Sense [able] Architecture

accentuating the human experience of space

irfaan essop

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accentuating the human experience of space

by

Irfaan Essop

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With special thanks to
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& Randall Bird

Author's Declaration

I, Irfaan Essop [0104721f] am a student registered for the course Master of Architecture [Professional] in the year 2009. I hereby declare the following:

I am aware that plagiarism [the use of someone else's work without permission and/or without acknowledging the original sources] is wrong. I confirm that the work submitted for assessment for the above course is my own unaided work except where I have stated explicitly otherwise. I have followed the required conventions in referencing thoughts, ideas, and visual materials of others. For this purpose, I have referred to the Graduate School of Engineering and the Built Environment style guide. I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my unaided work or that I have failed to acknowledge the source of the ideas or words in my own work.

Dedicated

to my family

A B S T R A C T

This thesis studies the increasing awareness of the connectedness of the body to architecture. It acts as a platform for **sense.able** / sensual design. To fully engage with architecture on a physical and mental level involves an openness to the realm of the sensory. This is derived from the proposition that our experience of space is mediated through the senses. The aim is to create an architecture, mediated through the senses, that can emphasise a physical and mental interaction between bodies and built spaces in an attempt to allow a more intimate connection between the body (us) and architecture. This thesis's architectural ontology is therefore, accentuating the relationship between bodily senses and buildings. Without ignoring the traditional program generators of function and comfort, architecture primarily situates bodies as vessels for looking at or viewing space. This thesis acknowledges that human bodies do more than look- they feel, smell, taste, touch and are touched, they are highly specific and variable.

Contents

PREFACE

During my architectural education at Wits, a fair weight of emphasis was placed on architectural theory as well as on practical skill. We thus had favourable grounding for theory as well as the potential to develop our practical artistic skill. Although I chose to focus more on sharpening the practical artistic aspects of the work, I did, however, recognise one flaw with my architectural theory course. In my opinion, the experiential value of architecture was not carefully thought about. The words emotion and experience in architecture were often mentioned, but rarely did we discuss what this really meant. The pedagogy on the dynamics of our human capacity for experience of architecture lacked depth, despite the fact that this type of knowledge is as fundamental to an architect as is the knowledge of construction techniques and different building materials.

It is this complexities that sparked my exploration into the sensual experience of architecture by raising this question - Firstly, If we agree that we perceive through our body, then - **How does the body perceive its presence?** - This led me onto the path of the senses. The senses of vision, touch, sound, taste, and smell (Juhani Pallasmaa would also include skeleton and muscle) are the receptors with which we move through space. Therefore it is my belief that the topic of senses in architecture and the ramifications it has on us and our experience of architecture bears supreme weight to any architect, not least a student, as it should enrich our capacity to understand the values we are actually trying to reach in our architectural projects. In the order of life, the painter is sight, the chef taste, the musician sound, the horticulturist smell and the sculptor is touch. In architecture the sense of taste proves difficult, but the senses of sight, sound, touch and to a lesser extents, smell, find little resistance. This is where I will focus for this project while acknowledging taste and smell where possible.

"What we perceive is the significance of the surfaces in relation to our bodies."

b

List of Figures

[1]SEN•SU•AL **A:** OF OR RELATING TO THE SENSES OR SENSIBLE OBJECTS. **B:** PRODUCING OR CHARACTERISED BY GRATIFICATION OF THE SENSES. **C:** HAVING STRONG SENSORY APPEAL. **D:** HIGHLY SUSCEPTIBLE TO INFLUENCE THROUGH THE SENSES.

New Collegiate Dictionary / Merriam-Webster's Collegiate Dictionary, Eleventh Edition

framework

THESIS FRAMEWORK

Like all contemporary (and thus controversial) architectural topics, 'sense.able architecture' has many implications and caveats. Its complexity and ambiguity must be addressed in order to be investigated acutely. This thesis document discusses the experiential value of architecture through the presentation of the topic in reference to theory behind it **[theory]**, pertinent design methodologies **[concepts]**, and the author's specific approach and application of the research **[design].** To this end, the paper will consist of five parts structured as follows;

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OUTLINE

C1 / Relevancy

The first chapter has the function of a more elaborate introduction on why multisensory design is a topic relevant to research.

C2 / Theory

The second chapter takes a closer look at the theory behind experiencing space in architecture - phenomenology.

C3 / Precedent

The third chapter analyses precedents that bespeak the possibilities of designing for experience and the senses.

C4 / Site

Chapter four looks at the placement of the centre through site identification site and context analysis.

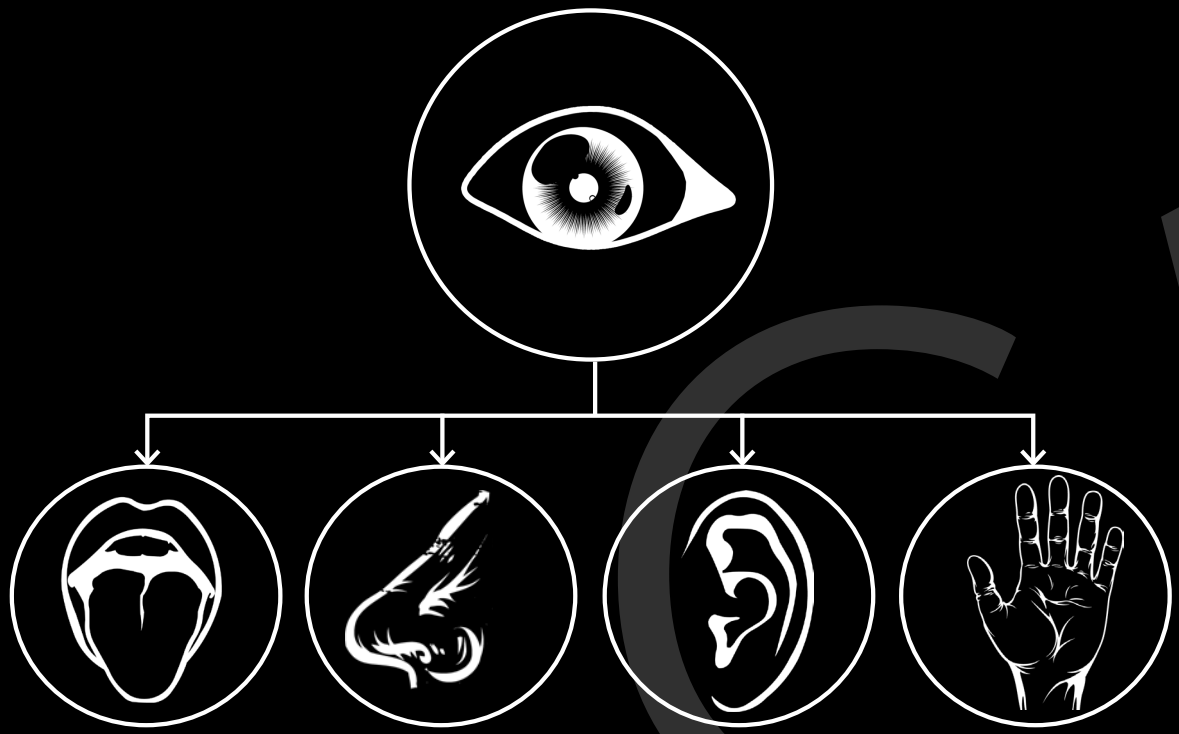
C5 / Design

Chapter five introduces concepts of material and space applications to address the sensory experience of architecture as well as outlines the execution of an Islamic cultural centre for the public in response to the topic of bodily engagement in critique of flat architecture.

THE FIX /

The issue with society + architecture

issue!



c1

society + architecture = vision dominates other senses

INTRODUCTION

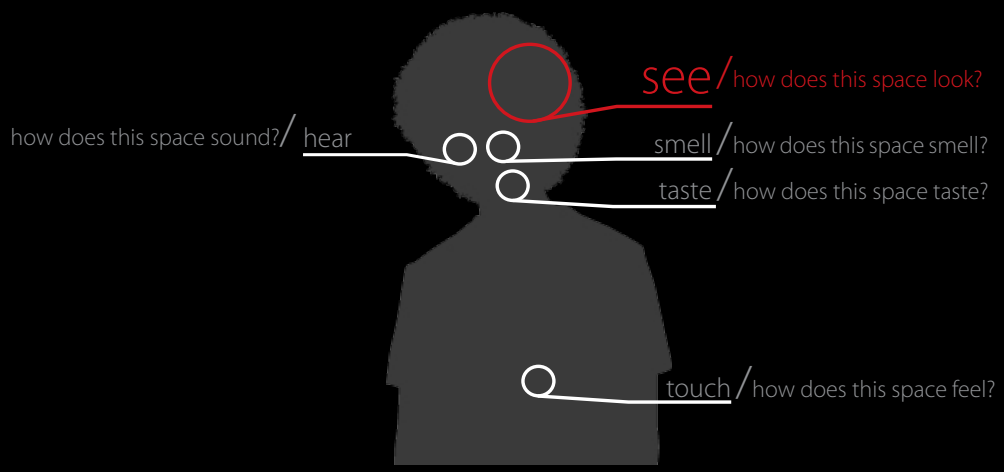
OBJECT OF STUDY

The objective of this thesis is to understand the issues involved with creating a building that stimulates the senses to offer a more intimate connection with space. It has its roots in the theory of phenomenology, therefore its fundamental concepts will be explored at a base level, however phenomenology is an encompassing theory that is too broad, immeasurable and unpredictable a topic to delve into too deeply on its own. Instead I have focused on what is at the core of phenomenological thinking – accentuating the experience of space. To do this I have focused in on the relationship between experience and its source (external stimuli) - which is mediated through the senses.

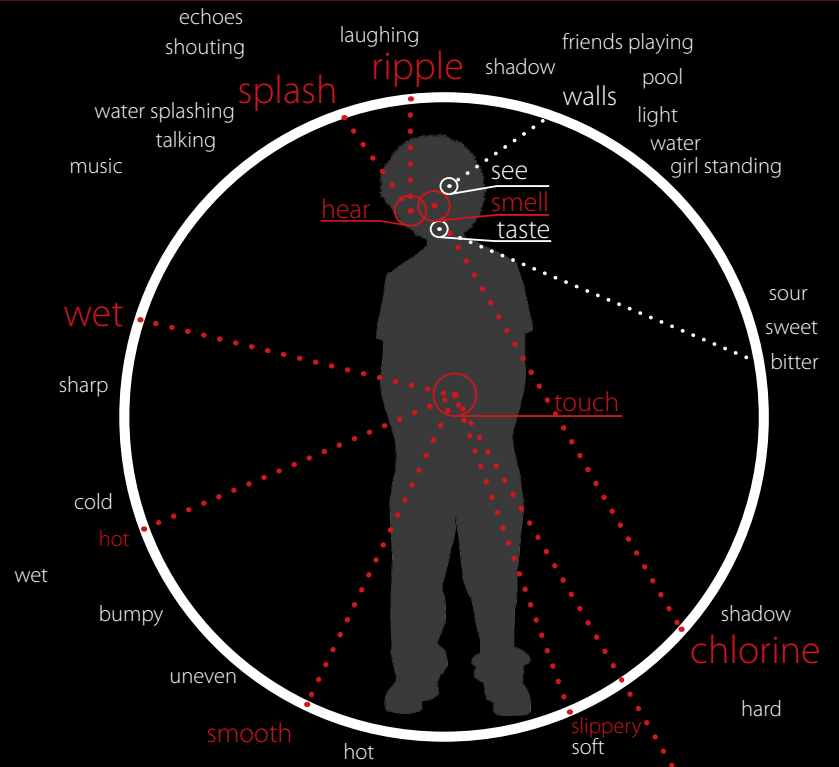
Phenomenology calls for a heightened receptivity of all the senses to heighten experience. Irrefutably architecture is inadvertently ingrained with multisensory stimuli. We see, touch, smell, taste, and hear spaces we inhabit. However there remains the question of intent behind these stimuli. Quite simply – has the designer predetermined what the bodily response of each stimulus means to our experience of space? Any consideration is, of course, subjective – however by simply considering sensorial qualities, there is a predetermination and intention behind the material and spatial language employed, and the ramifications this has on experience. Conventionally, vision (or aesthetics) in all probability is considered, overtly - to a point where a sensorial hierarchy exists to our sensual experience of space. The problem is while architecture, as it stands, is dominated by vision, the other sensors remain over stimulated or under-differentiated. I share the criticism by phenomenologist's that this visual bias results in homogenous and banal architecture devoid of any lived, sensual experiences. 'Sensual' implies an experience that gratifies the senses. 'Lived experience' implies experiencing space not only physically, but mentally as well. Phenomenology, along with this thesis, demands this mental and physical interaction with space, and as stated earlier, this is fed through the senses. With our other senses repressed there is a suppressed dialogue between the body and the space it inhabits.

Graphic 1.1 - Depicts the hierarchy of the senses in architecture. Design decisions are predominantly decided aesthetically over experientially.

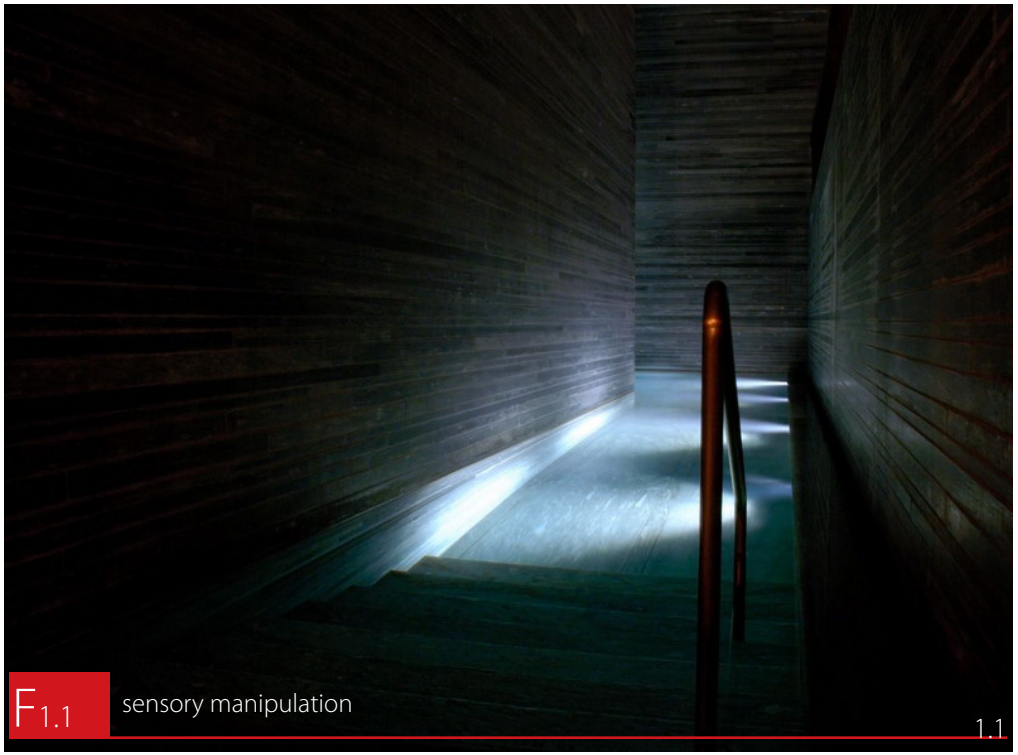
Graphic 1.2 - Depicts the design concept of tuning into certain senses, instead of bombarding them with a sensory overload.



G1.1 issue: aside from function - the question I most ask myself when designing is concerned with vision



G1.2 the goals is: accentuating certain senses in certain spaces, NOT sensory overload



AIMS

Therefore the aim of this thesis is to reactivate our repressed senses through architecture to achieve a lived experience. However this should not be perceived as some shallow, superficial 'plugging' in of as many senses as we can into a space to reactivate the senses. This would have no experiential benefits and would simply be an overload of sensory stimulation. Sensual noise if you like. Therefore, the challenge will be determining not how spaces can always meet the five (four, discounting taste) sense criteria checklist, but rather, when the chance to accent one of those aspects arises, has it been treated with due precedence. Therefore, there needs to be an extreme sensibility in the treatment and application of materials, drawing upon their tactile, plastic and reactive qualities to invoke relevant and stimulating engagement. The qualities of sight, touch, sound and smell are stimulated through experiences with materials, affording the emotional side of the brain to take over.

WHY SENSUAL ARCHITECTURE?

Sensual architecture attempts to address all the senses simultaneously, fusing our sense of self with our experience of the world. Much in line with phenomenological writings, it is my view that architecture should endeavour to create spaces that strengthen our sense of reality and self. Therefore the essential mental task of the art of building is mediation of the senses and the integration of its participants (body) in its space. As stated earlier, phenomenology is about connecting both mentally and physically with space. Therefore the senses will be used as a design tool to connect the body physically (with touch, smell, taste, sight, sound) to a space, as well as mentally through the use of mental associations evoked through these stimuli (memory and imagination). It is through the use of both, mental and physical, that a lived experience of architecture can be achieved.

Figure 1.1 - (While referring to f1.1) If one could imagine the experience of this space - what is evident is that Zumthor has cleverly manipulated the senses. Vision has been tuned out, to allow the other senses to tune in. This drastically changes our experience of this space. Touch and sound are accentuated. We tune into the hot/cold of water, we feels its texture. We feel the roughness of stone. We hear the splash of water against skin and stone. Redefining the space around us. We experience this space, almost as a blind person might.

Vals, Thermal baths, Switzerland - Peter Zumthor

Pallasmaa elaborates on this in that; *"...the sense of self, strengthened by art and architecture, allows us to engage fully in the mental dimensions of dream, imagination and desire... and that "Instead of merely creating objects of visual seduction, profound architecture relates, mediates and projects significance. It defines horizons of perception, feeling and meaning; our perceptions and experiences of the world are significantly altered by architecture (Pallasmaa, 2005)."*

METHODOLOGY

The theoretical body of work will be tested in the form of a real, albeit hypothetical example of an Islamic cultural centre whose purpose is to provide a spiritual experience that simultaneously engages the body's senses. The centre will be located in the urban environment of Hillcrest, Pretoria. The ritual of pray is a spiritual process that appeals to the body and mind. The design of a spiritual space/centre forms an appropriate vehicle to test the concepts derived from the theory as its purpose to a great extent deals with 'frame of mind' that largely impacts on the user's experience of

space. The design places an emphasis on sight, smell, sound and touch that bespeak the multisensory intention that is central to the spiritual experience proposed by the centre. This is articulated through both the spaces' forms and the selection of various materials. This space-body dialogue, though subtle, gives visitors a perceptual difference from their everyday environs; the awareness of the corporeal relationship with their surroundings is heightened, thus grounding each visitor for that moment in time.

Much of the theoretical foundation of this thesis is rooted in the thoughts of Finish architect, Juhani Pallasmaa. It is through Pallasmaa's phenomenological reinterpretation of the body-space relationship that a theoretical joint is articulated. By using Juhani Pallasmaa's book The Eyes of the Skin (2005) as its main inspirational source, this thesis proposes a view that individual experience (including the sensory experiences, thoughts, memories and imagination of a subject) is essential to consider when aiming towards architecture of high and diverse experiential potentiality. It is from my interpretation on his thoughts that this thesis takes flight.

ARCHITECTURE, THROUGH MEDIATION BY THE SENSES, "IS THE ART OF RECONCILIATION BETWEEN OURSELVES AND THE WORLD."

- Juhani Pallasmaa (Pallasmaa, 2005 p. 72)

RETINAL ARCHITECTURE

PRELUDE

This first chapter provides a foundation for the argument concerning the need for sensory balance by focusing in on the issue - modern society's overreliance on vision. This is done by discussing the hegemony of image in modern consciousness, by explaining the role and nature of the 'image', and deprivation of sensory involvement in modern life. Next to this it will reveal some of my bias towards the topic of sensual architecture, for no piece of writing is ever fully objective. Like any theoretical argument, the views shared in the next chapter, or the entire thesis for that matter, might not be shared by all. However I feel that a critique of the state of architecture has to be first evaluated according to the current state of our society. To help support my thesis and build a theoretical foundation, I draw my first argument from the debate by theorists who view our current society as an ocular-centric society.

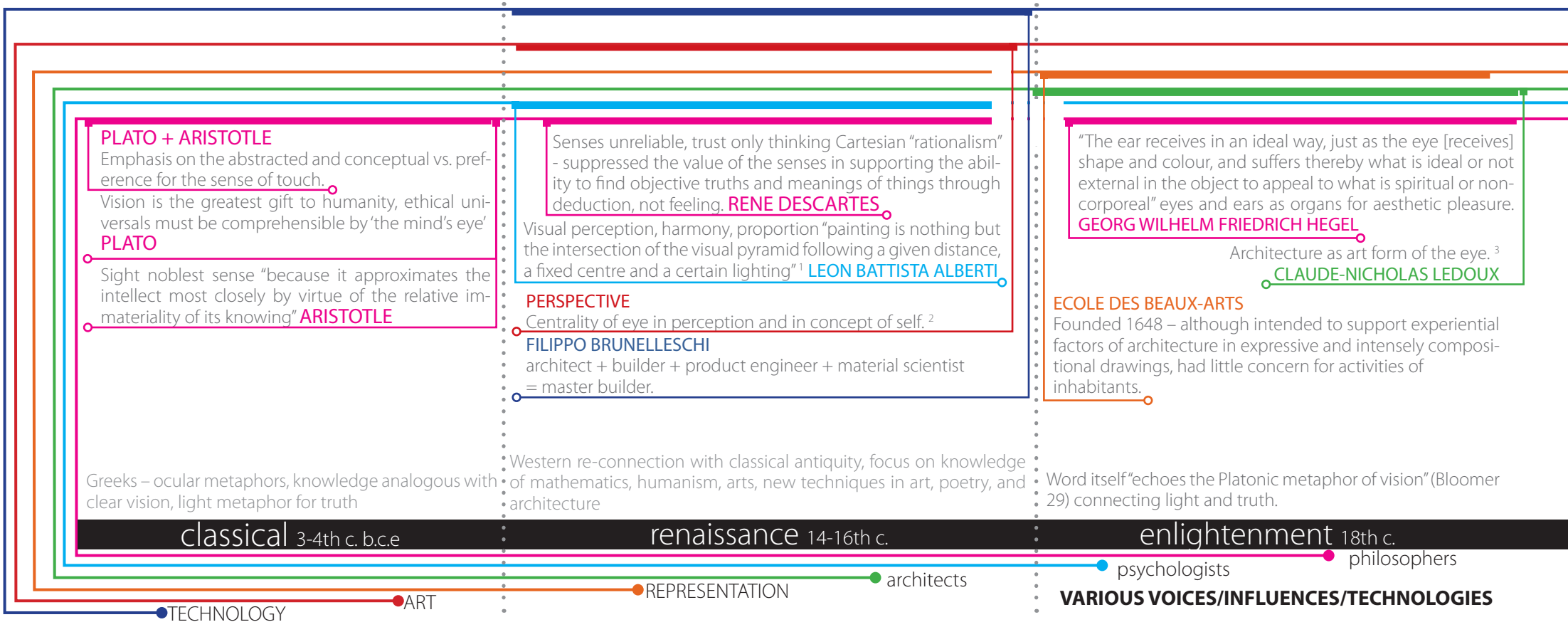
But let us first trace the origins of ocular-centrism in society and architecture...

The Fix : Retinal Architecture

...Origins

Arguably, the most reflected and discussed human sense through the history of philosophy has been vision. Likewise, architecture, since the eighteenth century has predominantly focused its practice, theory, education and critique of the eye, emphasising form, geometry and focused Gestalt. Until the early beginnings of modernity, architecture aspired to express the order of the world through proportionality as an analogue of cosmic harmony (Pallasmaa, 2005 p. 2).

As early as the time of Plato and Aristotle, philosophical writings have been abounded with ocular metaphors that analogise knowledge as clear vision and light as a metaphor of truth. With the rediscovery of linear perspective and to emphasise the importance of vision, the scholarship of the Renaissance created a hierarchy of the senses, vision being the noblest, followed by hearing, smelling, tasting and finally touching as the lowest. Arguably our modern technological culture has ordered and separated the human senses even more distinctly. Vision and hearing are considered privileged sociable senses, whereas touch, taste and smell are considered dated sensory remnants with a merely private function, and they are usually suppressed by the code of culture.



.ROBERT VISCHER
Coined word "empathy" ability for emotional connection of a person and an object and for projection of inner-self on an object (as with sunsets, storms, trees), potential for translation of artist's feelings into content of art.

INVENTORY OF SENSATIONS
Connection to specific organs – confusion of touch, divided into five sensations: pressure, warmth, cold, pain, kinesthesis.

"The work of authentic art stimulates our ideated sensations of touch, and this stimulation is life-enhancing"[4] BERNARD BERENSON

INDUSTRIAL REVOLUTION

GASTON BACHELARD
Formal vs. material imagination in poetry – strength of experience invoked by material versus form

PAUL SCHINDLER
Synthesis of Gestalt and psychoanalytic theory – individual's simultaneous and inextricably linked inside and outside encounter of the body and world - body-image theory - meaning of visual images derived from primal experiences acquired haptically – "Haptic experiences which include the entire body give fundamental meanings to visual experiences, while visual experiences serve to communicate those meanings back to the body"[5].

BERLIN SCHOOL OF GESTALT
("Form") psychology - visual field perception experiments supporting a rational, systematic, approach to aesthetic experience.

MAURICE MERLEAU-PONTY
Collaboration of all senses to measure qualities of architecture "My perception is [therefore] not a sum of visual, tactile, and audible givens: I perceive in a total way with my whole being: which speaks to all my senses at once" – the task of architecture, as with Paul Cézanne, the manifestation of "how the world touches us"[6].

MODERNISTS
Conceptual, form, immaterial, flat, abstract over sensorial and material whiteness "the eye of truth"[7].
Weathering invisible – no material experience of time, use. [refer f4]

RICHARD SERRA
Sculptures – patina of time rust and deformation – bodily reaction to large scale sculptures – theme of weight and gravity "Contemporary art and architecture are again recognizing the sensuality and eroticism of matter" [8] – prevalence of collage and assemblage in art – time, tactility

NOTES:

1 Quoted in 3 (Pallasmaa, 2005 p. 26)
2 (Pallasmaa, 2005 p. 16)
3 (Pallasmaa, 2005 p. 18)
4 Quoted in (Pallasmaa, 2000 p. 78)
5 (Bloomer, et al., 1977 p. 38)
6 Quoted in (Pallasmaa, 2000 p. 78)
7 Quoted in (Pallasmaa, 2000 p. 79)
8 (Pallasmaa, 2000 p. 80)

victorian late 19th c. modernist 20th c.

TOPIC TIMELINE

Visual Noise

OCULAR-CENTRISM IN MODERN SOCIETY

"Modern consciousness and sensory reality have gradually developed towards the unrivalled dominance of the sense of vision" (Pallasmaa, 2000).

