

ACTIVATING PLAY-BASED ESCAPE

AWAKENING CREATIVITY

by
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I hereby declare that I am the sole author of this thesis. This is a true copy of this thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

AUTHOR'S DECLARATION

Everyone participates in escape. The drive to escape is something we are born with. It is a force that has ties to our curiosity, as well as our profound psychological restlessness, and can even be seen in our displeasure with boredom.

This thesis introduces three forms of escape: pure diversions, games, and play. Focusing on a play-based escape, this thesis argues that this is the most important form of escape, because, through play, we promote our cognitive health and creativity.

This thesis develops three lines of investigation: first an understanding of what play is; second, through understanding the conditions, context, and disposition necessary in order to engage in a play-based escape; and third, a study of play through the review of architectural case studies.

It is through these investigations that this thesis will identify ten key strategies that architecturally accommodate play. These are: nature, complexity, dynamic, loose-parts theory, scale, the primitive, along a path, mystery, risk, and unmonitored feel. In order to develop a method of design which engenders an architectural atmosphere of play-based escape these characteristics are organized into three interconnected themes: a desire to explore the world around us, a desire for a dynamic stimulating environment, and the desire to be active and move our bodies. Finally, an architectural application of the design method concludes this thesis, with hopes to activate a play-based escape capable of awakening our creativity.

ABSTRACT

SUPERVISOR Andrew Levitt
ADVISORS Colin Ellard,
 Jeff Lederer
EXAMINER Christie Pearson

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For my Parents

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PREFACE



Fig.1.1- wearing a dust mask as I clean grain bins

In 2002 I enrolled at the University of Waterloo, and moved to Cambridge, Ontario. While urban life is the norm for a large majority, it took me some getting used to. Not only are the daylight hours and weather different in Ontario, the hard streetscape is also a stark change to the Midwest's rural plains. Finding myself so distanced from nature, I grew stressed. Far from my home and family, I was not used to the city.

My home, a grain farm on the Alberta prairies, is nearly twelve kilometres away from the nearest town, Kitscoty, whose population is less than seven hundred, and about two and a half kilometres away from the nearest neighbour. I continue to work on the farm every year during harvest, helping to bring in the crops. There is a sense of pride and connection to the land that arises from the farming lifestyle. Farmers know to plant their crops when the leaves of a poplar tree reach the size of a dime, and that if dew is not present on an autumn morning that it will rain in three days. This sensitive connection to the changing nuances of the land stems from our roots in nature, which is unfortunately long-forgotten by most people within today's society. Farmers are often required to be creative and innovative because of the variety of challenges that come when working with a medium that is as ever-changing, and unpredictable as nature.

I had begun this thesis with an intention to study Albertan vernacular architecture

through an investigation of the farmstead. However, during the course of my research I gradually lost interest in the topic. Although I grew up working on the farm, I discovered that I was not inspired by my investigations into the politics and economics of farming. Frustrated, I found myself, little by little, spending less time on my research, and replacing it with something that I once regarded merely as a fanciful pastime: *heavy metal music*.

The world of heavy metal sucked me in -- it consumed me. I became completely engrossed in its menacing allure. Every spare moment became a quest to discover new bands, YouTube™ skilled guitarists, take electric-guitar lessons, read fantasy novels, and unearth new artists specializing in fantasy art. I plunged into the behemoth monsoon of the raging lyrics blasted from bands such as *Slayer*, *Pantera*, *Cannibal Corpse*, and *Megadeth*.

Heavy metal became something that brought me pleasure and happiness, relief and fantasy. As part of a preliminary design exploration, I proposed a conceptual home for a heavy metal musician. In this make-believe world, this musician's music and life were at the center of it. The design reflected the musician's total absorption into his world, the world into which he escaped.

It was at this point I realized, "This is what heavy metal is for me!" It is an escape. In an instant, I recognised that in order to release the sense of hopelessness I felt while working on my initial thesis of the farmstead, I had begun to search for an escape



Fig.1.2- my home, from a distance



Fig.1.3- Megadeth in concert

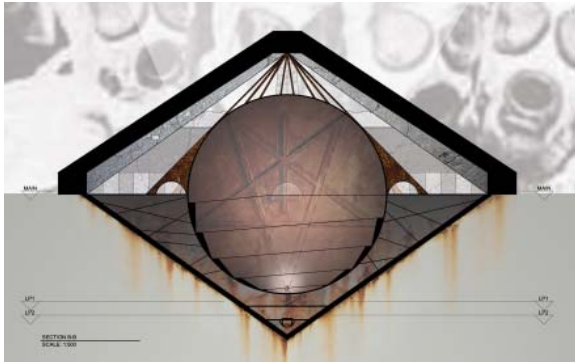


Fig.1.4- Conceptual Home for a NBM¹ Musician, elevation



Fig.1.5- Conceptual Home for a NBM¹ Musician, site plan

through my music. This escape energized me, gave me happiness again, and renewed my creative energy.

Escape is an omnipresent need within every individual and is found throughout our culture. Heavy metal may have been my escape; however, it is certainly not for everyone. Oddly enough, I had never really listened to much music while growing up. As a child, it was the outdoors, in all its abundance, that was my primary escape. When not working on chores or schoolwork, my siblings and I would venture outside, creating our own forts, discovering new places, and forming new spaces, often travelling great distances. Like every child, play and daydreaming were our forms of escape, and being in nature seemed to provide an infinite supply of inspirations and opportunities.

When I lived in Cambridge there seemed to be nowhere I could go in order to escape. It was finally the intense complexity of heavy metal, and its explosive lyrics that blasted me out of misery.

Music is not architecture; however, it is able to provide the environment we need in order to escape. Music has the ability to create three responses. First, it often creates a physical response. We tap our foot, dance, and even sing in reaction to music. Second, it has the ability to produce pictures in our mind; it tells a story through lyrics, and even abstractly, through the progression of a musical composition. Lastly, it produces an atmosphere which allows us to escape, and often a large portion of the music is even missed due to this escape. However, we also have to *like* the music for this to

1. As a phenomenon, the popularity of heavy metal is on the rise within countries whose residents deal with feelings of oppression. Take for example, the case of Norway. *Norwegian Black Metal (NBM), an extreme form of heavy metal, first appeared in Norway in the 1990s. The rise of NBM coincides with the thousand-year anniversary of Christianity in Norway, and speaks as a rebellion against Christianity, and in some ways attempts to bring a new sense of identity and passion for those that saw the Christianization of Norway negatively. The phenomenon is essentially a beneficial outlet for those who need a form of escape. (Christe, 2003, p.273)

occur. Based on our experience and preferences, it must contain the proper amount of complexity in order to produce pleasure.² Understanding that not everyone has the same experiences and preferences as I do, and that each of us is individual, it is clear that not everyone uses heavy metal music to produce the atmosphere needed to escape. I wondered how to produce an architectural design which would appeal to as many people as possible in order to engender escape. As I thought back to my experiences on the farm, I knew the answer: nature. Nature is common, and we have an inherent human attraction to it.³

This thesis examines the capacity of architecture to create places that extend an atmosphere of escape to others.

2. Wohlwill, 1972

3. Kellert, 2005

INTRODUCTION



Fig.2.1- "Daydreaming" by Pino

What do we mean by the word *escape*? The word *escape* is derived from the Vulgar Latin word *excappare*; literally it means to “get out of one’s cape,” or, “to leave a pursuer with just one’s cape”.¹ In his book entitled *Escapism*, Yi-Fu Tuan² states that, “the concept ‘escape’ [...] means both literal flight and steps taken to change or mask an unsatisfactory condition.”³

The word *escape*, most typically applied to instances such as physically escaping a pursuer, social setting, or situation of confinement, also applies to the ephemeral and metaphysical escape from reality. As our mind wanders, we leave behind our bodily cloak. This is to say that the act of daydreaming is also a form of escape. Tuan describes daydreaming as “*escaping our own corporeal wrapping.*”⁴

When applying the word *escape* to architecture, many people think of an example such as escaping from a jail – that is not the kind of escape that this thesis discusses. Instead, think of an activity that is an escape for you. This may be playing a videogame, reading a book, or perhaps it is going on a vacation. For me, among other things I have mentioned, I listen to *heavy metal music*. *Heavy metal* creates the atmosphere that helps me to escape. This thesis investigates how to design an environment that helps bring about an architectural atmosphere that engenders escape.

1. Escape: *Online Etymology Dictionary*. Available from www.etymonline.com. (accessed 4/12/2010)

2. Yi-Fu Tuan, a Chinese-American geographer, combined his expertise of human geography with the fields of philosophy, art, psychology, and religion. Merging these fields led to what is known as humanist geography, which is a branch of geography that studies how humans interact with space and their physical environments. He is renowned for his work called *Space and Place*, describing that the two concepts are interdependent. He is also author of *Escapism*; a number of the philosophies he proposes in this work are pertinent to this thesis. He states that every product of our culture is a form of escape. Helping to illustrate the facets of escape, he also asserts that our *escapes* are imposed by nature. Most importantly he challenges the negativity that sometimes shrouds the term *escape*. Two chapters, entitled “*Heaven*”, and “*Hell*”, propose that while escape can bring us close to a form of heaven, or bliss, it can also, if left unchecked, lead to a self-deluding hell, or misery. Escape has the capacity to allow us to “*forget the destructive preliminaries of almost all creative acts.*” (Tuan, 1998, p.xv) Therefore, this route, which has historically led towards the heavenly, is subject to the evils which can also lead to a kind of hell. With respect to our culture he provides a convincing and logical argument for each of us to consider our moral responsibilities while participating in escape.

3. Tuan, 1998, p.31

4. Tuan, 1998, p.31

Some may criticise the act of *escape* as being a waste of time. However, while these escape-inducing activities can be viewed as unproductive, Steward Brown⁵ has found that, “a little bit of ‘non-productive’ activity can make one enormously more productive and invigorated in other aspects of life.”⁶ Part of what this thesis explores is how to use our desire for escape more productively. Escape has two sides: in moderation, it can have numerous benefits; however, in excess it can have harmful repercussions. The benefits can include peace of mind and greater creativity. However, the detriments, caused by excess and addiction, include the lack of focus, interruption of family or social life, and even death.

Escape is a diversion, or distraction, from everyday life, that produces pleasure⁷. We escape in a few different ways: *pure diversions, games, and play*. All three, according to their definitions are activities done which provide amusement, and each can be a method of distancing. *Pure diversion* is an activity which completely diverts our attention; reading a book is an example. A *game* is an activity with rules and a goal in mind. *Play*, according to Brown⁸, is defined by seven properties: apparent purposelessness, voluntary, inherent attraction, freedom from time, diminished consciousness of self, improvisational potential, and continuation desire. Pure diversion and games are structured forms of escape. These are activities which have been created, or structured, in order to escape. Play, however, is an unstructured form of escape. It involves improvisation, and acts of creation. In many ways these forms of escape can overlap each other; games and play can become pure diversion, and while participating in a game

5. Stuart Brown, author of *Play*, is a medical doctor, psychiatrist, clinical researcher and founder of the National Institute for Play. Brown studies animal behaviour, and has also conducted more than six thousand *play histories* of humans from every walk of life. The book describes these studies as well as the most up-to-date research in order to demonstrate the vast benefits of play. In *The Origins of Human Nature*, the definition of play is accepted as activities which appear to be purposeless. As an expert on play, Brown furthers this, describing a set of characteristics which define play. It is Brown’s definition of play that is used in this thesis. Backed by the research of others, this work states that play is essential to our healthy development. Play is proven to promote brain plasticity, that is, the ability for nerve cells to change through new experiences, well into adulthood, as well as promoting creativity, intelligence, adaptability, physical and mental health. It is a form of *escape*.

6. Brown, 2010, p.11

7. Escape: Dictionary.com. *Collins English Dictionary - Complete & Unabridged 10th Edition*. HarperCollins Publishers. Available from <http://dictionary.reference.com/browse/escape> (accessed 4/16/2011).

8. Brown, 2010

people can often play. Play is the method of escape on which this thesis will focus. This thesis will not focus on pure diversion, or games.

Everyone finds themselves needing an escape sometimes. We need *escape*-time to recharge our batteries, relax, and de-stress. The current condition of most Canadian cities is not conducive to an escape within them, nor within the buildings of which they are composed. Ray Oldenburg, an urban sociologist from Florida, discusses this at length in his book, *The Great Good Place* (1989). He describes a city's *third places*⁹. First we have our home, second we have our workplace, and the third place is where we *escape*. *Third places* are informal gathering spaces where people may come together on neutral turf to pause, interact, enjoy conversation, and develop friendships, taking pleasure from being part of the larger spatial community¹⁰.

Within more dense pedestrian-oriented urban spaces, *third places* offer compensational social spaces away from home and work. More common in earlier times, for example, *The Baths* in Bath, England during the seventeen and eighteen hundreds, were places where people voluntarily turned to in order to enjoy their leisure time and social relations. People would come from all around to *take the waters* in Bath as a way of rejuvenating themselves.

These *third places* are often missing in North American cities such as Cambridge, Ontario. Our cities are zoned as commercial, industrial, and residential, breaking them into numerous isolated sections without consideration for places of escape.

9. Oldenburg, 1989
10. Oldenburg, 1989

SUPERNORMAL STIMULUS

Our cities have changed a lot over the past few hundred years; between globalization and new communication systems, our world has shrunk, and alongside this, new production methods have sped up our building processes. Many Canadian cities are growing quickly, catering to the automobile and consumer, rather than to the pedestrian and human being. Fast-food drive-thrus and vast plains of asphalt parking lots have taken over the countryside. Populations have speedily escalated and our places of escape have become hard to find.

Not only do our cities feel fast paced, the context of the society that shapes them has rapidly transformed as well. Contemporary society has zero tolerance for boredom. News headlines are focused on what sells, and what sells, is what captures our attention. Media is therefore more heavily laced with the negative happenings in society as opposed to the positive. Often using spin and toying with public fears, news stories are geared towards raising our blood-pressure and our stress levels in order to keep us captivated so we do not *change the channel*. A whole market geared towards creating new ways to captivate our attention has emerged, with new strategies being refined down to a science. Often they are using what Niko Tinbergen, a Dutch Nobel laureate, called “*supernormal stimuli*.”¹¹

A *supernormal stimulus*, or *superstimulus*, is an exaggerated form of an existing stimulus. It induces a response more strongly than the stimulus from which it evolved.

11. Barrett, 2010, p.13

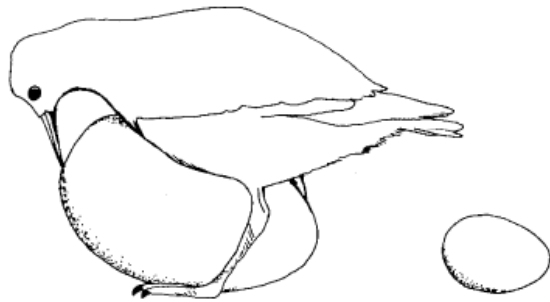


Fig.2.2- supernormal stimuli

In the 1930's, Tinbergen studied bird behaviours. He created numerous dummy eggs which were larger and brighter than typical eggs. These eggs were placed in a simulated nest, beside a real nest with eggs. Painted with black polka-dots and Day-Glo blue, the dummy eggs outshone the song bird's smaller pale blue eggs speckled with grey. Tinbergen observed song birds brooding dummy eggs so large that the birds would continuously slide off and repeatedly climb back onto at the expense of their own eggs, which would die as a result of the abandonment. This is the phenomenon called *supernormal stimulus*.¹²

In a similar case, we see the potato beetle meet its demise. We have developed gardening techniques, such as the use of *trap crops*, which work in this fashion to protect vegetables. When given the choice between potatoes or petunias, potato beetles will choose petunias. However, petunias are also toxic to the potato beetle, thereby eradicating the pest.

Humans, also influenced by *supernormal stimuli*, have devised *trap crops* for themselves as well. Not only methods, such as those used by television and commercials, but technology as well, is being developed which acts as *superstimuli*, or *trap crops*. They make us buy more, consume more, and sway our attention more.

12. Barrett, 2010, p.13

MULTITASKERS

Many within our society have now become addicted to this technology, juggling e-mail, phone calls, text messaging, Internet, television, video games, and other incoming information. Our western society has become the new generation of *multitaskers*.

Multitasking is a way of escaping; often we engage in numerous forms of multi-media-based escapes alongside our mundane daily tasks. According to Adam Gazzaley¹³, a neuroscientist at the University of California, San Francisco, we are now experiencing one of the most significant shifts in our human environments: that of nonstop interactivity. As multitaskers we are frequently choosing to use developed media in order to escape any moment of boredom, or inactivity. This media lends itself to highly structured forms of escape, such as games and pure diversion.

A little over a decade ago, those idle moments while standing in line for coffee, or while waiting for the next bus to arrive, were just another fact of life. Now-a-days, cellphone makers such as Motorola™ have been using the term “*microboredom*” to describe the ever-smaller splinters of free time from which new cellular technology offers an escape.¹⁴ We now toggle iPhone™ apps, listen to an array of music, and play videogames to fill in the gaps; these are all forms of structured escape. These activities give us a shot of *dopamine*. Dopamine is an important neurotransmitter in the brain, it makes us feel exhilarated; it can also be addicting. In the absence of dopamine, people feel bored.¹⁵



Fig.2.3- multitasking

13. Richtel, Matt. “Attached to technology and paying a price.” *New York Times Online* (June 6, 2010), [http://www.nytimes.com/2010/06/07/technology/07brain.html?scp=5&sq=mental escape&st=cse](http://www.nytimes.com/2010/06/07/technology/07brain.html?scp=5&sq=mental%20escape&st=cse) (accessed 11/18/2010).

14. Johnson, Carolyn Y. “The joy of boredom,” *The Boston Globe*, March 9, 2008

15. Brown, 2010, p. 126 & 173

It is a myth that multitaskers are more productive. Often they are much less productive. A recent study¹⁶ by Microsoft™ research scientist Eric Horvitz confirms this. He found that workers at the Redmond-based software company took an average of 15 minutes to return to a task they had been working on after being interrupted by a phone call or text message. In addition, Gray Small, a psychiatrist at the University of California, has said multitaskers have trouble focusing and shutting out irrelevant information, and as a result they experience more stress. What is more is that the stress hormones which are released have shown to reduce short-term memory. Therefore the repercussions of this multitasking, while including cuts to productivity, creativity and deep thought, also have an effect on our short-term memory.¹⁷

Many people have taken this multimedia-based escape to the extreme. According to the American Medical Association an estimate of at least 10-15 percent of videogame players meet the criteria for overuse.¹⁸

Extremely dependent players have quit school, lost marriages and jobs, missed meals and neglected friends [...]. The most harrowing have been several news stories from Asia about players who have died after several days of gaming marathons where they haven't eaten or slept, and young children in the U.S. who have died due to neglect while their parents were busy game playing.¹⁹

16. Richtel, Matt. "Attached to technology and paying a price." *New York Times Online* (June 6, 2010). Available from [http://www.nytimes.com/2010/06/07/technology/07brain.html?scp=5&sq=mental escape&st=cse](http://www.nytimes.com/2010/06/07/technology/07brain.html?scp=5&sq=mental%20escape&st=cse) (accessed 11/18/2010).

17. Richtel, Matt. "Attached to technology and paying a price." *New York Times Online* (June 6, 2010). Available from [http://www.nytimes.com/2010/06/07/technology/07brain.html?scp=5&sq=mental escape&st=cse](http://www.nytimes.com/2010/06/07/technology/07brain.html?scp=5&sq=mental%20escape&st=cse) (accessed 11/18/2010).

18. Townsend, Edith. "Online video gaming: when virtual life takes over." *Moods Magazine* Spring (2010): 13

19. Townsend, Edith. "Online video gaming: when virtual life takes over." *Moods Magazine* Spring (2010): 13

DECLINING CREATIVITY

Now that many of us are completely *plugged-in* to a structured, technology-based form of escape, it is harder than ever for our society to *unplug*. Studies by Clifford Nass, a communications professor at Stanford, have shown that even after we have *unplugged* the lack of focus continues to persist.²⁰ These habits are beginning to re-wire our brains, having an adverse affect on our memory, patience, concentration, mental health, and perhaps most importantly, our creativity.²¹

According to Cal Tech's Jet Propulsion Laboratory (JPL), the United States' premier aerospace research facility for more than seven decades, innovations and creativity had been suffering within their company since the late nineties. Having successfully landed men on the moon, their employees were known to have exceptional problem-solving skills. No matter how big and ambitious the task, they would say "*we can do that.*" After these employees retired it became more and more difficult to replace them. New employees were saying "*that can't be done*" instead.²²

The fact is, there are many things out there which may not be very good for us; however, our inner weaknesses, or lack of self-disciplines, continue to give way to the stimulation provided by outside forces. Deirdre Barrett, author of *Supernormal Stimuli* (2010) and evolutionary psychologist at Harvard Medical School's Behavioural Medicine Program (2010), explains how we now have access to candy sweeter than any berry, meals larger than we should eat, and pornography more provocative than any-

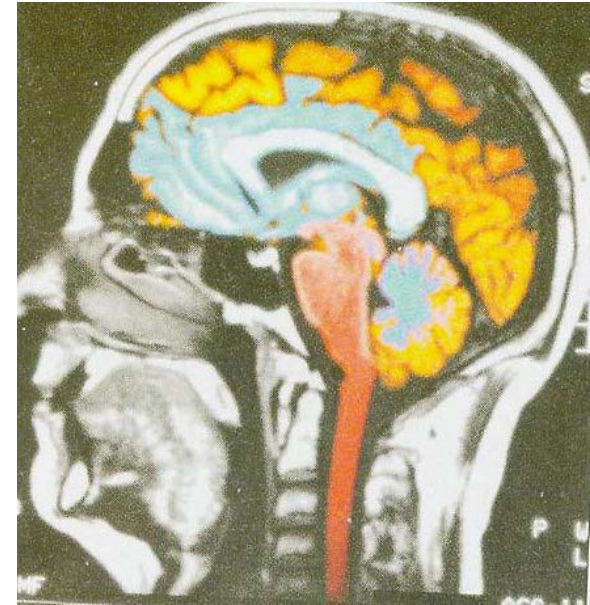


Fig.2.4- busy brain

20. Richtel, Matt. "Attached to technology and paying a price." *New York Times Online* (June 6, 2010). Available from [http://www.nytimes.com/2010/06/07/technology/07brain.html?scp=5&sq=mental escape&st=cse](http://www.nytimes.com/2010/06/07/technology/07brain.html?scp=5&sq=mental%20escape&st=cse) (accessed 11/18/2010).

21. Richtel, Matt. "Attached to technology and paying a price." *New York Times Online* (June 6, 2010). Available from [http://www.nytimes.com/2010/06/07/technology/07brain.html?scp=5&sq=mental escape&st=cse](http://www.nytimes.com/2010/06/07/technology/07brain.html?scp=5&sq=mental%20escape&st=cse) (accessed 11/18/2010).

22. Brown, 2010, p.9

thing real, and that gratifying the instincts for these can have often-dangerous results. Our unfettered instincts, if left unchecked, lead to hazardous excesses threatening to our civilization.²³

We are seeing the growth of disorders such as: attention deficit and hyperactivity disorder (ADHD), obesity, stress, nature deficit disorder, short-term memory loss, lack of patience and concentration, mental health disorders, and perhaps most importantly, a decline in creativity.²⁴

In the era of test-centric education reform and growing fear of liability, many districts considered recess a waste of potential academic time or too risky. [...] Between 1991 and 2003, the percentage of students who attended physical education class dropped from 42 percent to only 28 percent. [...] Ironically, the detachment of education from the physical world not only coincided with the dramatic rise in life-threatening childhood obesity but also with a growing body of evidence that links physical exercise and experience in nature to mental acuity and concentration.²⁵

In 2004, one of the first studies to link television-watching, a structured form of escape, to ADHD was published.

“Children’s Hospital and Regional Medical Center in Seattle maintains

23. Barrett, 2010

24. Louv, 2008, p.101

25. Louv, 2008, p.101

*that each hour of TV watched per day by preschoolers increases by 10 percent the likelihood that they will develop concentration problems and other symptoms of attention-deficit disorders by the age of seven.”*²⁶

Richard Louv, author of *Last Child in the Woods*²⁷, has found that a connection to nature has shown to decrease the effects of many of these disorders.²⁸

NATURE

Nature offers a way to escape. Nature is not created by man, it is the wilderness and it gives us free reign to engage in an unstructured form of escape; that of play and daydreaming. Edith Cobb, author of *The Ecology of Imagination in Childhood* (1993), maintains that the inventiveness and imagination of nearly all of the creative people she studied was rooted in their early experiences in nature.

It is our instinct to *escape*, and nature often plays a role. As New York City expanded, quadrupling in size between 1821 and 1855, many were drawn to the few existing open green-spaces that were available; most of these had been cemeteries. People needed these open spaces in order to break away from chaotic city life and clamour. Often not enough, it became apparent that citizens needed a public park in which to escape. Fredrick Law Olmstead and Calvert Vaux developed the *Greensward Plan* which became the winning design for Central Park. It is now a vast expanse of 3.41 square kilometres where people of all backgrounds and ages engage in countless ac-

26. Louv, 2008, p.102

27. Richard Louv, author of *Last Child in the Woods*, describes the benefits of a connection to nature. Essential to this thesis, Louv’s work describes how nature nurtures creativity, and aids in *natural play*. Natural play, a term coined by Louv, is play which comes naturally to us. Louv’s descriptions of natural play follow the definition of *play*, as described by Brown. It is a form of play-based escape. He describes that in today’s world of instant messaging, TV, and Nintendo, natural play seems to be a nearly forgotten artefact. Louv outlines numerous negative effects, which are due to a lack of connection to nature, such as ADHD, and a condition he calls *Nature-Deficit Disorder*. He then demonstrates the restorative effects of nature, which are proven through research. Interestingly, a number of the restorative effects were due to nature’s ability to encourage traits which resemble those that are required to experience play and daydreaming. It is unclear, however, whether it is our nostalgia that leads us to the restorative benefits, or if these benefits are present due to nature’s way of exciting our curiosity and playfulness. Louv’s work is critical in light of the current direction which our culture appears to be headed, and suggests that a connection to nature is needed to amend the detrimental effects caused by our separation from nature. Louv’s work has been significant in stimulating dialogues amongst educators, health professionals, parents, developers, and conservationists.

28. Louv, 2008



Fig.2.5- Central Park, New York, NY



Fig.2.6- urban sprawl in Markham, Ontario

tivities or just meander through while caught up in a daydream.²⁹

The flight to the suburbs, or urban sprawl, is another symptom of the yearning for an escape away from the city to get closer to nature. However, suburbs, far from being nature, are consuming areas which would most closely represent nature, thus actually eating away at the countryside we cherish.

Nature has many healing qualities. A connection to nature has been proven to improve human well-being.

Although studies remain sparse, various investigations have documented diverse psychological and health-related benefits of people`s contact with parks and open space, including relieved stress, increased peace of mind, enhanced coping, improved physical fitness, and greater creativity.³⁰

Since nature plays such a role in terms of our health and wellness, this thesis will use nature as a learning tool for planning and design to encourage intended spaces of escape.

This thesis will demonstrate why play, an unstructured form of escape, is the most beneficial method of escape. It will serve as a tool to aid in the design for a healthier human lifestyle and greater creativity. By using the lens of architecture and an understanding of nature`s ability to heal, a series of case studies will be investigated in order

29. Central Park: Wiki. Available from http://en.wikipedia.org/wiki/Central_Park (accessed 10/27/2010)

30. Kellert, 2005, p.13

to discover a method of achieving escape. Ten strategies will be identified. Their headings are: nature, complexity, dynamic, loose-parts theory, scale, the primitive, along a path, mystery, risk, and unmonitored feel. In order to develop a strategy of design, they are organised according to three human desires: a desire to explore the world around us, a desire for a dynamic stimulating environment, and the desire to be active and move our bodies. Once we understand why we desire these three things we can then understand how to develop a method of design that can incorporate the ten strategies, what to avoid, and what to strive for within our designs.

