A CHILDREN'S LIBRARY:
DESIGNING SPACES FOR PLAY AND IMAGINATION

by

Tina Z. Wang

Submitted in partial fulfilment of the requirements
for the degree of Master of Architecture

at

Dalhousie University
Halifax, Nova Scotia
November 2013

CONTENTS

ABSTRACT

Children's understanding of space is a fusion of reality and fantasy, in which the physical environment, play, and imagination assume important roles. The boundary between the imaginative realm of the child and the physical realm of the world is blurred and penetrable, allowing for uninhibited associations and assimilations with the environment.

A design for a children's library is used to develop a method for designing potent environments for children to experience, play, and imagine. Using a palette of experiential qualities and memorable episodes to inform a set of parts, a series of spaces and activities or events are then dynamically assembled. The library, located within a forest site in Vancouver, is the testing ground for this assembly, playing with spatial and material configurations to blur perceptions of reality and fantasy, between the surrounding natural environment and the constructed one, as well as between the activities of learning and playing, in order to create a dynamic environment for childen.
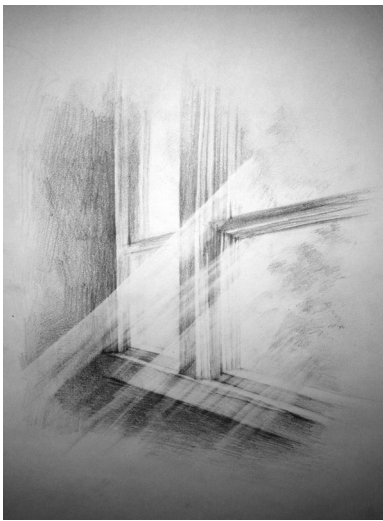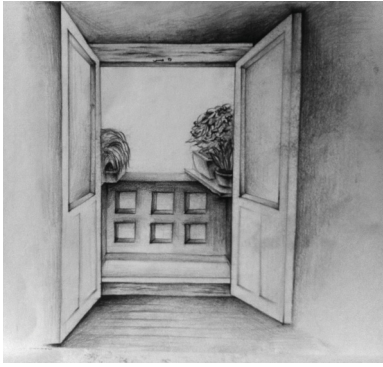
ACKNOWLEDGEMENTS

CHAPTER 1: INTRODUCTION

Scenes of nostalgia

Spatial experience has the potential to be powerful when it engages both external sensory data and internal processing, such as thought, emotion, and imagination. Tangible qualities of space relate directly to corporeal dimensions, sensations, and actions, whereas intangible qualities can be provoked by spatial associations and imaginations. The two types of spatial qualities are interrelated and together make certain experiences particularly powerful, such as the nostalgia that arises from the touch of a handle or the texture of a wall. It is in the condition where the boundary between the external realm and the internal realm become blurred that this thesis begins. This condition of blurred lines and fluid boundaries can be traced back to childhood, where reality and imagination are one and indistinguishable. Architecture must appropriately respond to this early stage of life to foster rich environments for development, as well as to gain further understanding of how qualities of space are experienced in its most fundamental form. The central question of this thesis is then: how can architecture blur the lines of perception, such as of environment and imagination, to create rich and playful realms of space corresponding to children's experience of reality?

CHAPTER 2: ENVIRONMENT

To understand a child's perception of space, some concepts relating to the external-internal duality of perception must first be examined.

Qualities of Space

The external-internal duality of experience can be classified as two types of perception: direct and indirect. Direct perception is the biological-physiological response to sensory stimuli, such as a turn of the head responding to a loud sound. Indirect perception is an internally processed response involving thought, feeling, and emotion (Pallasmaa 2005, 117). The difference between a resident's perception of place and a visitor's perception of place can help to explain the difference between direct and indirect experience. Visitors identify a place by the tangible boundaries or circumscriptions, while residents identify place by its content, beliefs, and systems, such as rituals and traditions (Tuan 1977, 166).

Tangible Qualities of Space - Body

Experiences of the body can be designed in the built environment, triggering sensations and actions, such as glare and squinting. The meaning of place is embedded in the experiences encountered in that space. Corporeal experiences can be just as powerful as emotional ones, often because they are directly interconnected with internal responses: "the details of the roofs or hearths of the familiar buildings of my childhood have escaped from my memory, but I still recognize the pleasure on my skin when hearing the beating of rain under a sheltering roof,

Qualities of space highlighted in scenes of nostalgia

or when arriving at the warmth of the hearth with my limbs stiffened by cold" (Pallasmaa 2005, 92). Here, sensations of sound and heat evoke powerful memories.

Intangible Qualities of Space - Imagination

As Juhani Pallasmaa states, "the constructed building is actually mainly experienced emotionally, sensuously, and thus unconsciously" (Pallasmaa 2005, 74).

This intangible encounter with space is described as presence by Christian Norberg-Schulz, who wrote extensively on the phenomenology of architecture (Norberg-Schulz 2000, 125). Presence is understood both externally, through the senses, and intrinsically, through precognition (Norberg-Schulz 2000, 125). Precognition is inherent within people, and allows association of the newly encounterred with what is already known (Norberg-Schulz 2000, 128). Norberg-Schulz argues that it is precognition that allows external-internal translations to occur.

Imagination

How the World Touches Us

How can architecture satisfy individual emotions and experiences? Author Salman Rushdie emphasizes the importance of a fluid boundary between self and the world in both the creation and experience of art (Pallasmaa 2005, 134). The boundary softens and becomes penetrable so that self and the world can flow into each other (Pallasmaa 2005, 134). The goal is thus ultimately "to make visible how the world touches us" (Merleau-Ponty 1964, 19).

Similarly, Eleni Bastea calls for architecture that reflects

A closet compartment is a child's cozy fortress - becoming meaningful because of its intimacy in scale (tangible quality)
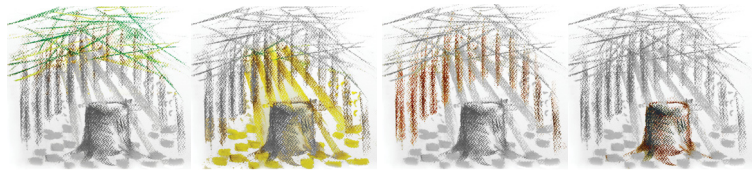
Memory of place - image versus its parts/qualities

the memories and imaginations of the users of place, to create spaces that reflect the emotions of its inhabitants without mimicry or mock (Bastea 2004, 286). However, reflecting does not mean complete images but instead involves its parts - the evocative qualities. Peter Zumthor, for example, dismisses preconceived visual images and is guided by underlying meanings and phenomenological qualities of the images from his memories to create a multiplicity of visual forms and atmospheres (Zumthor 2010). The spark of design then, is found between reality (of known images) and imagination (Zumthor 2010).

Spatial Associations

Regarding the topic of memory, author Brian Elliott's analysis of Walter Benjamin's notion of biography is that it is fundamentally topography – about the places of life (Elliot 2011, 12). Memories from childhood are particularly

Memory as an enmeshed image of similar experiences sharing over-
lapping qualities

Boys in Glasgow, 1970, photograph by Gordon Rule (Kinchin and O'Connor 2012)

Aldo Van Eyck's Orphanage (Lefaivre and Ingeborg 2002)

rooted to us. These memories are of places where we felt secure, safe, and nurtured, and they "linger in adult life as a powerful and nostalgic memory" (Bastea 2004, 295). Nostalgia is a longing for home, safety, and continuity, which is especially important in times of frailty or vulnerable environments (Pallasmaa 2005, 80). Perhaps the places of childhood, a time of emotional and identity development, are the most powerful origin of spatial association and imagination.

The experiences of places in childhood provide a foundation for adulthood, so that the meanings of the present are always latent within the past, and can be "made explicit through recollecting the material environment in which the past experience is embedded" (Elliot 2011, 12). Christian Norberg-Schulz agrees that childhood is a critical stage in which man develops relationships to concrete environmental properties. "The child gets acquainted with the environment, and develops perceptual schemata which determines all future experiences" (Norberg-Schulz 1980, 21).

Details of apparently innocent and isolated events, such as the cubbies and microcosms of childhood, foster deeper connections and understandings (Bastea 2004, 311). Adults associate inanimate objects and places with moods which form its first associations with objects and places during childhood, when fantasy and reality and intermixed (Tuan 1977, 33). Significant childhood experiences are transactions between the environment, body, and imagination - lingering through life because they have "affected our bodies and generated enough associations to hold it in our personal worlds" (Bloomer and Moore 1977, 107).
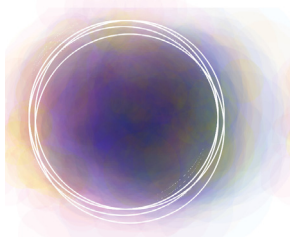
The Processes of Perception
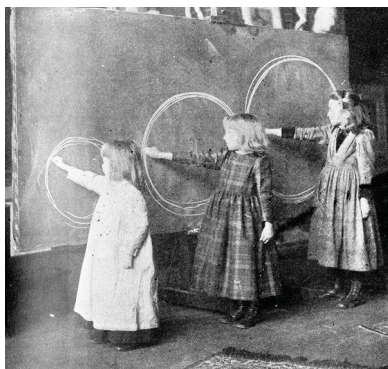
Centres of Focus - Centration

How do the transactions between the environment, body, and imagination occur during experience of space? Corresponding to the previously discussed idea of spatial qualities as the fundamental building blocks of experience, the qualities are experienced from the beginning as sensory awareness of focal points (Piaget 1956, 38). Where focal points are sensory snashots that Piaget termed to be centrations (Piaget 1956, 38). It should be noted that not all sensory centrations are equal – visual centration can simultaneously absorb more elements than tactile, for example (Piaget 1956, 39).

Exploration - Decentration

The process following centration is known as decentration, where focus is shifted from one centration to the next, transporting the results of one to the next and coordinating an understanding of the whole (Piaget 1956, 38). Decentration involves sensori-motor action, and is thus more about the act than the thing. Resultingly, "the phenomenology of architecture is founded on verbs rather than nouns" (Pallasmaa 2005, 117). Through the dynamic flow of movement (such as of the eye or hand), sensory snapshots are relationally assembled into topological space, forming an absolute point of view (Piaget 1956, 39).

Exploration – involving anticipation, movement, comparison, action, and reconstruction – is thus a critical component in the process of perception:

> Even in the case of everyday images, is it at all possible to imagine a landscape, a house, or other fam-

Diagram of a child's merged experience of reality and imagination.

Diagram of an adult's more separated experience of reality and imagination.

In his studies of children, James Liberty Tadd emphasized the natural tendency to express themselves through movement (Tadd 1899)

iliar object without the aid, as essential components, of the schema of the various roads traversed, the actions performed, or the changes of position com- manding different perspectives?…Images are nearly always multi-sensorial and refer to complex actions. In short, the motor activity already employed in per- ceptual activity, and consequently involved in the construction of perceptual space, is again found as an essential component in the creation of representa- tional images, and consequently in the representation of spatial notions. (Piaget 1956, 42)

Through sensori-motor exploration, which usually occurs between the ages of 0-2 years, perception of topological space is eventually developed. Topological space is internal to each perceived thing, in an absolute point of view and without relation to other things of the environment (Piaget 1956, 418).
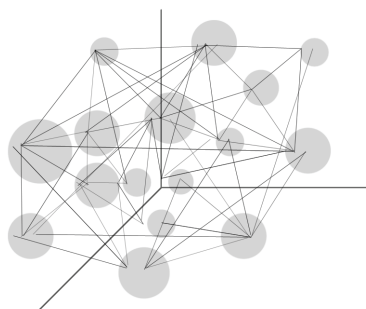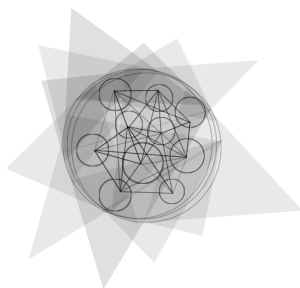
Topological Space – the Parts

The formation of topological space involves the act of grouping, a processing consisting of "additions and subdivisions of proximities and separations, the formation of ordered series, and enclosure by means of surrounding" (Piaget 1956, 244). At this early stage, children are unable to take account of the perspective in which he perceives the object:

> Not only is he quite unaware that he possesses a viewpoint distinct from those of other observers but, and this is the essential point, his own viewpoint – which he elevates to a kind of false-absolute – is really nothing like a perspective representation; it is simply a wrongly centered or egocentric notion. (Piaget 1956, 242)

Construction of alternative viewpoints is limited. It is interesting to note that in the case of a group of objects, relations between the elements of the group are rigid and inflexible (Piaget 1956, 243).

Perspective Space – the Whole
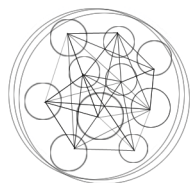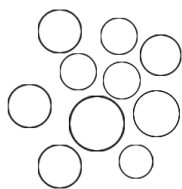
When the conceptual development distinguishing self-view from other-views occurs, perspective (projective) space is perceived, where innumerous projections of the same space are coordinated through reconcilation of reciprocal relationships into a whole instead of isolated projections (Piaget 1956, 153).
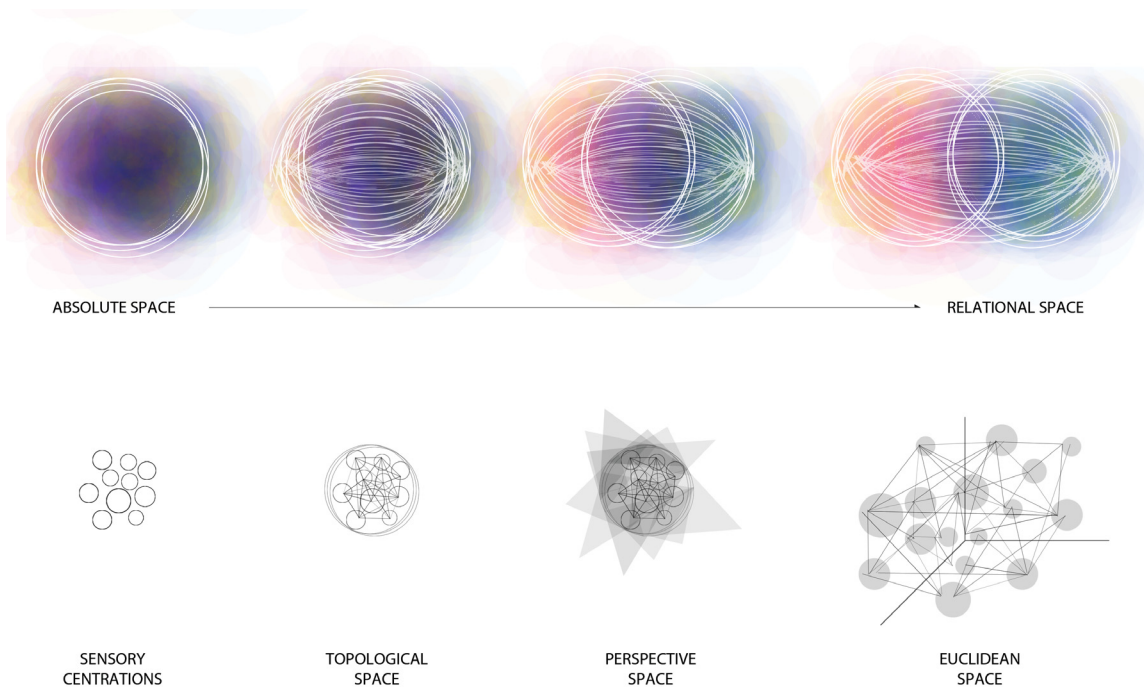
Euclidean Space

When a system of relations and frames of reference are developed, Euclidean space is achieved and the development of space perception reaches its maturity.