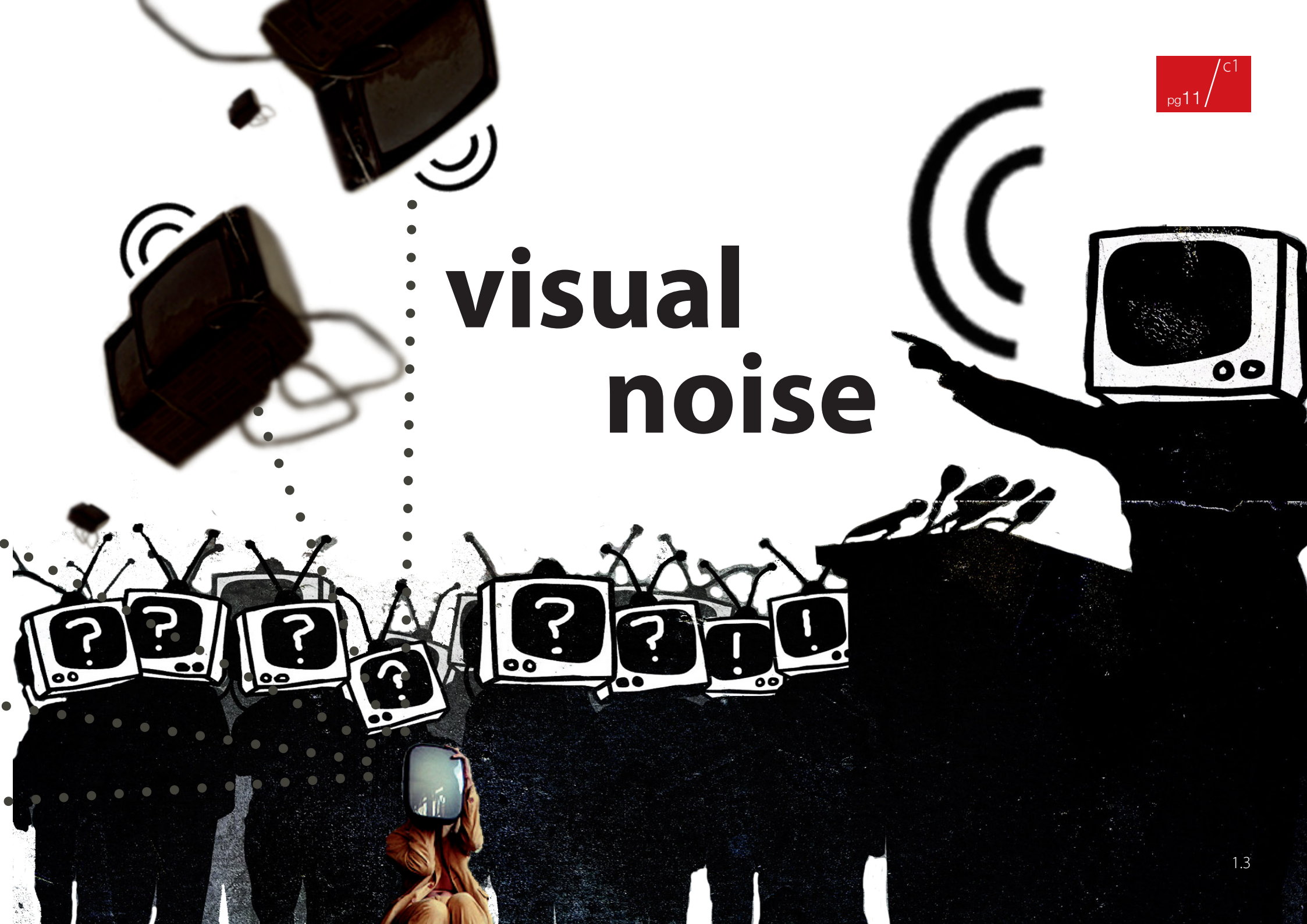
In the modern times, architecture has further evolved into visual aesthetics, primarily pleasing to the eye. This current and prevalent anthropocentric ideology that architecture should only appeal to our ocular sense has exhausted its intellectual and ethical capital. The footing on which this thesis stands, places its weight on multisensory engagement in architecture. Therefore the first step of this thesis is to contest the 'monosensual' ocular-centric ideology of our times.

The hegemony of image in modern consciousness has been reinforced by the swift progression in technological advancements and the limitless production of images. Our sense of sight, the most efficient of the senses, is the only sense able to keep pace with our technological world. Imagery is force fed to us at an astonishing rate, semblances of things and experiences presented to us as pictorial representations in art and media. Televisions, computers, newspapers, magazines, and billboards confront our eyes and enter our imaginations without our consent. Modern consciousness is plagued by a cancerous growth of 'visual noise'. The over stimulation of our sense of vision has reached a point at which we begin to tune out our environment in order to silence the visual noise resulting in an increase in sensory detachment and distance, isolation and solitude. It is, of course, ironical, that the age of communication should be turning into the age of alienation and loneliness.

The fault in this visual bias of our society does not simply lie in the favouritism it gives to sight; in fact medical evidence suggests that the eyes' ability to convey information to the brain is far superior to that of any of the other sense organs. This gives vision a deserved significance that should be appreciated. The concern however, is that this uncontested visual hegemony tends to subvert and eliminate the contribution of the other sensory modalities. This isolates our perception to the sphere of vision. In this way it visually distances us from the world in which we dwell because it suppresses the haptic engagement (physical + mental interaction) with our surroundings. It impoverishes the other senses and alienates us from our sensuous physical world. The hegemony of the image is itself threatening to evolve the world into a flat one. As David Harvey put it, *"A rush of images from different spaces almost simultaneously, collapsing the world's spaces into a series of images on a television screen... The image of places and spaces becomes open to production and ephemeral in use as any other (commodity)"* (Harvey, 1999 p. 106).

The two-dimensional world of images does not fully engage our body in an intimate dialogue. While our sense of sight is exhausted, the other senses, particularly our tactile sense, remain partially suppressed and neglected. With the concurrent over stimulation and under differentiation of our senses, we struggle to fully incorporate our perception of the world and of ourselves, in the process losing intrinsic knowledge of our own bodies. Quite simply, we struggle to be human. Unable to fully experience our surroundings, we become numbed spectators looking upon our own world as strangers.

visual noise



The Fix : Retinal Architecture

Homeless senses

OCULAR-CENTRISM IN ARCHITECTURE

"Our buildings have lost their opacity and depth, sensory invitation and discovery, mystery and shadow." (Pallasmaa, 2000)

The hegemony of the image is not solely a property of society, but is evident in architecture as well. There is a tendency toward design that is purely visual that alienates the body from the realisation of architectural meaning. A building engages its audience as an active participant immersed in the experience. Despite this, modern architecture, instead of an existentially grounded plastic and spatial experience, has shifted toward the psychological strategy of representation and geometry, of instant aesthetic seduction and gratification, and buildings have turned into image products detached from existential sincerity. Further examples of the lack of sensuality in contemporary architecture lie in its use of material; Their overuse of glass and synthetic materials, immune to signs of wear, weaken the sense of scale and time, which contributes to a flat and inauthentic experience of reality. All in all, the tendency of technological culture to standardise material and space to a level of predictability is causing sensory impoverishment.

With the loss of haptic / corporeal elements created for (the appreciation by) the human body, the built environment becomes flat, unreal and immaterial, the stage set for the eyes. Vision as a sense is diminished because the user reads the city scape as flat as a television screen. Architecture faces a battle to resist the influence of a culture that, *"defines reality in terms of media and simulation, that values appearance over existence, and what can be seen over what is"* (Eisenman, 1992 p. 88).

F1.4

As described by Juhani Pallasmaa, *"The inhumanity of contemporary architecture and cities can be understood as the consequence of an imbalance in our sensory system"* (Pallasmaa, 2005 pp. 17-19), and that *"Modernist design has housed the intellect and the eye, but it has left the body and the senses, as well as our memories and dreams, homeless"* (Pallasmaa, 2005 p. 19).

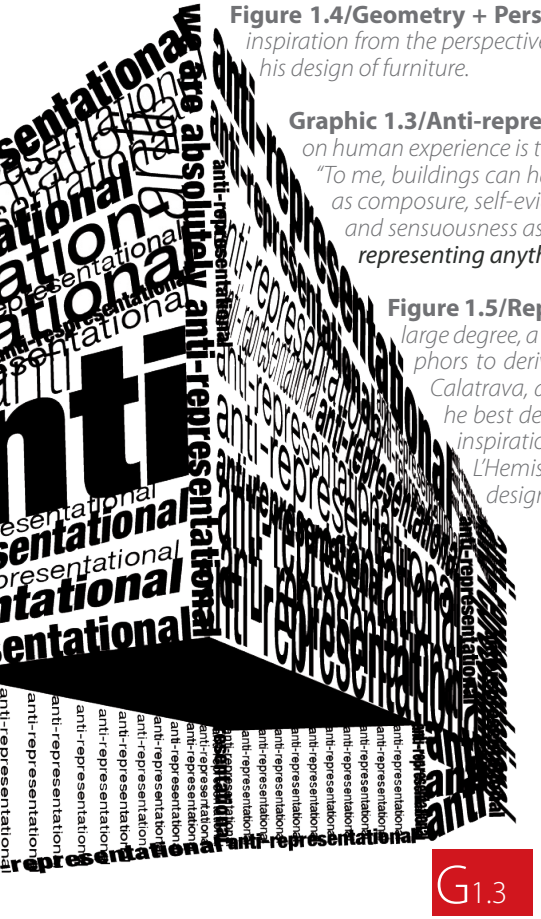
It is through corporeal participation that a building is truly experienced. Spaces, as we dwell in them should be experienced as a series of connected events / episodes that engage more than one sense; the opening and entering of a door, ascending a staircase, traversing across a room, pausing to lean on a railing and glance around at our surroundings. The world should not be seen as a convenient series of images for us to take in through our eyes; it is understood through simultaneous engagement of all of our senses. We feel, see, hear, smell, and taste our world. Steven Holl describes this experiential movement through space:

"When we move through space with a twist and turn of the head, mysteries gradually unfolding, fields of overlapping perspectives are charged with a range of light – from the steep shadows of the bright sun to the translucence of dusk. A range of smell, sound, and material – from hard stone and steel to the free billowing of silk – returns us to primordial experiences framing and penetrating our everyday lives". (Holl, 1996 p. 11)

The attempt to create more sensuous architecture forces us to re-examine our everyday interaction in a predominately visual culture, challenging the hegemony of vision. This then has the potential to create more sensual, corporeal architecture that can accentuate the experience of space through the collaboration of the senses.

representational architecture

architecture based on image

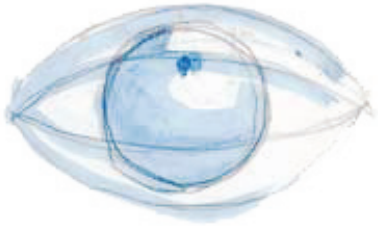


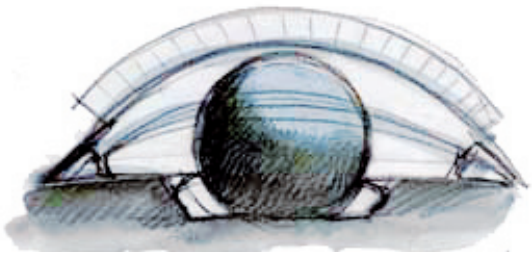
G1.3

Figure 1.4/Geometry + Perspective - *As with the ancient Greeks, Richard Meier finds inspiration from the perspective, and geometry, right down to the clean lines portrayed in his design of furniture.*

Graphic 1.3/Anti-representational - *The inherent aim behind any design based on human experience is to remove any* ***representational*** *ideals.*
"To me, buildings can have a beautiful silence that I associate with attributes such as composure, self-evidence, durability, presence, and integrity, and with warmth and sensuousness as well; ***a building that is being itself, being a building, not representing anything, just being.****" (Zumthor, 1998 p. 32)*

Figure 1.5/Representational - *Santiago Calatrava's designs exhibit to a large degree, a form of representational architecture. He uses ocular metaphors to derive his design. This form of architecture is not exclusive to Calatrava, as exhibited by the Greeks in the classical era, however I felt he best demonstrated this notion. The human body is an important inspiration for Calatrava's architecture. This is clearly shown by the L'Hemisfèric, City of Arts and Sciences in Valencia, Spain, the design of which is based on the human eye.*





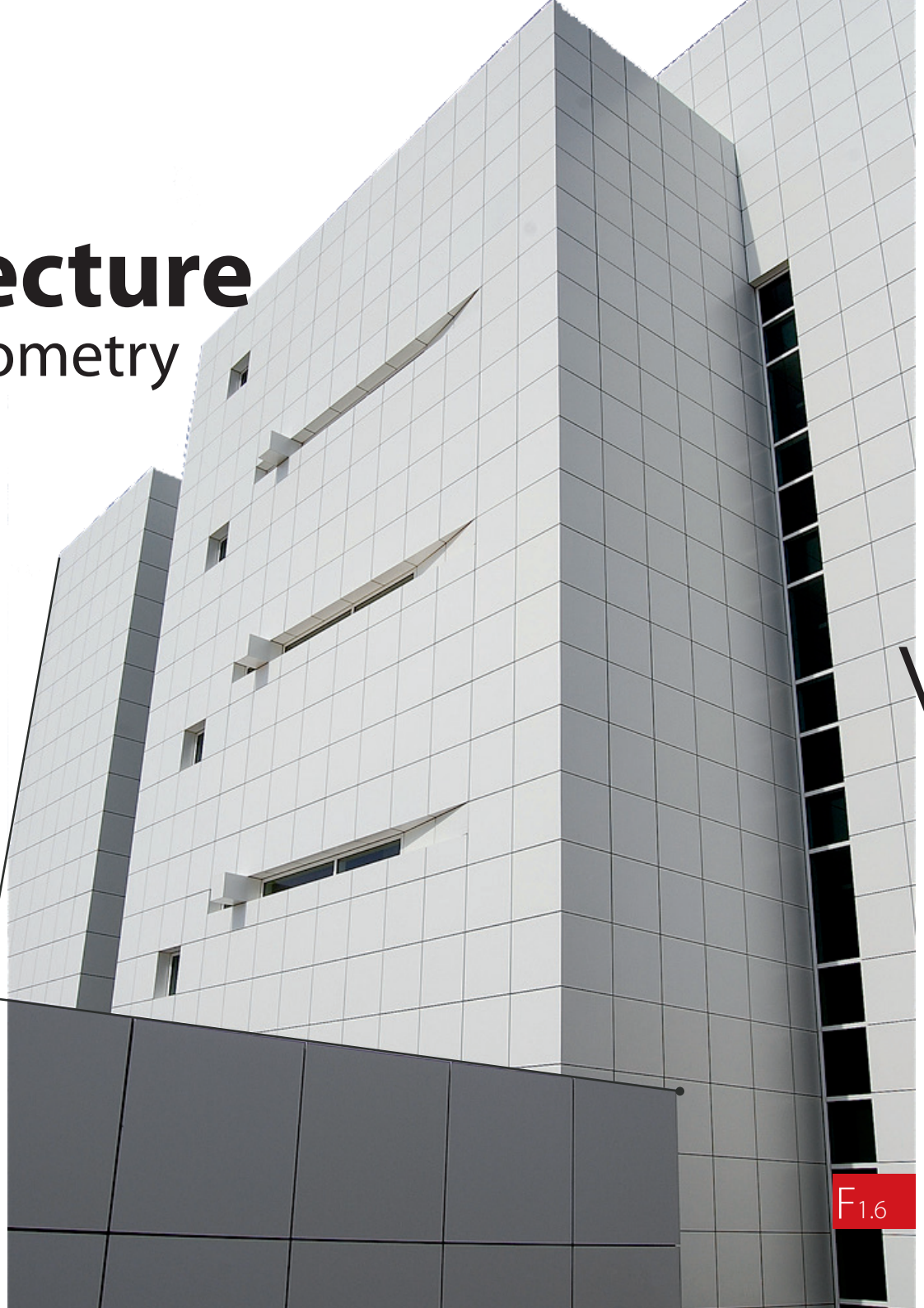
City of Arts and Sciences in Valencia, Spain F1.5

geometric architecture

architecture based on geometry

Figure 1.6/Antithesis - *Richard Meier is perhaps a good example of the type of architecture Pallasmaa critiques. "Meier's plans call on geometric vocabulary, often based on the circle and square, a rigorous system of grids, ever more the choice of white cladding…" Tom Wolfe writes, "I once saw the owners of such a place (a Meier home on Lake Michigan) driven to the edge of sensory deprivation by the whiteness & lightness & leanness and cleanness & bareness & spareness of it all." (Wolfe, 1981). Meier has privileged the mind over the body. He creates space, which relies on the visual to read the surfaces surrounding the body.*

Figure 1.7/Thesis - *Steven Holl is one of the major voices behind phenomenology / experiential architecture. At the Chapel of St. Ignatius he provokes the senses through the play of light, touch and smell. As exhibited in figure 1.7, light bathes hand-textured walls that promote touch and show their materiality and age.*



F1.6

South elevation of Weill Hall, the new Life Sciences Technology Building at Cornell University, Ithaca New York

haptic architecture

architecture that evokes the senses

S

Hand textured wall in the Chapel of St. Ignatius, Seattle University F1.7

/ Chapter 2

THEORY / Perception in architecture - Phenomenology

Phenomenology / Prelude. Experience

C2

pg18/c2

PHENOME

NOLOGY 2.0
+ the experience of space

PRELUDE

At the heart of my thesis is the goal of amplifying/attuning the senses in architecture, however it was essential to me that it goes deeper than simply the amplification of the senses to avoid superficiality. By focusing on triggering sensual stimulation, it is important to understand the motive behind this action. This led me onto the path of understanding what sensual stimulation means to the body on a mental level, and this is where the theory of phenomenology comes into play - phenomenologist writings are concerned broadly with exploring the ontological significance of architecture.

There is a tendency in modern architecture to perceive space as abstract, removed from the body and emotions. Space in the 'phenomenology mould' is to be perceived not as abstract, neutral space, but as the space of 'lived experience'. Therefore phenomenology offers a depth model for understanding human experience in architecture. However, as mentioned earlier, phenomenology is deeply philosophical (based on human perception/psychology), immeasurable (because experience is subjective), and too broad a topic to focus in on exclusively, therefore its relevant theory will be interpreted and concepts derived, without fully exploring the psychology behind it. To this end, firstly the relationship between experience - senses will be justified as a topic to offer a foundation for phenomenology, thereafter the relationship between experience and phenomenology will be explored to show their relevancy, and finally, the theory and voices behind phenomenology itself will be discussed to provide an overall perspective. From the offset, it is important to note that although there are many aspects to the theory of phenomenology, once eroded to its most basic level, it can be understood as the **enriching of experience of space.**

Theory : Phenomenology

Experience

INTRODUCTION

What place does the human experience have in the design process? It is an incessant debate in architecture. Should it be a motivating factor? Should it be at all considered in the process? Is it possible to strive for a particular human response as the goal of architectural design?

Firstly, there needs to be clarification on whose experience is in question. There is much debate on the architects' experiential influence on a design, and perhaps to a certain extent this is unavoidable as any creative person will draw on his/her own experiences when designing, however this thesis will rather attempt to focus on the experience of the end-user as an influence on design.

Placing the human experience of space at the centre of design is inherently problematic. How does a designer respond to something that is unpredictable, varied and intangible? Especially when attempting to remove personal experience, but rather explore an experience that is readily empathetic? It is easy in such cases to fall into the trap of trying to impose experience, rather than trying to understand the user experience for what it is and allowing it to shape the design process and results. Equally as potent is the tendency to attempt to impose a response on the user instead of allowing it to occur independently of the designer. These potential pitfalls resulted in my hesitancy in plunging into the theory of phenomenology. The question then arises; How then, can an architect begin to approach this question about addressing human experience in the design process?

THE THEORY BEHIND PHENOMENOLOGY

Modernism brought with it an attempt at elevating the human condition, however the self-referential language used to articulate built spaces was devoid of a connection to human experience. Conversely the aim of phenomenological architecture, advocated by architects, most notably Peter Zumthor, Juhani Pallasmaa, and social theorist Henri Lefebvre, is to execute a sensitive layering of space that stimulates the human body's ability to connect with and to understand space (Pallasmaa, 1986 p. 450). They deftly respond to the question about the relationship between architecture and the human experience that is the interest of this thesis: Architecture must be more than a *"play with form,"* (Pallasmaa, 1986 p. 451). 'More' insinuates that it cannot remain strictly in the realm of the visual if it is to have value. The human experience through the senses **(touch, sound, smell, sight, memory)** is a necessary addition to form.

Social theorist Henri Lefebvre's suggestion is to not produce 'terror' like the expressionists, or the utopian experience attempted by the modernists'. Rather, he proposes that when people come into contact with architecture that it should evoke a conscious understanding of their surroundings that would lead to a connection in mind and being with the built environment, because it has critical impact on the way people find identity in themselves and in society at large.

Lefebvre elaborates on this with his critique of space in his article, **'The Production of Space'(1997)**, in a way that has particular relevance to the human experience and architecture. It begins with an interesting discussion on 'monumental space'. His argument is that monumental space is a *"metaphorical and quasi-metaphysical underpinning of society,"* (p. 143). His rationale is that space imprints an image that members identify with and by which identify themselves. As this space takes on a life as a form of identification and unification, it becomes both a physical and metaphorical foundation for society. He goes on to discuss the space of architects and the space of users. In an aside, he refers to the reduction of facades as *"seen and seen from,"* (p. 144). The point is made in reference to the earlier point in this thesis about the hegemony of vision. Likewise, Lefebvre's incentive behind mentioning the reduction of façades is that it reduces architecture to a visual experience. Ultimately, this is what his call for *"the restoration of the body"* (p. 146) is about. The idea is to design architecture in such a way that the rest of the senses enhance the experience, instead of isolating it to a visual experience or simply a 'facade'. By doing this, *"total being in total space"* (p. 139) is achieved. A lapse in either space or being renders the other incomplete.

Juhani Pallasmaa provides a similar but different viewpoint in his article, **'The Geometry of Feeling' (1986)**. His critique of architecture is stated as follows: *"It is time we consid-*

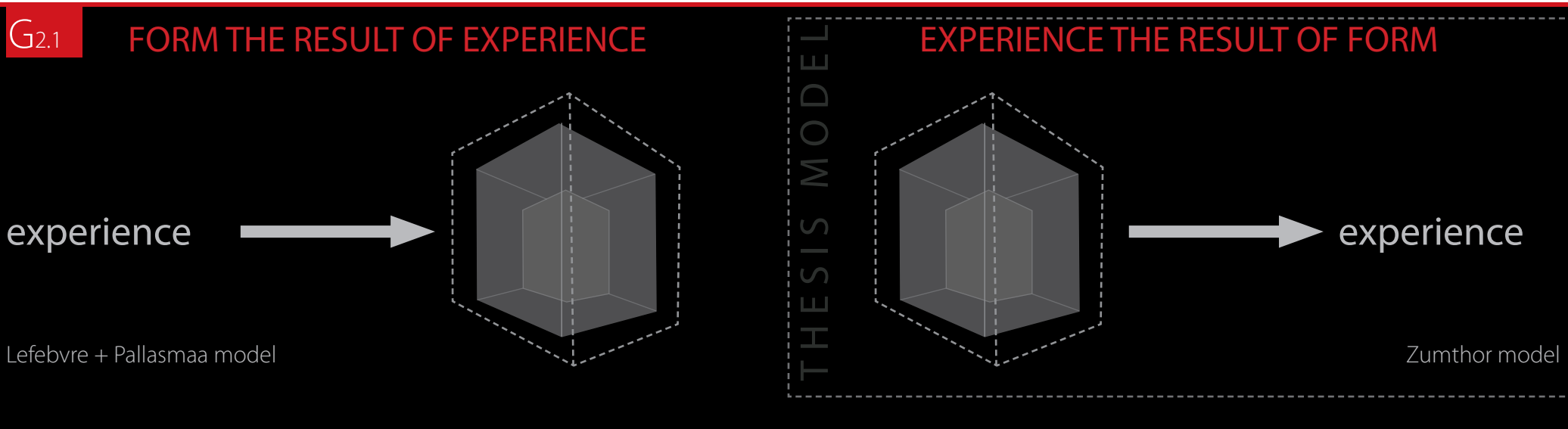
ered whether forms or geometry in general can give rise to architectural feeling," (Pallasmaa, 1986 p. 449). *"The buildings of our own time may arouse our curiosity with their daring or inventiveness, but they hardly give us any sense of the meaning of our world or our own conscious,"* (p. 448).

As a practicing architect, Pallasmaa too is concerned with the reduction of architecture to something experienced strictly visually. The formal style of modernism is no longer an effective way of attaching a person to their surroundings or a society to its context. His conclusion took its cue from art: *"The artistic dimension of a work of art does not lie in the actual physical thing; it exists only in the consciousness of the person experiencing it… Its meaning lies not in its forms, but in the images transmitted by the forms and the emotional force that they carry,"* (p. 449). The connection between the viewer and the viewed happens in the realm of the mind and the being. Therefore, *"if we are to experience architectural meaning and sense… the effect of the building should find a counterpart in the world of the viewer's experience… As architects we do not primarily design buildings as physical objects, but the images and feelings of the people who live in them,"* (p. 450).

Pallasmaa rejects designing buildings as isolated objects, instead he proposes that the 'effect' of architecture should also take place in the realm of experience. The building should not be seen as an isolated object but should also trigger a connection to memory of another experience or understanding. This assertion by Pallasmaa is similar to Lefebvre's assertion about the implications of space as a source of identification and unification. Pallasmaa's remarks imply that images and feelings are imprinted over time to form memories / allow for imagination, that ultimately has an effect on human experience. Both Pallasmaa and Lefebvre are adamant about developing architecture that engages the human experience for the depth of its implications.

Peter Zumthor wrote on another variation of 'human experience in architecture' in his book **'Atmospheres'** (2006). Zumthor's point of view is that form is not a two-dimensional result of years of modernism devoid of all sensual experience – rather, it is quite the opposite. Zumthor believes that form is the result of experience / informed by human experience, or in other words resulting from sound, light, materials, construction, etc (Zumthor, 2006 p. 69). This sets him apart from Lefebvre and Pallasmaa who view the human experience as resulting from the form. In his book, Zumthor also establishes a connection between light and quality of life. He posits that the presence of light in architecture indicates the presence of life, and reveals the quality of that life (p. 61). By connecting the two, Zumthor moves from mere observation and recognition of them to the level of perception and understanding of the human experience. His revelation is illustrative of a process in motion, and like Lefebvre and Pallasmaa, reinforces the need for the human experience to have a place in architectural response.

G2.1



THE RELEVANCY OF PHENOMENOLOGY TO THE SENSES

Norberg-Schulz in his book **'Genius Loci'** (1980) proposes that: *"Phenomenology was conceived as a return to things as opposed to abstractions and mental constructions"* (p. 8), ultimately arguing for an architectural language that caters for experience, perception and stimulates the full penchant of our senses through a return to essential architectural elements lost in modern architecture. This shift in articulation places man at the centre of architecture and reenlists a 'space – body' dialogue by uniting us with the built environment through an architectural language that promotes intimacy and is done according to the human senses. The challenge lies not in a single sensory experience, but spaces that can stimulate more than one sense.

Pallasmaa proclaims that "Every touching experience of architecture is multi-sensory; qualities of space, matter and scale are measured equally by the eye, ear, nose, skin, tongue, skeleton and muscles" (Pallasmaa, 2000). Multi-sensory stimulation is explained by James J Gibson, not in terms of our five senses as we know them, namely smell, taste, see, hear and feel, but rather as a collection of these. He describes them as five sensory systems that include visual systems, auditory systems, the taste-smell systems, the basic-orienting system and the haptic system (Pallasmaa, 2005 pp. 41-42). Lefebvre maintains that space should be experienced by means of the body which walks, tastes, smells and quite simply 'lives' in a space, and not read (Wiles, 2003:10).

