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# Material Dissolve: A Poetics Of Spatial Encounters

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Material Dissolve:  
a poetics of spatial encounters

Sanchali Roy Chowdhuri

2012



# Material Dissolve

a poetics of spatial encounters

by

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B.Arch Sushant School of Art and Architecture, 2000

A Design Thesis Project

presented to Ryerson University

in partial fulfillment of the

requirements for the degree of

Master of Architecture

Toronto, Ontario, Canada, 2012

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Material Dissolve: A poetics of spatial encounter

M.Arch 2012

Sanchali Roy Chowdhuri

Master of Architecture

Ryerson University

## **Abstract**

We are increasingly alienated from the direct sensual and intellectual encounter of space, in an epoch that gradually supplements direct spatial experience with mediated digital experience. This research reprises aspects of Phenomenology. In opposition to Phenomenology's proponents like Zumthor—that seek to reassert the bodily presence of architecture through a kind of hypermateriality that asserts a material intensity, this thesis investigates a methodology to re-engage humans with physical spatial experience through the de-materialization of the wall. Distinct from the history of Modernist explorations of absolute transparency, and material lightness, this investigation is more akin to what Kengo Kuma calls "*particlization*", the literal atomization of the spatial boundary into a screen or sieve. The breakdown of the wall structure to almost equal amounts of solid and void matter creates a condition of intensified spatial awareness. The simultaneous combination of light, boundary, and aperture in the atomized wall engages the consciousness of the human occupant with his or her architectural environment.

## **Thesis Statement**

A spatial poetic can be created through the fusion of light and time with matter. The architectural experience is one where bodies are sensorially and intellectually engaged in moving through a series of articulated spaces. The orchestration of this movement between a series of semi-solid "walls" creates an environment of heightened sensory awareness where boundaries blur between constantly oscillating states of opacity and transparency created by the path of the user. Through literary research, precedent analysis, and a design project that explores and tests these ideas, this thesis asserts the creation of a poetics of space through this new approach to material presence, and its experience as part of a narrative sequence of encounter.



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## **Dedications**

To *Sudip*

and

To my parents *Subir* and *Uma*





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It is not single, isolated moments or views that are important for the moving eye, but a continuous flow of human perceptions, an exercise based on the 'modular rhythm of footsteps' and the 'relationship of spaces to one another, as experienced over time. *Edmund Bacon.*



# Introduction

## Background Information

My research is an extension of my travels to Paris, Rome, Florence, Venice and Milan; where I spent time studying the structure and interrelationship of the many iconic public spaces found there. My thesis is a response to these memorable, haptic cities with their public spaces of encounter. I was interested in the *affective* quality of these spaces; what made them memorable, why were humans drawn to them, what constituted their physical essence?

I concluded from my observations of these pre-modern cities, two things critical to their success in engaging human response. One of these was the haptic quality or sensual provocativeness of their public spaces, and the other was their serial quality. I realized that as important to the material and structure of space itself is the fact that it is part of a narrative sequence of encounter, of specific spaces of distinct and particular character. Memorable spatial experience is derived from a spatial journey and movement rather than a confrontation of an iconoclastic object or a spectacle of the moment.



Fig 1.1: Layers of memories

The memory-scapes of these pre-modern cities are a choreographed play of the senses. One is drawn through the cool shaded streets towards the piazza, by the sound of a crowd, and a glimpse of bright daylight. As the space opens up, one is, oriented by an obelisk, and drawn to

sit on the steps of the Baroque Church where one feels the cool touch of the stone. Meandering to the central fountain for that drink in cupped hands refreshes from the scorching sun. The music of water splashing forth; the refreshing spray on the skin, triggers a holistic engagement of the senses. Through ones movement and sensory engagement of this space of texture, light, shadow, sound, smell, and temperature; its “essence” is revealed and inscribed to memory.

I have extrapolated from these observations of urban space to investigate more specifically, the role of the wall and natural light as framing devices of architectural serial space. If massiveness, opacity and lateral enclosure are the iconic pre-modern European models of collective space, how might we construct similarly affective space that speaks to our contemporary post WWW culture of spatial simultaneity? Glass as a modern material has not been successful in carrying either haptic qualities or ordering sequential space. Are there other materials for articulating space through boundary and sequence that also have the interconnectivity? Can material be both open and closed, heavy and translucent at the same time?

It is a layered series of these encounters and enquires that have inspired the groundwork for this thesis and in the framing of a spatial journey.

### **Matters of Concern**

We are entering a realm where experiences are getting subjugated to a digital world. The close of the millennium has been marked by a highly technological culture where cyber-space has become the spatial domain of social interaction. This shrinking world which on the one hand encourages cross-cultural pollination and unceasing flow of information, nonetheless bring us at an epoch of crisis where there is a real possibility of losing touch with our haptic realms and of any real appreciation of space defined by actual, tangible materials. The only sense, according to phenomenologist architect and writer, Juhani Pallasmaa that is fast enough to keep pace with the astounding increase of speed in the technological world is sight and this he apprehends to be a concern. (Pallasmaa, 2005, p.21). He further iterates that this sense of estrangement and detachment is often evoked by the technologically most advanced settings such as hospitals and airports. The dominance of the eye and the suppression of the other senses tend to push us into detachment, isolation and exteriority. (Pallasmaa, 2005, p.19) So, while respecting this pace it is imperative to ascertain perception levels which can surpass ocular-centric limits. John

Berger has argued that the real meaning of many images has been obscured by the intervention of the camera which he calls the machine eye. This technological intervention interprets and distorts the real essence of the image governed by monetary and reproduction value. Similarly, a pace of encounter governed by fast paced technological intervention might deter the haptic and physical appreciation in architectural space.

Paul Virilio conceived of the *Phantom landscape* and in his essay "*The Overexposed city*", he refers to the contemporary city experience as a physiognomy of virtual fields. In the essay he shares his concern of a new perspective devoid of horizon where, "*the city is entered not through a gate nor through an Arc de Triomphe, but rather through an electronic audience system. Where once one necessarily entered the city by means of a physical gateway, now one passes through an audio-visual protocol in which the methods of audience and surveillance have transformed even the forms of public greeting and daily reception.*" (Leach; Virilio 1997, p.11) Technological intensity ceaselessly disrupts and upsets all of our social structures reducing interaction and encounters through the machine. In the *Overexposed City*, Virilio uses the term "phantom landscape", in reference to a dying quality of encounters where he concludes. "*Today's metropolis is a phantom landscape, the fossil of past societies whose technologies were intimately aligned with the visible transformation of matter, a project from which the sciences have increasingly turned away.*" (Leach; Virilio 1997, p.27)

### **Thesis Position**

The internet and globalization has changed the way encounters take place today. We are in a situation of amorphous spatial encounter influenced by commodification and the lure of the spectacle. This concern has led the thesis to reassert a form of architecture that encourages a heightened awareness of the essence of space, especially when we are in a moment of witnessing the demotion of heightened bodily awareness in a space devoid of matter and textural qualities.

With the increasing diminishment of the physical environment in our digital culture, the argument been made is that it is imperative to appreciate the tangible material essence of our surroundings. Paul Virilio, who studied under Merleau-Ponty, at the Sorbonne, identified himself with the concerns of phenomenology. Virilio stated in his writings "*We are witnessing a paradoxical moment in which the opacity of building materials is reduced to zero.*" (Leach; Virilio 1997, p.12) His mode of theorizing has focused on phenomenology almost as if he realized that the material alienation which we are experiencing presently is an output of the present pace of

technology. Frederic Jameson states, *“It is not quite the “anything goes” of the new generation of computer –generating “blob architects” (Greg Lynn, Ben Van Berkel): In fact, the secret of Junkspace is that it is both promiscuous and repressive: as the formless proliferates, the formal withers, and with it all rules, regulations, recourse.”* (Sykes; Frederic Jameson, 2010, p.262)

With this as the background, the preordaining concern of the thesis is to capture the essence of a place through material tectonics. Alain de Botton mentions that the architect is successful in his endeavor when he gives scope to the possibility of seeing beauty where we had not previously looked. Therein lays the tenacity of writers and poets, who are constantly in search of a phenomenon that can intensify sensing. Oscar Wilde referred to this phenomenon when he quipped that there was no fog in London before Whistler started painting the Thames. (de Botton, 2006, p. 261) This thesis seeks to intensify an awareness of space. The design proposal purports the translation of the intangible through the tangible in the scope of initiating an intensified encounter. It recognizes the incongruous aspect of space marked by the estrangement of material property and counters with the stance that space is where material artfully conveys its essence. The effects of sculpted space can be dramatic in the way the body builds a “rapport” with it by virtue of a complete and wholesome perception of the space.

The thesis does not take a stance against technological input in design or deny us our reliance on digital technology. It only reinstates the importance of retaining our haptic sensibilities which can be evoked through material articulation. We are already influenced by technology in a major way and technology controls the way our identity is being shaped. Instead of retreating from technology, our attitude towards technology might be geared in a way to encourage the haptic. Technology is always open to poetic appropriation. (Leach; Douglas Rushkoff in his essay *The Digital Renaissance, Designing for a Digital World*, p.24) Kenneth Frampton ideates this appropriation through a partnering with material articulation, in his proposal of Tectonics.

In this thesis, new ways of triggering body and spatial consciousness will be explored by examining the effect of the wall, the conventional definer of public space, rendered as an element that is somewhere between transparency and opacity. In opposition to the modernist space of full transparency and simultaneity, and to the historic serial space of the opaque wall and enfilade sequence of rooms, the permeable boundary (sieve) will be exploited as a mechanism to create a memorable spatial narrative or relativity in time and space.

## **Research Methodology:**

Framing a lexicon for a spatial journey:

The research methodology is intended to frame a lexicon for an evocative spatial journey. To proceed, the research takes the path of reprising the discussions of phenomenology, which postulates a spatial journey of a holistic sensory experience. Out of various phenomenological positions two primary positions proposed by Steven Holl and Kengo Kuma, have been elaborated, which convey most effectively the essence of this thesis which is: to convey the essence of space to the user.

Precedence:

This determination to retain sensory deliberations and the concern of dwindling sensory experiences in architectural space has been maintained and reinstated in the works and theories of Juhani Pallasmaa, Steven Holl, Alberto Pérez-Gómez, Peter Zumthor etc. They have actively promoted phenomenological deliberations in their projects. The research recognizes the ideation of this agenda also in the works of Le Corbusier, Mies Van de Rohe, Louis Kahn and more presently Kengo Kuma and Tadao Ando. Though not avid or vociferous promoters of Phenomenology, their work inadvertently advocates phenomenological sensibilities. The paper sets precedence through the works of the architects mentioned above. It is set in a manner to study the extrapolation of light and temporal oddities of the elements through material presence. The precedents display that perceptual dialogue is a result of sensing space that is a deviation from convention. Through the support of the precedence based, the thesis postulates an architecture that initiates perceptual participation that is both visceral and intellectual.

Realization:

The synthesis of the theories will be explored in a design project. This synthesis is understood to be the culmination of an orchestrated and well-conceived sensorial architecture. This synthesis is what establishes an active participation of the body, as interlocutor interpreting the meaning of architectural space. This interaction induced through perceptual dialogues is a response to the materiality that defines space beyond visual parameters.

# Encounters in Space

## Body and sensation

When the user moves through space the user either builds a rapport with the space or remains unaffected and unobservant of it. While not referring directly to architecture, the core of phenomenology- as description when one is filled with wonder- offers a method of examining phenomena through intensified seeing and sensing. (Plummer, 2009, p. 12). Phenomenologists have delved into this rapport that the body builds with space through the phenomena that can trigger this intensified seeing and sensing.



Fig 1.2. Alexander Calder Installation at the Washington museum of modern art

Sensorial effects are experienced by the body as interlocutor. If we turn back to sense experience itself, we find ourselves at the heart of sensory fields, endowed by our bodily sense organs with the power to perceive form and thus the appearance of things. Sense perception is, therefore, our fundamental bodily way of being in the world, neither wholly objective nor wholly subjective. It rests upon a temporal synthesis whereby experience points beyond itself to past and future experience of things; and in truth our embodied subjectivity is precisely the inherent temporality of sense- perception. (Merleau Ponty, P. 127)

In the vastness and limitless horizon of space, the body needs articulation and it is here that architecture plays an instrumental role in aiding our comprehension of Space and Time. Architecture scales down the limitless entity to a human measure. As Merleau Ponty mentions; the body is like an object among objects and it negotiates through these world of objects by touching and engaging with them. This engagement is what brings forth the body's place in the world. These reactionary stimuli been talked about in comprehending and associating with space are experienced as much at an urban scale as they are at more intimate levels.

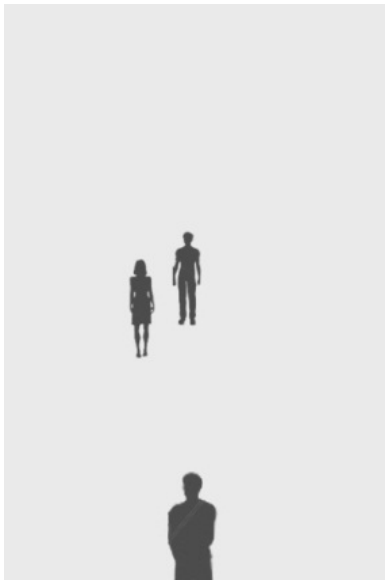


Fig 1.3. Lost in limitless space



Fig 1.4. Body as object in a space of objects finds its orientation.

In the city the body negotiates its position with the towering obelisk of the market place. It gets directed and ideally along the way to the destination, encounters moments by associating with elements. The body has dialogues with light, sound; heat and cold through shade and scorch. The body then moves into the sheltered core of an enclosure and experiences a different sense of spatial encounter. The body in association with a plethora of sensory experiences finds its place. Walking the streets of Rome, Prague or New Delhi for instance, one would encounter a holistic spatial encounter defined by the senses in its associative memory. The most effective architectural spaces have been conceived based on the way the body interacts and responds to space and not based on how architecture should look as an object.





Fig 1.5. Rome, Interacting with the city through the sense in totality

### Perception and preconditioned viewing

Sensation is a result of our perception of our surroundings and affects the way we see things and assimilate its physical conditions. This thesis is especially concerned with the breaking of assumptions and paving a fresh way of experiencing space and creating *Fresh Perception*. It focuses on moving away from preconditioned viewing.

We are forever trying to capture images around us, revealing our desire for constant provocation of our sensory state. Our eyes seek order, our skin seeks the excitement of discovery through touch, our taste seeks pampering, and our olfactory connects us to past associations. However, all our reactions to stimuli are an aftermath of what we are preconditioned to believe. Any given situation is not necessarily as we see or comprehend it to be. The reality might lie in an order which we cannot comprehend in our bondage of preconditioned perception. The thesis seeks the inversion of this preconditioned, predictable conception and endeavors to trigger perception by breaking away from accepted logic.

Hermann von Helmholtz in his theory of visual perception proposed that vision could only be the result of some form of unconscious inferences. He suggested that the way we see is purely a matter of making assumptions and conclusions based on our previous experiences. Inference requires prior experience of the world. Our understanding that a wall sits on the ground because of gravity is because of our exposure to this convention and our acceptance of this. Our



perception is guided by logic and thus we expect the mass to be rooted to the ground. We are constantly making assumptions. We readily believe that light comes from above. We assume that objects are normally viewed upright. We perceive boundaries as solid entities and so on.

John Berger in his book “Ways of Seeing” argues that there is always a distinction between what we see and what we know. He gives the example of our seeing the sun as revolving around the earth and because of our having been exposed to scientific reasoning; we know that it is actually the other way round. He establishes that what we know or believe, affects the way we see things. The act of seeing is an act of choice. We choose to see what we look at, in the way we are able to relate to it. (Berger, 1973)

In architecture, the force that guides the users on their way up the steps guided by the touch of the handrail, then led around at the mid landing reposed by the gravity of the wall is due to coordinated elements of visual and tactile sensations along with the phenomenon of indirect vision of the expected. (Nesbitt; Frascari, 1996, p.507)

Frascari’s statement articulates this stance. He states, *“The location of those details gives birth to the conventions that tie a meaning to a perception, The conception of the architectural space achieved in this way is the result of the association of the visual images of details, gained through the phenomenon of indirect vision, with the geometrical proposition embodied in forms, dimensions, and location, developed by touching and by walking through buildings.”* (Nesbitt; Frascari, 1996, p.507)

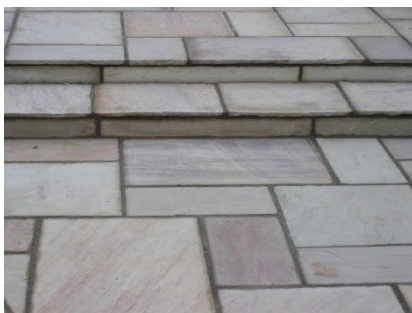


Fig 2.1: Conventional assumption of steps



Fig 2.2: Inverting assumption.



Fig 2.3: Conventional assumption of stairs



Fig 2.4: Inverting assumption.

The following instances discussed take the path of challenging indirect vision. In fig: 2.2, in the case of the steps illustrated, we notice that convention has been inverted by putting forth sensory questions. The apparent feel of levitation of the steps and the play of shadow immediately induces dialogues with the user by deviating from the user's indirect vision. If we look at the case of the staircase, similar situations have been treated in two different manners. In fig: 2.4, the staircase has been treated in its apparent lack of railing and risers to induce the sensation of unbounded enclosure. The absence of any base or risers raises a sense of disbelief. Spatially it also renders an uninterrupted glimpse of the space on either side of the stair. This approach of staircase detail inverts the convention of expectation. In doing so, this encounter compels the user to evaluate the experience and engage in a spatial dialogue.

This approach can be experienced in the Canada War Museum in Ottawa designed by Moriyama & Teshima architects. The objective to levitate the monumental mass has been deliberated here as can be observed in fig. 2.5. The visitors sitting at the ledge are perplexed by the uninterrupted flow of the horizon as the monumental wall hovers over it.



Fig 2.5. Canada War Museum



Fig 2.6. Canada War Museum, Ottawa

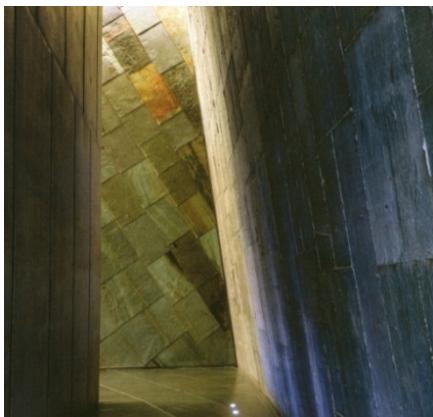


Fig 2.7. Tilted walls in the Canada War Museum, Ottawa

What this reinstates is the relevance of the unexpected, producing an illusionary perception of the space. The users of the space carry the experience even after their exit from the precinct, as an outcome of the challenge that their indirect vision has encountered.

### **The unexpected in space**

What we have ascertained from the previous section is the tendency to see what we are conditioned to see and the moment this conditioning is challenged, we see or sense the space anew. It is as if the user has been jolted into heightened levels of perception. Out of these deliberations, Steven Holl proposes the Black Swan theory.

### ***"Black Swan" theory***

Steven Holl seeks through his design approach to produce architecture that is mutable and unpredictable and suggests this as analogous to the *"black swan"* theory. (Holl, 2007, p. 11) He clarifies his intent of producing architecture which becomes a trigger for an event of surprise and the unexpected. The theory of the black swan is a metaphor for an event that has an impact on the observer by being unpredictable and unexpected. The event in hindsight is rationalized and contemplated upon. Architecture out of the black swan theory endeavors to engage an intellectual dialogue with the user by surpassing the expected.

The two foremost aspects he proposes as catalysts for such unexpected moments are: Light and Matter. Phenomenology conscious architects specifically employ the unison of these two aspects in their quest for the inversion of convention. They challenge notions of the built form in the way they choose to control percolation of light through the nature of mass. In our preconditioned outlook we often overlook finer nuances of light and how it can behave in space in its interaction with the periphery and mass. Our confrontation of an unexpected spatial experience leads to the acknowledgement of insightful moments of ephemerality. To grasp the significance of this fusion of light and matter, it is imperative to appreciate the intensity of light that should percolate. There exists an associated level of darkness to complement the presence of light and vice versa. Architects such as Zumthor and Holl have realized and implemented this significant realization into their projects. The next session explores that aspect of phenomenology as elaborated by Juhani Pallasmaa that helps comprehend the necessity of subdued ocular perception and the kind of atmosphere that might facilitate the same.

# Fusion of Light | Time | Matter

## **Capturing atmosphere through light and matter:**

*Light's value is diminished by uniform illumination, becoming shadowless and dead, and is enhanced by directional illumination with textural and sculptural effects. (Plummer, 2009, p. 13)*

The eye surveys, controls and investigates, whereas touch approaches and caresses. During overpowering emotional experiences, we tend to close off the distancing sense of vision. We close our eyes when dreaming, listening to music, or caressing our beloved ones. (Pallasmaa, 2005, p.28) Deep shadows and darkness are essential, because they dim the sharpness of vision, make depth and distance ambiguous, and invite unconscious peripheral vision and tactile fantasy. In "The Eyes of the Skin", Juhani Pallasmaa writes about the bias towards vision in our culture as a whole and in the architectural practice in particular. Buildings are foremost conceived based on the way they look, not how the body interacts with them. By the dimming of light and restriction of vision, we are able to take in the full extent of our surroundings, the way it smells, sounds and feels. In this way, the experience of an architectural space can penetrate our consciousness, letting our body feel the full extent of a place and the strength of our experience. Twilight is the time when the surface of earth is neither dark nor lit. It portrays the perfect quality of ambient lighting ideal for highlighting unseen factors marred by bright light. As daylight becomes scarce, not only do our bodies become more aware and tuned to our other senses, but our imagination is also stimulated.

Pallasmaa continues:

*"Homogeneous bright light paralyzes the imagination."*

The human eye is most perfectly tuned for twilight rather than bright daylight, when in a state of contemplation. The design of subdued light, creating a blend of tranquility and enigma, encourages a complete involvement with space. A space that is not necessarily dark in totality but has just the right intensity of light enables the imaginative experience of space in a more holistic manner. Such concerns were first echoed in the works of Le Corbusier in his

mannerized approach to modernism. The Ronchamp cathedral deftly captures the atmosphere of the space in the way the dimness in the interior is maintained and colored light is guided to seep in. The modulation of light in space generates the desired atmosphere.



Fig 3.1: Church at Ferminy



Fig 3.2: Ronchamp cathedral, Le Corbusier.

*The mesmerizing allure of images where light is fighting off darkness, argues Gaston Bachelard, originates in primordial memories that are only accessible through poetic imagination, daydream and reverie - sublimations that lie below rational thought (Plummer, 2009, p. 13)*

### **Sensing spatial essence through light's movement**

*"Light is the protagonist of our understanding and reading of space". Richard Mier*

In the world of art in the 19<sup>th</sup> century, the Impressionists engaged with the changing nature of objects by their interaction with light. They tried to capture onto their canvas the changing nature of texture, emotion, color, and various layers that were added to the object by the effect of light. The Impressionists appreciated the role of light in capturing atmosphere. Of more recent times, a prominent promoter of this appreciation is James Turrell whose art focuses on the use of light to create new sensorial experiences and fleeting images in Space. In the installation of "Space that sees" (fig 4.1), he demonstrates fleeting images of the space and its evolving essence as the space merges with its associations of temporality.





Fig 4.1: "Space that sees",  
James Turrell installation

*"All places have character, and that character is the basic mode in which the world is 'given'. To some extent, the character of a space is a function of time; it changes with the seasons, the course of the day, and the weather, factors which above all determine conditions of **light**."* (Nesbitt; Schulz, 1996, p.420)

### **Space as fleeting images**

Architectural space is played out through a series of fleeting images as the spectator moves linearly and progresses through several moments as defined by the sculpting of space. The experience of architecture at the end of the journey is encapsulated and experienced as a collective mnemonic of fleeting images that have been defined by the intensity and angle of perception. These images take different form when observed from different angles. Often a single space is a collection of evolving images, revealing its ephemeral quality. As we observed in James Turrell's installation of "Space that sees", where; the same space is reminiscent of a different essence governed by either premeditated or natural stimuli. In the Sun Slice house (figs 5.1 and 5.2), near Lake Garda in Italy, Holl makes a series of images dictated by the pattern of light which he governs through the tectonics of surface treatment. The light moves through the various slices in the cubical space to form different altered images in space. The shard of light which has been guided to define the space displays a different nature in another moment. The same quality has been displayed in the Chapel of St. Ignatius in Seattle, also designed by Steven Holl. Light and the treatment of the surface can create altering moods to the space through fleeting images. Most importantly spatial experience extends the experience of temporality.



Fig 5.1 and 5.2: Capturing light to produce fleeting images, Sun Slice house, Steven Holl

### **Tectonic control of light and matter: solid and void**

In the earlier sections this thesis talks of creating the ambience of the unexpected in space and capturing spatial essence. This aspect can be realized through the poetics of construction and control of material manifestation also referred to as Tectonics. Tectonics is the art of control over material essence through mastery over construction technique. Tectonics takes into account the art of construction innovation and detailing beyond craft and in the process instills the intended idea of the space. An efficacious implementation of tectonics can evoke a heightened sensory engagement with space. This phenomenon has been consciously followed through in the work of architects spanning various 'isms' and across decades. This has been a factor in the projects of architects such as Le Corbusier, Mies Van der Rohe of the Modernist era to Tadao Ando, Kengo Kuma, Peter Zumthor and Steven Holl in the contemporary architectural scene. Their design principles, in the control of light and mass, have presented a conscious echo of tectonic dialectics bringing out spatial sensitivity. With this as the premise, this section of the thesis explores the role of tectonics in the construction of the intent.

*"The material, detail and structure of a building is an absolute condition. Architecture's potential is to deliver authentic meanings in what we see, touch and smell; the tectonic is ultimately central to what we feel."* Steven Holl

Through Tectonics, the architect decides to either display the solid gravity of the opaqueness of hyper-materiality or demonstrate the transparent ethereal quality by dematerializing material. This diagrammatic study made by students under Dr. Ross Jenner's supervision, demonstrate the juxtaposition of volume and void in capturing a notion of temporality.



