

ABSTRACT

Title of Thesis: REVIVING COMMUNITY WELLNES FOR
LONG-TERM HEALTH

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The Philippine healthcare system faces challenges in providing equitable access to care, driven by disparities in infrastructure, inefficiencies in referral systems, unequal insurance coverage, and high out-of-pocket healthcare costs. While institutional hospitals remain the primary providers of medical treatment, there is limited support for preventive care, post-hospital recovery, and community-based wellness. This thesis explores how architecture can respond to these gaps through the design of a community-centered Health and Wellness Center that complements existing institutional healthcare. Rather than replacing hospitals, the proposed facility extends care beyond clinical settings by supporting preventive health practices, post-hospital recovery, and everyday well-being. The project integrates biophilic and culturally rooted healing strategies in Carig, Tuguegarao, in Northern Luzon, Philippines, adjacent to the Cagayan Valley Medical Center, and is informed by vernacular Filipino architecture and local climate.

REVIVING COMMUNITY WELLNES FOR LONG-TERM HEALTH

by

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Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
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Preface

This thesis presents a design proposal informed by my understanding of health and healing, shaped by my upbringing in the Philippines. In this context, care was not limited to formal healthcare institutions. Healing often occurs within the home and the community through family support, shared knowledge, and the use of traditional herbal remedies. These experiences form the basis of my approach to health as a holistic and ongoing process.

Health, as understood in this project, extends beyond medical treatment alone. The process of healing and recovery should not end within the hospital, but continue through environments that support prevention, well-being, and community care. This perspective guides the design of a Health and Wellness Center that moves beyond a conventional clinical model toward a more integrated and human-centered approach to health care.

This project examines how architecture can expand access to health care by supporting preventive and community-based models of care. The design is both culturally rooted and climate-responsive, drawing from local traditions, familiar healing practices, and the environmental conditions of the Philippines. Through the integration of biophilic principles and community-centered spaces, the project seeks to create an environment that promotes comfort, accessibility, and connection.

Overall, the intention of this thesis is to support long-term health and wellness at the community scale. By rethinking the role of health care architecture, this project demonstrates how the built environment can actively contribute to healing, resilience, and collective well-being.

Dedication

For my family here in the United States and my family back home in the Philippines, whose love, sacrifices, and support carried me through this process.

For the community in Tuguegarao this project is for, whose care, resilience, and shared knowledge continue to shape how I understand health and healing.

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I would also like to thank my peers in the architecture program, especially Tsigemariam Tilaye and Ankita Yeole, for their thoughtful discussions, which helped strengthen both the research and design of this project.

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List of Abbreviations

DOH	Department of Health
HUH	Howard University Hospital
GDP	Gross Domestic Product
GIDA	Geographically Isolated and Disadvantaged Areas
GIS	Geographic Information System(s)
HIV	Human Immunodeficiency Virus
IT-BPO	Information Technology–Business Process Outsourcing
LGUs	Local Government Units
MDGs	Millennium Development Goals
NCDs	Noncommunicable Diseases
NYU	New York University
PhilHealth	Philippine Health Insurance Corporation
SCI	Spinal Cord Injury
TM	Traditional Medicine
TM/H	Traditional Medicine / Healers
UHC	Universal Health Care
U.S.	United States
WHO	World Health Organization

Chapter 1: Introduction

The Philippine healthcare system faces significant challenges that hinder equitable access to medical services, particularly in rural areas. One of the most major issues is the disparity between urban and rural healthcare infrastructure. Manila and other major cities benefit from well-equipped hospitals and a higher concentration of healthcare professionals, whereas rural regions often suffer from inadequate facilities and medical staff shortages. Regional government hospitals, which serve as the primary healthcare providers in many provinces, also have inefficiencies in service delivery.

Adding to these challenges is the country's broken health financing system. While PhilHealth, the national health insurance program, is meant to help with healthcare costs, it only covers about one-third of hospitalization expenses. As a result, people are forced to pay 54.25% of their healthcare costs out of pocket, which puts a heavy financial strain on many Filipinos¹. This leads to delays in seeking medical care, especially in rural areas, and worsens the existing healthcare gaps. Additionally, issues like inefficiencies in the referral system, unequal health insurance coverage, and limited access to primary and palliative care make it even harder to bridge the gap between urban and rural healthcare services.

¹ Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde. Edited by Walaiporn Patcharanarumol and Viroj Tangcharoensathien. *The Philippines Health System Review*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28462.7>.

In response to these issues, alternative health care approaches that integrate biophilic design and holistic medicine offer solutions. Biophilic design, which emphasizes the connection between nature and human well-being, has been shown to reduce stress, enhance recovery, and improve overall health outcomes. Similarly, holistic medicine, incorporating traditional healing practices and preventive care, can serve as a cost-effective and culturally relevant complement to conventional healthcare models. By leveraging these principles, architecture can play a crucial role in developing accessible and community-driven health care facilities that function as post-hospital recovery and health education and community empowerment.

This thesis seeks to answer the question:

How can architecture address existing gaps in the Philippines' healthcare system by creating accessible and community-centered spaces serving people through preventive health care and post-hospital recovery in the neighborhood district of Carig, Northern Luzon (Philippines)?

To address this question, this thesis is structured as follows:

Chapter 2: Literature Review investigates the intersection of health and wellness architecture, biophilic design, and holistic medicine in the Philippine context. It analyzes socioeconomic and political factors contributing to healthcare disparities, evaluates existing reforms and interventions, and examines how biophilic and holistic strategies can enhance health care access and outcomes.

Chapter 3: Methodology outlines the research methods used in this study, including qualitative analysis, precedent studies, and conceptual design exploration.

Chapter 4: Precedent Studies presents case studies of health care and wellness facilities that incorporate biophilic and holistic approaches, with a focus on their relevance to rural areas in the Philippines.

Chapter 5: Program and Zoning identify the spatial requirements of the proposed health and wellness facility, organized into functional zones that reflect healing, teaching, and community engagement priorities.

Chapter 6: Site Selection and Analysis assess potential rural sites based on accessibility, environmental context, and community needs, leading to the selection of a specific location for conceptual development, while also exploring a site zero as a testing ground for preliminary design strategies.

Chapter 7: Discovery Phase tests the conceptual thesis through design strategies that synthesize insights from previous chapters, setting the groundwork for a proposed architectural solution.

Chapter 8: Conclusion: Thesis Design Solution synthesizes the site's regional, urban, neighborhood, and environmental conditions in Tuguegarao to demonstrate how a

climate-responsive and culturally rooted Health and Wellness Center can complement existing institutional healthcare through community-based, preventive, and post-hospital recovery spaces informed by vernacular architecture, biophilic design, and local climatic realities.

Overall, this thesis aims to contribute to the development of resilient, culturally rooted, and self-sustaining rural health care infrastructures in the Philippines. By reframing health and wellness design as both a medical and social approach, the goal is to create accessible spaces that support healing, learning, and the sharing of local knowledge within the Filipino communities.

Chapter 2: Methodologies

2.1 Socioeconomic and Political Context

Philippines is a tropical archipelago with a population of 104.9 million, spread across 17 regions, with Metro Manila being the most densely populated. The country has 42,036 *barangays*, including 4,720 classified as geographically isolated and disadvantaged areas (GIDA). Of the population, 49 million people live in urban areas, while 55.9 million live in rural areas. As a lower-middle-income nation, the economy is driven primarily by services (59.9% of GDP) and industry (30.5% of GDP), while agriculture's share has fallen below 10%. Despite increasing investments in health and education, health spending (4.4% of GDP) remains below the United Nation's recommended threshold of 5%².

Politically, Philippines is divided into three main island groups (Figure 1): Luzon, Visayas, and Mindanao, with a three-tiered government structure (Figure 3). The national government creates laws and policies for the entire country, overseeing areas like defense, foreign affairs, and national economic planning. Below this, regional governments manage larger areas made up of provinces and cities, implementing national policies while addressing regional needs. The local government is closest to the people, consisting of provinces, cities, municipalities, and *barangays* (Figure 4).

² Dayrit, Manuel M, Elvira SN Dayrit, Jeremie E De Guzman, and Geminn Louis C Apostol. "The Philippines." Edited by Helena Legido-Quigley and Nima Asgari-Jirhandeh. *Resilient and People-Centred Health Systems: Progress, Challenges and Future Directions in Asia*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28460.19>.

Local officials, including mayors and governors, make decisions that directly affect their communities, focusing on essential services like education, healthcare, infrastructure, and law enforcement³.



Figure 1. Map of Philippines (Source: FREEWORLDMAPS)



Figure 2. Global Map (Source: Institute for Energy Economics and Financial Analysis)

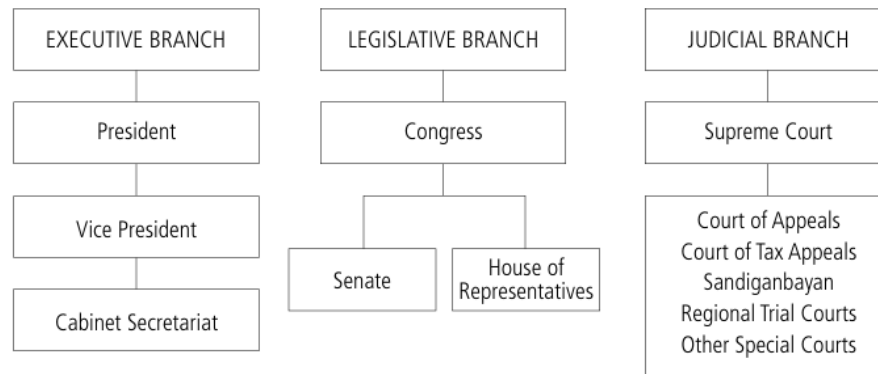


Figure 3. Three Branches of the Philippines (Source: Dayrit, Manuel M, Elvira SN Dayrit, Jeremie E De Guzman, and Geminn Louis C Apostol)

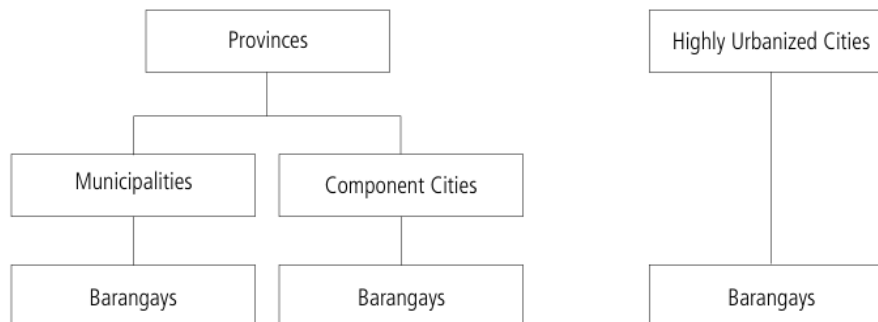


Figure 4. Philippine Local Government Units (Source: Dayrit, Manuel M, Elvira SN Dayrit, Jeremie E De Guzman, and Geminn Louis C Apostol)

³ Dayrit, Manuel M, Elvira SN Dayrit, Jeremie E De Guzman, and Geminn Louis C Apostol. "The Philippines." Edited by Helena Legido-Quigley and Nima Asgari-Jirhandeh. Resilient and People-Centred Health Systems: Progress, Challenges and Future Directions in Asia. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28460.19>.

2.2 Health Status

Philippines faces a "triple burden of disease," with increasing risks due to globalization and climate change, a rise in noncommunicable diseases (NCDs) from lifestyle changes, and persistent infectious diseases such as HIV, tuberculosis, and vaccine-preventable illnesses⁴. The country ranks third globally in disaster risk, experiencing 281 natural disasters from 2000 to 2016, which affected 125 million people and caused over 23,000 deaths. Disaster preparedness has improved under the Philippine Disaster Risk Reduction and Management Act, strengthening emergency response capabilities⁵.

Life expectancy has increased from 65 years in 1990 to 69 years in 2016 but still lags behind neighboring countries. NCDs, such as heart disease, strokes, and diabetes, are the leading health burdens, with diabetes affecting 5% of the population. While tuberculosis and HIV/AIDS have declined, issues like infant mortality and undernutrition persist, with 33.4% of children under five experiencing stunting. Maternal mortality has seen little improvement, largely due to limited access to skilled birth attendants⁶. Key health risks include poor diets, tobacco use, and high blood pressure, though malnutrition rates have improved. Despite progress in handling

⁴ Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde. Edited by Walaiporn Patcharanarumol and Viroj Tangcharoensathien. *The Philippines Health System Review*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28462.7>.

⁵ Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde. Edited by Walaiporn Patcharanarumol and Viroj Tangcharoensathien. *The Philippines Health System Review*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28462.7>.

⁶ Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde. Edited by Walaiporn Patcharanarumol and Viroj Tangcharoensathien. *The Philippines Health System Review*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28462.7>.

past epidemics, further investment in healthcare infrastructure is needed to enhance healthcare accessibility, effectiveness, and resilience.

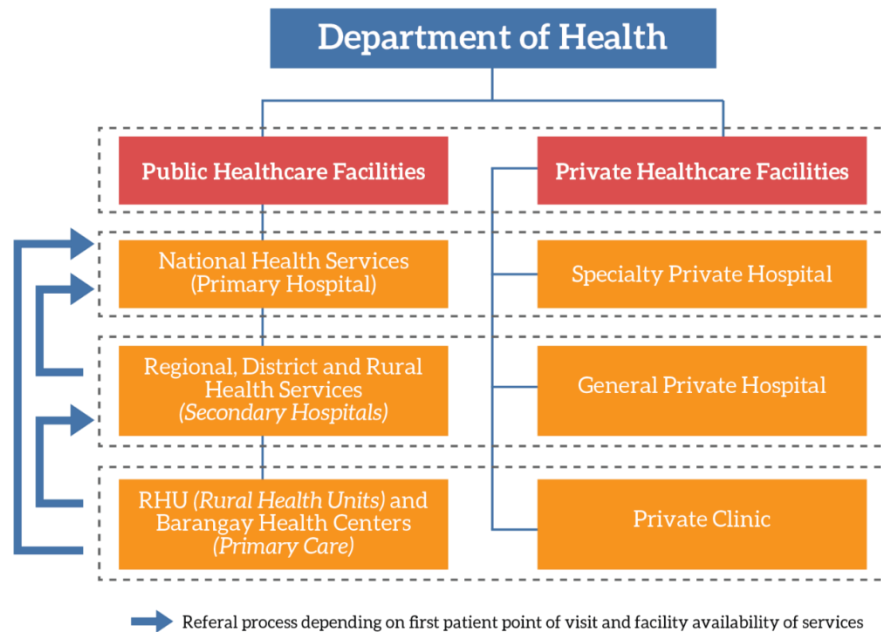


Figure 5. Department of Health (Source: Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde)

2.3 Main Issues of the Philippines Healthcare System

Governance inefficiencies, overlapping financing systems, and poor coordination between PhilHealth, the Department of Health (DOH), and Local Government Units (LGUs) contribute to rising healthcare costs and inefficiencies⁷. The Philippine health system is a mix of public and private providers, with the DOH overseeing national policies and LGUs managing local services (Figure 5). The public sector relies on

⁷ Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde. Edited by Walaiporn Patcharanarumol and Viroj Tangcharoensathien. *The Philippines Health System Review*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28462.7>.

taxes for funding, while the private sector operates on a market-based model with user fees. PhilHealth provides national health insurance but covers only a third of hospitalization costs, with out-of-pocket payments comprising 54.25% of total health expenditures. The country has 1,224 hospitals, more than half of which are in the private sector, but struggles with retaining healthcare workers, especially in rural areas⁸. The high cost of medicines and inefficiencies in procurement add further burden to the healthcare system. Healthcare access is hindered by geographic, financial, and cultural barriers. Inefficiencies in the referral system, inequities in health insurance, and inadequate primary and palliative care exacerbate disparities. Additionally, weak oversight, limited public engagement, and lack of information leave patients vulnerable to balance billing and high medical expenses⁹.

Public health played a crucial role in the Philippines' development, though it often received less attention than political or economic issues. Healthcare improvements, particularly under American rule, significantly reduced diseases and mortality rates. Before the U.S. administration, Spanish rule provided only minimal medical services, mostly through religious hospitals. In contrast, the Americans introduced modern sanitation laws, disease control programs, and medical education, leading to major

⁸ Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde. Edited by Walaiporn Patcharanarumol and Viroj Tangcharoensathien. *The Philippines Health System Review*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28462.7>.

⁹ Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde. Edited by Walaiporn Patcharanarumol and Viroj Tangcharoensathien. *The Philippines Health System Review*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28462.7>.

health advancements. By the late 1930s, Manila had some of the best health conditions in the region¹⁰.

The Philippine public health system was centralized under the Bureau of Health, which managed hospitals, sanitation, disease prevention, and maternal care. However, despite progress, rural areas still struggled with limited access to medical services.

Common health issues included tuberculosis, malaria, and malnutrition, with tuberculosis being the leading cause of death. The government launched campaigns to combat these diseases, while international organizations like the Rockefeller Foundation helped strengthen healthcare programs¹¹.

By 1941, the Department of Health and Public Welfare was established, further expanding health services. However, the country still lacked adequate hospital facilities, with only 0.76 beds per 1,000 people, which was far below U.S. standards. While colonial-era improvements helped shape the modern healthcare system, inequalities between urban and rural areas remained a challenge. These historical gaps continue to impact healthcare access in the Philippines today¹².

¹⁰ Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde. Edited by Walaiporn Patcharanarumol and Viroj Tangcharoensathien. *The Philippines Health System Review*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28462.7>.

¹¹ Deutschman, Zygmunt. "Public Health and Medical Services in the Philippines." *The Far Eastern Quarterly* 4, no. 2 (1945): 148–57. <https://doi.org/10.2307/2048965>.

¹² Deutschman, Zygmunt. "Public Health and Medical Services in the Philippines." *The Far Eastern Quarterly* 4, no. 2 (1945): 148–57. <https://doi.org/10.2307/2048965>.

2.4 Efforts of Programs and Reforms

Despite reforms like Universal Health Care (UHC) and the expansion of PhilHealth coverage, the Philippine health system continues to struggle with issues of access, equity, and service quality due to uneven resource distribution, high out-of-pocket expenses, political interference, funding delays, and corruption¹³. In 2010, the Philippines committed to UHC, focusing on expanding health insurance, improving healthcare facilities, and achieving health-related Millennium Development Goals (MDGs). Policies such as the Sin Tax Law, Reproductive Health Law, and National Health Insurance Act were introduced to improve health outcomes and provide financial protection¹⁴, but challenges in implementation remain. Although PhilHealth membership has grown and healthcare facilities have been upgraded, key areas like non-communicable diseases (NCDs) and mental health remain underfunded. Local governance improvements are often hindered by bureaucratic inertia and hesitant leadership¹⁵.

In response to economic vulnerabilities, particularly after the Asian Financial Crisis of the 1990s, Southeast Asian countries have significantly expanded their social protection programs. This shift highlights the growing recognition of poverty risks and the need for government intervention to support households facing financial

¹³ Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde. Edited by Walaiporn Patcharanarumol and Viroj Tangcharoensathien. *The Philippines Health System Review*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28462.7>.

¹⁴ Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde. Edited by Walaiporn Patcharanarumol and Viroj Tangcharoensathien. *The Philippines Health System Review*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28462.7>.

¹⁵ Dayrit, Manuel M., Liezel P. Lagrada, Oscar F. Picazo, Melahi C. Pons, and Mario C. Villaverde. Edited by Walaiporn Patcharanarumol and Viroj Tangcharoensathien. *The Philippines Health System Review*. World Health Organization, 2018. <http://www.jstor.org/stable/resrep28462.7>.

instability, unemployment, illness, and aging¹⁶. However, despite these efforts, disparities in quality and coverage persist. Rapid urbanization, informal employment, rising dependency ratios, and gender inequalities continue to pose major challenges to the effectiveness of these programs. In Indonesia and the Philippines, social protection initiatives have made progress, especially in expanding healthcare and social support for the poor. Yet, benefits still disproportionately favor public sector employees, leaving informal workers with inadequate coverage¹⁷.

While programs like conditional cash transfers and healthcare initiatives have been introduced, low per capita spending and persistent gaps in coverage limit their impact. As globalization continues to expose the region to financial uncertainty, there is a pressing need to develop more integrated, rights-based social protection strategies that ensure long-term resilience and equitable access¹⁸¹⁹.

The challenges of rural development in the Philippines have long been recognized, with Thomas (1955) highlighting the government's efforts under President Magsaysay to improve rural living conditions²⁰. There is a lack of capital, government services, and infrastructure in rural areas, particularly in remote barrios. Limited access to

¹⁶ Cook, Sarah, and Jonathan Pincus. "Poverty, Inequality and Social Protection in Southeast Asia: An Introduction." *Journal of Southeast Asian Economies* 31, no. 1 (2014): 1–17. <http://www.jstor.org/stable/43264696>.

¹⁷ Ramesh, M. "Social Protection in Indonesia and the Philippines: Work in Progress." *Journal of Southeast Asian Economies* 31, no. 1 (2014): 40–56. <http://www.jstor.org/stable/43264698>.

¹⁸ Cook, Sarah, and Jonathan Pincus. "Poverty, Inequality and Social Protection in Southeast Asia: An Introduction." *Journal of Southeast Asian Economies* 31, no. 1 (2014): 1–17. <http://www.jstor.org/stable/43264696>.

¹⁹ Ramesh, M. "Social Protection in Indonesia and the Philippines: Work in Progress." *Journal of Southeast Asian Economies* 31, no. 1 (2014): 40–56. <http://www.jstor.org/stable/43264698>.

²⁰ THOMAS, M. LADD. "THE PHILIPPINE RURAL DEVELOPMENT PROGRAM." *Social Research* 22, no. 2 (1955): 223–30. <http://www.jstor.org/stable/40982418>.

healthcare, weak financial resources, and the concentration of public services in urban centers contribute to persistent poverty. The Rural Development Program sought to address these issues through self-help initiatives, cooperative credit programs, and public works projects. However, administrative challenges, lack of coordination among agencies, and resistance to decentralization hindered the program's effectiveness.