> Side by side with the development of this organized complex of viewpoints there also takes place a coordination of objects as such. This leads ultimately to the idea of Euclidean space, the concepts of parallels, angles and proportion providing the transition between the two systems. Such a coordination of objects naturally assumes the conservation of distance, together with the evolution of the notion of 'displacement' or congruent transformation of spatial figures, culminating in the construction of systems of reference, or coordinates. (Piaget 1956, 375)

Elements of the system are then ordered within a vast relational network in three dimensions, and remain con- stant through rotations, developments (such as folding or unfolding), and transformations (Piaget 1956, 375). Euclidean and projective space start to be grasped by the age of around 9 or 10 years, when the inability to distinguish between internal and external realities disappears (Piaget 1956, 418). Recent experiments, however, point to a possibility that projective perception may begin as early as 3 years of age, although still contradicted by much other evidence (Newcombe et al. 2003, 123). Regardless of the trivial age issue, which differs across different children

Conceptual diagram of the development of spatial perception, from centrations, to topological space, to perspective space, to euclidean space.

and is more fluid instead of categorical, the sequence and process remains constant to date from Piaget's initial findings.

"Just as the child can draw long before he receives drawing lessons, so in the course of his daily life, he develops a body of concepts dealing with coordinates, perspectives, and similarities of proportions. It is this which enables him, at a particular age, to crystalize this system of practical operations around various new ideas which he encounters at school" (Piaget 1956, 446). The importance of well-designed environments for children outside the formal learning system is thus crucial in conceptual and perceptual development, as well as the development of the associations, memories and imaginations formed in the places composing the topography of life.

ABSOLUTE SPACE →————————————————→ RELATIONAL SPACE

SENSORY CENTRATIONS   TOPOLOGICAL SPACE   PERSPECTIVE SPACE   EUCLIDEAN SPACE

Conceptual diagram of perceptual formation

CHAPTER 3: CHILDREN'S REALITY
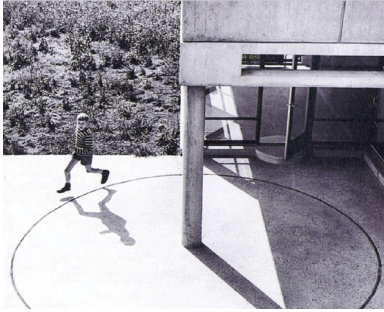
Play as enactment on the real and imagined in Aldo Van Eyck's Orphanage (Lefaivre and Roode 2002)
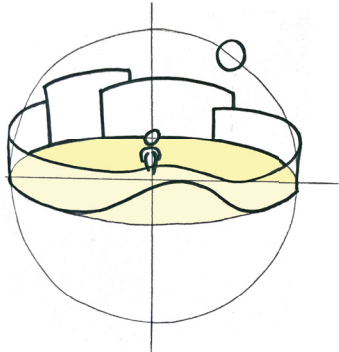

Conceptual diagram of children's absolute viewpoint

Children's Experience of Space

The perception of children is an intermixed world of real and imagined. The child is deeply engaged with space at first with an aboslute view that eventually matures into a relational and comprehensive view. Eugene Lonesco recalls of his childhood:

> At the age of eight or nine, everything for him was joy and presentness. Time seemed a rhythm in space. The seasons did not mark the young child, he stood at the center of a world that was decorative background, with its colors, now dark, now bright, with its flowers and grass appearing, then disappearing, moving toward him, moving away from him, unfolding before his eyes while he himself stayed in the same place, outside time, watching time pass. At fifteen or sixteen it was all over. The teenaged Lonesco felt as though a centrifugal force had thrown him out of his immutability into the midst of things that come and go and go away for good. He was in time, in flight, in finiteness; the present had disappeared. There was nothing left for him but a past and a tomorrow, a tomorrow that he was already conscious of as past. (Ionesco 1968, 11)

Blurred Lines Between Self and the World

The intermixing of fantasy and reality in a child's perspective results from a lack of distinction between self and the world in a young child, for whom the conception of the world centers around an absolute point of view. There are several consequences on how a child perceives space due to this.

Projections

The first is the inability to distinguish between the objective and the subjective, resulting in projection and realism. Projection, as termed by Baldwin in Thoughts and Things, describes how images are simply presented to the

consciousness, without distinction between self and world (Piaget 1929, 34). How the environment is understood in the most primitive way, such as by a newborn, is simply sensational awareness, which is neither subjective nor objective, but projective consciousness (Baldwin 1906, 44). Projection is seen in 3 types of instances. First, it is seen when the child speaks in the third person, as if he's watching his own actions from a bird's eye view, indicating an inability to distinct between internal and external views (Piaget 1929, 35). Second, it is seen when sentiments are attributed to things, such as fear to fire, indicating a dualism between the internal and external worlds (Piaget 1929, 35). Third, it is seen when characteristics are attributed to things, such as strength to stone, indicating a projection of internal reality onto external reality (Piaget 1929, 35).

Piaget's child realism correspondingly consists of 3 blurred boundaries. First, the inability to distinct between thought and matter, such as materializing thought to be made of air or smoke, blurring the internal and external (Piaget 1929, 121). Second, the inability to distinct between thought and the thing thought of, blurring the psychical the physical (Baldwin's dualism) (Piaget 1929, 55). An example of this is the perception of dreams as both inside and outside, coming out into the real environment during the dream. The dual nature of this type of realism can sometimes result in paradoxical beliefs (Piaget 1929, 121). Third, the inability to distinct between the sign and the thing signified, which results in feelings of conviction and emotional charge (Piaget 1929, 120). This indicates a projection of internal reality onto external reality.

Photograph by Oscar Van Alphen (Morrien 1958)

In both Baldwin's projection and Piaget's realism, it can be seen that all the resulting scenarios arise from a fundamental inability to distinct between self and the world. "The results of this realism are twofold. Firstly, the limits the child draws between the self and the external world are much less rigid than our own; secondly, the realism is further extended by "participations" and spontaneous ideas of a magical nature" (Piaget 1929, 124).

Partcipations

Participation is the belief that relation exists between two things or phenomena, that they are the same or have influence on each other despite "no spatial contact nor intelligible causal connection between them" (Piaget 1929, 133). Participation develops upon encountering of individual things, associating them subjectively, resulting in a syncretic fusion of the two into a relationship (Piaget 1929, 160). The root of participation then is an absolute view that ignores all alternate views and blurs self with the world (Piaget 1929, 167). The previously mentioned idea of the self and the world flowing into each other in adult perception has its roots in the participation stage of childhood, when relations and associations between internal and external worlds are first formed (and the boundary between self and the world is essentially non-existent). The formed relationships of participation are what Piaget terms as magic, which exist in 4 general types: between action and thing; between thought and thing; between objects; and by purpose (animism) (Piaget 1929, 160).

Participation between Actions and Things

Magic by participation between actions and things is the

Boy at the Junk Playground, 1973, photograph by Jens S. Jensen (Kinchin and O'Connor 2012)

belief that action can modify reality. An example of participation between actions and things is commonly seen in how children often avoid lines of the pavement while walking, or jumping every other stone, or other similar operation tests. This demonstrates the pleasure found in spatial rhythms, which become a game or a test, "and its success or failure are regarded as a sign and cause of the realization of what is desired or feared" (Piaget 1929, 137). The implications of this type of participation to architecture must be noted in designing playful rhythms in structure, material, and movement.

Participation between Thought and Things

Magic by participation between thought and things is the belief that thought can modify reality. An example of this is the tendency of children to think of something to make it happen or not happen, such as thinking of frightening things and frequent subjects of their nightmares in effort to make it not come (Piaget 1929, 143). Another common example is the idea of luck associated to things, such as the thought that good qualities/luck are attached to specific marbles in a marble game (Piaget 1929, 42). Implication of this type of participation in architecture includes incorporating specificity and curious details as a method of provoking attention and thought.

Participation between Objects

Magic by participation between objects is the belief that two things can influence each other. An example of this is stones falling in a pond in positions where lilies will eventually grow (Piaget 1929, 143). Another example, relating to narrative, is the idea of how a certain path influences the

end occurrence (Piaget 1929, 144). The implication of this type of participation in architecture includes the design of flexible relationships of objects, spaces, and paths that allow various journeys and interpretations instead of fixed ones. Again, the idea of blurred boundaries is important.

Participation by Purpose - Animism

Magic by participation by purpose is the idea of animism, or "the attribution of purpose to things" (Piaget 1929, 231). The magic described here indicates a tendency to understand occurrences without proof, but is often simultaneously governed by purpose (Piaget 1929, 231). An example is the common belief in children before the age of 8 years, that the sun exists because of and for man, and that it follows him when he moves and stops when he stops (Piaget 1929, 146). Animism has a structure as follows:

Curious column details provoke participation between thought and things. Columns in Forbidden City, Beijing

Nature presents a continuum of life, such that every object possesses activity and awareness in some degree. This continuum is a network of purposive movements, more or less mutually dependent on one another and all tending towards the good of humanity. Gradually the child picks out certain centers of force within this continuum as being animated by a more spontaneous activity than the rest. But the choice of these centers does not become fixed for a long while. For example, the child first attributes the autonomous activity to his own person, which has the power of making the sun and the clouds advance, then to the sun and clouds themselves, which move of their own accord, then to the wind which causes the sun and the clouds to move, etc. The center of force is thus gradually shifted. This is what explains the vague and unsystematic character of the answers obtained. But although the choice of centers may be undecided the reasons which determine it need not be. Activity in general, movement in general, spontaneous movement opposed to imparted movement: these were the three themes that we found continually recurring in the minds of the children tested, introducing a progressive differentiation within the primitive continuum of life and purpose. (Piaget 1929, 233-234)

Important in this excerpt is the notion of centers of force, recognized to be animated and embodying a purpose that is reflected in activity, movement, and spontaneity. These animated centers of force can be taken into account in the design of environments for children.

Play

The tendency to understand occurrences without proof is also seen dominantly in make belief play, where the child makes his own truth and own reality without reason for conviction (Piaget 1929, 169). "The play mode gives rise to distinctions of self and not-self, which is further developed in the substantive mode into the dualism of mind an body. In the reflective mode emerges for the first time the subject-object dualism, the world of experience and logical ideas" (Creighton 1908, 74). Thus the act of play coordinates the body and mind, so that imaginative as-

sociations, connections, and participations can be made through exploration.

Symbolism

Participation is about thought being involved in things, much like symbolism is about meaning in things. "Because all thought is symbolic. What the participation stage shows, in opposition to the later stages, is precisely that symbols are still conceived as participating in things. Magic [by participation] is thus the pre-symbolic stage of thought" (Piaget 1929, 161).

Symbolism persists in the process of perception into adulthood, and is contained in both artifacts and places. In Bachelard's Poetic of Space, the attic is described as the symbolic storage place for pleasant memories, where the cellar is the final hiding place for unpleasant memories (Pallasmaa 2005, 114).

Lisa Heschong, in *Thermal Delight in Architecture*, argues that it is through symbolic associations that the translation from sensory data to perception occurs. "Places that seem warm offer an antidote to the tension and numbness with things that are comforting and soothing: a soft, flowing light; the deep plush of a velvet chair; or the low, resonant notes of a blues song. They help to relax us in the same way that the warmth of a fire… penetrates through the body" (Heschong 1979, 27). The reverse, from perceptive to sensory data, also occurs through suggestion. For example, in hot and humid Japanese summers, sound from wind chimes suggest wind and a feeling of coolness (Heschong 1979, 25). The phenomenon Heschong described correlates to the inability to distinguish between

H'Mong Children Playing with Balloons on Foggy Day in Moc Chau, 2012, photograph by Vo Anh Kiet (Kiet 2012)

internal and external realities, predominantly existing in early life, where thought and thing flow into each other.

How symbolic associations operate shows that perception not only operates at the level of sensory experience and the illusive precognition, but also on a conceptual level stemming from the conceptualization of space developed in childhood.

Walter Benjamin's Mimesis

The blurred realms of the self and the world described by Baldwin and Piaget are supported by Walter Benjamin's writings on childhood and fantasy.

In his autobiographical pieces about Berlin, Benjamin reconstructs a mental map of his childhood in images, often highlighting details and commonly unnoticed features (Benjamin 1997, 295). According to Walter Benjamin, memories are constructed in images, each capable of retrieving a past or transporting to another place (Leach 2000, 27). The ability to become absorbed into another world occurs through the Benjamin's theory of mimesis, "which suggests a way in which children in particular have the ability to identify with and assimilate to another world" (Leach 2000, 28):

> Standing behind the doorway curtain, the child becomes himself something floating and white, a ghost. The dining table under which he is crouching turns him into the wooden idol in a temple whose four pillars are the carved legs. And behind a door he is himself a door, wears it as his heavy mask and as a shaman will bewitch all those who unsuspectingly enter. At no cost must he be found. When he pulls faces, he is told, the clock need only strike and he will remain so. The element of truth in this he finds out in his hiding place. Anyone who discovers him can petrify him as an idol under the table, weave him for ever as a ghost into the
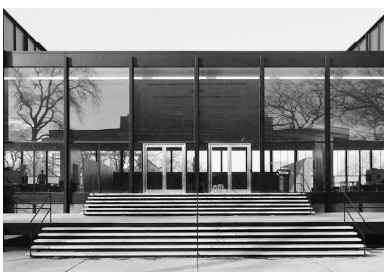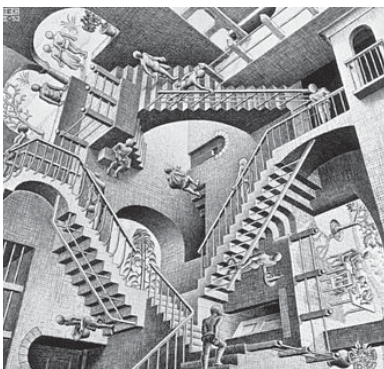
In *Encounters*, Juhani Pallasmaa describes stairs as device and symbol: "a stair is not an 'architectural element,' but rather one of the primary architectural images", capable of representing metaphoric, symbolic, or conceptual purposes more than functions (Pallasmaa 2005)

curtain, banish him for life into the heavy door. And so, at the seeker's touch he drives out with a loud cry the demon who has transformed him — indeed, without waiting for the moment of discovery, he grabs the hunter with a shout of self-deliverance. (Benjamin 1997, 74)

The child and the world becomes one and indistinguishable. Mimesis thus is a way of identifying with the objective, and a way of forming associations between self and another (Leach 2000, 32). Mimesis affects children's behavior at every level, and can be seen in children's play (Benjamin 1986, 333). It is because of creative imagination that children can indulge in make belief, identify with both the animate and inanimate world, and assimilate meaning to even discarded objects (Benjamin 1986, 333). "[In the child's bureau] drawers must become arsenal and zoo, crime museumand crypt. "To tidy up" would be to demolish an edifice full of prickly chestnuts that are spiky clubs, tin foil that is hoarded silver, bricks that are coffins, cacti that are totem poles, and copper pennies that are shields" (Benjamin 1997, 74).

