# A Humanizing Nature

## Multifamily Housing through the Lens of Human Experience

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# ABSTRACT

## A Humanizing Nature: Multifamily Housing through the Lens of Human Experience

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This thesis explores issues that affect the human experience of nature within cities in a way that permeates daily life and restores the fundamental relationships that have shaped the humanity for thousands of years. In order to move beyond the simplistic conclusion that trees, plants and parks can adequately meet the essential needs of urban dwellers, a three part framework has been established. The dimensions of this framework provide a means of assessing the building site and context, as well as a framework for building design.

The first component is the large cycles that govern our world; the building can make manifest relationships that are routinely hidden through artificial lighting or climate control. The second means of fostering human connection to nature is through the senses. This enables the individual to experience of the cycles and their ramifications. The relationship cannot, however, be complete without the opportunity for the individual to affect their surroundings. The third component, therefore, is engagement. Through this process, the person is no longer a passive observer, but develops a relationship with the surrounding world.

This three-part approach does not prescribe a means of building, but rather provides a means of assessing both site and design to create a building that fosters relationships to nature currently absent in cities. In order to test the framework, a multifamily housing project was sited and designed in Seattle. While the framework may be appropriate for commercial, office, health care, education or other buildings, this choice recognizes that housing is the one building type that most people interact with daily.

# PREFACE

This project has been a long and difficult exploration and would not have been possible without the suggestions and support of a number of people. Direct guidance from Professors Brian McLaren, Rick Mohler and Gundula Proksch was instructive in both shaping the direction of the process as well as moving through the many expected and unexpected challenges along the way.

Additional guidance along the way was found in the suggestions of other professors, peers and friends in other departments. A number of fellow students also provided their opinions and suggestions regularly, and those conversations helped to shape both the investigation and the design.

I am also grateful for the support of my wife, family and friends throughout the thesis process, and also in the years leading up to the completion of this work.

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## URBANIZATION: THE GLOBAL CONTEXT

The world is undergoing an intense era of urbanization. Over half of the world population currently lives in urban environments, and projections suggest that by 2050 cities will house as many people as currently occupy the entire planet. The situation in the United States is indicative of this trend, though significantly further advanced. 80% of people in the US reside in cities and urban growth will account for all of the 100 million new people expected to join the US population by 2050.[1]

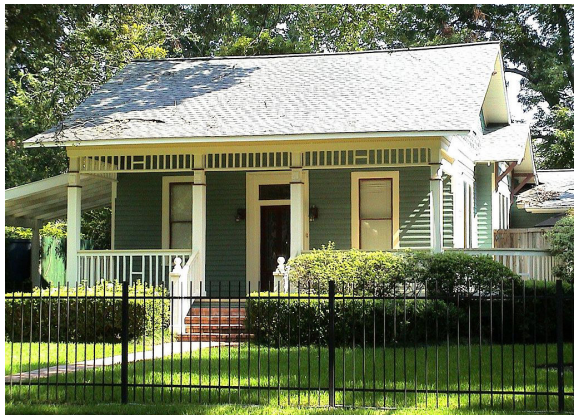
Increasing migration toward urban centers, combined with the exponential growth of human population, suggest that the density currently experienced in cities is only the beginning of a massive movement. While the pressures of today seem overwhelming, a failure to develop a thoughtful approach to density without fundamentally addressing quality of life will result in compounding issues in the future.

For many reasons, the concentration of world populations in cities is heralded as a boon to society. Especially in the United States, urbanization is seen as an antidote to the automobile fueled suburbanization of the 20th century. The merit of urban centers comes through efficiency. Shorter travel distances and the concentration of destinations makes mass transit not only more economically feasible, but also preferred for reducing traffic and the associated stresses commuters face. Efficiency of sanitation and energy infrastructure can be similarly improved. Examples of forward thinking sewage treatment centers that utilize wetland plants restore habitat while cleaning effluent, and biomass co-generation facilities demonstrate the possibilities for further developing sustainable systems made possible through density. Underlying all of this is the fundamental belief that by concentrating growth, we can preserve larger amounts of open land: nature.

Urbanization also supports less quantifiable benefits. The efficiency of infrastructure often results in excess financial and human capital that develop into the amenities that make cities vibrant and exciting. Restaurants, dancing, art and music while not exclusive to cities, are more concentrated, allowing like-minded people to collaborate. While the internet has democratized much of the artistic realm, cities remain the incubators for cultural trends and opportunities.

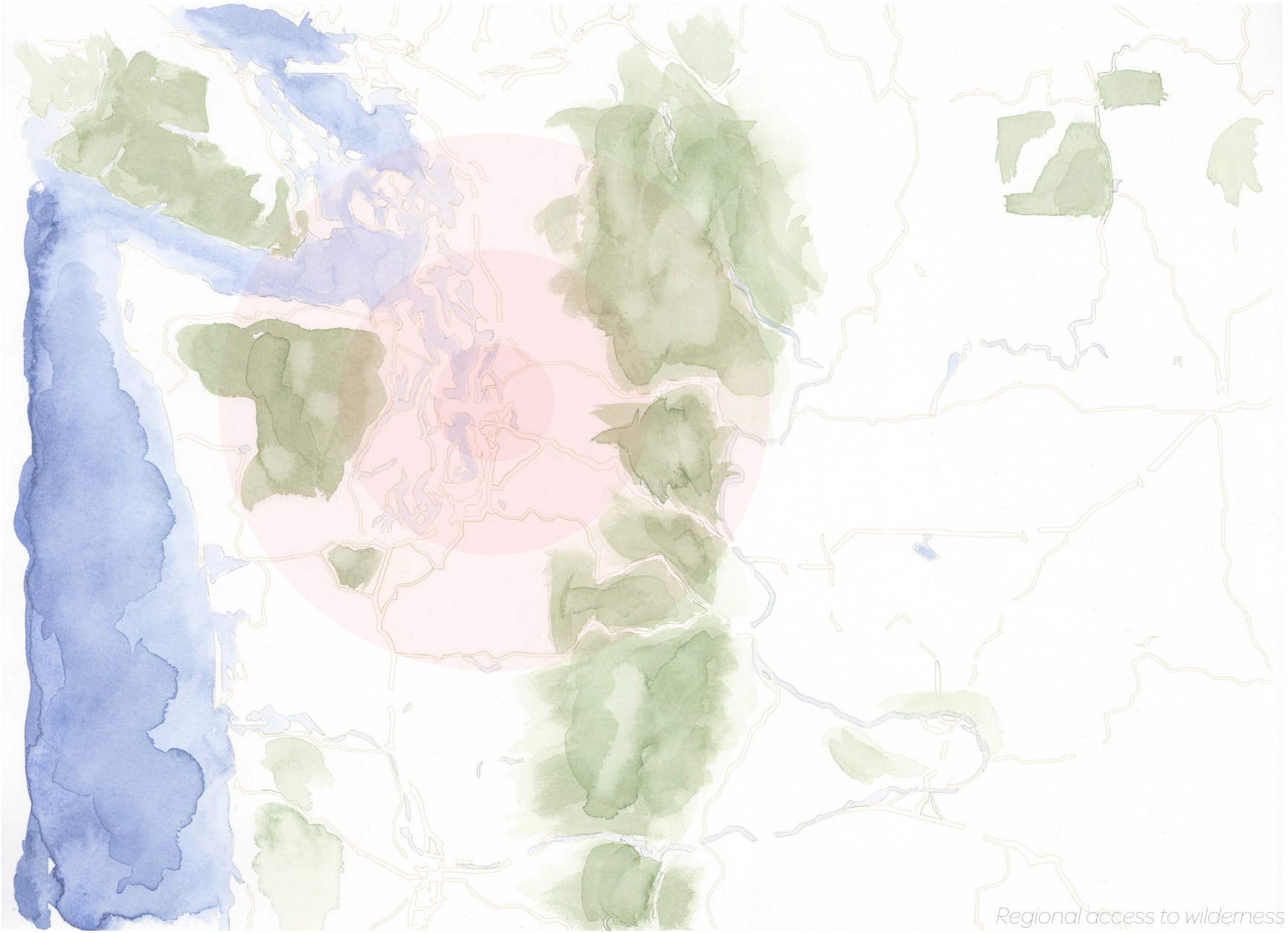
There are, however, well known drawbacks to the urban condition. Traffic, noise and the concentration of waste, both human and industrial, are all issues that have plagued cities from their earliest development. As with many cities around the country, and around the world, issues accompanying density are intensifying in Seattle. Massive infrastructure projects are currently underway to address mounting transportation deficiencies, issues of housing affordability and the increasing inequity that results from both.

Issues of sustainability are also forefront in many discussions regarding urbanization, including increased strain on aquatic ecosystems from storm water runoff, which is slowly being addressed through the implementation of rain gardens, swales and green roofs. Urban trees are another area of consideration, with studies indicating that over 4 million trees, which provide an annual threefold return on investment through heat, noise and pollution reduction while increasing property values and lowering stress are being lost in American cities annually.[2] In addition, the correlation between nighttime artificial light and a 73% increase in rates of breast cancer is just one example of the many human health studies increasingly finding fault with our urban lifestyle.[3] While these societal issues garner most of the attention, the more fundamental divide that the narrative of urbanization has fostered is between urban life and the natural environment. Richard Louv refers to this metaphysical separation as solastalgia, which he describes as the melancholic state of cognitive dissonance created by confusing

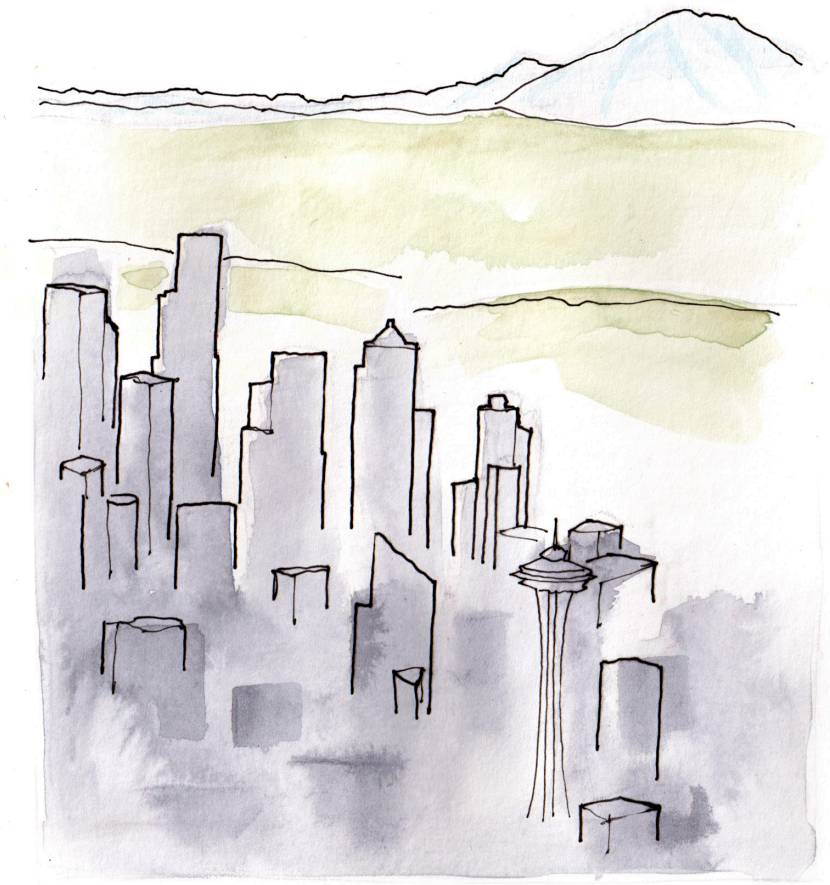


*Distractions, frustrations and separations in urban settings.*

our fundamental needs with our perceived needs.[4] In a data driven era it is easy to overlook the essential emotional needs unmet by modern urban life. To consider the future of cities through a purely analytical framework will lead to continued construction of modernist machines for living in which most inhabitants cannot feel alive. The task is to reintegrate nature into urban life without viewing the two as separate entities.



*Regional access to wilderness*



*The city and wild are commonly considered to be separate and unrelated realms.*

# PACIFIC NORTHWEST HAVEN

In Seattle, we rely on easy access to wild areas remains as a panacea for hectic city life. When the skies are clear, idyllic views remind us that we are surrounded by nature, and beckon us to explore. However, 3.6 million other people believe, as we do, that access to these amenities is a given right and are willing to spend hours on I-5, I-90 or in mile long ferry lines reach solace.

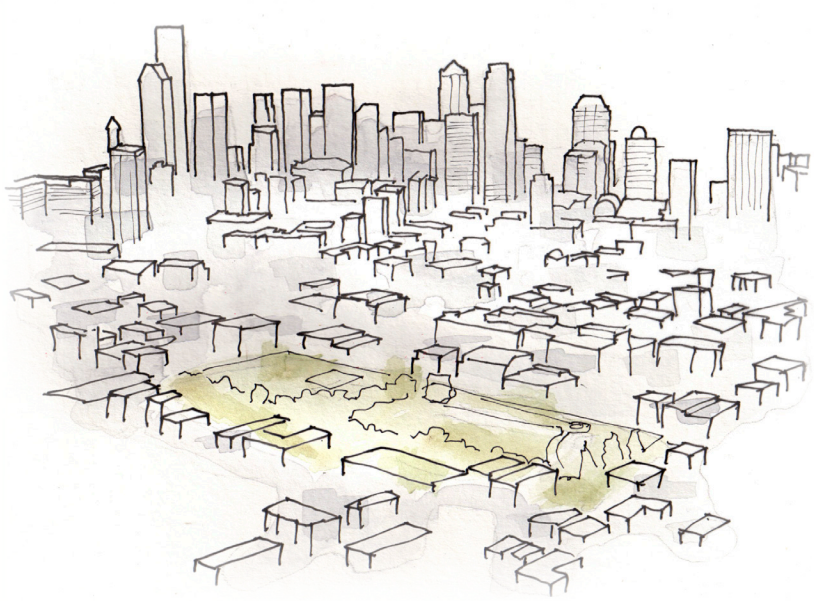
People seek a slower pace, and the ability to leave behind distractions. The physical movement, fresh air and awareness replace the urban state of continuous partial attention resultant from our screen-based lives.[5] Often people describe the restorative quality of quiet or more peaceful sounds as compared to the noise of the city. Etymology provides insight: the word noise is derived from the Latin nausea. In this regard, the nature that surrounds Seattle provides the cure to the urban illness we choose to live with daily.

# NATURE as DESTINATION

*Nature is not a place to visit. It is home.* – Gary Snyder [6]

The view that nature is an escape, separate from the stress and illness inducing urban lifestyle, while comforting to many, furthers the solastalgia described by Richard Louv. The presumption that these desirable qualities are only available outside of the urban landscape creates a life in which fundamental necessities are at odds with perceived necessities. The maintenance of a job, in support of vacations or weekend adventures creates an imbalance that cannot really be bridged. Measurable differences in happiness between Sunday and Friday result from the general belief that time off is pleasant and time at work is drudgery. While incredible amounts of personal variation exist, this belief underlies the unhealthy dichotomies that have been created to keep us reaching toward the next weekend, beach vacation or hiking trip. The planning of towns and homes can directly address these

*Seattle parks, color gradient reflects perceived "wildness"*



*Nature captured within Seattle at Cal Anderson Park.*

currently separate needs. Diminished physical and temporal distance between activities of necessity and activities of meaning fosters greater integration and diminished cognitive dissonance.

City parks are one means of addressing this issue. Seattle's network of parks is robust with multiple uses, different ecosystems, orientations and access but, fundamentally, they are all destinations. While more accessible than the Cascades, a trip to the park still requires the intention, mobility and time to enjoy. The experience is not integrated into daily life.

## VISIONS of NATURE in the CITY

*Homo Faber's grave mistake was his conviction that man can exist without a stable domicile, that technology can so transform the world that it need not any longer be experienced through emotions.* – Juhani Pallasmaa [7]

Beyond simply the issue of proximity is the way we address nature in our cities. The broadly accepted view that technology can act as the solution to our problems biases the way that we approach nature in


*Downtown Seattle streetscape.*


*Typical "nature" interventions, green roof, street trees and swales..*

general. As the technology of the past was seen as enabling control of the environment, current technology is seen as its savior: electric cars, solar panels, high efficiency appliances and all manner of consumer products. In the built environment, LEED and other systems provide a means of further promoting energy efficiency through the specification of new "green" technologies. In an Atlantic magazine article regarding the fate of the middle class, the author suggests that increasingly complex financial technologies have made markets more volatile rather than providing expected optimization.[8] The human relationship with nature has charted a similar course. Often the ability to generate technology far outpaces our ability to foresee its consequences, leading to increasingly complex dilemmas in the future. Technologies designed to address current ecological concerns may, in the future, contribute to issues not yet anticipated.

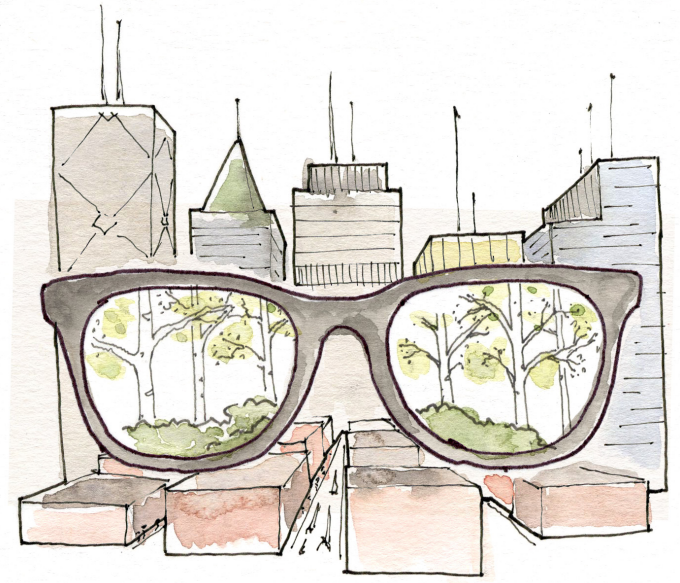
The same is true in reverse. When we think of nature in the city we view it as a machine, with quantifiable inputs and outputs: reduced urban heat, purified storm-water runoff, tangible health and psychological improvements. Each tree planted is justified in its ability to improve the function of the urban system.

While well intentioned, this mindset only further dilutes the human experience of nature while simultaneously creating "nature objects;" relics of the natural world that have been separated from their context. Relegating nature objects to a service role is little more than a veiled admission that we have not yet improved upon evolution's inventive prowess. In the view of Juhani Pallasma, "this view implies a paradoxical task for architecture—to become more primitive and more refined at the same time." [9] Reintegrating natural objects and landscapes back into the urban fabric is certainly preferable to the old regime of excluding nature outright. However, to envision a world in which rapid and increasing urbanization does not result in unlivable cities, a more fundamental understanding of the human relationship to nature is essential.

# NATURE as LENS

*The real voyage of discovery consists not in seeking new landscapes, but in having new eyes.* – Marcel Proust

With the understanding that the traditional methods of considering the urban and human relationship to nature are inadequate, a new proposal was advanced. Nature, as understood in this thesis, acts as a lens. It is not dependent on particular objects, but rather the relationship between objects. As Proust suggests, the act of viewing is more powerful than the subject being viewed, in this way, it is possible for nature to encompass all aspects of urban life. More important than the presence of a tree or stream within the city is the ability for someone to perceive the fundamental qualities that exist in trees or streams. Despite the significant disruptions humans have created in ecosystem function, all of our actions and products are still subject to the same fundamental principles, and in beginning to experience the effects of those underlying patterns, rhythms and relationships, nature can be experienced in the urban environment as in the forest.



The flow of traffic on the highway provides one example. When considering the basic patterns of a stream, we note a general consistency to the movement of water and the sounds that result. Within that consistency, variations occur constantly, traffic follows this pattern. The flow of cars may change pace, but there is a pattern to the movement, and that is composed of individual elements, minor variations, that move together. Nature allows for the sensation of this simultaneous awareness, the rules that govern the stream also exist in the flows of urban life.

# BRINGING it HOME

*Without honoring any gods, a piece of domestic architecture, no less than a mosque or a chapel, can assist us in the commemoration of our genuine selves.* —Alain de Botton[10]

The possibility of addressing these issues at the urban scale is both daunting and protracted. In some respects, the most promising approach is a green streets program which develops the network rather than the destinations. However, waiting for these large-scale infrastructure projects to transform cities is a drawn-out process that, at the end of the day is still incomplete. Developing a means of integrating nature into individual buildings allows for a concurrent path that is easier to realize, has a greater potential impact on individuals, and compliments any potential urban scale interventions.

As Alain de Botton suggests, the home provides a powerful means of affecting the lives and circumstances of people. Many of the issues that make nature a potent facet of the human experience hold true for the home as well. John Allen describes the mundane nature of home in his treatise, "home is central to our existence but not too exciting. When home is working for us, it fades easily into the cognitive and emotional background". [11] In both the case of nature and home, our relegation of our experience to the mundane belies their fundamental importance. It is precisely because they are so routine in our experience that they are so integral. The security that a sense of home provides is often taken as a given and only truly appreciated when its potential loss or dysfunction is made clear. Our relationship to nature has progressed to the point where the exceptional event is noticing nature, while the daily experience is one of obliviousness. In either case, it takes a remarkable event to understand that the daily experience is what truly affects our situation.

Just as exposure to nature has been shown to provide for recovery from traumatic events and stressful encounters, the stability of home allows precisely the same recuperative benefit. John Allen indicates that home, in both its physical and emotional manifestations, has historically served as the antidote to the stress of the outside world. The state of curiosity and exploration that create success in the daily life would be unsustainable without a means of recovery. Through its familiarity, home provides the environment necessary to support outward exploration. As the stresses of modern life have permeated more aspects of daily life, the need for restoration through home and nature has grown accordingly.

Beyond the restorative, Alan de Botton suggests a more idyllic notion; that the physical manifestation of home speaks to the vision of the world we create for ourselves, "The materials around us will speak to us of the highest hopes we have for ourselves. In this setting [the home], we can come close to a state of mind marked by integrity and vitality". [12] While it is easy to argue that buildings cannot create in people characteristics that do not already exist, either ethically or emotionally, they can support people as they manifest their innate temperament. If de Botton's words are to believed, it is more likely that buildings can serve as a reminder of the values we wish to live, while stripping away some of the challenges and stressors that prevent us from realizing our best tendencies.

The nature of housing was not overlooked by Alvar Aalto, whose work exemplifies the importance of designing for the connection between humanity, nature and building. In a 1957 lecture, Aalto made clear his belief in the role of home, "The housing problem is without a doubt one of the most important we have to resolve. Our entire culture rests on the nature of our dwellings."[13] With that charge in mind, his article "The Housing Problem," laid out certain means of designing toward the

achievement of better homes. Nature was at the core of these issues, "Quite simply, every home must be technically planned so as to include an accessible outdoor area, and to correspond biologically to nature, to which man was accustomed before the advent of cities." [14] In Aalto's view, the evolutionary role of nature in the development of humanity cannot be something separated from the daily acts of living, regardless of context, urban or wild. An understanding of the importance of providing and evoking the experience of nature in housing, does not however indicate the best means of achieving its incorporation.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# Chapter Two: Framework

*To be at home in the world...to experience a complete consonance between one's own body and the body of the earth.*—Michael Jackson[1]

To recast the mindset of urban dwellers toward a consideration of their interaction with nature requires an approach that considers what nature means, how people become aware of nature and how they interact with nature. While it is easy to suggest superficial opportunities for these connections, a more meaningful discussion searches for the fundamental relationships that connect people to their environment and the means people have for understanding these connections. The framework of this investigation has been determined through three interdependent dimensions. These dimensions form a means for understanding site as well as directing design, and represent not set of design solutions, but rather a means of decision making that recognizes the connection between people and the environment. The three parts of this are described sequentially, though their relationship is not linear. The most universal of these considerations are cycles, the large forces that shape the world in which we live, a building can either conceal these cycles, or allow them to manifest through its design. The second aspect of this relationship is awareness. Awareness is what allows for the individual experience of the cycles. While their effects may continue unobserved, awareness brings an understanding of the impact of these cycles at an individual level. Awareness is most directly a function of the senses. While a building cannot compel awareness, designing for a multisensory experience can provide multiple and more complex means of experience. The final dimension is that of engagement. This is what transforms the individual experience from passive observation to dynamic interaction. Humans have found many ways of altering the larger cycles, often with unforeseen consequences, but opportunities for engagement at the individual level may simply change the individual experience of cycles.