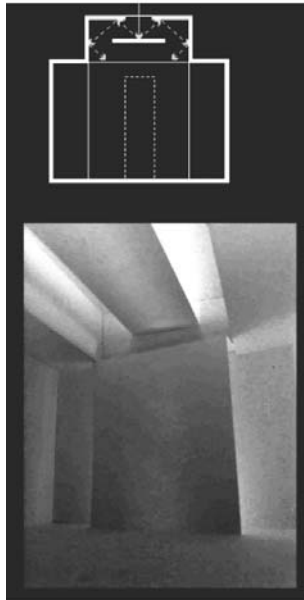


Fig 6.1  
AN Tombazis and  
Associates,  
Archaeological Museum  
of Delphi

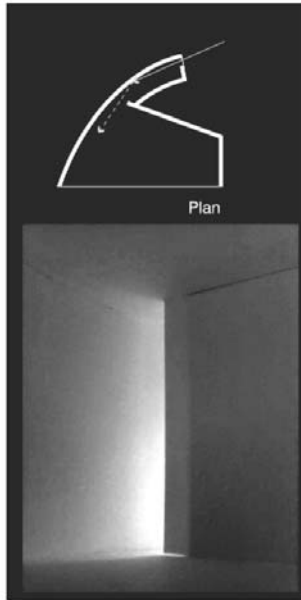


Fig 6.2  
Church of the  
Annunciation, On Yin  
Street, Hong Kong

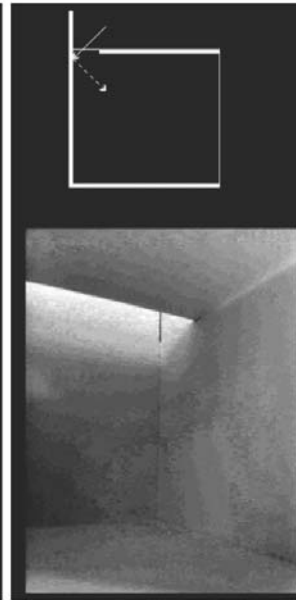


Fig 6.3  
Detached Ceiling,

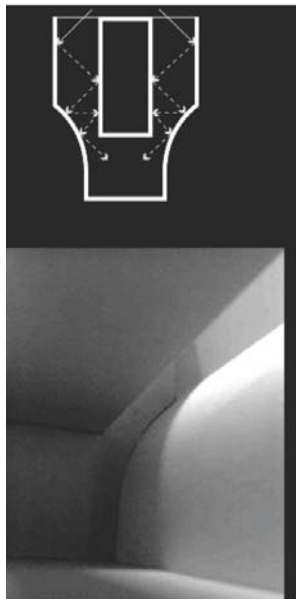


Fig 6.4  
Curvilinear &  
Rectilinear Labyrinth

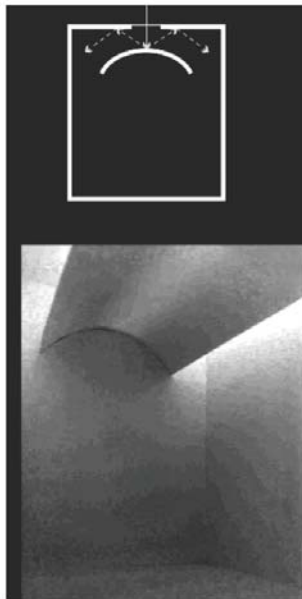


Fig 6.5  
Detached Curved  
Ceiling Panel

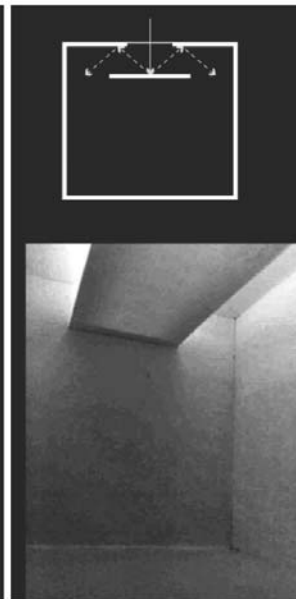


Fig 6.6  
Detached Flat Ceiling  
Panel



The gravity of the Kimbell museum was a result of Louis Kahn's tenacious inclination towards the monumental. The building, being a museum, played a role in dictating the requirement for subdued quality of lighting, especially since the nature of display within the gallery would be vulnerable to the effects of light. Keeping this in mind, the magnificent vaults of the Kimbell gallery went through a series of construction and trans-disciplinary dialogues before it took its present form. Kahn, an admirer of the ancient Roman vaults took structural expression to the next level. The curve of the vaults ensures a beautiful distribution of diffused light from the concealed slot across the middle of the gallery ceiling. This hidden slotted skylight addresses the concern of light quality that could be permitted into the gallery.



Fig 6.12. The Kimbell Museum



Fig 6.13. The Kimbell Museum, Louis Kahn

### **Translation of tangible material into intangible atmosphere: Light as matter**

*"The Sun never knew how wonderful it was until it fell on the wall of a building"- Louis Kahn*

With this quote Kahn conveyed the coexistence of light and material in offsetting each other's quality to enhance spatial experience. The building periphery is the container and manipulator of light. While light is the catalyst in initiating fleeting images of the space. The container outlined in its material manifestation is what defines the quality and movement of light that controls the architectural atmosphere. This section explores the methodology followed in prominent buildings of contemplation in capturing the atmosphere conveyed through the fusion of light and matter. It notes the varied tectonic approach followed in guiding light's movement and translating the movement of the external essence within. Initially it explores the methodology of fusing light and matter through the monolithic solidity of hyper material and then segues into a methodology that explores this fusion with fragmented material manifestation.

To begin with, the approach followed by Tadao Ando in the Church of the Light (fig 7.1), highlights the monolithic and solid interpretation of material to display and modulate the internal atmosphere. In this case, Ando accentuates the potential of the material's property by rendering the concrete surface to perfect smoothness and reflectivity. With the strategic location of the cruciform slits he lets the entry of light to play onto the concrete surface's tautness.

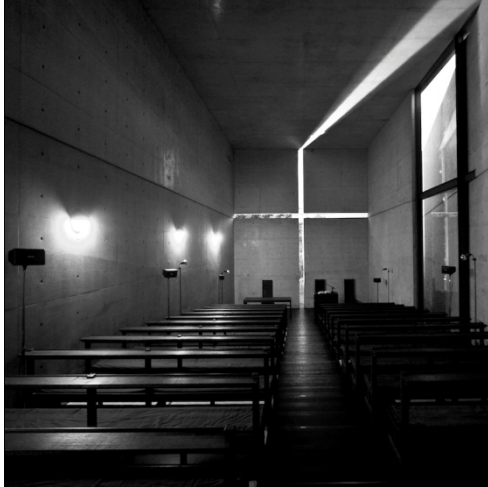


Fig 7.1: Church of the Light, Tadao Ando

Ando writes on the subject of walls, *"At times walls manifest a power that borders on the violent. They have the power to divide space, transfigure place, and create new domains. Walls are the most basic elements of architecture, but they can also be the most enriching."* (Plummer, 2009)

In a similar solid interpretation of material but with a different take from that of Ando's reflective fare faced concrete, Peter Zumthor has modulated the atmosphere in the Klaus Chapel in Germany (figs 7.2 and 7.3). In the case of the Chapel, Zumthor utilizes the moldable quality of concrete to change the convention of concrete's appearance.



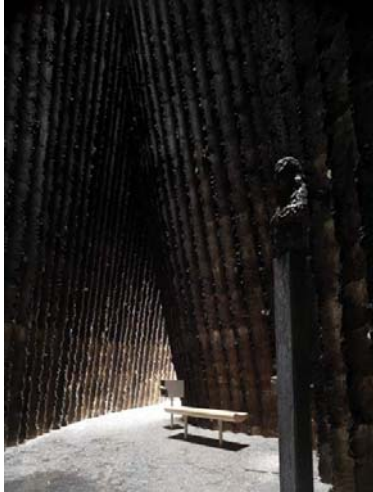


Fig 7.2 and Fig 7.3. Unconventional face of concrete, Klaus Chapel, Peter Zumthor

For the construction of the chapel a conical like base structure of timber was erected over which a layer of concrete, 50 cm thick was poured by the farmers and the process repeated every day for 24 days. After the rammed concrete had set in, the timber was burnt out by fire which was kept burning for three weeks inside the log tent. The charred tree trunks easily came off the concrete shell, leaving behind an enigmatic imprint of its existence. The surface was remnant of another quality very different from concrete.



Fig 7.4 and Fig 7.5. The texture of the horizontal and vertical belong as one, Klaus Chapel, Peter Zumthor

The tie bolts used during the shuttering were arranged with prior articulation. (Figs 7.6 and 7.7), so, when the concrete had set and the timber burnt away, the remnants of the tie bolts served as tiny inlets of light. The light which filters from the sky puncture left atop lets in a beam of light,

breaking the light into zigzags. The cohesion with which the smoky texture of lead on the floor merges with the textured timber of the slanted walls is accentuated by the perfect intensity of light. The light bathes the surface with almost a premeditated precision, almost as if the architect knew that the textural essence of the surface would be lost by an over exposure. The combination of the subdued texture and the controlled seepage of light, create the perfect ambience for the meditative and contemplative quality of the space. It is demonstrative of the perfect fusion of material and light as desired by the architect to choreograph the intangible essence of the space.



Fig 7.6 and Fig 7.7. Remnants of the tie bolts through which light filters into the dark of the inside space

Concerned with the same ideation of material and light, Steven Holl designed the St Ignatius Chapel in Seattle. The Seattle University elaborated on the design discourse that they had with Holl on the project:

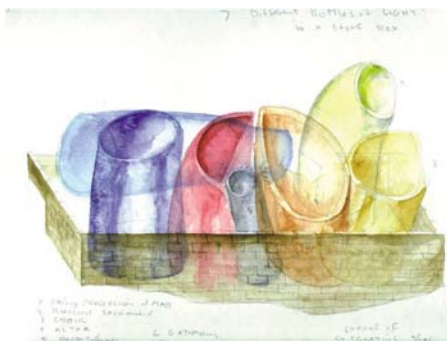


Fig 7.8. Seven bottles of light in a stone box, Concept for St Ignatius Church

*Architect Steven Holl chose "A Gathering of Different Lights" as the guiding concept for the design of the Chapel of St. Ignatius. This metaphor describes Seattle University's mission and it also refers to St. Ignatius vision of the spiritual life as comprising many interior lights and darknesses, which he called consolations and desolations. Holl conceived of the chapel as "seven bottles of light in a stone box," with each bottle or vessel of light corresponding to a focal aspect of Catholic worship. Light passes through each bottle in a specific area of the building to define physical and spiritual spaces with pools of clear and colored light. During the day each*

part of the chapel will glow with colored light from two sources. Light bouncing off color fields painted on the back of suspended baffles creates a halo of light on the surrounding walls, while light passing through colored glass lenses in the exterior windows and openings in the baffles casts onto the chapel walls and floor. Interior lighting will create a similar effect at night, transforming the chapel into a beacon of multicolored light radiating outward to the campus and city. (<http://www.stevenholl.com/project-detail.php?id=40>)



Fig 7.9. The projection of Light but the absence of source, St Ignatius Chapel, Steven Holl

According to Holl, the result was *"a design that would be forward looking, but anchored in the past."*

The space within the St Ignatius Church deftly captures the ephemeral nature of space exemplified by the temporal nature of light which dances along the surface, capturing fleeting images. The concealment of the source of light and yet the illumination of the surface which heightens the slatted texture of the wall is forceful and dramatic. The stone looking walls, in reality concrete tilted slabs, are waxed with the texture of stone. The bending and shaping of the concrete roof in the light tower controls the light's path and in instances when a colored ray of light seeps in through a hidden source of a single shard of colored glass it is reminiscent of the stained glass used in conventional churches.



Fig 7.10 and Fig 7.11. St Ignatius Church, Steven Holl  
Light producing fleeting images of the same space

Holl recognizes that the shadow of a porous plane, like the shadows of wire mesh, can exhibit curious properties. He reasserts in his proposal of the ***Black swan*** theory that if the architect engages this natural light phenomenon, these very different shadow patterns might be created by certain architectural space. (Holl, 2007, p. 12) He states his design aims been central to opening our eyes to see the changing phenomena of the light of day and the seasons. A clear concept driving geometry, structure and material shapes new spaces in light. Tadao Ando stresses on the collaboration of material and light to extract lucidity in space.

*"Light changes expression with time. I believe that the architectural materials do not end with wood and concrete that have tangible forms but go beyond to include light and wind which appeal to our senses....Detail exists as the most important element in expressing identity...Thus to me, the detail is an element which achieves the physical composition of architecture, but at the same time, it is a generator of an image of architecture....Tadao Ando."* (Nesbitt, 1996, p. 480)



### **'Particlization' of material to extract light**

*"Without particlizing materials we cannot appreciate them as materials, nor feel their vibrancy."*  
Kengo Kuma

Having explored the atmospheric quality exhumed by the monolithic aspect of material, the paper now explores an extended notion of fusing light with matter. One end of the spectrum witnesses solidity of material punctuated at moments by slits of light's entry, where on the other hand, the solidity is broken down further to induce a light sieve. An offshoot of these deliberations of fusing light with matter has been formalized as the theory of "**particlization**" by Kengo Kuma. He proceeds with material by fragmenting them to its basic and elementary particle. The congregation of these elementary particles brings new character to the original essence of the material. This modulation of light and dark has been creatively captured by Kengo Kuma's "*particlized*" screens, where he alludes to the longing for translucency (that neither cuts off nor directly links two layers); in order to translate the external essence of the elements into the internal atmosphere. "**Particlization**" of material renders the wall tactile. (Bognar, 2005). Light sieves in through the surface. The surface generated out of "*particlization*" can be rendered like a sieve to the degree of transparency as is desired.

This phenomenon takes its inference from ancient and vernacular spaces which negate any solid distinction of spaces; arising as much out of spiritual as out of climatic needs. The Japanese introduced the Shoji wall to eliminate any harsh demarcation of two spaces. The wall was meant to be a subtle insertion which allowed dialogues between two spaces while keeping the privacy levels intact. In Japanese tradition these spaces called the *engawa*, are neither inside nor outside but in-between. This space permits the occupant to be in both worlds at the same time.



Fig 8.1. Shoji Screen

Aspects of particlization have also been displayed in regions of extreme sun (figs 8.2 and 8.3), where the controlled seepage of light not only creates modulated screenings but also ambience. This is experienced again in that interstitial space demarcating the inner precinct from the direct external conditions.



Fig 8.2. Jalis, Fatehpur Sikri

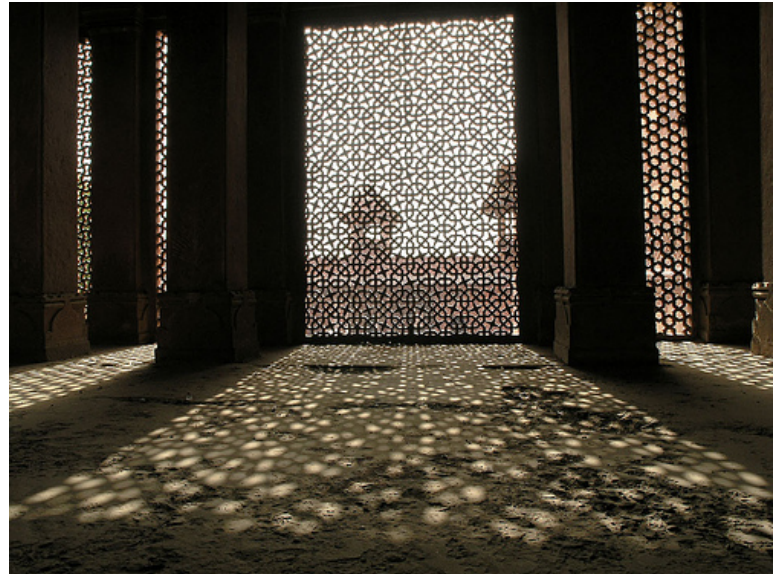


Fig 8.3. Jalis, Fatehpur Sikri

What this method of fragmentation also does is to bring in a level of connection to layers of spaces, as can be noted in the images below. The visual semantics of the layer beyond, changes its resolution, (figs 8.4 and 8.5) based on how the viewer closes in on the screens. The image beyond obliterates or sharpens accordingly.



Fig 8.4. Jalis, Fatehpur Sikri

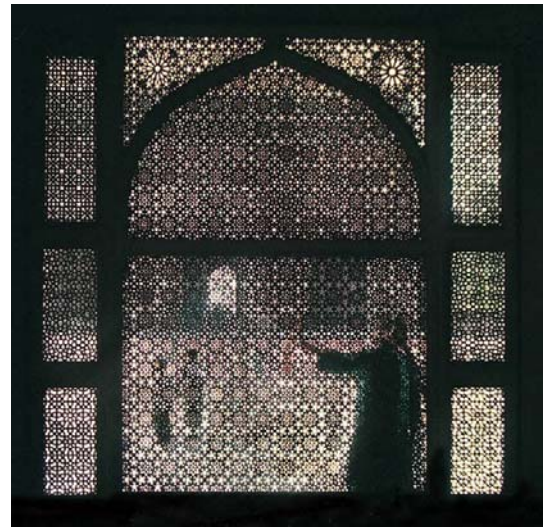


Fig 8.5. Jalis, Fatehpur Sikri

This desire to achieve translucency stems out of a design principle and the conviction to necessitate a primary link between the layers, outside - inside and hearth. It permits the sensorial engagement of the observer to perceive cohesively the progressive narration of environment into core. Through the principle of *“particlization”*, the opacity of solid material can be homogenized to a more mesh like property, controlling the intensity of luminosity.

A good example of this would be the Stone museum (fig 8.6), or the Chokkura plaza (fig 8.7), both designed by Kengo Kuma, where he breaks the monolithic solidity of the material to make it more pervious to light. This act of *“particlization”* initiates the making of a screen which creates a dialogue with light. (Bognar, 2005)

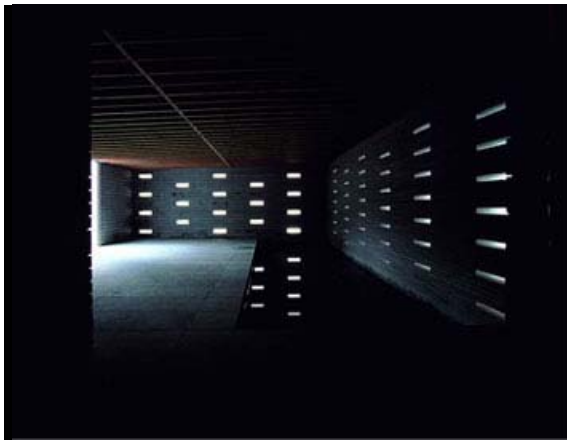


Fig 8.6. Stone museum, Kengo Kuma



Fig 8.7. Chokkura Plaza, Kengo Kuma

*“Particlizing”* material to make it more malleable and permeable to light,

In the case of the Stone museum, using stone to define the envelope seems like the obvious path. Kuma uses stone to define the envelope; however he inverts the conventional perception of stone's opaque solidity by breaking the character of stone into a sieve like property. The stone trellis provides the viewer with a narrative account of the outer space as mosaics and induces a sensuous quality to the inner space in its play of shadow and light.





Fig 8.8. Stone Museum external



and internal views, Kengo Kuma

The screen like quality induced into the walls of the Stone museum reminds one of the Dominus Winery (fig 8.9), designed by Herzog and de Meuron. (Bognar, 2005, p.34) Although, the winery walls are heavy, one observes the particlization of material in the arrangement of the basalt rocks. The building enclosure defined by the gabion walls are filled with basalt rocks from the nearby American Canyon. The mesh holding the rocks in its modular brackets forms a wall system which displays a variance of see through quality, despite been defined by such a solid material. The unusual application of wall treatment is an inversion of convention. The light filtering through the gabions and reflecting off the glass surface produces a series of extraordinary spatial images. The pattern of light which spills onto the horizontal surface raises dialogues and a new way of appreciating light and shadow. The stainless steel baskets are both an aesthetic and technical choice. A building technique that was used more for industrial projects was successfully implemented to define architectural space. Apart from the advantage of been able to moderate the extreme temperatures of the Napa Valley, the innovative application of the gabions successfully devises an atmosphere into the space.



Fig 8.9 and Fig 8.10. Dominus Winery using basalt rocks for gabions, Herzog and de Meuron

Herzog and de Meuron have ***particlized*** copper sheets in their project, the Signal Box (fig 8.11). The architects chose the copper bands as an allusion to the function of the signal box which is technical in its role of train and traffic control. What they also chose to initiate was the *particlization* of the copper sheets that have been broken down into strips. With careful contemplation of spacing to form a mesh, a sensorial quality has been imbibed onto the skin.



Fig 8.11 The Signal Box project, Herzog and de Meuron

The Bamboo house, another of Kuma's projects exhibits the intention behind particlization fittingly. Inspired by the form of the Great Wall in this project, Kengo Kuma explains that he was attracted by the walls' seamless merger with the landscape's undulating ridge line. The Great Wall, built by human hands, is never an isolated object in the landscape but establishes an indissoluble link with it. The intent for ideally situating itself and linking with the environment was the prerogative in the Bamboo house.



Fig 8.12 and Fig 8.13. Bamboo House, Kengo Kuma

Tadao Ando has summed this link with environment interestingly,

*“While screening man’s dwelling from nature, it attempts to draw nature inside. There is no clear demarcation between outside and inside, but rather their mutual permeation. Contemporary architecture thus has a role to play in providing people with architectural places that make them feel the presence of nature. While screening man’s dwelling from nature, it attempts to draw nature inside.”* (Nesbitt, 1996, p. 460)

Out of this need to maintain an uninterrupted link with the environment, the material was exploited and juxtaposed such that the aggregation of bamboo stalks renders the surface permeable to light and external atmosphere.





Fig 8.14



Fig 8.15. Bamboo House, Kengo Kuma

Kuma's quote "I want to erase architecture" (Bognar, 2005, p. 23) emphasizes the notion of dissolving boundaries and demarcations. In fact, after the fifteenth century, eliminating walls became a sub-theme in Japanese architecture and which is reflected in Kuma's current work. (Bognar, 2005, p. 15) Taking clues from the Shoji screens, Kuma takes this engagement further in the Bamboo House by making the horizontal and vertical planes disappear into one another. (figs.10.6-10.9) The screened surface of the vertical bamboo grows onto the horizontal ceiling planes, a feat which is witnessed in the Hiroshige museum as well. Both the vertical and horizontal planes are devoid of solidity.



Fig 8.16. Hiroshige Museum, Kengo Kuma



Fig 8.17. Bamboo House, Kengo Kuma

# Synthesis of theories | a process of Liquidization

As a synthesis of these theories this thesis proposes a process of *liquidization* in architecture as a component of spatial encounter. *Liquidization* literally means an altering of material state. *Liquidization* in architecture seeks the realization of a mutable space whose atmosphere is also mutable, initiating multiple interpretations and allusions. The encounter with the space depends on the users pace, orientation and the time of day and external weather conditions. The research here covers aspects of both solidity and particlization and their role in infusing a sense of atmosphere into space; which is done through the manipulation of light to create transitory moments of sensory and intellectual stimulation. The research also addresses the importance of the unexpected as a means of sensory engagement with the users - which forms the crux of the Black Swan theory as articulated by Steven Holl. As a synthesis, the architecture of *liquidization* is a methodology that disturbs the conventions of *structure and enclosure*, and *time and space*. Solid and void, inside and outside, are simultaneous and co-existent, as are present, past and future experience. The user can simultaneously perceive where he has been, where he is, and where he is going- in these superimposed spaces, making him actively conscious, rather than a distracted participant in the architectural experience.

The **critical components** for this space then, are that it be:

- exposed to the elements ( sunlight, moonlight, and in some cases wind and air)
- demarcated by “particlized boundaries” or walls of varying intensities of opacity
- experienced sequentially, linearly, and orthogonally, within these boundaries
- a cumulative experience that alternates between movement and moments of pause

While buildings may be physically static, their ability to register changes and movements of natural light allows them to perceptually transform and display signs of life: deadened volumes begin to stir when beams of light pierce into rooms or glide over walls; mute objects take on moods derived from the weather or hour of day; shadows appear as a palpable presence and thin or deepen, soften or sharpen according to how they are cast onto walls or settle in space. Spaces brighten or dim in relation to their allotment of sun, seeming to fall asleep and come awake as they respond to what flows across the sky. (Plummer, 2009, p. 18)



# Design Precedents

The parameters of:

## **Material | Liquidization of Atmosphere | Inversion of Convention (Perception);**

- Which have been posited in this thesis and explored through these precedents have been charted and compiled in the following section. The diverse approaches of these selected projects address all of these parameters to ultimately reach the threshold of evocative space. Each of the architects aims to create spatial encounters heightened by sensory dialogues and positive interaction between the user and the space. Architectural space devoid of perceptual dialogues is a banal spatial experience. The tangible aspect of material in its most pronounced or subdued manifestation evokes intangible consequences. Our reciprocation of these haptic encounters ensures the exhilarating experience of the space.

## Church of the Light | Tadao Ando, Osaka Japan, 1989

### Material



Despite the constraint of a tight site between a wooden chapel and a minister's house, the tectonic approach rendered a serene atmosphere to the space.

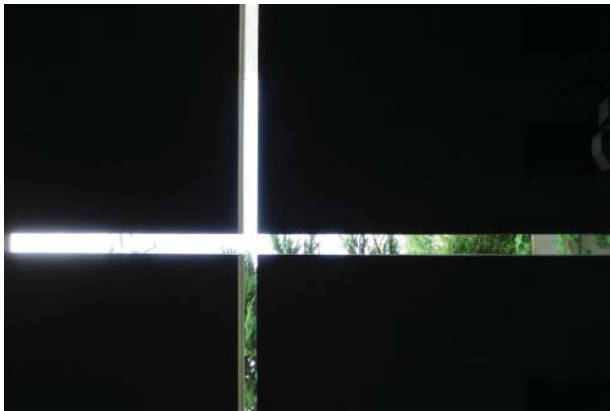
### Material:

Ando achieved this through his minimalist approach and treatment of concrete. These thick walls of reinforced concrete shell, solid and massive, unite with light's movement to derive spatial qualities.