CONCLUSION

I believe there is a correlation between phenomenology and the development of the senses. If we interpret phenomenology in architecture as enriching the experience of space, and that, our body is the subject of these experiences - then the idea of the attuning/amplifying the senses is quite helpful. However, moving beyond the senses towards methods that trigger and/or create emotions and memories is imperative to the concept of phenomenology in architecture and should be utilised. One of the key aspects to phenomenology is that: essentially, space is physically experienced, but is not just physical space, it is mental too. In other words, our experience of a space happens in our imaginations as much as in physical reality. It's that, there is a very real meaning to space. Because we are fundamentally beings that are spatial - space as it is conceived, interpreted and understood through the experience of the occupant is as real as the physical built "bricks and mortar". Physical space is linked to a mental space through human experience. Therefore, as an architect, I think you are part phenomenologist if you are interested in the sensory / imaginary /experienced aspect of the space you are designing. Therefore this thesis takes this position, it is part phenomenology, it is a 'branched phenomenologist' exploration in that it focuses on the impact the senses have on our imagined/remembered experience of space. The challenge now lies in how we create a multisensory experience, and as seen in our current ocular-centric society, this challenge imposed on architecture seems more complex than ever before. "Today the depth of our being stands on thin ice" (Steven Holl in Pallasmaa, 2005:8).

METHOD

Phenomenology theory has established a progression of human experience that begins with the sense/stimulus: the senses connects to memory, memory is linked to perception, which then influences one's ability to understand and experience space and being. By looking at phenomenology in this light, it provides an opportunity for the architect to engage with the progression through the senses. Light, sound, smell, touch and taste trigger signals that are relayed to the brain, images of memory/imagination are formed, and the progression is set into motion. Therefore the senses, as a design element that can be wielded by an architect, shares the variable and intangible characteristics of the human experience.

IMPORTANT CONCEPTS

The senses. That which is seen, touched, tasted, smelt, heard and analysed by the mind and experience
A trigger for connecting to a 'counter part' in the human experience.
The senses are a prompt, therefore, alone it cannot be responsible for architectural experience.

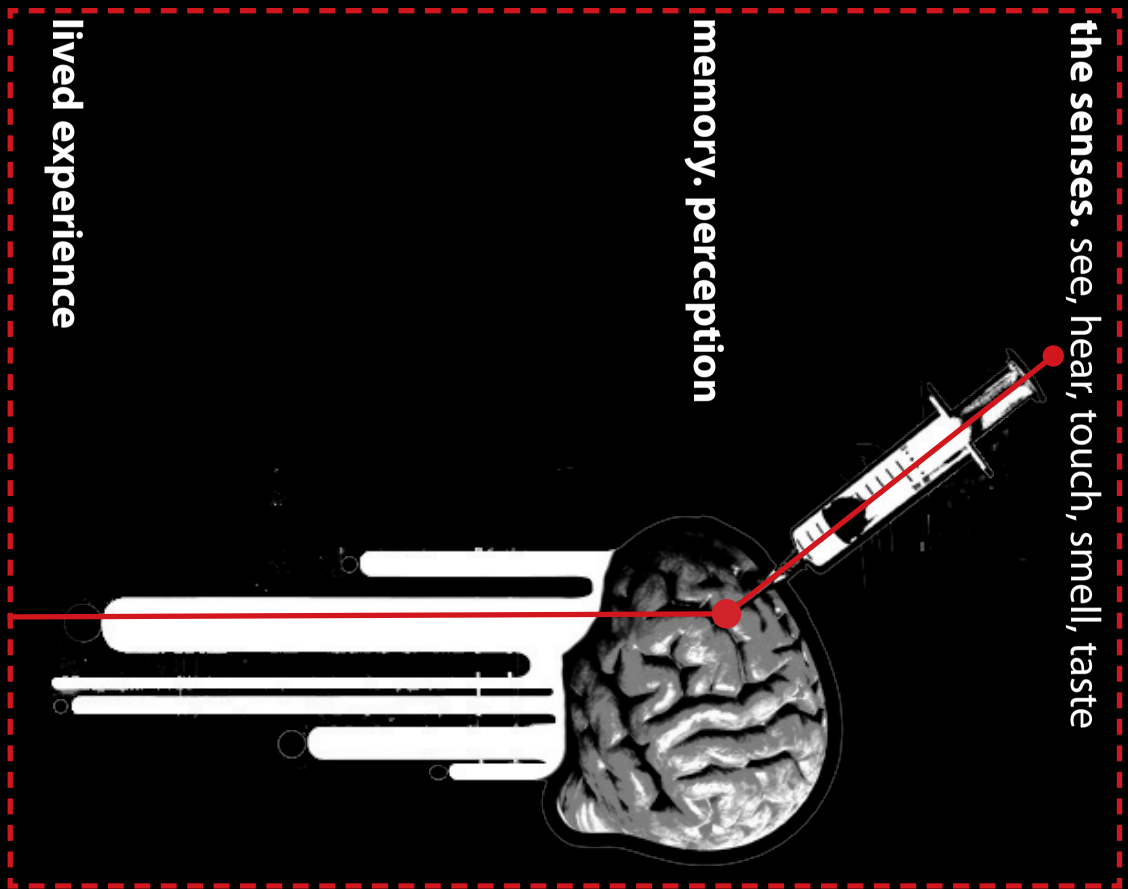
Memory. A connection to something familiar and a way people connect to architecture
the 'counterpart' in the human experience; that which is prompted by image for the purpose of triggering a response
the measure against which new images are compared.
Memory is an important player in eliciting a response to architecture.

Perception. A construct through which architecture and space are understood-
the consolidation of the collection of 'images and feelings' that are memories into an ideal-
when observation and experience have been judged for their value and distilled to a principle-
Perception has a tremendous impact on the human experience as it is the framework through which image and memory are analysed and understood.

Lived Experience. A mental + physical experience

Senses > memory > perception = lived experience

DESIGN MODEL MAP



/ Chapter 3

PRECEDENTS / Vals Therme Baths. Church of the light

Precedents/ Prelude

Zumthor/ Introduction. Episodes

Ando/ Introduction. Man + Symbol + Nature

C3


pg26/C3
PRECEDENTS 3.0

PRELUDE

"The task of architecture", Pallasmaa writes, "is to make visible how the world touches us. (Pallasmaa, 2005 p. 46)". The following architectural precedents embody a spatial and tectonic language that mediate human engagement through the senses. The spatial language employed poses critical questions on the creation of space with regards to experience and perception. The tectonic language reveals complex relationships, meanings, and emotional associations and incite bodily responses.

Introduction

DESIGN THROUGH ATMOSPHERE AND ACTION AN EPISODIC APPROACH

Therme Vals by Peter Zumthor offers valuable insight on designing for the senses. He displays a humanistic approach in his architectural language that evolves from an acute awareness of gesture: the communication through architecture that describes building not merely by what, but how. Zumthor asserts that architecture should maintain a balance between emotion and reason, and is apparent in this design. Reason comes in the form of logic and restraint. There is restraint with the use of a rectilinear plan, as well as a reasoned and logical placement of functions to form a clear procession of spaces / episodes. Emotion comes into play through the manipulation of materials and light. The qualities of sight, touch, and smell are stimulated through experiences with materials and the effects of light upon them. Zumthor's ability to remember these experiences that tap into the emotional side of the brain is what makes him successful at designing experientially. The specificity of his designs invite the body through a recollection of haptic memory and the inscription of texture, weight, density, and temperature, all readings predicted by vision and measured by the sense of touch. As Pallasmaa asserts, muscle and bones store these haptic readings, a recorded history of movement and interaction: *"The body knows and remembers. Architectural meaning derives from archaic responses and reactions remembered by the body and the senses. . . .Architecture does not only respond to the functional and conscious intellectual and social needs of today's city dweller"* (Pallasmaa, 2005 pp. 60-63). Pallasmaa goes on by noting the architecture of Zumthor and others, as articulating in verbs rather than nouns. In other words - The strong sense of use indicated in an architectural element reflects the action, state, and condition more than the thing itself: the stairs leading into the baths at Vals speak of submerging, the door of discovering and revealing, and the baths of touching, doing and cleansing.

Referring back to his book **'Atmospheres'** (2006) as well as **'Thinking Architecture'** (1998) provides the best clue to deciphering Zumthor's methodology through his own recorded reflections. His personal inclinations, a reverence for work, daily ritual, and the people it supports and affects, are made manifest in his environments. He often relates the description of a project to contemplative life experiences. He pours his own emotions and thoughts into environments that are highly atmospheric, susceptible to the senses and indicative of emotive responses. In his own words, the transcendent themes in designing are *"Architecture as Surroundings", "Coherence", and "The Beautiful Form".* The first aspect is the conception of *"architecture as a human environment. . . perhaps it has something to do with love. I love architecture; I love surrounding buildings, and I suppose I love it when other people love them too"* (Zumthor, 2006 p. 65). The second consideration speaks to the service or use of architecture and the last to the slow discovery of form in the creation of architecture. Zumthor discusses nine further motivations in his architecture: **"The Body of Architecture", "Material Compatibility", "The Sound of a Space", "The Temperature of a Space", "Surrounding Objects", "Between Composure and Seduction", "Tension between Interior and Exterior", "Levels of Intimacy", and "The Light on Things".** These elements offer an analysis for Zumthor's Thermal Baths in Switzerland.

THERME VALS
ANALYSIS

PETER ZUMTHOR
THERME VALS
Switzerland

Precedents : Zumthor

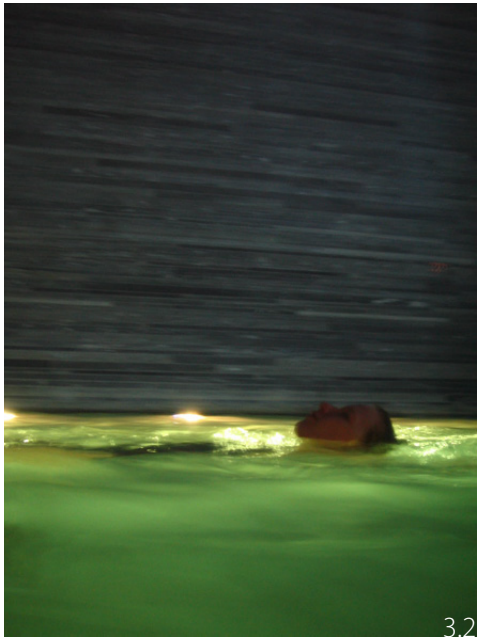
Episodes

THERME VALS

THE BODY OF ARCHITECTURE

Architecture as "a bodily mass, a membrane, a fabric, a kind of covering, cloth, velvet, silk, all around me... A body that can touch me" (Zumthor, 2006 p. 23).

An immersive, sensual encounter of a well-crafted building within a beautiful mountain setting, this spa creates something extraordinary that communicates on an instinctual, human level. The power of the architecture in Vals is striking to many beyond the frequent architecture pilgrims: "for the layman, this creates an exciting, awe-inspiring atmosphere" (Schmid, 2006 p. 29). *A self-described designer of atmospheres, Zumthor delights the senses, provoking vivid emotional responses.*



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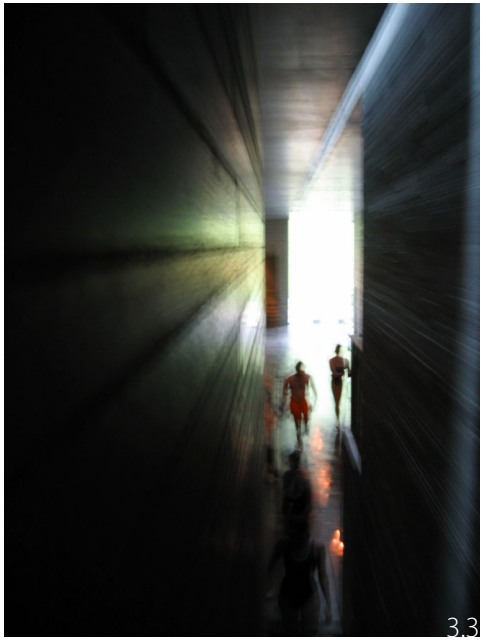

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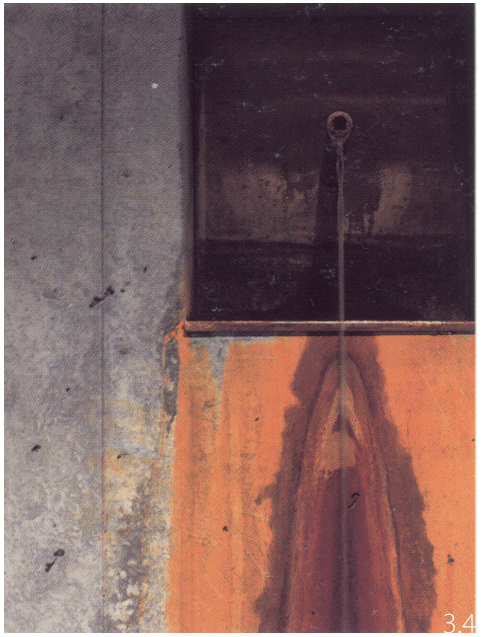
MATERIAL COMPATIBILITY

Reaction, proximity - "Material is endless. . . There are a thousand different possibilities in one material alone" (Zumthor, 2006 p. 25).

Each space varies through the manipulation of materials. Instead of ashlar masonry, the room for drinking employs large slabs of highly polished stone, supported on clips. The gap left in the absence of mortar between the slabs is emphasised, adding to the mystical atmosphere surrounding the drinking well. In the Turkish baths, concrete walls have been stained black, vanishing the corners of the room. A single light shines from above, illuminating the shimmering steam as it swirls about the space. The bathers partially disappear into the smoky recesses of the room. In the 42°C bath, the walls are reminiscent of lava rock, rough and dry in texture, deep red in colour. The 14°C bath is an icy blue. A shiny, frosty glaze coats the concrete in the perfumed bath, worn at the corners and in patches on the benches. Another bath beginning from a corner of the main hall leads to a tunnel and opens into a tall space of rusticated stone (Schmid, 2006 p. 29).



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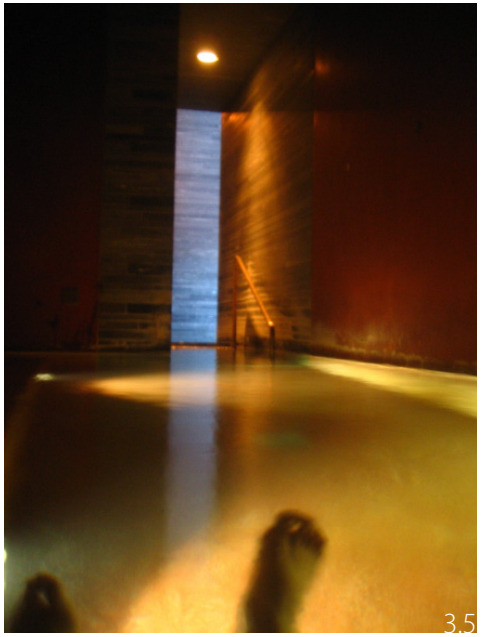
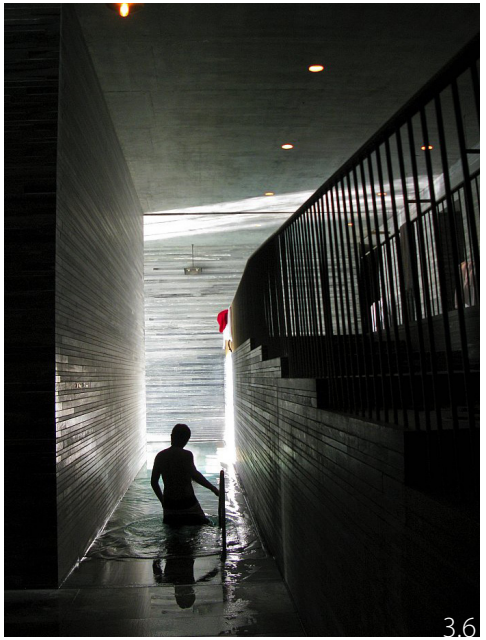


3.5

THE SOUND OF A SPACE

"Listen! Interiors are like large instruments, collecting sound, amplifying it, transmitting it elsewhere" (Zumthor, 2006 p. 29).

The auditory experience is a special consideration of the spa. Although the spaces have high ceilings, an intimate floor area and the acoustics of the material create a sense of isolation. Many of the baths echo back to the bather. The sounds of water reverberate and muffle the voices of bathers. Each room is activated upon entry by the movement of the once still water. A constant, controlled flow to the reveals along the perimeter of each space skims the surface of the water, so the wave of a new bather creates a rushing and gurgling until the bather settles. Once seated along the benches, the bathers lean their heads along the top of the bench, where water spills over in a soothing, continuous flow. A different room, furnished with soft, absorbent, black walls and a cushioned bench, plays an original composition from speakers hidden in the wall. Music is also performed in the hall on several occasions to accompany the bathers in the tranquil space. On certain evenings hotel guests may participate in a silent night swim, where the water against stone is the only sound (Schmid, 2006 p. 29).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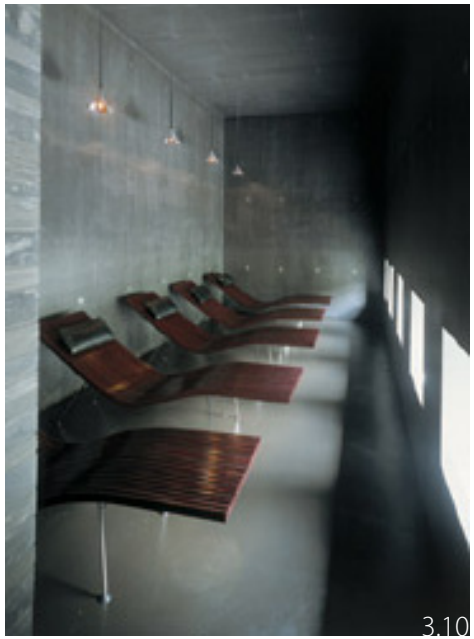
3.9

THE TEMPERATURE OF A SPACE

Literally and in terms of to temper, searching for a mood – physical and psychological.

SURROUNDING OBJECTS

The expressivity of the things people surround themselves with, the imagination of use
As described in Zumthor's original proposal for the building, "superficial clutter. . . Any of the trappings of traditional swimming pools" was avoided, providing visitors with "a sensory experience based upon peace and relaxation" (Schmid, 2006 p. 28). *Much of the spa and its functions appear to be hewn from the rock, including the walls, floors, steps, benches, and drains. The various environments, or atmospheres, are designed through manipulations and treatments of the material.*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3.11

BETWEEN COMPOSURE AND SEDUCTION

Architecture as a spatial and temporal art – as in thermal baths – "induce a sense of freedom of movement, a milieu for strolling, a mood that had less to do with directing people than seducing them" (Zumthor, 2006 p. 41).

A moment of transition allows for each space to be discovered, sometimes by pulling back a thick, black curtain, sometimes through a reflective, coloured glass door, sometimes by the turning of a corner. Always there is a sense of mystery, discovery, and transition into the new space. When a person enters the room, they cross the path of the light, shifting the tone of the walls and mood of the space momentarily, until it settles into a pattern of ripples reflected off the water, travelling across the other surfaces. The rather dim light of each space, often from a single source, dramatically enhances the finish and texture of the surfaces. The light and shadow makes the materials more palpable (Schmid, 2006 p. 28).


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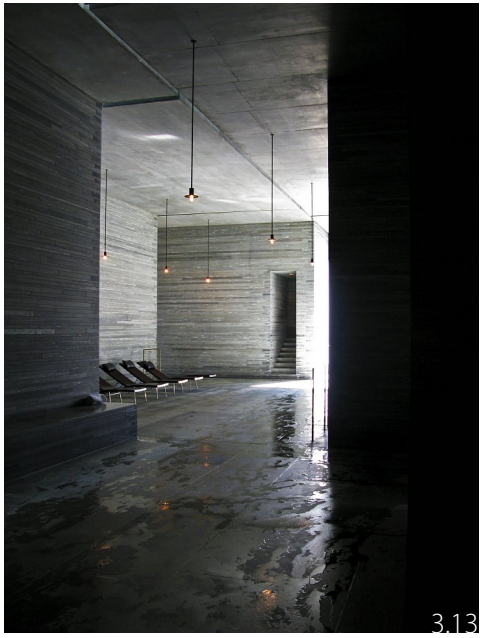
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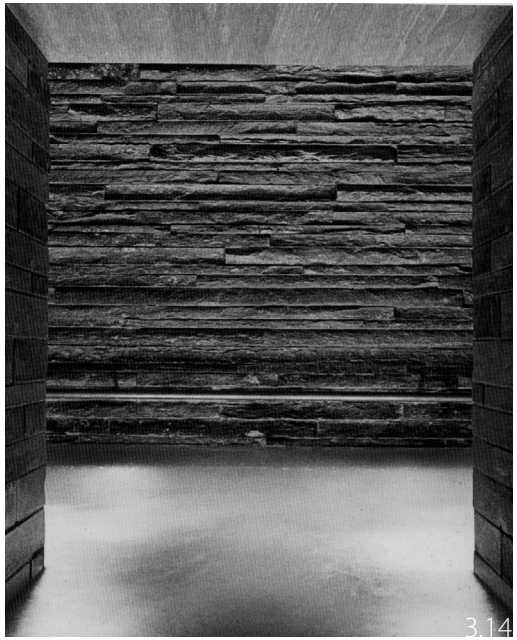
TENSION BETWEEN INTERIOR AND EXTERIOR

Transitions and the sense of being enclosed or enveloped, in groups or singularly.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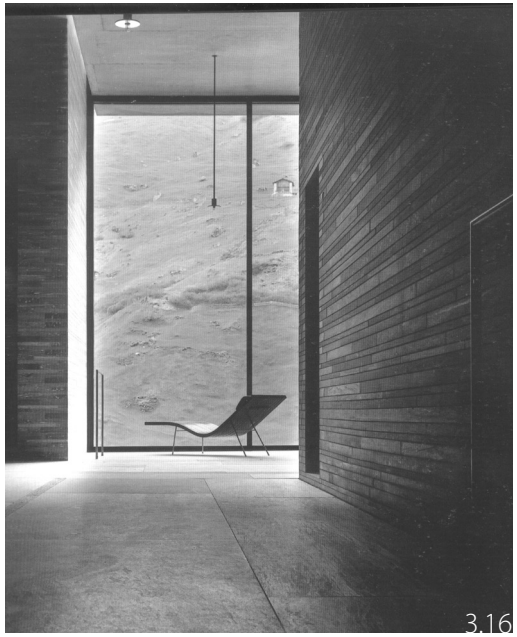
LEVELS OF INTIMACY

Proximity, distance, scale, "more bodily than scales and dimensions, size, mass, gravity" (Zumthor, 2006 p. 49).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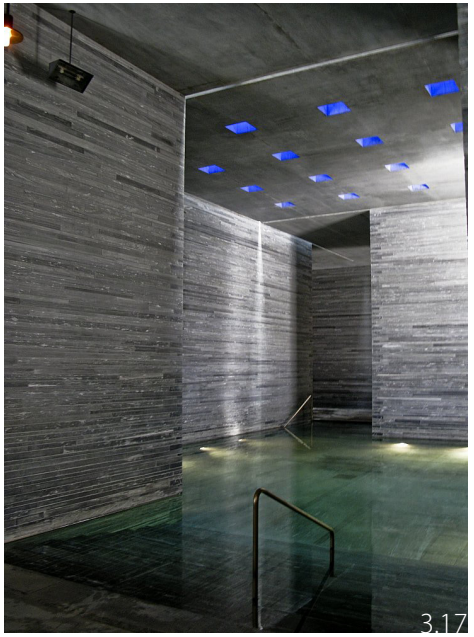
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Episodes

THE LIGHT ON THINGS

Planning the building as "a pure mass of shadow then, afterwards, to put in light as if you were hollowing out the darkness, as if the light were a new mass seeping in" (Zumthor, 2006 p. 59) - *lighting materials and surfaces systematically.*

The spa projects from the hillside so visitors enter through an underground tunnel. Like an incredibly precise and geometric natural phenomenon, a series of stone and concrete piers and cantilevered slabs hover above floor slabs of stone, splitting at corners and intersections, allowing water to rush in to form pools and inviting rays of light to illuminate the dim space. Voids between some of the volumes and small, calculated openings in the solid walls frame views to the mountains outside. Using inspiration of quarries, mountains, stone, and water, the spa was constructed using the region's Valser quartzite and concrete. It contains one main bathing hall with smaller volumes to be explored within. Neatly detailed layers of stone are stacked flush to the face of the wall, like a clean incision through the strata of a mountain (Schmid, 2006 p. 28).

3.18

DESIGN IMPLICATIONS

Zumthor's work has experiential potency. The quality of the spaces he designs allows the body and mind to roam. The particular employment of materials that are in constant dialogue with the senses, predominantly touch, the quality of light, and the relationship of surroundings create effects that form significant moments throughout the building. Zumthor's designs suggest a methodology that addresses the various senses in specific atmospheres, perhaps encapsulated in associative imagery, weaving these episodes together through a sequence of varying emotive states.

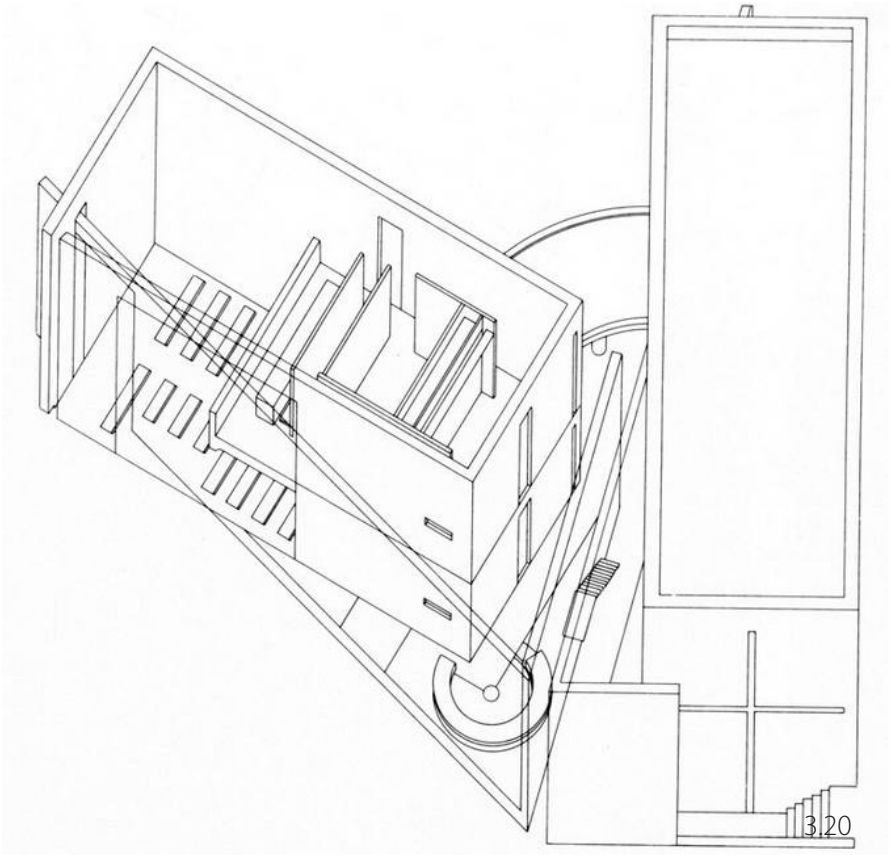
Introduction

DECIPHERING TADOA ANDO

The choice of Tadao Ando, the contemporary Japanese architect, as a precedent has as much to do with his overall design philosophy, as it does with the choice of the case study (the Church of the Light). Much like Zumthor, Ando's work aligns itself to the phenomenological train of thought as it is primarily concerned with the 'poetics' of space. It is my belief that there are even hints of a conscious sensual treatment of space in Ando's work. Concurrently I feel Ando works with a laudable material pallet that is kept simple yet well conceived, and is based on authenticity and experientialism. Moreover, Ando has worked on a number of spiritual buildings. Therefore there is fair value in analysing Ando's work that can offer insight into the three dominant themes of this thesis - experiential, sensual, and spiritual architecture as well as their relation to the material and spatial language employed by Ando. The case study, although a church, provides a good model for the design of the 'Sensual mosque' as it provide clues on Ando's approach to creating spiritual spaces. Although religions differ, I believe the concept of spiritual is universal and I believe Ando is particularly successful in creating spiritual and experientially rich spaces.