The relationship between cycles and the individual experience of them defines the fundamental human relationship with nature. The urban approach to integrating nature is not, therefore, reliant on trees or other natural objects, but instead on designing in a way that acknowledges the underlying forces that shape our context and encouraging the human experience of those forces.  A building that allows people to explore and reconcile the relationship between themselves and the universal manifests nature within the city. This creates a human habitat supportive of vital individuals and communities resilient in the face of the increasing demands of urban life, density and environmental degradation.

*The emotional power of elemental forces and patterns.*

# CYCLES

There are myriad forces that shape the lives of people, the cycles that follow represent some of those that correspond most directly to building. All, however, share a fundamental trait that defines their effect. Cycles are not bipolar; they are based on the transition between points, as with light and dark. Thus, it is not the mere presence or absence of light that we relate to, but the subtle or dramatic shifts between the two. Tanizaki did not advocate for utter darkness, but rather the subtle

gradients of shadow that give depth to space and time. People are captivated by sunrises and sunsets rather than noonday sun. The transition between states of darkness and light reminds us of the passing of time, as capricious as passing clouds or as solemn as life and death. The importance of these transitions is tied to a more fundamental idea: that energy flows occur across gradients.[2] Energy is the currency of life and the human awareness is vigilant to the flows of energy seen in the manifestation of each of these large cycles.

The passing of time is connected directly to the changing of seasons. Human evolution with every changing season has conditioned an atunement to their importance. While cultural celebrations have, for millennia, marked the height of summer and winter, life is lived in the daily progression to and from. These changes traditionally signified the abundance of food or its scarcity, though now they may be associated more with seasonal leisure activities, perhaps skiing in winter, or the glee of subverting seasonality with a Hawaiian vacation. While we are not bound by seasons in the same way, our reaction to them is still based on the evolutionary underpinnings that seasonally shaped our behavior. Seasonality is also directly tied to the experience of place and thus, overlaid with topography, gives the most distinct sense of location.

Cycles of food and water are vital in shaping the human and natural condition. Seattle is known for its relationship with hydrological cycles. The ocean, rivers and rains are evident in the geology of the place, the clothing people wear and the activities they decide to do. As drought and severe rain events become more common, increased attention has been given to the widespread effects of changes to once stable cycles. Again it is not truly the presence or absence of water that drives this, but deviation from the expected that disturbs the established paradigms. While food is tied directly to changing water patterns, the production of food also has a unique energy flow that has gained more

attention in recent years. The emergence of farmer's markets indicates the desire of consumers to reconnect to the cycles of food production that support human existence. The connections to land, seasons and waste help orient experience through the mundane act of eating.

It is also crucial to explore the societal cycles that we have established. While these are cycles that we control, much more than those of the surrounding world, they are also more commonly felt. The continual passing of human generations shapes our interactions with one another and our ability to relate to the greater world. Richard Louv suggests the importance of the relationship between grandparent and grandchild in shaping understanding of nature.[3] This experience can be passed across different generations without the need for individual rediscovery. And at the heart of the human experience is storytelling which allows for more than just practical knowledge, but a collective imagination that is made possible through a shared tradition.[4] It is the

changes within these cycles, whether cultural or natural in origin, that form the basis through which individual human lives evolve, and dictate the means of interaction with the larger systems that surround us.

The most succinct architectural embodiment of these larger cycles may be found in the Row House in Sumiyoshi, designed by Tadao Ando. The crisp concrete exterior is distinct from the other houses it is sandwiched between, this distinction however, removes the context, and leaves the inhabitant with only the sky as context. The need to move through the outdoor courtyard in order to reach the common or private spaces of the house subjects the occupant to the prevailing weather. Light, cold, rain and wind become individual elements, sensed easily when removed from the distractions of views or even natural plantings. While nothing about life in a concrete box suggests connection to nature, by tying the circulation to an outdoor courtyard, devoid of ornamentation or view, Ando forces a powerful, though potentially uncomfortable, elemental relationship.

*View of courtyard during different weather conditions.*

*Row House in Sumyoshi*
*Tadao Ando*
*1976*

*Focused perception.* *Investigation of peripheral.*

# AWARENESS

While it is possible to comprehend the action of these cycles, the individual pathway for the experience of these larger conditions is through the senses. The senses are the means of gathering information about the environment and shape subsequent reactions to it. The current human condition is one of relative sensory monotony which has resulted in a relatively inert human experience. In many cases, malaise has resulted, while at the opposite end of the spectrum, aggressive forms of stimulation have replaced a formerly rich sensory environment. The concentration on goals and objects has led to what Pallasmaa describes as "focused vision" which, he claims, "makes us mere observers; [whereas] peripheral perception transforms retinal images into spatial and bodily experience, encouraging participation."[5] By allowing for and cultivating multisensory environments, we move away from stimuli that are either on or off, toward a more nuanced understanding of the world, in line with the vagary of the cycles that shape our surroundings.

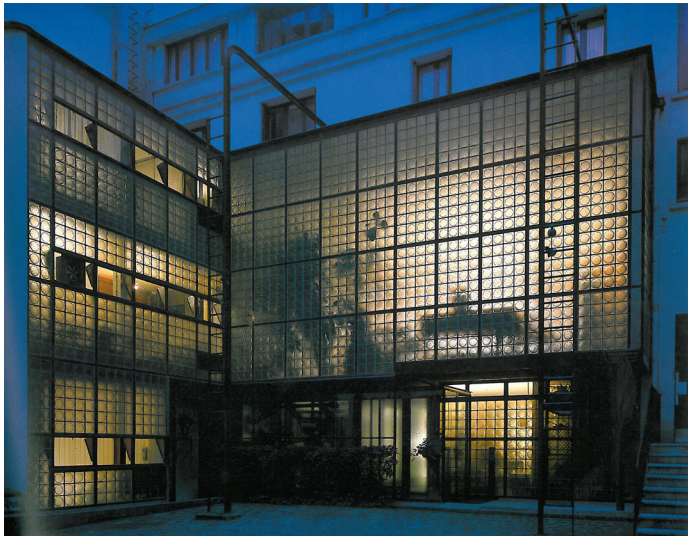
All senses are subject to different levels of focus, as Pallasmaa suggests. This allows for a complex shading of foreground and background: objects and events that demand more attention and those that form a relatively steady backdrop. In the visual realm, this is shaped by herecletian movement. Judith Heerwagen describes this as relatively consistent movements, like the fluttering of leaves, that suggest a

predictable, and consequently safe, environment, contrasted with quick, jerky or surprising motions like a swooping shadow, which demands immediate attention and induces stress.[6] Sound, smell, touch and taste all function through similar mechanisms, allowing us to understand new experiences within the context of prior encounters. Nicholas Humphrey suggested the idea of rhyming to describe unique individual variations within a field of generally similar objects.[7] At a subconscious level, the existence of rhyming is identified as natural and accordingly comfortable. The senses corroborate this, allowing the natural to form a comforting milieu that recharges energy and attention for the stimuli that demand focused attention.

While these principles are shared among the senses, each sense provides a different means of experience and suggests the means by which each sense can contribute to an architectural understanding of the cycles that define the environment shared by buildings and people.

## Visual

There is an inherent bias toward the visual in architecture as it is the way a building is first experienced. While the predominance of visual imagery may be maligned, its success is based on human reliance on vision as the primary means of experience. The detriment is not necessarily in the visual bias, but on how that has been exploited through simplistic architecture to create easily communicable moments that lack the nuance of a complete visual gradient. "One reason why contemporary spaces often alienate us—compared with historical and natural settings that elicit powerful emotional engagement—has to do with the poverty of peripheral vision".[8] In this regard, a building may be designed with fewer photographable moments, and more fluid visual experiences that are based either on a repeated motif with minor variation or on the ability to display the action of cycles across otherwise stagnant surfaces. These more nuanced approaches offer connections to larger cycles.



*Maison de Verre*
*Pierre Chareau*
*Paris, France*
*1932*

*Shadows on Shoji*

The namesake wall of Pierre Chareau's Maison de Verre provides a clear illustration of the ability of architecture to abstract the visual in a way that more easily connects the occupant to the world beyond. While houses since the beginning of the International Style have preferred the dissolution of the indoor and outdoor realm through complete transparency, Maison de Verre, like the Shoji screens of traditional Japanese houses, has emphasized the elemental rather than the picturesque. Neither provides stunning views, but rather thorough abstraction, distill the world beyond into the subtle movement of leaves in the breeze, or the fleeting shade from a passing cloud. In this way, the softer focus achieves a more fundamental connection to natural cycles, making manifest Pallasmaa's charge to engage the emotions through the peripheral.

Our bodies are often the second means of interaction with a building, and perhaps the easiest to comprehend in Architecture. The modern

# Touch

insistence on sharp lines and flat planes, further enabled through computer modeling and rendering, has all but removed a sense of touch from our buildings. A resurgent interest in wood, especially salvaged wood, suggests a desire for materials that tell a story through time that we can touch. The fetishization of vintage items of all types may stem largely from the physical imprint on their surfaces and the nuanced feel of their surfaces.

The thermal condition of a space is also fertile ground for exploration. Modern systems have again preferred quantifiable uniformity over engaging variation. The ability to track the day through the radiance of moving sunlight through a room, or the reward for placing oneself near the hearth on a cool day is little appreciated.[9] The warmth of a baking oven is not a draw to congregate when the entire house is consistently 70 degrees. With those experiences, relationships have been lost, both to the physical cycles of days and seasons and the cultural cycles of movement through the home.

Smoothness has also been favored in navigating through spaces with predetermined step heights often providing the only variability in the experience of movement. Varied surface materials may provide opportunities to subtly bring awareness to changing conditions without being limited to particular rooms or creating inaccessible paths of travel. Underfoot, the shift from wood to stone is palpable, while outdoor pebbled or grass covered surfaces each elicit particular reactions. Even on sidewalks, nature conspires to interrupt the perfectly level surfaces mandated by code and expectation. Pavement broken by roots demands attention, and provides another means of relating to the processes of growth and erosion through time.

*Gallmann House*
*Arakawa*
*East Hampton, NY*
*1998*

*Towada Community Center*
*Kengo Kuma and Associates*
*Aomori, Japan*
*2014*

In modern architecture, few make efforts to subvert the mandate of flatness within buildings. The "Death Defying House" created by the Japanese artist Arakawa, with exaggerated floor topography designed to keep movement nimble and aware is an extreme, and non-code compliant, example for thinking about our tactile experience of buildings.[10] Kengo Kuma has used a similar means of activating a children's play space in the Towada City Plaza Community Center, the tactile experience here enables the children to explore their bodies and abilities through reaction to the feeling of the building itself.[11] Both of these projects have provided the varying terrain within a building that was once a part of the everyday human experience when more of life was lived outdoors.

## Sound

The urban environment is perhaps most notorious for the overwhelming sonic climate it creates. As concern for the negative effects of noise

on the health of both humans and nature rises, the value of sound itself is removed from the debate. Research on workplace satisfaction suggests that millennials want quieter workplaces and an array of products including felt helmets have emerged to eliminate noise and distraction. Research on classrooms has also indicated that at the typical noise level of 65 decibels, students have difficulty hearing the teacher, while the teacher's heart rate corresponds directly to noise level.[12, 13]

Noise is not, however, inherently negative. The distinction between foreground and background attention, is probably clearest with sound, and the different implications of each suggest that removing sound from our environments is no healthier than the excessive noise we are currently subjected to. Sound is probably the sense most likely to cause an immediate visceral reaction. The benefit of water sounds as a meditative and calming backdrop has been recognized for thousands of years through the construction of courtyard fountains and idyllic streamside cottages. The sound of a river, like the herecletian movement of leaves, is based on individual variations that combine to create a consistent background. Contrast that with the sound of a siren, which causes immediate action, and often panic or the alert noises on phones designed to grab attention even at low volume. While we decry road noise, it is the anomalous sound of the siren that is jarring, rather than the steady flow of traffic. If the volume can be brought into an acceptable range, the auditory patterns of traffic shares the rhyming quality of a stream, which we find soothing.

External sound is only one aspect of the experience within a building. Then noises of the building itself create yet another layer and potentially imbue it with great emotional significance. The sound of home is most often one of security as Michael Kimmelman proposes, "an expensive, solid wood door sounds better than an inexpensive hollow one, partly

*St. Benedict's Chapel*
*Peter Zumthor*
*Sumvitig, Switzerland*
*1988*

because its heavy clunk reassures us that the door is a true barrier."[15] But the most traditional sense of safety given by homes comes from their protection against the elements. In this case the sound of rain on a roof is made universally comforting through the sound of safety. Alain de Botton, describes the experience of a translucent skylight glazing, "When it rained, the pitter patter of water sounded overhead, but the glass revealed nothing of the clouds from which the raindrops fell. This was an architecture designed to train the mind away from phenomena and toward essences".[16] While sound here acts as a reminder of our distance from nature, it simultaneously confirms our dependence on the governing cycles of our environment.

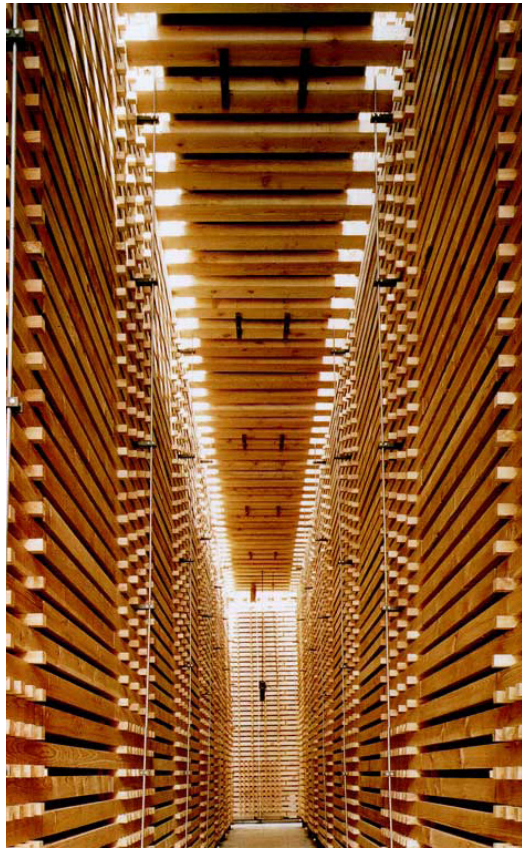
Most implementation of sound design occurs in resonant or reverberant spaces, while the acoustic properties of cathedrals and concert halls is compelling, integrating that experience in buildings serving other functions is counterproductive. In considering the possibilities for

designing with sound, it becomes not only a matter of thinking beyond the simple acoustic properties of a space, but also about how the rhyming quality of natural sounds might allow us to develop urban spaces which benefit us. In St. Benedict's Chapel, Peter Zumthor describes warping "the floor to make a creak, which would exist just below your level of consciousness."[17] The sound is not the focus of the experience, but rather an element that supports the emotions tied to that sound, the feeling, perhaps, of walking through a barn as a child or visiting grandmother's house. The same sound could just as easily conjure insecurity if it coupled with the sense that the floor was not stable.

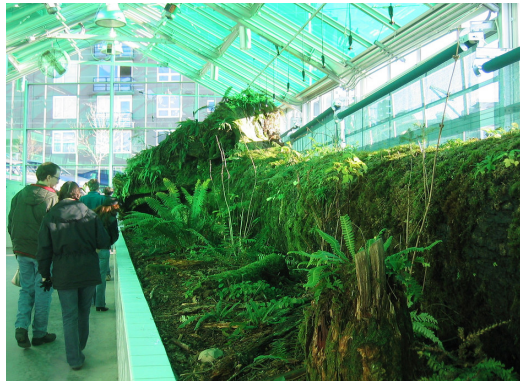
## Smell

The internal experience of a building is generally deprived of odors, and those that occur are often chemical or unpleasant. Outside, by contrast, the city is fairly dense with smells. Indications of weather, wind direction and all manner of human activities can be determined from the smells that surround us daily. During a commute by bike, depending on the wind direction, a journey through Seattle begins with the smell of the ocean, fish and seaweed near the locks. This melds into the industrial smells of the powder coating shop and the bituminous smell of the asphalt plant along the ship canal. Then the smells of Theo chocolate, coffee and bakeries in Fremont emerge, suggesting a different commerce and more enticing experience. Past Gasworks Park, smells of urine waft from camps in the bushes above Northlake Way. While not all urban smells are pleasant, the act of sensing draws attention to the changing landscapes.

Buildings can make efforts to change their public smellscape, but in buildings with multiple tenants and occupants, the personal tastes of users are unlikely to align. The common tack is to avoid smells altogether, though a lack of odors is likely to make any one smell more prominent. The elimination of smell also deprives occupants of a potentially rich



*Sound Box Pavilion*
*Peter Zumthor*
*Hanover, Germany*
*2000*



*Neukom Vivarium*
*Mark Dion*
*Seattle, WA*
*2006*

experience. Scent is the sense most closely associated with memory and nostalgia. Inherent in that is the ability to evoke deep emotion, potentially enriching the experience of people, even in subconscious ways.

Without presuming particular tastes or affinities, how might it be possible to provide a rich olfactory experience? It seems that, as with the other senses, the ability to create a varied, background experience is probably more important than any one particular smell. Spaces passed through, like the entry and hallway would provide opportunities for control and variation, while individual rooms would be populated by the unique scents of their inhabitants. The successful integration of scent into a building is likely the result of decisions made regarding materials and plantings that naturally ebb or intensify rather than through the introduction of specific smells or their removal.

Examples of the success of incorporating scent into architecture run the gamut from heavy handed to subtle, controlled to accidental. The Neukom Vivarium at the Olympic Sculpture Park is one example of a highly controlled environment whose success in providing an immersive natural experience is reliant on smell. While the green glass overhead is clearly an imitation of the forest canopy, there is no substitute for the rich earthy smells of the nurse log ecosystem. Their existence is not contrived, but a result of the natural processes occurring within the contained ecosystem. In a less direct way, Peter Zumthor's Swiss pavilion allowed the slowly drying stacks of wood to naturally emit the smell of fresh lumber. While scent was not the driving factor behind the pavilion design, the experience was enriched by through the nature of the material used. While more abstract than the Neukom Vivarium, the experience of wood, forest and nature is fully encapsulated with every breath between the walls of stacked timber.

# ENGAGEMENT

The culmination of the human experience of nature is to engage directly with the world. While developing awareness of the cycles and systems that surround us is imperative, the best way to truly understand our relationship with nature is to somehow engage with our environment. The experience of looking at a picture of a mountain is certainly less rich than hiking on its flanks. The sound of a stream may soothe, but to dip a toe or drink from the rushing water shapes a different understanding entirely.

The impulse to test these relationships begins at a young age. Children in nature often repeat similar behaviors; throwing rocks off of cliffs or building dams in streams or forts in the woods. These are the ways that we manifest the relationship between our bodies, our senses and the larger systems within which we exist. Each action creates a reaction that can be judged and added to an ongoing understanding of our role as a part of these larger systems. The idea that "ecological architecture also implies a view of building more as a process than a product" indicates that the important function is not the object, but rather the actions and evaluations that occur during its creation.[18]

The process of engagement is not, however limited to childhood or the construction phase of a building. Buildings and cities are constantly reshaped, and it is through the actions of inhabitants that this occurs. This does not necessarily mean renovations, but can be as simple as allowing occupants to readjust their environment throughout the day. As Lisa Heschong's treatise on thermal delight suggests, people will often follow warmth or shade through a space. As daylight moves through a room, people may move from one seat to another, following the arc of light in search of the feeling of radiant warmth. In his study on effective public space, William Whyte observed that people have a natural desire to remake their environment, "Even when there's no apparent functional reason of any kind, people move chairs."[19] In his video recordings of New York's public spaces, people repeatedly lift and slide chairs only a few inches before taking their seat. This desire suggests an appreciation for the ability to shape our situation relies not only on the possibility of improving our circumstances, but more simply on our belief that we can affect our surroundings.

Unfortunately, this individual agency does not translate into common urban design. While designers often consider opportunities for a young and active population, studies have shown that the women and the elderly are often overlooked.[20] By making available different means of interaction with the surrounding environment, this culminating stage

of the human nature relationship can be fostered. Lawrence Halprin's Open Space Sequence, in Portland provides an example of how both an interactive and a more cerebral landscape may coexist. The blocky structures and moving water excite activity, but the soothing nature of water provides, at other times, equal opportunity for a more subtle experience for older generations. While the nature of the park is distinct from what may be achieved in a building, the provision of experiences that allow for the user to choose their means of interaction is instructive.

Within or around a building, various alternate possibilities emerge. Diverse and unstructured environments allow children to explore their agency. Quiet, contemplative spaces, access to walking trails or streets, or the act of gardening allow a more subdued interaction with nature for older generations. By moving beyond the assumption that the general provision of nature will suit all users, and instead shaping varied environments that allow diverse experiences, the possibility exists for everyone to engage with nature rather than merely spectating.

*Open Space Sequence*
*Lawrence Halprin*
*Portland, OR*
*1970*

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# Chapter Three: Methods

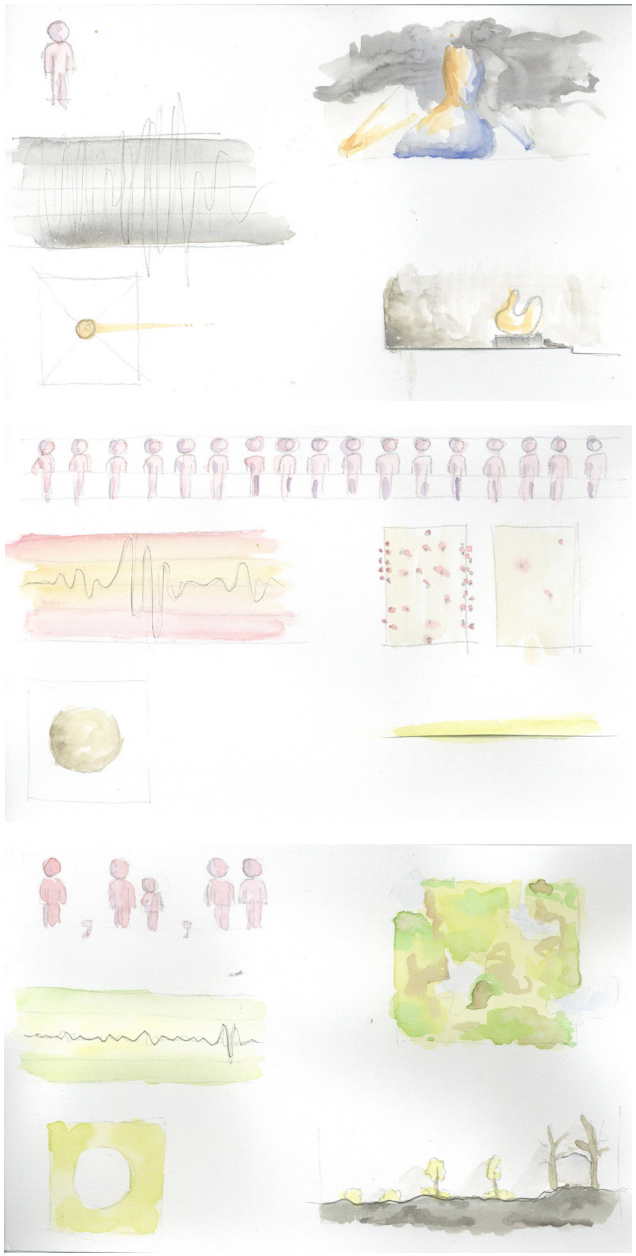
*Home has lost its metaphysical essence and become a functionalized and commodified product.*—Juhani Pallasmaa[1]

In order to succeed, this framework of cycles, awareness and engagement must be applied to both the analysis of the site and context, and to the design process of the building. Once the existing circumstances are recorded, determinations may be made in the design process regarding whether it is appropriate to highlight certain existing characters of the site, mitigate them, or introduce elements that are otherwise lacking. The importance of this process is in cataloging the experience of the place rather than the superficial, that is, it would not be adequate to record simply record the location of trees and their size, but would include the cooling effect of the shade they cast, or the noticeable heave in the sidewalk created by their roots, and potentially the scent of their blossoms at a particular time of year.