### Inversion of convention:

The cruciform slices the volume of the church, with light filtering in. The concrete mass slit by the cruciform defies any sense of gravity and is a step away from the convention of mass resting on the ground. The movement of light along the surface contributes to the stimulation of perception.

### Inversion of Convention



### Liquidization:

The interior is conspicuous in its intense bareness. The notion of liquidization of external essence into the inner hearth is displayed by light's movement into the dark inner sanctum.

The space sans any extravagant adornment is a celebration of light and dark and duality, accentuated by the texture of the exposed concrete.

Image Source:

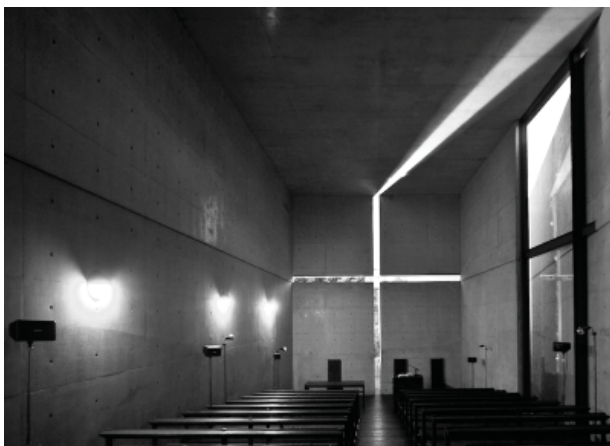
<http://www.galinsky.com/buildings/churchoflight/index.htm>

[http://figure-ground.com/church\\_light/0005/](http://figure-ground.com/church_light/0005/)

<http://leesaf.deviantart.com/art/church-of-the-light-113567550>

<http://www.archdaily.com/101260/ad-classics-church-of-the-light-tadao-ando/>

### Liquidization

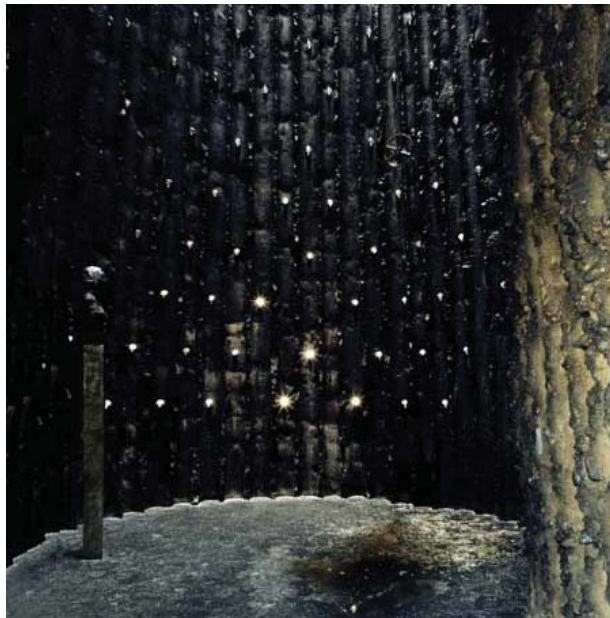


## Brother Klaus Field Chapel | Peter Zumthor, Eifel, Germany, 2007

### Material



### Inversion of Convention



### Liquidization



### Material:

For the construction of the chapel a conical like base structure of timber was erected over which a layer of concrete, 50 cm thick, was poured by the farmers and the process repeated every day for 24 days. After the rammed concrete had set in, the timber was burnt out by fire which was kept burning for three weeks inside the log tent.

The floor of the chapel was covered with lead, which was melted on site in a container and smeared onto the floor manually.

The tie bolts used during the shuttering were arranged with prior articulation. They served as peep holes for light to filter in.

### Inversion of convention:

The chapel disperses the notion and appearance of concrete. The charred tree trunks easily came off the concrete shell, leaving behind an enigmatic imprint of its existence.

### Liquidization:

In the Chapel, Zumthor makes a mesh of moving images through texture and light as light transgresses across the surface. The space reflects altering images produced by the movement of light which has been guided through the central puncture above. The cohesion with which the smoky texture of lead on the floor merges with the textured timber of the slanted walls is accentuated by the perfect intensity of light. The light bathes the surface with almost a premeditated precision, almost as if the architect knew that the textural essence of the surface would be lost by an over exposure. The combination of the subdued texture and the controlled seepage of light create the perfect ambience for the meditative and contemplative quality of the space.

Image Source:

<http://www.dezeen.com/2009/04/18/key-projects-by-peter-zumthor/>



## Church of Saint-Pierre | Le Corbusier, Firminy, France 1975-2003

### Material



The Ronchamp cathedral, was Le Corbusier's foray into an experimentation of form which evolved as a mannerised derivative of Modernist rationale. Though not as widely acknowledged as its predecessor, nor carrying its emphatic form, the church at Firminy seems to be derived out of similar dialectics of light governing spatial experiences as was seen in the Ronchamp Cathedral.

### Material:

This project is another of Corbusier's preoccupations with the appropriation of concrete taking advantage of its form, texture, and color.

### Inversion of Convention



### Inversion of convention:

Through the controlled locations of light punctures and coloured niches, light is choreographed through the space drawing the user's attention.

### Liquidization:

Light bouncing off from the coloured surfaces brings out the third dimension to the otherwise two dimensionality of colour. The internal space alludes to the subtle filtering in of coloured light which were used more conventionally in heritage churches. The architecture has evolved out of a deliberation of generating internal spatial atmosphere using light as the design element. It is interesting to note that despite the stark solidness, one is connected to temporal conditions of the external environment through the movement of light's patterns moving across the solid surfaces.

### Liquidization

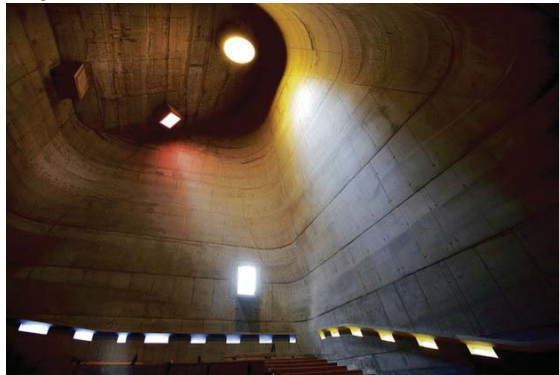


Image Source:  
<http://www.mattermatters.com/blog.asp?id=238#>  
<http://www.flickr.com/photos/french-disko/3712635445/in/photostream/>



## Chapel of St. Ignatius in Seattle | Steven Hall, Seattle, WA, United States, 1994-1997

### Material



Holl conceived of the chapel as “seven bottles of light in a stone box,” with each bottle or vessel of light corresponding to a focal aspect of Catholic worship. Light passes through each bottle in a specific area of the building to define physical and spiritual spaces with pools of clear and colored light.

### Material:

The stone looking walls, which are in reality concrete tilted slabs, are waxed with the texture of stone. Premeditated strips of punctures have been introduced to define the path of the sunlight entering the inner core to form sensorial patterns which evolves the character of the space as the day unfolds into dusk.

### Inversion of Convention



### Inversion of convention:

The bending and shaping of the concrete roof in the light tower controls the light's path and in instances when a coloured ray of light seeps in through a hidden source of a single shard of colored glass, it is reminiscent of the stained glass used in conventional churches. One sees the play of light on the surface and yet is concealed from the source.

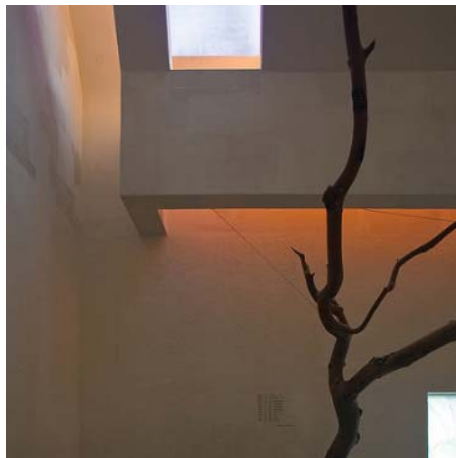
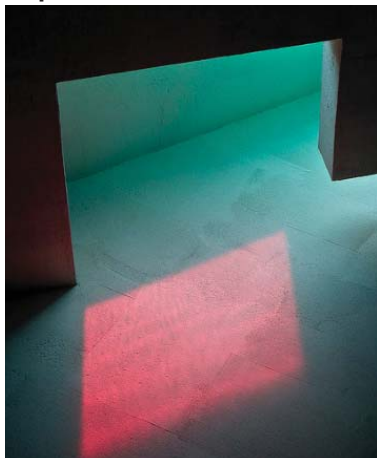
### Liquidization:

This project as a precedent to the tectonics of light highlights the aspect discussed earlier in the paper of the ephemeral nature of space exemplified by the temporal nature of light. The concealment of the source of light and yet the illumination of the surface accentuates the slatted texture of the wall. These dramatic qualities engage the users.

Image Source:

<http://www.stevenholl.com/project-detail.php?id=40>  
<http://www.flickr.com/photos/kenmccown/3616061210/in/set-72157607261565901/lightbox/>

### Liquidization



## Bamboo House by the Great Wall | Kengo Kuma, Beijing, China ,2002-2004

### Material



Inspired by the form of the Great Wall in this project, Kengo Kuma explains that he was attracted by the walls' seamless merger with the landscape's undulating ridge line, which in many ways inspired the use of bamboo for the kind of atmosphere it helped the architect to dictate.

### Material:

In Kengo Kuma's words the reason for choosing bamboo was based on the fact that bamboo, as a piece of raw material, denies to be processed. Generally speaking, all other wooden sources are processed in one form or the other before their official usage as building material. They are processed in a certain sectional configuration to be a portion of building. In contrast to this, however, bamboo is used in a manner of original form. Therefore, bamboo is a material and a product at the same time : It is a symbol and a reality at the same time." (Bognar, 2005)



### Inversion of Convention



### Liquidization:

Bamboo as the boundary of the house works as an enclosure of light screens, letting light filter in through varying degrees of luminosity. The internal space goes through variations, where some parts are more in touch with the landscape, allowing the essence of the external environment to penetrate into the inner core.

### Inversion of convention:

In the process of tectonic adventure, the project has questioned the quality of the enclosure, thus defying convention. The design process has also challenged the differentiation between vertical and horizontal planes by cohesively unifying the bamboo on the verticals planes with the ceiling planes. The result is an ephemeral and ethereal quality generated within the space leaving the viewer with the experience to carry forward in memory.

### Liquidization

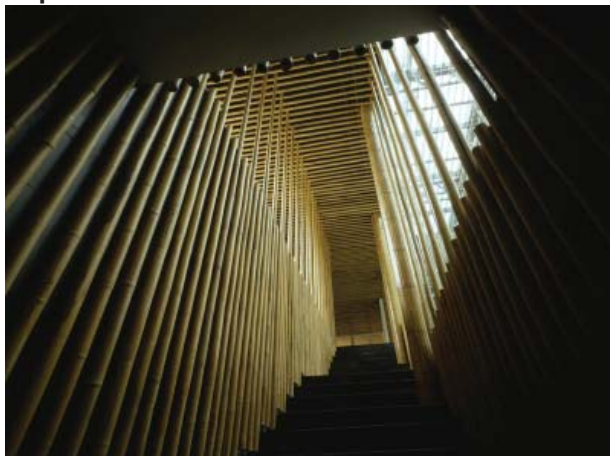


Image Source: <http://kkaa.co.jp/works/great-bamboo-wall/>



## Hiroshige Museum of Art | Kengo Kuma, Tochigi , Japan 2000-2007

### Material



The “ukiyo-e” or block printing works of artist Hiroshige are characterized by his visualization of nature as ephemeral and transitional in its patterns of light, wind, rain. Kuma appropriated Hiroshige’s approach to his art into a vocabulary of architecture.

#### Material:

Wooden slats arranged in a dense configuration of grids define the enclosure, applied both on the roof as well as walls. Kuma’s theory of “*particlization*” is at its most sensual display, having broken down bigger sections of the wood to the desired size and order in an effort to generate a particular quality of light.



#### Inversion of convention:

The definition of both the horizontal and vertical planes by this uniform treatment of wooden grids nullifies the demarcation between vertical and horizontal.

### Liquidization



#### Liquidization:

The approach similar to the bamboo house by Kuma, captures the moving intensity of light which filters in through the curtain of wooden slats. The arrangement of the slats into a dense grid alters the essence of space with the temporal quality of light. The manipulation of the pattern and density of the grid transforms the surface into a translucent plane, and in other instances maintains a transparent plane. The atmosphere of the inside is a reflection of the moving and changing pattern of the outside and successfully generates an ephemeral quality.

### Inversion of Convention

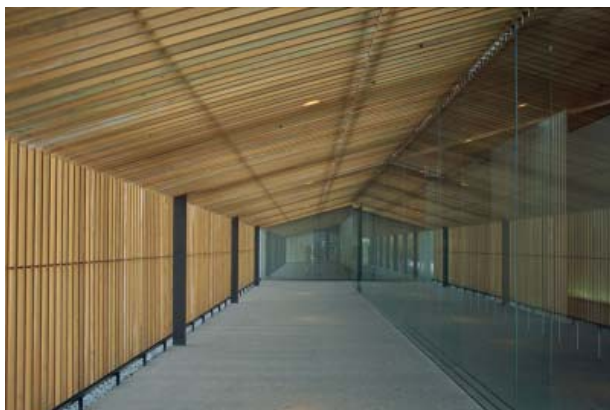


Image Source:

<http://www.mattermatters.com/blog.asp?id=238#>

<http://www.flickr.com/photos/french-disko/3712635445/in/photostream/>



## Dominus Winery | Herzog & de Meuron, Napa Valley, California, 1997

### Material



The Dominus winery, dissolves into the landscape, from a distance.

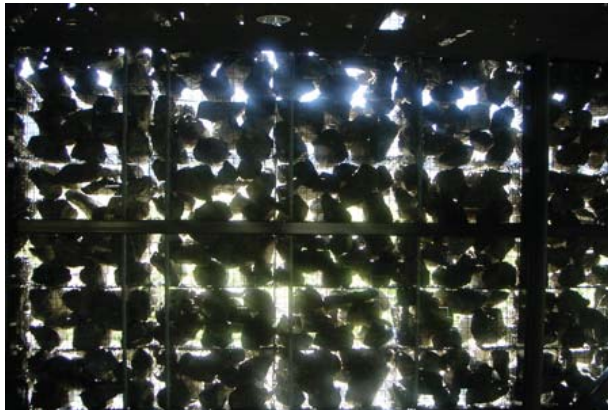
### Material:

The building enclosure is defined by the gabion walls filled with basalt rocks from the nearby American Canyon. The stainless steel baskets holding the rocks are both an aesthetic and technical choice. A building technique that was used more for industrial projects was successfully implemented to define architectural space. Apart from the advantage of being able to moderate the extreme temperatures of the Napa Valley, the innovative application of the gabions successfully devises an atmosphere into the space.

### Inversion of convention:

The juxtaposition of glass with the rustic quality of basalt is an inversion of convention. This union not only accentuates the quality of the opposing material but also produces an atmosphere of illusion.

### Inversion of Convention



### Liquidization:

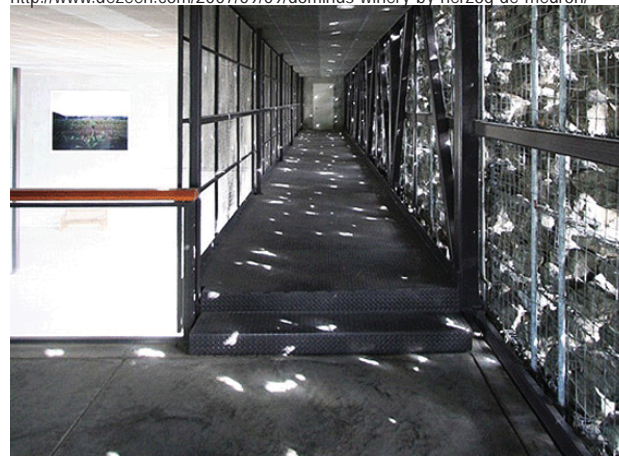
The main office area, demarcated by glass enclosures, allows one to follow the activity in the vineyard at all times. However the rest of the building with the gabion allows illusionary glimpses of the landscape. The mesh holding the rocks in its modular brackets forms a wall system which displays a variance of see through quality, despite being defined by the solidity of the rocks. The light filtering through the gabions and reflecting off the glass surface produces a series of extraordinary spatial images, engaging the user's attention. The *particlization* of the rocks enables the extraction and liquidization of the external into the internal atmosphere emphatically.

Image Source:

<http://www.floornature.com/projects-commerce/project-herzog-de-meuron-dominus-winery-california-4025/>

<http://www.dezeen.com/2007/09/09/dominus-winery-by-herzog-de-meuron/>

### Liquidization





## Signal Box | Herzog & De Meuron, Basel, Switzerland, 1999

### Material



#### Material:

The material choice of copper alludes to the building's association with technology. The skin of this architecture is defined by strips of copper tightly wound to form a visual plane.

#### Liquidization:

The visual plane of the skin formed due to the twisting arrangement of the copper strip and the conscious spacing of the bands creates an ethereal effect, providing sporadic glimpses of the internal activities .

#### Inversion of convention:

It is an unusual choice of material never used by any peer at the time. It questions the convention of the nature of wall, by neither been opaque nor transparent.

However the building has been criticized for overriding the atmosphere over aesthetics and as lacking in engaging the intellect despite been purely visceral. (Sykes, 2010; Jeffery Kipnis, p.163)

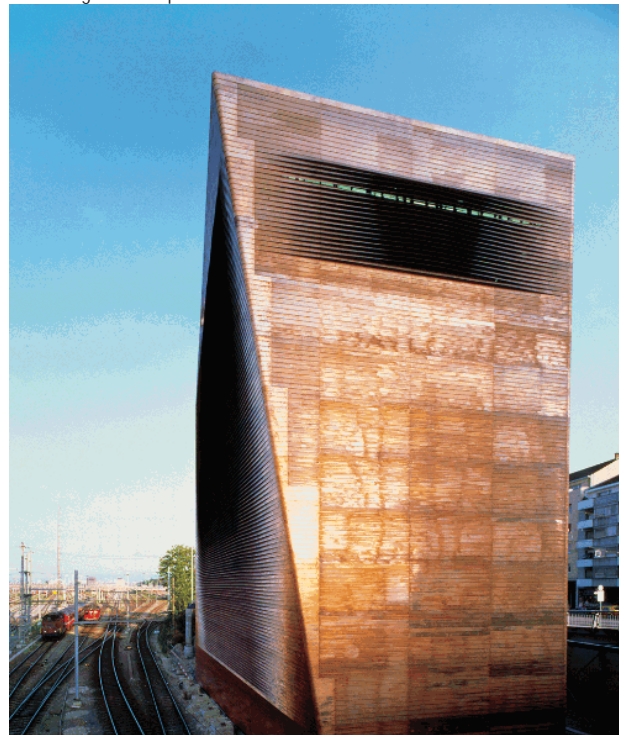
### Liquidization



Image Source:

<http://beninparis.wordpress.com/2011/04/26/signal-box-hdm/#wpcom-carousel-344>

<http://www.architecture.com/Awards/RoyalGoldMedal/RoyalGoldMedal2007/CentralSignalBox.aspx>



### Inversion of Convention



# Design Project | Construction of a light and shadow journey

The design project is a vehicle for exploring these concepts materially and tectonically through a conventional architectural program. The project which is a series of gallery spaces, is situated on the culturally active spine of Queen St, at the junction of Queen and Soho. The building which is in close proximity to the Art Gallery Ontario and OCAD serves as an **ancillary exhibit gallery** for moving art and display. This determines the spatial quality to be a series of spaces that are juxtapositions of enclosed and landscaped zones. The movement through layers of space function as programmatic zones of flexible displays.

The design project is an enclosure of **light** and **shadow** and experiential movement through contrasts of light and dark. The design project seeks a potential volume that would harness the haptic quality of material into the atmosphere. Material manipulation defines the envelope and the quality of light. The overall form is also governed by the paradigm of movement experiencing spatial encounters. The spatial quality aims to render an enfilade sequence of spaces as an allusion to layers of memories and experience.

Methodology would be to use material and *particulate* it to soften | dissolve space through the concept of sieve like enclosures.

The confined space and the nature of its program demands an enclosure with a sieve like quality to render an ethereal and subdued atmosphere. The internal space does not require an atmosphere that is overexposed with light. The spatial zoning of indoor and outdoor exhibits calls for a balanced distribution of outdoor and indoor spaces which provide flexible opportunities for displaying a variety of exhibits. The installations take advantage of the possibility of either been set in landscape or in an enclosed gallery with controlled lighting.





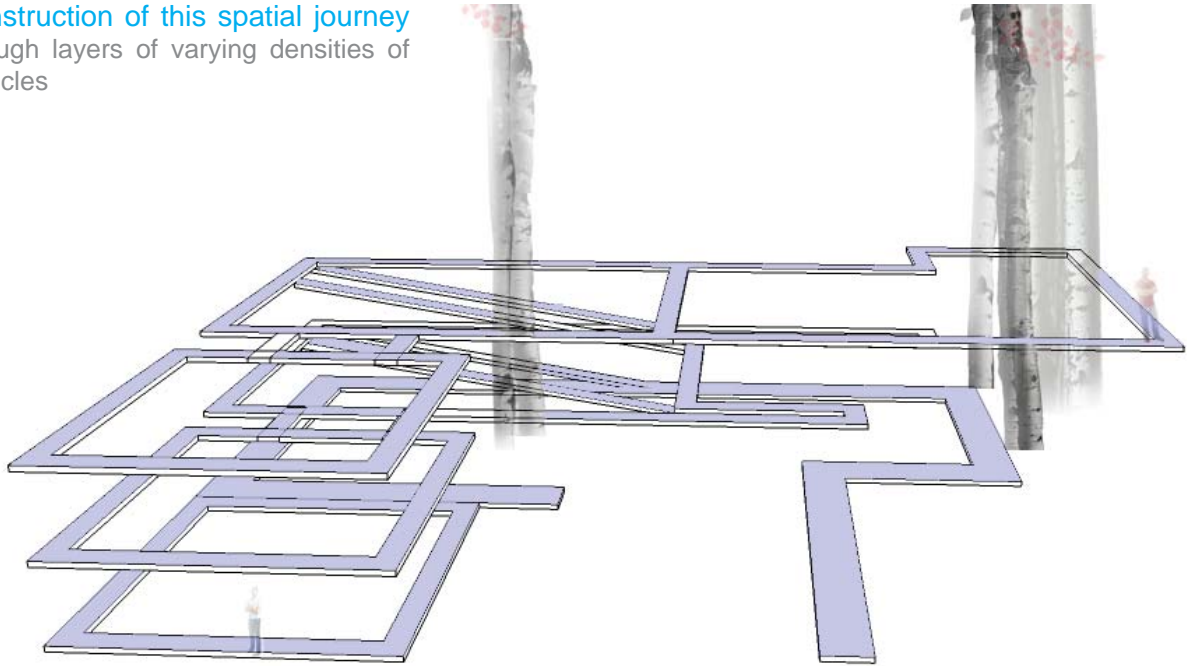


Construction of a **Light** and **Shadow** journey from an urban fringe to within





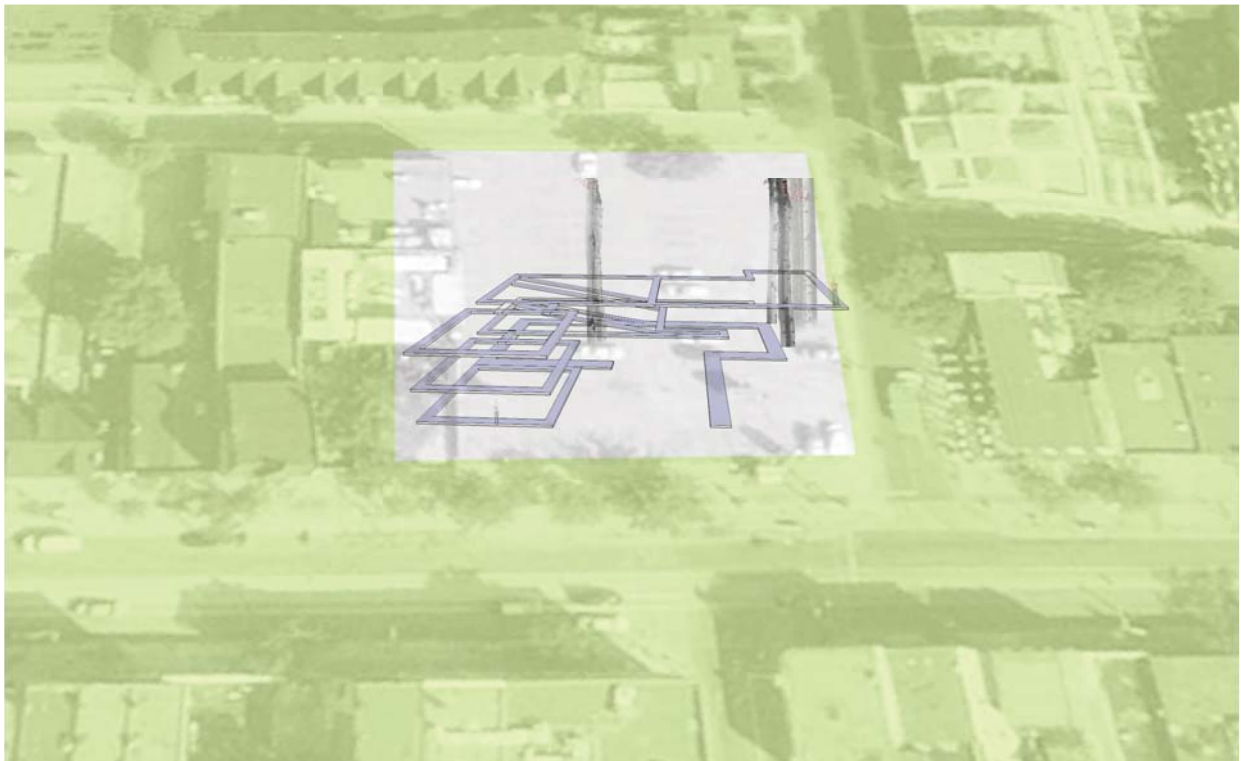
Construction of this spatial journey  
through layers of varying densities of  
particles



Movement will loop through contrasts of:

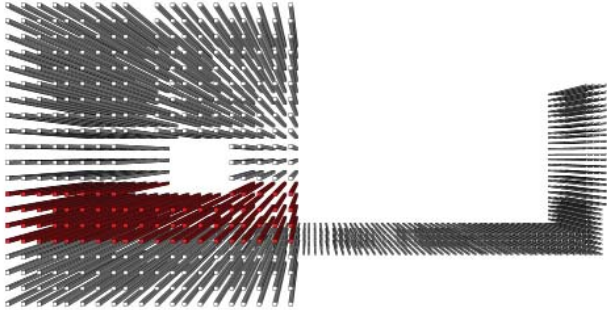
outside	in
light	dark
man-made	natural
cold	warm

punctuated with pauses



Movement through the **Gathering and Ungathering** of **particles** which determine the connections between varying conditions and nature of spaces.

