Active Design: Creating a Blue Zones model for interior environments

Alexis Holcombe
Virginia Commonwealth University

Follow this and additional works at: https://scholarscompass.vcu.edu/etd

Part of the Interior Architecture Commons

© The Author

Downloaded from
https://scholarscompass.vcu.edu/etd/4867

This Thesis is brought to you for free and open access by the Graduate School at VCU Scholars Compass. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of VCU Scholars Compass. For more information, please contact libcompass@vcu.edu.
ACTIVE DESIGN
creating a Blue Zones model for interior environments

alexis c. holcombe
ides 699 spring 2017
virginia commonwealth university
I am committed to making design that serves many and is universal, because that is economical, sustainable and ethical. But I honor design that celebrates the individual, because that is personal, poetic and joyful.

Design is power.

Designers have a responsibility to help people experience and manage their time and place on earth.

— Alexis Holcombe
"It is a question of environment."

That was the assessment of Dr. Pekka Puska, a cardiologist and public health professor with Finland’s National Institute for Health and Welfare (THL). I was sitting at a cozy kitchen conference table with Dr. Puska and his associate, Vesa Korpelainen. They had agreed to meet at their office on Joensuu, Finland, a seven-hour journey by train from Helsinki, through endless miles of thick Baltic birch forest.

I visited Joensuu and Helsinki to discover the connection between interior environments and public health. Dr. Puska had reservations that he could provide any useful insights to a researcher looking for clues to well-being and indoor health. Yet as our conversation continued, it was clear that both men noticed the same growing awareness that I had intuitively grasped after reading Dr. Dan Buettner's book, 
The Blue Zones Solution.

Dr. Puska explained how, as an idealistic young doctor in the 1970s, he proceeded to help bring Joensuu back from the brink of a serious public health crisis. North Karelia, the eastern province where Joensuu is located, had the highest mortality rate for men under the age of 35 in Finland. Through trial and error, Puska and his associates learned that they couldn’t make a lasting difference by treating people individually. Instead, they discovered that a community approach, based on lifestyle, was the most effective, long-term solution to addressing the problem.

And so they took an ecological approach and worked with grocers, restaurant owners, teachers, parents, doctors, students—anyone from the community who wanted to participate. Using this example, I conceived of a mixed-use building project in Richmond, Virginia where one could live healthfully and participate in a mind-body strengthening program. In doing so I hope to provide a blueprint for a micro-Blue Zone for healthy living within the context of modern-day urban Richmond.

I am grateful to Dr. Puska, Mr. Korpelainen and their associate, Dr. Tiina Laatikainen, for initiating this research and design process.
How might interior environments play a role in promoting lifelong well-being? According to Passarino, et al., genetic variation only accounts for about 25% of the variation in human longevity. A combination of diet, environment and exercise comprise the greatest factors.

The amount of time Americans spend indoors presents a challenge to increasing physical activity: the Environmental Protection Agency (EPA) states that Americans spend 93% of their lives indoors (Roberts, 2016). Therefore, if physical activity is crucial to living longer, the design of interior environments could logically be a critical factor in promoting natural movement and sustaining lifelong well-being.

National Geographic fellow Dan Buettner identified five “Blue Zones” throughout the world where people naturally live longer: Ikaria, Greece; Okinawa, Japan; Olgiastra Region, Sardinia; Loma Linda, California; and Nicoya Peninsula, Costa Rica. These regions have unusually high concentrations of centenarians who had grown old without noticeable signs of heart disease, obesity, cancer or diabetes (Buettner, 2015).

Buettner identified nine common principles that universally characterize well-being in the Blue Zones. The first, and most crucial to design in the built environment, is to “move naturally.” Healthy centenarians, Buettner says, “live in environments that constantly nudge them into moving” (Buettner, 2015).

This research will seek to translate Blue Zone principles aimed at promoting continuous well-being through natural movement into enhance the built environment of Richmond, Virginia. The two-story adaptive reuse, mixed-use commercial project will address vertical transitions, social spaces and outdoor relationships that encourage residents and visitors to move throughout the day.

Interior design that encourages regular natural movement occurs naturally in the design of a building’s major circulation systems and its program. Corridors, elevators and lobbies that connect other spaces in the program encourage walking. Elements like stairs, bicycle storage and furniture that produce micro-movement promote activity when they are visible, safe and attractive. Programmed spaces that encourage physical activity like dance/movement studios and those that promote healthy diets also lead to increases in healthy behaviors, which ultimately lead to increased longevity.

Using these guides, a building in Richmond, Virginia will be redesigned as a micro-Blue Zone that could be used as a model for promoting increased lifelong well-being. This two-level adaptive reuse mixed-use commercial project will address natural movement, social spaces and outdoor relationships that encourage residents and visitors to move throughout the day.

**THESIS ABSTRACT**

How might interior environments play a role in promoting lifelong well-being? According to Passarino, et al., genetic variation only accounts for about 25% of the variation in human longevity. A combination of diet, environment and exercise comprise the greatest factors.

The amount of time Americans spend indoors presents a challenge to increasing physical activity: the Environmental Protection Agency (EPA) states that Americans spend 93% of their lives indoors (Roberts, 2016). Therefore, if physical activity is crucial to living longer, the design of interior environments could logically be a critical factor in promoting natural movement and sustaining lifelong well-being.

National Geographic fellow Dan Buettner identified five “Blue Zones” throughout the world where people naturally live longer: Ikaria, Greece; Okinawa, Japan; Olgiastra Region, Sardinia; Loma Linda, California; and Nicoya Peninsula, Costa Rica. These regions have unusually high concentrations of centenarians who had grown old without noticeable signs of heart disease, obesity, cancer or diabetes (Buettner, 2015).

Buettner identified nine common principles that universally characterize well-being in the Blue Zones. The first, and most crucial to design in the built environment, is to “move naturally.” Healthy centenarians, Buettner says, “live in environments that constantly nudge them into moving” (Buettner, 2015).

This research will seek to translate Blue Zone principles aimed at promoting continuous well-being through natural movement into enhance the built environment of Richmond, Virginia. The two-story adaptive reuse, mixed-use commercial project will address vertical transitions, social spaces and outdoor relationships that encourage residents and visitors to move throughout the day.

Interior design that encourages regular natural movement occurs naturally in the design of a building’s major circulation systems and its program. Corridors, elevators and lobbies that connect other spaces in the program encourage walking. Elements like stairs, bicycle storage and furniture that produce micro-movement promote activity when they are visible, safe and attractive. Programmed spaces that encourage physical activity like dance/movement studios and those that promote healthy diets also lead to increases in healthy behaviors, which ultimately lead to increased longevity.

Using these guides, a building in Richmond, Virginia will be redesigned as a micro-Blue Zone that could be used as a model for promoting increased lifelong well-being. This two-level adaptive reuse mixed-use commercial project will address natural movement, social spaces and outdoor relationships that encourage residents and visitors to move throughout the day.
The Blue Zones

There are many factors that work against creating healthy life habits for most Americans. Cheap, high caloric food with little nutritional value adds pounds and degrades our bodies’ ability to fight disease. Technological advances make life easier, but also make us more inclined to be sedentary. Previous generations moved more because they had to and ate simpler diets. Scarcity and hardship created an environment where people’s bodies worked harder to maintain health. As researcher Dan Buettner notes in The Blue Zones Solution (2015), most Blue Zones residents, such as those in Sardinia and Ikaria, for example, live in communities that are physically isolated from many modern conveniences. These individuals live largely in the same way they did a century earlier. Their simpler lifestyles hold the key to understanding their long and healthy lives.

Buettner’s research on the Blue Zones shows that it is possible to create modern day environments that mirror the experiences of Blue Zones centenarians. The results from these Blue Zones community “makeover” projects has produced noticeable results in 31 communities across the U.S., with an impact on more than 2,000,000 lives.

The Blue Zone principle of moving naturally means people can add more exercise to their daily routine without going to the gym. Making your food choices, more social connections and having a progressed outlook toward the Blue Zones blueprint.

This project’s proposed mixed use, adaptive reuse addresses three major program areas: nine residential apartments, a tai chi studio, and a modern day Japanese tea room.

How to be Blue Zoned

A. Deconvenience the home to maximize movement
B. Create an efficient kitchen layout
C. Have plenty of cleared kitchen counter space and good lighting
D. Make the bedroom a sanctuary for a good night’s sleep
E. Own only one TV
F. Have indoor plants for better air quality
G. Create a quiet destination space for relaxing and meditating
H. Place some seating on the floor
I. Ride a bike and walk a dog to get moving outdoors

How to Blue Zone the Environment

J. Move naturally throughout the day
K. Have a sense of purpose and live for something beyond work
L. Make food and dining sacred by eating a plant-focused diet with friends and family
M. Bring together a group of mutually committed friends
N. Downshift and shed stress by meditating, praying or praying

The Power Nine are principles common to all five Blue Zones. These same principles are also being applied in the Blue Zones Project, a program that brings wide-ranging changes that bring measurable results.

03 Down shift
04 Wine @ five
05 Plant Based
06 Family First
07 Purpose
08 Right Tribe
09 Community

Family First
Children who are cherished care for aging parents, while having a life partner can add three years’ life expectancy.

Right Tribe
Social circle support healthy behaviors. Okinawans create moais - five friends who support each other for life.

Power Nine

01 Move to buying
People in Blue Zones rely on environments that build movement into their daily routines.

02 Purpose
Have something to live for in order to wake up each day.

03 Down shift
Make a daily habit of taking time to meditate, pray or nap.

04 Wine @ five
All Blue Zones communities drink alcohol moderately and regularly — one to two glasses a day.

05 Plant Based
Beans are the backbone of Blue Zones diets, while meat is eaten in limited quantities.

06 Family First
Children who are cherished care for aging parents, while having a life partner can add three years’ life expectancy.