Based on the ethical complexities of rural healthcare, Nelson et al. (2007) emphasizes the need for a tailored ethics agenda that accounts for the unique social and economic conditions of rural communities²¹. Rural populations often experience limited healthcare access, higher rates of chronic illness, and unique ethical dilemmas due to overlapping professional and personal relationships. The lack of ethical resources, including training and support structures, further exacerbates these challenges. The Coalition for Rural Health Care Ethics proposes increased research, education, and collaboration with rural professionals to enhance patient care and address disparities between urban and rural healthcare systems.

There are persistent challenges of social protection and healthcare accessibility in Southeast Asia, particularly in rural and informal sectors. While significant progress has been made, gaps in coverage, financial constraints, and policy inefficiencies continue to hinder equitable development. Addressing these issues requires a more integrated approach that incorporates localized solutions, improved policy

²¹ Nelson, W., A. Pomerantz, K. Howard, and A. Bushy. "A Proposed Rural Healthcare Ethics Agenda." *Journal of Medical Ethics* 33, no. 3 (2007): 136–39. <http://www.jstor.org/stable/27719811>.

implementation, and ethical considerations tailored to the specific needs of vulnerable populations.

2.5 Regional Disparities

Philippines has long struggled with uneven development across its regions. Some areas, particularly Metro Manila and major urban centers, thrive economically, while rural and poorer regions face persistent challenges. Andriesse (2017) highlights four main reasons for these regional inequalities which include natural disasters, weak private sector development, governance issues with decentralization, and reliance on remittances²². The country is highly vulnerable to typhoons and earthquakes, which hit rural and coastal communities the hardest. Economic activity remains concentrated in key cities, while many smaller regions struggle to attract businesses due to political instability and lack of infrastructure. Decentralization, meant to give local governments more control, has led to corruption and inefficiency in many areas.

²² Andriesse, Edo. "REGIONAL DISPARITIES IN THE PHILIPPINES: STRUCTURAL DRIVERS AND POLICY CONSIDERATIONS." *Erdkunde* 71, no. 2 (2017): 97–110.
<http://www.jstor.org/stable/44281799>.

Meanwhile, remittances from overseas workers help some provinces but often widen the gap between wealthier and poorer regions.



Figure 6. Metro Manila (Source: Project LUPAD)



Figure 7. Tuguegarao (Captured by: Menaseh Sales)

Despite economic growth, many provinces remain poor, with agricultural areas struggling the most. While industries like IT-BPO have provided jobs in urban centers, their impact on reducing poverty has been limited. Places like Eastern Visayas and Mindanao continue to experience high poverty rates, especially in areas

affected by conflict. To address these issues, Andriesse (2017) suggests improving infrastructure in remote areas, ensuring better governance at the local level, promoting diverse industries beyond city centers, and creating more opportunities in rural areas can prevent excessive migration to urban slums²³.

Balisacan, Hill, and Piza (2008) reinforce these concerns by showing how the Philippines as a decentralized country has not solved economic inequality²⁴. While the goal was to give local governments more control over development, many still rely heavily on the national government for funding. Corruption, mismanagement, and lack of resources have prevented many provinces from growing at the same pace as Metro Manila. Additionally, weak infrastructure has made it difficult for businesses to expand beyond major economic hubs.

While decentralization was meant to improve governance and economic opportunities, it has not been a complete success. Moving forward, a more balanced approach is needed, one that strengthens local governments, improves connectivity through better infrastructure, and encourages business growth in underdeveloped areas. Addressing these challenges is crucial to creating more equal opportunities across all regions of the Philippines.

²³ Andriesse, Edo. "REGIONAL DISPARITIES IN THE PHILIPPINES: STRUCTURAL DRIVERS AND POLICY CONSIDERATIONS." *Erdkunde* 71, no. 2 (2017): 97–110. <http://www.jstor.org/stable/44281799>.

²⁴ Balisacan, Arsenio M., Hal Hill, and Sharon Faye Piza. "Regional Development Dynamics and Decentralization in the Philippines: Ten Lessons from a 'Fast Starter.'" *ASEAN Economic Bulletin* 25, no. 3 (2008): 293–315. <http://www.jstor.org/stable/41219834>.

Political instability and violence against local officials further complicate governance in the Philippines, particularly in conflict-prone regions. Nsaibia et al. (2024) analyze the risks faced by local leaders, especially during electoral periods. Philippines is one of the most affected countries in the Asia-Pacific, with political rivalries, organized crime, and insurgencies contributing to violence. In 2023 alone, there were 891 recorded incidents of violence targeting local officials in the region, with the Philippines ranking among the top five most affected countries²⁵. This instability weakens local governance, making it even more difficult to implement policies that could reduce regional disparities. The report highlights the need for stronger security measures and institutional reforms to protect local leaders and improve regional stability.

Overall, while decentralization was intended to improve governance and economic opportunities, it has not been a complete success. Moving forward, a more balanced approach is needed, which strengthens local governments, improves connectivity through better infrastructure, ensures security for local officials, and encourages business growth in underdeveloped areas. Addressing these challenges is crucial to creating more equal opportunities across all regions of the Philippines.

²⁵ Nsaibia, Heni, Timothy Lay, Tomas Buenaventura, Nicola Manfredi Audibert, Ciro Murillo, Sandra Pellegrini, Timothy Marsella, and Muaz al-Abdullah. "Regional Section: Asia-Pacific." Edited by Andrea Carboni. Annual Report on VIOLENCE TARGETING LOCAL OFFICIALS 2023. Armed Conflict Location & Event Data Project, 2024. <http://www.jstor.org/stable/resrep60133.7>.

2.6 Biophilic Design: Concept, Principles, and Applications and Healthcare Environments

Biophilic design is an approach that integrates natural elements into the built environment to enhance human well-being. Rooted in Edward O. Wilson's biophilia hypothesis, which suggests an innate human tendency to connect with nature, biophilic design aims to create spaces that are both restorative and functional. Martin and Choi (2018) define biophilic design as more than just the addition of plants; it involves sensory, material, and spatial considerations that engage people holistically²⁶. Similarly, Joye (2011) emphasizes that biophilic design aesthetics should incorporate direct and indirect experiences of nature, including natural materials, fractal patterns, and organic forms, to foster emotional and psychological benefits²⁷. The health benefits of biophilic design are well-documented. Studies indicate that exposure to natural elements in healthcare environments can accelerate recovery times and reduce stress²⁸. Khoo Teck Puat Hospital in Singapore exemplifies these principles by integrating gardens, natural ventilation, and water features to create a healing atmosphere. Furthermore, Hes et al. (2018) highlights the broader social and cognitive advantages, such as improved concentration and creativity, particularly in educational and workplace settings²⁹. The integration of

²⁶ Martin, Rory, and Stephen Choi. "Biophilic Design: An Introduction for Designers." *Environment Design Guide*, 2018, 1–15. <https://www.jstor.org/stable/26496280>.

²⁷ Joye, Yannick. "Biophilic Design Aesthetics in Art and Design Education." *The Journal of Aesthetic Education* 45, no. 2 (2011): 17–35. <https://doi.org/10.5406/jaesteduc.45.2.0017>.

²⁸ Martin, Rory, and Stephen Choi. "Biophilic Design: An Introduction for Designers." *Environment Design Guide*, 2018, 1–15. <https://www.jstor.org/stable/26496280>.

²⁹ Hes, Dominique, Jana Soderlund, Cheryl Desha, and Caroline Pidcock. "Natural Connectors: Biophilic Design Takes Root." *Sanctuary: Modern Green Homes*, no. 45 (2018): 68–73. <https://www.jstor.org/stable/90026753>.

greenery, natural light, and dynamic elements into design fosters a sense of calm and enhances productivity.

2.7 The Evolution of Patient-Centered Healthcare Spaces

Rainey (2019) highlights the transformation of U.S. healthcare facilities over the past 40 years from sterile, stressful environments into patient-centered spaces designed to enhance healing³⁰. Modern hospitals incorporate natural light, quiet spaces, clear wayfinding, and homelike patient rooms to reduce stress and improve patient outcomes. Evidence-based design, which relies on scientific studies to inform architectural decisions, has driven this transformation. Stress-reducing features such as noise reduction, natural lighting, good air quality, and intuitive layouts contribute to better health outcomes. While mechanisms behind these benefits are still debated, their positive effects are widely accepted.

³⁰ Rainey, Reuben M. "Design for Healing: The Transformation of Health-Care Facilities in the United States." *SiteLINES: A Journal of Place* 15, no. 1 (2019): 3–5. <https://www.jstor.org/stable/26767357>.

2.8 Biophilic Design in Rural Healthcare Architecture

Key stress-reducing features include:

- **Noise Reduction:** Excessive noise negatively impacts patient healing and staff performance. Hospitals mitigate this through acoustic ceiling tiles, carpets, and limiting unnecessary public announcements³¹.
- **Natural Light:** Sunlight exposure enhances mood and reduces stress, leading to faster patient recovery. Healthcare facilities should integrate ample daylight in patient rooms, hallways, and staff areas³².
- **Contact with Nature:** Healing gardens, horticultural therapy, and virtual nature exposure reduce stress hormones and enhance immune function³³.
- **Clear Wayfinding:** Logical layouts and effective signage reduce patient and visitor stress, improving navigation efficiency³⁴.
- **Air Quality:** Proper ventilation and filtration systems minimize airborne infections and stress caused by medicinal odors³⁵.
- **Single-Patient Rooms:** Private rooms with designated zones for patients, staff, and visitors improve privacy, infection control, and overall patient well-being³⁶.

The role of biophilic design in healthcare is particularly relevant to rural settings, where healthcare access is limited. Rural healthcare facilities often face challenges such as underfunding, difficulty attracting medical professionals, and lack of

infrastructure³⁷. The Hill Country Health & Wellness Center in northern California illustrates how community-based healthcare can integrate biophilic principles to support well-being. By incorporating natural materials, daylight, and outdoor views, the center fosters a welcoming and healing environment despite resource constraints.

2.9 Healing Gardens and Therapeutic Landscapes

Crosby (1958) reinforces the idea that hospitals should extend their role beyond curative care to encompass community health initiatives. Hospitals can serve as community hubs that promote public health education, preventive medicine, and holistic wellness³⁸. In this regard, biophilic design can enhance rural healthcare settings by improving patient experience, reducing stress, and fostering a connection with nature, even in economically disadvantaged areas.

The integration of gardens in healthcare settings has shown significant therapeutic benefits. Helphand (2019) documents the impact of the Legacy Emanuel Medical Center's Children's Garden, which provided psychological relief for patients, families, and staff³⁹. Designed for accessibility and sensory engagement, the garden promoted relaxation and emotional well-being. The hospital's therapeutic garden

³⁷ Pruitt, Lisa R. "A Case Study in Rural Community Economic Development: Hill Country Health & Wellness Center." *Journal of Affordable Housing & Community Development Law* 26, no. 1 (2017): 73–78. <https://www.jstor.org/stable/26408207>.

³⁸ Crosby, Edwin L. "The Hospital as a Community Health Center." *Public Health Reports* (1896-1970) 73, no. 9 (1958): 765–72. <https://doi.org/10.2307/4590239>.

³⁹ Helphand, Kenneth. "Prescribing the Outdoors: A Model Hospital Garden." *SiteLINES: A Journal of Place* 15, no. 1 (2019): 10–12. <https://www.jstor.org/stable/26767359>.

program demonstrates the role of nature as a medical intervention prescribed alongside conventional treatments⁴⁰.

2.10 Implications for Architectural Practice and Education

Similarly, Latané (2009) examines the Peter and Paula Fasseas Cancer Clinic in Tucson, Arizona, where healing gardens feature native plants, shaded seating, and water features help foster patient tranquility⁴¹. The clinic's sustainable irrigation system, using rainwater and condensate, underscores the ecological benefits of biophilic design in healthcare architecture.

For biophilic design to be effectively integrated into healthcare spaces, architectural education must incorporate its principles into curricula. Joye (2011) argues that design education plays a critical role in advancing biophilic theory while avoiding superficial applications⁴². By deepening the understanding of biophilia's psychological and physiological impacts, architecture students can create designs that are not only aesthetically appealing but also contextually appropriate and therapeutically effective.

⁴⁰ Helphand, Kenneth. "Prescribing the Outdoors: A Model Hospital Garden." *SiteLINES: A Journal of Place* 15, no. 1 (2019): 10–12. <https://www.jstor.org/stable/26767359>.

⁴¹ Latané, Claire. "HEALING WITH NATURE." *Landscape Architecture* 99, no. 11 (2009): 28–35. <http://www.jstor.org/stable/44791937>.

⁴² Joye, Yannick. "Biophilic Design Aesthetics in Art and Design Education." *The Journal of Aesthetic Education* 45, no. 2 (2011): 17–35. <https://doi.org/10.5406/jaesteduc.45.2.0017>.

2.11 Rehabilitation and Horticultural Therapy

Hes et al. (2018) provides practical guidelines for applying biophilic design in residential settings, including strategies such as dynamic lighting, natural ventilation, and sensory engagement⁴³. These insights can be adapted to healthcare architecture, particularly in rural areas where environmental and cultural responsiveness is essential.

Gerlach-Spriggs & Healy (2019) explore the pioneering work of Dr. Howard A. Rusk, who integrated horticultural therapy into rehabilitation at NYU Langone Health⁴⁴. The hospital's therapeutic gardens, including the Glass Garden and Gimbel Garden, were designed to engage patients socially and emotionally. Research at Rusk demonstrated improvements in speech and emotional recovery among aphasia patients through interaction with garden spaces. Despite challenges like Hurricane Sandy's destruction of key areas, the legacy of horticultural therapy endures, with continued use of natural spaces in patient care⁴⁵.

⁴³ Hes, Dominique, Jana Soderlund, Cheryl Desha, and Caroline Pidcock. "Natural Connectors: Biophilic Design Takes Root." *Sanctuary: Modern Green Homes*, no. 45 (2018): 68–73. <https://www.jstor.org/stable/90026753>.

⁴⁴ Gerlach-Spriggs, Nancy, and Vincent J. Healy. "Rehabilitation and Gardens: The Legacy of Dr. Howard A. Rusk." *SiteLINES: A Journal of Place* 15, no. 1 (2019):

⁴⁵ Gerlach-Spriggs, Nancy, and Vincent J. Healy. "Rehabilitation and Gardens: The Legacy of Dr. Howard A. Rusk." *SiteLINES: A Journal of Place* 15, no. 1 (2019): 15–19. <https://www.jstor.org/stable/26767361>.

2.12 Evaluating Hospital Gardens and Design Implications

Cervinka, Röderer, & Hämmerle (2014) emphasize the importance of evidence-based approaches in evaluating hospital gardens. Their study of four hospital gardens in Lower Austria highlighted key restorative design factors, such as mood, tranquility, and sensory stimulation⁴⁶. The research advocates improvements, including additional shade, private resting areas, and water features, all of which contribute to enhancing therapeutic benefits. Staff involvement in garden design was also a key factor in the effectiveness of these spaces, demonstrating the need for participatory planning in healthcare landscapes.

2.13 Gardens and Therapeutic Horticulture in Acute Healthcare Settings

Hilbers and Satharasinghe (2013) studied the Blooming Backyard project at the Prince of Wales Hospital in Sydney, which transformed an unattractive courtyard into a therapeutic garden for spinal cord injury (SCI) patients⁴⁷. This garden significantly enhanced patients' rehabilitation experiences, promoting engagement with nature and contributing to better psychological and physical outcomes, such as reduced stress, shorter hospital stays, and less reliance on medication. The therapeutic horticulture program encouraged patients to engage in gardening tasks, such as planting and

⁴⁶ Cervinka, Renate, Kathrin Röderer, and Isabella Hämmerle. "EVALUATION OF HOSPITAL GARDENS AND IMPLICATIONS FOR DESIGN: BENEFITS FROM ENVIRONMENTAL PSYCHOLOGY FOR ARCHITECTURE AND LANDSCAPE PLANNING." *Journal of Architectural and Planning Research* 31, no. 1 (2014): 43–56. <http://www.jstor.org/stable/43031023>.

⁴⁷ Hilbers, Julieanne, and Anna Satharasinghe. "Gardens and Therapeutic Horticulture in an Acute Healthcare Setting: Opportunities Provided by the Blooming Backyard Project at Prince of Wales Hospital, Sydney." *Journal of Therapeutic Horticulture* 23, no. 1 (2013): 35–48. <https://www.jstor.org/stable/24865232>.

weeding, which further supported physical rehabilitation and helped them develop adaptive skills for post-discharge life.

Similarly, Cutillo et al. (2015) highlight the diverse benefits of nature-based therapies, particularly gardening, for patients dealing with chronic and life-threatening conditions like cancer⁴⁸. Their literature review reveals that gardening activities are effective in reducing mood disturbances, enhancing pain management, and improving coping strategies. Additionally, the study notes that horticultural therapy helps pediatric cancer patients develop emotional resilience during treatment, further supporting its psychosocial and physical benefits⁴⁹.

2.14 Horticultural Therapy in Mental Health Treatment

Monroe (2015) explores the role of horticultural therapy in mental health treatment, specifically in outpatient settings for patients with mood disorders, including major depressive disorder and schizoaffective disorder⁵⁰. The gardening project encouraged participation in tasks like weeding and planting, with a focus on improving physical activity, social interaction, and mindfulness. The therapeutic outcomes were profound, as participants developed improved coping mechanisms and emotional regulation. Engaging with nature allowed them to gain mindfulness and reflect on life

⁴⁸ Cutillo, A., N. Rathore, N. Reynolds, L. Hilliard, H. Haines, K. Whelan, and A. Madan-Swain. "A Literature Review of Nature-Based Therapy and Its Application in Cancer Care." *Journal of Therapeutic Horticulture* 25, no. 1 (2015): 3–15. <https://www.jstor.org/stable/24865255>.

⁴⁹ Cutillo, A., N. Rathore, N. Reynolds, L. Hilliard, H. Haines, K. Whelan, and A. Madan-Swain. "A Literature Review of Nature-Based Therapy and Its Application in Cancer Care." *Journal of Therapeutic Horticulture* 25, no. 1 (2015): 3–15. <https://www.jstor.org/stable/24865255>.

⁵⁰ Monroe, Lucas. "Horticulture Therapy Improves the Body, Mind and Spirit." *Journal of Therapeutic Horticulture* 25, no. 2 (2015): 33–40. <https://www.jstor.org/stable/24865266>.

cycles, fostering emotional awareness and better coping strategies for managing anxiety, depression, and stress.

This study highlights the potential of horticultural therapy to complement traditional mental health interventions. By integrating mindfulness practices into these projects, patients gain additional tools for managing their psychological states, offering a holistic approach to mental health treatment⁵¹.

2.15 Broader Implications for Healthcare Design

The studies reviewed support the growing recognition of biophilic design in enhancing healthcare outcomes. Gardens, green spaces, and nature-inspired designs provide not only aesthetic value but also functional benefits for promoting mental, emotional, and physical health. The success of therapeutic horticulture programs, such as the Blooming Backyard and other garden projects across healthcare settings, demonstrate the need for wider adoption of these practices in healthcare architecture.

As evidenced by positive outcomes in rehabilitation, cancer care, and mental health treatment, nature-based therapies enrich healthcare environments, benefiting both patients and staff. The integration of biophilic design can bridge healthcare accessibility gaps, especially in rural areas, by providing restorative spaces that support the well-being of underserved populations. Future research should focus on

⁵¹ Monroe, Lucas. "Horticulture Therapy Improves the Body, Mind and Spirit." *Journal of Therapeutic Horticulture* 25, no. 2 (2015): 33–40. <https://www.jstor.org/stable/24865266>.

expanding the application of these spaces and ensuring their accessibility and effectiveness for diverse patient populations.

Biophilic design is a transformative approach that goes beyond aesthetics to improve well-being, cognitive function, and environmental sustainability. In healthcare settings, particularly in rural areas, it can address disparities in healthcare quality by fostering restorative environments. However, successful integration of biophilic design requires understanding it as a holistic practice rather than a trend.

Architectural education plays a key role in shaping how future architects can incorporate biophilic principles into their designs, creating spaces that support health and well-being.

Research consistently demonstrates the benefits of biophilic design, including improved patient recovery, reduced stress, and enhanced overall well-being. The growing recognition of its potential in healthcare environments reflects a shift toward patient-centered care. As the field continues to evolve, future research should explore the long-term benefits of biophilic interventions and their applications in diverse healthcare settings, particularly in underserved rural areas where access to quality healthcare remains a challenge.

2.16 Cultural Attitudes and Traditional Medicine: Bridging the Gap Between Biomedicine and Holistic Practices

The persistence of traditional medicine (TM) in the face of modern biomedical advancements, often referred to as the “traditional medicines paradox,” reflects the

complex interplay between cultural attitudes, beliefs, and the availability of healthcare resources⁵². This phenomenon is not limited to any single region but is observed globally, particularly in countries like Ghana and the Philippines, where the use of TM remains deeply entrenched despite the growing accessibility of modern medical care. In their study, Costa-Font and Sato (2017) examine this paradox by focusing on the role of cultural beliefs in driving the continued use of traditional medicines and healers (TM/H), even amidst the rise of modern healthcare systems⁵³.

The study argues that cultural beliefs, deeply rooted in ethnicity, religion, and tradition, form a substantial part of the foundation for continued reliance on traditional treatments⁵⁴. These beliefs not only shape individual health-seeking behaviors but are also transmitted across generations, sometimes even influencing migrants' healthcare choices. The research, which draws on ethnographic data from Ghana and comparative evidence from the Philippines, highlights six core beliefs that significantly impact the continued utilization of TM/H: healer knowledge, cure ability, trust, regional acceptance, safety concerns, and effectiveness⁵⁵. These beliefs

⁵² Costa-Font, Joan, and Azusa Sato. "Cultural Attitudes and the 'Traditional Medicines Paradox': Evidence from Ghana and the Philippines." In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017.
<http://www.jstor.org/stable/j.ctt1kk66bh>.

⁵³ Costa-Font, Joan, and Azusa Sato. "Cultural Attitudes and the 'Traditional Medicines Paradox': Evidence from Ghana and the Philippines." In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017.
<http://www.jstor.org/stable/j.ctt1kk66bh>.

