

URBAN HOUSING  
BUILDING FOR THE BODY AND MIND

The goal of this research report is to encourage critical thought on the architecture of urban housing, and to provide alternatives to paradigm of archetypal design solutions. Research within this report explores various theoretical understandings of our relationship with dwelling, material, resources, and ourselves. The findings of this research will be will be presented as a collection of vignettes that describe the challenges and possibilities surrounding each respective topic.

## Theory

The phenomenologist Merleau-Ponty suggested the value of people's experience of the world is gained through their immediate bodily interaction with it. This perspective experience of space places the architect to design for the experiences engendered rather than on abstract rationales that may or may not affect viewers and users of architecture. A similar viewpoint comes from Bachelard in *The Poetics of Space* who comments on lived experience in architectural places with emphasis on the personal, emotional response to buildings. Bachelard also stresses the individuals understanding of architecture's context in nature, suggesting moments of design should reference the macro-scale context: sun, rivers, mountains, and the like, in addition to the micro scale. In *Simulacra and Simulation*, Baudrillard places the context of architecture and society at a disconnected from reality. This is a result of our world of things that are produced referencing other man-made things ad infinitum. This disregards any need for a reality, and suggests all ideas, designs, or otherwise are simply a recycling of what's been done before with no base in reality: the simulacrum. This suggests searching for design solutions outside the realm of referencing buildings or other creations of man. To establish an understanding within this world of things, Heidegger revealed our relationship to dwelling through the fourfold of earth, sky, mortals, and divinities. In this fourfold, humans exist in their dwelling which is done right by "sparing the earth" and maintaining its true nature without exploiting it.

This concept can be related to Baudrillard, Bachelard, and Merleau-Ponty, in that there is a search for answers beyond the world of man's creation. Specifically considering architecture, Juhani Pallasmaa has criticized the ocular centric paradigm of western culture. To address this, he suggests creating a multisensory experience of architecture. He expresses sensory experience of space through walking in a forest, sunlight filtered through trees, sounds and smells of nature surrounding the individual, the feeling of wind and sun on the skin. This suggests that design should be considered with more than the final rendering or visual in mind. All senses must be considered in an intentional design to guide the spirit of the space. In addition to a sensory understanding of space, he also places importance on an individual's sense of belonging and integration, allowing the individual to have purpose. Schulz, like Pallasmaa, emphasizes a sense of belonging and purpose, considering meaning to be the primary human need. Similar to Merleau-Ponty, Baudrillard, and Heidegger, Schulz also advocates for referencing our real world of things. "Our world consists of trees and flowers, rocks and mountains, rivers and lakes, animals and humans, houses and artifacts." Through this, we can make architecture intelligible and thereby human. Commenting on the architecture of our time, he describes a balance between traditional architecture and its postmodernism rebellion. Where many contemporary architects lose themselves in arbitrary play with motifs, he suggests responding to the *genus loci* and local context rather than an unfamiliar abstract global context.

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- Design for experiences
  - Reveal context within nature
  - Reference real world of things
  - Design outside simulacrum
  - Maintain nature and the fourfold
  - Consider all senses
  - Foster belonging and purpose

## LIGHT

Light is a basic and immutable force of nature; we literally cannot live without it. It animates life, allows us to see, stirs weather patterns, sustains plant life, and thereby feeds animal life. "All material in nature, the mountains and the streams and the air and we, are made of Light which has been spent, and this crumpled mass called material casts a shadow, and the shadow belongs to Light" – Louis Kahn. This presence of the sun in all things is eloquently demonstrated in a quote by Buckminster Fuller, "Pointing to the logs burning in the fireplace, one child asks, 'What is fire?' I answered, 'Fire is the sun unwinding from the tree's log.'"