07 Purpose
Have something to live for in order to wake up each day.

08 Right Tribe
Social circle support healthy behaviors. Okinawans create moais - five friends who support each other for life.

09 Community
Attending faith-based services adds four to fourteen years of life expectancy regardless of the denomination or practice.

The Blue Zones Project is a program that brings wide-ranging changes that bring measurable results.
Buildings and sites can have a measurable impact on occupants’ health. Buildings and the form of buildings, as well as amenities, programming, and circulation have all been shown to affect physical activity (Zimring, Nicoll, and Tsepas, p. 188-90). Likewise, building elements can promote or deter physical activity. Stairs are the building element that have the greatest potential for affecting human health positively. Studies have shown measurable impacts on weight reduction and risk of stroke or death when occupants use stairs rather than elevators or escalators.

Yet while behavioral choices are governed by the built environment, cultural norms, economics, and social trends also play a crucial role in the ways in which we use buildings. The social behavioral model of individual behavioral change is governed by societal, community, organizational, interpersonal, and individual factors. Adults with low self-efficacy only increase their participation in physical activity if they have increased access to sports facilities. Adults with high self-efficacy, on the other hand, find a way to maintain a consistent program of physical fitness regardless of their access to sports facilities. High self-efficacy is also linked to better knowledge about nutrition and social support for eating fruits and vegetables (Zimring, Nicoll and Tsepas, pp. 265-66).

The feature staircase at the Buckingham County Primary and Elementary School is located near the building’s entrance. Colorful handrailings are placed at kids’ heights, while the stair connects important shared common spaces and acts as a social hub. Source: Tom Daly.

Blue Zones residents incorporate instrumental and hybrid activity in their daily move naturally. People in Blue Zones live in environments that build movement into their daily routines. For modern societies that rely on convenience, such activity must be more deliberately considered.

Concern for well-being and the environment can be encouraged by positive social trends: “A built environment (and associated policies and social marketing) may both improve individual health and help the community achieve environmental sustainability.”

Movement and happiness

Equally as important as hybrid physical activity are the smaller and more subtle forms of movement that we engage in every day. A new study tracking 10,000 smartphone users shows that “inactivity, which has been linked to poor physical health, is also linked to poor psychological health” (Lathia, Sandstrom, et al., p. 1). Research on self-reported levels of happiness and physical well-being has mainly focused on exercise. This new research shows a link between happiness and exercise with movement by using a smartphone app to track self-reports of happiness.

Fidgeting

Humans spend a great deal of time sitting, most of it while sitting motionless. “Steady states of movement often require a great deal of energy, and most of us spend between eight and 10 hours each day seated. During that time, our bodies are, in particular, our legs hardly moving” (Reynolds). This causes a clear decline in the flow of blood to our legs, and lower blood flow results in hardening of the arteries. Standing can improve this by causing leg muscles to contract and blood to flow.

But it’s not always acceptable to stand in some situations, such as a long meeting or during a long trip. A study in The American Journal of Physiology Heart and Circulatory Physiology testing a small number of healthy young people shows that fidgeting could produce enough lower body muscle movement to significantly elevate blood flow to the legs.
Building developers and designers have only recently recognized the importance of encouraging stair use to benefit human health. Interestingly, visual appeal is not a significant indicator of whether stairs will be used regularly. A recent study suggested that spatial characteristics of stairs are much more important than attractiveness or a pleasing view in determining stair use, suggesting "a well-placed stair has more impact on stair use than a well-dressed stair" (Nicoll, p. 351).

The study concludes that convenience and legibility are the most important features of determining stair use, and that "building managers may design interventions to remediate spatial deficiencies such as the lack of stair visibility or intelligibility" (Nicoll, p. 352).

### Design and stair use

**Signs placed near stairs and elevators to encourage stair use**

The New York City Council recently passed a bill that increases stair visibility by allowing some stair doors to be held open by magnetic devices that will close automatically in case of an emergency. These devices make code-compliant fire stairs more visible and therefore more likely to be used.

Before this, special permission needed to be granted by the city to install magnetic hold-opens on stairway doors.

The Center for Architecture in New York City uses hold-open devices on the door of its main circulation stair. Rick Bell, Executive Director of the New York City chapter of the American Institute of Architects, says "The Center welcomes 5,000 visitors a month, and of those visitors, ninety-five percent take the stairs to reach our gallery spaces and lecture halls" (Center for Active Design).

A pending NYC bill ensures that all new construction provides building occupants with stair access to all floors. The bill also will allow the use of fire-rated glass and point-of-decision stair prompts "at least one stairway to each building".

### New York City's addresses stair use

Using fire-rated glass assemblies can make stairs more visible, even in existing buildings. In addition to making stairs more appealing for everyday use, naturally, a well-dressed stair can be better lit, more accessible and usable.

According to the amended (2012) International Building Code (IBC), code for fire stair doors require a compartmentalized glass panel of 100 square inches, whether or not the building is fully sprinklered. However, this requirement applies only to traditional "safety" stair glass and ignores products. Several developed special fire-rated glass assemblies concluded to limit temperature rise and to block radiant heat.

While fire ratings are not prominent in 60- to 90-minute exit stair construction, related standards that limit radiant heat are promised (NFPA 80 (2007)).

### Design and stair use

Building developers and designers have only recently recognized the importance of encouraging stair use to benefit human health. Interestingly, visual appeal is not a significant indicator of whether stairs will be used regularly. A recent study suggested that spatial characteristics of stairs are much more important than attractiveness or a pleasing view in determining stair use, suggesting "a well-placed stair has more impact on stair use than a well-dressed stair" (Nicoll, p. 351).

The study concludes that convenience and legibility are the most important features of determining stair use, and that "building managers may design interventions to remediate spatial deficiencies such as the lack of stair visibility or intelligibility" (Nicoll, p. 352).

### Design and stair use

**Signs placed near stairs and elevators to encourage stair use**

The New York City Council recently passed a bill that increases stair visibility by allowing some stair doors to be held open by magnetic devices that will close automatically in case of an emergency. These devices make code-compliant fire stairs more visible and therefore more likely to be used. Before this, special permission needed to be granted by the city to install magnetic hold-opens on stairway doors.

The Center for Architecture in New York City uses hold-open devices on the door of its main circulation stair. Rick Bell, Executive Director of the New York City chapter of the American Institute of Architects, says "The Center welcomes 5,000 visitors a month, and of those visitors, ninety-five percent take the stairs to reach our gallery spaces and lecture halls" (Center for Active Design).

A pending NYC bill ensures that all new construction provides building occupants with stair access to all floors. The bill also will allow the use of fire-rated glass and point-of-decision stair prompts "at least one stairway to each building".

### New York City's addresses stair use

Using fire-rated glass assemblies can make stairs more visible, even in existing buildings. In addition to making stairs more appealing for everyday use, naturally, a well-dressed stair can be better lit, more accessible and usable.

According to the amended (2012) International Building Code (IBC), code for fire stair doors require a compartmentalized glass panel of 100 square inches, whether or not the building is fully sprinklered. However, this requirement applies only to traditional "safety" stair glass and ignores products. Several developed special fire-rated glass assemblies concluded to limit temperature rise and to block radiant heat.

While fire ratings are not prominent in 60- to 90-minute exit stair construction, related standards that limit radiant heat are promised (NFPA 80 (2007)).

### Design and stair use

Building developers and designers have only recently recognized the importance of encouraging stair use to benefit human health. Interestingly, visual appeal is not a significant indicator of whether stairs will be used regularly. A recent study suggested that spatial characteristics of stairs are much more important than attractiveness or a pleasing view in determining stair use, suggesting "a well-placed stair has more impact on stair use than a well-dressed stair" (Nicoll, p. 351).

The study concludes that convenience and legibility are the most important features of determining stair use, and that "building managers may design interventions to remediate spatial deficiencies such as the lack of stair visibility or intelligibility" (Nicoll, p. 352).

### Design and stair use

**Signs placed near stairs and elevators to encourage stair use**

The New York City Council recently passed a bill that increases stair visibility by allowing some stair doors to be held open by magnetic devices that will close automatically in case of an emergency. These devices make code-compliant fire stairs more visible and therefore more likely to be used. Before this, special permission needed to be granted by the city to install magnetic hold-opens on stairway doors.

The Center for Architecture in New York City uses hold-open devices on the door of its main circulation stair. Rick Bell, Executive Director of the New York City chapter of the American Institute of Architects, says "The Center welcomes 5,000 visitors a month, and of those visitors, ninety-five percent take the stairs to reach our gallery spaces and lecture halls" (Center for Active Design).

A pending NYC bill ensures that all new construction provides building occupants with stair access to all floors. The bill also will allow the use of fire-rated glass and point-of-decision stair prompts "at least one stairway to each building".

### New York City's addresses stair use

Using fire-rated glass assemblies can make stairs more visible, even in existing buildings. In addition to making stairs more appealing for everyday use, naturally, a well-dressed stair can be better lit, more accessible and usable.

According to the amended (2012) International Building Code (IBC), code for fire stair doors require a compartmentalized glass panel of 100 square inches, whether or not the building is fully sprinklered. However, this requirement applies only to traditional "safety" stair glass and ignores products. Several developed special fire-rated glass assemblies concluded to limit temperature rise and to block radiant heat.

While fire ratings are not prominent in 60- to 90-minute exit stair construction, related standards that limit radiant heat are promised (NFPA 80 (2007)).

### Design and stair use

Building developers and designers have only recently recognized the importance of encouraging stair use to benefit human health. Interestingly, visual appeal is not a significant indicator of whether stairs will be used regularly. A recent study suggested that spatial characteristics of stairs are much more important than attractiveness or a pleasing view in determining stair use, suggesting "a well-placed stair has more impact on stair use than a well-dressed stair" (Nicoll, p. 351).