Assimiliating with the inanimate world has interesting implications in architecture. Places obtain meaning as one can associate with the environment and be reflected in the environment (Leacher 2000, 35). Objects in a place obtain meaning through identification with an object that represents another, invoking the other (Leacher 2000, 36).
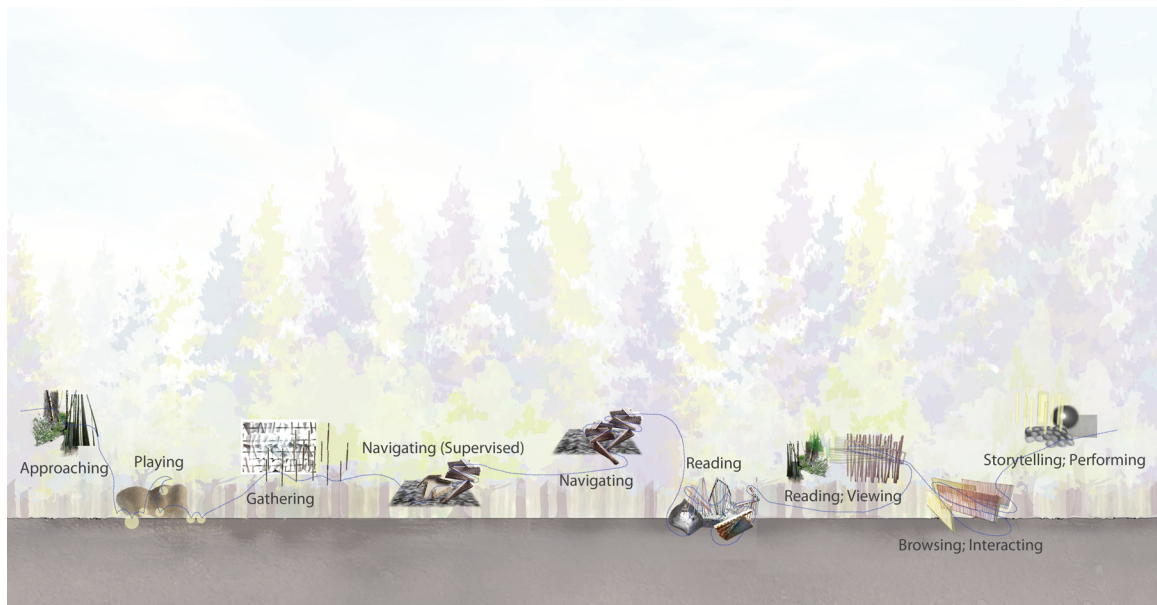
In mimesis imagination is at work, and serves to reconcile the subject with the object. This imagination operates at the level of fantasy, which mediates between the unconscious and the conscious, dream and reality. Here fantasy is used as a positive term. Fantasy creates its own fictions not as a way of escaping reality, but as a way of accessing reality, a reality that is ontologically charged, and not constrained by an instrumentalised view of the world. (Leach 2000, 33)

Imagination is crucial, as it allows receptivity to images and immersion in other worlds. Children are especially receptive to the fantasy realm, which often has its roots   at child's play and games (Leacher 2000, 38).

CHAPTER 4: PROGRAM

The program to explore the ideas of this thesis is a children's library. Libraries have always been central public spaces for children – bringing together diversities and offering a meeting point for activities beyond reading (Lushington 2008, 3). The library is the keeper of both the real and the imagined events of a society and offers both internal (imagination) and external (exploration) experience. It is a place of fiction and non-fiction, and of playing and learning – thus offering a suitable testing ground for the idea of blurred distinctions and imagination.

The program of a library also meets the needs of more than 1600 children in the area of the project site, coming together in a realm that is between reality and imagination.

Approaching   Playing   Gathering   Navigating (Supervised)   Navigating   Reading   Reading; Viewing   Browsing; Interacting   Storytelling; Performing

Diagraming episodes to occur on site

Conceptual collage of a children's library.

CHAPTER 5: SITE
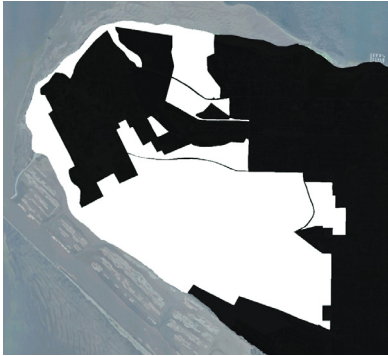
Historical evolution of UEL, captured at years 1954, 1994, and 2009 (data from City of Vancouver, 2012)

The site to explore a design for children is set within the University of British Columbia (UBC) campus located in the west peninsula of Vancouver, British Columbia. The campus is a village of its own, nestled within a forested region that separates it from the city. This campus village consists of UBC educational facilities, commercial, recreational and residential areas, UBC family residences, and the adjacent forests composed of the University Endowment Lands (UEL), Pacific Spirit Regional Park, and Muqueam First Nation lands (University Endowment Lands 2013).

The UEL, as an unincorporated area governed by the provincial government, is an area of forested land that was originally set aside for development for the funding of a university by the Endowment Land Act of 1907 (University Endowment Lands 2013). Portions have been developed into residential, commercial and recreational areas. However, due to many reasons, development of the rest of the land never materialized, and much of the UEL remains forested. The forest of the UEL offers an extensive network of hiking, cycling, horse-riding trails, and the occasional events such as symphony in the forest (Solar BC 2010).

Spaces of imagination, such as play areas, school yards, nature preserves, and open/public spaces appropriated by children (as seen the the collage on page 22), are injected throughout the site. Playing off of the urban scale, these spaces provide a territorial scale for children. The UEL forest is frequented by children living in the area – used as a short cut from school to home, as a place of
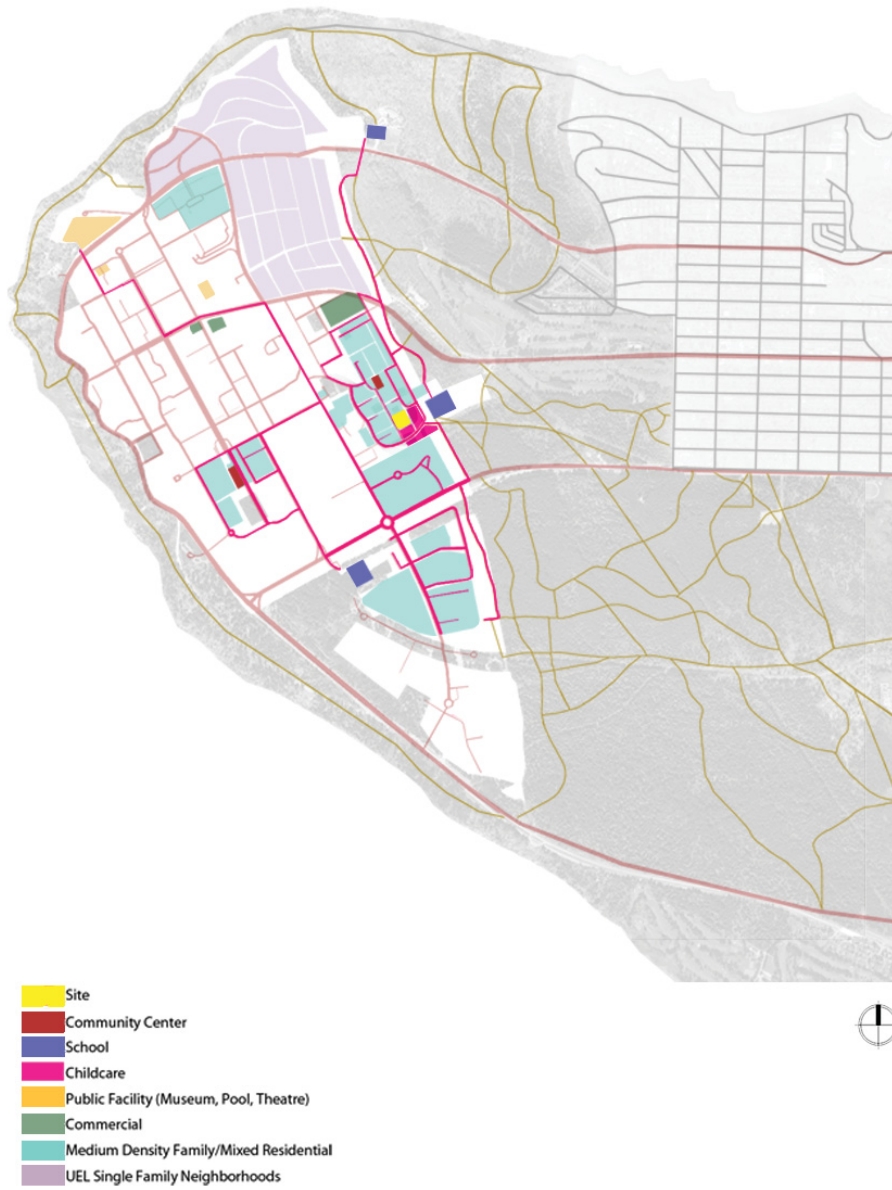
Major areas of university village site mapped on West peninsula of Vancouver, at 1:4000
(Geomatics at UBC 1998)

play as evidenced by platforms and ropes in trees, and as a place of adventure due to its spiritual qualities that gives abundant potential to the imagination.

A large population of children lives within this university village - "UBC is the largest campus-based child care provider in North America, and continues to be the largest provider of infant/toddler child care in Vancouver" (University of British Columbia 2013). The presence of children is seen in the abundance of childcare facilities in the area. Three schools are present in the area: University Hill Elementary, with approximately 500 K-Gr.7 students; Acadia Road Primary and Intermediate School, accommodating 800 some students from K-Gr.8; and University Hill Secondary School, accommodating around 500 Gr.9-12 students (University of British Columbia 2013). A number of Preschool and Daycares exists in the area, accommodating space for approximately 336 preschoolers (3-5yr. old) and 84 toddlers (0-30months) (Popinjay Media 2010). Even with the abundance of childcare facilities, UBC Child Care Services continue to have long wait lists (University of British Columbia 2013).

The vast network of family residences is dominated by the presence of children. A centralized neighborhood offers several family residences, ranging from townhouses to high-rise units. In addition, a diversity of commercial housing is available in the UBC campus, which contain a mix of family and single housing.

Legend:
- Site
- Community Center
- School
- Childcare
- Public Facility (Museum, Pool, Theatre)
- Commercial
- Medium Density Family/Mixed Residential
- UEL Single Family Neighborhoods

Children's territories, paths and activities located on site

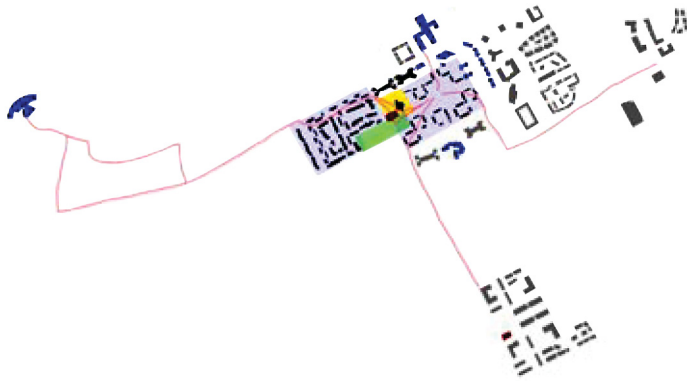Traces of children's activities dominate the surrounding areas

CANOPY

1:60,000

IN-BETWEEN

1:60,000

GROUND

1:60,000

Primary Tree Species
Red Alder
Pacific Crabapple
Unknown
Prunus emarginata
Douglas Fir
Cascara Buckthorn
Pacific Redcedar
Western Hemlock
Mixed

UEL

CITY

UBC

UNDER

1:60,000

City
Forest

SITE LAYERS
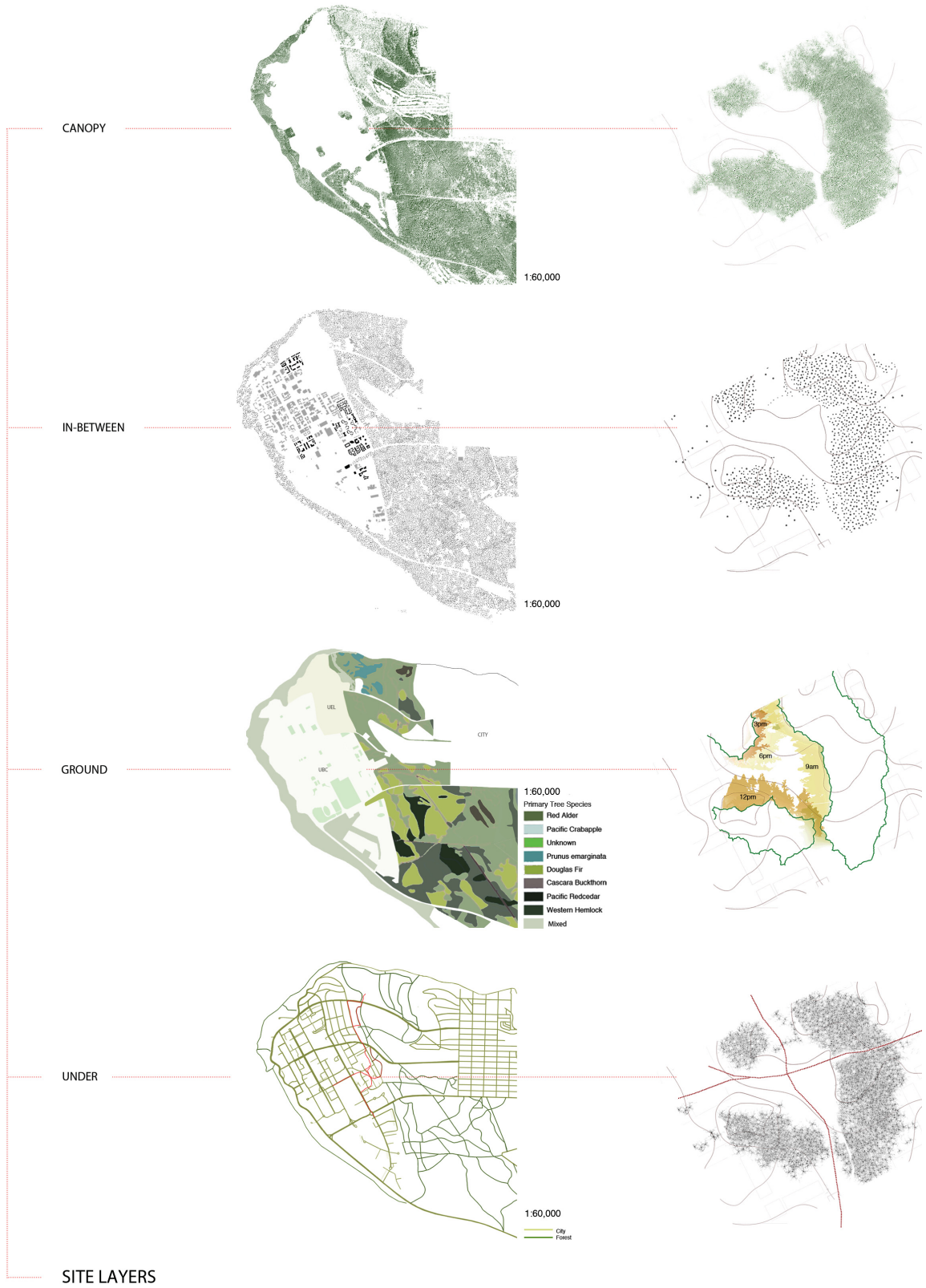
Qualities of the site extracted to layers

