

ABSTRACT

Title of Document: INFUSING WELLNESS:
 EASTERN TRADITIONS IN THE
 WESTERN CONTEXT

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Master of Architecture Candidate, 2013

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In the past few decades, the Western culture has adopted the concept of wellness from ancient Eastern traditions and infused alternative healthcare into the mainstream. Wellness is commonly defined as an optimal state of health in the mind, body, and spirit. This state is achieved through a balance of energy found in all things, including the human body. Eastern Traditions support the notion that this energy is governed by the elements of nature. Eastern architects such as Tadao Ando and Geoffrey Bawa offer lessons on how design can connect humans to nature and appeal to our sense of well-being within a place.

This thesis builds on the implications of both Eastern health and design traditions to develop a building typology in the West that promotes healing in our underserved communities. It aims to heal and educate people by providing spaces for healthy, natural and preventative activities. It explores a process of design for well-being in which the users experience the healing qualities of nature in a space. The resulting wellness center acts as a threshold for the community between the dense urban condition and the natural environment.

INFUSING WELLNESS:
EASTERN TRADITIONS IN THE WESTERN CONTEXT

By

Khara Antwoinette James

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University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
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2013

Advisory Committee:

Ronit Eisenbach, RA, Associate Professor, *Committee Chair*
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Preface: Building a Framework for Infusion

Julia Tsuei MD, a professor of Public Health at the University of Hawaii, describes the differences between Eastern and Western healthcare models as “deductive,” in the West, and “inductive,” in the East.¹ In the West, topics of health are segmented because individual problems are researched at a very detailed level; this creates a necessity for order and separation.

If the detailed solution fails, the scope of study becomes larger. In the East, the initial

Figure 1: The Illness-Wellness Continuum

study examines both the human and their surrounding environment. Studies then progress to a greater level of detail. The mind, body, and spirit are examined equally to gain a comprehensive understanding of how to fix the imbalance. Traditional Eastern healthcare models focus on maintaining health and preventing disease through the balance of energy inherent in nature. Wellness, the optimal state of health, involves physical, mental, emotional, social, intellectual, and environmental energy. A major disruption to the balance could result in illness or disease².

¹ Tsuei, Julia J., MD Associate Professor of Public Health, Associate Professor of. 1978. "Eastern and Western Approaches to Medicine." *Western Journal of Medicine* 128 (6): 551-557.

² Chan, C., et al. "A Body-Mind-Spirit Model in Health: An Eastern Approach." *Social Work in Health Care*, 34, no. 3/4 (2001): 261-282. {Published by Taylor & Francis}

Basing spatial design on wellness theories inspired by ancient Eastern philosophies has the potential to change economic and health conditions across the nation. It will prevent individuals in our underserved communities from needing to fully rely on expensive healthcare treatments due to a lack of exposure. According to *Centers for Medicare & Medicaid Services*, “Health care expenditures in the United States were nearly \$2.6 trillion in 2010, an average of \$8,402 per person.” Statistics also prove that this amount is not even spread evenly across the nation³. The *Kaiser Family Foundation*’s research, published in May of 2012, stated “half of health care spending is used to treat just 5% of the population⁴.” This information implies healthcare is much more expensive per person for those who can afford special services; however, most of the population does not benefit from the excessive funding. The population can work to prevent illness and medical debt by practicing activities that promote good health and longevity throughout their everyday lives at a much lower cost. The evolution of Western technology has made it possible to treat physical damage, structural damage, and diseases that require extreme interventions effectively. However, Eastern traditions offer us lessons on how to promote healing in the community through a basic philosophy of health and design.

³ U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, “NHE Projections 2010-2020,” August 2011, <https://www.cms.gov/NationalHealthExpendData/03_NationalHealthAccountsProjected.asp#ToPOfPage>.

⁴ The Henry J. Kaiser Family Foundation. “Health Care Costs; A Primer: Key Information on Health Care Costs.” Menlo Park, California: May 2012.

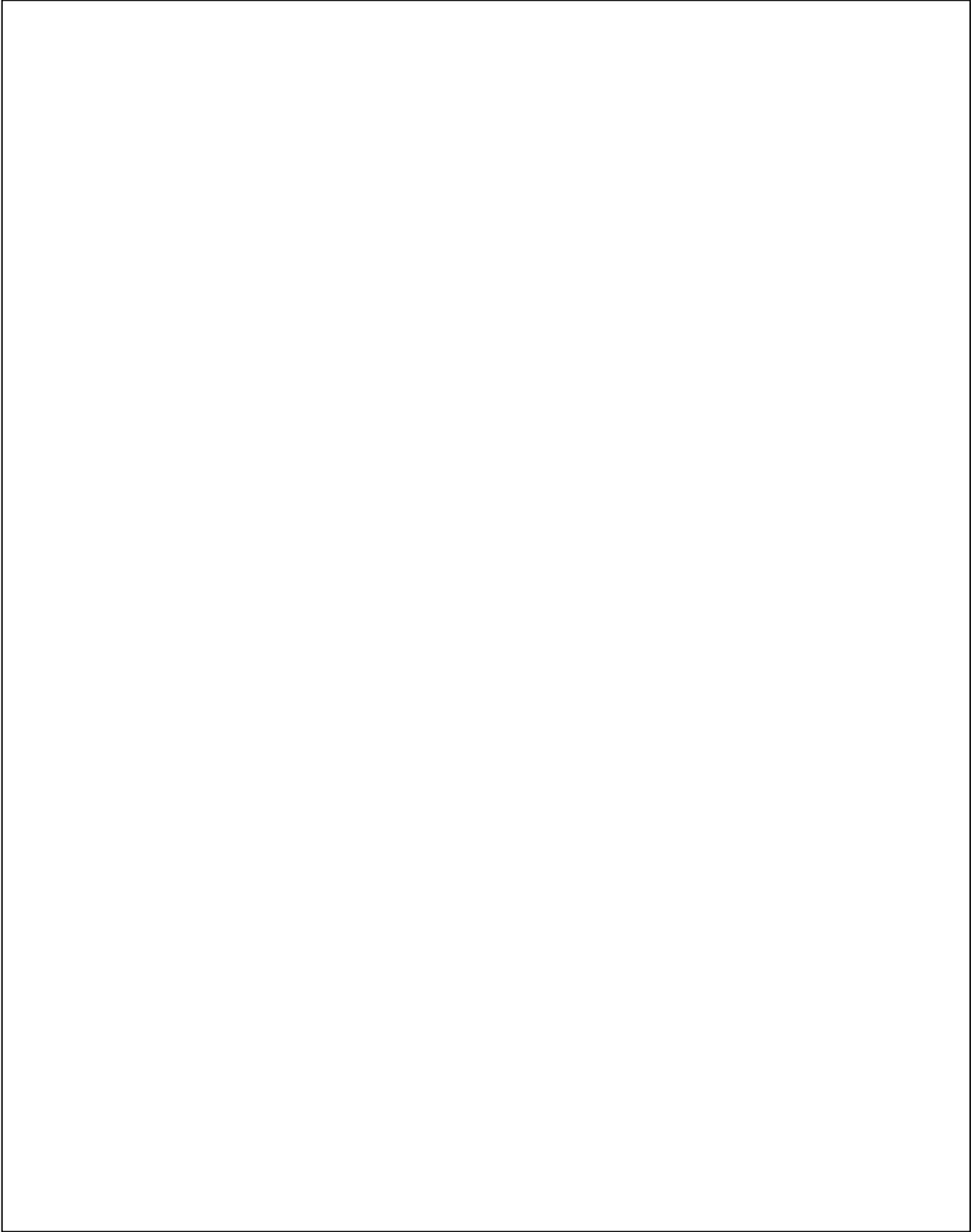


Figure 2: U.S. Financial Healthcare Report 2012

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Chapter 1: Introduction

In the past few decades, the Western culture has adopted the concept of wellness from ancient Eastern traditions and infused alternative healthcare into the mainstream. Wellness is commonly defined as an optimal state of health in the mind, body, and spirit. This state is achieved through a balance of energy found in all things, including the human body. Eastern Traditions support the notion that this energy is governed by the elements of nature. Eastern architects such as Tadao Ando and Geoffrey Bawa offer lessons on how design can connect humans to nature and appeal to our sense of well-being within a place.

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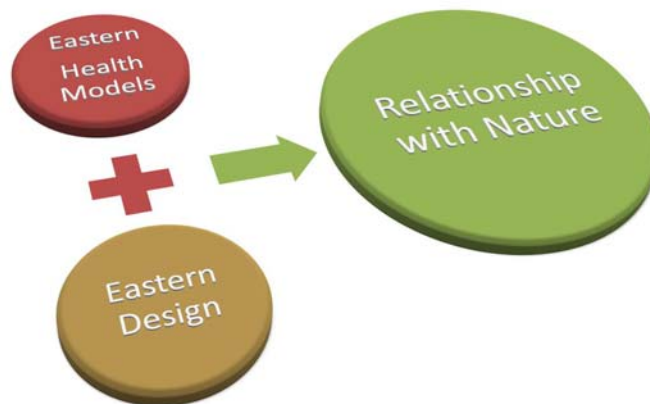


Figure 3: Relationship between Eastern Health and Design Traditions

Chapter 2: Eastern Health Traditions and Nature

Traditional Eastern health practices are based on the notion that humans may achieve wellness by connecting to nature and finding a balance within the external environment. Ideas can be derived from each of the Eastern healthcare models to reach an understanding of their core concepts due to cultural overlap in the East.⁵ These health practices date back to over 4000 years ago, originating in areas of China and India. Over time they have developed and split into various forms of religious and health practices while spreading throughout the Eastern hemisphere. Ancient texts, such as the Chinese *Huangdi Neijing* and the Indian *Caraka Samhita* and *Susruta Samhita*, suggest that the oldest forms of Eastern health are Traditional Chinese Medicine and Ayurveda.⁶

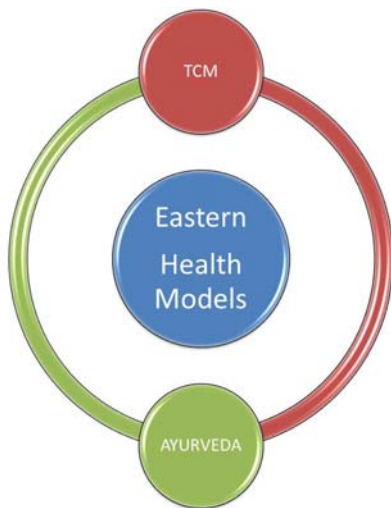


Figure 4: TCM and Ayurveda are the most widespread Eastern health models today.

The two health systems have distinctive differences; however, modern practitioners appropriately focus on their similarities; labeling them “instructions for enhancing life.”⁶ Both Traditional Chinese Medicine and Ayurveda focus on ways to identify and control the processes of the human body through diet, natural remedies, physical healing strategies, and metaphysical healing strategies. These

⁵ Alter, Joseph S., ed. 2005. *Asian Medicine and Globalization. Encounters with Asia*, edited by Victor H. Mair. Philadelphia: University of Pennsylvania Press.

⁶ Dharmananda, Subhuti Ph.D. “Ayurvedic Herbal Medicine and its Relation to Chinese Herbal Medicine.” Institute for Traditional Medicine. Portland, Oregon

approaches are designed to avoid imbalances that may cause illness and disease.⁷ Chinese medicine and Ayurveda's similarities include: methods of diagnosis, healing strategies, spices an herbal remedies, and a focus on education. Their differences illustrate the role of humans in the grand scheme of the universe, which reflects the tension between the role of humans in the built environment and in nature.

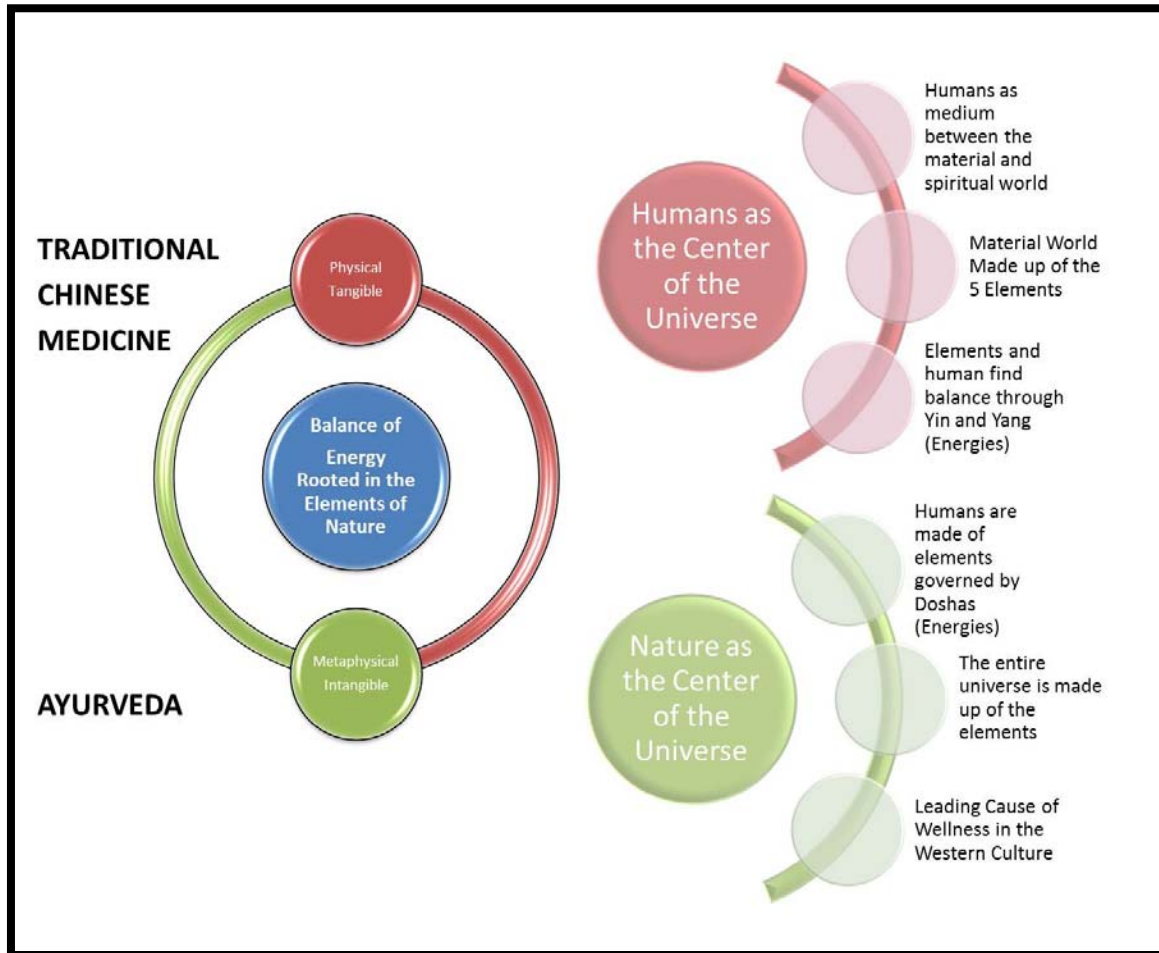


Figure 5: Differences between TCM and Ayurveda

⁷ Patwardhan, Bhushan, Dnyaneshwar Warude, P. Pushpangadan, and Narendra Bhatt. 2005. "Ayurveda and Traditional Chinese Medicine: A Comparative Overview." US National Library of Medicine: National Institutes of Health. Evidence Based Complementary Alternative Medicine v. 2(4); Dec 2005.

Traditional Chinese Medicine

Evidence of China's first medical doctrine dates back to the Shang Dynasty. Traditional Chinese Medicine failed to gain popularity in the West until the 19th century due to China's isolation and internal strife.⁸ The philosophy identifies humans as a portal between the spiritual and material worlds. The material world, which we inhabit, is made up of five natural elements: Water, Earth, Metal, Wood, and Fire. Each element is symbolic of the similar natural processes in the human body and; therefore, connect us to nature. They are governed by a system of opposing energies, yin and yang. Although these terms mean "opposites," they represent the rise or decline of specific energies in our bodies: qi, blood, moisture, and essence. Our changing internal and external environments directly change the balance of yin and yang, or energy. Imbalances leave us vulnerable to illness and an unhealthy state of being. TCM practitioners work to maintain the equilibrium of all energies throughout the body resulting in a state of optimal health. Different methods of physical and metabolic treatments aim to promote the flow of energy in the body and surrounding environment so they can remain in harmony.⁸

Ayurveda

Ayurveda is an ancient form of medicine that originated in India thousands of years ago. The origin of the word is from the Sanskrit *Ayur*, meaning "life," and *Ved*, meaning "knowledge." The medical knowledge has only recently spread to Western cultures due to its repression in India after the British Rule. Ayurveda identifies humans

⁸ University of Maryland Medical Center. "Traditional Chinese Medicine." University of Maryland Medical Center. American Accreditation HealthCare Commission, accessed November 1, 2012, <http://www.umm.edu/altmed/articles/traditional-chinese-000363.htm>.

as a very small part of the universe; which is made up of the five elements at macro and micro scales. It isolates these elements as Space, Air, Fire, Water, and Earth. The elements within the human body are controlled by three governing energies called the Doshas. *Kapha*, the Dosha of stability and solidity through water and earth, controls systems that relate to strength, growth, and immunity. *Vata*, the Dosha of movement through space and air, is the strongest because it governs involuntary body processes that are the most difficult to control. *Pitta*, the Dosha of metabolism through fire, controls systems that are always changing such as hormones and digestion. Like in Traditional Chinese Medicine, balancing each Dosha leads to an optimal state of health and well-being. A rise or decline of energy can result in illness. Practitioners work to keep these elements in harmony.⁹

Correlation: A Connection with Nature

The correlation between these two health models is a strong connection with nature. Theoretically, practitioners train patients to balance and maintain the energy within their bodies; however, this balance is also heavily dependent on the surround environment. This variable, which is difficult to control in dense urban environments, might be determined by the proximity of nature and experiences within the built environment.

⁹ National Center for Complementary and Alternative Medicine. "NCCAM Facts-at-a-Glance and Mission.", last modified September 12, 2012, accessed October 27, 2012, <http://nccam.nih.gov/>.