The study concludes that convenience and legibility are the most important features of determining stair use, and that "building managers may design interventions to remediate spatial deficiencies such as the lack of stair visibility or intelligibility" (Nicoll, p. 352).

### Design and stair use

**Signs placed near stairs and elevators to encourage stair use**

The New York City Council recently passed a bill that increases stair visibility by allowing some stair doors to be held open by magnetic devices that will close automatically in case of an emergency. These devices make code-compliant fire stairs more visible and therefore more likely to be used. Before this, special permission needed to be granted by the city to install magnetic hold-opens on stairway doors.

The Center for Architecture in New York City uses hold-open devices on the door of its main circulation stair. Rick Bell, Executive Director of the New York City chapter of the American Institute of Architects, says "The Center welcomes 5,000 visitors a month, and of those visitors, ninety-five percent take the stairs to reach our gallery spaces and lecture halls" (Center for Active Design).

A pending NYC bill ensures that all new construction provides building occupants with stair access to all floors. The bill also will allow the use of fire-rated glass and point-of-decision stair prompts "at least one stairway to each building".

### New York City's addresses stair use

Using fire-rated glass assemblies can make stairs more visible, even in existing buildings. In addition to making stairs more appealing for everyday use, naturally, a well-dressed stair can be better lit, more accessible and usable.

According to the amended (2012) International Building Code (IBC), code for fire stair doors require a compartmentalized glass panel of 100 square inches, whether or not the building is fully sprinklered. However, this requirement applies only to traditional "safety" stair glass and ignores products. Several developed special fire-rated glass assemblies concluded to limit temperature rise and to block radiant heat.

While fire ratings are not prominent in 60- to 90-minute exit stair construction, related standards that limit radiant heat are promised (NFPA 80 (2007)).
Well-being research connects to practice. Several current initiatives are addressing the connections between well-being and interior environments. While each of these initiatives centers around different methods and scope, they share several overlapping criteria.

The Blue Zones principle of natural environment is driven to reach these goals. In most cases, the focus is on one or more building programming for active movement, and integrated paths of travel that are visible and appealing.

The Center for Active Design in New York City is a non-profit organization that uses research to promote healthy and vibrant communities. The center’s building design checklist focuses on a building’s circulation. The Center also authored the U.S. General Services Administration (GSA) and the Centers for Disease Control and Prevention (CDC) in designing the most effective green spaces for other building to create holistic approach to well-being in the built environment.

The Urban Land Institute has developed a similar matrix for designing healthy spaces. The Building Healthy Places Toolkit has been designed in cooperation with the Center for Active Design to promote the ULI’s educational and research mission. The ULI’s Building Healthy Places Toolkit has been designed in cooperation with the Center for Active Design to promote the ULI’s educational and research mission.

The Well Building Boarded and the affiliated Well Living Lab are supported by the International Well Building Institute. The Well Living Lab is a joint venture between New Cities Foundation and Delos Living, LLC, a wellness real estate concern. It is the world’s first lab devoted to studying human health in the built environment. The Well Building Boarded in a rating system that works with the LEED Green Building Rating System.

Well Building Boarded and the affiliated Well Living Lab are supported by the International Well Building Institute. The Well Living Lab is a joint venture between New Cities Foundation and Delos Living, LLC, a wellness real estate concern. It is the world’s first lab devoted to studying human health in the built environment. The Well Building Boarded in a rating system that works with the LEED Green Building Rating System.
The Well Living Lab in Rochester, Minnesota simulates real life indoor living and working environments. Created as a joint venture between Rochester’s Mayo Clinic and Delos Living, LLC, a wellness real estate concern, the lab studies indoor environments to identify factors that make homes and workplaces places to live in.

While the evidence-based methodology used by the Well Living Lab does not specifically address the Blue Zones principles identified by Dan Buettner, the lab’s mission taps into the same critical environmental factors and quantifies them. The lab uses advanced biometric and wearable sensor technology that allows study participants to move about naturally. Sensors monitor and record the body’s response to stimuli such as sound, motion, air flow, light, and sleep. The lab uses advanced architectural design features like reconfigurable mechanical and structural systems designed by Steelcase to simulate a wide range of living situations.

The research methodology uses large and small groups of subjects with varying demographic and health measurements. Outcomes such as sleep, performance, stress, fitness and nutrition are studied in a variety of environmental configurations. For example, Jolene Bernau, Innovation Coordinator for the lab, says the first study tested the lab’s capabilities in addition to collecting performance data. She stresses that this is a simulation of a real world environment, not a recreation of one.

In an interview at the lab’s Rochester facility, Bernau notes that the best way to measure productivity in the simulated office environment is to measure cognitive function. Preliminary data already show that stress and fatigue lead to lower levels of productivity. Results like this can give employers, designers and contractors a sense of where the best return on investment lies for installing upgraded lighting systems, for example.

Spurrier says that with the fundamentals in place the lab’s next steps are to include “design thinking” strategies and have included 17 designers in a variety of disciplines on staff. They are also working on making remote connections with other Mayo entities such as a senior center and a fitness center to extend the work of the lab.

“Scalability” is therefore one of the lab’s highest priorities. According to Alfred Anderson, the lab’s Information Technology Director, scalability is the key for the lab to move out the lab’s capabilities in addition to collecting performance data. He stresses that this is a simulation of a real world environment, not a recreation of one.

The International Well Building Institute released the WELL Building Standard v.1 in 2015. Developed in conjunction with the U.S. Green Building Council, the standard is modeled on the Leadership in Energy & Environmental Design (LEED) credentialing program. Candidates can become WELL Accredited Professionals (WELL AP) by successfully passing the WELL AP exam and buildings can receive WELL AP certification.
Tai Chi Chuan, or Tai Chi, is a form of martial art using singular movements that are combined into a series of contnuous movements (Hong, 2008). Increased muscle strength, flexibility, balance, and coordination of the lower body are the main benefits that are required for daily activities (Hong, Mao, Li, 2008). Tai Chi can be practiced nearly anywhere without any special equipment. People of all ages and fitness levels can benefit from regular Tai Chi practice (Source: dreamstime).

Tai Chi Chuan, or Tai Chi, is a form of martial art using singular movements that are combined into a series of continuous movements (Hong, 2008). Increased muscle strength, flexibility, balance, and coordination of the lower body are the main benefits that are required for daily activities (Hong, Mao, Li, 2008). Tai Chi can be practiced nearly anywhere without any special equipment. People of all ages and fitness levels can benefit from regular Tai Chi practice (Source: dreamstime).

Research shows that Tai Chi offers “both a physical component as well as a socio-cultural, meditative component that is believed to contribute to overall well-being” (Yau, 2008). These qualities make a Tai Chi studio an effective programming choice for a Blue Zone.

How does a Tai Chi studio meet Blue Zones criteria?

1. Move Naturally.
   The lower body support and direction of movement are more effective than daily walking for simulating the body’s natural positions that are required for daily activities (Hong, Mao, Li, 2008). The slow movements and sustained poses increase the lower body workout. The moderate workout intensity is appropriate for all ages and can be adjusted for participants of various fitness levels (Lan, Chen, Lai, 2008). Finally, Tai Chi can be practiced virtually any time and any place without special equipment.

2. Purpose.
   Tai Chi has been shown to improve quality of life. Meaningful and productive activities such as Tai Chi enhance quality of life by providing meaning to and a pattern for living daily life (Yau, 2008).

3. Downshift.
   Tai Chi effectively reduces stress and anxiety while it promotes tranquility and relaxation.

4. Right Tribe.
   The positive atmosphere in the group setting promotes a strong social support component beyond the actual time spent in Tai Chi practice.

People in Blue Zones live in environments that build movement into their daily routines.

Have something to live for when waking up each day.
Having a sense of purpose adds seven years of extra life expectancy.

Make a daily habit of taking time to meditate, pray or nap.

Social circles support healthy behaviors. Okinawans create moais - five friends who support each other for life.

The fluid foot motions of Yang-style Tai Chi forms a flowing 24-step pattern (based on an image from travel2health.blogspot.com).
Chado, the Way of Tea, also known as Teaism, was introduced in China thousands of years ago by Zen Buddhist monks to prevent sleep. After water, tea is the most frequently consumed beverage in the world. Yet while the tools and processing of tea originated in China and India, Teaism is a full expression of Japanese character. Also known as Cha-no-yu, literally “Hot Water for Tea,” the ceremony of drinking tea in Japan embodies the simplicity and restraint of Buddhist philosophy.

As A.L. Sadler notes, the devotion to a calm and simple life in Japanese society was enforced on Japan out of postwar necessity. The rejection of the ego and public display of vulgarity was an effective way to moderate “the disruptive forces of society” and emphasize “esthetics, economics and etiquette” (pp. xxi-xxii).

Make a daily habit of taking time to meditate, pray or nap.

In Japan’s Okinawa region people remind themselves to stop eating when they are 80% full with the concept of Hara hachi bu. Beans are the backbone of Blue Zones diets, while meat is eaten in limited quantities.

As early as 4,000-5,000 years ago, the Chinese understood that tea could promote health and prevent some human diseases (Chen and Lin, p. 87). In the 1980s a more modern approach was begun to assess the medicinal benefits of tea, with over 800 academic papers published between 2012 and 2015 on this subject. A survey of these studies points to several important benefits of drinking tea.

Active compounds called catechins were found to have protective effects on health, including prevention of some types of cancer. Six studies show there is a likely reduction of breast cancer risk with regular consumption of green tea (Chen and Lin, p. 88).

Ten studies indicate that green tea could reduce body weight and body fat. The risk of type 2 diabetes could also be lowered by drinking three to five cups of tea a day. Catechins in tea could reduce blood pressure and inflammation.

