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The Third Skin: Transpire, Tension, Parturition: Body as Analogy

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THE THIRD SKIN

TRANSPIRATION, TENSION, PARTURITION: BODY AS ANALOGY

by

Pegah (Damineh) Dehnadfar

B.Arch.Sci.

A Design research thesis presented to Ryerson University in partial
fulfillment of the requirements for the degree of
Master of Architecture
in the program of
The Department of Architectural Science

Toronto, Ontario, Canada, 2013

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Author's Declaration

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Pegah (Damineh) Dehnadfar

The Third Skin: Transpire, Tension, Parturition
Damineh (Pegah) Dehnadfar

Ryerson University
Master of Architecture 2013

Abstract

The Third Skin project is designed to challenge perception of architectural spaces. The intention of the Third Skin is to define the space as we experience it, before we outline it in a concrete form through the limits of spatial definition and dimension. *Cutting through* the conventional, fixed and motionless Cartesian grid, the Third Skin project articulates how the *sensing of space* is rooted in the way that human bodies cross and move within the space. The proposal suggests that experiencing space is fundamentally *flowing* and we cannot enforce *fixity* on it. The thesis creates a mental and physical journey of phenomenological experience. The argument is set through theoretical interpretation; it focuses on design process, identifies the journey of exploration, and proposes a new intervention for embodied experience in architectural spaces.

Acknowledgements

First and foremost, I would like to express my sincere gratitude to my supervisor, Dr. Kendra Schank Smith, for her continuous support, motivation, caring, immense knowledge, and for providing me with an excellent guidance to develop my own vision; without her this thesis would not have been completed. I am also very grateful to my second reader, Dr. June Komisar, who has supported me throughout my thesis with her great knowledge, encouragement, guidance, and insightful suggestions. I could not have imagined having a better supervisor and second reader for my MArch Study.

I also owe my deepest thanks to my parents, Maryam and Parviz, who have always supported, encouraged, and believed in me, in all my endeavors. And I am very thankful to my brother, Damon, for his endless love and support, and for always encouraging me to follow my goals and aspirations. I would also like to thank my sister in law, Marjan and all my family for their love and moral support.

A special thanks to my friend, Elli Forouzandeh who was always there for me and I would like to thank her for always being so understanding and helpful during the good times and the bad.

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Thesis statement

Architecture must be encouraged to retrieve a more radical experience of being, an engagement of embodiment.

01

Introduction

Figure 1.0. Body and Architecture, Background History - Time line by Pegah (Damineh) Dehnadfar. Information Adapted from *Body and Building: essays on the changing relation of body and architecture* by G. Dodds and R. Tavernor, 2002, Cambridge, Mass. : MIT Press. "The building in pain: The body and architecture in post-modern culture." (3-10) by A. Vidler, 1990, *AA Files* retrieved from <http://ezproxy.lib.ryerson.ca/login?url=http://search.proquest.com/docview/55049265?accountid=13631>. *Therme Vals* by S. Hauser & P. Zumthor, 2007, Zurich: Verlag Scheidegger & Spiess AG. *The thinking hand: existential and embodied wisdom in architecture*. by J. Pallasma, 2003, U.K. : Wiley. *D.T. Suzuki: Shin Buddhism and Christianity Compared* (p. 61) by D.T. Suzuki, 1998, Honolulu: University of Hawai'i Press. "Helsinki Museum of Contemporary Art, 1993-98". *El croquis*, revised and extended edition (including issues of 78, 93, 108), p. 251. Mexico: Arquitectos Publishing. *Topophilia: a study of environmental perception, attitudes, and values*. by Y.F. Tuan, 1974, Englewood Cliffs, N.J. : Prentice-Hall. *The Diagrams of Architecture* by M. Garcia, 2010, U.K. : John Wiley & Sons Ltd.

Figure 1.1. Idea Sketch: The layers of skin that our bodies communicate with and within

1.1 Problem Statement

The thesis proposal began with an interest to engage human bodies as the environmental interactions, in exploring architectural spaces. To fill out the picture of the interface between architectural spaces and human bodies, this thesis started with examining the layers of skin that our bodies naturally communicate with and within (Figure 1.1). Measuring the symbiosis between clothing as the second skin and architecture as the Third Skin directed my attention towards the importance of embodied experience, which is unavoidable in the nature of clothing, but it is very often neglected in architecture. Ultimately, the question of embodied experience and how architectural spaces can affect all human qualities led my design explorations to challenge the low degree of feeling of life in conventional and motionless Cartesian-grid-based architecture.

The *sensing of life* is an architectural issue. The living quality of an architectural space is not only real and objective, but also tied inseparably to the human bodies' experience of the space (Alexander, 2002). Human bodies must be more than just an inspiration in design as they are the primary reason for architecture to happen. The human body moves; it has emotions and it is constantly subject to change. An architectural design must address the *tensile* experience caused by receptive-reactive reflex between the human bodies and the built environment.

To modern architects of the 1920s such as Le Corbusier and Mies Van Der Rohe, spaces were designed with the focus on cubic forms and hard surfaces inspired by industrialization of building process. As one of the 'Five Points for a New Architecture', Le Corbusier proposed the

rule of the 'free plan' as what can bring tension between the interior space and the transparent exterior (Colquhoun, 2002). However, the 'free plan' was more about the purity of the geometric shape and less about the purity of *experience of being* in the space.

The *sense of aliveness* is an issue that was earlier identified by the foremost critics of Modernism such as Louis Kahn. Kahn believed that the void created by the Corbusier's 'free plan', the linear system of columns and floor plates, is only a unit of structure and yet it needs to coincide with a unit of habitable space (Colquhoun, 2002). Subsequent to the rejection of the 'free plan', the living quality and the *sensing of life* in an architectural space has become a critical cultural issue in the 21st Century. In recent years, human perception and phenomenological experience in architecture has been argued as an ambiguous and open-ended question. Architectural scholars such as Steven Holl, Alberto Perez-Gomez, and Juhani Pallasmaa have emphasized on corporeal experience of architecture. However, their critiques are usually proposals that miss a more balanced contribution to a discourse of truly phenomenological architectural design.

What is a phenomenological architecture? This is not a question in regard to any particular architectural style that belongs to a distinctive era, but relatively, this is a question of process and methodology. Is there a particularly phenomenological way of dealing with an architectural design scheme? What is the outcome of such process? Can that process reveal the allusions of the phenomenological concept? And then, can such a design scheme further reflect the human self in an architectural space? The discourse on phenomenological architecture should not be understood in terms through products of

solid objects and functions but rather through the fluid process of explorations.

The joy of architecture can only radiate once it is experienced. Architecture should create a life-long journey since it is always in the state of being explored by a new user in a lifetime. The Third Skin proposal creates a mental and physical journey of phenomenological experience. This thesis is a theoretical interpretation; it focuses on design process, identifies the journey of exploration, and proposes a new architectural intervention to the conventional, solid, fixed and motionless architecture of Cartesian grid.

Figure 1.2. Four key phases of overlapping research, analysis, interpretation, exploration and design

1.2 Methodology

This thesis includes a complex process of finding, and this chapter does not aim to totalize the theories, except that it explains the process of multiplying thoughts and explorations. In other words, this thesis refuses to have a definition of process that clearly applies to very distinct stages of studies. This thesis was a journey of explorations and this chapter attempts to throw some light on this journey.

Throughout the entire journey of explorations and design, I did not search for reasons to explain the actions I took. This is, indeed, the subjective nature of the architectural design process to be indescribable. As Abercrombie states, how the architect makes decisions and moves forward with design “remains a mystery of creative mind” (Snodgrass & Coyne, 2006, p. 71).

The thesis started with a simple interest to explore the potential interactions between architectural spaces and human bodies. To study this initial interest, I started my journey with research and study of the existing theories. However, this thesis strategy does not have a distinct stage called research. Instead, all phases of the strategy comprise the overlapping stages of research, analysis, interpretation, exploration and design. Four key phases can be identified throughout the journey of the thesis scheme. These include: exploring the architectural issue, exploring the project concept, exploring the project context, and the project proposal (Figure 1.2).

Figure 1.3. Phase 1: Exploring the Architectural Issue

1.2.1 Phase 1: Exploring the Architectural Issue

The first phase identifies the theories debating the philosophies of corporeality and phenomenology in architecture, in a chronological order. This phase corresponds the findings with subjective analysis and interpretations in order to recognize the architectural issue.

The key theories and philosophies that were initially collected and studied are listed in the Figure 1.0. In this phase, the chronological order of the theoretical findings was a valuable source since they constitute a record of the gradual development and implementation of hypotheses, which are central to architectural interpretations and decisions. Three stages of evolutionary system for the body's use in architecture were identified from Renaissance to post-modernism. Afterwards, I used three contemporary projects as grounds to explain the importance of embodied experience in architectural environments. These systematic investigations served as platforms to identify, step by step, the question that I initiated for this thesis - the experience of being and the importance of skin as the edge of interaction.

A summary of this phase is illustrated in Figure 1.3. As a conclusion to this stage of the work, the primary thesis statement was initiated: Architecture must be encouraged to retrieve a more radical experience of being, an engagement of embodiment.

1.2.2 Phase 2: Exploring the Project Concept

The second phase took the first step forward in expressing, interpreting and implementing the theories to fit the problem statement. This included discoveries to expand knowledge, which then became the seed for further design explorations.

To develop a thorough picture of the thesis concept, I first introduced three words expressing my interpretation of the problem's context. Furthermore, I used the three words, Transpire, Tension, and Parturition as original thoughts to be discovered in subsequent design explorations - *Spot in Space* and *The Frozen Void*. The reasons for making these conceptual design components were merely to explore the spatial qualities of the original thoughts. The abstract design explorations were based on feeling and intuition. I set the thesis concept to be explored and not to be simply identified. Accordingly, the design explorations – *Spot in Space* and *The Frozen Void* – were the first translation of the thesis idea into action.

Moreover, these preliminarily exercises were analyzed to explore and set up design problems. The fundamental properties including interstitial space, in-betweenness, penetrating contrast, gradients, the void and movement were identified as certain characteristics that promote feeling of life and experience of being - the original problem statement. Figure 1.4 illustrates the research and activities involved in this phase.

Clearly, there was no predetermined instruction describing the actions taken for the design exercises. How obviously the properties that are explored in design exercises fit together with the theory that

Figure 1.4. Phase 2: Exploring the Project Concept

I had developed earlier was thrilling. In fact, the effects of the design explorations visibly formed the foundations for the thesis theory. I was definitely not able to predict these outcomes in the first place. And clearly, the concept that was developed in this stage was not available to me as an idea during my first interpretation of the theories. So, the entire process was a journey of explorations, which informed how I could explore a new way of thinking about the evolving theory of the thesis.

Accordingly, the project statement was modified toward the completion of this phase. The Third Skin project was identified to articulate a *marginal awareness* within a *radical interstitial space*. Similar to the initial thesis statement, this phase also informed the thesis project in an attempt to retrieve a *drastic experience of being* and an *engagement of embodiment*. Likewise, the reinterpretations of explorations implied that architecture, as the Third Skin is *parturient of potentials* to be experienced in a *tension* condition and subsequently to *transpire* – to be revealed.

1.2.3 Phase 3: Exploring the Project Context

Although only one stage prior to the last phase, this phase still involved a close study of the existing theories. Through the testing of theories using design experiments and the incorporation of personal experience, a theory of design methodology was accomplished and an initial design project statement was proposed.

In the previous phase, to develop the context for the primary concept of Transpire, Tension, and Parturition, the Third Skin project statement was explored to articulate a *marginal awareness* within a *radical interstitial space*. Here, I once more reviewed the projected statement in order to develop alternate strategies, which could clearly finalize the setting and context for the thesis project design.

The four key words that were previously cultivated and stated above are marginal, awareness, radical, and interstitial. To demonstrate the target of the thesis project, I started to summarize the conclusion as following:

To be marginal, we need to affect boundary and interaction. To promote awareness, we need to affect the human self. To be radical, we need to affect the fundamental nature of something. And to be interstitial, we need to affect interstices. Thus, affecting was recognized as the leading design target - to affect is to act on (Collins English, 2003), to produce a change in, to impress the mind, to move the feeling of or to attack (Webster's College, 2010).

