

The Wellness Clinic:

A New Approach to Healthcare Design

A Thesis Presented for the
Master of Architecture Degree
The University of Tennessee

Timothy Michael Creasy
May 2012

Copyright © 2012 by Timothy Michael Creasy
All rights reserved.

Dedication

I would like to dedicate this work to my family. In particular I want to thank Emily for her support and understanding the long hours that I spent engulfed in this endeavor.

Acknowledgments

I would like to thank everyone who has contributed to this thesis and provided me with feedback and guidance. I would especially like to thank my thesis committee for being the group through which I was able to explore the many ideas leading up to this project and also for all the feedback through the many iterations of this project. Thanks to John McRae for almost two years being more than an advisor, and truly being the person who if any advice was needed he was there. Thanks to Mary Beth Robinson for her support and willingness to explore new ideas in healthcare design. Thanks to Scott Poole for wonderful insight and truly pushing me to produce drawings that otherwise I never would have thought possible. Lastly I would like to thank BJ Miller for her dedication to the Designing for Health lecture series and for introducing me to so many healthcare design professionals and their insight. It has truly been an honor to work with all of you.

Abstract

The healthcare industry is currently undergoing a paradigm shift in the delivery of care; it is moving from a system that treats illness to one that prevents disease and promotes wellness. The goal of this thesis is to present a design solution that is an example of what a healthcare facility of the future can be. The design presented in this document is one that demonstrates the attributes for a successful healthcare environment; one which allows the programmatic functions of a primary care clinic, an education center, and a fitness center to function as an integrated wellness platform facility.

By focusing on the principles of generative space, in which the quality of an environment improves through the interaction of the users of the space, the ideas presented in this design demonstrate how the built environment can better individuals, as well as communities, overall wellness. The site was strategically chosen so that the building is readily accessible to multiple populations and design choices were made so that the building engages the community and draws them onto the site and into the facility thus promoting the wellness program. By presenting a healthcare setting that is a stress free environment that promotes social interaction, physical activity, and making healthy lifestyle choices, it improves the wellness of the members and aids in preventing future illnesses.

Preface

From Flexible Design to Wellness Design

The field of healthcare and healthcare design is an extremely exciting and rewarding career to be involved in, and I am lucky enough to be a part of it for my few years since entering the workforce. As a healthcare designer the challenges are great when looking at the magnitude of the spaces and what happens in some of these spaces. I have had the unique opportunity to not only work on the design of these spaces but also to have worked alongside the caregivers on a daily basis. This has allowed me to gain knowledge and insight as to what is important to them in these spaces, which can sometimes add a bit of frustration when many of these desires are contradictions from caregiver to caregiver. Ultimately, as a healthcare designer your client is the healthcare system, the CEO, and board members; yet you find yourself designing for them, the doctors, the nurses, the technicians, the patients, and the patient's family and guests. The needs and desires of these groups often are at far ends of the spectrum. The CEO and board members want a beautiful facility with large offices and conference rooms and spectacular entries and public spaces, along with what all the caregivers want, as well as what will make patients want to choose their facility again, and they want it to fit within their budget and timeline. The doctors want larger offices and larger exam rooms, the nurses want shorter walks and more functionality, and the technicians want a bigger and better break-room. Then there is the patient, who is the most

important factor in the equation, who just wants to be able to find where they need to go and find some sense of comfort in what, during most times is an unwanted and uncomfortable visit. Lets be honest — who wants to have to visit a medical facility, rather it be for an illness that requires a trip to the hospital, a routine check-up at the doctors office, or just a visit to family or friends in the hospital. Most of us have spent the night in the emergency room waiting to be seen by anyone who could tell us anything about a loved ones or our own ailment; we have all had to wait for what seems like forever in the waiting room of a doctors office and then forever again on the uncomfortable noisy paper that covers the exam table, waiting for just a few brief minutes with the doctor. We have all had to make these trips; with the majority of these trips being unpleasant, leaving a bad impression of what a medical facility is. To find a solution to these challenges would be a worthwhile undertaking, however this study does not directly address any of these issues. Indirectly, what I have learned from my experiences working alongside caregivers and observing patients and visitors in a large medical facility has guided the conceptual ideas and several design decisions of this thesis.

Upon starting my thesis I saw a problem and a solution, all I had to do was work my way through the problem and arrive at the solution, which I thought was relatively straightforward. What I saw as the problem that needed to be addressed was that the major issue that healthcare administrators and designers are currently facing is the constant change that is present in the healthcare industry. Facilities are in constant need of modernization and renovations in order to stay current with the trends of the industry, and it is a struggle, even with continually working in this direction, to keep up with all the developments. Healthcare facilities become outdated almost as soon as the doors open. I feel that there are three main factors that are influencing the changes in the delivery of healthcare and in turn healthcare design: treatment methods, population shifts, and technology. The answer

to this problem was simple, so I thought. Through the application of flexible design I could present a solution that would extend the life cycle of a healthcare facility.

So what does flexible design mean? Well for me, when I say flexible healthcare design, I mean building in a way that a facility can adapt to the changes that are needed. I do not mean building with soft walls or open style architecture, but traditional walls that are positioned and contained a hierarchical amount infrastructure in them. This would allow for renovations to occur with differing levels of difficulty and expense. Assisting this would be a modular footprint that the facility would be designed on which allows rooms to shift and grow on a predetermined scale that the building could support. There are many reasons why it is beneficial to design and build in the way that I have described. To begin, with the ever-changing healthcare industry, designing with some flexibility allows the facility to adapt to these changes with limited to no renovations. Second, designing flexible does not necessarily mean renovating the space, but instead can be changing how users operate within the space. Lastly, planning for future expansion and renovation possibilities can mitigate the costs of these alteration projects.

I had a problem and I had a logical solution; however I discovered that the solution did not deliver a successful answer. Through research and working through the solution I came to the realization that for flexible design to be successful, I needed to understand that the product would be what it would be; the goal for flexibility was within the process of getting to the product. After struggling with this and trying to get the solution to fit the problem, I decided to reevaluate what I was working on as a thesis. Throughout the process there had been one constant, wellness. Through this second look, flexibility became a concept, and wellness design became a flexible concept of what healthcare design could be. It was a new direction with relevant implications on the future of healthcare design.

Table of Contents

Introduction	1
Thesis Problem	2
Obesity Epidemic	2
Obesity in Tennessee	2
Leading Killers Among Americans	4
Thesis Support	6
Healthcare Reform Bill	6
Defining Wellness	7
Paradigm Shift to Wellness	9
Thesis Design	11
Defining The Wellness Clinic Model	11
Design Development	12
Program Development	13
Site Selection	21
Major Design Elements	24
Engage and Accessible	30
Generative Design and Community	31
Promote and Prevent	32
Conclusion	34
References	36
Vita	38

List of Figures

Figure 0.1: The Wellness Clinic Perspective	1
Figure 1.1: Obesity Population Trends	3
Figure 1.2: Tennessee Obesity Population	5
Figure 1.3: Leading Causes of Death Among Americans	5
Figure 2.1: Wellness Wheel	10
Figure 2.2: America's Plan For Better Health and Wellness	10
Figure 2.3: The Wellness Center at Dowell Springs	10
Figure 3.1: The Wellness Clinic Concept Model	12
Figure 3.2: First Level Plan	15
Figure 3.3: Second Level Plan	16
Figure 3.4: Third Level Plan	17
Figure 3.5: Fourth Level Plan	18
Figure 3.6: Fifth Level Plan	19
Figure 3.7: Roof Level Plan	20
Figure 3.8: Site Location Relative to Downtown Knoxville	21
Figure 3.9: Existing Site Conditions From South Gay Street	22
Figure 3.10: Existing Site Conditions From West Vine Avenue	22
Figure 3.11: Existing Site Conditions From The Crowne Plaza Hotel	22
Figure 3.12: Existing Site Conditions From West Summit Hill Drive	22
Figure 3.13: Detailed Site Plan	23
Figure 3.14: Building Elements	24
Figure 3.15: Private Evaluation, Learning and Working Space Section	25

Figure 3.16: Communal Working Space Section	25
Figure 3.17: Communal Gathering and Transition Space Section	27
Figure 3.18: Outdoor Deck Section	27
Figure 3.19: South Gay Street Elevation	28
Figure 3.20: West Vine Avenue Elevation	29
Figure 3.21: Crowne Plaza Hotel Elevation	29
Figure 3.22: West Summit Hill Drive Elevation	29
Figure 3.23: South Gay Street Ramp Entrance	30
Figure 3.24: Vertical Circulation Ramp	31
Figure 3.25: Rooftop Track	33
Figure 4.1: The Wellness Clinic Perspective at Night	35

Introduction

Thesis Question

How can an integrated wellness program influence the future design of healthcare facilities and the health and well-being of a community?

Thesis Statement

This thesis introduces a new perspective on the delivery of healthcare, primarily preventative primary care. The design of this project demonstrates how the design of a healthcare facility can improve the overall wellness of a community. Through an integrated wellness platform facility that promotes social interaction, physical activity, and making healthy lifestyle choices, the wellness of the community will be improved. Figure 0.1 shows a perspective of The Wellness Clinic.