SIMPLE YET PROFOUND

The best method of deciphering Ando's design philosophy is through his spatial and material language that can be defined as simple, and in no way is this a derogatory statement to make. His material palette is unfussy with his material of choice being primarily raw unfinished concrete, and to a lesser extent glass and timber. This limited material palette should not be mistaken for lack of intention, instead, they are a consequence of a wilful determination to reduce architecture to simple materials and forms that provide rich architectural experiences. Ando's simple materials and forms are meant to elicit more engagement between user and architecture. Essentially Ando's limitation of material comes from the belief that their intrinsic nature - when they reveal their natural state of existence, heightens their experiential value. Pallasmaa has written similarly on this in that; *"Natural materials - Stone, brick and wood -allow our vision to penetrate their surfaces and enable us to become convinced of their veracity or matter. Natural materials express their age and history, as well as the story of their origins and their history or human use. All matter exists in the continuum of time; the patina' of wear adds the enriching experience of time to the materials of construction"* (Pallasmaa, 2005 pp. 31-32). Ando's effort to provide more experiential architecture is not limited to the reduction of material, but form as well. A common theme in Aldo's drawings is pure geometry. The reasoning behind this is to create space without superfluous form or materiality, but rather draw attention to the space's architectural qualities. Sensually Aldo's work is rich as well - the simplicity and purity of form and materials also re-instil what Ando has labelled the nature (in particular, light, air, and water) of his architecture. Aldo believes that nature should speak / be let in - in the guise of light (view) and wind (touch), as well as water (view and sound). Often the relationship between inside and outside is respected, with visual and audible elements such as a pebbled / grassy ground surface, foliage or a vertical or horizontal sheet of water. Ando's architecture therefore also serves as a mediator between man and nature.



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CHURCH OF THE LIGHT ANALYSIS

TADAO **ANDO**
CHURCH OF THE LIGHT
Ibaraki, Osaka, Japan
Design: 1987-88
Construction: 1988-89

3.21

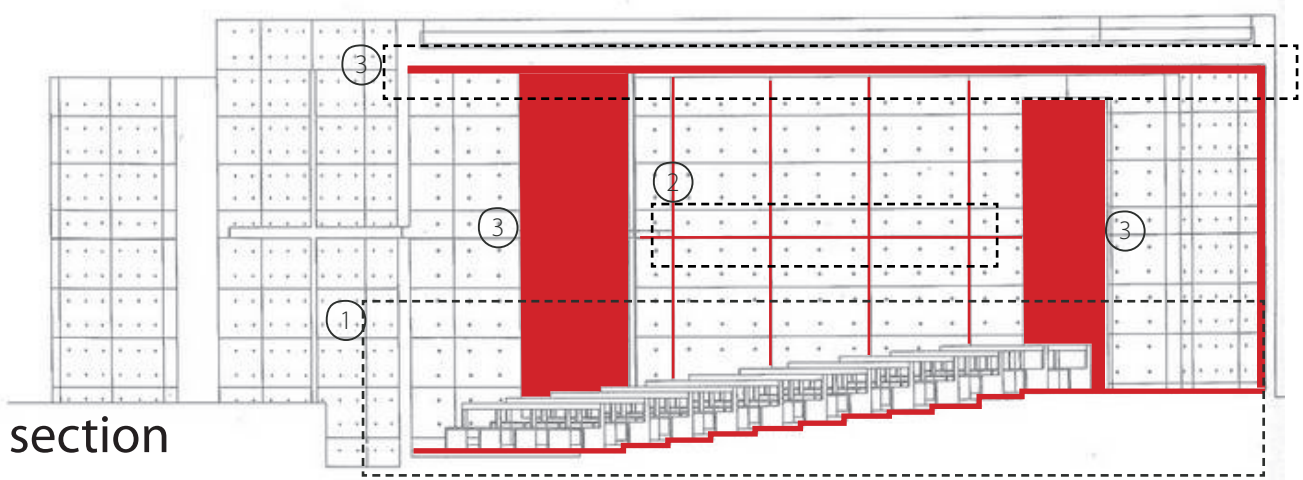
Precedents : Ando

Man + Symbol + Nature

CHURCH OF

OVERVIEW

Tadao Ando's 'Church of the Light' is situated in Osaka, Japan. The church can simply be described as a concrete box or cube. The church is essentially an amalgamation of three elements; man, symbol and nature, which are interconnected and inter dependant within the realms of the project. Ando's theme of simplicity is carried through in the design, with the only materials used in the church being grey concrete, glass and brown/black stained wood.



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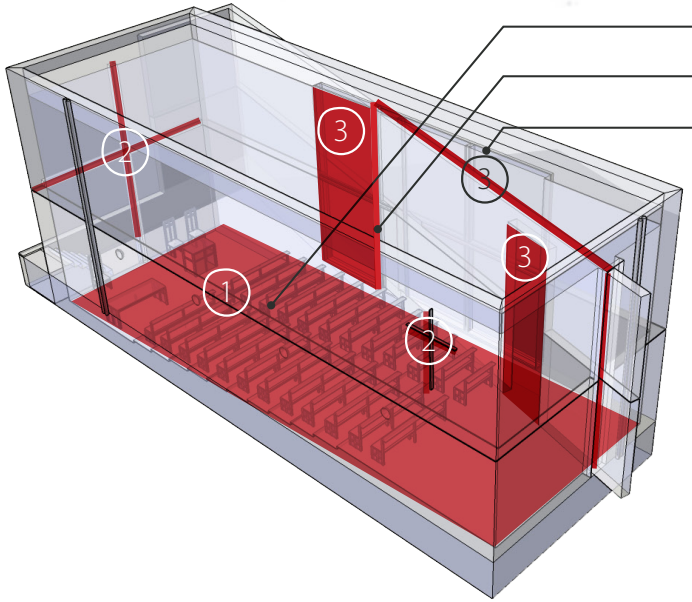


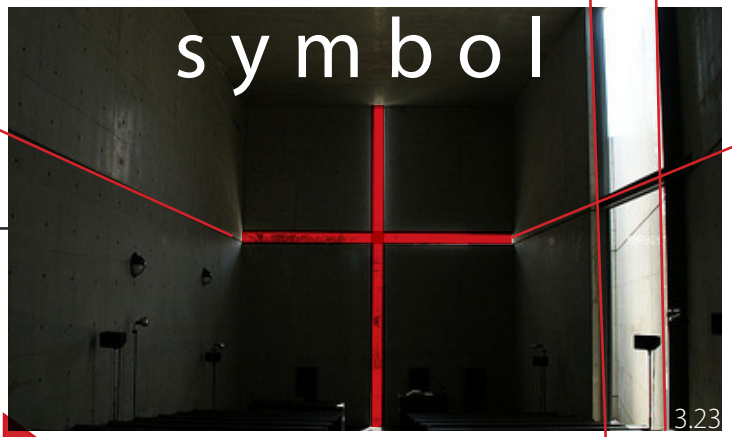
1 Man
2 Symbol
3 Nature

MAN = architecture focused on the individual, from the entry sequence to the effect material and light have on experience

SYMBOL = the symbol of the cross is repeated constantly and somewhat representational, however the light cross conveys a powerful spiritual image

NATURE = nature (light) is allowed into and emphasised within the chapel space

3.22



3.23

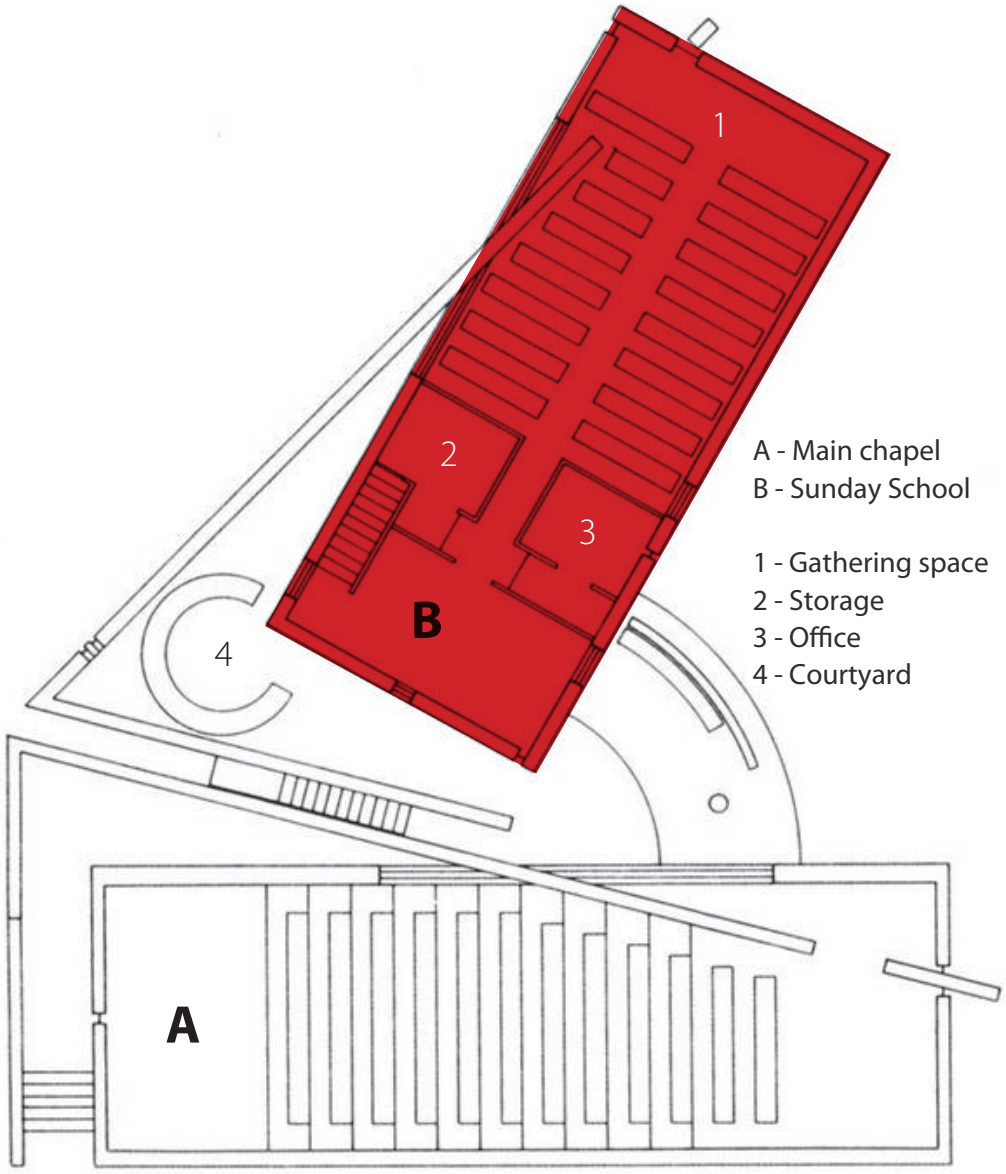
3.24

THE LIGHT

SUNDAY SCHOOL

Ten years after the chapel's completion Ando was requested to design a new Sunday School building. The location was where the original church stood, adjacent to the chapel. Ando chose to use the orientation of the church as the overall layout of the new building. The Sunday School addition is intended to compliment the chapel. It consists of a gathering area, kitchen office, and storage, functioning as a support space. It is less symbolic than the chapel, stressing more of a home-like character. Similarly to the chapel it is a simple rectilinear structure punctured by a freestanding wall. The wall here however, plays a very submissive role as opposed to its counterpart. On the other side of the wall, a small courtyard is formed that is intended for small gatherings. The interior of the building is a very warm and inviting atmosphere, composed of tight spaces with Japanese plywood. The second story houses a kitchen and balcony above, and office and storage below. Adjacent to these rooms is the double volume gathering area.

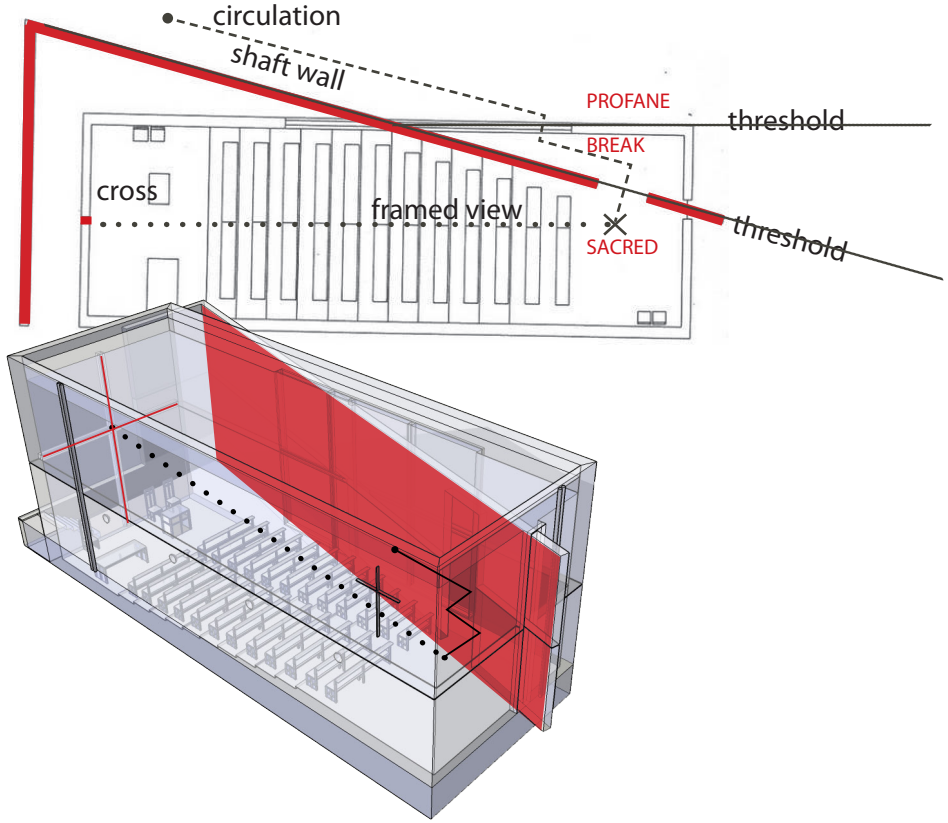
3.25

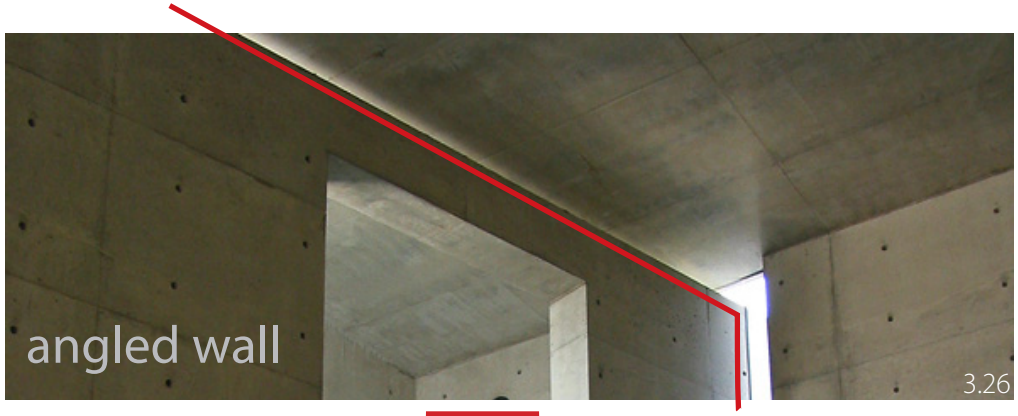


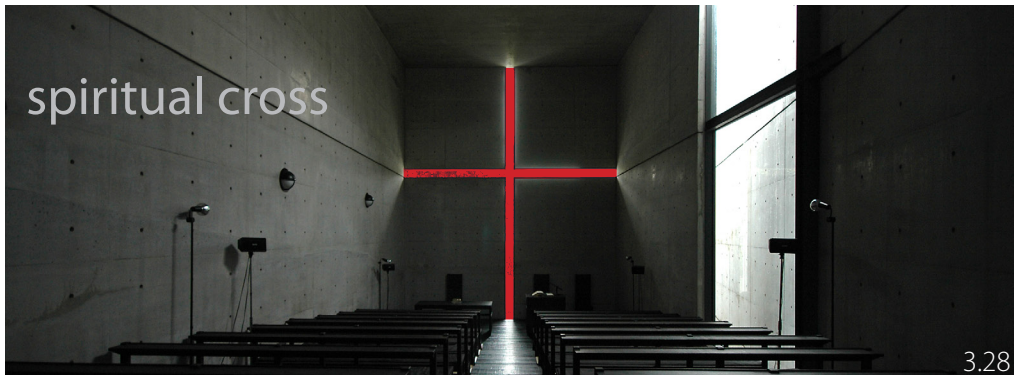
ENTRY SEQUENCE

Ando writes, *"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" (Ando, et al., 1996).*

The chapel consists of an L-shaped shaft wall of concrete that punctures the chapel at a dramatic diagonal (fifteen degree) angle through a thin slot in a rectangular concrete box. The angled shaft defies convention by never touching any other walls or the ceiling of the church. Fundamentally the angled wall acts as a navigational tool, dictating movement into the church. It is important to note that, like many of Ando's works, the method of entry /entry sequence into the church has been thoroughly conceived. Access into the church is not direct, instead one has to pass through intermediary thresholds, making the journey more profound – ultimately it is meant to make the user aware that they are passing from the 'profane' to the 'spiritual'. The angled wall is immediately encountered upon entering the chapel, and directs the user leftward into an interstitial space. A tall threshold is cut into the wall, further directing a right turn into the main spiritual space. Ando's manipulation of the circulation sequence is clearer as one passes through the wall. At this particular point one pivots around as they become totally aligned with the crucifix of light at the opposite end of the chapel.







MATERIALITY + LIGHT

Yet, the richness and depth of darkness has disappeared from our consciousness, and the subtle nuances that light and darkness engender, their spatial resonance - these are almost forgotten. Today, when all is cast in homogeneous light, I am committed to pursuing the interrelationship of light and darkness. Light, whose beauty within darkness is as of jewels that one might cup in one's hands; light that, hollowing out darkness and piercing our bodies, blows life into 'place'."
Tadao Ando (Pare, 1997)

The essence of the church is of a spiritual experience, that is largely achieved by casting light along the surface of concrete planes into a canvass of darkness. In the chapel Ando emphasises three main gestures by preserving dim light into the building and at the same time reveals the different qualities of light and shadow from non-material to absolute materiality. Ando pronounces the contrast between light and dark by admitting light in controlled doses into the chapel space. This approach remains faithful to Ando's will to integrate nature, and by minimising the amount of light that enters the space, Ando allows the audience to connect with the nature (light) introduced into the space. It is through the different light intensities that Ando infers a substantial ingredient of the relation of man to God, and provides for a space richer in spirituality.

A cross cut in the concrete wall within the chapel that extends vertically from floor to ceiling and from wall to wall, allows light to enter from behind the chapel. There is a play of light within the chapel, with a contrast in light through the use of filtered light that gradually increases closer to the cross, thus allowing the human eye time to adjust to the changing, more intense light as you move further into the chapel. Ando has amplified the sense of relationship between man and the cross of light as there are no other superfluous elements to detract ones attention. The significance of the cross is that it makes the connection between people inside and nature outside possible. Ando further intensifies the quality of the contrast of light by using rough unfinished concrete, with its monotone textured finish. There is sensitivity in this material choice as when clear light penetrates the chapel, light animates the dull, blank concrete canvas. *"It is necessary to return to the point where the interplay of light and dark reveals forms, and in this way to bring richness back into architectural space" (Tadoa Ando in Pare, 1997).*

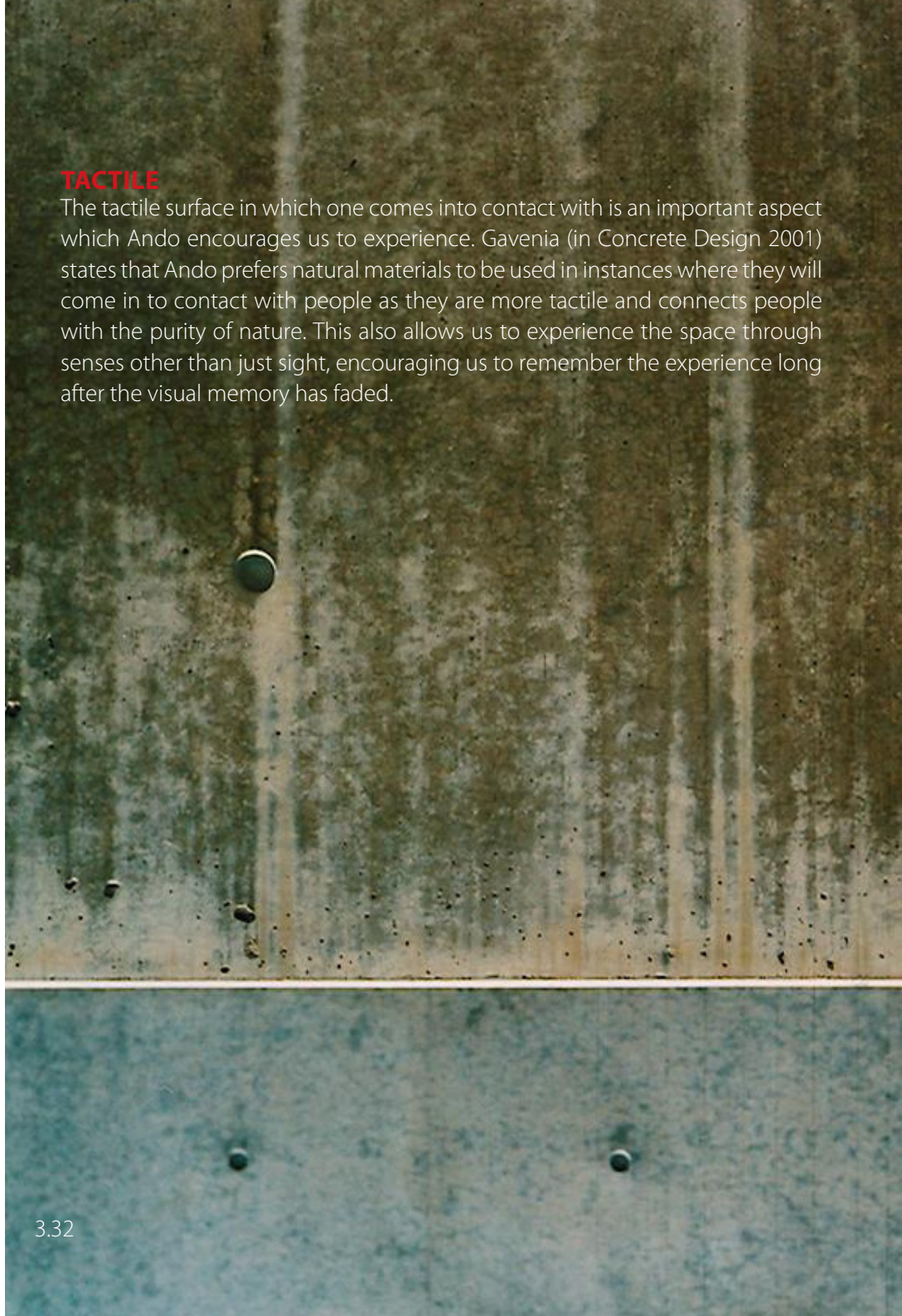
3.29

3.30

3.31

TACTILE

The tactile surface in which one comes into contact with is an important aspect which Ando encourages us to experience. Gavenia (in Concrete Design 2001) states that Ando prefers natural materials to be used in instances where they will come in to contact with people as they are more tactile and connects people with the purity of nature. This also allows us to experience the space through senses other than just sight, encouraging us to remember the experience long after the visual memory has faded.