As previously determined in the problem statement, the feeling of life and experience of being is a practice for perceiving an architectural

space. So successively, the process came to a conclusion: to affect one's experience of life, we need to affect one's perception of space. Thereafter, further research was directed towards probing existing theories concerning spatial perception. And subsequently, Descartes' Cartesian philosophy was identified as one of the most significant traditional scientific accounts for spatial perception. To Descartes, spatial perception is achieved by presuming a given space and it is understood by the reconstituting measure of that given established space (Morris, 2004). Likewise, a practical response to this theory is the Cartesian grid-based architecture, which is very much encouraged in the cubic geometry of the Modern style. In accordance with interpretation of the resulting form experiments, I refined the thesis statement in rejection of the Cartesian philosophy. Here, the thesis statement declared that the perception of space is rooted in bodies crossing and moving within space. I used the theories' analysis along with design experiments to argue that experiencing space is a practice of living and not geometry.

Comparison was fundamental to the actions taken during this phase of the design. Throughout the whole process, this thesis used theoretical categories for observation and exploration. This phase took one step forward and employed a comparative method to explore the architectural potentials of embodied experience. New comparative experiments, namely the exercise of the Bias Cut and the experiment of the Animation of Body in the Grid, aimed to challenge the conventional concepts of pre-determined architectural grids, and accordingly to soften and emotionalize the architectural perception of space. During the first phase, studying the symbiosis between clothing as the second skin and architecture as the Third Skin helped

Figure 1.5. Phase 3: Exploring the Project Context

to identify the important factors of phenomenological experience. The experiments in this phase enabled the testing of those earlier findings with a precise focus on challenging the Cartesian grid-based Architecture. Figure 1.5 summarizes the activities involved in this phase.

1.2.4. Phase 4: Theories, Analyses, Design Experiments

In the earlier stages, the thesis focused on design as a way of thinking. In accordance with the previous findings, this phase weaves together threads of thought informed by the various reflections of theoretical analyses and design explorations. The Synthesis of the explorations (Figure 1.6) is developed here as the thesis project – the Third Skin proposal.

Developing design ideas, the use of digital media in this phase and the computer modeling happened to show a ludic approach to the design method. The introduction of some undirected playfulness started to guide the expectations towards a more rational approach. The recent digital modeling including parametric design has the tendency to take over the design process. However, as a synthesis of all earlier explorations, I intended to revive and reinforce designing as a way of thinking and experience.

This phase of the design explored that there is a discrepancy between the perfectness of a computer model and phenomenological intervention in an architectural design. Phenomenology is messy and I needed to find a phenomenological way of dealing with the architectural design. The design explorations here informed that phenomenology could not be computerized. To develop the idea of embodied experience in the final design proposal, I proposed the act of designing as a way of thinking and experience. Therefore, I intended to employ the digital tools towards the way that I could develop a hands-on experience throughout the entire design process. For instance, combining multiple interior perspectives, sections and other projections facilitated a constantly tangible practical

Figure 1.6. Phase 4: The Project Proposal

involvement in the whole journey of design progress.

In conclusion, this thesis was a journey of explorations, from raising the issue to proposing a resolution. Each finding was followed by analysis that revealed the next step on the road. The act of designing in architecture, indeed, is a multilayered process. The layers weave through each other, whilst, that moving through is unpredictable. That is to say, it is the nature of the design process to be mysterious, and this chapter was not to de-mystify the process of architectural design. However, it was intended to illuminate the design process inspired by intuition, creativity, and perception.

Figure 1.7. Idea Sketch: reflection of our bodies' existence

1.3 Phenomenology in Architecture

From birth onwards, although we are always inside some spaces and outside others, the experience of being primarily remains as one of being inside (Franck & Lepori, 2007, p. 18). Thinking from inside out, we may realize that human bodies are not just the ones who produce senses but they are also the subjects who take in sensations. Architecture must understand the body as a moving, changing, and acting reality. Architecture is, indeed, the art of experience, and it can stimulate our emotions.

Our ways of living in and occupying the world, physically or psychologically as well as intellectually, all develop through the reflection of our bodies' existence (Figure 1.7). Neither human bodies, nor the environment around them are isolated. Spaces embody bodies and bodies come with senses. Architecture must address the human's sense of space, and it must help the inhabitants to communicate and to fuse their identity of self with their experience. In fact, architecture must articulate the bodily experience and thus strengthen our sense of self (Pallasma, 2012). In other words, experiencing architecture is corporeal. And the tension condition between the bodies and their surroundings, as Plato described, would not exist without senses (Dodds, 2002). It is certainly the body's sensual experience that creates the reaction between the human self and architecture.

Furthermore, architects create spaces that will be revisited, re-visualized, and rethought by people in a lifetime. *Being experienced*, architectural spaces are endlessly in a state of constant flux. Although some conventional assumptions are to balance the emotional and

Figure 1.8. Idea sketch: The body and soul are linked

physical needs of the users, new perspectives need to consider free spaces as to provide the needs of everyone yet no one (Franck & Lepori, 2007). The same architectural space that can make someone feel calm can make someone feel unsafe or uncomfortable, for that matter. Every architectural space can create a particular atmosphere that can affect the emotional state of the users. Experiencing an architectural space is felt through the interaction between the environment and the human bodies (Figure 1.8). One can hardly doubt that life is intricately interconnected with human feelings. Architecture is also bound with our deep personal feelings and it must evoke our *sensing of life*.

Figure 1.9. The notion of body - 5th Century by Pegah (Damineh) Dehnadfar. Information Adapted from *Body and Building: essays on the changing relation of body and architecture* by G. Dodds and R. Tavernor, 2002, Cambridge, Mass. : MIT Press.

1.3.1 Corporeality: Body and Architecture

The relation between body and what that truly exists was a question originally raised in fifth-century by Eleatics - the pre-Socratic school of philosophy. Their argument to define the role of body in understanding reality sought to identify a conceptual body and material reality each as an isolated entity. However, other fifth-century thinkers such as Gorgias of Leontini, the Atomists, and the Pythagoreans reacted to Eleatics argument and understood body as containing both conceptual and material reality. Plato and then Aristotle accordingly took the very important step towards recognizing corporeality. Aristotle's idea of corporeality was later followed by stoic vision. Stoic philosophers believed in the concept of *pneuma* – a Greek word denoted for 'breath of life'. Stoic philosophy, in fact, took another step in understanding corporeality; in their approach the notion of material body is extended to both human body and human soul. In other words, in these ancient manners of thought, even soul is recognized as corporeal (Dodds, 2002). Body and soul are always seen as linked, and the body has been always known as totally connected to the world around it (Figure 1.9).

The world is defined through the instant involvement of perception; it is given a character that derives from the projection of our body's image on to it. Throughout history, our bodies and the world remained mysteriously related. The *tension relationship* between the body and the world is ever lasting although it is constantly shifting (Gomez, 1986). Anthony Vidler specifies three stages of evolutionary system for the body's use in architecture. From Renaissance to Post Modernism, the continuity between body and architecture has been adopted within different contexts (Figure 1.10).

Figure 1.11. Diagram of Vitruvian Man from *L'idea della architettura universale*, 1615. Information adapted from *The Diagrams of Architecture* (P. 12) by M. Garcia, 2010, U.K. : John Wiley & Sons Ltd.

Figure 1.12. Francesco di Giorgio, detail from Marginal drawings of columns, capitals, and pilasters. Late 15th Century. Adapted from *Body and Building* (p. 35), by G. Dodds and R. Tavernor, 2002, Cambridge, Mass. : MIT Press.

Figure 1.10. Body and Architecture - 13th Century to Present by Pegah (Damineh) Dehnadfar. Information Adapted from *Body and Building: essays on the changing relation of body and architecture* by G. Dodds and R. Tavernor, 2002, Cambridge, Mass. : MIT Press. "The building in pain: The body and architecture in post-modern culture." (3-10) by A. Vidler, 1990, *AA Files* retrieved from <http://ezproxy.lib.ryerson.ca/login?url=http://search.proquest.com/docview/55049265?accountid=13631>. *Therme Vals* by S. Hauser & P. Zumthor, 2007, Zurich: Verlag Scheidegger & Spiess AG. *The thinking hand: existential and embodied wisdom in architecture*. by J. Pallasma, 20039, U.K. : Wiley. D.t. Suzuki: *Shin Buddhism and Christianity Compared* (p. 61) by D.T. Suzuki, 1998, Honolulu: University of Hawai'i Press. "Helsinki Museum of Contemporary Art, 1993-98". *El croquis*, revised and extended edition (including issues of 78, 93, 108), p. 251. Mexico: Arquitectos Publishing. *Topophilia: a study of environmental perception, attitudes, and values*. by Y.F. Tuan, 1974, Englewood Cliffs, N.J. : Prentice-Hall. *The Diagrams of Architecture* by M. Garcia, 2010, U.K. : John Wiley & Sons Ltd.

The first stage explores Vitruvian theory. During the Renaissance, the body was a direct projection onto the building; the body was perfection like the Vitruvian Man (Figure 1.11). Throughout the Renaissance, the direct projection of the body to architecture was developed and continued until it became a more involved process (Vidler, 1990). For instance, the projection of the body onto the building and the identification of the soul with the body's center of gravity can be seen in the work of Francesco di Griorgo's *Trattati di Architecttura* (Figure 1.12) (Dodds, 2002). Francesco di Griorgo also takes the idea of body's projection into city planning. He defined the center as the main square, which radiates out, like the limbs on a body. Likewise, the fifteenth century Italian architect, Filarete explores voids, deep spaces and entrances. He similarly generated a city planning that was structured like the body organ (Vidler, 1990). If we look back over the examples of Classic architecture, we can see many of them tried to project bodily proportions and functions on to the structures.

However, the architecture of the modern period was no longer a simple representation of body. During modernism, the critical analysis of the formal qualities of the Vitruvian man took into account an abstraction with the opportunities to include sensation and movement in architecture. In fact, the modern period realized the change in architectural theory and found it as an opportunity to engage the concept of sensation and movement. An example of this abstracted movement is recognized in Marcel Duchamp's *Nude Descending a Staircase* (Figure 1.13) where the body is unrecognizable yet communicates another language that is not static but dynamic (Vidler, 1990). Subsequently,

Figure 1.13: Left: Marcel Duchamp's *Nude Descending a Staircase* 1912. Right: Umberto Boccioni's *Unique Forms of Continuity* 1913. Adapted from *Les' Illustration Concepts Class, Motion in Art*, by Leskanturek, 2011, retrieved from <http://lesconcepts.wordpress.com/tag/nude-descending-a-staircase/>

Figure 1.14: *Body and Architecture: 20th Century to Present* by Pegah (Damineh) Dehnadfar. Information Adapted from "The building in pain: The body and architecture in post-modern culture." (3-10) by A. Vidler, 1990, *AA Files* retrieved from <http://ezproxy.libraryerson.ca/login?url=http://search.proquest.com/docview/55049265?accountid=13631>. *Therme Vals* by S. Hauser & P. Zumthor, 2007, Zurich: Verlag Scheidegger & Spiess AG. *The thinking hand: existential and embodied wisdom in architecture*. by J. Pallasma, 20039, U.K. : Wiley. *D.t. Suzuki: Shin Buddhism and Christianity Compared* (p. 61) by D.T. Suzuki, 1998, Honolulu: University of Hawai'i Press. *Les' Illustration Concepts Class, Motion in Art*, by Leskanturek, 2011, retrieved from <http://lesconcepts.wordpress.com/tag/nude-descending-a-staircase/>. "Helsinki Museum of Contemporary Art, 1993-98". *El croquis*, revised and extended edition (including issues of 78, 93, 108), p. 251. Mexico: Arquitectos Publishing. *Topophilia: a study of environmental perception, attitudes, and values*. by Y.F. Tuan, 1974, Englewood Cliffs, N.J. : Prentice-Hall.

the third stage of evolutionary system that Vidler (1990) identifies is the post-modern attitude towards animism by projecting the sense of aliveness. Thus, within post-modern exploration of the body, the abstraction process is shifted to a new level. In postmodernism the body is transformed; it is studied as fragmented and reformed; and the designs are based on instances of the body such as movement and consciousness (Figure 1.14).