Childcare facilities
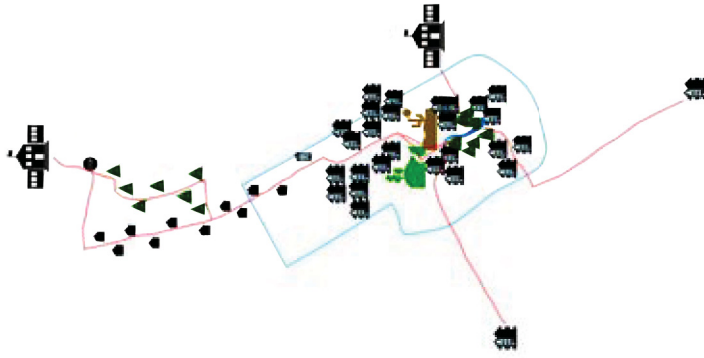
Episodes occuring on site

Main paths of children

Family Residential
Schools
Grass Field
Paved Field

Children's footpaths mapped on site model

Site as a nestled microcosm, within the edges of the university village site, edges of the courtyard formed by housing clusters, edges of the forest, and edges of shadow and light.
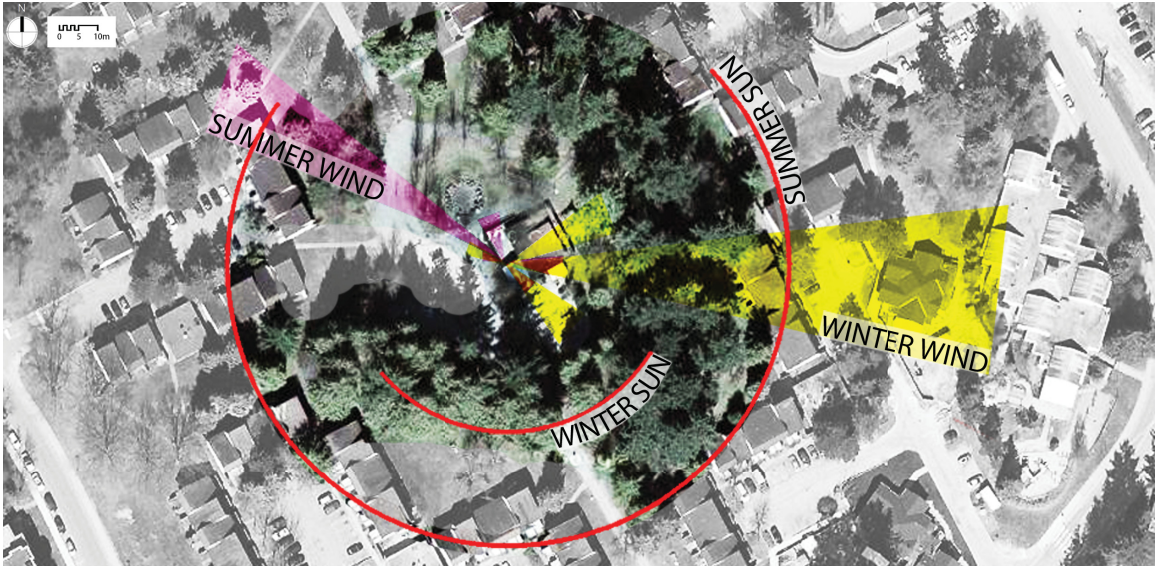
Library site located at Acadia Park Lane, Vancouver (Google 2013)

The site for the proposed project is located at the core of the family residential neighborhoods and childcare services, in place of the 12-child preschool that is currently there (proposed relocation). It is in a circular court nestled in a small forested area, that is in turn in a square court nestled in a group of family townhouses. As Juliet Kinchin describes in Century of the Child: "the idea of play [exists] as a means of exploring imagination and building worlds in microcosm" (Kinchin et al. 2012, 20). The enclosed site provides the qualities of the surrounding landscape in a microcosmic world scaled to the child, in addition to providing safety essential for environments for children.

The larger comprehensive campus site is also important as part of the journey. Reality and imagination can once again be blurred so that components of the campus become borrowed landscapes, acting as layers of thresholds before reaching the destination.

CHAPTER 6: METHOD

Imagination: Palette of Qualities

The qualities of the site will be explored through its various layers, including: below-ground, ground, inbetween, and canopy. These root qualities of the home landscape are powerful sources of nostalgia in later life. A palette of qualities will be formed - to be incorporated into the design as the idea of sensory focal points.
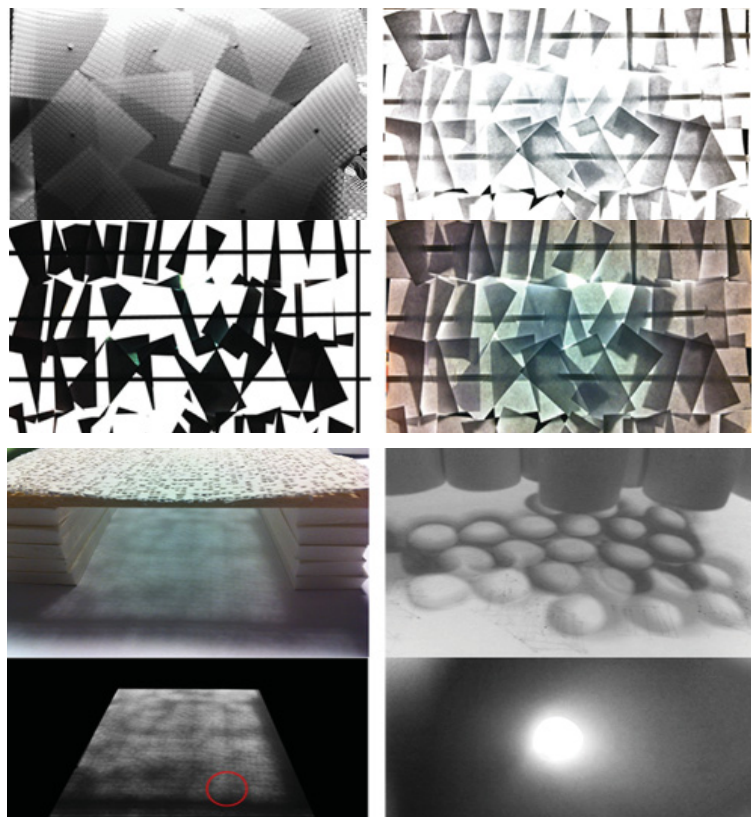

Developing a palette of qualities

QUALITIES   DETAIL   EPISODE/SCENE   PLACE

——— Sensory response
——— Assembled/Associated product
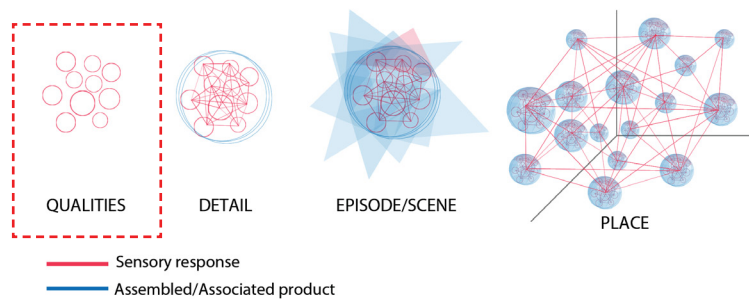
Conceptual diagram of qualities in the larger scheme of perceptual development
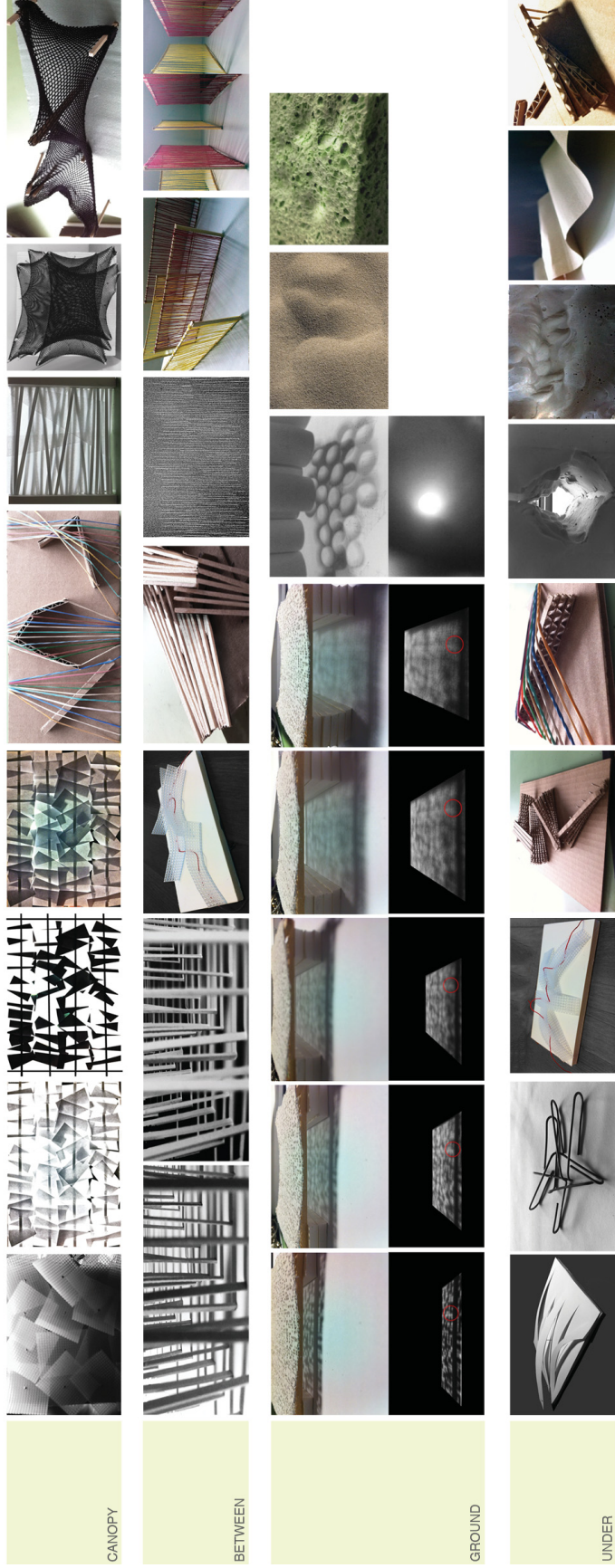
Palette of qualities

Environment: Palette of Episodes

Exploring the episodes of childhood - spatial events that are particularly memorable through actions of decentration and engagement with space.   Instead of parts (qualities), whole scenes representing remembered projections of space are abstracted into its elements and principles. Light, threshold, intimacy/scale, and texture are found to be crucial factors in all cases.
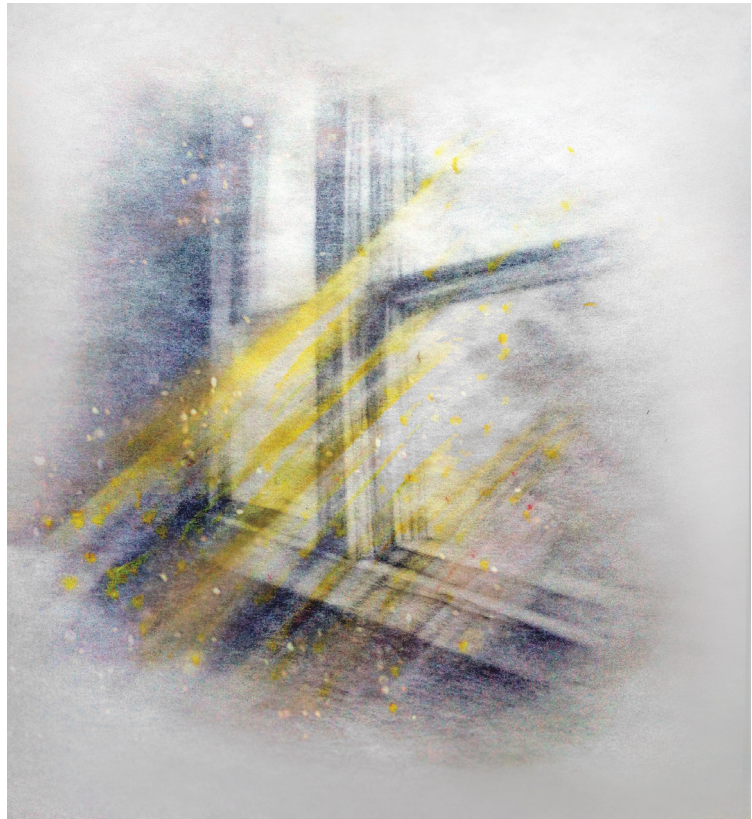

Memorable episode of childhood

QUALITIES   DETAIL   EPISODE/SCENE   PLACE

Sensory response
Assembled/Associated product
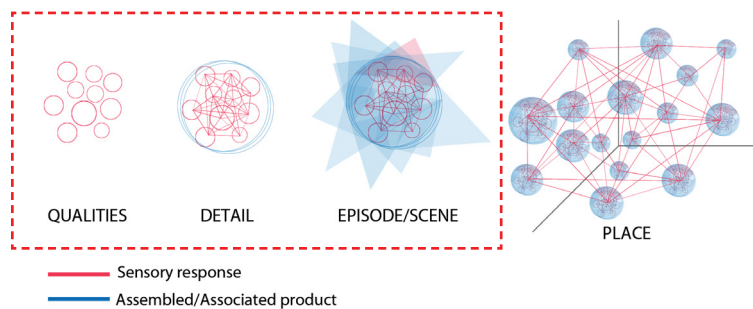
Conceptual diagram of episodes in the larger scheme of perceptual development

EPISODES	PARTS OF A KIT	DETAIL	ACTIVITY	RHYTHM
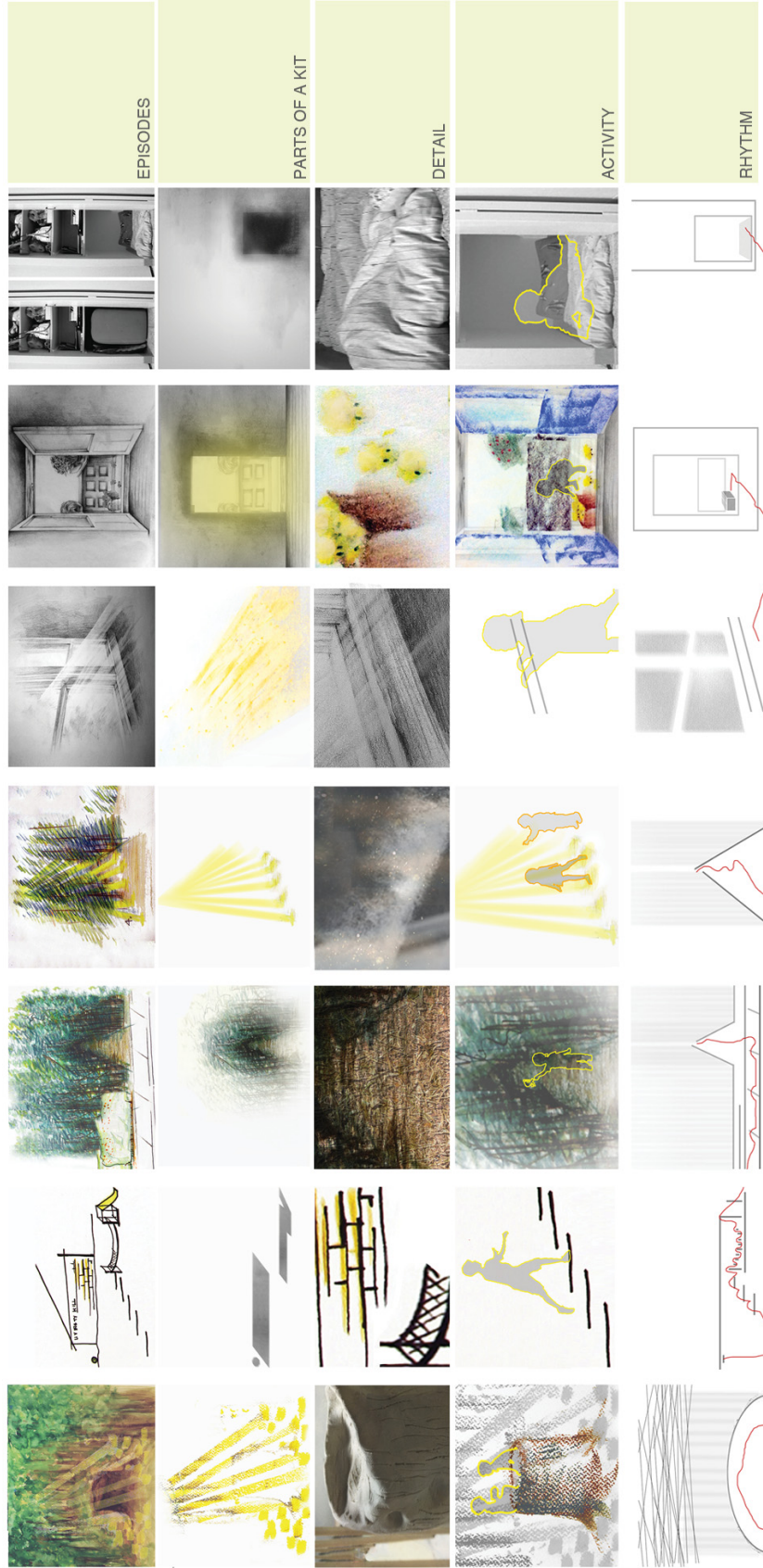
Palette of episodes

Assembly

Using the palettes formed, a place for children to experi-
ence, play, and explore can be designed. Program events
are formed through a process of grouping, correspond-
ing to the formation of topological space from sensory
snapshots as well as the idea of participations formed by
children. The groups are then located into a system of
relations and frames of reference on the site, effectively
forming the building as a result.