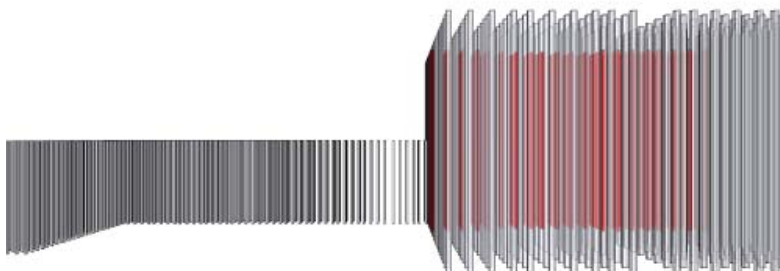
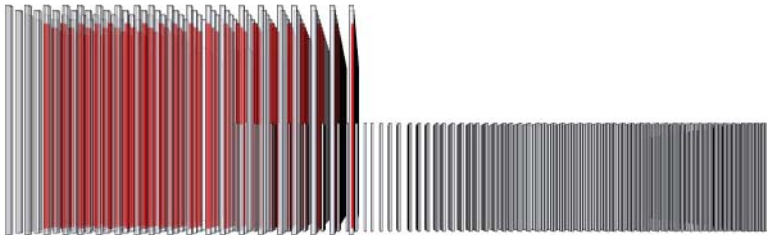
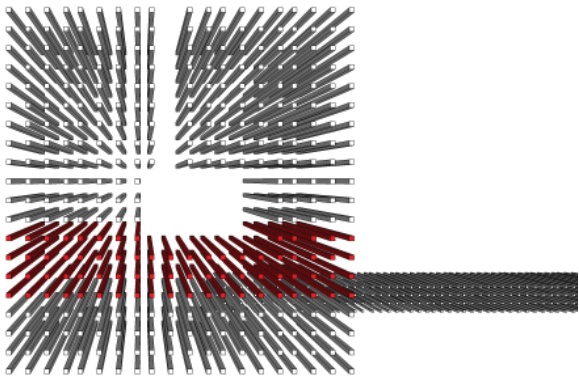




## Design Approach

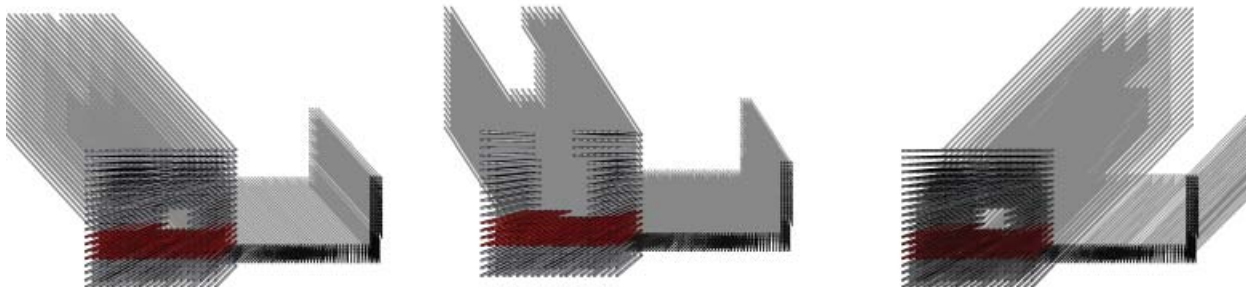
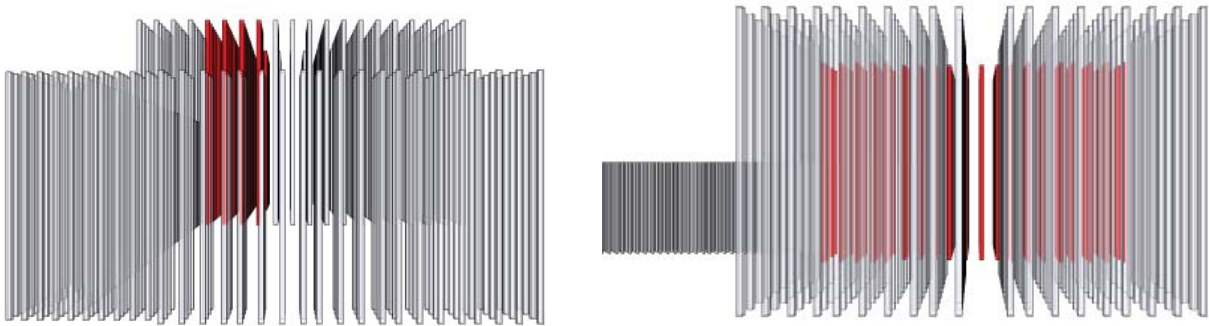
As a first step the design process initiates a sense of enclosure through gathered particles. The separation or densification of these strands initiates a sieve like association to it.

Scooping out the internal particles from these gathered particles sculpts out spatial layers, which are neither directly linked nor cut off from each other.



## Gathering and Ungathering

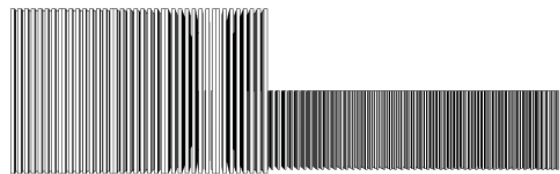
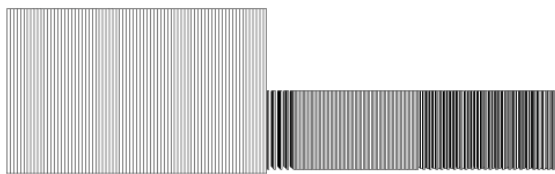
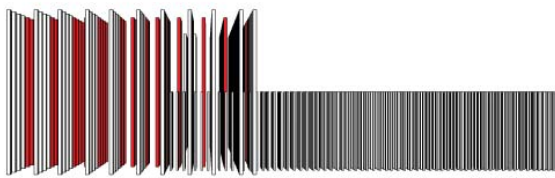
This gathering of particles and their manipulation offsets contrasts of rigidity and fluidity. It also enables the manipulation of how much light can percolate through this sieve of particles.





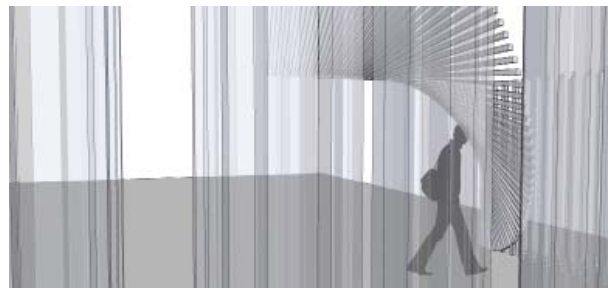
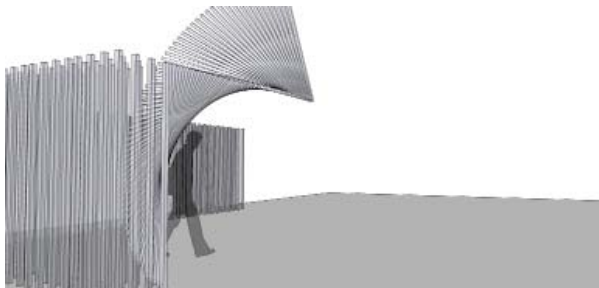
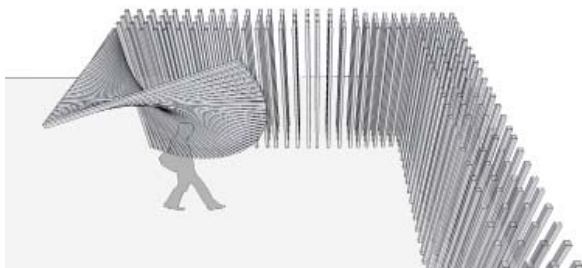
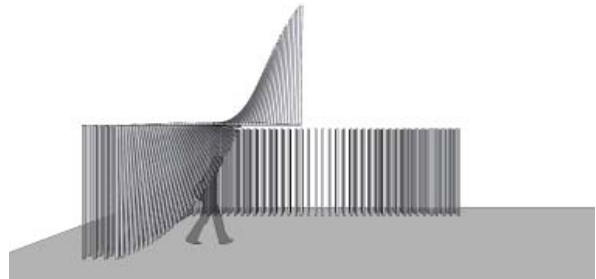
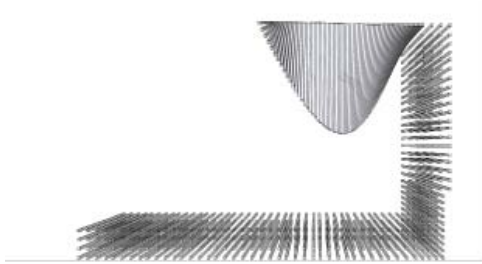
## Modulating Densities

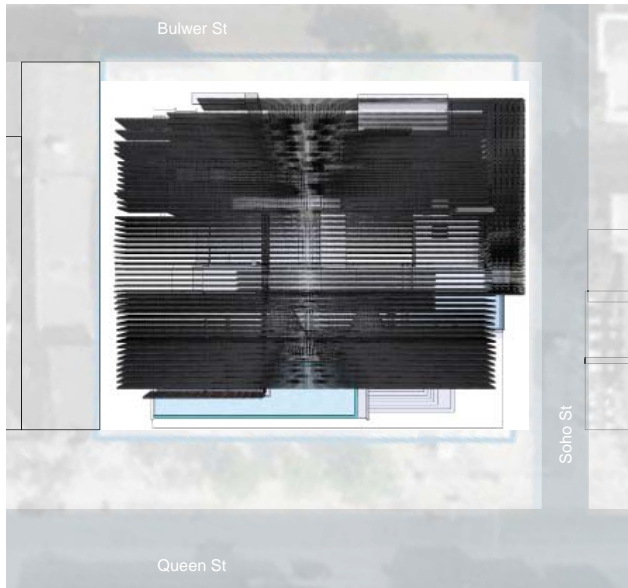
The densification of the fragments brings in solidity to the surface and detaching the fragments provides scope for visual movement.



## De-linking | Flying particles

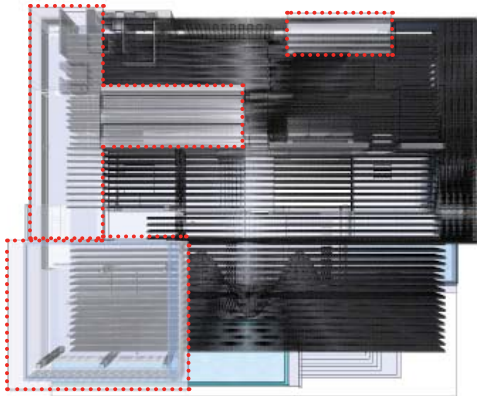
The de-linking of these particles and making them lift away paves way for the users to move through it. It suggests notions of contrasts of rigidity and fluidity





## Scooping out spatial volumes and shaping the spatial journey

1



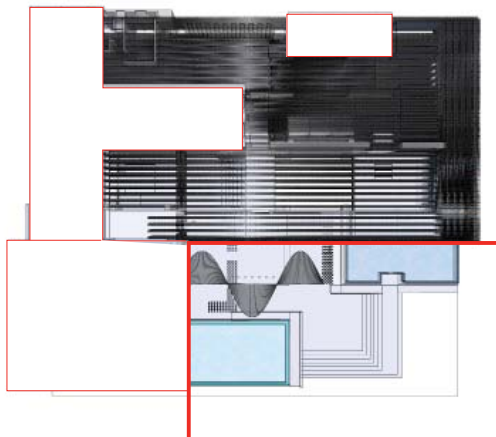
2

Scooping out **Void**



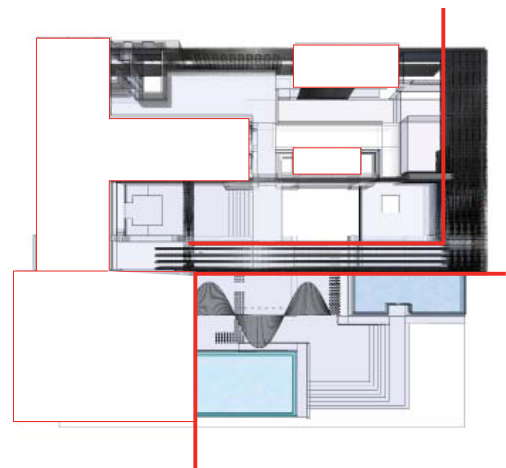
3

Scooping out **transition layer from urban fringe**



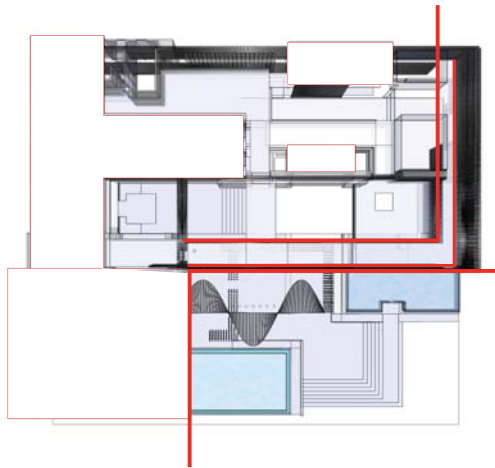
4

Scooping out **transition layer from urban fringe**



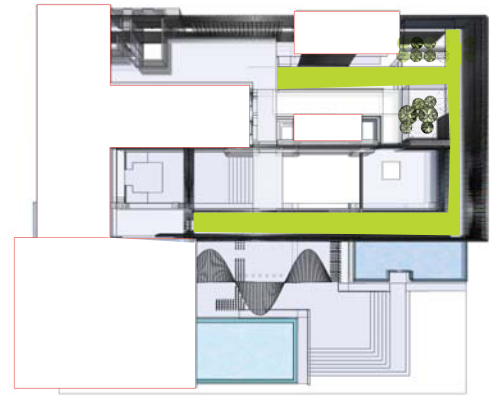
5

Scooping out **semi open zones**



6

Scooping out  
Interstitial space



7



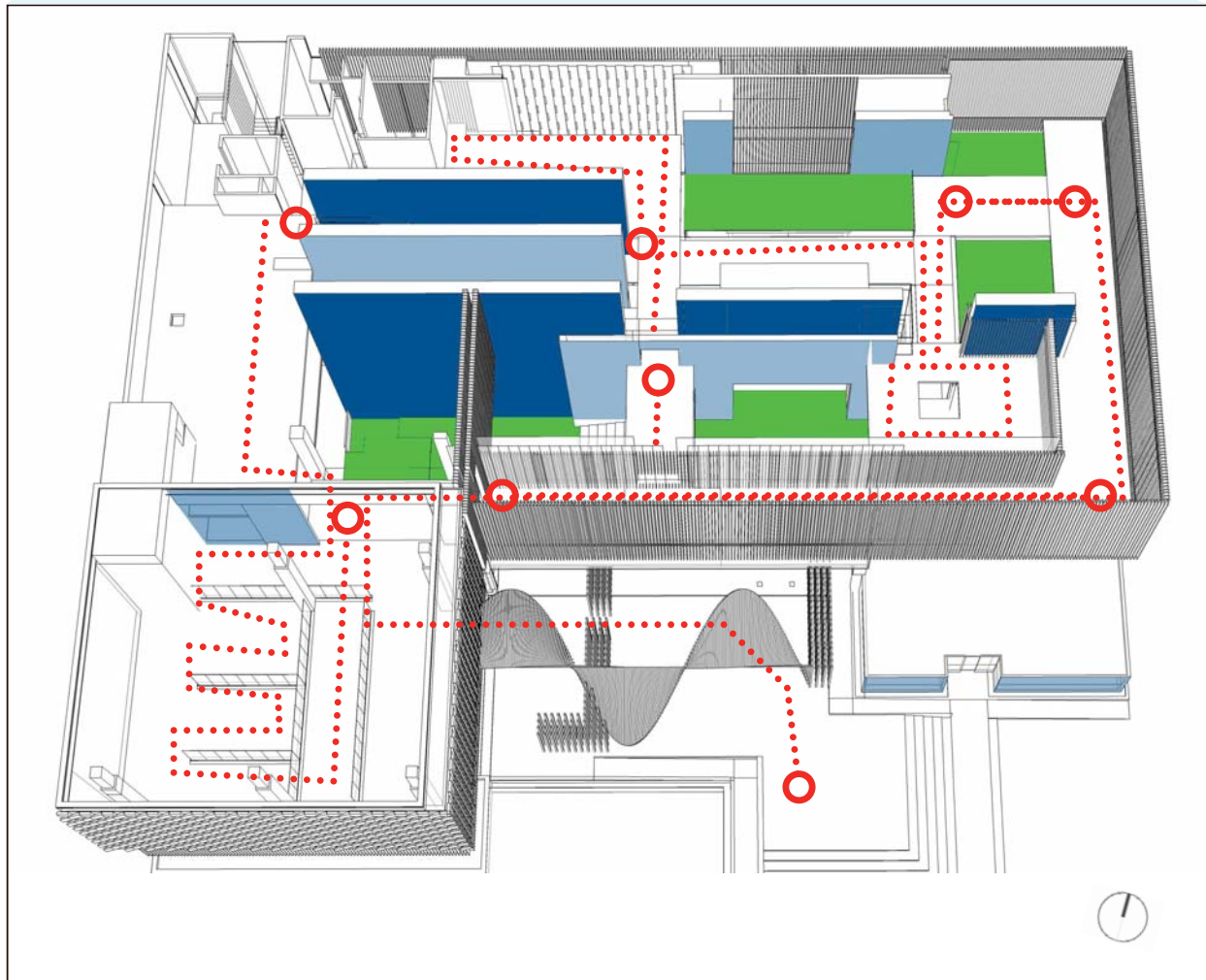


### Shaping the **spatial journey** :

experienced in layers but demarcated and dissolved by varying densities of particles, defining enclosure. Next through the gathering of these particles, the approach has been to initiate a series of encounters through a linear sequence of sensorial journey but arranged in layers.

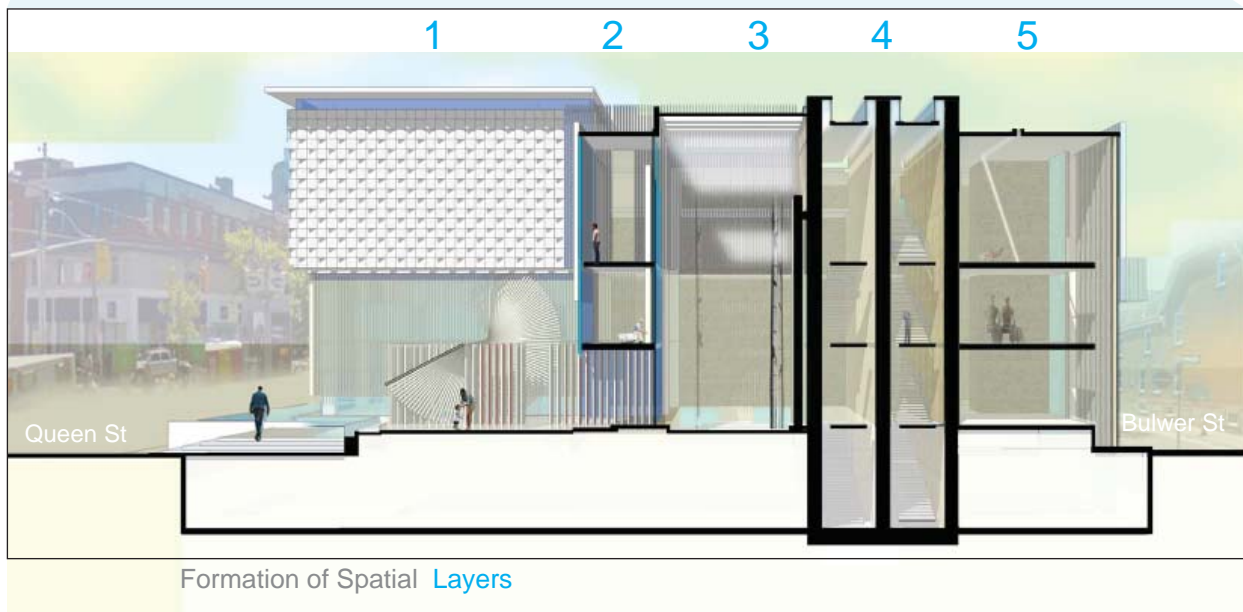
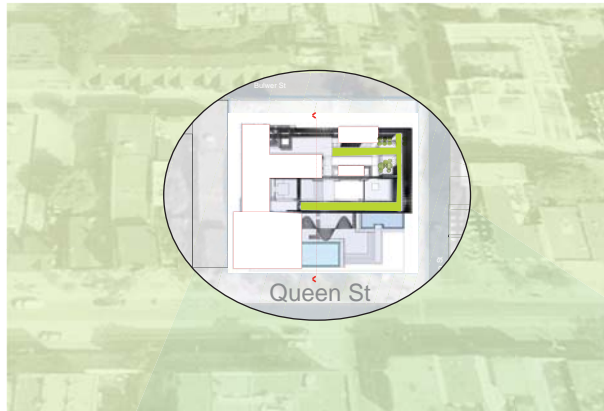
These spatial layers are juxtaposed in simple clarity, where each layer dissolves into the other.

The movement loops through series of contrasts; that of Outside and In | Light and Dark | Man-made and natural | Cold and Warm



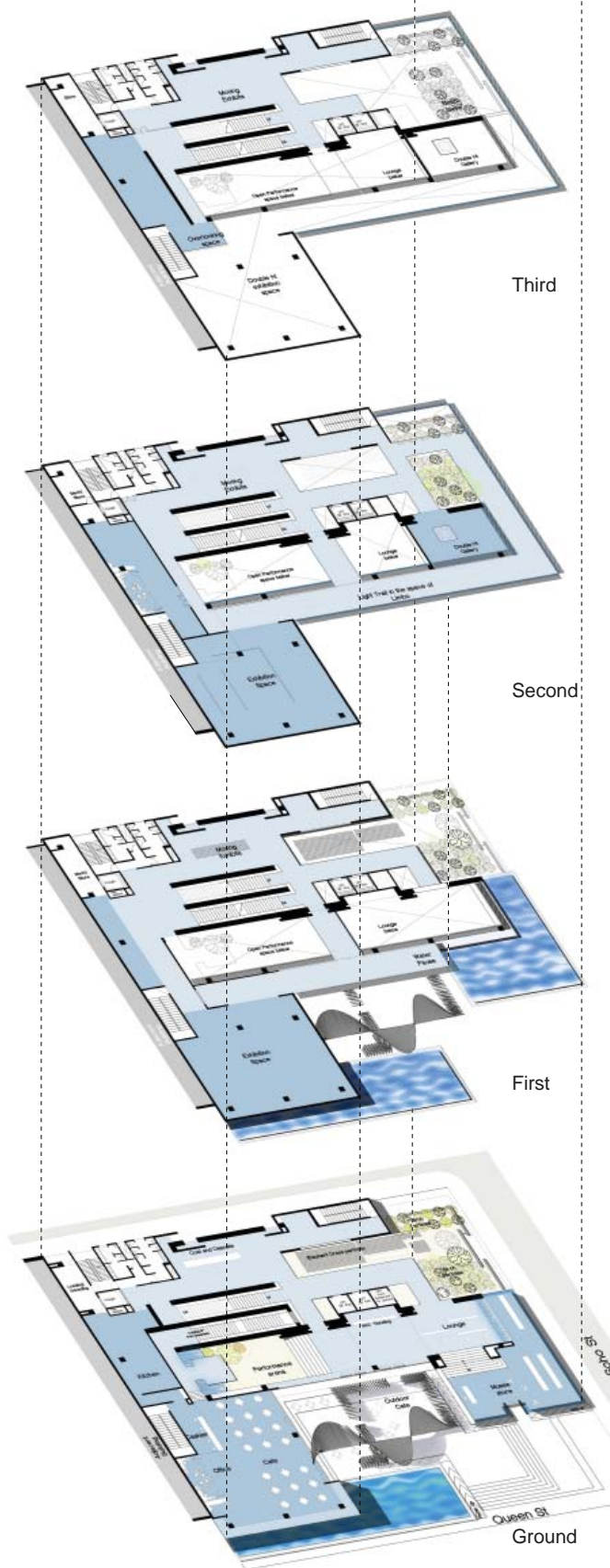
## Spatial layers experienced in section

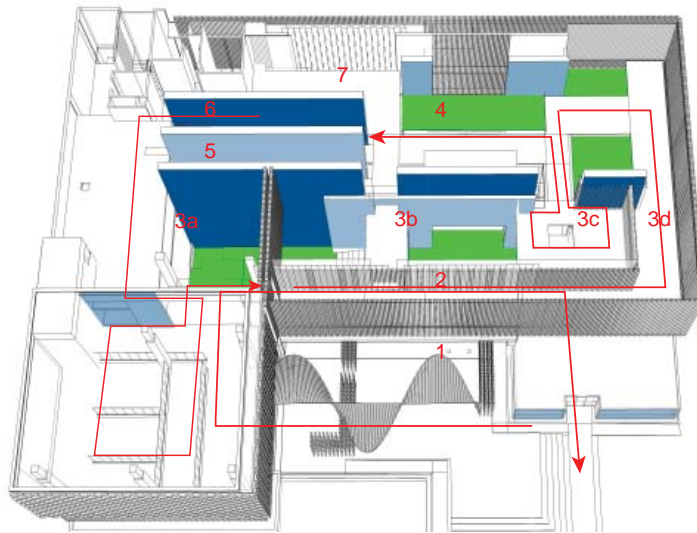
Movement from external conditions | First layer of urban fringe to semi open precinct | Second layer to inner cores segregated by modes of *particized* walls and solid walls according to spatial character.





