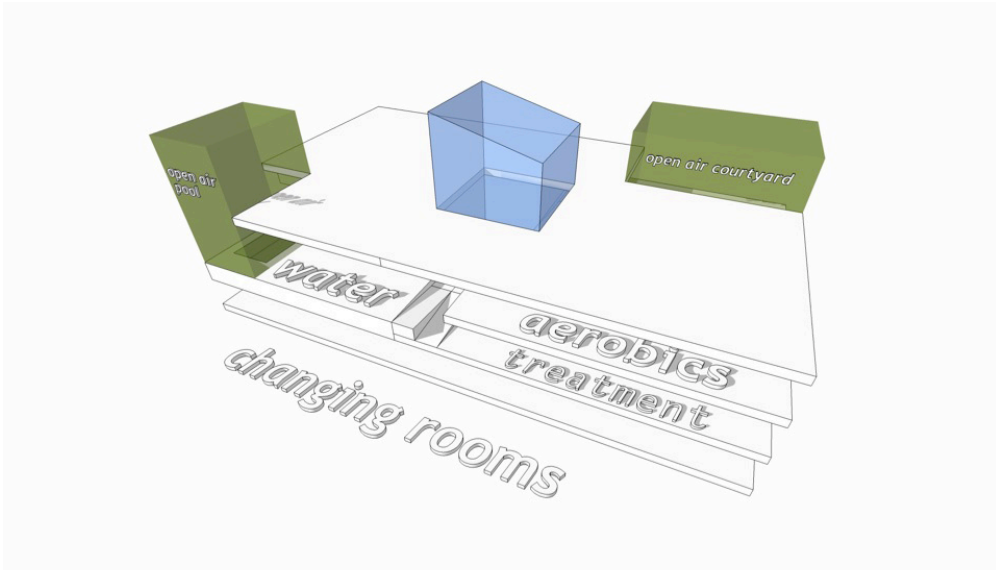
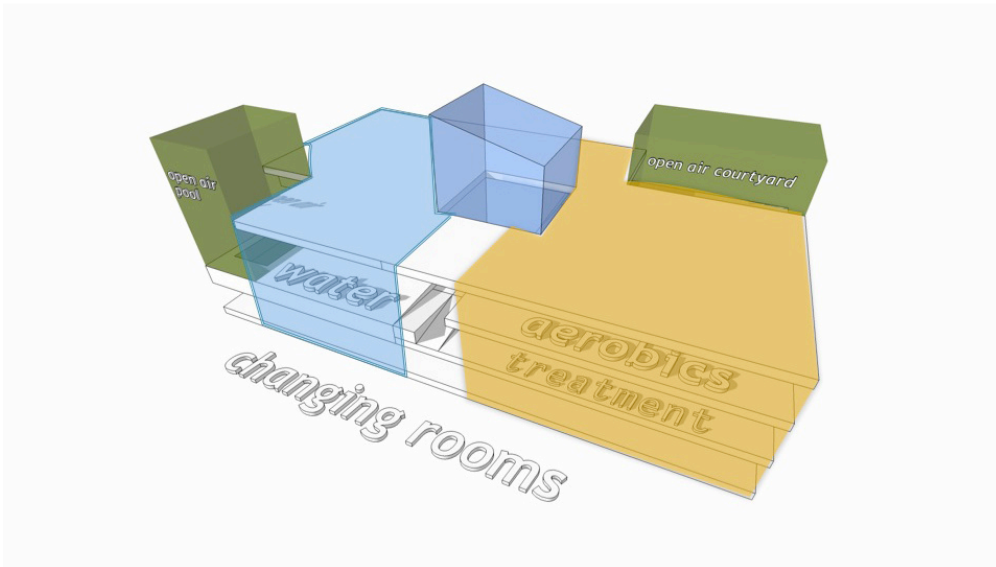


Figure 95. Progression of how the program components are fitted onto the site.



**Figure 96.** Basic organization of major spaces in spa. The steam tower anchors the spa and acts as the main vertical circulation tower. Users ascent and descent within the spa to get to their destination.



**Figure 97.** Wet and dry areas. For mechanical purposes, all the wet programmed spaces (the pools) are located on one side of the tower while all the dry programmed spaces (exercise room and treatment) are located on the opposite end.

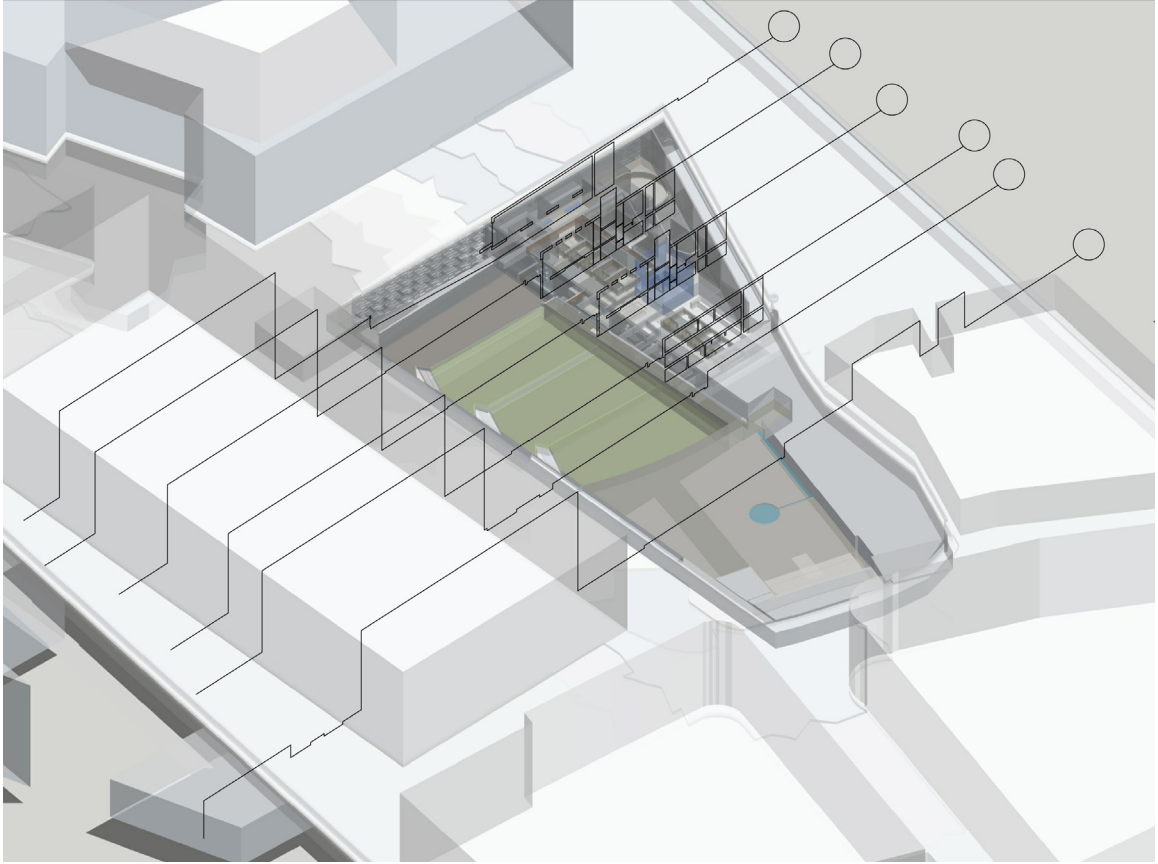


Figure 98. Diagram showing major section cuts.