## SITE ANALYSIS METHODOLOGY

The mapping of the large cycles acting on the site begins with common architectural considerations. An understanding of the annual changes in light and climate are basic considerations while considerations of the human connections expand into a mapping of the longer societal cycles at play, whether new young families are moving into a neighborhood, or people are aging in place for instance. These cycles and relationships provide the first indications of necessary design responses.

The mapping of the senses on and around the site then provides a more immediate encapsulation of the human experience. While it is common to note particular views accessible from a building site, the mapping, recording and synthesizing of haptic, auditory and olfactory experiences will require greater attention but can create a more complex picture of the opportunities already available on the site.



*Context investigation. User type, sound quality, focus, ground plane, section, light quality.*

Notations of the duration of different experiences, be they perpetual like the smell of morning bread baking, or more seasonal like the odor of hot garbage from a nearby dumpster, are important in considering the relationship between sensory experiences. Opening windows in summer for ventilation may be ill advised above an alley, while in spring it may bring cool night air carrying the scent of cherry blossoms.

In addition to the seasonal changes in available sensory information, the nature of the experience, whether peripheral or focused, must also be recorded. The peripheral phenomena shape the tenor of the environment, supporting or contradicting the bountiful possibility that nature provides. Acute sensory experiences are often judged against the backdrop of the peripheral. Thus a passing shadow or raised voices may inspire curiosity or suggest joyfulness rather than inducing fear if situated within a milieu of pleasant background experience. The mapping of both the underlying and fleeting stimuli is imperative to understanding and shaping the environment in and around the building.

*Columbia City park map. Color gradient suggests perceived "naturalness"*

Finally, existing opportunities for personal engagement must be recorded. Given the understanding that different groups of people interact differently with nature, attention must be paid to the nodes of activity; these may be parks or p-patches, farmer's markets or even a single bench, each of which attracts different demographics. A daily and seasonal image of uses and flows can begin to suggest the relationship of the site to the surrounding destinations and imply areas for the building to support the cyclical flows of the community.

# DESIGN CRITERIA

This framework will be tested through the design of a multifamily apartment building. The development of a housing scheme recognizes that we do not need more nature destinations, but rather consistent exposure during daily life. Office, retail industrial, school, hospital, and religious buildings may affect some people some days, but each of these remains a destination visited on weekdays or weekends, special occasions or emergencies. To consistently connect to the large cycles of our world through senses and interaction, housing provides the only platform available.

This choice also provides the potential to fill the gaps between existing nature destinations. With over 60% of Seattle's land area dedicated to housing, this offers the greatest potential for weaving a connected network of natural experience.[2] A model for housing also provides the potential to implement these ideas across demographic and socio-economic divisions. While it in no way guarantees access, creating a diverse array of potential strategies allows for greater implementation regardless of project size, cost or location.

The concept of home also offers a compliment to the benefits of nature in urban life. Just as humans have an evolutionary disposition

to nature as a means of physical and psychological recovery, home has provided the cultural equivalent.[3] The routine of home life and the rhyming patterns of nature provide the peripheral consistency that leads to recuperation, providing a foundation for the energy intensive focused attention necessary to participate in urban life.

# COLUMBIA CITY CONTEXT

The need for housing exists throughout Seattle and other cities. A network of subtle nature experiences is also needed to knit together the disparate parks, p-patches and gardens throughout city. Columbia City provides a viable testing ground as it is still in the early stages of redevelopment. Some existing large parks provide nearby access to one version of nature. Other elements of the neighborhood are changing quickly, but a significant historic character remains. The light rail station provides easy access to jobs and cultural amenities throughout the city making further growth inevitable.

One of the most unique characteristics of Columbia City is that the main street has not been redeveloped to its zoned potential, largely due to its designation as a historic district in 1978. This provides the possibility to experiment with a development pattern akin to Vancouver's west end. The low rent, low height, historic buildings that populate the main street create a unique pedestrian character, distinct from the 5 over 1 buildings that are lined up along the arterials of most urban villages. An existing mix of retail, commercial and light industrial buildings, many of which are currently unoccupied, could provide fertile ground for a vibrant mixed use community if supported by appropriate housing. This context provides an exciting opportunity to investigate the possibility of increasing density outside of the central corridor in a manner that simultaneously enhances livability by providing a more elemental experience in housing.

One of the primary challenges in adding apartment housing in Columbia City is a consideration of the rapidly changing demographics

*New housing in Columbia City tends to be either large apartment buildings or townhouses. 4 unit townhomes are common, but 40-60 unit projects are also underway.*

of the community. In the 20 years since 1990, the African American population has declined from 66% to 50%, and new, large market rate developments have likely accelerated this change in the past 5 years. In the surrounding area, the US census reports the African American population as only 25 percent of the total. The majority of residents are between 25 and 55 years of age, suggesting another dimension of diminished diversity.[7] While this project concentrates on enriching the human experience of nature, one of the fundamental strengths of resilient natural systems is diversity. To assume that this project can succeed without a consideration of human diversity is inconceivable.

The existing mix of housing depicts a varied history, but portends a bland future. The massive suburban style developments along MLK, large block apartments creeping west toward the Rainier Avenue, and monotonous modern townhouse developments indicate that currently low land values provide significant upside for uninspired development.[8]

While steep topography has protected areas of the single-family zone from these changes, as well as conserved many of the trees and the wild feel of the hillsides, this is unlikely to survive the pressure of future expansion.

The potential to ease development pressure along these native hillsides combined with the proximity to larger parks, suggests that infill buildings that emphasize the experience of nature could begin to connect a larger network that provides benefits to residents and pedestrians alike.

*The former Mission Baptist Church, under demolition during this project, is adjacent to new million dollar speculative home development.*

# THE FERDINAND

3902 South Ferdinand is home to the former Columbia Congregational Church and Mission Baptist Church. The congregation was formed at this location in 1891, but the present building was constructed in 1923 with a large addition in 1961. After merging with another congregation and moving in 1993, the building is currently in disrepair and further deteriorating.[5] It was sold in 2007 to LR Columbus LLC who, according to permit applications, was interested in converting the existing building into 8 apartments and a 5-room bed and breakfast. It appears that this never occurred and permit dates suggest that the recession made the project unmanageable. The property was resold to Northwest Investment LLC in early 2015[6] and, given the zoning potential, proximity to a relatively vibrant commercial district and favorable economic climate, redevelopment seems likely.

The site is located one block from the historic main street and outside of the commercial zone. With bus lines running along Rainier Ave. and

light rail access within a half mile, there is surprisingly good access to larger neighborhoods and downtown. The two lots to the North, across a gravel alleyway, have been recently redeveloped as million dollar single-family homes. The property is composed of three combined tax lots totaling 16,000 square feet, though the majority of existing building sits on the western parcel, fronting along 39th Avenue South. The land climbs to the back portion of the lot, which is currently primarily a gravel parking area on the alley side. The lots are zoned LR3, though the SF 5000 zone begins on the eastern lot line.

The potential to expand the existing open space on the lot, while improving its ecological function and focusing on the experience of nature is significant. While no longer serving as a community hub, site has a long history as an important community center. Using the framework for supporting the human experience through connection to nature, the site can become a new support for the community. While not religious in focus, the framework of sensing larger forces and individual engagement speaks to the same fundamental human needs. The location between the single-family zone and the commercial and transit nodes also suggests the potential for these improvements to serve a wider community.

The goals of this project are to create a building that enriches the natural and human systems of the community. The achievement of this will be based on providing a means of making the large cycles that govern life, both natural and human, accessible and tangible to residents. Designing for multisensory experience, with a concentration on restorative environments through the concepts of rhyming and peripheral sensation, will enable people to feel the individual effects of these cycles. Providing an environment that allows engagement and manipulation is also crucial to the success of the project. While programing shapes the building, the experience needs to be subject to

the actions of the inhabitants. As much as they have control to shape their own living space, the possibility of affecting communal and natural spaces in and around the building is fundamental to their ability to engage with their environment and develop a sense of ownership and agency.

The program will be multigenerational apartment housing that fosters

# PROGRAM

both natural and human diversity. Approximately 25-30 units of diverse planning designed to support varied lifestyles and family structures. Multiple outdoor spaces create opportunities for various forms of engagement with nature suitable to diverse users; these may include productive gardens, loose play spaces and contemplative gardens. The building will extend some of these experiences into the public realm, creating a means for passersby to sense or engage with the cycles that support the building and its inhabitants. An amenity or communal room that connects to some of the outdoor space will serve to support community functions within the building, or provide a place for tenants to bring their own communities in. The building will also provide multiple means of engaging the senses, both in circulation and shared spaces as well as individual units.

Lot Size 16,000sf

32,000sf allowable

4 Stories @ 8,000sf= 8,000sf open space on site

Children's Exploration Area 3,000sf, Community Garden 3,000sf

Small meditative gardens 2@ 1,000 SF

24,000sf developable after Circulation, Entry Atrium and Mechanical Services

11,200sf Two Bedroom= 14 units @ 800sf

8,800sf One Bedroom= 22 units @400sf

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# Chapter Four : Design

The design of the building required an atypical process. Recognizing that at the human experience is at the heart of the understanding of nature, the project concentrated, first and foremost, on experience. In this way, the conception of the building did not emerge from massing models or typical programmatic planning, but more fundamentally. Experience in the building was understood through two means, the experience of life in the home and the experience of the public realm of the building. For the greater part of the design process, these elements were considered individually, and only once an understanding of the critical factors that shaped them were understood, was the process allowed to merge the two. Explorations occurred through the use of drawing and watercolor to create experiential sections rather than true sections, the use of clay and wood modeling to achieve a more tactile understanding of spatial character, and through the creation of a virtual reality diorama which attempted to portray the full range of sensory experience.

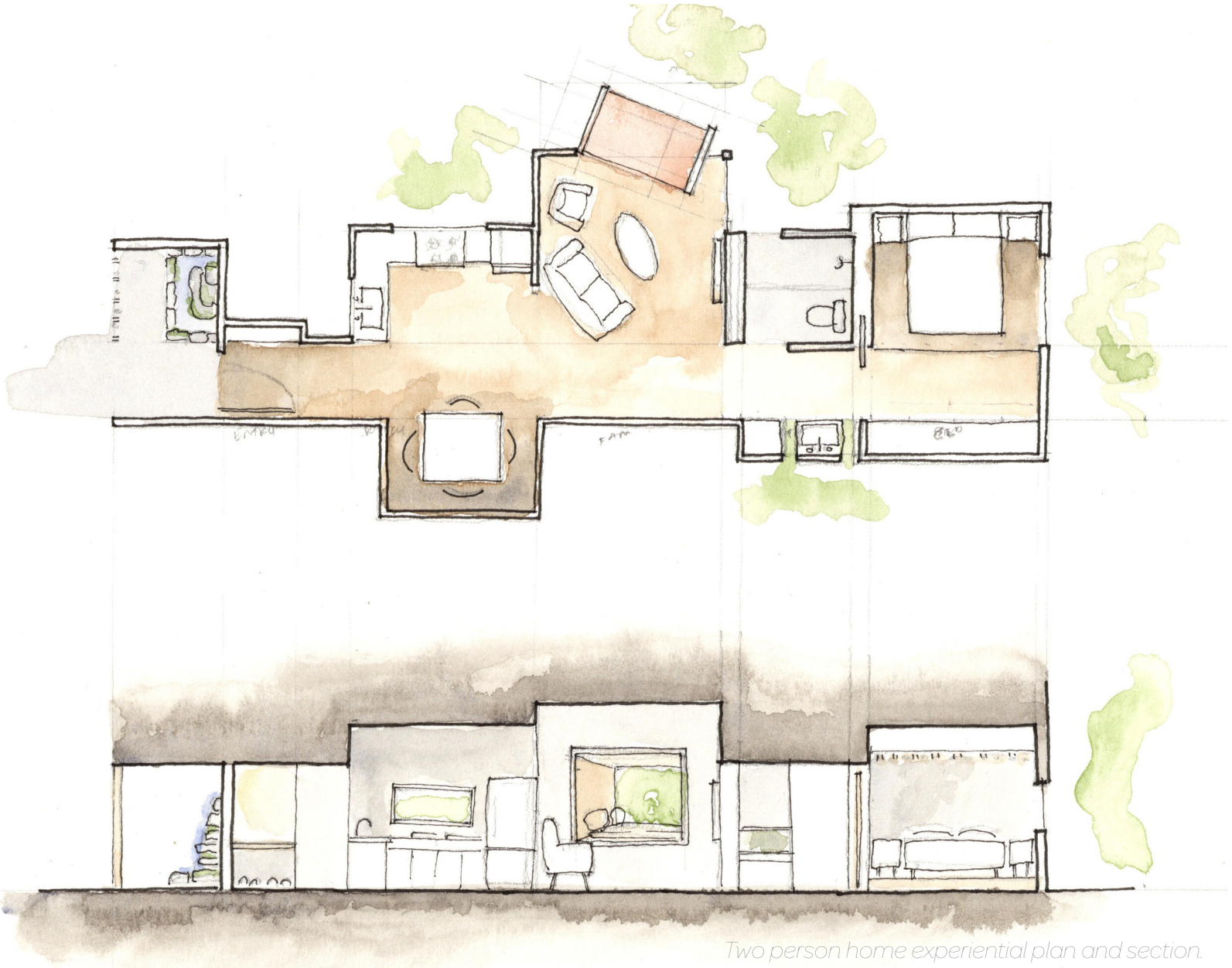
As the home and building began to merge, the process then required that accommodations, and compromises were made, but found that opportunities became available as the insertion of each home was confronted with a distinct set of circumstances. As one example, the desire to provide a means of experiencing changing morning light in bedrooms resulted in unique bedroom orientations, glazing strategies, and spatial conditions based on its particular location within the building. The siting of the building, and its situation within the topography of the site resulted in the creation of varied possibilities at each level. The ground floor had a clear connection to the earth, homes are entered without stairs or a significant change in level, and the relationships to the buildings public spaces are much more direct. On the second level, the excavation of the site creates a condition where the presence of the ground is still felt in many of the homes. Openings may just as easily face an earth and stone wall or out onto open space. The upper floor

*Four person home experiential plan and section.*

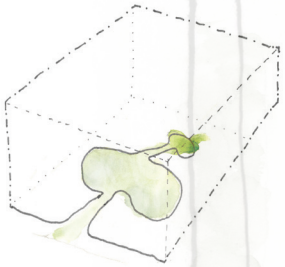
maintains a greater relationship with the sky, providing opportunities for top light and changing light and weather conditions.

While each level provided certain characteristics, relationships to other elements of the site were widely variable. Northern and Southern aspects offered different explorations that East and West orientations. Proximity to neighboring walls, openings and landscape features meant a mix of conditions that were not repeated among each home. In this way, as the building develops a sense of wholeness, it remains apparent that the pieces that compose it are unique. The building, in this way, becomes a manifestation of herecletian principles, unified but distinct, the flow of the river or traffic on the highway.

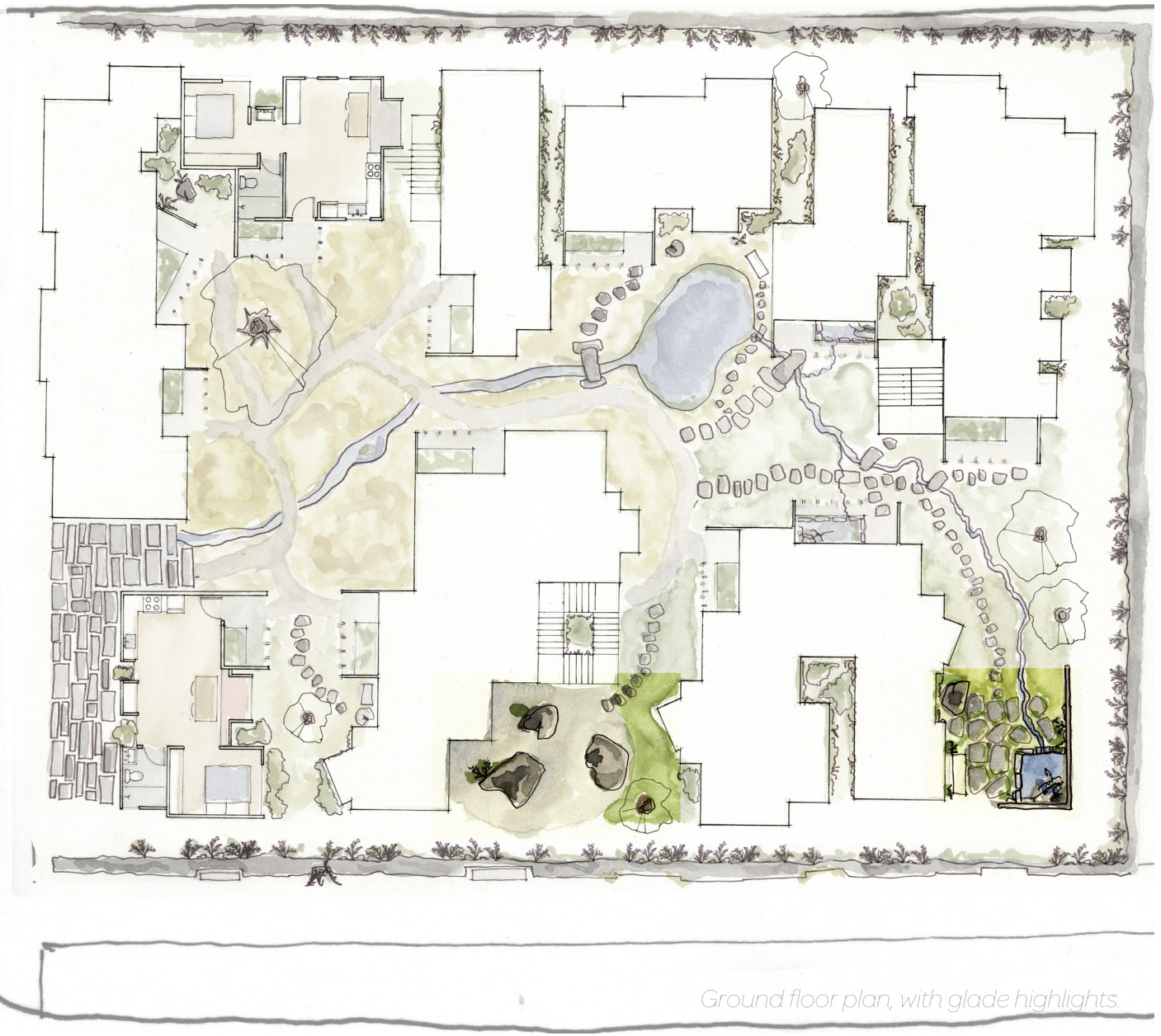
The homes were the designed as a progression of experience. Three basic unit types were explored, based on expected inhabitants. A plan for a four person household, a two or three person household and a one or two person living arrangement. The program requirements varied accordingly and were elaborated through an experiential plan and section. These plans were then manipulated based on where they occurred within the building.



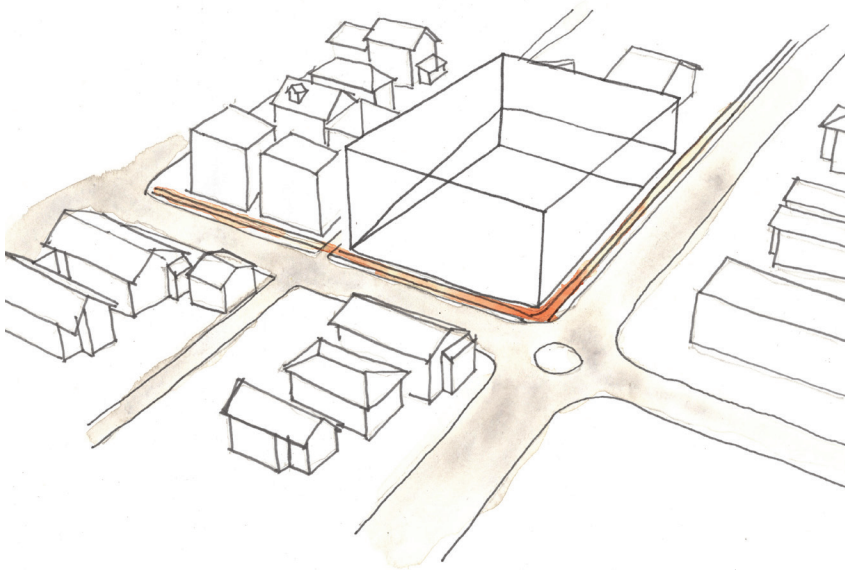
*Two person home experiential plan and section.*



# glade



*Ground floor plan, with glade highlights.*



*Site diagram.*

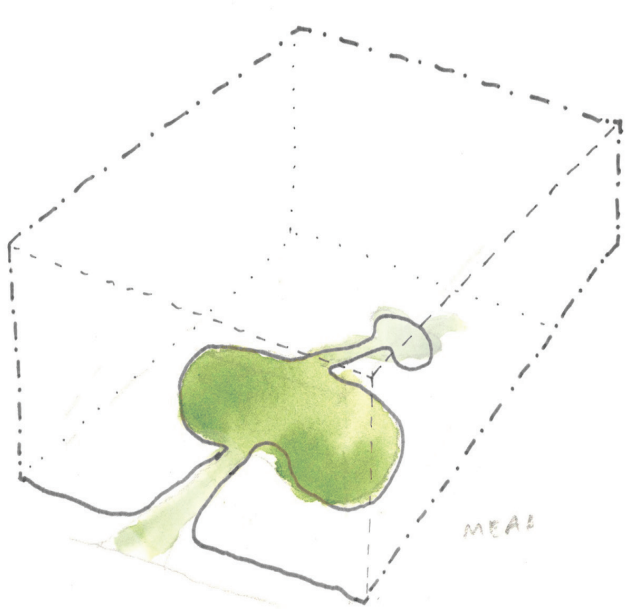
The building was imagined in a similar way. The design of the building focused on the experience of circulating through, or the carving out of various spaces and habitats. These areas were named and designed to support a particular means of observation, sensation or interaction. The inclusion of particular water elements, types of vegetation, quality and patterning of light and material and articulation of ground surface provided the primary means of developing foundations for experience.

Categorized as the glade, meander, meadow, canyon, bark and arcade, these spaces formed the structure around which the building was designed.