⁵⁴ Costa-Font, Joan, and Azusa Sato. "Cultural Attitudes and the 'Traditional Medicines Paradox': Evidence from Ghana and the Philippines." In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017.
<http://www.jstor.org/stable/j.ctt1kk66bh>.

⁵⁵ Costa-Font, Joan, and Azusa Sato. "Cultural Attitudes and the 'Traditional Medicines Paradox': Evidence from Ghana and the Philippines." In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017.
<http://www.jstor.org/stable/j.ctt1kk66bh>.

intertwine with socioeconomic factors and the accessibility of modern healthcare, creating a complex environment where traditional medicine persists in parallel with biomedicine.

2.17 Beliefs Shaping Traditional Medicine Use

The belief in healer knowledge plays a crucial role in the ongoing use of traditional medicine. In both Ghana and the Philippines, people often trust traditional healers due to their perceived deeper understanding of diseases that modern doctors may not address. This belief is particularly prevalent among those who have limited access to biomedical healthcare or who are dissatisfied with its outcomes. Trust in healers, often rooted in social and cultural contexts, is also a significant factor in the persistence of TM. People tend to trust healers who are embedded within their communities and who adhere to local norms, rather than distant or impersonal modern healthcare providers⁵⁶.

Additionally, the belief that some illnesses can only be cured by traditional healers further drives the reliance on TM. This belief reflects the view that traditional knowledge is not just an alternative to modern medicine but an indispensable part of the local healing system. In Ghana, for instance, participants in the study expressed that TM is an essential part of their healthcare, with some diseases perceived as being beyond the reach of modern medicine⁵⁷.

⁵⁶ Costa-Font, Joan, and Azusa Sato. "Cultural Attitudes and the 'Traditional Medicines Paradox': Evidence from Ghana and the Philippines." In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017.
<http://www.jstor.org/stable/j.ctt1kk66bh>.

⁵⁷ Costa-Font, Joan, and Azusa Sato. "Cultural Attitudes and the 'Traditional Medicines Paradox': Evidence from Ghana and the Philippines." In *Social Economics: Current and Emerging Avenues*,

Regional acceptance and cultural legitimacy also play significant roles. The degree to which TM is socially accepted varies by region, with some areas having a more robust tradition of healers and more widespread belief in their abilities. Furthermore, perceptions of safety and concerns about the potential harms of TM contribute to the continued use of traditional medicine. While some individuals report feeling that traditional treatments may be safer, others worry about the safety and efficacy of certain practices, yet continue to use them due to the lack of accessible alternatives⁵⁸.

2.18 Socioeconomic and Structural Barriers

Socioeconomic factors such as income, education, and access to health insurance also influence the likelihood of using traditional medicine. The study reveals that people with higher incomes and those who have access to health insurance are generally less likely to rely on TM⁵⁹. However, these factors do not entirely account for the persistence of traditional practices. Education, for example, has a nuanced relationship with TM use. While higher education is often linked with greater acceptance of biomedical healthcare, in some regions, those with higher levels of

edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017.

<http://www.jstor.org/stable/j.ctt1kk66bh>.

⁵⁸ Costa-Font, Joan, and Azusa Sato. “Cultural Attitudes and the ‘Traditional Medicines Paradox’: Evidence from Ghana and the Philippines.” In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017.

<http://www.jstor.org/stable/j.ctt1kk66bh>.

⁵⁹ Costa-Font, Joan, and Azusa Sato. “Cultural Attitudes and the ‘Traditional Medicines Paradox’: Evidence from Ghana and the Philippines.” In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017.

<http://www.jstor.org/stable/j.ctt1kk66bh>.

education may still turn to TM, particularly in cases of chronic illness where biomedicine has not provided satisfactory results⁶⁰.

In terms of accessibility, proximity to healthcare facilities, including both traditional healers and modern healthcare providers, also plays a significant role. People living in rural areas, where modern healthcare facilities may be sparse, are more likely to rely on traditional medicine. This reliance is also heightened by the limited availability of biomedical healthcare in these regions, which can create a sense of dependency on traditional healers as the primary sources of care⁶¹.

2.19 Cultural Perceptions and Modern Medicine

The coexistence of traditional medicine and modern biomedical practices highlights the need for policies that recognize the value of both systems. Costa-Font and Sato (2017) suggest that modern medicine should not aim to displace traditional medicine but rather integrate with it, respecting cultural attitudes and perceptions⁶². This is particularly important in rural and marginalized communities, where cultural beliefs surrounding health and healing are deeply ingrained. They argue that a holistic

⁶⁰ Costa-Font, Joan, and Azusa Sato. "Cultural Attitudes and the 'Traditional Medicines Paradox': Evidence from Ghana and the Philippines." In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017.
<http://www.jstor.org/stable/j.ctt1kk66bh>.

⁶¹ Costa-Font, Joan, and Azusa Sato. "Cultural Attitudes and the 'Traditional Medicines Paradox': Evidence from Ghana and the Philippines." In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017.
<http://www.jstor.org/stable/j.ctt1kk66bh>.

⁶² Costa-Font, Joan, and Azusa Sato. "Cultural Attitudes and the 'Traditional Medicines Paradox': Evidence from Ghana and the Philippines." In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017.
<http://www.jstor.org/stable/j.ctt1kk66bh>.

approach, which combines the strengths of both TM and biomedicine, would better serve these communities, addressing not only physical health but also the social and cultural dimensions of health⁶³.

2.20 Holistic Health Approaches: Extending the Scope of Medicine

The concept of holistic health, as discussed by Dinkmeyer (1979) and Guttmacher (1979), aligns with the findings from Costa-Font and Sato's research⁶⁴. Holistic health views well-being as a state of balance that includes the mind, body, and environment⁶⁵. This approach is consistent with traditional healing practices that often focus on the spiritual and social dimensions of health, not just the physical symptoms. Both TM and holistic health emphasize the importance of the relationship between the healer and the patient, acknowledging the role of trust and cultural context in healing.

The rise of holistic practices, such as yoga, meditation, and biofeedback, further supports the notion that health is not simply the absence of disease but a state of complete physical, mental, and social well-being⁶⁶. These practices, while rooted in alternative medicine, have become more integrated into mainstream healthcare

⁶³ Costa-Font, Joan, and Azusa Sato. "Cultural Attitudes and the 'Traditional Medicines Paradox': Evidence from Ghana and the Philippines." In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017. <http://www.jstor.org/stable/j.ctt1kk66bh>.

⁶⁴ Dinkmeyer, Don. "Holistic Approaches to Health." *Elementary School Guidance & Counseling* 14, no. 2 (1979):108–12. <http://www.jstor.org/stable/24008935>.

⁶⁵ Dinkmeyer, Don. "Holistic Approaches to Health." *Elementary School Guidance & Counseling* 14, no. 2 (1979):108–12. <http://www.jstor.org/stable/24008935>.

⁶⁶ Dinkmeyer, Don. "Holistic Approaches to Health." *Elementary School Guidance & Counseling* 14, no. 2 (1979):108–12. <http://www.jstor.org/stable/24008935>.

systems, reflecting a growing recognition of the interconnectedness of body and mind. In this regard, traditional medicine is increasingly seen not as a competing system but as complementary to modern biomedicine.

2.21 World Health Organization

Traditional medicine, often dismissed as outdated, continues to play a crucial role in global healthcare, particularly in developing countries. In regions like the Philippines, India, and Malaysia, traditional healers outnumber modern medical professionals and are the primary or sole source of care for much of the population⁶⁷. Traditional medicine thrives due to its accessibility, affordability, cultural acceptance, and trust within communities. Despite skepticism from modern health professionals, organizations like the World Health Organization (WHO) recognize the value of traditional practices, especially in areas where modern healthcare is lacking⁶⁸. Rather than replacing traditional medicine, WHO advocates for its integration with modern medical systems to provide comprehensive healthcare.

WHO's involvement with traditional medicine began in the 1950s and has since evolved into a global initiative. WHO recognizes the cultural and medical importance of traditional practices and supports their integration into formal healthcare systems. The WHO's traditional medicine program aims to scientifically evaluate these practices, promote their integration with modern medicine, and develop policies to

⁶⁷ Vuori, Hannu. "The World Health Organization and Traditional Medicine." *Community Medicine* 4, no. 2 (1982): 129–37. <http://www.jstor.org/stable/45157055>.

⁶⁸ Vuori, Hannu. "The World Health Organization and Traditional Medicine." *Community Medicine* 4, no. 2 (1982): 129–37. <http://www.jstor.org/stable/45157055>.

regulate and enhance traditional health systems⁶⁹. WHO's approach emphasizes the holistic nature of traditional practices, such as Ayurveda and Traditional Chinese Medicine, which offer complementary benefits in areas like mental health and chronic disease management⁷⁰.

The WHO's program has three primary objectives: to promote a realistic approach to traditional medicine, scientifically evaluate its efficacy, and integrate valuable traditional knowledge with modern healthcare⁷¹. These objectives are pursued through research, training of traditional healers, and the development of frameworks to regulate traditional practices. WHO also encourages collaboration between traditional practitioners and modern scientists to enhance both fields and provide better healthcare solutions. In regions like Southeast Asia and Africa, where traditional medicine is deeply ingrained, WHO's efforts focus on formal education, research, and the inclusion of traditional practices in national healthcare systems. While challenges remain, such as limited breakthroughs in medicinal plant research, WHO's work has led to notable achievements. In countries like India and China, well-established traditional systems are integrated with modern medicine, improving healthcare access and outcomes⁷². WHO continues to advocate for a balanced approach, recognizing that traditional medicine is not only a valuable part of cultural

⁶⁹ Vuori, Hannu. "The World Health Organization and Traditional Medicine." *Community Medicine* 4, no. 2 (1982): 129–37. <http://www.jstor.org/stable/45157055>.

⁷⁰ Vuori, Hannu. "The World Health Organization and Traditional Medicine." *Community Medicine* 4, no. 2 (1982): 129–37. <http://www.jstor.org/stable/45157055>.

⁷¹ Vuori, Hannu. "The World Health Organization and Traditional Medicine." *Community Medicine* 4, no. 2 (1982): 129–37. <http://www.jstor.org/stable/45157055>.

⁷² Vuori, Hannu. "The World Health Organization and Traditional Medicine." *Community Medicine* 4, no. 2 (1982): 129–37. <http://www.jstor.org/stable/45157055>.

heritage but also a practical resource for achieving global health goals⁷³. Integrating traditional and modern medicine can enhance healthcare systems worldwide, ensuring broader access and better care, particularly in underserved regions.

The study by Costa-Font and Sato (2017) underscores the importance of cultural beliefs in shaping health-seeking behaviors and the continued utilization of traditional medicine⁷⁴. Despite the availability of modern healthcare, traditional medicine remains deeply entrenched in many cultures, driven by beliefs in the efficacy of traditional healers, cultural legitimacy, and social trust. The coexistence of traditional and modern systems offers opportunities for integration, where both can complement each other, particularly in underserved regions where cultural attitudes toward health and healing are strong. Acknowledging and respecting these cultural factors is crucial for creating healthcare policies that are both effective and culturally sensitive, ultimately leading to better health outcomes for all.

⁷³ Vuori, Hannu. "The World Health Organization and Traditional Medicine." *Community Medicine* 4, no. 2 (1982): 129–37. <http://www.jstor.org/stable/45157055>.

⁷⁴ Costa-Font, Joan, and Azusa Sato. "Cultural Attitudes and the 'Traditional Medicines Paradox': Evidence from Ghana and the Philippines." In *Social Economics: Current and Emerging Avenues*, edited by Joan Costa-Font and Mario Macis, 245–60. The MIT Press, 2017. <http://www.jstor.org/stable/j.ctt1kk66bh>.

Chapter 3: Methodologies

3.1 Introduction: The Role of Methodology in Architectural Inquiry

In architectural research, methodology serves as a bridge between conceptual frameworks and tangible design outcomes. Particularly in the context of a thesis that seeks to address a multifaceted social issue, such as the disparity in healthcare accessibility in rural Philippines, methodological clarity becomes indispensable. This research seeks not only to propose a design solution but to embed that solution within a larger understanding of social, environmental, and cultural dynamics. Therefore, research methods must be robust, layered, and purpose-driven. They enable critical inquiry, contextual grounding, and informed design choices. As Lucas (2016) emphasizes, architectural research is inherently interdisciplinary and often lies on a spectrum between subjective and objective modes of inquiry⁷⁵. This thesis acknowledges and leverages this spectrum by employing a hybrid methodological approach, integrating both qualitative and quantitative research, fieldwork, and spatial analysis to ensure a contextual and user-centered design proposal.

3.2 Overview of Methodologies Used

To explore the research question: How can architecture support the development of affordable, community-driven health and wellness facilities that function as healing

⁷⁵ Lucas, Ray. *Research Methods for Architecture*. London: Laurence King Publishing, 2016.

and teaching centers in rural areas of the Philippines by integrating biophilic design and holistic medicine to enhance accessibility, improve patient outcomes, and address systemic disparities in healthcare between urban and rural regions?, this thesis adopts a mixed-methods approach. These include qualitative research, case study and precedent analysis, fieldwork and site observation, mapping and spatial analysis, user-centered design inquiry, and theoretical and historical analysis. These methodologies are not used in isolation but in dialogue with one another. This integrative strategy allows the thesis to capture the spatial, cultural, environmental, and social dimensions of rural health care, while also offering concrete design responses.

3.3 Qualitative Research Methods

The core of this thesis lies in understanding human experience, such as how patients, caregivers, and communities interact with space and how architecture can promote healing and accessibility. Thus, qualitative research forms a foundational methodology⁷⁶. This includes semi-structured interviews with community health workers, rural patients, and local planners, narrative inquiry, in which user experiences are documented and analyzed for patterns and pain points related to spatial access, comfort, and healing, and participatory observation, where behaviors, routines, and environmental cues in existing rural health centers are noted. These methods are chosen because they provide depth and nuance that quantitative data

⁷⁶ Lucas, Ray. *Research Methods for Architecture*. London: Laurence King Publishing, 2016.

alone cannot deliver⁷⁷. They also align with the subjective nature of healing, comfort, and cultural health practices, which are critical to a biophilic and holistic approach.

3.4 Case Study and Precedent Analysis

In order to generate informed design strategies, this thesis examines a curated set of architectural precedents. These case studies serve different purposes: some are chosen for their approach to biophilic design, others for their low-cost construction methods, and still others for how they integrate community health programs or traditional medicine. The criteria for case selection include relevance to healthcare architecture in tropical or rural settings, evidence of success in user satisfaction, healing outcomes, or environmental performance, and use of passive design strategies and integration of natural elements.

Each case is analyzed through architectural drawings, diagrams, user feedback, and published performance metrics. The goal is to extract applicable design strategies, assess their contextual fit, and determine how these might translate into the Philippine rural setting. This methodological step is both comparative and interpretive, requiring a degree of subjectivity in understanding architectural meaning and user experience.

⁷⁷ Lucas, Ray. *Research Methods for Architecture*. London: Laurence King Publishing, 2016.

3.5 Fieldwork and Site Observation

Site selection and analysis involve layered methods, including on-site observation, to document existing conditions such as climate, vegetation, noise levels, topography, and material availability, photo and sketch documentation supporting the visual-spatial analysis of the site, and community immersion and informal conversation, to understand the rhythms, values, and dynamics of local life. These methods prioritize the experiential qualities of the site, which is what Lucas calls “embodied knowledge” that are often overlooked in data-heavy approaches⁷⁸. Fieldwork helps uncover opportunities for site-responsive design and ensures the proposed facility is grounded in reality and not abstraction.

3.6 Mapping and Spatial Analysis

To evaluate spatial accessibility and environmental potential, this thesis uses both analog and digital mapping tools, such as GIS mapping (if applicable): to understand regional disparities in healthcare access, transportation links, and environmental risks, solar path diagrams and wind analysis; to determine passive cooling and daylighting strategies, crucial in off-grid rural settings, and zoning and programmatic mapping; and to develop spatial relationships that reflect both the functional and experiential aspects of the facility. These methods lean toward the objective and technical side of architectural research, providing measurable and replicable insights that will shape the performance-based aspects of the design.

⁷⁸ Lucas, Ray. *Research Methods for Architecture*. London: Laurence King Publishing, 2016.

3.7 User-Centered Design Inquiry

The thesis integrates principles of co-design and empathic design to reflect the needs and voices of rural communities. This includes personas and journey mapping: to model the experiences of different user types, and needs assessments, which is possibly through survey tools or focus group discussions to identify priorities for healthcare access, comfort, and well-being. By centering user needs in the design process, this method aligns with Lucas's argument that architecture should not merely serve function, but facilitate human flourishing⁷⁹.

3.8 Theoretical and Historical Analysis

A conceptual foundation is also necessary to support the integration of biophilic design and holistic healing. This involves reviewing theories of biophilia: particularly those that link nature exposure with physiological and psychological healing, studying vernacular Filipino architecture and traditional healthcare environments; to derive spatial, material, and symbolic patterns that resonate with local identity, and engaging with postcolonial theory; and to understand the structural inequities that shape healthcare access in the Philippines. These readings and reflections provide the epistemological grounding for design moves, ensuring that solutions are not just technical fixes, but also culturally and historically responsive.

⁷⁹ Lucas, Ray. *Research Methods for Architecture*. London: Laurence King Publishing, 2016.

3.9 Conclusion: Relevance and Integration of Methodologies

This chapter has outlined a range of research methodologies, such as qualitative and quantitative, subjective and objective, and theoretical and empirical, that inform the thesis at different levels. Qualitative and participatory methods allow for a deep understanding of user experience, community dynamics, and healing environments. Case studies and theoretical inquiry provide conceptual and design precedents that guide spatial organization and material choices. Site observation and spatial analysis ensure ecological responsiveness and functionality. User-centered design tools ensure that architecture reflects the lived realities and aspirations of its users.

These methodologies form a cohesive strategy for inquiry, reflection, and action. They help this thesis move beyond surface-level solutions, allowing for a holistic approach that respects context, culture, and care. By being methodical about what is observed, why it is observed, and how it is interpreted, this research can create a meaningful contribution to both architectural discourse and rural health care provision in the Philippines.

Chapter 4: Precedent Studies (Case studies)

4.1 Introduction

This chapter looks into five precedent studies that helped shape the direction of my thesis, which focuses on designing affordable and community-rooted health and wellbeing facilities for rural areas in the Philippines. Studying these precedents is important because they offer real-world examples of how design can respond to climate, culture, wellness, and accessibility, which are all key concerns in my own project. Each precedent was chosen based on specific aspects that connect directly to the goals of my thesis, whether through spatial strategies, cultural relevance, or their approach to healing and well-being.

I chose Ani Nii Shobo because it highlights how architecture can support healing through indigenous traditions, natural materials, and a deep connection to the landscape. The project's sensitivity to climate and community, along with its use of local craftsmanship and open-air spaces, aligns closely with the kind of biophilic, holistic, and culturally grounded design I want to bring into rural Filipino health care.

The SOCSO Rehabilitation Centre stood out to me for how it integrates the healing journey into the layout of the building itself. It treats healing as both a physical and emotional process, supported by access to nature, spiritual elements, and clear, intuitive movement through space. It also models how accessibility and sustainability

can work together, which I think is especially relevant for health care centers in resource-limited but environmentally rich areas like rural Philippines.

REHAB Basel. Rehabilitation Center was eye-opening because it rethinks what a hospital can look and feel like. Rather than a sterile, institutional space, it feels more like a small town, with streets, gardens, and social areas that give long-term patients more freedom and comfort. I studied this project to learn how healing can be supported by creating spaces that feel familiar and human, not clinical or intimidating.

The Josefhof Health Facility reinforces my belief that architecture and nature should be deeply connected. The way the buildings are gently set into the landscape, allowing nature to flow through the site, creates a calming environment that supports emotional well-being. I also look at how the project uses low-tech, natural materials and modular design, which makes it both sustainable and adaptable. These two things are important in designing for rural contexts.

Lastly, I included the *bahay kubo*, the traditional Filipino house, because it represents so much of what I want this thesis to be about, which includes climate-responsive, community-centered, and culturally rooted design. Its simplicity, use of passive cooling strategies, and local materials offer practical design lessons, while also serving as a reminder that architecture should always stay connected to its people and place.

In this chapter, I analyze each precedent through its design intentions, spatial approaches, material choices, and cultural impact. By doing this, I hope to draw

insights that I can carry into my own design work and use to develop health care spaces that are not only functional but truly healing and meaningful for the people who will use them.

4.2 Ani Nii Shobo



Figure 8. Ani Nii Shobo (Source: Architizer)

Project Built: 2009-2014

Location: Pucallpa, Peru

Function: Healing Center

Architects: Samuel Bravo & Sandra Iturriaga

Builder: Rodrigo Melendez

Master carpenters: Amador Sanchez, Misael Marin

4.2.1 Project Overview

Ani Nii Shobo, meaning "big house of the forest" in Shipibo, is a healing center and nature reserve rooted in Shipibo traditional medicine. It's located by a lagoon near the Indigenous community of San Francisco de Yarinacocha in Peru's Ucayali region. Seasonal floods from the Ucayali River shape the site, influencing how the buildings are sited along the dynamic edge between forest and water. The program includes guest cabins, a volunteer house, a ceremonial longhouse, a dining space, and service areas. The placement of these elements was guided by existing trees and views, especially preserving old Pachucos and orienting cabins toward the lagoon.

Local materials, such as quinilla and capirona wood, and palm leaf roofing, were used to reflect regional building traditions. Built by local craftsmen, the project follows vernacular principles suited to the hot, humid Amazon climate: tall, steep thatched roofs promote airflow and shade, while open-air decks encourage communal living. The dining area functions as a large Shipibo house, which is open, flexible, and shaded, with ventilated skin and roofed terraces. Blurring boundaries between indoors and out, walls also give way to breathable screens and overhangs, creating comfortable, transitional spaces for daily life.