Chapter 1 will describe the method of escape which this thesis focuses on, that of *play*. Chapter 2 describes the conditional, dispositional and contextual environment necessary to activate a *play-based escape*. It is in this chapter that we learn about the processes necessary to engage in play, how nature plays a role in these processes, as well as the three desires we have which, once satisfied, aid in activating a play-based escape. Chapter 3 provides an analysis of the case studies which have consciously, or unconsciously, promoted play-based escape through designed spaces. Chapter 4 describes the design strategies according to the three desires, and Chapter 5 is an illustrated example of a designed space using the application of the synthesized strategy in order to promote an atmosphere of escape.

1. PLAY



Fig.3.1- play

Play is a process.¹ Seemingly pointless², it has been the means of our evolution and survival as a species. It shapes our brain, increases our intelligence and has made us more adaptable. Play lies at the heart of all innovation and creativity³. This chapter will define what is meant by the term *play*, and that *daydreaming* can also be considered as a form of play. This will be further confirmed by the discussion of seven defining properties of play; these are: apparent purposelessness, voluntary, inherent attraction, freedom from time, diminished consciousness of self, improvisational potential, and continuation desire.

Research by neuroscientist Jaak Panksepp⁴, and others⁵ confirms that play is a part of our instincts and aids us in our ability to adapt. It is even seen in animals. Similar processes of play inhibition are seen in animals, as well as in humans, as we progress throughout our lives. Society tends not to value play, and as a result we can develop a play-deficit; this deficit causes us to engage in a process called *rebound play*. The effects of a decreasing amount of play-based escape can also be seen through our societies declining creativity. This chapter argues that, due to play's significance in brain plasticity and creativity, we should choose to continue to engage in play-based escapes throughout our lives.

1. Brown, 2010, p.18-19

2. Brown, 2010, p.17

3. Brown, 2010, p.5

4. Brown, 2010

5. Steward Brown, David F. Bjorklund and Antony D. Pellegrini

Think back to when you were a child. Think of a memory where you were playing with a favourite toy. It is very likely that while playing with this toy you were completely absorbed by this activity and experiencing what Mihaly Csikszentmihalyi (2008) calls *flow*⁶. Consider this memory again; the game was never the same was it? Each time we played as a child, new and often pretend situations would arise causing the game to change. Essentially as children we were learning how to adapt. In a playful, safe, and fun setting we were testing ways in which we would react to new situations.

Similarly, when we daydream we often play out scenarios in our minds and test how we would react without any actual risk to ourselves. *Daydreaming*, also called *fantasy*, *fantasy play* or *mind-wandering*⁷, is considered as another form of a play-based escape. *Play* will henceforth include *daydreaming* when used in this thesis.

In his book, *Daydreaming*, Jerome L. Singer⁸ describes how the word daydream is used.

*Generally the word [daydreaming] is used to mean a shift of attention away from an ongoing physical or mental task or from a perceptual response to external stimulation towards a response to some internal stimulus. The inner processes usually considered are 'pictures in the mind's eye,' the unrolling of a sequence of events, memories, or creatively constructed images of future events of various degrees of probability of occurrence.*⁹

6. The concept of *play* is closely related to Mihaly Csikszentmihalyi's concept of *flow*. In his book entitled, *Flow, the Psychology of Optimal Experience*, he describes *flow* as "the state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it." *Flow* is often experienced while playing or daydreaming, however it is important to understand, that while very similar, their defining characteristics are not the same. Play can lead to flow; yet, flow does not necessarily lead to play. According to Csikszentmihalyi (2008), *flow* leads to happiness. It involves clear goals, concentration and focusing, loss of self-consciousness, a distorted sense of time, immediate feedback, personal control, balance between ability and challenge, and is intrinsically rewarding. Comparing this set of characteristics with Brown's characteristics that describe play and daydreaming, we are able to understand the differences between the concepts of *flow* and that of play.

7. Brown, 2010 & Pellegrini, 2009

8. Parents of the 1950's were warned not to let their children daydream for fear that the children would be more likely to gain mental disorders such as neurosis or psychosis. (Klinger, Eric (October 1987). *Psychology Today*.) Written in 1966, Jerome L. Singer's *Daydreaming*, contradicted the line of thinking of its time. The idea, that daydreaming causes mental disorders, is revealed as false by Singer, and that the opposite is actually true. Singer presents an exploration of *fantasy play*, using personal experience and self-experimentation, as well as Imaginal



Fig.3.2- daydreaming

While providing often delightful fleeting moments of escape from reality, daydreaming may also serve as a defensive function, similar to the fight-or-flight response to stress. Singer describes the daydream as “*one manifestation of the ability to attend to internally produced stimuli or to use those stimuli to construct a new stimulus source less monotonous or less threatening than some external stimulus patterns.*”¹⁰ According to Freud, who originally noted this defensive function, the daydream serves to allow an individual to avoid awareness of “*sexual fears or doubts through fantasied prowess in semi-disguised form.*”¹¹

What exactly is play? What is meant when we talk about play? According to Brown (2010), *play* is defined by seven properties: apparently purposeless, voluntary, inherent attraction, freedom from time, diminished consciousness of self, improvisational potential, and continuation desire.¹²

In some ways *escape*, especially through play, is not viewed in a positive light. One reason for this is that it is seen by many as an apparent waste of time. A *play-based escape* does not seem to possess any purpose. It is not done to bring about food or income, and *play* may be seen as an impractical retreat from the realities of everyday life. We of course now know the true purposes behind this kind of escape are integrated with developing the ability to adapt and increase our intelligence. We must still admit, however, that our escapes still appear to possess *no immediately apparent purpose*.

Play must also be *voluntary*; we cannot be forced or obligated into it. It simply cannot

Process Inventory questionnaire, formal experiments, and developmentally organized findings and theories. He suggests that, “[...] *daydreaming may itself create a new environment or stimulus field which feeds back alternative possibilities of response.*” (Singer, 1966, p. 97) Singer also states that, “[...] *much daydreaming occurs during music listening, it is also the case that when an extended daydream is touched off a good deal of the music is missed!*” (Singer, 1966, p.167) This statement suggests that we lose touch with reality when daydreaming. This work produced evidence and information about the act of daydreaming, that when compared with Brown’s definitions of play, the terms appear to contain the same characteristics. When referring to *play*, I refer to both *daydreaming* and *play* as defined by Brown’s definition. These are the forms of escape that incorporate acts of improvisation and adaptation, and when practiced, they lead to numerous health benefits, inventiveness, and intellect. Having been written over forty years ago, it is not surprising that there are assertions in Singer’s work that humans are the only beings that engage in daydreaming, or fantasy play. Current evidence as described by Bjorklund, Brown, and Pellegrini, suggests otherwise.

9. Singer, 1966, p.3
 10. Singer, 1966, p.139
 11. Singer, 1966, p.141
 12. Brown, 2010

occur under these circumstances. While involved in it, we experience a *diminished sense of self*. Worries about our appearance, intelligence, and skills subside; no longer are we conscious that we are thinking; we are experiencing what Csikszentmihalyi (2008) calls *flow*. We are finding pleasure and enjoyment in it. Play has *inherent attraction*; it provides psychological arousal, is exciting, and seems to cure boredom. While enjoying ourselves we also lose our sense of time. There becomes truth to the expression, “time flies when you are having fun!” as the experience provides a *freedom from time*.

Importantly, another property is that within play there is *improvisational potential*. We never really know what is going to happen when we play or daydream, but as new ideas, or instances come about, we incorporate them and react to them. We improvise. We thereby discover new behaviours, strategies, thoughts, and ideas. Play means being open to chance and not locking into a rigid method or routine while engaged in it. This property allows us to build upon ourselves, adapt, and develop.

Lastly, play provides a *continuation desire*. It is addictive. We gain pleasure from it, and our brains are stimulated, therefore we want to continue the experience. When it finally ends, we want to do it again.¹³

You may be asking yourself: Why play? You may have been thinking: but I participate in escape all the time; I read, I watch TV, I use video-games. Why is play more beneficial? Studies by two leading researchers, Jonathan Schooler and Jonathan Smallwood

13. Brown, 2010, p.17-18



Fig.3.3- we must be aware of the “Eureka moment“

(2005) of the University of California, Santa Barbara, have suggested that while engaged in these activities, those of games and pure diversion, we may not be conscious of our daydreaming or mind-wandering. In a study which involved reading passages from *War and Peace*, participants were asked to relate how many times they “zoned-out”¹⁴, and they would respond that on average about 2 or 3 times. However, when interrupted during intervals, 10 percent of the time they would admit to having been daydreaming, yet, until they were interrupted, they were unconscious that they were doing so.¹⁵

As discussed in this thesis, those who participate in daydreaming, or mind-wandering, have shown increased creativity. According to Schooler, in order to encourage this creative process we should go jogging or take a walk because relatively undemanding tasks seem to free the mind to wander productively. These undemanding tasks also allow us to be aware of the “Eureka moment” when it occurs. “*For creativity you need your mind to wander,*” Schooler says, “*but you also need to be able to notice that you’re mind-wandering and catch the idea when you have it.*”¹⁶

I would argue that we should engage in a play-based escape; however, by its very nature, we often cannot avoid doing so. Play is instinctive. Neuroscientist Jaak Panksepp has done numerous studies on play in rats and other animals. He has found that there must be an emotional linkage in order for play to occur. If this does not exist, then something other than play is occurring. In other words, Panksepp believes that play is initially activated in the brainstem, which then connects to, and activates the pleasur-

14. Tierney, John. “Discovering the virtues of a wandering mind.” *NYTimes Online*. (June 28, 2010). Available from http://www.nytimes.com/2010/06/29/science/29tier.html?_r=1&src=me&ref=general (accessed 10/27/2010).

15. Tierney, John. “Discovering the virtues of a wandering mind.” *NYTimes Online*. (June 28, 2010). Available from http://www.nytimes.com/2010/06/29/science/29tier.html?_r=1&src=me&ref=general (accessed 10/27/2010).

16. Tierney, John. “Discovering the virtues of a wandering mind.” *NYTimes Online*. (June 28, 2010). Available from http://www.nytimes.com/2010/06/29/science/29tier.html?_r=1&src=me&ref=general (accessed 10/27/2010).

able emotions experienced during the play process. The brainstem, or hypothalamus, is where our automatic actions – our instincts – are controlled; therefore, according to Panksepp, play-based escape can be considered instinctive.¹⁷

As we can see, the act of playing is built in and hardwired. It is a survival mechanism within the brainstem such as respiration, sleep, consciousness, and dreams. When reviewing Kurt Goldstein’s work, and Robert W. White’s concept of competence, Singer discusses that:

*The capacities for image formation and symbolization and for adopting an ‘attitude towards the possible,’ as Goldstein has put it, may well be a product of natural selection and are available for man’s development.*¹⁸

These capacities are seen to extend to the animal kingdom as well. Animals also engage in play. As mentioned, play is related to the concept of *flow*. Engrossed in the experience of the activity, consciousness of the surroundings and even the sense of *self* diminishes. For example, growing up on the farm there were always numerous farm cats, and every year, with farm cats came kittens. A batch of wild kittens, completely engrossed in play, can be seen to have completely forgotten their surroundings. This becomes most obvious when they are surprised. It was fun to see them run in the wrong direction after I surprised them. After a couple seconds they would realize their mistake and frantically attempt to correct themselves to run to safety under the chicken coop.

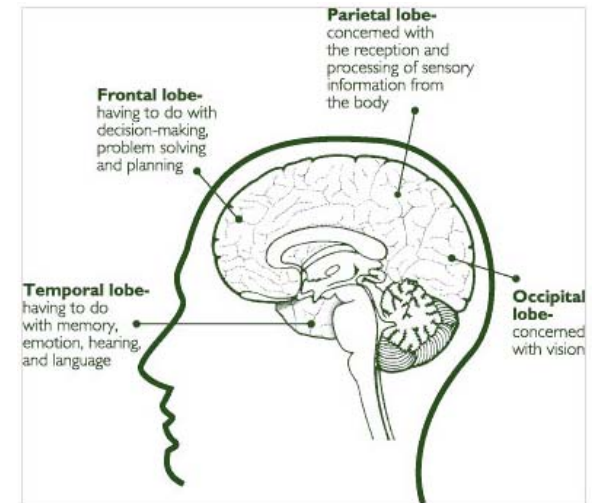


Fig.3.4- the brain

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17. Brown, 2010, p.61

18. Singer, 1966, p.146

19. The work of David F. Bjorklund and Anthony D. Pellegrini is relevant to our evolutionary and developmental history. Bjorklund is a professor of psychology at Florida Atlantic University and his research interests include children’s memory and strategy development, cognitive developmental primatology, and evolutionary developmental psychology. Pellegrini is an award winning Professor of Educational Psychology at the University of Minnesota. His research interests are generally based in children’s development, and include specific interests in children’s play, children’s sex segregation, social dominance, and aggression. Together they wrote *The Origins of Human Nature, Evolutionary Developmental Psychology* (2002). In this book, they apply the principle of natural selection to explain contemporary human development in order to define the field of evolutionary developmental psychology. Each discipline complements the other and thereby allows for a more in-depth look at gene-environment interactions, significance of individual differences, and the role of behaviour and development in evolution. It helps us understand how developmental processes may have influenced the course of human evolution. Prior to reading this work, specifically the chapter entitled “*Homo Lundens: The Importance of Play*”, I struggled with prior readings on fantasy play, or daydreaming. The works of Tuan (1998), Shepard (1998), Singer (1966) and numerous others claim that humans are



Fig.3.5- farm kittens

Play and fantasy in animals is controversial; however, as new studies continue to arise, this concept has gained acceptance. Not long ago this concept could only be whispered, as it was believed that what makes us human is our capacity for thoughts and fantasy. In the book *Origins of Human Nature*, Bjorklund and Pellegrini¹⁹ describe a study that found a captive chimpanzee signing to its toy dolls during play. Not only this, but young, wild chimpanzees were found to wash rocks, mimicking the elder chimpanzees who would wash potatoes before eating them. The process of play was allowing them to practice rituals for their survival. Were they playing *house*?²⁰

It is now accepted that all mammals engage in play²¹. As well as a positive link between brain-size and play among mammals, there is a correlation between the development of the brain's frontal cortex with the amount of play. The frontal cortex is the region of the brain responsible for most of what we call cognition, such as “*discriminating relevant from irrelevant information, monitoring and organizing our own thoughts and feelings, as well as planning for the future.*”²² This is to say, that while almost everything sculpts the brain, play seems to be a significant factor²³. The brain develops most efficiently during the early stages of life, however, continues to develop at a slower pace as we grow older. Play largely occurs, and is most beneficial therefore, in the juvenile stage of our development. As humans, we extend our juvenile period out longer than any other creature.

In the wild, leopard kittens play very similar to how domestic kittens play. As they grow older they play less. “*While engaged in play, animals are not finding food or*

animals that think, and that escape, including daydreaming, is what makes us *distinctly human*. The chapter entitled, “*Homo Londens: The Importance of Play*,” describes that play is ubiquitous in mammals and suggests that, while being vastly controversial, there is evidence that some animals also participate in *fantasy play*. Numerous significant studies are outlined discussing evidence of role-play and self-handicapping in non-humans, thereby substantiating my own observations. It is an important work for this reason.

20. Bjorklund, Pellegrini, 2003, p.298

21. Brown, 2010, p.34

22. Brown, 2010, p.34

23. Brown, 2010, p.34

shelter. *If adult animals do nothing but play, they won't be paying attention to their offspring, making them more vulnerable to predators.*"²⁴ The inherent drives of hunger and sleep are stronger than the drive to play, especially when survival is at risk.

Since we now know that the brain continues to develop throughout our lives, we can understand the importance of, often needed, play-based escapes as well. As we grow from infants to adults, numerous stages of play can be observed. However, similar to animals, we tend to distance ourselves from play as we grow older, inhibiting motor activity and eventually nearly abandon play completely.

Children play – it comes naturally to them. They take pleasure in the use of these capacities and gain a sense of competence. From some of the earliest stages of development this is evident as a child plays peek-a-boo games, “*delighted by the rise and fall of tension in the ‘now it’s here, now it isn’t, now I can bring it back’*” described by White.²⁵ The inclination to try other types of make-believe play is advanced by the sense of efficacy gained from the thrill of the capacity to hide and uncover his hand or rattle. This sense of control also helps the child learn to differentiate between his self and the environment.

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The earliest form of play is called *body-play*, also known as *movement-play*. According to Stuart Brown, it begins as early as while a developing child is still within in the womb. As soon as they are born, babies start waving their arms, and kicking their legs in apparent randomness. Soon they learn to walk, and then to crawl. “*They roll*



Fig.3.6- mother snow leopard, and her kittens at play

24. Brown, 2010, p.49

25. Singer, 1966, p.153



Fig.3.7- body-play



Fig.3.8- imaginative play

food around with their tongues, sucking it in and spitting it out, enjoying the process immensely. [...] These are not random movements – they are intrinsic behaviours that promote exploration and learning.”²⁶

Soon, forms of imaginative play take place and have been documented in children as young as two years of age.²⁷ As a child grows from an infant into early childhood, he learns to use common objects to represent more complex objects, such as using a book as a make-believe airplane, or a stick as a gun. However, as this child grows older, beyond the preschool age, having more realistic-appearing toys becomes infinitely more exciting. It would be interesting to know whether or not these realistic looking toys hinder any further imaginative development.

As the child plays during this time he combines overt motor activity such as running around, jumping, and mock shooting of laser-beams, with equally bold verbalizations, such as narrating play, and imitation sounds. As he grows older the verbal expressiveness and motor play become more elaborate and varied, reflecting an enhanced complexity.

By the ages of about ten to twelve gradually less and less play is verbalized and expressed in such a boisterous motor fashion. Many children feel the need to continue such activity; however, it now takes a social form, and often includes numerous toys and accessories. Solitary play becomes more silent and drawing sometimes becomes

26. Brown, 2010, p.84

27. Brown, 2010, p.86

a vehicle for play. The child continues to play, yet at this point will inhibit his motor activity and verbalizations. According to Werner's theory of sensory-tonic vicariousness, by inhibiting overt motor activity, a child may be "*sensitizing his brain for the apparent motion perception – one basis for the stuff of imagery.*"²⁸ When observing fantasy play in an older child we may only notice whispers of conversation or hushed imitation sounds. "*What seems to be happening is that the child [...] is finding a means for storage of the associational content in a form readily available on demand but not requiring public manifestations.*"²⁹ This tends to occur prior to social pressures for inhibition of overt motor play as evidenced by more elaborate fantasy play. As social pressures for internalization increase, this storage process becomes more essential. Tomkins proposes the idea of *miniaturizing* which is a process of informational compression for storage and internalization of fantasy play.

Though play is beneficial, youth often want to be treated as adults and they strive to break away from the confines and limitations that accompany being a child. As they grow older, teens begin to participate less in imaginative play. Their drives to be social and interact with peers arise, and they fear that they will appear childish among their peers if they engage in play. It is in this fashion that the fears of ridicule, as well as social pressures, work towards inhibiting play as children grow older. As responsibilities and schoolwork increase, play and daydreams must eventually take a backseat.

As adults, play is not approved of. "*[...] we are made to feel guilty for playing. We are told that it is unproductive, a waste of time, even sinful.*"³⁰ An eyebrow would

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28. Singer, 1966, p.149

29. Singer, 1966, p.149

30. Brown, 2010, p.6

certainly be lifted if a fellow colleague was caught playing *GI-Joe*TM with his coffee cups. To avoid any embarrassment of appearing juvenile we therefore engage in the more structured forms of escape, such as games. For example, organized sports, which have clearly defined rules that are widely accepted and not up for any embellishment or interpretation; they are rigid and competitive. “*We strive to always be productive, and if an activity doesn’t teach us a skill, make us money, or get on the boss’s good side then we feel we should not be doing it.*”³¹ Ultimately, the demands of daily life simply rob us of the ability to play. If we are not rich, or retired, we simply may not have time for play.³²

It is clear to see that as we progress through life we are first escaping from daily routine in order to engage in play, and as we grow older we slowly learn to internalize the process so that our actions are hidden and our voices are lowered. Eventually we nearly abandon this form of escape altogether.

It is now becoming more common for families to have two working parents. As each parent works full time they place their children in numerous organized sports, as well as other structured activities, or games, so that they are not left alone and can engage in social interactions with other children. However, according to Singer, “*Children will often show signs of a need to withdraw from a group in order to carry on fantasy activity or some form of solitary play.*”³³ The organized activities more common to a child’s life today preclude any privacy they may need in order for solitary play and fantasy development. Added to this, White and Schachtel discovered that the “*manifestations*

31. Brown, 2010, p.7

32. Brown, 2010, p.7

33. Singer, 1966, p.153

of creative play are most likely to appear under conditions in which biological drives are reasonably well satisfied and anxiety is kept to a minimal level.”³⁴ If the parents are over-worked and stressed they will have less ability to engage in, and encourage creative play with their children.

Michael Ungar, author of *Too Safe for Their Own Good* (2007), states that children now live in a world that is safer than ever before in history, and that, as parents, we must take care not to be too over-protective. It is much less common for children to play unsupervised. Even playgrounds now have been renovated or redone in order to provide a safer environment for children.³⁵ Scott Eberle, an intellectual historian of play, believes that most people go through a six-step process as they play. Not necessarily done in order, Eberle says that play involves: anticipation, surprise, pleasure, understanding, strength, and poise. The anticipation characteristic he mentions encompasses wonder, curiosity, anxiety, and importantly, a small amount of uncertainty and risk. If children are not reaching this step as they play, they can become bored, and may later engage in *rebound play*. Just as a sleep-deficit results in an extra need for sleep, play-deficit results in an extra need for play; this extra play is called *rebound play*.³⁶

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Rebound play can be disruptive at times, especially if it occurs when a child is meant to focus on a class discussion, or school-work. With enough play, the brain simply works better. Creativity and innovation are nourished by play-based escape. This has been a common process among our evolutionary history, however, more and more we



Fig.3.9- over-protective parents

34. Singer, 1966, p.153

35. Ungar, 2007, p.22

36. Brown, 2010, p.43








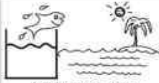

	Starting Shapes	Completed Drawing	
		More Creative	Less Creative
Use		 Mickey Mouse	 Chain
Combine		 King	 Face
Complete		 A fish on vacation	 Pot

Fig.3.10- example TTCT

are attempting to reduce daydreaming and play. Higher education has become so vastly important in our society that we spend all our efforts as children and young adults attempting to gain the highest grades. Daydreaming is often believed to distract us from these goals and is greatly discouraged as we grow up, even chemically reduced, using drugs such as Ritalin™. Children today hardly have any moments for play-based escape. We are beginning to see the repercussions.

Torrance scores are used to measure creativity. Torrance scores are gathered from Torrance Tests of Creative Thinking (TTCT) developed by Ellis Paul Torrance, an American psychologist, who built on the work of J.P. Guilford. The TTCT involves testing divergent thinking and other problem solving skills, and are scored on five scales: fluency, originality, abstractness of titles, resistance to premature closure, and elaboration.³⁷

Kyung Hee Kim at the College of William and Mary discovered that creativity scores are declining in the United States. Kim analyzed nearly 300,000 Torrance scores of children and adults and found that creativity scores had been steadily rising until 1990. However, after 1990 creativity scores consistently inched significantly downward. Noted by Kim, as the “most serious” decline, were the scores of younger children, from kindergarten through to sixth-grade.³⁸

A possible cause outlined by Kim, is the rise in the number of hours that children spend watching T.V. and playing videogames as opposed to being engaged in more

37. Bronson, Po and Ashley Merryman. “The Creativity Crisis.” *NY Times Online*, (July 2010). Available from <http://www.newsweek.com/2010/07/10/the-creativity-crisis.html> (accessed 19/02/2011)

38. Bronson, Po and Ashley Merryman. “The Creativity Crisis.” *NY Times Online*, (July 2010). Available from <http://www.newsweek.com/2010/07/10/the-creativity-crisis.html> (accessed 19/02/2011)

creative activities. Another cause may be the lack of encouraged creativity development within schools.³⁹

Referring back to the problems experienced by Cal Tech's Jet Propulsion Laboratory (JPL) due to a decline and lack of creativity within new employees, this company found a solution: *Play*.

They came to this conclusion after they noted the results found by a man named Nate Jones. Jones, a man who ran a machine shop specializing in precision racing and Formula One tires, noticed that many of his new employees were not able to problem-solve. Wondering what had changed, he questioned both his older employees along with his new employees. Jones found that "*those who had worked and played with their hands as they were growing up were able to 'see solutions' that those who hadn't worked with their hands could not.*" After writing an article about what he had found, it came to the attention of the Head of JPL. After JPL researched their own company and found similar patterns, they then began an attempt to hire a new group of professionals which have shown not just the highest grades, but continued evidence of play throughout their lives.⁴⁰

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The benefits of a play-based escape, such as productivity and creativity, demonstrate a need for continued play and daydreaming throughout life. Playing more in order to increase productivity may be a difficult concept for our current society to accept; however, this has shown to be the case. In order to grasp how to design an environment

39. Bronson, Po and Ashley Merryman. "The Creativity Crisis." *NY Times Online*, (July 2010). Available from <http://www.newsweek.com/2010/07/10/the-creativity-crisis.html> (accessed 19/02/2011)

40. Brown, 2010, p.9-10

that will encourage a play-based escape, the conditions and context necessary for this form of escape must first be understood.