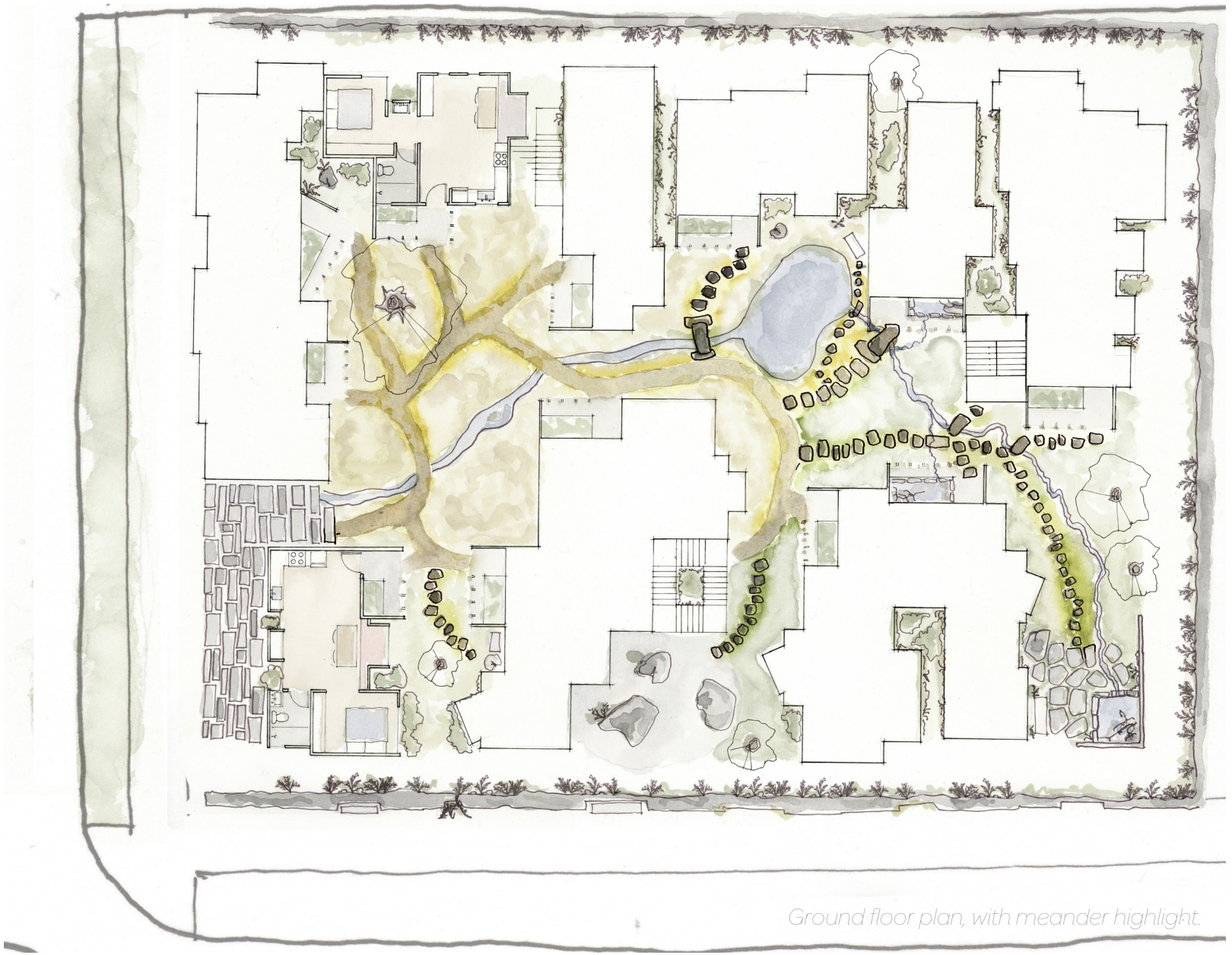
The glade occurs in two locations within the building, providing a more confined and introspective setting. With parts of the building cantilevered above, the sense of enclosure becomes palpable, while the resulting darkness, reduced circulation of air and location within the earth result in a moister, more verdant environment. While one version of the glade contains a small fountain which empties into a brook, the other manifests as a large rock garden. These are both envisioned as places for introspection, and may invoke a more cerebral or meditative interaction between the person and their surroundings.

*Ground floor plan, with meadow highlight*

The meadow offers an altogether different environment. Transitioning from the deepest recesses of the building and the earth, the meadow opens into a large courtyard, bounded by a crenelated wall. The transitions create a gradient of experience, becoming brighter and drier in the most open sections, yet finding shaded micro-climates in the niches created by the exterior walls of the surrounding homes. Slots between homes vary by level, but provide narrow passages that become cooler, moister and darker, simultaneously creating opportunities for experiences within homes. The meadow is an open space of community interaction and experimentation.

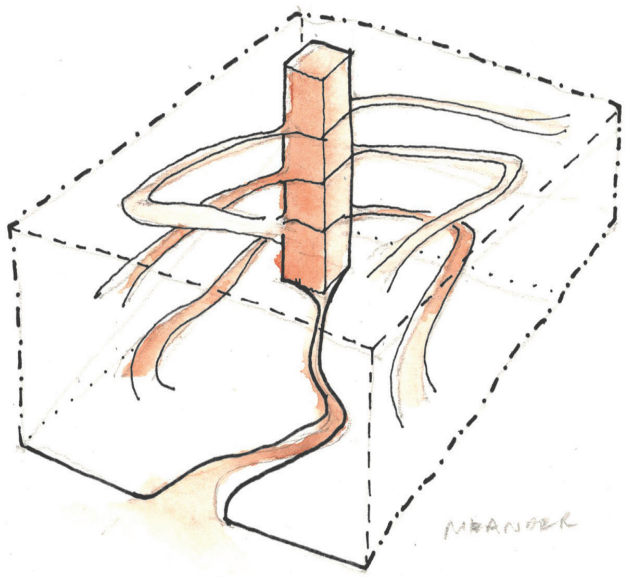



meadow

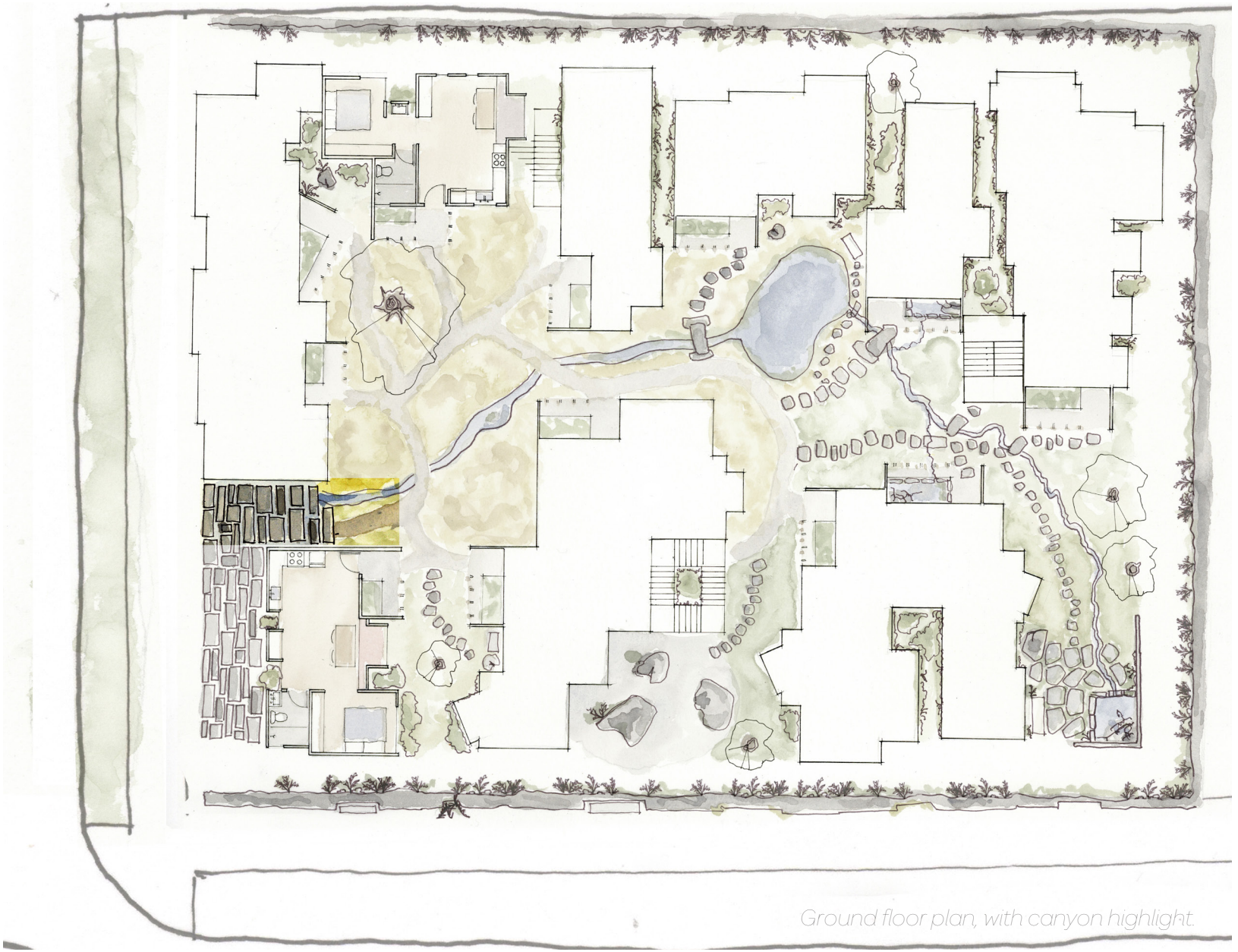


*Ground floor plan, with meander highlight.*

The meander is the circulation of the building, and connects through the various topographies and regions. Subtle shifts in grade and surface distinguish movement through the building. A rolling path of fine gravel allows for accessibility to many of the homes, creating a manageable route, while allowing the distinct sensation of sound and feel that the surface exhibits. Becoming stone in deeper reaches of the building, the quality of movement on the meander shifts, sound underfoot changes and is accompanied by a need for greater attention in movement, as the gaps between stones necessitate focus, unlike the smoothness of gravel. The meander marks water, rising as it crosses, occasionally on stone bridges.

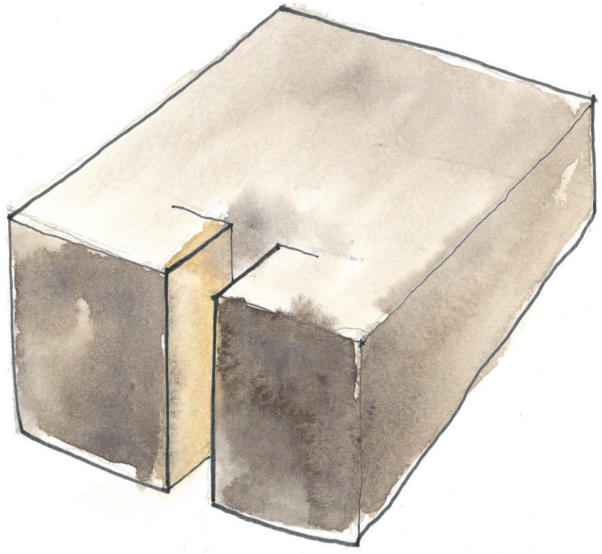


meander

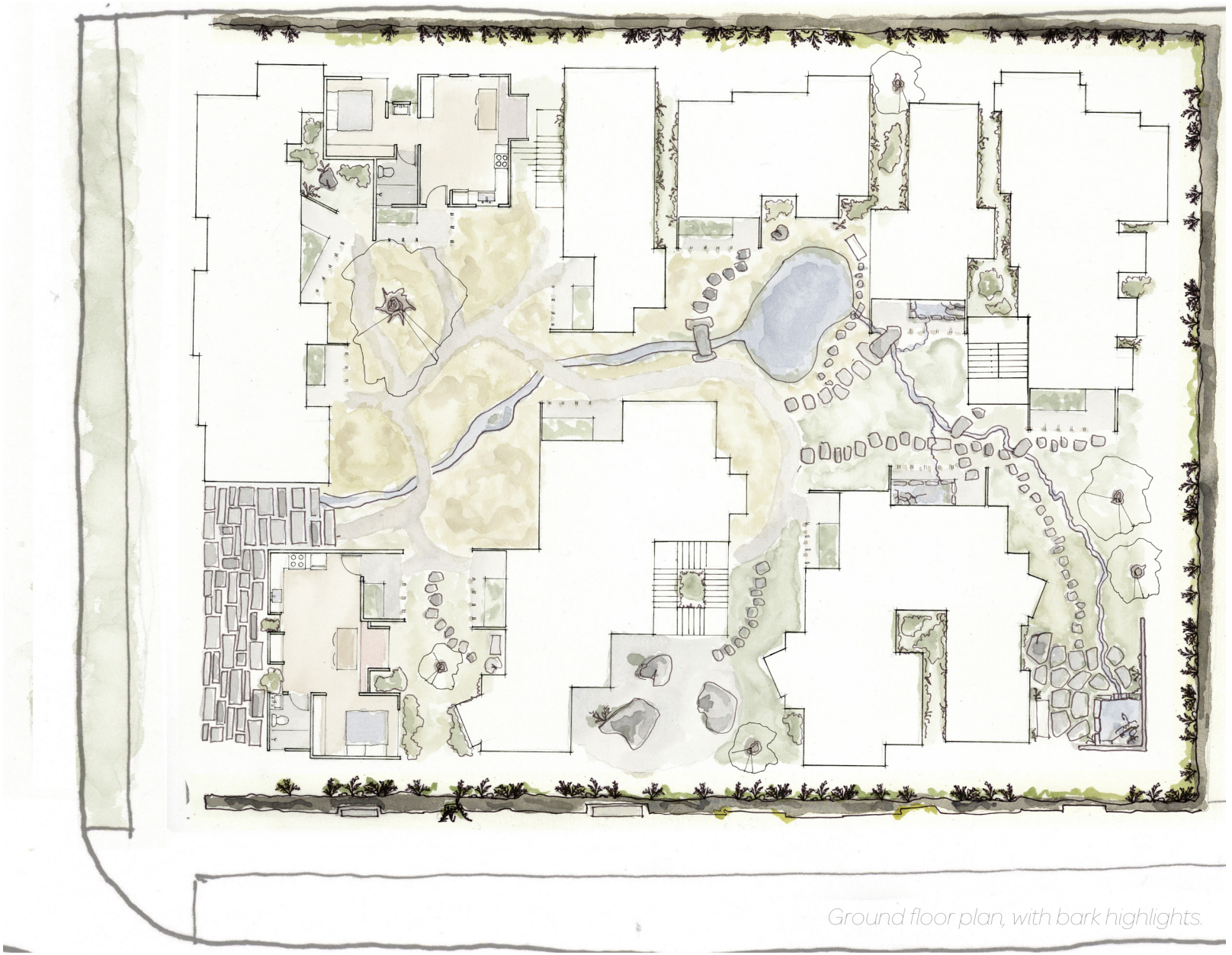


*Ground floor plan, with canyon highlight.*

While transitions within the building are muted, preferring gradients of change between regions or moving through the semipublic porch of each home, the entrance to the building itself is more stark. Moving through the canyon is a focused compression, with narrow walls extending the full height of the building, the sky is framed, and the predominant sensation is the sound of water moving, unseen, below the stones underfoot. Whether entering the building or departing, the threshold provides a reminder of the simple act of sensation and experience.

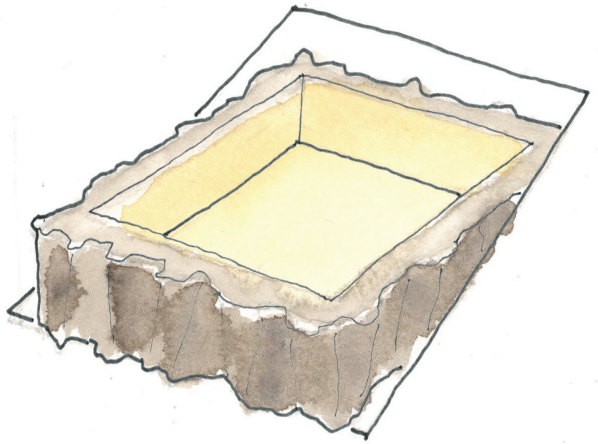


canyon

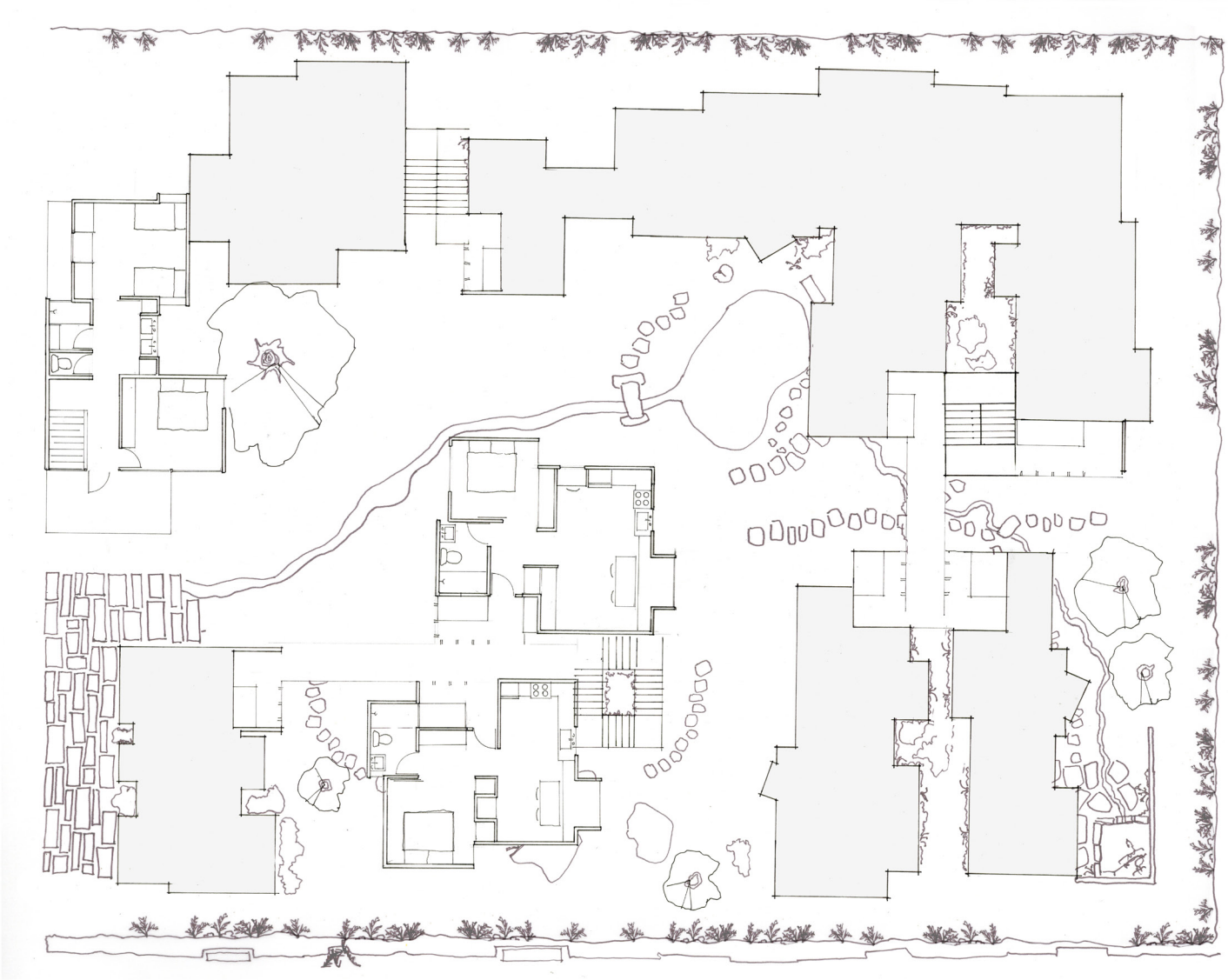


*Ground floor plan, with bark highlights.*

The bark is the primary means of interaction with the surroundings. While it encapsulates the building in a way which allows for the creation of a focused experience within, the variation in its surface allows for life to take hold in small crevices or larger nooks for sitting, waiting or observing. Passersby, may find respite within the wall, sitting to read a paper, or as moss taking hold in a crevice.



bark

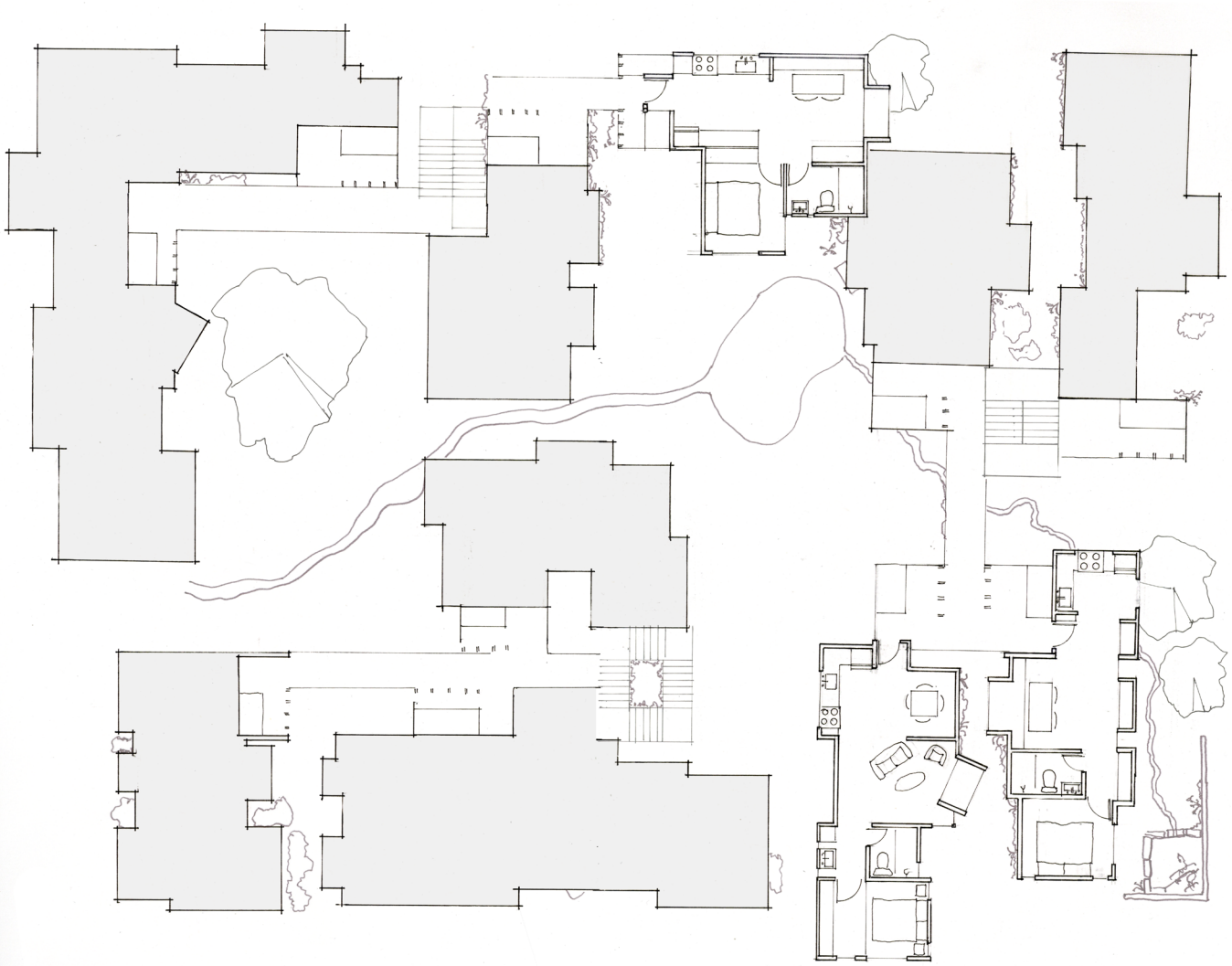


*Second floor plan with select units detailed.*

With the basic principles for both homes and the building understood, the test became the unification of both strategies. The flows and forms of the buildings public spaces organized the criteria around which homes were shaped from the outside, while the experiential plans and sections shaped them from within. The implementation of the design strategy then became a mediation between the needs of interior and exterior, with surprising opportunities and challenges arising.