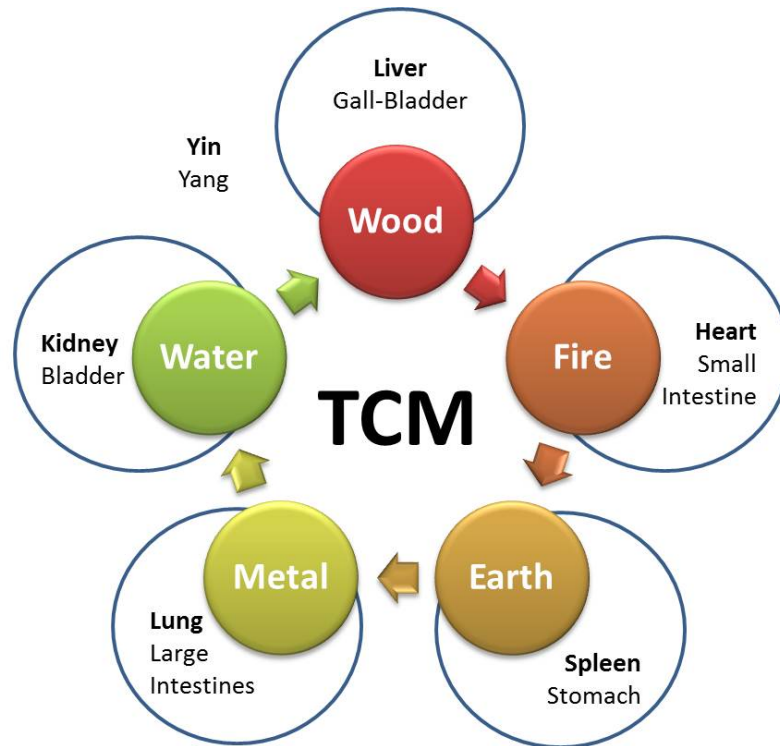


Figure 6: The elements of Traditional Chinese Medicine and their roles in our health

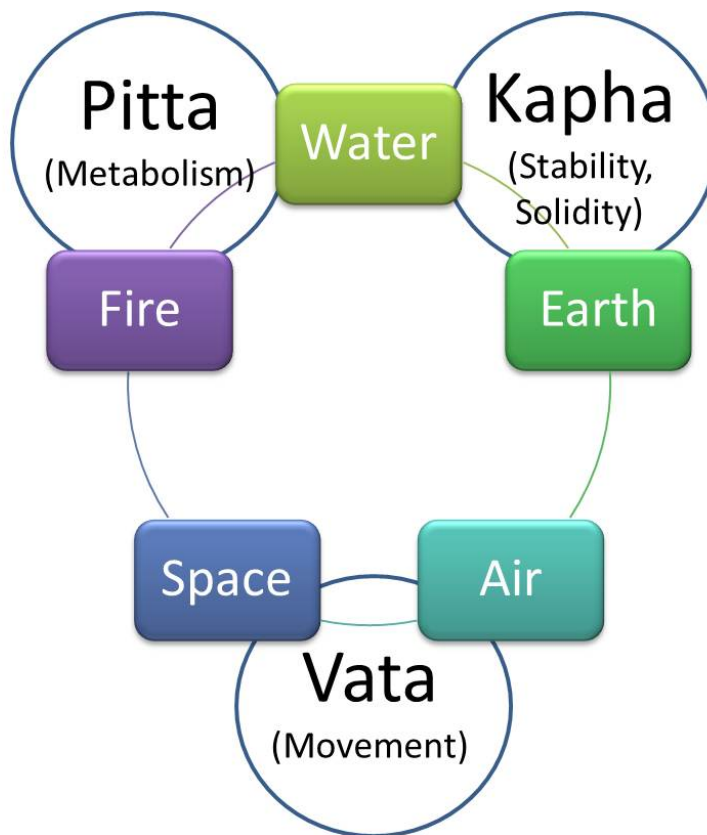


Figure 7: The elements of Ayurveda and their roles in our health

Chapter 3: Eastern Design Traditions and Nature

Traditional philosophy in the East is consistent throughout both their health traditions and design ideologies. The health models are based on the concept that our health is governed by energy found within our bodies and within nature. Design traditions also emphasize an important connection to the natural environment. In “Toward New Horizons in Architecture,” Japanese architect Tadao Ando supports this idea by stating that “in Japan, all forms of spiritual exercise are traditionally carried out within the context of the human interrelationship with nature... Contemporary architecture, thus, has a role to play in providing people with architectural places that make them feel the presence of nature.” He also explains the powerful experience of the “spiritual threshold” between the built environment and the natural environment.¹⁰ Architects like Tadao Ando of Japan, Geoffrey Bawa of Sri Lanka, and Frank Lloyd Wright, whose work was inspired by his experiences in the East, all consider nature their main component of design. Several case studies are presented to explore thematic design concepts which support this notion in three categories relating to wellness: Health, Nature, and Experience.

¹⁰ Nesbitt, Kate, ed. 1996. *Theorizing A New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*. New York: Princeton Architectural Press.

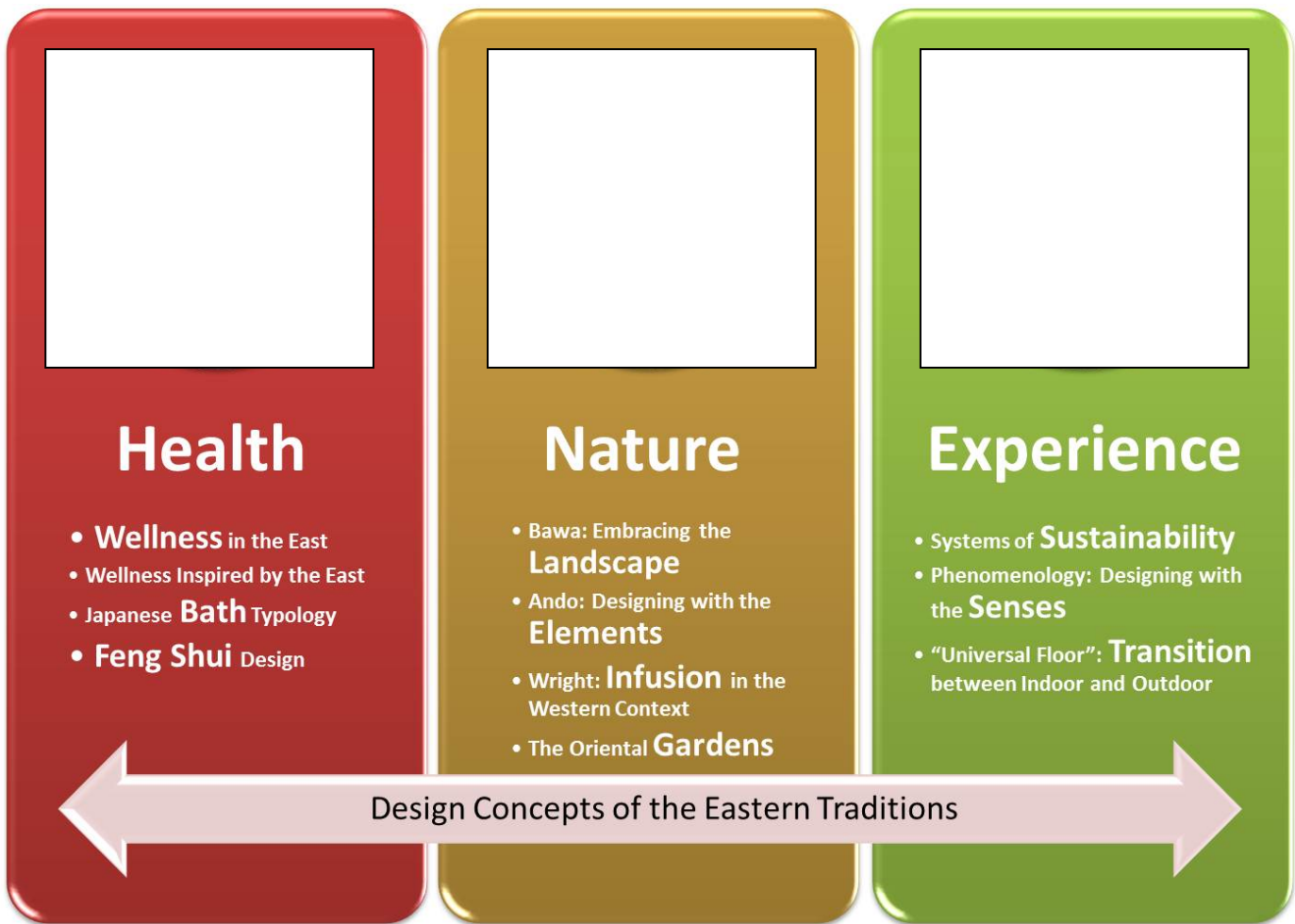


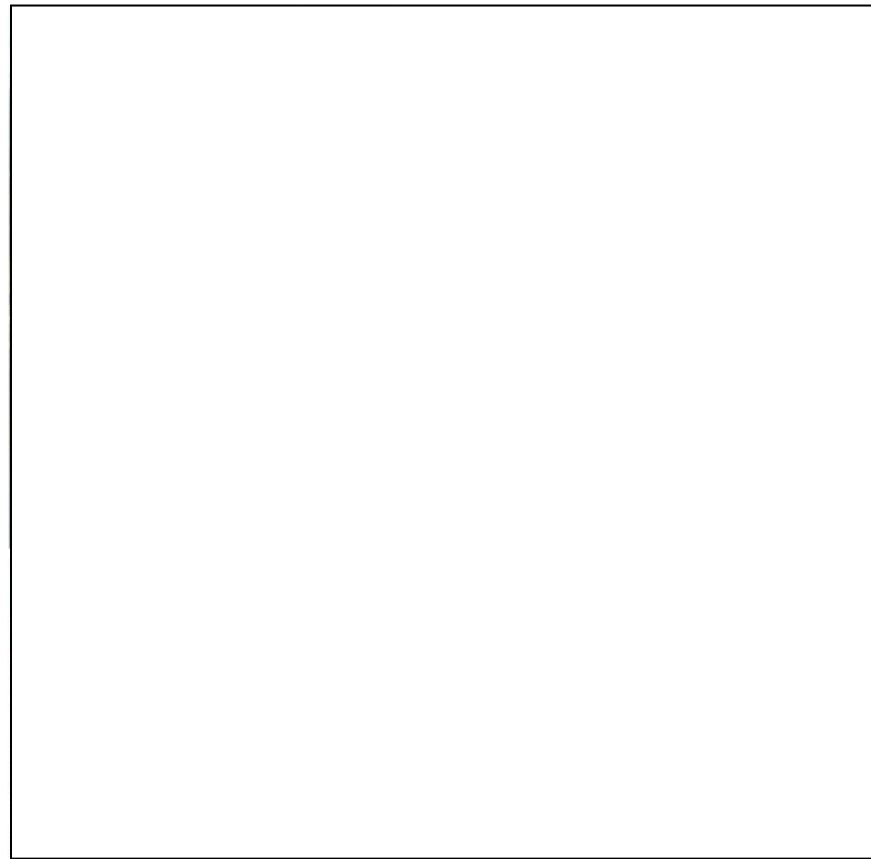
Figure 8: Design Concepts of the Eastern Traditions

Health Design

The health systems rooted in the ancient history of the East have a significant influence in the built environment. Health precedents provide insight into the ways Eastern and Eastern-inspired health facilities promote healing. The Shanghi Heptobiliary Hospital, Esalen Institute, Hyoe Koyokaku, and the Beth Israel Medical Center are all designed with healing programs that incorporate Eastern design concepts to influence the health of its users. The Shanghi Heptobiliary Hospital in China is designed to promote the flow of energy weaving in and out of the landscape. Esalen Institute is a revolutionary Bath House which led the movement of wellness design in the early 1900s. Hyoe Koyokaku is one of Japan's onsen resorts that incorporates a number of bath styles and emphasizes the presence of water in nature. And the renovated Oncology wing of Beth Israel Medical Center in Manhattan utilizes the organizational principles of the Chinese *Feng Shui* concept. Although each program differs slightly, their common goal is to allow design to promote the flow of energy through the body and nature.

HEALTH NATURE EXPERIENCE

Health Design in the East



Name: Eastern Hepatobiliary Hospital

Location: Shanghai, China

Architect: Perkins + Will

Year: 2010

Strategies:

- Gupu River runs through the site
- Traditional Chinese organization
- Concept emphasizes energy flow, healing, and the presence of nature
- Courtyards are carved into hill forms to allow light and air into treatment spaces and intimacy with nature
- Large linear park bridges the river
- System of solar-shade curtain walls are used for visibility and deflects solar gain; inspired by Chinese screens
- Climate-controlled zone along the east side of the research building; allows for natural ventilation with exhaust hoods; functional and environmentally friendly



Derived Lessons:

The design creates a new landscape within the natural landscape. Hill forms promote healing with smaller gardens framing multiple views of the site. Healing spaces remain close to the earth, weaved into the landscape, while housing and other functions are programmed on the upper floors. The low buildings are staggered to take full advantage of the sun's orientation.

Figure 9: Health Design in the East

HEALTH NATURE EXPERIENCE

Wellness Design with Eastern Influence.....

	<p>Name: Esalen Institute Location: Big Sur, California Architect: Mickey Muennig Year: 1998 (Rebuilt)</p> <p>Strategy:</p> <ul style="list-style-type: none">• Program’s focus is the education of alternative lifestyles• Built into the side of a mountain, about 50 ft. up from the Pacific• Free standing tubs and sunken stone baths of different sizes• Takes advantage of the natural stream and hot springs flowing from the mountainside• Made of board-form concrete, sandstone, and glass• Upper level consists of a massage deck, hot tubs, and a green roof with coastal plants; massage room and bathrooms inside• Lower level consists of the sunken baths accessible by steps; another massage room, interior baths, and bathrooms located inside• Spaces connected by open archways instead of doors; including bathrooms, to promote social interaction
	<p>Derived Lessons:</p> <p>The natural springs and carved rock formations create a healing experience. The simple design and material choices promote a focus on the surrounding nature. Most of the baths are located on the outer perimeter over the water. Both levels are handicap accessible; however, the “handicap bath” is too remote and does not</p>

Figure 10: Wellness Design Inspired by Eastern Tradition

HEALTH NATURE EXPERIENCE

Japanese Baths

Name: Hyoe Koyokaku
Location: Hyogo, Japan
Architect: Katsuaki Yamamoto
Year: 1987

"In the West, a bath is a place one goes to cleanse the body. In Japan, one goes there to cleanse the soul. Bathing in Japan is about much more than cleanliness...It is about family and community...It is also about being alone and contemplative, time to watch the mood rise above the garden."

-Yoshiko Yamamoto

Strategy:

- Water contains a high concentration of iron and sodium chloride; good for people with skin problems
- Roof garden off the upstairs bath
- Pond water circulates through the building and roof gardens
- Baths frame views of the landscape to feel the presence of nature
- Contains baths of multiple styles (Japanese, Western, Roman, etc)
- Two stories located below ground, one story above
- Total floor area: 50,000 sq. ft. (equivalent to wellness program)

Derived Lessons:

The Bath circulates water through the facility to emphasize nature's crucial role in health and the built environment. A centrally located oasis allows nature to penetrate the building so it is visible from the core as well. No space is left without a connection to the water element. Spas, springs, and saunas are pulled away from the public entrance to allow a progression into the natural environment.

Figure 11: Japanese Baths

HEALTH NATURE EXPERIENCE

Feng Shui Design

	<p>Name: Beth Israel Medical Center Location: Manhattan, New York Architect: Alex Stark Year: 2011</p>
	<p>Floor Plan Strategy: <i>South:</i> Staff Offices and Administration <i>Southwest:</i> Main Conference Room <i>West:</i> Waiting, Library, Internet Access <i>Northwest:</i> Main Patient Waiting Areas; Interactive Learning <i>North:</i> Consultation and Therapy Rooms <i>Northeast:</i> Staff Meeting Room <i>East:</i> Exam Rooms, OB-GYN <i>Southeast:</i> Billing Accounts Research <i>Center:</i> Entry Corridor; Egg Shaped Reception as symbol of rebirth</p>
	<p>Derived Lessons: Feng Shui is an ancient Chinese concept that translates to “wind and water.” It is also known as “the tao, or the way, of design” (Gerecht 1999). Feng Shui is a method for arranging a space or crafting the environment to achieve a balance of energy. Our environment is always moving and transforming; therefore, our spaces must be a reflection of those changes. We also translate these ideas using certain colors, objects, lighting conditions, and plants that correspond with the five elements. In the plan, each space is arranged according to the healing properties it represents.</p>

Figure 12: Feng Shui Design

Health Design Case Study Sources:

"Project in Detail: Shanghi Hepatobiliary Hospital." World Buildings Directory Online Database. EMAP Limited, accessed 1/22, 2013, <http://www.worldbuildingsdirectory.com/project.cfm?id=2783>.

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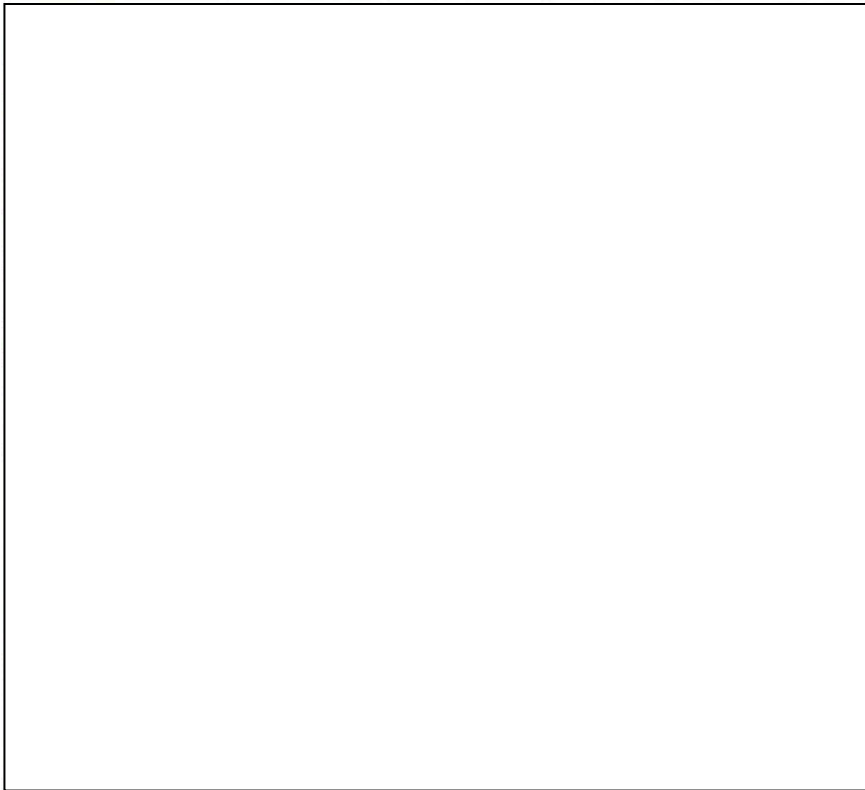
Urban Zen Foundation. "Partnership with Beth Israel Medical Center." Urban Zen. The Urban Zen Foundation, last modified September 13, 2010, accessed Jan 22, 2013, <http://www.urbanzen.org/news-well-being/partnership-beth-israel-medical-center/>

Natural Design

Concepts that aim to define how an architectural connection with nature is established in the Eastern tradition are explored in both the East and the West. A number of world-renown architects offer lessons on what design elements raise awareness of the presence of nature. Geoffrey Bawa's Kandalama Hotel is an example of effectively embracing the landscape. Tadao Ando's Naoshima Museum of Contemporary Art exemplifies design using the elements of nature, physically and abstractly. Frank Lloyd Wright's Falling Water introduces methods of infusing Eastern design concepts into the Western context. And, traditional Oriental gardens are examples of manipulating the natural environment to create a series of experiences in the landscape. Each of these concepts have shaped the Eastern design tradition throughout history and served as dividing lines between these traditions and Western design philosophies.

HEALTH NATURE EXPERIENCE

Embracing the Landscape



Name: The Kandalama Hotel
Location: Dambulla, Sri Lanka
Architect: Geoffrey Bawa
Year: 1991- 1994

“The Kandalama Hotel is an excellent example of how tourist facilities can be integrated into an undeveloped landscape successfully, fostering appreciation for the natural beauty of the setting while minimizing negative environmental consequences.” Archnet.org

Strategies:

- Conceptually designed to rest in the realm between nature and architecture
- Takes users through a “spatial and visual sequence” (Archnet).
- Subtle and minimalist architecture that works to emphasize the dramatic topography and landscape
- Use of earth tones and natural materials
- Rock forms penetrate the architecture in some parts of the sequence while pulling away for a view of the space inbetween in other parts



Derived Lessons:

Embracing the Landscape does not necessarily imply a heavy ecological footprint. Geoffrey Bawa offers lesson on how to design with the landscape as a part of the built form while lightly impacting the earth. Kandalama Hotel’s form is shaped by Sri Lanka’s natural cliff formation. It weaves in and out of the earth to celebrate nature (Robson 200).