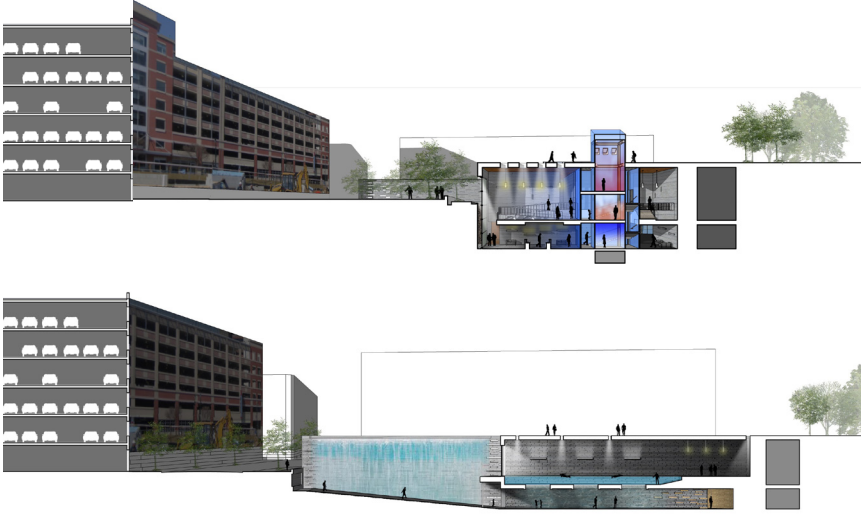


Figure 99. Site section studies of spa and urban park



**Figure 100.** Early detailed section study



**Figure 101.** Procession down ramp along spa. This collage perspective attempts to capture the feel of descent down the ramp to the lower level plaza.



**Figure 102.** Procession of upper level plaza.



## **Proposed Deign**

The intention of the design take visitors on a multi-sensory journey through the site starting from when they set foot on the urban park to when they plunge into a bath in the spa. The site invites pedestrians to come on to the site from all direction, and several sequences exist that take visitors to the spa. However, the primary sequence that the design chooses to illustrate is the sequence from coming from Ellsworth Drive, the busiest street of the site that channels the most visitors.

The objective of this sequence gradually transition visitors from one section of the site to another through a series a moments that either amplify or suppress their senses. For instance, visitors will stroll underneath rows of cherry blossom trees that release the smell of flowers, but shield them from sun and rain. The progression of these moments ultimately prepare visitors for the spa experience and slows them down from the hustle and bustle surroundings of Downtown Silver Spring.



**Figure 103.** Aerial perspective of proposed design within urban landscape

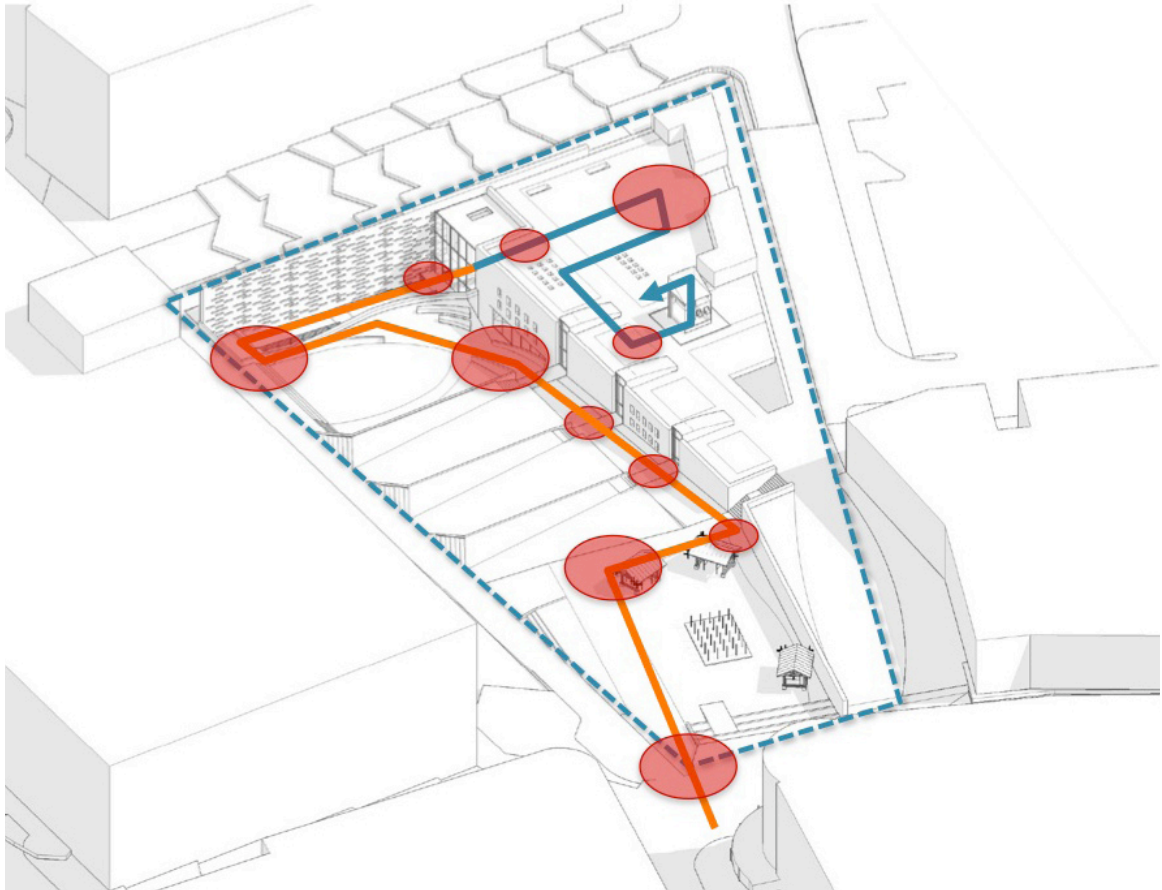
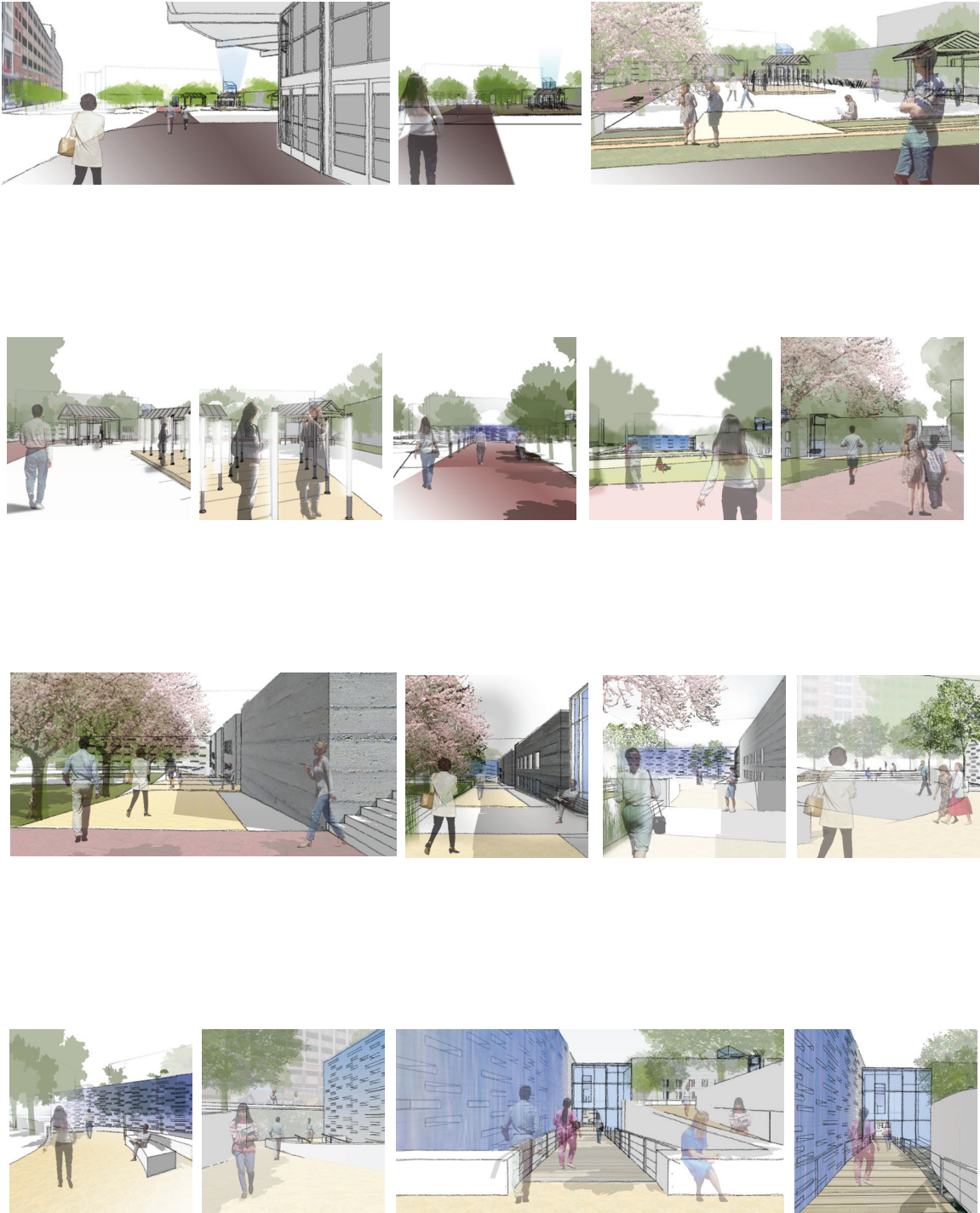