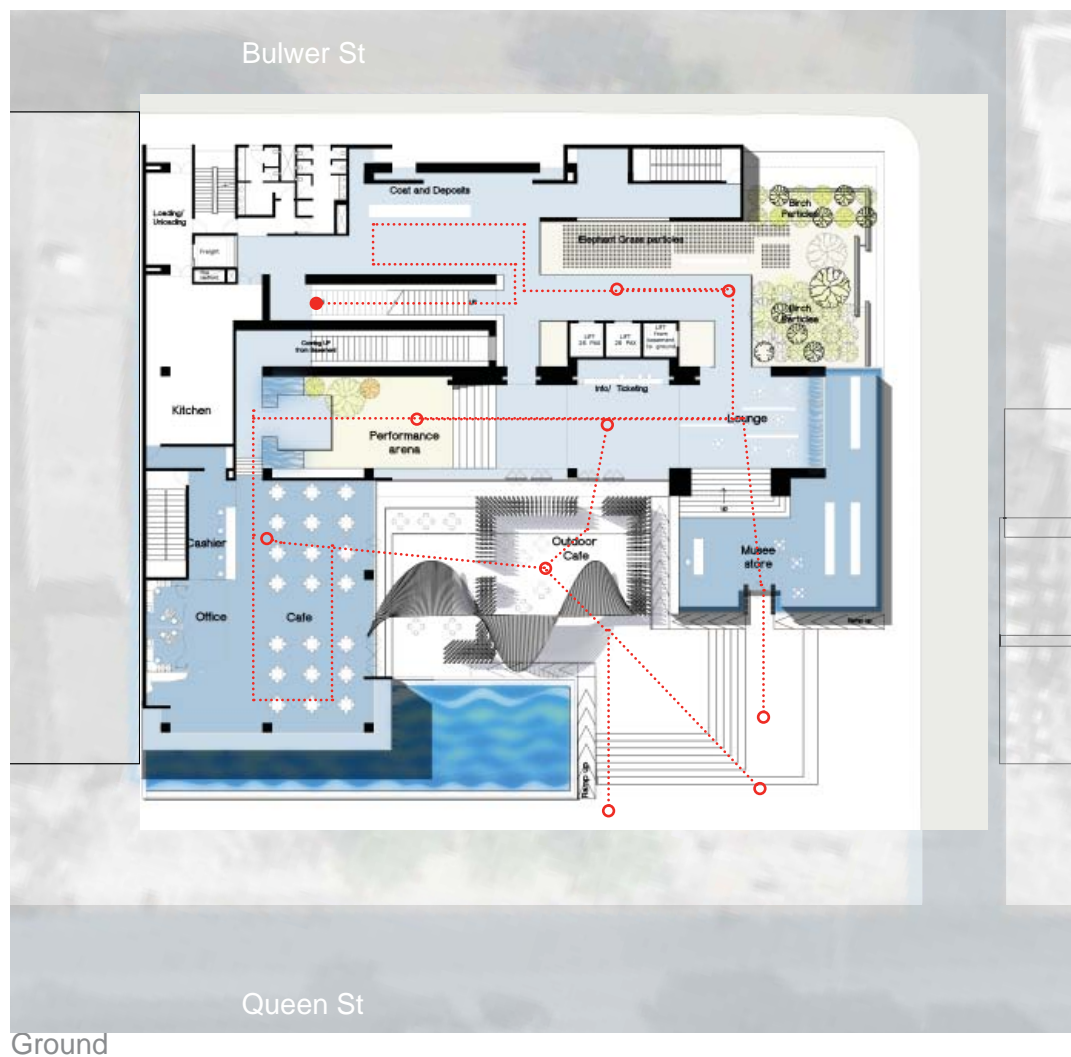
Shaping the [programmatic journey](#) :



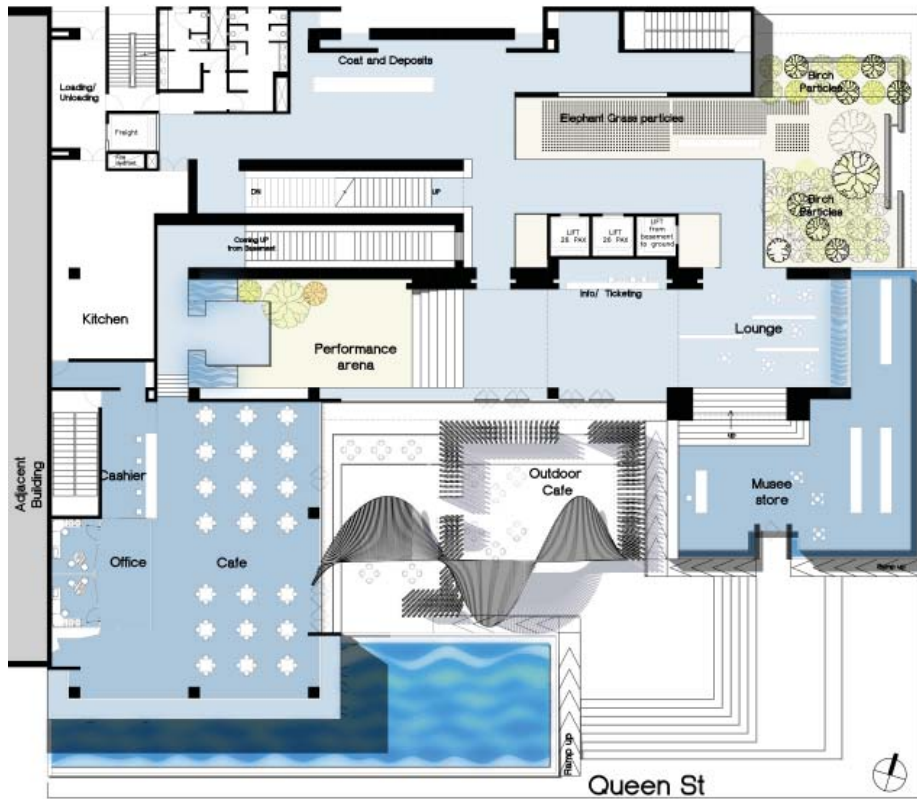


Movement loops punctuated by Pauses and triggered by contrasts of:

Outside and In  
Light and Dark  
Man-made and natural  
Cold and Warm



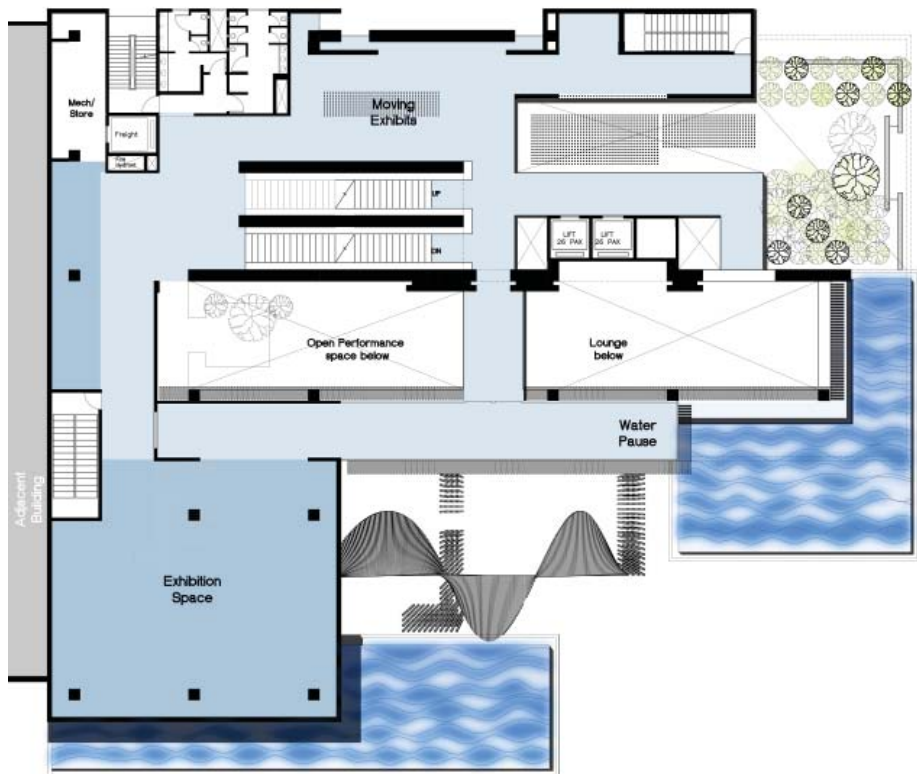




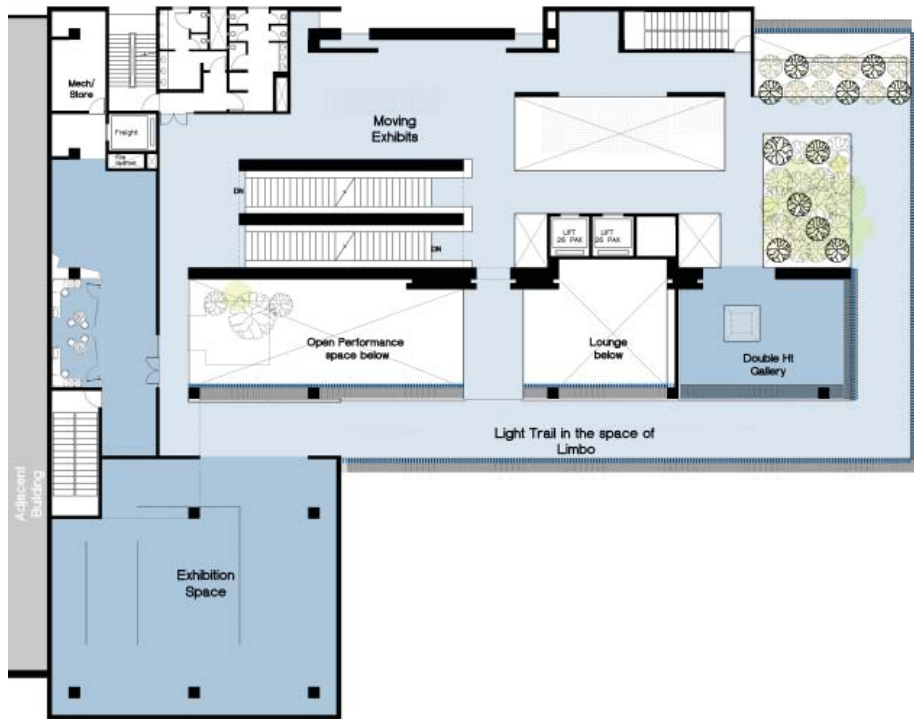
Basement

Soho St

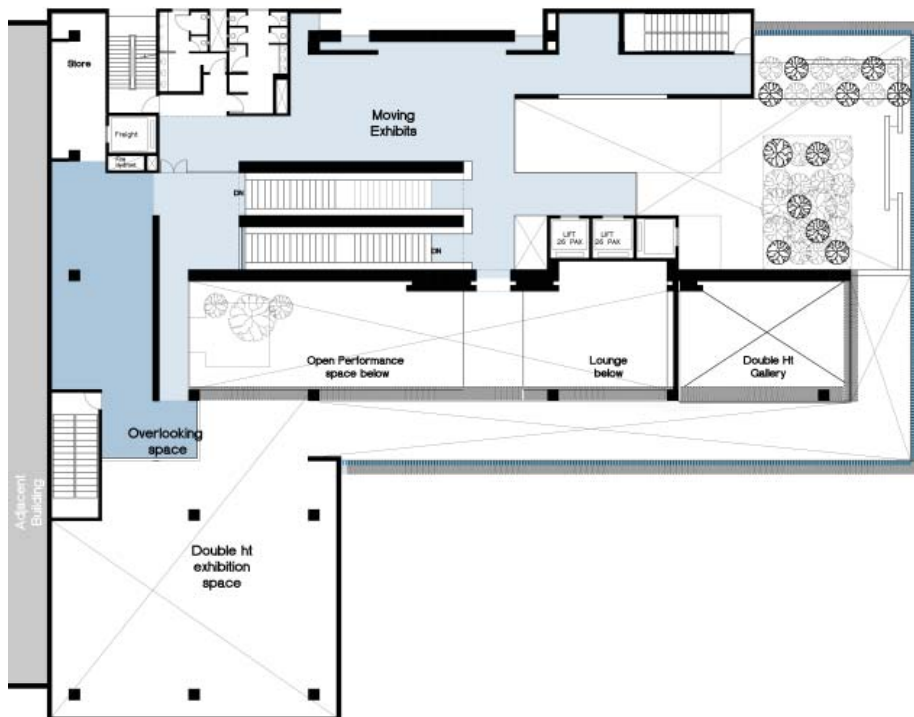
Ground



First

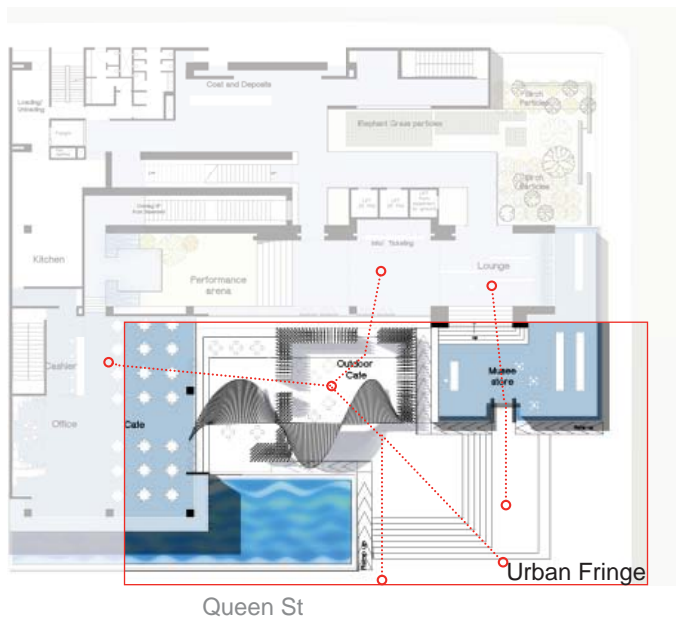
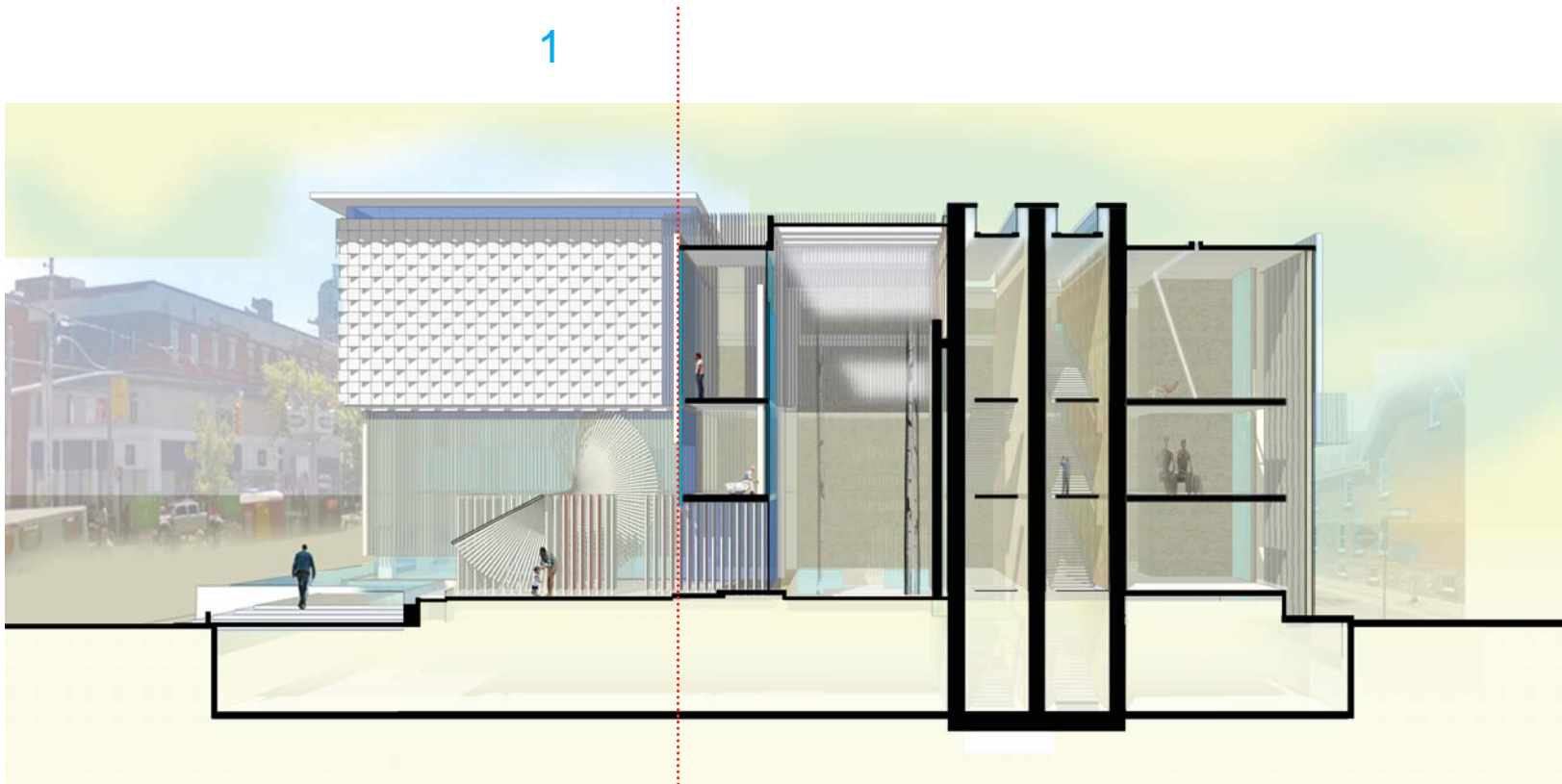


Second



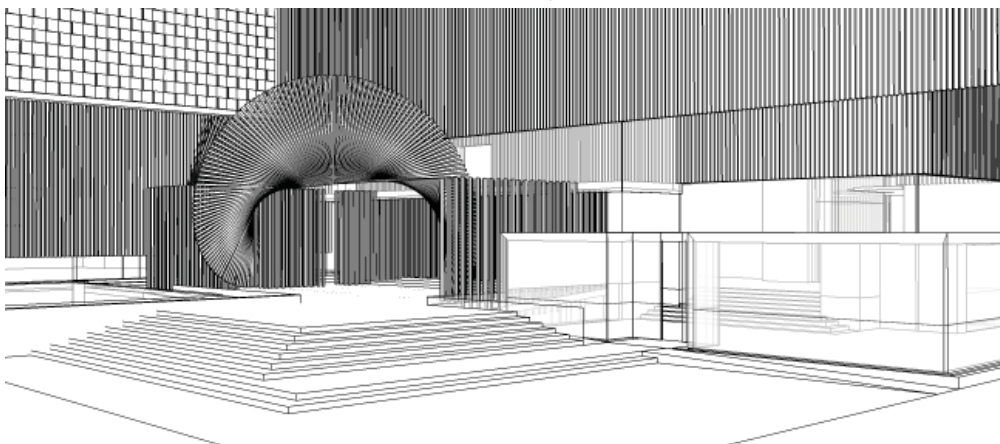
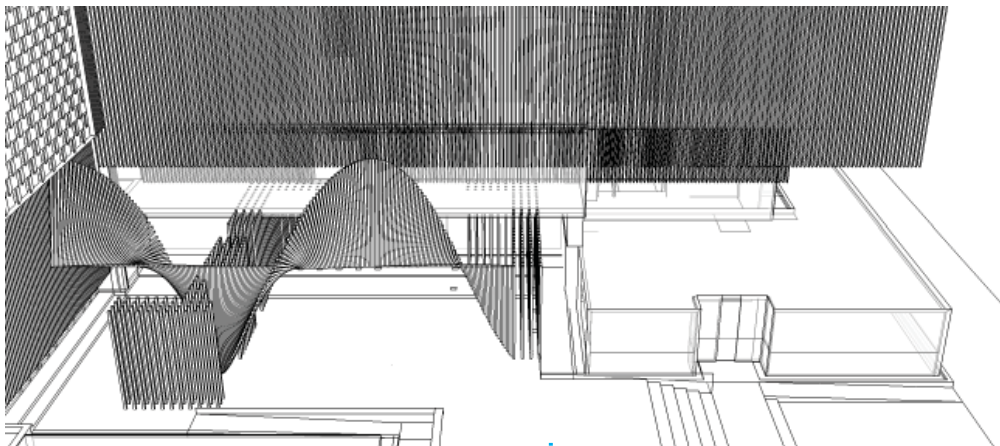
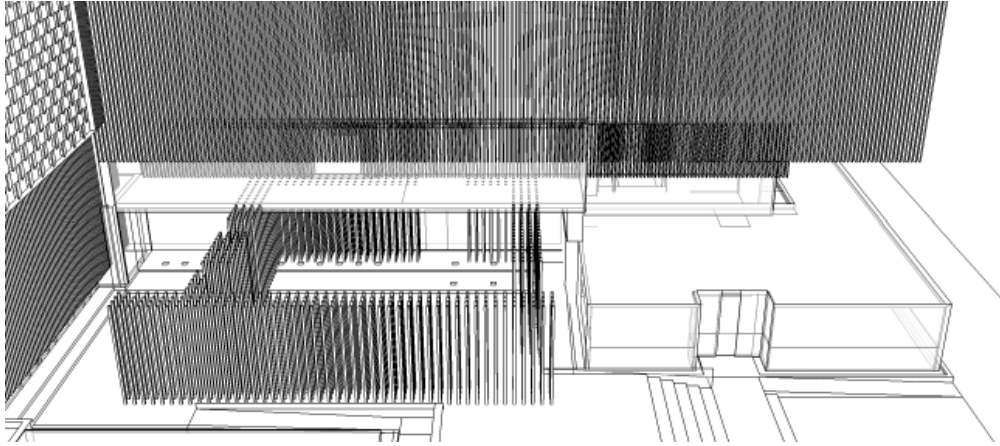
Third

1



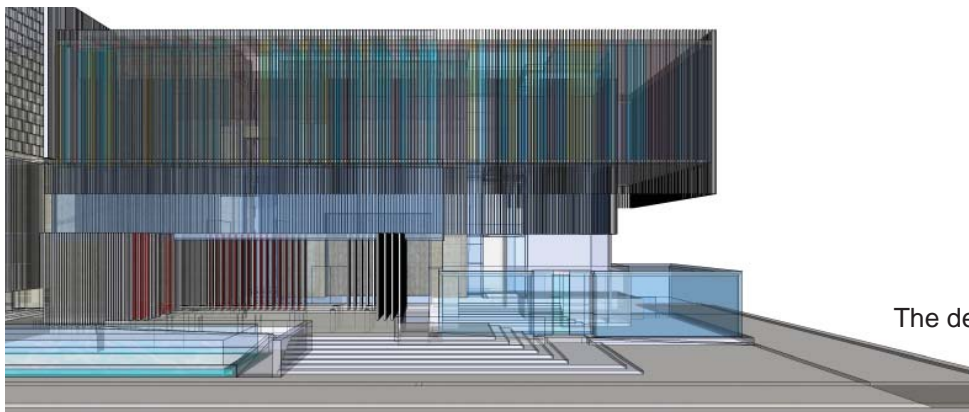
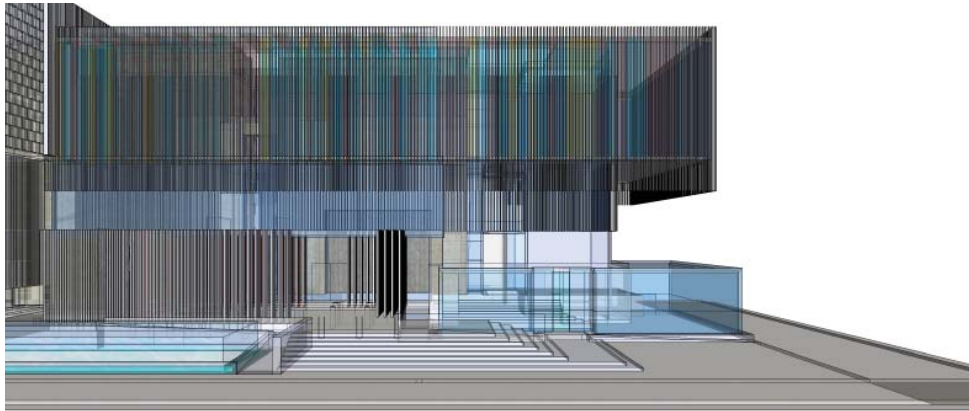
## Movement through Layers | Transitioning layers from an urban fringe to within:

The user moves from the first layer of the urban fringe through these particles and is already initiated into a mode of transition.