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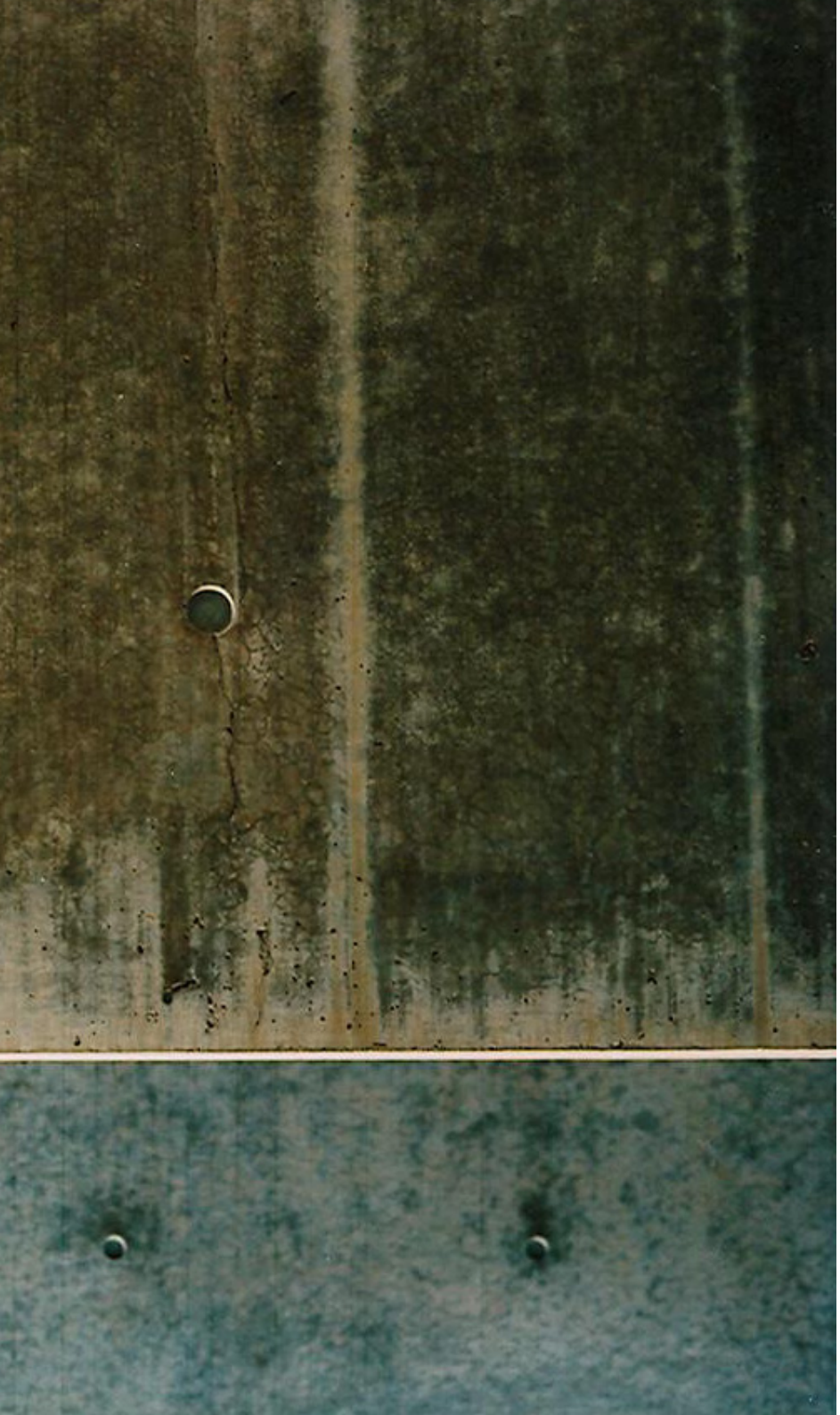


CONCLUSION

Ando's Church of the Light is a simple building with a profound effect. Applying his favourite material, the fair-faced concrete, Ando has created a clean, quiet and humble space for people to pray and meditate. The chapel, essentially a simple box elevates itself to something more substantial or metaphysical, with subtle gestures that have a substantial impact on the experiential success of its design. Many lessons can be learnt applicable to sensual, spiritual and experiential architecture from Ando's design philosophy. Firstly, the careful attention to detail and celebration of the purity of form are evident in this building, without negating the functional purpose of the religion. Further to this, the chapel rejects the surrounding 'flat'/high-tech architecture' of the city through an introverted approach, turning its back on its context and instead choosing to focus in on experience – and the relationship between light and spirituality. At the intersection of light and solid the occupant is meant to become aware of the deep division between the spiritual and the secular within himself or herself. This modest character creates its timeless quality. The church serves as the physical connection between 'the spiritual' and 'the physical', the outside world is meant to be forgotten for a brief moment in time. Lastly and perhaps the most valuable lesson learnt is that of light. What is clear from Ando's 'Church of the Light' design, and in fact what is a common theme in many of his designs – is the profound impact light as on our experience of space. Not at all dissimilar to Zumthor, Ando uses light not as a bi-product of architecture but instead as a material, a design tool with which to design. To use it sensitively is to harmonise with the nature of existence, and that can only be of help to those that experience that space. In his Church of the Light, Ando takes this understanding to a higher order in the expression of light as love. It is an altar to the power of light, and through its simplicity creates beauty – I would imagine both seen and felt. Therefore light proves to be a valuable visual design tool, simply applied it can have profound experiential effects.

/ Chapter 4

SITE /

Site/ Site Choice. Site Analysis

C4

SITE 4.0

Design : Site

Site Choice

SITE SELECTION CONSIDERATIONS:

PRIMARY
- Proximity to a substantial muslim population
- Proximity to a wider cultural audience (non-muslim)

SECONDARY
- Prominence, visibility, and recognition by public.
- Proximity to public transportation routes.
- Accessibility by foot, bike, and car.

site intensities

+ 0 2 4 6 8 10

- 0 2 4 6 8 10

numeric/gradient rating system, based on observation and assumption.

site character

	gps	primary: muslim population (immediate context)	primary: muslim population (wider context)	notes	secondary: people (in/around)	secondary: pedestrian traffic (movement across)	secondary: vehicular traffic (movement along)	secondary: vehicular traffic (indirect link to artery)	secondary: accessibility (able to reach a wide group)	secondary: public transport (access to taxi/bus)	secondary: public transport (gautrain/direct link)	secondary: visibility	secondary: noise (negative)	notes	points	program
site1 eldoraigne	25°50'10.25"S 28° 8'22.01"E	8	4	The site is viable. It is located within a mixed cultural neighbourhood with a large number of muslim inhabitants. Many muslims have relocated to Eldoraigne from the surrounding areas of Laudium, Erasmia and Claudius due to the limited space. Currently there is a Jamat Khana within the neighbourhood to service the muslim population. The closest mosque is in Raslouw.	4	4	6		2	8		4	-6	The site is isolated as it falls within a residential neighbourhood. A mosque alone would work, however the site is not ideal for the exhibition component of the centre that requires a more accessible site.	34	> Mosque only
site2 waterval/waterfall	26° 2'25.65"S 28° 5'52.89"E	4	6	The site as it stands is not viable. However there are plans to develop the site and its surrounds by the Atterbury group into the Waterfall City precinct, making it viable in the near future. The land is owned by the Mia family and currently houses a madressa (school) and Jamat Khana. Its current function as an Islamic Institute will remain.	2	2	8		6	8		2	-4		34	> Mosque + Exhibition +Education
site3 hillcrest	25°45'14.23"S 28°13'58.97"E	6	8	The site is viable. There is a large working and studying (Tuks) muslim population within the immediate context. Further to this the site is centrally located and is able to service many surrounding areas currently without a mosque. The nearest mosque is in the Pretoria CBD. Currently many 'local' muslims use the 5th floor of the Engineering building at Tuks as a Jamat Khana.	8	8	6		8	8	6	6	-8		56	> Mosque + Exhibition +Education

URBAN SITE

The chosen site (site 3) is located in the urban environment of Hillcrest, Pretoria. Its urban location, the city and what it encapsulates (such as speed, instant persuasion and sensory over stimulation), deliberately places the mosque in contention with the urban environment in which it resides. Secondly, and perhaps more applicable to the theoretical objectives - the urban environment provides an appropriate comparison between the hegemony of 'image' that arguably dominates the city – or what Pallasmaa terms 'flat architecture', and that of sensual architecture. It provides a different sensory viewpoint to what the city exhibits – one that positions itself to cater for all of the senses.

Site Analysis

INTRODUCTION TO SITE

The proposed design is an Islamic Cultural centre located within the chosen site in Hillcrest. Apart from housing what is at the core of any mosque design - a prayer hall, the centre will also house an exhibition space, a library, a student centre, classrooms, and retail space that appeal to a wider market than exclusively muslim communities. Therefore the choice of site had to meet two criteria - **Firstly** it had to be within close proximity to a substantial muslim community to make it functionally viable. Currently many muslims work, study and to a lesser degree reside in Hatfield. **Secondly** Hillcrest + Hatfield provides for the needed wider exposure as it is a part of Pretoria with a diverse blend of people and activity, therefore appealing to a wider cultural/non-muslim audience. Commercial, residential, educational, recreational and sporting zones blur creating a truly multi- functional, multi- racial and multi- cultural environment within Pretoria. In addition to this point, it being placed on the periphery of a highly active node - the Tuks campus, provides a perfect platform for the exposure needed. It is important that this building should be accessible. Therefore a suitable site for this type of building would be near the Student Centre, on route to UP residences, while still maintaining a direct link to the city. In fact the site and scheme has the potential to become a link between city and varsity in the form of the centre.

FEEDER AREAS FOR MOSQUE

surrounding feeder commercial , educational + residential areas

The chosen site potentially pulls in muslim students, workers and residents from Hillcrest, the Pretoria University (Tuks), Hatfield, Brooklyn, Muckleneuk, Menlo Park and Lynwood.

4.4

4.5

MACRO CONTEXT

SPATIAL DEVELOPMENT FRAMEWORK

GAPP Architects designed the Nelson Mandela Development Corridor. This area along the Apies River is the division between the eastern suburbs and the CBD.

GEOMORPHOLOGY

Gravel, with a clay and silt covering, is mainly found in the Pretoria region.

HYDROLOGY

The Apies River is the main river of Pretoria and flows northwards past the east side of the CBD. Other streams include Walker and Skinner Streams as branches of the Apies River.

ECOLOGY

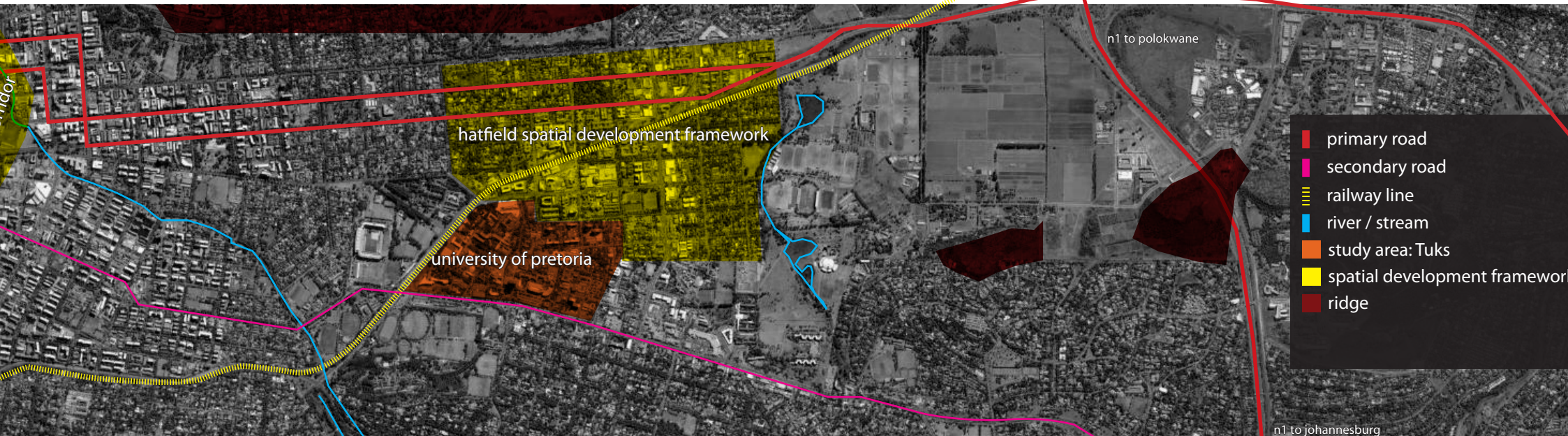
Tswhane forms part of the Highveld ecological region. It is identified by grasslands and thorn trees. Pretoria is known for its Jacaranda trees, covering the streets with purple flowers during October. These trees dominate the campus.

TOPOGRAPHY

Pretoria is geographical situated on the 25'44'S and 28'11'E. It is 1330m above sea level and is nestled between the Magaliesberg, Daspoortridge, Skanskop and Klapperkop. These ridges all run parallel to each other.

CLIMATE

Pretoria falls in the Highveld climatic region. It mainly has dry mild winters and wet warm summers with afternoon thunderstorms during December to February. It has



Site Analysis

an average of 700mm rainfall per year. The average daily temperature for winter (March to August) is at a maximum of 22 °C and a minimum of 11 °C and for summer (September to February) a maximum of 27 °C and minimum of 18 °C. Pretoria has east-north-easterly to east-south-easterly winds in the summer and southwest to northeast winds in the winter. The average annual humidity is 59%.The solar incidence in Pretoria is 80% maximum sunshine in the summer and 67% minimum sunshine in the winter.

SITE ANALYSIS

The study area under investigation is bordered by Duncan Road on the east side, Lynnwood road on the south side and Burnett Street on the north side. These roads are also the main arteries feeding the CBD from the eastern suburbs.

The University of Pretoria was founded in 1908, after Jan Smuts proposed a split from the Transvaal University College in Johannesburg. At the time of the founding, Transvaal was a colony of the British Empire. British architects, like Herbert Baker, who worked for the Department of Public Works had great influence on the architecture of the campus. (Fischer 1996:33)

In 1930 the university became an Afrikaans-language institution, after much protest from the staff and students. From then the campus buildings were designed by architects, like Gerhard Moerdyk, who maintained an Afrikaner culture and identity. (Fischer 1996:33)

The university is currently holding more than 50 000 students. The acronym TUC came from its first name Transvaal University College, and therefore a student from this university would be called a 'tukkie'. (www.up.ac.za)

MESO FEEDER AREAS FOR MOSQUE

estimated muslim population intensity around site

MESO ZONING

zoning around site

- commercial
- resedential
- rail station
- educational
- Tuks
- rail route
- fitness/park
- primary road
- bus route

MESO TRAFFIC ANALYSIS

- high pedestrian movement
- high vehicular movement
- pedestrian interaction
- vehicular interaction

Site Analysis

MICRO ZONING / USE

fig. 4.7

- EDUCATIONAL
- OFFICES
- STUDENT AMMENITIES
- UP RESIDENCES

OFFICE BUILDINGS
1 - ADMINISTRATION
2 - ENGINEERING TOWER
3 - AGRICULTURE
4 - HOUSE HARTMAN
5 - LOOS

STUDENT AMENITIES
6 - AULA
7 - CLUB HALL
8 - OLD MERENSKY
9 - NEW MERENSKY LIBRARY
10 - KAYA ROSA
11 - STUDENT CENTRE
12 - TUKKIEWERF
13 - CHAPEL
14 - CLOISTER HALL
15 - HUIS-EN-HAARD

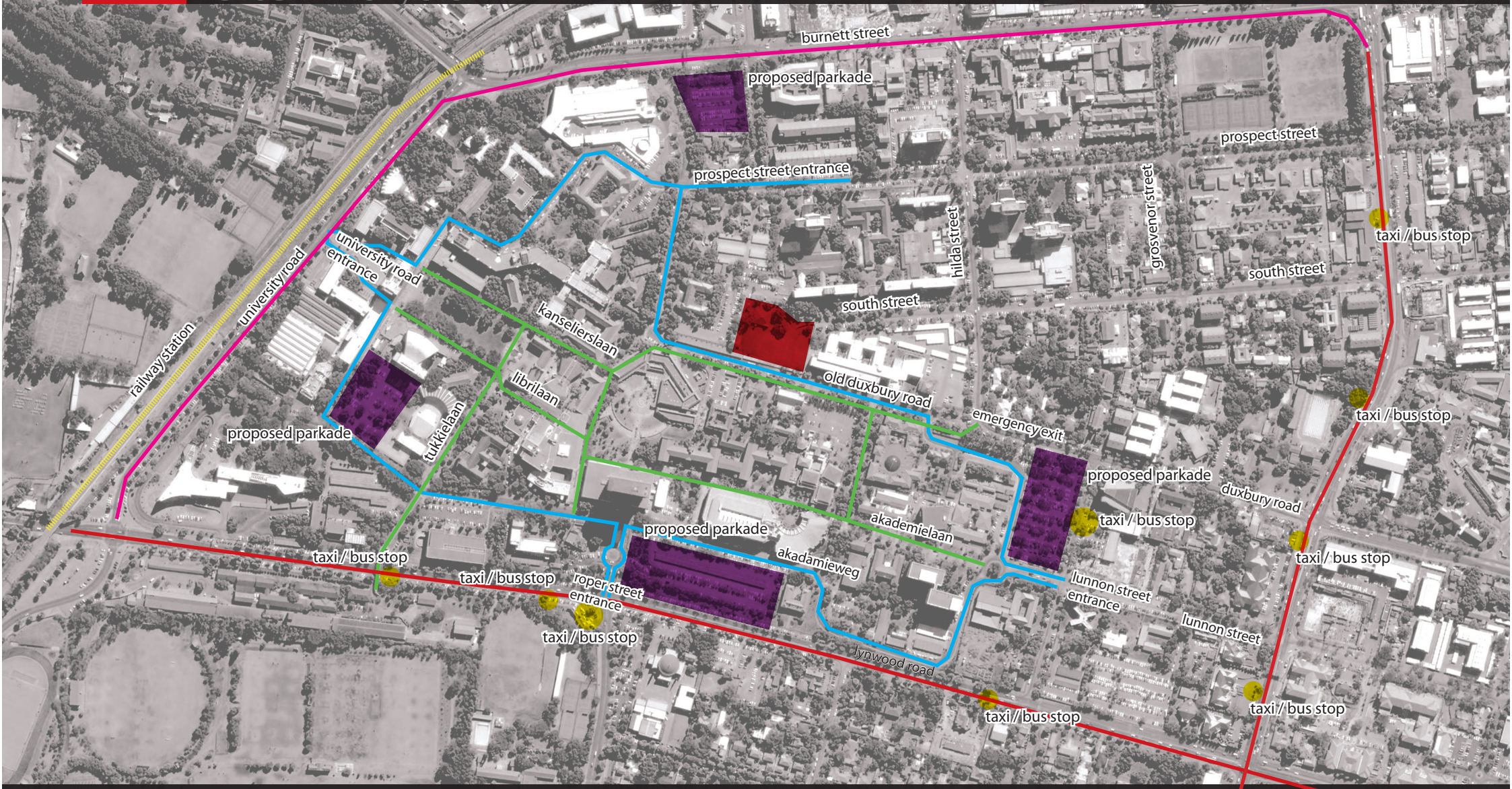
SOUTH CAMPUS
16 TO 24 - BUILDING 1 TO BUILDING 24

EDUCATIONAL BUILDINGS
25 - VISUAL ARTS
26 - BUILDING SCIENCES
27 - SPEECH THERAPY
28 - DRAMA
29 - BOK EN LIER
30 - AGRICULTURE GLASS HOUSE
31 - AGRICULTURE LIBRARY
32 - MASKER THEATRE
33 - THERON LECTURE HALL
34 - INFORMATION TECHNOLOGY
35 - HUMANITY SCIENCES
36 - THEOLOGY
37 - TONE MUSIC
38 - MUSAION AND AMPITHEATRE
39 - MICRO ELECTRONICS
40 - STORE / TOILETTE
41 - HEAVY MACHINE LABORATORIUM
42 - HEAVY MACHINE LABORATORIUM
43 - ELECTRICAL ENGINEERING
44 - OLD LITERATURE
45 - CHANCELLOR'S BUILDING
46 - MARKETING SERVICES
47 - OLD CHEMISTRY
48 - ECONOMIC & MANAGEMENT SCIENCES
49 - CONFERENCE CENTRE
50 - TOURISM HOUSE
51 - PLANT BIOLOGY CENTRE
52 - NEW LAW FACILITY
53 - SITE
54 - ZOOLOGY
55 - GEOGRAPHY
56 - STUDENT SERVICES
57 - NATURAL SCIENCES 2
58 - MINERAL SCIENCES
59 - NATURAL SCIENCES 1
60 - CHEMISTRY
61 - CHEMISTRY STORE
62 - STUDENT HEALTH SERVICES
63 - HOME ECONOMICS
64 - TECHNICAL SERVICES
65 - MATHEMATICS
66 - BOTANY GLASS HOUSE
67 - BOTANY
68 - BATEMAN
69 - VETMANS
70 - STONEMAN
71 - AE DU TOIT
72 - VAN DER GRAAFVERSNELLER

RESEDENTIAL BUILDINGS
73 - JAKARANDA
74 - ROOSMARYN
75 - ERIKA
76 - VERGEET-MY-NIE
77 - ASTERHOF
78 - KLARADYN
79 - JASMYN
80 - MADELIEF
81 - MAGRIETJIE
82 - KINDERGARTEN
83 - TUKKIELAND
84 - PROTEA
85 - CUM LAUDE
86 - THE WERF FLATS
87 - NERINA
88 - GLASS KAS
89 - NERINA HALL
90 - PASTORIE
91 TO 118 - TUKSDORP HOUSE 1 TO 24

Site Analysis

MICRO TRAFFIC ANALYSIS



taxi / bus stop
proposed parkade
primary road
dominant pedestrian circulation
secondary road
railway line
internal veicular circulation

Site Analysis

MICRO TRAFFIC ANALYSIS

The campus aims to be pedestrian friendly, by minimising vehicular traffic. All students have to park outside the campus, but this tends to be a security issue. A number of proposed car parks will solve this problem. A series of taxi and bus stops surrounds the campus, making it easier for students and staff to travel.

A shuttle service from the residences to the campus has also been put into place and is used to its full potential. A rapid bus service between the eastern suburbs and the CBD also gives opportunity for trouble-free commuting.

The Gautrain Rapid Rail station in Hatfield, currently under construction, will give accessibility to the campus for students travelling from Johannesburg.

LEGAL REGULATIONS

The UP campus has a permissible floor area ratio of 2.5 and a height restriction of 6 storeys (+/-18m).

MICRO SITE ANALYSIS

The proposed site under investigation is located on the northern edge of the campus ring road. This section of road used to be part of Duxbury road, connecting the student centre with Duncan road with a vehicular access road. The road has been closed since then, for security reasons, but is still used by students walking or cycling from the university residences. It is one of the main pedestrian arteries feeding the campus from Hatfield.

The site is surrounded by a collection of old and new buildings, some currently under construction. The cloister complex (consisting of the chapel, Tukswerf building and the cloister hall), and the student centre. The Student Centre, on the south western end of the site, serves as the main gateway to student activities. The chapel is used for student weddings and probation sermons by prospective ministers. The cloister hall is used for socials, performances by the drama students and partially as a cafeteria.

/ Chapter 5

DESIGN /

Design Tool + Concept/ Prelude. Derived Islamic concepts. Form + Program. Conceptual Program. Design Generators

Design Development/ Sequence. Plans. Sections. Elevations

C5

DESIGN TOOL +

CONCEPT 5.0

PRELUDE

Pallasmaa describes this challenge towards a contemporary sensory architecture as follows: "Around the world today we are attempting to re-sensualise architecture through a strengthened sense of materiality and haptisity, texture and weight, density of space and materialized light" (Pallasmaa, 2005:37). Steven Holl, on the other hand, describes this approach in much simpler terms and states that architecture should strive towards a language where "The way spaces feel, the sound and smell of these places, has equal weight to the way things look" (Steven Holl in Pallasmaa, 2005:7).

The question now remains: how do we create an architectural tectonic and spatial language that can stimulate multisensory phenomena?

Design : Design Tools + Concepts

Prelude : Sensual Mosque

SPIRITUALITY CAN BE A PROFOUND EXPERIENCE.

The concepts of the 'senses' and 'spirituality' will be amalgamated in the form of an Islamic Cultural centre. The reason for this choice of building has to do with the spirituality of religious architecture. Spiritual architecture is both about the physical interaction between body and place, and the much more profound mental/spiritual connection. Perhaps all architecture has traces of a spiritual element. However in some instances this element is pronounced, as in the case of religious architecture and you thus feel more content in that space.

5.1

AIMS

The concept behind the 'Sensual Mosque' investigates the representation of 'Islamic architecture' in a secular context through a fresh approach, one that is not entirely based on traditional forms or representation - that to a large extent dominates Islamic architecture, but rather, on perception / experience / the senses. It explores the idea of a mosque as a multifunctional space, through so-called sensorial design generators (see chapter 4) - a set of conceptual design tools. By designing a mosque based on these principles, I hope to deconstruct the present Islamophobic mood we find ourselves in since 9/11, and shift focus from the biased and politicized representations of Islam in favour of a design more universal (or based on the senses) in approach.

Initiated through the senses, and inspired by this divine call for peaceful coexistence, the concept of the "Sensual Mosque" is aimed at encouraging dialogue between Muslims and non-Muslims by providing an interactive infrastructure to accommodate both secular and sacred programs within the same space. I believe that mosque design can contribute to synthesising learning and interaction among different Islamic and non-Islamic societies. If this relationship is to become a mutual enrichment, mosque design can enable not only their spatial aggregation, but also open up an experimental field for artists and architects to negotiate the way Muslims understand and communicate their presence today.

"O men! Behold, we have created you all out of a male and a female, and have made you into nations and tribes, so that you might come to know one another. Verily, the noblest of you in the sight of God is the one who is most deeply conscious of Him. Behold, God is all knowing, all aware" [QURAAN (49:13)].

THE NEED TO EVOLVE

I will not delve too deeply into the fundamentals and principles of Islamic architecture as it lies outsides the scope of this thesis. Nevertheless in my view there is a need for Islamic architecture to evolve from its traditional model. Evolution is an on-going process. Innovation is one of the most critical component of this process. However, innovation has to aim at holistic goals or specific objectives, such as making architecture humane. To a certain extent Islamic architecture can arguably be labelled as primarily ocular-centric as it has followed the 'traditional image' of a mosque since the technological invention of the dome and arch, and has consequently remained stagnated. My thesis dismisses representation, instead focusing on the experiential value of sensual design. Therefore, to evolve mosque design I must break away from the conventional 'image' of a mosque. However, to completely dismiss convention for the sake of evolution is naive as there is much to learn from Islamic precedent. Therefore I will extract design concepts from conventional mosque design. My reinterpretation of traditional elements of mosques focused on questioning how sensual mosque design can be derived from conceptual, rather than a formal understanding, of mosque typology. These concepts combined with the senses should provide a rich enough platform from which to design from.

5.2

TRADITIONAL V EVOLUTION

Traditional Islamic architecture makes extensive use of domes, minarets and arches. In my view it is not infallible to eliminate the traditional elements of Islamic architecture if it is treated with due precedent. However, I think that the design of any place of worship needs some form of continuity with existing typology. I say this from the point of view of the person who comes to the place to worship. It is my belief that the primary requirement is retaining the sanctity of such places. To achieve this one might need to resort to familiar models, however I am not implying reproducing forms or technology. Islamic principles such as; Simplicity, light quality, Respect for nature, Austerity, textures and spatial organisation are equally effective ways of relating to the past while still being faithful to the present, as well as the process of evolution.

Derived Islamic concepts

SIMPLICITY

Islam preaches utmost simplicity, which could be used a guiding principle to evolve sublime architecture with the highest artistic, architectural and spiritual values. The design of building for prayer is simply a space in accord with the principles of the Islamic Faith which allows people to pray in the most peaceful way possible. Peaceful in the sense that atmosphere of the space guides and focuses the thoughts of the people upon prayer. Subsequently, the basis of my mosque design should be simplicity and accessibility to all.

SACREDNESS + IMMATERIALITY

In my view, the most important aspect that must be respected in the sensual mosque is sacredness. Abstract surfaces can produce powerful sacred space. Islam strives for immateriality - alike to most notably Buddhism and Christianity. Over years, human needs over powered all religious teaching or philosophy, the idea of grandeur, exuberance and richness were displayed and demonstrated in utmost wealth. The optimum resolution is to come up with a design that is both pleasing for the body (comfortable) and restful for the soul (experientially rich) - both are closely related. More often than not, if your body is not physically comfortable then your soul will not be.

NATURE, THE FOURTH DIMENSION

Lastly, In my view Islamic architecture is not only about the three dimensions, but also has a fourth dimension attached to it that can be directly related to the senses. I think spiritual architecture has strong connections with natural elements of the earth that refers to that 'fourth dimension' - both Soul and nature have close inter relationships. Therefore spiritual architecture should attempt to harmonise natural elements (light, water, air) in its living environment. These aims are closely tied to this thesis's aims of evoking the senses.

Figure 5.3 - The Assalah Mosque in Egypt exhibits a simple use of material that lets nature in, in the form of light and air.