Figure 1.15: Body and Architecture in contemporary practice by Pegah (Damineh) Dehnadfar. Information Adapted from *Therme Vals* by S. Hauser & P. Zumthor, 2007, Zurich: Verlag Scheidegger & Spiess AG. D.t. Suzuki: *Shin Buddhism and Christianity Compared* (p. 61) by D.T. Suzuki, 1998, Honolulu: University of Hawai'i Press. "Helsinki Museum of Contemporary Art, 1993-98". *El croquis*, revised and extended edition (including issues of 78, 93, 108), p. 251. Mexico: Arquitectos Publishing.

1.3.2 Embodied Experience

In accordance with the post-modern's novel representation of body as explained above, the current phenomenological concept in architecture includes understanding of corporeality and the embodied experience in an architectural space (Figure 1.15).

A number of known contemporary architects like Tado Ando have manifested corporal experience in architecture. Ando refers to the word *shintai* – a Japanese word for a living body. In his 1988 essay, *Shintai and Space*, he wrote:

When “I” perceive the concrete to be something cold and hard, “I” recognize body as something warm and soft. In this way the body in its dynamic relationship with the world becomes the *shintai*. It is only the *shintai* in this sense that builds or understands architecture. The *shintai* is a sentient being that responds to the world. When one stands on a site, which is still empty, one can sometimes hear the land voice a need for a building. The old anthropomorphic idea of the *genius loci* was the recognition of this phenomenon. What this voice is saying is actually “understandable” only to the *shintai*. (By understandable I obviously do not mean comprehensible only through reasoning.) Architecture must also be understood through senses of the *shintai* (Dodds, 2002, p. 305).

The importance of the empty cross in Tado Ando's church of the light, built in 1989, is an involvement of the *Shintai*. According to Japanese cultural tradition, *Shintai* surpasses the limits of sensation. The living body reaches out to the world, and explores creativity

in order to accommodate sensational quality. Integrating the natural phenomenon of light, the empty cross is an iconic representation of the standing body into an intangible reality (Dodds, 2002). Similar to the idea of 'Shintai' by Ando, Peter Zumthor in his book, *Thinking Architecture*, expresses his vision towards creating a space that can reflect the human existence and the feeling of life. For instance, Zumthor's Thermal Bath at Val, in Switzerland, demonstrates the links between the concept of phenomenology, the process of architectural design, and the corporeal experience of space.

Moreover, 'Motility of the body in space' is an expression used by the contemporary American architect Steven Holl. He explains the phenomenological conception of space and its corporeal reality and remarks that space is defined through the body's movement within it. In his book, *Parallax* (2000), he wrote:

Motility and the body-subject are the instruments for measuring architectural space. Mundane phenomenological studies are as ineffectual as an overdose of wide-angle, distorted color photography. Only the crisscrossing of the body through space – like connecting electric currents – joins space, body, eye, and mind (Holl, 2000, p. 157)

Holl states that the spatial awareness of the body represents a fundamental quality for creation of architectural space. In the design of Helsinki Museum of Contemporary Art, through various design experiments, Holl investigated different spatial perceptions for the

moving body in an architectural space. Holl's creation of space aimed to be developed through the importance of perception, awareness of space and the *aliveness* quality of the body in motion.

All the three projects mentioned above are about relative degree of life; however, none of the three projects are merely for experience; each project has a program and a practical purpose as well. In fact, the pure phenomenological experience, in all three projects, is contaminated by application of the specified programs and functions. In other words, although none of the three projects follow the Modernists' imposed structural order, they are still restricted to a different ordering principle. In each project, the accumulation of identical programs has still summarized architecture to its most primitive unit of meaning - the physical function. None of the projects provide a drastic experience of being, and by *drastic* I mean unusual in nature. In all three projects, the spaces are initially defined by familiar spatial definitions. None of the three projects retrieves a *drastic experience* of life; there is no uncertainty to be explored, and therefore there is no *tension*.

Emphasizing the effects of the physical environment on our lives, Alexandar (2002, p. 372) suggests, "The right kind of physical environment must have the living quality otherwise the freedom of spirit can be destroyed or weakened". He also suggests that the only architectural spaces that can nurture and accommodate our emotional freedom are the ones, "which are themselves alive" (Alexandar, 2002, p. 372). One can hardly doubt that the environments which have unknown potentials to be explored can evoke our inner freedom more easily and can make us feel alive.

By emphasizing the importance of the embodied experience in space, this thesis tries to show that the *degree of aliveness* in a space can only be measured by valuing the degree of feeling of life, which we experience in ourselves once we experience the space. In the following chapters, I explain how this thesis identifies skin as the edge of interaction and explores architecture as the 'Third Skin' within the concepts of *Parturition*, *Tension*, and *Transpire*. The Third Skin proposal is *parturient of potentials* to be experienced in a *tension* condition; it is an unknown to gradually *transpire* - to be revealed - as we experience it.

1.3.3 Skin: The Edge of Interaction

In Renaissance times, five senses were introduced and formed in a hierarchical system; vision was known as the highest sense and touch as the lowest (Figure 1.16). The senses were understood in relation to the body of universe. Vision was linked to light and fire, hearing to air, smell to vapor, taste to water and touch to earth (Holl, 2006). So, among many other systems such as light, fire, air, and water, why was earth linked to the sense of touch? The reason might have roots far deeper than just ranking the sense of touch in the bottom of the list. Considering nature, the surface of the earth creates one of the most distinctive and powerful boundaries in the universe. Earth separates us from the universe just like our skin separates us from the environment around us. They both accommodate *transitions* between two different systems. As we spread out our bodies in an environment, we constantly create different zones of interactions, which could form the primary nodes of our experience.

Skin is one of the very first organ systems developed in the human embryo. Once we are contained in the warm flesh of womb, we are already wrapped in a soft layer of skin. The skin is highly developed once the embryo is only less than one inch long (Montagu, 1986). Similarly, the sense of touch is the earliest to improve in the human embryo. Pallasma (2012) suggests that all senses including vision are extension of the haptic realm. All the senses are specializations of our skin, and all bodily experiences are by means of touching and tactility. Pallasma's account recommends that the multi-modal experience of architecture can be felt through our skins. Walking through slender streets of an old city, we may feel like being in an ambience or standing within the largest custom art frame that

Figure 1.16: Body and Architecture, a Multi-sensory Experience. Top: Microcosmos, 12th Century. The image adapted from *Body and Building* (p. 35), by G. Dodds and R. Tavernor, 2002, Cambridge, Mass. : MIT Press. Bottom: Wheel of Five Senses, Renaissance. The image adapted from *The Wall-Paintings of Longthorpe Tower*, by E. Clive-Rouse and A. Baker, 1955, Society of Antiquaries.

touches us very deeply.

Definitely, such feeling is not achieved through one sense or the other; we sense the warmth of the sun, the smell of the ocean, and the sound of the birds. Our senses, all together, generate the atmosphere we perceive as architecture. The multi-modal reflection of experience obviously digs beneath the superficial challenge of distinguishing senses. The fact that our experience of the world is multi-modal also identifies the importance of skin as an edge of interaction, which is the last layer that connects us to an external world.

Although the very first layer to develop, skin is the very last layer and a boundary that connects an inside to an outside. The word *inside* denotes a physical location that is external to it. In other words, the notion of interior and exterior creates spatial distinction with different experiential qualities. Interestingly, the skin both separates and connects us to an external world, and for such reason a very powerful interaction zone occurs. Plato states that 'The living being had no need of eyes when there was nothing remaining outside him to be seen, nor of ears when there was no surrounding atmosphere to be breathed . . . it was not necessary to bestow upon him hands, nor had he any need of feet . . . and he was made to move within his own limits, revolving in a circle' (Gomez, 1986). What Plato emphasizes here is the very notion of distinction between inside and outside - the man's own limits and the cosmos. In fact, our bodies' limit is impossible to be defined without a boundary - the skin. Our bodies' skin, like Pallasma (2012) suggests, parents all other senses in our bodies. The skin defines a boundary, creates varying spatial qualities, and accommodates different experiences of being.

1.4 First, Second, and the Third Skin: Feeling of Life

We all began inside. In the womb, intimately embraced and nurtured by warm flesh, we were contained and held. We could hear, touch, and feel, but we could see only light and shadow. Sheltered closely, we grew. When birth brought us outside, we were still inside: inside the room where the birth took place, inside the building that held the room, in the city or village, in the region, in the country, in the world. From birth outwards, even though we are forever inside some spaces and outside others, the primary experience remains one of being inside (Franck & Lepori, 2007, p. 18).

The notion of being contained is not limited to skins of our bodies. A second skin, the clothing, covers bodies. And a Third Skin, architecture, holds the two skins within its delineated space. The symbiosis between our bodies' natural skin, the clothing as the second skin and the architecture as the third one can generate a new body consciousness. Along with forming a bodily awareness, the layering structure of the three skins generates different experiential conditions. Just as clothing is the key element in molding the body's shape and turning it into stylized second skin wear, architecture defines space around the body and it can explore new representations of the human form. With no doubt, an architectural space can transform our experiences of the environment around us.

The commonalities that bind together the dialogue between clothing and architecture have been used since possibly Vitruvius or even earlier. Architectonic references can be seen in historic costumes; the trunk hose and codpieces of the Elizabethan era are representation of

columns and buttresses common in architecture of the same period. Not just in terms of style but also in its thoughts, in its grasp of what is going on in the world, clothing never seemed to be so separate from architecture (Quinn, 2003). Likewise, Adolph Loos in his 1898 essay, *The Principle of Dressing*, identifies the true and logical sequence in architecture as if they follow the same logic in clothing. He suggests that architects first engage with textiles in order to understand the values and aesthetics of the setting, and then employ structure in order to maintain these principles in a built form (Collins, 1984).

Although architectural spaces are generally understood within the notion of inhabitation, the German architect of nineteenth century, Semper argued that architecture is not merely to inhabit; and he suggested that architecture, like clothing, could be worn. Semper compared the word *Wand* (wall) and *Gewand* (dress) and explored their etymological relationship; he took this comparison further and investigated that a building could be worn (Quinn, 2003). To wear is to carry or to have on one's body as covering. By bringing such concept in architecture, spaces definitely become more engaged with embodied experience. The Semper's perception of architecture as to be worn accommodates a stronger sensual quality for the generated space; it empowers our bodily awareness and our experience of being - our feeling of life.

Both clothing and architecture create spaces that are hidden from sight, the interstices; however, each might have different aptitudes in revealing the void and manifesting its potentials. For instance, the embodied experience is naturally profound in clothing, and what we wear can easily become the mirrors of our inner self. The following

*Figure 1.17. Smart Second Skin dress by Jenny Tollotson. Multisensorial clothing that reflect changes in the wearer's emotional states. Adapted from *Textile Futures: fashion, design and technology*, by B. Quinn, 2010, New York: Berg.*

few examples shows the potentials of clothing in order to uncover the spatial gap between the body and the created space.

As the body's major interface with the environment, skin significantly communicates the body's inborn character, its sensitive states and physical comfort. Jenny Tillotson, a Senior Research Fellow in the sensory, aroma and medical field in fashion and textiles design, interprets the second skin, clothing, as sensitive surfaces that have the capability to imitate the specific function of the body's natural skin. She developed the Smart Second Skin Dress (Figure 1.17), which has the potential to generate a sensory environment around it. Mimicking the natural skin's inherent ability, the Second Skin Dress mirrors the body's emotions and the wearer's sensory experience. Tillotson centers the Smart Skin Dress on the veins and arteries in addition to olfactory centers and scent glands. Accordingly once the dress interacts with the body, it measures the wearer's emotional state and releases aromas in response to the mood of the participant. Her work involves an experience of the sixth sense, as the wearer of the second skin gets more aware of his or her own sensory universe (Quinn, 2010).