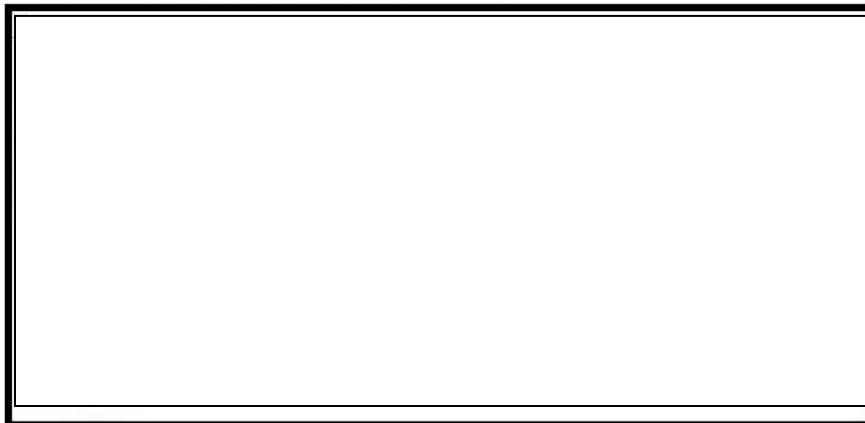
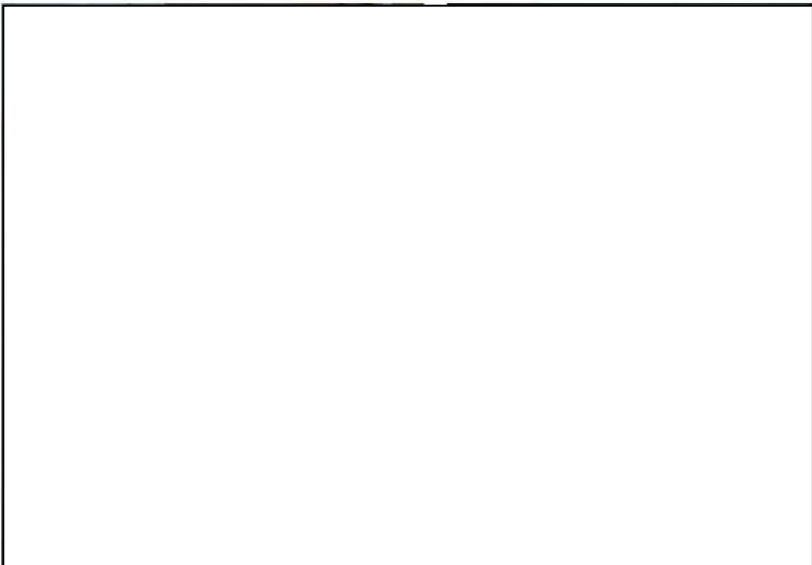


Figure 13: Embracing the Landscape

HEALTH NATURE EXPERIENCE

Design with the Elements.....

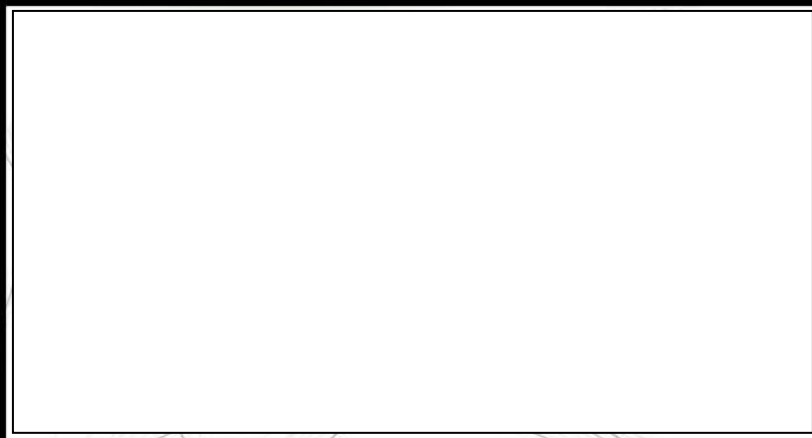
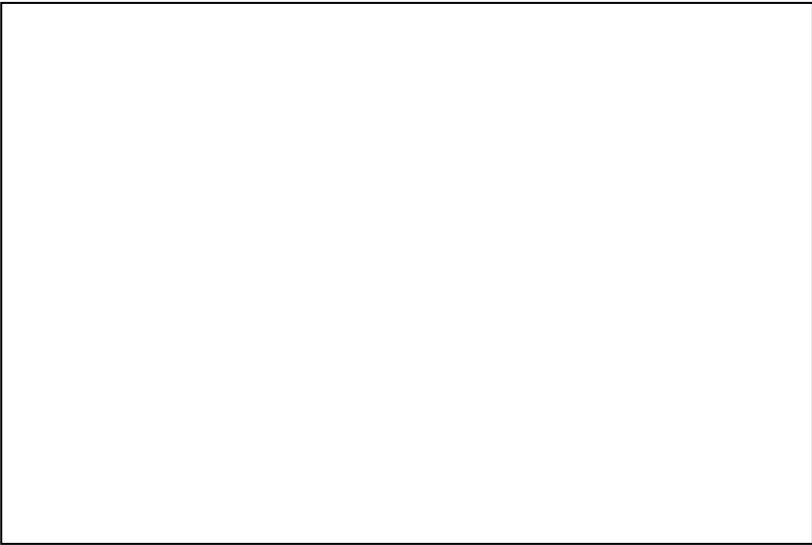


Name: Naoshima Museum of Art
Location: Kagawa, Japan
Architect: Tadao Ando
Year: 1995

“The life of a human being does not consist in opposing himself to nature or in protecting himself against it, or even trying to subjugate it. Man’s goal is to unite himself with nature. Contrary to what happens in the West, in Japan, culture tends to dismantle the physical barriers between house and land, between interior and exterior.”
- Tadao Ando

Strategies:

- Oriented toward those arriving by sea
- Main entrance follows a promenade through nature
- Stepped plaza acts as an open-air amphitheater for light and air exposure
- Built into the earth to not interrupt the relationship between land and sea
- Path created by squares of exposed earth
- Simplicity invites reflection and a focus on the natural environment
- Light wells illuminate the underground interior; nature present inside
- Materials: concrete, stone, glass, freshwater, seawater, vegetation, ocean, light, earth, and sky



Derived Lessons
Nature contains the space, extends the space, and makes up the materials which frame the natural landscape. The built environment creates a new landscape in nature. It attempts to humbly occupy space by making the user aware of nature’s presence and impact on man-made art and architecture at all times (Galinsky.com).

Figure 14: Designing with the Elements

HEALTH NATURE EXPERIENCE

Infusion in the West.....

Name: Falling Water
Location: Mill Run, PA
Architect: Frank Lloyd Wright
Year: 1935

"Fallingwater is the physical and spiritual occurrence of man and architecture in harmony with nature. All you have to do is listen."

- ArchDaily.com

Strategy:

- Redefined the relationship between architecture, man, and nature in the West
- Strong theme of horizontality
- Low ceilings force the eye outside towards nature
- designed as part of the water fall and built into the rock form
- The natural rock penetrates into the house around the fireplace which is a central element in most of Wright's designs
- each room frames view of the natural landscape
- windows designed to fully open and diminish the barrier between the built form and the landscape
- The sounds of crashing water is heard in every room of the house as a constant reminder of nature's presence.

Derived Lessons:

The influence is traditional Japanese and architecture and art This influence led to a design that is molded around the earth and impacting it lightly. The horizontal planes create a strong connection between the earth and the sky. Detailing such as the window designs and horizontal blocks above door openings are also a reflection of Eastern Tradition.

Figure 15: Infusion in the West

HEALTH NATURE EXPERIENCE

Oriental Gardens.....

Name: Katsura Villa Stroll Garden

Location: Kyoto, Japan

Architect: Kobori Enshu

Year: 1620

In Japan-ness in Architecture, Arata Isozaki describes the garden as a defining moment in the history of Japanese Architecture and a “textual space - where visual and verbal language crisscrossed an overlapped.”

Strategy:

- Gives the illusion of a natural garden; lacks the groomed-quality of traditional Western gardens
- designed with all natural elements: stones, vegetation, earth, and the pond
- Asymmetrical plan designed as a series of experiences planned one after another to reveal each area of the garden sequentially
- Can only be fully experienced by walking through and being in the space
- Views of the villa are framed by nature throughout the sequence
- Pond ensures that you take in the full experiences without cutting through
- Four teahouses located throughout the garden

Derived Lessons:

Although the focus of Eastern design is our connection to nature, the built environment is an integral part of the experience. The garden design is balanced by the self-awareness of man’s role in nature. The long stroll promotes contemplation, patience, and a spiritual connection with the landscape.

Figure 16: Oriental Gardens

Natural Design Case Study Sources:

Isozaki, Arata. 2006. *Japan-Ness in Architecture*. Translated by Sabu Kohso, edited by David D. Stewart. Cambridge, Massachusetts: MIT Press.

"Kandalama Hotel." ArchNet Digital Library., last modified December 7, 20122012, http://archnet.org/library/sites/one-site.jsp?site_id=7321.

Nute, Kevin. 1993. *Frank Lloyd Wright and Japan: The Role of Tradition Japanese Art and Architecture in the Work of Frank Lloyd Wright*. New York: International Thomson Publishing.

Perez, Adelyn. "AD Classics: Fallingwater House/ Frank Lloyd Wright." ArchDaily. ArchDaily, last modified May 2010, accessed January 22, 2013, <http://www.archdaily.com/60022/ad-classics-fallingwater-frank-lloyd-wright/>.

Robson, David. 2007. *Beyond Bawa*. New York: Thames & Hudson Ltd.

Experiential Design

The previous case-study, Oriental gardens, was an introduction to experiential landscape design in the Eastern tradition. Similar methods are employed to create experiences within a built space that may aid in a user's healing process. Although these concepts can only be fully understood by partaking in the experience, they are theoretically based on a number of architectural themes: phenomenology, the architecture of the senses; the "universal floor," which is the continuity space indoors and out; and the prominent theme of sustainability. These case studies, designed by architects Steven Holl, Weis/Manfriedi, and Nicholas Grimshaw & Partners, exemplify works designed for the human experience within nature.

HEALTH NATURE EXPERIENCE

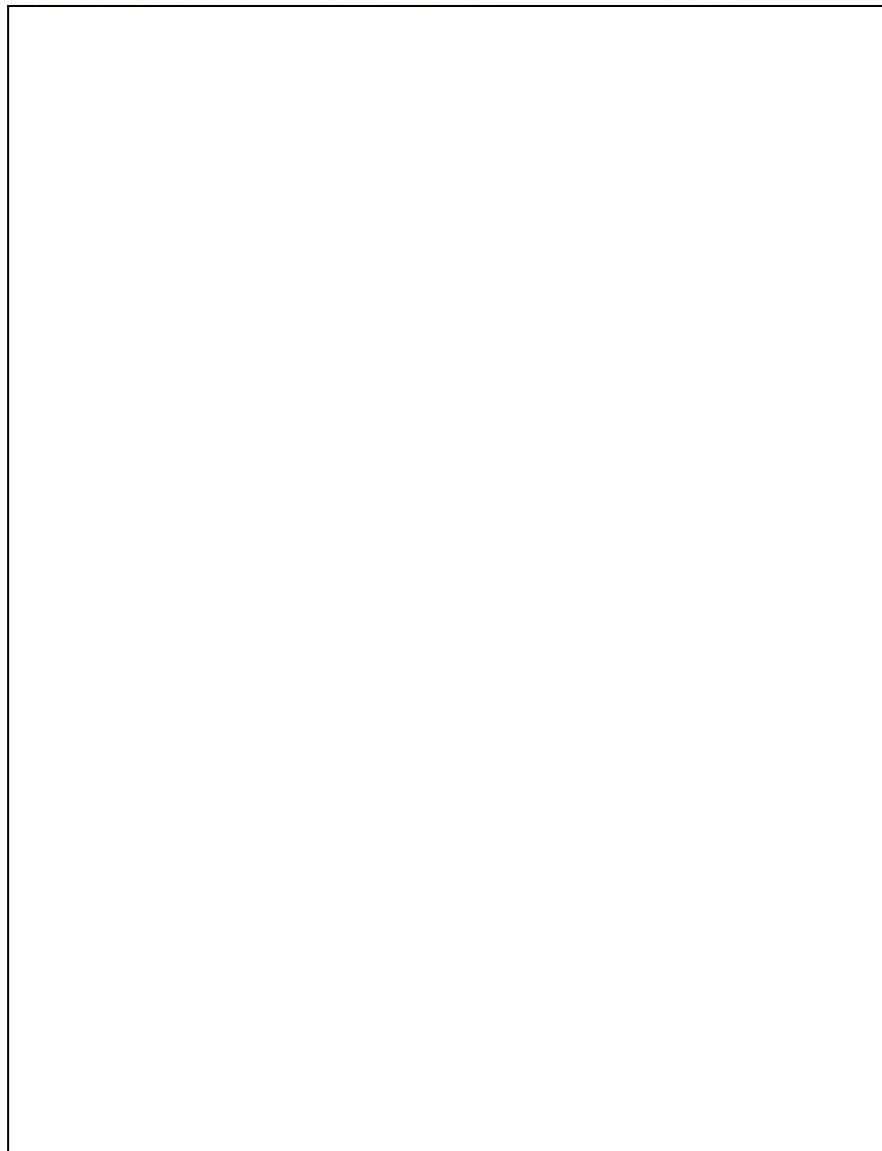
Phenomenology.....

	<p>Name: Horizontal Skyscraper Location: Shenzhen, China Architect: Steven Holl Year: 2006</p>
	<p>Strategy:</p> <ul style="list-style-type: none"> • Length of the empire state building • Hovers over a tropical garden • Built on two planes; partially under the landscape (spa, conference center, and parking) and partially hovering above the landscape (offices, apartments, and hotel) • Meant to create views over the surrounding buildings out to the China Sea without passing the 35 foot height limit • Allows sea and land winds to pass through the public gardens • Restaurants and cafes are embedded into mounds of the hilly landscape • Jasmine was planted in the garden to create the experience of smelling the flowers while seeing the yellow underglow of the building • One of the first LEED platinum buildings in China
	<p>Derived Lessons: Holl designed a “skyscraper” at a reasonable human scale. The structure frames views of nature above and below the horizontal plane relating to both the earth and sky. The experience below is a combined phenomenon of water reflections, underlighting, tropical flowers and rolling topography that frames the space.</p>

Figure 17: Phenomenology

HEALTH NATURE EXPERIENCE

“Universal Floor”



Name: Brooklyn Botanical Garden
Visitor Center

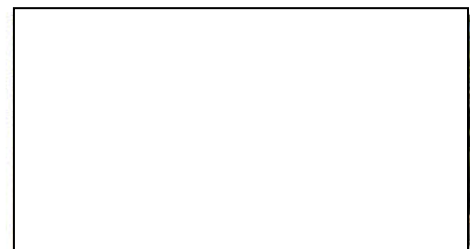
Location: Brooklyn, NY

Architect: Weiss/ Manfredi

Year: 2012

Strategy:

- 22,000 sq. ft. (two city blocks)
- Sawtooth copper roof transitions into a glass covering and then a natural green roof seamlessly
- Entrance plaza at the street
- Two structures which are connected by a curvy walkway that’s covered by glass; walkway leads to an esplanade
- Pushed against an existing hillside where the end of the roof connects and transitions into a garden; also accessible from the lower plaza
- Interior spaces frame views of the landscape and emphasize continuity in a smooth transition to the natural environment



Derived Lessons:

The “Universal Floor” concept was adapted in traditional Japanese housing architecture. It is the connection of spaces through a seamless continuity of materials or elevation. This concept can also be applied to a seamless connection between interior and exterior space. This visitor center employs this concept on both the ground and the roof plane.

Figure 18: The Universal Floor Concept

HEALTH NATURE EXPERIENCE

Sustainability: Climate Control

	<p>Name: The Eden Project Location: Cornwall, England Architect: Nicholas Grimshaw & Partners Year: 2000-2005</p> <p><i>“The very existence of the term ‘tropical architecture’ seems to imply that geographic location and climate should be regarded as major determinants of architectural form. It is certainly true that one function of buildings is to modify the environment: we expect them to keep us dry when it rains, to keep us warm when its cold, to cool us when it’s hot.” – Geoffrey Bawa</i></p> <p>Strategies:</p> <ul style="list-style-type: none">• 150 feet high by 300 feet wide• Used complex topography to create a “fluid” enclosure• Trusses make up the structure filled with glazed ETFE foil; captures air in the skin and lets in more light than normal glass while purging unneeded heat• It is a series of spheres (shape found in nature) made of removable, hexagon panels; inspired by wings of a dragonfly• Weight of the structure is no heavier than the air it encloses• Rainwater is collected and reused to water the plants
	<p>Derived Lessons: A natural oasis can be protected and cultivated using sustainable systems. Plant life will thrive in a controlled environment with only natural sunlight, water, air ventilation and circulation. Inexpensive, lightweight materials can be used instead of glass to achieve the goals of the classic greenhouse. Ultimately, the systems will cycle all the elements back to the outside environment.</p>

Figure 19: Sustainability

Experiential Design Sources:

"Brooklyn Botanic Garden Visitor Center Opens to the Public" 17 May 2012. ArchDaily. Accessed 23 Jan 2013. <<http://www.archdaily.com/235079>>

Layline, Taftline. "Steven Holl's Horizontal Skyscraper Wins Coveted 2011 American Architecture Award!" InHabitat: Design Will Save the World. InHabitat, accessed January 22, 2013, <http://inhabitat.com/steven-holl-architects-win-coveted-2011-american-architecture-award-2011-for-their-horizontal-skyscraper/>.

Performative Architecture Beyond Instrumentality 2005. edited by Kolarevic, Branko, and Ali M. Malkawi. New York, NY: Spon Press.

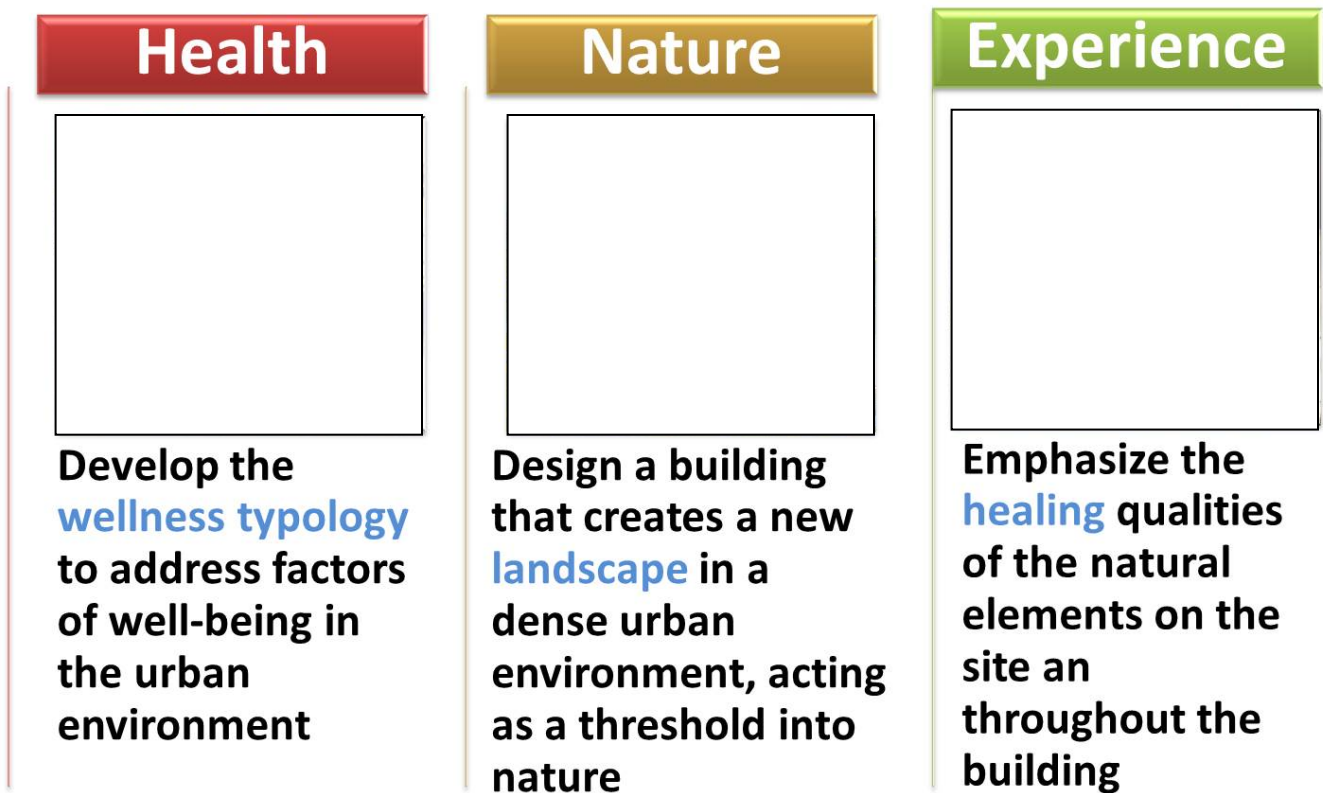
Steven Holl Architects. "Horizontal Skyscraper- Vanke Center." Steven Holl Architects., accessed January 22, 2013, <http://www.stevenholl.com/project-detail.php?id=60type>.