Figure 0.1: The Wellness Clinic Perspective

1

Thesis Problem

Obesity Epidemic

There is currently an epidemic occurring in the United States, however it is not virus or bacteria derived. The United States is a growing country, and not just in population. Currently, over 1/3 of the population in this country is obese. The Center for Disease and Prevention defines obesity as a range of weight that is greater than what is generally considered healthy for a given height. This range of weight has been shown to increase the likelihood of certain diseases and other health problems. For an adult you are considered to be obese if you have a Body Mass Index (BMI) that is greater than 30, where BMI is determined by comparing body weight and height, and typically correlates with the amount of body fat (Defining Overweight and Obesity, CDC.gov). Statistics compiled by the Center for Disease and Prevention indicate that, "during the past 20 years, there has been a dramatic increase in obesity in the United States and rates remain high. In 2010, no state had a prevalence of obesity less than 20%. Thirty-six states had a prevalence of 25% or more; 12 of these states had a prevalence of 30% or more" (U.S. Obesity Trends, CDC.gov). Figure 1.1 represents this increasing obesity trend from 1995 through 2010.

Obesity in Tennessee

The southeast region of the United States is impacted the most by the current obesity epidemic. Tennessee is improving but is not immune. As of 2010, the state ranks as the 9th most obese state in the country with 30.8% of

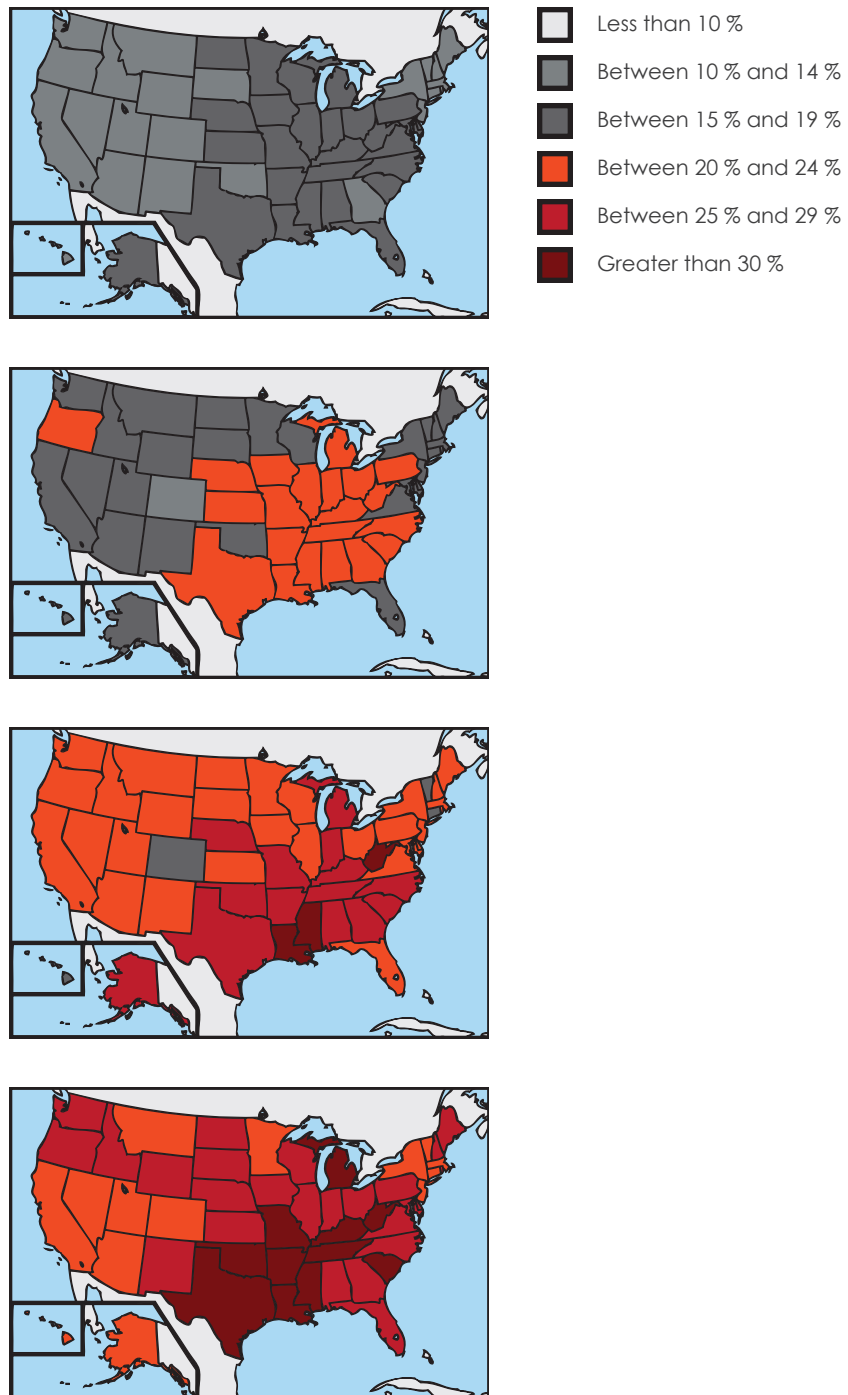


Figure 1.1: Obesity Population Trends (Percentage of the State, 1995 - 2010)

the states population being obese. In 2009 the state ranked as the 3rd most obese state with 32.3 of the population being obese. In 2008 only 11 of the 95 counties in the state had less than 29.8% of the population being obese. Of these 11 counties the lowest percentage of the population that was obese was Williamson County at 26.5%; the next lowest was Knox County at 28.5%. The counties with the lower percentages of obese population tend to be located in proximity to the metropolitan areas, in particular Nashville, Knoxville, and Chattanooga. The highest percentage of the population that was obese was Hardeman County at 38.4%. Reflective of the counties with lower percentages the counties with higher percentages of obese population tend to be located in areas of the state that are less populated and the poverty level is higher (County Level Estimates of Obesity, CDC.gov). Figure 1.2 shows the percentage of the obese population for Tennessee in 2008.

In the recent report *State of Well-Being 2011* by Gallup-Healthways Well-Being Index, Tennessee was ranked as the 41st state in individual and community overall well-being. The ranking comes from a survey that was conducted by obtaining 1,000 completed interviews from individuals each day over the course of one year. Interviewers collected responses related to life evaluation, emotional health, physical health, healthy behavior, work environment and basic access. From this an overall well-being composite score was given to locations. In addition Knoxville was rated as 140 out of 190 cities surveyed (*State of Well-Being 2011*, 3-8).

Leading Killers Among Americans

Obesity is not just an epidemic that is causing our population to become larger; it is also having a major health impact on Americans. Figure 1.3 depicts a graph that shows the leading causes of death among Americans in 2010 (Kochanek, 31). According to the data collected for the 2010 leading causes of death among Americans, compiled in the National Vital

Statistics Reports, obesity is the leading contributor to five of the top 15 causes of death. Obesity has been proven to increase the likelihood of heart disease, certain types of cancer, stroke, diabetes, and hypertension (Health Consequences, CDC.gov). Obesity, and the diseases that it can lead to, is not a death sentence though; it is a preventable and reversible condition. By increasing the amount of physical activity and through proper nutrition, a healthy body weight can be maintained thereby decreasing the likelihood of developing healthcare issues often caused by obesity.

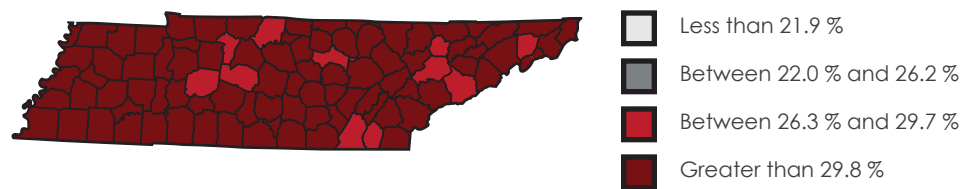


Figure 1.2: Tennessee Obesity Population (Percentage of the State, 2008)

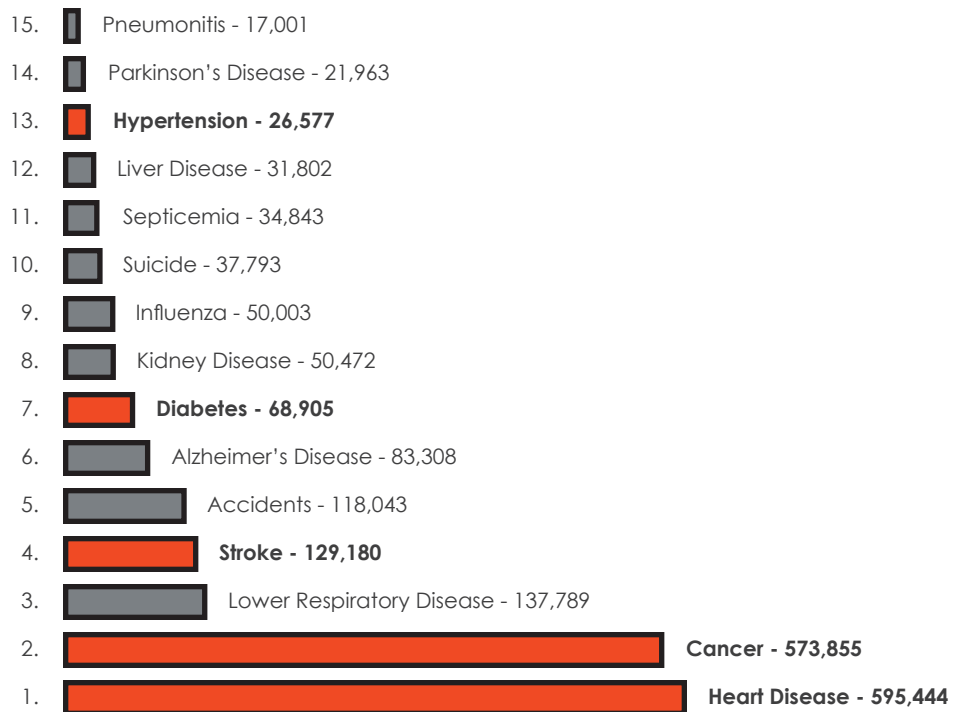


Figure 1.3: Leading Causes of Death Among Americans

2

Thesis Support

Healthcare Reform Bill

On March 23, 2010, President Barack Obama signed into law the health care reform bill, the Patient Protection and Affordable Care Act (PPACA). The impacts of PPACA include: the number of individuals that are covered by a healthcare insurance policy, where individuals healthcare insurance comes from, tighter restrictions on insurance providers, and an increase in preventative care and on good health promotion.