Figure 104. Diagram of sequence with moments

**Choreographed Moments**



**Figure 105.** Moments

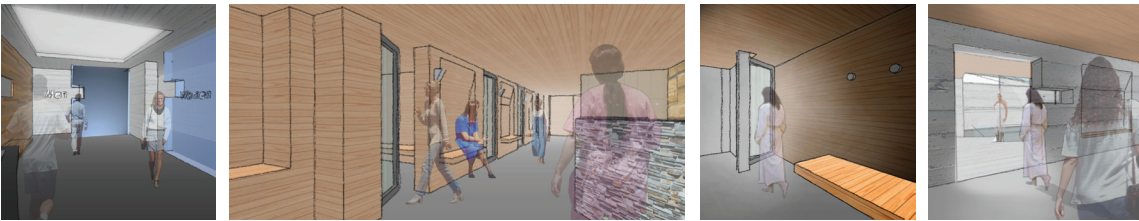


Figure 106. Moments cont.



Figure 107. Site plan

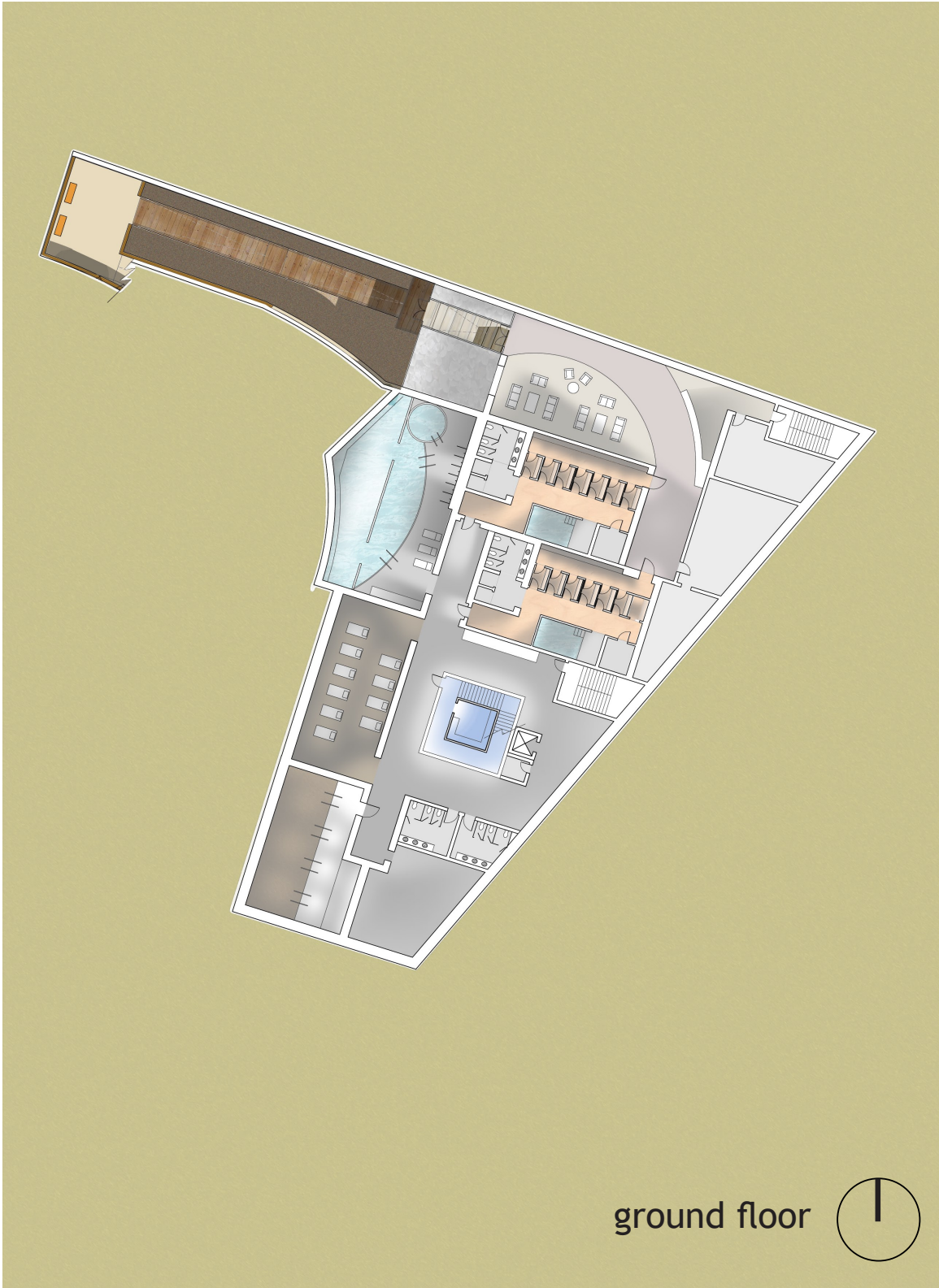


Figure 108. Ground floor plan

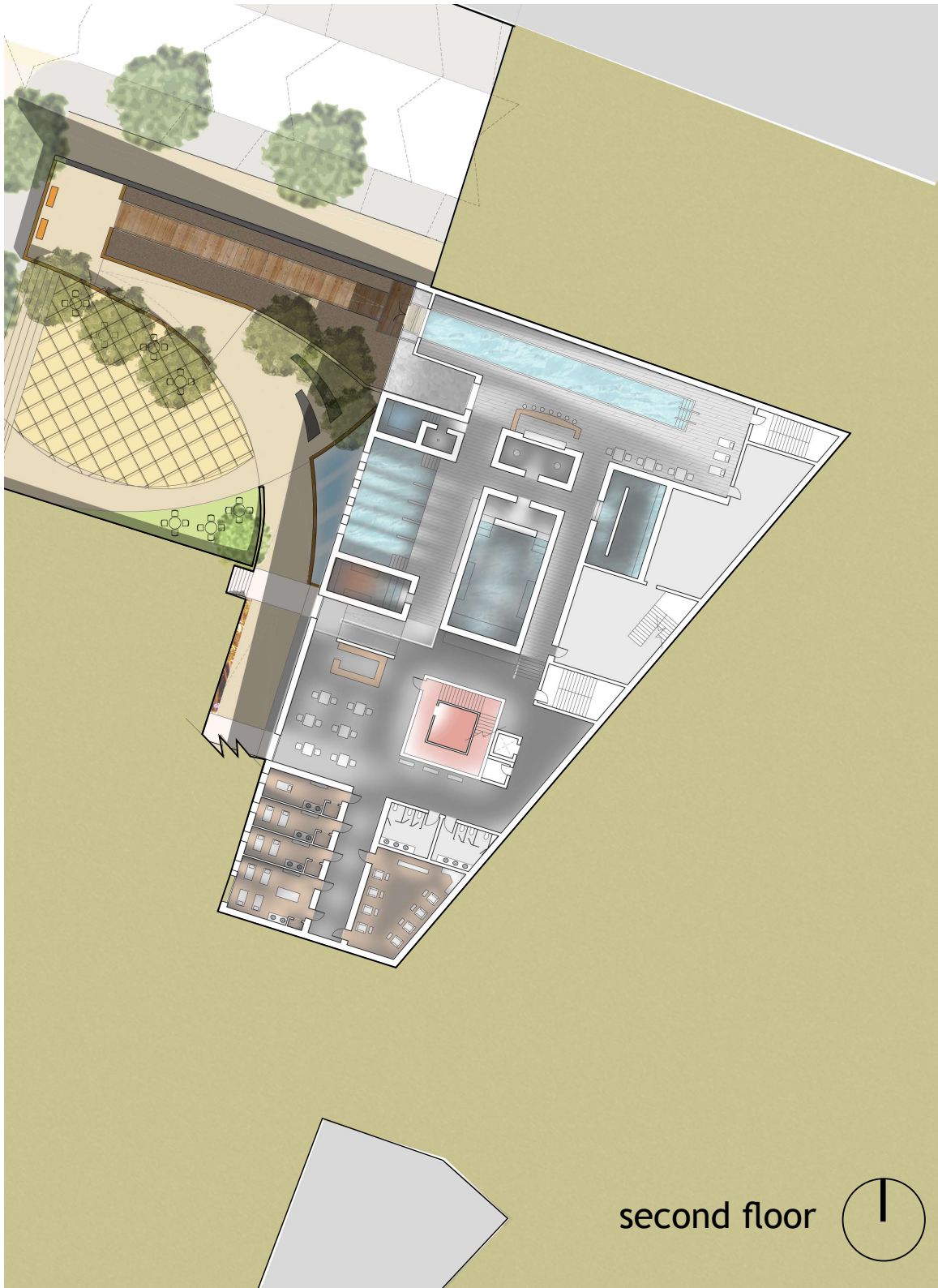


Figure 109. Second floor plan



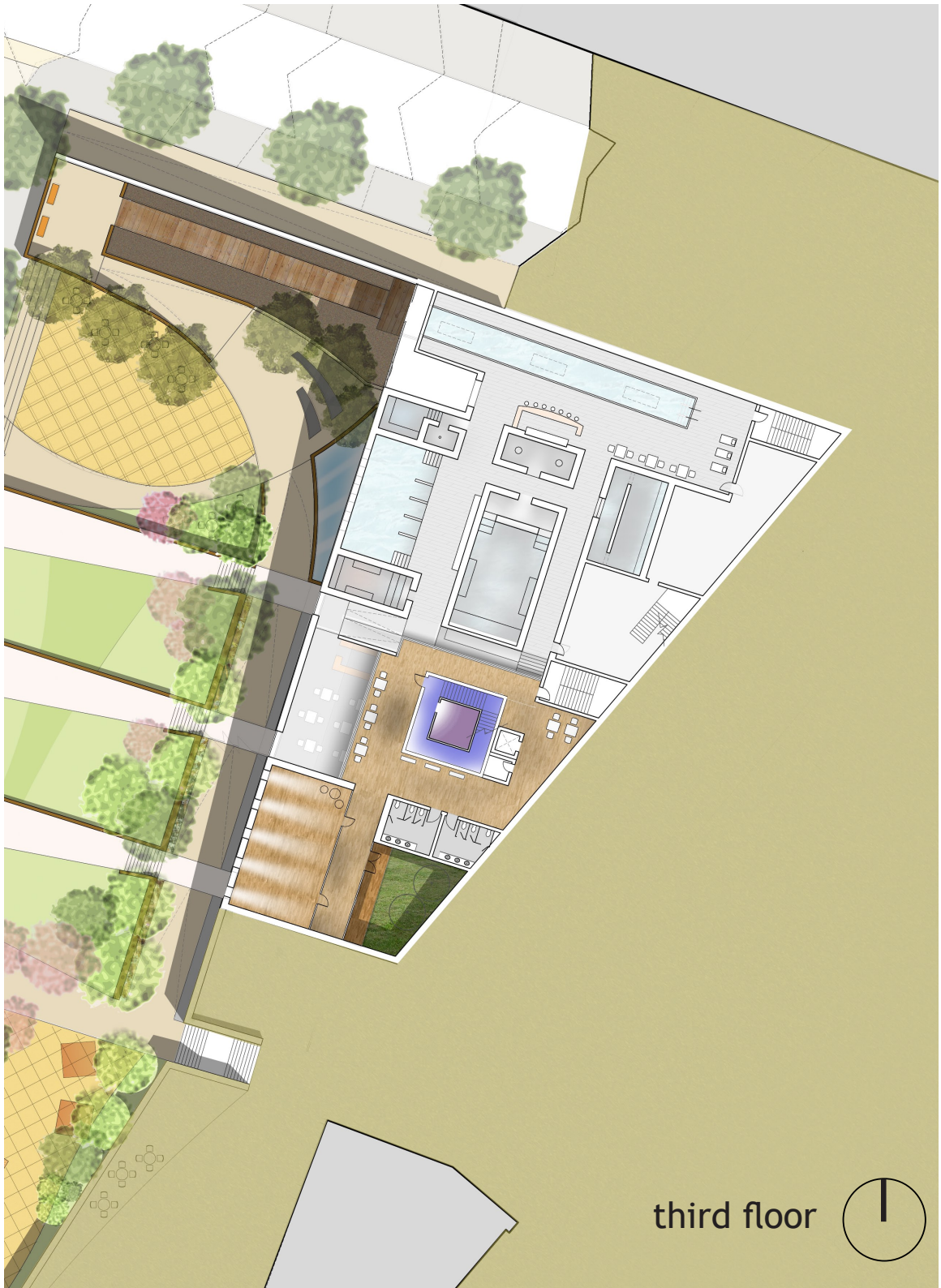
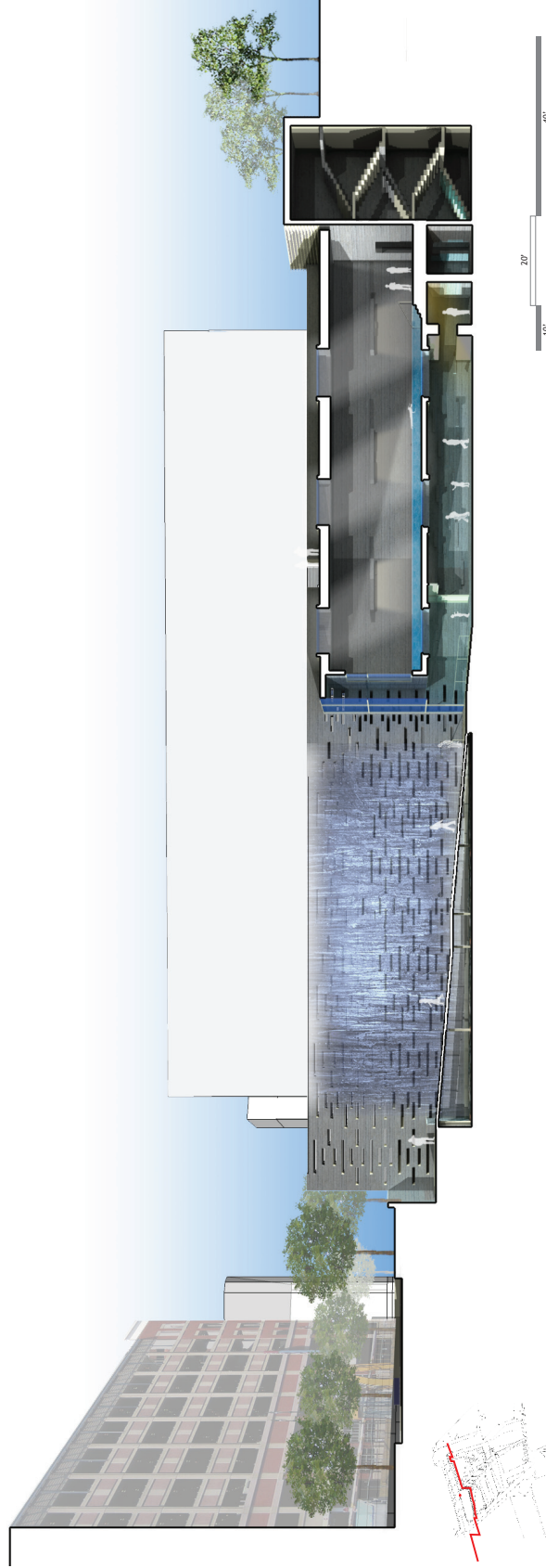