2 . CONDITIONS & CONTEXT, NATURE & DESIRES



Fig.4.1- play conditions and context, nature and desires

Now that the properties that define play have been outlined, we must next be aware of the conditions and context necessary to engage in play. These conditions will aid in discovering how to design for a play-based escape. Investigating the works of Stuart Brown, Mihaly Csikszentmihalyi, Scott Eberle, and Anthony D. Pellegrini, this chapter will bring about an understanding of the atmosphere which must be present in order to play. After which, reviewing the work of numerous others, including Jay Appleton, Grant Hildebrand, Rachel and Stephen Kaplan, and Stephen Kellert, it will reveal the properties for designing with the human affinity for nature in mind, and why this may also help in creating the atmosphere for a play-based escape. Numerous similarities and overlaps exist between play and nature which demonstrate a complex interrelationship. Furthermore, this chapter describes three desires which we innately possess as human beings. These desires are linked to the concept of a play-based escape and will aid in understanding how to achieve a related design. These desires are those for: *exploration, body-play, and a dynamic environment.*

DESIRES FOR EXPLORATION

Stuart Brown defines play through six properties: seeming purposelessness, diminished sense of self, inherent attraction, freedom from time, improvisation potential, and continuation desire. Scott Eberle's work outlines that play is a process involving six steps. Eberle states this process involves: anticipation, surprise, pleasure, understanding, strength, and poise. These steps do not necessarily have to occur in order, yet, we must reach each step in order to experience play. Taking a closer look at each of these qualities gives us clues as to how we may facilitate this form of escape within design.¹

Anticipation is the curiosity and wonder that occur. During this step there can be a little anxiety due to uncertainty and to small amounts of risk involved. The risk cannot, however, be too great, or it overpowers the excitement. *Surprise* is the next step during the process. Anticipation often leads to surprise: a new discovery, the unexpected, a great idea, or a new perception. The surprise then produces *pleasure*, the great feeling one is overcome with. *Understanding* is then gained. New knowledge is incorporated, differing concepts are synthesized, and foreign ideas are acquired. This leads to *strength*; the empowerment that results from conquering scary situations unharmed, and the new mastery that is gained from constructive experience and understanding. Finally we reach *poise*. Poise is the sense of balance in life, a feeling of satisfaction, grace, and composure. Once we reach this final stage we then seek new sources of anticipation and begin all over again.²

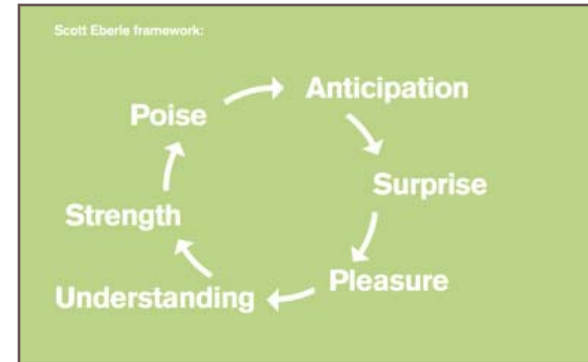


Fig.4.2- Eberle's six-step process

1. Brown, 2010, p.17-19

2. Brown, 2010, p.19

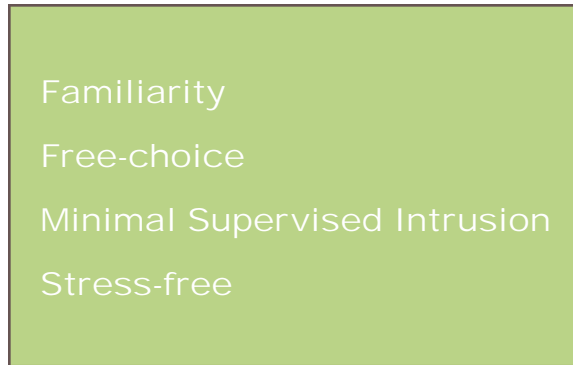


Fig.4.3- conditions/context of play

The benefits and necessity of this process are clear; we gain creativity, confidence, and improve both our physical and cognitive health, among numerous other benefits described in the preceding chapters.

While engaged in play we experience positive affect and a relatively low heart-rate. It is a form of practice, as opposed to an information gathering endeavour. However, before we can play, we must first explore and gather information. When we arrive in a novel context we seek to understand that context until it becomes familiar to us. We first ask ourselves questions such as, “What can *it* do?” Once we are satisfied, we start to play. We now ask, “What can *I* do with it?” This exploration is part of Eberle’s six-step process of play.³

Before we can play, our context must also include a limited set of preceding conditions; as discovered by Kenneth H. Rubin and his colleagues, Greta Fein and Brian Vandenberg⁴. Our contexts must include: familiarity, free-choice, minimal supervised intrusion, and be stress-free. A context can be familiar in terms of materials and people present; however, as discussed, even novel environments and objects can become familiar after exploration. Familiarity seems to go hand in hand with a stress-free context. For example, unfamiliar people, or strangers, can often cause anxiety which creates stress. Similarly, free-choice and minimal supervised intrusion go together; these conditions are the prerequisites for an individual to be intrinsically motivated. While these conditions were evaluated with child psychology in mind, they hold true for adults as well.

3. Pellegrini, 2009, p.17

4. Pellegrini, 2009, p.18

Through my experience as a child, I saw that a connection to nature effectively produced the context necessary for a play-based escape. Nature was both naturally familiar as well as stress relieving, and provided the freedom I required in order to play. Through the studies of various researchers, the following investigation will reveal the necessary interrelationship between nature and a play-based escape within architecture.

Stephen R. Kellert⁵ is an advocate for the connection between the natural and the human built environment. He believes in the concept of *biophilia*. Biophilia refers to humans' inherent affinity for the natural world. Therefore, an initiative that fosters a satisfying connection between people and nature in the built environment is called *biophilic design*. Biophilic design has two dimensions: *organic design* and *vernacular design*. According to Kellert, organic design, "*involves the use of shapes and forms in buildings and landscapes that directly, indirectly, or symbolically elicit people's inherent affinity for the natural environment.*" Vernacular design "*refers to buildings and landscapes that foster an attachment to place by connecting culture, history, and ecology within a geographic context.*" This connection to the places where people live is "*also a necessary condition of human well-being.*"⁶

Humans have aesthetic appreciations for numerous features within the natural environment. We enjoy bright and colourful blossoming plants, vast vistas, and water features of all kinds. Each of these have, over the course of our evolution, been the means of enhancing human sustenance and survival. The blossoms are the precursors



Fig.4.4- nature + play

5. Stephen R. Kellert's book, *Building for Life, Designing and Understanding the Human-Nature Connection*, adds to our understanding of the three outlined desires, those for body-play, exploration, and a dynamic environment. Kellert describes that our interaction with nature is crucial to human well-being and development. Kellert is familiar with Wohlwill's work, and even quotes Wohlwill's definition of nature, the "*vast domain of organic and inorganic matter that is not a product of human activity or intervention.*" (Kellert, 2005, p.11) Kellert amends this definition, however, to include "*any form of direct, indirect, or symbolic expression of the nonhuman world that is integral to peoples' lives.*" His amendment allows us to begin considering how to design with a symbolic connection to nature. Drawing on the work of numerous professionals such as Jay Appleton, Rachel and Stephen Kaplan, and Grant Hildebrand, Kellert explains biophilic design and its elements. Kellert describes the healing qualities of nature and its essentiality to human development, which bear a striking resemblance to writings on play and daydreaming. The elements of biophilic design assist us in understanding the three outlined desires, the satisfaction of which, aid in achieving a play-based escape.

6. Kellert, 2005, p.3-5



Fig.4.5- biophilic design

to fruits, berries and vegetables, the vistas allow us to see danger in the distance before it arrives, and the water is our life-blood.⁷

*Environmental psychologists Rachel and Stephen Kaplan have suggested that the physical and mental benefits of parks, gardens, and open spaces stem from four observed characteristics of these settings: “**coherence, complexity, mystery, and legibility.**” Coherence is the human capacity to recognize and discern order and organization in nature; complexity, the ability to identify and respond to diversity and variability in the natural world. Both tendencies can be related to such functional advantages as critical thinking, problem solving, and creativity. Mystery is the ability to examine and investigate the complexities and uncertainties of nature, while legibility reflects the human capacity to orient and navigate natural settings. Both attributes encourage people’s organizational, analytical, and imaginative capacities.⁸*

Geographer Jay Appleton (1975), author of *The Experience of Landscape*, provided a basis for the work of Kaplan and Kaplan, as well as for the work of Grant Hildebrand. The Kaplans, using their four characteristics, believed that people are attracted to buildings and landscapes that are “*rich in environmental complexity and mystery, and that offer frequent opportunities to wonder, imagine, explore, and discover.*”⁹ Furthermore, they believed that successful buildings are those that avoid confusion and feelings of chaos by incorporating elements of coherence and legibility, and enhancing

7. Kellert, 2005, p.15

8. Kellert, 2005, p.15

9. Kellert, 2005, p.148-150

a sense of orderliness and meaning. Grant Hildebrand goes further however, and emphasizes the effects of six paired elements that reflect the inherent human affinity for nature which are often encountered in evocative building and landscape designs. The pairings are: prospect and refuge, enticement and peril, and order and complexity.¹⁰

Prospect is a quality that reproduces allowance for the discernment of distant objects. It has been a part of our survival to be able to spot distant movements and activities, or potential threats, and to locate distant landmarks and resources. According to Hildebrand, prospect is achieved in buildings by providing extended views, spaciousness and openness, as well as plenty of light and brightness. *Refuge*, on the other hand, references the complementary human need for shelter and protection. Designs geared to a sense of warmth, comfort, and safety, with limited views, spatial circumspection, and intimately sized spaces achieve a sense of refuge.¹¹

Enticement reproduces the desire to “*explore, discover and expand one’s knowledge, a characteristic that has proven crucial to human adaptation and development.*”¹² In order to enhance our *exploratory drive*, in other words our *exploration desire*, Hildebrand suggests that designs should provide opportunities for exercising imagination and creativity through natural detail and diversity in order to stimulate inquisitiveness. Hildebrand’s pairings stem from our roots in nature, which also means that a connection to this nature will also stimulate inquisitiveness. *Peril*, the second property of this pairing, reproduces the desire for “*mystery, challenge, and even risk that simultaneously attract and repel.*”¹³ According to Hildebrand this can be achieved by the use of

10. Kellert, 2005, p.148-150

11. Kellert, 2005, p.148

12. Kellert, 2005, p.148

13. Kellert, 2005, p.148

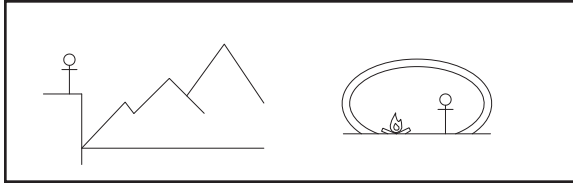


Fig.4.6- prospect - refuge

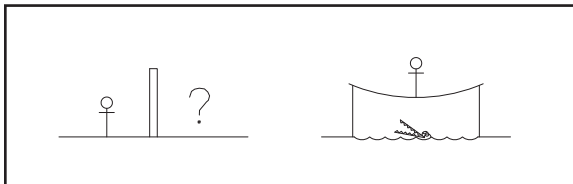


Fig.4.7- enticement - peril

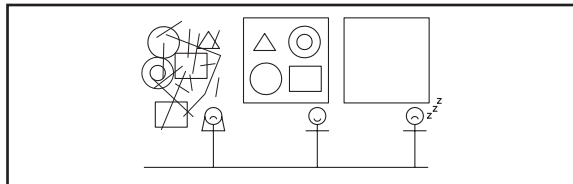


Fig.4.8- complexity - order

overhanging balconies, elevated passageways, obscured pathways, or heights. These features work to challenge, thrill, and excite us as well as providing a small amount of anxiety. Along with encouraging exploration, these features cause us to practice caution. They make us more aware of ourselves.

Complexity reproduces the human desire for “*detail, variety, and mystery, which throughout human evolution has enabled us to make difficult choices and to secure resources in response to the natural world.*”¹⁴ *Order* reflects our desire for organization, routine, structure, and pattern. Order without complexity produces monotony and boredom, complexity without order produces chaos and confusion. Hildebrand (1999) states that designs must therefore contain a *dynamic* relationship between both complexity and order.

The first pairing, prospect and refuge, relates to humankind’s drives for safety and sustenance; the second pairing, enticement and peril, relate to our exploratory drives, and the final pairing, complexity and order, responds to our drives to cure boredom and confusion, those for contentment and understanding. There are many overlapping qualities between these characteristics and those that are required to experience play. The second pairing, enticement and peril, is perhaps the most pertinent. This pairing relates directly to Eberle’s required steps, those of anticipation, surprise, pleasure, and understanding. Complexity and order relate most directly to the final step of poise, the contentment, satisfaction, and sense of balance that is achieved at that step. Prospect and refuge inform us of the spaces where we are most likely to prefer and feel relaxed,

14. Kellert, 2005, p.148

or stress-free, within.

Using the analogy of the human body, it is a system which requires not just one vitamin, hormone, or mineral in order to be complete or maintain a healthy life. It requires many, and many are interconnected with others. The body's systems all work together in numerous complex ways that we still have yet to fully understand. Similar to this, the same human body must relate to its environment in numerous complex ways. We need a connection to play and daydreaming in order to sustain cognitive health; we also need a connection to nature. As hundreds of people migrate from rural areas into urban centers our environment is becoming the *designed world*; it is the city, and the architecture. It is therefore necessary to provide a connection to play using evocative techniques, as well as nature, within our designs.

DESIRES FOR BODY-PLAY

In order to further understand play, and how to deploy techniques which encourage it within architecture, we must also understand the concept of *body-play*. Also called *movement-play*, body-play is the first form of play that any human being participates in.¹⁵

Movement is primal. Understanding and appreciating human movement allows us to understand ourselves, as well as play. It helps us structure our knowledge of the world around us, which includes space, time, and our relationships to others. "*Move-*



Fig.4.9- body-play

15. Brown, 2010, p.83

16. Brown, 2010, p.84

17. John Medina is a developmental molecular biologist and research consultant, as well as Affiliate Professor of Bioengineering at the University Of Washington School Of Medicine, and director at the Brain Center for Applied Learning Research at Seattle Pacific University. In his book, *Brain Rules*, Medina describes numerous known truths about the brain. He uses these *rules* as principles that allow us to understand how the brain works in order to live healthier and thrive. Exercise relates to our desires for body-play. Our bodies need exercise; we evolved walking as much as 12 miles per day. In today's world, on average, we do not walk half this amount per day. He states that "*Exercise gets blood to your brain, bringing it glucose for energy and oxygen to soak up the toxic electrons that are left over. It also stimulates the protein that keeps neurons connecting.*" Medina also describes that vision is our most dominant sense, and that we are powerful and natural explorers. These ideas are significant to this thesis, helping to understand desires for body-play as well as our exploratory desires. Rule # 4 states



Fig.4.10- vision plays a role

ment-play lights up the brain and fosters learning, innovation, flexibility, adaptability, and resilience. These central aspects of human nature require movement to be fully realized.”¹⁶ Body-play is universal. As we participate in it, synapses within our brains start firing and strengthening. If a person is having difficulty engaging in a state of play, the easiest way to get into this mindset is to start moving. How do we get adults to play? We trick them by using body-play.

For example, take a moment and try taping each of your fingers on a surface. Start by tapping your pinkie-finger, ring-finger, middle-finger, and then index-finger. Do this a few times until you form a rhythm. Now vary this. Start instead with your index-finger. When you have done that a few times, vary it again, perhaps making it more complex. Now, vary it once more. What you may have noticed by now is that you had, for a moment, been completely absorbed by your finger movements. You were absorbed in a form of body-, or movement-play. Your mind changed gear for a moment and any other thoughts you had seemed to melt away.

Vision is also influential in switching this mindset and engaging the brain. John Medina¹⁷ describes that vision trumps all other senses. It is the most dominant sense, taking up approximately half of our brain’s resources. When we remove visual cues, we force our brain to use circuits that are not normally engaged. The brain typically relies on a combination of information from our limbs, joints, and eyes to coordinate movements. If we were to close our eyes we force our brains to adapt. Instead of short circuiting to automatic movements, more senses are engaged in order to facilitate

that, “people don’t pay attention to boring things.” By describing attention, awareness, and the brain’s attentional *spotlight* with regards to multi-tasking, this concept compliments the work of Brown, Csikszentmihalyi, and others. The information within *Brain Rules* is by no means a complete record of all information on how the brain works, however, it attempts to highlight and simplify current knowledge within the field of Neuroscience. At the end of this work, Medina describes what he believes to be the greatest rule of all, which he is unable to prove or characterize: the importance of curiosity. Our curiosity relates to the first step in the process to achieving play, described by Eberle, that of *anticipation*. This anticipation, or curiosity, if allowed for within design, can then lead to the following steps required in the process of play.

balance and movement¹⁸. It is not to suggest that we walk around blind-folded; however, the regularity and regulations with which buildings are currently built largely maintains that most of our movements are automatic because we are visually cued to typical conditions. Think of a stair for example: we see a stair and we easily walk up it automatically. Raise just one step slightly out of the ordinary and, similar to a robot programmed to make efficient movements in order to climb a stair, we trip due to our automatic responses.

Combining the notions of body-play and the problem with regularity due to visual cues, it is not hard to understand how nature fits in. In nature the ground is uneven. Think of a mountain hike. We become aware of our bodies as we climb the uneven surfaces. We engage in body-play. When climbing a mountain we test footholds, whether using the balls of our feet or planting our heels, we soon learn how we must adapt and tackle the climb. Similarly, during the climb, regularity is eliminated, thereby eliminating the over-performed automatic responses. We become fully engaged in the moment and the experience. If we designed a space that removed regularity, (for example, imagine someone installed an uneven floor that you must cross in order to get to the lunch-room at an office) the automatic responses to typical visual cues would largely be diminished, as well as forcing visitors to connect with their bodies through their movement within the space. This causes their brains to make connections and improves brain plasticity.

These movements are also minor forms of exercise and even minor bits of exercise are



Fig.4.11- mountain hike

18. Medina, 2008, p.223-240

19. Medina, 2008, p.2-3

20. Medina, 2008, p.15

21. Environmental psychologist Joachim F. Wohlwill significantly contributed to the fields of environmental and behavioural psychology, as well as the areas of art and aesthetics, human-environment interaction, and concepts of development. His work, *Behavioural Response and Adaptation to Environmental Stimulation*, is very dense, outlining a number of studies, including research on the relationship between stimulus complexity and preference. He states that the preferred stimulus complexity tends to fall between the two extremes of this continuum. He also describes that experience, or familiarity, changes the degree to which an individual is able to structure stimulus input. This means that as an individual becomes more familiar with stimulus input, the more complexity the individual will prefer. He studied trained musicians in comparison with non-trained musicians, described here. Wohlwill thoroughly reviews varieties of hypo-and hyper-stimulation including deprivation of sensory stimulation, isolation, confinement, sensory overload, crowding, and *hyper-dynamic* conditions, as well as defin-

proven to boost brain-power. During our evolution, our brain developed while working out and while walking as much as 12 miles per day. In our sedentary lives, our brain still craves this experience¹⁹. Even those who fidget in their seats while reading this thesis are improving their brain power more than those who are calmly or lazily remaining still.²⁰

DESIRES FOR A DYNAMIC ENVIRONMENT

So far, the discussion has centered on our desires for *exploration* and *body-play*. Now, building on Hildebrand's complexity and order pairing, we must understand our desires for a *dynamic environment*. This pairing reflects our desire to cure boredom and confusion. With respect to play, we enjoy complexity due to all the details and variety that inspire our wonder. Our drive for order allows us to explore the complex details of our experience and to organize them until we understand them. In this process we experience all the steps described by Eberle, from anticipation through to poise; however, this is a cyclical process. Hildebrand would agree with the work of Joachim F. Wohlwill²¹ when he states that "*laboratory research on the relationship between stimulus complexity and preference has quite consistently shown that stimuli falling somewhere in between the two extremes of this continuum are most strongly preferred.*"²² The extremes he refers to are: extreme complexity, and a lack of complexity. Wohlwill also goes on to say that "*experience changes the degree to which the individual is able to structure the stimulus input, i.e., to extract the information with respect to patterning contained in it.*"²³ What this means is that the more familiar an

ing the dimensions of each. As the title suggests, he also describes forms of behavioural adaptation. This work is applicable to numerous areas of this thesis and compliments the other works described. The content helps to explain desires or appeals that humans inherently possess; namely our desires for exploration, dynamic environments, and body-play. Relating to desires for dynamic environments, Wohlwill describes the stresses that can occur during times of extreme complexity or lack of complexity. He also explains novelty, and the reasoning behind the common vacationer's phrase "*a nice place to visit, but I would not want to live there*". Human needs for body-play are confirmed by his studies regarding confinement (the restriction of movement). Lastly, Singer describes research on diversity, and the role of variation in stimulation. These act as counterparts in raising *affect*, and exploratory behaviour. The role of variation in stimulation also helps explain desires for dynamic environments.

22. Wohlwill, 1972, p.12

23. Wohlwill, 1972, p.14

individual becomes with a complex space, the more complex it will need to be in order to continue to be perceived as attractive. For example, Wohwill, and his colleague C. Simon, performed a study on musical preferences (1968).²⁴ In this study, regular individuals were compared to trained musicians with regards to their preferences of musical complexity. The trained musicians are more familiar with music and its structure, and when presented with music of varying complexity, are shown to prefer music of a higher complexity than the preferences of non-musicians, who are less familiar with musical complexity; the untrained individuals preferred the intermediately complex musical compositions.

We can therefore understand that as we bring order to the complexity around us, or perhaps even start to become experienced, or familiar with the complexity around us, we begin to seek more complexity. The complexity and order pairing is dynamic, and always in flux so that the process of play advances continually. It can be said, therefore, that we have desires for a *dynamic stimulating environment*.

These three concepts, the desires for: *exploration, body-play, and a dynamic environment*, can all work together to help us understand how to achieve an architectural atmosphere engendering a play-based escape. The next chapter will investigate a series of case studies which have attempted to encourage a connection to play, nature, or both, in their designs. It also explores what techniques the designers used in order to do so.

24. Simon, C. and Wohlwill, J.F. 1968. An experimental study of the role of expectation and variation in music. *J. Res. Mus. Educ.* 16:227-38.

3 . C A S E S T U D I E S

The following case studies engage in a connection with either *play*, *nature*, or both in their designs. The relevance of techniques used to accomplish this, either consciously, or unconsciously is investigated.

Two architectural firms, the Tezuka Architects, and Sou Fujimoto Architects are featured. Both firms show a sensitivity towards incorporating nature and encouraging play within their projects, and they do so in a variety of ways. The characteristics that each particular project focuses on will be explored.

In addition, four case studies which consider various scales, from that of the city, village, home, and interior installation are also investigated. Aldo Van Eyke's Playgrounds have been influential in demonstrating a need for play within cities all over the world. Village Homes has shown us that designing a community that has a connection to nature has the added benefit of creating seamless areas in which youth can play. Mitchell Joachim demonstrates the lengths we can take to connect with nature and sustainability, and local Edmonton architects demonstrate an awareness of the relation between play and creativity.

CASE STUDIES INTRODUCTION



Fig.5.1- the Tezukas

ABOUT THE ARCHITECTS

Takaharu, born 1964, and his wife Yui, born 1969, both come from backgrounds in architecture. Takaharu studied architecture at the Musashi Institute of Technology. Yui studied at the Bartlett School of Architecture, University College in London for a year, while Takaharu continued on to complete his Masters at the University of Pennsylvania. Takaharu graduated in 1990 before working for the Richard Rogers Partnership for four years. It was then, in 1994, that Takaharu and Yui Tezuka established *Tezuka Architects* in Tokyo. The firm has since won numerous awards, many in particular for the Fuji Kindergarten, including the Kids Design Gold prize in 2007.¹

IMPORTANT PROJECTS AND METHODS

The qualities of the Tezukas' designs are specially shaped by the identity, interests, and disposition of its inhabitants. They want to design architecture that opens possibilities rather than closing possibilities; an architecture that retains its qualities when furniture is changed or replaced. *"Like playing cards, the ideal is a game in which infinite possibilities are opened by simpler device. The simplicity of four suits, each with thirteen cards, produces an infinite number of games."*² Finding these devices is essential to their design ethos.

The designs are skilfully integrated with the outside environment and range from private houses to community buildings. In fact the Tezukas' most important projects operate on four very different scales, and programs.

TAKAHARU & YUI TEZUKA

1. Tezuka, 2006

2. Tezuka, 2006, p.301



Fig.5.2- exterior - summer



Fig.5.3- exterior - winter



Fig.5.4- interior - winter



Fig.5.5- interior - summer



Fig.5.6- exterior 1



Fig.5.7- exterior 2

MATSUNOYAMA NATURAL SCIENCE MUSEUM “KYORORO” is a dedicated facility for research in the field of natural science as well as providing for exhibition space for the general public. Kyororo is located in the mountains of Matsunoyama, a region of Japan known for its heavy winter snowfalls. Emphasis was placed on incorporating both the natural and climatic features of the site. This snake-like structure follows the pattern of the paths that surround the site and its pitched cross-section is inspired by the sheds that protect the local roads from the heavy snowfalls. At times this building is buried under 5 metres of snow. It has a total length of 160 metres including the tower and the width of interior spaces reflects the movement of people within it. Spaces within this tunnel world expand at angles where people may pause to engage in a view of nature, and contract in areas where visitors simply walk along. The outer shell is composed of welded corten-steel plates and in the winter its entire expanse has to resist snow loads of up to 2000 tons. Some of the windows are up to 75 millimetres thick allowing snow to pile up, revealing alluring cross-sections. These views are seasonal; the large cross-sections of snow are eventually replaced by views of Buna trees and terraces for rice cultivation.³

3. Tezuka, et. al., 2009, p.48-55

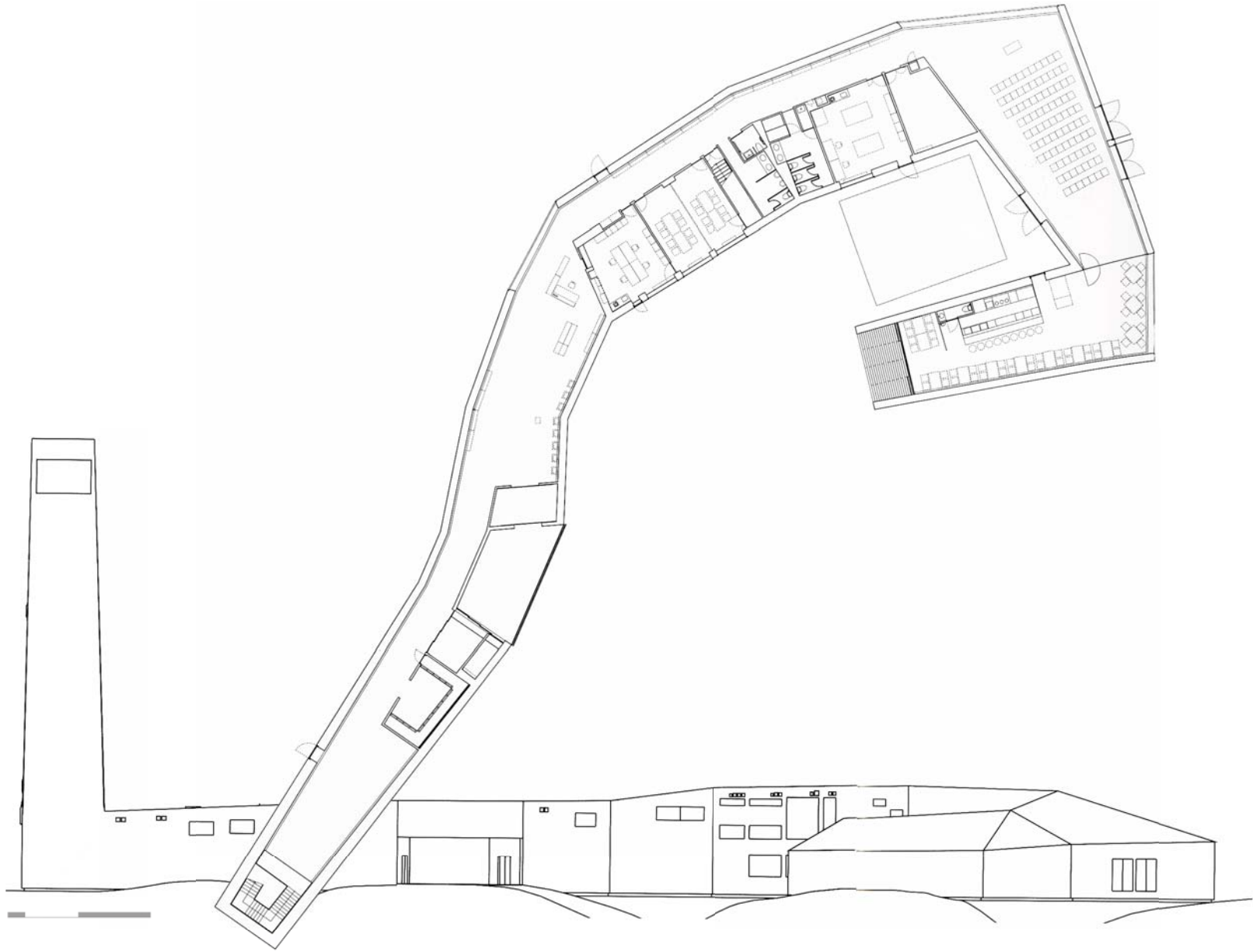


Fig.5.8- elevation
Fig.5.9- plan

RELEVANCE

Here the connection to nature is largely visual. Enormous windows reveal wide views of the surrounding landscape during the summer and unique cross-sections of snow over the winter, often many metres high. During the winter, this visual connection also offers a unique experience through the quality of light as it filters through the section of snow.