The legislation establishes several steps that aid in constructing an outline for a path to a healthier population. Beginning with small steps, such as imposing a 10% tax on indoor tanning services and requiring chain restaurants to provide a nutrition content disclosure statement alongside items on their menus. Larger steps that will have a more profound impact are access to no cost preventive services and the creation of the National Prevention, Health Promotion, and Public Health Council (National Prevention Council). Under the PPACA all new healthcare insurance policies must provide preventive services without the need to pay a copayment, coinsurance, or deductible charges (The Healthcare Law & You, HealthCare.gov). Covered services that can help avoid illness and improve health include:

- Blood pressure, diabetes, and cholesterol tests
- Many cancer screenings, including mammograms and colonoscopies

- Counseling on topics such as smoking cessation, weight loss, healthy eating, treating depression, and reducing alcohol use
- Routine vaccinations against diseases such as measles, polio, or meningitis
- Flu and pneumonia shots
- Counseling, screening, and vaccines to ensure healthy pregnancies
- Regular well-baby and well-child visits, from birth to age 21

On June 10, 2010 the President signed an Executive Order creating the National Prevention, Health Promotion, and Public Health Council. The duty of the National Prevention Council is to provide coordination and leadership at the federal level and among all executive agencies regarding prevention, wellness, and health promotion practices. The council released its first National Prevention Strategy on June 16, 2011, which shifts the focus from sickness and disease to wellness and prevention. The Strategy presents a vision, goals, and recommendations to reduce preventable death, disease, and disability in the United States (Prevention & Wellness, HealthCare.gov).

Defining Wellness

well•ness - noun: the quality or state of being in good health especially as an actively sought goal (wellness, Merriam-Webster.com).

There are many definitions and interpretations of wellness, all of which establish a healthy balance in the components of an individual's life. In order to define wellness in the context of this thesis I used three resources, the wellness wheel from the Wellness Resource Center at Vanderbilt University, the National Prevention Strategy: America's Plan for Better Health and Wellness model developed by the National Prevention Council, and the wellness model of The Wellness Center at Dowell Springs located in Knoxville, Tennessee.

The Wellness Resource Center at Vanderbilt University breaks wellness down into six categories: Physical Wellness, Spiritual Wellness, Social Wellness, Emotional Wellness, Intellectual Wellness, and Environmental Wellness (Know Your Wellness Wheel, Vanderbilt.edu). Figure 2.1 is a graphic representation of the wellness wheel consisting of these categories. I used this model to understand and develop the components that would be needed in a successful integrated wellness environment.

The newly established National Prevention Council developed and published its first National Prevention Strategy in 2011. In it was America's Plan for Better Health and Wellness model that I used to support the concept of The Wellness Clinic. The principles that are outlined throughout their plan closely reflect my ideas for the design of this thesis and the interaction and improvement of the wellness of the community as a whole. Figure 2.2 shows the model for America's Plan for Better Health and Wellness. The principles that are reflected in this thesis as stated in the National Prevention Strategy are:

- The Healthy and Safe Community Environments: Create, sustain, and recognize communities that promote health and wellness through prevention.
- Clinical and Community Preventive Services: Ensure that prevention focused health care and community prevention efforts are available, integrated, and mutually reinforcing.
- Empowered People: Support people in making healthier choices.
- Elimination of Health Disparities: Eliminate disparities, improving the quality of life for all Americans (National Prevention Council, 7).

The Wellness Center at Dowell Springs is a fitness center located in Knoxville, Tennessee where their focus is a more comprehensive approach for achieving a balanced lifestyle than a typical fitness center would offer. Their approach to wellness is very similar to the one outlined in this thesis

without the clinic program. Figure 2.3 shows the wellness model of The Wellness Center at Dowell Springs. Their approach demonstrates that wellness is improved through more than just physical activity. There is an understanding that education, nutrition and social interaction are just as important (Our Approach, livewellknoxville.com).

The Paradigm Shift to Wellness

In 1946 the World Health Organization defined Health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO definition of health, WHO.int). Sixty-six years ago the World Health Organization realized that there was a connection between health and wellness and yet only recently has there been a shift in the delivery of healthcare. While treating illness and disease are still the most recognized form of healthcare and likewise the hospital the most prevalent facility type; preventative medicine and wellness promotion and their associated facilities are on the rise. The design of this thesis explores the healthcare facility type of the future. One where traditional healthcare spaces are fully integrated with wellness spaces forming a healthcare platform that improves the wellness of the community and aids in preventing future illnesses.



Figure 2.1: Wellness Wheel



Figure 2.2: America's Plan for Better Health and Wellness

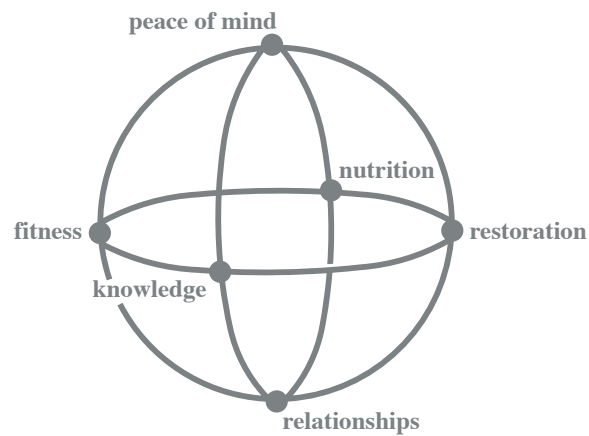


Figure 2.3: The Wellness Center at Dowell Springs

3

Thesis Design

Defining The Wellness Clinic

The design of The Wellness Clinic in itself is not necessarily a new approach to healthcare and wellness design, however the principles behind the design are what differentiates this project from the typical wellness center. I have applied this distinction at the forefront of the project by identifying it as The Wellness Clinic and not the wellness center. What sets The Wellness Clinic apart from the wellness centers that are being constructed on medical campuses and college campuses across the country, is that this facility would function as an integrated wellness platform, as apposed to operating as a stand-alone primary care facility, fitness facility, or education center.

Unlike with stand-alone facilities, members of this facility would be part of an integrated program that focuses on an individual's total wellness, and this process would begin in the primary care clinic. In order to become a member of The Wellness Clinic, whether healthy or ill, individuals would receive a full physical from a primary care provider. The physician would assess the member's starting wellness point and would make recommendations and goals that the member would strive to achieve throughout the wellness program that would be prescribed. Following the initial assessment, the member would be referred to the education center to meet with additional consultants, such as a dietitian, an exercise counselor, a cessation consultant, or a diabetes educator, dependent upon the individuals needs.

From this meeting the member would be educated on any new diagnoses or necessary lifestyle changes. After these initial member wellness status appointments, a team consisting of the member, the physician, and any consultants would develop a wellness regiment to treat and improve their overall wellness, as well as to promote healthy lifestyle choices and prevent future health instances.