Figure 110. Third floor plan



**Figure 111.** Site section cutting down urban park looking west



**Figure 112.** Site cross section cutting through entry and lap pool looking north



**Figure 113.** Site cross section cutting through main pool area and fitting units looking north



**Figure 114.** Site cross section cutting through steam tower looking north



**Figure 115.** Site cross section cutting through exercise room and mud room looking north



**Figure 116.** Perspective on sculpture parking looking down at urban park

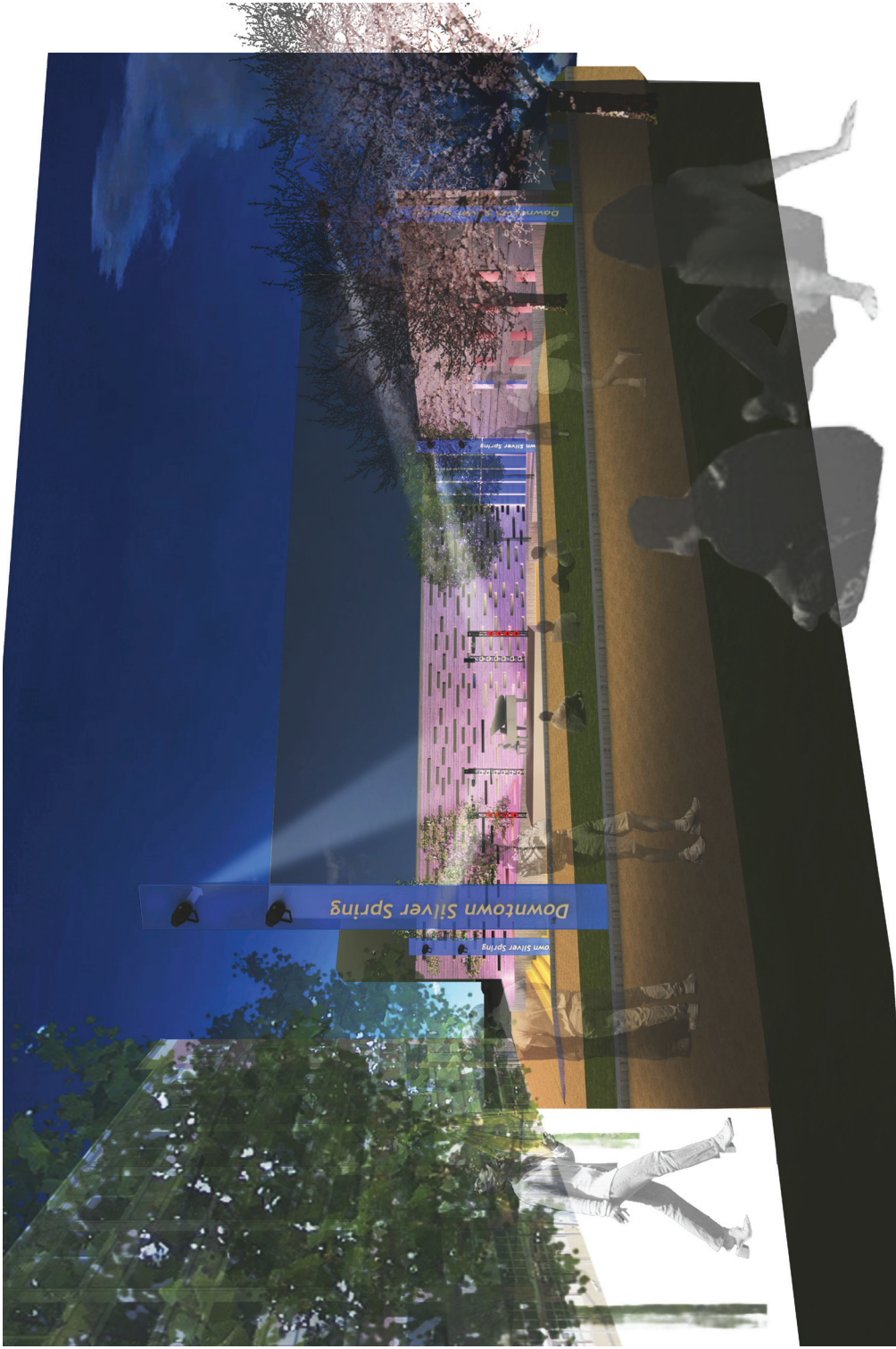
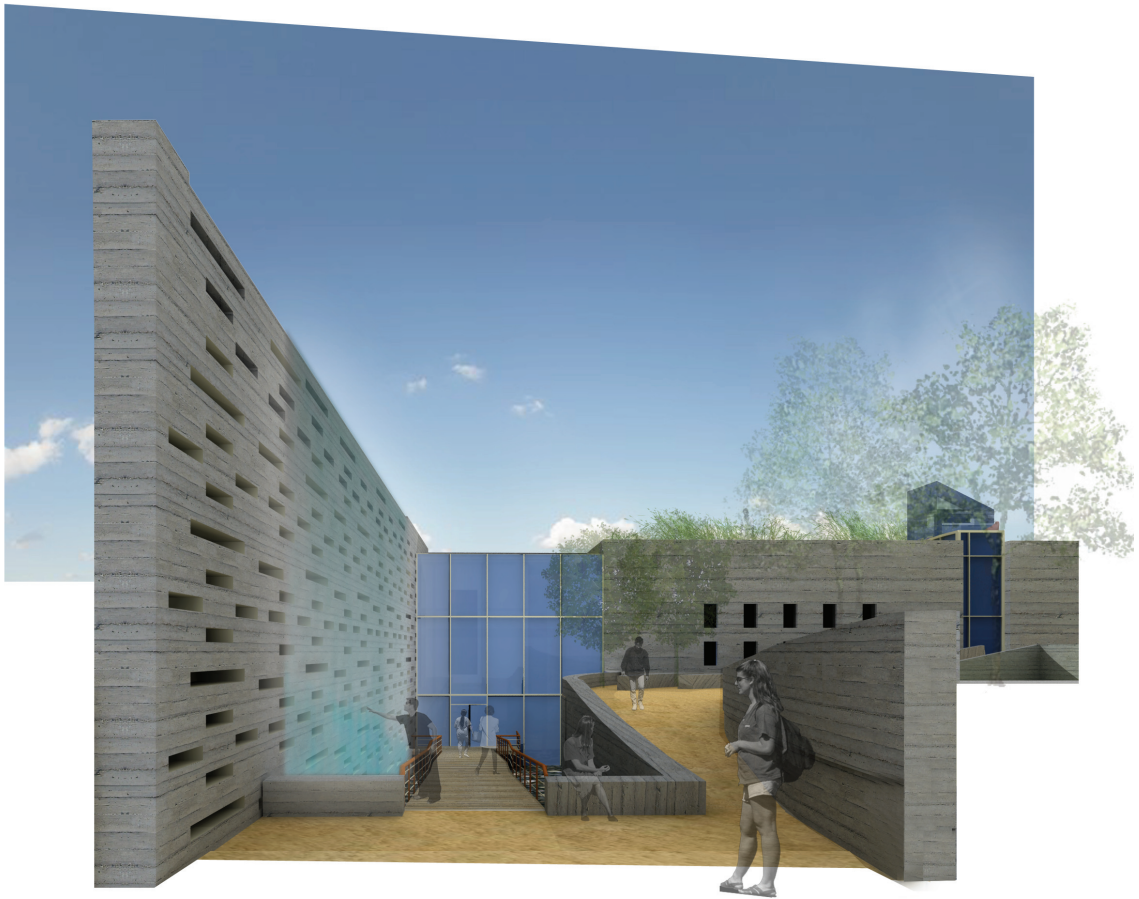
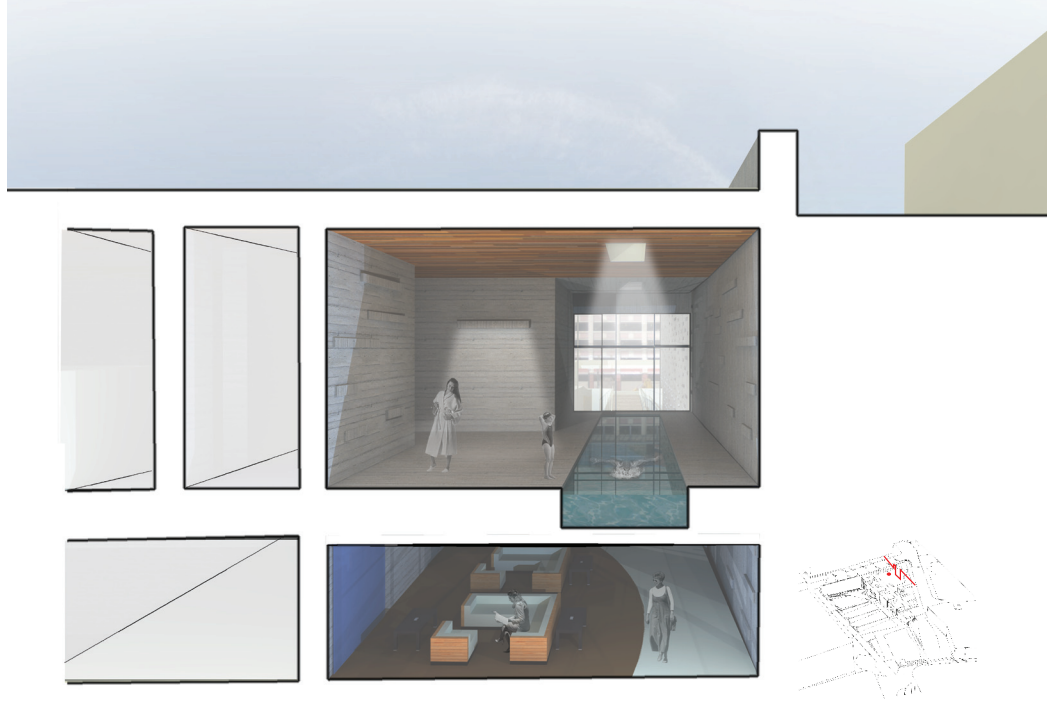