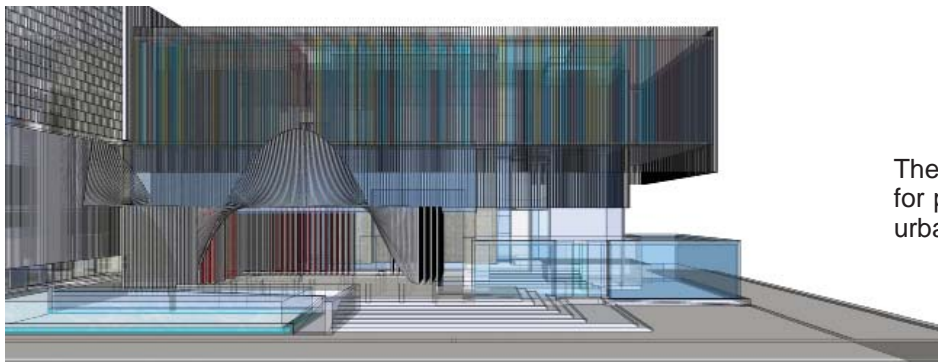




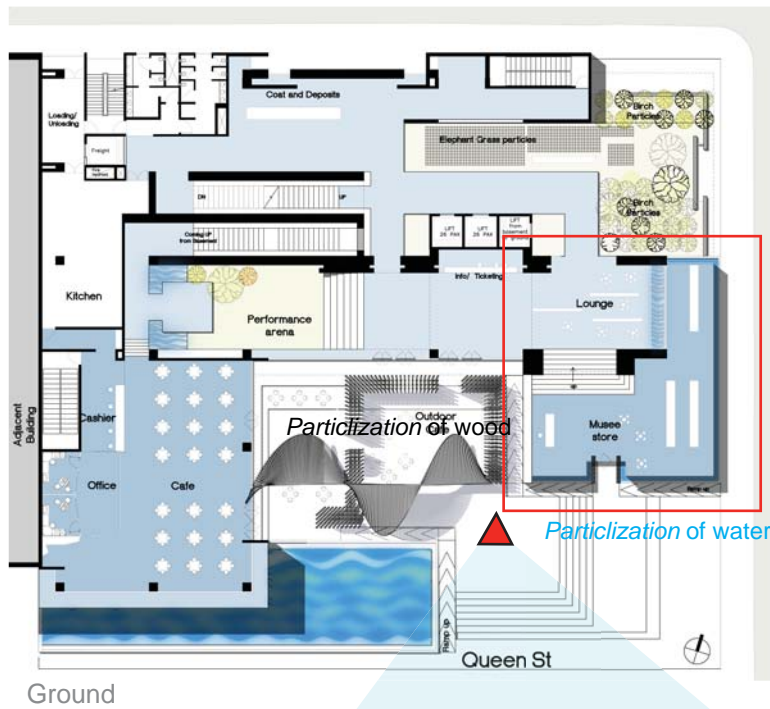
Movement paved by the de-linking and lifting away of particles



The de-linking of particles



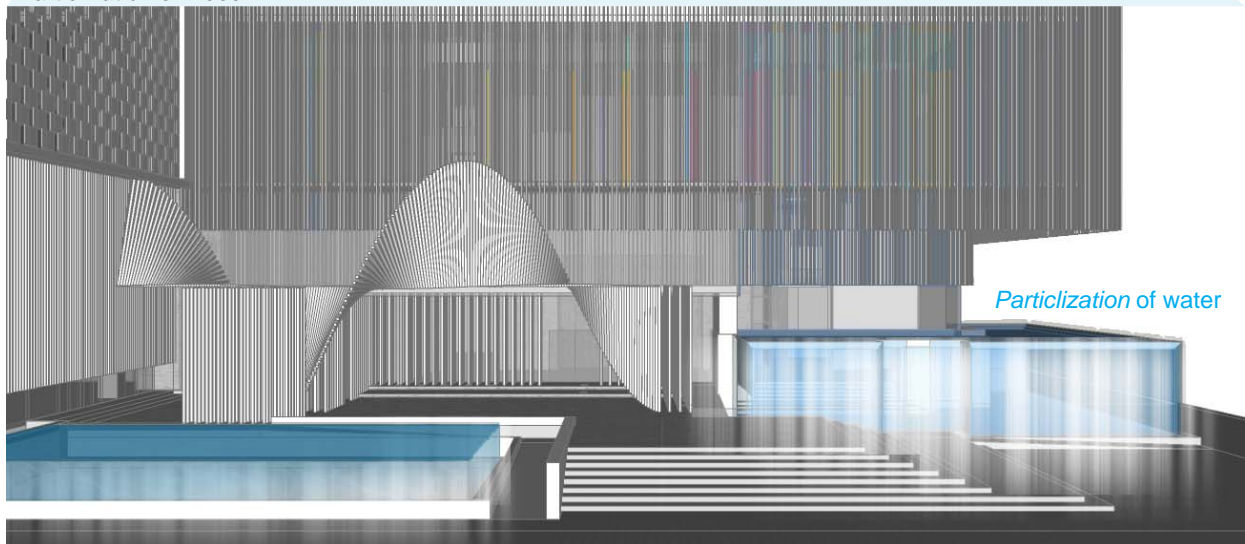
The lifting away of particles  
for paving movement through  
urban layer



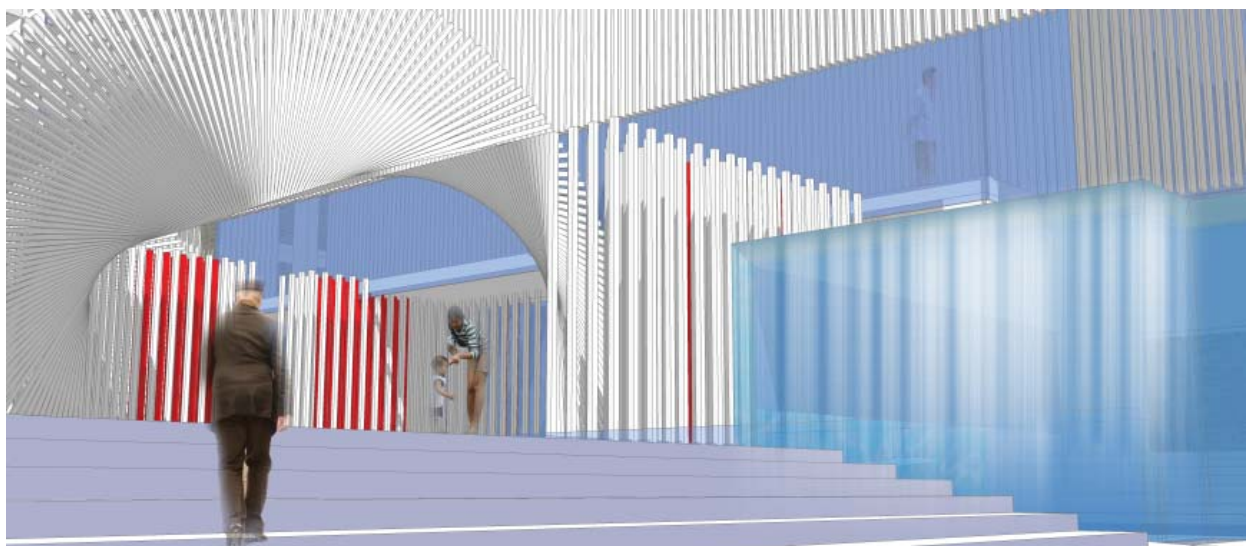
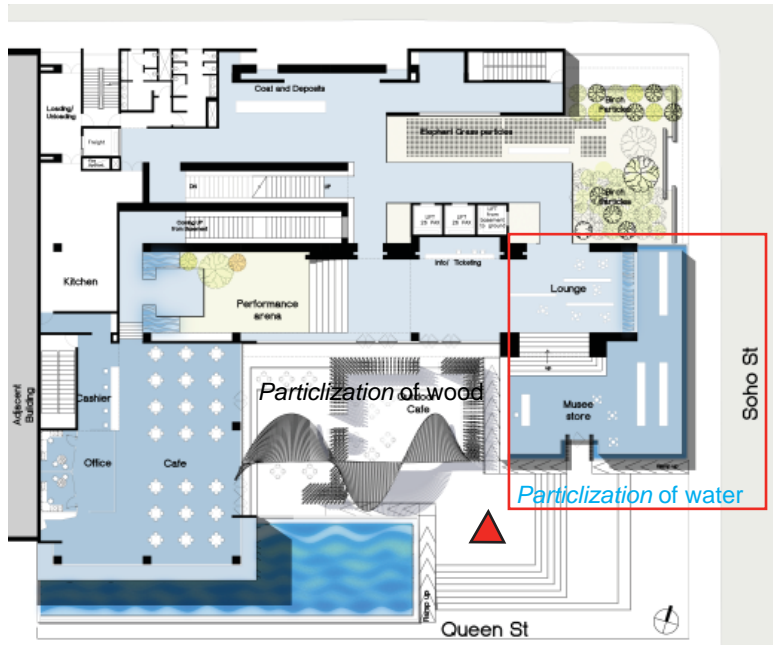
The first layer also witnesses the juxtaposition of a soft material with a hard material both of which have been *particized*.

**Wood** used from the shuttering material has been used for the envelope to form *particized* screens. At the entrance the wood has been juxtaposed with a **water** box. The ribbed edges from where the water cascades, modify the sheet of water to a lined texture similar to the linear particles of wood. This provides contrasting perceptions and quality of sound and essence and temperature though it follows the same language of linearity.

Particization of wood



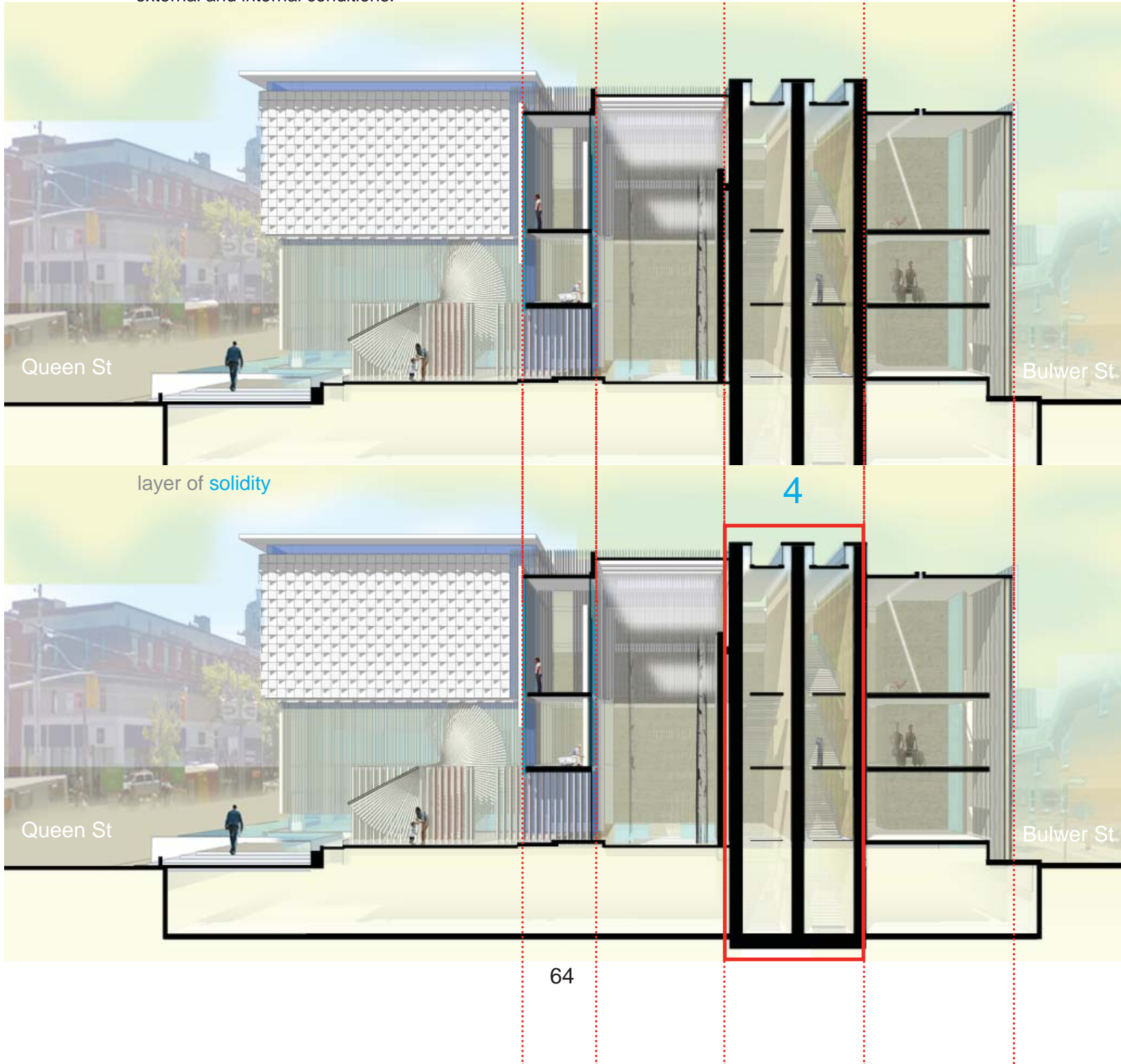




Second Layer is the **Space of Limbo**:  
the transition between the 1st and 3rd layer

The Space of limbo represents the interstitial space that is neither inside nor outside but in-between. It is the space of circum-ambulation as the user experiences hints of light's movement along his journey as he moves towards the more subdued core. The Space of Limbo maintains a dialogue between the external and internal conditions.

1 2 3



## Material parti:

highlighting varying density of material

Birch



Birch shuttering for solid concrete walls



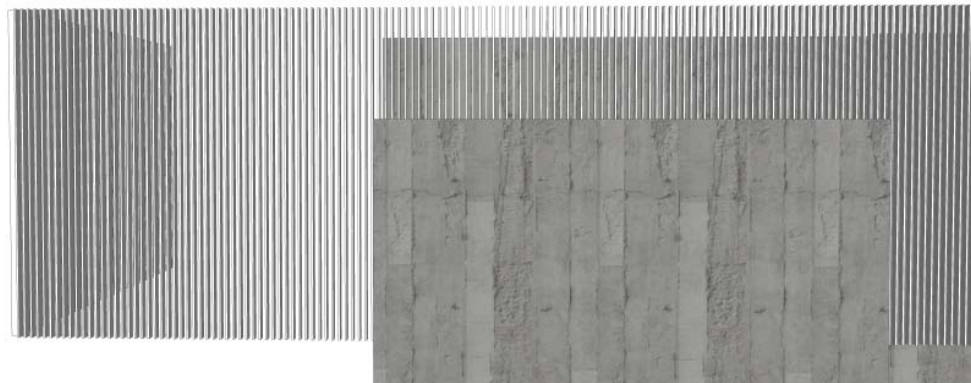
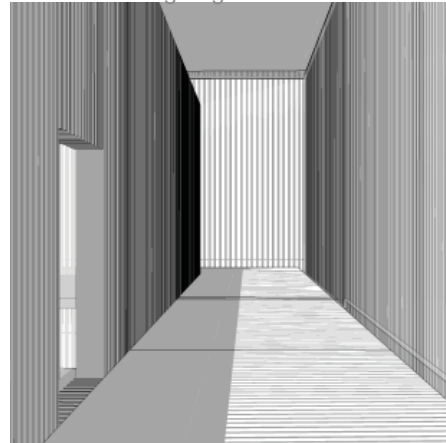
## Product

Solid concrete walls with birch imprints



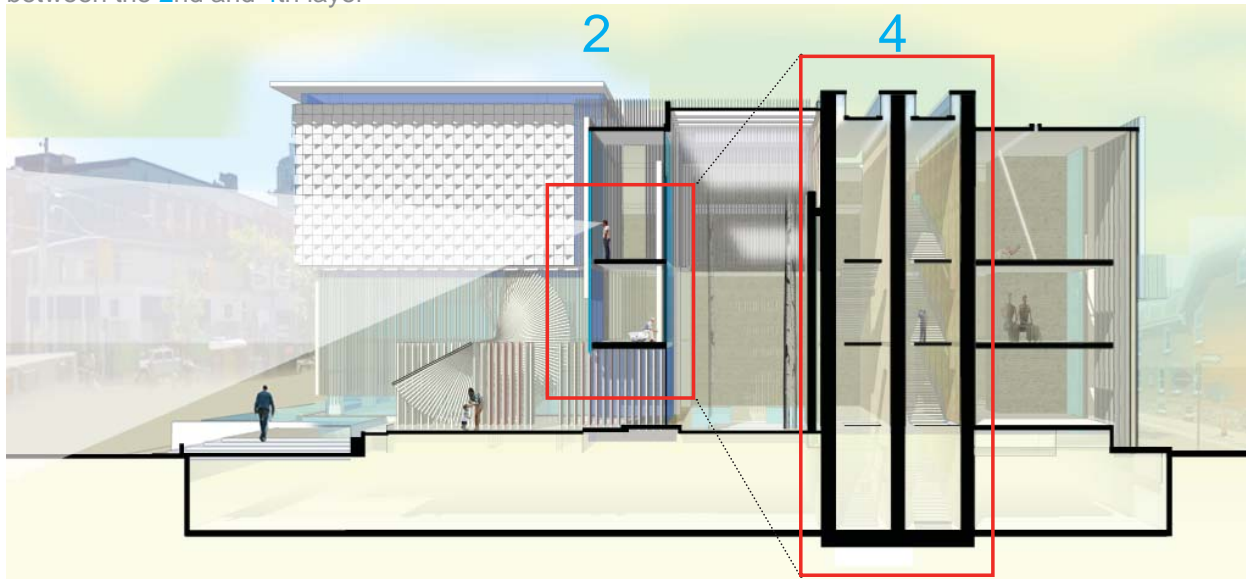
## By product

Birch shuttering fragmented for screens

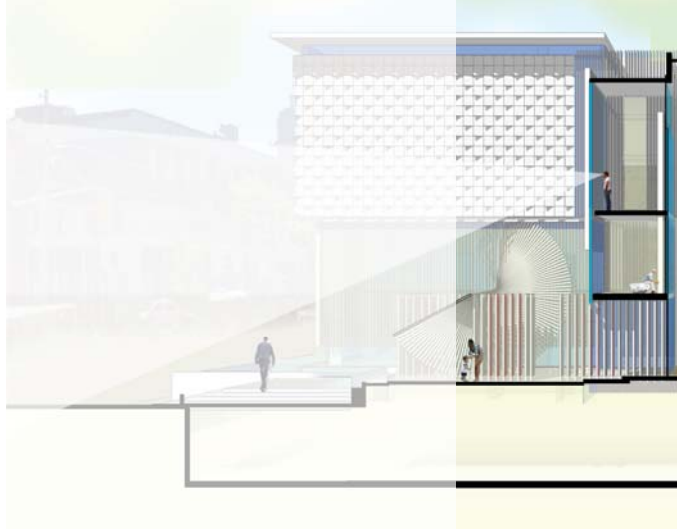




Movement through Contrasts of Solidity and Semi-Permeability  
between the 2nd and 4th layer



Visual permeability in the space of **Limbo**



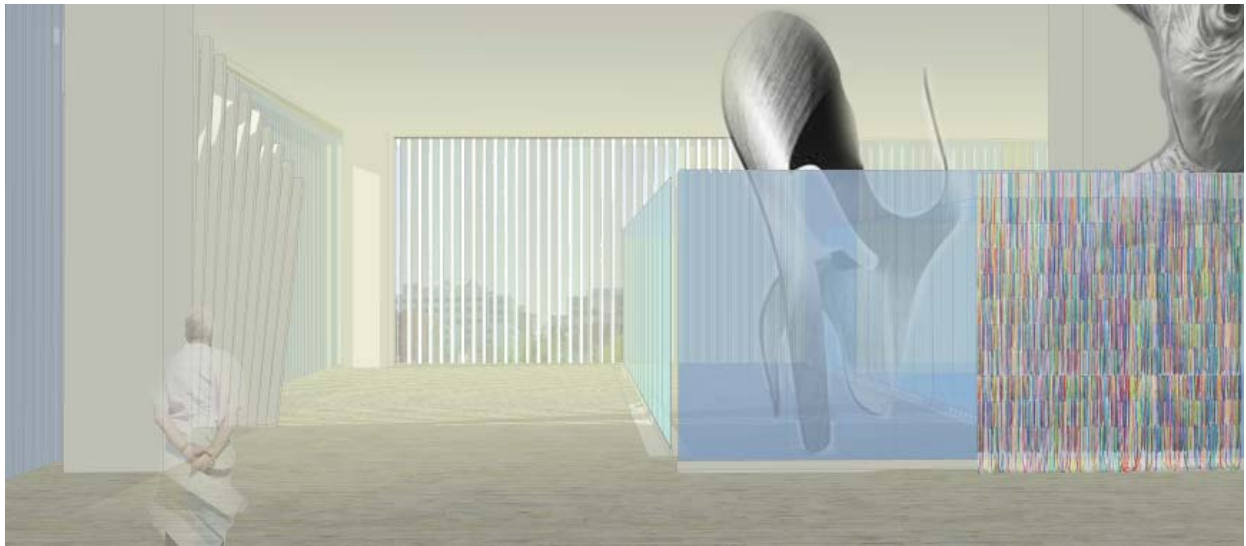
Through these screens, the user experiences varying resolutions of the city's image beyond. As the user experiences the image through the walls tangentially, or from a distance, it closes down. When he experiences the image head on at a non incident angle, or from close up, it opens up.





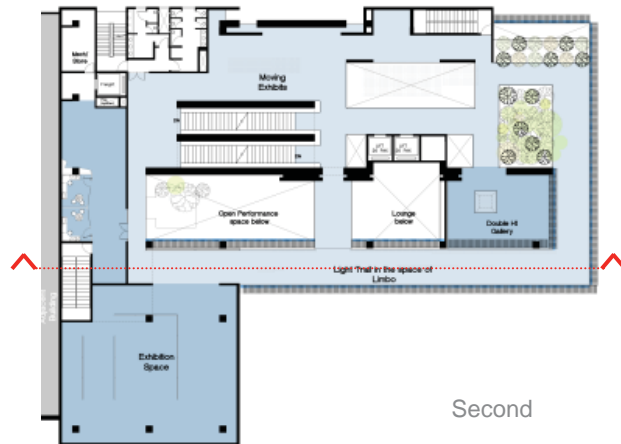


Creating **Dialogues** and **Visual Permeability**  
between outside and inside conditions:  
through manipulation of particle densities | Juxtaposition of Hard and Soft | Man-made and Natural

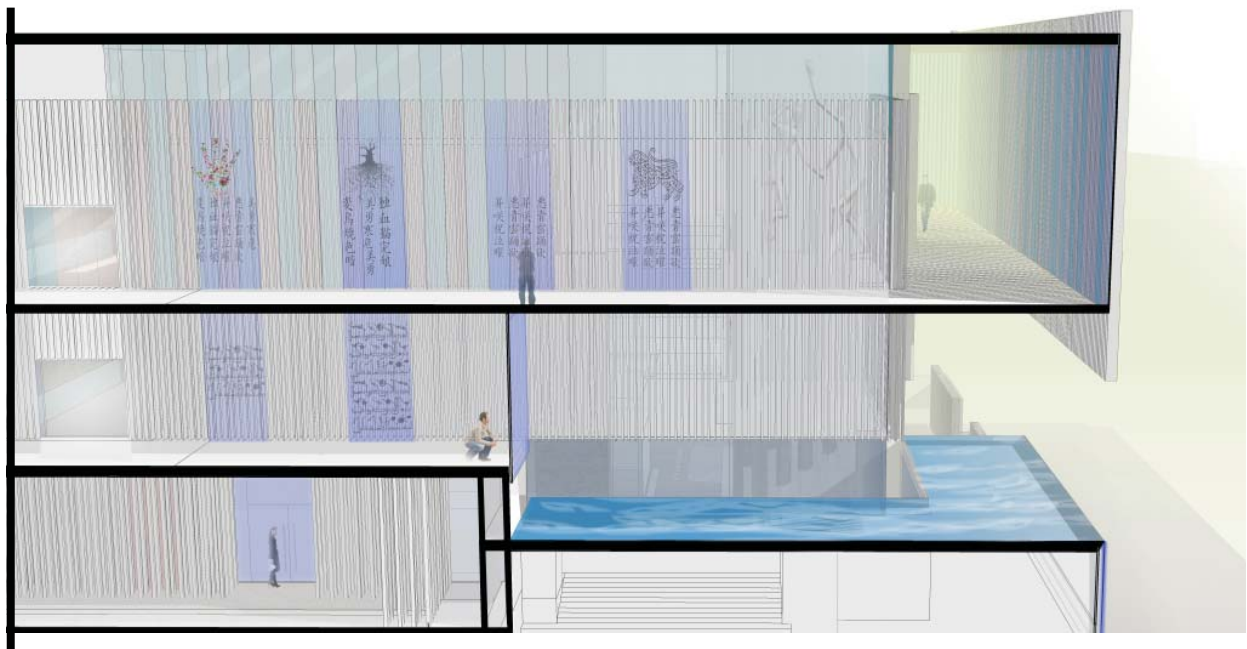
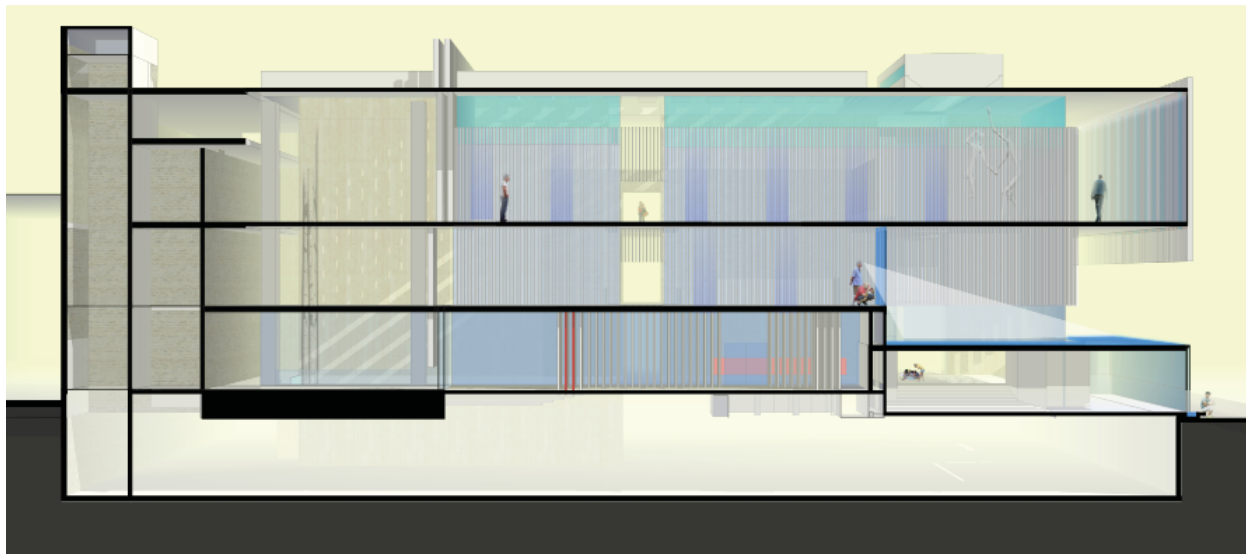




Spatial quality of the Space of **Limbo** or the Interstitial zone, where the user is in direct and indirect link with the enfilade of spaces beyond.