Organized along a path that weaves back and forth, contracting and expanding, the progression through the building provides a sense of mystery and suspense. The unique angles of the hallway seek to alter our experience in a playful manner. The light and views to nature are the carrots that draw us deeper into the building. The high pitched ceiling allows for an atypical experience as the heights change in differing spaces, catch the light in different ways, and slope down to meet the vistas.

Though the windows provide a complex floor-to-ceiling artwork of nature, the potential impact that nature can provide is merely on a visual level. This building's significance lies in the *hallway* experience; the hallway is a threshold between two spaces. In order to pass from one space to the next we pass through it. Using the hallway, or the *in-between* spaces, to direct connections to nature, visual or otherwise, is an important aspect of this building. The act of exploring the building seems to be voluntary to the individual; however, it has in fact been carefully manipulated. The distance between views, and the contrast of spaces are formulated to control the impact and timing of views.



Fig.5.10- ariel view



Fig.5.11- exterior 1



Fig.5.12- exterior 2



Fig.5.13- exterior 3

FUJI KINDERGARTEN, in Tokyo, Japan, takes the form of an oval-shaped roof-space with an outer circumference of about 183 metres. The roof-space is flat and able to be occupied, with a stair leading up to the space and a slide leading down from it into the center courtyard. Three existing Zelkova trees breach through the structure. Durable nets enclose the voids and form unique spaces adjacent to living trees in which to play. The Kindergarten houses about 560 children and all the architectural spaces are scaled to be suitable for the child. The school is one floor with ceiling heights at 2.1 metres creating a close relationship between the level of the floor and the level of the roof. The furniture within the building is of a size and weight that a child can carry; they help to subtly divide spaces as well as becoming building blocks during play.

The entire center courtyard can be viewed from anywhere in the building. The Kindergarten is described as “a treasure house of the joy that we have abandoned in modern times.”⁴ The Tezukas say that “*modern conveniences have deprived children of sensation,*” and that what they are attempting to teach through this building is a “*common sense*” that allows the building to still be relevant years into the future.⁵

4. Tezuka, et. al., 2009, p.38

5. Tezuka, et. al., 2009, p.38-47

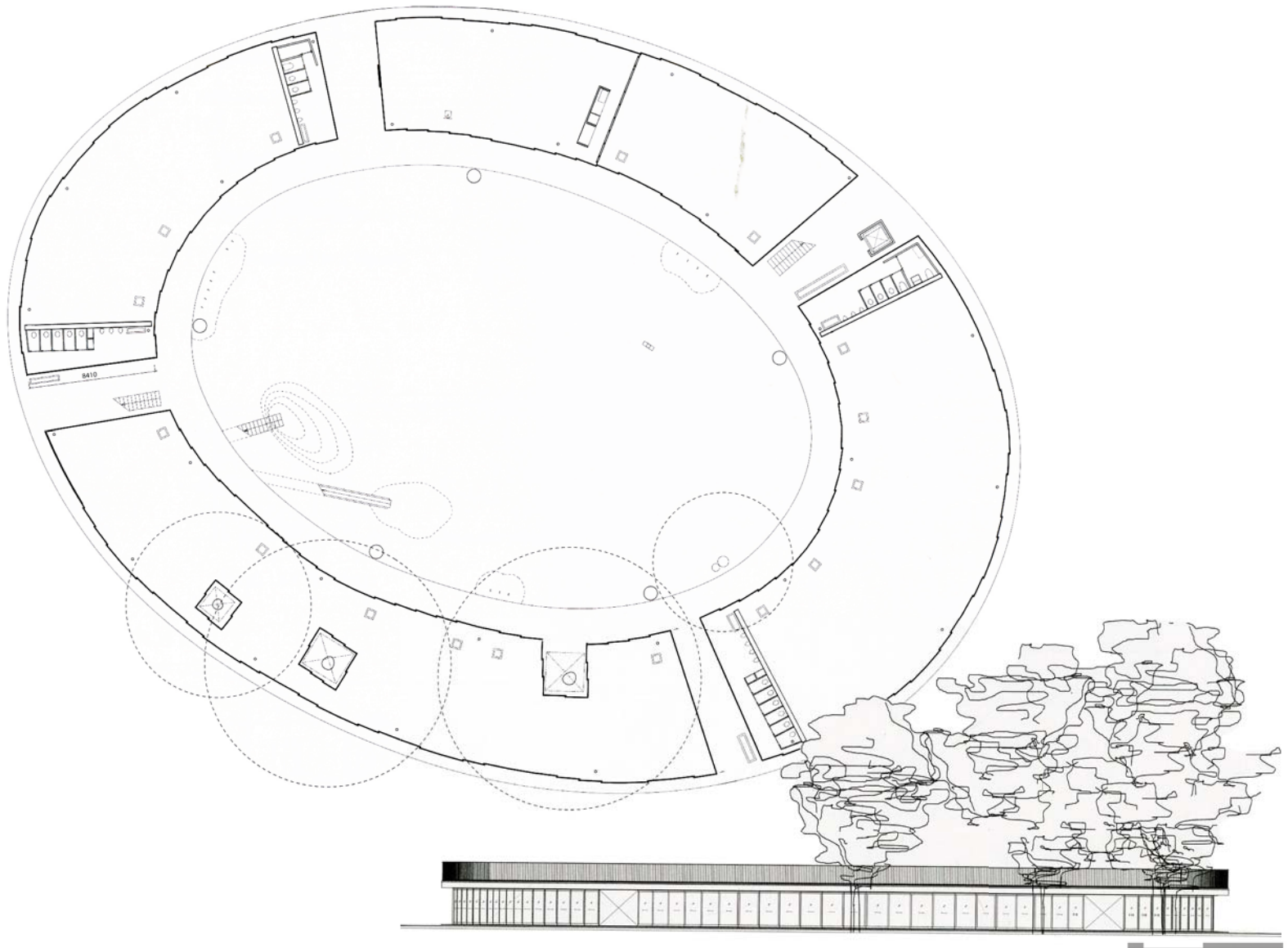


Fig.5.14- elevation
Fig.5.15- plan

RELEVANCE

This project is most significant because it uses architecture to combine nature directly with play. The trees grow up through the building, and rather than keeping a boundary such as a fence or window, a sturdy climbing net connects the roof plane with each tree. Children are able to climb in and sit on the net, as well as climb the trees. There is a sense of risk inherent in the design; it has been carefully included. Instead of protecting the trees from the children, and the children from the trees, the Tezukas wanted the children to learn through common sense. The way to do this was to engage them in direct experience with the trees and the unique spaces created by them. It is this connection to nature that will keep this building relevant well into the future. According to Kellert, “*We derive self-esteem from the ability to persevere in the face of adversity. [...] we cultivate the ability to cope with challenge, risk, and the unknown with strength and resolve.*”⁶

Occupying the roof space of a building is usually taboo in most instances; however, the children of this kindergarten are given free access adding the element of adventure, through imposing a controlled sense of risk.

6. Kellert, 2005, p.52



Fig.5.16- interior view



Fig.5.17- roof



Fig.5.18- exterior



Fig.5.19- skylight roof access

THE ROOF HOUSE, in Kanagawa, Japan, is a residence for a family, and daily life, similar to that of the Fuji Kindergarten, extends onto the rooftop on a much smaller, domestic scale. The rooftop boasts a kitchen, table and chairs, as well as a shower. A free-standing wall provides wind-protection as well as added privacy. Partitioned interior spaces below are organized along with eight skylights from which ladders provide access to the roof. The thin roof structure, timber columns, and structural plywood panels allow the partitioned space to be flexible and opens up to views of the nearby valley and Mount Kobo. The roof has a pitch of 1:10, which is identical to the original topography and still a comfortable enough slope to provide for a functional living space.⁷

7. Tezuka, et. al., 2009, p.76-81

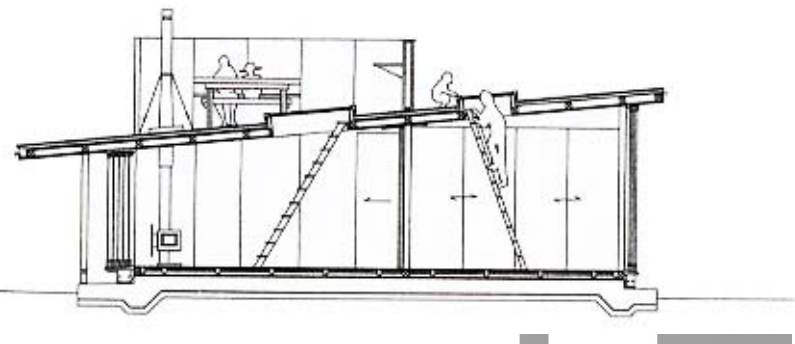
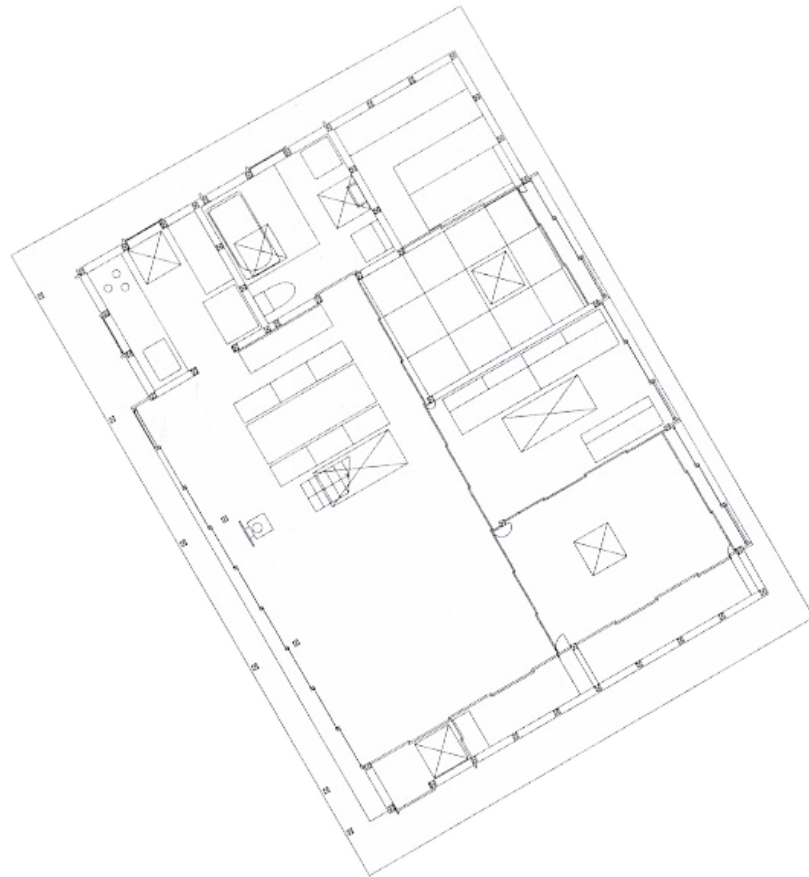


Fig.5.20- elevation
Fig.5.21- plan

RELEVANCE

The roof-space, which is a deliberate extension of the home, does not have access via a typical stair. All access to this rooftop is through skylights in the ceiling by use of ladders. Similar to the Fuji Kindergarten, the roof seems to be almost *taboo*, and thus gives the space an appeal. Unlike the Kindergarten, however, this roof does not have rails, furthering the element of risk, and thus the need for common-sense as well.

Daily life on the roof comes into direct contact with the forces of nature through the sun, rain, and winds. It opens up to the sky; a vast unlimited space. Though trees do not grow up through the structure inviting play, the slope of the roof keeps the inhabitant aware that this is somewhere different. The slight angle forces a consciousness of keeping one's balance; at times walking uphill, as well as downhill; this connection between the body, the mind, and the physical environment can be considered as a type of *body-play*.



Fig.5.22- view towards Woods of Net

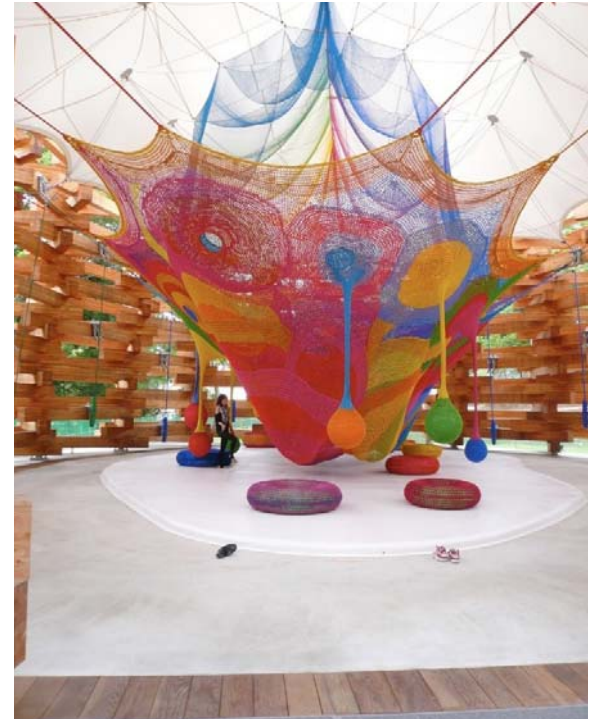


Fig.5.23- interior 1



Fig.5.24- interior 2



Fig.5.25- view through structure to outside



Fig.5.26- interior 3



Fig.5.27- exterior



Fig.5.28- During construction

WOODS OF NET, also in Kanagawa, Japan, is a permanent pavilion for the net artist, Toshiko Horiuchi Macadam. Entirely handmade, the artwork within is a net structure designed for children. They can interact with it by climbing, jumping, and swinging. Though the artwork had to be protected from rain and ultra-violet light, it was decided that the installation would be enjoyed more if built outdoors.

The structure that houses the artwork is composed entirely of wood timbers, and uses ancient joining techniques derived from old Japanese wooden temples in Nara and Kyoto which date back thousands of years. The space was designed to be as soft as the forest where the boundary between outside and inside disappears. Children play among the nets at the center and adults sit, and lay on the surrounding wooden structure.⁸

8. Tezuka, et. al., 2009, p.32-37

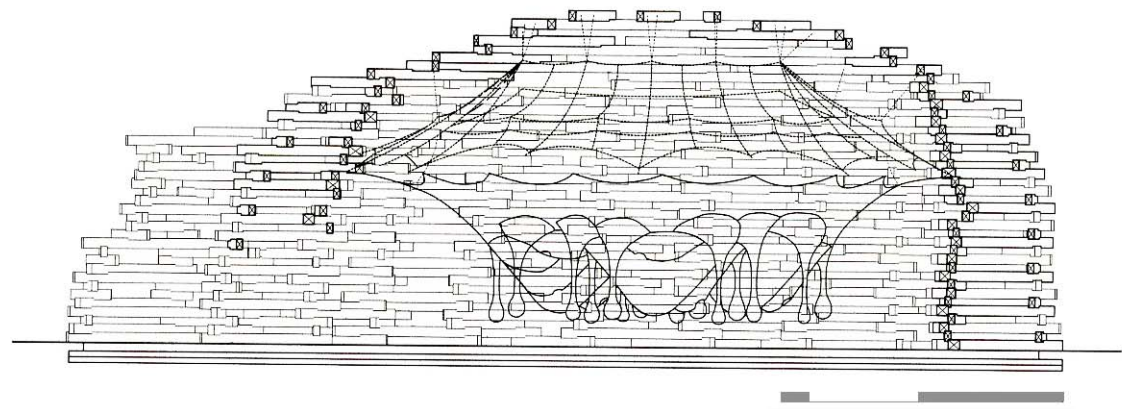
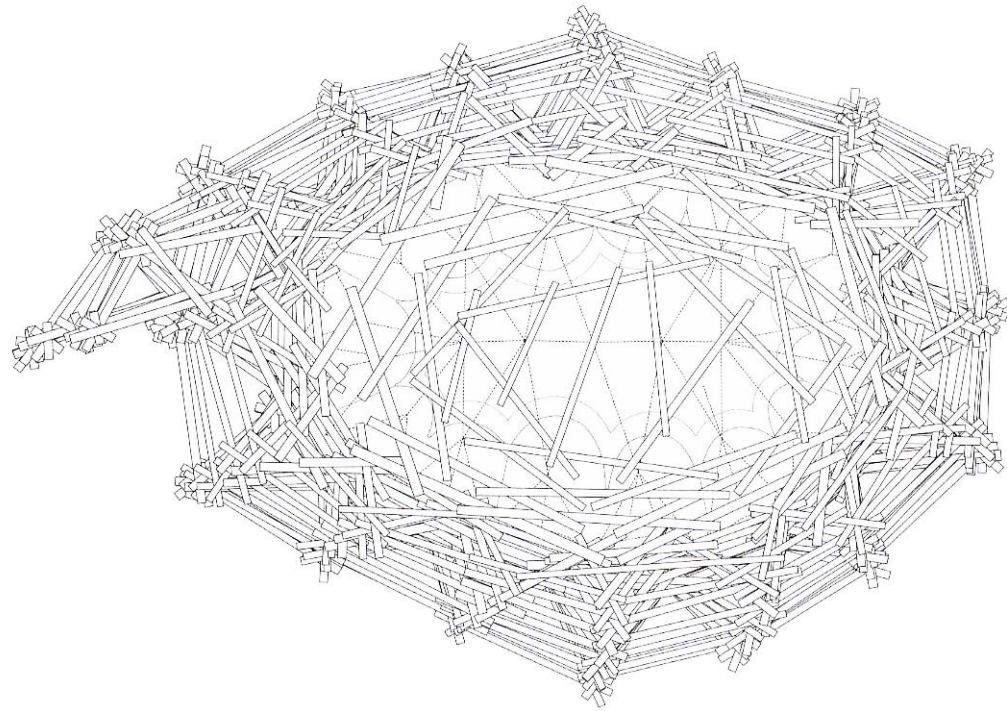


Fig. 5.29- elevation
Fig. 5.30- plan

RELEVANCE

The structure provides protection from UV light as well as rain, yet is open-air with permeable views to nature. Created for the play structure within it, the wooden form allows for individuals to interact with it as well, by providing places to sit or lie on. The net structure is, however, the center of focus, and acts to encourage play by the unique spaces, and variety of activities it inspires. Play exists within the limits of safety and danger, the balance between these is *risk*. The Woods of Net pavilion provides a balance between these limits.

The entrance to the pavilion juts out, this implies an entry point, yet also acts to obstruct the view of this entrance as one approaches the structure. The Tezukas therefore used elements of mystery to create curiosity and anticipation which subtly encourages visitors to investigate what is within the structure.



Fig.5.31- Sou Fujimoto

ABOUT THE ARCHITECT

Sou Fujimoto graduated from the University of Tokyo, Faculty of Engineering, Department of Architecture in 1994. He soon became a licensed architect in Japan, and in the year 2000 established his own practice in Tokyo called, Sou Fujimoto Architects. Fujimoto has since established himself as a lecturer at numerous institutions, such as the Tokyo University of Science (2001-present), Tokyo University (2004), Showa Woman's University (2004-present), and Kyoto University (2007-present). He has also given numerous lectures abroad and Sou Fujimoto Architects is now an award winning firm.⁹

IMPORTANT PROJECTS AND METHODS

I have chosen five of Sou Fujimoto's projects, all of which have a similar scale. Each demonstrates a different method used by Fujimoto. Over and over we will see a theme that directly relates to this thesis; that is the intention to create a primitive architecture, which Sou Fujimoto describes as architecture between nature and artifice. *The primitive* brings us closer to our instincts. He applies this theme in a way that encourages play, and imagination, and therefore allows for the development of creativity. Inhabitants are free to use the spaces as they please, and in any way they imagine possible.¹⁰

SOU FUJIMOTO

9. Fujimoto, et. al., 2009, p.128

10. Fujimoto, et. al., 2009

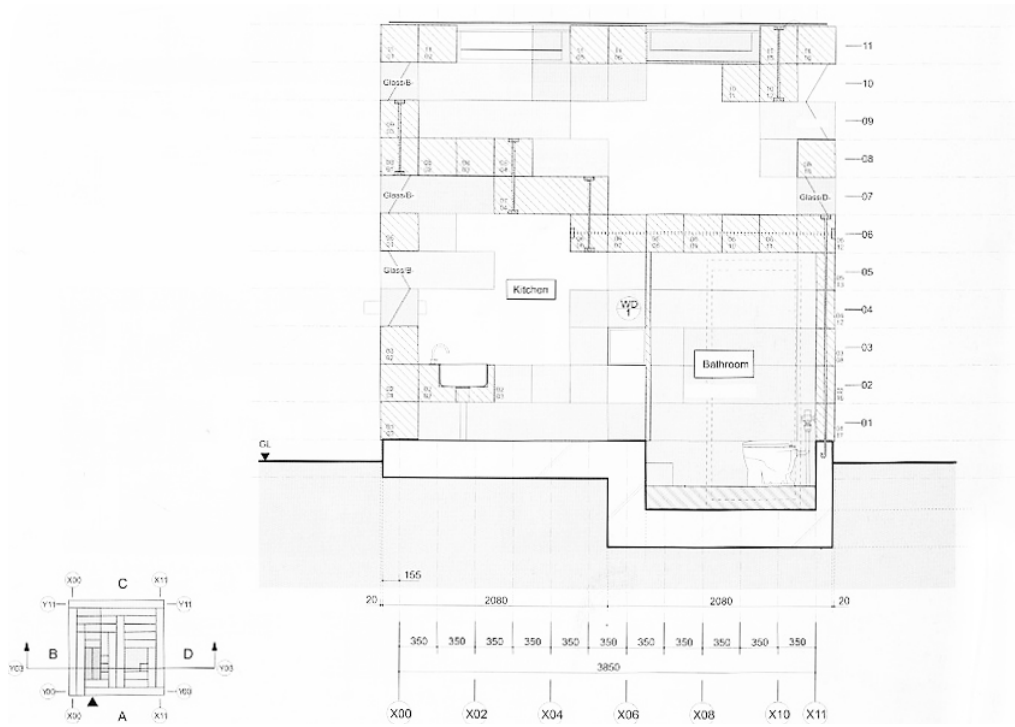


Fig.5.32- section 1



Fig.5.33- interior 1



Fig.5.34- interior 2



Fig.5.35- interior 3



Fig.5.36- interior 4



Fig.5.37- interior 5



Fig.5.38- section 1



Fig.5.39- interior 6

The **FINAL WOODEN HOUSE** located in Kumamoto is a small *primitive house*. Complete with a bathroom and kitchen, this bungalow is composed of versatile cedar wood units, each with a 350mm-square profile. Fujimoto has long been fascinated with the versatility of the 350mm square dimension, as it directly corresponds to the dimensions of the human body. As a result he has created an entire house using these increments. The wood, being equally versatile is used here as walls, roof, shelf, furniture, and floor, each melding into the other as one progresses through the space. The house is a place for humans and echoes a “*primordial existence*” before architecture.¹¹

11. Fujimoto, et. al., 2009, p.60

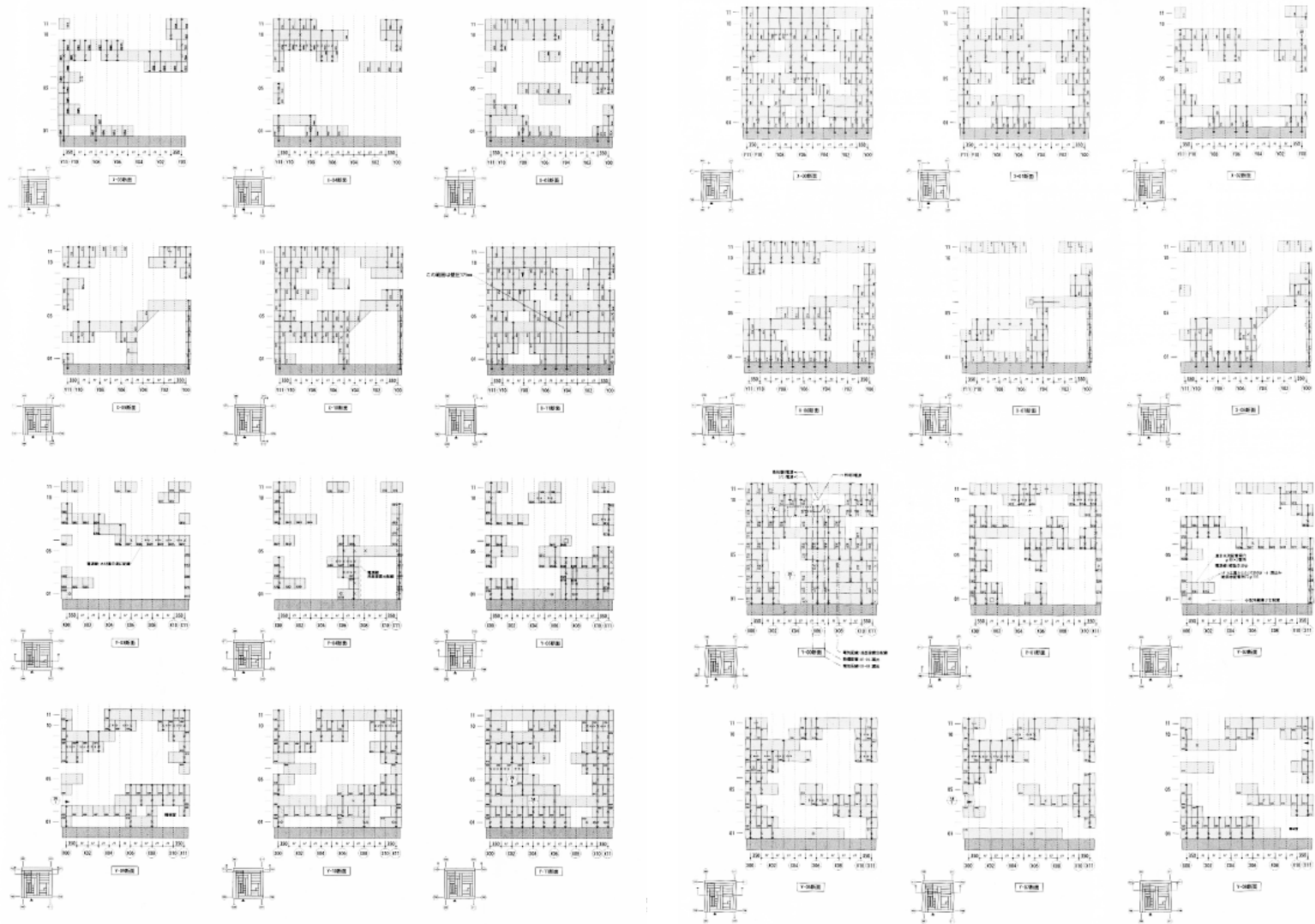


Fig.5.40- construction drawings

RELEVANCE

Fujimoto, using a different approach to scale, creates an architecture that is *cave-like*, as it is more about subtracting wood from the interior in order to create spaces which directly relate to human dimensions. Most importantly, however, as an individual moves throughout this house they must frequently twist, move, and bend, continually engaging in *body-play*. The spaces are versatile and can be used in a number of ways; the uses are naturally influenced by the different perceptions of space as the individual moves through it. It is not a traditional space, and as we move and perceive the spaces differently, it invites experimentation and *new* adventure.