Figure 10. Located in Western South America in Peru (Source: Google Earth Pro)



Figure 9. Located in Pucallpa, Peru (Source: Google Earth Pro)

Located on the banks of a lagoon near the community of San Francisco de Yarinacocha in the Ucayali region in the Peruvian Amazon. The seasonal floods of the Ucayali River shape the landscape and ecosystems, with water levels rising and falling by up to 8 meters, periodically submerging and linking extensive riverside regions⁸⁰.

4.2.2 Site & Context Analysis

The buildings are positioned along the shifting boundary between the forest and water. The placement of the program was influenced by the position of the trees and views. It was important to maintain the existing condition by prioritizing the lake view for the cabins⁸¹.

⁸⁰ “Ani Nii Shobo by Samuel Bravo.” Architizer. Last modified October 14, 2016. <https://architizer.com/projects/ani-nii-shobo/>.

⁸¹ “Ani Nii Shobo by Samuel Bravo.” Architizer. Last modified October 14, 2016. <https://architizer.com/projects/ani-nii-shobo/>.

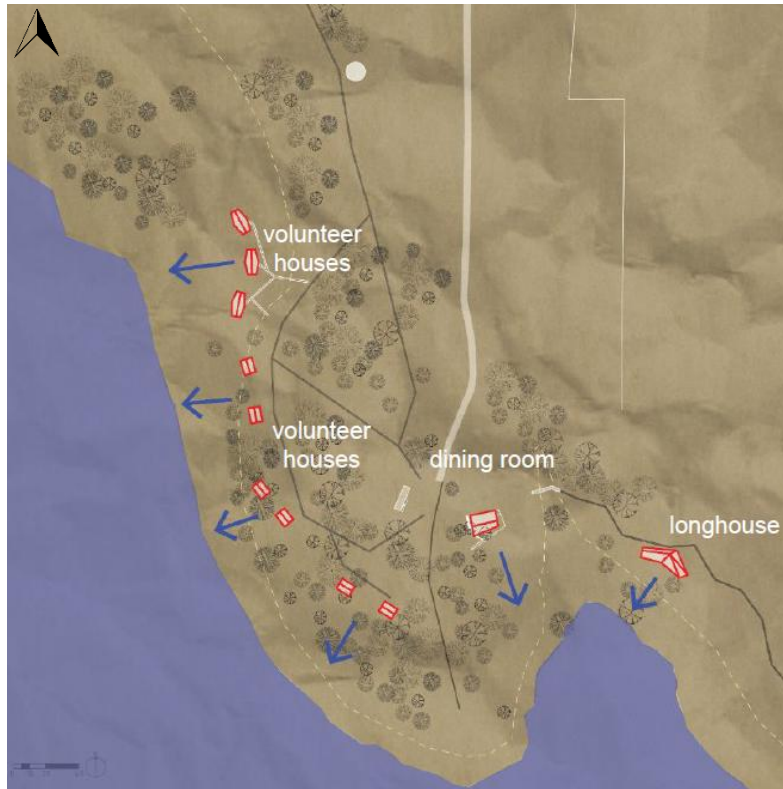


Figure 11. Located on the Banks of a Lagoon (Source: Architizer, diagram drawn by author)



Figure 12. Image from the Lagoon (Source: Architizer)

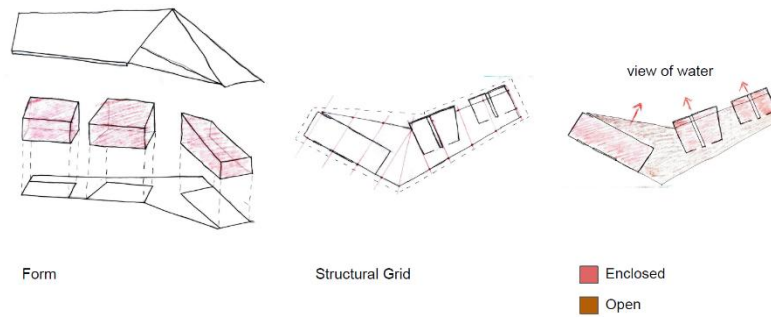


Figure 13. House of Ceremonies (Source: drawn by author)

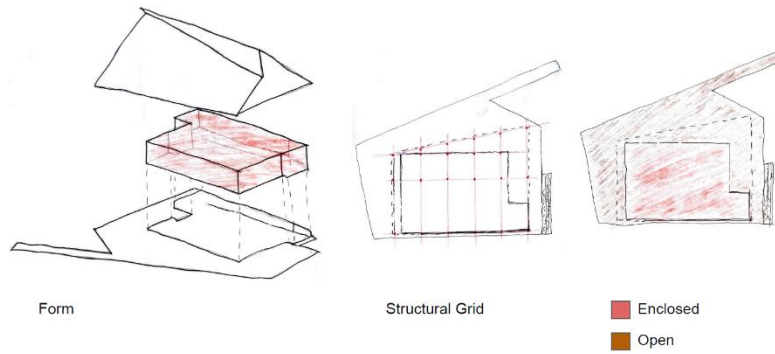


Figure 14. Dining Room (Source: drawn by author)

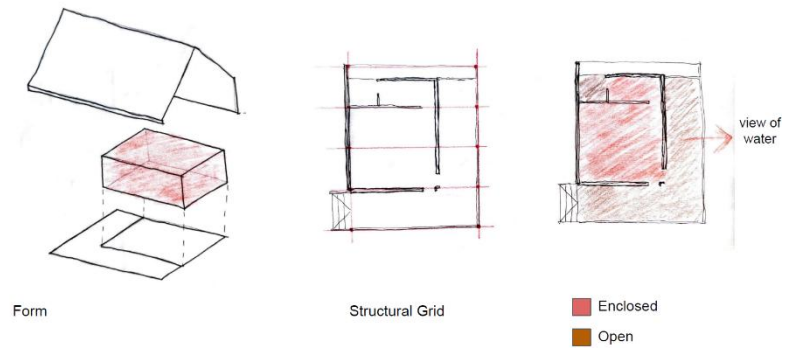


Figure 15. Volunteer House (Source: drawn by author)

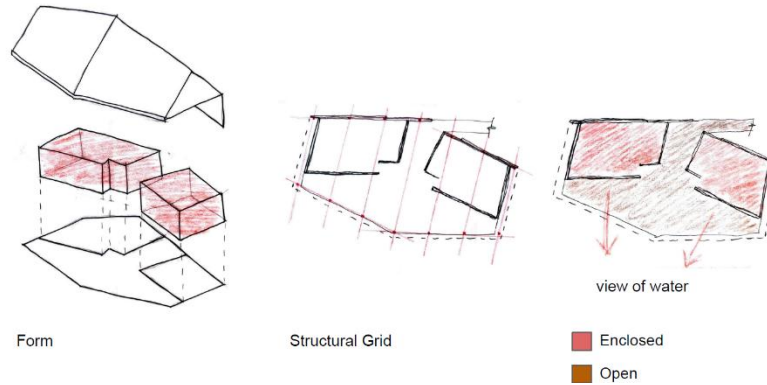


Figure 16. Volunteer House (Source: drawn by author)

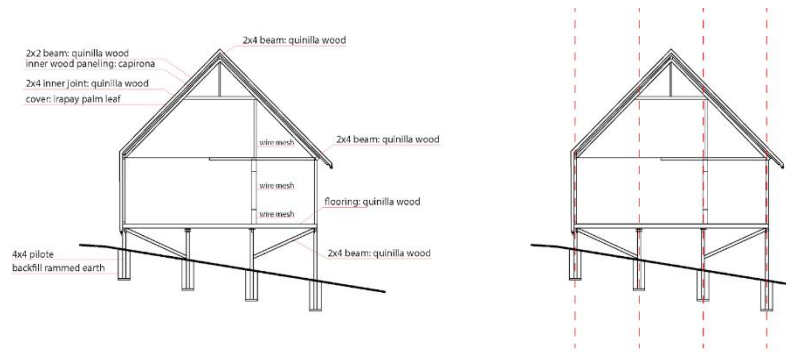


Figure 17. Structure (Source: drawn by author)

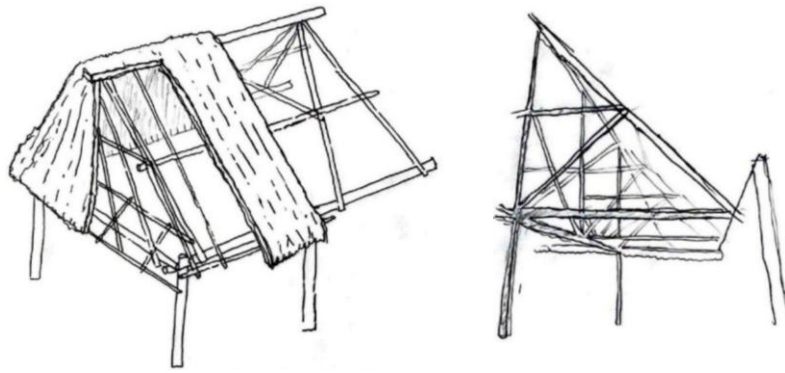


Figure 18. Structure (Source: drawn by author)

4.2.3 Structure & Materiality

Uses local materials like capirona, quinilla wood, and irapay palm leaf roofing. Follows traditional building techniques to allow local craftsmen to construct the buildings. Structural grid ensures modularity and efficiency in construction.



Figure 19. Roof Details (Source: Architizer)

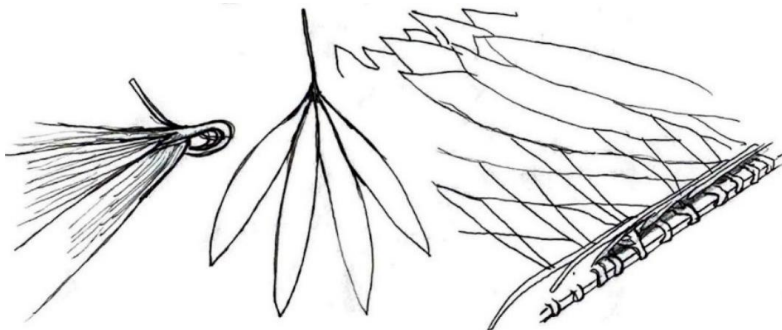


Figure 20. Irapay palm leaves duration: 3 - 3 ½ years (Source: drawn by author)



Figure 21. Dining Room (Source: Architizer)

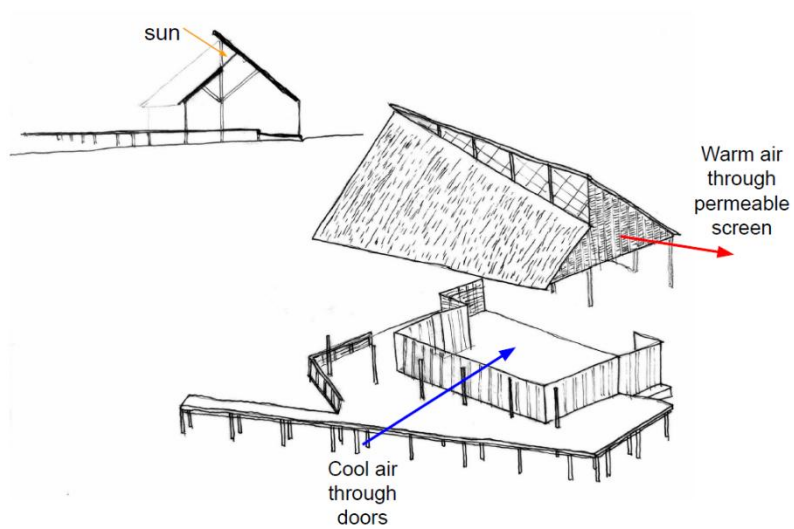


Figure 22. Ventilation (Source: drawn by author)

4.2.4 Daylighting & Ventilation

Adapts to the hot and wet climate of the region with tall, steeply sloped roofs for ventilation, which were inspired by the vernacular architecture of the

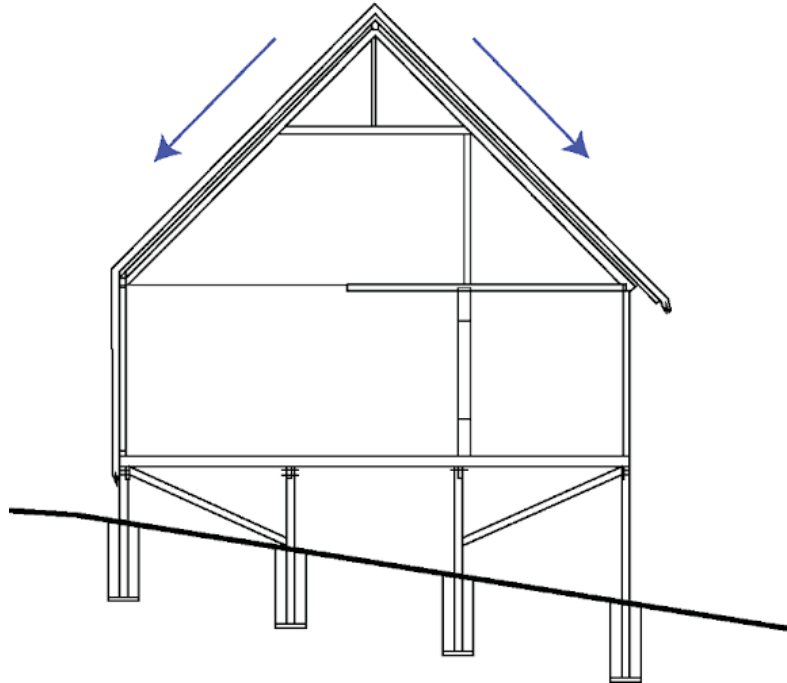


Figure 23. Water Drainage (Source: drawn by author)

Shipibo people.



Figure 24. Volunteer House (Source: Architizer)

4.2.5 Water Drainage

Adapts to the hot and wet climate of the region with tall, steeply sloped roofs for water runoff.

4.2.6 Discovery

Ani Nii Shobo demonstrates how architecture can support holistic healing by integrating local traditions, climate-responsive design, and biophilic principles, which results in a culturally rooted, sustainable, and therapeutic environment. Rooted in Shipibo healing traditions, the project reflects how healthcare spaces can honor local knowledge and holistic practices. Its use of natural materials, open-air structures, and integration with the surrounding forest and lagoon supports both physical comfort and emotional well-being, which are principles central to my biophilic approach. Built by local craftsmen using vernacular methods, it also highlights how healthcare architecture can be affordable, sustainable, and grounded in local economies. Most importantly, its flexible communal spaces. The open dining hall modeled after traditional Shipibo houses demonstrate how shared environments can foster healing through social connection, storytelling, and cultural continuity, moving beyond conventional clinical models.

4.3 SOCSO Rehabilitation Centre

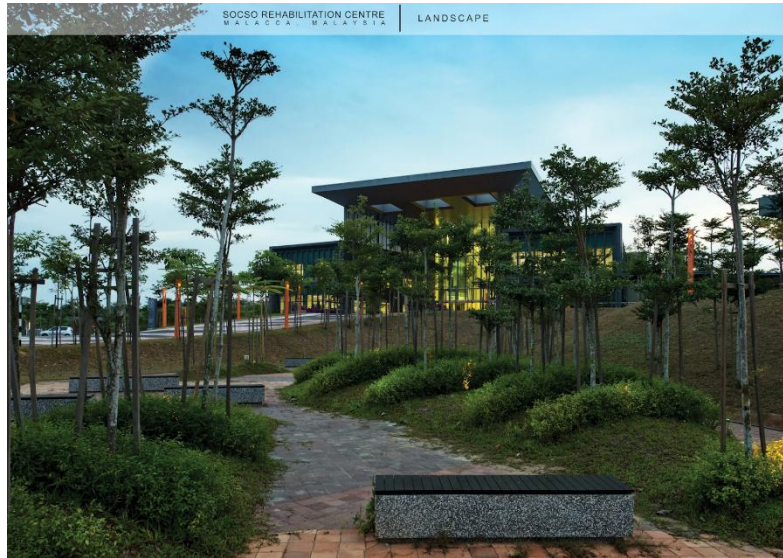


Figure 25. SOCSO Rehabilitation Centre (Source: Architizer)

Project Built: 2014

Malacca, Malaysia

Function: Medical Facility

Architecture Firm: Anuar Aziz Architect

Lead Architect: SAIFUL ANUAR ABDUL AZIZ

Design Team: Syamsul Arman, Yap Abdul, Ranni Edwin, Muhamad Nizam, Mohd

Walid, Nor Afidah, Awang Mokhlis, Abdul Rahim

4.3.1 Project Overview

As part of SOCSO's "Return to Work" program, individuals with disabilities receive both physical and vocational rehabilitation to help them reintegrate into the workforce. This process, referred to as the "Journey to Healing,"

focuses on both physical and mental recovery, ultimately enabling patients to return to a normal working life after completing rehabilitation. The Allied Health Institute will supply trained professionals to support this initiative. Designed as a green-certified complex, the facility integrates nature and spirituality as essential elements of the healing process. It follows a universal accessibility approach and adheres to the Malaysian Standard for disabled access throughout⁸².



Figure 26. Located in a remote part of Bemban, Malacca, Malaysia (Source: Google Earth Pro)

Minimal traffic in front of the site due to the street, Japan Kolej Yayasan Saad's location and a dead-end road with a solar farm. The back of the site faces the North-South Highway, with high-speed vehicle traffic, however the site is surrounded by lush and thick greenery, which helps buffer noise. Optimal noise range ensures a focused and disturbance-free environment for rehabilitation training.

⁸² "Socso Rehabilitation Centre by Anuar Aziz Architect (a Member of Arte Axis Design Group)." Architizer. Last modified December 17, 2014. <https://architizer.com/projects/socso-rehabilitation-centre/>.

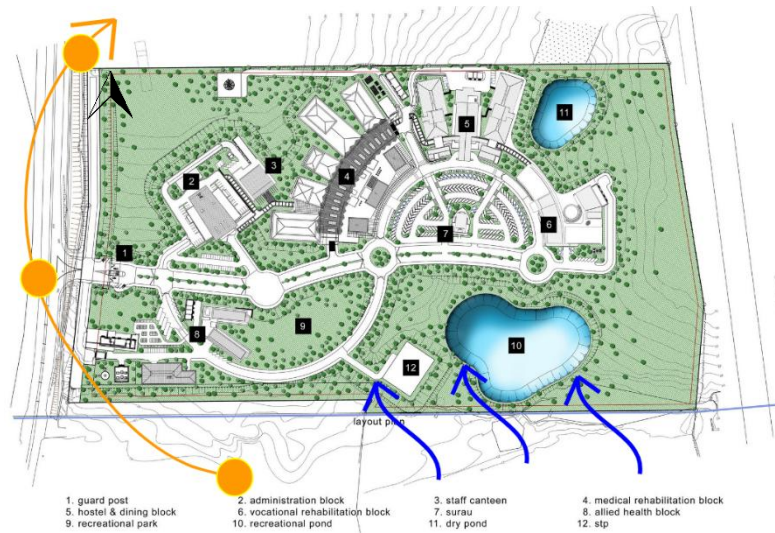


Figure 27. Sun Path & Wind (Source: Architizer, diagram drawn by author)

4.3.2 Site and Content Analysis

Tropical climate year-round with consistently warm weather. High humidity due to the site's proximity to water. Moderate temperatures, ranging from 20°C to 30°C on average. Cooler conditions in the highland areas. Lush tropical garden setting, designed to create a resort-like environment. Northern regions feature mountain ranges that sharply rise from expansive coastal plains. Strategic location, situated not far from Klang Valley. Site characterized by a series of contours, adding natural elevation variations. Whole area is designated as a green zone, reserved for institutional buildings.

4.3.3 Architecture Concept

Design approach from hospital outlook into a more corporate/resort environment to expedite the healing process. Ease of movement, universal accessibility, and compliance with Malaysian accessibility standards. Each building has an individual identity according to functions, orientation, and easy wayfinding. Calming and soft colors are utilized throughout the complex.

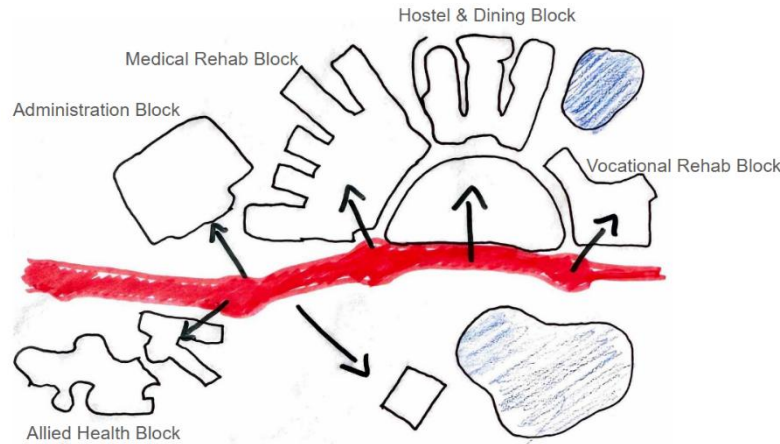


Figure 29. Primary Spine (Source: drawn by author)

4.3.4 Planning Concept

Primary Spine: 11-foot wide that facilitates movement for pedestrians, wheelchairs, and electric buggies, with landscaped pausing stations. Clustered building arrangement connected to the primary spine.