The concept of the second sensory skin along with the exploration of individual's role in collective experience are examined in the works of the American artist, Nick Cave, and the Brazilian visual artist, Helio Oiticica (Figure 1.18). For Cave, sensory skins are a point of attraction. His Soundsuits are wearable sculptures constructed from fabric and recycled objects. The suits cover the entire body, sometimes only uncovering the eyes. Masking the identity of the wearer is the central concept in Cave's work. Soundsuits provides a symbolic camouflage

Figure 1.18. The Second Sensory Skin. Left: Parangoles by Helio Oiticica. Adapted from flickr. C. Mac, 2008, Retrieved from <http://www.flickr.com/photos/durru-ti/2286458557/>. Right: Soundsuits by Nick Cave. Adapted from Daily Dose Pick: Nick Cave's Soundsuits, by K. Lund, 2010, Retrieved from <http://flavorwire.com/76165/nick-caves-soundsuits>.

that poetically eliminates the prejudices that some African-American confronts. The Soundsuits are proposed to portray something beyond skin; it takes the wearer to a neutral space free of class, race or gender (Quinn, 2010).

Likewise, in her work called Parangoles (1964) the Brazilian artist, Helio Oiticica, invites the spectators to wear the artwork and participate. The parangoles were wearable structures fabricated from banners, textiles, colored cotton and plastics. By wearing the artwork, the participants come to perceive their own bodies transformed into a dance. The artwork engages the wearer in a ludic experience transforming into an expressive act (Quinn, 2010).

“The series of works is to make intelligible what I am. I become to know myself better through what I do. Actually, I don’t know what I am. Because if it is an invention I am not able to know it; if I knew what these things were, they would no longer be an invention. Their existence makes the invention possible.” (Cunha, 2007)

Figure 1.19. Parangole by Helio Oiticica. *8tracks*, 2011, Retrieved from <http://8tracks.com/the-gallery/the-gallery-presents-helio-oiticica-parangole>.

The Parangole was not something to put on the body just to be displayed. Simultaneous experiences were to engage the wearer, the spectator, the person who is watching the other putting it on, or those who put on the artworks at the same time (Figure 1.19). The Parangole was multi-experiential that represents spontaneous and undirected playfulness; it represents an unknown to be discovered (Cunha, 2007).

In all three examples mentioned above, the 'Smart Skin Dress', the 'Soundsuits', and the 'Parangole', there is a shared idea. In all three experiments, the experience is profoundly dependent on participants appearing and moving around. Embracing the same concept with the Third Skin enables a new way to experience architectural spaces. In order to perceive and sense an environment, the body and the space must be thought as if one is crossing the other. As opposed to the traditional approaches to spatial perception, an architectural space as the Third Skin is not to be created based on predetermined data, however, it is open to the living activity of the body. In other words, I imagine that the Third Skin has the potentials to make a connection between spatial perception and the bodies' existence. The body can cross and cut through the Third Skin and explore the relationship between the built environment and the inner energy of body in action.

Figure 1.20. Bio-Tissue Hotel proposal by UCL, 2005 – the new skin. Adapted from *Architextiles*, by M. Garcia, 2006, London: Wiley-Academy.

Figure 1.21. Bio-Tissue Hotel proposal by UCL, 2005 – the pocket rooms. Adapted from *Architextiles*, by M. Garcia, 2006, London: Wiley-Academy.

1.5 Precedents: Experiential Architecture

The human condition is marked by our being strangers, born in to a world that we do not create but must discover and, to some extent, invent ... when we confront our existential isolation, we rely on some form of creative thinking of our own. The whole experience is marked by struggle and uncertainty, especially the creative part. (Woods, Myers, & Harries, 2004, p.9)

Often architecture has been conventionally preoccupied with *fixity* of forms and geometries leaving the *soft* quality of spaces as the secondary concern. Many architectural spaces are still traditionally defined through hard forms of construction not concerned with what effectively happens in the soft spaces between and around the fixed structure and envelope. In my mind, there is something revealing about the soft spaces between and around the concrete form of architecture. The soft spaces in an architectural setting can simulate emotions, deploy sensations, and accommodate embodied experience. The recent phenomenological architectural designs examine the corporeal engagement in order to reveal a degree of *sensing of life* in spaces. Recent architecture utilizes soft spaces in an attempt to articulate an identity for embodied experience. This chapter investigates this approach, in relation to soft spaces between and around the structure and envelope, in three projects: Light Pavilion and Berlin Free Zone by Lebbeus Woods, and the Bio-Tissue Hotel proposal by UCL.

Figure 1.22. Bio-Tissue Hotel proposal by UCL, 2005 - Sketch by Pegah (Damineh) Dehnadfar. Original image Adapted from *Architextiles* (P.), by M. Garcia, 2006, London: Wiley-Academy.

1.5.1 Bio-Tissue Hotel

Shanghai, China. UCL Proposal, 2005

Bio-Tissue Hotel is a project proposal by UCL in 2005 in order to develop the concept of a living surface as cultured-skin architectural materiality (Figure 1.20). The new skin is to cover other architectural surfaces, to stand as an independent entity and to enhance the sensual quality of the environment (Garcia, 2006). What impresses me about this proposal is that the project looks beyond the conventional notions of making architectural spaces and moves towards an exploration of the implication for sensual experience in space. The proposed architectural skin captures the imagination regarding how architectural surfaces can appear not as inactive forms, but as active sources of interaction simultaneously defining boundaries and releasing sensual qualities.

The proposal use of new digital technologies is not merely to create forms but in an attempt to create an interactive environment. It is noteworthy that the project moves beyond the concrete limits of architecture and represents an unrealized architectural consciousness. The idea of skin living outside of the human body is one of the important developments in biotechnology, which has been adapted to manufacture biological textiles - bio-textiles. The culture of skin is its growing character; the idea of semi-living bio-textiles for this proposal was a response to a desire for a more complex relationship to the surrounding environment. The idea of interface is modeled from the responsiveness of various types of animal skins as a source of interactive purposes for possible architectural bio-textile skins. The Bio-Tissue Hotel project investigates the possibilities of the application of these material qualities and examines them as an

artificial living architectural skin. The proposed organic façade of the hotel includes pockets of hotel rooms (Figure 1.21). The pockets provide an interstitial space for interaction with the semi-living surfaces, which I would identify as a *third skin*. This semi-living surface is designed either to be an independent entity of its own or to eventually cover other objects and architectural surfaces (Figure 1.22). The new architectural bio-textile skin aims to enhance the visual, tactile, and emotional qualities of the object that it covers. The interactive skin challenges to stimulate new types of behavioral, emotional and perceptual experiences in users (Garcia, 2006). I can imagine that the new interactive skin defines a boundary between the concrete world of the structure and the abstract world of the pocket rooms. The edge condition, although is simply defined through formal strategies based on massive skin or structural enclosure, I can see it as an edge of transition that captures sensual experience.

To me, the most impressive thing about Bio-Tissue Hotel proposal is the material itself. The pocket rooms are surrounded by sensuous material but they don't suggest any specific sensuous way in engaging these interactive surfaces. The embodied experience is limited to bio-textile surface interaction. It is not the architecture - the pocket rooms - that makes the material shine and vibrate but it is the opposite. The interactive surface - bio-textile skin - rules the whole composition of experience and it is a merely element of engagement. However, the corporeal experience that I would like to achieve in this thesis moves beyond the sensual qualities of the material itself. I believe that corporeal experience must evolve within a set of circumstances that surrounds the architectural material. In fact, it is the architecture that must generate experiential settings for the architectural material

or object. The pocket rooms of Bio-Tissue Hotel simply provide experiential situation through their interactive surfaces; however, the consistent spatial compositions of the rooms does not suggest any exploratory transition between the cells. In my mind, exploration is an inevitable essence of the embodied experience. A living architectural space must address the bodily engagement simultaneously. These spaces are the ones where we can experience the *sensing of life* in ourselves. The architectural object does not necessarily need to be moving, living or growing, except that the architecture itself can let our bodies grow into the space, sense the space and make the space alive.

Figure 1.23. The Light Pavilion Sketches. Adapted from *Lebbeus Woods*, L. Woods, 2011, Retrieved from <http://lebbeuswoods.wordpress>.

1.5.2 The Light Pavilion

Chengdu, China. Lebbeus Woods, 2012

Like most of the Lebbeus Woods proposals, the light pavilion is an experimental space. The pavilion provides opportunities to experience new types of space, which are not familiar to the users and the ones that they have not experienced before. As Lebbeus Woods and Christoph Kumpusch (2011) explain whether it is:

“a pleasant or unpleasant experience; exciting or dull; uplifting or merely frightening; inspiring or depressin . . . is not determined in advance by the fulfillment of our familiar expectations, because we can have none, never having encountered such a space before”. The participants – like transient inhabitants – need to walk into the space, pass through it, experience its experimental nature, and discover the space on their own” (Woods & Kumpusch, 2011).

The sketches (Figure 1.23) model a collapse in the façade. The installation’s irregular form sets against the regular rectilinear architectural geometries and makes a moment of exception in structure. The renderings (Figure 1.24) illustrate a dynamic quality; the illuminated supporting columns for the stairs and viewing platforms have a non-rectilinear grid, which frees the space from the conventional static stability of architectural settings. The irregular geometry of the columns, their change of scale, and altering orientation, all together bring motion in space. What is thrilling to me is the tension and edginess that the drawings propose. In my mind, the Light Pavilion is presentation of something unknown and it is up

Figure 1.24. The Light Pavilion, Renders. Top: Interior view. Bottom: Exterior view in context. Adapted from *Lebbeus Woods*, L. Woods, 2011, Retrieved from <http://lebbeuswoods.wordpress>.

to the visitor to explore the experiential potentials hidden in each moment of transitional space. As we climb up space, the voids turn to solids and vice versa; the columns open or enclose the views from one side to the other. I can imagine that walking up stairs and facing different orientation evoke our consciousness.

Woods and Kumpusch (2011) describe the Light Pavilion as an experimental architecture, and by that they mean architecture that invites people in and encourages them to explore. As the reason to develop such experimental spaces, they explain: “our rapidly changing world constantly confronts us with new challenges to our abilities to understand and to act, encouraging us to encounter new dimensions of experience”. The statement above clarifies the attempt to create architecture that is undecided, unrestricted, experimental and exploratory. It is obvious that *sensing of life* in an architectural space cannot be achieved merely through unusual fabrication or imaginary. A living space must articulate our experience of being and reflect our sense of self (Pallasma, 2012). To my view, experiential architecture is not as much about the *gradient of space* but it is all about the *gradient of experience*. In the Light Pavilion, what I can picture in my mind is a series of progressively increasing or decreasing differences as one climbs up or down through the stairs.

The unbalanced structure of the Pavilion (Figure 1.25) invites us to participate in the space, engage with it, experience it, and eventually make it alive. Unlike the Bio-Tissue Hotel proposal, the *sensing of life* here is not limited to interaction with an architectural object - the semi-living bio-textile surface. However, it is through the visitors’ embodied experience that the space becomes alive. It seems

Figure 1.25. The Light Pavilion, the unbalanced Structure. Adapted from *Lebbeus Woods*, L. Woods, 2011, Retrieved from <http://lebbeuswoods.wordpress>.

important that the space cannot be judged unless it is subjectively experienced.

I believe, the light pavilion presents itself as a luminous vital *third skin*. The visionary scheme of the Pavilion is striking yet the real discovery is obviously planned to start when the users are participant not just observers. Meeting a new level of experience seems to be the main and only purpose of the project. The architectural drawings and renderings suggest a very experimental architectural space, but to really feel if the space has a *sense of aliveness*, only the actual experience of space can make valid what the drawings suggest.

1.5.3 Berlin Free Zone

Berlin, Germany. lebbeus Woods, 1990

The Light Pavilion reminds me of Lebbeus Woods' Berlin Free Zone proposal in 1990. Like the Light Pavilion, the 'free-space' tends to deform the uniformly intersected parallel structure. The idea was proposed soon after the fall of Berlin Wall and it was to illustrate how the era of social disturbance develops the opportunities for creative freedom. During the transition in-between political systems, the Free-Zone project represented the possibility of new kinds of experimental inhabitations after the fall of the Berlin Wall (Myers, 2004, p. 24). The sketch (Figure. 1.26) by Lebbeus Woods shows a distinct free space within an existing structure. Once again, like the Light Pavilion, the change of scale and irregularity of structure makes the Free Zone detached from surrounding and it seems to be an invitation to get people in and let them explore. The oddly shaped interiors were designed with the purpose of being difficult to inhabit. In Lebbeus Woods' words: "You can't bring your old habits here, if you want to participate, you will have to reinvent yourself" (Ouroussoff, 2008). Like the Light Pavilion, the Berlin Free Zone project represents a gateway towards another dimension of experience.