Fig.5.41- exterior - day



Fig.5.42- interior 1



Fig.5.43- exterior - night



Fig.5.44- interior 2



Fig.5.45- interior 5



Fig.5.46- interior 4



Fig.5.47- exterior

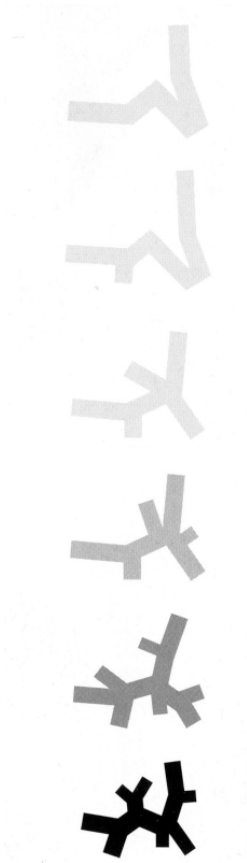


Fig.5.48- six developmental sketches

HOUSE O is intended as a weekend house for a Tokyo couple who plan to one day move in permanently. It is located in Chiba, Japan on a rocky stretch facing the Pacific Ocean with approaches sloping down to the water level. Designed as a continuous single room, it is imagined like a tree-branch, with each room an extension from the main branch with its own unique relation to the ocean. The house is similar to a foot-path along a coast; as the path winds along, panoramic views open up, and numerous comfortable nooks extend off various areas of the path. Again Sou Fujimoto intends the architecture to be primitive: “*somewhere between the natural and the manmade.*”¹²

12. Fujimoto, et. al., 2009, p.48

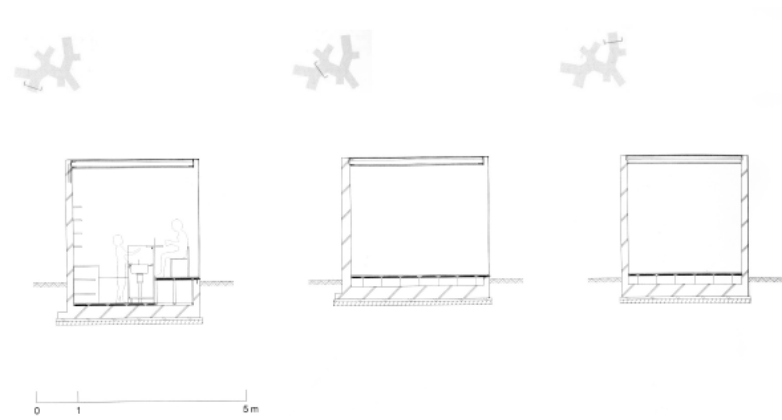
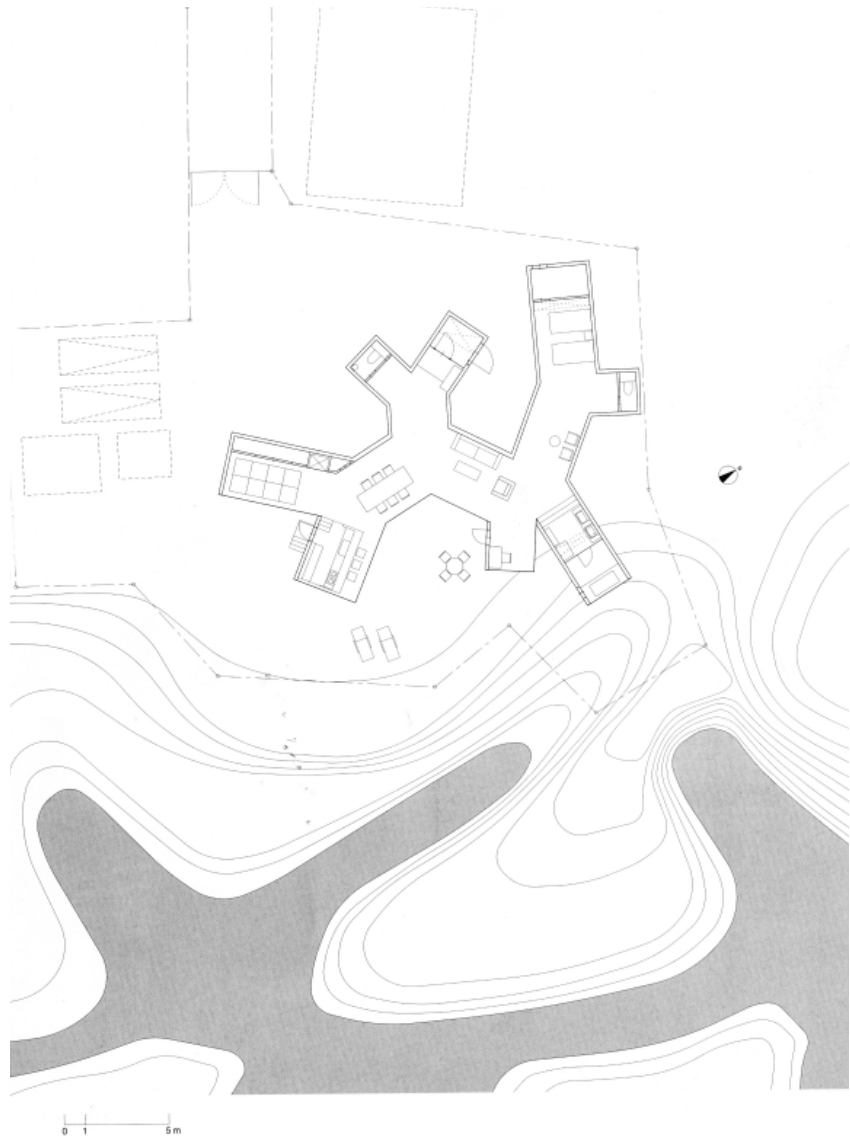


Fig.5.49- site plan
Fig.5.50- sections

RELEVANCE

This building, similar to the Tezukas' Matsunoyama Natural Science Museum, is designed as a *path*. The path-like circulation initiates elements of surprise and anticipation, suspense and mystery. Fujimoto employs these elements in the form of new rooms, and novel views gradually appearing along the *path* within the building. This *mystery* for what is down the path taps into our senses of wonder, a precursor for play. Floor to ceiling windows direct views to nature and each room is distinctive in its relation to the prospect.

This building mimics a situation found in nature, and visual links towards nature are calming and invite reverie. The angles used in the building direct views as well as hide views, such as those towards more private spaces. The building is reminiscent of a cave that has panoramic views to the ocean. With solid hard surfaces at its back and glazed façade towards the ocean, the building employs the appeal of both *prospect* and *refuge*, which are characteristics of biophilic design.

Though the views are alluring, the view from inside the building is not dissimilar to the view if standing outside; it is merely a continuation. This is beneficial on the one hand, however, does not offer enticement into the outdoors. The incentive to escape the daily routine in order to experience the impact of nature, albeit beautiful, is almost as average as any backyard experience. The Roof House is more successful in this particular aspect.



Fig.5.51- physical model view 1



Fig.5.52- physical model view 2

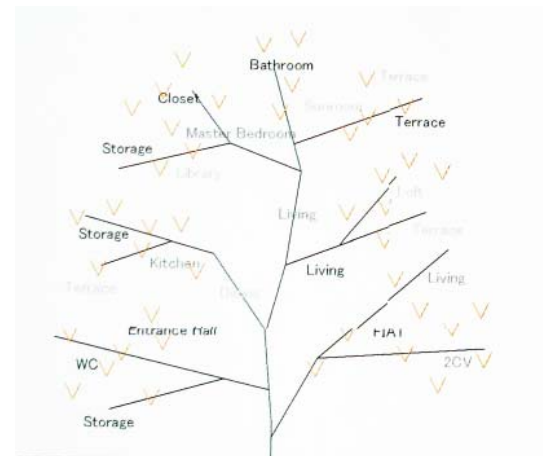


Fig.5.53- parti diagram



Fig.5.54- physical model view 3

HOUSE NA is designed for a two-person family in a dense residential district of Tokyo. Fujimoto describes a dense Tokyo district akin to being in an artificial forest, and that this house is an attempt to make a similar *super-artificial* forest on a human scale. The design of the house was therefore visualized by imagining a small forest where a few narrow trees are gathered; their branches supporting numerous free-floating platforms at different levels and relations to one-another. The platforms, rather than being at the scale of a floor-level, are more akin to the scale of furniture. Though small, the spaces still seem comfortable due to the continuity with surrounding spaces. The clients describe that “*dwelling feels like moving around the house discovering comfortable places from moment to moment.*”¹³

13. Fujimoto, et. al., 2009, p.44

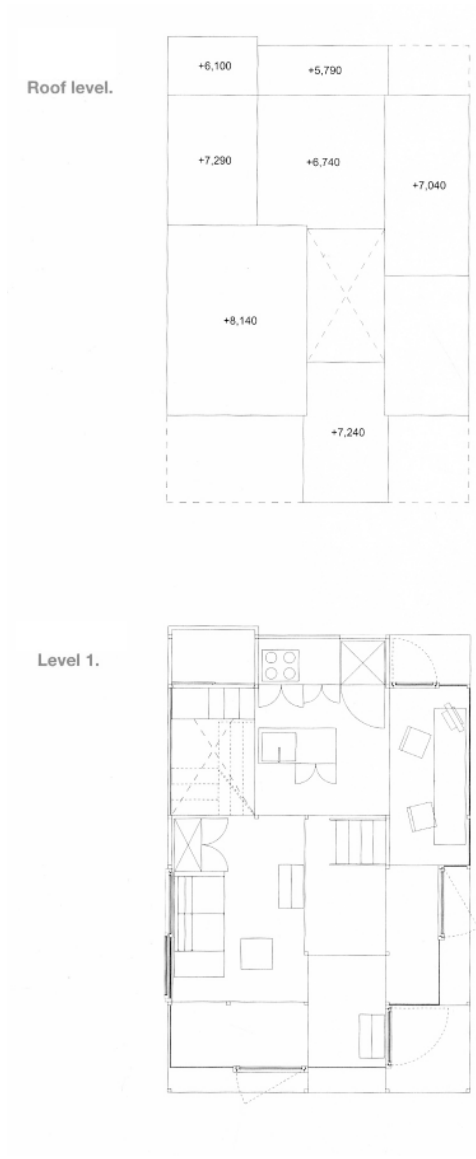
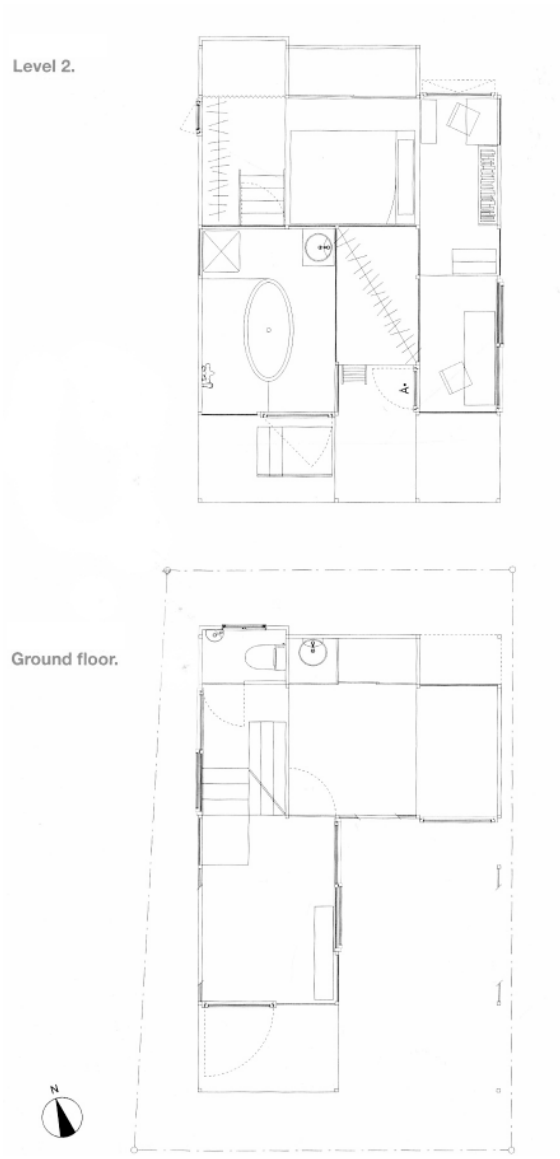


Fig.5.55- plans

RELEVANCE

Reminiscent of a tree, Fujimoto again attempts to mimic conditions found in nature with House NA. Although nature grows, and is forever changing, this building is significant due to its complexity. The many differing levels of the house offer, as described by the clients, numerous areas of varying, pleasant experiences. This act of *discovery* is an important step in the process of *play*.

The pitfall of the design is that as the clients become accustomed to their home, they will develop routines of living within it, and they will no longer gain the benefits of *discovery*. If this building somehow were to connect directly to real and ever-changing qualities of nature, this flaw would be mitigated.

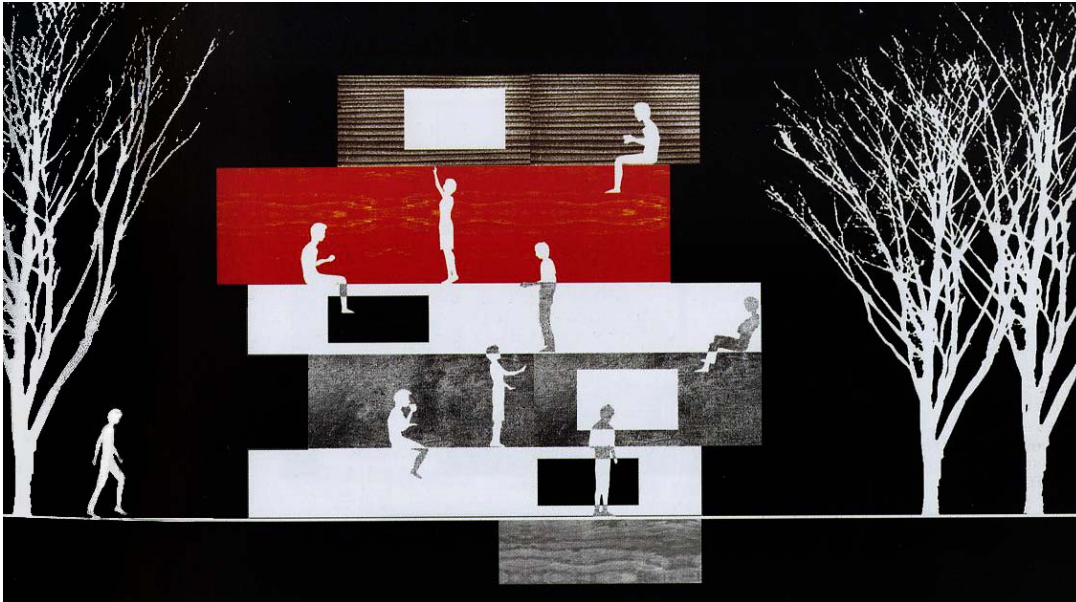


Fig.5.56- section 1

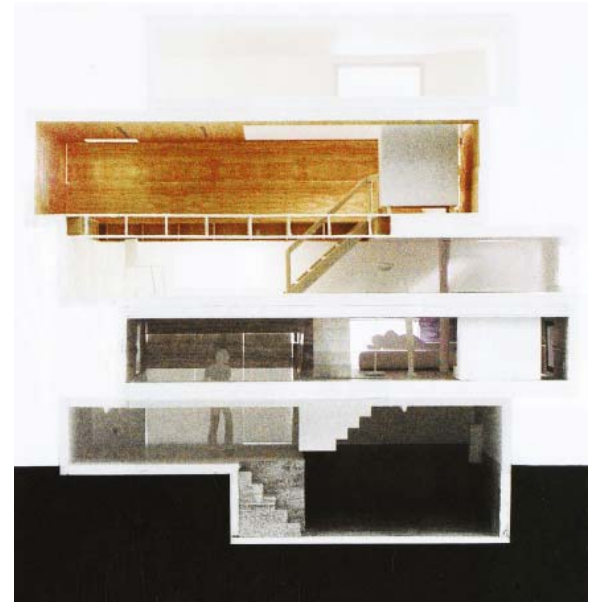


Fig.5.57- section 2



Fig.5.58- plans



Fig.5.59- physical model



Fig.5.60- section 3

Found among trees in the countryside of Hokkaido, **THE ATELIER HOUSE** is a living space built for an artist. The space consists of a warehouse, garage, living-room, atelier, and a bathroom. When Fujimoto designed the building his intention was to create a cave-like space rather than what he calls a “nest.” According to Fujimoto “*a nest is architecture, whereas a cave may be described as existing somewhere between the artificial and the natural.*”¹⁴ The building is comprised of five layers, each consisting of a different materiality, yet the building is not five storeys. Each layer is 1750mm high, and the layers only become a storey when they are combined. Therefore, *half plus half* is equal to greater than one ($\frac{1}{2} + \frac{1}{2} > 1$), meaning that the space created between the two layers becomes more rich and complex. Fujimoto states that a natural existence is sought in-between the layers where the body inhabits the space, that each space is re-organized depending on the location of the inhabitant. Fujimoto describes that this type of space therefore is closer to a landform than to what he calls architecture.¹⁵

RELEVANCE

This building’s design is similar to the cave-like approaches of some of Fujimoto’s other works; however, its significance lies in the thresholds between its layers. Its scale, instead of being incremented into 350 millimetre segments, is still related to the human scale, merely divided in half. Being in the *in-between* is therefore a balance between two conditions, not being completely separated from either. This acts to create complexity in a slightly different way than his other works. Similar to his other works, the downfall is its lack of connection to real nature.

14. Fujimoto, et. al., 2009, p.130

15. Fujimoto, et. al., 2009, p.24



Fig.5.61- section 1



Fig.5.62- section 2



Fig.5.64- courtyard 1



Fig.5.65- interior 1



Fig.5.63- trees and cubes



Fig.5.66- courtyard 2



Fig.5.67- exterior 1



Fig.5.68- courtyard 3

The **HOUSE BEFORE HOUSE**, located in Tochigi, was planned for 2-4 residents. It is created with a vision for the “*primitive future.*”¹⁶ This is to say that, while being new, it is simultaneously from the prehistoric age. Trees are planted in the tops of minimally sized boxes/rooms, and these are then stacked randomly on top of one another and connected by steps and ladders. The space generated is reminiscent of a small porous mountain or a naturally amassed village. The new form of the house induces a new pattern of exploratory inhabitation resembling that of a bird in a forest, or a child in a playground.¹⁷ This building negotiates between the indoors and the outdoors in one living space, challenging the traditional residence. Fujimoto hoped to:

*[...] liberate the seemingly commonplace yet precious totality of the act of living through the new form of this singular house, in such instances as: a tree growing right above your head; touching a tree rising from a few metres below your feet; crossing over onto a distant mountain/room by a stair-cum-bridge; or daydreaming on the mirador, an external space above a floating box/room.*¹⁸

Fujimoto considered that if people were to trace back to their origins, houses and cities would have been indistinguishable, the same as houses and forests would have been indistinguishable; therefore this building was an attempt to create a space that exists simultaneously as a city, house, and forest.¹⁹

16. Fujimoto, et. al., 2009, p.130-143

17. Fujimoto, et. al., 2009, p.17

18. Fujimoto, et. al., 2009, p.96

19. Fujimoto, et. al., 2009, p.96

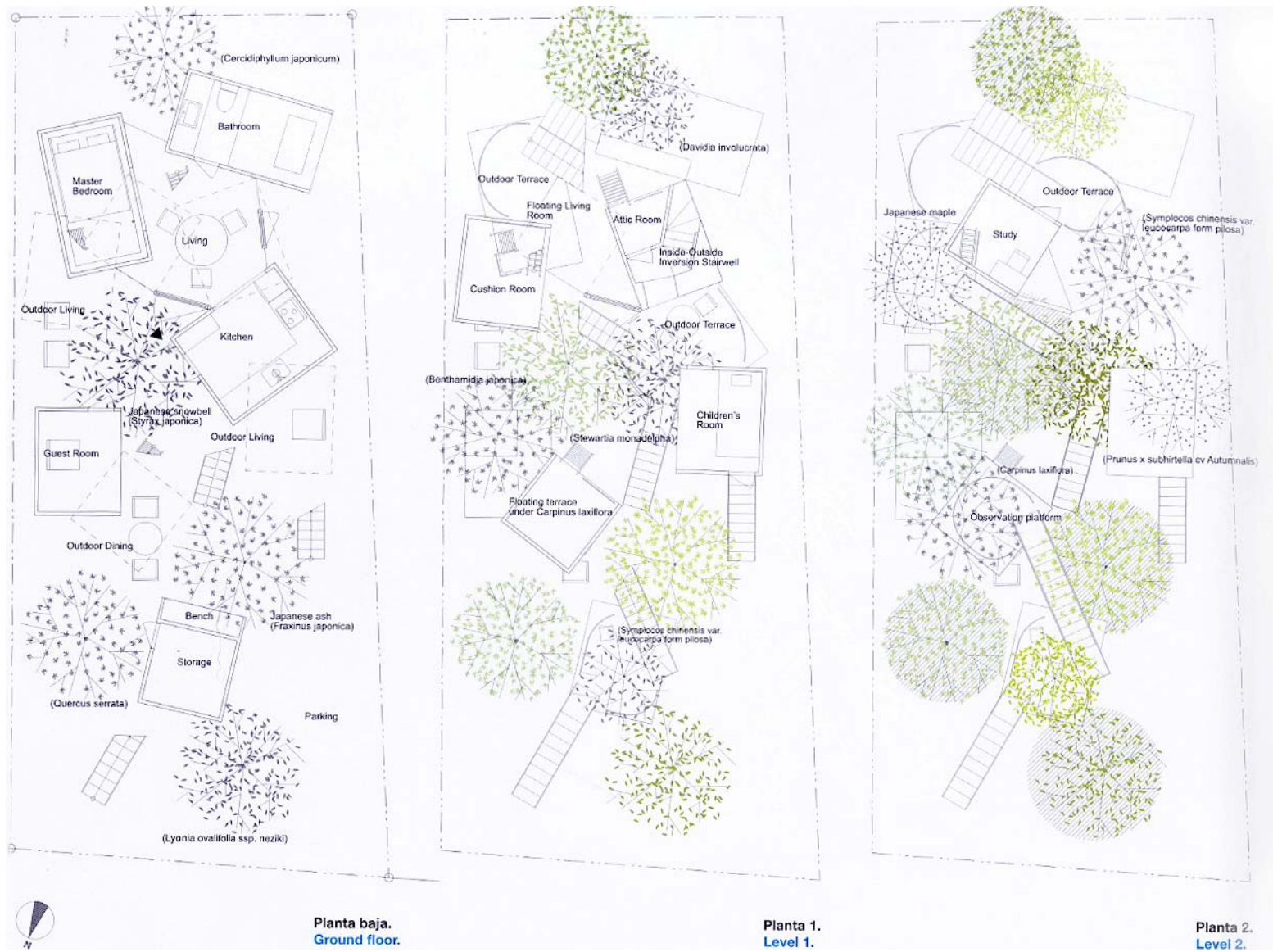


Fig.5.69- plans

RELEVANCE

This building introduces the impact of nature through its circulatory spaces. It uses the *in-between* to connect with nature. The trees change with the seasons, and the *in-between* spaces change with the weather. Being outside, the ground gently changes as dirt, or debris is blown within the space over time. The quality of changing complexities is therefore granted in this building by its connectedness with nature.

This building becomes a dynamic environment, visitors are able to see, feel, touch, smell, and hear nature all around them. The unique layout of forms and the unfolding of spaces, sounds, and smells create surprise and wonder. Visitors become engaged in *body-play* through the uneven ground, or low-slung tree-branch, of the surrounding nature. Added to this, the typical stair is replaced by ladders in some places, and seemingly purposeless places are provided as areas for daydreaming.



Fig.5.70- Zeedijk, Amsterdam - Centrum - before



Fig.5.71- Zeedijk, Amsterdam - Centrum - after



Fig.5.72- children playing



Fig.5.73- Buskenblaserstraat, Bos en Lommer, Amsterdam - Nieuwwest - before



Fig.5.74- Buskenblaserstraat, Bos en Lommer, Amsterdam - Nieuwwest - after



Fig.5.75- play structure



Fig.5.76- Aldo Van Eyck

Aldo Van Eyck lived from 1918-1999. His career, long and intensive, started in 1947 as a post-war designer of children's playgrounds for the Amsterdam City Council.

According to Simon Schama, a British art historian, *kinderspelen* or *children's play* was a ubiquitous motif within Dutch painting dating back to at least the sixteenth century. According to Schama, the absence of figures other than children within public spaces of the art-pieces was founded upon reality. Van Eyck's playground scheme demonstrated an inherent continuity with this phenomenon of Dutch culture. Van Eyck's work influenced other architects, including another Dutch architect Cor Van Eesteren. In fact, Van Eesteren revised the old functionalist 1934 Extension Plan for Amsterdam, which had not made any provisions for playgrounds. Adopting a Structuralist attitude, and as head of City Development for the city of Amsterdam, Van Eesteren allowed for "*small playgrounds for the little ones*" within his post-war projects.²⁰

ALDO VAN EYCK'S PLAYGROUNDS

20. Fuchs, 2002, p.37-41



Fig.5.77- Dijkstraat, Amsterdam - Centrum - before



Fig.5.78- Dijkstraat, Amsterdam - Centrum - after



Fig.5.79- Van Boetzelaer Straat, Amsterdam - Oudwest - before



Fig.5.80- Van Boetzelaer Straat, Amsterdam - Oudwest - after

Along with *kinderspelen*, Van Eyck believed that the site was significant in design; that the location is where the city is not viewed or consumed, but experienced. This idea of *experience* is evident in another of Aldo's key notions: that of the "*in-between*". "*It is there that your body – your hand or foot – will touch a building directly: threshold, doorjamb, and windowsill. You can only reach shelter, the interior, by passing through them.*"²¹ He coined many terms, among which was the distinction between "*space*" and "*place*." Simply put, "*place*" is the "*realm of the in-between*". The before-and-after pictures of Van Eyck's playgrounds demonstrate therefore, transformation of urban spaces into urban places.²² Though many no longer exist, Aldo Van Eyck's Playgrounds attempted to enliven the city through the experience of play in places of the *in-between*. His designs were simple and often composed of forms open to interpretation and imagination. Overall, his attempts were successful, and influenced cities the world over.