QUALITIES   DETAIL   EPISODE/SCENE   PLACE

— Sensory response
— Assembled/Associated product
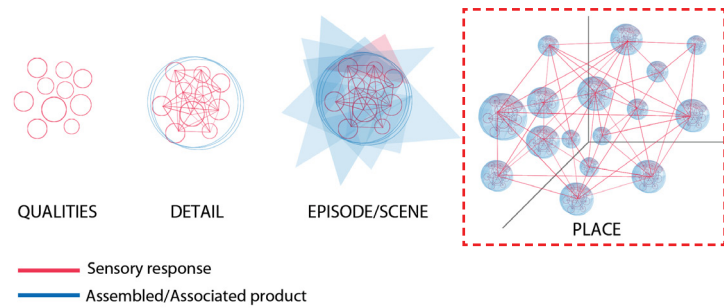
Conceptual diagram of place in the larger scheme of perceptual
development
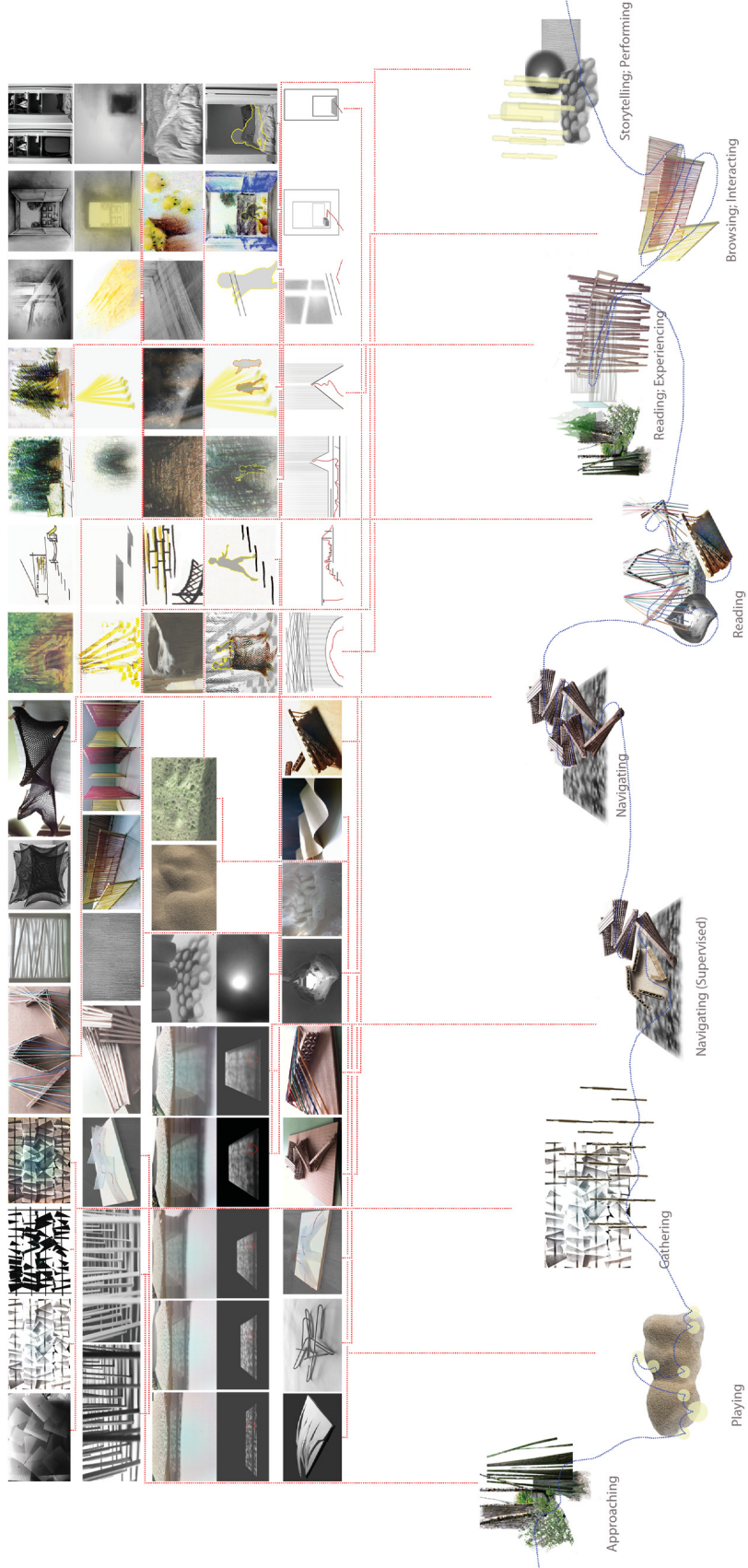
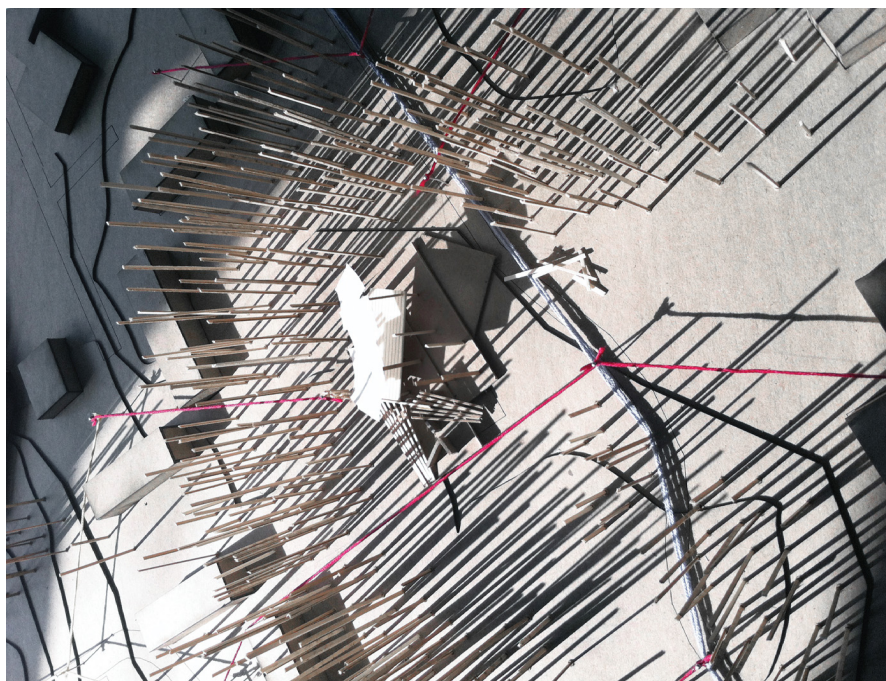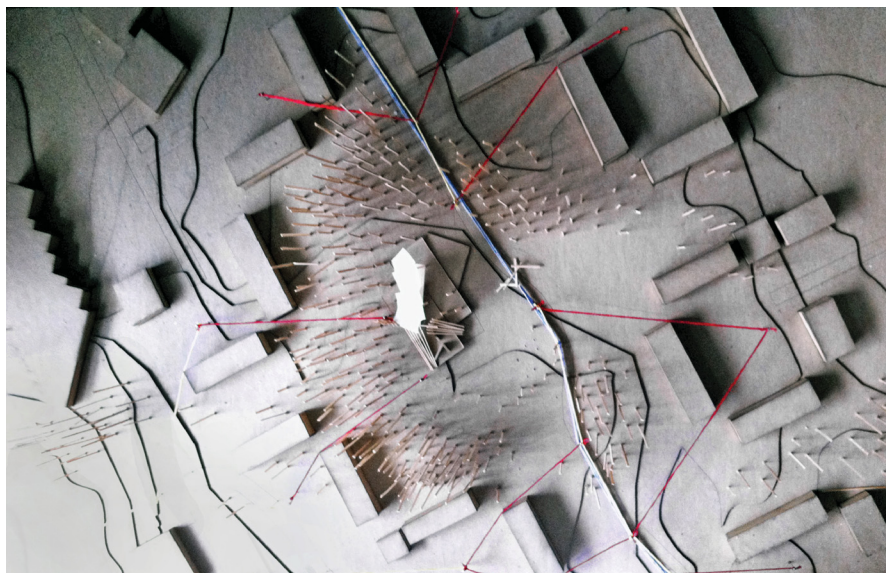Using the palettes of qualites and episdoes to derive spaces for the library
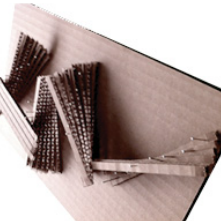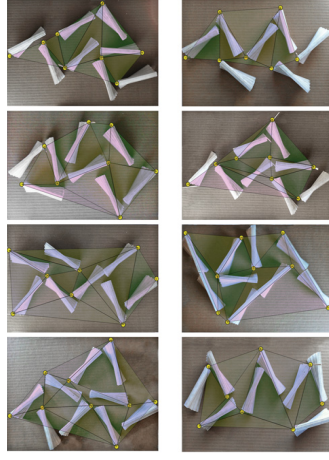
Development of program spaces/episodes, such as book stacks, from model studies
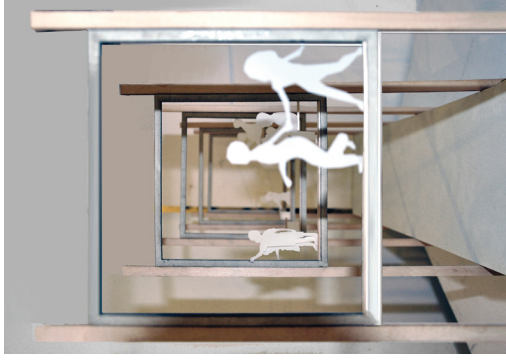
Development of program spaces/episodes, such as lookouts, from model studies
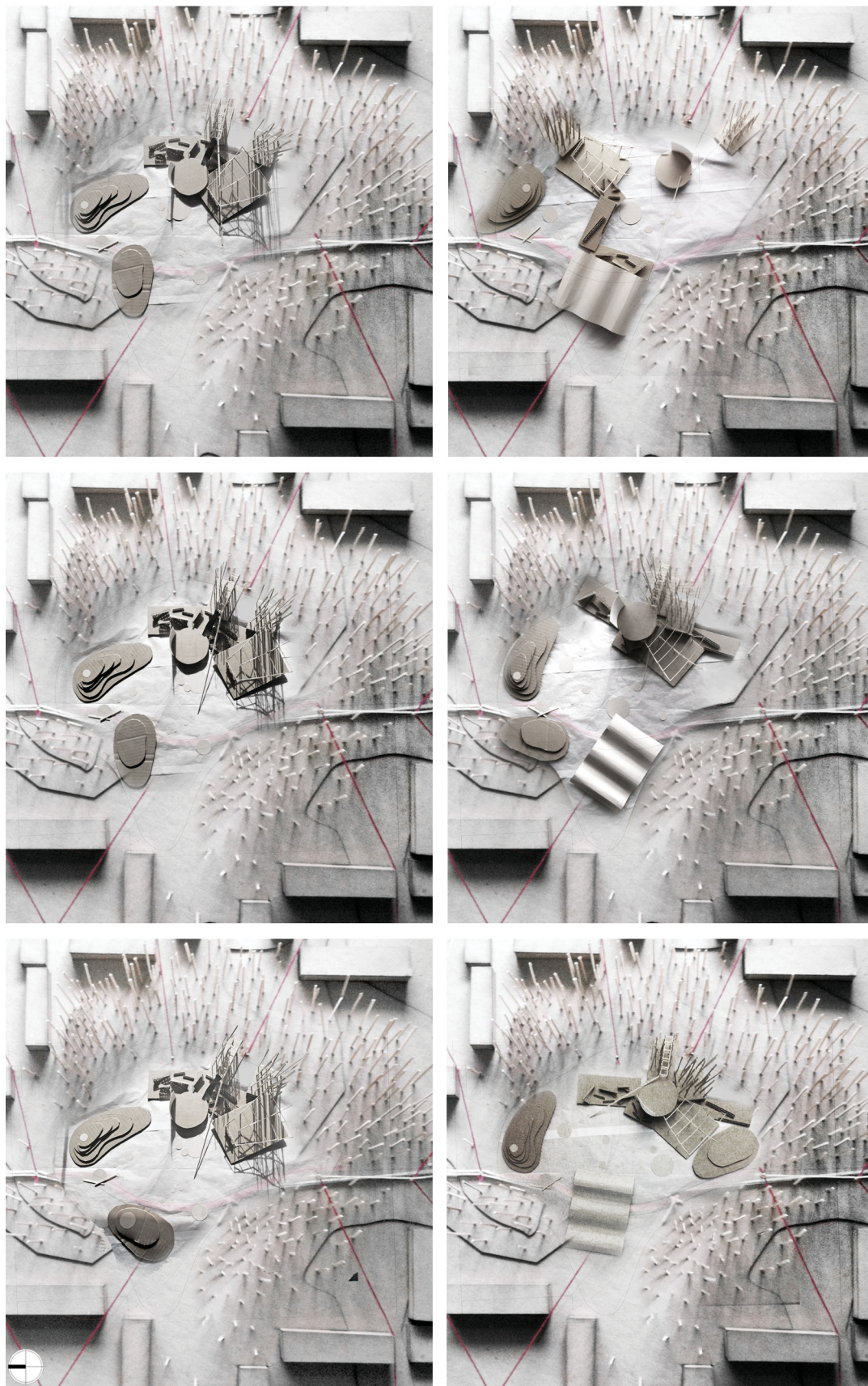
Mapping the developed episodes onto site