Similar to Bio-Tissue Hotel proposal and the Light Pavilion, the Free Zone sketch (Figure 1.27) suggests an inspiring transition between an abstract world and a concrete world. In comparison to the two other proposals, I can imagine that passing through the intangible space within a tangible structure creates a strong embodied experience. To me, what empowers this proposal comparing to the other two is that the proposed open space is entirely interior. The space is created ambiguously hidden within an existing structure. I can identify the

Figure 1.26. Berlin Free Zone 1990-91, Composite Section through free space. Adapted from *Lebbeus Woods: experimental architecture*, T. Myers, L. Woods, and K. Harries, 2004, Pittsburgh, Pa. : Carnegie Museum of Art, the Heinz Architectural Center.

Free Zone proposal as an inner *third skin*, which is situated away from the exterior façade and only affects the midpoint of the structure. This, in my mind, makes the Free Space appear secret and more mysterious. I believe that the real core of all architectural spaces is the interior experience. By looking at the modular regulated modern building of 90s, we might think the building has no depth, no soul, and no interior life. However, the truth is that there is life but there is no access to it. I can imagine the Free Zone as an access to the interior life of the building. In my view, the Free Space reveals something about a concealed inner tension within the concrete mass of architecture. Woods mentions that the free spaces are “an inner frontier that challenges conventions of every kind. You cannot move in with your old furniture” (Myers, 2004, p. 24). Woods’ statement suggests that there is no predetermined purpose for the proposed ‘free spaces’. It seems to me that it is up to the participants to engage with the space and explore the *tensions* between themselves and the environment. This, in my view, emphasizes the role of human interpretation in the perception of the environment and empowers the embodied experience in the space.

Although the Free Zone proposal seems more like a speculative scenario than a built form, it is not far from being real. I believe that in phenomenological thinking in architecture, we must challenge the limits of the material world that are measurable. To imagine the potentials and the future, architecture may suggest environments that are not logically perceivable. To perceive the future, we may need to move beyond our comfort zone; we must be open to the possibilities that an architectural space can evoke. Only in that can we

Figure 1.27. Precedents Review. Left to right: Bio-Tissue Hotel, 2005. Image adapted from *Architextiles* (P.), by M. Garcia, 2006, London: Wiley-Academy. Light Pavilion, 2011. Image adapted from *Lebbeus Woods*, L. Woods, 2011, Retrieved from <http://lebbeuswoods.wordpress>. Berlin Free Zone, 1990-91. Image adapted from *Lebbeus Woods: experimental architecture*, T. Myers, L. Woods, and K. Harries, 2004, Pittsburgh, Pa. : Carnegie Museum of Art, the Heinz Architectural Center.

develop our experimental hypothesis, which leads us to conceptual thinking of the matter. The concept could be explored in project drawings, which then might be translated to an imaginary object of a physical form. At last, we must experience the created architectural space before we can judge its material and immaterial qualities. Only then would we know if the proposed architecture is the object of the original desire.

02

Transpiration, Tension, Partirution The Theoretical Analyses

tran.spire tranz'pī(ə)r

1: to cause (as a gas or liquid) to pass through a tissue or substance or its pores or interstices 2: to excrete or give off (as moisture or vapor) through the skin, a membrane, or living cells: PERSPIRE, EXUDE, EXHALE ~ vi 1: to emit moisture, vapor, or perfume; specif : to give off or exude watery vapor from the surfaces of leaves or other part 2: to pass out or escape in the form of a vapor from a living body <moisture through the skin> 3 a: **to become known or apparent**: DEVELOP b: to be revealed. 4: to come to pass: HAPPEN, OCCUR.

ten.sion 'tenʃən

1 a : the act or action of stretching or the condition or degree of **being stretched to stiffness**: TAUTNESS <to install the belt, slip it over the pulleys and adjust its ~ - H.F. Blanchard & Ralph Ritchen> b: STRESS <arterial-> <muscular-> c: a momentary state of muscular tautness in dance technique that inevitably resolves into relaxation 2 a: either of two balancing forces causing or tending to cause extension b: the stress resulting from the elongation of an elastic body - contrasted with compressive stress c archaic : PRESSURE 3 a: inner unrest, striving, or imbalance: a feeling of psychological stress often manifested by increased muscular tonus and by other physiological indicators of emotion

par.tu.ri.tion ˌpɑːrɪd-ə'riʃən

: The action or process of **giving birth** to offspring. to be **parturient** is to be at the point of producing something (as an **idea**, **discovery**, or literary work)

Figure 2.1. Transpire, Tension, parturition - Connotations

Modified image. Original image adapted Dfrom *Intimate Space*, by J. Schaiti. Retrieved from <http://intimatespace.net/index.php?id=52>.

02 Transpiration, Tension, Parturition

the theoretical analyses

This thesis concept has been developed through expressing, interpreting and implementing the related theories to enhance the proposed premise. The work explained in this chapter has been established through a number of discoveries, and it is a product of various analyses.

Interpretation has been always present in architecture. Analysis and understanding of theories are evident not only in the critique of architectural creation but in the act of architectural creation itself. Architectural design and creation is not a logical decision making as it is in science. For Louis Kahn, “architecture is no science, and planning is no science” (Snodgrass & Coyne, 2006, p. 71). There must always be a place for subjective input in architectural making. Likewise, the conceptual thought developed for this thesis is the product of subjective analyses and interpretation of the existing theories. This chapter captures the reflective experience of analyzing the theories to synthesize the project statement. Interpretation is the core of architectural understanding of the Third Skin, and accordingly; the essential of architectural making of the Third Skin, for that matter.

Figure 2.2. To Transpire

2.1 Part I: Transpire

In light of my reviews of corporeal experience and phenomenological conception of space, the importance of interaction between the environment and human bodies appear unquestionable (Figure 2.2). The ancient theorists of the 5th Century including Plato, Aristotle, and Stoic emphasized on the idea of corporeality and highlighted the importance of human body's existence in space. Between the 12th to the 18th century, as it is summarized in Figure 1.0, the notion of body was explored more in relation to Microcosm, and the notion of sensation was identified as a driving factor to detect and feel the architectural atmosphere. Later, the philosophers and theorists of the 20th century including Maurice Merleau Ponty and Ashley Montagu investigated and underlined the importance of subjective perceptual experience of space. To Merleau Ponty, "the body is a form of consciousness" (Romdenh-Romluc, 2011, p. 62), he argues that the body is not a mere physical object; instead it is a conscious subject. Merleau Ponty believes that our bodily consciousness reinforces our activities that are usually recognized as mental, and that includes our thinking, beliefs, and desires. Through his analyses, Merleau Ponty argues that "the senses are not discrete modes of experiencing the world. Instead, they are integrated with, and transform one another". He also suggests that "we should think of senses as internally related components of a unified perceptual system" (Romdenh-Romluc, 2011, pp. 67-68).

Definitely, all the above theories tie together one certain hypothesis and that is a form of interaction between the bodies' consciousness and the world (Figure 2.3). Similarly, my response to these theories lies with the importance of individual embodied experience in space.

Figure 2.3. Idea Sketch: interaction between the bodies' consciousness and the world

Sensing of space is personal and can only be explored within the subjective human experiences.

Therefore, I would imagine the creation of the Third Skin project to move beyond the built form and to recognize the interaction between human bodies and the architectural atmosphere. Human bodies are the very reasons for architecture to exist; they cannot be hidden or neglected in architecture. As Vesely (2002) mentions, “the body for Plato is not a given or something that can be isolated or defined as an entity; rather, it is part of a process of ordering within the domain of necessity”. Vesley (2002) also describes that Plato refers to both the contingency of the nature of the body and the contingent notion of the world around it (Dodds, 2002). In fact, by creating architecture, we describe a possible interaction between the moving human bodies and the touching of architectural space. I call it a possible interaction because our bodies’ engagements are never projected.

Human bodies are unknown possibilities of transformation, which become known through their movements, emotions and reactions. In accordance with the value of human bodies in space, I see the process of creating an architectural space as *to transpire*; this process is never complete and there is always something to explore. The word *transpire* is very critical to me. As it is listed in the Oxford dictionary of American Usage and Style, transpire means “to pass through a surface; come to light; become known by degrees”. The other meaning listed is to happen, to occur, to take place (Garner, 2000). The two meanings together suggest a mystery and a discovery of unknown.

Transpire is also determined as of the body, of the skin, and it is to

Figure 2.4. Idea Sketch: the bodies' skin and the Third Skin as the edges of communication.

excrete (Webster's College, 2010). Earlier in introduction, I described the importance of skin as the edge of interaction . Comparably, to transpire is to emit and become known through the skin, and the position I would portray in this thesis is to engage the body's skin and the Third Skin as the edges of communication (Figure 2.4). Thus, the analyses up to here suggest to engage bodies in the spatial design process, to emphasize the role of human interpretation in the perception of space, and to let the simultaneous experiences happen within which the unknowns of our inner selves will *transpire* – will be revealed.

Figure 2.5. Descartes' Cartesian philosophy: intention to detach human consciousness from the physical materiality of the body

2.2 Part II: Tension

As explained above, the process of creating the Third Skin as to *transpire* would facilitate the manifestation of what is hidden or presentation of what is unknown. Exploring such uncertainty involves *tension* and struggle. Each individual may interpret and reinterpret what is initially recognized as an experience of certain architectural atmosphere; the Third Skin is about the instant embodied experience of individuals, and that is not to be recognized unless it is spontaneously transpired. This process involves *tension* because it is a search for balance between human bodies and an architectural space. It is tension because it explores balance within an edge of interaction.

In his book, *The Phenomenon of Life*, Alexander argues that “our emotional freedom, our spirit, is nurtured and supported by those environments which are themselves alive”, and he continues that in the environment “which has living structure each of us tends, more easily, to become alive” (Alexander, 2002, p. 372). His statement suggests a balance between the degree of aliveness that human bodies feel in an environment and the degree of aliveness that an environment stimulates. Surely, that balance cannot be a product of a geometrical arrangement of a space; instead it is an outcome of working under great *tension* to accommodate that balance. I shall argue that the true way of valuing the *sense of aliveness* in the space is to test it through *tension* of being subjectively experienced.

Three centuries ago, Rene Descartes developed an objective view to the world. In contrast with theories of Plato, Aristotle and Stoic, Descartes’ Cartesian philosophy intended to detach human

Figure 2.6. Understanding of an architectural space cannot be predetermined through physical geometries; our bodies together with our experience explore the architectural meaning of the space.

consciousness from what is considered the physical materiality of bodies (Figure 2.5) (Franck & Lepori, 2007, p. 19). His attempt was to find a way of observing experience that gives sharable and shared results, and accordingly his purpose was to conclude that experience is objective (Alexandar, 2002). The design methods I have explored so far in this thesis completely contradict such philosophy. In Cartesian philosophy there is nothing unknown to *transpire*, there is no *tension* of subjective experience, and accordingly there is no life. The isolation of body from soul would eliminate the entire concept of embodied experience. Understanding of an architectural space cannot be predetermined through physical geometries, objections or facts; our bodies together with our experience explore the architectural meaning of the space (Figure 2.6). We explore *tensions* between our bodies and the environment, while the process of exploration itself includes *tension* and struggle. The concept of *tension* suggests that embodied experience of an architectural space is more than a participatory event. An embodied experience is more than just being there: it is an engagement.