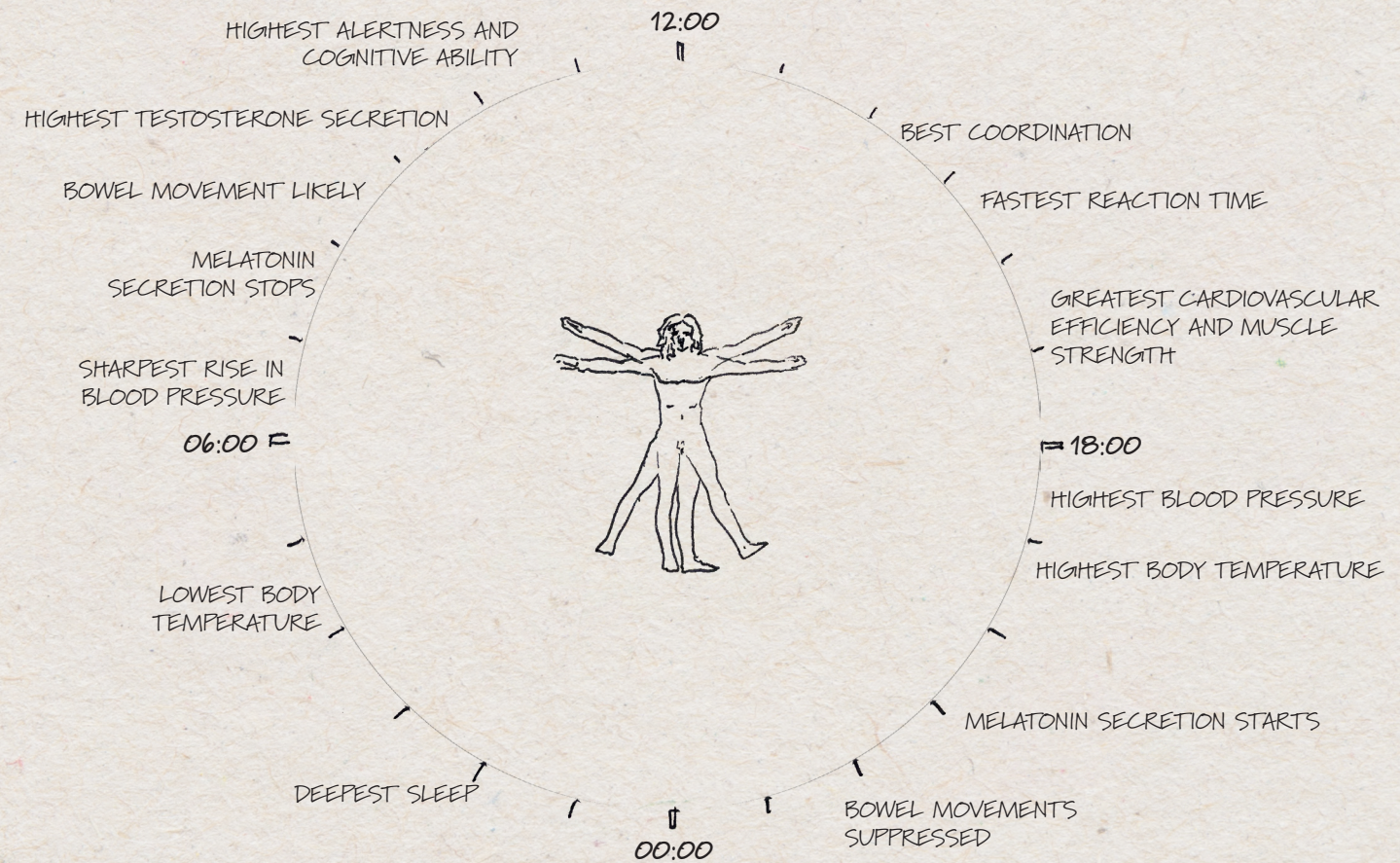
In contrast to conventional approaches in modern design, which use spaces as luminaire showrooms that suggest the more light the better, poetic design creates atmospheric spaces in which light and dark are experienced in harmony. "Homogenous bright light paralyzes the imagination in the same way that homogenization of space weakens the experience of being and wipes away the sense of place...The imagination and daydreaming are stimulated by light and shadow" - Juhani Pallasmaa

The omnipresence of artificial lighting can disrupt and break your circadian rhythm, as exposure to light both resets the circadian rhythm of melatonin and inhibits melatonin synthesis. This has the ability to affect sleep patterns, hormone production, and mood (Millet, 1996)

Daylighting is the controlled admission of natural light, direct sunlight, and diffused skylight into a building. By providing a direct link to the dynamic and perpetually evolving patterns of the sun, daylighting helps create visually stimulating and productive environments for building occupants, while reducing as much as one-third of total building energy costs (Ander, 2016). This can reduce the need for electric lighting and keep light fittings and lamps to a minimum. Daylighting can be a viable, energy-efficient strategy in almost any climate, including traditionally overcast climates such as those found in parts of the Pacific Northwest. A form that allows sunlight to reach deep within the building is ideal in new construction, where a maximum facade facing due south is the optimal orientation. Deviation from due south should not exceed 15° in either direction for best solar access and ease of control. (Marietta, 1996) This daylighting can also be filtered by vegetation, curtains, louvers, or the like, and will help distribute light and reduce harshness.