Studies in Japan and the US suggested mortality from coronary artery disease was decreased when more than 6 cups of tea per day were consumed. Black and green teas “were reduced risk of both coronary heart disease and stroke by 20%-40%” (Chen and Lin, p. 92).

Scientists also found a connection to the prevention of neurodegenerative diseases. “Tea drinking could reduce the risk of Alzheimer’s and Parkinson’s disease by thirty to fifty percent and cognitive ability was shown to be significantly higher in a group drinking black tea (Chen and Lin, pp. 99-100).

Tea and human health

The Japanese practice of taking a moment to utter “Hara hachi bu” before each meal is an ancient Confucian practice that reminds centenarians in the Okinawan Blue Zone to stop eating when their stomachs are eighty percent full. By waiting 20 minutes for the sensation of fullness during a meal, Okinawans carefully control healthy portion control and under the word ‘a time to enjoy, relax and relieve stress’ (Buettner, p. 57).

A tea room based on traditional practices of abstaining, bleeding and serving tea addresses several core Blue Zone principles.

Making food and dining sacred is an important characteristic of people living in Blue Zones. “For them, growing, preparing, serving, and eating are all sacred practices with power to bring their families, their homes, their communities, their beliefs, and the natural world together in daily rhythms and harmonies” (Buettner, p. 77).

Researchers Buettner notes that people in all the Blue Zones drink tea. “Okinawans nurse green tea all day. Green tea has been shown to lower the risk of heart disease and some cancers. Ikarians drink brews of rosemary, wild sage, and dandelion – all herbs known to have anti-inflammatory properties.” (Buettner, p. 77)
A plan of a four-mat tea room called Kansui-an to have been given by the third Shogun Iemitsu to Okudaira, lord of Nakatsu in Kyushu.

(1) tokonoma  (2) board floor  (3) mizuya  (4) nijiri-agari  (5) shelf  (6) setsuin  (7) waiting arbor  (8) windows  (9) crouching basin  (10) lantern  (11) nobleman’s entrance  (12) garden gate

Buddhist monks and craftsmen designed temples and mansions. (Isshiki, p. 14) A professional Tea Master could also be known as an artist, architect, decorator and connoisseur.

Using the ken, a measurement of 3 feet by 6 feet, or the dimensions of a Japanese tatami mat, the plan of the house is designed to fit around the plan of the garden, with all ornamentation and construction clearly in view.

Panel of a typical Japanese roji, or garden, and elements of a traditional tea house.

A  space for changing clothes
B  bathroom
C  middle gate and seat
D  bathroom
E  water basin
F  tea room entrance
G  tea room
H  tokonoma display niche

Viewing life from a different angle leads to a greater sense of place in the universe.
La Maison de Verre

Created in close consultation with master-craftsman Louis Dalbet, and the clients, Dr. and Mme. Dalsace, La Maison de Verre is so richly detailed that its interior is equally if not more significant than its architecture. In fact, in his 1969 essay, architecture critic Kenneth Frampton wondered whether it would be more accurate to call La Maison “a greatly enlarged piece of furniture” (Frampton, p. 77), noting that architect Pierre Chareau was largely interested in interiors.

While adhering to principles of modern design proposed by Le Corbusier, La Maison shows a greater sense of livability and suitability for its occupants. Serving as a medical office for the owner, Dr. Dalsace, and a family home, the building features moving parts such as screens and staircases. The complex path of travel shifts from floor to floor, providing constant movement. Simple forms and materials support the flow.

This project has been selected because of its unique circulation and arrangement of many movable elements. By displacing the major horizontal planes and organizing a complex but orderly path through the house, Chareau’s house is an excellent model for organization of this thesis site.

The glass block facade of La Maison de Verre, as seen from the forecourt, allows in light while maintaining privacy. At the time, the use of glass block “lenses” on such a scale for residential architecture was relatively unknown. The material was originally developed in Japan and indeed contributes to the Japanese character of the house. Photo source: Subrealistsandu/Arch Daily.
The pivoting door leading from the medical suite to the private quarters with perforated metal sub-screens. (Photo source: Francois Halard via Edwards and Gjertson.)

Axon of the main stair. (Image source: Michael Carapetian via Perspecta.)

(top) Retractable stair from Madame Dalsace’s day room. (bottom) Plan and section of the retractable master bedroom stair. (Both images: Michael Carapetian via Perspecta.)

Four different stair solutions in the house include (01) an auxiliary stair for the doctor to access his study, and the main salon, (02) the main stair with its steel string beams, (03) Access stair to the second-floor bedroom encased in brick, and (04) a retractable stair due to the master bedroom. (Photo sources: 04, Michael Carapetian. 01 02 03 04)

A mobile stepladder can be moved to access the double height bookcase in the main salon. This flexibility helps make the island kitchen work on such devices as typical of the transformational quality of the house. (Photo source: Subrealistsandu/Arch Daily)

The family dining area on the first floor facing the hallway to the butler’s pantry. The large rotatable cupboard is visible in the left corner helping to hide the second floor. (Photo source: Francois Halard via Edwards and Gjertson.)

The family dining area on the first floor facing the hallway to the butler’s pantry. The large rotatable cupboard is visible in the left corner helping to hide the second floor. (Photo source: Francois Halard via Edwards and Gjertson.)

The family dining area on the first floor facing the hallway to the butler’s pantry. The large rotatable cupboard is visible in the left corner helping to hide the second floor. (Photo source: Francois Halard via Edwards and Gjertson.)

The family dining area on the first floor facing the hallway to the butler’s pantry. The large rotatable cupboard is visible in the left corner helping to hide the second floor. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)

A view of the main salon with bookshelves designed by Pierre Chareau. The second floor has a wall of windows with gallery spaces. (Photo source: Francois Halard via Edwards and Gjertson.)
1. tunnel entrance  
2. forecourt  
3. 2-car garage  
4. existing 18th century building  
5. entrance to house  
6. entrance to house above  
7. service wing  
8. garden access  
9. consulting room terrace  
10. ground key  
11. grass and shrubs  
12. gravel play court

1. entrance lobby  
2. central corridor  
3. garden corridor  
4. service foyer  
5. servants’ entrance  
6. reception  
7. waiting room  
8. consulting room  
9. examination room  
10. attendance room

A. dumb waiter  
B. passenger elevator  
C. auxiliary stair to study  
D. stair to basement  
E. stair to kitchen  
F. main stair to salon  
G. changing cubicle  
H. refuse

1. main landing  
2. main salon  
3. dining area  
4. day room  
5. study  
6. void over foyer  
7. void over consulting room  
8. kitchen  
9. kitchen entrance  
10. wash-up  
11. storage wall

A. dumb waiter  
B. passenger elevator  
C. auxiliary stair to study  
E. stair to kitchen  
H. waste disposal  
J. storage unit  
K. storage unit  
L. book rack  
M. rotary cleaning cupboard  
O. pass through  
P. telephone kiosk  
Q. retractable stair to master bedroom  
R. plant conservatory

A. dumb waiter  
B. passenger elevator  
C. auxiliary stair to study  
E. stair to kitchen  
H. waste disposal  
J. storage unit  
K. storage unit  
L. book rack  
M. rotary cleaning cupboard  
O. pass through  
P. telephone kiosk  
Q. retractable stair to master bedroom  
R. plant conservatory

First floor plan of public and semi-public spaces features the two-story main salon. The service wing with kitchen and maids’ quarters is located in the lower right. (Source: Perspecta magazine.)

First floor plan of public and semi-public spaces features the two-story main salon. The service wing with kitchen and maids’ quarters is located in the lower right. (Source: Perspecta magazine.)

Site plan showing the arrival path family, staff and patients take from the street through the forecourt and to the main entrance. (above) Ground floor plan showing paths of travel for the family, staff and patients. (Source both images: Perspecta magazine.)

First floor plan of public and semi-public spaces features the two-story main salon. The service wing with kitchen and maids’ quarters is located in the lower right. (Source: Perspecta magazine.)
34

35

cupboard storage

unit
guest
bath

service

foyer

main landing

main salon

main stair
central corridor

attendance

room

examination

room

transverse section through main stair. Source: Perspecta magazine.

Longitudinal section through two story salon. Source: Perspecta magazine.
Vertical living was one of Swiss modernist architect Le Corbusier’s signature achievements. The idea of pre-fabbed mass housing, long espoused by so many architects, was realized in 1952 with the Unité d’Habitation known popularly as the Marseille Block.

Building vertical housing made efficient use of scarce land resources, gave all dwellers the same basic advantages and allowed them to equally benefit from shared services in the building complex (Choay and Herve, 1961).

Le Corbusier’s unique plan allowed the apartment units to be inserted onto a central corridor, which he likened to wine bottles in a rack. The units wrapped up and over, or down and under, a common interior “street,” making a highly efficient use of space that gave all units windows on either end and two-level living (Bouwen, 1967).

This project has been selected because of its vertical orientation and adaptability to a constrained volume. The long, narrow apartments maximize movement, both along length of each level and in transitioning between levels.

Le Corbusier likened the apartments to wine bottles inserted into a rack (Source: Boesiger and Girsberger, 1961).
Architect David Jameson’s tea house, located in a leafy backyard of a suburban Maryland residence, appears suspended, like a lamp, in its woodland setting.

While it appears to hang from a steel structure, cantilevered over the garden’s edge, the tea house is in fact fully anchored to the ground. The structure’s frame holds the building in free floating form while lighting accentuates the apparent suspension.

This space can be used for meditation or as a quiet space to entertain and serve tea, or to simply relax.

This project can be a model for the Japanese tea room in a model Blue Zone, addressing the principles of Downshift, Plant Slant, and Community.