Lessons Derived from Eastern Design

Although these case studies cover a wide range of theoretical concepts inspired by Eastern design, they all play a role in framing and recreating the landscape. They support the theory that Eastern design is heavily rooted in nature and follows in the footsteps of ancient health traditions. The next chapter demonstrates how health, nature, and experience can guide the process of designing for wellness in multiple dimensions.

Goals for Infusing Wellness

How might a wellness center inspired by Eastern traditions promote healing in the Western context? Goals for infusing wellness are categorized into the three themes of health, nature, and experience. These goals illustrate the process of designing an experiential wellness center in the underserved communities of our culture.



Goals for Infusing Wellness

Figure 20: Goals for health, nature, and experience in the Western Context

Chapter 4: Goals for Infusing Health

Defining the Wellness Typology

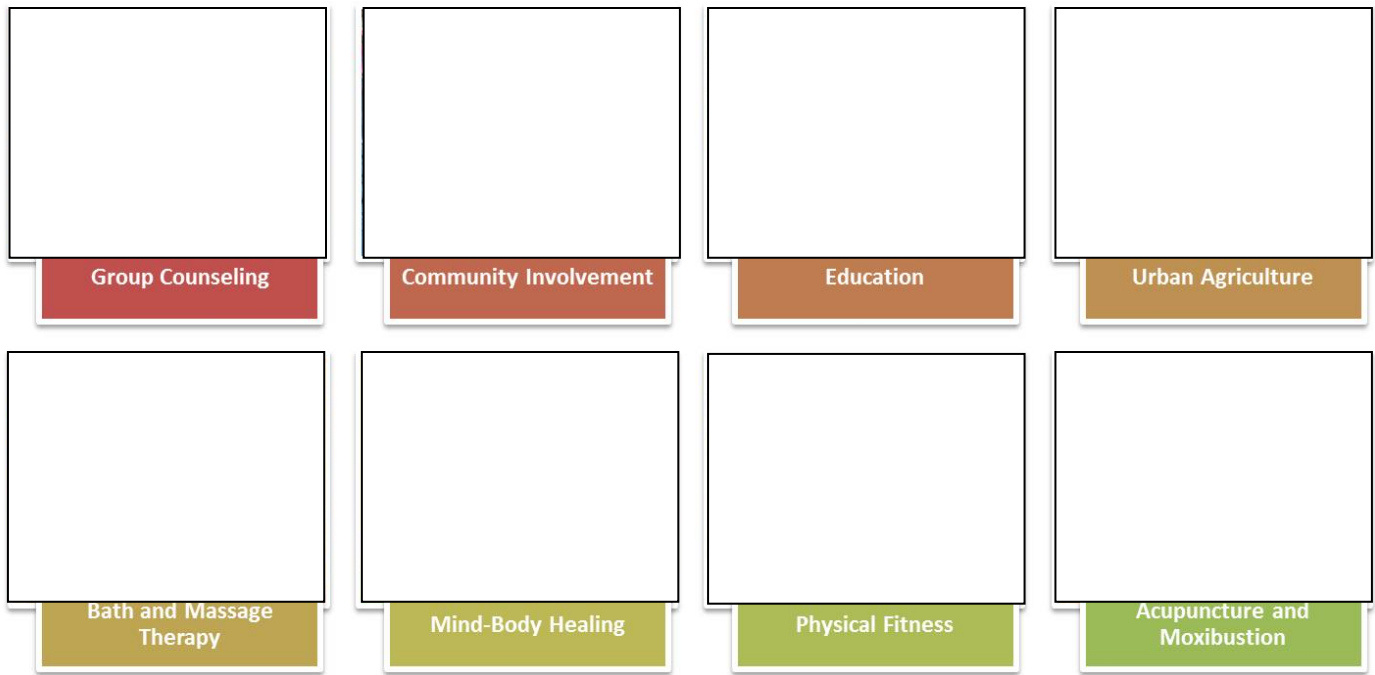
The goal for health in the West is to develop a new wellness typology that addresses factors of well-being at the both the individual and the community level. The program reflects aspects of Eastern health because it holistically incorporates the many dimensions of wellness.



Figure 21: Dimensions of Wellness

This thesis aims to spread knowledge of preventative, healthy lifestyle choices across the country in environments where communities have limited exposure to the wellness solution. The wellness center provides a variety of spaces which give users options on their journey to wellness. What are the programmatic elements that address each wellness category?

Community Level



Personal Level

Figure 22: Building a preventative healthcare typology with wellness themes

Counseling

An optimal state of mental health can be achieved in a group setting where various issues are addressed and support systems can grow. The Wellness Center provides spaces where people can share their experiences and talk through their inner turmoil in their pursuit to reach the ideal state of health. They might focus on some of the leading causes of stress, suicide, pain, and suffering in both the youth and adults of the community. Examples of these issues are: abuse, violence, bullying, depression, stress management, anger management, LBGT support, self-esteem, illness and disease, loss, etc. The Eastern model relies on a system that requires open communication with

practitioners; however, underserved communities in the West will benefit from services allowing individuals to connect with others in their community.¹¹

Community Involvement

The Wellness Center aims to heal on an individual and a social level. Sharing an experience to the path of wellness with another can provide motivation, peer education, support, and a sense of community. The community programs consist of a lecture hall, a natural food service area and store, flexible multipurpose spaces, and a library of research texts. The wellness center can serve as a gathering space for like-minded people who are interested in enhancing their lifestyles and experiencing spatial healing.

Education and Urban Agriculture

A healthy environment suggests a place of growth on both a personal and ecological level. The design of a controlled environment where organic plants, herbs, and food can grow will promote healing and set a foundation for the educational and commercial portions of the program. Physicians and practitioners will educate the public on how to maintain a healthy diet, create organic remedies to prevent pain and ailments, and keep energy flowing throughout the body. Following proper training in either classes or a visit to the Nutrition Center, members will have access to all products in the wellness center store. Some specific herbs, foods, and spices of the Eastern Tradition used in both the TCM and Ayurvedic models are:

¹¹ Gallup, John Whaley. 1999. *Wellness Center: A Guide for the Design Professional*. Wiley Series in Healthcare and Senior Living Design. Canada: John Wiley & Sons, INC.

Herb Ayurvedic Name Chinese Name	Unique Ayurvedic Uses	Unique Chinese Uses	Uses in Common
Asafoetida <i>hingū</i> <i>awei</i>	hysteria, nervous disorders, especially for women and children	cold pain in the heart	digestive weakness, colic, flatulence, diarrhea; main action is to promote digestion
Asparagus <i>shatavari</i> <i>tianmendong</i>	impotence, infertility, leukorrhea, diarrhea	dry cough, dry mouth and throat, constipation; moist quality of the herb nourishes yin	tonification therapy
Basil <i>tulsi</i> <i>luole</i>	fever, skin ailments	renal disease, post-partum disorders; disperses water stagnation	food stagnation
Black pepper <i>kalamiri</i> <i>hujiao</i>	none	reduces phlegm, controls pain, expels wind	improves appetite, digestion, and alleviates flatulence, diarrhea, and various gastric ailments
Cassia seed <i>kassondi</i> <i>juemingzi</i>	cough	eye disorders	alleviates fevers, mild laxative
Chebula <i>hirḍa</i> <i>hezi</i>	urinary diseases, fever, rheumatism	spermatorrhea	chronic diarrhea, hemorrhoids, cough, leukorrhea,
Curculigo <i>kalimusli</i> <i>xianmao</i>	leukorrhea, menstrual disorders, asthma, hemorrhoids, diarrhea	chilling pain of the loins and knees, numbness	impotence, tonic effects
Eclipta <i>maka</i> <i>hanliancao</i>	none	bleeding	liver diseases
Garlic <i>lasan</i> <i>dasuan</i>	rheumatism	none	inhibits parasites, enhances digestion, treats lung diseases
Ginger <i>sounth</i> <i>ganjiang</i>	none	invigorates yang	promotes digestion, resolves phlegm
Licorice <i>yastho-madhu</i> <i>gancao</i>	dysuria	harmonizes all herbs	promotes digestion, treats lung diseases and sore throat
Long pepper <i>pippli</i> <i>pibo</i>	asthma	headache	promotes digestion, controls pain
Momordica <i>karela</i> <i>kugua</i>	gout, rheumatism	fever (food therapy)	promotes digestion
Myrrh <i>guggul</i> <i>moyao</i>	stimulates appetite, promotes digestion, relieves flatulence	carbuncle, amenorrhea, mass in abdomen	relieves pain
Nardostachys <i>jatamansi</i>	none	none	sedative, controls pain

<i>gansong</i>			
Neem <i>nim kuliangenpi</i>	intermittent fevers	none	inhibits parasites, topical use for skin eruptions
Picrorrhiza <i>kutki huhuaglian</i>	constipation	hemorrhoids	fevers, inhibits intestinal worms
Plantago seed <i>ispaghul cheqianzi</i>	diarrhea	eye disorders	cooling, treats lung diseases
Pueraria <i>vidari-kand gegen</i>	rheumatism (topical), tonic, galactagogue	headache, fidgets, thirst, diarrhea	reduces fevers
Rock salt <i>sedhalon daqingyan</i>	promotes digestion	hematuria, ulcerations	cooling
Rubia <i>itari qiancaogen</i>	edema, paralysis, jaundice	bleeding, menstrual disorders	painful swellings
Sandalwood <i>chandan tanxiang</i>	cooling	warming	controls pain, inhibits infections (used topically for skin eruptions)
Solanum <i>makoy longkui</i>	sedative, diaphoretic	skin eruptions, tumors	treats lung diseases, hepatitis
Swertia <i>chiraita zhangyacai</i>	anti-diarrheal	none	bitter stomachic, diuretic, alleviates jaundice, kills intestinal parasites
Tinospora <i>gaduchi jinguolan</i>	Antipyretic, tonic for those with consumptive diseases	cough, throat swelling, vomiting	clear heat, detoxify, alleviate swellings, relieve pain
Tribulus <i>gokhru baijili</i>	aphrodisiac, uterine disorders	controls itching, clears vision, relieves depression, alleviates headache	none
Turmeric <i>haldi jianghuang</i>	intermittent fevers	smoothes menstruation	treats wounds, relieves pain

(Dharmananda, Subhuti Ph.D)¹².

¹² Dharmananda, Subhuti Ph.D. "Ayurvedic Herbal Medicine and its Relation to Chinese Herbal Medicine." Institute for Traditional Medicine. Portland, Oregon.

Bath and Massage Therapy

Traditional bath therapy is the physical method of soaking in specific herbs mixed with medicated bath oils. Similar methods, such as the use of saunas and hot baths derived from Japanese Bath-Houses, are used to dispel toxins from the body.

Similar goals are achieved in Ayurvedic massage where herbal ointments, aromatherapy, and hot stone massages are used to relieve pains and stimulate the flow of energy. These treatments work for anxiety and maintaining stress levels in the body.¹³

Mind-Body Healing

A number of physical methods serve as forms of exercise and mind-healing practices. Yoga is already a mainstream practice, inspired by eastern exercise, which helps one focus and improve their posture and flexibility through a variety of movements. These movements begin as very basic stretches and progress to physically demanding positions that require a focus of energy.¹⁴

Qi Gong and Tai Chi are both extensions of the Chinese Tradition that focus on the mind, body, and spirit. Tai Chi represents the way humans interact with others, nature, and energy that surrounds us. It is a rigorous form of exercise that resembles

¹³ National Cancer Institute at the National Institutes for Health. "Aromatherapy and Essential Oils." National Cancer Institute, last modified October 16, 2012, accessed October 31, 2012, <http://www.cancer.gov/cancertopics/pdq/cam/aromatherapy/patient/page2>.

¹⁴ Tsuei, Julia J., MD Associate Professor of Public Health, Associate Professor of. 1978. "Eastern and Western Approaches to Medicine." *Western Journal of Medicine* 128 (6): 551-557.

martial arts.¹⁵ Qi Gong is a much slower approach that focuses on breathing and meditation skills.¹⁶

Physical Fitness

Cardio exercise and weight training are methods of sustaining health that have been emphasized in both Eastern and Western cultures. It is a basic necessity that complements all other forms of healing. In the East, it has always been very closely associated with yoga to aid in physical therapy, rehabilitation, and flexibility. Specialized treatments involving intense physical fitness is often seen in Ayurvedic practice. In the new wellness center, Yoga will be a component of the mind-body healing program, while physical fitness space will consist of exercise machines, weights, and similar fitness equipment.¹⁵

Acupuncture and Moxibustion

Acupuncture and Moxibustion are both extensions of traditional Chinese Medicine. Acupuncture is a procedure performed by a physician in which very thin metal needles are inserted into the skin. The needles are manipulated on specific meridian points to release energy blockages in the body. The meridians are channels where the energy, *qi*, flows. To speed up the qi stimulation-process, a method called Moxibustion can also be used. During this procedure, burning *moxa*, a type of herb, is added to the end

¹⁵ Gallup, John Whaley. 1999. *Wellness Center: A Guide for the Design Professional*. Wiley Series in Healthcare and Senior Living Design. Canada: John Wiley & Sons, INC.

¹⁶ National Center for Complementary and Alternative Medicine. "NCCAM Facts-at-a-Glance and Mission.", last modified September 12, 2012, accessed October 27, 2012, <http://nccam.nih.gov/>.

of the acupuncture needle to speed the healing process .¹⁷ This form of healing is also known to be very relaxing and therapeutic.

Connecting the Program to the Natural Environment



Figure 23: Program Correspondence in Nature

The Wellness Center supports the notion that all things are connected and find balance in nature. Each programmatic component corresponds to one of the elements in nature. Both Traditional Chinese Medicine and Ayurveda study a combination of seven. The traditions have Earth, Water, and Fire in common. TCM recognizes the tangible, material elements of Wood and Metal, while Ayurveda’s metaphysical focus is on Air and Space. Assignments are based on the functions of each space in relation to the general characteristics of each element. These characteristics are explored more deeply during the experiential design phase.

¹⁷ National Center for Complementary and Alternative Medicine. "NCCAM Facts-at-a-Glance and Mission.", last modified September 12, 2012, accessed October 27, 2012, <http://nccam.nih.gov/>.

Chapter 5: Goals for Infusing Nature

Choosing the Site

The goal for nature is to create a new landscape within the dense urban environment which acts as a threshold into the natural environment. It could help to spread the knowledge of Eastern Traditions across the country in environments where communities have limited exposure to the wellness solution. This strategy is tested in the underserved community of Southwest Baltimore, Maryland. When Eastern globalization spread to the United States, the West coast adapted to this healthier lifestyle and encouraged the “wellness movement” much more freely than the East Coast in the 1970s. Today, the West Coast is still more exposed to alternative lifestyles and forms of medicine.¹⁸ Baltimore was selected from a sample of dense urban cities on the east coast due to poor health conditions, high crime rates, a struggling economy, and an educational crisis.¹⁹

The criterion for selecting a site within the city is the proximity to an area of nature. Although the selection is limited in Baltimore due to its density and history as an industrial port, Gwynns Falls Park has great potential for the project.

¹⁸ Furth, Charlotte, Professor Emeritus of History, University of Southern California, “The AMS/Paterson Lecture: Becoming Alternative? Modern Transformations of Chinese Medicine in China and in the United States” CBMH/BCHM / Volume 28:1 2011 / p. 5-41.

¹⁹ U.S. Census Bureau. (2010). Income, poverty, and health insurance coverage in the United States: 2009. Retrieved from <http://www.census.gov/prod/2010pubs/p60-238.pdf>.



Figure 24: Gwynns Falls Park Site in the Dense City

In 1903, the renowned Olmstead Brothers proposed a series of park systems along the floodplains of Baltimore. Their interventions were minimal; however, the idea resulted in Gwynns Falls Park, Jones Falls Park, and Herring Run. Within Gwynns Falls Park, the brothers designed a long trail system which cuts through the city of Baltimore along Gwynns Falls, a stream that empties into the Middle Branch of the Patapsco River. This trail remains in existence today; however, the conditions of the park have declined significantly.²⁰

Due to the lack of vast natural areas in the city of Baltimore, this park has a major historical significance. Designing a sustainable Wellness Center at the end of Gwynns Falls, where pollution and poor water quality are an issue, is a strategy to revitalize the park and encourage community involvement. To avoid breaking ground in the limited thicket of the natural environment, the proposed area is south of the main park where the

²⁰ Gwynns Falls Trail Council. "Olmstead Parks Plan." Gwynns Falls Trails. Chesapeake Bay Gateways Network, accessed January 22, 2013, http://www.gwynnsfallstrail.org/images/pics/Panels/Exhibit__7.jpg.

reserve narrows and follows the stream and railroad tracks owned by CSXT. This proposal is not only recognizing a need for wellness within the community, but also wellness for the natural environment that serves as a vital amenity to the city.

The site, located on Edmonson Ave (Route 40), was chosen for several reasons other than the park amenities. Although it's located in the floodplain zone of Baltimore, the steep topography offers opportunities to raise the Wellness Center above the water level and interact with the landscape at the street level. The design calls for sustainable systems that will filter the water and circulate it through the building. Restoring the stream is the key to revitalizing the forest and bringing the community back to the new pedestrian friendly environment. The building will be situated in a valley with prevailing winds passing over the top from the northwest. This location is ideal for direct air ventilation and natural light on the west and south façades. Other systems can be integrated into the design that utilize these supplementary elements in nature.

In addition to its natural benefits, the site has an ideal location within the city. It is exposed to one of the main east-west streets in the metropolitan area. Edmonson Avenue is a direct route to the main hub of Baltimore and approximately 3.5 miles away from the Inner Harbor. A large network of public transportation is accessible from the site area as well. There are a number of bus stops surrounding the site and the city has proposed a new metro Red Line that will stop on either side. This new transit line will service Baltimore County and Baltimore City; giving both communities access to the Wellness Center.²¹

²¹ Maryland Transit Association. "Baltimore Red Line." Baltimore Red Line. Department of Transportation, accessed January 22, 2013, <http://www.baltimoreredline.com/>.