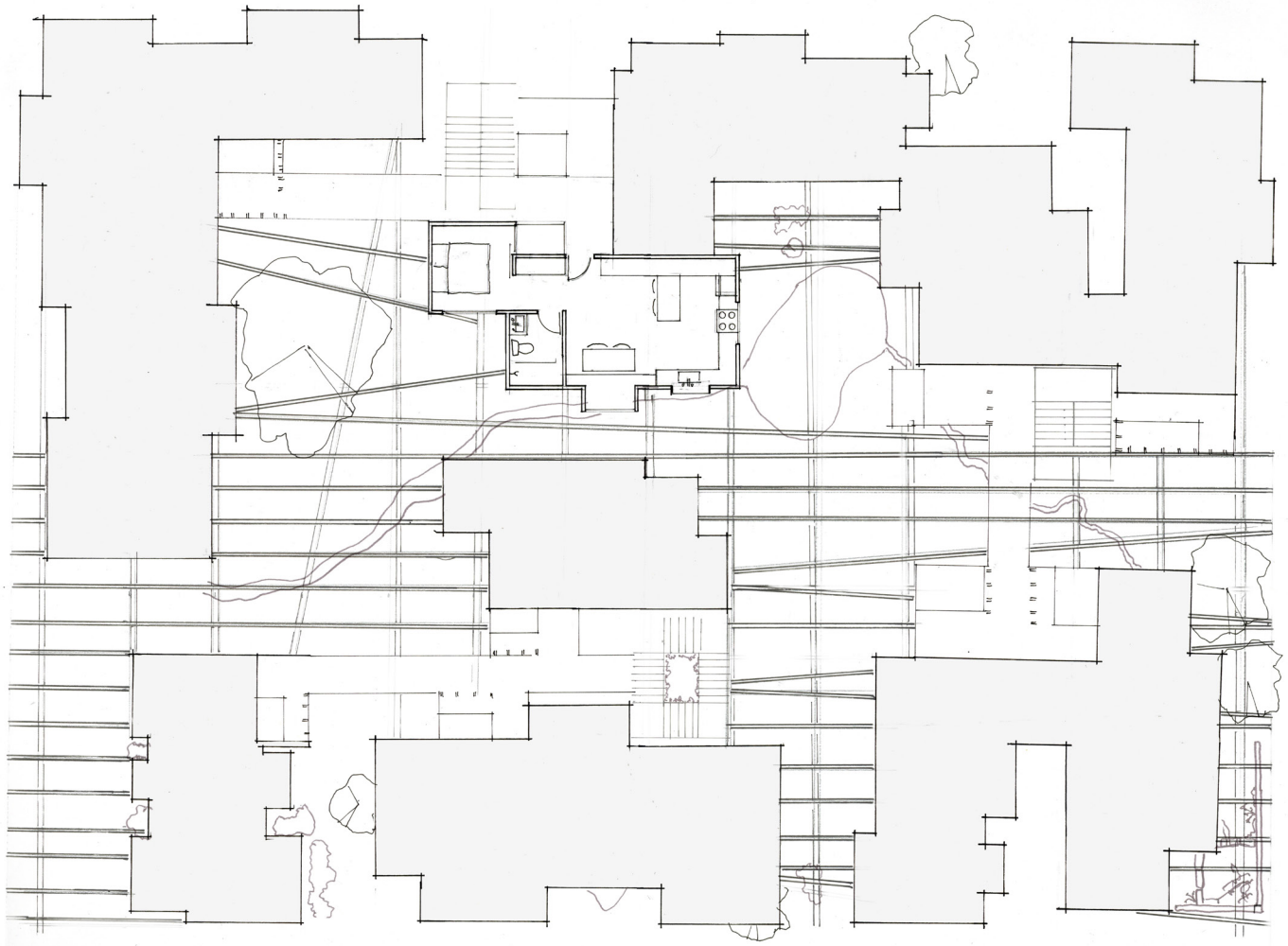
At each level of the building, locations for two or three units were chosen to test the ability to integrate both public space needs and the desired qualities within the homes. The type of unit was also varied to provide a somewhat representative sampling, while other areas remained undeveloped. Ultimately, the full execution of the project would require each unit to be designed individually as a function of its situation within the milieu.

In the following floor plans, the selected units can be seen, and the choices pertaining to the contextual character discerned. As each unit was reshaped, it also reshaped the units in its proximity, either through the movement of shared walls or, more often, the relationships between apertures that looked into shared slots or adjacent homes.



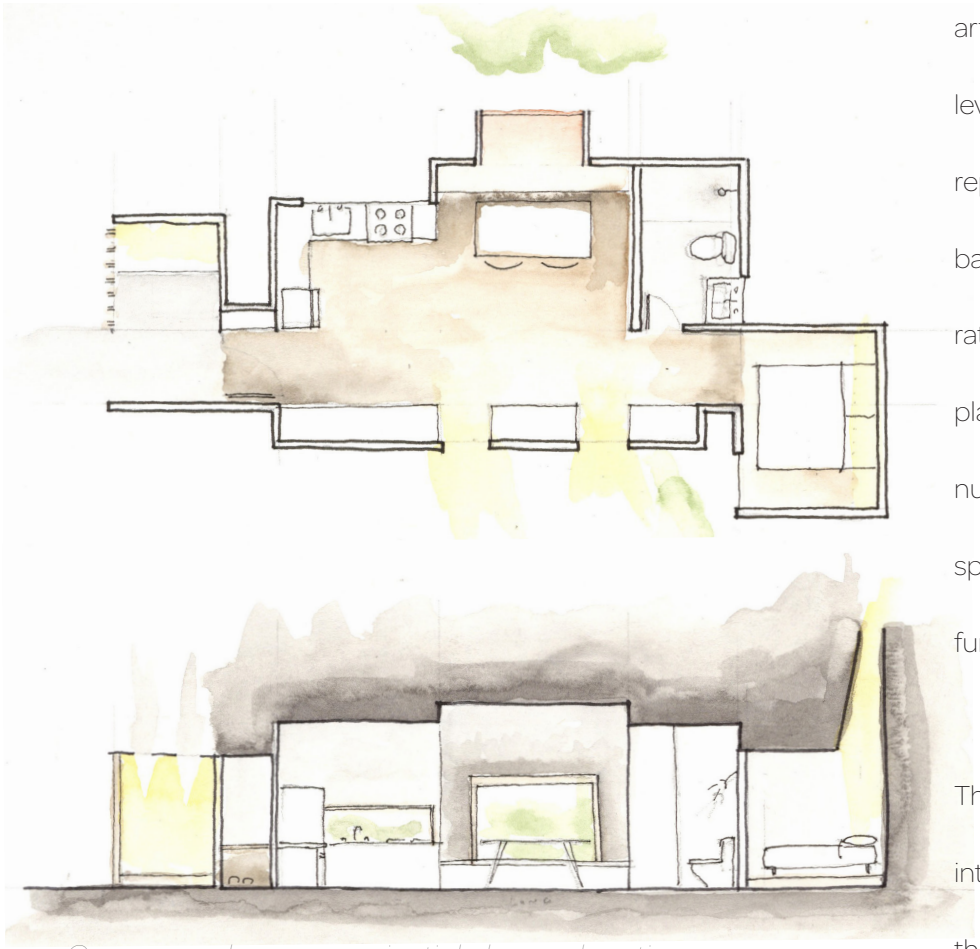
*Third floor plan with select units detailed.*

The porches of the units above the ground floor also took on a different function. Rather than acting primarily as a semipublic transition space, as they had at ground level, they became opportunities to introduce vegetation on upper levels, and could allow different interior spaces to connect directly to a shielded exterior. These penetrations were, as often as possible, considered as a means of allowing peripheral sensation rather than direct engagement and focus. For that reason, they often occur to the side of a particular task area, such as the sink of kitchen counter. The window seats that characterize a private space within each unit are also situated to look onto a surface beyond rather than out toward a view. As one sits and reads, the movement of plants on a green wall and the sounds of light rain enrich their experience, rather than demanding their attention.



*Fourth floor plan with select units detailed.*

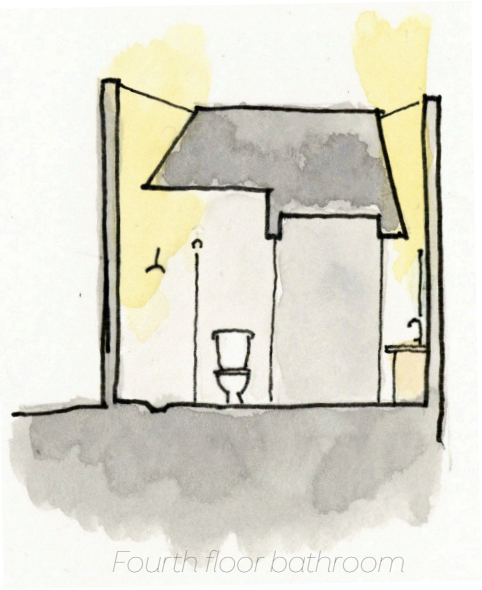
On the fourth level, the other significant opportunity explored was a lattice of vertical fins which allowed for the varied play of light below. This framework began simply as a bi directional grid, but was allowed to react to the landscape below, providing another means of distinguishing particular experiences on the ground.



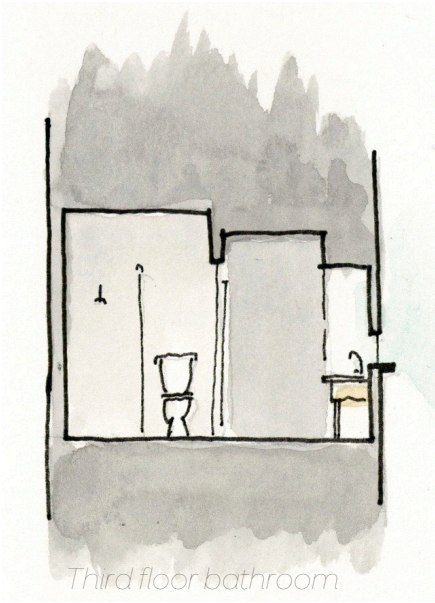
*One person home experiential plan and section.*

As the design of particular homes shaped the building, so did the varying circumstances shape the homes. In the following figures, the articulation of different cross sections can be seen as a factor of which level of the building they exist within. Opportunities for toplighting replace low windows with a focus on ground level vegetation. A bathroom may connect with translucent glass to the porch outside rather than providing windows surrounding the sink where ground plants seem to spill into the space. While these suggest only a limited number of possibilities, the framework demonstrates that the basic spaces and experiences can be articulated in myriad ways to provide fundamental interactions given varied circumstances.

The process to create this rich mixture of homes is, unfortunately, intensive. While it may not be justifiable from a financial perspective, the process revealed that the practice of this process can allow for the creation of complex interactions, and a commensurate richness of experience. Rather than repetitive units, the possibilities explored



*Fourth floor bathroom*



*Third floor bathroom*

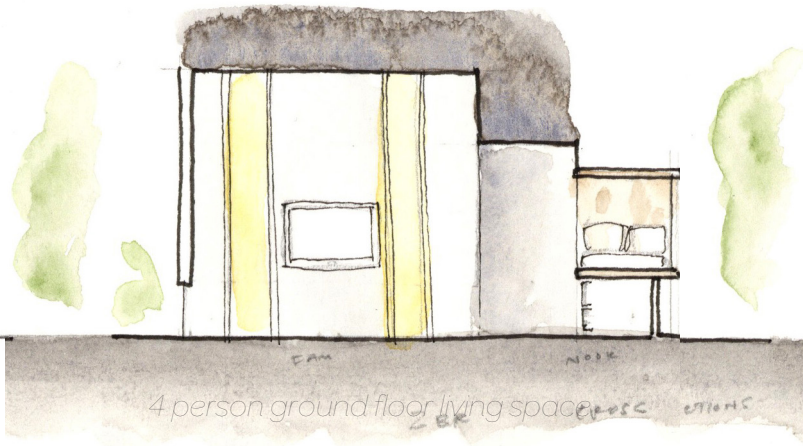
demonstrated that the mass customization of homes in this way cannot only result in a multifamily project that provides a quality of life akin to single family design, but that the interaction between the communal space and individual homes within the building can result in opportunities that do not exist at lower density.

Here two bathrooms, suggest upper level units, one with the ability to bring in light from above, creating distinct and variable experiences while showering or in washing at the sink. The lower unit, does not suggest such a dramatic experience, but in the placement of the window behind the sink, the opportunity exists for a subtle relationship to the world beyond when bending forward to wash.

These cross sections demonstrate a few of the variations possible in the main living space of different homes. While all share the window seat as an extension of the main room, each treats it distinctly. The ground level versions are  from a two person unit on the left and a four person unit on the right. In the two person home, the living dining space is shared, and the windows seat continues out to form a dining bench, or sofa for watching tv. The seat thus provides both solitary and communal opportunity. The units on the right explore different connections to either ground level vegetation or the sky. Windows within the room bring changing light to the periphery of the room's focus.

*4 person fourth floor living space*

*1 person ground floor living space*



*4 person ground floor living space*

The bedroom offered many possibilities, while no view is needed, a connection to changing light, particularly in the morning is crucial. Windows or skylights were aligned with vertical surfaces, so that light could wash along them, allowing for changing patterns and qualities of light and shadow. The sleeping space was also envisioned as a slightly raised platform under a lowered ceiling, offering a sense of enclosure, even while the room became a display for the environment outside. Dining spaces seen below also offered greater enclosure than their surroundings allowing for intimate and convivial interaction.

*Third floor bedroom*

*Fourth floor bedroom*

*Two person dining area and kitchen*

*Four person dining area and work space*

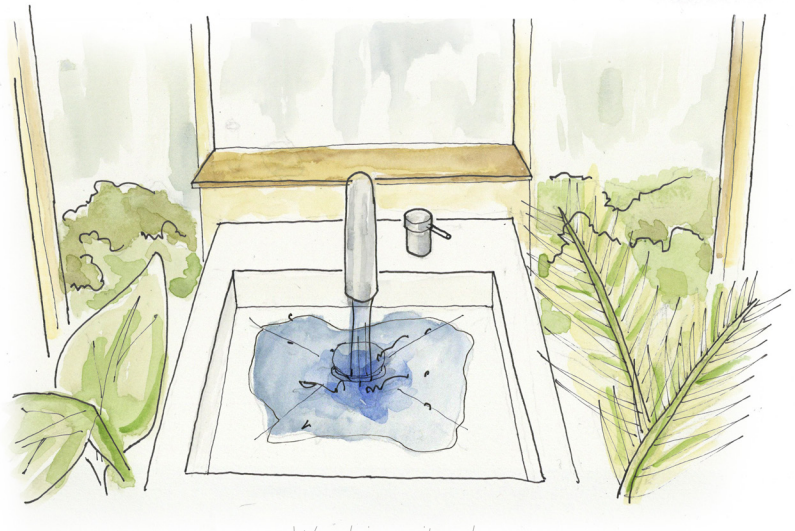
*Ground floor bedroom*

These final bathrooms emphasized more direct connections to the vegetation beyond, though the effort necessitated different approaches at ground level or above. While ground level vegetation at windows on either side of the sink could be extended in, through planters on either side of the basin, that was not possible on upper floors. By situating a bathroom near the porch, a translucent separation between the plants growing on the porch and the shower provides a unique connection which allows for the interplay of hue and shadow and displays subtle movements of wind. Near the sink, low windows again connect to foliage beyond, but allow it to become a shifting peripheral texture, rather than a studied view. Each of these experiences bring nature peripherally into the consciousness of bathing rituals without demanding direct attention.

*Second floor bathroom*

*First floor bathroom*

*Morning light in bedroom*

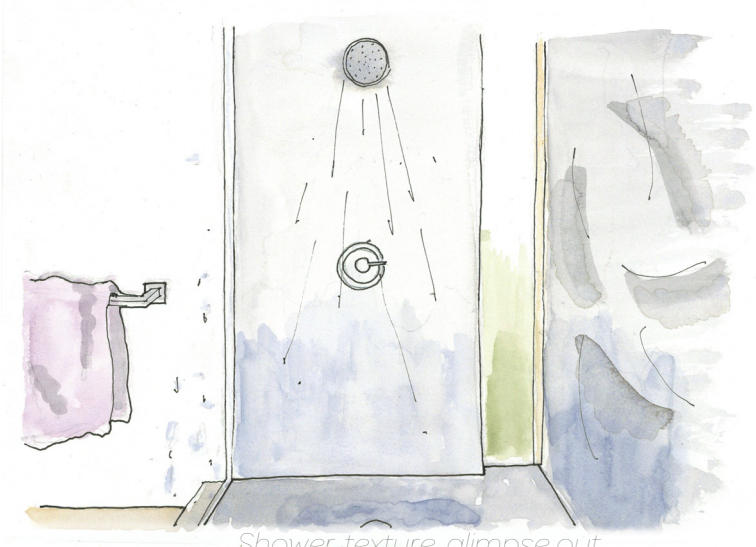


*Washing rituals*

The design of the building was also envisioned and portrayed through a series of vignettes and an accompanying experiential section. The goal was not to describe the full gamut of possibilities within the building, but rather to suggest one possible sequence of experiences based on the path from a single unit out into the city beyond. The backdrop provided by the building highlights various elements of the cycles, speaks to a rich variety of sensory experience and offer opportunities to engage with the surroundings, or explore personal boundaries. These elements, through repeated exposure, serve as a means of practice, allowing the inhabitants of the building to subtly shift their perceptions in a manner that carries with them into the city beyond.

The rituals of the morning, beginning with changing light and increasing detail and focus on the bedroom wall, washing at a sink where the plants beyond the window provide a sense of wind and movement, showering and reading, are all opportunities for an enrichment of the peripheral. Demanding no specific attention, this backdrop of natural interactions layers with the activity of home.

As the path continues through the building, opportunities for contemplation, or an ephemeral glimpse of movement may accompany one along the path from their door. The explorations of children in the meadow act as a reminder of the dividends of curiosity. The framing of sky and sound of water underfoot are briefly all encompassing when passing through the canyon. The city beyond begins to brim with similar experience, a stumble on cracked pavement reveals the life below, the rushing of traffic subsides into a pattern of sound and light. Rain slides across the windows of the train, and in the canyon of downtown the city becomes the frame for wind and sky.



*Shower, texture, glimpse out*

*Window seat, rain sound, smell movement.*

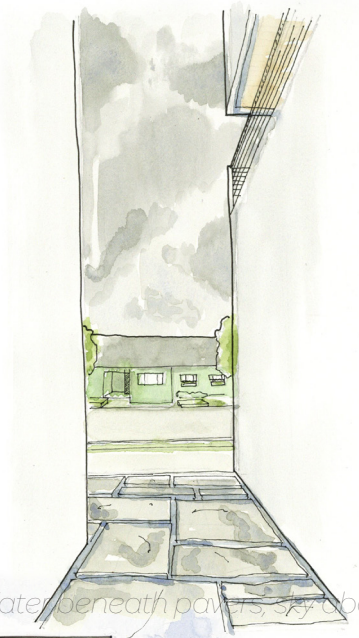
Leaving porch

Meander near still water

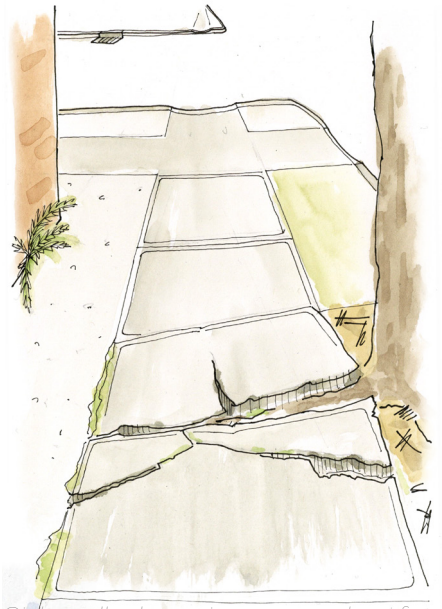
Glade, [illegible]let fountain

Experiential section, p.77-80

*Exploration in the meadow*



*Water beneath pavers, sky above*



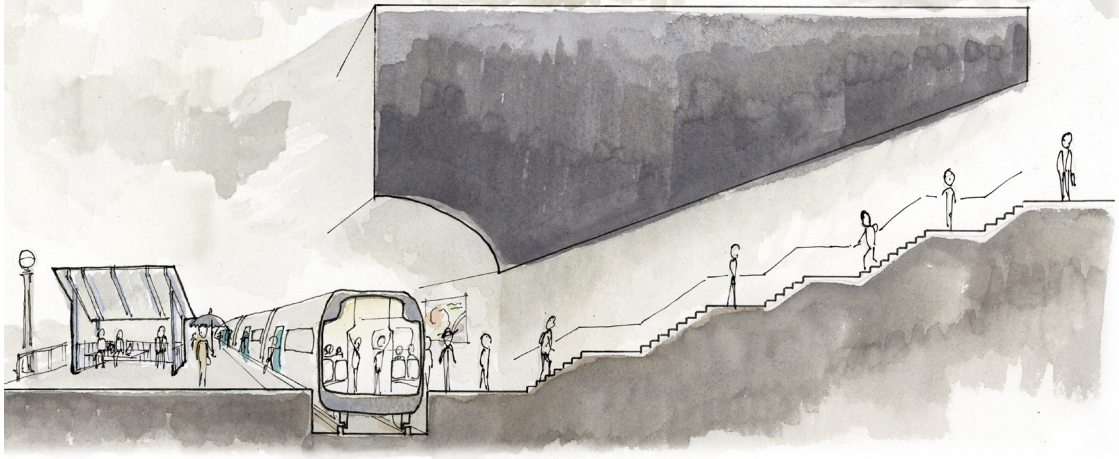
Sidewalk changing ground surface

Urban flows of light and sound

Tree canopy, sounds of play

Rain and wind flow on commute

The skyline shaped downtown



# Chapter Five : Conclusion

Given the framework of this thesis and the design explorations that sprung from it, the ultimate question becomes, can a building, designed with the human experience of nature as a primary directive, provide a new means of interacting with the world?

The conclusion drawn is that, the building cannot dictate particular experiences, nor can it force upon its inhabitants relationships that do not already exist. The role of architecture in this context is more likely to be a means of training. By carefully considering possible interactions, between inhabitants, neighbors and a landscape and building which provide a foundation for life of all kinds, opportunities arise for those who interact in and around this building to practice seeing their environment that speaks to the Cycles, Awareness and Engagement that define our lives and create the relationships that define Nature. Within the home and the greater building, this repeated interaction makes nature a way of being in the world that can be taken anywhere. Not simply limited to ecosystems we see as unspoiled. Thus each day of living in a building of this sort can provide a new lens for experience, that occurs in subtle ways, around the edges of everyday life, as you wake, or perform the rituals of washing; while reading a book with the sound of rain at your side; walking attentively through the curated landscape within a building; or pausing to contemplate the stillness that exists within the sounds of running water. The practice of this experience extends into unexpected moments during the day, tripping on a sidewalk broken by roots, or in the blurred passing of cars on the street, framed by the slowly moving leaves of the trees behind them. It is carried in the rain on the windows of a train commute and into the heart of the city where buildings channel winds and frame the sky. The building cannot force the experiences to occur, but it can set the stage for their occurrence.