Architect: David Jameson

Purpose: Have something to live for when waking up each day. Having a sense of purpose adds seven years of extra life expectancy.

Downshift: Make a daily habit of taking time to meditate, pray or nap.
RICHMOND AND THE FAN DISTRICT

POPULATION
City of Richmond population (2015) 217,938, projected population (2020) 229,383
Richmond metropolitan area population 1,25 million
The Richmond metropolitan statistical area includes all of Virginia east of the Blue Ridge Mountains and all of the city of Richmond, which includes a 25% higher than the national average of 53%

LOCATION
Located at the midpoint of the East Coast/mid-Atlantic region of the United States.
Lies on the I-95 corridor, the major north-south highway on the East Coast.
Also bisected by I-64, a major Virginia artery connecting Richmond with Norfolk, Newport News and Virginia Beach to the east and Charlottesville and the I-81 corridor to the west.
Served by Richmond International Airport (RIC) and Chesterfield Airport.
Amtrak passenger rail stops in Staples Mill and the Main Street Station in historic Shockoe Bottom.

COSTS AND SERVICES
Richmond's cost of living is more than 5% below the national average
Housing, groceries, transportation are all lower than the national average
Health care and public costs are higher than the national average
The region has more than 4,100 physicians and 19 acute care and specialty hospitals
VCU's Medical College of Virginia is the most comprehensive teaching hospital in Virginia

ACCOLADES
One of America's 50 Best Running Cities by Runner's World (August 2015)
Top City for Creatives by Thrillist (July 2016)
Top City for Tween and Teen Travel by Travel + Leisure (November 2015)
No. 3 on the international list of Best Places to Travel in 20016 by Travel + Leisure (November 2015)
Richmond ranked among 10 Most Walkable Mid-Sized Cities of 2015 by Redfin (August 2015)
Richmond's Fan District among Top 10 Great Neighborhoods by the American Planning Association (October 2014)
Development of the Historic Fan District grew from a late-19th century trolley transit line. Established in 1895, the district was itself a magnet for Richmond’s emerging middle class following the end of the Civil War. Building in the Fan was largely completed by 1920.

As Drew St. J. Carneal notes, a rich tapestry of late-19th C. architectural styles is represented. Because a relatively small number of architects designed the majority of Fan structures, the district has a sense of visual unity, in spite of the variety of styles. Although the district is largely residential, the commercial corridors of West Main, North Lombardy, North Richmond and Strawberry Streets continue to serve residents.

The streetscape is very walkable, with sidewalks edging all streets and set backs that keep residential and commercial buildings within reach of pedestrians. The limitation of building height throughout the district centers a very human scale and sense of repose.

Geographically, many streets “fan” out radially from Monroe Park in the eastern region of the district, which creates the most dominant node for travel and for understanding the district’s geometry (fanofthefan.com). This arrangement means the center serves triangular shaped parks throughout the Fan. According to the nominations form for the district’s National Register of Historic Places Inventory, the grid of linear streets and square blocks is mediated by the small parks and many trees that line the streets, softening its edges. Visual scope is increased by the varied “rooflines, turrets, dormers, bay windows, cornices, projecting porches and recessed arched entrances.”
The proposed project site is located at the intersection of West Main and North Vine Streets in the Fan District. It is a 15 minute walk from the Fan’s landmark Monroe Park at the heart of Virginia Commonwealth University’s main campus. For dining and cultural events, the popular Carytown shopping district and the Virginia Museum of Fine Arts are each less than a 20 minute walk away. For hiking, rafting and kayaking, Brown’s Island and Belle Isle on the James River can be reached by bike in 15 minutes.

Several restaurants, cafes and bars are located within a four block radius of the project site. Many galleries are also located along this part of West Main Street, with regular gallery openings and other special cultural events.

West Main Street bisects the cross streets into North and South street name designations. The immediate neighborhood is organized in a strong regular grid with rectangular blocks. Except for the Main Street commercial activity, the neighborhood, like the Fan as a whole, is mostly residential.

The dense development is well over 100 years old. Many old trees provide shade and frame the streetscape. While the site is located just three blocks from the busy I-195 Downtown Expressway corridor, the neighborhood’s density creates a barrier to highway noise and traffic.

1700 West Main Street has a high Walk Score rating of 94. This makes the building an ideal location as a model Blue Zone, one that encourages natural movement by walking and biking to nearby amenities. The location also serves residents of all ages. Young professionals can appreciate the social amenities while families will feel secure and supported by nearby schools and the residential character. Older residents can take advantage of many cultural opportunities within a safe and stimulating environment.
Binford Middle School at 1701 Floyd Avenue was designed in 1914 by Richmond architect Charles M. Robinson. The school and its site are the most dominant feature of the block. Built in the Tudor Gothic Revival style, it features “castellated parapets, a Tudor-arched stone entrance with decorative carving, and an ornate window-trimmed in stone” (National Register of Historic Places).

Eight attached rowhouses (Nos. 1, 3, 5, 7, 9, 11, 11 1/2, and 15) occupy North Allen Avenue from the northeast corner of West Main Street to Floyd Avenue. Vernacular and Colonial Revival in style and built c. 1910, all are brick 6-course American in construction. Two- to two-and-a-half stories, the first six have pedimented dormers, while several feature slate mansard roofs, Tuscan columns, and porches.

An asphalt parking lot/second playground occupies the center of the block. The building at 1700 West Main is a flat that defines the northeast corner and creates a boundary between the street and the school’s “backyard.” A tree line shades a school garden, establishing a boundary along West Main Street. It buffers the playground from street activity and creates a sense of security for the children.

West Main Street is a two-lane, one way street that flows toward the west end of Richmond. There is no traffic light at the intersection of West Main and North Vine Streets, so the traffic passes by the project site at a very high rate. The city has placed crossing stripes at the intersection to assist pedestrians with crossing West Main Street. However, this measure has done little to make crossing safer and easier.
1. Binford Middle School
2. Bike park
3. Mosaic Garden
4. Sculpture
5. Rain Garden
6. Playground/parking
7. North Allen Street residences
8. North Main Street businesses
9. Heritage restaurant
10. Law Office
11. Heritage restaurant
12. Home Texas Grill
13. Heritage restaurant
14. Law Office
15. Street furniture
The property at 1700 West Main Street is a two-story, fully detached building, approximately 19,800 gross square feet, with a flat roof and a central pediment that caps the middle three bays.

Originally built as a warehouse for the James Rickerbeck Mfg. Co., a plumbing supply firm based in Baltimore, it was constructed in 1920 of six-course American brick by Davis Brothers Inc. The building was then expanded and doubled in size sometime between 1920 and 1924.

There is no architect of record so Davis Brothers was likely both designer and builder. The scale and detailing nod to the district’s late 19th century residential buildings in materiality and form.

(Right) The east elevation entry door features a fan pediment and classical Doric pilasters.
A 1924 photo from Sketches of Richmond shows 1700 West Main Street four years after it was built by the James Robertson Mfg. Co., a plumbing supply firm based in Baltimore.

(Source: Johannes Design Group).
Aged concrete penetrates the worn antique oak boards in the Capital Mac showroom on the first floor southeast corner of the building. Awnings and blinds shade the Capital Mac showroom from the intense mid-day sun.

Sunny apartments at 1700 West Main Street celebrate the building’s warehouse structure and industrial palette. Mechanical systems are exposed, making use of the 12-foot ceiling height.

Without any adjacent structures to overlook the building at 1700 West Main Street, the south and east elevations receive intense sun while the north side facing the parking lot receives filtered sun, mainly in the winter. The setting sun completely shades the north elevation the 16-car parking lot on the rear of the building. The west facade, facing the busy south side of the building, after the Capital Mac shop has closed for the day.

Renovation added several balcony niches to the west elevation, the original solid brick west elevation had no windows or doors.
One can see the strong relationship between the original rectangular block and its historic twin, built within four years of one another. The regular column grid, symmetry along both major axes and massing make it immediately recognizable as a warehouse structure. Yet the building’s two story building height and sympathetic material palette allows it to fit easily into the residential character of the Fan District.
The apartments, exercise studio and restaurant each occupy two levels. The tai chi studio and tea room are open to the public and to residents. Visitors include patrons and employees of the tea room and studio.

Building owners control the leasing of spaces, residential and commercial, so that all use is aligned with Blue Zones principles.

Interior design that encourages regular natural movement occurs primarily in the design of a building’s major circulation systems and its program (Center for Active Design, 2010). Corridors and lobbies that connect other spaces in the program encourage walking. Elements like stairs and bicycle storage and furniture that produces micro-movement all promote activity when they are visible, safe and attractive. Programmed spaces that encourage physical activity and those that promote healthy diets also lead to increases in healthy behaviors.

The tai chi studio is open from 6am to 9pm. Tai chi classes take place in the studio and the Binford Middle School garden. The tea room is open from 8am to 9pm for breakfast, lunch and dinner. Residents come and go throughout the day.