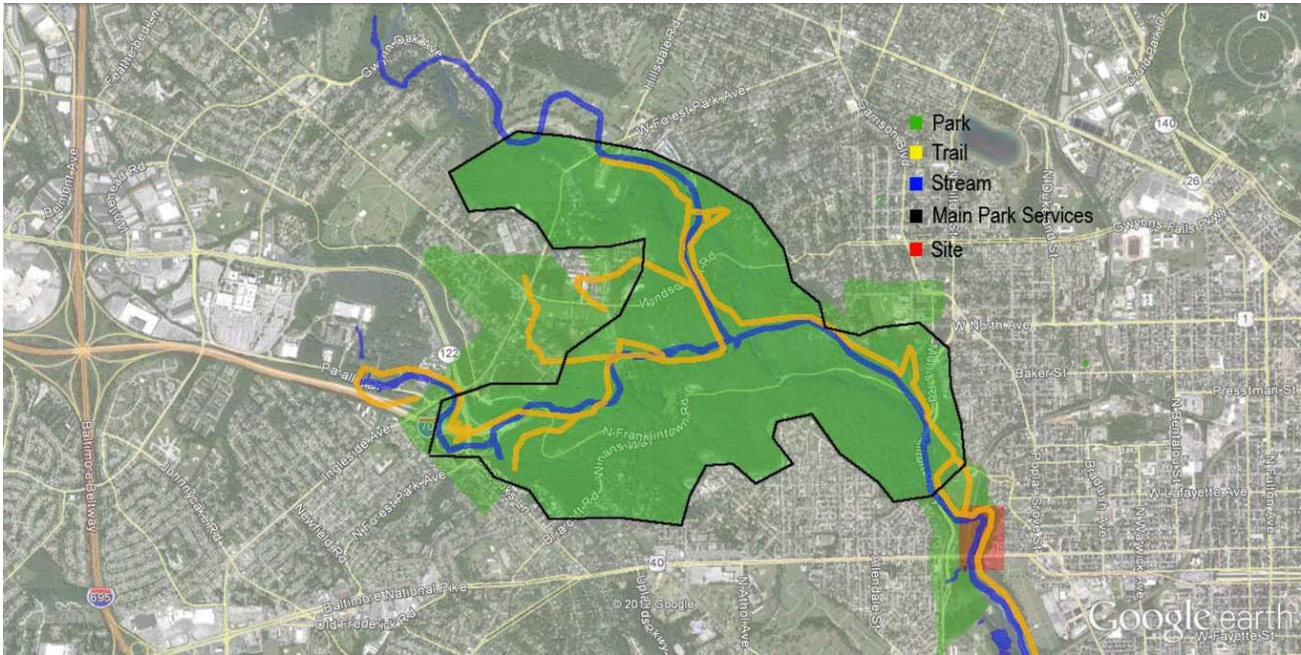


Figure 27: Gwynns Falls Park Amenities



Figure 26: Extended Intervention Area, 450' x 850'



Figure 25: Existing Site Conditions in the Spring

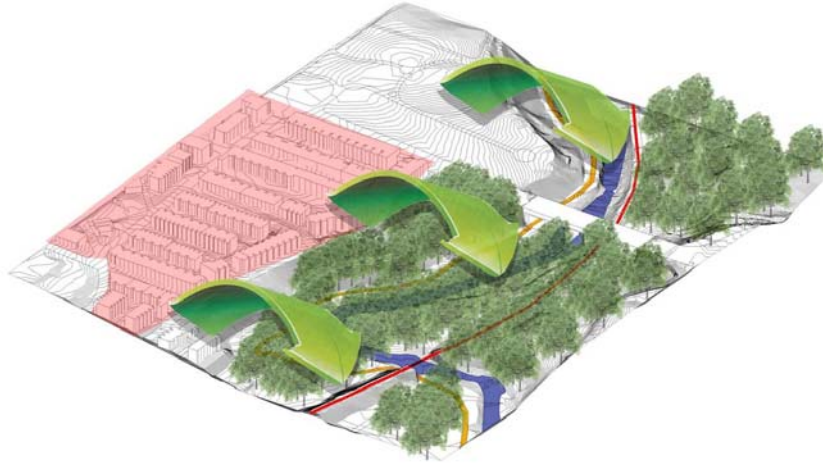


Figure 30: Threshold between the dense urban environment and nature

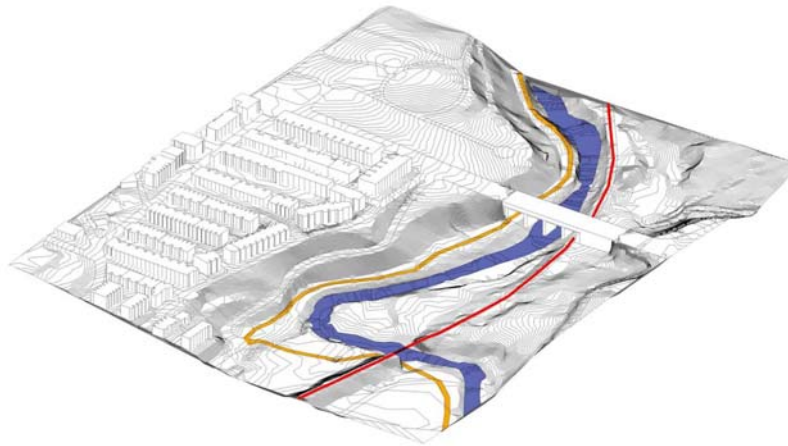


Figure 29: Organic layers of the site created by park amenities

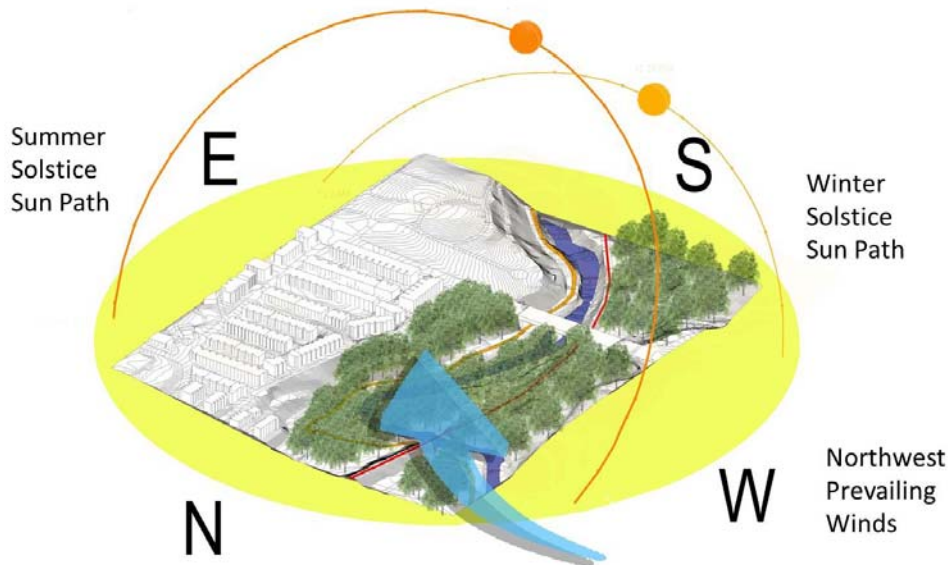


Figure 28: Optimal sun and wind orientations

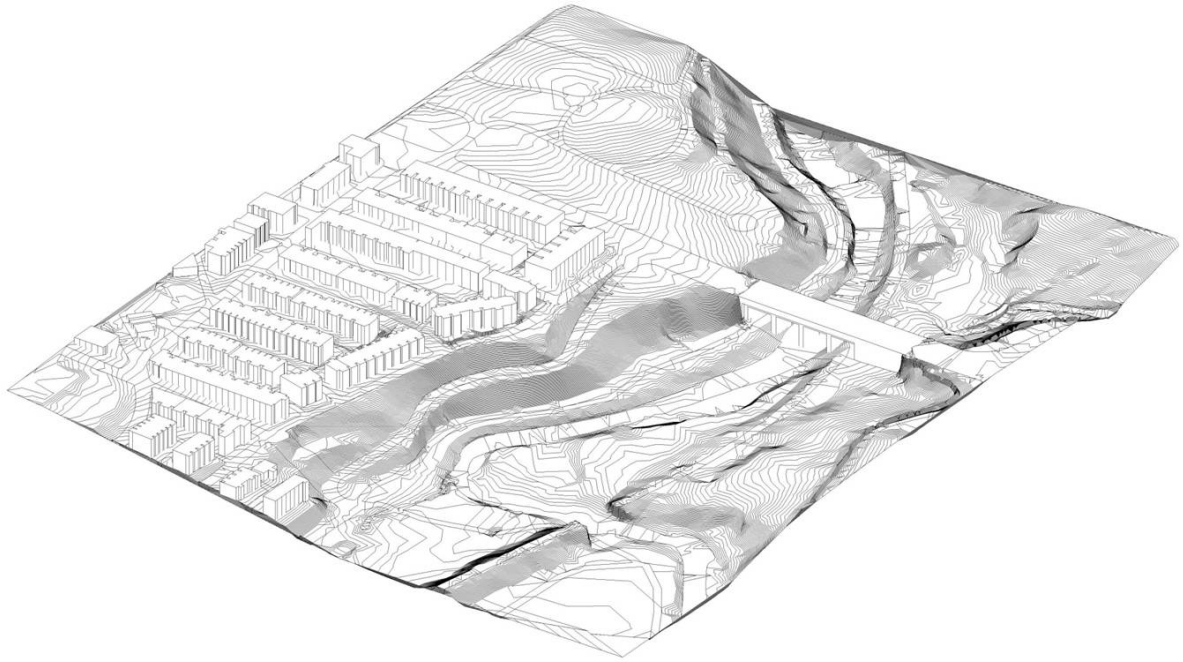


Figure 31: Topographical Conditions on the Site

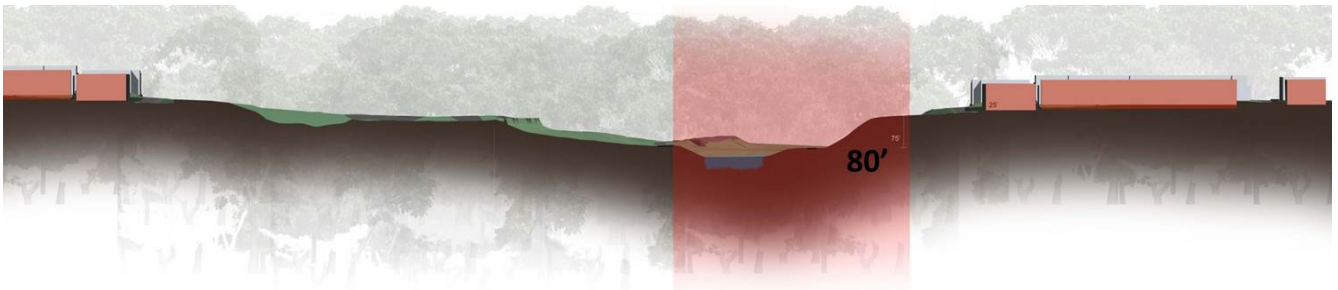


Figure 32: Vertical elevation difference of 80'

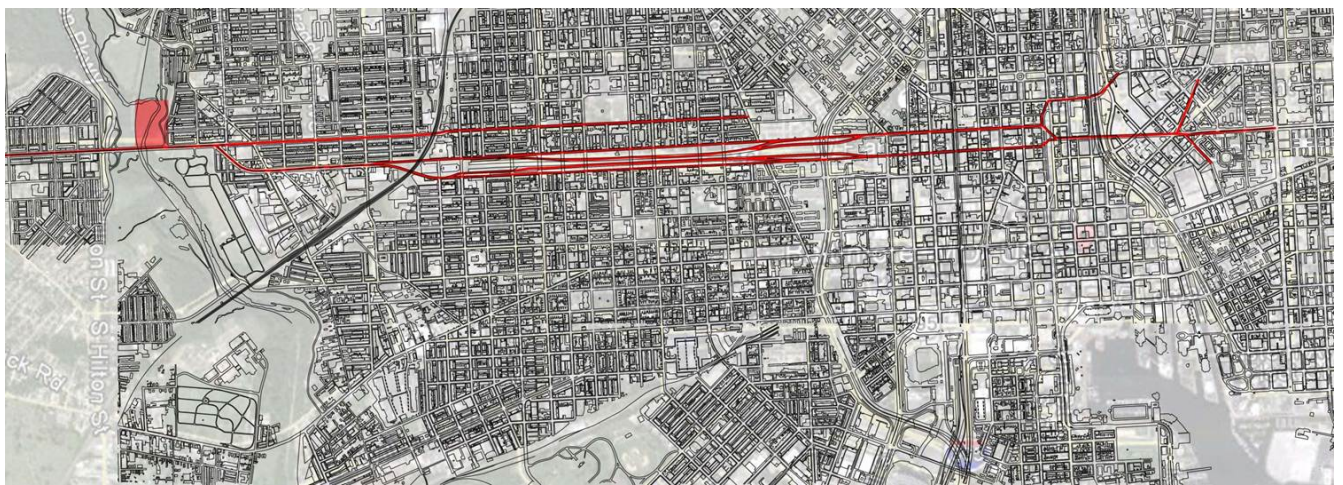


Figure 33: Edmonson Ave., a main east-west street in Baltimore, splits and extends toward the inner city

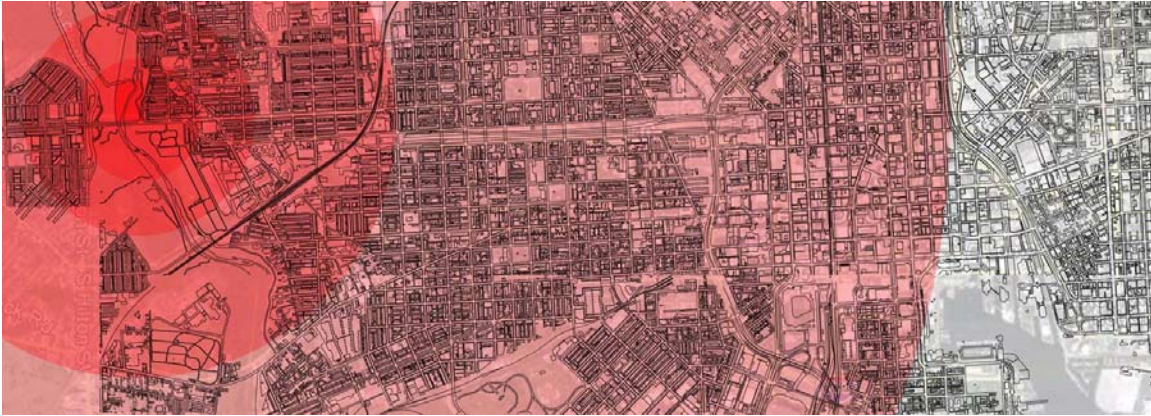


Figure 34: Walkability to the Inner Harbor; 3.5mi, 1 mi, 0.5mi, and 0.25mi radiuses

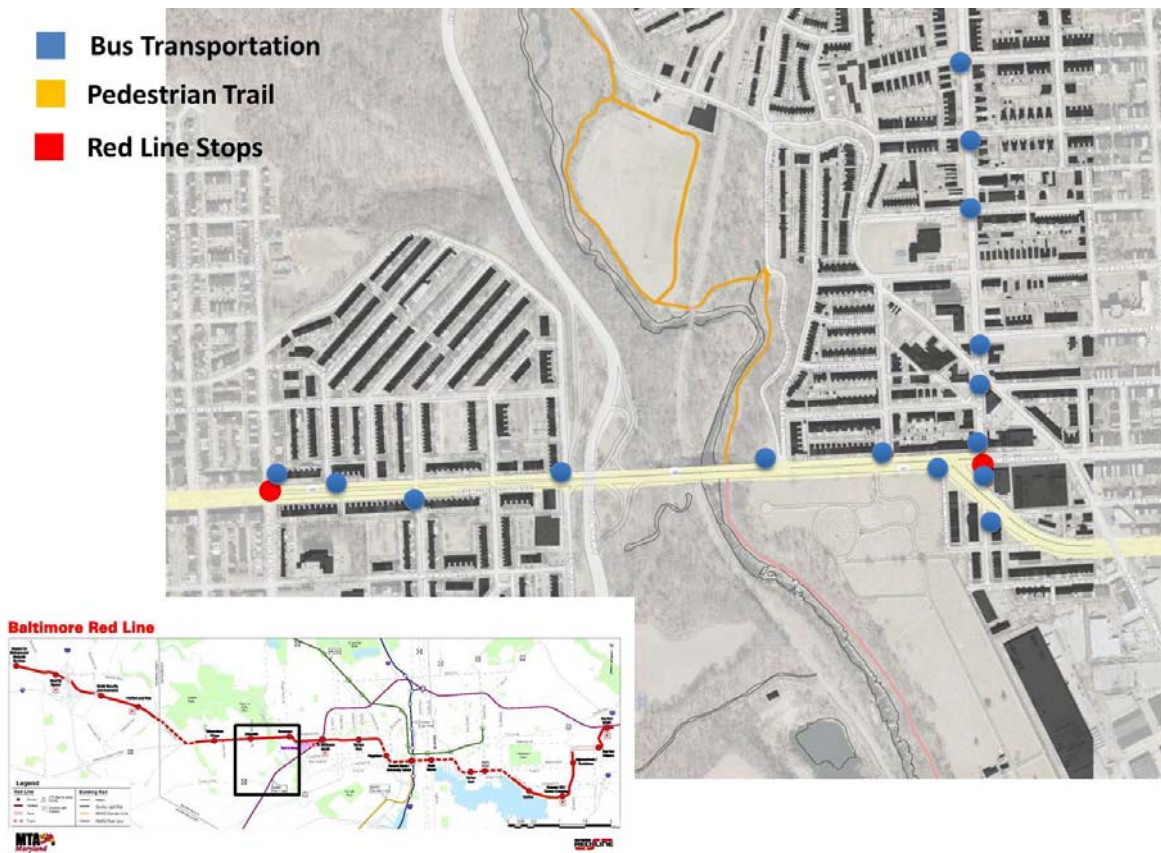


Figure 35: Sustainable methods of transportation and integrating the Red Line

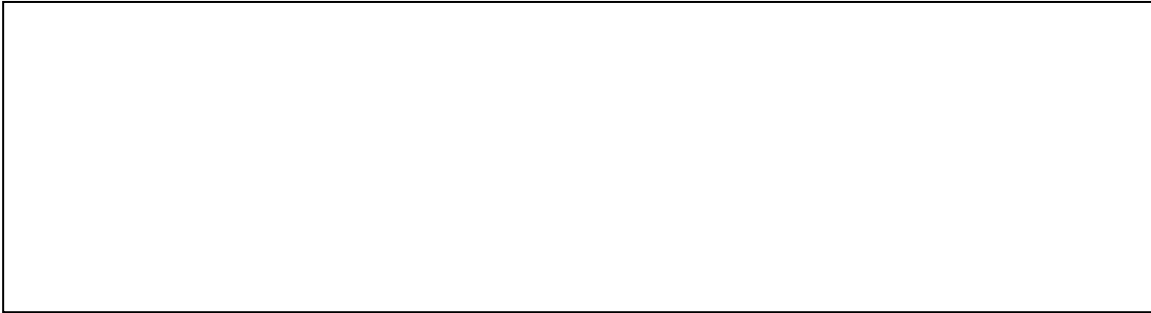


Figure 36: Commercialized Hub of Baltimore, the Inner Harbor



Figure 37: Underserved community of Southwest Baltimore



Figure 38: Poor conditions of the park visible in the winter reflecting the image of the surrounding neighborhood

Who is the immediate underserved community of Southwest Baltimore? The immediate neighborhood of the wellness center is considered a low-income community because most inhabitants make less than \$41,000 a year.²² Statistics indicate that people are usually exposed to wellness care in the middle to high income areas.²³ Therefore, the wellness center might service its target population in an environment where the real estate market is distressed and the community lacks a safe place to congregate in nature.

²² U.S. Census Bureau. (2010). Income, poverty, and health insurance coverage in the United States: 2009. Retrieved from <http://www.census.gov/prod/2010pubs/p60-238.pdf>.

²³ Furth, Charlotte, Professor Emeritus of History, University of Southern California, "The AMS/Paterson Lecture: Becoming Alternative? Modern Transformations of Chinese Medicine in China and in the United States" CBMH/BCHM / Volume 28:1 2011 / p. 5-41.

According to a Health Impact Assessment comprised by John's Hopkins University Medical Center, there are feasible solutions for the built environment to transform the park and address issues of health, crime, and education in the community. The assessment calls for new zoning laws in Baltimore that allow for form-making, setbacks, landscape interventions, and pockets of urban agriculture.²⁴

Creating a New Landscape

The thesis aims to address these issues through various form generation and schematic design strategies guided by decisions in nature. The form used to test these ideas was inspired by the natural organic layers of the site. It implements ideas of unity and energy flow along the north-south valley. The latest iteration was generated using modeling programs Grasshopper, Rhinoceros, and Revit. It is an integration of multiple components to help the form achieve balance and reflect the role of the built environment in nature. These components were a kit of parts for establishing a form that embraces the landscape. They can also act as way-finding landmarks for users inside the wellness center. The resulting form and rooftop park, designed to draw the community into the wellness center, represents the transitional threshold into nature. To make this possible while minimizing the ecological footprint, the building utilizes a galvanized steel frame which distributes loads into a masonry foundation, forming a bridge over the trail and the stream.

²⁴ Johns Hopkins University Medical Center for Child and Community Health Research. Zoning for a Healthy Baltimore: A Health Impact Assessment of the Transform Baltimore Comprehensive Zoning Code Rewrite. Baltimore: The Robert Wood Johnson Foundation, 2009-2010.