Initial iteration of design on site

CHAPTER 7: DESIGN

A design for the children's library is directly derived from method starting with the development of parts to in the end assemble into a whole. The structure of the building itself relates to the qualities of the forest and follows the idea of blurred boundaries. The bookshelves relate to the complex root system, weaving throughout the ground floor of the library. Each 3 shelves group into a cluster, forming a space in the middle (computer/reading station), as well as a further level of retreat in the niche under the spiral of each shelf. Columns do not follow any conventional grid - marching from the forest into the building. Beams connect the columns at different intervals, forming interesting spaces as light comes through the polycarbonate roofing. The different levels created, such as the nets, speak to being within canopy layers, and the lookouts further reiterate the idea of being within the canopy. The major spaces formed, such as the clearings for storytelling space and spiral stair, the projecting forest lookout, and the multi-level sunken pits, ramps and nets, are the episodes that occur in the building.
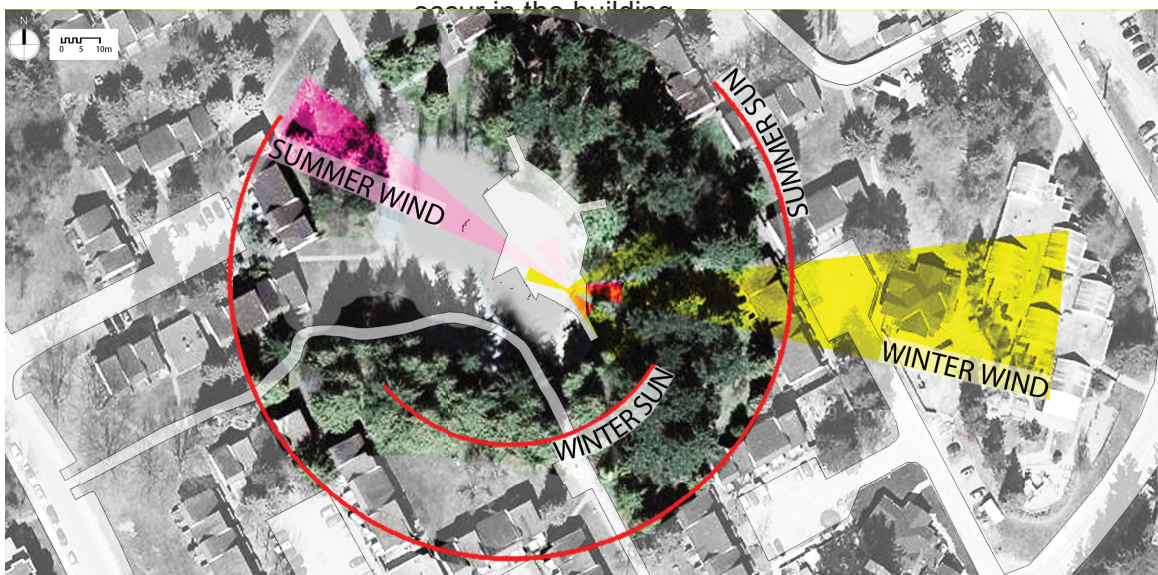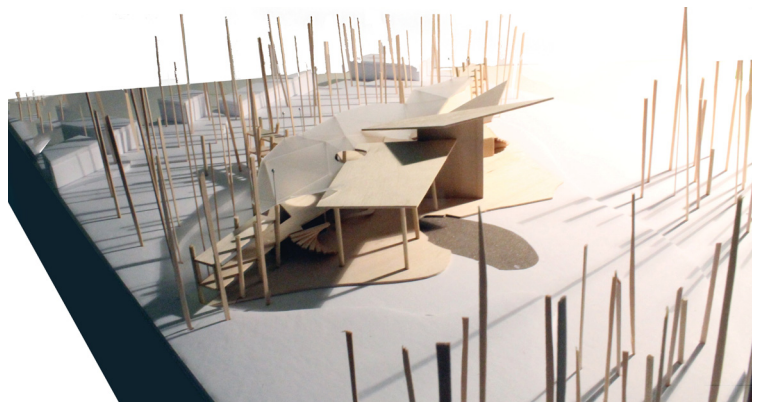

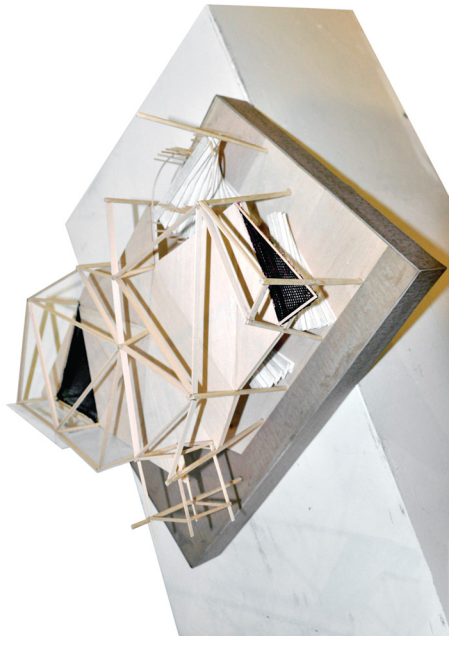Footprint of the library building located on site (Google 2013)
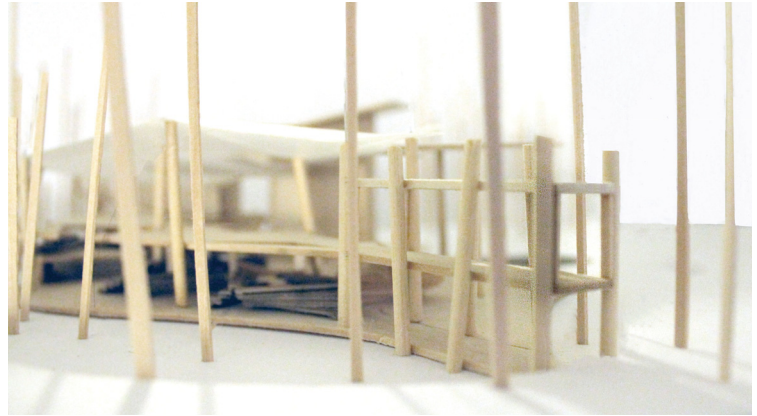
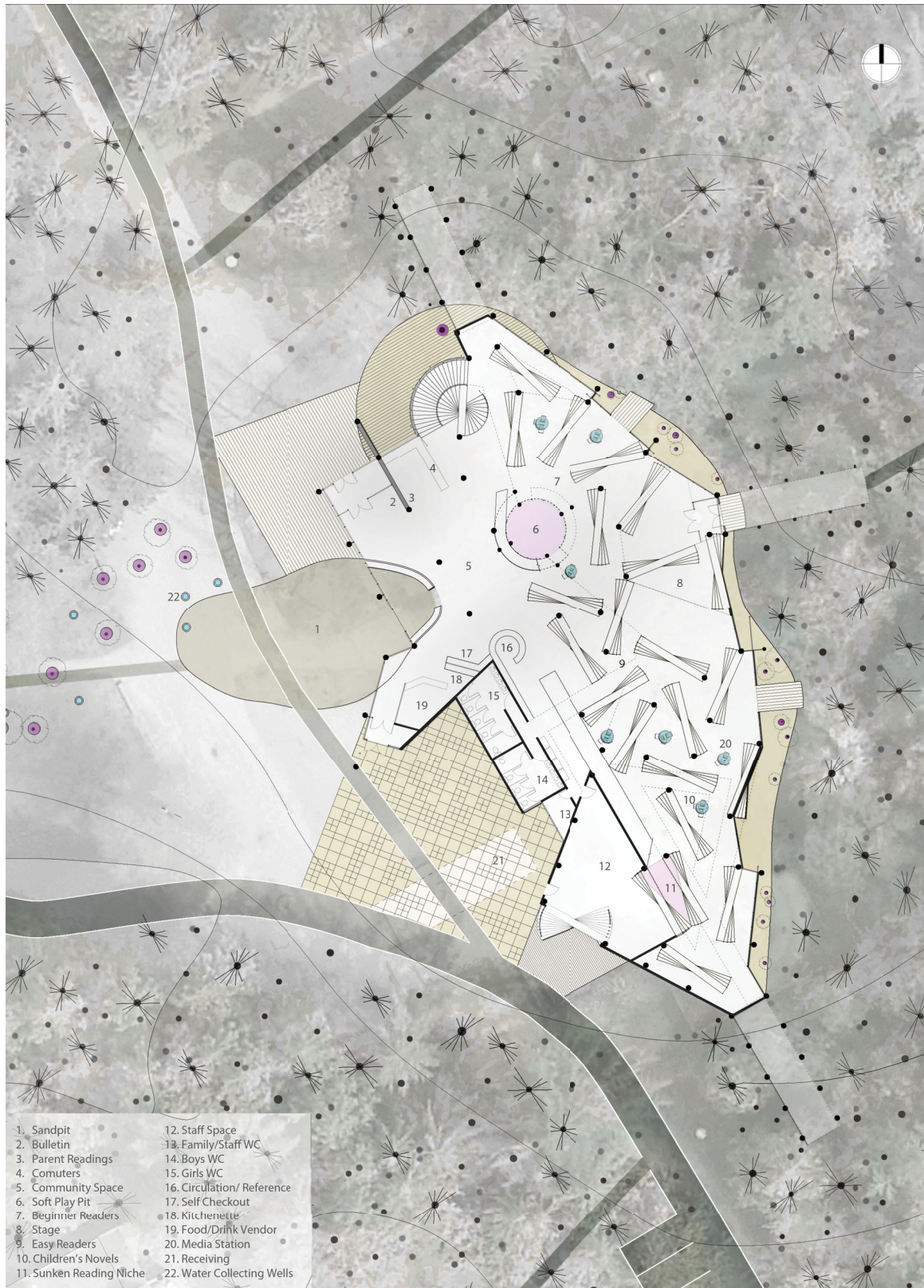Lookout space nests itself between the columns/trunks in the forest

Tree trunks from the forest march into the building, becoming columns
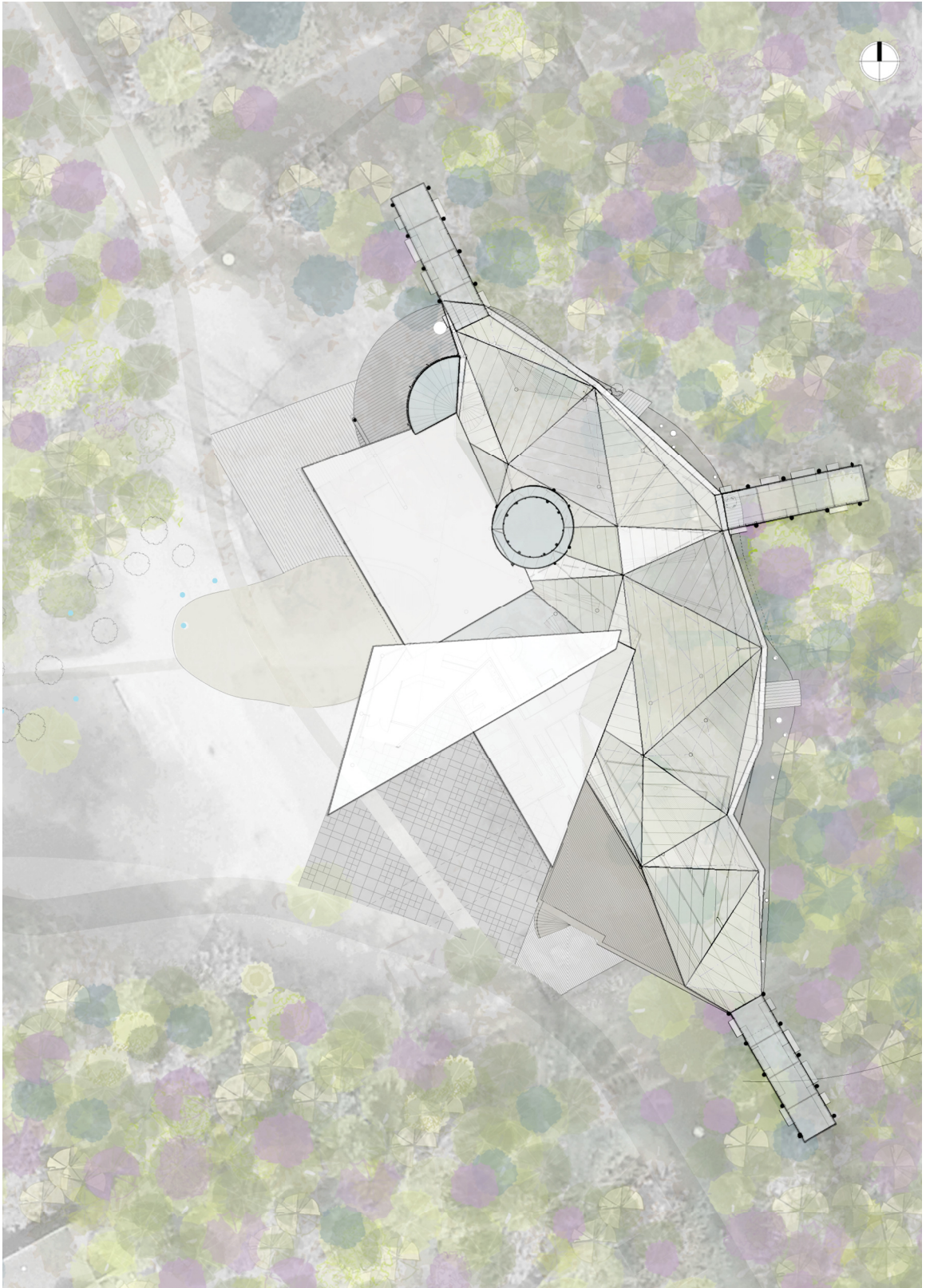

Building on site

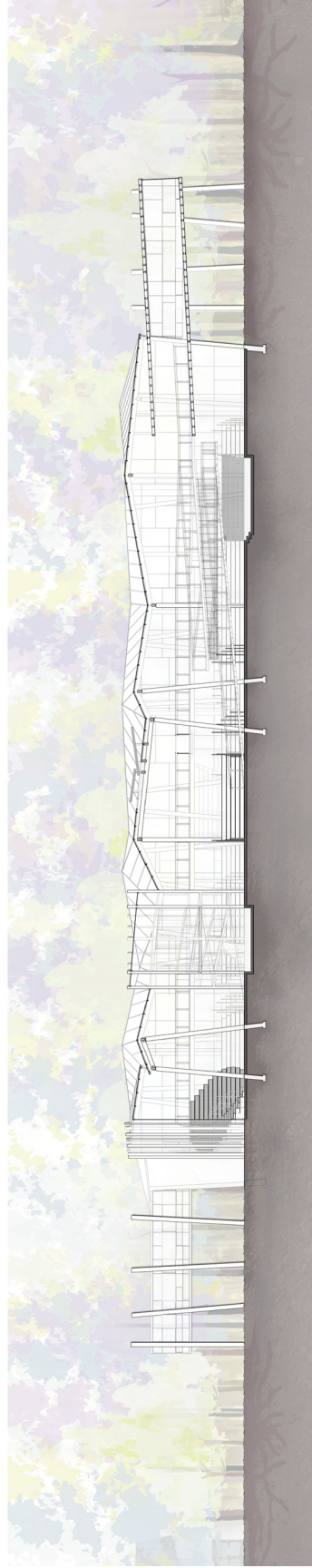Partial model of design, at 1:100, exploring structure and frame