2.3 Part III: Parturition

Phenomenological thinking in architecture clearly draws out the importance of a body's movement in the space. However, the study of corporeal experience in architecture suggests that our embodied engagement is not only a matter for moving in the space but also for acting in response to potential stimulus in the space. In his book *The Sense of Space*, David Morris draws on the philosophy of Merleau Ponty and brings together space and human body to show how our bodies affect the world around us and vice versa. His analysis suggests that our bodies must be measured as of the space rather than just in the space. He refers to the reflective body-world movement and states that "the body moves by growing, grows by moving. Space grows. We grow into space" (Morris, 2004 p. 158). This account suggests a sequence of to come to be by a gradual process: we move, we grow the space around us, and then we start to get ourselves grown in that nurtured space. So, the *sensing of space* is deep-rooted in movement, the movement gives our bodies volume and depth, and the volume is what makes potentials and opportunities possible. I would argue that the living kind of architectural spaces are the ones that can nourish those potentials to grow. Such architectural spaces are *parturient* of opportunities. To be *parturient* is to be in labor (Hoad, 1996); architectural spaces must be *parturient* of opportunities to be recreated, reinvented, and redeveloped in order to suit or to dress our bodies. The Third Skin proposal does not consider our bodies independent from the space; however, it considers them as actively and constantly engaged with the space. Architecture as the Third Skin impregnates actions taken by occupants.

Moreover, I see that the creation of the Third Skin is also entitled to

parturition. Parturition is the act or process of giving birth (Cammack et al., 2006). Filarete, the sixteenth century Italian architect, compares the generation of the building with the generation of the human body. In his 'Treatise on Architecture', he mentions that "the building is similar to a man. Therefore, if this is so, it needs to be conceived and then born". He states that "Before the architect gives birth, he should dream about his conception, think about it, and turn it over in his mind in many ways for seven or nine months, just as a woman carries her child in her body for seven to nine months" (Spencer, 1965, p. 15). He also explains that once there is a birth then there is nursing; he makes that analogy and perceives the corporeal projection in the created space. In fact, Filarete's account suggests a phenomenological way of dealing with an architectural design scheme. First, the architect *impregnates* ideas and then, the architecture *impregnates* actions taken by occupant. First, there is the journey of exploration to create the space and then, there is a journey of exploration to experience the space.

03

Design as Process

Journey of Explorations

Figure 3.1. Design explorations. Top: Spot in Space, Bottom: The Frozen Void

3.1 Design Explorations

The initial intention for the design explorations was to discover the thesis conceptual outcome - *Transpire, Tension, Parturition* – in a three-dimensional condition. The exercises (Figure 3.1) target the three interwoven concepts and explore their spatial qualities and potentials.

Figure 3.2. Design exploration: Spot in Space

3.1.1 Spot in Space

Spot in Space is the first experiment challenging the condition of parturition in relation to transpiring through tension situation. Three types of textiles with different qualities in softness and elasticity were squeezed in a spot made of another textile, which has much more steady quality. The spot is set up in the center of the space and it is impregnate of three different promises; the spot has a sense of mystery, a discovery of unknown. Once the fabrics are out they contribute and bring various aspects and dimensions of experience into the space. Throughout the experiment, every time the spot moves up and down, back and forward, it makes a new image and it creates different spatial qualities (Figure 3.2). In fact, the spot here becomes known better through giving birth; it is transpired once its inside is out.

Another outcome that was recognized in this experiment is the idea of memory and time. The fabric has a retention quality; they were flat in the first state and once they enfolded in and folded out they change their formal state. Textiles return to their initial flat state but this transformation takes a while; and that engages the idea of time. The memory of being inside is faded through the inevitable passage of time.

The *Spot* here represents architecture as the Third Skin; the Third Skin that is *parturient* of potentials, which has the characteristic of being explored. Whereas, the traces of memory for what is being explored and experienced remains in the space.

Figure 3.3. Design exploration: The Frozen Void

3.1.2 The Frozen Void

The previous experiment had a greater focus on the concept of *parturition* and did not discover the notions of *transpire* and *tension* with the same level of clarity. Thus, the second design exploration takes the earlier ideas further with a stronger concentration on the ideas of *transpire* and *tension*.

Tension, as it is listed in dictionary, is the act or action of stretching or the condition or degree of being stretched to stiffness (American Heritage, 2003). To include the quality of tautness in this experiment, the textiles needed to be contained in a more tangible situation. In the previous experiment the spot was situated in the air and here in this experiment the subject is positioned in a more tangible situation, in water. To create a tension condition, a receptive-reactive response was needed, and water was chosen for its more concrete reflex quality compared with air. Moreover, the change in the state of water was very important in this experiment. When a liquid turns to a solid, it starts the process of freezing; when water chills below the freezing point, it drops energy, the particles are enforced to turn to solid, and consequently they expand and react to their surrounding. As the very first stage of experimentation, a piece of fabric, with a good level of elasticity, *parturient* with a ball of acrylic paint is placed in water. Putting it in a freezing condition (Figure 3.3), the ball of paint got squeezed in a frozen solid and released some tiny portion of paint like if it started to reveal the reality of what was sealed and unknown. However, the solidity around the fabric did not let it stretch and fully represent its inside.

Subsequently, the frozen solid was left in a room temperature to melt.

Figure 3.4. Design exploration, the Frozen Void

The solid started melting faster around the fabric. Thus, it reached the condition where a very thick solid covered a tiny linearly collected liquid, which allowed for movement. Therefore, the fabric could be stretched and its inside, the paint, was revealed. In fact, the state of liquid represents a useful emptiness in between two objects, which I can identify as an *interstitial space* that allows for *movement*.

Like the *Spot* in the earlier experiment, the stretching fabric here represents architecture as a *third skin* that is *parturient of potentials* - the ball of paint. Yet, as opposed to the previous experiment, here *parturition* is put through the extreme condition of *tension* in order to become *transpired*. In the *Spot* experiment, *tension* was only read through the act of transpiring and revealing an unknown, which is a tension condition. But here in this experiment *tension* is experienced physically. The interstitial space signified a gap that allowed the water to seep through along with the stretching fabric, leaving the stains of paint on the surface of the boundary – the ice cube (Figure 3.4). This marking represents the spontaneous movements within an interstitial space. The experiment suggests that the Third Skin has embodied potentials to be explored and an interstitial space accommodates and highlights such potentials.

Figure 3.5. Reinterpretation of Effects

3.2 Reinterpretation of Effects Interstitial Space, In-betweenness

The Frozen Void experiment represented an interstitial space as a rich concept to accommodate the potentials to happen. The experiment suggests that although emptiness is formless, it is essential for movement. The outcome from the experiment recommends that the void of in-between is an absence yet a presence. This section of the report reflects on interstitial space with reference to the concept of the *Third Skin*. I would like to reconsider the term interstitial and explore how it relates to our most fundamental experiences of space (Figure 3.5).

The dictionary definition of interstitial is relating to, occurring in, or affecting interstices (American Heritage, 2003). Interstices include an intervening space, or an interval between parts. Interstitial space can be recognized as a borderline between two contrasting aspects. It can represent various types of oppositions including multiple and zero, solid and hollow, sound and silence, positive and negative. An interstitial space can signify juxtaposition and it can be a midpoint between two opposing factors.

Figure 3.6. Thermal Bath at Vals (1996) by Peter Zumthor

Left: Adapted from flickr, by A. Aydin, 2013, Retrieved from http://www.flickr.com/photos/asli_aydin/5013417903/sizes/o/in/photostream. Right: Adapted from Poetry in Space: Vals Thermal Spa in Switzerland, by C. C. Hanway, 2012, Retrieved from <http://www remodelista.com/posts/poetry-in-space-vals-thermal-spa-in-switzerland>

What does 'interstitial' mean in terms of experiencing architectural spaces? Human beings unconsciously notice changes and the differences between things; the relationship between things is understandable through humans' ability to identify the transition from one thing to another. For instance, the embodied experience in Peter Zumthor's Thermal Bath at Vals in Switzerland is highlighted through the transitions between two opposing qualities; light to dark or sound to silence (Figure 3.6). In my mind, such spaces are always *parturient* of the contrasting condition, and are in *tension* revealing the opposing quality to *transpire* - to be revealed.

This thesis identifies the interstitial space as where the marginal awareness – the *Third Skin* – can happen.

04

Design as Experience

4.1 The Context

Traditional architectural spaces usually have a common concept of separation between floor plan, structure and skin of buildings. In conventional architectural designs, the structural grid outlines a predetermined rule in defining exterior and interior spatial experiences. However, the orthogonal grid or the quality of intersecting at preset angles is not a feature of the nature, and it does not embrace the dynamics of the natural world. Furthermore, the being of body in a space is the basis for a living experience. Thus, centering the spatial perception on predetermined data is in absolute contrast with the dynamic nature of experiencing body in action. In other words, the experience of space is rooted in our bodies' movement, and perceiving or sensing the space is a practice in living not in geometry (Morris, 2004).

The function of an architectural space is to be experienced, and the intention is to provide the participants with a satisfying or stimulating spatial experience. But a question to take into account is how much a static architectural grid-based space can facilitate such objection. As explained in the introduction, one of the traditional scientific accounts for spatial perception is Descartes' Cartesian philosophy. According to Descartes' hypothesis, spatial perception is achieved by presuming a given space and it is understood by reconstituting measures of that given established space. Descartes' explanation along with his analysis on Cartesian geometry and coordinate system ties the two- and three-dimensional understandings of space by geometrical inferences, meaning that a Cartesian mind can infer a recognized three-dimensional space from a range of recognized two-dimensional facts (Morris, 2004). But such a geometrical-based strategy relies on

flat images and the mind's presumption of the three-dimensional space. This approach, indeed, denies the living experience of space, and obviously disregards the living energy of the body - the perceiver.

In a similar manner, conventional architectural spaces that are designed based on Cartesian grid neglect the body and the touched dynamics of lived space. Therefore, the Third Skin project intends to soften and emotionalize the architectural perception of space by challenging the conventional concepts of pre-determined architectural grids. The Third Skin proposal is an intervention or relief for the existing grid-based buildings, and recommends that it is time for old buildings with strict grid to get new life and to be more experiential.

Figure 4.1. preliminarily sketches challenging the precision, stability, and balance of a grid-based plane.

To modify the static nature of the grid, I started with the preliminary sketches challenging the precision, stability, solidity and balance of a grid-based plane. As it is clear in the sketches, one way of achieving a more dynamic effect results from incorporation of diagonals. Like sketched in Figures 4.1 and 4.2, forming spatial boundaries do not need to be necessarily vertical or horizontal but the diagonals of several rectangles shaped by the grid can form the edges with a more dynamic effect. Likewise, the spatial qualities defined by such discontinuity have a more complex experiential impact than a basic grid.

Figure 4.2. preliminarily sketches challenging the precision, stability, and balance of a grid-based plane

Figure 4.3. The Bias Cut technique challenges the solid and fixed quality of the woven fabric, and it helps the clothing curve, twist and drape more smoothly in relation to our bodies' movement.

Figure 4.4. Left: Sketch showing the Bias Cut on textile. Right: The Idea Sketch, a bias cut through Cartesian grid-based floor plan

In regard to the earlier comparison of the Third Skin with clothing as the second skin, textiles are also defined on grid. The weaving cloth is comprised of lengthwise yarns called the warp and the crosswise yarns called the weft, which are inserted over and under the warp (Burnham, 1980). The warp and the weft create a grid, and their orthogonal positions against each other create stability and firmness in the textile. To challenge the solid and fixed quality of the woven fabric, the bias cut is the technique used in cutting clothing to create more flexibility, elasticity and drapability in a dress or outfit (Figure 4.3). Defined at forty-five degrees to the warp and the weft (Figure 4.4), the bias cut develops the bigger stretch in the bias or diagonal direction of the textile. This technique is used in clothing design in order to emphasize the bodylines where it is needed. The bias cut helps the clothing curve, twist and drape more smoothly in relation to our bodies' movement. In a similar manner, the strategy taken in the *Third Skin* project includes a bias cut through the inactive geometry of Cartesian grid, in order to enhance the active corporeal experience in an architectural space.

Figure 4.5. Design Experiment: The Animation of Body in the Grid

4.2 The Animation of Body in the Grid

Following the preliminary sketches challenging the static quality of basic grid (Figures 4.1 - 4.2) together with the idea of bias cut (Figures 4.3 - 4.4), the *Animation of Body in the Grid* experiment is an exercise intending to take the grid of building and act it as textile grid. The experiment demonstrates the centrality of the user's experience and links the idea of our bodies' movement to the experience of our inner selves. The exercise presents a passive interaction between the user and the second skin - the *grided* fabric. How the textile drapes, how it moves, once the body is pulling and moving it, is full of emotion. The body has a corporeal quality of movement. The corporeal quality is where the movement is; it is where the grid changes (Figure 4.5). The experiment reveals the importance of human experience in emotionalizing the space that the body occupies. People experience architectural spaces actively by moving through and around them, and accordingly, they expand the sensory potentials of architecture.