### Building Information

- **Type III-A construction**
- **2 floors**
- **Total area = 9,600 sft**
- **Efficiency ratio = .60 (generous/excellent)**
- **Total net area = 5,760 sft**

### Program and Code

#### T'ai Chi studio
- **Type**: A-3
- **Occupancy type**: standing
- **Net area**: 1,440 sft
- **Occupants allowed**: 288

#### Tea room
- **Type**: A-2
- **Occupancy type**: unconcentrated
- **Net area**: 1,440 sft
- **Occupants allowed**: 96

#### Residential apartments
- **Gross area**: 14,400 sft
- **Net area**: 8,640 sft
- **Occupants allowed**: 72

### Summary
- **Total building area**: 19,200 sft
- **Total net area**: 11,520 sft

### Exit Requirements
- **First floor**:
  - **Occupants allowed**: 288
  - **Minimum exits**: 2

- **Second floor**:
  - **Occupants allowed**: 96
  - **Minimum exits**: 2

### Plumbing Requirements
- **T’ai Chi studio (A-3)**: 1/200 male, 1/200 female
- **Tea room (A-2)**: 1/75 male, 1/75 female
- **Residential (R-2)**: 1/10 male, 1/10 female

### Exit Requirements
- **First floor**:
  - **Occupants allowed**: 288
  - **Minimum exits**: 2

- **Second floor**:
  - **Occupants allowed**: 96
  - **Minimum exits**: 2

### Exit Requirements
- **Total building area**: 19,200 sft
- **Total net area**: 11,520 sft

### Exit Requirements
- **First floor**:
  - **Occupants allowed**: 288
  - **Minimum exits**: 2

- **Second floor**:
  - **Occupants allowed**: 96
  - **Minimum exits**: 2
CONCEPT AND PROGRAM

GRAPHIC PROGRAM AND ADJACENCIES

Total for entire building: 19,220 sft gross

- 11,520 sft net

Total residential: 8,640 sft net

- Two 3 Bedroom Apartments: 1,920 sft net each
- Two 1 Bedroom Apartments: 960 sft net each

Front of house functions: 1,728 sft net

Back of house functions: 1,061 sft net

- 1,440 sft for studio/class floor and chair space
- 976 sft for reception/lounge/waiting
- 200 sft for storage lockers/retail
- 200 sft for office
- 4 changing cubbies, total 125 sft
- 2 single user rest rooms, total 91 sft

Sleeping space: 432 sft total (144 sft each)

Dining/Kitchen space: 225 sft

Living space: 446 sft

Office space: 72 sft

Bathing space, 2 bath: 35 sft each, total 70 sft

Tea Room

Tai Chi Studio

Total residential: 6,640 sft net

- Two 3 Bedroom Apartments: 1,520 sft net each
- Front porch
- Parking space: 345 sft
- Entry Kitchen space: 225 sft
- Entry Office space: 255 sft
- Sitting space: 1 bath, 35 sft
Although they live in vastly different parts of the world, inhabitants of the original Blue Zones share many common traits. Their lives are nurtured in environments that encourage them to move, socialize, and get outside on a daily basis. They seek purpose in life, maintain regularity, eat simply but well and place a high value on family and friends. Moreover, they have found ways to adapt to life’s challenges.

But Blue Zones environments live in the real world, not in utopia. That is why the research into how and why they live as long as they do is so meaningful. For those communities, families or individuals who seek a long-lasting framework for life-long well-being, it is useful to examine the lives of those who have already lived well.

The concept of “a fully lived life” contains all of the traits that are present in the programming for creating a “micro-Blue Zone” project in Richmond. Study of active design, tai chi and Japanese tea traditions shows many intersecting characteristics that strengthen the mind-body connection that is so important for overall health.

While heredity plays a role in measuring relative health, lifestyle still plays the dominant role.
Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.

Well-being is most durable when a mind-body balance is supported within a naturally active micro- and ambient environment. Strong social and family connections supported by a healthy diet and purposeful meditation practices provide the energy needed to adapt to the disruptive challenges that we all face.

The Japanese Nageuri (arrow) pattern initiated the project’s vertical movement concept. (Above) an old pair of the author’s jeans illustrates the patch and repair philosophy that Blue Zones residents use to mend and make do.
The Japanese philosophy of wabi-sabi embraces the flawed and imperfect. The Japanese highly value marks of wear and use in objects and this ideal forms the basis for the selection of materials for the Blue Zones project.

Rather than throw away broken or torn objects, the Japanese have made an art form of their repair. The kintsugi technique highlights cracks in pottery as a chapter in the object’s life story.

The Japanese treat tears and wounds the same reverence as other objects. Boro textiles, from boroboro, celebrate the imperfection and intricacy of the Japanese peasants. Generations of family pass along these mended garments, narrating their shared history. The boro textile technique likewise celebrates imperfect forms and surfaces.

Wabi-sabi reflects the acceptance of change and fate as natural and necessary aspects of human life. In the Blue Zones, each life experience interweaves the small and the whole. Building materials such as soapstone, copper, brick and charred wood uptake and possess with use, embedding the character of the building’s occupants in their surface.

**CONCEPT AND PROGRAM**

The Japanese philosophy of wabi-sabi embraces the flawed and imperfect. The Japanese highly value marks of wear and use in objects and this ideal forms the basis for the selection of materials for this model Blue Zones project.

Rather than throw away broken or torn objects, the Japanese have made an art form of their repair. The kintsugi technique highlights cracks in pottery as a chapter in the object’s life story.

The Japanese treat tears and wounds the same reverence as other objects. Boro textiles, from boroboro, celebrate the imperfection and intricacy of the Japanese peasants. Generations of family pass along these mended garments, narrating their shared history. The boro textile technique likewise celebrates imperfect forms and surfaces.

Wabi-sabi reflects the acceptance of change and fate as natural and necessary aspects of human life. In the Blue Zones, each life experience interweaves the small and the whole. Building materials such as soapstone, copper, brick and charred wood uptake and possess with use, embedding the character of the building’s occupants in their surface.

**CONCEPT AND MATERIALITY**

Alberene soapstone floor and stair treads
Patinated copper stair railing
Steel L-beam
Existing brick walls
Charred white oak flooring both levels
Lilac frosted glass tile
Patchwork ceramic tile bar
Charred cypress paneling rotating bar cabinet
The kintsugi technique uses gold to fill cracks in pottery [apartmenttherapy.com]
Japanese boro patchwork jacket [kimonoboy.com]
A watercolor study explored a potential color palette for the project
The Blue Zones project patchwork jacket [kimonoboy.com]
The schematic design phase focused on understanding adjacencies for the three program areas of the project: apartments, a tai chi studio and a tea room.

Additional considerations included a bicycle area for storage and repairs. This was seen as an important Blue Zone amenity for building occupants and a magnet for Binford Middle School's students who could benefit from a safe place to repair and park their bikes near school.

Privacy and acoustics from West Main Street trackage were important for residents. Similar issues were considered for Tai chi students, who could use privacy and quiet to help focus during classes. On the other hand, tea room patrons could welcome varied exposure to audio and visual stimulation from the street.

This discovery led to identifying an organization of oblique lines in the plan of the front half of the building that could then be inverted and used in the back half of the building. In this way, the overall plan for the building could be resolved in spite of two very different column grids for the front and back.

- Schematic design 01 placed the tea room on the second floor along West Main Street and the tai chi studio on the second floor along Vine Street.
- Schematic design 02 placed the tea room and tai chi studio at the corner of West Main and Vine Streets on the first and second levels.
- Schematic design 03 began to address the overall circulation in the building. A social porch was added to address social connections necessary for healthy Blue Zone living.
- Schematic design 04 explored new relationships among the structural columns in the front half of the building and their relationship to the windows and doors.
- Schematic design 05 used this plan information to organize a new scheme based on oblique lines that were explicit or implied in the column grid. An atrium was designed for the southwest corner of the building that organized the social connection among the three program areas of the project. This concept was fairly successful in addressing the needs of the commercial spaces in the front of the building along West Main Street but created disorganization in the residential portion.

This diagram highlights the evolution of design from schematic design 01 to 06, showing how changes in the layout and organization of spaces and areas were made to address functional and aesthetic requirements throughout the building.
Design development progressed from schematic design to a detailed analysis of case studies. The two unique halves of the building, front and back, could not successfully be joined while addressing the three program areas of the project. Therefore, a new plan was developed that paired a new case study with the apartments in the rear of the building. Further research on Japanese architecture provided a map for organizing the commercial portion of the project in the front while the linear arrangement of architect Le Corbusier’s plan for L’Unité d’Habitation in Marseille provided a standardized framework. Each apartment unit becomes its own individual self within the unified whole of the building. Each of the four apartments (two have three bedrooms and two have one bedroom) is situated on both levels, thus allowing vertical transitions that satisfy the need for natural movement. The one bedroom apartments are narrow, at just twelve feet across, but their length and generous two-level plan make them spacious enough for two.

Using principles of Japanese design of the gardens and tea houses informed the development of the tea studio, the room, and overall circulation of the project. The meandering path of the Japanese garden went on to conceptualize the Blue Zone as a means for life as a programmatic journey. This path also functions as a lateral organizing plan from the main entry on West Main Street. Finally, the foot movements of Yang style Tai Chi suggested a flowing pattern that organizes the first level of the studio. Vertical movement by means of different staircases in La Maison de Verre formed a model for addressing stairs in the project. La Maison de Verre has many hallux vira elements that are architectural and functional for the addition of zones not mentioned in the original plans.

Finally, the Tea House and placemaking examples both located in Bethesda, Maryland, mapped out the project’s entry and central living areas. Using the form of the tea house created a placemaking opportunity that engages the building’s evolution with the Chinese program.

In the initial schematic design, each approach was focused on connecting the column grid with oblique lines. Each apartment unit became its own individual self within the unified whole of the building. Each of the four apartments from three different bays were situated on both levels, thus allowing vertical transitions that satisfy the need for natural movement. The one bedroom apartments are narrow, at just twelve feet across, but their length and generous two-level plan make them spacious enough for two.

Using principles of Japanese design of the gardens and tea houses informed the development of the tea studio, the room, and overall circulation of the project. The meandering path of the Japanese garden went on to conceptualize the Blue Zone as a means for life as a programmatic journey. This path also functions as a lateral organizing plan from the main entry on West Main Street. Finally, the foot movements of Yang style Tai Chi suggested a flowing pattern that organizes the first level of the studio. Vertical movement by means of different staircases in La Maison de Verre formed a model for addressing stairs in the project. La Maison de Verre has many hallux vira elements that are architectural and functional for the addition of zones not mentioned in the original plans.