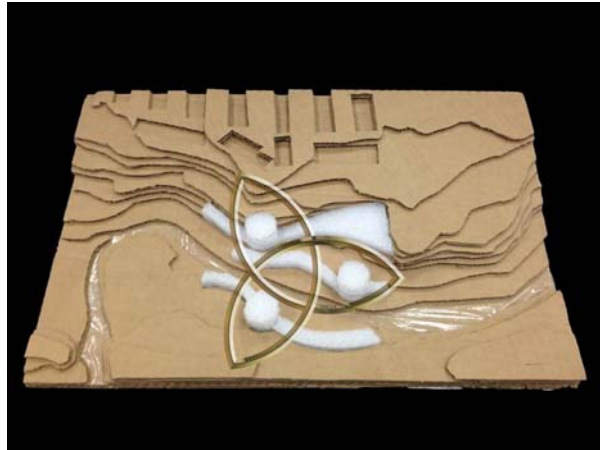


Figure 40: Parti promoting energy flow and unity through the organic layers of the site

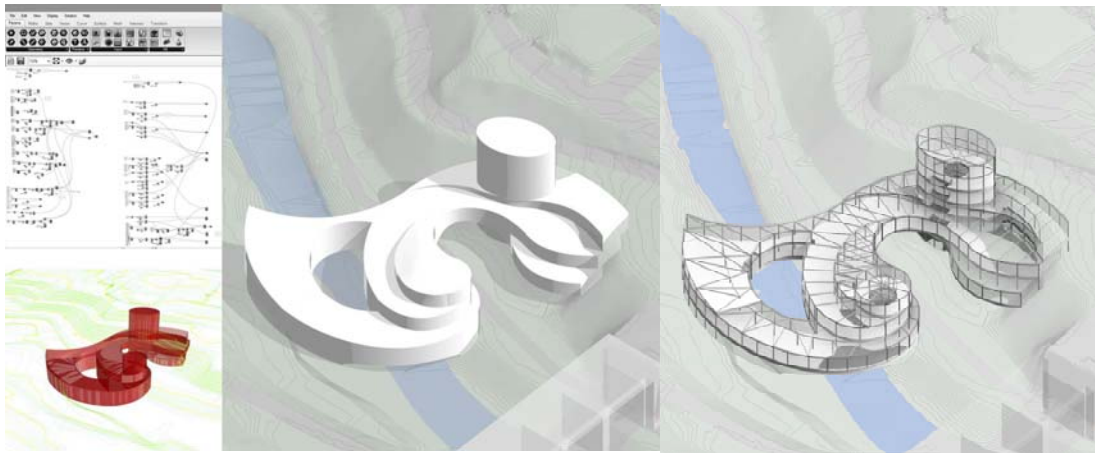


Figure 39: Form Generating tools, Rhinoceros, Grasshopper, and Revit used to mold the form to the landscape

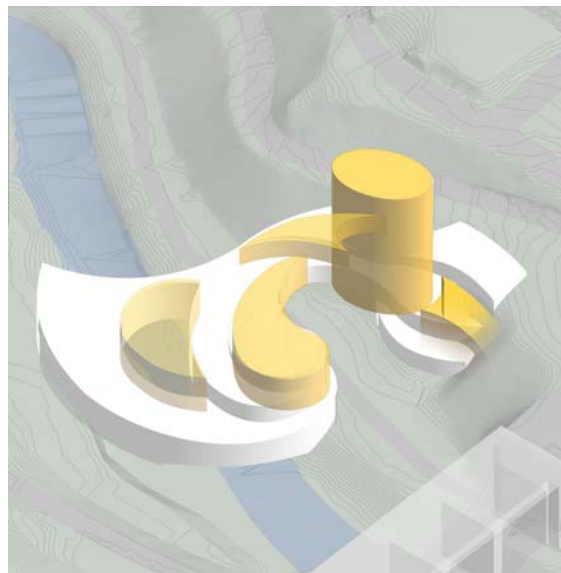


Figure 41: Kits of parts representing a transition into nature from the solid cave and tower, to the man-made growing oasis and a void in the natural environment



Figure 42: Final form and rooftop park acting as a threshold between the dense urban environment and nature

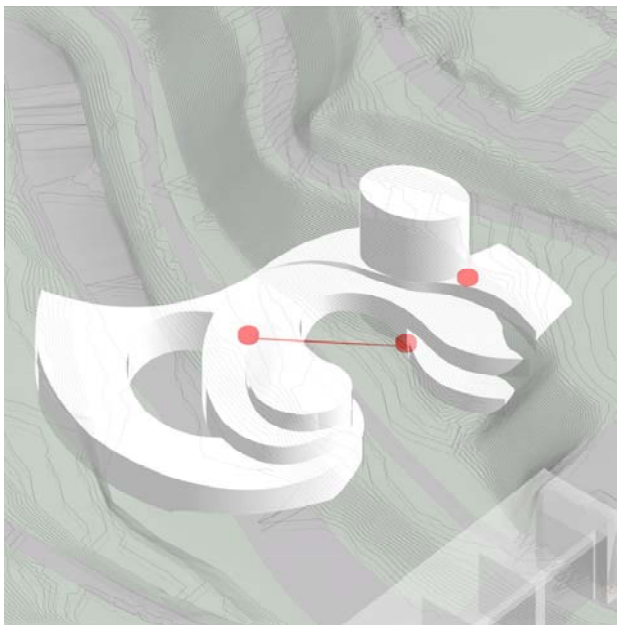


Figure 43: Points of Entry at the trail and street levels (Left) and Vertical Circulation (Right)

Chapter 6: Goals for Infusing Experience

The goal for experience in the West is to emphasize the healing qualities of the natural elements throughout the wellness center. These opportunities were identified and considered throughout the form-generation process. Fire suggests a location that is embedded into earth's core while Earth can be both embedded and emerging from the landscape. Wood has a strong relationship with the trees, growing from the earth and reaching toward the sky and the element of Air. Water has an opposition to Fire but a close relationship with the stream where there is also a cleared path for rainfall. Metal also has a strong relationship with the stream and the railroad. Space is a more metaphysical element that is recognized in Ayurveda as an overlapping balance of all the other elements. These ideas and analysis of the site were a starting point for the spatial organization of the wellness center.

This process continued with a synthesis of Eastern strategies relating to each element. Earlier studies of Feng Shui design played a role in this part of the process. Feng Shui is an organizational system that also focuses on the holistic healing qualities of the elements to promote the flow of energy in a space. This school of thought not only links the elements to specific cardinal directions, but also identifies productive functions within these spaces.²⁵ Other influential components of Eastern thought are the concepts of generation and destruction within nature. These ideas conceptually illustrate how everything works and flows together in a natural cycle that balances the rise and decline of energy in these spaces.

²⁵ Gerecht, Hope Karan. 1999. *Healing Design: Practical Feng Shui for Healthy and Gracious Living*. Rutland, Vermont: Tuttle Pub.

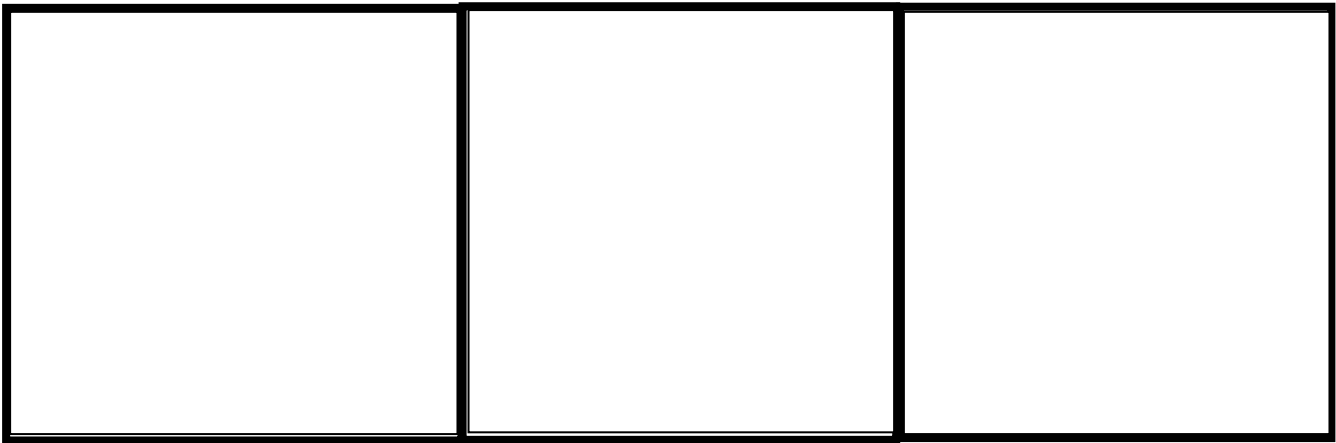


Figure 44: Eastern Influences for Spatial Organization- Feng Shui (left), generation cycle (middle), and the destruction cycle (right)

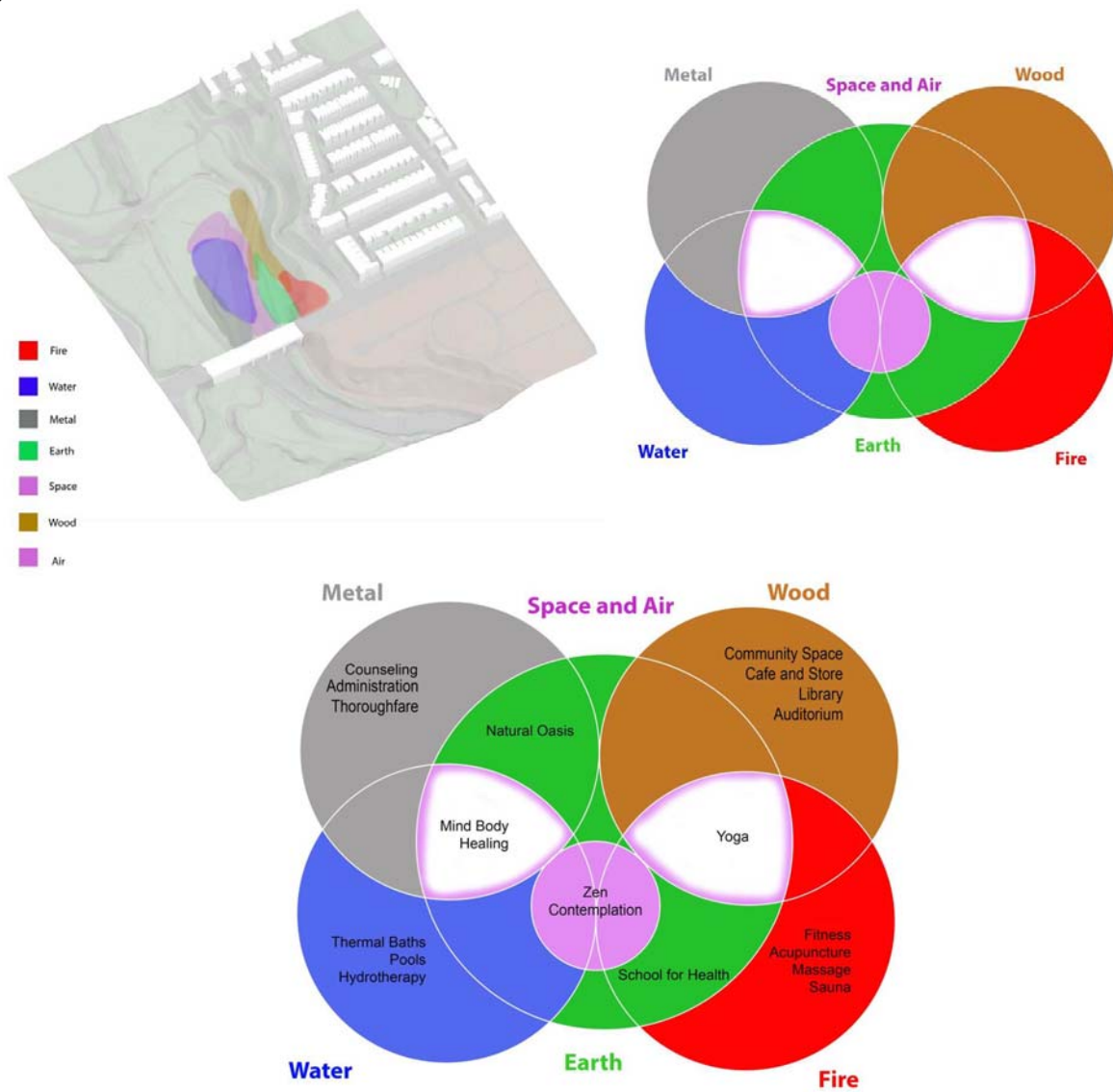


Figure 45: Organization diagrams illustrating elemental relationships on the site, a synthesis of Eastern concepts

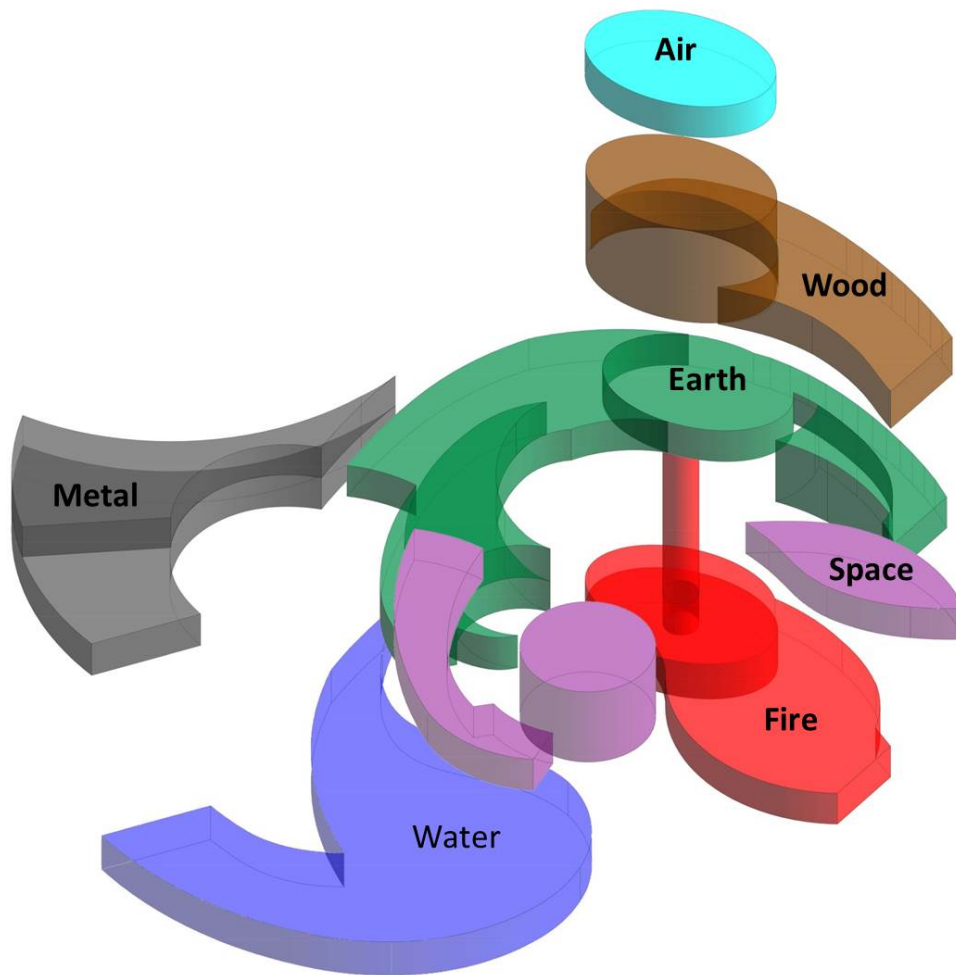


Figure 46: Exploded axonometric showing the relationships between element experiences in the wellness center

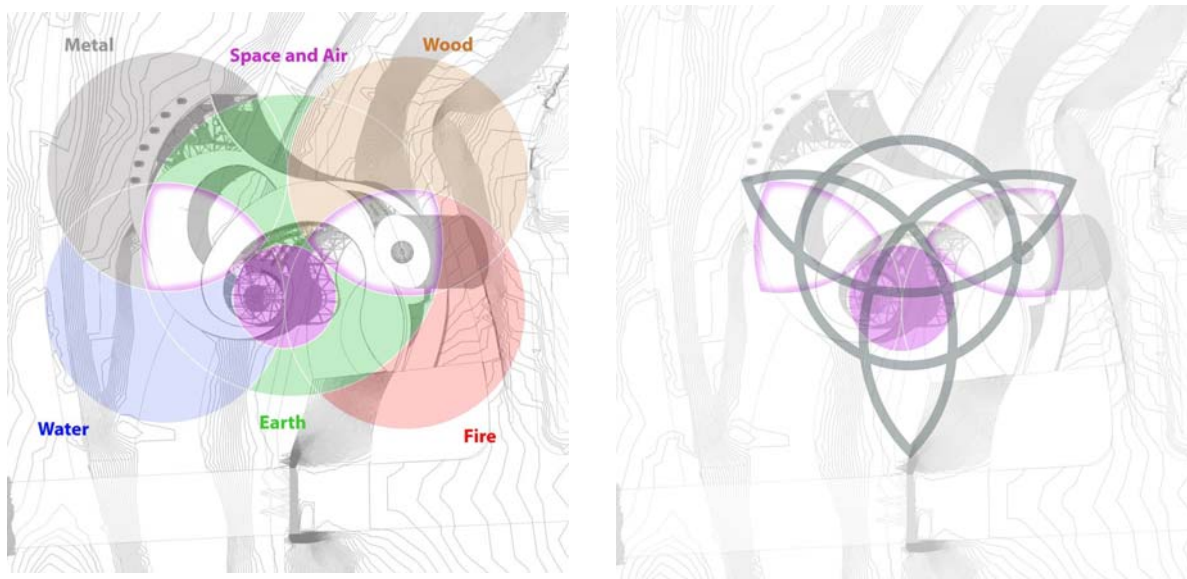


Figure 47: Elemental Relationships (Left) and Spatial Overlap (Right)

The resulting form comes together like a puzzle representing the relationships and balance between the mind, body and spirit. The lower portions of the building are embedded into the landscape and impacting the earth, representing the body. The mind is represented in the architecture emerging from the landscape, bridging over the trail, and bridging again over the stream. The metaphysical nature of spirit is represented architecturally by the lightness at the top of the oasis and the tower which reaches up toward the sky. These relationships are generators for design in both plan and section.