Figure 117. Night perspective of amphitheater

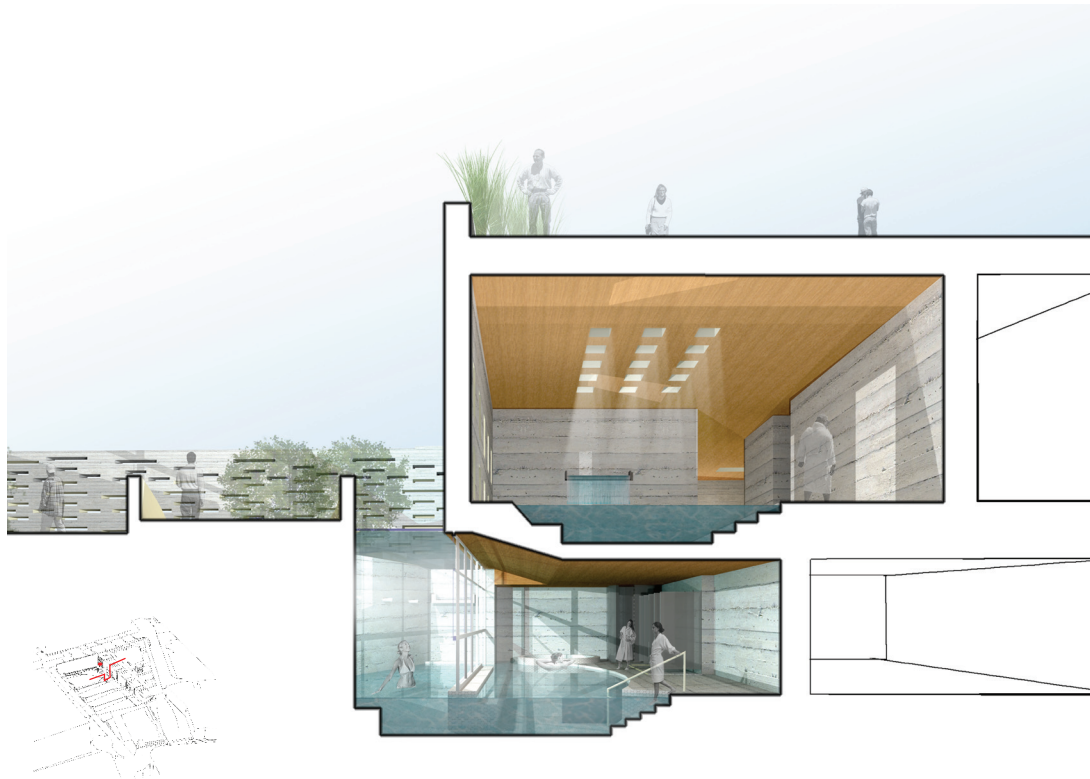




**Figure 118.** Perspective of the descent to the spa along the waterwall



**Figure 119.** Detailed section perspective of lap pool and entry lobby



**Figure 120.** Massage pool and main pool area



Figure 121. Descent down to lower level plaza



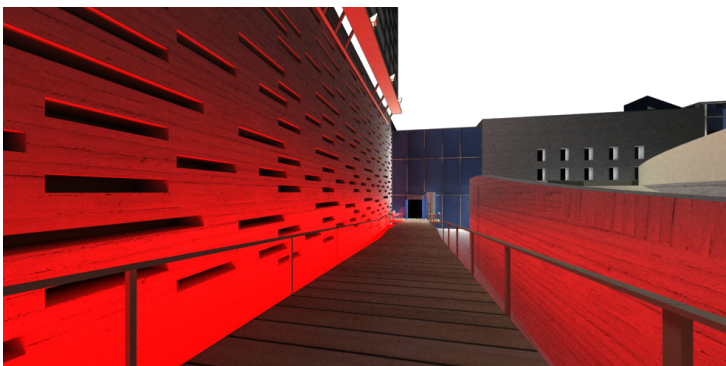
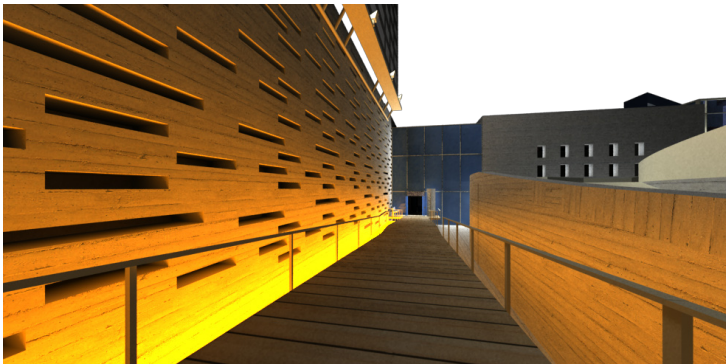
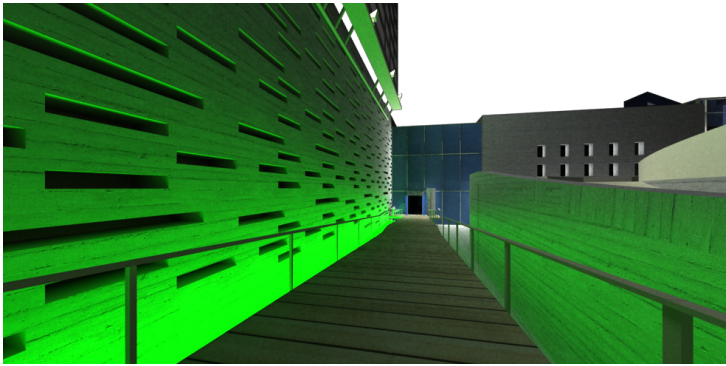
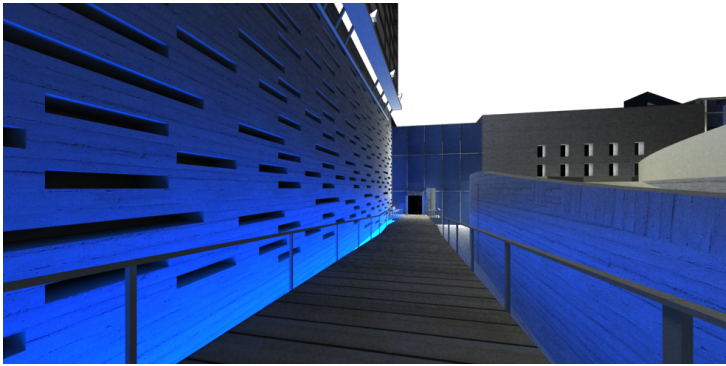
Figure 122. Night view of the descent down to lower level plaza