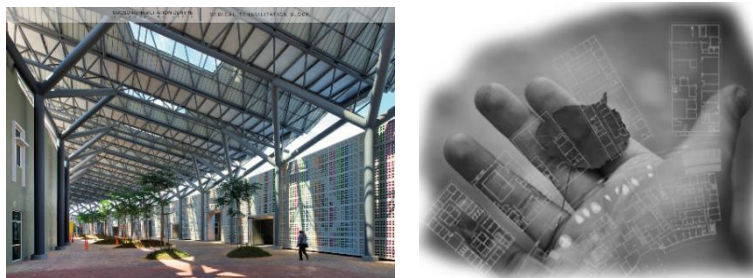


Figure 30. Medical Block Concep (Source: Architizer)

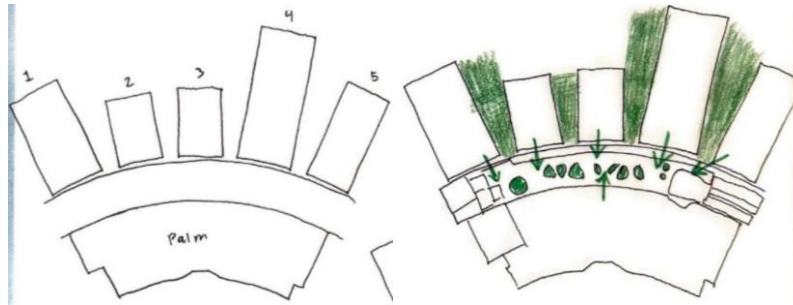


Figure 31. Medical Block Concept (Source: drawn by author)

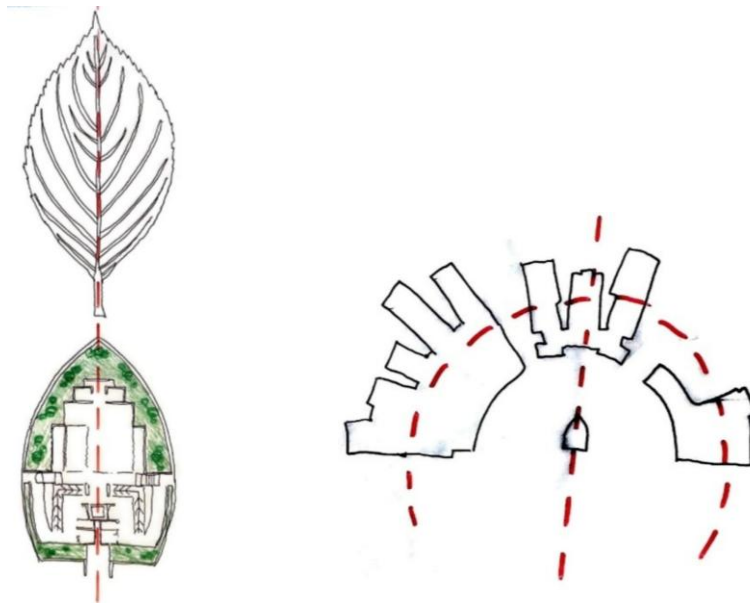


Figure 32. Surau (Source: drawn by author)

Medical Block Concept: designed as a ‘healing hand’, with the main facilities forming the palm and therapy blocks as fingers. Shaded Sanctuary Garden is multi-functional that provides resting space for patients’ post-therapy during daytime and calm oasis at night. Focal point of all activities, which

occasionally becomes an area for indoor games and celebrations. Pocket garden between building blocks as visual comfort while providing shading.

Surau: the main rehabilitation blocks, canteen, and hostel are set radially with the Surau being the axis. The Surau (Muslim prayer hall) signifies spiritual healing and is symbolically derived from the shape of a leaf.

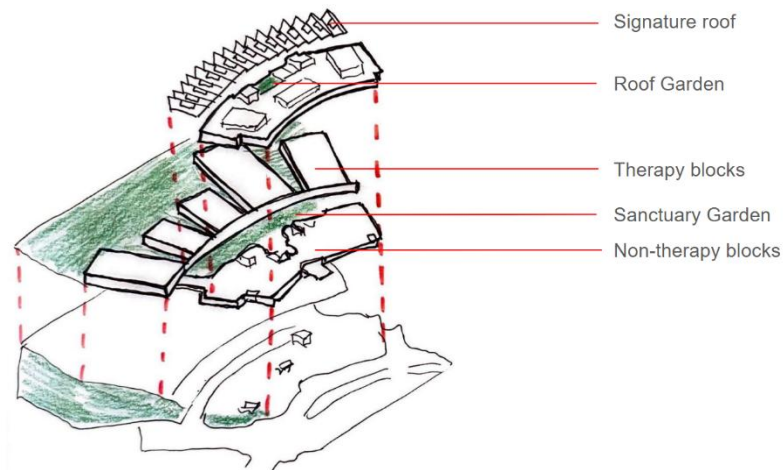


Figure 33. Exploded Axon (Source: drawn by author)

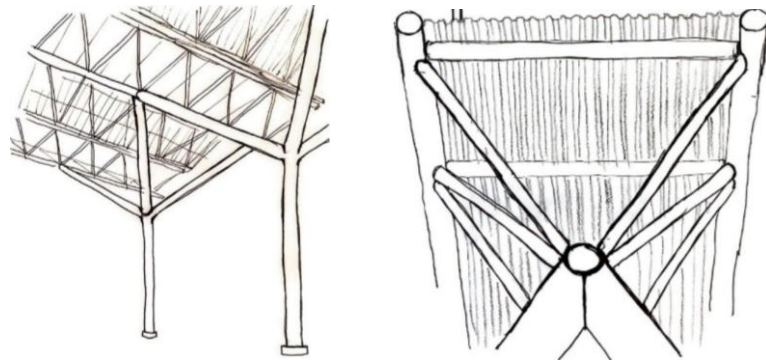


Figure 34. Sanctuary Garden Structure (Source: drawn by author)



Figure 35. Sanctuary Garden Structure (Source: Architizer)

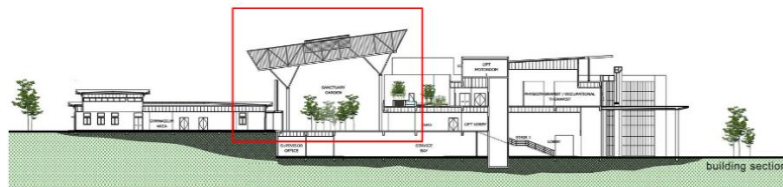


Figure 36. Section (Source: Architizer)

Signature roof was inspired by the Malacca Nyonya fan. Likely made from steel or metal roofing with perforated or translucent elements to allow natural light and ventilation while providing shade.

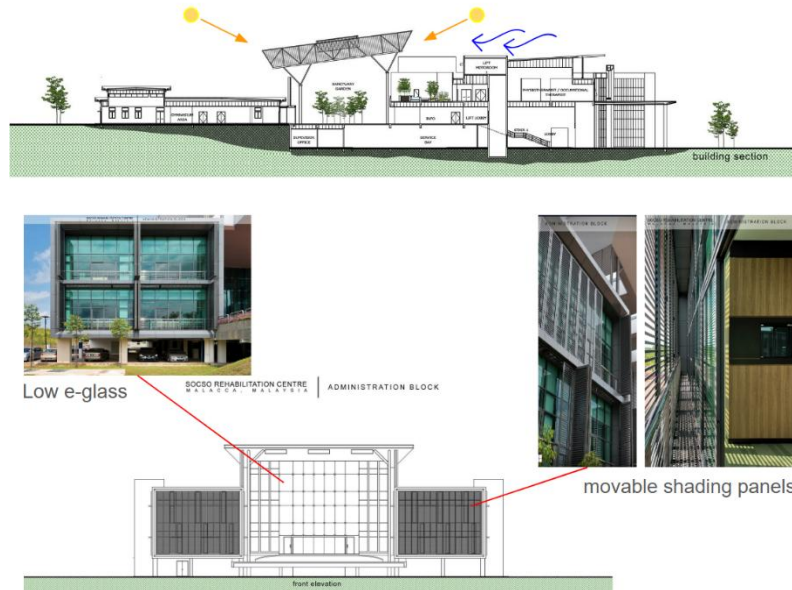


Figure 37. Green Design (Source: Architizer, diagram drawn by author)

4.3.5 Green Design

North-south orientation to optimize energy efficiency. Maximization of natural lighting and ventilation for a sustainable environment. Creation of a 'wind corridor' to enhance airflow. Use of low e-glass materials to reduce heat gain. Fixed and movable shading panels for temperature regulation. Rainwater harvesting system to promote water conservation.

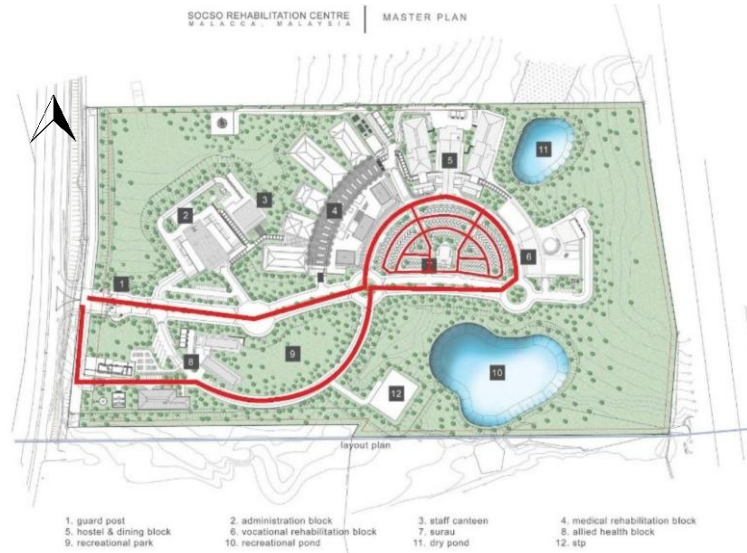


Figure 38. Pedestrian Circulation (Source: Architizer, diagram drawn by author)



Figure 39. Vehicle Circulation (Source: Architizer, diagram drawn by author)

4.3.6 Circulation

Provides easy movement through the spaces. Universal accessibility and compliance with Malaysian accessibility standards.

4.3.7 Discovery

The SOCSO Rehab Centre demonstrates how architecture can facilitate a holistic healing journey by integrating spatial sequencing, nature, spirituality, and accessibility into a cohesive therapeutic environment, which reinforces the idea that healing goes beyond physical treatment. It offers a comprehensive model for how architecture can support holistic healing through an experiential design approach. Its layout reflects a clear “Journey to Healing,” combining physical rehabilitation with psychological and emotional recovery, which is an idea that aligns with my thesis goal of creating healthcare spaces that go beyond function. The integration of spirituality, nature, and biophilic elements fosters emotional well-being, while the clustered spatial organization along an accessible spine offers a sense of progression that can be adapted to smaller-scale clinics. The project also emphasizes inclusivity through universal design and applies passive strategies, such as natural ventilation, shading, and rainwater harvesting, showing how sustainability can be achieved affordably in tropical climates. Overall, its attention to cultural sensitivity, sensory comfort, and intuitive navigation presents valuable insights for designing equitable and healing environments in rural areas.

4.4 REHAB Basel, Rehabilitation Center



Figure 40. REHAB Basel, Rehabilitation Center (Source: Architectura Viva)

Project Built: 1998-1999

Realization: 1999-2002

Transformation & Extension: 2018-2020

Location: Basel, Switzerland

Function: Medical Center

Architects: Herzog & de Meuron

4.4.1 Project Overview

REHAB Basel was designed to avoid the typical hospital feel, instead resembling a small town with interconnected streets, plazas, gardens, and diverse spaces that promote autonomy for long-term patients. The horizontal

two-story layout ensures easy mobility, with therapy and medical facilities on the ground floor and patient rooms above. Organized around inner courtyards that enhance orientation and daylight, the design balances public and private spaces, offering areas for social interaction, retreat, and unstructured moments between treatments.

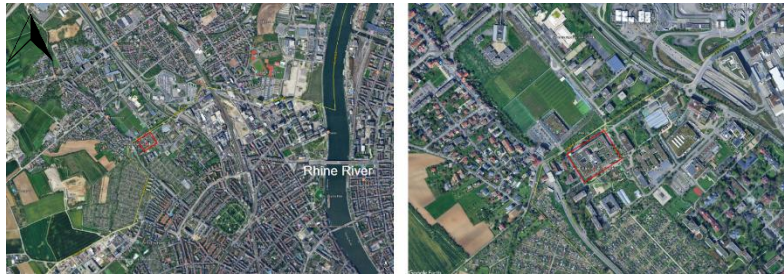


Figure 41. Located in Basel, Switzerland near the Rhine River (Source: Google Earth Pro)

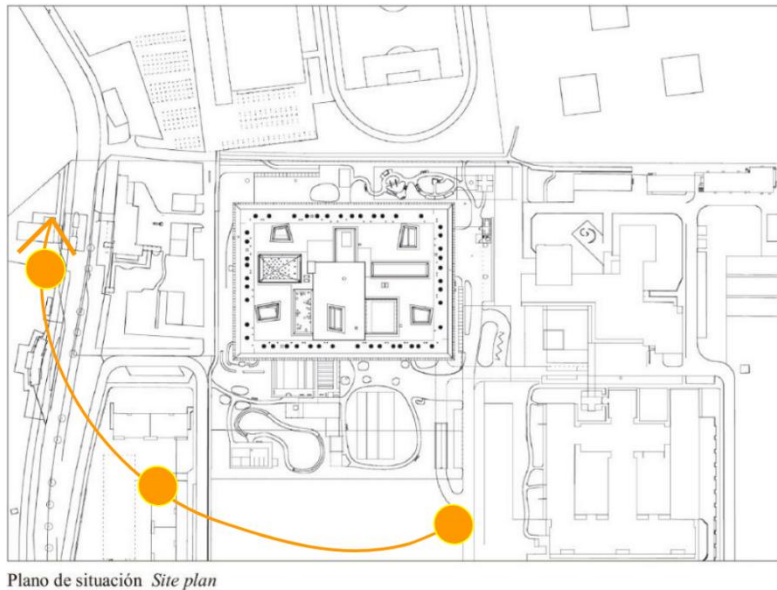


Figure 42. Sun Path (Source: Arquitectura Viva, diagram drawn by author)

4.4.2 Site & Context Analysis

Situated in a natural setting that supports the therapeutic goals of the facility.

The design integrates with the surrounding landscape, enhancing patient well-being through views of nature and outdoor spaces.

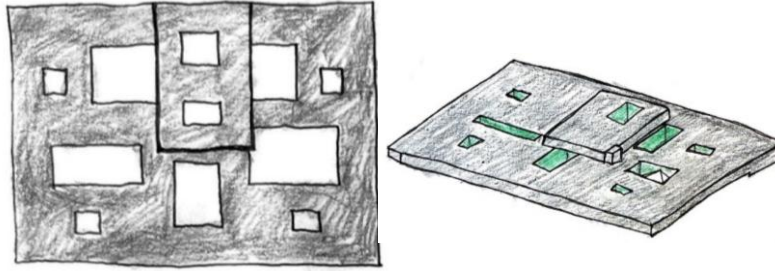


Figure 43. Solid/Void & Massing (Source: drawn by author)

4.4.3 Solid/Void & Massing

The horizontal layout of the courtyards and buildings gives the center the feel of a small town.



Figure 44. Ground Floor Plan (Source: drawn by author)

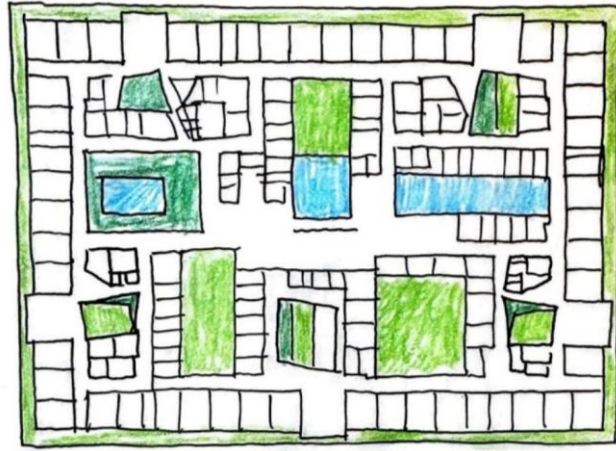


Figure 45. Second Floor Plan (Source: drawn by author)

4.4.4 Floor Plan Layout

On the ground floor, the therapeutic facilities are grouped around inner courtyards. The upper floor houses the patients' rooms with views of the surrounding area.

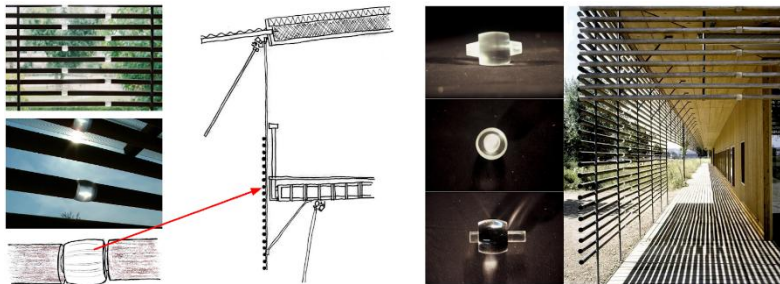


Figure 46. Plexiglass (Source: Arquitectura Viva, detailed section drawn by author)

4.4.5 Shading Device

Plexiglass are used as connecting elements for the oak staves of the facade to reflect the sun.

Shading Device: Wooden louvers provide passive solar shading, reducing heat gain and allowing for ventilation.

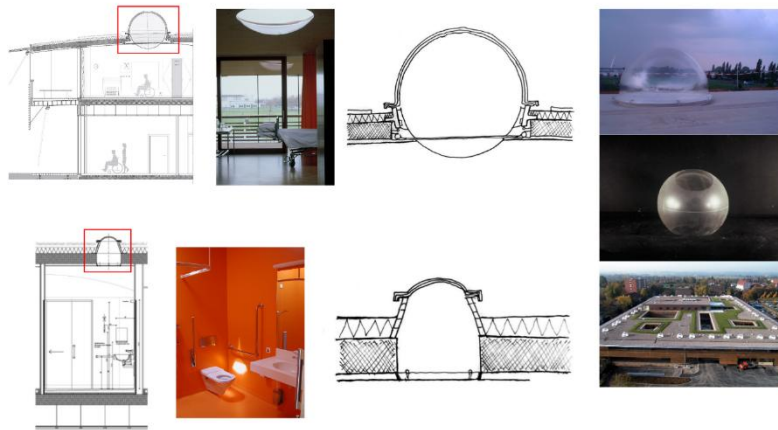


Figure 47. Glass Spheres (Source: Arquitectura Viva, detailed sections drawn by author)

4.4.6 Skylight

Glass spheres in the rooms allow patients with limited mobility to experience changing light and weather conditions and provide special views of the sky overhead.

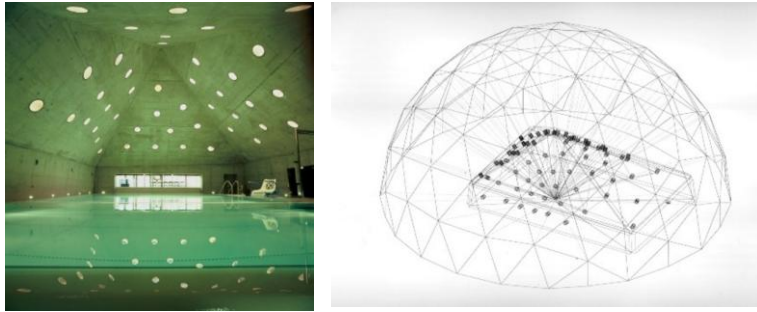


Figure 48. Swimming Pool (Source: Arquitectura Viva)

4.4.7 Roof Apertures

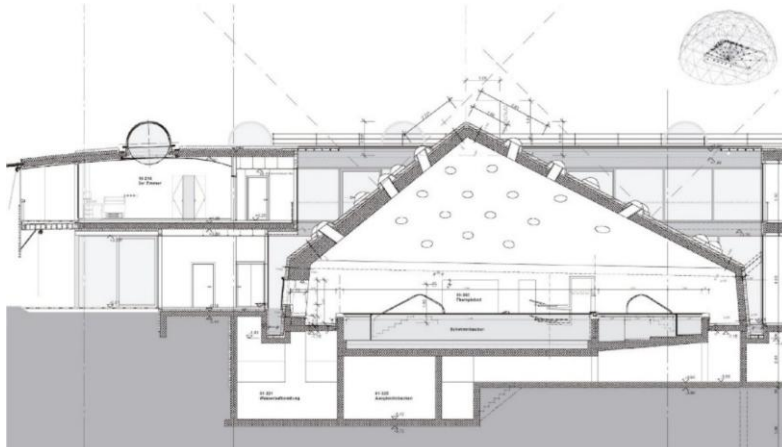


Figure 49. Section of Swimming Pool (Source: Arquitectura Viva)

In the pool, roof apertures allow light to come in. Reflection of the water creates a ceiling of sparkling stars.



Figure 50. Balcony (Source: Arquitectura Viva)



Figure 51. Interior (Source: Arquitectura Viva)

4.4.8 Materiality

Uses a combination of natural and industrial materials to create a warm and healing environment. Warm wooden surfaces for walls, ceilings, and furniture with exposed concrete for structural and aesthetic durability. Large glass

facades enhance natural lighting and connectivity to the surroundings, complemented by steel elements in structural components and window frames.

4.4.9 Discovery

The REHAB center challenges the typical image of a hospital by creating a space that feels more like a small community than an institution. This approach really resonates with my thesis, which aims to design health and well-being facilities that are warm, human-centered, and rooted in everyday life. Instead of long hallways and identical rooms, the center is laid out like a village, with streets, plazas, gardens, and a mix of private and communal spaces, which give patients freedom and a sense of normalcy. Since patients often stay for extended periods, the design focuses on comfort, autonomy, and emotional well-being. The variety of spaces, in which some are open and social, while others quiet and inward, offers flexibility for different needs and moments throughout the day. I see this as a strong example of how architecture can support healing beyond just medical treatment, which is exactly the kind of environment I want to create in my thesis project.

4.5 Health Care Facility Josefhof



Figure 52. Health Care Facility Josefhof (Source: ArchDaily)

Project Built: 2019

Location: Graz, Austria

Function: Healthcare Center

Architects: Dietger Wissounig Architekten

Design Team: Dietger Wissounig, Stephan Schmidt, Patrick Steiner, Gernot Moser, Bettina Gossak-Kowalski, Jan Müller, Stephan Brugger, Claudia Pittino, Matthias Holzner

4.5.1 Project Overview

Health Care Facility Josefhof integrates the building seamlessly into its natural surroundings, capturing the spirit of a place that fosters harmony between people and nature. Inspired by the region's characteristics orchard meadows, the design features three volumes of nature. Inspired by the region's characteristic orchard meadows, the design features three volumes nestled within the amphitheater-like terrain.