"The imagination and daydreaming are stimulated by light and shadow"

- Juhani Pallasmaa



## MATERIAL

Architectural materials, primarily in profit focused projects, attempt to create excessively neutral spaces by removing elements that might deter tenants. These spaces are surrounded with calcium sulfate dehydrate (referred to as gypsum), paints, fabrics, carpets, scale-less sheets of glass, enameled metals, synthetic plastics, and objects of human creation. As a result, these machine-made materials tend to present perfectly untouched surfaces to the eye without conveying their material essence or age. Buildings now deliberately conceal the effects of time and the unavoidable and significant process of aging. This attempt to create ageless structures has ironically resulted in the short lifespan of contemporary buildings to as low as 50 years.

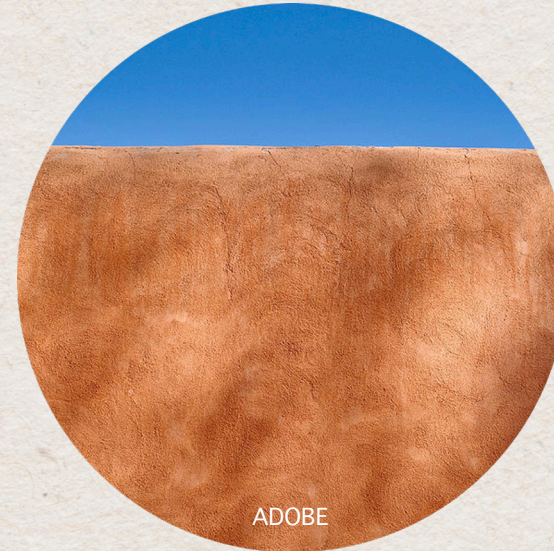
These materials contribute to the worsening of air quality within interior environments and conceal users from an understanding of the nature of materiality. This is in correlation with Baudrillard's idea of the simulacrum, as these materials are no longer in relation with, or based in reality or nature. Architecture and the built environment must allow an understanding of our world to establish architecture's context within nature.

As such, the materiality of a structure should follow the nature of its context in time and place. As materials age, their wear and patina add the enriching experience of time to the materials of construction. Stone, earth, clay, wood, and adobe, among others, also create nuance throughout surfaces. As no two logs of wood or cuts of stone are identical, each use of this material generates a unique fingerprint.

Natural materials also have the benefit of environmental stewardship. Steel and concrete accounts for 8% of the entire worlds production of CO2. On the other end of the spectrum sit materials like rammed earth and CLT. These materials have low carbon emissions associated with manipulating, delivering, and building, and in the case of CLT can even sequester carbon from the atmosphere. These materials convey a message of materiality and tactility to an occupant of space, and throughout time tell the story of place.

“The flatness of today's standard construction is strengthened by a weakened sense of materiality. Natural materials - stone, brick, wood - allow our vision to penetrate their surfaces and enable us to become convinced of the veracity of matter. Natural materials express their age and history, as well as the story of their origins and their history of human use.”

- Juhani Pallasmaa



## RESOURCES

A rising concern in architecture is environmental stewardship. The built environment accounts for 39% of CO2 emissions and 70% of the electricity consumed in the United States. Whether it is a result of cost limitations, construction ability, or even careful consideration, the built environment has separated occupants from the realities of the resources used in daily life. Our rivers flow through faucets and shower heads, our light appears through a bulb and switch, and our energy is given by outlets on a wall. This perspective is an extension of Baudrillard's Simulacrum and Simulation commenting on our society's loss of connection to reality.


Ideally, all resources used within a structure would be able to perform in a perfect ecosystem, a miniature version of our world that is able to replenish what is used without robbing from the outside environment. This problem alone is bigger than our current capabilities, and technological and societal advancements must be made in order to arrive at the ideal solution.