Design Development

From the outset of the project the aforementioned concept of The Wellness Clinic drove the design and program development. Figure 3.1 represents the initial concept model that I developed and used to influence the program

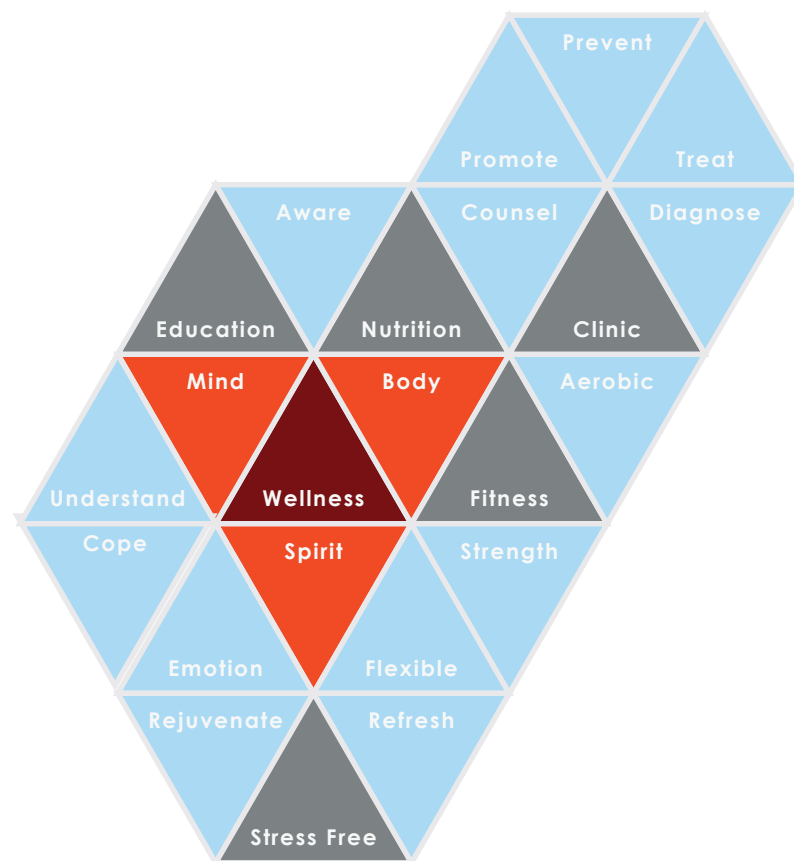


Figure 3.1: The Wellness Clinic Concept Model

and programmatic adjacencies of the project. The central element of the model, just as in the design of the facility, is wellness. I did not want wellness to be thought of just free of illness, so I thought of it as being total wellness that is then broken down into the elements of mind, body, and spirit. This allows the total person to be the focus and not just what is typically thought of as their health. With wellness broken down into these elements, the main programmatic elements, which are clinical, education, and fitness show a more direct connection to wellness. The remaining support elements of the model link the programmatic pieces to one another, demonstrating how The Wellness Clinic would be an integrated program with total wellness being the central concept.

Program Development

By using The Wellness Clinic concept model as a basis for programming the project, the initial programmatic elements expanded to support a total wellness facility. The major programmatic elements include a wellness cafe and retail space where visitors are offered healthy food choices and products that promote and support healthy lifestyle choices. To refresh and rejuvenate the members total wellness, a wellness spa is included, offering massage rooms, an herbal wrap room, meditation rooms, saunas, a hot lounge pool, and a cold plunge pool. To promote fitness, two gym spaces are programmed; one dedicated to strength training and the other to aerobic fitness. Both spaces have two multipurpose classrooms attached to the open gym, as well as an outdoor deck space for each gym. These breakout spaces can be used for activities such as yoga class, spin class, aerobic class, group training class, and many more. In addition to the gyms, there is a rooftop deck that has a 1/10 of a mile track and two open workout spaces. In order to educate members about healthy lifestyle choices and possible illnesses, as well as for support groups, an education center is programmed. It includes a large classroom for groups of 50, two small classrooms for groups of 15, a teaching kitchen, a computer room, a reference

library, and consult rooms. Lastly, the most integral piece that differentiates the program from typical wellness center programs is the wellness clinic. The clinic is programmed to support four primary care physicians, consisting of nine exam rooms, one treatment room, and medical support spaces.

In addition to the major programmatic spaces, there are three other spaces that are important to the concept of The Wellness Clinic. First are the lounges that are programmed for each level. The lounges serve multiple purposes; they are the waiting areas for the functions that occur on each level, additionally they are places for communal gathering. The lounges provide members the opportunity to interact with other members of the program in a social manner. Members can provide and receive moral support and motivation from other members who share similar wellness goals. Other programmed spaces where social interaction can occur are in the two courtyards of the facility; one that is an entrance courtyard and the other a more secluded courtyard in the rear of the building. To promote the facility as well as to promote wellness and healthy lifestyle choices, a large community room is programmed. This is a space that the city could utilize and have functions that would foster a better relationship between wellness and the community. Figures 3.2 through 3.7 show the plans of the facility. The plans show all the programmatic elements as well as their support spaces and the adjacencies of the spaces.

- | | |
|--------------------------------|---------------------|
| 1. Main S. Gay St. Entrance | 11. Wellness Cafe |
| 2. W. Summit Hill Dr. Entrance | 12. Kitchen |
| 3. Lower S. Gay St. Entrance | 13. Office |
| 4. Courtyard Entrance | 14. Staff Restroom |
| 5. Information Desk | 15. Storage Room |
| 6. Lobby Lounge | 16. Mechanical Room |
| 7. Community Room | |
| 8. Male Locker Room | |
| 9. Female Locker Room | |
| 10. Wellness Retail | |

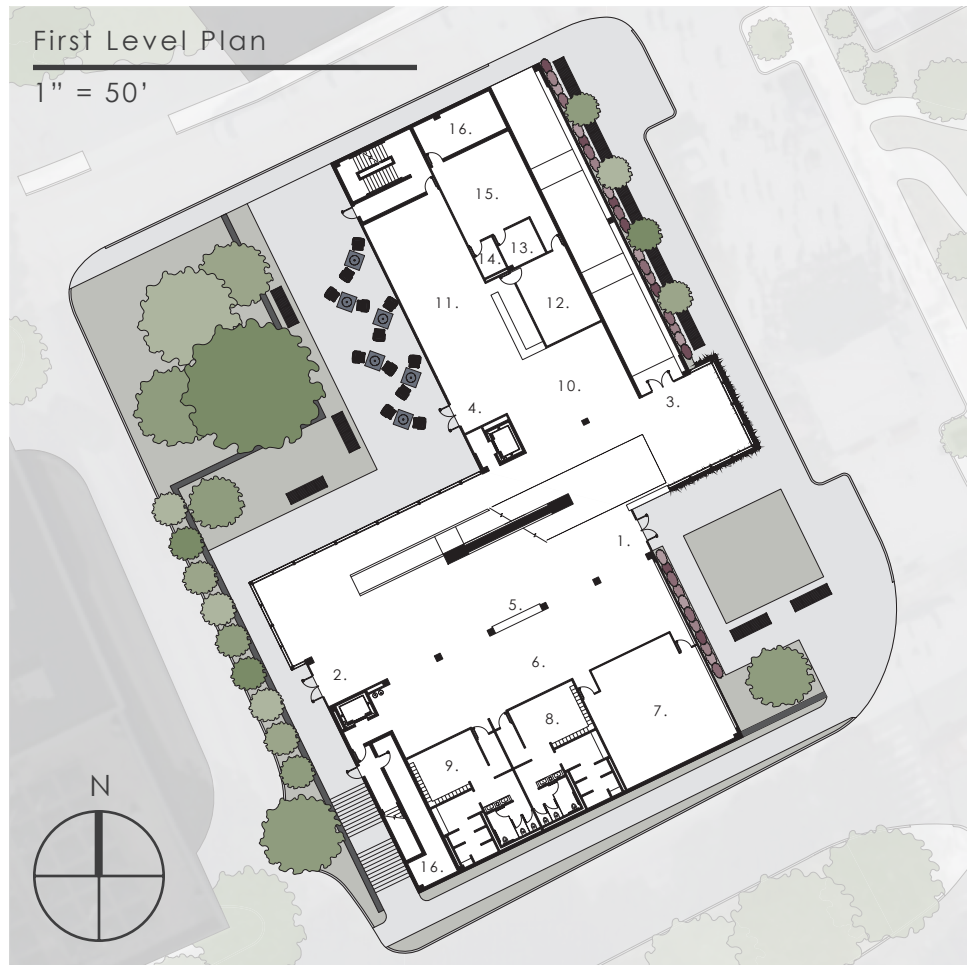


Figure 3.2: First Level Plan

- | | |
|-----------------------|---------------------------|
| 1. Spa Lounge | 11. Cold Plunge Pool |
| 2. Spa Reception | 12. Storage Room |
| 3. Massage Room | 13. Office |
| 4. Herbal Wrap Room | 14. Mechanical Room |
| 5. Meditation Room | 15. Gym Lounge |
| 6. Robed Lounge | 16. Control Desk |
| 7. Towel Room | 17. Strength Training Gym |
| 8. Male Locker Room | 18. Outdoor Deck |
| 9. Female Locker Room | 19. Stretching Mat Room |
| 10. Hot Lounge Pool | 20. Yoga Room |