Assalah Mosque, Egypt

CONCLUSION

The Conceptual Design Principles outlined in this chapter; the principles of simplicity, sacredness + immateriality, and nature, seek to bridge the gap between culturally and historically specific forms and functions of mosques. These conceptual guidelines can provide a methodology that responds to the challenge of negotiating religious functions with other secular, social and cultural practices with a design of a new mosques that is inventive in appearance, yet remains faithful to liturgical necessities.

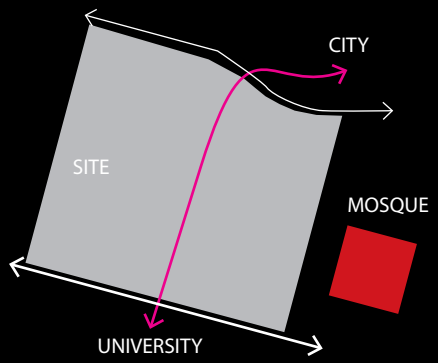
Design : Design Tools + Concepts

Form and Program

The project does not begin with an image or form but the potential of what the site has to offer. The sites location and its inherent potential largely affected the spatial layout and form of the building.

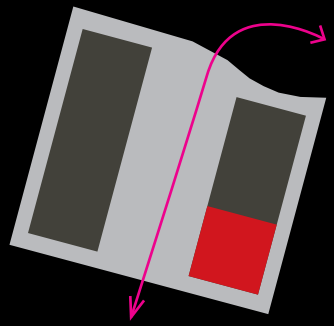
FORM GENERATOR

An important form generator was the idea of allowing the scheme to form a link between the city and university. Movement should be allowed through the site with the mosque being an important destination - Its position will be pivotal.



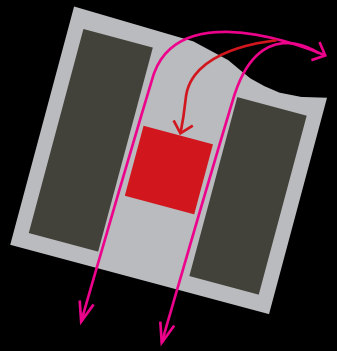
OPTION 1

The first option is the most appropriate in providing an efficient city link. However the mosque becomes integrated into the surrounding buildings, reducing its value as a focal point / destination.



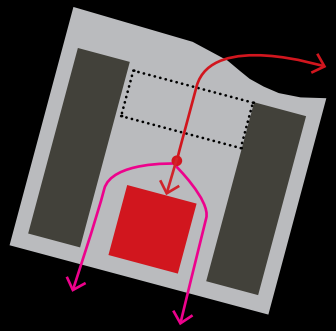
OPTION 2

Option 2 is the inverse of option 1, It makes the mosque the focal point of the scheme, however the link is diminished slightly. Two courtyards on the northern and southern periphery form 'handshakes' to the city and varsity, welcoming people into the scheme. Two movement corridors on either end allow movement through the scheme.



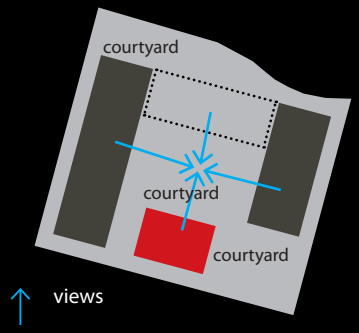
OPTION 3

Option 3 takes into account where the other 2 have failed. More enclosure is provided than the previous design. What emerges is a perimeter courtyard typology, acknowledging the street grid and absorbing a proposed route through the site to more effectively form a link between the university and city. The mosque is moved closer to the university allowing easy access, while from the city the route towards the mosque becomes a progressional route through the courtyard.



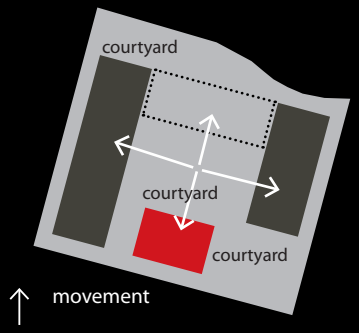
INTROVERTED

Due to the nature of the site and form, from the offset I proposed an introverted scheme with views directed toward the central courtyard.



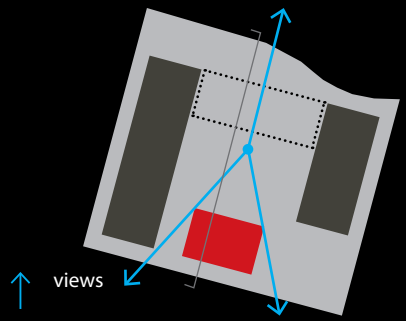
ACCESSIBLE

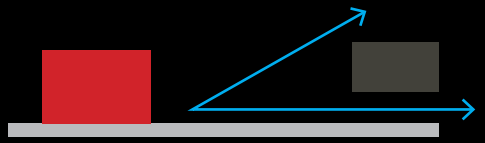
The courtyard also acts as an effective circulation tool with all functions easily accessible from within.



PERMEABLE

From within the courtyard there is still a connection with the city and university through the permeability of scheme on ground floor.



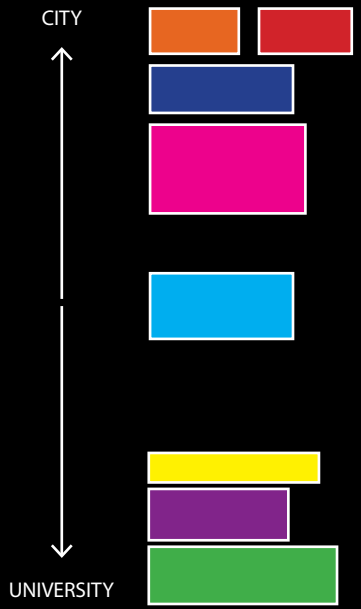


PROGRAM

The program consists of the following functions with the size of the blocks roughly representing the amount of space invested in each function.

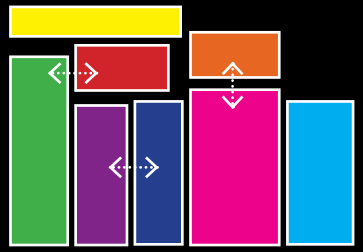
CITY VS UNIVERSITY RELEVANCY

Although each program is relevant to both the university and the city, a distinction must be made in order to help with the placement of each function in the most relevant setting (closer to the city or university).



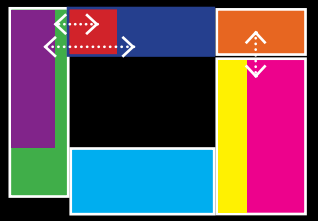
PROGRAM LINKAGES

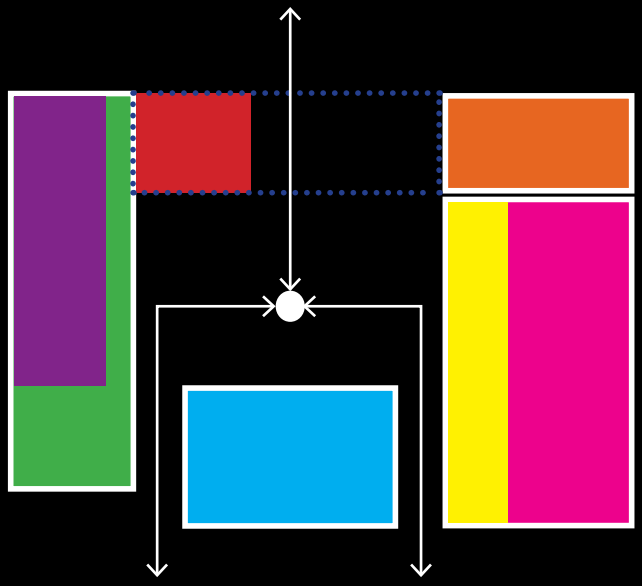
The next step is to introduce spatial linkages by evaluate how spaces should relate to each other.



REDISTRIBUTION

Redistribution involves moving the program with their links in place into the form required for the design, while also placing functions in their most relevant setting.





FINE TUNING

Lastly the layout needs to be fine tuned to allow for permeability.

Conceptual Program

CONCEPTUAL PROGRAM

"The combination of reciprocal sensory interferences becomes a compositional tool: sight, hearing and touch take turns in a succession of indefinite and simultaneous spatial perceptions." (Altro-studio)

The diagram depicts some concepts I picked up in the readings by Bloomer, Pallasmaa, and Gibson. Pallasmaa believes that the five senses are broken down into two groups: (1) vision and hearing are the "sociable senses" and (2) touch, taste, and smell are the "senses of private function" managed by a culture code. In addition to the five senses, Gibson believes there are two more senses: the basic-orienting and haptic sense. Pallasmaa goes into detail of what these senses might represent (vision-fire, touch-earth, taste-water, etc. –refer to diagram) and how the qualities/characteristics of the senses manifest different spatial qualities (vision-sense of separation and distance, touch-sense of doing, taste-material texture and weight, etc.)

Creating a design tool / Defining the senses

private senses social senses

Vision
fire & light + shadow
organ of seperation & distance.
extension of touch / unconciuos touch.

Hear
air
unconcious indicator of spatial volume.

Basic Orienting
balance
postural sense.
knowledge of ground plane.
body balance

Haptic
motion
five sensations: warmth, cold, pain, and kinesthesis (sensibility to motion)

j.j. gibson

Touch
earth
organ of intimacy and closeness.
divuldges on unconcious.

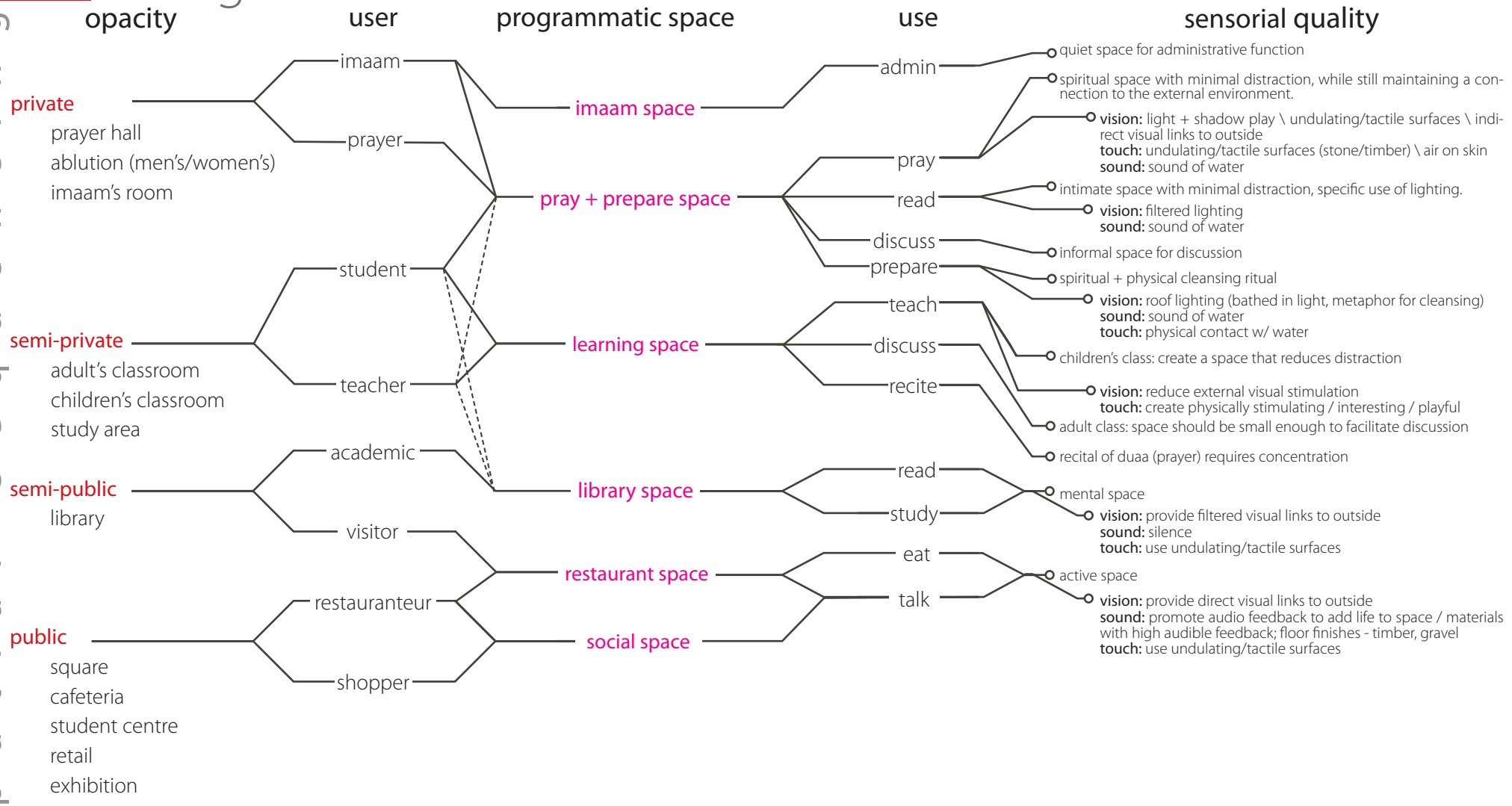
Taste
water
provides information on material texture + weight.

Smell
vapour
organ of favour / rejection
associative of quality of space.

j.j. gibson

Design Generators

Spatial Sequencing



PROGRAM GENERATOR 1

Step 1: Layering Spaces according to use + opacity (public - private) with the desired sensorial outcome for each space

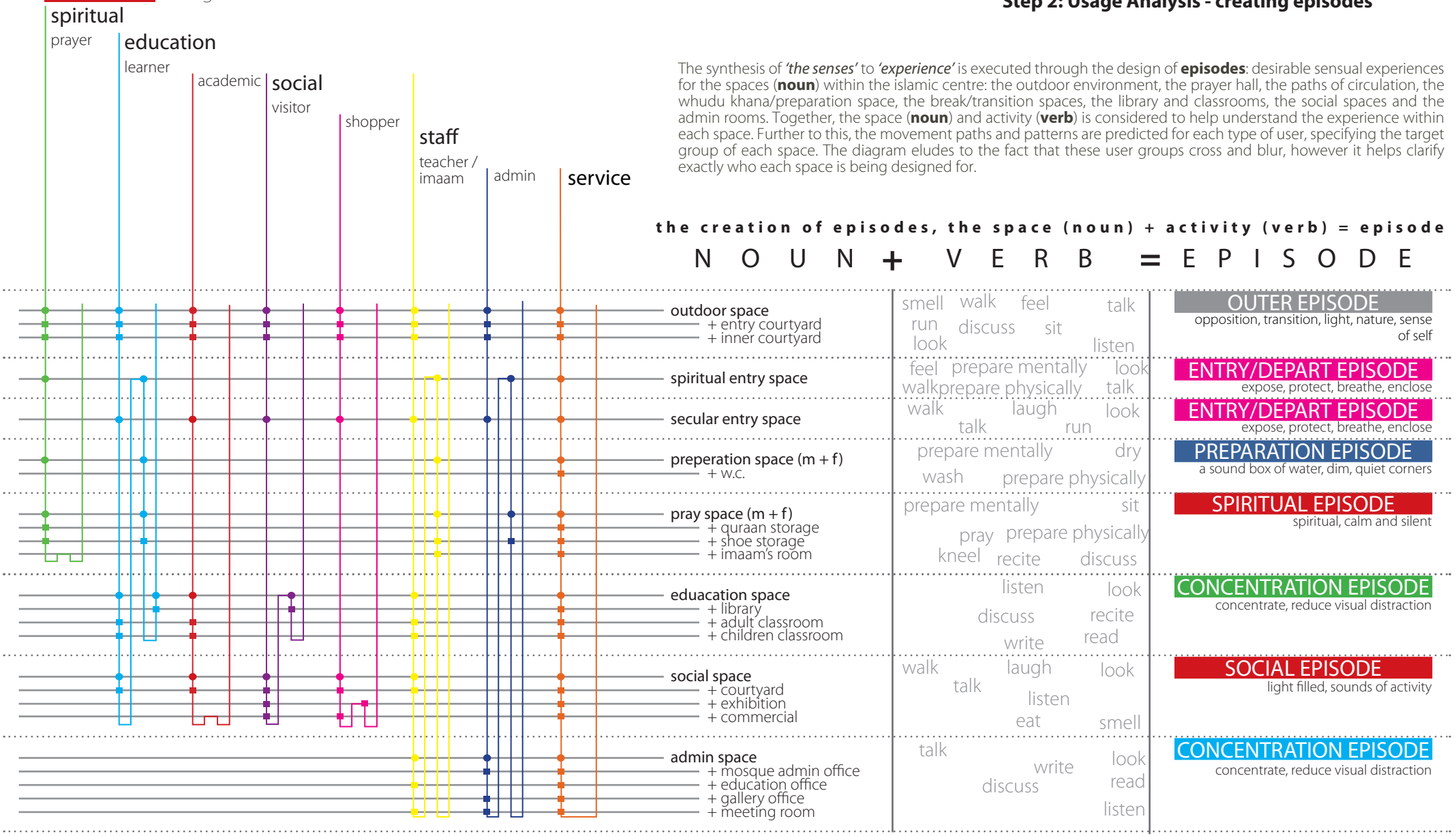
DESIGN GENERATOR 1

Step 2: Usage Analysis - creating episodes

The synthesis of ***'the senses'*** to ***'experience'*** is executed through the design of **episodes**: desirable sensual experiences for the spaces (**noun**) within the islamic centre: the outdoor environment, the prayer hall, the paths of circulation, the whudu khana/preparation space, the break/transition spaces, the library and classrooms, the social spaces and the admin rooms. Together, the space (**noun**) and activity (**verb**) is considered to help understand the experience within each space. Further to this, the movement paths and patterns are predicted for each type of user, specifying the target group of each space. The diagram eludes to the fact that these user groups cross and blur, however it helps clarify exactly who each space is being designed for.

the creation of episodes, the space (noun) + activity (verb) = episode

N O U N + V E R B = E P I S O D E



pause

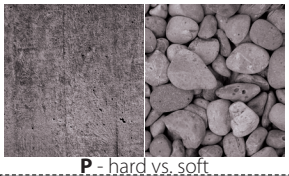
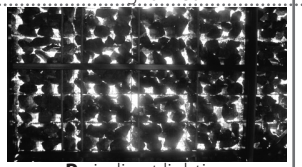
predicted movement patterns & pauses

Design Generator 2

DESIGN GENERATOR 2

Step 3: Using Episodes to create a Program Matrix

To avoid literal, unrefined and random gestures in the application of the senses to the program, an intermediate step is necessary. This step is a logical determination of sensual appropriateness within the program. The matrix explores a symphony of senses based on physical (**P**) sensations and projected mental associations (**M**) of memory and imagination to create a **lived experience**. On one axis (top - bottom) the **sensory modules** are listed, and on the other axis (left - right), the **spaces** and desired **episodes.** In each space of the building, one is forced to pose the question of what sensorial quality is inherently needed or desirable in the user's experience of that space. Although this may seem a highly subjective process—since different designers may think a certain sense is more inherent or desirable in a specific space, and indeed some spaces do have more than one sense associated with them—the use of the matrix is a clear and thorough method to finding a starting point for design, which—as the next section will elucidate—can be supported.

sensory modules	outer entry courtyards **oppositions**	entry/depart mosque foyer **identify**	culture space exhibition space **learn/explore**
see	 **P** - hard vs. soft	 **M** - filtered light	 **P** - light filled
	 **M** - falling water	 **P** - unconcious touch	 **P** - indirect lighting
hear	 **P** - city sound vs nature sound	 **P** - sound of falling water	 **P** - sound of footsteps
touch	 **P** - touch- hard vs. soft	 **P** touch (touch of stone)	
	 **P** - massage feet		
taste	 taste/smell of water *		
smell			

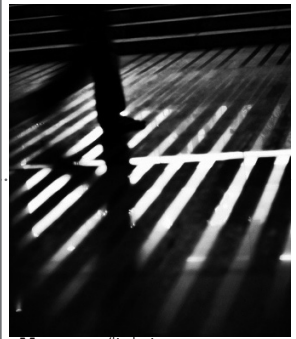
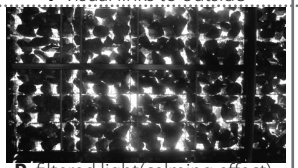
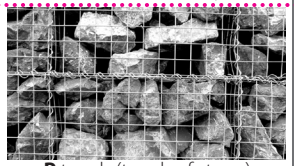
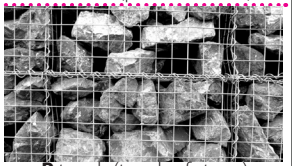
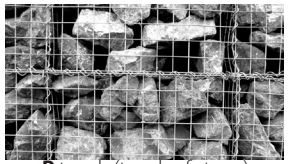
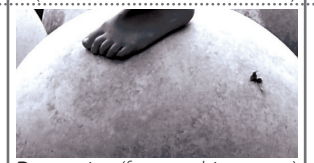
P - physical interaction
M - mental interaction

The graphics/diagrams within the matrix are the desirable sensual outcomes chosen according to the senses(top - bottom) and reflected in each space + episode(left - right)

program

***** - N/A architectural outcome / minimal interaction

matrix

prepare whudu khana **preparation/cleansing**	pray space **spiritual/transparent**	social space cafeteria, student centre **social/active**	learn space library, classrooms **concentrate**	ancillary space admin/office space + utility room + teachers lounge + imaams room + corridors + meeting room **various**
 **P**+**M** falling water (sensation, harmony)	 **P** visual links to outside	 **P** visual links to outside	 **M** temper/lighting (warmth/comfort)	 **P** light as a navigation tool
	 **P** filtered light(calming effect)	 **P** light filled space		 **P** filtered light
 **P** (sound/touch of water on skin)	 **M** silence (peace of mind)	 **P** (sound of footsteps)	 **M** silence (peace of mind)	
	 **P** sensation (soft/smooth)	 **P** touch (touch of stone)	 **P** touch (touch of stone)	 **P** touch (touch of stone)
 **P** sensation (feet touching stone)	 **P** touch (touch of stone)			

sensory

the senses

social senses

see

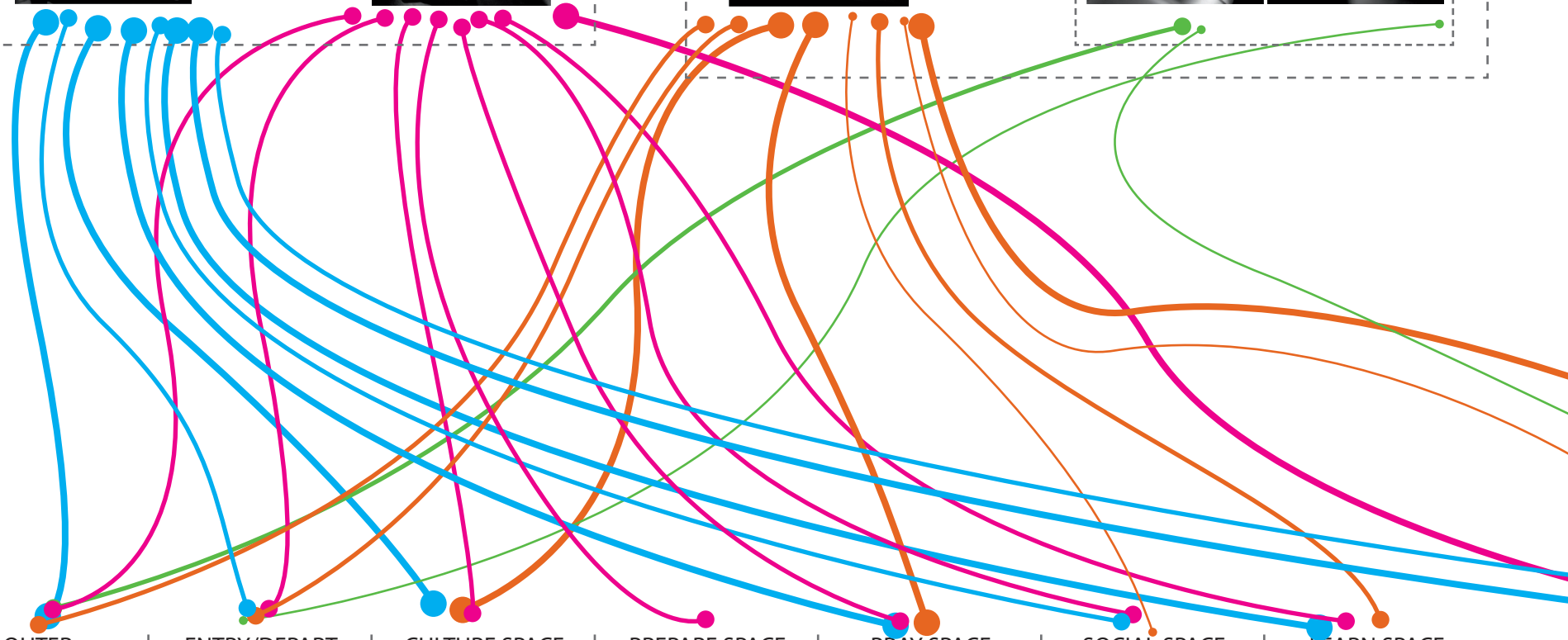
hear

private senses

touch

smell,taste-considered as one

senory linkages + intensities



sensory hierarchy episode

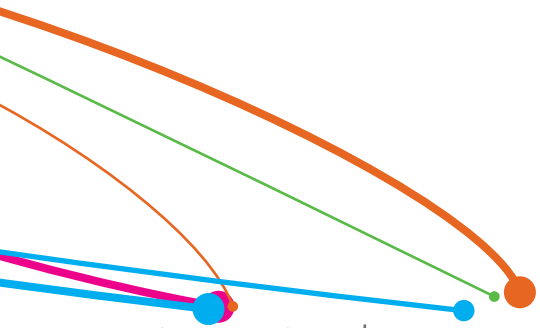
fed from matrix (pg. 72-74)

OUTER	ENTRY/DEPART	CULTURE SPACE	PREPARE SPACE	PRAY SPACE	SOCIAL SPACE	LEARN SPACE
•visual links(inside-outside) •light + shadow •falling water •falling water •massage feet •smell of water •smell of nature (flora)	•filtered light •light + shadow •unconscious touch •falling water •massage feet •smell of water	•light filled space •visual links to outside •sound of footsteps •touch of stone	•sound of water	•visual links to outside •filtered light •light + shadow •sound of water •silence •physical contact with stone	•visual links to outside •light filled space •sound of footsteps •touch of stone	•reduce visual distraction •filtered light •filtered views •silence •touch of stone

episodes - layout ordered according to the senses

public → private

layering



CIRCULATION	ADMIN
•filtered light •filtered views •visual links to outside •sound of footsteps •touch of stone	•physical contact w. stone •physical contact-massage •visual links(inside-outside)

DESIGN GENERATOR 3

Step 4: Layering the senses according to The Program Matrix

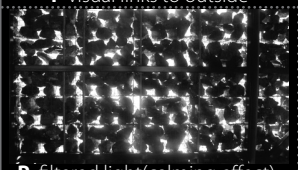
The next step in the process of translating the senses to design is to focus on attuning / determining a hierarchy to the senses based on information provided by the previous analysis (design generator 2). The previous matrix solidified the relationship between the senses and space based on the spatial qualities/characteristics that the senses manifest in each space. The subsequent task of this generator is to layer these appropriated senses according to their experiential quality based on activity, (the function of each space) as well as intimacy (level of privacy) of each space. This step is important as it has a bearing on the spatial and tectonic language that will be implemented in the final design. By layering the senses according to their appropriateness and experiential qualities, it solidifies and refines the sensual qualities of each space to a accommodate the most relevant senses first. While eventually many more aspects of the building will need to be thought of, these key relationships will become the first problems to address in beginning a design solution.