Allowing the design process to evolve proved just as important in

this examination as the ultimate manifestation of the building. The temptation to engage in more traditional means of site analysis, building massing and programmatic arrangement could easily have forced the building into a regimented form that was unable to allow for the vagaries of life. Maintaining rigor in the process of exploration became more instructive than forcing rigorous design parameters on the project. Early concentration on fundamental experiences solidified the important aspects of design so that as the constraints of geometry and spatial relationships were applied, new opportunities emerged. While there are still many functional details that remain to be resolved, the considered application of the underlying principles that have shaped the project thus far suggests that this slow and flexible process can bring greater possibility through the continued layering of practical concerns.

*Early diagrams, enclosure, borrowed landscape, bark*

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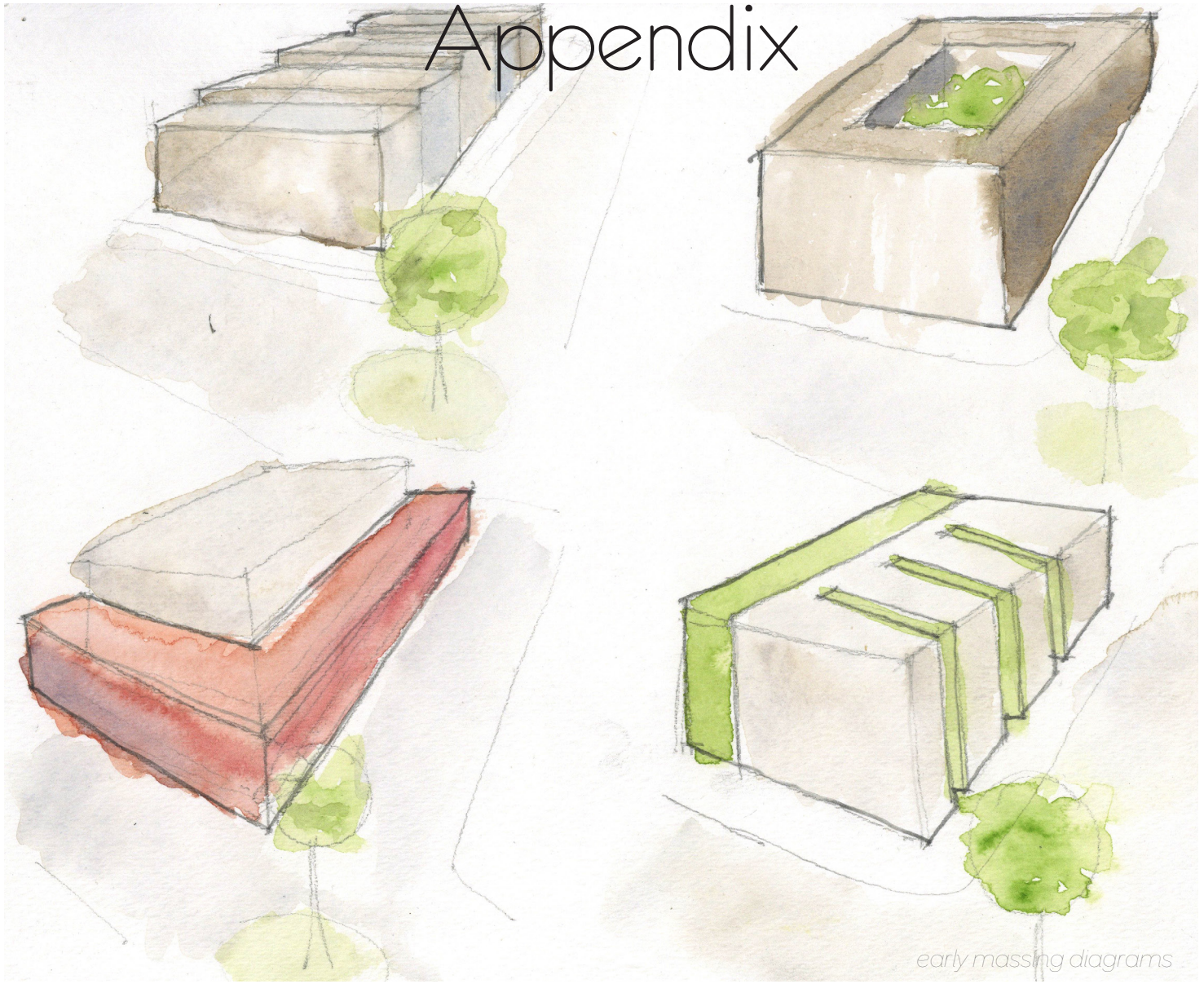
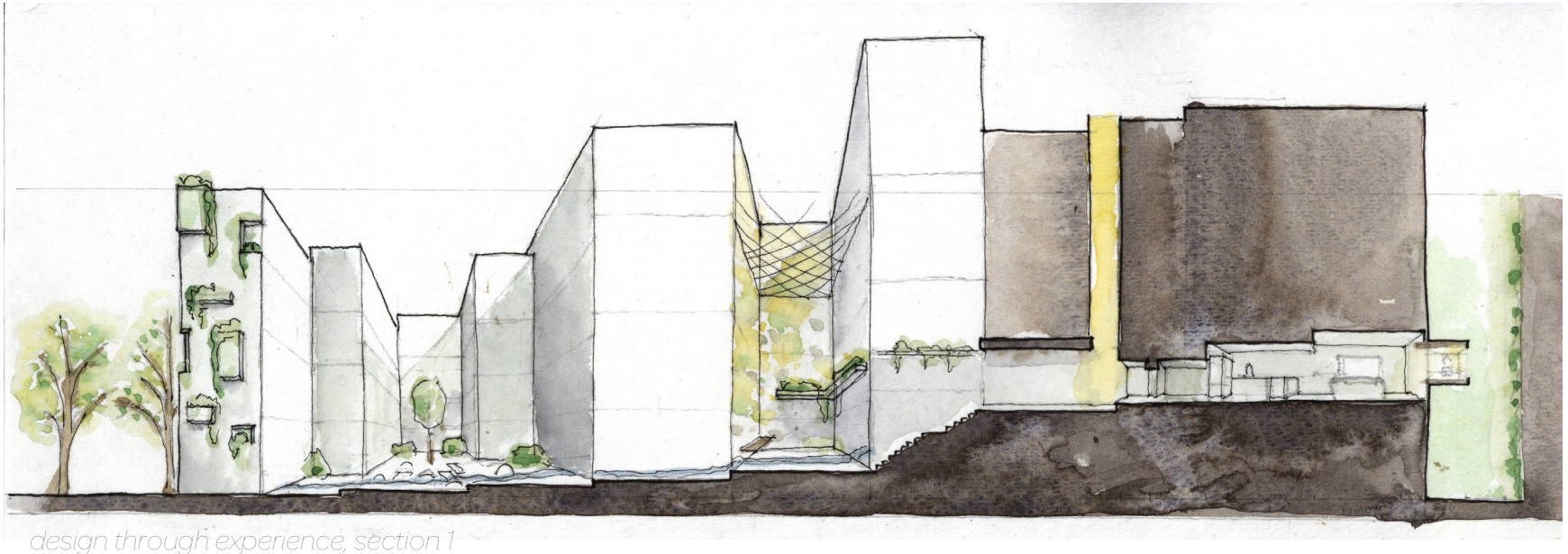
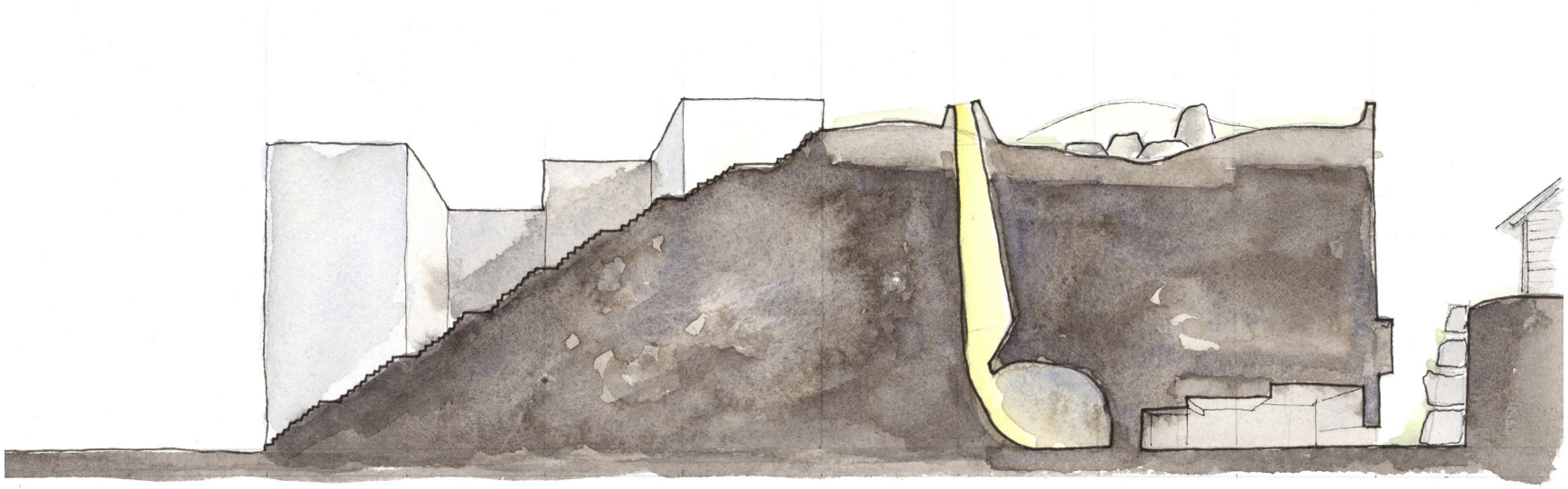
# Appendix



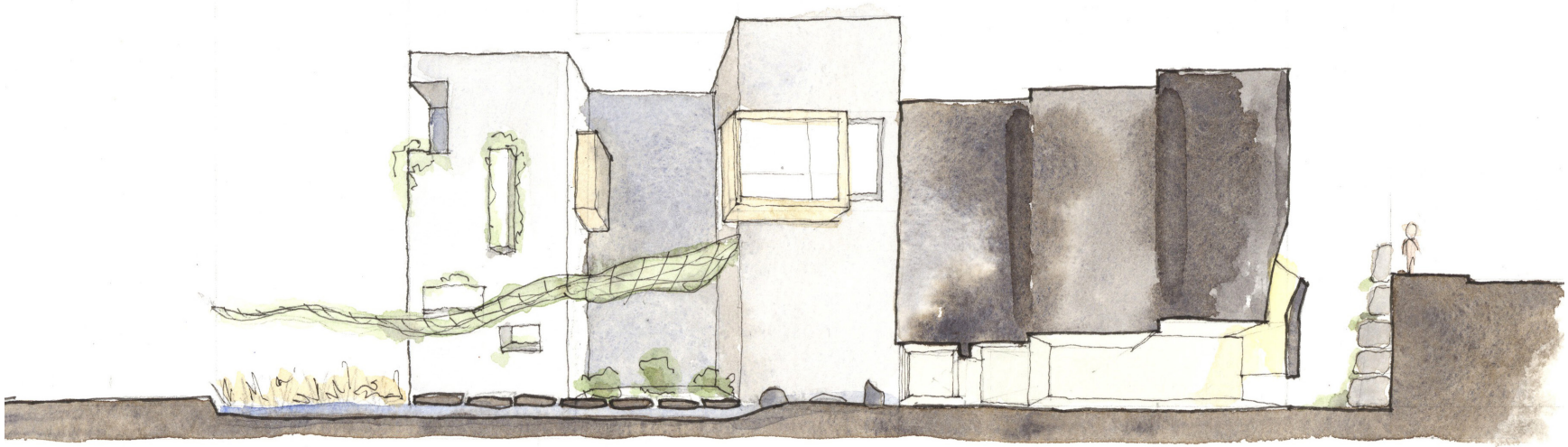
*early massing diagrams*



*design through experience, section 1*



*design through experience, section 2*



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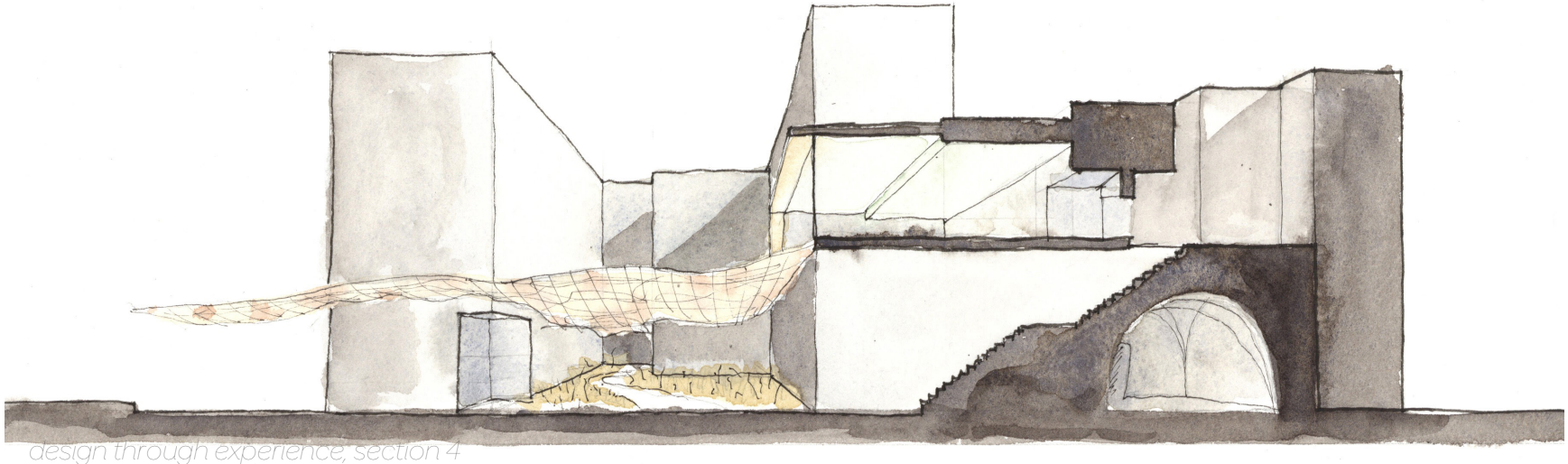
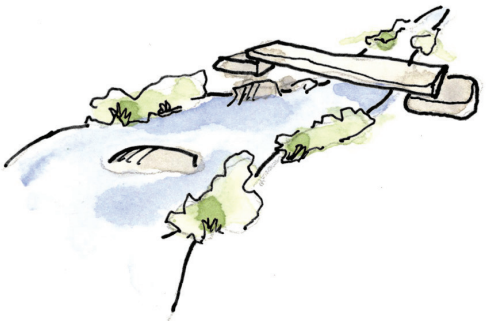
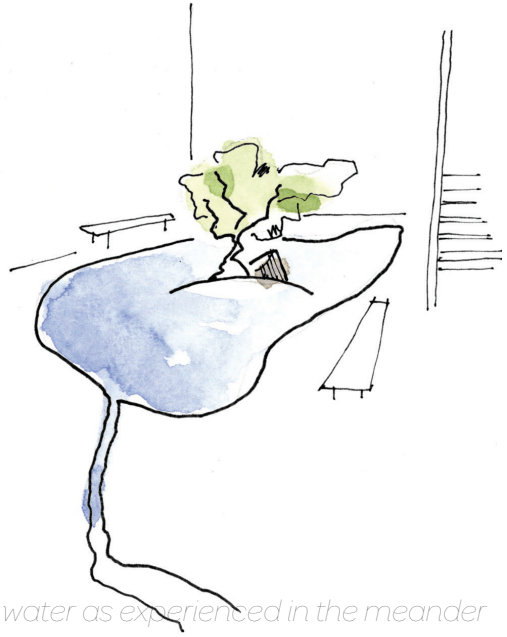