21. Eyck, 1999, p.11

22. Fuchs, 2002, p.25



Fig.5.81- common areas are designed to promote creative play in children

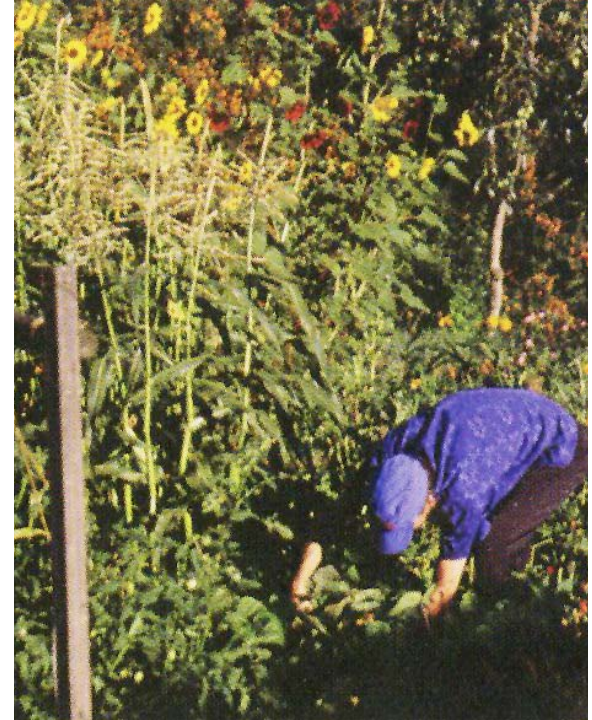


Fig.5.82- public gardens



Fig.5.83- section 1



Fig.5.84- pedestrian trails



Fig.5.85- Michael and Judy Corbett

Village Homes is a sustainable community development built in Davis, California during the mid-1970s. Designed and developed by husband and wife, Michael and Judy Corbett, who were not architects or landscape architects, it is said to be one of the most important examples of a sustainable community design in the United States. Consisting of 244 single- and multi-family residences as well as community buildings, it is built on 60 acres. It features open channel drainage, edible planting, passive solar design, and sustainable open spaces.²³

Homes are oriented north-south to harness the sun's energy. Street-widths are minimal and terminate in dead-end cul-de-sacs to minimize traffic and amount of pavement, and to increase community privacy. Pedestrian paths are placed behind homes rather than in front of them eliminating throughways making the community feel safer. Neighbourhood agriculture and gardens increase resident involvement and connection, as well as offer numerous opportunities for social contact. Residents of Village Homes typically have, on average, 42 friends, with 4 close friends living directly within the neighbourhood, compared to those from a standard community, who have an average of only 17 friends and an average of less than one close friend directly within their neighbourhood.²⁴

It is a design closer to nature, encouraging walking or bicycling. Pedestrian paths are given greater emphasis than the roads and it is possible to walk from one end of the

VILLAGE HOMES

23. Francis, 2003

24. Francis, 2003, p.54



Fig.5.86- plan 1

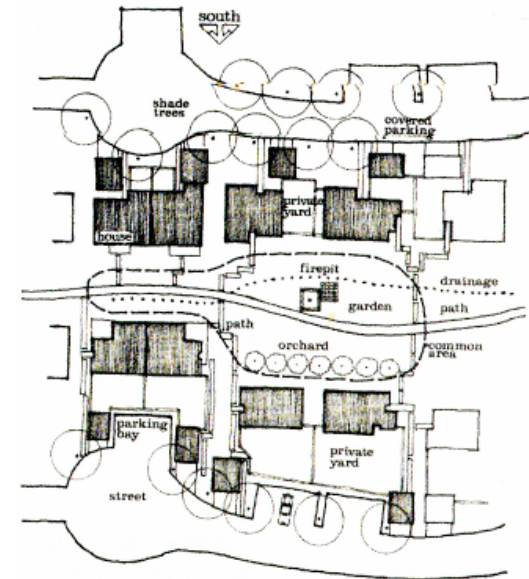


Fig.5.87- plan 2



Fig.5.88- street view

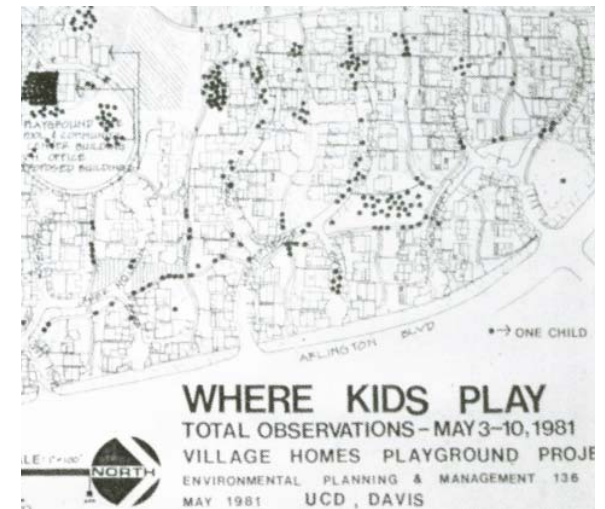


Fig.5.89- plan 3

development to the other without crossing a street. The greatest travel time is no more than five minutes. Common areas are designed to promote creative play by children and though the streets were not designed for this purpose, due to the minimal traffic, they have come to be used as a valued play-space for the neighbourhood children. Children have a sense of address, and feel safe in this neighbourhood. Harboring this feeling of safety allows for a successful context in which to play, and yet the idea of playing on a street still allows for a sense of risk. From a child's standpoint there seems to be a seamless transition between play-space, natural space, and street-space.

Like many pioneer designs, Village Homes does not lack problems. A main concern is that though it is a valued place to live, this has increased property values and as property turns over, more and more professionals come to live in the community which creates an absence of people around the community during the day. Village Homes' open spaces and paths, though utilized more than most communities, are at times seldom used. The harsh summers may be in part to blame; however, another factor may be the busy, "*highly structured and over-programmed*"²⁵ lives of residents and their children.

Issues include: architectural concerns such as lack of storage and a difficult-to-find front door due to the doors deliberately being placed at the side so as not to face the

25. Francis, 2003, p.67



Fig.5.90- aerial view

street, agricultural management due to proximity when fields need to be sprayed to control pests and disease, lack of parking, and sustainability of both community participation as well as the agricultural landscape.

The community as a whole is significant in providing connections to nature and neighbours. It provides a safer community that encourages interactions between neighbours and the environment. Children and adults spend more time outdoors and socializing within the neighbourhood. This project demonstrates willingness for, and participation in, nature and the community which is expected. Perhaps this mentality has a lot to do with Village Homes' success. If participation in play was *expected* by a community, it would be encouraged and occur more openly and frequently.



Fig.5.91- envisioned community



Fig.5.92- solar plan

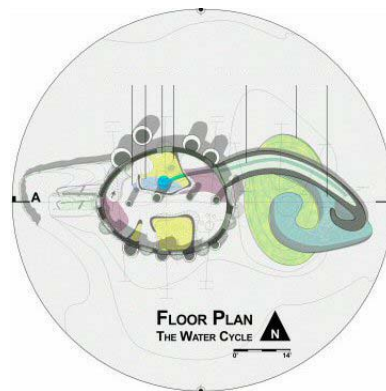


Fig.5.93- floor plan

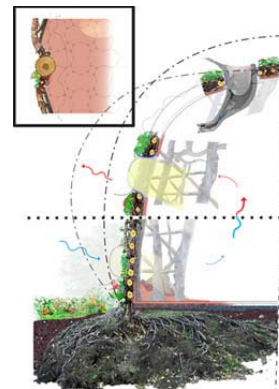


Fig.5.94- detail



Fig.5.95- pleached trees



Fig.5.96- Mitchell Joachim

Mitchell Joachim is a forward thinker in ecological design and urbanism. Among his many accomplishments he has won the History Channel and Infinity Excellence award for City of the Future, and Time Magazine best Invention of 2007, Compacted Car with MIT Smart Cities. He earned a Ph.D. at Massachusetts Institute of Technology, MAUD Harvard University, M.Arch. Columbia University and BPS SUNY at Buffalo with Honours. He is a Co-Founder at Terreform ONE and Terrefuge, and is currently an Associate Professor at NYU.

He and his colleagues²⁶ have imagined “*Nature’s Home*” in what is called the Fab Tree Hab. This living design is grown from native trees and grafted, or pleached, into its form using temporary scaffolds. Designed to be completely edible, the walls and gardens of this home are able to provide food for an organism throughout its life cycle. The Fab Tree Hab combines the essentials of passive solar heating, such as orientation, materiality, and proper shading, as well as maintaining a rain-water collection system, grey-water reuse, and filtration of human waste.²⁷

This design is a wonderful imagining of a sustainable building immediately connected to nature. Undoubtedly, however, a sensibility for play was not incorporated into the design; this is of course understandable as the intention is clearly to represent what is possible in terms of sustainability. What will encourage the inhabitants from within these structures to come outdoors other than the necessity of up-keeping the gardens?

MITCHELL JOACHIM’S FAB TREE HAB

26. Lara Greden, and Javier Arbona

27. Terreform ONE (Open Network Ecology) is a non-profit design group that promotes green design in cities.



Fig.5.97- exterior 1



Fig.5.98- model

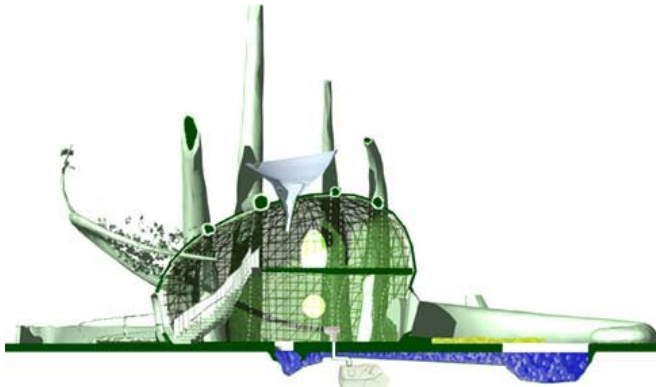


Fig.5.99- section



Fig.5.100- development and manipulation of trees to create form

As with Village Homes, those who come to live in structures such as this will have an inherent desire to garden, and live off the produce of the shelter. However, as their family grows, and their children go to school, our current culture of multi-media based escape likely will reign. Children will come home and use their computers, or immerse themselves in video-games; weeding the garden, while beneficial, will be seen as a chore rather than a desirable activity. They will, however, appreciate passive heating and water re-use, thereby understanding the power of nature's sun and rain, yet they will likely continue to engage in more structured forms of escape, such as pure diversion and games, as opposed to enjoying the benefits of play.

Such a unique design can surely offer opportunities to bend a building code, such as removing the guardrails to the entrance, or allowing the roof, or even the tree itself, to be occupied or utilized for play both by children and adults.



Fig.5.101- interior 1



Fig.5.102- rendered interior view



Fig.5.103- computer station



Fig.5.104- design station



Fig.5.105- display wall



Fig.5.106- Laura Plosz, Shafraaz Kaba, and Troy Smith

ART GALLERY OF ALBERTA, EXHIBIT JANUARY 31– NOVEMBER 28, 2010

On a much smaller scale, the Play on Architecture exhibit at the BMO World of Creativity is an example of comprehending the link between play and creativity. The exhibit is designed by local Edmonton architects Shafraaz Kaba, Laura Plosz, and Troy Smith and sponsored by Group 2 Architecture and Engineering and Manasc Isaac Architects.

The space features large building blocks that enable children to create their own 3-dimensional structures. Numerous work stations allow the children and adults to draw, trace, use building blocks, and to use technology to photograph and e-mail pictures home. The designers were intending to create an interactive and inviting space that allows children to use and expand their creativity, as well as to spawn interest in the field of architecture.

To help engage a child's interest in architecture, the exhibit uses the *loose-parts theory*, which builds on the idea that within any environment, the degree of inventiveness and creativity is proportional to the number of variables in it.²⁸

The set-backs of the design are that it fails to entice children into the space without the encouragement of adults. There could be many reasons for this, such as the lack of rec-

BMO WORLD OF CREATIVITY: PLAY ON ARCHITECTURE

28. Louv, 2008, p.87



Fig.5.107- entrance to exhibit



Fig.5.108- interior view 2

ognition as a children's space, or the uncertainty about interactivity given the appropriateness of behaviour within the rest of the gallery. To be considered as truly playing, an activity must be voluntary and have continuation desire. Children within the Warner Bros. Cartoon exhibit on an upper floor were giggling and engaged. Though not necessarily promoting creativity, it successfully enticed children with identifiable objects. It starkly contrasted the "Play on Architecture" exhibit which sat empty, until a parent brought her children in with her, showing them it was *OK* to play.

Nature is universally identifiable, and with regards to the loose-parts theory, nature provides the most varied environment. Even if symbolic nature was used or other identifiable objects or characters, this space could have become more inviting to children, thereby becoming more successful. To its credit, the space provided for this exhibit did not allow for any natural light, and was restricted in size.

The case studies demonstrate that a connection to both play and nature can be created within architecture. Each project reveals different attempts at accomplishing one or both of these connections, as well as the successes and failures of these attempts.

Nature flows through many of the designs discussed in this chapter, whether physically or symbolically, and has the potential to improve designs that it has not been incorporated in. We can also learn from nature's many qualities when designing to engender a play-based escape. Remembering context and conditions necessary for play, as well as our three key desires, those for: exploration, body-play and a dynamic environment, ten themes can be identified from the case studies discussed. These themes are: nature, complexity, the dynamic, loose-parts theory, scale, the primitive, along a path, mystery, risk, and an unmonitored feel.

The following chapter will expand on these themes and illustrate how each fit together with the three key desires that we inherently possess: desires for exploration, body-play, and a dynamic environment. These themes can be used as architectural strategies, or methods of design, which will engender play-based escape. Each strategy will aid us in satisfying these desires and will thereby assist in activating play-based escape.

CASE STUDY SUMMARY

4 . S T R A T E G Y

Three desires: desires for exploration, body-play and a dynamic environment, can all work together to help us achieve a play-based escape through the satisfaction of each. Ten strategies can aid in satisfying these desires: nature, complexity, the dynamic, loose-parts theory, scale, the primitive, along a path, mystery, risk, and an unmonitored feel. Using the previously investigated case studies, as well as accumulated research, the following will describe how each of the ten strategies relates to our intrinsic desires.

Due to nature's importance, each section will begin first with a focus on how nature satisfies each desire, followed by the factors which propose ways that we may attempt to learn through nature by evoking similar qualities through the artificial.

1-DESIRES FOR EXPLORATION

Exploration is an initial step in, and required during, the process of play. It often leads to the other steps in this process. As humans, we are intrinsically curious; we seek to understand the world around us. This curiosity sparks our desires for exploration. Exploration is a form of information gathering. Engaging in explorations help us to become more familiar with our environments, and feel more relaxed. We gain knowledge and understanding which we can use to adapt to situations. Also, once we gain the acquired information we need, we can then begin to apply it through practicing creativity.

The context for a play-based escape must include: familiarity, free choice, minimal supervised intrusion, and be stress-free.¹ Explorations increase our familiarity and decrease our stress; we also feel freer to engage in it if we do not feel supervised, and feel free to investigate as we choose.

1. Pellegrini, 2009, p.18

NATURE

Exploratory desires relate largely to Hildebrand's pairing of enticement and peril². *Nature* is able to provide both of these characteristics. Again, imagine a mountain hike and note how we experience the element of peril. We feel it when we become lost, as well as when we are caught in a storm. We are also enticed. The challenges, mystery, beauty, and the experience of nature work towards creating the experience of this element. From a young age, when a child goes into the wilderness to play, often they build hide-outs, climb tall trees, balance on fallen ones, or even walk over a frozen slough tempting the ice to crack. They begin to organize found spaces as well as find challenging and risky adventures that provide hours, and perhaps even years of enjoyment. Nature provides countless opportunities for these risks and adventures.

MYSTERY

We can attempt to artificially create the sense of *mystery*. Mystery sparks our curiosity and our exploration soon follows. Mystery often does this through *anticipation*; *anticipation* is the first of Eberle's steps during the process of play.³ Creating *anticipation* using architectural tactics, we can construct walls that curve out of sight, views that are revealed and then hidden again, and peek-a-boo upper levels or feature areas that give a small taste of what you might see next. These tactics are largely applied by numerous architects because they are successful in creating appeal for the spaces and piquing our curiosity.

2. Kellert, 2005, p.148-150

3. Brown, 2010, p.19

Mystery can also be created through the careful use of the *taboo*. We can create spaces which are not allowed to be occupied; alternatively we can create spaces which were previously not able to be occupied and now give leave to opportunity.

Ruins appear incomplete, and the mystery of what could have once been is alluring and creates wonder. The seemingly random and haphazard incompleteness coupled with an overgrowth of nature give ruins their mysterious qualities. Some built portions are missing, some are submerged beneath water or soil, and other portions are hidden from view or covered with vegetation. As designers we can attempt to mimic *ruins* in order to ignite exploration, and therefore a play-based escape.

Risk

As previously mentioned, an important step in the process of play is that of *anticipation*, and that it also involves a small amount of *risk*. Risk is closely tied to mystery in this way. Risk lies between *safety* and *danger*. If there is too much safety an individual will begin to feel bored, if there is too much danger an individual will become stressed and be unable to participate in a play-based escape. It is important, for a designer, to recognize an appropriate balance between the two extremes.

Adventures are often exciting ventures that involve an element of risk as well as an uncertain outcome; in this way they can be considered another type of play-based escape. It is helpful to think of an adventure when designing to encourage exploration,

as this leads to a play-based escape. For example, a designed water-feature that has stepping stones strategically located through it can provide an enticing level of risk, and encourage a visitor to explore and take on a mini-adventure.

As described by Hildebrand, overhanging balconies, heights, and elevated walkways are also ways to evoke risk or peril.⁴

UNMONITORED FEEL

The design should attempt to have an *unmonitored feel*. This relates to one of the elements of the context in which a play-based escape can occur, that of *minimal supervised intrusion*. It also relates to the element of refuge. When we play we are not actively searching for food or protecting ourselves, and therefore are left un-alert and unprotected, preferring to play in the safety of refuge. It also relates to risk or peril due to the consequences of being caught, whether it be embarrassment or scorn. As a child I certainly did not play the same when my parents were watching. I was much more adventurous and experimental when they were not looking, perhaps dangerously so. The same is true as adults. If no one is around to catch us, we are far more likely to engage in play, as well as try new things that may, or may not work out. I admittedly have been quite creative when home alone with no one to help move furniture, or open jars. We can accomplish an unmonitored feel by the use of screens (possibly trees or bushes), barriers, or a number of other ways to obstruct views so individuals do not feel a fishbowl-effect.

4. Kellert, 2005, p.148

2-DESIRES FOR BODY-PLAY

Body-play is our often playful physical and sensory engagement with our environments. Play is a state of mind, and it can be difficult to engage that state of mind at times, especially as adults. *Body-play* helps us *escape*; it switches our mindsets. *Body-play* is the quickest way to become engaged in the play state of mind. It is also something we desire; we desire to move our bodies and to be active.

NATURE

Nature is able to subtly initiate body-play. We need only to walk over its uneven ground, or climb over rocks, branches and roots in order to begin to feel the effects. Nature stimulates all our senses. Changes in temperature, sound, light, wind, and precipitation all have an impact on us. Sou Fujimoto's House before House uses nature to stimulate the senses. To cross from one *room* to another the inhabitant must cross through nature, thereby feeling the breeze, the drops of rain, and hearing the soft crunch of leaves underfoot as he passes over the haphazard ground.

SCALE

Scale is another way to influence body-play. We should create spaces that escape the visually cued regularity of building-code constrained designs. Fujimoto played with scale during the design of his Final Wooden House. Intrigued by the 350x350mm-square profile and its relationship to the human body's dimensions, he built this small

home. The scale of the spaces and the steps lack typical regularity. To move around this home, inhabitants must twist and bend their bodies; the act of doing so engages the brain and facilitates the play-state.

Another way to use scale is to create familiar objects using unusual scales. As an example, think of an abnormally large chair. Since we have become accustomed to the typical size of a chair, when we sit in a chair of a much larger scale it changes how we may sit on it. It also creates a novel experience and new perspectives. It no longer is just a chair; it becomes a new space full of opportunity.

PRIMITIVE

We should consider going back to our roots by designing with the *primitive* in mind. We can create *tree-like* or *cave-like* spaces that evoke the prospect and refuge characteristics as well as allowing us to feel like we are residing in a primitive shelter. In this way we climb around that structure, and also enjoy its lack of regularity. Sou Fujimoto's Final Wooden House and House NA both attempt to mimic nature by use of this idea.

Instead of adding pieces to create a whole, Fujimoto subtracts pieces to create a *hole*; he calls this *hole* a cave-like space. Similar to this, is the idea of mimicking *ruins*. We can carefully manipulate a design so that it appears to be accidentally created. A cave-like space is a space where we create ways in which to occupy it, as opposed to what

Fujimoto calls a *nest*, which is a space we create in order to occupy it in a specific manner.⁵

ALONG A PATH

We must find ways to overcome the cultural taboos and, because play must be voluntary, we can help initiate the play-state of mind by designing spaces *along a path*. These are areas of “the in-between”. Areas that people must pass through, such as hallways, passage-ways, paths, lobbies, stairs, windows, and doors, to name a few, are good places to locate areas for body-play. This can include an uneven surface, climbing devices, and even devices that respond when walked over or passed through. In Odenplan, Stockholm, an initiative of Volkswagen, that awards innovations that use *fun* in order to initiate change⁶, spurred an innovation that intended to make more people take the stairs as opposed to the escalator. Each of the steps was fitted with sensors that would create a sound when stepped upon, and then made to look and sound like a keyboard. The installation resulted in 66% more people than normal taking the stairs. This not only proves the success of the project, but also proves that human beings do desire to engage in a little body-play.⁷

5. Fujimoto, et. al., 2009, p.130

6. The Fun Theory. Available from www.thefuntheory.com (accessed 10/28/2010)

7. Video: Piano Staircase. Available from <http://www.rolighets teorin.se/bluemotion/en/overview/#/alla/5/> (accessed 10/28/2010)

3-DESIRES FOR A DYNAMIC ENVIRONMENT

A *dynamic environment* allows us to engage novelty. We often need a source of inspiration or wonder, something that sparks our interest and lets our mind take flight. A *dynamic environment* is one that changes. Since exploration comes naturally to us, we soon become familiar with our environments. When this occurs we may develop a way to interact with it, perhaps developing a routine. However, if this environment changes at times, it may alter our perception and give us a fresh base for inspiration and escape. Think of a lounge for example, perhaps it has two couches and a coffee table; you would typically sit at the couch with your cup of tea placed on the coffee table. Now imagine that you came to the same lounge, but someone had turned one couch upside-down, another on its side, and the coffee table overturned. You would soon find a new way to use this space, and inhabit it based on instinct. *Body-play* and *exploration* also soon become engaged; your *escape* has begun.

NATURE

Nature is full of qualities that satisfy our desires for a dynamic environment. Nature is always changing. Plants grow or die, the winds and water rustle the leaves and stir the earth, the clouds in the sky continue to morph, the light transitions from morning to night, and from spring till winter, also changing the colours of the landscape. There is always another beauty to behold in the complexity and natural order of nature. At the other end of the spectrum is the artificial, the human formed environments. We need to

bring nature into these environments so that we are able to see, touch, smell, and hear it. The Tezukas' Kindergarten is but one example of this.

COMPLEXITY

We can attempt to add *complexity* to our designs; however, within a static design, once visitors or inhabitants become acclimatized to its complexity it requires more complexity in order to continue to stimulate our curiosity. Complexity can continue to evoke feelings of the sublime, the wonder of novelty. However, we must also use our common sense of what may be regarded as a comfortable level of complexity.

Designing for complexity can be based on numerous themes or combinations: unusual views, novel shapes and forms, sounds, and light are a few examples. Unusual views create new and novel perspectives, abstract shapes and unique forms allow for improvisation, sounds can be filtered, or amplified to create wonder, and light can be manipulated to produce pleasant arrays.

DYNAMIC

In order to survive the test of time, *complexity* also needs to be *dynamic*.

If we are resourceful enough, we can create artificial *dynamic* spaces. We can create spaces that as they are being used, visited, inhabited, or with time, change. As they

change, the process of play takes wing once again. However, care must be taken, as Hildebrand (1999) affirms: complexity without order produces chaos and confusion. Some simple examples of how to accomplish this could be: a reactive push-pull design as in the toy called *PinPressions*TM; a cause-and-effect design, where one act may cause something else to occur, be it a smell, sound, movement, light, or other effect; or by the use of the naturally occurring changes such as the Earth's movement around the sun, or changing seasons.

LOOSE-PARTS THEORY

Another way that designers have tried to accomplish dynamic environments is through the *loose-parts theory* as described by Cambridge architect, Simon Nicholson. He describes that “*In any environment, both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kind of variables in it.*”⁸ His theory has been adopted by numerous play experts, architects, and landscape architects the world round. The “*Play on Architecture*” exhibit in the Art Gallery of Alberta is one example of this theory being used.

8. Louv, 2008, p.87

CONCLUSION

The most successful designs in promoting play will be those that satisfy each of these desires that we have as human beings. Not every characteristic needs to be employed within a single design. There are thousands of possible combinations and applications of these design factors, and a whole world with which to begin applying them to. The next chapter explores one design example which hopes to engender play-based escape.

5. APPLICATION

This chapter will reveal an example application of the design principles discussed in chapter 4. It is important that these principles be thought of as early as possible within the design process, as this will lead to the most successful projects. If we think back to the case study regarding the Art Gallery of Alberta's Play on Architecture exhibit, we can see that it may have been more successful had the exhibit space itself been architecturally designed to encourage a play-based escape.

Beginning a design is similar to activating a play-based escape. As designers, we must first gather information, or explore our site, and next we may begin to play with ideas and let our minds wonder. We seek inspirations by immersing ourselves in a dynamic and rich environment, a magazine may be one example environment, or a series of sketch models another. We also may need body-play. We change positions, and perspectives, we may even take walks, perhaps through nature, in order to relax and let ourselves notice our thoughts, or even to absorb new sources of inspiration.

Through the practice of play we can become more creative. We must not limit the outcome during brainstorming. Design is a *game* because it is goal oriented; however, we can still play within its structure. Creative brainstorming is the *play* during the *game* of design.

The design process involves:

1. Gather information – precedents, site information, and presented challenges
2. Create an outline or goal
3. Creative brainstorming
4. Sketches and sketch models
5. Design multiple versions
6. Revise, refine, repeat
7. Finalize

PRECEDENTS



Fig.7.1- Temple of Ta Prohm

TEMPLE OF TA PROHM – ANGKOR, CAMBODIA

Ta Prohm was constructed in 1186 A.D.. After the fall of the Khmer empire in the 15th century, the temple of Ta Prohm was abandoned. Thereafter it was neglected for centuries until efforts began in the early 20th century to conserve and restore the temples of Angkor. Unlike most temples, Ta Prohm has been left in much the same condition in which it was found. The temple is surrounded by jungle and silk cotton trees grow out of the ruins.

The merging between nature and architecture creates an atmosphere of wonder and imagination. This site activates play-based escape. It is a dynamic environment, always changing. The incompleteness of the ruins piques our curiosity and exploratory desires, and its uneven surfaces, and overgrowth initiate body-play.¹

1. Ta Prohm: Wiki. Available from http://en.wikipedia.org/wiki/Ta_Prohm (accessed 20/03/2011)



Fig.7.2- Pavilion at Kivik Art Center - exterior view

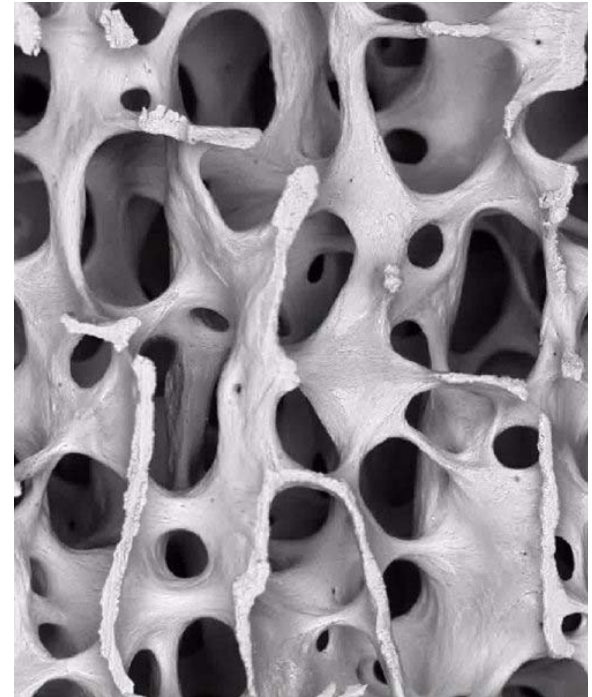


Fig.7.3- bone structure magnified 20x



Fig.7.4- Pavilion at Kivik Art Center - tower



Fig.7.5- Pavilion at Kivik Art Center - stage, view 1



Fig.7.6- Storm King wall, NY, U.S.A.