What we can do in our current situation is allow an understanding of the resources used. Passive energy collection through solar or wind can be used within construction to provide energy to tenants. Should this energy be supplemented, a presentation of energy use could be given to individual users in terms of renewable vs non-renewable resources, CO2 emissions, and perhaps the most effectively, cost. A presentation of this information is still an abstraction, as the layman cannot conceptualize one ton of carbon, however it is a step towards understanding. To understand water, a similar concept could be implemented, describing water use in terms of gallons or local units. To connect water-use even closer to the individual, transparent water tanks could be left exposed to literally show the draining of water while using showers, sinks, and the like. These concepts should be used as springboards to inspire further ideation and research on the topic, rather than as complete solutions.

“In a society that celebrates the inessential, architecture can put up a resistance, counteract the waste of meanings and speak its own language.”

- Peter Zumthor





## DESIGN VIGNETTES

These design vignettes represent the theoretical principals discussed, and serve as examples of design solutions. Responses to these principals will vary with project location, available materials, availability of labor, etc.

## PUBLIC SPACE

Norberg-Shulz extends dwelling beyond the home, into the public and communal. The public space of a building is an offering to a city and its people, allowing connections to nature and our senses within nature. A modern day watering hole, citizens gather, rest, observe, and participate in varying levels of social exchange. This area is available without need for purchase, and challenges social class by leveling visitors.

AREAS WITHOUT OVERHEAD STRUCTURE  
ALLOW A RELATION TO THE SKY

TREE CANOPY ENGAGES VISION, TOUCH,  
SMELL

POCKETS OF SHADE PROVIDE SPACE TO REST  
AND PASSIVELY BE WITH THE OTHER

FALLING WATER CREATES WHITE NOISE, ADDS  
PRIVACY, ENGAGES HEARING

WIDE OPENING CREATES VIEW EXCHANGE  
BETWEEN STREET

MATERIAL OF NATURE USED TO DEFINE SPACE  
AND CONNECT TO THE EARTH

CASUAL MOVABLE SEATING ALLOWS OCCUPANTS  
TO INTERACT WITH AND SPEND TIME IN SPACE

ELEVATION RAISED TO PROVIDE SEATING  
AND MITIGATE NOISE FROM STREET





## BELONGING

Both Pallasmaa and Norberg-Schulz point towards the importance of belonging for the human condition. A moment of architecture that can manifest a sense of belonging allows connections throughout a community, a connection that transcends generations. "Nothing gives man fuller satisfaction than participation in processes that supersede the span of individual life" - Gotthard Booth

AREAS WITHOUT OVERHEAD STRUCTURE  
ALLOW A RELATION TO THE SKY

TREE CANOPY ENGAGES VISION, TOUCH,  
SMELL

STRONG MATERIAL SELECTED TO IMPLY  
LONGEVITY

SHADOWS OF THE TREE TICKLE SENSES AND  
CREATE MOVEMENT

HAND PRINTS OF THOSE WHO HAVE LIVED IN THE  
BUILDING TELL A STORY OF PLACE

MATERIAL OF NATURE USED TO DEFINE SPACE  
AND CONNECT TO THE EARTH

GENERATIONS CAN RETURN TO VIEW MARKS OF  
THEIR ANCESTORS



## AMENITY

As emphasized by the theoretical research, a sense of belonging is a crucial factor in dwelling. In order to foster a sense of belonging, the incorporation of amenity and community spaces will help to encourage interactions between those living in the building. This can be accomplished through outdoor areas, community kitchens, gathering spaces, and within the circulation areas.

CONTROLLED INTRODUCTION OF NATURAL LIGHT  
CREATES BALANCE OF LIGHT AND SHADOW

VEGETATION BROUGHT INTO SPACE TO IMPLY  
CONNECTION TO NATURE AND SATISFY BIOPHILIA

STRONG MATERIAL SELECTED TO IMPLY  
LONGEVITY

COMMUNITY SPACE PLACED IN HIGH TRAFFIC  
AREA TO ENCOURAGE INTERACTIONS

NATURAL MATERIALS USED TO DEFINE SPACE,  
CONNECT TO THE EARTH, AND SHOW AGE



## GATHER

The gathering space of a home is neutral to those occupying a unit. It serves as a place to entertain, converse, rest. For those sharing space, the common area is a place for those close to one another to connect, and to be their private self. Within the unit, natural light enters in harmony with the shadow, connecting us to the cycles of day and limiting the need for fixtures and artificial lighting.