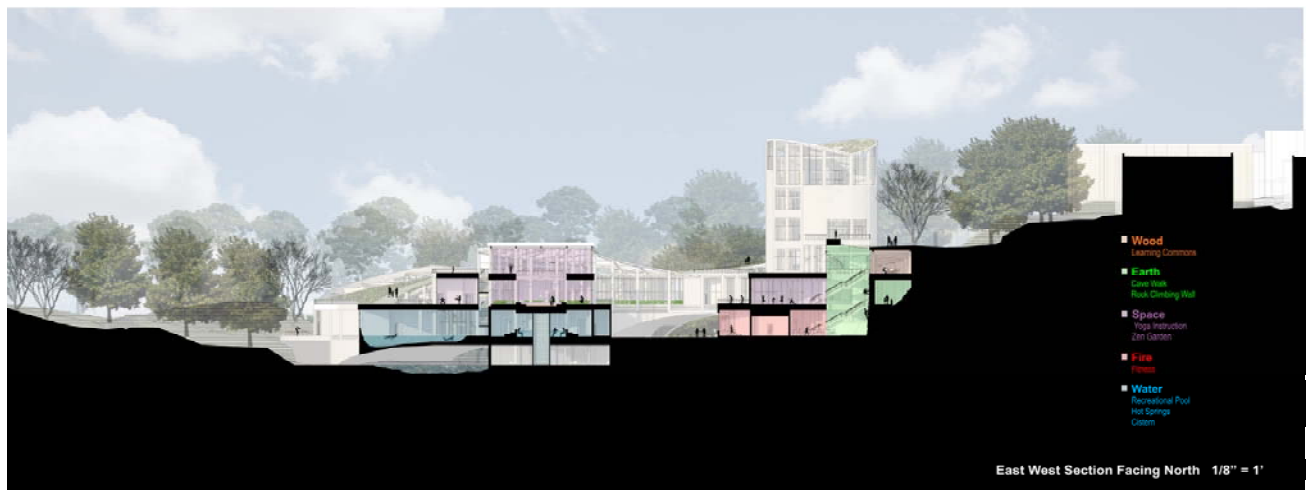


Figure 48: East West Section Facing North, cuts through Wood, Earth, Space, Fire, and Water

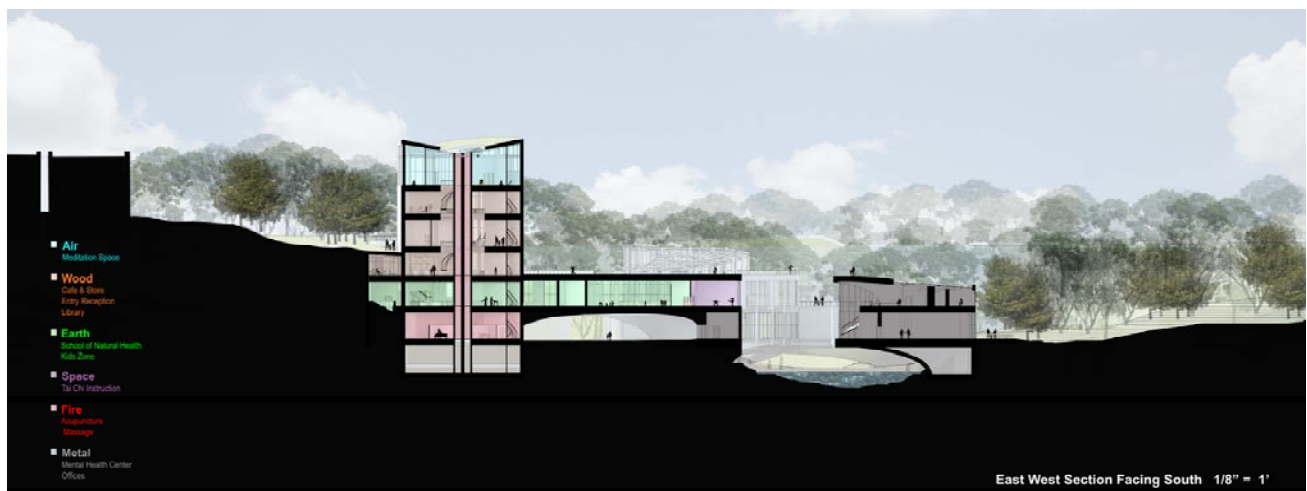


Figure 49: East West Section Facing South, cuts through Air, Wood, Earth, Space, Fire, and Metal



Figure 50: Site Plan illustrating the wellness center's place in the community, parking lots, and stroll gardens within the park

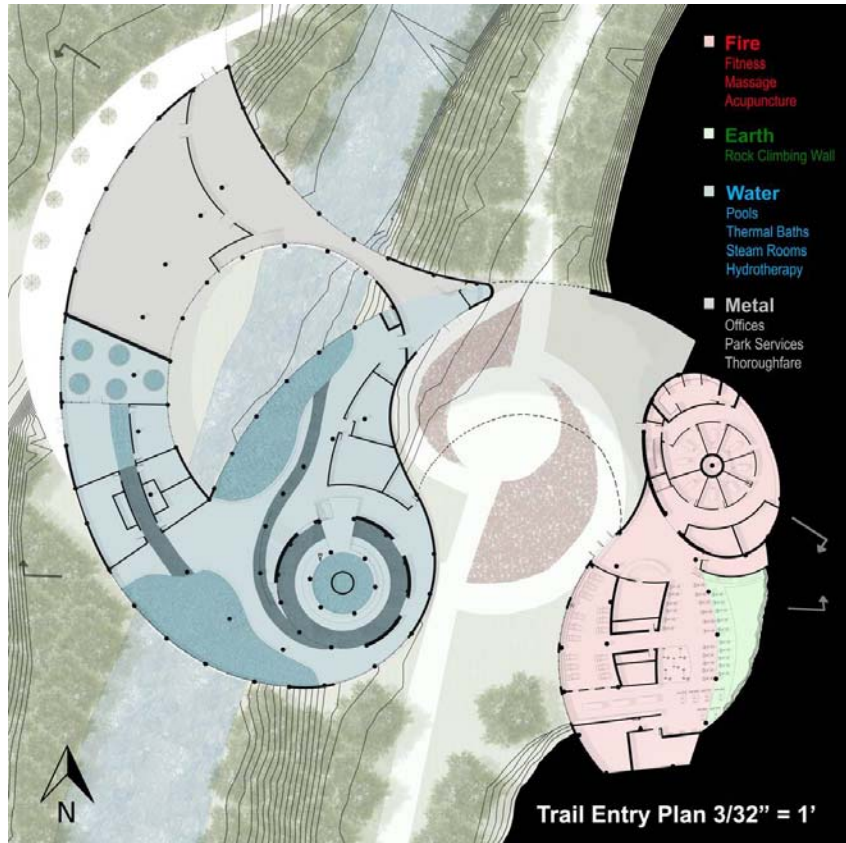


Figure 51: Trail Entry; Fire, Earth, Water, and Metal

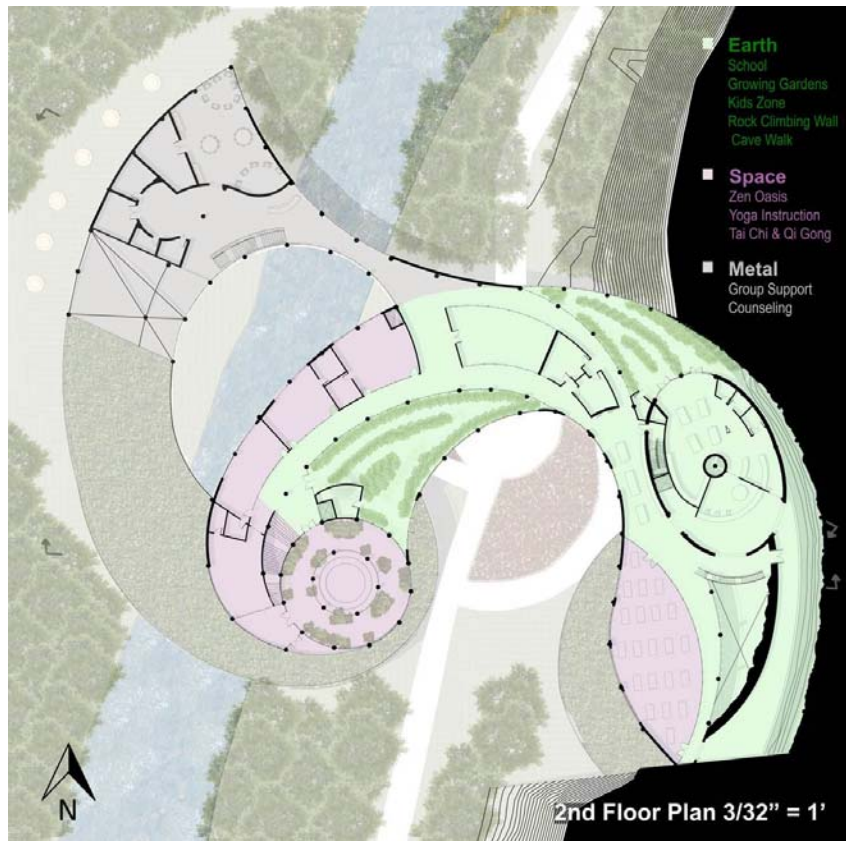


Figure 52: 2nd Floor; Earth, Space, and Metal

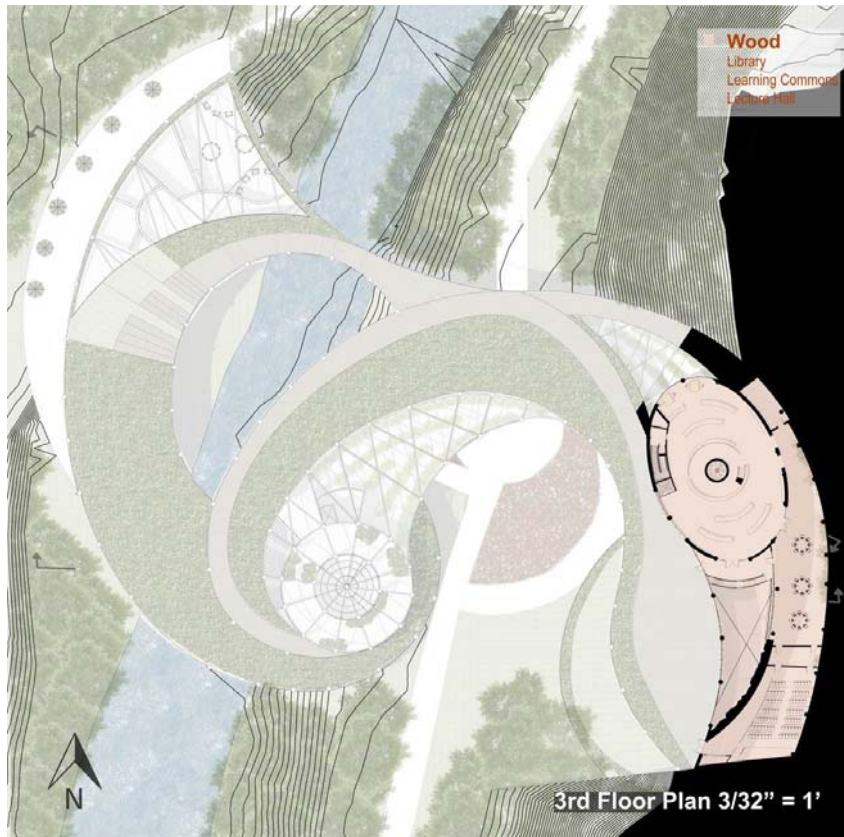


Figure 53: 3rd Floor; Wood

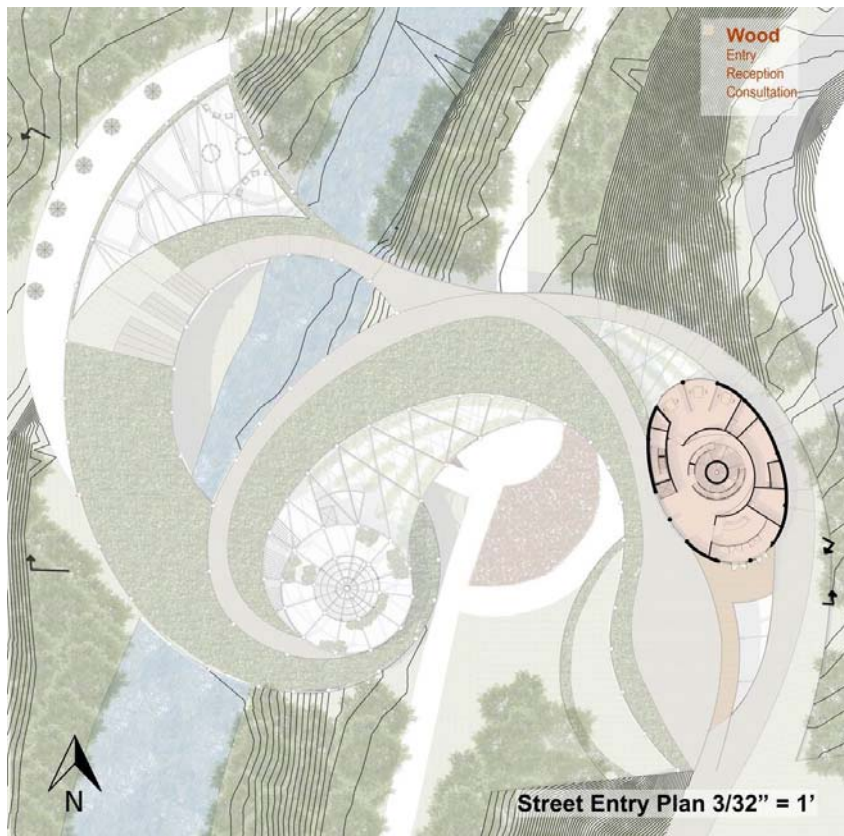


Figure 54: Street Entry Level; Wood

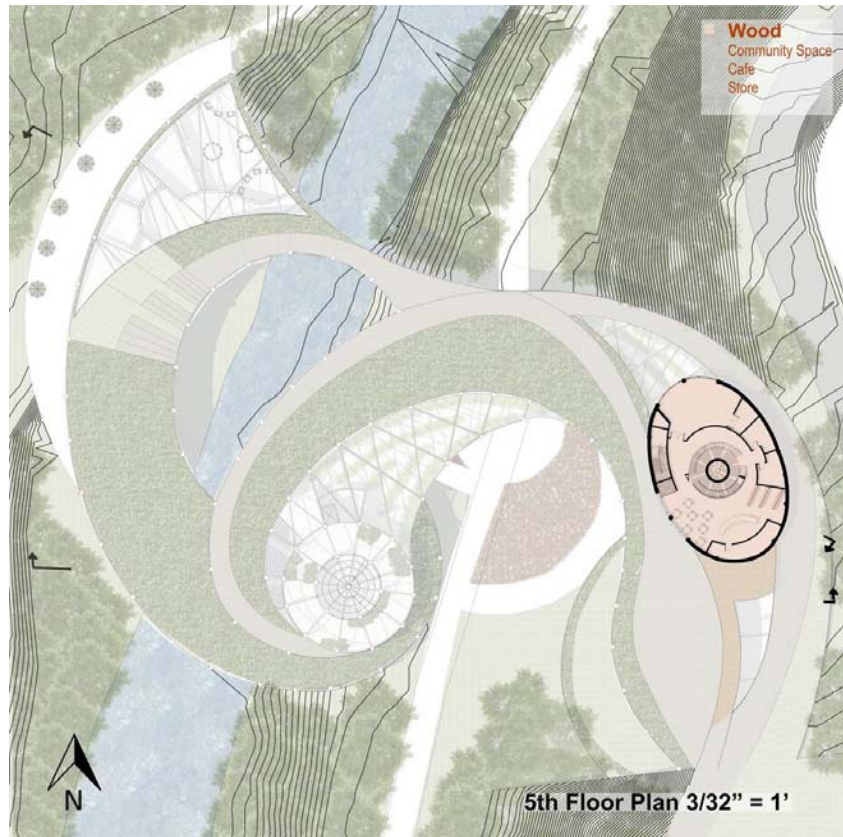


Figure 55: 5th Floor; Wood



Figure 56: 6th Floor; Air

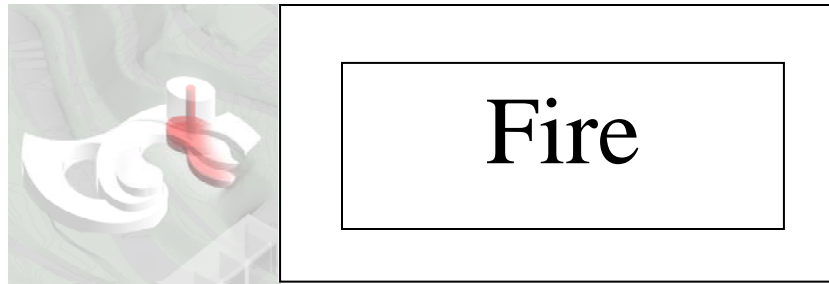


Figure 57: Fire embedded into earth's core

The Fire experience is embedded the farthest into the hillside to represent the earth's core. Eastern Health models relate the body's metabolic and movement systems to the element of fire. It plays the role of separating the purities from the impurities.²⁶ In the wellness center, this space is accessible from the trail and one of the three main entries into the building. It is where the fitness, acupuncture, massage, and sauna programs are located. The fitness program is directly adjacent to the rock climbing wall of the Earth program.

Fire also governs the energy of the heart, which controls blood flow and circulation. Architect Frank Lloyd Wright designs by this concept by making the fireplace a central element and the heart of his designs.²⁷ This inspired the fireplace design in the wellness center. The fireplace is a structural shaft located at the center of the tower component. It is a symbolic piece that connects Fire to Earth, Wood, and Air. This emphasizes the holistic goals of the mind, body, and spirit. It also demonstrates a small generation cycle where fire creates the ash of the earth, the earth grows the wood of the trees, and the wood extends up toward the sky.

²⁶ Patwardhan, Bhushan, Dnyaneshwar Warude, P. Pushpangadan, and Narendra Bhatt. 2005. "Ayurveda and Traditional Chinese Medicine: A Comparative Overview." US National Library of Medicine: National Institutes of Health. Evidence Based Complementary Alternative Medicine v. 2(4); Dec 2005.

²⁷ Lancaster, Clay. *The Japanese Influence in America*. Japan: Walton H. Rawls, 1963.

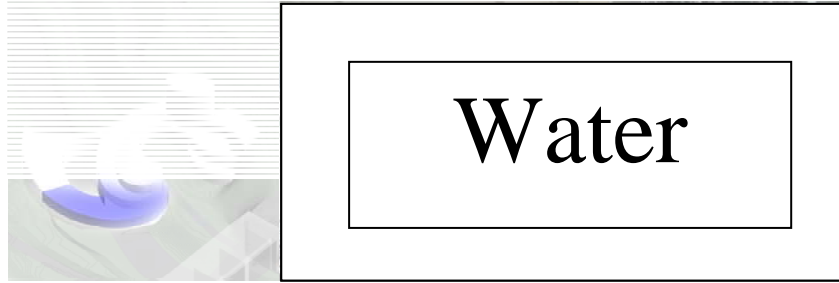


Figure 58: Water hovering over the stream

The Water experience is also accessible from the trail and has a cross spatial relationship with Fire. It is closely related to the Gwynns Falls stream representing its focus on cleanliness, purity, and flowing energy. The water program wraps around the void landmark and hovers over the stream. This provides a visual connection with the water on both sides of the space. This is where the recreational pool, therapeutic pool, hot bath, steam rooms, and hydrotherapy room are located.

The water systems are controlled by a centrally located cistern that serves multiple functions in not only the Water program, but also Earth and Space. The cistern collects rainwater from the sky and ground water from the earth. Water circulates in and runs through a filtration system before being reused to water the plants in the growing oasis and Zen garden. Excess water is used for grey-water functions throughout the building. The cistern also filters water in from the stream. The stream feeds a channel that runs throughout the Water program so users can enjoy an acoustic water experience for relaxation.



Water: Thermal Bath and Pool

Figure 59: Experience the phenomenon of hot water, cold water, nature beyond the stream, and nature in the water channel

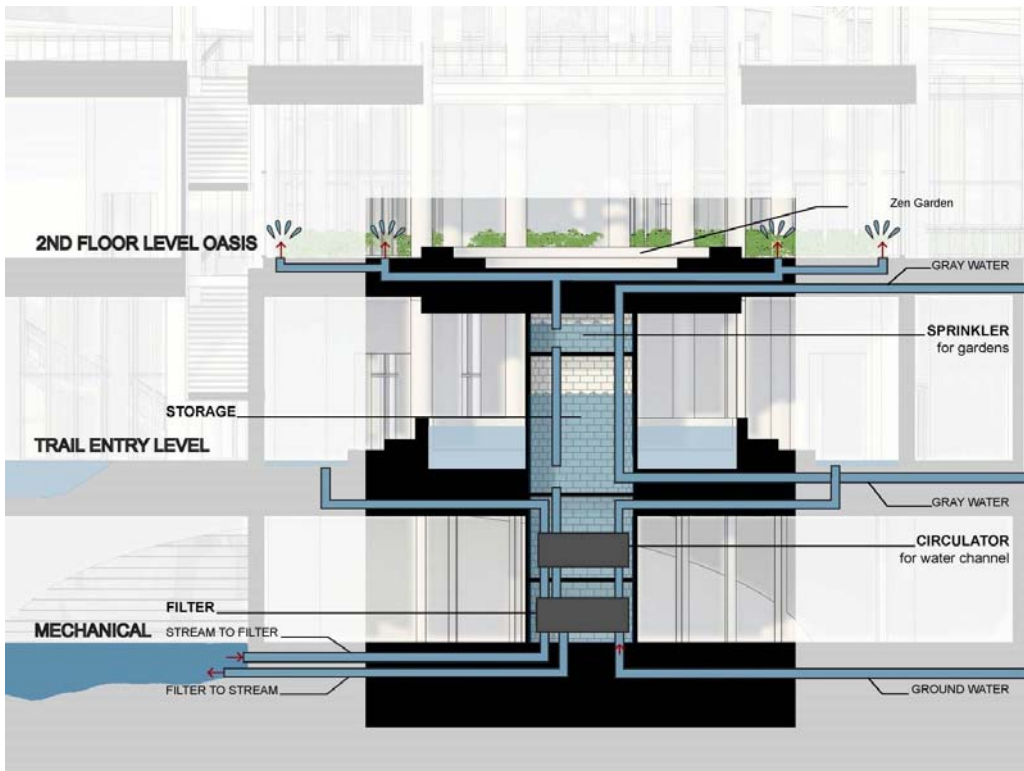


Figure 60: The cistern circulating water from the earth, the stream, and the sky

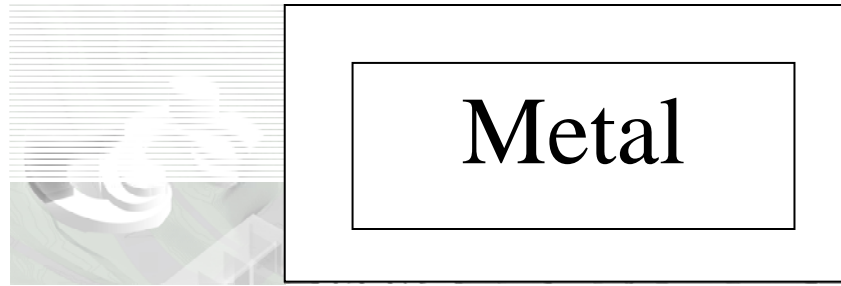


Figure 61: Metal support in the Northwest Wing

The Metal experience is adjacent to the Water program and is accessible from the same entry at the trail level. This entry provides access to an indoor thoroughfare which bridges over the stream to reach the other side. Feng Shui philosophy places the element of metal in the Northwest direction for the most productive flow of energy. It is labeled a space for travel and helpful people.²⁸ These helpful people can be found in the administrative suite on the trail level and the Mental Health Counseling Center located on the floor above.