Figure 53. Located in Graz, Austria, nestled within a landscape characterized by forests and meadows (Source: Google Earth Pro)

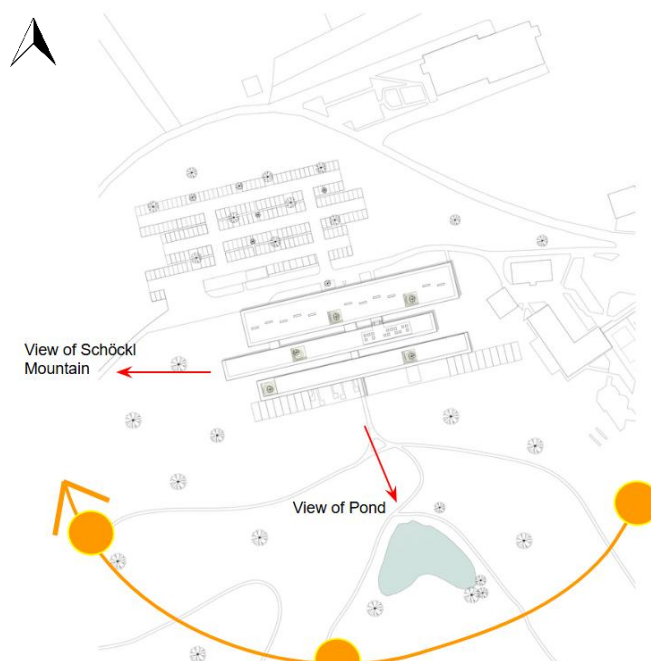


Figure 54. Sun Path (Source: ArchDaily, diagram drawn by author)

4.5.2 Site & Context Analysis

Prominent views of the Schöckl mountain and pond. The design is deeply influenced by its natural surroundings, aiming to create harmony between the built environment and nature.

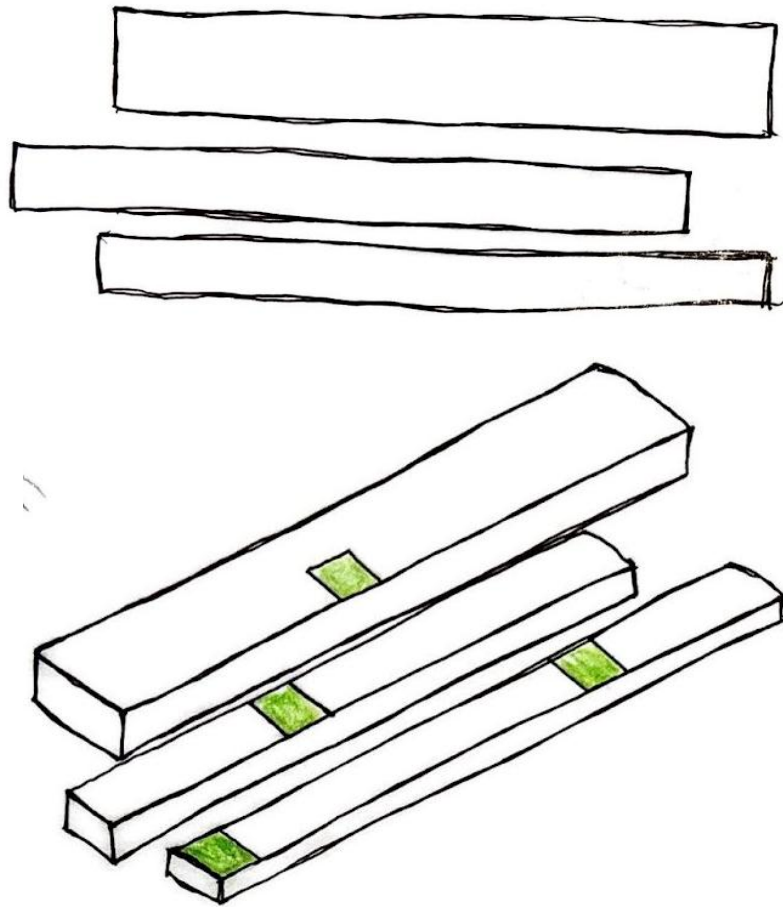


Figure 55. Massing: Three Narrow and Elongated Structures (Source: drawn by author)

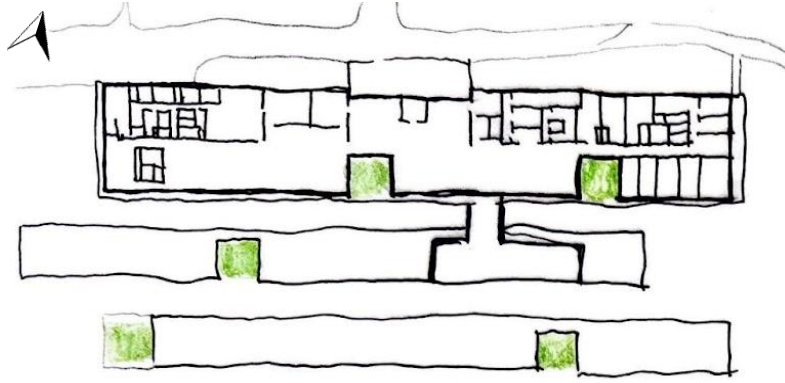


Figure 56. Courtyards (Source: drawn by author)



Figure 57. Courtyard (Source: ArchDaily)

4.5.3 Courtyards

Each elongated structure has courtyards for views. The simple, compact designs are notable for their windows, which, unlike the façade, are protected from direct sunlight. The well-insulated façade and shaded atrias contribute to meeting energy efficiency needs.

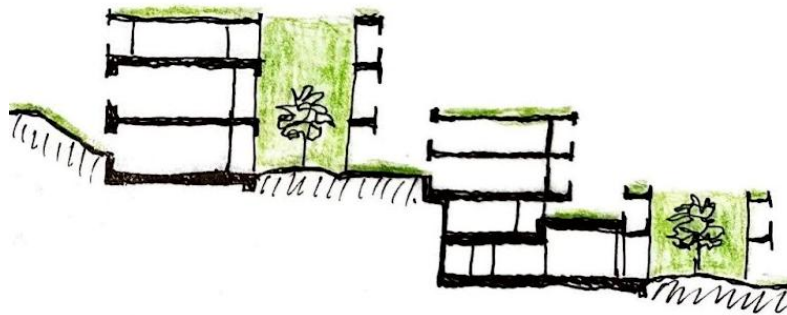


Figure 58. Section (Source: drawn by author)

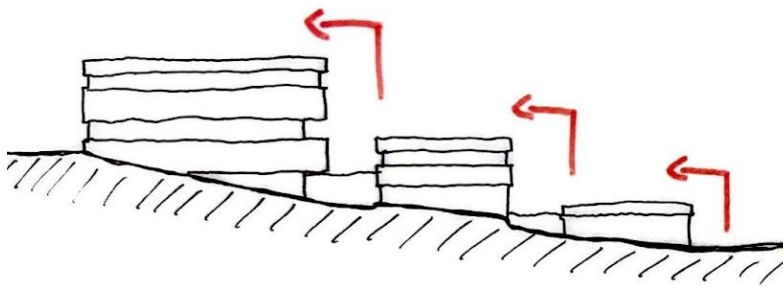


Figure 59. Section (Source: drawn by author)

4.5.4 Stepping/Staggering

Positioned within the amphitheater-like landscape so that the buildings at times seem to float above or sink into the terrain. The building volumes are arranged in a staggered manner, aligning each roof with the base of the

parapet of the structure above it. This layout allows the natural contours of the landscape to flow uninterrupted between the buildings.

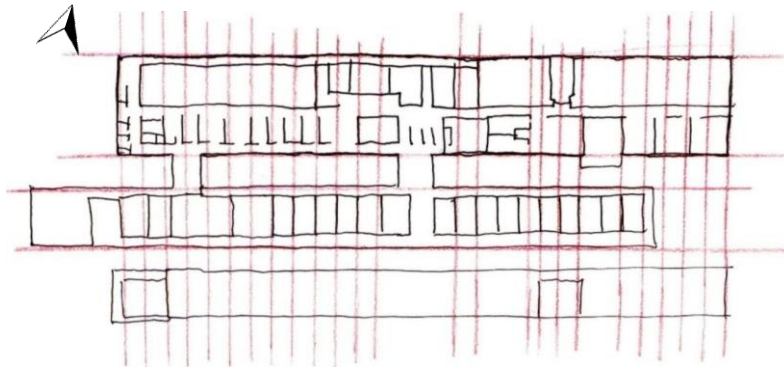


Figure 60. Structural Grid (Source: drawn by author)

4.5.5 Structure

The load-bearing structure consists of simple ceiling panels supported by a clear, cost-effective column grid. All room partitions, fixtures, and the building envelope are prefabricated. This design fosters openness and flexibility, making future modifications easy to implement. The rooms are constructed from timber modules, which are delivered to the site with fully finished interiors. The spatial arrangement at Josefhof is primarily guided by views of the Schöckl mountain and the surrounding rolling forests and meadows.

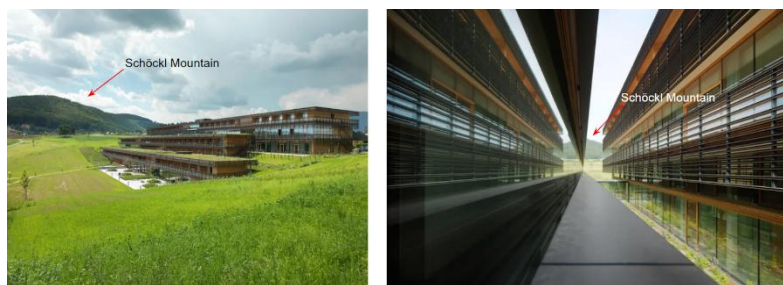


Figure 61. Views of the Schöckl Mountain (Source: ArchDaily)

4.5.6 Views

The spatial arrangement at Josefhof is primarily guided by views of the Schöckl mountain and the surrounding rolling forests and meadows. The building allows the landscape to pass through it, with atria mirroring the planted orchard meadow to emphasize this design intent.



Figure 63. Swimming Pool (Source: ArchDaily)



Figure 62. Sauna (Source: ArchDaily)

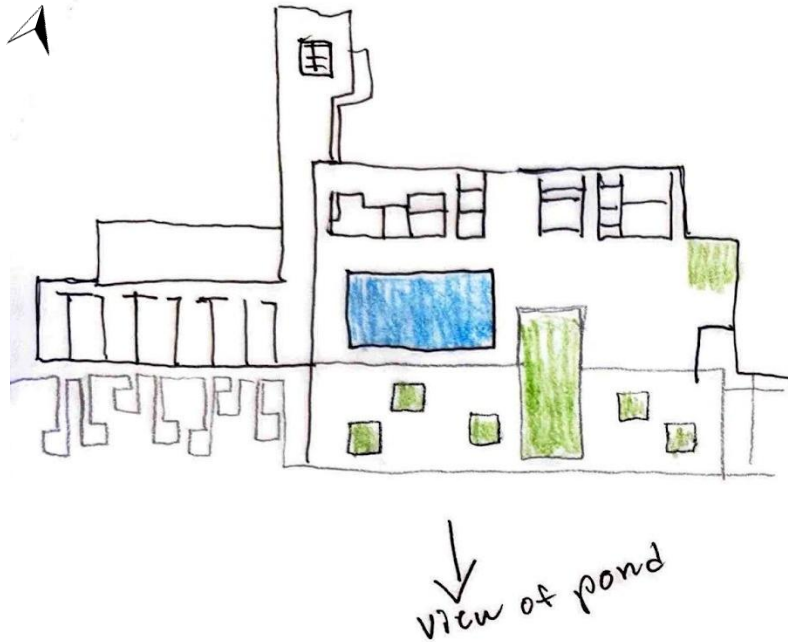


Figure 64. Plan (Source: drawn by author)

The bathing and sauna facilities are situated in the southern wing, positioned at the lowest point of the site, offering clear views of the wood chip path and the pond landscape.

4.5.7 Materiality

The load-bearing structure, along with the assembly of components like window and wall elements, doors, and the intentional use of natural, CO₂-neutral materials wherever feasible, are viewed as key factors in minimizing primary energy consumption. Commitment to sustainability is reflected in the use of materials that are as natural, non-toxic, and renewable as possible, along with the minimal use of in-situ concrete and plastics.

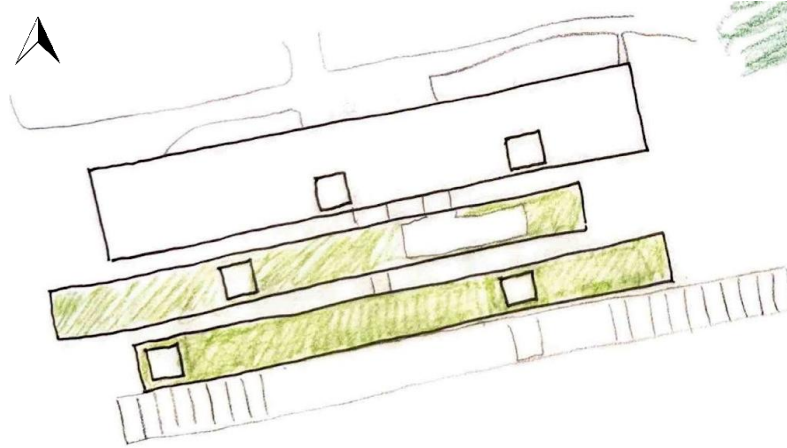


Figure 65. Roof Plan (Source: drawn by author)



Figure 66. Terrace (Source: ArchDaily)

4.5.8 Green Design

The building technology concept adopts a low-tech approach, prioritizing natural shading and ventilation solutions. The room climate is enhanced by using clay, a natural, ecological building material known for its pollutant-absorbing and humidity-regulating properties. As a result, the interior walls

separating the rooms from the bathroom will be plastered with clay. The greenery improves the microclimate in the surrounding area by cooling the air during summer, capturing fine particles and pollutants. It also enhances sound insulation and prolongs the lifespan of the roof cladding. The roof insulation, made of rock wool (which offers better sound insulation and is non-flammable), and the waterproofing with bituminous sheeting (a natural building material that's easy to recycle), were chosen as ideal and practical ecological building additions.

4.5.9 Discovery

Health Care Facility Josefhof really reinforces the idea that healthcare spaces should feel connected to nature and the landscape, which is something I'm aiming for in my thesis. I like how the buildings are carefully placed into the terrain so that they feel like a natural part of it, allowing the landscape to flow through and around the architecture. This kind of integration creates a calming, immersive environment that supports healing on a deeper level, and not just physically, but emotionally too. The use of natural materials like timber and clay, along with simple, low-tech environmental strategies, shows how sustainable design can still be practical, efficient, and affordable. I also appreciate the modular construction approach, which allows flexibility and adaptability over time. Overall, it confirms my belief that rural healthcare spaces don't need to rely on advanced technology to be effective; they can be

rooted in place, environmentally conscious, and designed to truly support well-being.

4.6 Bahay Kubo



Figure 67. Bahay Kubo (Source: Blogger)

Project Established: Pre-Colonial Period

Location: Philippines

Function: Residential

Designed By: Austronesian Filipino Communities

4.6.1 Project Overview

Bahay kubo or “cube house” (from the Spanish “cubo”), is a traditional Filipino dwelling common in the lowlands and found throughout Southeast Asia. Typically, square or rectangular in form, it is a lightweight structure

made from natural materials like bamboo, wood, and nipa leaves, and is raised on stilts to protect against flooding and pests. Designed for tropical climates, its thatched roof and open layout allow for ventilation, keeping the interior cool and airy. *Bahay kubo* embodies Filipino resilience, ingenuity, and a deep connection to nature. It reflects core values of unity, community, and family, and remains a lasting symbol of the Philippines' cultural heritage and the adaptability of its people, even amid rapid modernization.



Figure 68. Map of Philippines (Source: Slideshare)



Figure 69. Bahay Kubo (Source: The Project for Lean Urbanism)

The origin of *bahay kubo* dates back to pre-colonial times when the Austronesian people first settled in the Philippines. Served as primary shelter and eventually became an iconic symbol of Filipino culture. A common type of dwelling in lowland and coastal areas.



Figure 70. Passive Cooling Design (Source: drawn by author)

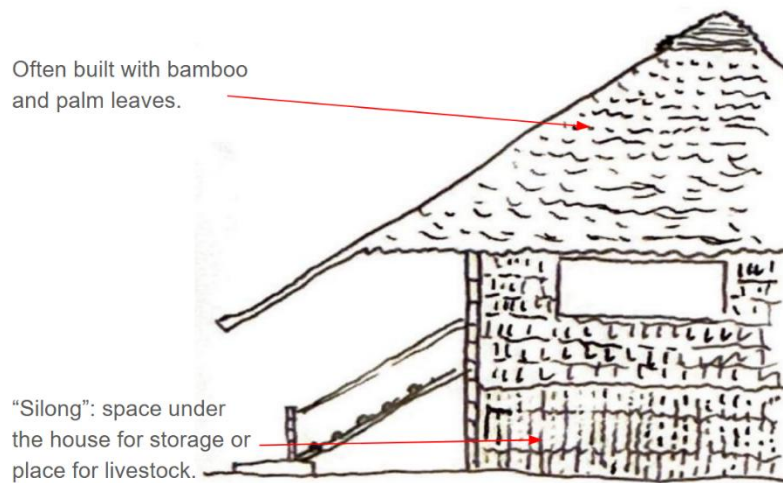


Figure 71. Bahay Kubo (Source: drawn by author)

Three distinct horizontal divisions: stilts/posts, one-room upper living unit, and steep roof. The posts are often covered or enclosed with bamboo lattice to serve as usable space underneath the house for house implements and storage. Raised to protect dwellers from animals and dampness and humidity of the ground.

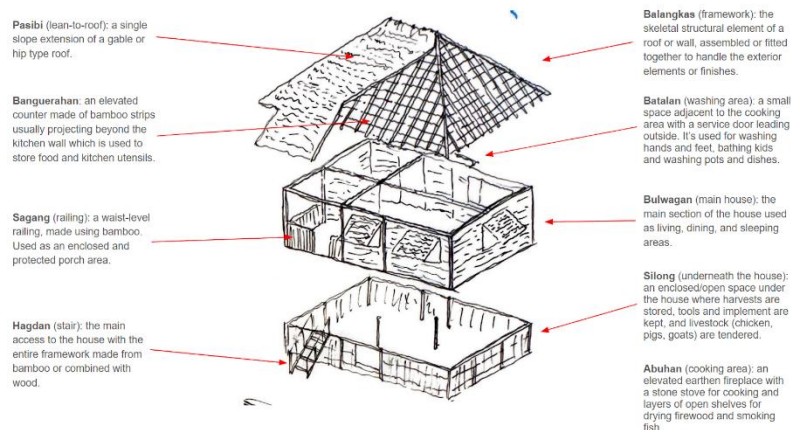


Figure 72. Exploded Axon (Source: drawn by author)

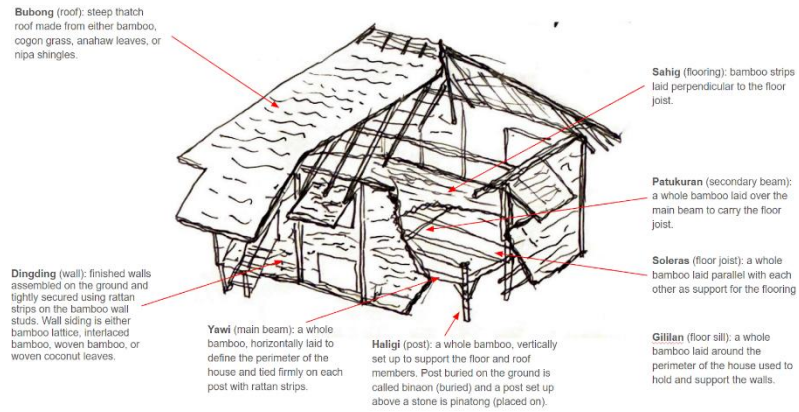


Figure 73. Exploded Axon (Source: drawn by author)



Figure 74. Bamboo (Source: Nisha Designs)



Figure 75. Cogon Grass (Source: Pixnio)



Figure 76. Nipa (Source: Dreamstime)

4.6.2 Materiality

Made of natural materials that are abundant in the Philippines. Eco-friendly and sustainable.

Bamboo: Used for the structural frame of the *bahay kubo*. Lightweight and durable for withstanding the harsh weather conditions.

Nipa: Nipa leaves are used for the roofing of the *bahay kubo*. Lightweight, waterproof, and have excellent insulation properties.

Cogon grass: Used for roofing the *bahay kubo*. Durable and fire-resistant.

4.6.3 Discovery

The *bahay kubo* highlights the importance of designing with climate, culture, and community in mind, which are values that are central to my thesis. This

traditional Filipino structure shows how simple, locally sourced materials and passive design strategies like raised floors and natural ventilation can create comfortable, resilient spaces, especially in rural or low-resource areas. It also emphasizes the role of architecture in reflecting cultural identity and fostering a sense of belonging. For my thesis project, the *bahay kubo* serves as both a practical and symbolic model. It's a reminder that health care spaces can be rooted in tradition, adapted to their environment, and still respond to contemporary needs without losing cultural relevance.

4.7 Conclusion

Looking back at these five precedents, I can see how each one has helped me understand different ways architecture can support health and well-being, especially in rural areas like the ones I'm focusing on. They all approach healing from a broader perspective, going beyond just providing medical treatment to also support emotional, cultural, and environmental needs.

Ani Nii Shobo taught me how healing spaces can come from tradition and be deeply connected to nature and local materials. It showed me that healthcare spaces don't have to look or feel clinical, instead they can reflect the values and practices of the community they serve. With SOCSO Rehab Centre, I saw how thoughtful design, especially in terms of movement, accessibility, and sensory experience, can really shape the way people heal, physically and emotionally. REHAB Basel offered a new way of thinking about long-term care environments by designing like a village rather

than a hospital, and that idea really stuck with me as I thought about how to create warm, welcoming spaces in rural communities. Josefhof showed how buildings can work with the land, how simple and sustainable design strategies can still make a big impact on comfort and healing. Finally, the *bahay kubo* reminded me that our own traditional architecture already has so much to offer, such as climate-smart design, cultural meaning, and a sense of home that can't be replicated by imported models.