Fig.7.7- Pavilion at Kivik Art Center - stage, view 2

PAVILION AT KIVIK ART CENTRE – GORMLEY AND CHIPPERFIELD

Together, Anthony Gromley and David Chipperfield designed a pavilion a Kivik Art Center in Southern Sweden. The pavilion consists of three concrete volumes of 100 cubic meters each: the cave, the stage, and the tower. Each volume offers a different way to experience the landscapes and nature of the surrounding landscape.

The structure’s “cave” is an introspective space at the base of the structure. It offers the enclosed feeling of being in a dark forest. Next, a stair takes the visitor to the first floor; this is the stage: a horizontal volume open to a panoramic expanse of the landscape. The visitor can look out, but is also on display for others to see. The final volume, the tower, takes the visitor up a spiral stair to a platform 18 meters above the ground. A birds-eye view is revealed overlooking the treetops towards the Baltic Sea. Only one visitor is meant to enter the pavilion at a time in order to preserve the contemplative nature of the sculpture.²

BONE STRUCTURE

The structure of our bones is full of a unique and organic complexity; when imagining these shapes at different scales new spaces, and structures can be envisioned.

STORM KING WALL, NY, U.S.A. – ANDY GOLDSWORTHY

Goldsworthy created a continuous stone wall which curls around trees at the Storm King Art Center in Mountainville, New York. The simplicity of Andy Goldsworthy’s design amplifies the surrounding nature rather than hiding, or overwhelming it.

2. Wahu writings on Architecture Urbanism and Art. “Gormley and Chipperfield at Kivik Art Centre” (September 16, 2008). Available from <http://waua.wordpress.com/2008/09/16/44/> (accessed 20/03/2011)

3. E-Architect. “Forest Observatory.” Available from http://www.e-architect.co.uk/japan/forest_observatory_kyushu.htm (accessed 20/03/2011)



Fig.7.8- living root bridge in Meghalaya, India



Fig.7.9- forest observatory - view 1



Fig.7.10- forest observatory - view 2



Fig.7.11- forest observatory - view 3



Fig.7.12- forest observatory - view 4

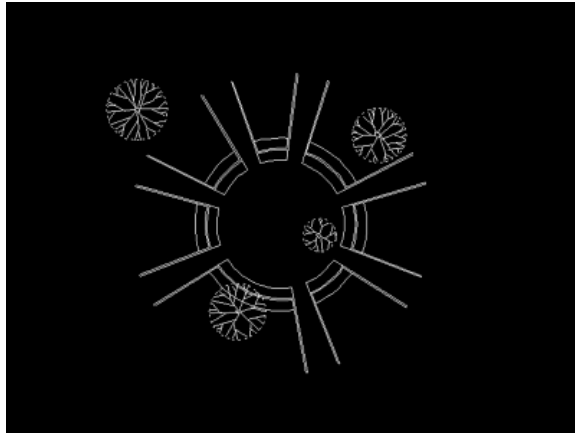


Fig.7.13- forest observatory - plan

LIVING ROOT BRIDGE IN MEGHALAYA, INDIA

Instead of manipulating architecture around nature, here nature is being manipulated to create architecture. Michael Joachim manipulates nature in his work.

FOREST OBSERVATORY – SAMI RINTALA

This Forest Observatory was constructed at the Kirishima Open Air Museum on Kyushu Island, Japan in 2004. Sami Rintala was invited to design a new work for the museum area; the only condition was that the work should last a minimum of 300 years. Rintala stated, “As I stepped into the rainforest of the site for the first time, I instinctively started to mind my step and listen to the sounds around me: strange birds in the trees and animals moving in the bushes.”³ What he described was the process of *body-play*, and he decided to amplify his experience through his design. The observatory is designed to catch sounds from different directions, and within its walls it is acoustically more protected for conversation. The walls are constructed of 5-cm thick white concrete, painted and coated for weather resistance. A paved path surfaced with white gravel leads to the courtyard. As the years progress, nature will slowly take over this site, fully integrating it and changing it into a more dynamic environment.⁴

4. E-Architect. “Forest Observatory.” Available from http://www.e-architect.co.uk/japan/forest_observatory_kyushu.htm (accessed 20/03/2011)

DESIGN AND DEVELOPMENT

In hindsight the process of designing this play-structure may appear linear; however, in reality the process was much more playful. During the stages of creative brainstorming, sketches / sketch-models, and designing multiple versions, numerous stray lines of investigation began. A few developmental thoughts, sketches and digital sketch-models have been demonstrated in this chapter. Some of these lines of investigation ended, some morphed, some were simply fun to think about, and some combined with each other to create the final design.

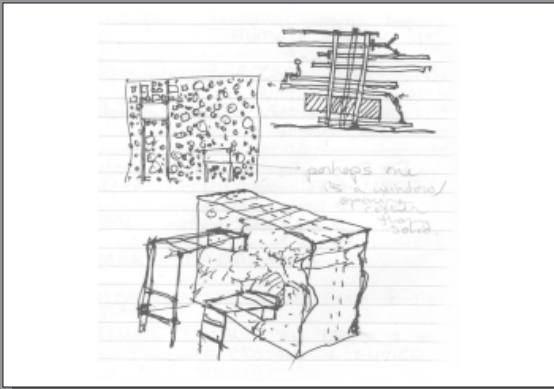


Fig.7.14- design sketch 1

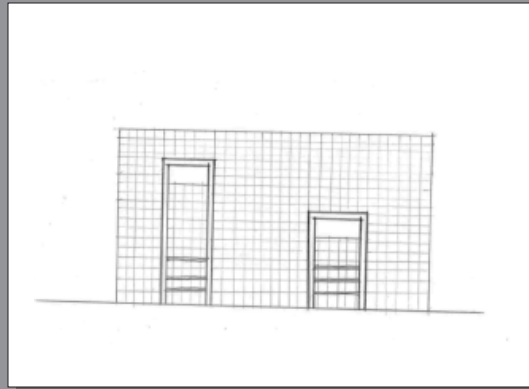


Fig.7.15- design sketch 2

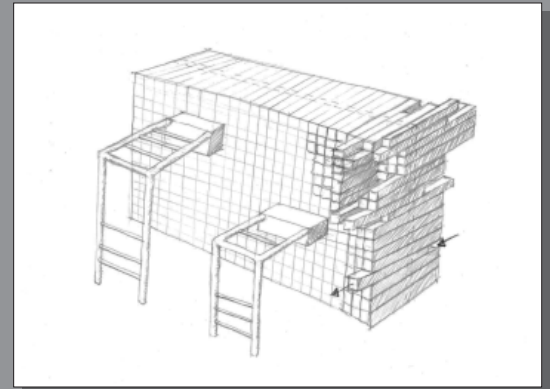


Fig.7.16- design sketch 3

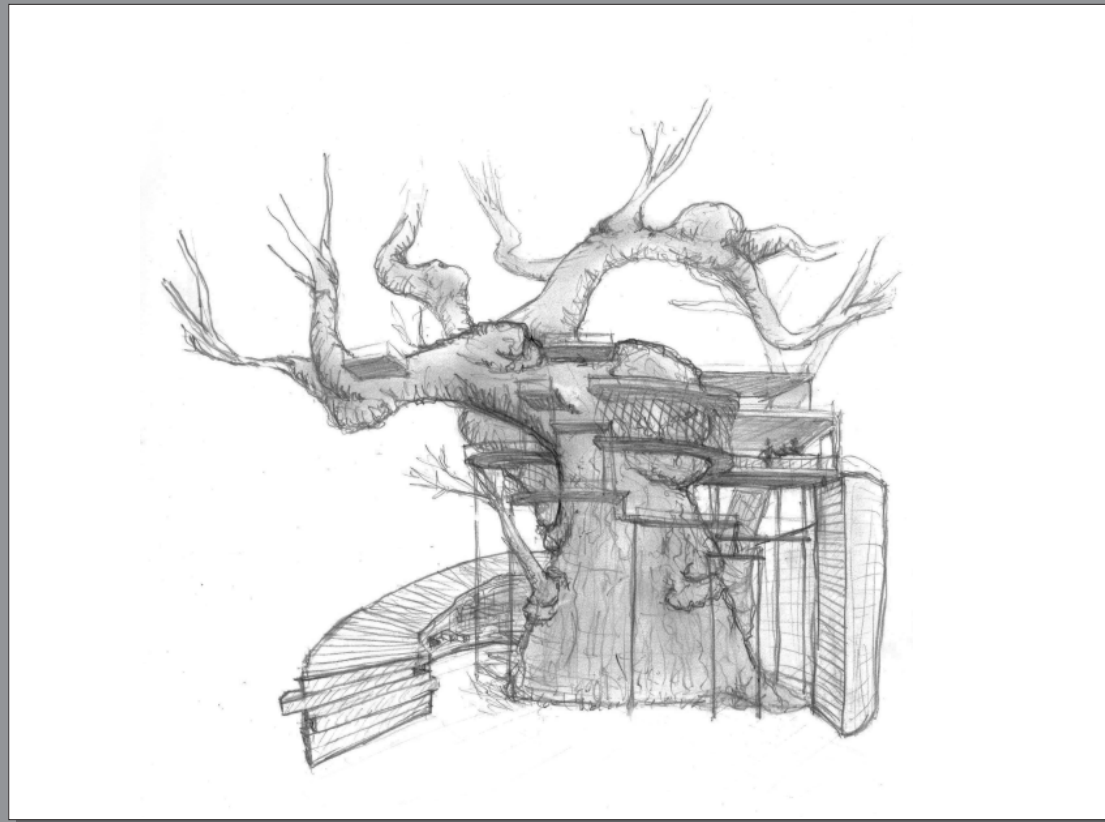


Fig.7.17- design sketch 10

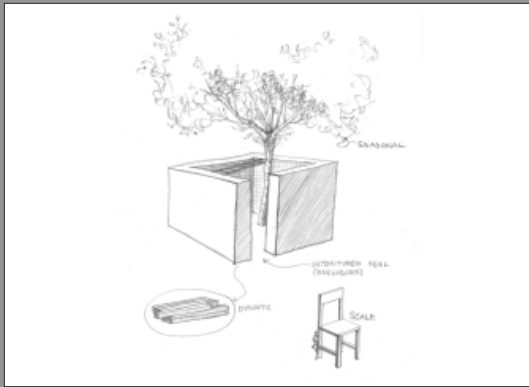


Fig.7.18- design sketch 4

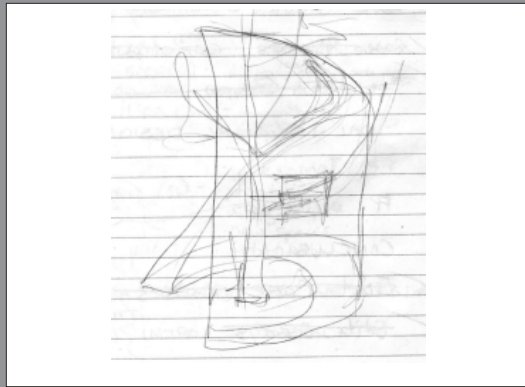


Fig.7.19- design sketch 5

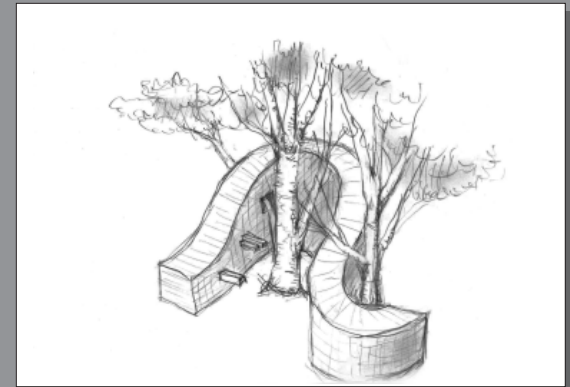


Fig.7.20- design sketch 6

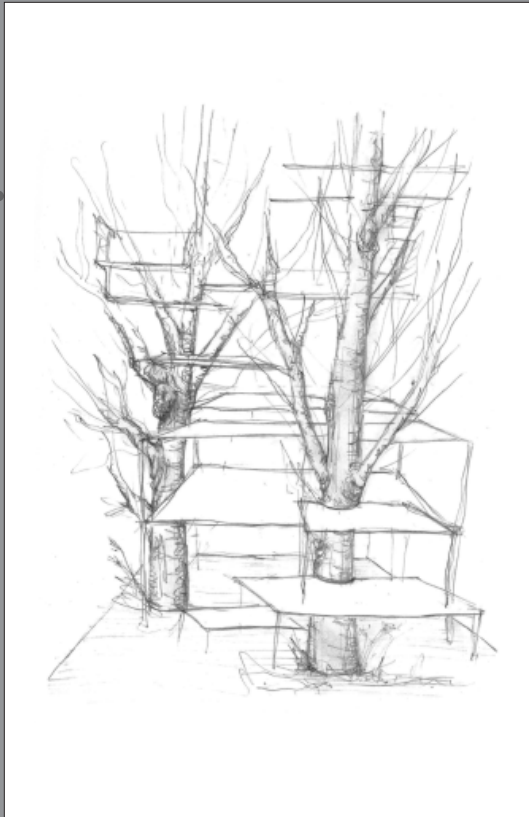


Fig.7.23- design sketch 9

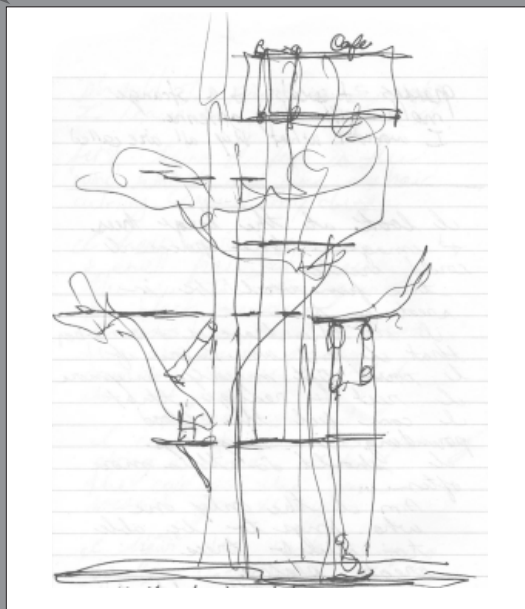


Fig.7.22- design sketch 8

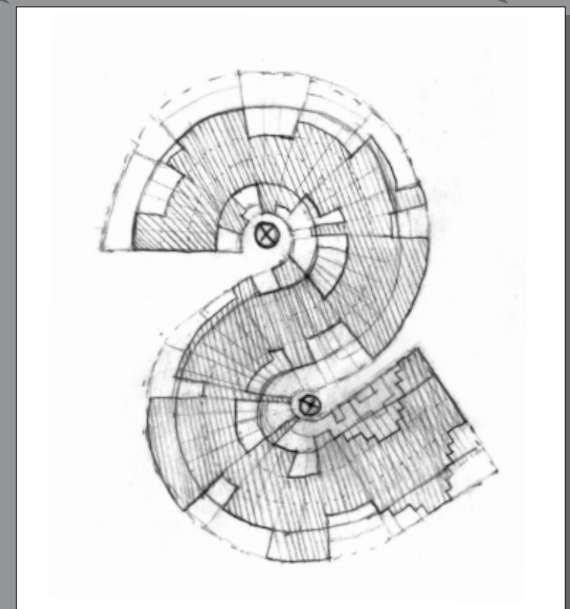


Fig.7.21- design sketch 7

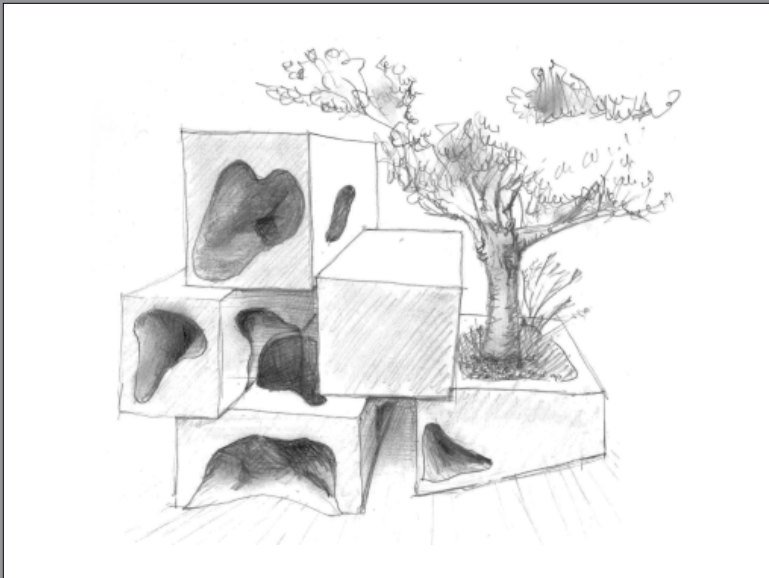


Fig.7.24- tangent idea - design sketch 11



Fig.7.25- tangent idea - design sketch 12

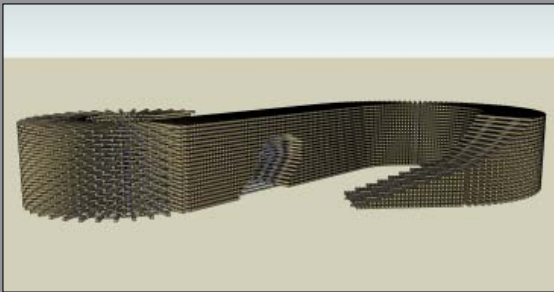


Fig.7.26- digital sketch model - 1

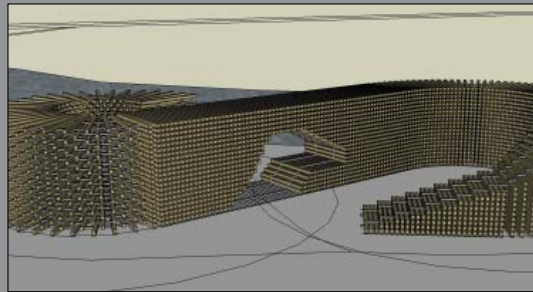


Fig.7.27- digital sketch model - 2

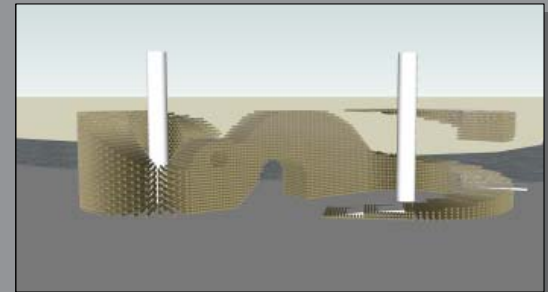


Fig.7.28- digital sketch model - 3

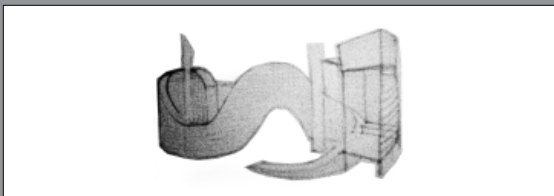


Fig.7.29- design development 1



Fig.7.30- design development 2

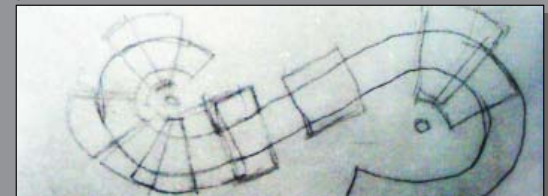


Fig.7.31- design development 3

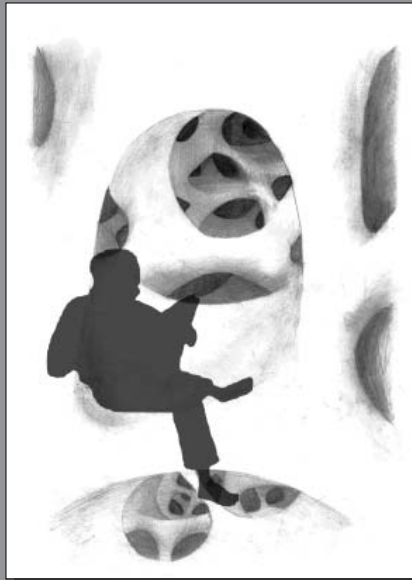


Fig.7.32- tangent idea - design sketch 13

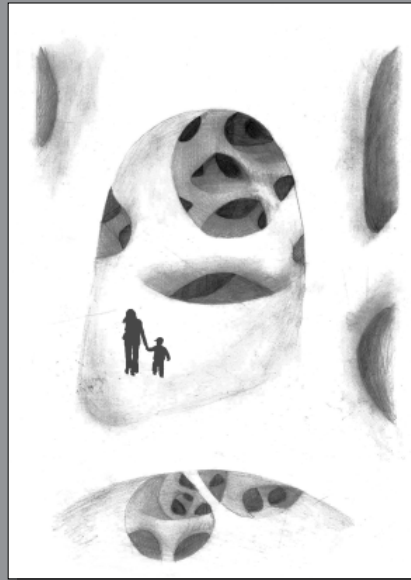


Fig.7.33- tangent idea - design sketch 14

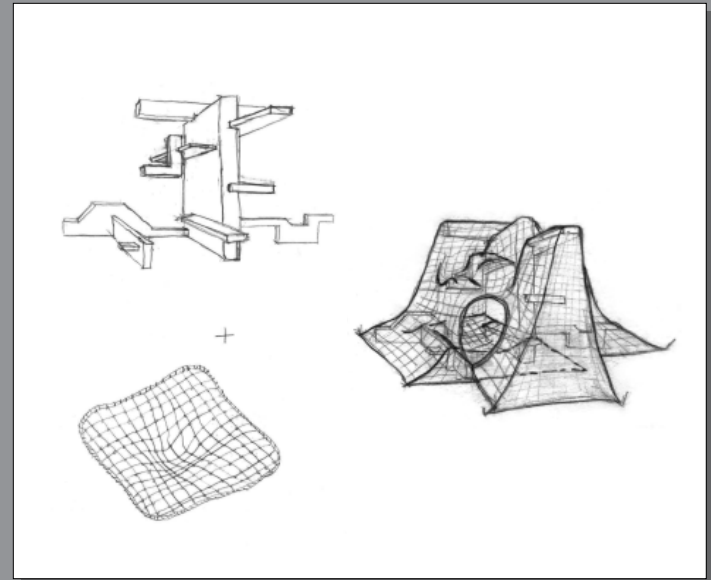


Fig.7.34- tangent idea - design sketch 15

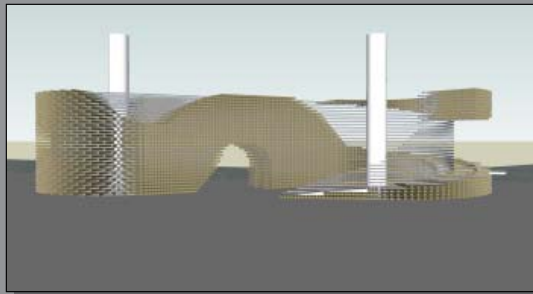


Fig.7.35- digital sketch model - 4



Fig.7.36- digital sketch model - 5

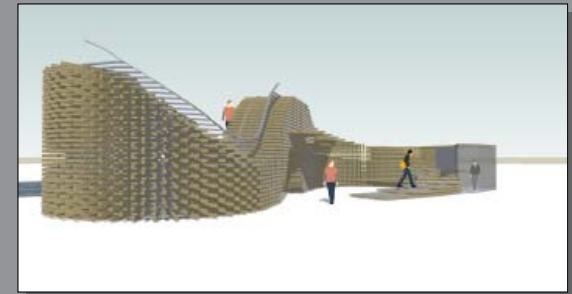


Fig.7.37- digital sketch model - 6



Fig.7.38- design development 4

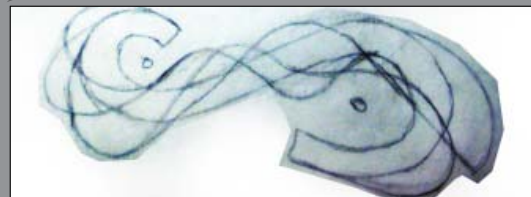


Fig.7.39- design development 5

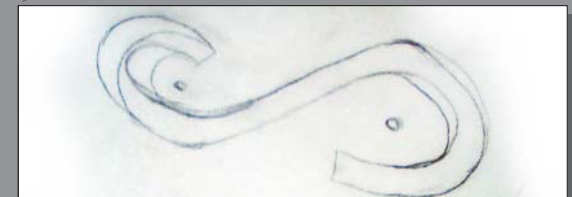


Fig.7.40- design development 6

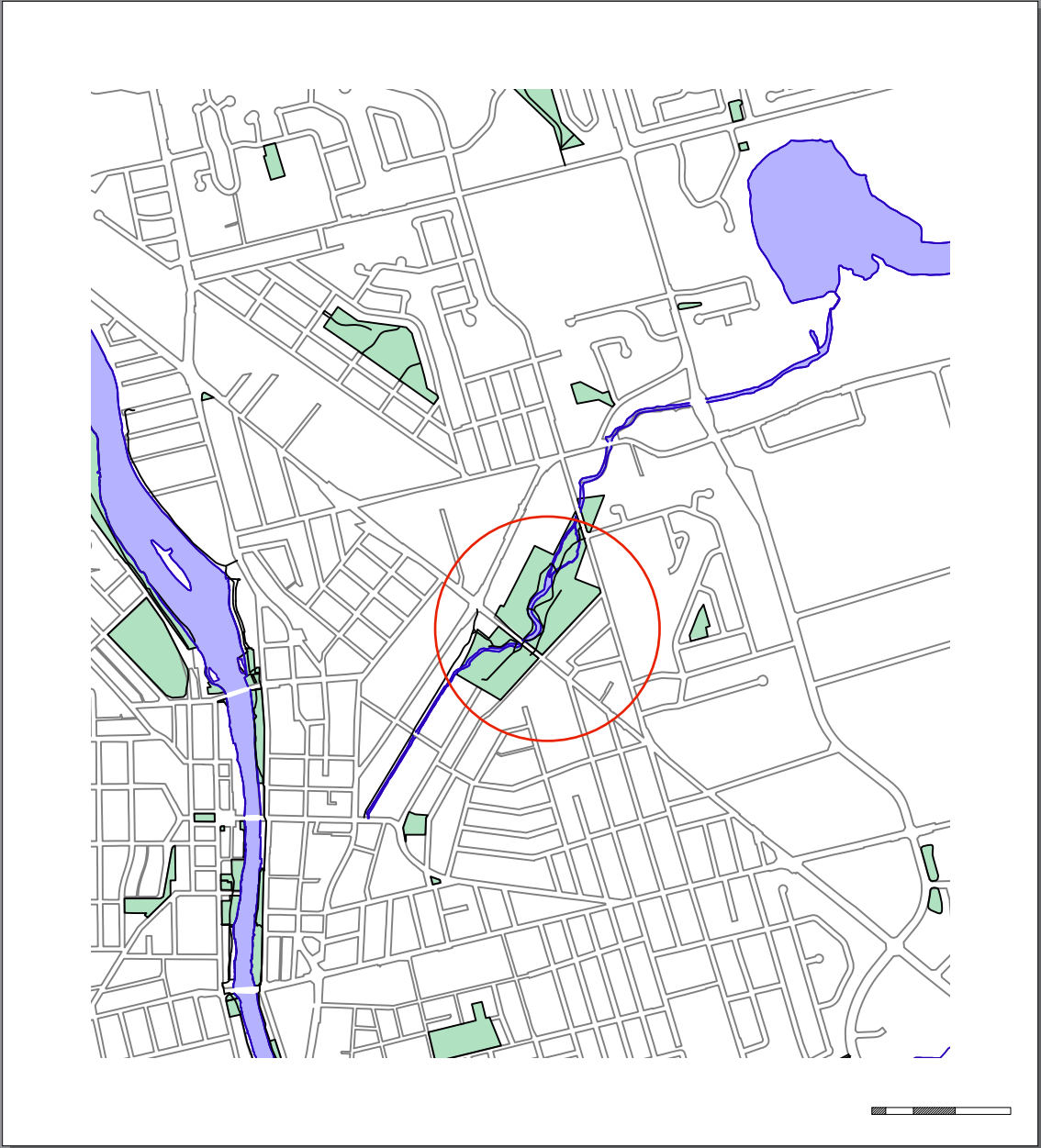


Fig.7.41- site plan - Soper Park



Fig.7.42- aerial view - Soper Park



Fig.7.43- tree within park



Fig.7.44- trees along *Mill Creek Trail*

The site is located in Soper Park, in Cambridge, Ontario. The park is comprised of approximately 16.5 hectares and is over 90 years old. *Mill Creek Trail* spans from this park to Galt's downtown core. The trees within the park are large and old, and full of character. Every time I meander through this park I wonder about climbing the trees, however, I never do. Doing so may cause people to think I am odd, if not insane. They would wonder why someone would be voluntarily climbing a tree just to sit there and daydream. To play, of course. However, even if they knew this to be the reason, perhaps they would wonder why a grown adult would be in a park playing.