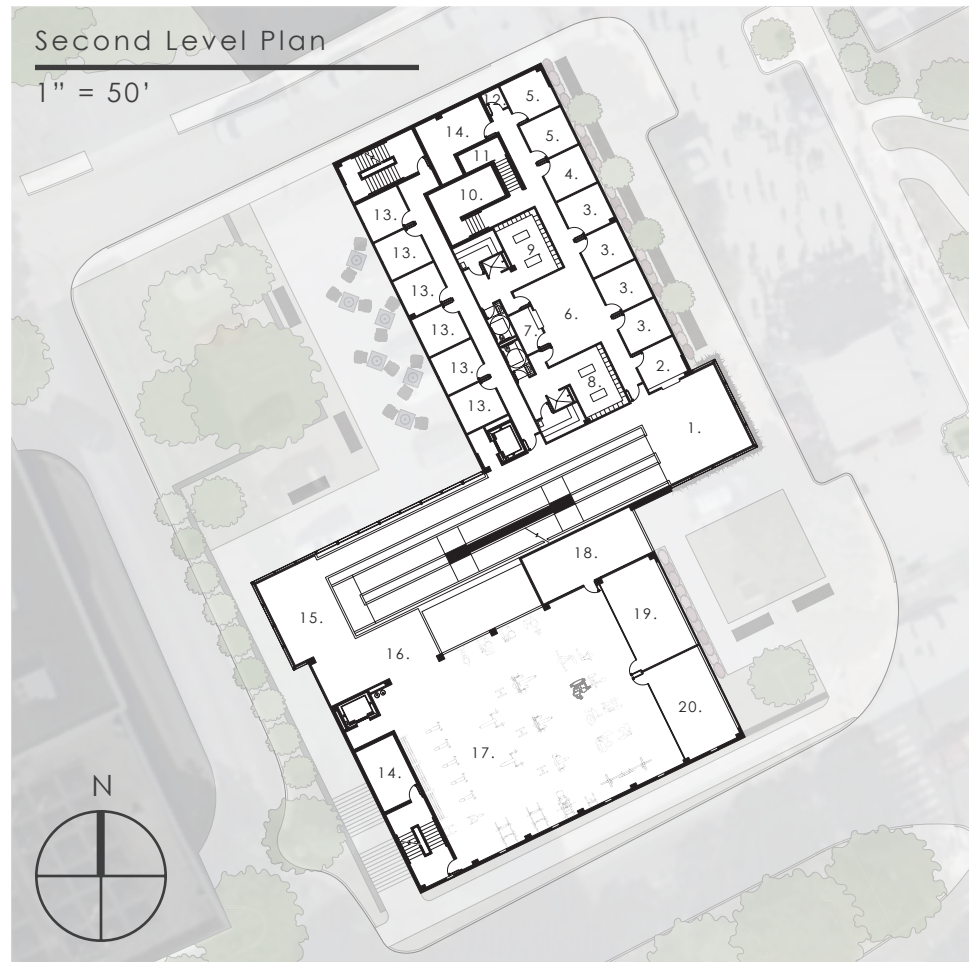


Figure 3.3: Second Level Plan

- | | |
|-------------------------------|---------------------|
| 1. Education Center Lounge | 11. Small Classroom |
| 2. Education Center Reception | 12. Large Classroom |
| 3. Office/Consult Room | |
| 4. Computer Room | |
| 5. Restroom | |
| 6. Resource Library | |
| 7. Storage Room | |
| 8. Electrical Room | |
| 9. Mechanical Room | |
| 10. Teaching Kitchen | |

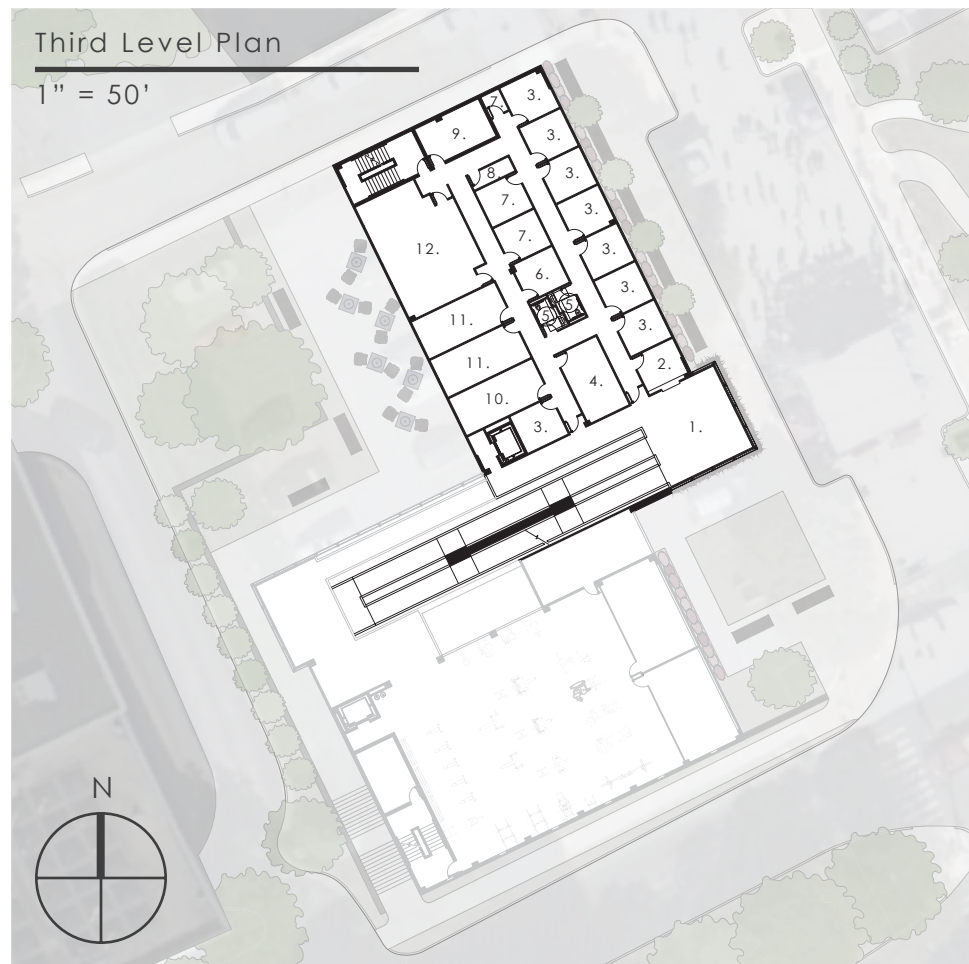


Figure 3.4: Third Level Plan

1. Gym Lounge
2. Control Desk
3. Aerobic Gym
4. Outdoor Deck
5. Aerobic Class Room
6. Spin Class Room
7. Mechanical Room

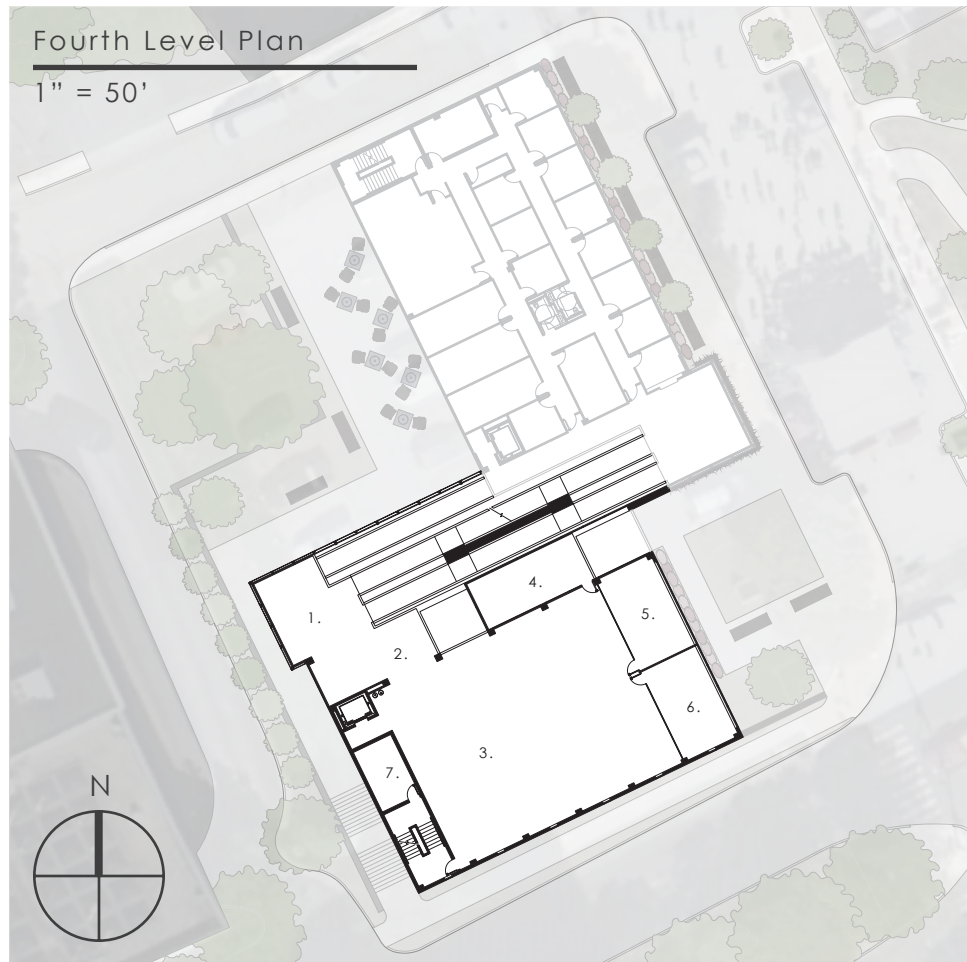


Figure 3.5: Fourth Level Plan

- | | |
|------------------------------|----------------------|
| 1. Wellness Clinic Lounge | 11. Clean Linen |
| 2. Wellness Clinic | 12. Janitors Closet |
| 3. Wellness Clinic Check Out | 13. Dirty Linen |
| 4. Exam Room | 14. Staff Restroom |
| 5. Weights and Measures | 15. Patient Restroom |
| 6. Nurses Workstation | 16. Treatment Room |
| 7. Storage Room | 17. Mechanical Room |
| 8. Supply Room | 18. Office |
| 9. Patient Restroom | |
| 10. Specimen Collection | |