All of these projects helped me clarify what I want my thesis to stand for, which is health care spaces that are rooted in place, respectful of culture, and built in a way that feels human and responsive. Each precedent gave me something to carry forward, and together, they've shaped my thinking on how design can make a real difference in rural health care.

Chapter 5: Zones and the Program

5.1 Program Abstract

The goal of this thesis project is to design an accessible and community-centered health and wellness facility that serves the neighborhood district of Carig in Tuguegarao City, Northern Luzon, Philippines. The project focuses on supporting preventive health care and post-hospital recovery, responding to gaps in the existing healthcare environment where care is often limited to clinical treatment within institutional settings.

The program is organized into five main zones that reflect the design intentions of the project: creating community-centered spaces, integrating biophilic design and holistic medicine, promoting preventive healthcare, and providing environments for learning healthy living. Together, the zones support a more comprehensive approach to health that extends beyond treatment to include education, recovery, and everyday wellness.

Located adjacent to a major public hospital and within close proximity to a university and residential neighborhood, the facility is positioned to function as a complementary extension of existing healthcare infrastructure. The design introduces spaces for recovery, wellness practices, community engagement, and health education, which are programs that remain uncommon within the current healthcare landscape in the Philippines.

Architecturally, the project draws from local traditions, climate-responsive strategies, and vernacular materials, creating a healing environment that is grounded in cultural context and responsive to the tropical climate. The project aims to foster a less-institutional and nature-integrated setting that supports long-term well-being and strengthens community connection.

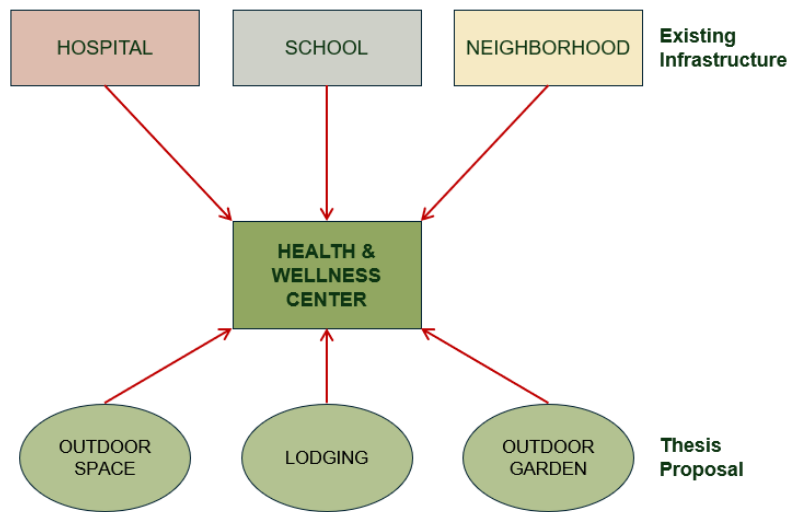


Figure 77. Program Abstract Diagram (Source: drawn by author)



Figure 78. Program Zones (Source: drawn by author)

5.2 Program Zones

The proposed building program will include spaces for healing and regeneration hub, community and knowledge exchange, active and resilience, nature and sensory landscape, and health care operations.

Healing and Regeneration Hub may include:

- Therapy rooms (for acupuncture, massage, hydrotherapy, and herbal medicine)
- Inpatient rooms (for short-term and long-term stays)
- Therapy pool (for aquatic therapy)
- Herbal garden (for medicinal plant cultivation and therapy)
- Consultation rooms (for both modern and holistic treatments)

Community and Knowledge Exchange may include:

- Rooms for health workshops, training programs, cultural events, open-air healing pavilion (for yoga, meditation, and group therapy)
- Multipurpose Hall (gathering space for workshops, group discussions, or cultural activities)
- Traditional healing kitchen (for preparing herbal remedies and nutrition-based healing)
- Dining area & communal kitchen (guests can eat nutritious meals and learn about healthy cooking)

- Classroom spaces (for teaching preventive healthcare and local medical training)
- Library & Resource Center (books and materials on holistic health, traditional healing, and sustainable living)
- Guest Rooms (simple accommodations for visiting medical staff)

Active and Resilience may include:

- Indoor gym (promote physical exercise)
- Outdoor Pool (for aquatic physical exercise)

Nature and Sensory Landscape may include:

- Outdoor healing gardens (for relaxation and interaction with nature)
- Shaded courtyards with seating (for informal gathering and rest)

Health Care Operations:

- Pharmacy and herbal apothecary (selling and distributing traditional medicine)

5.3 Program Vignettes

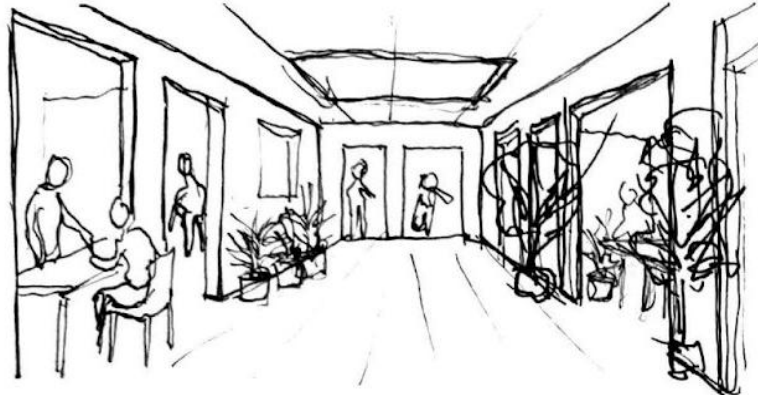


Figure 79. Healing & Regeneration Hub (A sanctuary for integrated healing and restorative therapies) (Source: drawn by author)



Figure 80. Community & Knowledge Exchange (Empowering locals through shared wisdom and holistic learning) (Source: drawn by author)



Figure 81. Active & Resilience (Revitalizing the body through movement and play) (Source: drawn by author)

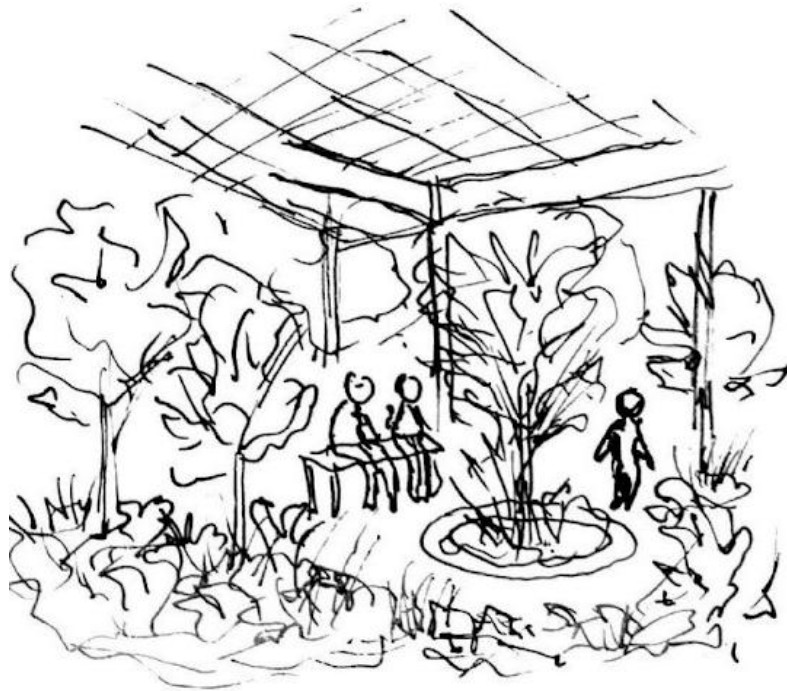


Figure 82. Nature & Sensory Landscape (Biophilic spaces fostering tranquility and ecological connection) (Source: drawn by author)



Figure 83. Health Care Operations (Ensuring seamless functionality and continuous service for the healing community) (Source: drawn by author)

Zone 1: Healing & Regeneration Hub	Sq Ft	Zone 2: Community & Knowledge Exchange	Sq Ft	Zone 3: Active & Resilience	Sq Ft	Zone 4: Nature & Sensory Landscape	Sq Ft	Zone 5: Health Care Operations	Sq Ft
General Consultation Rooms	120 ea	Health Workshops/Classrooms	500 ea	Indoor Gym	1500	Outdoor Healing Garden	3000	Pharmacy/Herbal Apothecary	400
Therapy Rooms	200 ea	Multipurpose Hall	1200	Outdoor Pool	1500	Shaded Courtyard	1500	Herbal Prep Room	150
Inpatient Rooms (w/ Bath)	460 ea	Traditional Healing Kitchen	500	Therapy Pool	700	Tool Storage Shed	120	Labeling & Packaging Station	75
Rehabilitation Space	650	Dining & Communal Kitchen	800	Changing Rooms F	120	Composting Area	150	Waste Disposal Area	30
Quiet Rooms	120 ea	Library & Resource Center	500	Changing Rooms M	120	Seating Areas		Storage	100
Herbal Garden	2500	Reading Area	150	Restrooms F	120			Restrooms F	120
Herbal Storage Room	80	Computer Station	60	Restrooms M	120			Restrooms M	120
Tool Storage Shed	100	Discussion Nooks	50	Storage	80			Janitor's Closet	30
Nurse Station	100	Residential Guest Rooms	180 ea	Composting Area	40			Laundry Room	100
Supply Room	60	Reception/Lobby	150	Seating Areas					
Reception/Lobby	150	Staff Lounge	150						
Staff Lounge	150	Restrooms F	120						
Staff Office/Workroom	100	Restrooms M	120						
Changing Rooms F	120	Janitor's Closet	30						
Changing Rooms M	120	Storage	50						
Restrooms F	120	Back of House	100						
Restrooms M	120	Audio-Visual Control	50						
Janitor's Closet	30	Pantry	50						
Storage	50	Herb Drying/Processing	100						
Composting Area	40	Composting Area	40						
		Laundry Room	100						

Figure 84. Program Detailed Tabulation (Source: created by author)

5.4 Conclusion

This program will help me test and "prove" my thesis by exploring how biophilic design enhances patient recovery and well-being, how a community-driven model strengthens local healthcare engagement, how a modular and affordable prototype can be adapted to rural communities, and how holistic and modern medicine can coexist to promote preventive health care.

Chapter 6: Site Selection and Analysis

6.1 Site Selection

Choosing the right site for an architectural thesis is extremely important, especially when the project focuses on social issues, like improving health care access in rural areas of the Philippines. My thesis explores how architecture can create affordable and community-driven health and wellness centers that also serve as places for healing and education in these rural areas. I aim to use biophilic design to improve accessibility, promote well-being, and reduce the health care gap between urban and rural areas.

For my thesis project, the site is a tool to understand real-world challenges and possibilities. “Site zero” is a key prototype that will help me explore and refine my site analysis and design approach. By studying the site and visiting it directly, I will test ideas about accessibility, community involvement, environmental factors, and local culture, which will all influence the design of the healthcare facility.

The disparity between urban and rural health care in the Philippines is also a spatial problem. Geography, infrastructure, environment, and local culture all converge to create very different health care experiences between urban and rural populations. Therefore, selecting the right site enables me to address these disparities through design solutions grounded in the context of a specific rural area. The idea of community-driven wellness and healing architecture through biophilic design is

inherently site-sensitive. Understanding how natural systems, such as vegetation, daylighting, and thermal comfort, operate in a rural setting will directly inform how I can leverage local ecologies to promote physical and mental healing. Additionally, rural sites tend to have strong ties to cultural and ancestral practices, which could influence the integration of holistic medicine, traditional healing, or community health education programs.

The exact location of the site also affects what kind of health care facility I'll design. If the site is in a very remote area, where access to larger hospitals is difficult, then the program will focus more on being a wellness and prevention center, handling low-risk health issues. If the site is closer to an urban town or more developed area, the project will focus more on primary care and can handle higher-risk health concerns while being near or adjacent to a hospital because more resources and staff are available and transportation is easier.

The site is a very important part of both my research and design. Since my thesis is about creating affordable, community-based health and wellness centers in rural areas, I need to understand what life is really like in the place I'm designing for. Visiting the site helps me see the real conditions and hear directly from the people who live there. For my research, being on-site lets me talk to local residents, health workers, and leaders. I can learn what kinds of health problems they face, how they usually get care, and what spaces feel comfortable or healing to them. I'll also be able to study things like how people move around the area, what the climate is like, and

what natural resources are available. This kind of information is hard to get just from reading or online searching.

The site directly influences key design decisions such as building orientation, form, materials, and layout. Factors like terrain, climate, access to transportation, and surrounding nature shape how the space functions and feels. Understanding the site also helps in choosing local, low-cost materials and sustainable strategies that support both the environment and the community. Designing with the site in mind ensures the project is practical, culturally respectful, and responsive to the people it serves.

6.2 General Criteria

- Proximity to Existing Infrastructure: In a remote location or urban town near/adjacent to an existing hospital and neighborhood.
- Accessibility: Proximity to transportation (local roads, vehicles, public transportation) to ensure the community can easily reach the facility.
- Utilities: Availability or potential for essential services like water, electricity, and waste management.
- Climate Conditions: Understanding weather patterns to design for natural ventilation, shading, or storm protection.

6.3 Specific Criteria

- Cultural Sensitivity: The site should respect and incorporate local cultural practices, such as vernacular architecture, traditional healing methods, communal spaces, or ceremonial needs.

- **Historic Significance:** If the site has historical relevance, such as being near ancestral land, landmarks, or cultural heritage sites.
- **Health Needs of the Community:** Understanding the particular health challenges the community faces to tailor the facility's program.
- **Environmental Context:** Natural features such as rivers, forests, or agricultural land, which can be integrated into the design for biophilic benefits or local resource use.

6.4 Potential Sites

I chose three different potential sites in the Philippines: town center, coastal, and rural mountains. The site in the town center will be situated adjacent to/near the existing hospital and will be in close proximity to the college university and residential areas. The town center also has the most developed infrastructure among the three. The site in the coastal area will be situated near the river, next to the existing hospital, and will be in close proximity to the elementary school. In contrast, the mountainous site is the most remote and has the least connection to existing infrastructure such as hospitals, schools, and residential areas. However, it offers the opportunity to focus on the needs of indigenous communities who live in the area. To evaluate these options, I created a site selection matrix to help determine the most suitable location for my thesis project.



Figure 85. Town Center (Source: Google Earth Pro)



Figure 86. Coastal (Source: Google Earth Pro)



Figure 87. Remote Mountains (Source: Google Earth Pro)

	 Site 1: Town Center	 Site 2: Coastal	 Site 3: Remote Mountains
☆ Proximity to hospital	5	5	1
☆ Proximity to school	4	4	1
☆ Proximity to neighborhood	5	5	1
Presence of trees	3	4	5
Visibility of natural environment	2	5	5
☆ Road accessibility	5	5	3
Pedestrian accessibility	5	5	1
Total	29 😊	33 😊	17

Figure 88. Site Selection Matrix (Source: created by author)

6.5 Site Zero

Sickle Cell Center

2121 Georgia Ave NW, Washington, DC

I picked the Sickel Cell Center next to Howard University Hospital as my site zero because it sits in a powerful place. It's connected to a well-known hospital and serves a specific group of patients, many of whom are part of Washington D.C.'s Black community. The site helps me think about what healthcare looks like in the city and how it connects to the people around it. This location shows how health facilities can either serve the community or feel disconnected from it. There's a lot to learn here about public access, healing spaces, and how design can either support or limit people's experience.

This site also sits in a unique position, right between Howard University and its hospital. That offers a lot of potential. It's not just a medical facility, it's a shared ground between education, research, and community healthcare. That's what my thesis is trying to explore, which is how health spaces can do more than treat patients, like teach, connect, and empower. In collaboration with the university and hospital, my proposed design on the site can function where I imagine medical students and researchers from the university engaging with real patients and community needs in a more personal and accessible way and public health programs could host workshops, talks, or community events. My design can also become a pre/post healing space, especially with the hospital being so nearby.



South Facade



South Facade



East Facade



East Facade



West Facade



North Facade

Figure 89. Façade Photos of Site (Source: captured by author)



Figure 90. Perspective Photos of Site (Source: captured by author)



Perspective Views

Figure 91. Perspective Photos of Site (Source: captured by author)



Street Facade

Figure 92. Street Facade of Site (Source: captured by author)

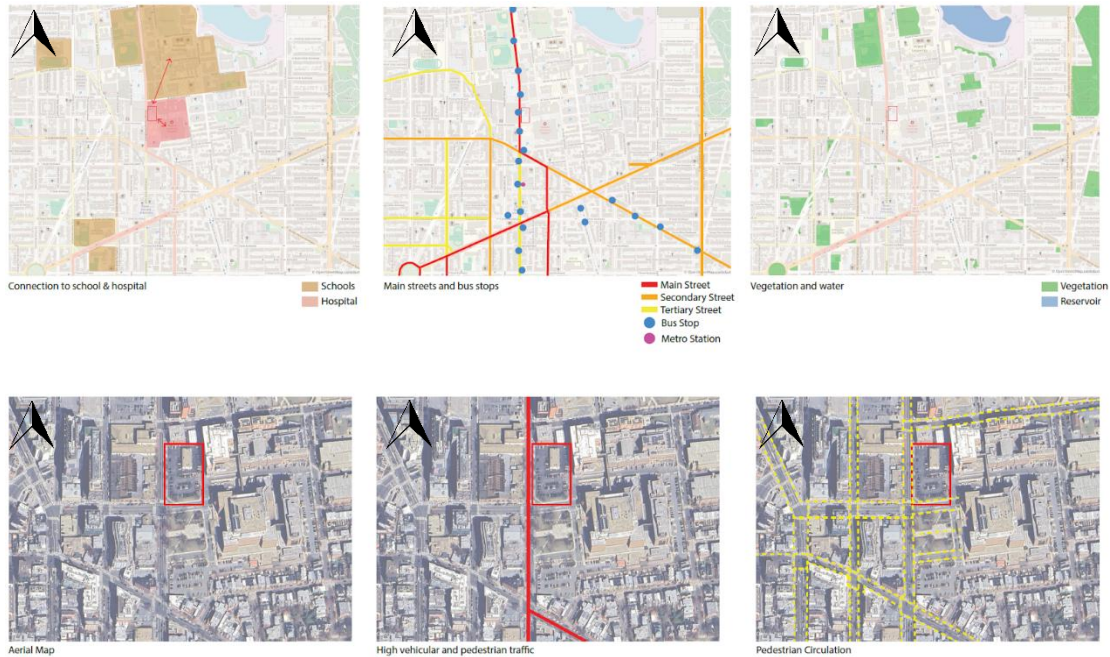


Figure 93. Site Analysis Diagrams (Source: Google Earth Pro, diagrams drawn by author)

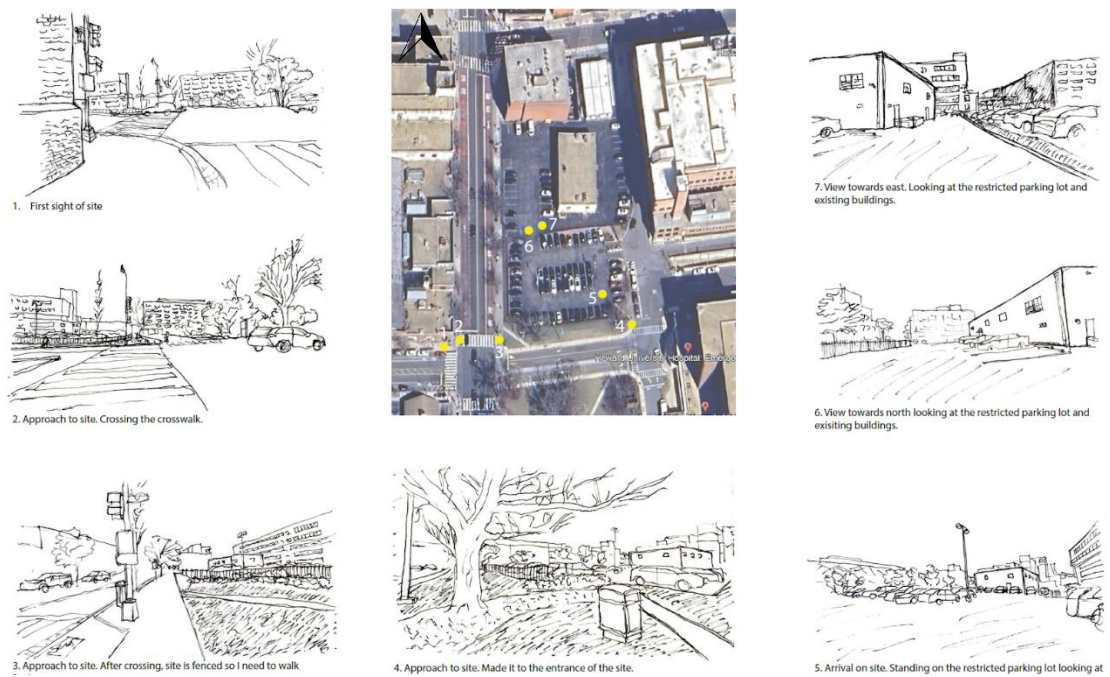


Figure 94. Perspective Sketches During Site Visit (Source: Google Earth Pro, sketches drawn by author)

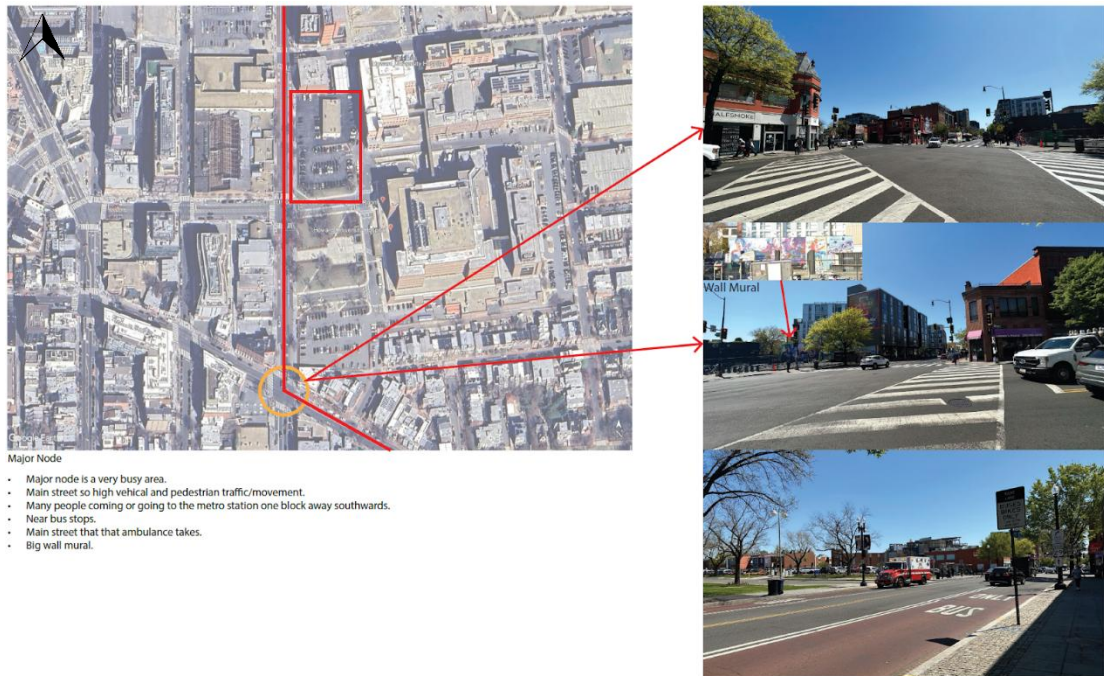


Figure 95. Major Node (Source: Google Earth Pro, diagrams drawn and images captured by author)

- Major node is a very busy area.
- Main street has a very high vehicular and pedestrian traffic.
- Many people coming from or going to the metro station one block away southwards.
- Near bus stops.
- Big wall mural.