1. Sandpit
2. Bulletin
3. Parent Readings
4. Comuters
5. Community Space
6. Soft Play Pit
7. Beginner Readers
8. Stage
9. Easy Readers
10. Children's Novels
11. Sunken Reading Niche
12. Staff Space
13. Family/Staff WC
14. Boys WC
15. Girls WC
16. Circulation/ Reference
17. Self Checkout
18. Kitchenette
19. Food/Drink Vendor
20. Media Station
21. Receiving
22. Water Collecting Wells

Ground Level Plan 1:500

1. Storytelling Round
2. Play/Reading Net
3. Play/Activity Space
4. Girls WC
5. Boys WC
6. Family WC
7. Roof Deck
8. Forest Lookout
9. Reading Niche
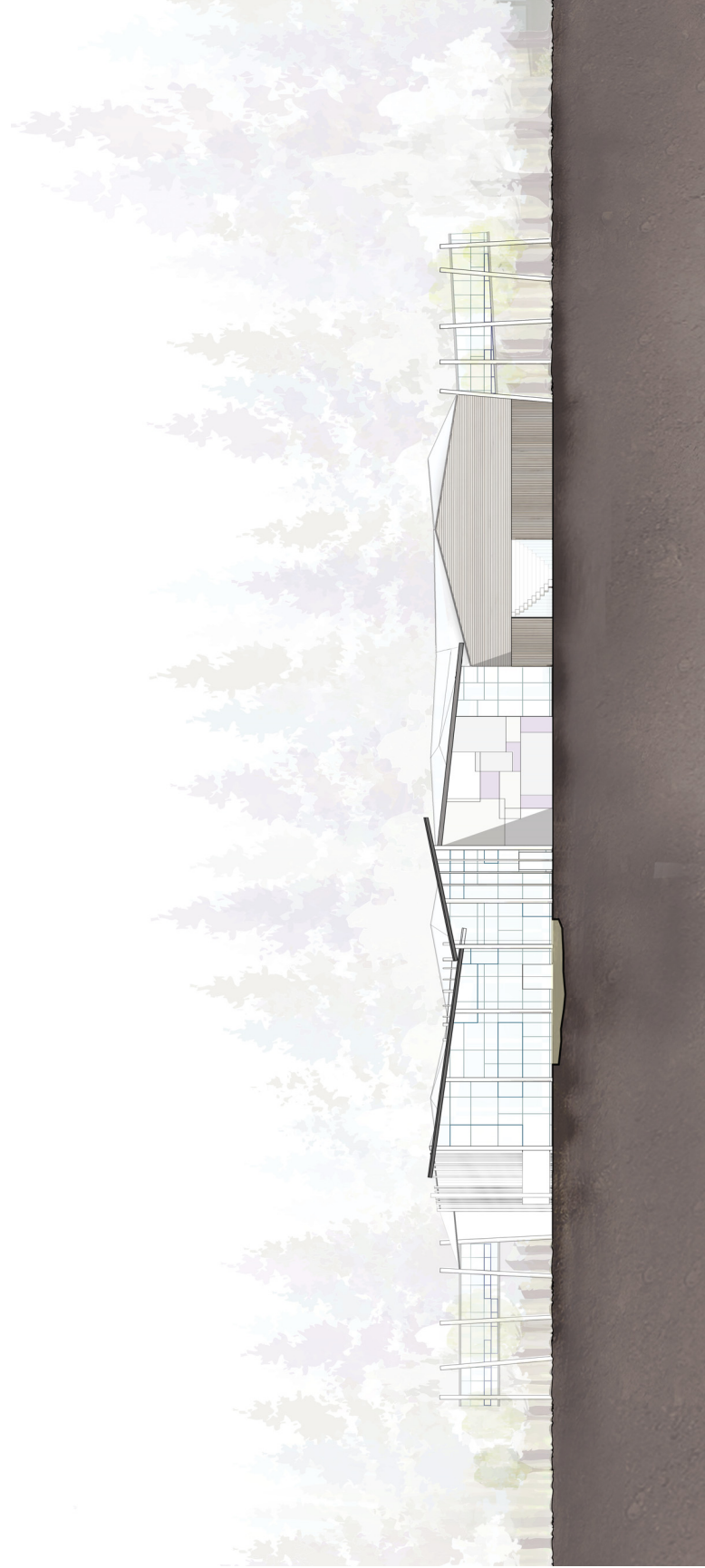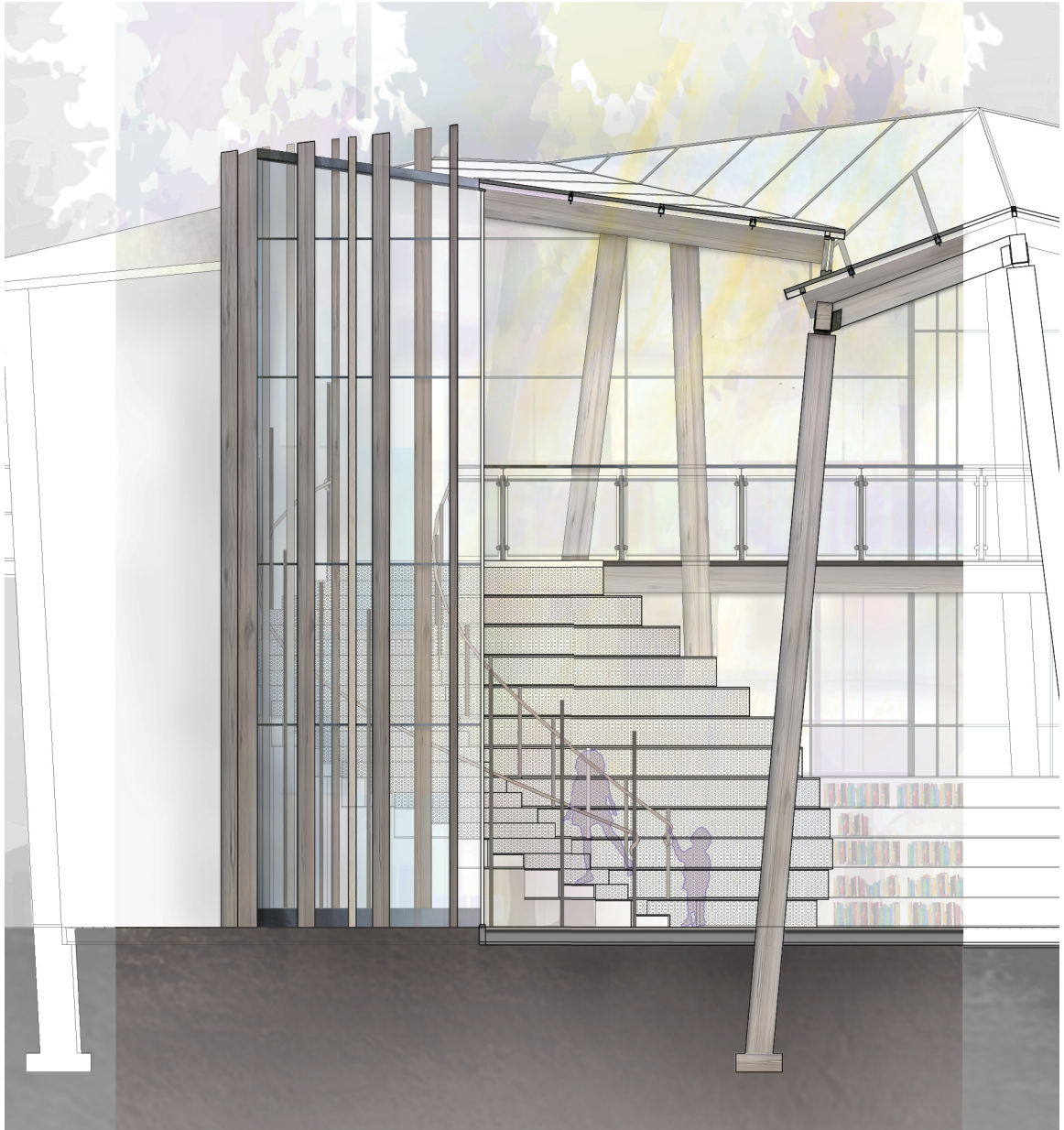10. Water Collecting Well

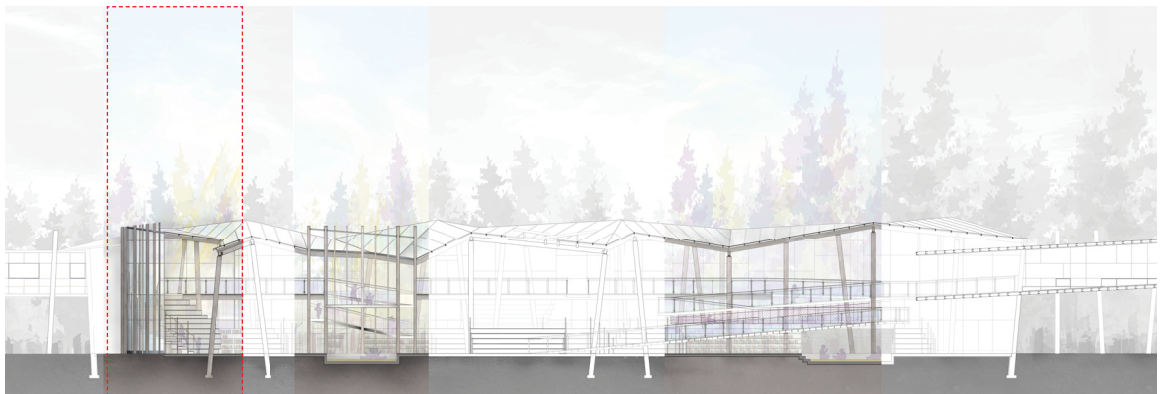Second Level Plan 1:500
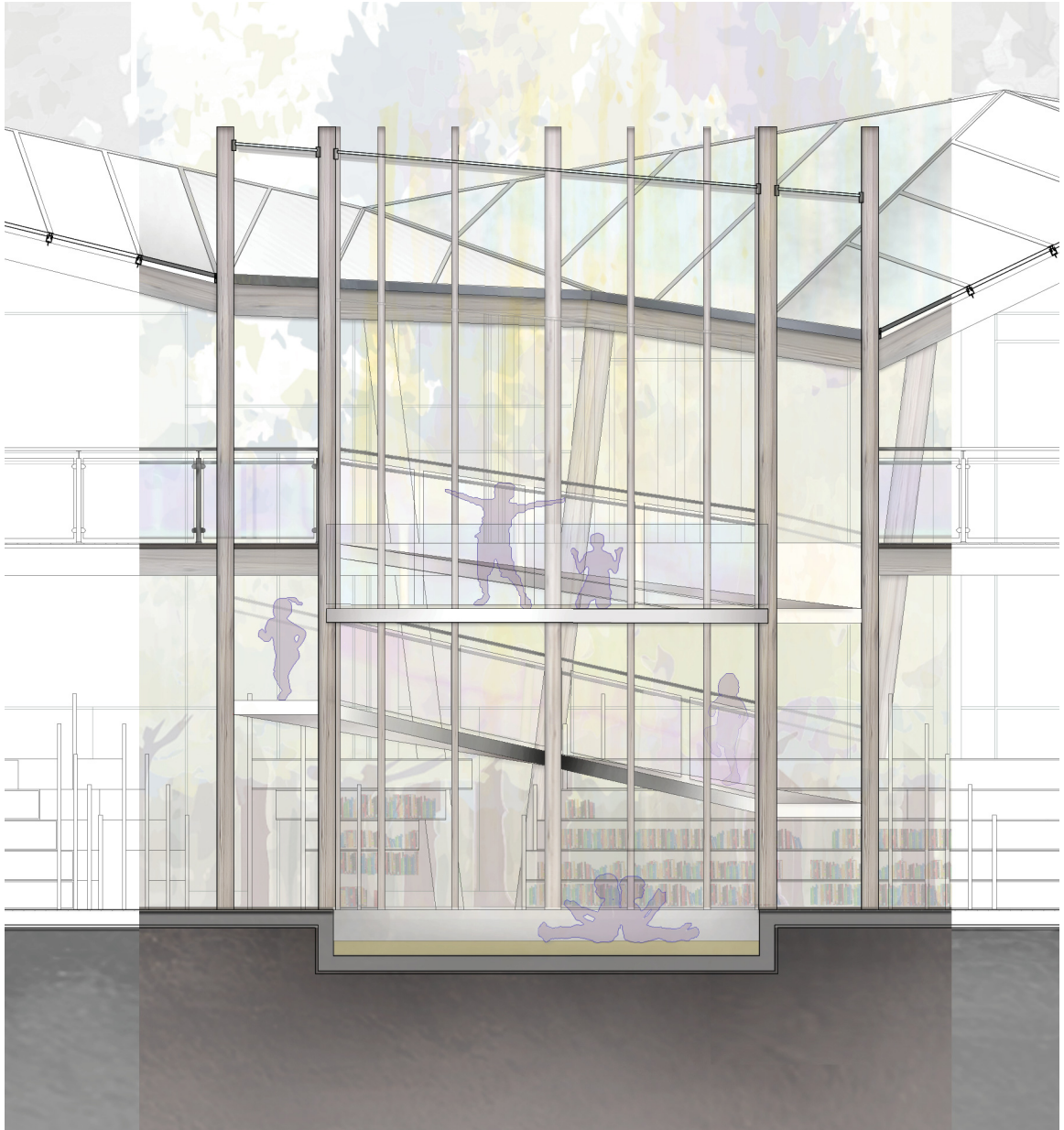
Roof Plan 1:500