STRONG CONNECTION BETWEEN GATHERING SPACE  
AND BUILDING CONTEXT SUGGESTED BY BACHELARD

MOBILE GLAZING CONNECTS LIVING SPACE TO  
BALCONY AND TO SITE CONTEXT

VEGETATION PLANTED ON BUILDING EXTERIOR  
PROVIDES BIOPHILIC VIEW

VEGETATION PROVIDES HABITAT FOR BIRDS,  
PRODUCING AUDITORY STIMULATION

EXTERIOR WALL IS REMOVABLE TO BLUR INDOOR AND  
OUTDOOR SPACES AND PROVIDE FRESH AIR



## BATHE

One of our most prominent connections to water, bathing is essential to maintaining health and wellness. As such, experience within the space has the opportunity to reflect its importance. Responding Baudrillard's view of society's disconnect with nature, this is an opportunity to connect users with the reality of resource use.

SKYLIGHT CONNECTS THE SKY TO WATER AND PROVIDES DAYLIGHTING

VISIBLE DISPLAY OF WATER ALLOWS A DIRECT UNDERSTANDING OF RESOURCES BEING USED

REGION-NATIVE VEGETATION BROUGHT INTO LIVING SPACE TO IMPLY CONNECTION TO NATURE

VEGETATION IS WATERED PASSIVELY WHILE SHOWERING, AND MAINTAINS HUMIDITY IN SPACE

VEGETATION CLEANS AIR AND SATISFIES BIOPHILIA.

MATERIAL OF NATURE USED TO DEFINE SPACE AND CONNECT TO THE EARTH



## SLEEP

Sleep occupies one third of our lives, and is crucial to maintaining one's mental and physical health. In "The Eyes of The Skin" The most essential auditory experience created by architecture is identified as tranquility. Devoid of distraction and overhead artificial light, the sleeping area introduces natural light to connect with the patterns of the sun and circadian rhythm.

CONNECTION TO SKY WITH REFERENCE TO  
FOURFOLD

DAYLIGHTING ENTERS FROM ABOVE AND  
ALLOWS MORNING LIGHT YEAR ROUND

LIGHT IS FILTERED THROUGH VEGETATION TO  
CREATE KINETIC SHADOW MOVEMENT

SILENCE INTRODUCED IN SLEEPING AREA  
THROUGH ACOUSTIC DAMPENING WALL MATERIAL.

MINIMAL LIGHTING INTRODUCED BELOW EYE LEVEL  
TO MINIMIZE DISTURBANCE TO CIRCADIAN RHYTHM

MATERIAL OF NATURE USED TO DEFINE SPACE



## FOOD

A basic need of life, eating and preparing food is one of the most necessary functions of the home. "Our sensory experience of the world originates in the interior sensation of the mouth... The most archaic origin of architectural space is in the cavity of the mouth." -Juhani Pallasmaa. This importance often falls secondary to the call of construction convenience, with the sinks and stoves orienting one towards walls and away from views or company.

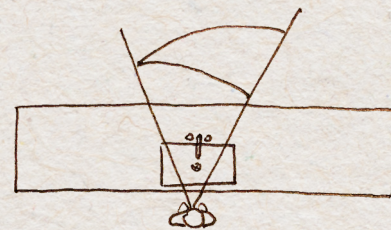
STRONG CONNECTION BETWEEN GATHERING SPACE AND BUILDING CONTEXT SUGGESTED BY BACHELARD

MATERIAL OF NATURE USED TO DEFINE SPACE AND CONNECT TO EARTH

AREAS OF USE ORIENTED TOWARDS GATHERING SPACES

VEGETATION PROVIDES HABITAT FOR BIRDS, PRODUCING AUDITORY STIMULATION

VEGETATION PLANTED ON BUILDING EXTERIOR PROVIDES BIOPHILIC VIEW



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“Better buildings make better cities, and  
better cities make better citizens.”

– Renzo Piano, 2018