Figure 4.5. Design Experiment: The Animation of Body in the Grid

Figure 4.6. Discovery sketches

4.3 Discovery Sketches

Subsequent to the experiment of animation of body in the grid, and to bring a similar idea to an architectural space, I started sketching a floor plate and exploring it by defining a marginal awareness where the space starts breaking up and goes out of an ordinary grid-based floor plate, as if we perform a bias cut on an architectural floor plan (Figure 4.6). Different configurations resolve how much to disrupt the grid in order to eventually explore the interesting moments where the created space is not to be perceived as a familiar understanding of architectural spaces.

The Third Skin aims to create spatial experience that challenges one's sense of space through tension and mystery - an experience that is unknown and stimulates curiosity. As opposed to strict grid based architectural space that emphasizes mass and solidity, the Third Skin accentuates buoyancy and movement. In doing so, the Third Skin cuts and weaves through both vertical and horizontal grids creating interfacing Layers. The sketches (Figure 4.7) reveal explorational sections, by resolving interesting moments, when layers start to intersect.

Figure 4.7. Exploring Sections, Intersecting Layers

TO INTERVENE CARTESIAN GRID
SOLID
HEAVY

TO OPEN UP
TO MAKE GROW LONGER
TO SPREAD OUT WIDER
LIGHT
MOVEMENT
TO BRING / BLOCK LIGHT
CONTRACT VS. EXPANSION
COMPRESSION AROUND COLUMNS

PERMUTATION

PENETRATION

VOID
LIGHT

Figure 4.8. Animation of Body in the Grid experiment – Overlaying of multiple layers with different rhythms

Figure 4.9. Layering movement experiment 01

4.4 Layering Movement Experiment

Once again reviewing the *Animated Body in the Grid* experiment (Figure 4.8), the corporeal experience involved was entirely explored through the body's movement. Dancing is a rhythmic experience that demands direct physical work of the performer. However, one may not dance physically to perceive the performance by merely understanding the rhythm of the dance (Rasmussen, 1962), meaning that dancing, as a corporeal experience, is fundamentally rhythmic. In other words, a body's movement can be perceived through its rhythm. Embracing the same concept in the Third Skin's experience, I see that experiencing an architectural space is fairly rhythmic. And that rhythm is fundamentally corporeal and is created by the regularity of changes in the bodies that experience the space. Danish architect of the 19th century, in his book *Experiencing Architecture*, the 19th-Century Danish architect Rasmussen remarks that this can happen by the process of recreation on one's mind. He states that "if you feel that line is rhythmic it means that by following it with your eyes you have an experience that can be compared with the experience of rhythmic ice-skating, for instance" (Rasmussen, 1962, p. 135). Thus, Perceiving an architectural space can happen through understanding of our bodies' movement in a rhythmic manner.

The experiment shown in Figure 4.9 is a transformation of dance movement, which was explored in the earlier experiment - Animation of body in the Grid, into multiple layers of different rhythms. For the purpose of the exercise, I used some randomly selected pictures of the dancing experiment as dynamic geometry. The selected minutes of the dance were traced on each framed fabric and they were placed in a sequential order. The purpose of experiment was to bring

Figure 4.10. Layering movement experiment 02

the movement sequence into a series of overlapping spatial planes. As the second step in the experiment, each grid point on each framed fabric was sewed and connected to the same grid point on the other overlapped framed fabrics. Each string was numbered connecting one specific grid point in all frames. Once the strings are pushed or pulled, they link and stretch the framed fabrics at each grid point. Since each frame is representing different moments of movement, each point is misaligned from one frame to the next. Thus, overlapping the spatial planes and connecting the misaligned grid points create some sort of fleeting forms. Through pushing and pulling of the connecting strings, the created fleeting forms start to expand or shrink, hide or reveal. Moreover, stretching all points with the same depth creates volume in the planar fabrics.

Satisfied with the result I continued to experiment. I placed aside two of the most dissimilar frames that had the greatest misalignment between each of their grid points (Figure 4.10); the greater misalignment was chosen in order to create the highest tension possible. The purpose of choosing two of the most different moments of the body's movement was to explore the potentials of spatial experience in the most tension condition. An additional framed fabric was also placed in between the two frames and acted as the medium that mirrors both of the frames at the same time. In fact, the middle frame represents the interstitial space - where the Third Skin, the marginal awareness, happens. Similar to the earlier experiment, each numbered grid point from one framed fabric was sewed to the same grid point on the other framed fabric. Then, I started moving the front and back frames. Once I continued sliding them in and out, I imagined the middle frame as an object causing the two frames to interact with

Figure 4.11. Layering movement experiment 02 - the middle frame mirroring the front and back frames

each other. The middle frame continued mirroring both the front and back frames (Figure 4.11) within the moving process and continued to unfold and change its geometric properties and spatial relationship to each frame. Similar to the front and back frames that translate the middle frame in terms of their own movement, our moving body interprets things according to its own movement. In other words, our bodies' orientation in space has a sense and the sense of orientation is phenomenal. An architectural space does not determine orientation on its own. Architecture itself has no movement, however, different orientations are felt when body moves around, and when the moving body looks up, down or ahead (Morris, 2004). Similarly, one phenomenological experience I would like to address in the proposed Third Skin is to challenge one's sense of orientation in space; the idea will be explored in more details throughout the design progress, which is presented in the following chapter.

05

Project Proposal

Figure 5.1. Experience of Being - Background studies, Theories and Precedents

Figure 5.2: Experience of Being - Thoughts and Ideas, initial design explorations

Figure 5.3. Experience of Being - Design experiments and Discovery Sketches

5.0 Project Proposal

The synthesis of various theoretical analyses and design explorations has informed an experiential design proposal which integrates phenomenological and corporeal principles through the understanding of subjective experience. Once again rethinking architectural spaces, understanding the Third Skin as an intervention or relief for the conventional, fixed and motionless Cartesian grid-based planning led the design process to challenge perception of architectural spaces. The project design proposal stresses the concepts of Parturition, Tension, and Transpiration. The Third Skin makes a connection between spatial perception and the bodies' existence. The participants cross and cut through the Third Skin and explore the relationship between the built environment and the inner energy of their bodies in action.

Figure 5.4. The synthesis of researches, analyses, thoughts and explorations

Project Statement

The Third Skin project articulates a *marginal awareness* within a *radical interstitial space*. It is to retrieve a drastic experience of being, an engagement of embodiment. Architecture as the *Third Skin* is *parturient of potentials* to be experienced in a *tension* condition and subsequently to *transpire* - to be revealed. The intention of the Third Skin is to define the space as we experience it before we outline it in a concrete form through the limits of spatial definition and dimension. Cutting through the conventional, fixed and motionless Cartesian grid, the Third Skin project articulates how *sensing of space* is rooted in the way that human bodies cross and move within the space. The proposal suggests that experiencing space is fundamentally flowing and we cannot enforce fixity on it.

Figure 5.5. Work in-progress: cross sectional model study

5.1 Design in Progress

Following the discovery sketches (Figure 4.6), the Layering Movement experiment lead the project design progress to explore the idea of cutting through not just in horizontal but also in vertical directions. Therefore, in this step of the design, I developed two or three tubes weaving through the Cartesian grid both vertically and horizontally (Figure 5.6). The idea was developed based on sectional transformation of space. Combining multiple sectional perspectives (Figures 5.5 and 5.7) is not developed to draw the formal but the dynamics, interaction and the invisible. The sectional studies stress the importance of transition between the Third Skin and the Cartesian grid, which provides a powerful contrast and challenges the spatial perception.

Figure 5.6. Exploring the idea of *cutting through* in both horizontal and vertical grid

Figure 5.7. Work in-progress: cross sectional model study

One longitudinal and one cross sectional idea sketches (Figure 5.8 and 5.9) explore the effect of tilted surface on the bodies walking in and out the Third Skin. The first mode of spatial perception inevitably happens as gravity pulls the bodies and forces them to interact with architectural surfaces – the Third Skin. Accordingly, in the difference of Cartesian grid-based architecture, which only continues with flat floors, the tilted surfaces of the Third Skin impose an additional effect on the bodies. The slanted surfaces enforce *directionality* to the perception of space. As people face upward on the tilted surfaces of the Third Skin, there is more tension between their bodies and the Third Skin's surface. Once there is more tension, the crossing bodies face bigger permutation on the Third Skin and feel a lighter and softer quality of space; this can moderate or diminish the negative acceleration imposed by gravity on the bodies facing upward. The participants can feel light and unearthly just like the Third Skin itself within the heavy and solid Cartesian Grid.

Figure 5.8. Idea sketches: tilted surfaces of the Third Skin

Figure 5.9. The effect of tilted surface on the bodies walking in and out the Third Skin

On the Third Skin's tilted surfaces, we need to manage to harmoniously compose our bodies in relation to the intervening surfaces. The interaction between our bodies and the space created by the Third Skin is a purely bodily experience. As we cross the Third Skin, we must keep re-harmonizing our bodies' parts in relation to the surrounding surfaces (Figure 5.10). Through this process of harmonization, our bodies discover the potentials and become more skillful. The spaces created by the 'Third Skin' are *parturient of potentials* to be explored in a tension condition; the interaction between our bodies and the Third Skin evokes our inner freedom and makes us feel alive. In other words, the degree of aliveness in the space is highly valued through the degree of feeling of life we experience in ourselves.

Light and texture are two important elements in experiencing the Third Skin. Walking in and out the intersecting tubes of the Third Skin, each individual may perceive very different spatial impressions. Figure 5.11 shows a computer model experiment, which sets the sunlight at ten o'clock in a summer's morning, and tests it in four different spots exposed to sunlight. The renderings are work in-progress models of the Third Skin; as the intensity of tension is different throughout the space, the openings change in size and the level of material's transparency changes as more tension is applied. Therefore, the quality and quantity of light can significantly change in different parts of the Third Skin.

Figure 5.10. Work in-progress interior perspectives: interaction between the human bodies and the Third Skin

Figure 5.11. Exploring light and texture in 3D digital work in-progress model. 10am morning sunlight in summer is tested in four different spots where the Third Skin is exposed to natural light.

Figure 5.12. Initially developed model lacking the desired interaction between the Third Skin and the Cartesian grid - Top: plan view, Bottom: Section view

Figure 5.13. Exploring tension in relation to the existing Cartesian Grid. Top: plan view, Bottom: section view

Figure 5.14. Work in-progress model: the process of affecting the existing Cartesian Grid.

The 'Third Skin' model that is developed so far has explored the concepts of Parturition, Tension, and Transpiration more in relation to the Third Skin itself, and less in relation to the existing area around it (Figure 5.12). I can see that in modeling the design project, the same issue came clear as it was explored in the previous design exploration - *Spot in Space*. Like the *Spot in Space* experiment, the idea of tension here is not effective in relation to its surrounding area. Therefore, to include tension in the way that is identified in the proposed project statement, the new sketch (Figure 5.13) explores *tension* in close interaction with the flat surfaces of the existing Cartesian grid-based spaces. So, here the design development redefines the Third Skin and explores tension in the scale of our bodies. The Third Skin is not designed to only cut through the Cartesian Grid but also to affect it and bring life into it (Figure 5.15).

Starting to play with more interaction between the Third Skin and the existing Cartesian grid-based spaces, the sketches shown in Figure 5.14 represent the process of applying *tension* through three-dimensional modeling, which discovers the interior quality of spaces. They are close up interior perspectives of a work in progress. The idea of setting of cameras on different spots within the Third Skin was to figure out the chaos, how the tension may work, how the transition between the Third Skin and the Cartesian grid can be tighter or looser, and how the interface between the curved surfaces of the Third Skin and the affected existing Cartesian grid can develop dynamism in the structure.