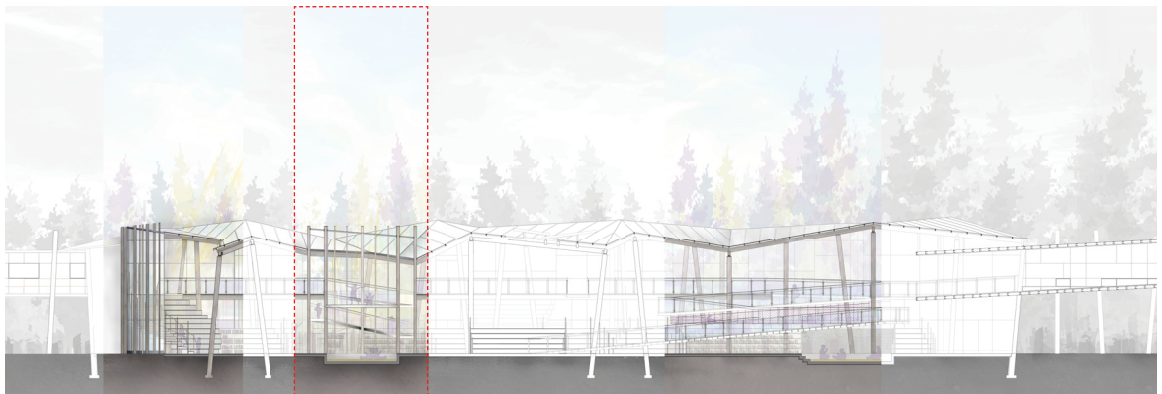N-S Section 1:500

W-E Section 1:500

Southwest Elevation 1:500
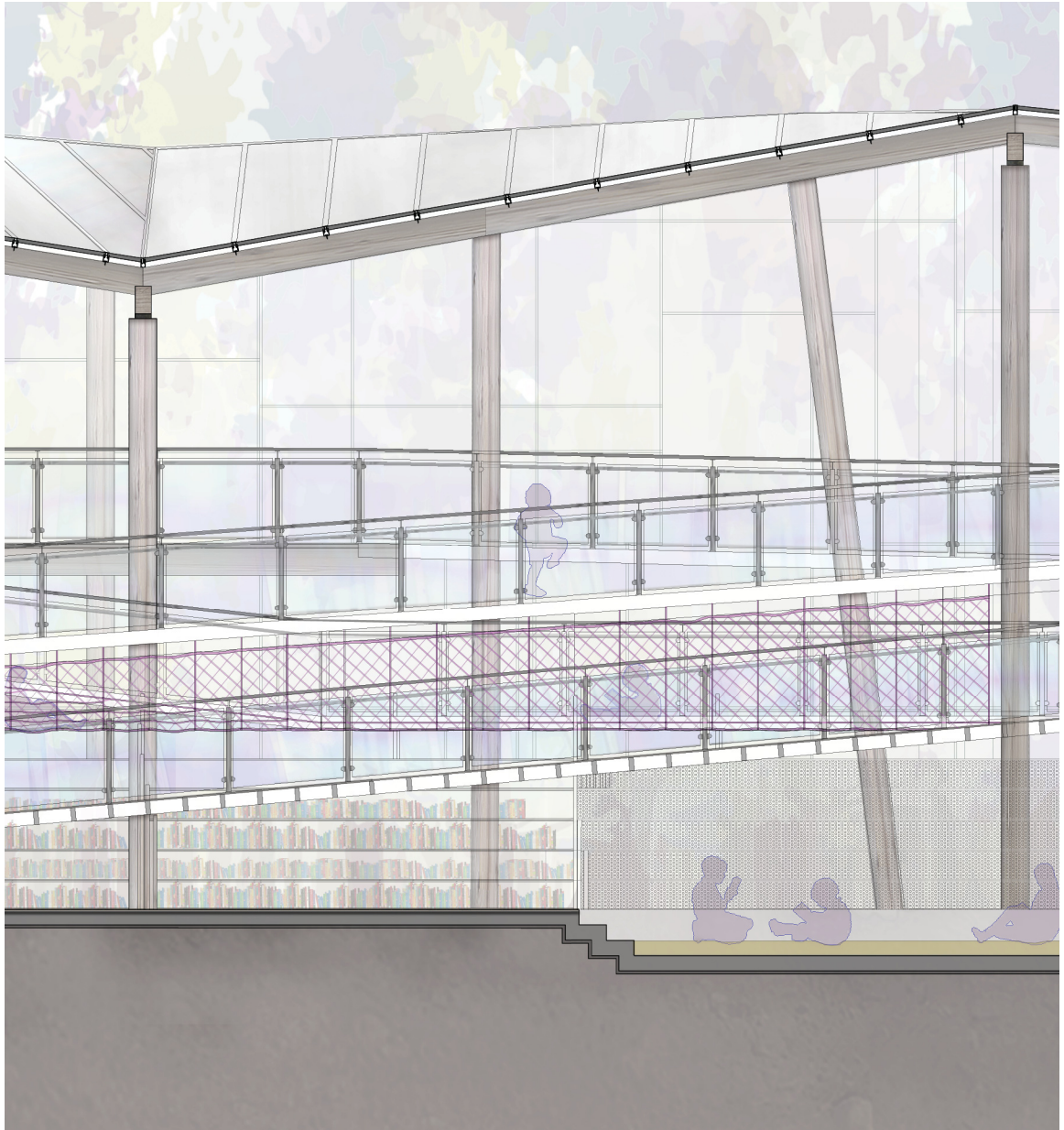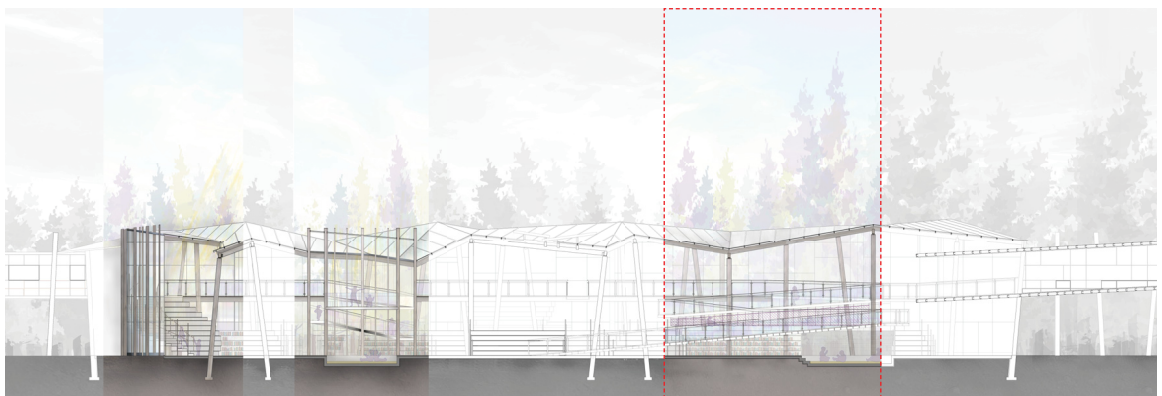
Spiral Stair 1:75

1:500 Key
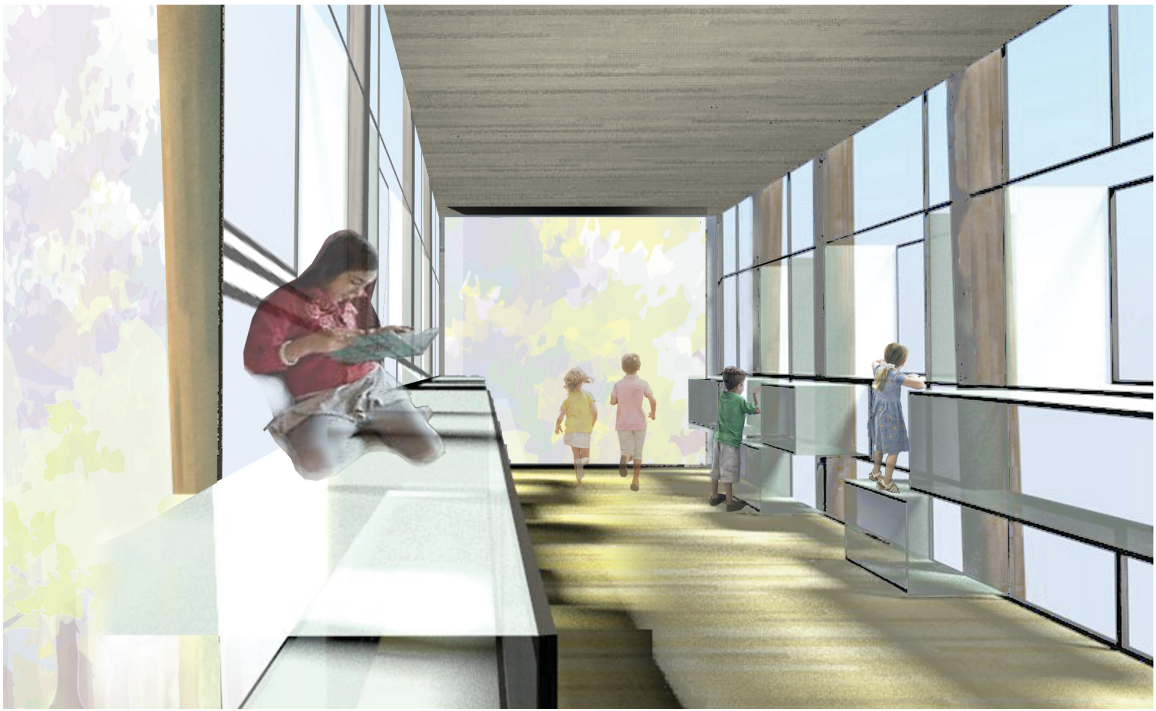
Storytelling Space 1:75

1:500 Key

Ramp, Net, and Sunken Pit 1:75

1:500 Key

Perspective of lookout space projecting into forest

Perspective showing inside-outside relationships

CHAPTER 8: CONCLUSION

In childhood the physical environment plays an important role in how a child responds to experiences and imagines or associates with that reality. This thesis sets out to determine how architecture can play with and create an interstitial realm where the self and the world are one and indistinguishable. The children's library served as the vehicle to create a potent environment for children, where the lines between reality and fantasy, between the natural and the constructed environments, and between learning and playing, are blurred.

The children's library is focused on a method of exploration that starts with the detail, a fragment, with spatial and material qualities that are assembled into a whole. This strategy is supported by research indicating the importance of detail and specificity in children's experience of space, memories of space, and episodes of childhood. The forested site is important as a psychological space of what is both known and unknown, what is both romantic and sinister, and of what is both real and imagined. Qualities from this forested site are used to derive spatial qualities for the design, to create a rooted place that remains in memory as sources of nostalgia. Qualities drawn from the site are based on the more intagible, such as activities, light, or episodes or scenes of childhood, such as the moment of discovery of a secret spot or fortress, as well as apparently innocuous events such as catching dust in the sunlight.

Since the project is about the experience of these qualities, the end result of the project is not simply the conven-

tional architectural drawings of a complete building, but should be more importantly represented as experiential qualities similar to the initial images that they are derived from. The method thus becomes circular, and can provide reiterative potential. The end result of the method, the design, is thus not an end but a source, or a starting point, such as where this project began.

The universal significance of the details and memories from childhood promotes attention to creating dynamic spaces for children to grow, play, and imagine. The potential results of this can be boundless, as the spaces of childhood do not only remain in childhood, but are carried throughout life as memories, formed schemas and associations, and inspirations.

REFERENCES

Bachelard, Gaston. 1999. Water and Dreams: An Essay on The Imagination of Matter. Dallas: Dallas Institute Publications.

Baek, Jin. 2009. Nothingness: Tadao Ando's Christian Sacred Space. New York: Routledge.

Baldwin, James Mark. 1906. Thought and Things. London: Swan Sonnenschein & Co., Ltd.

Bastea, Eleni. 2004. Memory and Architecture. Albuquerque: University of New Mexico Press.

Benjamin, W. 1997. One Way Street. London New York: Verso.

Benjamin, W., and P. Demetz. 1986. Reflections : Essays, Aphorisms, Autobiographical Writing. New York: Schocken Books.

Bloomer, Kent, and Charles Moore. 1977. Body, Memory, and Architecture. New Haven: Yale University Press.

Brownell, Blain Erickson. 2011. Matter in the Floating World: Conversations with Leading Japanese Architects and Designers. New York: Princeton Architectural Press.

Burlinson, Christopher. 2006. Allegory, Space and the Material World in the Writings of Edmund Spenser. Cambridge: D.S. Brewer.

Chang, L-t'iao. 1981. The Tao of Architecture. Princeton: Princeton University Press.

City of Vancouver. 2012. Vanmap, Vancouver. http://vanmapp.vancouver.ca/pubvanmap_net/default.aspx.

Creighton, J.E. 1908. "Review: Thought and Things. A Study of the Development and Meaning of Thought or Genetic Logic by James Mark Baldwin." The Philosophical Review 17 (1): 68-75.

Elliott, Brian. 2011. Benjamin for Architects. New York: Routledge.

Geomatics at UBC. 1998. UBC Polygons, Vancouver. http://gis2.forestry.ubc.ca/UBCDD.html.

Google. 2013. Map of Acadia Park Lane, Vancouver. http://maps.google.ca.

Hays, Michael K. 2002. Sanctuaries: The Last Works of John Hejduk. New York: Whitney Museum of American Art.

Helewa, Norman T. 1993. "Creation of a Geographic Information System Database of Pacific Spirit Park." Master of Forestry thesis, University of British Columbia.

Heschong, Lisa. 1979. Thermal Delight in Architecture. Cambridge: MIT Press.

Holl, Steven, Juhani Pallasmaa, and Alberta Perez-Gomez. 1994. Questions of Perception: Phenomenology of Architecture. Tokyo: A+U Publishing.

Ionesco, Eugene. 1968. Fragments of a Journal. New York: Grove Press.

Kiet, Vo Anh. 2012. "My Balloon." National Geographic Traveler. http://travel.nationalgeographic.com/travel/traveler-magazine/photo-contest/2012/entries/gallery/winners-winners/#/9.

Kinchin, Juliet, and David O'Connor. 2012. Century of the Child. New York: The Museum of Modern Art.

Leach, Neil. 2000. 'Walter Benjamin, Mimesis and the Dreamworld of Photography." In Intersections, edited by Iain Borden and Jane Rendell, 27-38. London: Routledge.

Lefaivre, Liane, and Ingeborg Roode. 2002. Aldo van Eyck: Designing for Children, Playgrounds. Amsterdam: NAI Publishers.

Lushington, Nolan. 2008. Libraries Designed for Kids. New York: Neal-Schuman Publishers.

Lyndon, Donlyn, and Charles Moore. 1994. Chambers for a Memory Palace. Cambridge: MIT Press.

Merleau-Ponty, Maurice. 1964. Sense and Non-Sense. Evanston: Northwestern University Press.

Morrien, Adriaan van Alphen. 1958. Children in the Big City. London: Oldbourne Book Co.

Newcombe, N., and J. Huttenlocher. 2003. "Extending Space: Exploring the Territory of Spatial Development." Human Development, 46 (1): 61-68.

Norberg-Schulz, Christian. 1980. Genius Loci. Towards a Phenomenology of Architecture. London: Rizzoli.

Norberg-Schulz, Christian. 2000. Architecture: Presence, Language, Place. Milan: Skira.

Pallasmaa, Juhani. 2005. Encounters. Helsinki: Building Information Ltd.

Piaget, Jean. 1929. The Child's Conception of the World. London: Routledge & Kegan Paul.

Piaget, Jean. 1956. The Child's Conception of Space. London: Routledge & Kegan Paul.

Plummer, Henry. 2003. Masters of Light: Twentieth-Century Pioneers. Tokyo: A+U Publishing.

Popinjay Media Inc. 2010. The Shorty List. http://www.theshortylist.ca.

Rida, Carmen R. 1988. "The Preservation of Urban Woodlands: a Case Study of the University Endowment Lands, Vancouver, B.C." Master of Science thesis, University of British Columbia.

Smith, David Woodruff. 2008. "Phenomenology." The Stanford Encyclopedia of Philosophy. http://plato.stanford.edu/archives/fall2011/entries/phenomenology/.

Solar BC. 2010. Vancouver Forest Symphony. Last modified July 23. http://www.solarbc.ca/events/2010/07/23/forest-symphony.

Tadd, James Liberty. 1899. New Methods in Education: Art, Real Manual Training, Nature Study. New York: Orange Judd Company.

Tuan, Yi-fu. 1977. Space and Place: The Perspective of Experience. Minneapolis: University of Minnesota Press.

UEL. 2005. "The University Endowment Lands Official Community Plan." http://www.universityendowment-lands.gov.bc.ca/library/Official_Community_Plan.pdf.

University Endowment Lands. 2013. University Endowment Lands. http://www.universityendowmentlands.gov.bc.ca.

University of British Columbia. 2013. UBC Child Care Update. http://www.focusonpeople.ubc.ca/making-it-happen/ubc-child-care/.

VonderBrink, David T. 2007. "Architectural Phenomenology: Towards a Design Methodology of Person and Place." Master of Architecture thesis, Miami University.

Zumthor, Peter. 2006. Atmospheres. Basel: Birkhauser.

Zumthor, Peter. 2010. Thinking Architecture. Basel: Birkhauser.