*design through experience, section 4*

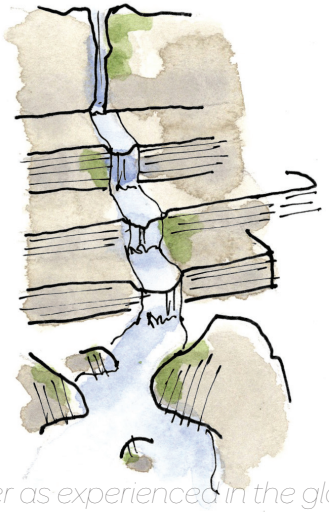
*water as experienced in the canyon*



*water as experienced in the meadow*



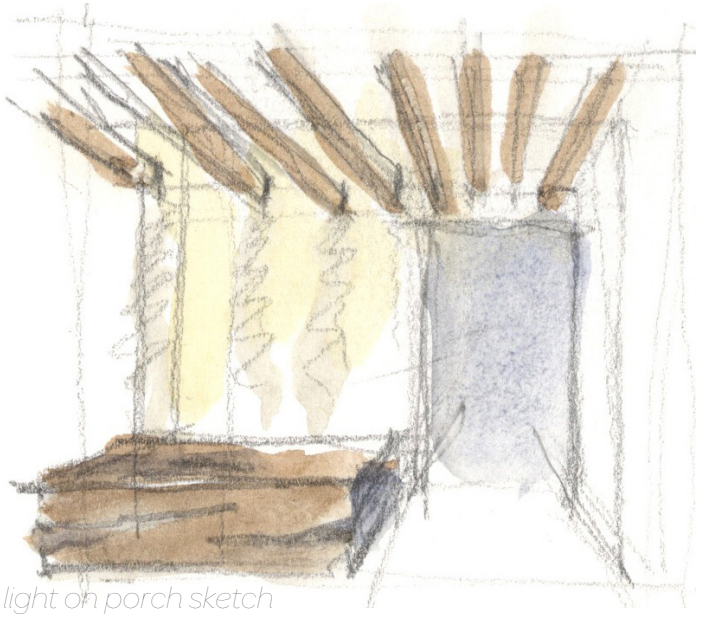
*water as experienced in the meander*



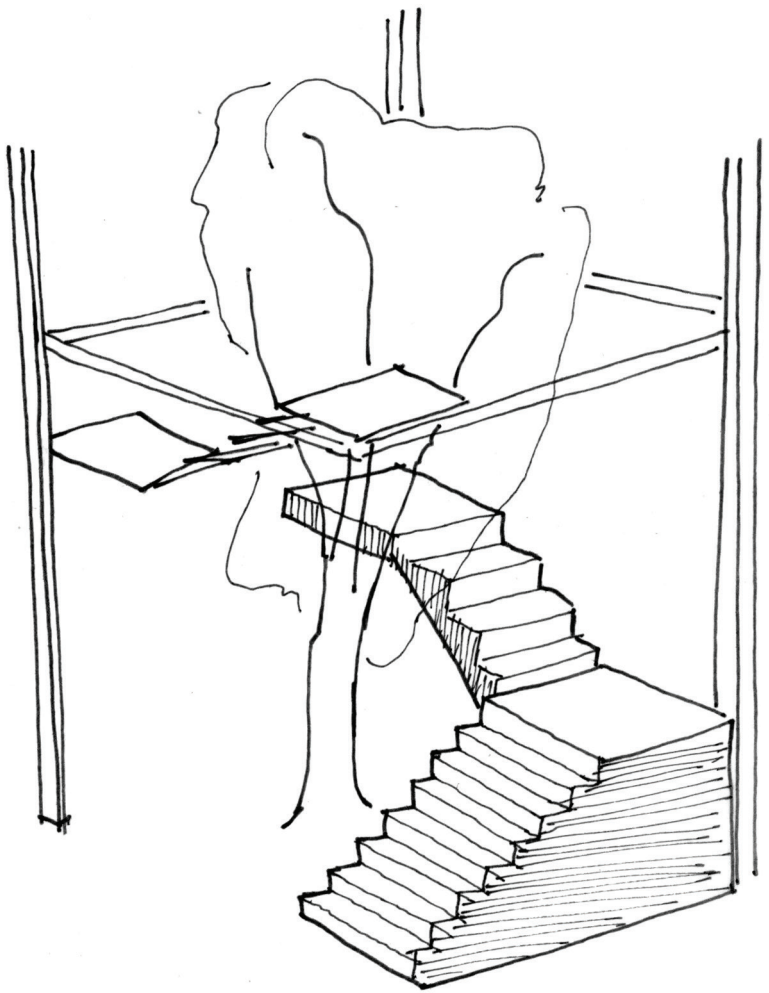
*water as experienced in the glade*

*ground floor porch sketch*

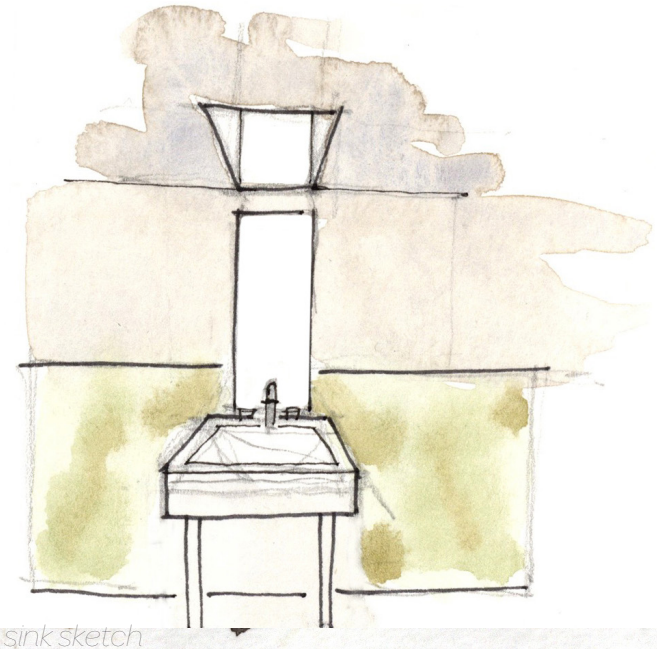
*vegetation on porch sketch*



*light on porch sketch*

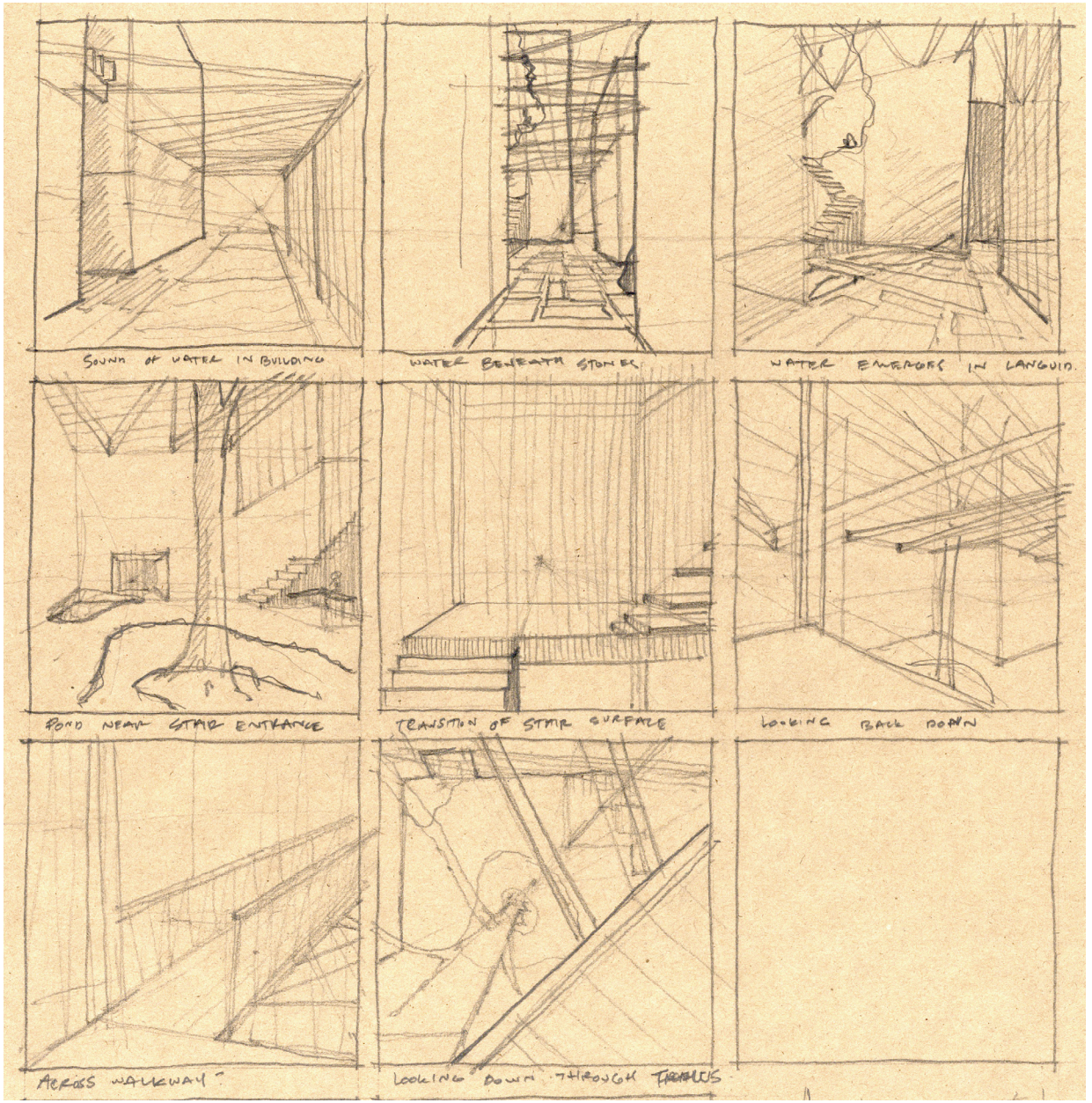


*tree encircled by stair sketch*

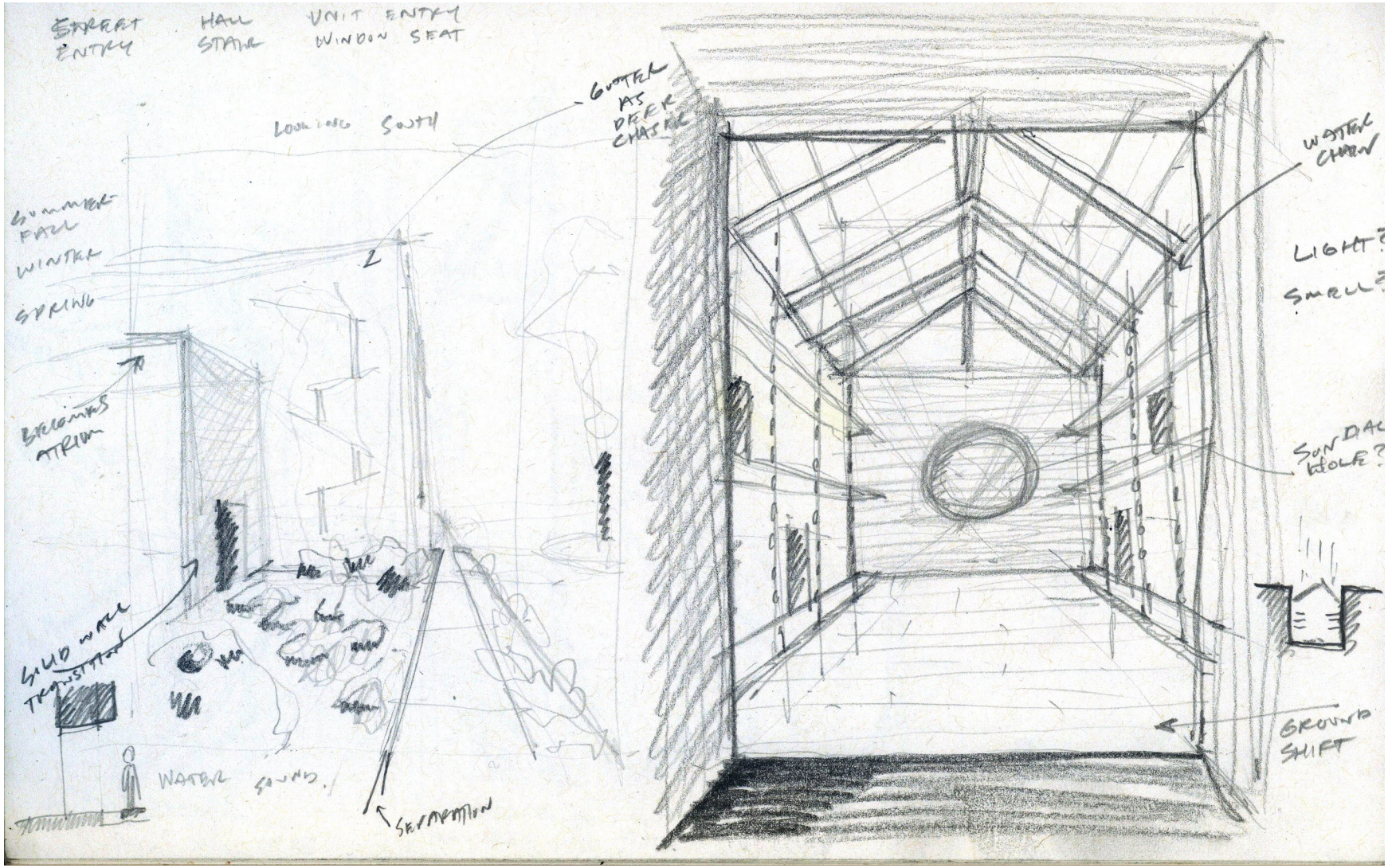


*sink sketch*

*window seat reaching out sketch*

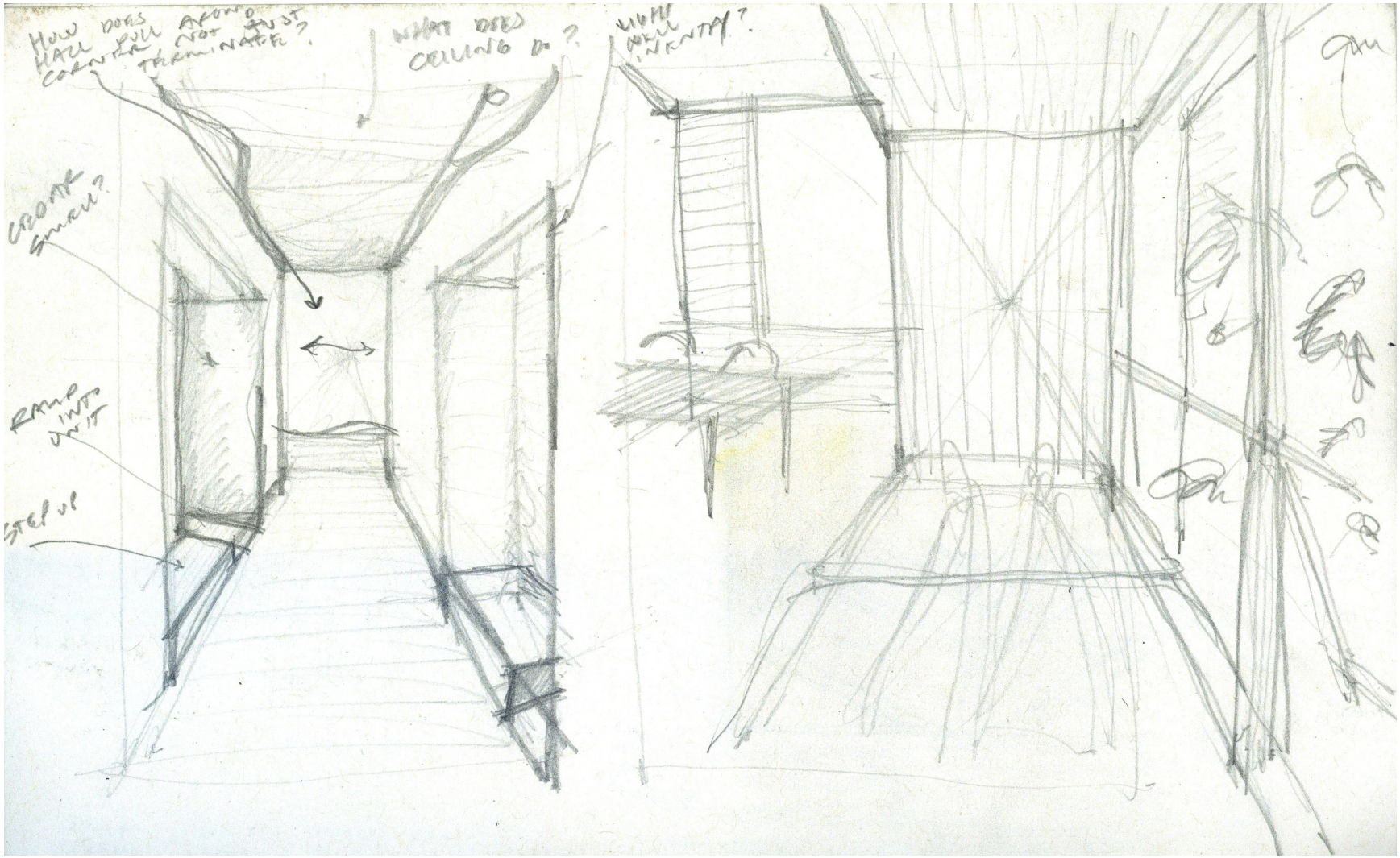



*early vignette progression*



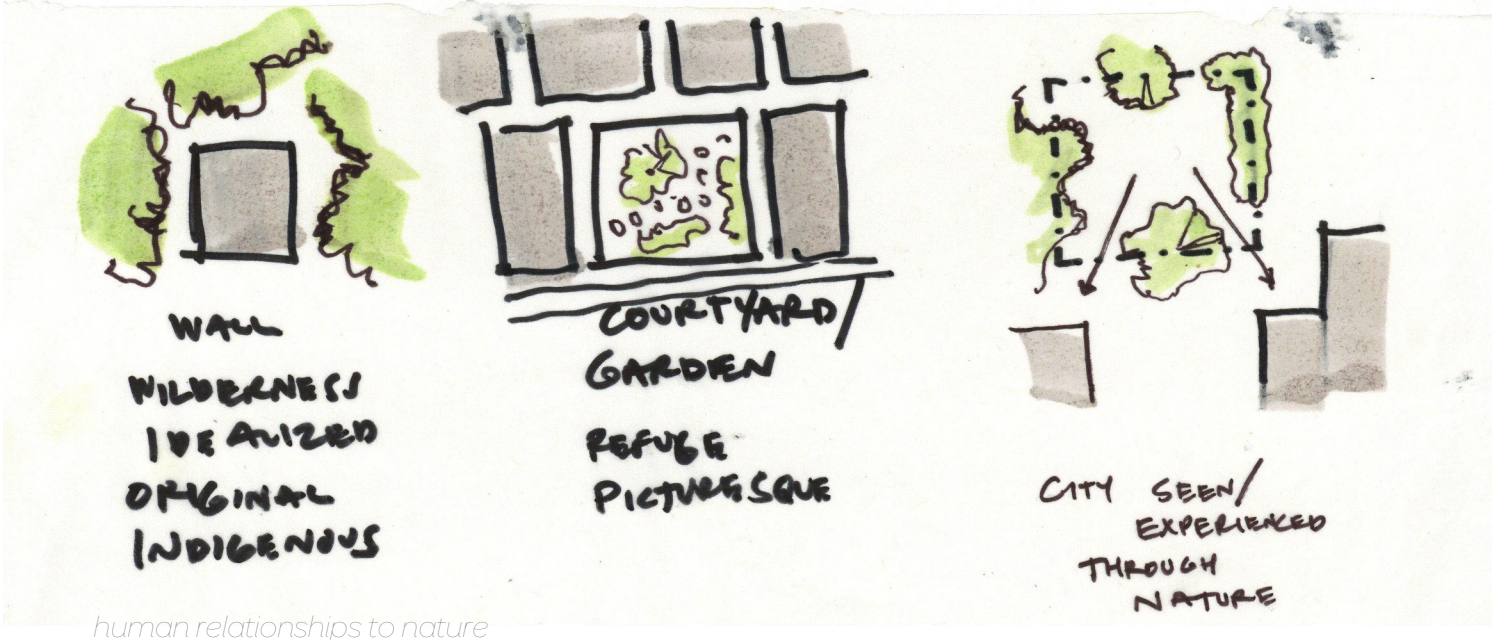

*sidewalk sketch*

*atrium sketch*



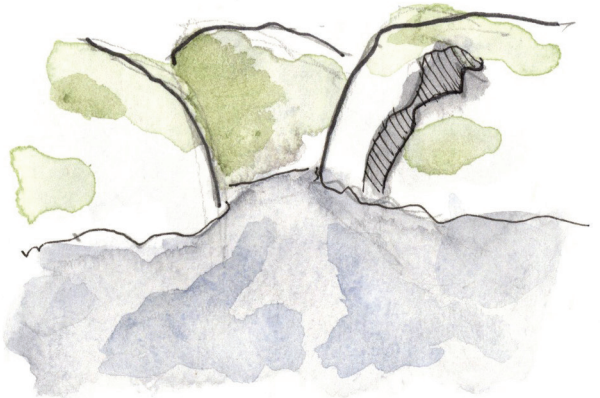

*hallway sketch, peripheral porch changing light*

*window seat sketch*




*human relationships to nature*

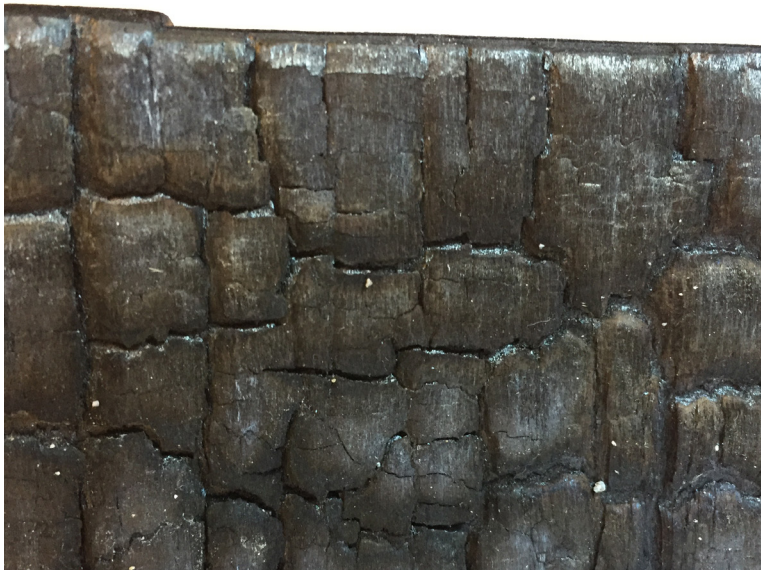
*moss observation*

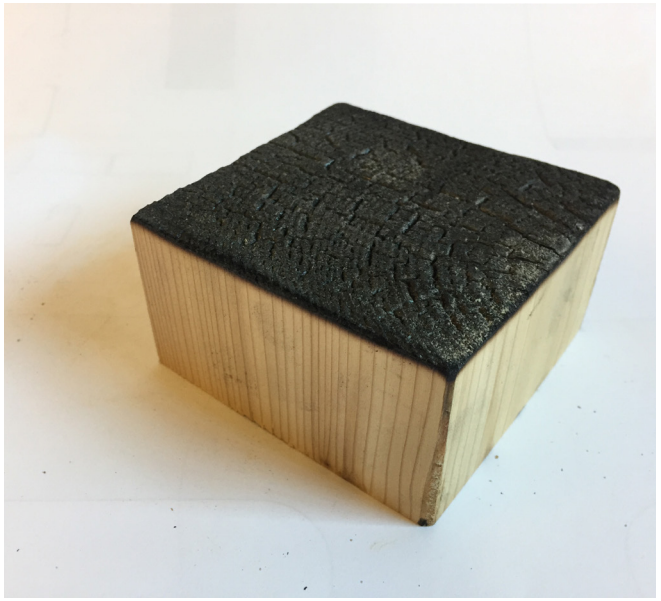


*stream observation*

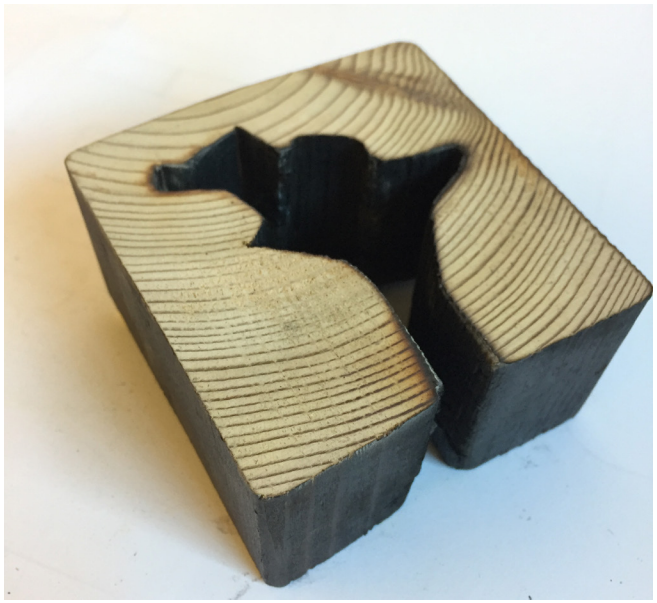
*clay spatial models*

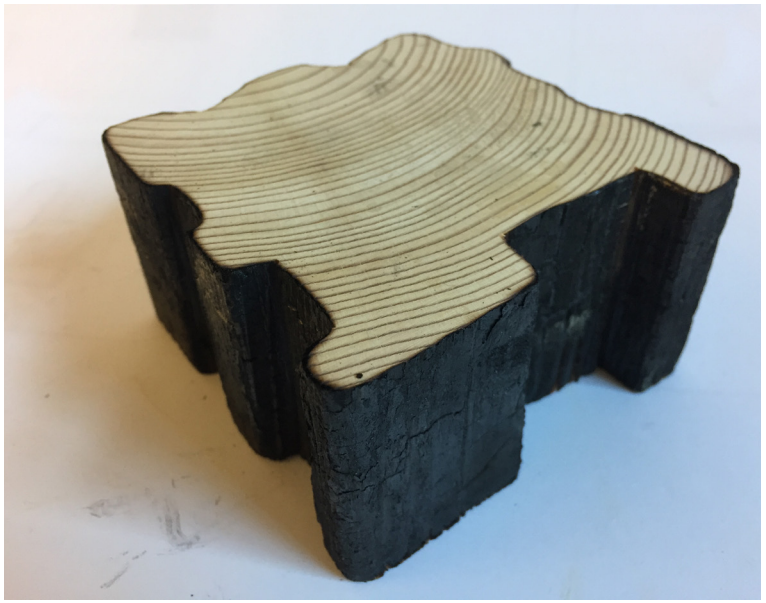
*virtual reality diorama. including scent tray, and sound. tactile handle*

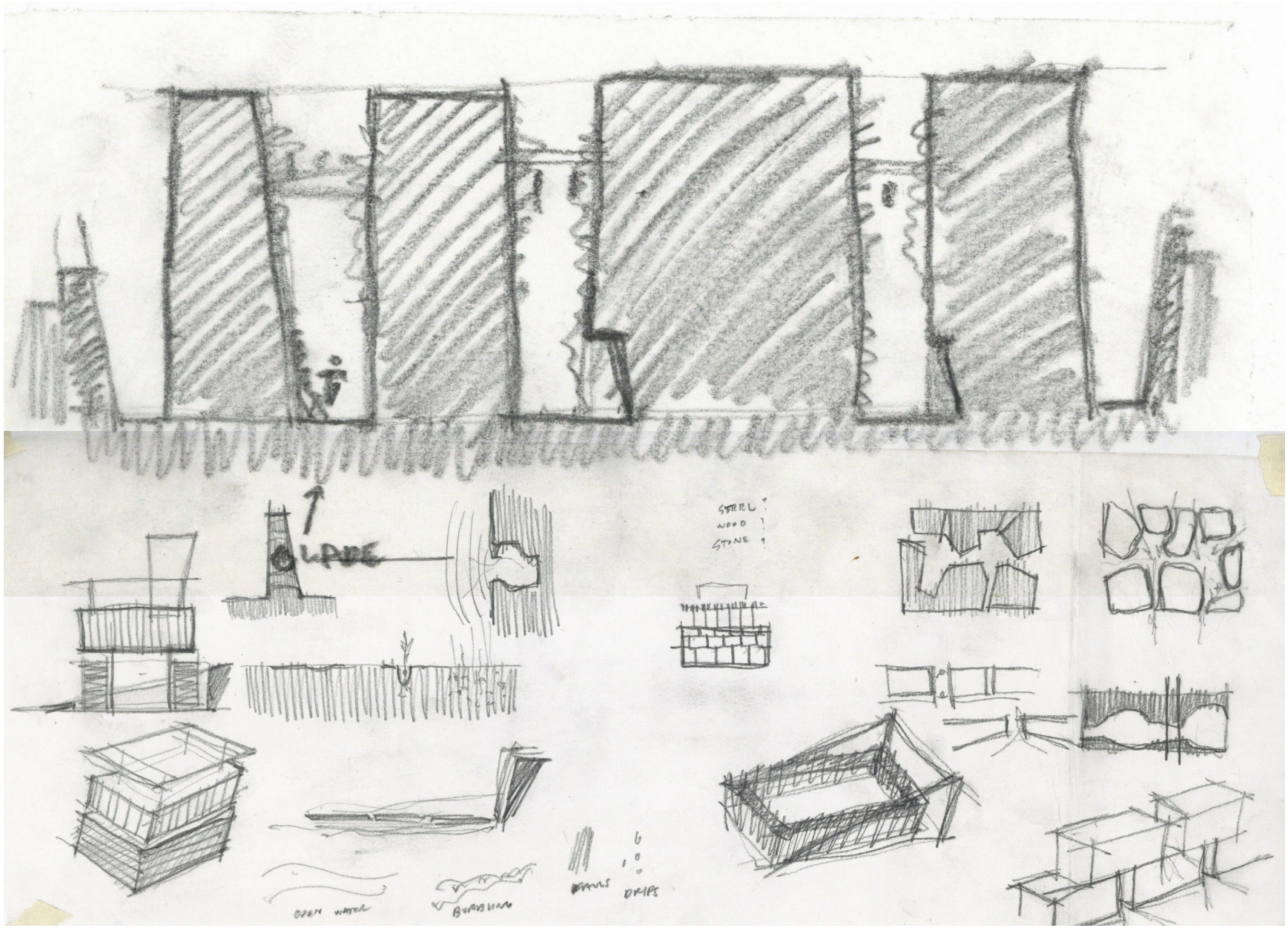


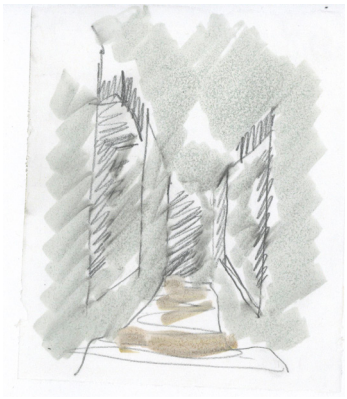
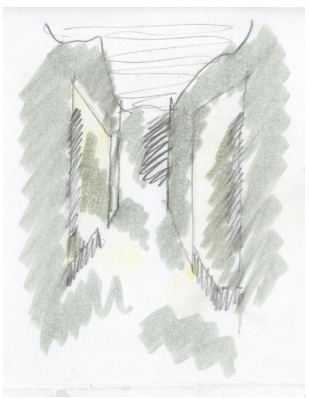