Figure 123. Day shot of amphitheater looking at movie screen



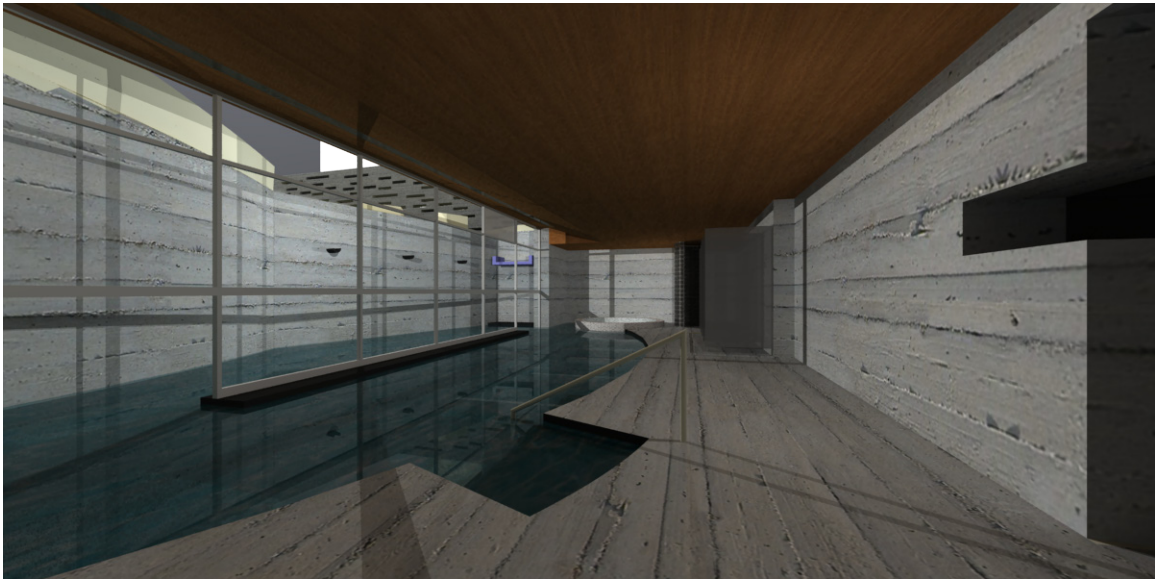
Figure 124. Night shot of amphitheater during movie screening



**Figure 125.** Changing colors of light on water wall.



**Figure 126.** Lap pool area with skylights



**Figure 127.** Massage pool area with glimpse out to the lower level plaza

## **Conclusion**

The thesis intention evolved a great deal throughout the design process. It initially focused on architecture and the senses with a design of the spa itself. Then through rigorous studies of knitting architecture to its urban context, the thesis shifted to an investigation of the reciprocity of architecture and landscape. The thesis looked at designing the site as a whole and strived to blend the architecture with its landscape.

The experiences of the space became paramount to the initial thesis question: How can the qualitative aspects of architecture be the driving force of the design? How can the architecture be shaped to bring out the sensual qualities of space? Various methodologies were experimented to communicate these spatial qualities to viewers. Digital collages of textures were pieced together to amplify how

one might experience the senses of touch in a spa. Charcoal drawings were constructed to convey the strong contrasts between light and dark spaces and how light are spent on various materials. Animations were rendered to transmit the sense of sound in a space. The method of *how* to represent the sensual qualities of space to an audience became another challenge.

The scope of the thesis moved from studying the theories of architecture and the senses to a more site driven approach of blurring the line between architecture and landscape. Consequently, by the public review, the thesis became about an experiences in space and how design was manifested from investigating the qualitative aspects of space.

### **Review Notes**

After the public presentation, I realize that I need to better represent the sensuality of the moments. I plan on going through another pass on the vignettes and/or continuing the animations I have started before. I also want to incorporate the sense of sound and motion into the sequence. I was also intrigued by Roger Lewis' comment on going back to the sensual qualities seen in my matrix and making a



stronger connection between that and my perspective vignettes.

### **Strengthening connection of landscape and architecture through materiality and light.**

After completing the drawings for the public meeting, I realize that I can further strengthen the connection between the spa and civic park. One strategy could be a more developed study of materials. Can the materials that are used in the civic park reappear in the spa? At what moments does these materials reappear? How can these materials trigger our sense of touch? The connection between the sculpture park on the spa appears under cooked. I plan to re-evaluate the openings on the green roof. What are the dimensions of these openings or lenses? Does the lenses protrude out of the roof or can one walk on it? How does the spa receive light? At what amount? How can the light/shadow dematerialize a floor/wall surface?

### **Fixing Accessibility**

From Frances Halsband's comment, I plan to fix the accessibility issue particularly the steps leading down to the lower plaza and amphitheater.

Also, I plan on developing the passage of the “back alley” ramp behind the water wall. Right now, the water wall seems to turn its back on the proposed apartment block. What does that space between the water wall actually look or feel like? I remember Jack suggesting the space does not have to be a street, but could be a pedestrian passage way instead. I could try testing out what the space would be like through more perspective vignettes.

### **Animating the Lower Plaza**

From Ralph Bennett’s comment, the lower plaza needs some kind of a monumental icon that draws in visitors into the space to counter the large backdrop of the apartment building. He suggested that an obelisk of some kind or extending the water wall to a higher height might help. I plan on testing these ideas out through perspectives standing at different spots of the sequence.

## Notes

<sup>1</sup> As quoted in *Not Architecture But Evidence That it Exists*. Laretta Vinciarelli: *Watercolors*, Brooke Hodge, editor. Harvard University Graduate School of Design, 1998, 130.

2 Gibson, 1950

3 Pallasmaa, April 1996

4 Zero Energy Media Wall

5 Feldman, 2002, p. 91

6 Galanter & Kleber, 1999

7 P. Zumthor, 2003

8 H. B. Zumthor, 1998

9 Zumthor, H.B. 1998

10 P. Zumthor, 2003

11. Shop Design Series: Leisure & Wellness Facilities 1994-1999

12 Biller & Scofidio, 1999-2008

13 Cranbrook Natatorium, 2008

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