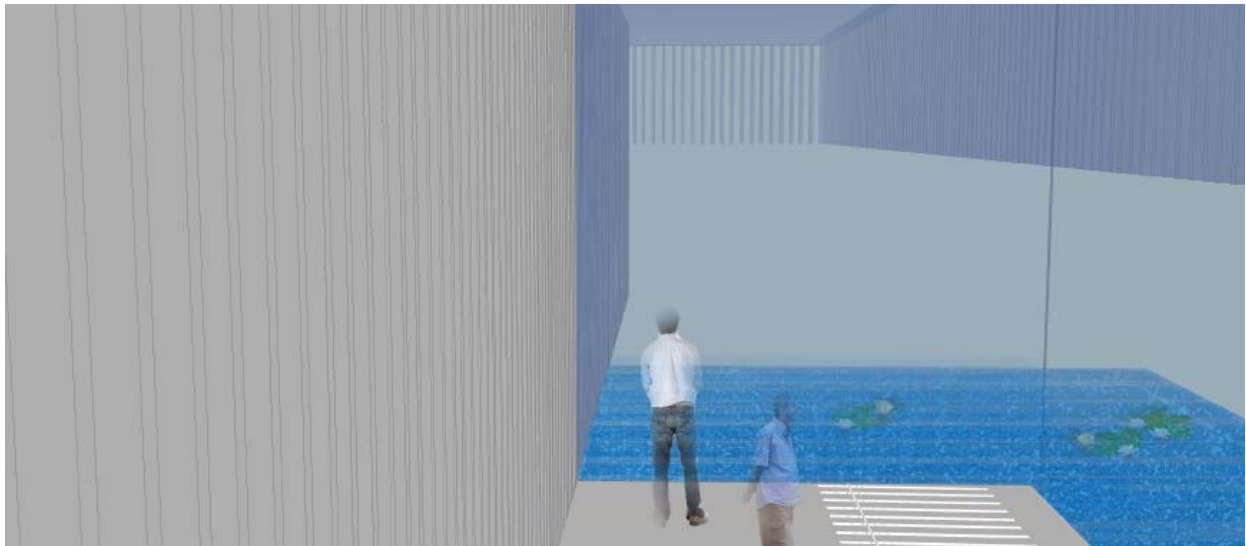
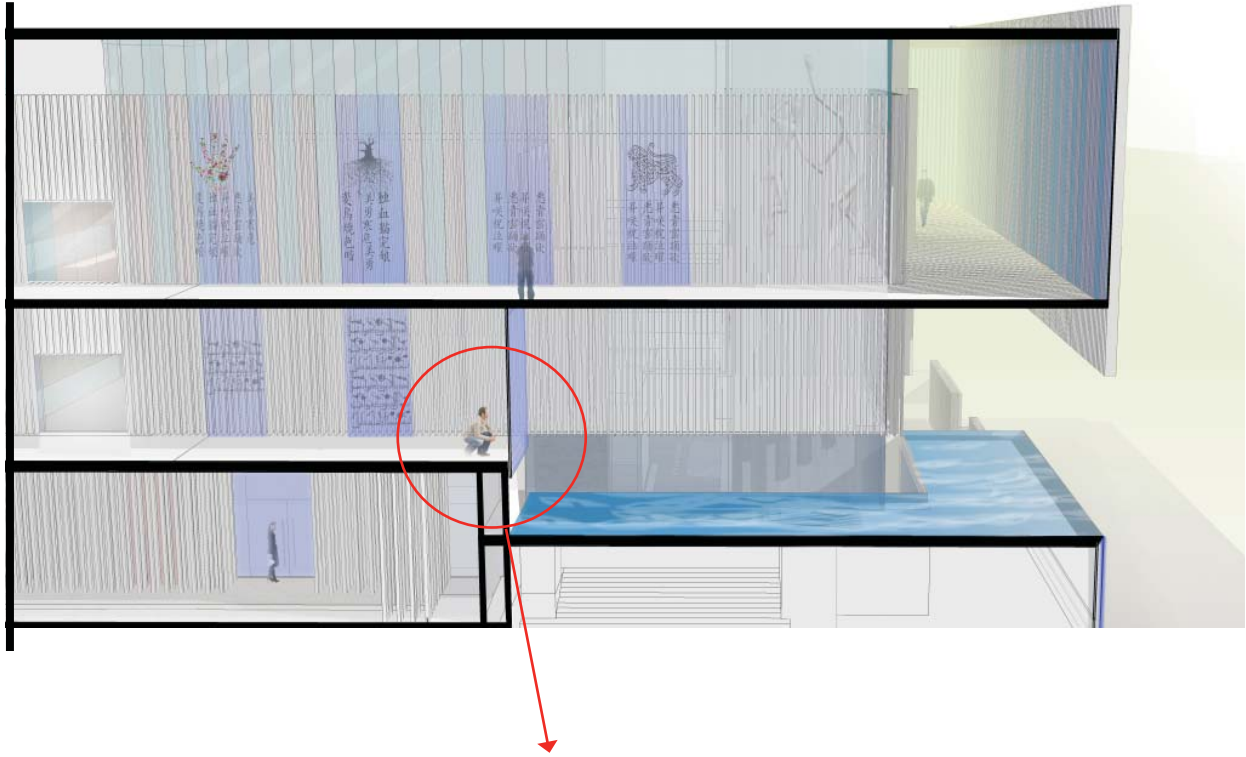


Second



## Moments of **Pause**

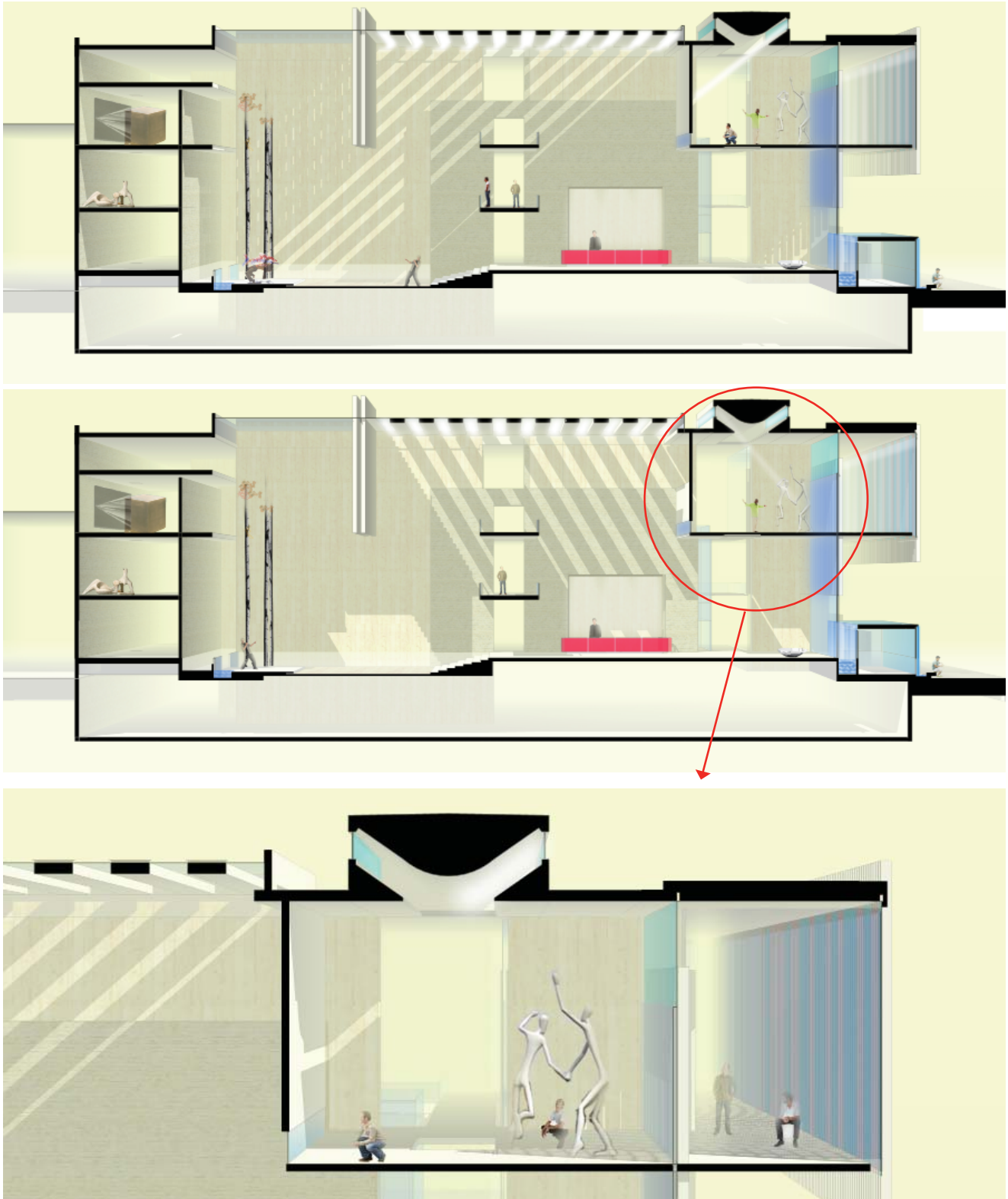
The rectilinear movement of loop also provides the user with moments of pause and the space for contemplation.





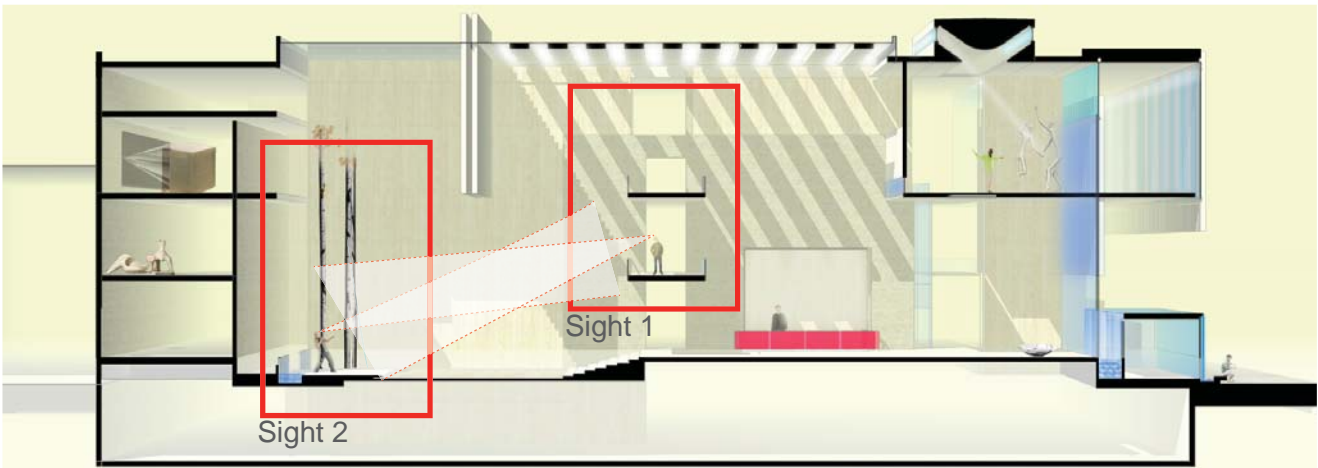
## Temporal conditions

The liquidization of light's essence has been sculpted to follow the textural linearity that has been consistently followed in all the spaces.



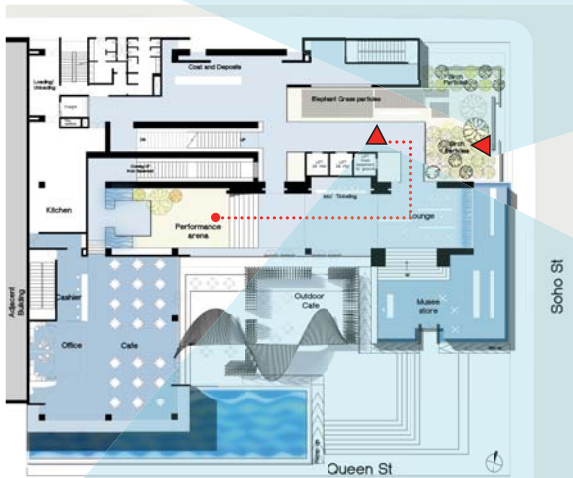


Sight 1



Sight 2





Ground





First



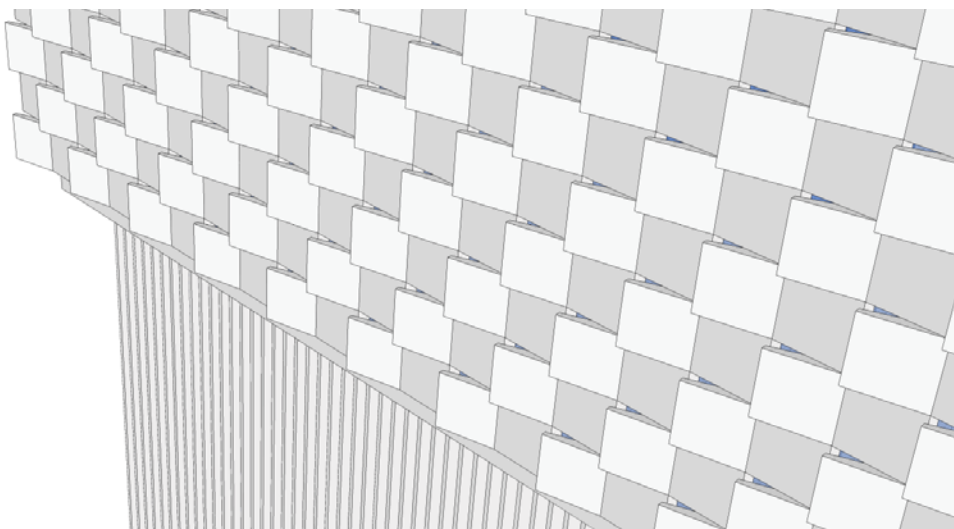
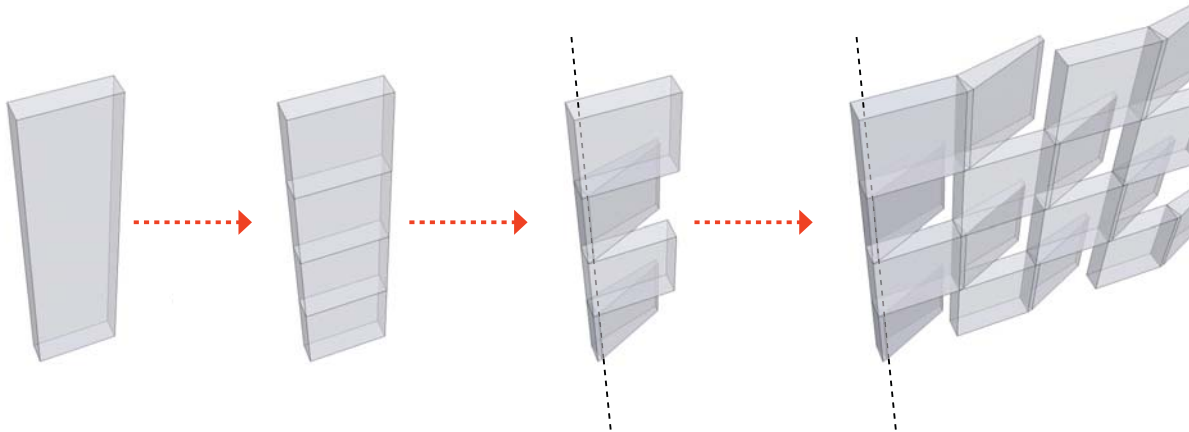
Section highlighting the spatial layers

## Material parti:

Further fragmentation of wooden slats |  
*particlization*, to control percolation of light

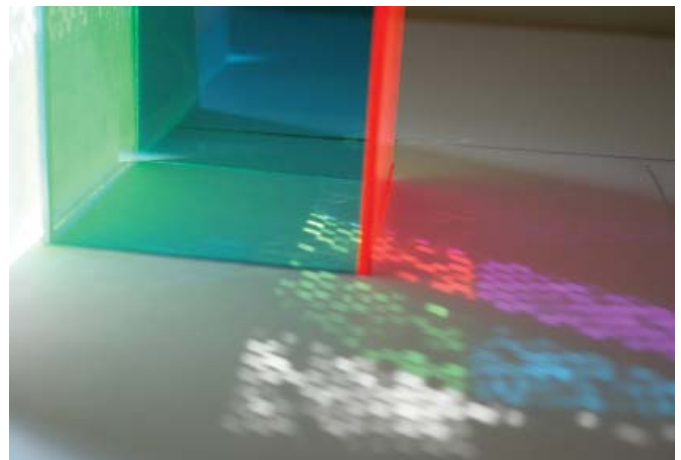
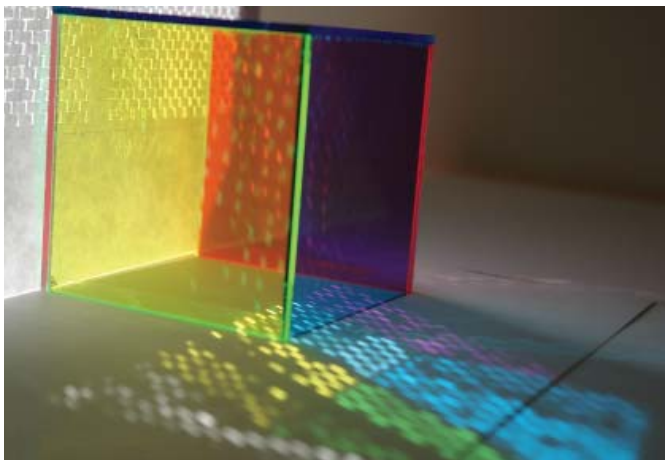
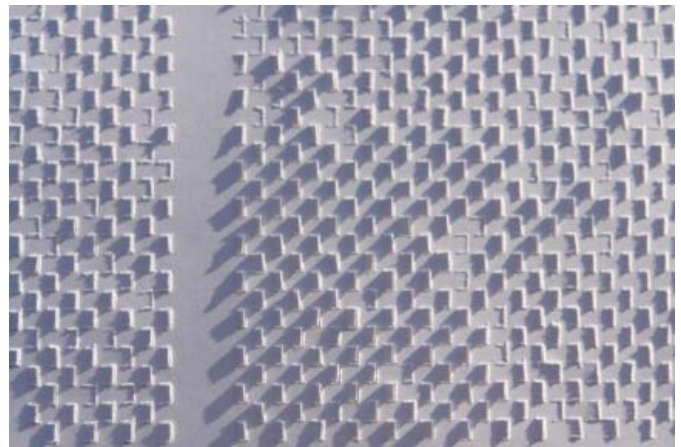
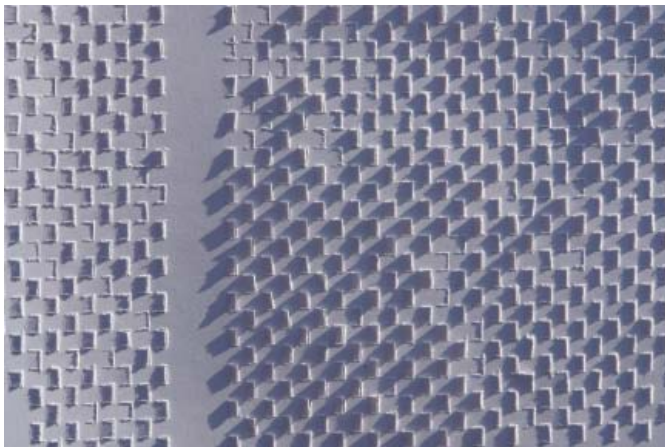
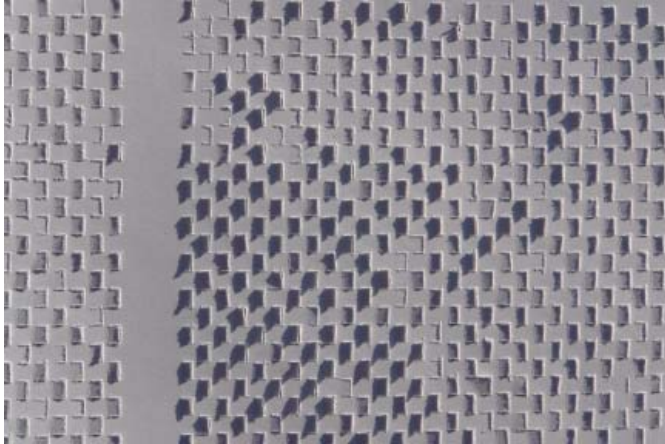


Birch shuttering further broken down



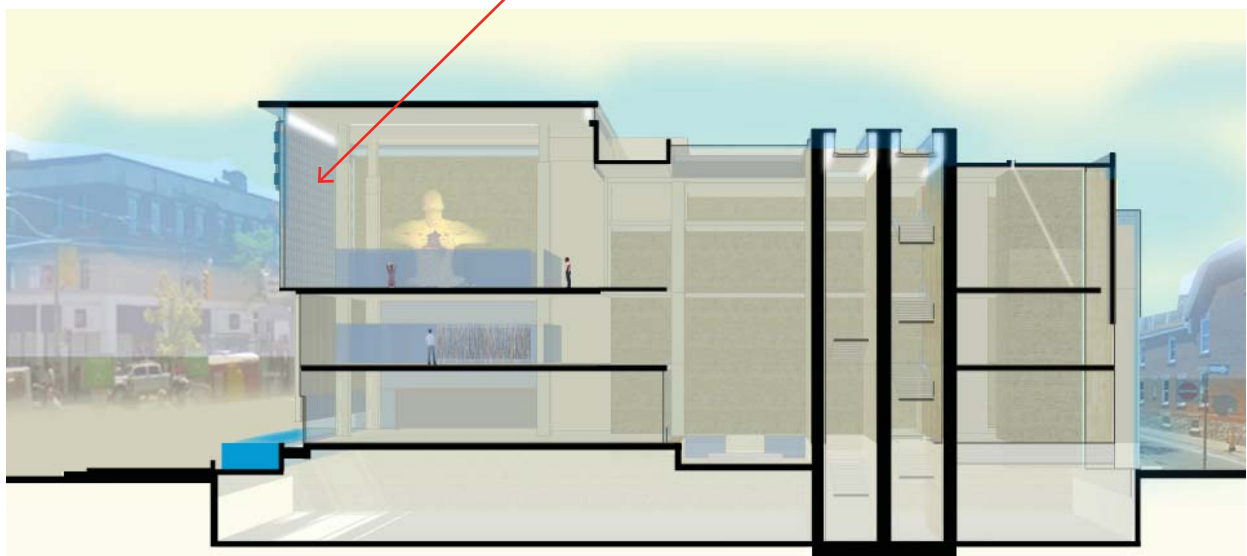
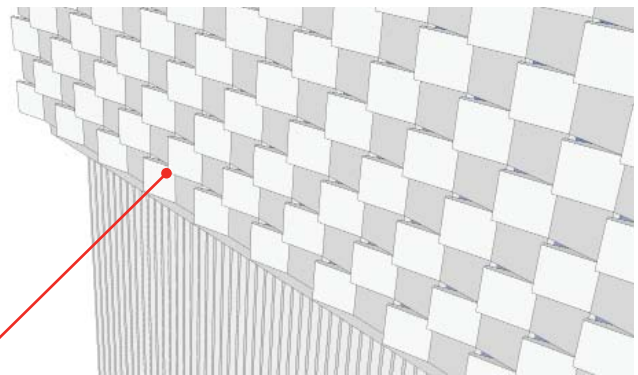


**Textural qualities** achieved by further breakdown of slats |  
**Shadows** formed by the evolving angle of light adds to the textural component.