Finally, the Tea House and placemaking examples both located in Bethesda, Maryland, mapped out the project’s entry and central living areas. Using the form of the tea house created a placemaking opportunity that engages the building’s evolution with the Chinese program.

In the initial schematic design, each approach was focused on connecting the column grid with oblique lines. Each apartment unit became its own individual self within the unified whole of the building. Each of the four apartments from three different bays were situated on both levels, thus allowing vertical transitions that satisfy the need for natural movement. The one bedroom apartments are narrow, at just twelve feet across, but their length and generous two-level plan make them spacious enough for two.

Using principles of Japanese design of the gardens and tea houses informed the development of the tea studio, the room, and overall circulation of the project. The meandering path of the Japanese garden went on to conceptualize the Blue Zone as a means for life as a programmatic journey. This path also functions as a lateral organizing plan from the main entry on West Main Street. Finally, the foot movements of Yang style Tai Chi suggested a flowing pattern that organizes the first level of the studio. Vertical movement by means of different staircases in La Maison de Verre formed a model for addressing stairs in the project. La Maison de Verre has many hallux vira elements that are architectural and functional for the addition of zones not mentioned in the original plans.

Finally, the Tea House and placemaking examples both located in Bethesda, Maryland, mapped out the project’s entry and central living areas. Using the form of the tea house created a placemaking opportunity that engages the building’s evolution with the Chinese program.

In the initial schematic design, each approach was focused on connecting the column grid with oblique lines. Each apartment unit became its own individual self within the unified whole of the building. Each of the four apartments from three different bays were situated on both levels, thus allowing vertical transitions that satisfy the need for natural movement. The one bedroom apartments are narrow, at just twelve feet across, but their length and generous two-level plan make them spacious enough for two.

Using principles of Japanese design of the gardens and tea houses informed the development of the tea studio, the room, and overall circulation of the project. The meandering path of the Japanese garden went on to conceptualize the Blue Zone as a means for life as a programmatic journey. This path also functions as a lateral organizing plan from the main entry on West Main Street. Finally, the foot movements of Yang style Tai Chi suggested a flowing pattern that organizes the first level of the studio. Vertical movement by means of different staircases in La Maison de Verre formed a model for addressing stairs in the project. La Maison de Verre has many hallux vira elements that are architectural and functional for the addition of zones not mentioned in the original plans.

Finally, the Tea House and placemaking examples both located in Bethesda, Maryland, mapped out the project’s entry and central living areas. Using the form of the tea house created a placemaking opportunity that engages the building’s evolution with the Chinese program.

In the initial schematic design, each approach was focused on connecting the column grid with oblique lines. Each apartment unit became its own individual self within the unified whole of the building. Each of the four apartments from three different bays were situated on both levels, thus allowing vertical transitions that satisfy the need for natural movement. The one bedroom apartments are narrow, at just twelve feet across, but their length and generous two-level plan make them spacious enough for two.

Using principles of Japanese design of the gardens and tea houses informed the development of the tea studio, the room, and overall circulation of the project. The meandering path of the Japanese garden went on to conceptualize the Blue Zone as a means for life as a programmatic journey. This path also functions as a lateral organizing plan from the main entry on West Main Street. Finally, the foot movements of Yang style Tai Chi suggested a flowing pattern that organizes the first level of the studio. Vertical movement by means of different staircases in La Maison de Verre formed a model for addressing stairs in the project. La Maison de Verre has many hallux vira elements that are architectural and functional for the addition of zones not mentioned in the original plans.

Finally, the Tea House and placemaking examples both located in Bethesda, Maryland, mapped out the project’s entry and central living areas. Using the form of the tea house created a placemaking opportunity that engages the building’s evolution with the Chinese program.

In the initial schematic design, each approach was focused on connecting the column grid with oblique lines. Each apartment unit became its own individual self within the unified whole of the building. Each of the four apartments from three different bays were situated on both levels, thus allowing vertical transitions that satisfy the need for natural movement. The one bedroom apartments are narrow, at just twelve feet across, but their length and generous two-level plan make them spacious enough for two.

Using principles of Japanese design of the gardens and tea houses informed the development of the tea studio, the room, and overall circulation of the project. The meandering path of the Japanese garden went on to conceptualize the Blue Zone as a means for life as a programmatic journey. This path also functions as a lateral organizing plan from the main entry on West Main Street. Finally, the foot movements of Yang style Tai Chi suggested a flowing pattern that organizes the first level of the studio. Vertical movement by means of different staircases in La Maison de Verre formed a model for addressing stairs in the project. La Maison de Verre has many hallux vira elements that are architectural and functional for the addition of zones not mentioned in the original plans.

Finally, the Tea House and placemaking examples both located in Bethesda, Maryland, mapped out the project’s entry and central living areas. Using the form of the tea house created a placemaking opportunity that engages the building’s evolution with the Chinese program.

In the initial schematic design, each approach was focused on connecting the column grid with oblique lines. Each apartment unit became its own individual self within the unified whole of the building. Each of the four apartments from three different bays were situated on both levels, thus allowing vertical transitions that satisfy the need for natural movement. The one bedroom apartments are narrow, at just twelve feet across, but their length and generous two-level plan make them spacious enough for two.

Using principles of Japanese design of the gardens and tea houses informed the development of the tea studio, the room, and overall circulation of the project. The meandering path of the Japanese garden went on to conceptualize the Blue Zone as a means for life as a programmatic journey. This path also functions as a lateral organizing plan from the main entry on West Main Street. Finally, the foot movements of Yang style Tai Chi suggested a flowing pattern that organizes the first level of the studio. Vertical movement by means of different staircases in La Maison de Verre formed a model for addressing stairs in the project. La Maison de Verre has many hallux vira elements that are architectural and functional for the addition of zones not mentioned in the original plans.

Finally, the Tea House and placemaking examples both located in Bethesda, Maryland, mapped out the project’s entry and central living areas. Using the form of the tea house created a placemaking opportunity that engages the building’s evolution with the Chinese program.

In the initial schematic design, each approach was focused on connecting the column grid with oblique lines. Each apartment unit became its own individual self within the unified whole of the building. Each of the four apartments from three different bays were situated on both levels, thus allowing vertical transitions that satisfy the need for natural movement. The one bedroom apartments are narrow, at just twelve feet across, but their length and generous two-level plan make them spacious enough for two.

Using principles of Japanese design of the gardens and tea houses informed the development of the tea studio, the room, and overall circulation of the project. The meandering path of the Japanese garden went on to conceptualize the Blue Zone as a means for life as a programmatic journey. This path also functions as a lateral organizing plan from the main entry on West Main Street. Finally, the foot movements of Yang style Tai Chi suggested a flowing pattern that organizes the first level of the studio. Vertical movement by means of different staircases in La Maison de Verre formed a model for addressing stairs in the project. La Maison de Verre has many hallux vira elements that are architectural and functional for the addition of zones not mentioned in the original plans.

Finally, the Tea House and placemaking examples both located in Bethesda, Maryland, mapped out the project’s entry and central living areas. Using the form of the tea house created a placemaking opportunity that engages the building’s evolution with the Chinese program.

In the initial schematic design, each approach was focused on connecting the column grid with oblique lines. Each apartment unit became its own individual self within the unified whole of the building. Each of the four apartments from three different bays were situated on both levels, thus allowing vertical transitions that satisfy the need for natural movement. The one bedroom apartments are narrow, at just twelve feet across, but their length and generous two-level plan make them spacious enough for two.

Using principles of Japanese design of the gardens and tea houses informed the development of the tea studio, the room, and overall circulation of the project. The meandering path of the Japanese garden went on to conceptualize the Blue Zone as a means for life as a programmatic journey. This path also functions as a lateral organizing plan from the main entry on West Main Street. Finally, the foot movements of Yang style Tai Chi suggested a flowing pattern that organizes the first level of the studio. Vertical movement by means of different staircases in La Maison de Verre formed a model for addressing stairs in the project. La Maison de Verre has many hallux viro
tracing a path through a Japanese garden, such as the example on the left, formed a framework for a pattern study of rectilinear shapes. These shapes were layered in a series of repetitive diagrams that studied the possibilities for organizing the plan of the project.

The final result of the new study shows the apartments in the back of the building and the new entry gate, main staircase, atrium and social porch in the front half of the building. Solid/void relationships in the new design show how the atrium and general circulation connect the residential and commercial halves of the building.
Before the atrium is developed, the relationship among the three program elements is strengthened around the entry gate and main staircase.