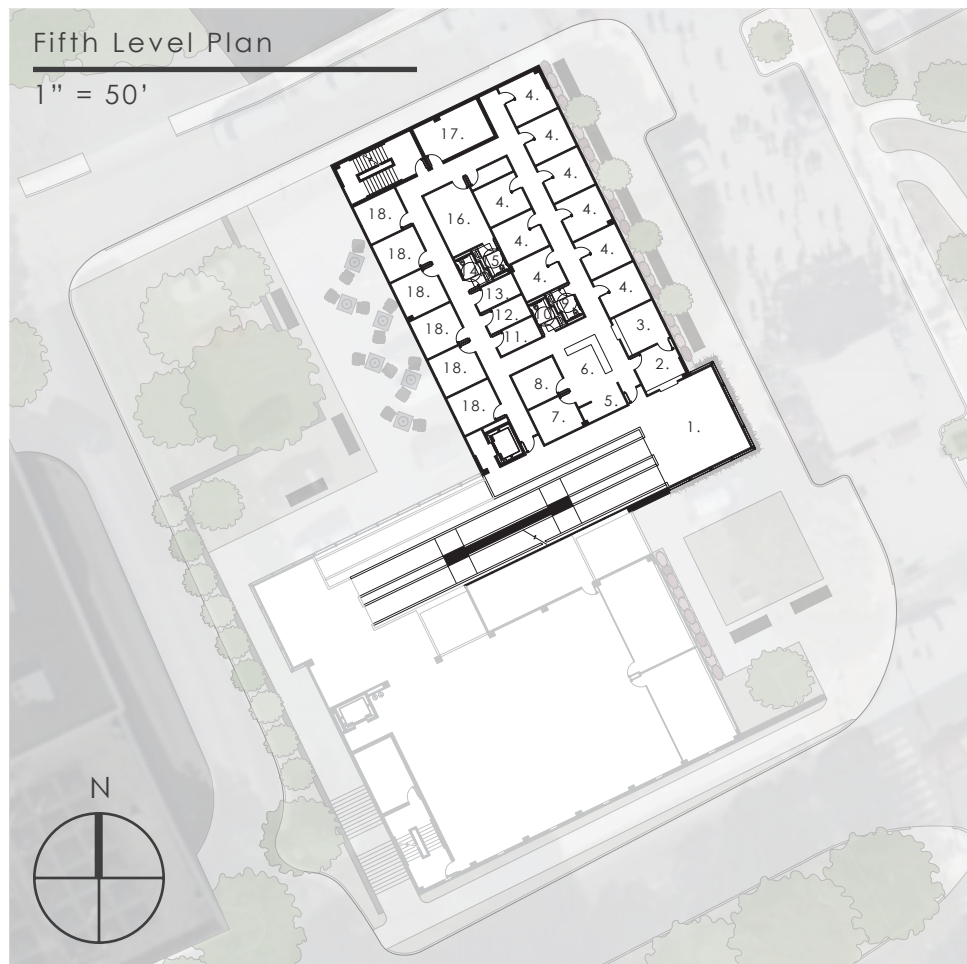


Figure 3.6: Fifth Level Plan

1. Rooftop 1/10 Mile Track
2. Rooftop Deck

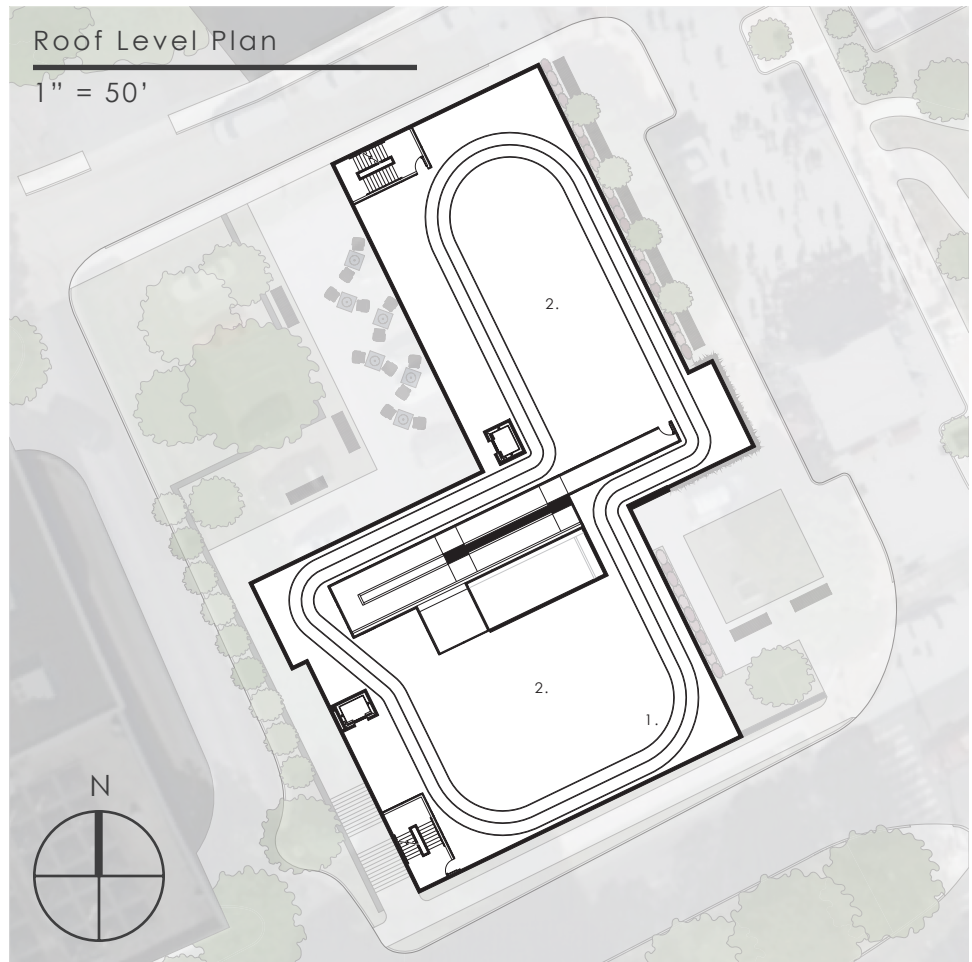


Figure 3.7: Roof Level Plan

Site Selection

The site I have chosen for The Wellness Clinic is located in downtown Knoxville, Tennessee. Figure 3.8 shows the location of the site relative to the downtown area of Knoxville. The site is located on the corner of South Gay Street and West Summit Hill Drive; both streets are major thorough-fares for downtown Knoxville. West Vine Avenue and the drive for the Crowne Plaza hotel parking garage also border the site. Currently the site is surface parking for the adjacent loft apartments as well as for the Crown Plaza hotel. Figures 3.9 through 3.12 show the current condition of the site.

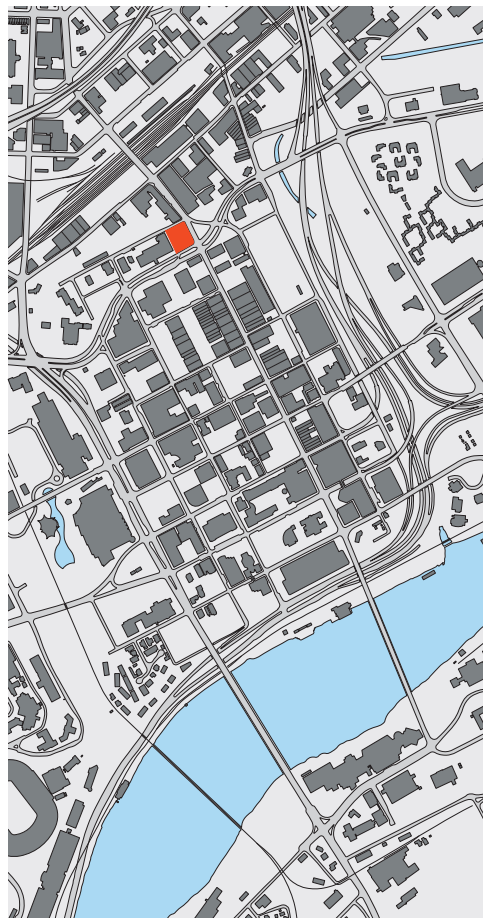


Figure 3.8: Site Location Relative to Downtown Knoxville



Figure 3.9: Existing Site Condition From South Gay Street



Figure 3.10: Existing Site Condition From West Vine Avenue



Figure 3.11: Existing Site Condition From The Crown Plaza Hotel



Figure 3.12: Existing Site Conditions From West Summit Hill Drive

I chose this site because of the visibility that it offers the facility to the community; also because of the accessibility that it offers to the community for this type of facility. The amount of vehicle and pedestrian traffic that bypass this site would give it enough visibility for people to begin to think about wellness and the connection between preventative primary care, fitness, education, and overall healthy lifestyle choices. The location of the site offers easy access to member populations from three directions; the neighborhoods of north and east Knoxville and the downtown residents adjacent and just south of the site. There is also a close proximity to Market Square, which offers the community interaction that is important for social wellness. Figure 3.13 shows the detailed plan of the site and the proximities previously mentioned.