Whether we realize it or not, when we go to a park we often naturally participate in play-based escapes. We may be just walking and letting our minds wonder, we may be enjoying the anticipation and surprise as we watch ducks play as they swim in a stream. We may even climb a mound just for the fun of it, or perhaps even a tree if we did not feel like we would be caught. Remember, the conditions necessary to participate in play include: familiarity, minimal supervised intrusion, free-choice, and stress-free. Nature is generally familiar to us, it naturally relieves stress, and it provides an endless supply of choices and complexities for free-choice.



Fig.7.45- site plan - Soper Park



Fig.7.46- bridge under Dundas St. N. along path



Fig.7.47- view along path - before



Fig.7.48- view along path - after

Soper Park has always been a place I was able to relax within. When I attempted to take quick pictures by driving to it, I realized yet another reason why I was able to relax. In vain, I drove around the entire park; I was not able to see down into the park from the roads. This is because the majority of the park is lower than the edges. There are berms so that traffic cannot see in, but also so that those within the park do not feel as though they are being watched. This relates to the principle of having an *unmonitored-feel*, as well as to the condition of minimal supervised intrusion, making this location ideal for a play-based escape.

The location within the park was chosen because the trees were large and strong; the location is not too close to *Mill Creek*, which runs through the park, and more importantly, because the trees are *along a path*. *Mill Creek Trail* spans from Soper Park to Galt's downtown core; many dog walkers, bicyclists, and pedestrians meander down this path. By creating a play-structure along a path individuals will directly interact with it. In this way the amount of targeted users is increased, as more timid individuals may not feel comfortable going out of their way to investigate a structure. Placing this structure along a path creates a clear invitation to everyone. By walking along this path, an individual may pass over the structure's lowest level, or press one of the closest movable parts. By doing so, this individual has engaged in body-play (in addition to the interaction which occurs due to the natural terrain of the park). Remember, body-play is one of the easiest ways to get into a play state of mind.

The structure itself has been designed to embody the principles discussed in the pre-



Fig.7.49- view along path - after

ceding chapter. Already we see how it involved the principles of *nature, along a path,* and an *unmonitored feel* during preliminary design decisions.

I wanted the structure to contain *complexity*, yet have order as well. Therefore, the design did not have to be overly complicated. It has been designed to be easily constructed. It is composed of typical 4"x4" wooden posts which are all 8 feet in length. These are able to be pushed in and pulled out and are supported by metal tracks. The metal tracks are welded to provide a guide for the posts. Each post has a stopping device at its center; the tracks are spaced apart in order for the stopping device to stop the post from being pushed out completely, as well as to provide enough support for the cantilevers.

The structure curls around two large trees on site; at its center there is an opening for the existing trail to pass through. There are a large number of wooden posts, which are located both parallel as well as at different angles to each other, added to this there are a series of platforms which are static. These components together allow for a small amount of *complexity*. Due to the structure's numerous movable parts, even though they are attached, they relate to the principle of *loose-parts theory*. It is in their movement that the structure's *complexity* really comes alive. As people interact with the structure, they will push and pull different parts of it continuously, this makes the structure *dynamic*. It is this principle of the *dynamic* that allows us to see the structure from changing perspectives. It can ignite inspiration and wonder in this manner, and satisfy our desires for a dynamic environment.

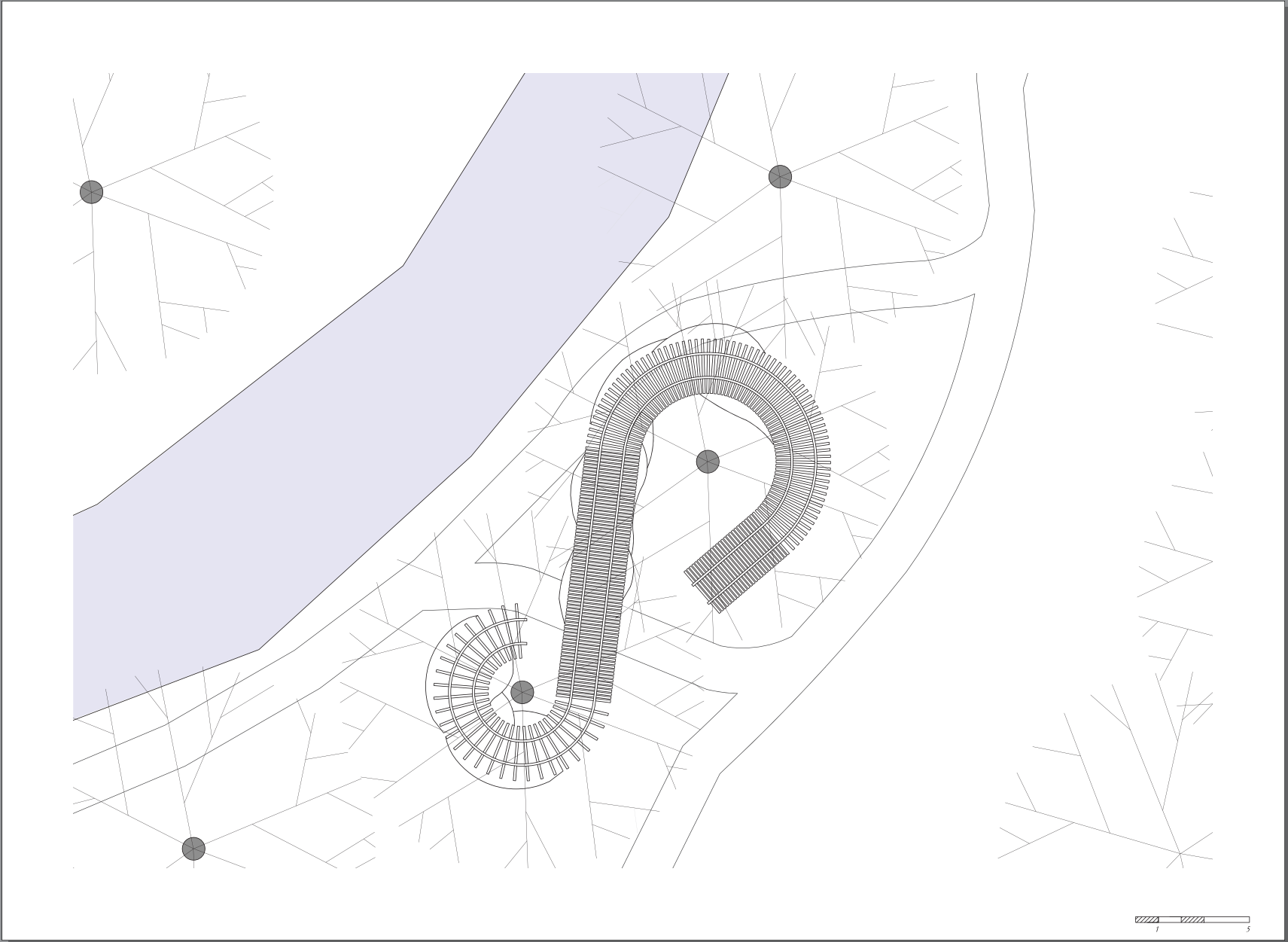


Fig.7.50- plan

During the design process I resisted making areas specifically for seating. Seating is often regulated by standards within design. It was these standards I wanted to stay away from so that users would find new ways to sit, or lay on the structure. It is in this way that the principles of both *scale* and *the primitive* are incorporated. I resisted over-designing seating at typical scales, and, similar to Sou Fujimoto's House NA, I sized the platforms closer to the scale of furniture rather than to rooms. The platforms will seem larger or smaller depending on the manipulation of the posts. The structure involves the principle of *the primitive* due to the spaces which will be created. An individual can inhabit the structure as it appears when they approach it, or they can change it. As they manipulate it, the posts change on the opposite side. A small nook on one side becomes a ledge, or overhang, on the other side. These principles relate to body-play. Due to the design of the structure, we may at times have to improvise, as well as be creative when interacting with it.

As a visitor approaches the structure from the trail, due to its shape, some areas are hidden from view. This is purposeful in order to incorporate the principle of *mystery*. The trail leads to and from the structure, yet parts of both the structure, and the trail, are hidden from view at times. As a result of its design being *along a path*, the element of *mystery* compliments this principle. Spaces are slowly revealed as an individual progresses towards, and moves through, the play-structure. The platforms, as well as the structure's proximity to the trees entice users with their many potential destinations. We wonder whether these destinations will offer new vantage points; they may

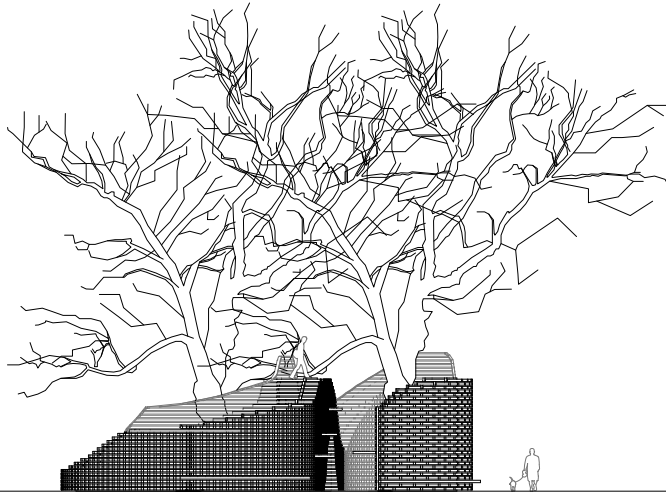


Fig.7.51- view from Dundas St. N.

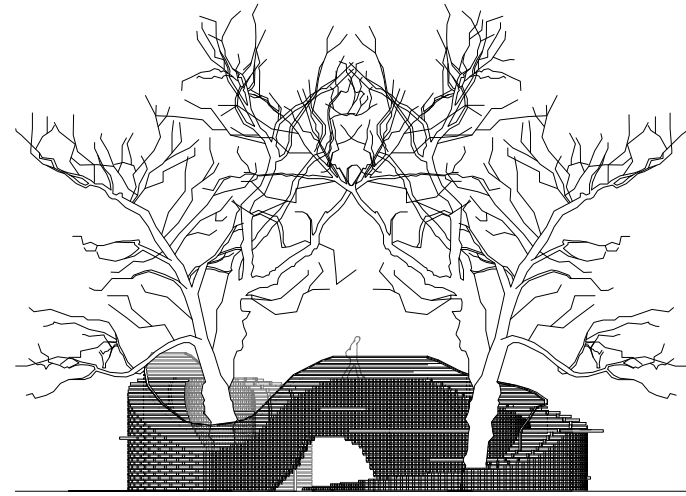
provide the qualities of prospect and/or refuge.

A small amount of risk is also allowed for within the design. Though some areas have railings, others do not. I use the Tezukas' techniques with respect to teaching "common sense." As mentioned, the Tezukas incorporate the principle of *risk* in both the Fuji Kindergarten, as well as the Roof House. Allowing children to climb the trees that grew up through Kindergarten's roof, while being risky, also provides a sense of adventure for the children. It builds their common sense, and through their playful interaction they gain confidence, strength and poise. The structure is designed to use these concepts through manageable heights, but also through the direct contact with the trees, which it surrounds. I expect that while interacting with this structure, both children and adults will find spaces not only within the structure, but within the trees as well. Climbing trees within a park often seems taboo, this structure, while not completely eliminating that element of the taboo and *risk*, will help invite users to do so.

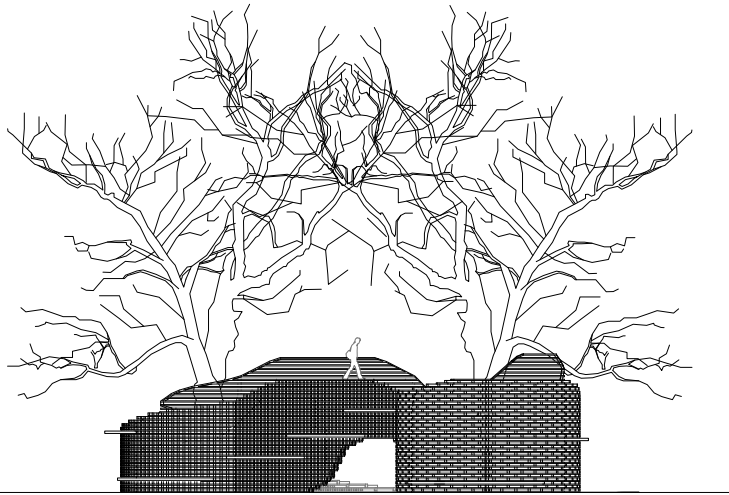
The ten principles are meant as tools during the stages of design. They are meant to be played with and incorporated in creative ways. The design example laid-out in this chapter is meant to embody all of the principles synthesized by this thesis. However, it is not necessary for every design to use all ten principles in order to activate play-based escape. It is up to the designer to incorporate the principles in ways that they see fit. Through this thesis, I hope to have excited a new consideration for how we escape and an acceptance of the importance for a play-based escape. I encourage everyone to participate more often in a play-based escape and encourage this form in others



SOUTH ELEVATION



EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION

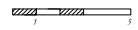


Fig.7.52- elevations



Fig.7.53- view looking south



Fig.7.54- close-up view



Fig.7.55- view looking north

CONCLUSION

This thesis reveals a series of principles necessary for a method of design which will activate the most beneficial form of escape, a play-based escape. Play-based escape has the capacity to awaken our creativity and therefore, is of importance to architects concerned about design.

Escape has numerous forms – pure diversions, games, and play – and each has its benefits, and when taken to the extreme, each can have detriments. Currently our society views pure diversions and games as acceptable forms of escape; however, these forms of escape do not engage our creativity. The most beneficial form of escape is a play-based escape. It awakens our creativity and allows us to reach *poise*, the final step in the process of play. Poise is the sense of balance in life; it is the feeling of satisfaction, grace, and composure.¹ The process of play, which includes daydreaming, or fantasy, is a process innate to us, as well as to animals.

As we grow from infants to adults we distance ourselves from play to engage in more structured forms of escape. Commercially driven applications, such as advertising, are geared towards capturing our attention using strategies such as supernormal stimuli in order to profit from our desires to escape. Our contemporary society has become addicted to the technologies produced by these markets, and become the new generation of *multitaskers*.² This is often at the expense of our creativity, as well as our ability

1. Brown, 2010, p.19

to focus, and numerous other detriments.³ As humans, we must remember to consider our moral responsibilities when participating in escape so that we do not take these escapes to the extreme, and consider play-based escapes as a more beneficial form.

When attempting to activate a play-based escape, the conditions, and context of play are important. Alongside these, we also have three desires which, when satisfied, also help initiate a play-based escape. These desires are those for exploration, body-play and a dynamic environment. Nature has many healing powers and positively influences creativity.⁴ Nature's qualities are conducive to the context needed for a play-based escape, as well as satisfying the three outlined desires. With this in mind, this thesis investigates numerous case studies which use either play, nature, or both in their designs. Through the lessons learned from these case studies, as well as learning from nature, a series of ten principles are synthesized: nature, complexity, the dynamic, loose-parts theory, scale, the primitive, along a path, mystery, risk, and an unmonitored feel. These principles reveal a strategy for the design of spaces which will activate play-based escape.

The atmospheres created using these principles have the power to make a play-based escape more acceptable in our society. By providing areas designed with these principles in mind, individuals will naturally feel more inclined to play. Though designing for escape may not change the forces of the capitalistic markets which produce products, be they multi-media-based, or any other structured form of games and pure-diversion, as architects and designers we can attempt to produce more places of escape within our cities, homes, and workplaces, and throughout our communities.

2. Richtel, Matt. "Attached to technology and paying a price." New York Times Online (June 6, 2010). Available from <http://www.nytimes.com/2010/06/07/technology/07brain.html?scp=5&sq=mental+escape&st=cse> (accessed 11/18/2010).

3. Barrett, 2010, p.13

4. Louv, 2008

When applying these principles, it is important for designers to understand the suitability of quantities, and relationships between each principle. A designer must appropriately choose the amount of complexity which is most pleasurable and the appropriate amount of risk, mystery, and dynamics. It can be assumed that, as designers, we will be able to make sound design decisions; however, a certain amount of trial-and-error still exists. Therefore, each of the ten principles I have proposed is an area subject to further research.

Another recommended area for further research is to question what would be the role of commercial components to these designs. For example, it would be interesting to investigate what would occur if a coffee shop and an area for play-based escape were integrated in a single structure or design.

It is important for architects and other designers to take an interest in this research as there will always be a desire for escape. Places of play-based escape will help us live happier and healthier lives because they increase our sense of being creative human beings. As architects and designers in charge of the design of public spaces, ethically we should provide opportunities for healthy choices which may help to counter some of the negative impacts of structured forms of escape. In order to strengthen our creativity we must practice it; play allows us to do so. We now know that nature plays an important role in activating play-based escapes. This research will help architects realize how nature can benefit society as a whole, as well as how to design in order to benefit the most from it, either directly or symbolically.

It is important to understand that these principles may be applied at any scale, whether it is at the urban scale, or at the scale of a coffee room in an office environment.

I hope this thesis will encourage the reader to escape – and to play – and to experience new pathways of creativity through play.

APPENDIX | GLOSSARY

ADVENTURE

A risky undertaking of unknown outcome.¹

AFFECT

(Psychology) A feeling or emotion.²

BIOPHILIA

Refers to humans' inherent affinity for the natural world.³

BIOPHILIC DESIGN

An initiative that fosters a satisfying connection between people and nature in the built environment.⁴

BODY-PLAY

The first form of play that humans engage in; the creative and investigative movement of our bodies. Also called movement-play.⁵

CAVE-LIKE

A space that “*exists somewhere between the artificial and the natural.*”⁶ It is inhabited

1. Adventure. Dictionary.com. Collins English Dictionary - Complete & Unabridged 10th Edition. HarperCollins Publishers. <http://dictionary.reference.com/browse/adventure> (accessed: March 27, 2011).

Adventure. Dictionary.com. Dictionary.com Unabridged. Random House, Inc. <http://dictionary.reference.com/browse/adventure> (accessed: March 27, 2011).

2. Affect. Dictionary.com. Dictionary.com Unabridged. Random House, Inc. <http://dictionary.reference.com/browse/affect> (accessed: February 25, 2011).

3. Kellert, 2005, p.3

4. Kellert, 2005, p.3

5. Brown, 2010, p.83-85

rather than having been built for habitation.

CREATIVITY

The ability to transcend traditional ideas, rules, patterns, relationships, or the like, and to create meaningful new ideas, forms, methods, interpretations, etc.; originality, progressiveness, or imagination: the need for creativity in modern industry; creativity in the performing arts.⁷

CURIOSITY

A desire to know or learn.⁸

DAYDREAM

A form of *Play*. Also called *mind-wandering* and *fantasy play*. A dreamlike musing or fantasy while awake.⁹

DISTRACTION

A form of *Pure Diversion*. An activity which diverts our attention and provides amusement.¹⁰

DOPAMINE

An important neurotransmitter in the brain, essential for pleasure. Novel activities raise dopamine levels in the brain. In the absence of dopamine people feel bored or depressed. The opposite of play is not work, it is depression.¹¹

6. Fujimoto, 2009, p.130

7. Creativity. Dictionary.com. Dictionary.com Unabridged. Random House, Inc. <http://dictionary.reference.com/browse/creativity> (accessed: February 25, 2011).

8. Curiosity. Dictionary.com. Dictionary.com Unabridged. Random House, Inc. <http://dictionary.reference.com/browse/curiosity> (accessed: February 25, 2011).

9. Daydream. Dictionary.com. Collins English Dictionary - Complete & Unabridged 10th Edition. HarperCollins Publishers. <http://dictionary.reference.com/browse/daydream> (accessed: February 25, 2011).

10. Distraction. Dictionary.com. Dictionary.com Unabridged. Random House, Inc. <http://dictionary.reference.com/browse/distraction> (accessed: February 25, 2011).

DYNAMIC

Ever-changing; *the dynamic between order and complexity*.¹²

ESCAPE

“A means of distraction or relief, esp. from reality or boredom.” It is inherent. It is often done for amusement and as a method of distancing. There are three forms: *Play*, *Games*, and *Pure Diversions*.¹³

EXPLORATION

An information gathering endeavour; part of the process of *play*.¹⁴

FANTASY

A creation of the imagination, unrestricted by reality.¹⁵

FANTASY PLAY

See Daydreaming.

FLOW

Flow is described as “*the state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it.*”¹⁶ *Play* can lead to *flow*; yet, *flow* does not necessarily lead to *play*.

11. Brown, 2010, p.126 & 173

12. Dynamic. Dictionary.com. The American Heritage® Science Dictionary. Houghton Mifflin Company. <http://dictionary.reference.com/browse/dynamic> (accessed: February 25, 2011).

13. Escape. Dictionary.com. Dictionary.com Unabridged. Random House, Inc. <http://dictionary.reference.com/browse/escape> (accessed: February 25, 2011).

14. Pellegrini, 2009, p.17

15. Fantasy. Dictionary.com. Dictionary.com Unabridged. Random House, Inc. <http://dictionary.reference.com/browse/fantasy> (accessed: February 25, 2011).

GAMES

A form of escape; an activity with rules or guidelines; activities created in order to provide amusement and as a method of distancing.¹⁷

HEAVY METAL

Short form for Heavy Metal Music. “A type of rock music characterized by a strong beat and amplified instrumental effects, sometimes with violent, nihilistic, or misogynistic lyrics.”¹⁸

IN-BETWEEN, THE NOTION OF THE

The place where “*your body – your hand or foot – will touch a building directly: threshold, doorjamb, and windowsill. You can only reach shelter, the interior, by passing through them.*”¹⁹

MICROBOREDOM

A word coined by Motorola™ used to describe the ever “*smaller splinters of time from which cellular technology offers an escape.*”²⁰

MIND-WANDERING

See Daydreaming.

MINIATURIZING

The process of informational compression for storage and internalization of fantasy

16. Csikszentmihalyi, 2008, p.67

17. Pellegrini, 2009, p.17

18. Heavy metal. Dictionary.com. Collins English Dictionary - Complete & Unabridged 10th Edition. HarperCollins Publishers. [http://dictionary.reference.com/browse/heavy metal](http://dictionary.reference.com/browse/heavy%20metal) (accessed: February 25, 2011).

19. Ligtelijn, 1999, p.11

20. Carolyn Y. Johnson, “The joy of boredom,” The Boston Globe, March 9, 2008

play. It is a term which describes part of the process during which *play* becomes more internalized into *daydreams*.²¹

MOVEMENT-PLAY

See Body-Play.

MULTI-MEDIA-BASED ESCAPE

This is a term used to describe form of escape, *either pure-diversion or games*, engendered by technology and multi-media. Examples can include: T.V., Videogames, mobile-phones and applications, etc.

MULTITASKING

Carrying out various tasks simultaneously. Often these tasks include numerous forms of multi-media-based escape in conjunction with other required mundane tasks.

NATURE

All natural phenomena and plant and animal life, as distinct from man and his creations.²²

NEST

Architecture. A place built for habitation.²³

21. Singer, 1966

22. Nature. Dictionary.com. Collins English Dictionary - Complete & Unabridged 10th Edition. HarperCollins Publishers. <http://dictionary.reference.com/browse/nature> (accessed: February 25, 2011).

23. Fujimoto, 2009, p.130

ORGANIC DESIGN

The use of “shapes and forms in buildings and landscapes that directly, indirectly, or symbolically elicit people’s inherent affinity for the natural environment.”²⁴

PLAY

A form of Escape. A state of mind. It is an absorbing, apparently purposeless activity that provides enjoyment and a suspension of self-consciousness and a sense of time. It is also self-motivating and makes you want to do it again.²⁵

PLAY-BASED ESCAPE

An escape using *Play*.

PURE DIVERSION

A form of escape; an activity which completely diverts our attention; an activity engaged in to provide amusement and as a method of distancing.²⁶

REBOUND PLAY

Play that occurs as a result of a play-deficit.²⁷

RUINS

The remains of a building, city, etc., that has been destroyed or that is in disrepair or a state of decay.²⁸

24. Kellert, 2005, p.4

25. Brown, 2010, p.60

26. Diversion. Dictionary.com. Collins English Dictionary - Complete & Unabridged 10th Edition. HarperCollins Publishers. <http://dictionary.reference.com/browse/diversion> (accessed: February 25, 2011).

27. Brown, 2010, p.43

28. Ruins. Dictionary.com. Dictionary.com Unabridged. Random House, Inc. <http://dictionary.reference.com/browse/ruins> (accessed: March 27, 2011).

SUPERNORMAL STIMULI / SUPERSTIMULI

This is an exaggerated form of an existing stimulus. It induces a response more strongly than the stimulus from which it evolved.²⁹

TABOO

Forbidden or disapproved of.³⁰

THIRD PLACES

This is a term referring to the social surroundings separate from the two usual social environments of home and the workplace. Third places are the “[...] ‘anchors’ of community life and facilitate and foster broader, more creative interaction. [...] Oldenburg suggests these hallmarks of a true “third place”: free or inexpensive; food and drink, while not essential, are important; highly accessible: proximate for many (walking distance); involve regulars – those who habitually congregate there; welcoming and comfortable; both new friends and old should be found there.”³¹

TRAP CROPS

This is a form of Supernormal Stimuli. A *trap crop* is a plant used as an alternative to pesticides; it draws agricultural pests away from nearby crops.³²

VERNACULAR DESIGN

“Buildings and landscapes that foster an attachment to place by connecting culture, history, and ecology within a geographic context.”³³

29. Barrett, 2010, p.13

30. Taboo. Dictionary.com. Collins English Dictionary - Complete & Unabridged 10th Edition. HarperCollins Publishers. <http://dictionary.reference.com/browse/taboo> (accessed: February 25, 2011).

31. http://en.wikipedia.org/wiki/Third_place (Accessed February 25, 2011)

32. http://en.wikipedia.org/wiki/Trap_crop (Accessed February 25, 2011)

33. Kellert, 2005, p.4

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Video: Children's gallery at the AGA. Available from <http://www.edmontonjournal.com/entertainment/artgallery/Video+Children+Gallery/2491490/story.html> (accessed 10/27/2010).

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