Mosque sequence

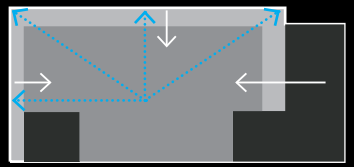
DG2 CLEANSE/SPIRITUAL

The mosque forms a node of spirituality, an intimate space and a place for informal discussion. Themes of **transparency and opacity** come into play. The foyer of the mosque is kept transparent and open to external (visual, audible and tactile) stimuli. Sensual stimuli resolved in the tectonic language include; the use of , steel, glass and stone to promote transparency, allow light in and promote our sense of touch both physically (the act of physically touching stone) and mentally (unconscious touch / seeing the undulating nature of stone). The nature of the mosque is such that it need be as open as possible, highlighting the culture of Islam to those visiting the Islamic Centre, while still maintaining a degree of spirituality.

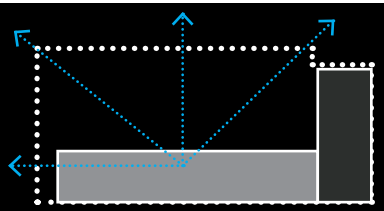
PROGRAM MATRIX

prepare whudu khana **preparation/cleansing**	pray space **spiritual/transparent**
 **P+M** falling water (sensation, harmony)	 **P** visual links to outside  **P** filtered light(calming effect)
	 **M** silence (peace of mind)
 **P** sensation (feet touching stone)	 **P** sensation (soft/smooth)  **P** touch (touch of stone)

OPACITY



GROUND



FIRST

movement
views
filtered views

open / transparent
semi-transparent (can be closed)
closed / private

Maintain **visual** links to outside /Allow light in / Filtered views - imply a facade not completely visually penetrable, therefore reduce visual distraction while still allowing filtered light to penetrate the facade. The circulation is completely visible, while the prayer hall is interchangeable between open and closed through folding doors.

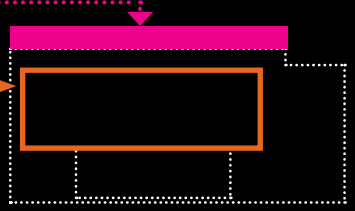
USAGE

GROUND

FIRST

spiritual
cleansing + secular

SENSORIAL STIMULI



GROUND

FIRST

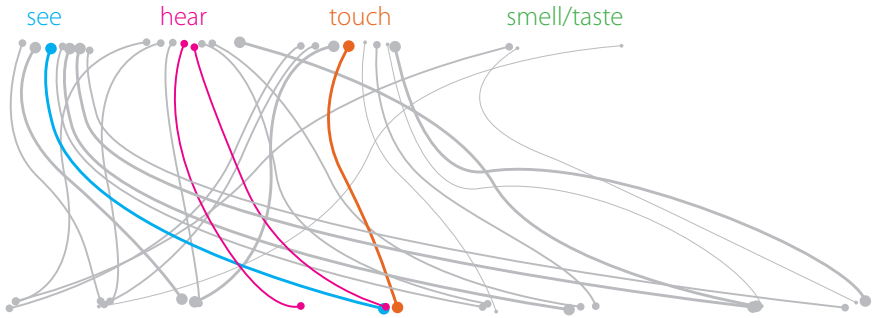
stone wall
water

SIMPLE ARCHITECTURE + SILENCE

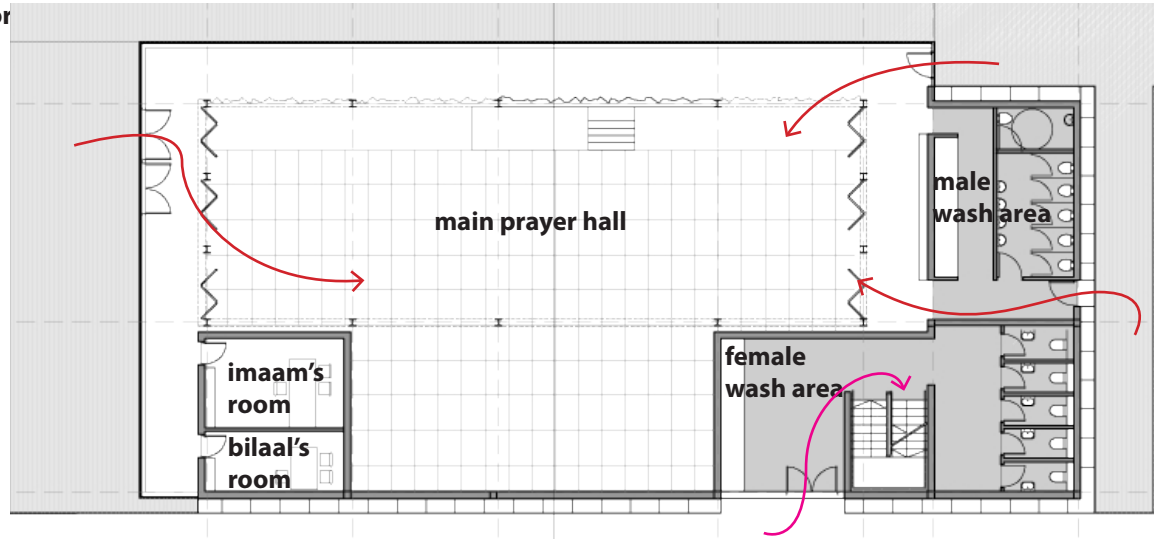
Buildings that continue to captivate us are free of "isms", free of superficial "good taste" and superfluous additives[Blaser, 2001; 15]. The view of empty space reflects the architectural expression of restraint and the ingenuity of unsurpassable clarity in spatial treatment, achieving tranquillity in monastic solitude (p. 13).

The architecture should be rigorously reduced and refined in order to allow nature to penetrate into the interior (p. 25). Architecture of simplicity is introspective, creating a mood that exudes an atmosphere of harmony and an appeal for silence. Architecture of silence facilitates the process of ritual and allows it to come to the foreground. The building is to act as backdrop for events and activities to play out. Simplicity means loyalty to oneself, the ultimate goal being clarity (p. 17). Religion is expressed as a public ritual but depends on the introspective journey of individuals. Utilising emptiness releases the intensity of the introspective experience (p. 87). The architecture allows for internal reflection to occur. Internal purity is restrained to the point of monastic silence, although it never neglects cheerfulness. Moments of silence are gifts. In silence we feel at home (p. 15).

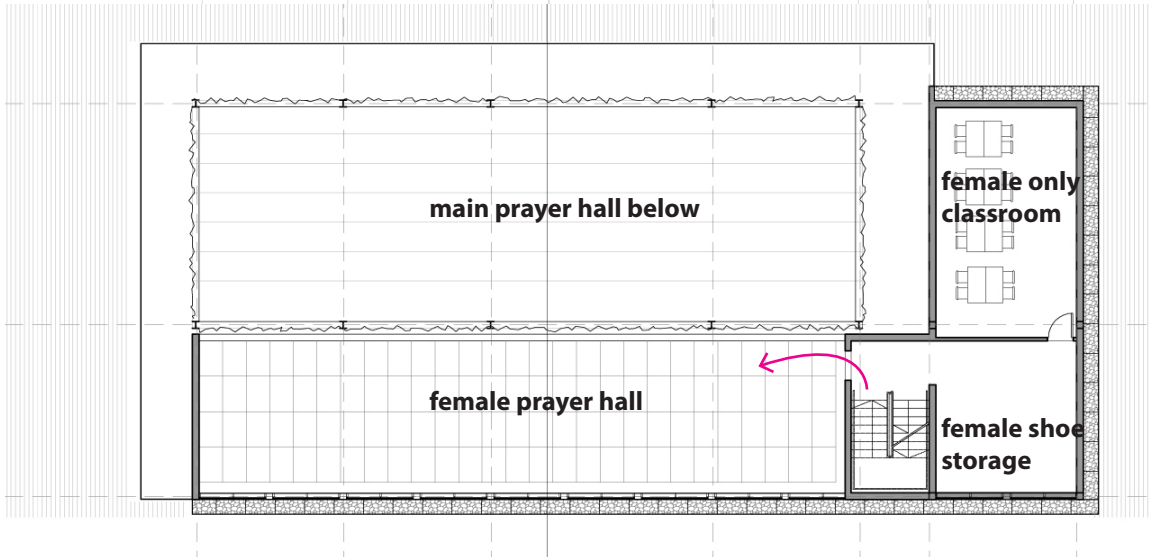
DG3

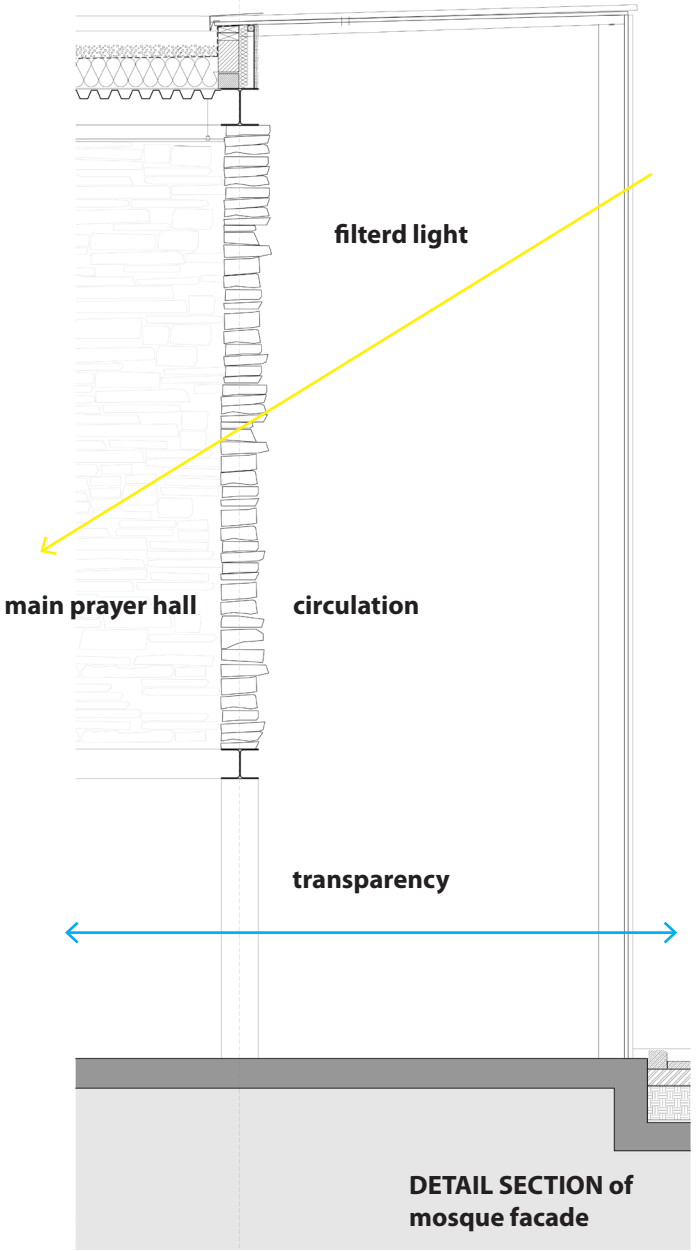


Ground Floor



First Floor





Culture space

DG2

LEARN/EXPLORE

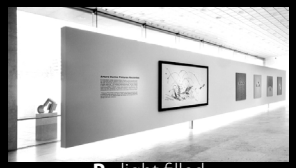
The exhibition space becomes an intimate space, light should be allowed in, without direct views / light into the courtyard except at circulation areas to reduce visual distraction.

PROGRAM MATRIX

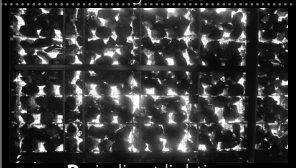
culture space

exhibition space

learn/explore



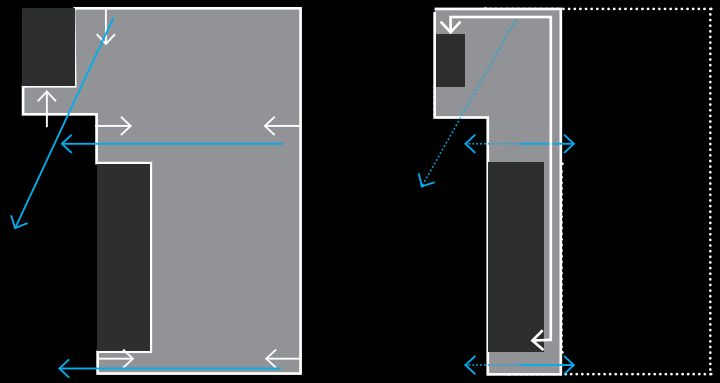
P - light filled



P - indirect lighting

P - sound of footsteps

OPACITY



movement

filtered views

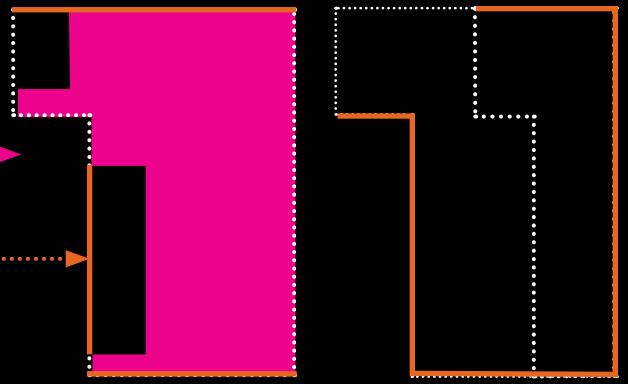
open / transparent

views

closed / private

possible floor finishes that relate to both sound (the audio feedback emitted as you walk) and touch (the physical sensation as you walk over a material)

SENSORIAL STIMULI



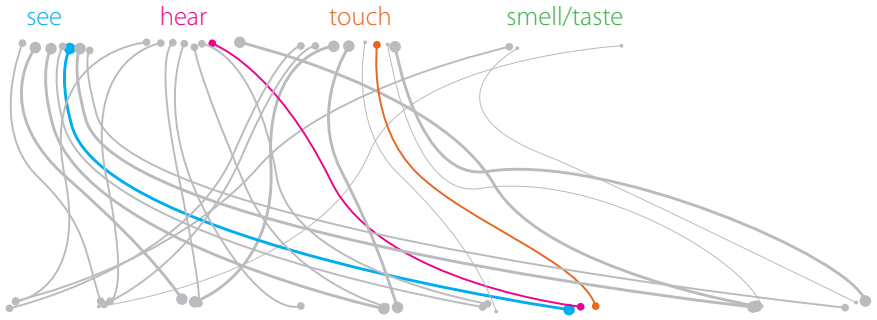
USAGE

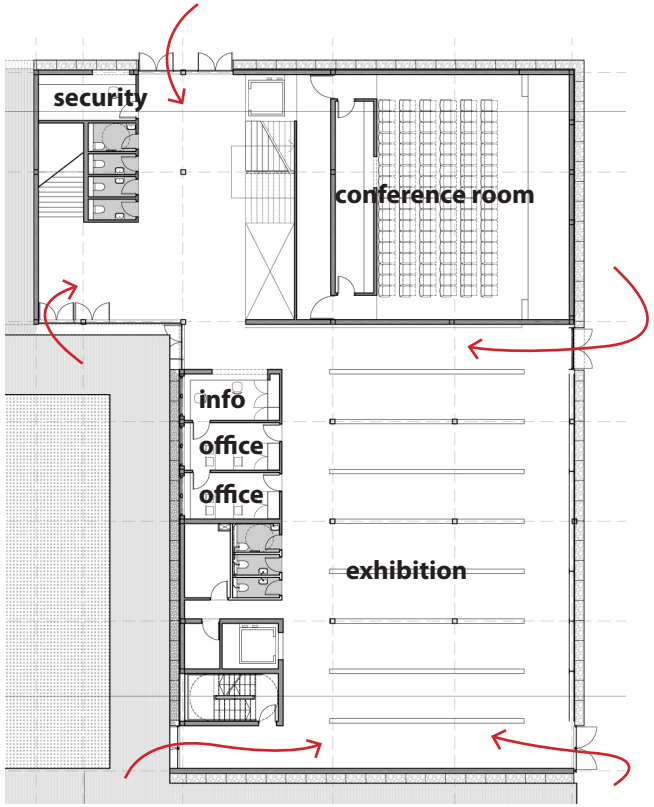
conference

cultural

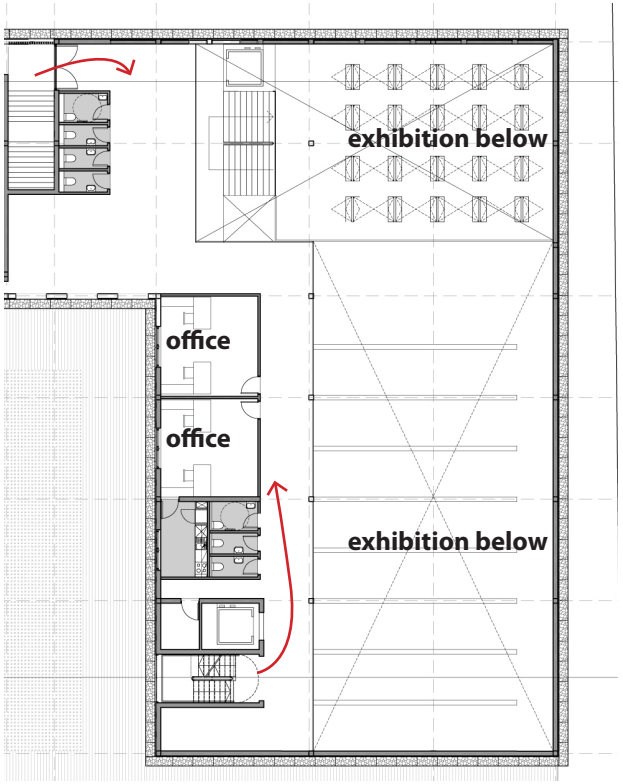
admin / circulation

DG3

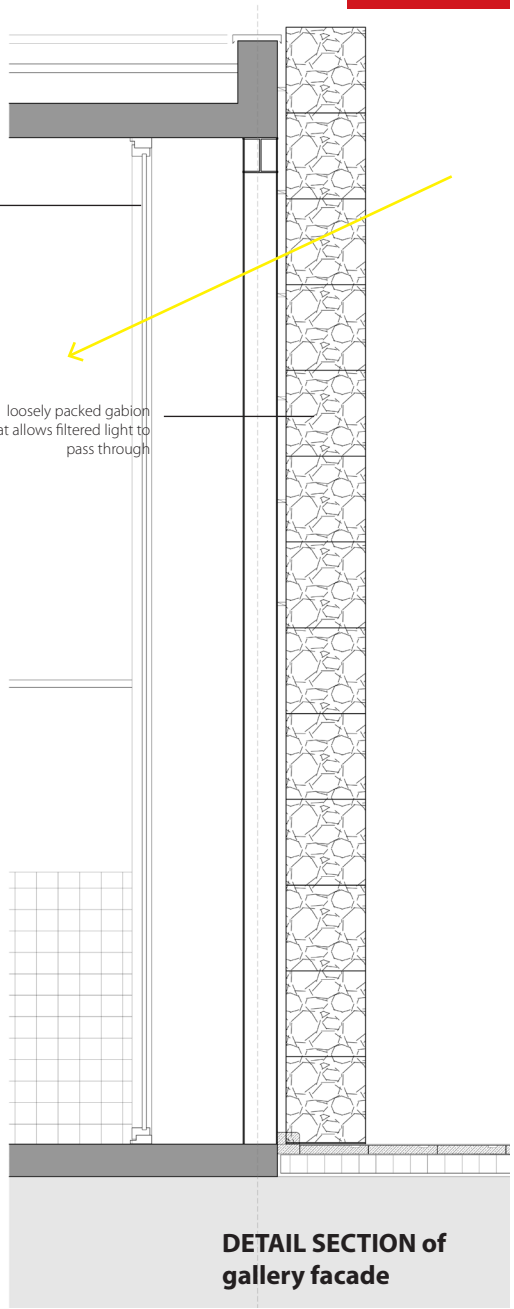




Ground Floor



First Floor



DETAIL SECTION of gallery facade

Design : Design development

Social + Learn space

TRANSPARENT, ACTIVE / MENTAL,INTIMATE SPACE

DG1

DG2

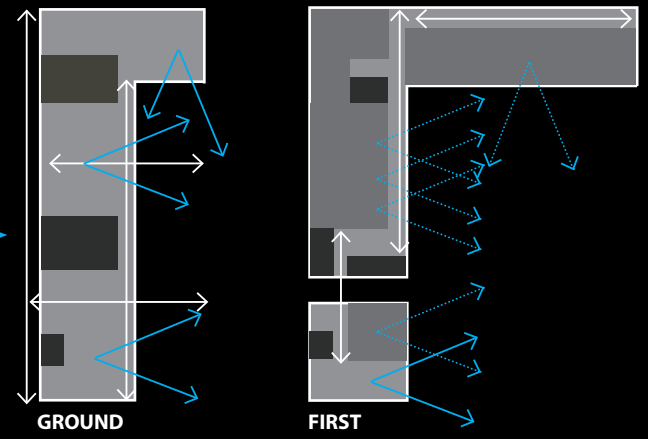
SOCIAL/ACTIVE/CONCENTRATE

The social + educational nodes have two contrasting ideals. The social spaces need to maintain direct visual links to the central courtyard. This visually links inside and outside while at the same time relates to the theme of transparency. The educational node on the other hand is introverted. Direct visual links are seen as distracting, therefore the design incorporates the gabion walls system to allow filtered light into the space.

PROGRAM MATRIX

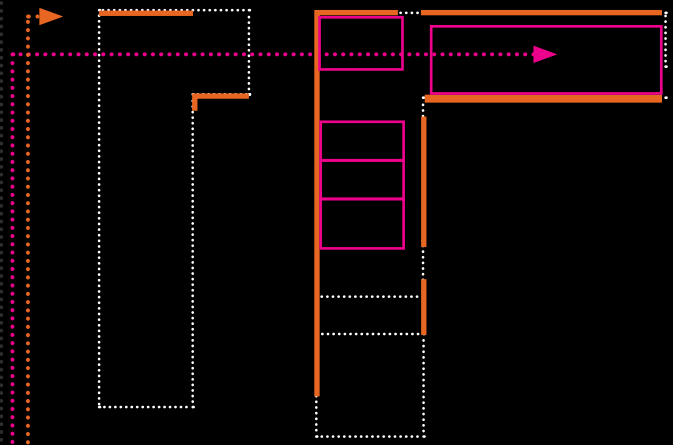
social space cafeteria, student centre **social/active**	learn space library, classrooms **concentrate**
 **P** visual links to outside	 **P** filtered view / lighting
 **P** light filled space	
 **P** (sound of footsteps)	 **M** silence (peace of mind)
 **P** touch (touch of stone)	 **P** touch (touch of stone)

OPACITY



Maintain visual links to outside /Allow light in / Filtered views - imply a facade not completely visually penetrable, therefore reduce visual distraction while still allowing filtered light to penetrate the facade.

TACTILE STIMULI

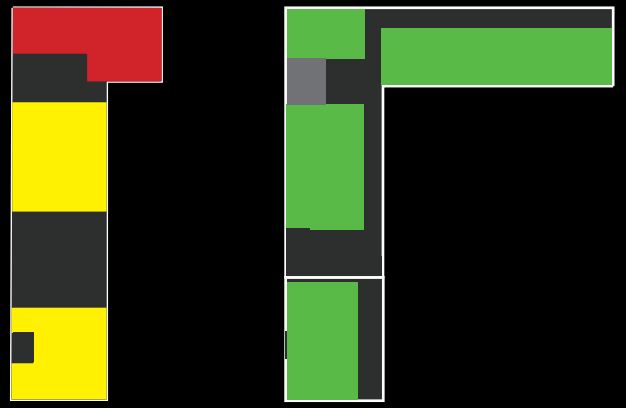


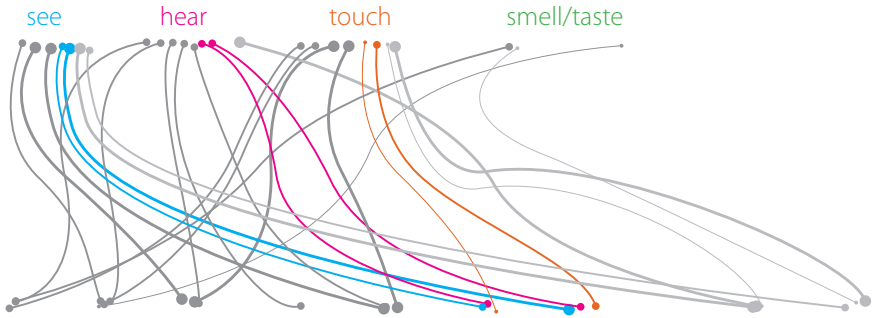
Similar functions, such as the library, classrooms & workshop are grouped together to reduce unassociated noise

INSIDE - OUTSIDE

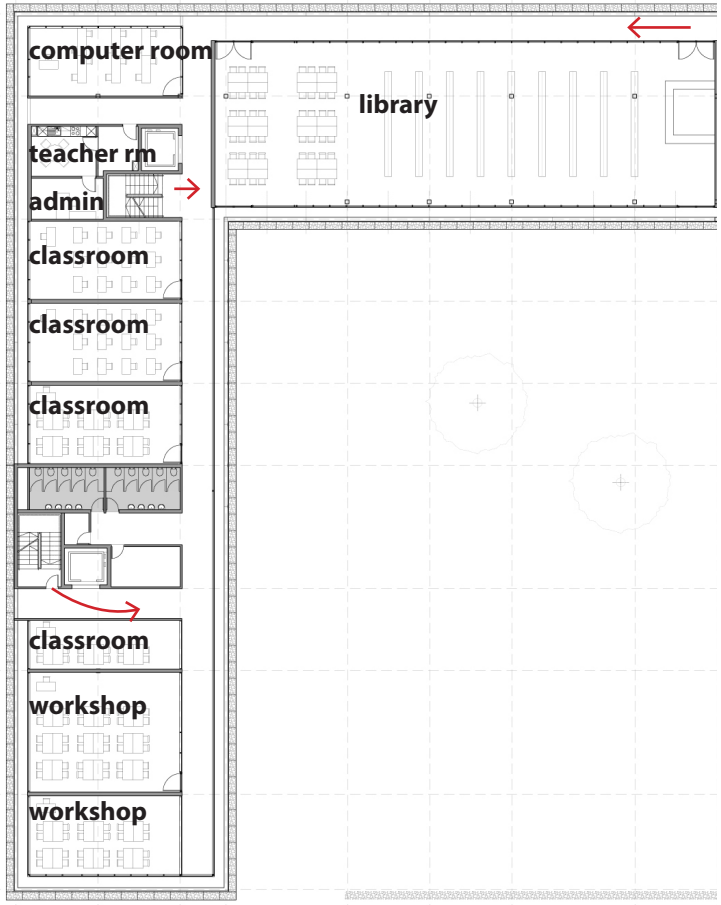
The emphatic unity of buildings and nature maintains the vitality of a unified spatial arrangement. Such a design captures the harmony between "interior space" and "exterior space". As a result a "pure space" generates a sense of well-being (Blaser, 2001 p. 17).