UNIFYING THE PROGRAM

First design development shows the four apartments in the rear of the building. The tai chi studio occupies two levels of the building in the southwest corner and the tea room is to the right.
SECTION VIEW FIRST AND SECOND LEVELS

APARTMENTS
1. entry
2. bathroom
3. bedroom
4. living
5. dining
6. kitchen
7. bedroom
8. ADA bathroom
9. guest bathroom
10. utility/storage
11. to 2nd floor
12. to mezzanine
13. residential elevator

TAI CHI STUDIO
1. reception
2. retail display
3. lounge
4. changing carrels
5. storage lockers
6. to studio floor

ENTRY AND GENERAL CIRCULATION
20. main entrance
21. entry gate
22. tokonoma display
23. mail drop
24. main staircase
25. emergency stairs
26. elevator
27. auxiliary kitchen
28. host stand
29. lounge
30. retail display
31. tea cabinet
32. tea room kitchen
33. dumbwaiter

TEA ROOM
34. tea table
35. coffee
36. dining
37. sofa seating
38. to 1st floor
39. to Studio floor

FIRST LEVEL PLAN SECOND LEVEL PLAN

SECTION VIEW FIRST AND SECOND LEVELS

exterior view of 1700 west main street shows the new roof monitor over the atrium

APARTMENTS
1. entry
2. bathroom
3. bedroom
4. living
5. dining
6. kitchen
7. bedroom
8. ADA bathroom
9. guest bathroom
10. utility/storage
11. to 2nd floor
12. to mezzanine
13. residential elevator

TAI CHI STUDIO
1. reception
2. retail display
3. lounge
4. changing carrels
5. storage lockers
6. to studio floor

ENTRY AND GENERAL CIRCULATION
20. main entrance
21. entry gate
22. tokonoma display
23. mail drop
24. main staircase
25. emergency stairs
26. elevator
27. auxiliary kitchen
28. host stand
29. lounge
30. retail display
31. tea cabinet
32. tea room kitchen
33. dumbwaiter

TEA ROOM
34. tea table
35. coffee
36. dining
37. sofa seating
38. to 1st floor
39. to Studio floor

FIRST LEVEL PLAN SECOND LEVEL PLAN

SECTION VIEW FIRST AND SECOND LEVELS

exterior view of 1700 west main street shows the new roof monitor over the atrium
SECTION THROUGH TAI CHI STUDIO, ENTRY GATE AND TEA ROOM

SECTION THROUGH 1 BR APARTMENT, SOCIAL PORCH, ATRIUM, ENTRY GATE AND TEA ROOM
The sunny atrium on the second level allows light into the back of the apartments and creates a breathing space for occupants, inspired by the randen breath control technique used by tai chi students.
Two one-bedroom apartments feature an open staircase that leads to a mezzanine. A bar cabinet rotates to serve dining and living areas while the media cabinet’s sliding screen hides the TV when not in use.

Silent sketch showing progress on developing the space under the apartment stairs leading to the mezzanine. Initial plans called for floor seating under the stair case. Later the floor seating was moved to the mezzanine.
As in a Japanese garden, the Entry Gate acts as an entry point for all points in the building on both levels. The Tokonoma display niche features Japanese shibori textiles and serves as a mail and parcel pick up for building residents.
TEA ROOM LEVEL 1

The tea room’s menu celebrates the healthful qualities of tea and features a selection of mostly plant-based meals. The lower level retail display case holds several varieties of domestic and imported teas for sale.

patinated copper bar soffit

(a) sketch showing progress on developing the ceiling and the screens covering the windows facing North Vine Street.
The bar and lounge on the lower level serve casual dining and tea service while the upper level caters to lunch and dinner patrons.

- **TEA ROOM LEVEL 2**

  - **Materials:**
    - Charred cypress paneling
    - Charred white oak flooring
    - Charred walnut seat
    - Maple seat and back
    - Painted solid maple legs
    - Aluminum lumbar
    - Mute acoustic felt pendant
    - Display cabinets both levels
    - The boro dining chair celebrates imperfection and flaws by skewing the lumbar seat support.

  - **Design Progression:**
    - Existing brick wall
    - Charred cypress paneling
    - Feature wall first level
    - Display cabinets both levels
    - Mute acoustic felt pendant

20” 18” 37” 20” 18” 37”
TAI CHI STUDIO
LEVEL 1

The tai chi studio is a calm space that is finished in gentle, smooth materials. The curves and cylinders in the space recall the flowing foot patterns of the Yang-Style Tai Chi Chuan 24 forms, or movements.

Coalesse Ginger maple coffee table
Saiba side chair with copper leather
Tilia lilac frosted glass tile
Uki Tri ceramic pendant

Skye Stilts drawing figure
Drawing shows the flowing forms of the tai chi studio.

Skye Stilts drawing foot patterns of 24 form Yang Style Tai Chi Chuan
TAI CHI STUDIO LEVEL 2

The tea room screen appears in the entry gate, the tea room second floor entry and the partition between the tea room and tai chi studio on the second level.

Existing brick walls.

Baltic birch paneling, ceiling panels and casework.

Charred white oak, floating oak floors.

TAI CHI STUDIO LEVEL 2

SECTION TITLE

DESIGN PROGRESSION

3'-0"
10'-0"
TAI CHI STUDIO LEVEL 2

LEVEL 2

existing brick walls.

Baltic birch paneling, ceiling panels and casework.

Charred white oak, floating oak floors.

TAI CHI STUDIO LEVEL 2

SECTION TITLE
REFLECTION

The interior design students and studio colleagues conceptualize and present their work during the MFA 2017 REACH Thesis show on April 28, 2017 at the Anderson Gallery at VCU’s Monroe Park campus.

Long term projects demand stamina and a great sense of humor. Luckily, the graduating class of interior design MFA students at Virginia Commonwealth University for 2017 has both in great supply. From the first day we met in July 2015 until the present day, we have worked hard to support one another. These days and nights have been long and certainly there were times when I thought the process would never end. Yet here we are, at the end of our road, getting ready to turn on to another one.

With an undergraduate degree in political science and a master’s in journalism and public affairs, I’ve naturally gravitated to exploring issues that impact the public welfare. Studying the public health angle and mental health connection that is crucial for long-term health has been a natural fit for me as an emerging interior designer. I hope to continue this passion for understanding the human dimension in interior design for many years to come. I thank my studio colleagues and the VCU interior design faculty for helping to focus my passion and pushing me to reach further than I thought possible.

— Alexis Holcombe, May 2017
Interview with Pekka Puska and Vesa Korpelainen on May 30, 2016 in Joensuu, Finland.

Interview with Tiina Laatikainen on June 1, 2016 in Helsinki, Finland.


THESIS ABSTRACT


ACTIVE DESIGN FOR WELL-BEING


THE WELL LIVING LAB
Interviews with Barbara Spurrier, Administrative Director, Well Living Lab and Senior Vice President, Delos Ventures; Jolene Bernau, Innovation Coordinator, Well Living Lab; and Alfred Anderson, Information Technology Director, Well Living Lab on February 17 2017.


TAI CHI CHUAN


Interview with Floyd Herdich and Sondra Sealine of Richmond Tai Chi on November 1, 2016.

http://travel2health.blogspot.com/2015/05/yang-style-tai-chi-chuan-24-forms.html

TEAISM


CASE STUDIES


RICHMOND AND THE FAN DISTRICT


SITE STUDY

RICHMOND AND THE FAN DISTRICT
SELECTED BIBLIOGRAPHY


The Heritage Sites of Japan’s Ancient Capital (Hardcover with Jacket). (1st ed.). BASEL NEW YORK BERLIN: Birkhauser.


EFFECT OF INNOVATIVE BUILDING DESIGN ON PHYSICAL ACTIVITY. JOURNAL OF PUBLIC HEALTH POLICY, 21(4 Suppl), S111–S123. doi:10.1057/jphp.2008.55


ANALYTIC DIAGRAMS, FORMATIVE IDEAS, AND PARTIS (4). HOBOKEN, NJ: WILEY.


TOKYO: TUTTLE PUBLISHING.

ANALYTIC DIAGRAMS, FORMATIVE IDEAS, AND PARTIS (4). HOBOKEN, NJ: WILEY.


The patient process of learning through discovery is rewarding and challenging. Thanks to my studio colleagues for making this journey so enjoyable: An Liu, Lauren Prisco, Mingming Zhao, Heather Overby, Lucy Dabney and M.J. Rhodes. Special thanks to An for assistance with laser cutting and graphic design guidance.

Dr. Pekka Puska and Dr. Tiina Laatikainen, National Institute for Health and Welfare (THL), Helsinki, Finland, and Vesa Korpelainen, North Karelia Center for Public Health, Joensuu, Finland welcomed me to their offices without reservation in May 2016 to discuss the relationship between interior environments and health. Their collective experience in Finland’s public health sector helped to confirm my growing interest in well-being and environment.

I would like to gratefully acknowledge the wisdom and experience of the faculty of the Department of Interior Design at VCU. Roberto Ventura, thesis mentor and all-around super teacher, has been with our cohort from the start. Camden Whitehead, Christiana Lafazani, Sara Reed, Jillian Chapin, Emily Smith, Jen Fell, Rob Smith and Hillary Fayle have also guided me in this thesis work. VCU alum Roy Abdun-Nur has been a generous advisor and friend. Andrea Alvarez and Lauren Ross assisted with curation and exhibition at Anderson Gallery.

Additionally, several people generously gave their expertise and time to assist in research on this project: Meg Hughes, curator at the Valentine Museum for historic documents; Anne Durkin, architect, Johannes Design Group for documentation of 1700 West Main Street; Floyd Herdich and Sondra Sealine of Tai Chi Richmond; and Patrick Bell, Nicole Killian, and David Shields for advice on graphic design. Carla Mae Corkendale of VCU’s Cabell Library assisted with research and Marnie Wolfford of CapitalMac gave me permission to visit and record their store at 1700 West Main Street.

Special thanks to VCU associate professor of fashion design Kristin Caskey, who helped me articulate the concept of this project with critical insight on wabi-sabi and materiality. Elizabeth Bolka of Worth Higgins & Associates in Richmond handled my printing requests promptly and professionally.

The staff of the Well Living Lab in Rochester, Minnesota the- me set aside a busy Friday to give me a tour of their facility and present their methodology: Jolene Bernauer, Barbara Spurrier, Brent Bauer, Nicholas Clements, Alred Anderson, Arja Jerman, and Caroline Coppola. All took the time to offer insights about public health and Blue Zone principles.

Many thanks to my beautiful children, Claire and Peter. Being your mom is still the most creative and rewarding job I’ll ever have. You are the reason I care about design as much as I do.

Finally, I could not have made it this far without the love and gentle hand of Robert, who has poured many cups of coffee and tea for me, rubbed my sore shoulders and kept the fire going for me so I could lose myself in the world of design.

This thesis is dedicated to my grandmothers, Ada and Erna, who ignited the spark of creativity for me so many years ago.