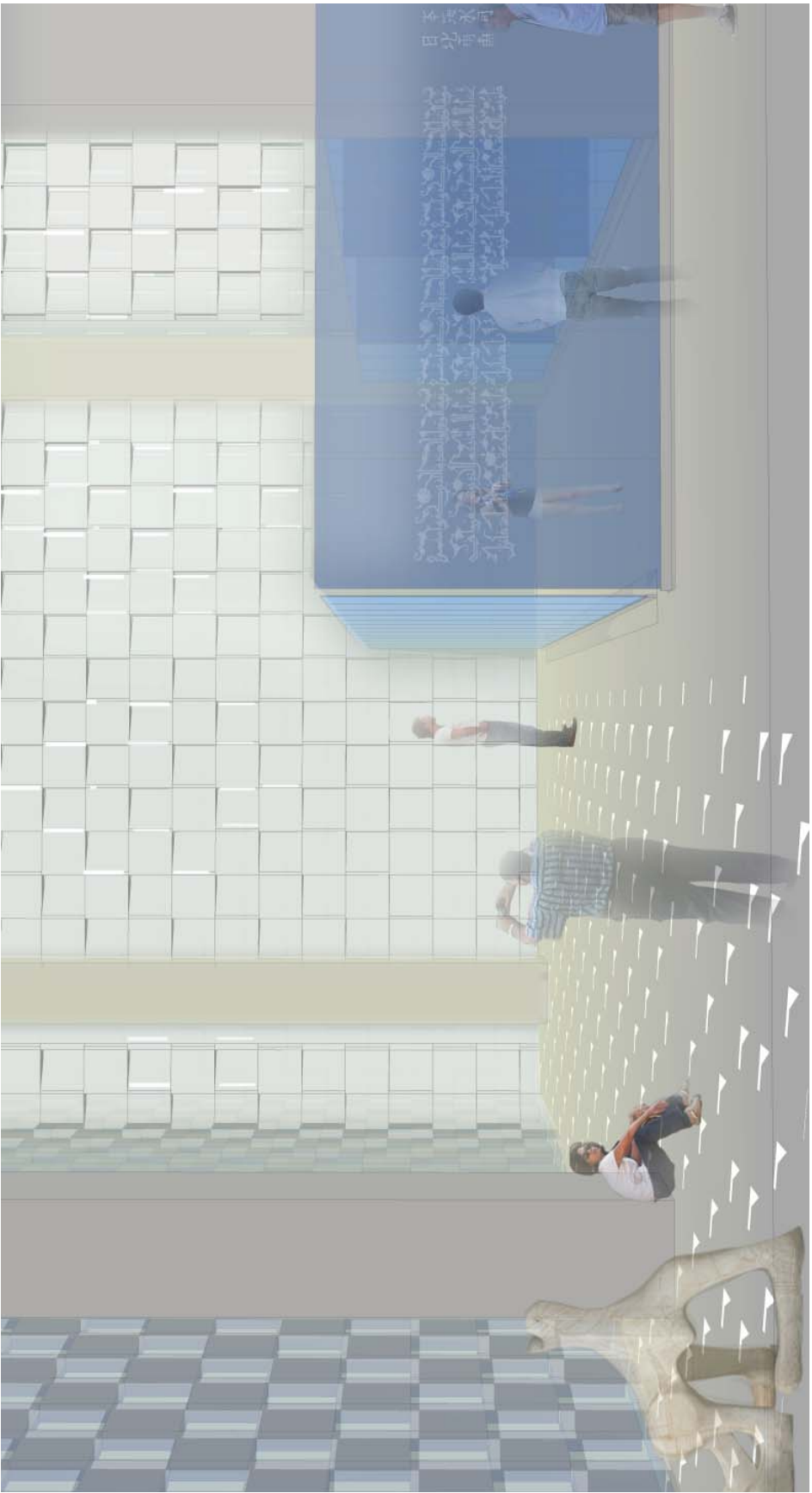


First



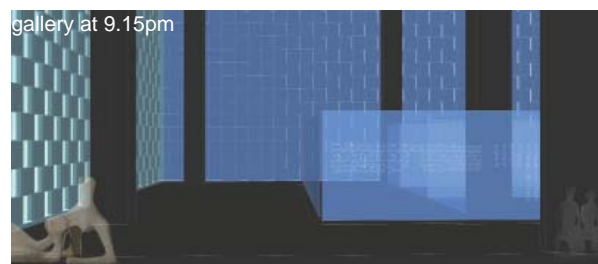
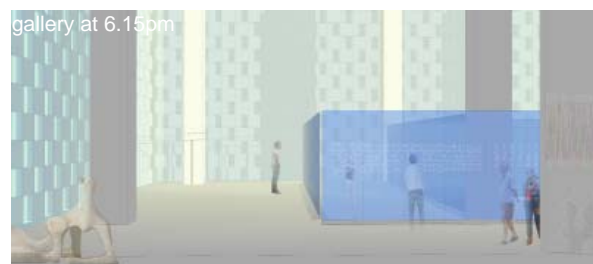
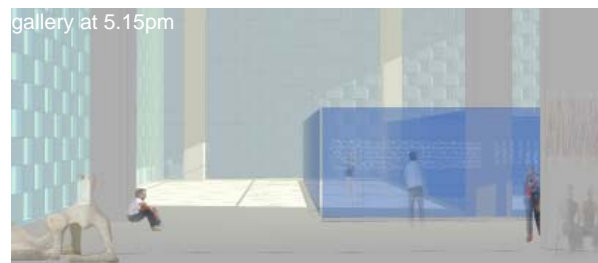
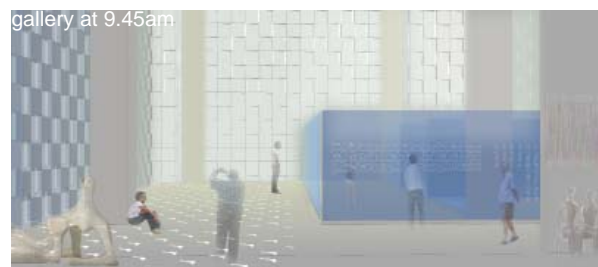
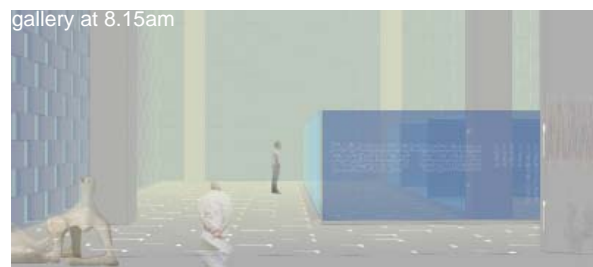
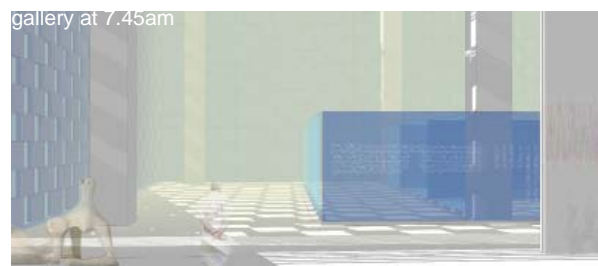
Section





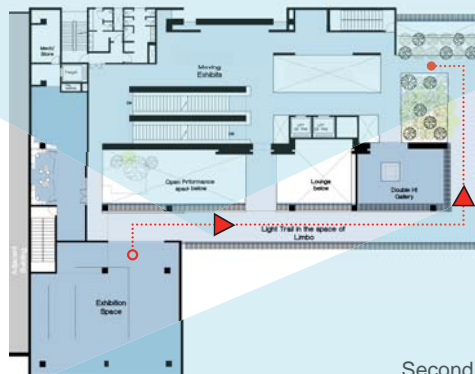
### Liquidization in space :

Solid material inducing atmosphere into the space by capturing the essence of light by virtue of its breakdown. The arrival into the gallery space is defined by the scattered light patterns percolating through particles of birch pellet blocks. This attunes the user with temporal conditions of external elements.



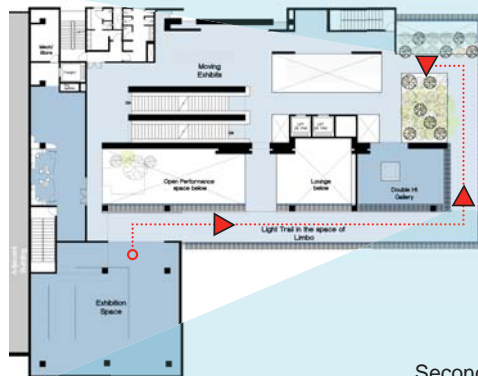


**Continuation of movement** from the intimate gallery spaces to the peripheral loop of limbo. The user's perceptual capacities are attuned with the liquidized patterns of light from the slats which synchronizes with the linearity of the birch slats and the birch trees, from which the slats have originated in the first place.



Second

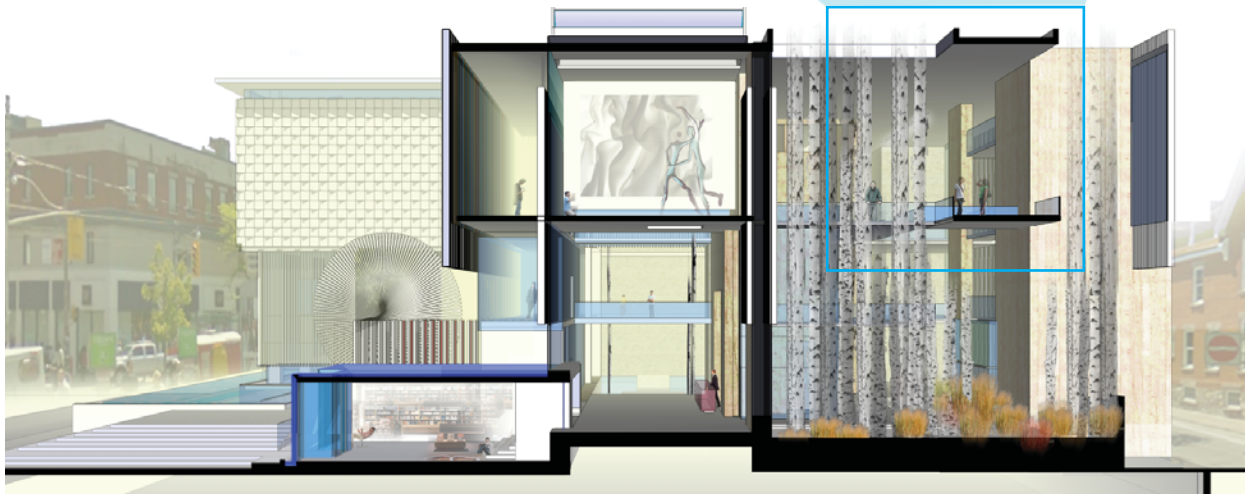
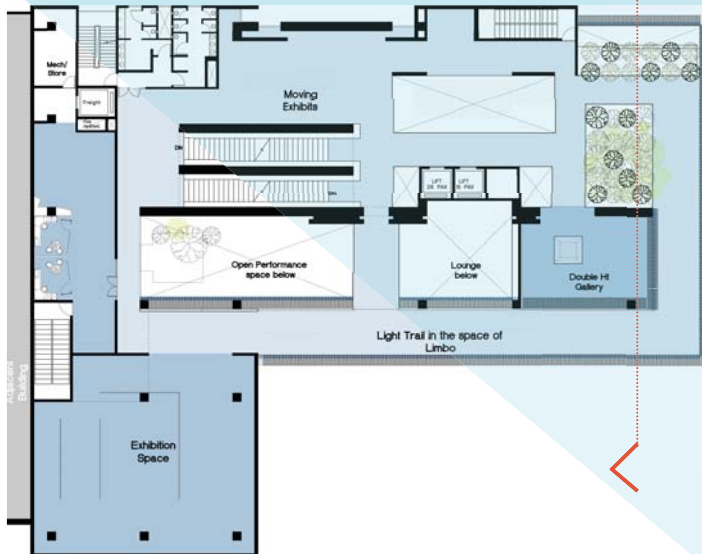




Second











Section 1

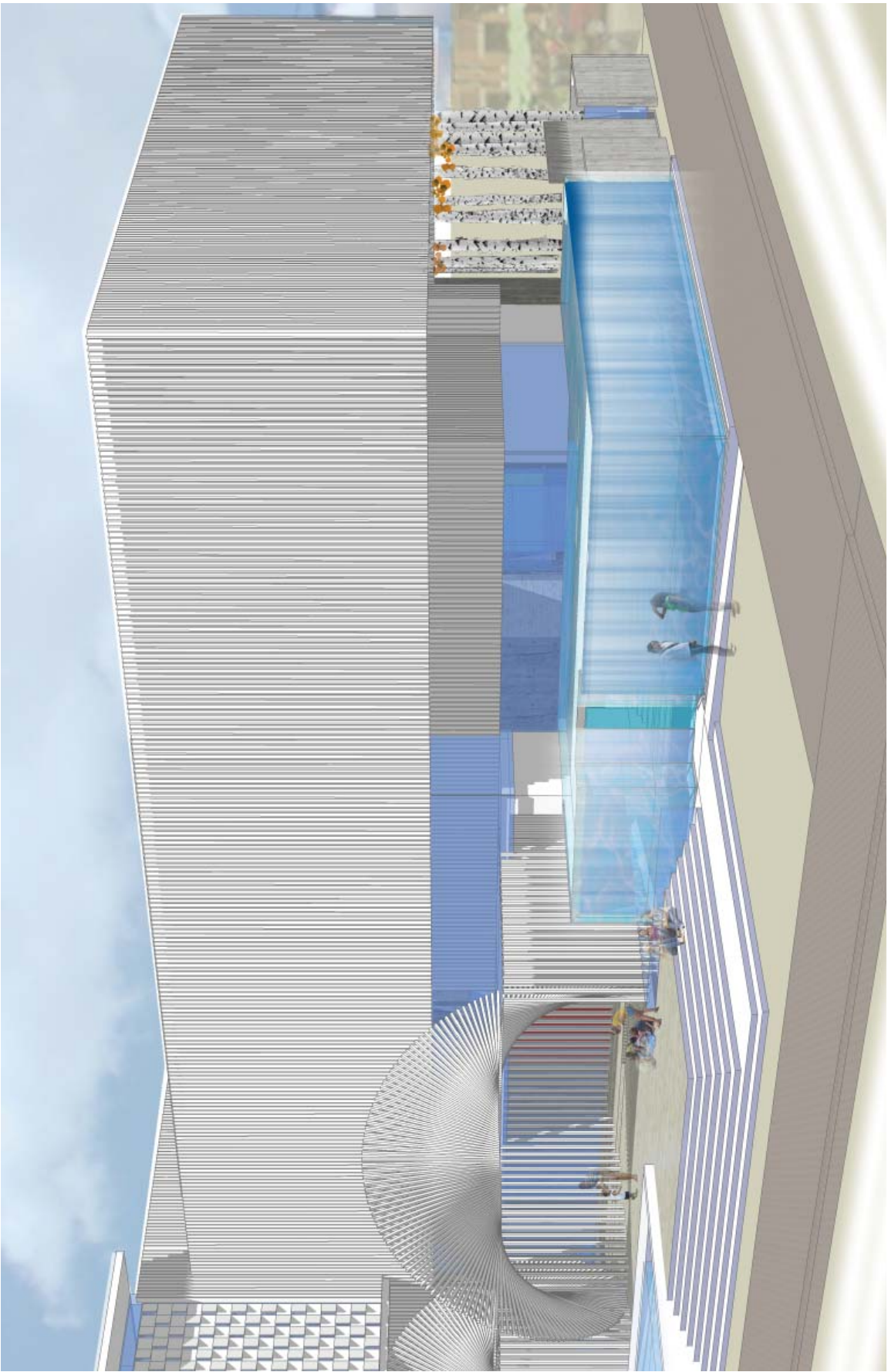


The spatial layers display varying degrees of :

**transparency and opacity** according to the spatial as well as programmatic requirements of the space. In the process, the user moves through varying nature of spatial conditions defined by densities of enclosure. These densities further choreograph light's movement in space.



Section 2



# Conclude: The Spirit of Particlization

## in *Liquidization* of atmosphere

### De-solidifying borders

The research through the case studies has established that material quality is highly alterable and versatile. The research aided by the precedents has explored materials that are solid and opaque in their original state but can be fragmented to alter their formal character and understanding. What this process achieves is also a translation of the external essence into the internal atmosphere.

*Underlying the architects' efforts to subvert the normal use of materials, and to squeeze some latent poetry from them, is a deeper concern: to elevate the 'ontological state of matter' by dismantling it 'from any other function than "being"' (Sontag, 1973)*

Material—absolved of its responsibility to enclose or support can be seen anew. The Bamboo Museum and Stone Museum by Kuma do exactly that in an efficient translation. Interestingly, this theory has various terminologies, such as “canalization” of light or “atomization”. In his thoughts about the virtues of lightness attained by a 'subtraction of weight', in order to 'dissolve the solidity of the world', Italo Calvino finds a paradigm for this notion in the words of poets devoted to the 'atomizing of things' (Plummer, 2009, p. 114)

The concept of *particlization* in spirit is similar to the notion of de-materialization or in other words, de-solidification. It induces that experience of space that alters perception and belief by provoking the understanding that materials have lost their solidity and that light reveals and defines the space with stronger clarification than material does. What is interesting to note is that negating solidity here is initiated not by the replacement of material but by using and altering material through *particlization*.

### Moving through a spatial journey

Encounters of phenomena in space articulate the spatial journey. Kengo Kuma talks of capturing the essence of temporality, which he modulates through the process of *particlization*. This approach seeks a methodology that disturbs the conventions of structure and enclosure, and time and space. Solid and void, inside and outside, are simultaneous and co-existent, as are present, past and future experience. The user can simultaneously perceive where he has

been, where he is, and where he is going- in these superimposed spaces. The user's movement is through a loop of unexpected encounters. Since he goes through varying moments of contrasts, there is a process of appreciation of these opposing qualities. This kind of spatial journey aides the appreciation of phenomena, since opposing qualities bring out the virtues of one another.

### **Particlization aiding negotiation of thresholds and layers**

The transition of sensory experience articulated from the external to the internal is critical for a holistic and contiguous experience of architecture. Kengo Kuma, talks of the spiritual threshold between the building and its external situation. The design approach of Tadao Ando which is the antithesis of Particlization, (as he emphasizes the mass and solidity of the wall) also respects the sanctity of the order of movement through space. Whether the site is in nature or a dense urbanized stretch, it must generate the pause within the sequence of encounters which would define the journey from outside to within. This threshold of transition between the various spaces holds great significance in creating the phenomenon. *Particlization* has its role in conflating these layers and sequences of spaces in its modulated process of light and visual transfer.

Traditionally the concept of spatial layers finds its vocabulary in Oriental and Eastern Spatial sequences. In Eastern tradition it is called the veranda or in Japanese tradition, the *engawa*. This spatial layer called the *engawa* provides the occupant with a space that is neither inside nor out but in-between. This threshold space provides the inhabitants with the opportunity to be in their house and part of the outside world at the same time. (Unwin, 2010). The boundaries of this threshold; also follow a transition from light to dark through sieves of varying degrees of opacity. This particlized external envelope also defines the space of circumambulation, aiding in the negotiation of these layers, as the user moves with the tracking, dappled light, deeper into the hearth of the building.

### **Particlization conveying contrasts**

Negotiating these layers, the user is taken through a journey of contrasts. *Particlization* in essence portrays contrasts, which it does through the phenomenal oscillation between solidity and openness. *Particlization* conveys contrasts of solidity and sieve and of rigidity and fluidity, in the way a solid component is broken down and altered or liquidized into a translucent component or a fluid component. *Particlization* draws attention to the opposing conditions of light and dark, outside and inside, opacity and translucency. These contrasts draw the attention of the senses by jolting the user's acknowledgement of "absence and presence" by the constant oscillation of these two extremes. As the user moves through the orthogonally arranged spaces this lateral, then axial encounter with these surfaces, cause them to continually, perceptually, open and close. By turning his body 90 degrees in this space the semi-transparency dissolves into varying degrees of perceived solidity. A moiré effect of density occurs as these layers compound over one another in this journey.

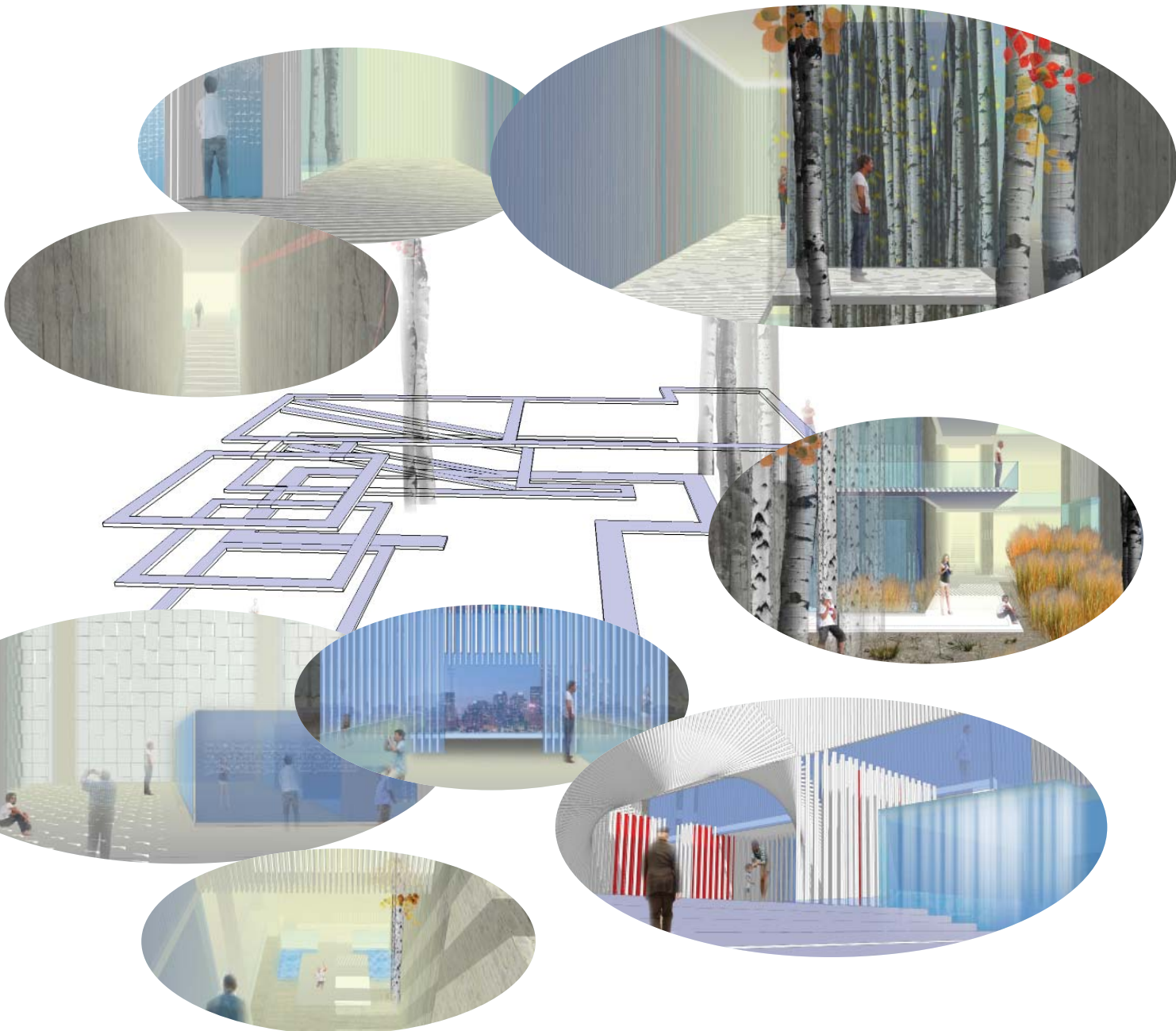
### **Particlization aiding black swan theory**

These conditions orchestrate moments of contemplation and pause in the spatial journey of the user. These unexpected and dynamic effects constantly engage the user in a visceral as well as intellectual dialogue.



## Lexicon of a **spatial journey**

Punctuated by **pauses**  
Triggered by **contrasts**  
Defined by **material dissolve**  
in fusion of **light and matter**



# References

## Literature Review:

Paul Virilio, whose theories were dictated by phenomenological background, has always been vociferous of the dwindling experience of sensual encounters which is in many ways an aftermath of the pace of technology that we face. In his essay, *"The overexposed City"* he describes the estrangement we feel from real time sensation as a result of the phantom landscape that rules the present scenario. This pace finds itself rooted in capitalist and commodification priorities, where the spectacle is the root desire subjugating humanistic encounters and sensations. This has been voiced by Guy Debord in his influential book, *"The Society of the Spectacle"*.

Such background has led the thesis study to delve further into the philosophy of phenomenology. Phenomenology's most prominent philosophical propagators has been Merleau Ponty and his literature on this topic introduces one to the concept of body exploring and discovering its own existence in space as it encounters various objects which trigger various reactions from sense perception. The next step was to realize such groundwork in philosophy through architectural didactics. The study then initiated an exploration of the writings of architects who consciously displayed phenomenological deliberations in their approach to design. The thesis drew substantial input from the writings of Juhani Pallasmaa, Steven Holl and Gómez Alberto Pérez in their book *"Questions of Perception: Phenomenology of Architecture"*. Pallasmaa's own book *"Eyes of the Skin"* gave substantial support to the research material. Since perceptual dialogues form a major component of the thesis, the study found resourceful summations of perception in John Berger's *"Ways of seeing"*. This material ascertained the stance that it is crucial to put forward a constant challenge to perception in breaking the assumptions of preconditioned viewing. Steven Holl's deliberations on the *Black swan theory* in his book of the same title talks of the mutable quality of architecture in its ability to invert convention.

On the basis of this theoretical background, the thesis next endeavored to realize these philosophical explorations translated into design projects. It specifically sought out projects which engage in questions of perception. Peter Zumthor, who not only supports the strategies of phenomenology, advocates this understanding through his sensorial projects. His projects were

explicated by elaborating its design principles in his book *“Thinking Architecture”*. Other architects who are intuitive propagators of Phenomenology also feature in the thesis to illustrate the aspects of sensation in space.

In the latter section of the thesis it is concluded that perceptual dialogues can be raised through explorations manifested through tangible material property. The nuances of material treatment are elaborated through the works of various phenomenologist architects. The ethereal and ephemeral aspect cast upon space by material is a critical part of the thesis. The thesis is directed by the assertion that material and its moldable quality is what can give shape to the intangible qualities in space. The thesis elaborates that material manipulation is possible through the poetics of construction which is the highlight of Kenneth Frampton’s book, *“Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth Century Architecture”*.

Tectonic directions give shape to spatial essence by defining several parameters. Light which is one of the most critical qualities in determining how texture and spatial essence is perceived is elaborated in the thesis. Quality of light is a facet that is explored not only in Zumthor’s *“Thinking Architecture”* and Pallasmaa’s *“Eyes of the Skin”*; it also majorly figures in Japanese theories on aesthetics. Jun’ichirō Tanizaki’s engaging write up on light in his book *“In praise of shadows”* throws light on this part of the research matter. This quality is especially witnessed in a vast majority of Kengo Kuma projects. Kuma’s work is characterized by a delicate simplicity that is dictated by material. His theory of erasing architecture such that there is no boundary between two demarcated spaces, leads him to explore transparent qualities through solid material. His theories on *“particlization”* are reiterated in Botond Bogнар’s book *“Kengo Kuma: selected works”*. This book provides the essential insight which has led to the summation of the thesis work on the various approaches to material appropriation in achieving sensorial and evocative space.

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