USE

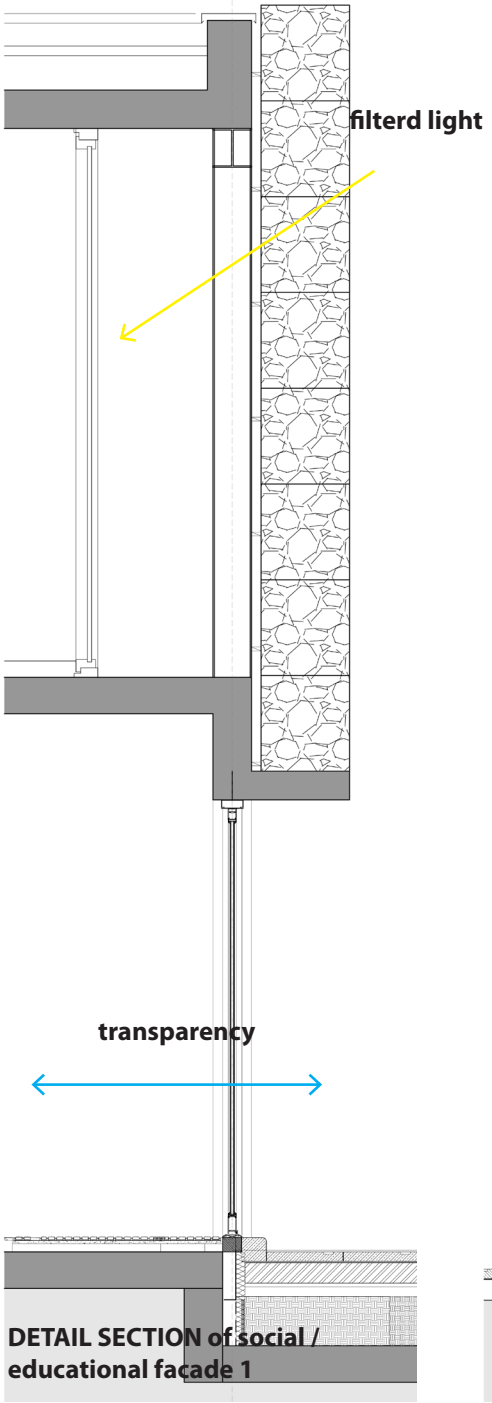




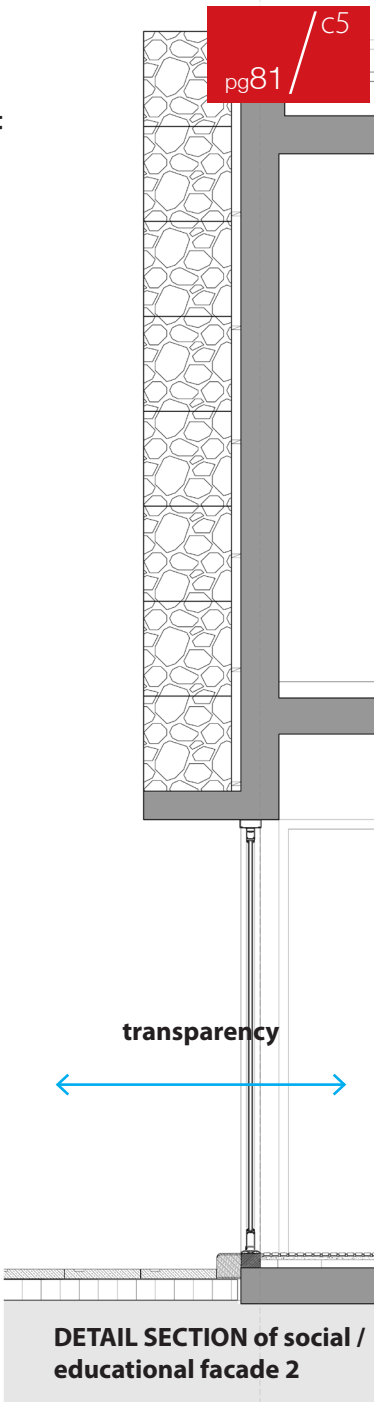
Ground Floor



First Floor

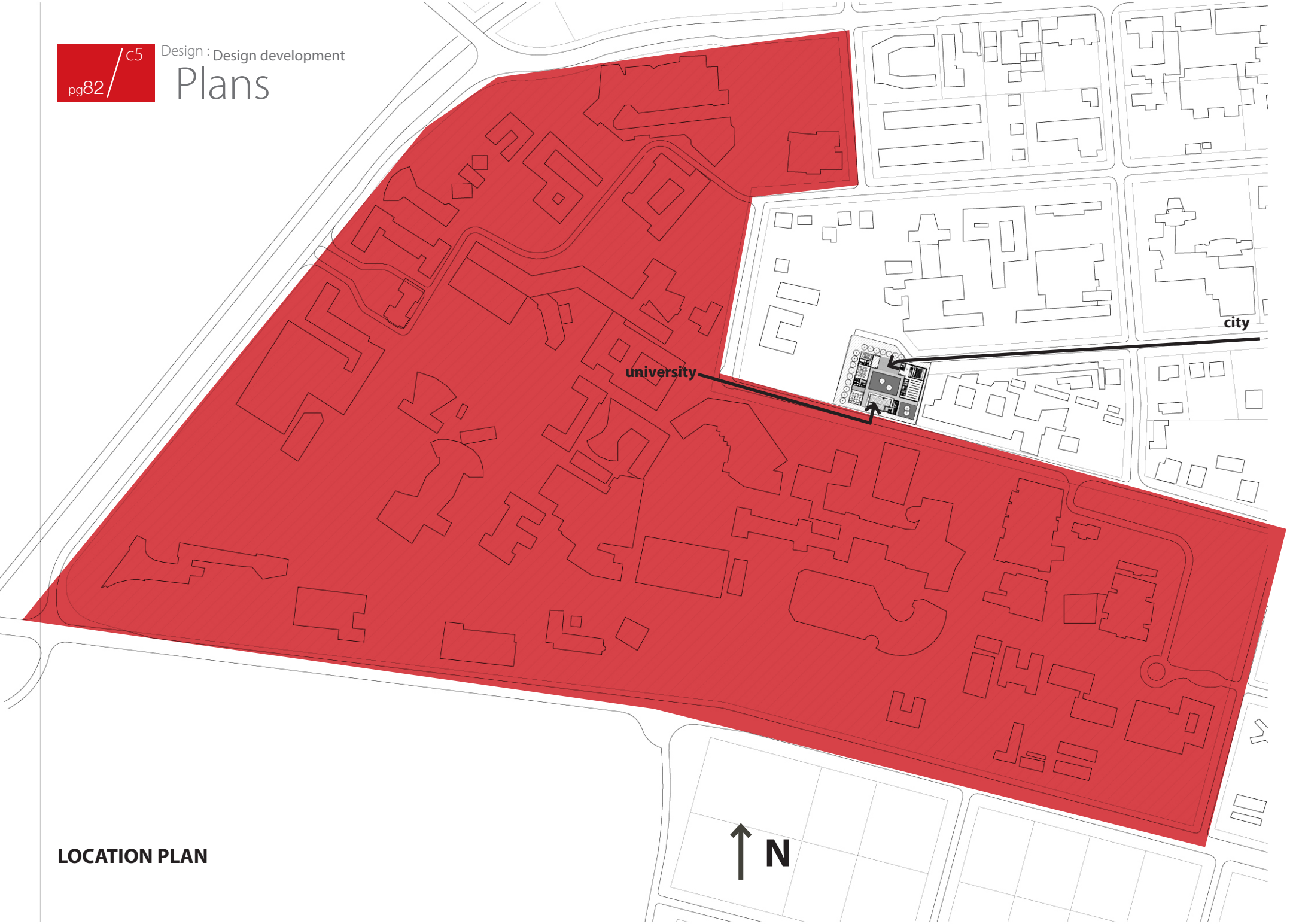


DETAIL SECTION of social / educational facade 1

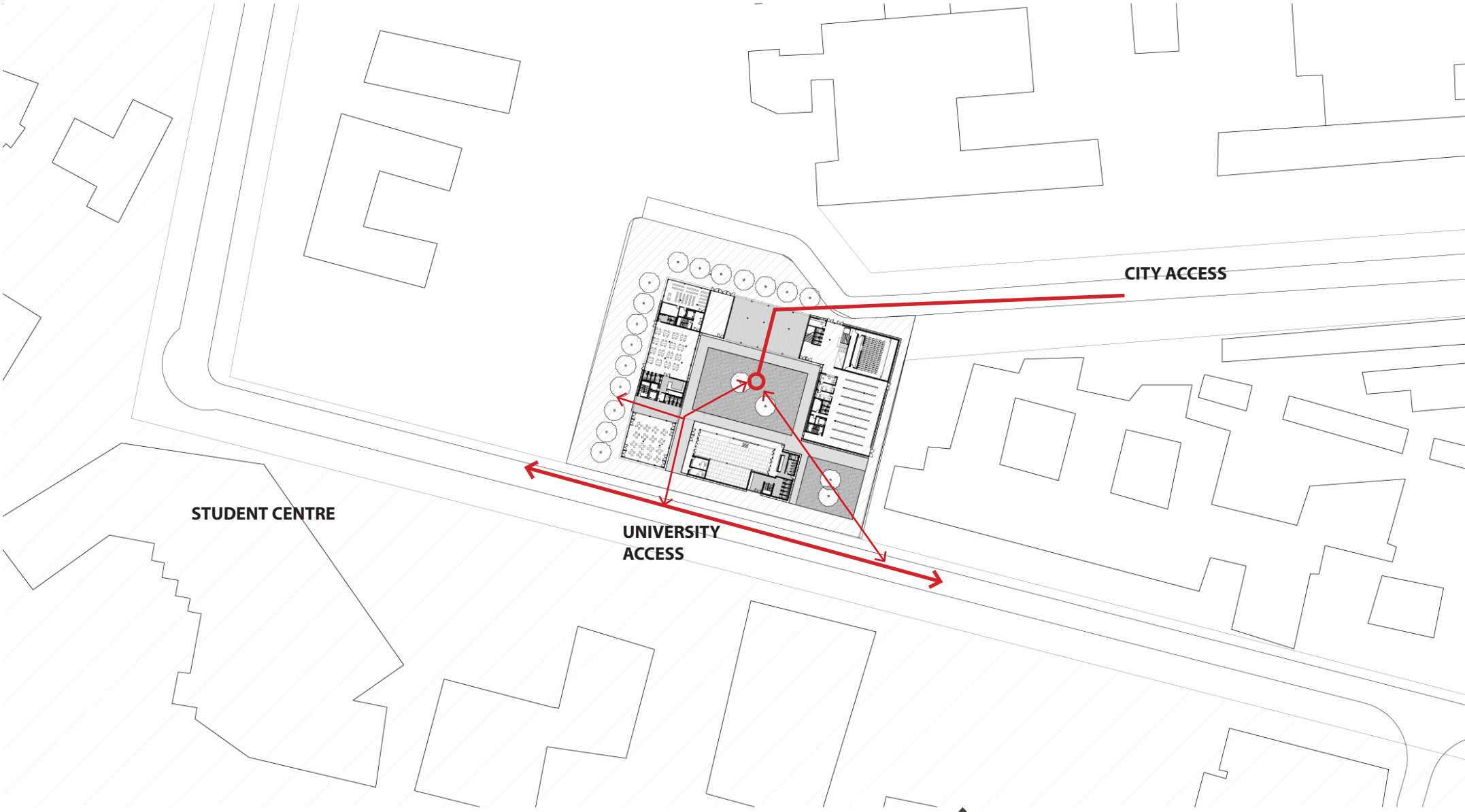


DETAIL SECTION of social / educational facade 2

Plans



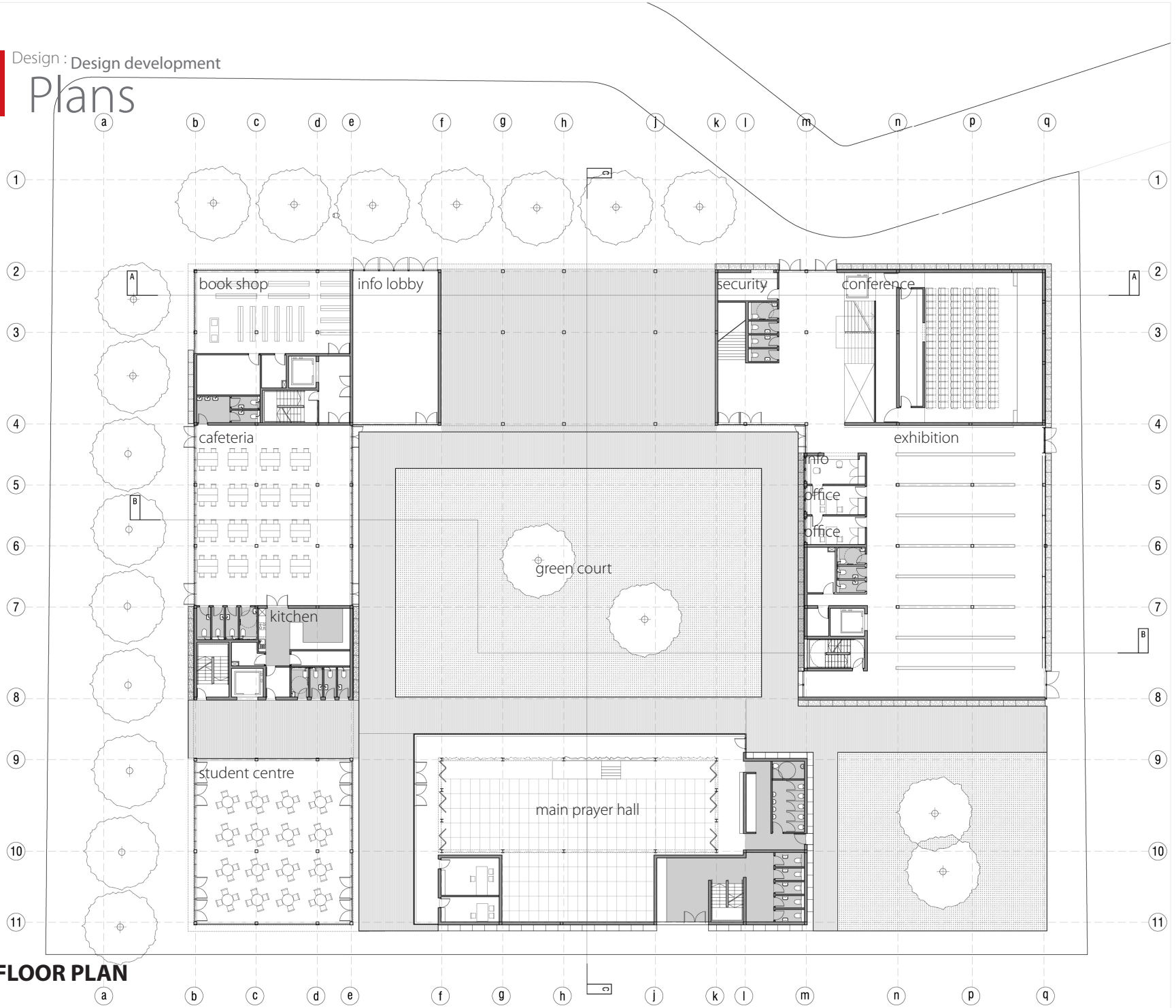
LOCATION PLAN



LOCATION PLAN SHOWING CITY LINK

Design : Design development

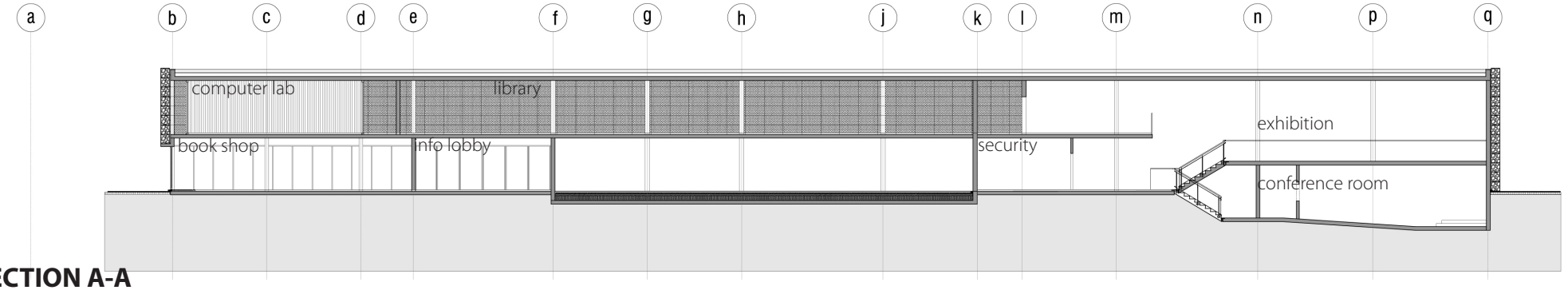
Plans



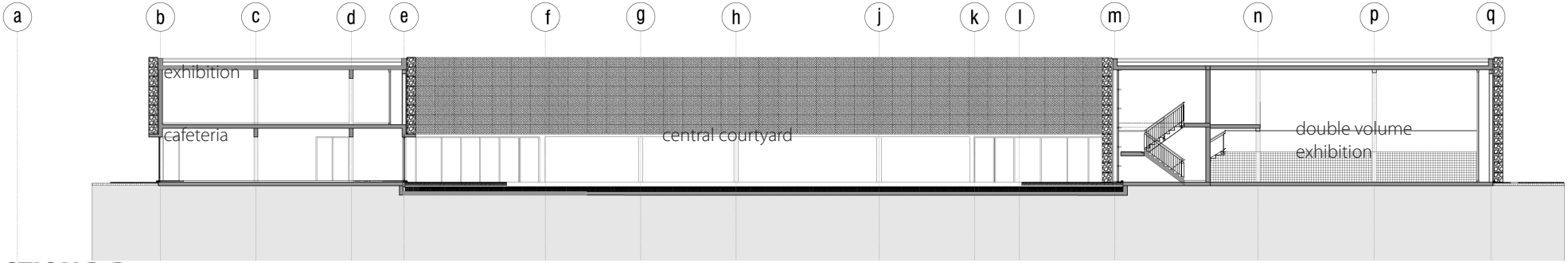
GROUND FLOOR PLAN

FIRST FLOOR PLAN

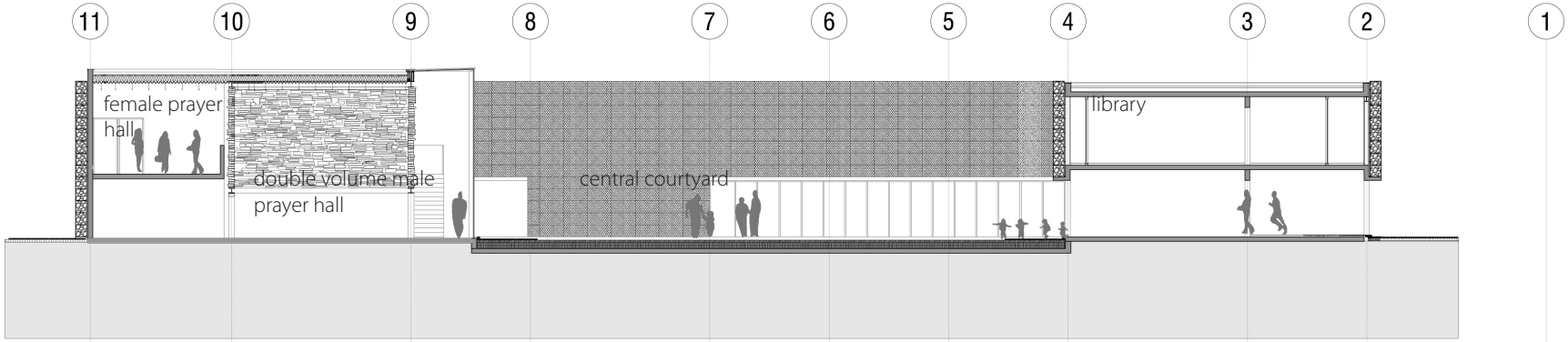
Sections, Elevations



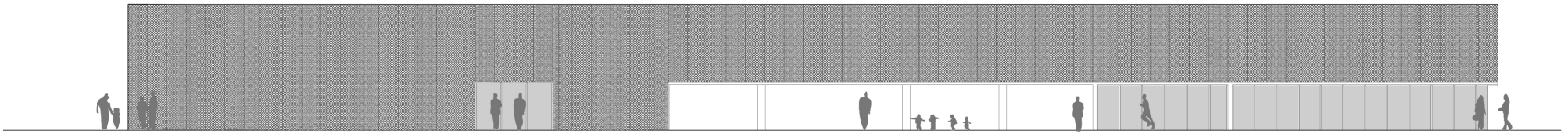
SECTION A-A



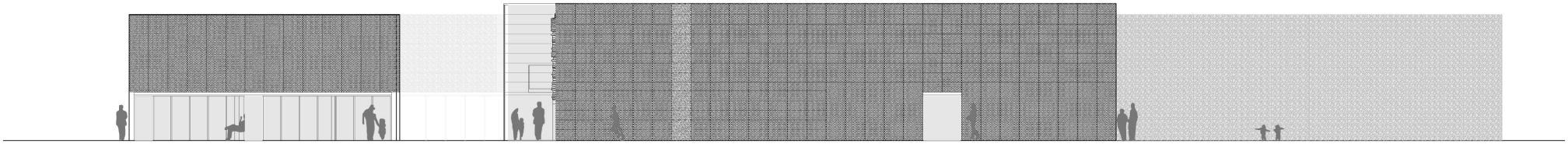
SECTION B-B



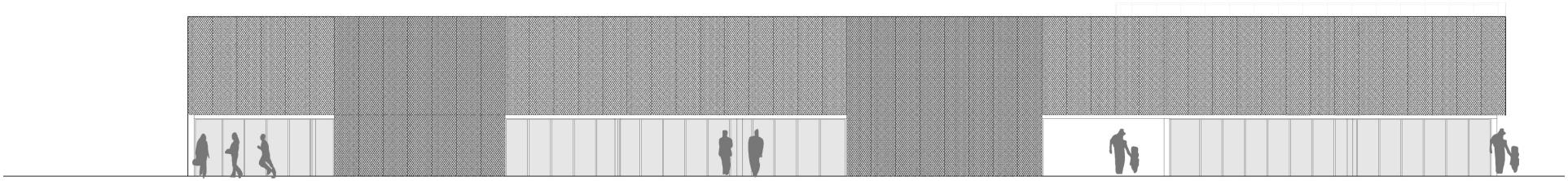
SECTION C-C



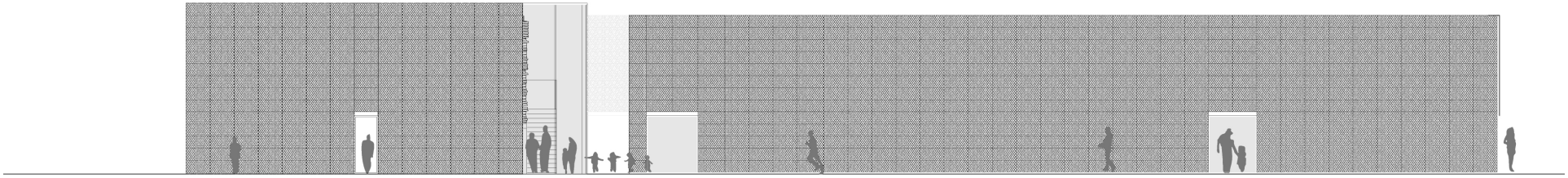
NORTH ELEVATION



SOUTH ELEVATION



WEST ELEVATION



EAST ELEVATION

References

Altro-studio Architecture Pierced [Online] // Altro-studio. - 8 March 2009. - http://www.architecture-page.com/go/people/profiles/altro-studio.

Ando Tadao and Drew Philip Architecture in detail: Church on the Water, Church of the Light [Book]. - London : Phaidon, 1996.

Baudrillard Jean Simulacra and Simulation – The Implosion of Meaning in Media [Book]. - [s.l.] : University of Michigan Press, 1995.

Blaser Werner Tadao Ando: architektur der Stille / Architecture of Silence [Book]. - Basel : Birkhäuser, 2001.

Bloomer Kent C. and Moore Charles W. Body, Memory, and Architecture [Book]. - New Haven : Yale University Press, 1977.

Eisenman Peter Free Spirit in Architecture – Visions Unfolding. Architecture in the age of Electronic Media. - [s.l.] : Domus, 1992. - Vol. 734. - 17-24.

Harvey David Time - Space Compression [Book Section] // Modernity: Critical Concepts / book auth. Waters Malcolm. - [s.l.] : Routledge, 1999.

Hoete Anthony ARTWORKER OF THE WEEK #66 [Interview]. - London : KULTUREFLASH, 21 04 2007.

Holl Steven Intertwining [Book]. - New York : Princeton Architectural Press, 1996.

Lefebvre Henri The Production of Space [Book Section] // Rethinking Architecture: A Reader in Cultural Theory / book auth. Leach Neil. - London, UK : Routledge, 1997.

Moore Charles W and Bloomer Kent C Body, Memory and Architecture [Book]. - New Haven and London : Yale University Press, 1977.

Norberg-Schulz Christian Genius Loci, towards a Phenomenology of Architecture [Book]. - New York : Rizzoli, 1980.

Paige John C and Harrison Laura Woulliere Out of the Vapors: A Social and Architectural History of Bathouse Row [Journal]. - Hot Springs National Park : U.S. Department of the Interior, 1987.

Pallasmaa Juhani Hapticity and Time: Notes on fragile architecture [Journal]. - [s.l.] : The Architectural Review, 2000. - May.

Pallasmaa Juhani The Eyes of the Skin [Book]. - Great Britain : John Wiley & Sons, 2005.

Pallasmaa Juhani The Geometry of Feeling: A look at the Phenomenology of Architecture [Book Section] // Theorizing a New Agenda for Architecture / book auth. Nesbitt Kate. - New York : Princeton Architectural Press, 1986.

Pallasmaa Juhani Touching the World - architecture, hapticity and the emancipation of the eye [Conference] // Presentation of the Honorary Guest by Per Olaf Fjeld. - Helsinki University of Technology, School of Architecture, Helsinki, FINLAND : [s.n.], 2005.

Pare Richard Tadao Ando; The Colours of Light. - Octagonal Gallery, Montréal : CCA, 1997.

Schmid Peter Stone and Water [Book Section] // Peter Zumthor's Therme. - Vals, Switzerland : Hotel Therme, 2006.

Wolfe Tom From Bauhaus to Our House [Book]. - [s.l.] : Farrar, Straus & Giroux, 1981.

Zumthor Peter Atmospheres: Architectural environments and surrounding objects [Book]. - Baden : Birkhäuser, 2006.

Zumthor Peter Peter Zumthor Works: buildings and projects 1979-1997 [Book]. - Baden : Lars Müller, 1998.

Zumthor Peter Thinking Architecture [Book]. - Basel, Switzerland : Birkhauser, 1998.