Figure 3.13: Detailed Site Plan

Major Design Elements

The design of The Wellness Clinic is composed of three types of spaces, the private evaluation, learning, and working space, the communal working space, and the communal gathering and transition space. Figure 3.14 is a diagram of these elements in relationship to the design of the building. The private evaluation, learning, and working space is a four-story office type setting with multiple individual rooms with a lower floor to floor height of 12 feet. Figure 3.15 shows a section through this portion of the building. The communal working space is the same vertical height as the four-story private space, however there are only three levels. These areas are open gym spaces with a higher floor to floor height of 18 feet. Figure 3.16 shows a section through this portion of the building.

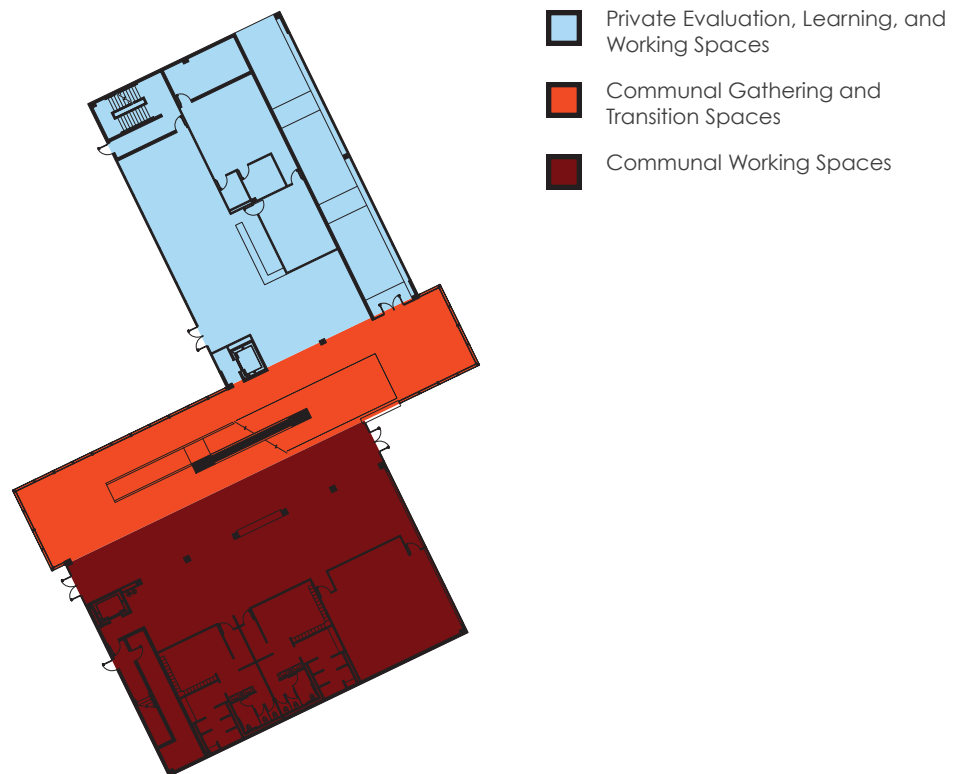


Figure 3.14: Building Elements



Figure 3.15: Private Evaluation, Learning and Working Space Section



Figure 3.16: Communal Working Space Section

The communal gathering and transition space is the vertical circulation piece that links the private and communal spaces together. The vertical circulation piece is the main architectural element of the facility. Instead of having a vertical circulation core with stairs and elevators, there is a ramp connecting all the levels. With each run of the ramp rising six feet and when you arrive at a level you are located at the lounge for that level. Figure 3.17 shows a section through the ramp and the lounges at each level. The ramp offers many health benefits; the first benefit is that by having it as a focal point that is very visible, and with the elevators hidden, the ramp promotes physical activity through walking. By taking the ramp, it also extends the social interaction between members of the program. Another feature of the ramp is the central support wall that extends the entire height of the building. The support wall sets back from the ramp creating a reveal where light is focused all the way down the wall, which further highlights the ramp. By applying murals, educational material, and progress tracking to the support wall, it adds a visual interest to the ramp as well as provides places for members to stop and reflect on their progress with other members.

The positive influence that nature has on wellness was another important factor when making certain design choices. Bringing nature into the building promotes the connection of the spaces and the inhabitants to the community. Through the placement of windows, nearly every space in the building has a view of outside. The windows also allow natural daylighting to be the primary lighting source for the majority of the spaces in the building. In addition to bringing natural light into the spaces of the building, many of the spaces inside the building are designed to continue to spaces outside the building. There are outdoor decks, courtyards, and a rooftop track where members can engage with nature in the wellness setting. Figure 3.18 shows a section through the entrances to the building from the courtyards, the outdoor decks and the bridge section of the rooftop track.



Figure 3.17: Communal Gathering and Transition Space Section



Figure 3.18: Outdoor Deck Section

In addition to the outdoor spaces, the material choices for the exterior of the building were selected to enhance the connection to nature. The windows bring the surrounding nature into the space through the views; while the cut limestone and wood plank siding reflect the mountains that surround Knoxville. The exterior of the public gym space is clad with planks of wood siding attached vertically, mimicking the trees of the local forests. The exterior of the private space of the building have a local universal cut limestone applied in a running bond pattern. The use of the limestone is a decision to use a local natural material applied in a manner that reflects the brick exteriors of many of the buildings in downtown Knoxville. Figure 3.19 through figure 3.22 show the elevations and the material selections of the building.

Similar to the major design elements that were designed to express the wellness program, there are three pairs of principles that have influenced the design of the spaces of the building. These principles are engage and accessible, generative space and community, and promote and prevent.



Figure 3.19: South Gay Street Elevation



Figure 3.20: West Vine Avenue Elevation



Figure 3.21: Crowne Plaza Hotel Elevation



Figure 3.22: West Summit Hill Drive Elevation

Engage and Accessible

Engage and accessible are two principles that make the concept of The Wellness Clinic a successful design. The principle idea of engagement is two faceted. One of which is to have social engagement among the community; the other is to have the building engage the community and introduce them to a lifestyle with a focus on wellness. Accessible is also a principle that has two implications. It is figurative in the fact that a main design element is a ramp that allows access for all. The building also provides access and entrances from all directions and invites the community into the facility. Figure 3.23 depicts the entrance ramp from the street level walking south down Gay Street. It is a perfect example of how the building engages pedestrians and adds an experience to entering the building. The entrance is accessible as a ramp for visitors regardless of their mobility issues; it is also accessible as a different approach to the building. This ramp, like the main ramp of the building gives the visitors a place to engage other visitors and to reflect and engage the concept of wellness.



Figure 3.23: South Gay Street Ramp Entrance

Generative Space and Community

Generative space is a term that Dr. Wayne Ruga, a leading healthcare architect, uses to define a built environment that through the interaction of the patrons, staff and visitors, the quality of a space is improved. The CARITAS Project defines it as, “Generative space is an environment, a place — both physical and social — where the experience of participants fulfills the functional requirements of that space and it also materially improves the health, healthcare, and quality of life for those participating in that experience in a manner they can articulate in their own terms” (A Place to Flourish, thecaritasproject.info). With this understanding of generative space the connection to community is clear; it takes an interactive community to have a successful generative space. Figure 3.24 is a rendering of the vertical circulation ramp. It shows the second level ramp and the connection to the first, second, and third levels. The ramp is the essential example of generative space in the design of The Wellness Clinic. All the activity revolves around this central circulation piece. As members

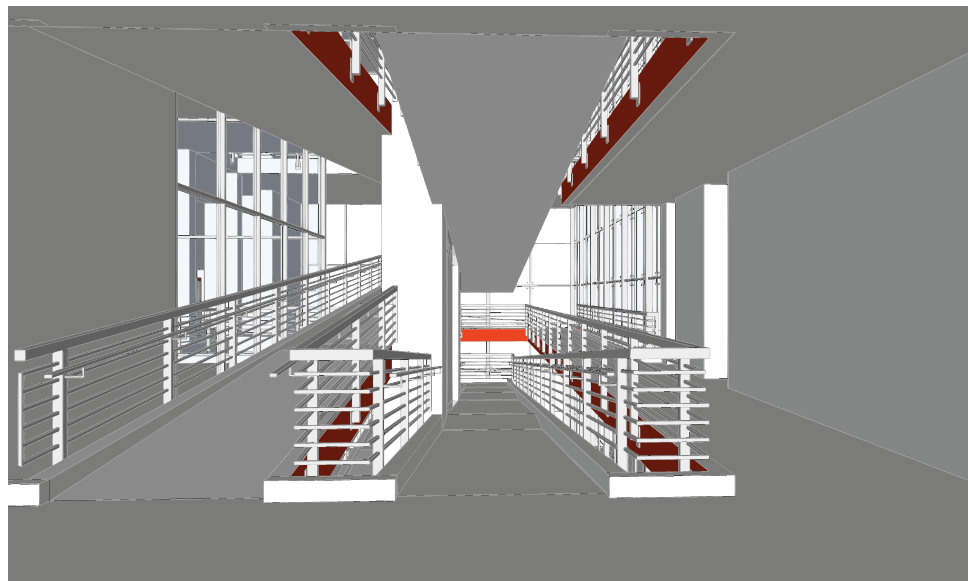


Figure 3.24: Vertical Circulation Ramp

move from level to level, the ramp and the lounges connected to it are the community interaction zones. The social interaction on the ramp is essential to The Wellness Clinic model. Members can get inspiration and support from other members. They can create friends and program partners with others who share similar goals. It is a space where members can just gather in an environment where its mission is to better the overall wellness of the community through positive interaction.