Figure 5.15. Discovery sketch: the messiness of the third skin versus the perfectness of the Cartesian Grid

5.2 Final Design Proposal

The previously developed digital modeling of the Third Skin appeared to impose some rational approach to the design process, which decreased the interaction between the Third Skin and the existing Cartesian grid. The *tension* quality achieved in the model was not satisfying in response to the theory that is cultivated and recognized in the thesis statement. Experimenting the initial sectional perspectives (Figures 5.5 and 5.7), I realized a discrepancy between the perfectness of the computer model and the phenomenological intervention that is explored in the thesis theoretical analyses. Therefore, the final design proposal stresses the interaction between the messiness of the Third Skin and the perfection of the existing Cartesian grid. To develop the idea of embodied experience, the final design proposal considers the act of designing as a way of thinking and experiencing. The project design is less about form and boundary; it is more about connection, context, dynamism, and movement. The thesis project rises out of messy phenomenology from which the feeling of life is perceived.

Figure 5.16. Discovery sketch: sectional view stressing the interaction between the messiness of the Third Skin and the Cartesian Grid

Figure 5.17. The Third Skin proposal. Top: plan view. Bottom: Perspective view

Figure 5.18. Work in-progress modeling. Top: cross sectional perspectives. Bottom: longitudinal sectional perspective

Figure 5.19. Work in progress modeling: testing interior quality of created spaces and estimating the experiential qualities

Figure 5.20. Work in-progress interior sectional perspective

Figure 5.21. Work in-progress interior sectional perspectives

Figure 5.22. Work in-progress sketches. Third Skin standing luminous against the heavy grid oriented space

Figure 5.23. Work in-progress interior sectional perspective

Figure 5.24. Work in-progress modeling: Third Skin intervening the Cartesian grid.

Figure 5.25. Sectional perspective

Figure 5.26. Interior perspective rendering of the Third Skin by Pegah (Damineh) Dehnadfar. Inside the Render: Modified image showing the application of The Lumalive Textile within the Third Skin. Original image of Trabanten. Developed and designed by Anke Loh adapted from *Anke Loh*. Retrieved August 20, 2013, from <http://ankeloh.net/2012/05/trabanten/#4>.

As has been discovered in the design progress, the two key elements of experiencing the Third Skin are light and texture.

Experiencing the Third Skin is multi-sensory. Although sensory experience becomes unified through the body, the studies explained in the previous chapters confirmed that the sense of touch is the center of all other senses. Subsequent to the centrality of haptic sense, textural effect is one of my emphases in phenomenological experience of the Third Skin.

‘Lumalive’ textile is a light-emitting fabric, which is proposed and created by Photonic Textiles group at Philips’ Research in order to invent a thrilling lighting experience with textile. The product is a technology-based developed textile that can both reflect and emit light. The fabric includes arrays of LEDs that are embedded beneath the surface of textile. Few Layers of translucent fabrics cover the LEDs and diffuse the light; therefore, as the lighting pixels move smoothly into each other, they create a pleasing level of softness (Harold, 2006). The light-emitting textile covers the surfaces of the Third Skin and its lightness and softness can emphasize the touching quality of the Third Skin. The patterns created through pushing and pulling can be very intricate at the points that are subjected to the highest tensile effect. The stretching quality varies from the most loosen to the extremely stretched ones. Although the applied technique is simple and is rooted in tension generated by bodies moving within the space, the contrasting textural effect is very powerful.

Figure 5.27. Interior perspective

Lumalive Light Emitting Textile

Figure 5.28. ‘Lumalive’ light emitting textile. Top: From fashion collection by Anke Loh, a German fashion designer. Adapted from *Photonics Media*, Retrieved August 1, 2013, from <http://www.photonics.com/Article.aspx?AID=26815>. Bottom: Modified image of Trabanten. Developed and designed by Anke Loh. Original image adapted from *Anke Loh*. Retrieved August 20, 2013, from <http://ankeloh.net/2012/05/trabanten/#4>.

Figure 5.29. The Interior Perspective: the role of subjective interpretation in perception of space

The geometry is suited to the tension technique with the focus on the corporeal experience of space. Walking in and out the Third Skin, two contrasting tendencies in textural effect are constantly perceived. The light-emitting textile covering the Third Skin's surfaces are chosen to be fairly similar, so that facing the difference in textural quality has the strongest effect in the moment the roughness of Cartesian Grid and the smoothness of the Third Skin are exposed to each other.

Figure 5.30. Discovery sketch: developing plan view of the Third Skin - centering the spatial perception on the dynamic nature of experiencing body in action

Figure 5.31. Interior Perspective: different spatial impressions in and out the Third Skin

The intensity and quality of light constantly changes within the Third Skin and has a dynamic effect in spatial quality. Just like the body's movement through spaces that is constantly changing, the quality of light varies within the Third Skin in terms of both intensity and color. Walking in and out the intersecting tubes of the Third Skin, the participants perceive very different spatial impressions (Figure 5.31). When more or less tension is applied, the openings change in size, and the level of material's transparency changes. The quantity and quality of light can be substantially different as participants walk through the space. Through the applied tension, the openings move from one side to the other and this changes the whole quality of the space. The variation becomes radical, once the brightest highlight is followed by the deepest shadow.

Textural effect and light influence make the Third Skin seem light and more buoyant. Standing luminous against the dark grid oriented space, the Third Skin becomes unearthly and can challenge one's sense of orientation and balance (Figure 5.33). The Third Skin provides an experiential space and proves how phenomenology can affect us. The bodies and their movements are in constant interaction with the environment formed by the Third Skin, so that the skin and the bodies continuously redefine each other by the new spatial qualities.

Figure 5.32. Sectional perspective renderings: our bodies' orientation in space defines the experiential space.

The Third Skin provides a living space and it can only be explored by the way we move through it. In order to perceive and sense an environment, the body and the space must be thought as if one is crossing the other. An architectural space as the Third Skin is not to be created based on predetermined data however it is open to the living activity of the body. In other words, the Third Skin has the potential to make a connection between spatial perception and the bodies' existence. The body can cross and cut through the Third Skin and explore the relationship between the built environment and the inner energy of body in action.

The human bodies that move through the Third Skin are the center of the spatial experience. Once we walk in and out the interstitial space created by the Third Skin, our bodies experience itself in the space, and the Third Skin's existence can only be defined through our embodied experience. Our bodies' orientation in space defines the experiential space (Figure 5.32). We reside in the space and the space resides in our bodies. Our bodies and the third space, which is made by the Third Skin, constantly interact with each other. This interaction certainly stresses our embodied experience of being.

Figure 5.33. Sectional perspectives: the Third Skin accentuates buoyancy and movement

Figure 5.34. Plan view: first level affected by the Third Skin

Figure 5.35. Plan view: second level affected by the Third Skin

Figure 5.36. Plan view: third level affected by the Third Skin

Figure 5.37. Plan view: fourth level affected by the Third Skin

Figure 5.38. Plan view: level 1

Figure 5.39. Sectional perspective rendering , section marked in figure 5.38.
The Third Skin provides a living space and it can only be explored by the way we move through it. In order to perceive and sense an environment, the body and the space must be thought as if one is crossing the other.

Figure 5.40. Plan view: level 2

Figure 5.41. Sectional perspective rendering , section marked in figure 5.40.
An architectural space as the third skin is not to be created based on predetermined data, however, it is open to the living activity of the body in action.

Figure 5.42. Plan view: level 2

Figure 5.43. Sectional perspective rendering , section marked in figure 5.42. The Third Skin has the potentials to make a connection between spatial perception and the bodies' existence. The body can cross and cut through the third skin, and explore the relationship between the built environment and the inner energy of the body in action.

Figure 5.44. Plan view: level 3

Figure 5.45. Sectional perspective rendering , section marked in figure 5.44.
The human bodies that move through the third skin are the center of the spatial experience.

Figure 5.46. Plan view: level 3

Figure 5.47. Sectional perspective rendering , section marked in figure 5.46. Once we walk in and out the interstitial space created by the third skin, our bodies experience itself in the space, and the third skin's existence can only be defined through our embodied experience.

Figure 5.48. Plan view: level 3

Figure 5.49. Sectional perspective rendering , section marked in figure 5.48.
The third skin creates spatial experience that challenges one's sense of space through tension and mystery - an experience that is unknown and stimulates curiosity.

Figure 5.50. Plan view: level 4

Figure 5.51. Sectional perspective rendering , section marked in figure 5.50.

We reside in the space and the space reside in our bodies. Our bodies and the third skin constantly interact with each other. This interaction stresses our embodied experience of being. The Third Skin and the bodies continuously redefine each other by the new spatial qualities.

Figure 5.52. Plan view: level 4

Figure 5.53. Sectional perspective rendering , section marked in figure 5.52.

As we cross the Third Skin, we keep reharmonizing our bodies' parts in relation to the surrounding surfaces. Through this process our bodies discover the potentials. In other words, the space created by the Third Skin impregnates potentials to be explored in a tension condition.

Figure 5.54. Multi-media rendering.

The Third Skin provides a living space and it can only be explored by the way we move through it.

Figure 5.55. Multi-media rendering combining plan and sectional perspectives: the three-dimensional projection of our bodies' experience in the space is considered in the process of testing and creating the Third Skin

Figure 5.35. Render 1111

06

Speculation

Speculation

In the introduction, there was a question as to the end – the question of phenomenological architecture and how this will effectively inform different levels of concept and experience throughout the processes of architectural designs. The Third Skin put forward new experimental ideas about phenomenological perception in architecture and the embodied experience in the space. By tracing the threads of thoughts and explorations throughout the entire journey of design process, this thesis reveals new possibilities for our understanding, imagination, making and experience of architecture.

In the former progress of the evolution and simulation of phenomenology in architecture, Kahn's critiques on Modernism and his rejection of the 'free plan' could be recognized as a cutting-edge for new perception in understanding architectural spaces. Kahn's appreciation for experience of architectural space was expressed through sensory details of light and material, which evokes the sense of aliveness in the space. More recently, the experience of architecture is significantly practiced in the architecture of Peter Zumthor and Tadao Ando. Today, through the development of architectural design tools, phenomenal experiences can become the initial design resources; the Third Skin suggests that three-dimensional visualization of our bodies' activities and experiences in the space can become a primary inspiration for architectural design of spaces.

Known as one of the most inventive experimental architects of our time, Lebbeus Woods argued the use of tectonic possibilities as not merely formal revolution, but the revolution of innovative kinds of spaces (Myers, 2004). Indeed, experiencing of space is a practice in living not in forms or geometries. My interest, in the contemporary culture o

f new tectonics in architectural designs, stems from a desire to explore the hidden potentials of experiencing spaces. As Gomez (1986) noted, our bodies and the world always remained mysteriously related. Similarly, I envision that the architecture for experience must address the inevitable reaction between our bodies and the space throughout the whole process of designing.

Experience of architecture relies on our bodies' memory, which reminds the most delightful moment of our embodied experience. The three-dimensional visualization of experiencing architectural spaces can trace back the memories of any familiar activity of our bodies in the space. The architectural designs can mirror memories of the most pleasing or displeasing moments of our understanding of architecture. In other words, the way we comprehend architecture is based within our experiences. In my mind, how architects deliver ideas can serve as vehicles of memories, which extend the experiencing of architecture. The connections between our earlier memories and experiences of architecture can become a foundation for designing and creating new architectural spaces. Architects can associate memories within the needs of the clients, and the designs can represent the most touching moments that either the clients or the architects once experienced in architecture.

The Third Skin proposal challenges the boundaries of conservative architectural design approach. To engage the embodied experience in the architectural design of spaces, architects no longer can simply design based on two-dimensional visualization of plans and sections. The three-dimensional modeling must not be considered as merely renderings of final products. This thesis suggests that to consider our bodies' activities in designing architectural spaces, we must engage an element of human perception throughout the entire process of

developing the architectural designs. Experiencing architecture relies on our bodies' movement, and the movement gives our bodies volume and depth. Therefore, to involve our bodies' perception in the act of designing, we need to involve the illusion of depth in our drawings as we design. The three-dimensional projection of our bodies' experience in the space must be considered in the whole process of testing and creating architecture. Following the contemporary culture that is cultivated between physical and the virtual, the act of designing in architecture could be also balanced between the real and the imaginary. The three-dimensional projection of experiencing spaces throughout the entire process of design could help to imagine the spaces as if we walk through and experience while we design.

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