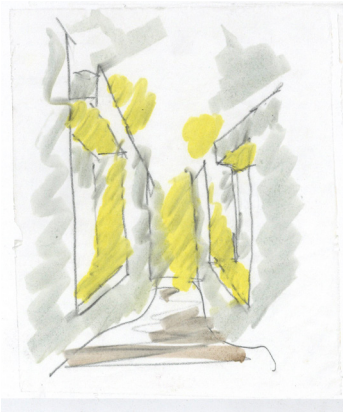
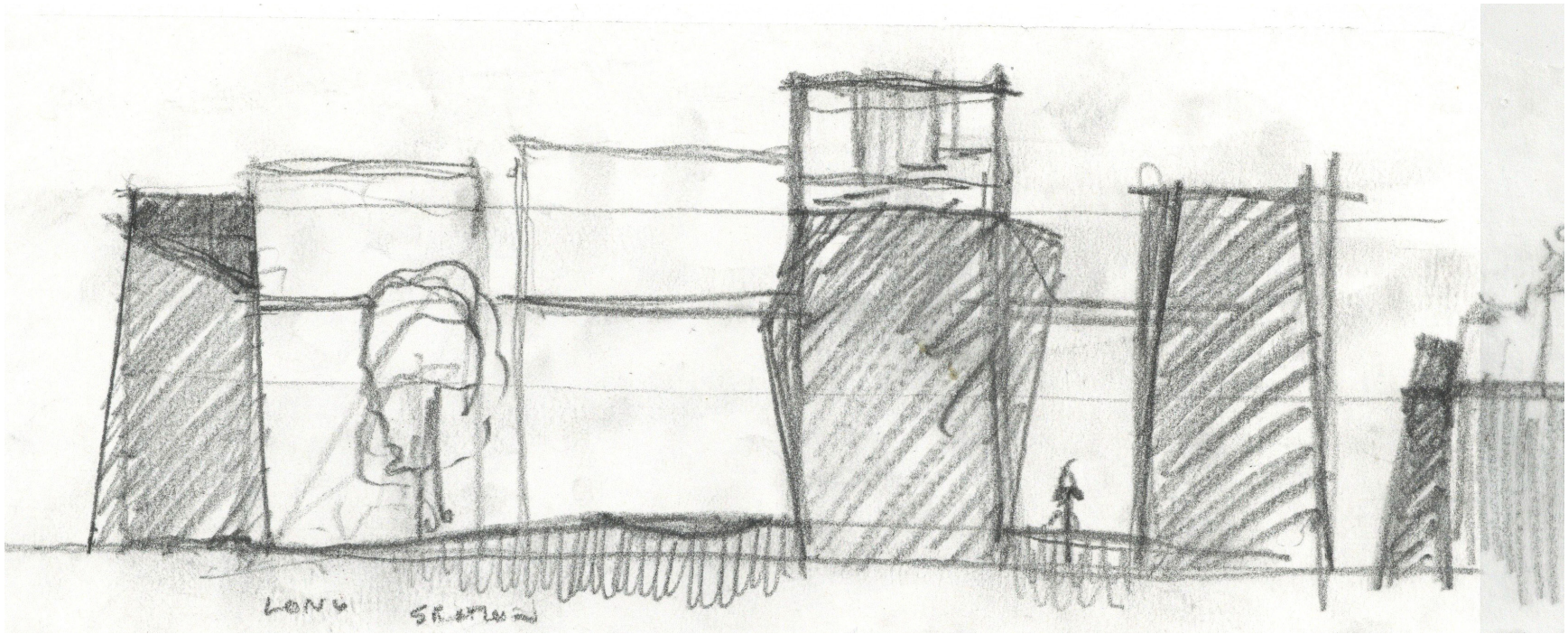
*exploring crenelation of "bark" and building form*



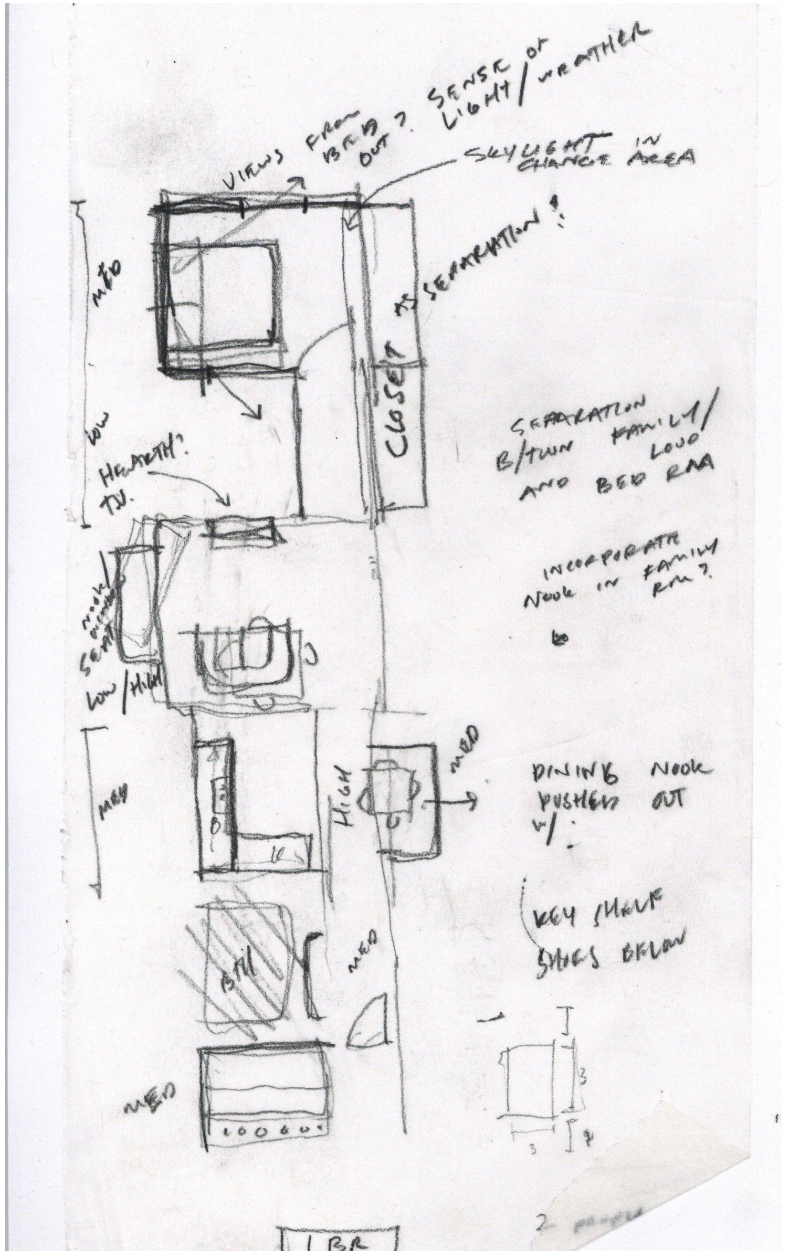


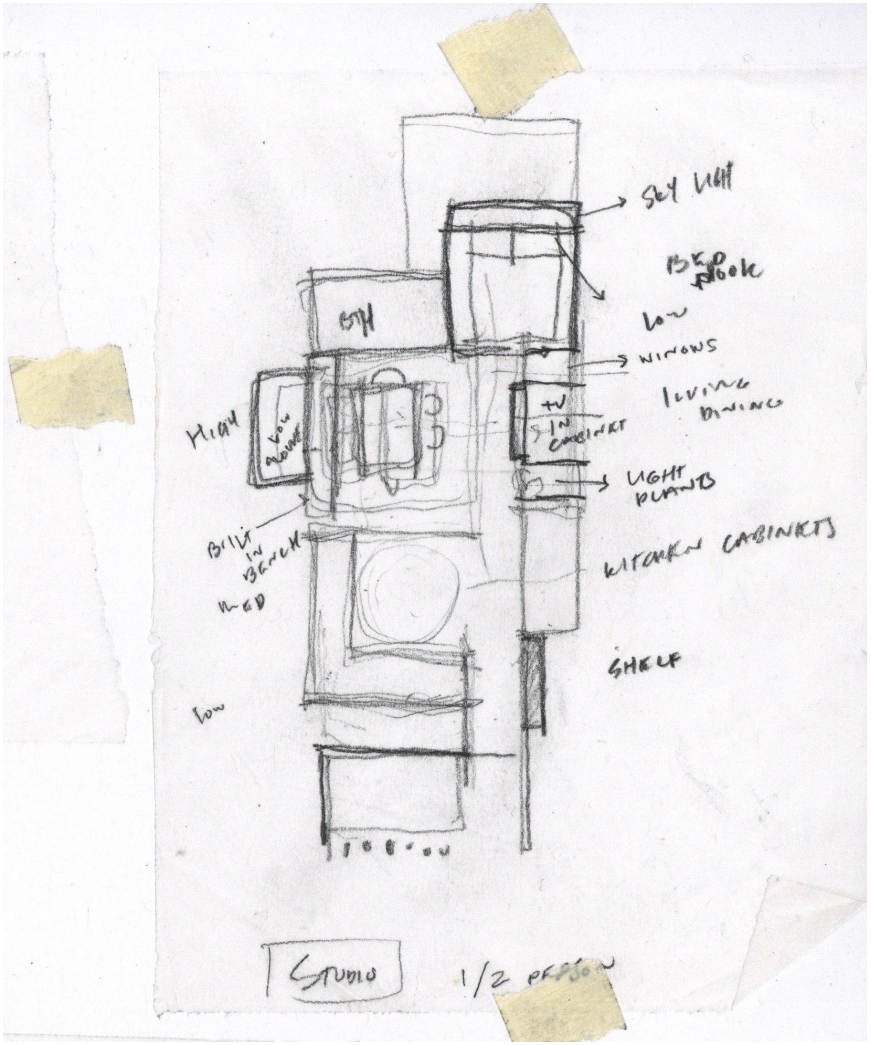

STEEL ?
WOOD ?
STONE ?
OPEN WATER
BURSHAM

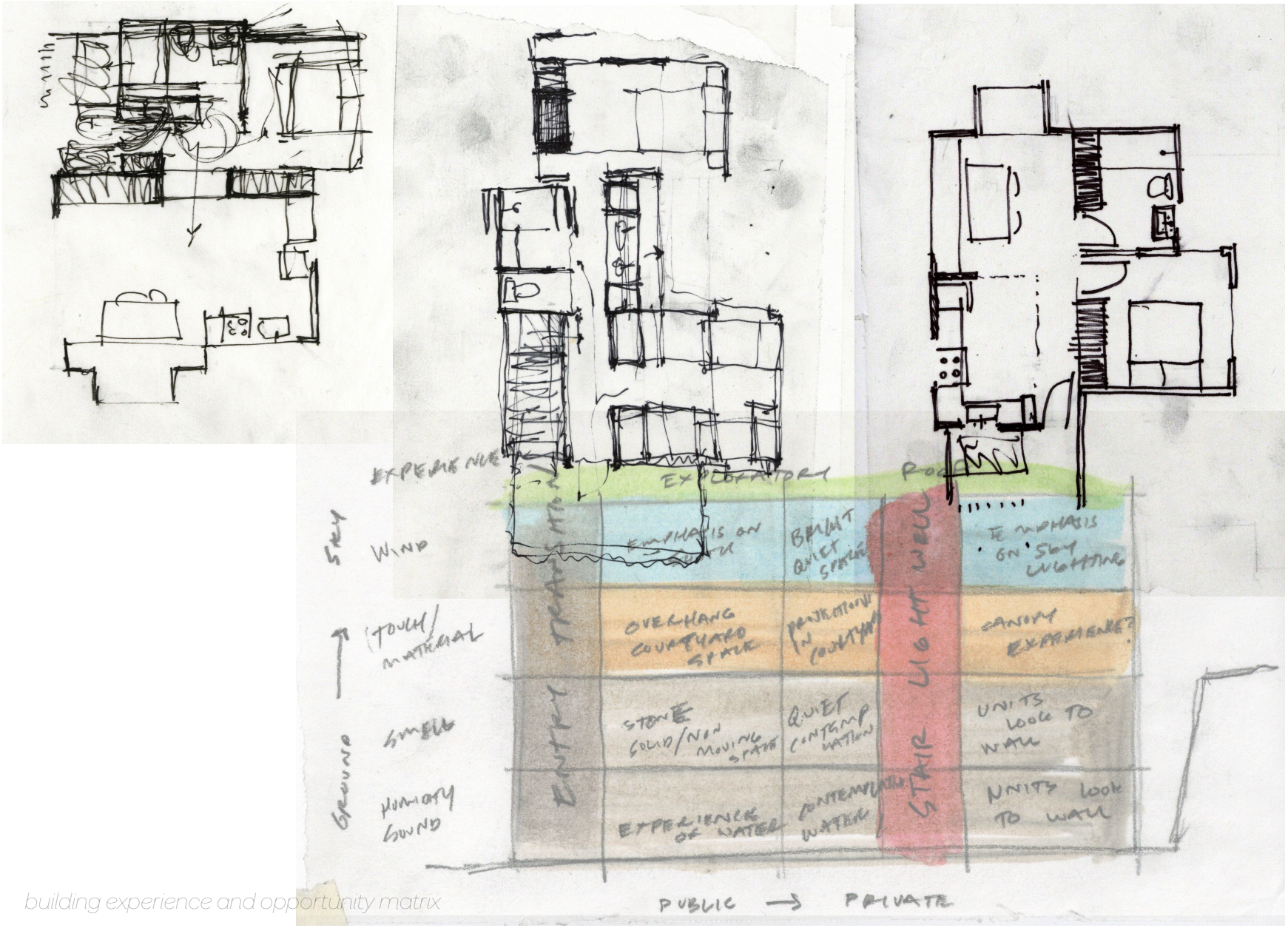



*arranging units around the building public spaces*

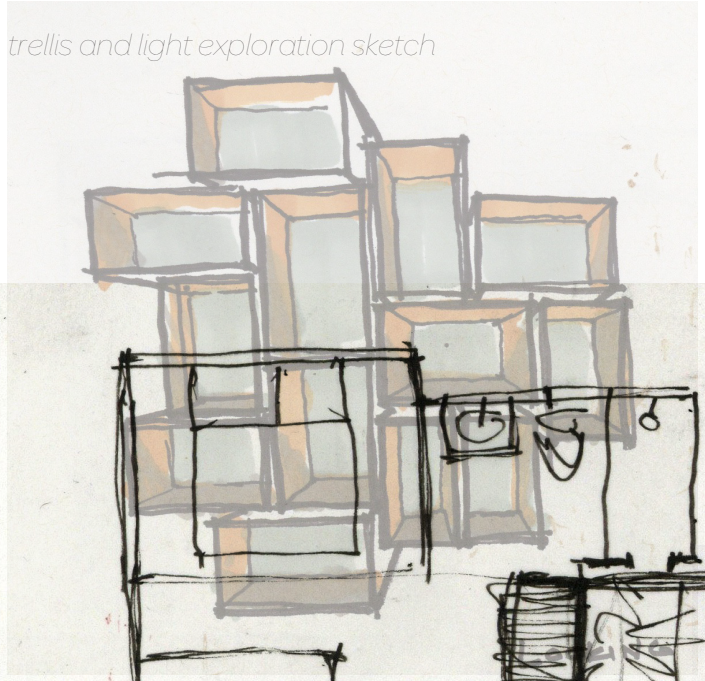


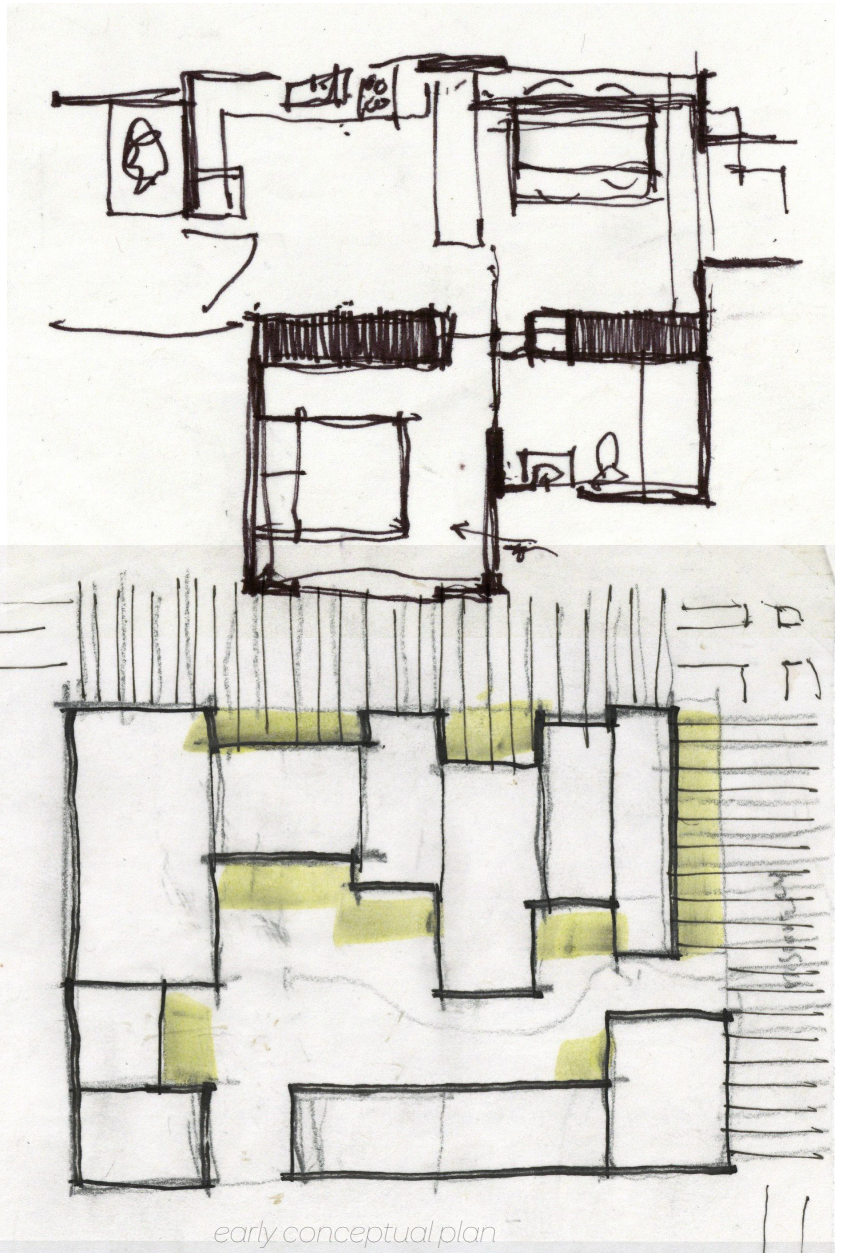

*design through experience, home plans*



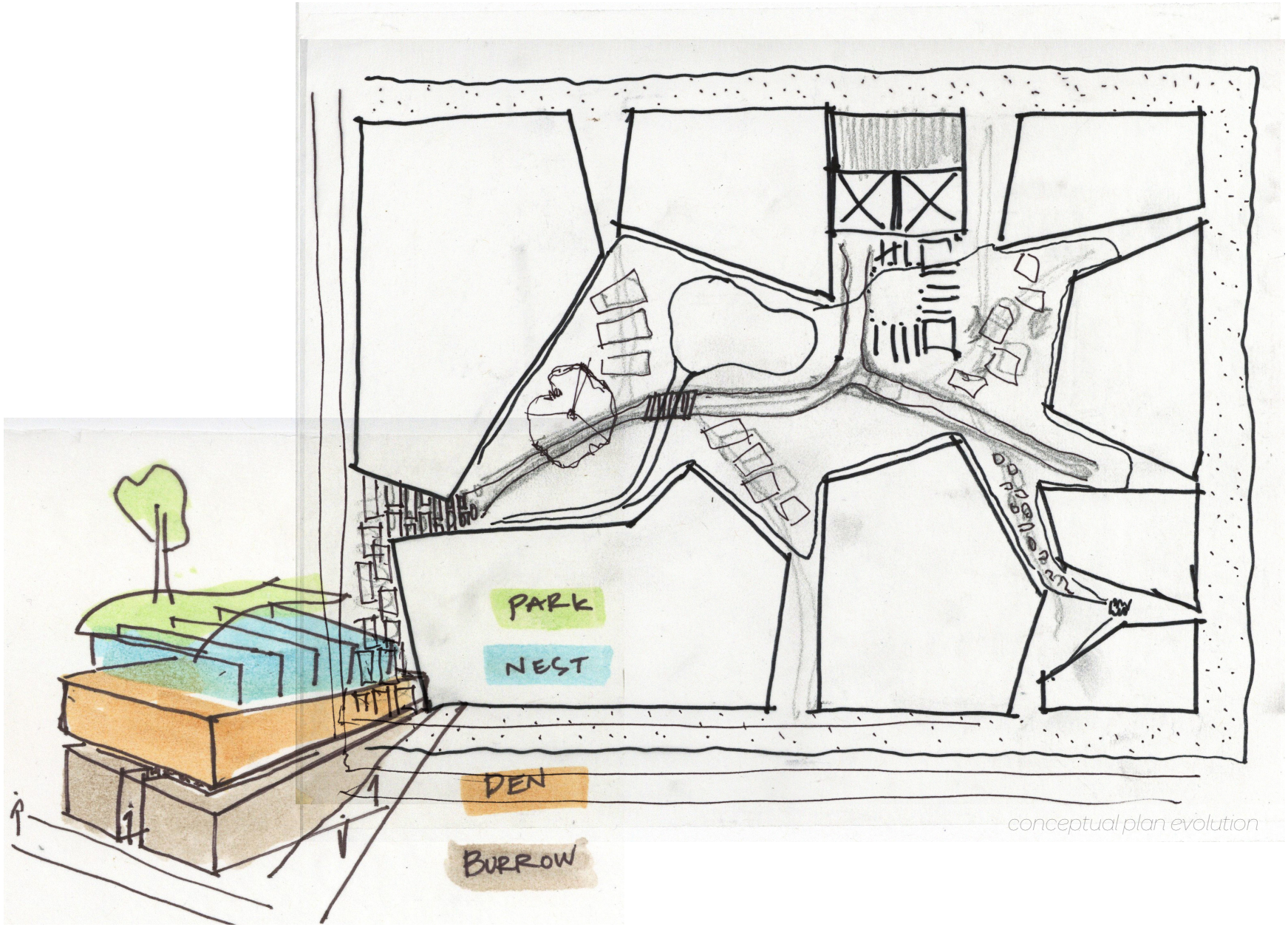

building experience and opportunity matrix



*trellis and light exploration sketch*



*early conceptual plan*




*conceptual plan evolution*