Promote and Prevent

The principles of promote and prevent are established in the traditional health side of wellness. The promotion of healthy lifestyle choices and the prevention of disease are the most important concepts behind the design of The Wellness Clinic. The design of the project promotes all aspects of wellness including, physical activity, positive social interaction, proper nutrition, education, and inner peace, all in an environment that is stress free and supporting of the members wellness goals. In promoting wellness in this manner, and with program participants that are dedicated to improving their well-being, the principle of prevention essentially takes care of itself. The primary care clinic portion of the program is a significant prevention element. The early diagnosis and treatment of disease, which when routine check-ups occur, makes the connection of the primary care space to the additional wellness program spaces a success. Figure 3.25 shows the rooftop track. This space is a unique example of the principles of promotion and prevention. The space is a controlled outdoor space that promotes physical activity and social interaction. Prevention of the likelihood of future disease is improving the members overall wellness.

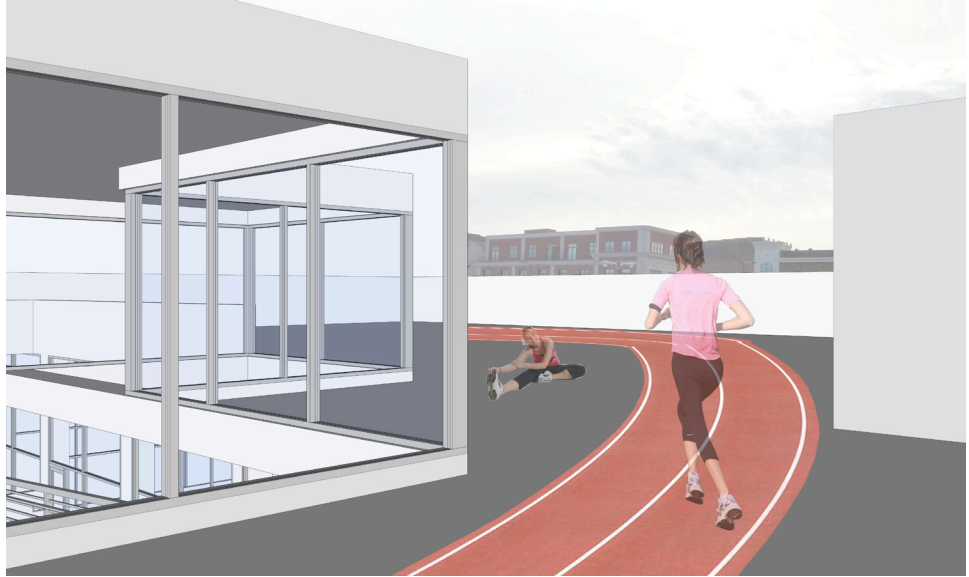


Figure 3.25: Rooftop Track

Conclusion

Upon completion of this thesis, I have come to the conclusion that for the future of healthcare facilities to be successful, wellness design must be integrated into the process. The delivery of healthcare will continue to improve on the front end and prevent the development of disease. Likewise the promotion of healthy lifestyle choices must continue and improve; with a goal of eliminating the obesity epidemic that this country is facing. The healthcare facilities of the future must adapt to these changes and aid in the promotion of wellness.

In conclusion to my thesis, I hope that this design project will serve as a model for wellness design. I feel that the integration of preventative primary care and a wellness program that promotes social interaction, physical activity, and making healthy lifestyle choices is the solution to improve the overall wellness of a community. If nothing else I hope this thesis initiates a discussion on wellness in the community and how architecture can make a positive impact on wellness.

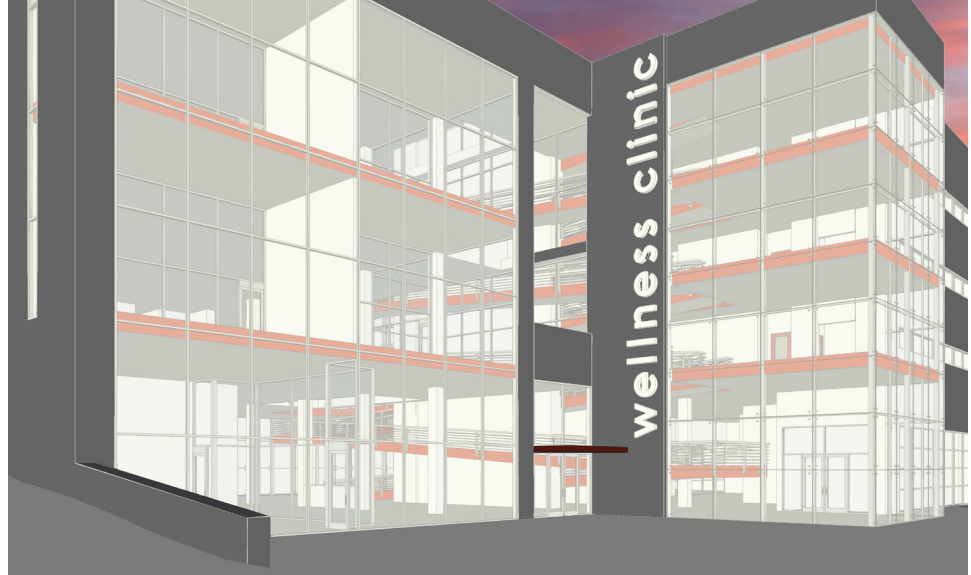


Figure 4.1: The Wellness Clinic Perspective at Night

References

"A Place to Flourish." *Thecaritasproject.info*. The CARITAS Project. Web. 18 Apr. 2012. <<http://www.thecaritasproject.info/aplacetoflourish/resources.html>>.

"County Level Estimates of Obesity — State Maps." CDC.gov. Centers for Disease Control and Prevention: National Diabetes Surveillance System. Web. 18 Apr. 2012. <http://apps.nccd.cdc.gov/DDT_STRS2/CountyPrevalenceData.aspx?mode=OBS>.

"Defining Overweight and Obesity." CDC.gov. Centers for Disease Control and Prevention, 21 June 2010. Web. 18 Apr. 2012. <<http://www.cdc.gov/obesity/defining.html>>.

"Health Consequences." CDC.gov. Centers for Disease Control and Prevention, 3 Mar. 2011. Web. 18 Apr. 2012. <<http://www.cdc.gov/obesity/causes/health.html>>.

"Know Your Wellness Wheel." *Vanderbilt.edu*. Vanderbilt University's Wellness Resource Center. Web. 18 Apr. 2012. <<http://www.vanderbilt.edu/studentrec/wellness/wellness-wheel/>>.

Kochanek,, Kenneth D., Sherry L. Murphy,, and Jiaquan Xu. *Deaths: Preliminary Data for 2010*. Rep. Centers for Disease Control and Prevention, 11 Jan. 2012. Web. 18 Apr. 2012. <http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_04.pdf>.

National Prevention Strategy. Rep. National Prevention, Health Promotion and Public Health Council, 16 June 2011. Web. 18 Apr. 2012. <<http://www.healthcare.gov/prevention/nphpphc/index.html>>.

"Our Approach." *Livewellknoxville.com*. Provision Health & Wellness. Web. 18 Apr. 2012. <<http://livewellknoxville.com/our-team-approach/about-the-springs/our-approach/>>.

"Prevention & Wellness." *HealthCare.gov*. U.S. Department of Health & Human Services. Web. 18 Apr. 2012. <<http://www.healthcare.gov/prevention/index.html>>.

State of Well-Being 2011: City, State and Congressional District Well-Being Reports. Rep. Gallup-Healthways. Web. 18 Apr. 2012. <<http://www.well-beingindex.com/stateCongresDistrictRank.asp>>.

"The Health Care Law & You." *HealthCare.gov*. U.S. Department of Health & Human Services. Web. 18 Apr. 2012. <<http://www.healthcare.gov/law/index.html>>.

"U.S. Obesity Trends." *CDC.gov*. Centers for Disease Control and Prevention, 27 Feb. 2012. Web. 18 Apr. 2012. <<http://www.cdc.gov/obesity/data/trends.html>>.

"Wellness." *Merriam-Webster.com*. Merriam-Webster, Incorporated. Web. 18 Apr. 2012. <<http://www.merriam-webster.com/dictionary/wellness>>.

"What Is the WHO Definition of Health?" *WHO.int*. World Health Organization. Web. 18 Apr. 2012. <<http://www.who.int/suggestions/faq/en/index.html>>.

Vita

Michael Creasy was born and raised in Christiansburg, Virginia. He received his Bachelor of Architecture Degree from Virginia Tech in 2007. Upon graduation he was commissioned into the United States Air Force, where he served as a Health Facilities Officer. He is married to Emily Creasy and they have a beautiful daughter, Madelynn.