The Metal space represents the structure and stability of the wellness center which plays an active role throughout the entire facility both physically and socially. The galvanized steel structure of the building demonstrates a condition where both rigid and organic structures come together. The Metal program emulates this form of structure. It supports the idea of a rigid satellite structure where people are researching and working to maintain the wellness experience and a flexible support system that caters to the mental needs of the community. For privacy reasons, the main support space of the Metal element is a little more secluded and given a view of nature where only the exposed steel framing structure can obstruct the view. This space and the individual counseling rooms are separated by a curved wall reflecting the flexibility of poured metal.

²⁸ Gerecht, Hope Karan. 1999. *Healing Design: Practical Feng Shui for Healthy and Gracious Living*. Rutland, Vermont: Tuttle Pub.

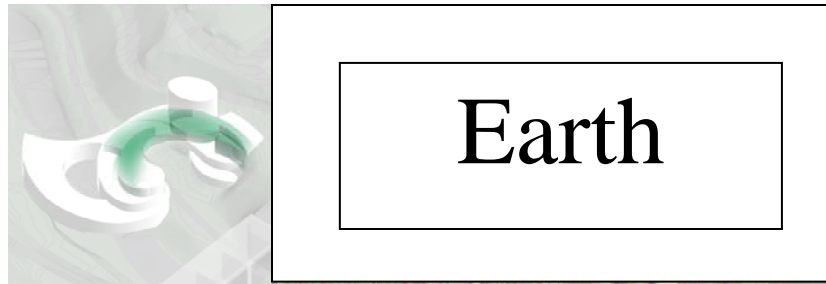


Figure 62: Earth embracing the landscape and growing across the site

The Earth experience is located in a dynamic space on the 2nd floor that is embedded into the natural landscape and also emerging from the hillside. In the cavernous half, there is a rock climbing wall in an atrium connecting Earth with the Fire space. A tunnel is carved under the rock wall, creating an experiential walkway that exposes the structure where it impacts the earth. This condition was inspired by a similar walkway in Geoffrey Bawa's Kandalama Hotel.

The space for the Cooking School of Natural Health emerges from the landscape and connects to the two growing gardens that bridge over the trail. This provides a unique experience through sustainable urban agriculture that aims to educate the community. Students can harvest and maintain the gardens while learning how to use and prepare natural herbs, remedies, and spices. The gardens utilize natural systems to function as a typical greenhouse in a climate that could not normally sustain this type of plant-life.

In the Eastern traditions, earth represents growth and nourishment. Feng Shui also places this element at the center of human growth and wellbeing.²⁹ For this reason, the Kids Zone is located between the two gardens above the trail to celebrate the beginning of our development.

²⁹ Gerecht, Hope Karan. 1999. *Healing Design: Practical Feng Shui for Healthy and Gracious Living*. Rutland, Vermont: Tuttle Pub.



Figure 64: Experience earth in the kitchen, the built oasis, and nature beyond. This educational experience teaches the community how to grow, harvest, cook, and prepare healthy herbs, remedies, and spices

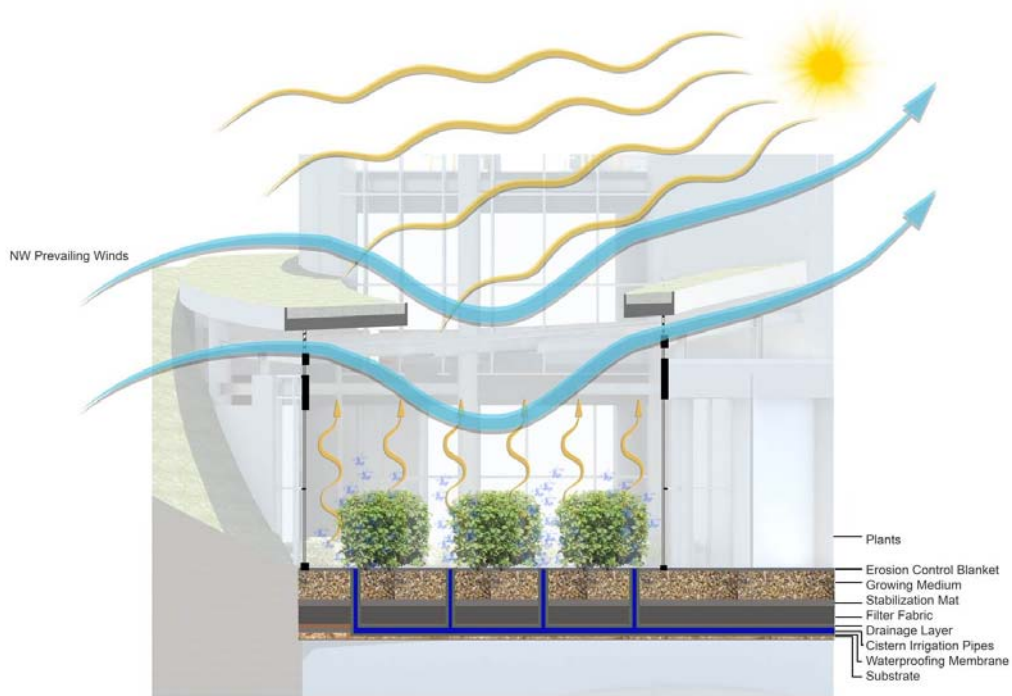


Figure 63: The growing gardens operate like a modern-day greenhouse, utilizing solar heat, natural ventilation and water from the cistern

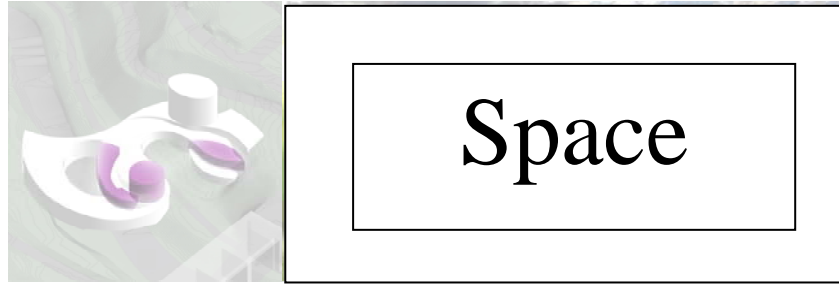


Figure 65: Space representing spatial overlap

The Space experience is created by an overlap of spaces on the 2nd and 3rd floors. It is a balance of all the elements in one. In the Ayurvedic tradition, this element governs the functions of the nervous system in our bodies. The nervous system is a complex network that coordinates with most of the other systems in the body.³⁰ Therefore, these are spaces where one can focus on wellness of the mind, body, and spirit in one activity. Holistic healing strategies are mind-body activities like yoga, tai chi, and qi gong. Instructional spaces for these activities are located on either side of the Earth growing gardens.

Architecturally, Space also represents areas of overlap and tension between other elements. The tai chi and qi gong spaces are located on the edge of the void threshold, linking the Earth, Water, and Metal programs. The yoga instructional room is also located on the edge of a threshold between the fire and earth program. The central Space component is linked to the growing oasis. It is a garden space which is accessible to the public and bears Zen-like qualities. The mezzanine space above the growing garden is an area for contemplation where one can experience a 360 degree view of the threshold from the city into nature.

³⁰ Halpern, Marc, P.H.D. "Principles & Practices of Ayurveda." California College of Ayurveda, accessed November 4, 2012, http://www.ayurvedacollege.com/articles/drhalpern/Principles_practices.

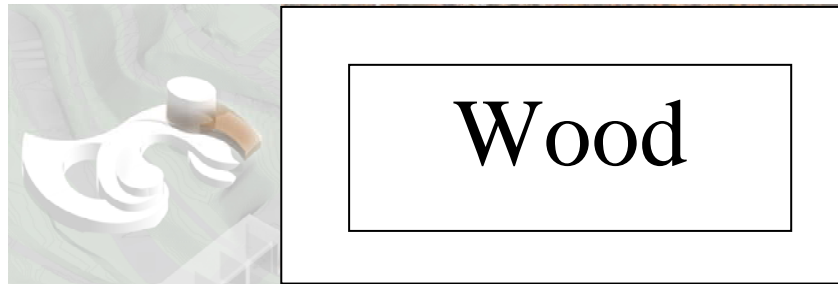


Figure 66: Wood among the canopy of the trees

The Wood Experience is located among the trees of the forest and begins at the street level, where the main entrance is located. It is centrally located among the programs catering to the mind because the community is the key to growth. The family of trees surrounding the wellness center is symbolic of a united community that supports the outreach and awareness of preventative health systems. The street entry level has a reception desk, consultation spaces overlooking the park, and membership offices that welcome new members from the nearby neighborhoods and those coming from public transportation systems. The outreach program is located above the entry on the 5th floor. It includes a natural café and store overlooking the entrance plaza, and also a flexible community space. Awareness spaces are on the 3rd floor below the entry. These are educational spaces, a library, learning commons, and lecture hall, that have a direct relationship with the cooking school and growing gardens.

A wooden lattice structure weaves through these community spaces to symbolize the efforts for outreach and awareness. The design emulates the growth of trees in the forest where the roots come together to form one entity and branches back out with new life.



Wood: Natural Foods Cafe

Figure 68: Experience healthy “fast food” grown and prepared in the Wellness Center upon entry

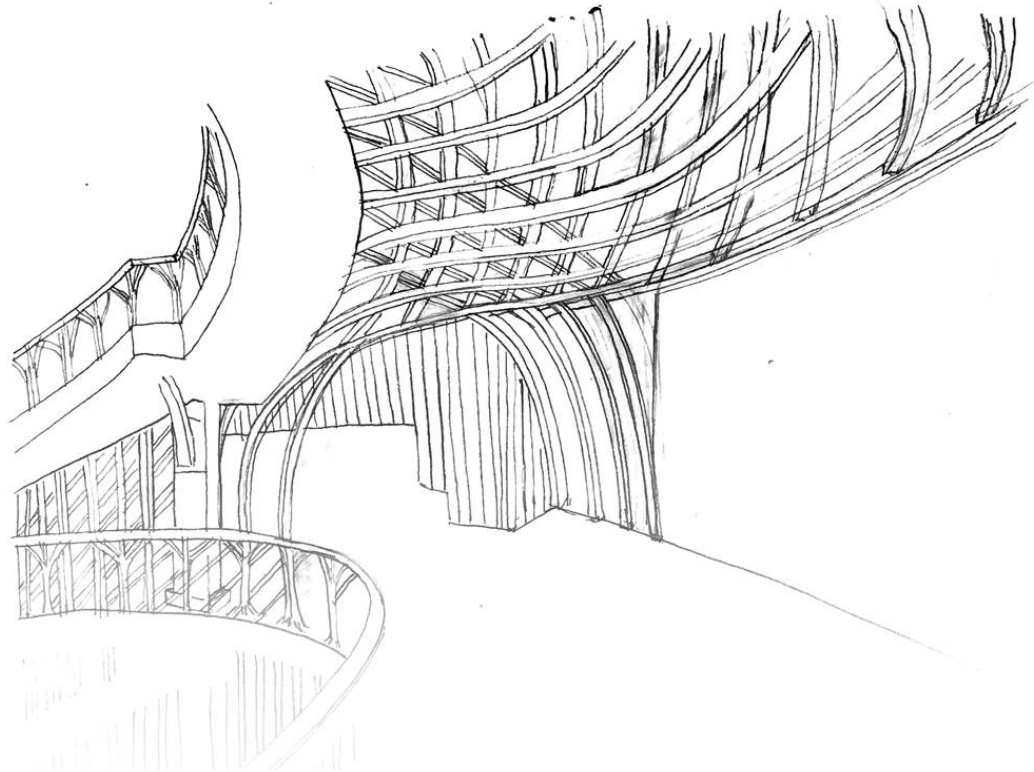


Figure 67: The wooden lattice structure represents a healthy pattern of growth amongst the trees and throughout the community

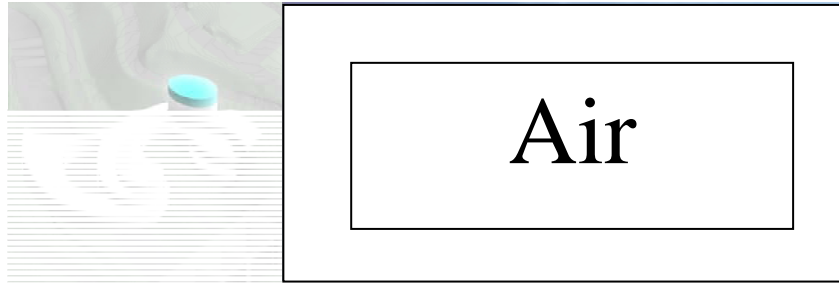


Figure 69: Air at the height of the tower

The Air experience is located at the highest point of the tower, which reaches up toward the sky, on the 6th floor. The tower component was designed to isolate a space where the element of Air could wrap around the building and promote wellness of the inner spirit. Air corresponds with the activity of meditation, which also promotes healing of the spirit.³¹ The program's location above the tree canopy provides an experience of lightness and serenity. The architecture reflects this strategy by utilizing skylights around the top of the fireplace shaft and clerestories around the perimeter of the group meditation spaces.

The group meditation spaces are located on both the north and the south side of the tower. The north room has an outdoor terrace that takes advantage of the northwest prevailing winds so users can experience warm breezes in the summer. The south room has the best natural lighting condition. Although the group meditation rooms are celebrated for community involvement, individual meditation spaces are equipped with acoustic technology that allows each user to customize their private meditation experience.

³¹ Halpern, Marc, P.H.D. "Principles & Practices of Ayurveda." California College of Ayurveda, accessed November 4, 2012, http://www.ayurvedacollege.com/articles/drhalpern/Principles_practices.



Figure 70: Experience meditation with the warm breeze of the northwest prevailing winds in the summer

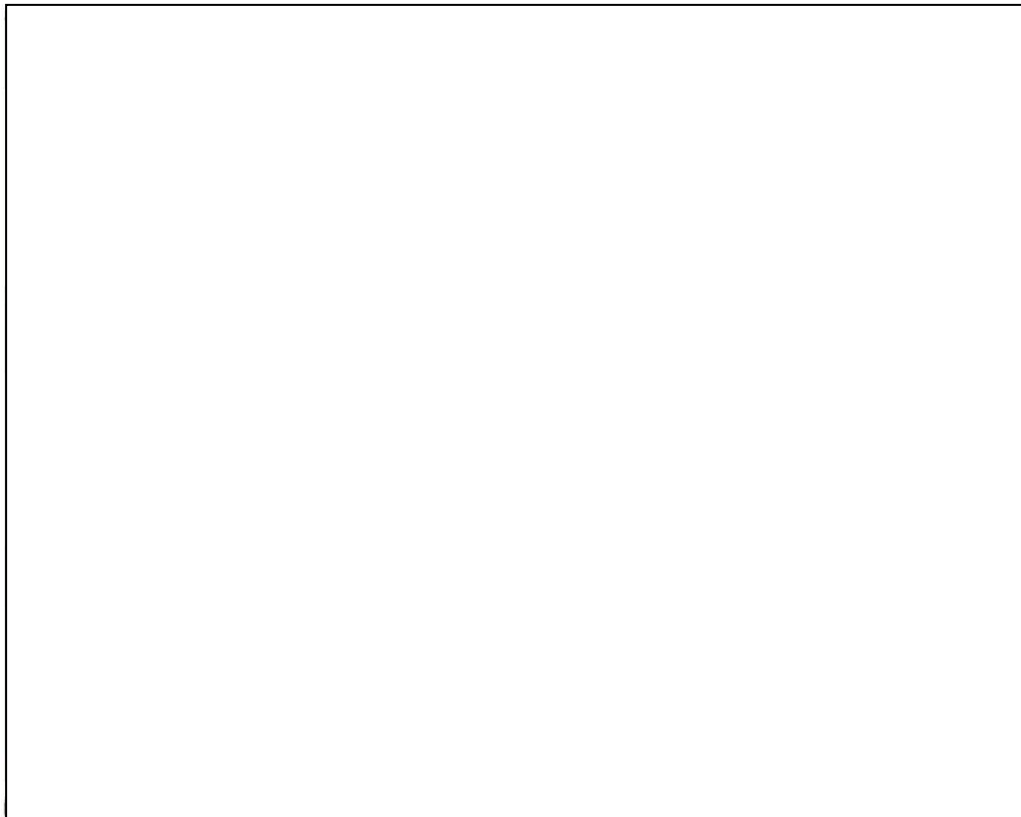
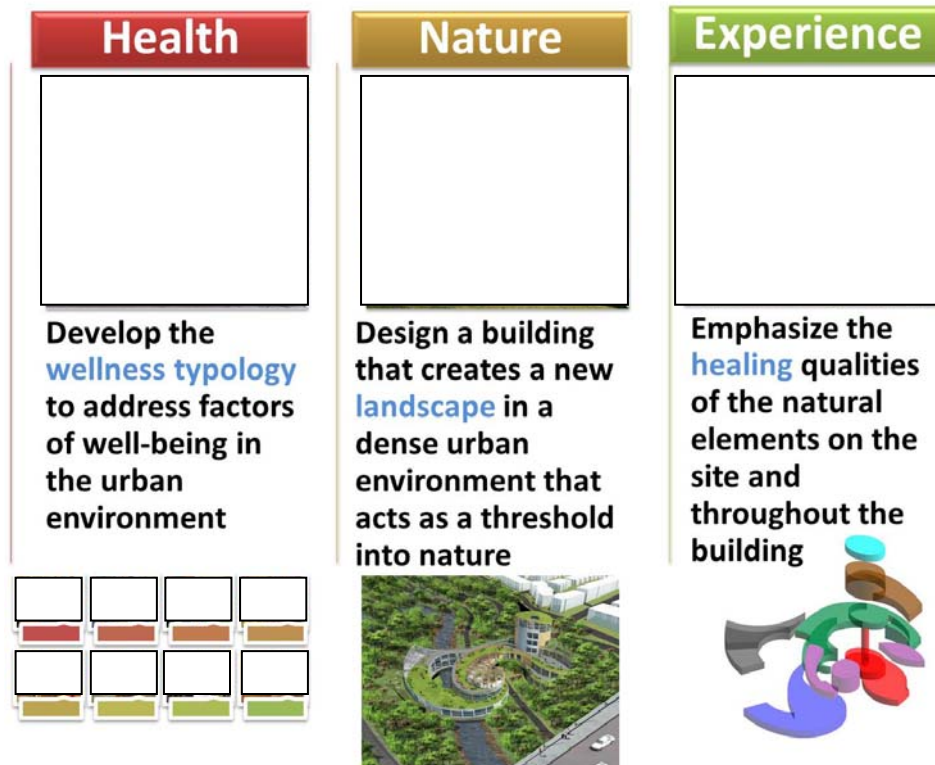


Figure 71: Arup Sound Lab Acoustic Technology in the individual meditation spaces

Chapter 7: Conclusion

This thesis explored the concepts of wellness, inspired by Eastern health and design traditions, to promote healing holistically in the underserve communities of the Western context. It established these strategies for achieving this goal of wellness in the dense urban environment:



Although these strategies were tested in the underserved communities of Baltimore, MD, they can be implemented in dense communities across the nation. These goals rely on a natural environment in close proximity to a dense underserved community. The wellness typology can be recreated in this new environment where the architecture's only role is to enhance the experience within the newly constructed landscape in nature.

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