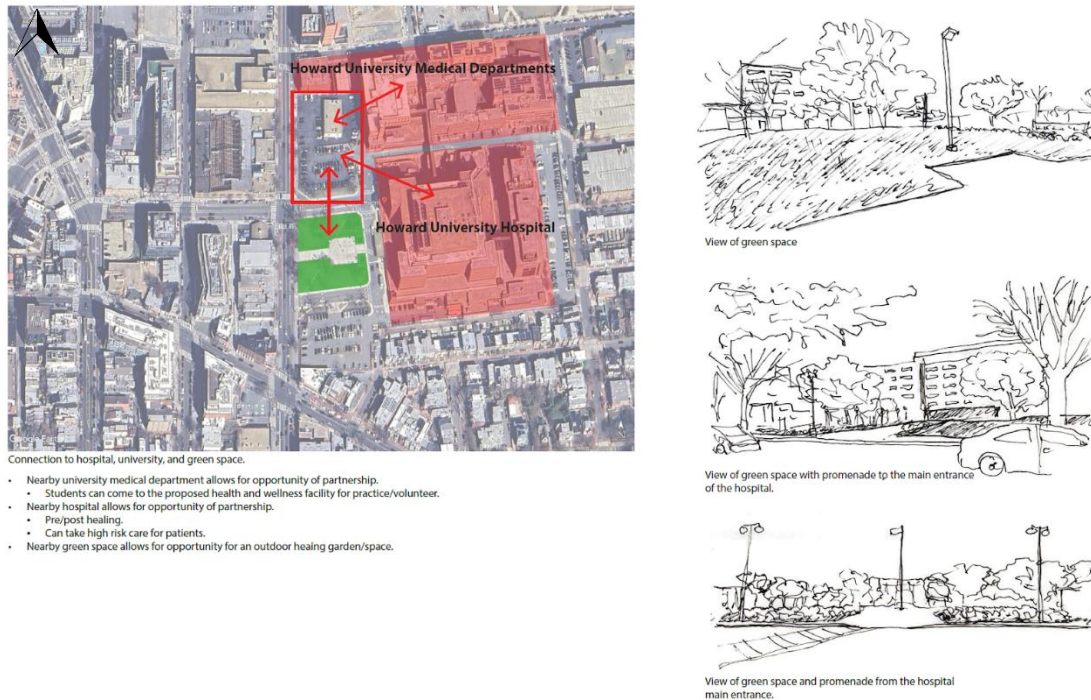


Figure 96. Connection to Hospital, University, and Green Space (Source: Google Earth Pro, sketches and diagrams drawn by author)

- Nearby university medical department allows for the opportunity of partnership/collaboration.
 - Students can come to the proposed health and wellness facility for practice/volunteer.
- Nearby hospital allows for the opportunity of partnership/collaboration.
 - Pre/post healing.
 - Can take high risk care for patients.
- Nearby green space allows for the opportunity of additional outdoor healing garden/space.

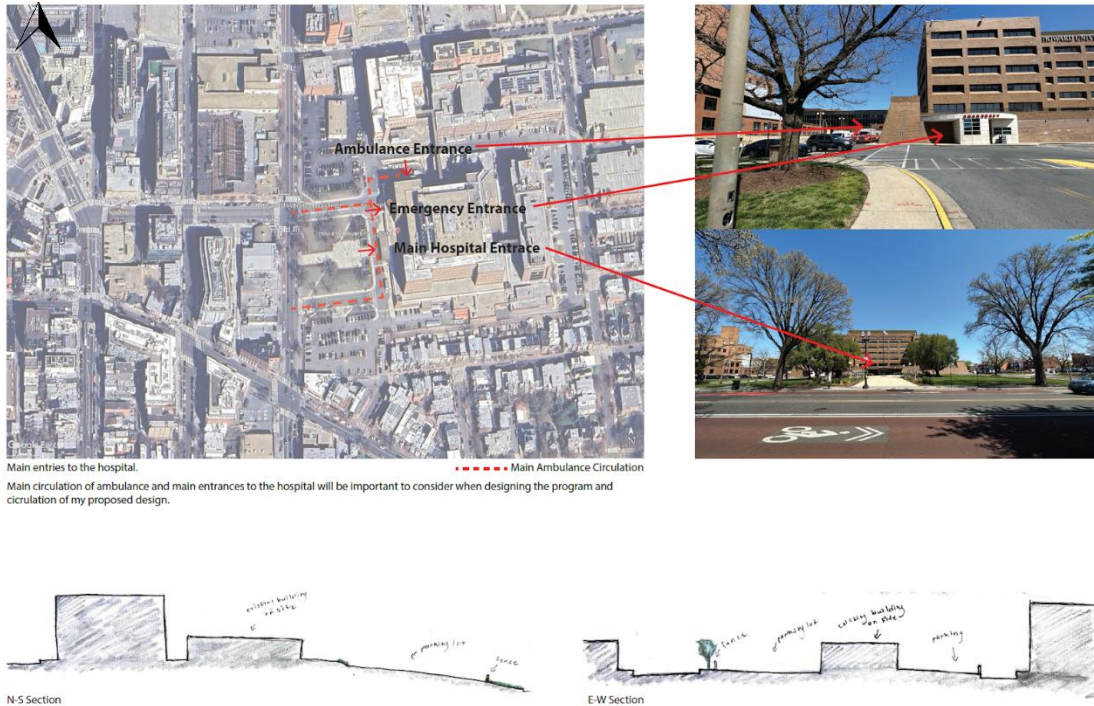


Figure 97. Main Entries to the Hospital and Site Sections (Source: Google Earth Pro, diagrams drawn and images captured by author)

Main circulation and main entrances to the hospital will be important to consider when designing the program and circulation of my proposed design.

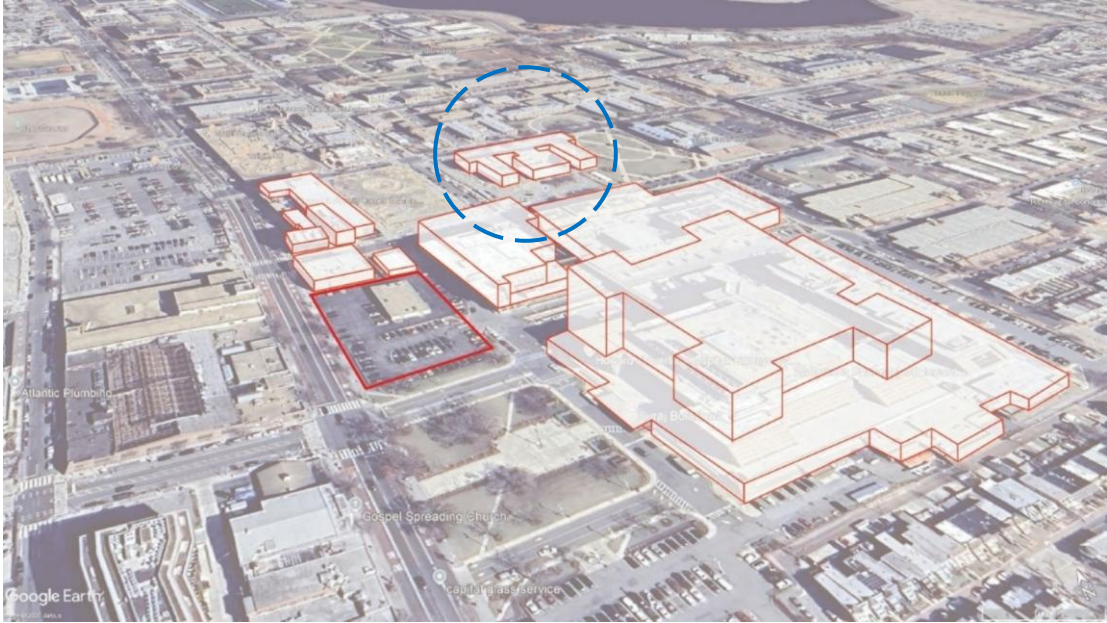


Figure 98. Aerial View of Site Highlighting Freedmen's Hospital (Source: Google Earth Pro, diagram drawn by author)



Figure 99. Freedmen's Hospital (Source: BLACKPAST)

6.6 Freedmen's Hospital

Freedmen's Hospital was founded in 1862 in Washington, D.C., mainly to treat formerly enslaved people. Over time, it became a key medical center for the city's Black community. It was first set up at Camp Barker but moved to a newer building in 1909. The U.S. government ran it for most of its early years, and in 1868, it became the teaching hospital for Howard University's medical school. One of the key early figures was Lt. Col. Alexander Augusta, the first Black hospital administrator in the U.S., who also taught at Howard⁸³.

Even though it had a noble mission, the hospital struggled with scandal from the 1870s to the early 1900s, in which nearly every administrator, regardless of race, was involved in some form of misconduct or misuse of resources. Although, the doctors and nurses stayed committed to caring for underserved patients. The Freedmen's Asylum, connected to the hospital, also helped elderly and disabled Black patients⁸⁴.

Things started to improve after the modern facility was built in 1909. One of the most respected leaders was Dr. Charles Drew, known for his work with blood plasma. He led the hospital and helped build up Howard's surgery department from 1941 to 1950. Eventually, in 1967, Howard University took over, and a brand-new hospital opened in 1975 at 2041 Georgia Avenue. The original building now houses the Howard

⁸³ Stolp-Smith, Michael. "Freedmen's Hospital/Howard University Hospital (1862--)." BlackPast.Org. Last modified March 25, 2018. Accessed May 20, 2025. <https://www.blackpast.org/african-american-history/freedmen-s-hospital-howard-university-hospital-1862/>.

⁸⁴ Stolp-Smith, Michael. "Freedmen's Hospital/Howard University Hospital (1862--)." BlackPast.Org. Last modified March 25, 2018. Accessed May 20, 2025. <https://www.blackpast.org/african-american-history/freedmen-s-hospital-howard-university-hospital-1862/>.

University College of Nursing and College of Allied Health Sciences while Howard University Hospital continues to serve the community⁸⁵.

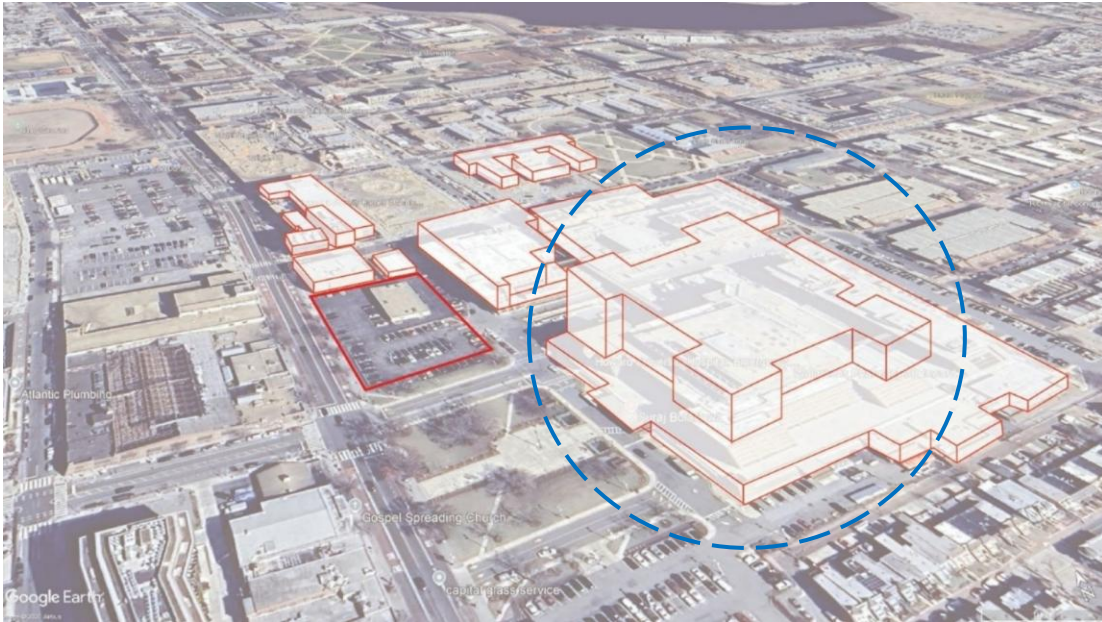


Figure 100. Aerial View of Site Highlighting Howard University Hospital (Source: Google Earth Pro, diagram drawn by author)



Figure 101. Howard University Hospital (Source: HU! YOU KNOW! The Mecca's Weekly News Source)

⁸⁵ Stolp-Smith, Michael. "Freedmen's Hospital/Howard University Hospital (1862--)." BlackPast.Org. Last modified March 25, 2018. Accessed May 20, 2025. <https://www.blackpast.org/african-american-history/freedmen-s-hospital-howard-university-hospital-1862/>.

6.7 Howard University Hospital

Howard University was founded in 1865 and has built a strong reputation for academic excellence and service to the community. Howard University Hospital (HUH) opened in 1975, taking over from the historic Freedmen's Hospital. It continues that legacy by offering a wide range of healthcare services, like cancer treatment, sickle cell care, diabetes management, kidney transplants, and prenatal and neonatal services. Every year, the hospital treats about 12,000 admitted patients and handles over 100,000 outpatient visits.

HUH is also a major training ground for future Black health professionals, working closely with Howard's Health Science Colleges. Together, they help educate more than 20% of African American doctors and medical workers in the U.S. The hospital offers training in 18 medical specialties, with residency and fellowship programs

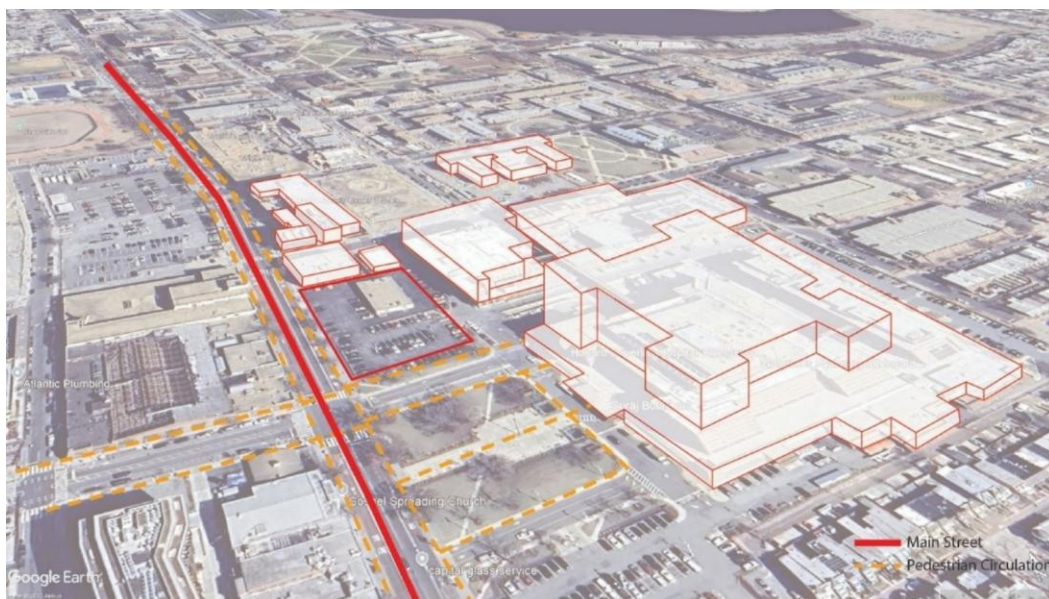


Figure 102. High Vehicular and Pedestrian Traffic Along Georgia Ave NW
(Source: Google Earth Pro, diagram drawn by author)

accredited by national boards. That commitment to service, education, and research is what keeps HUH moving forward while staying true to its roots.

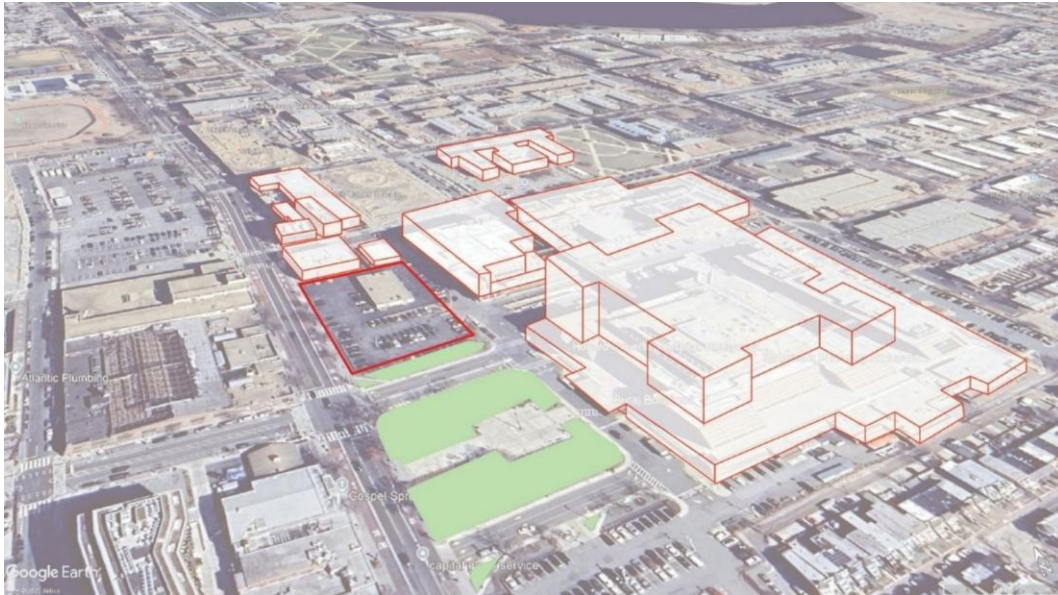


Figure 103. Green Space as a Promenade to the Hospital (Source: Google Earth Pro, diagram drawn by author)

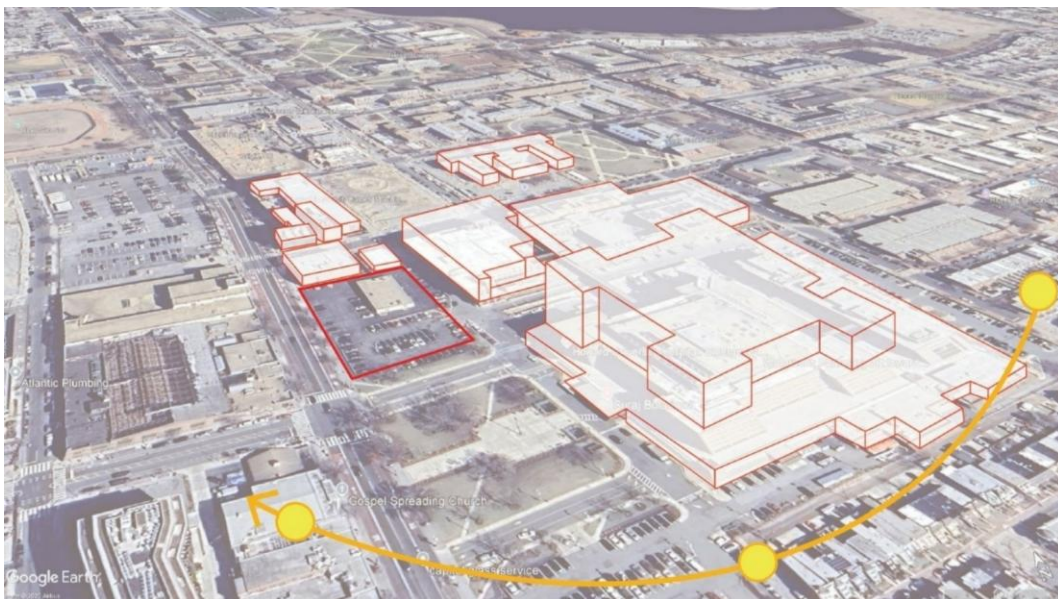


Figure 104. Sun Path (Source: Google Earth Pro, diagram drawn by author)

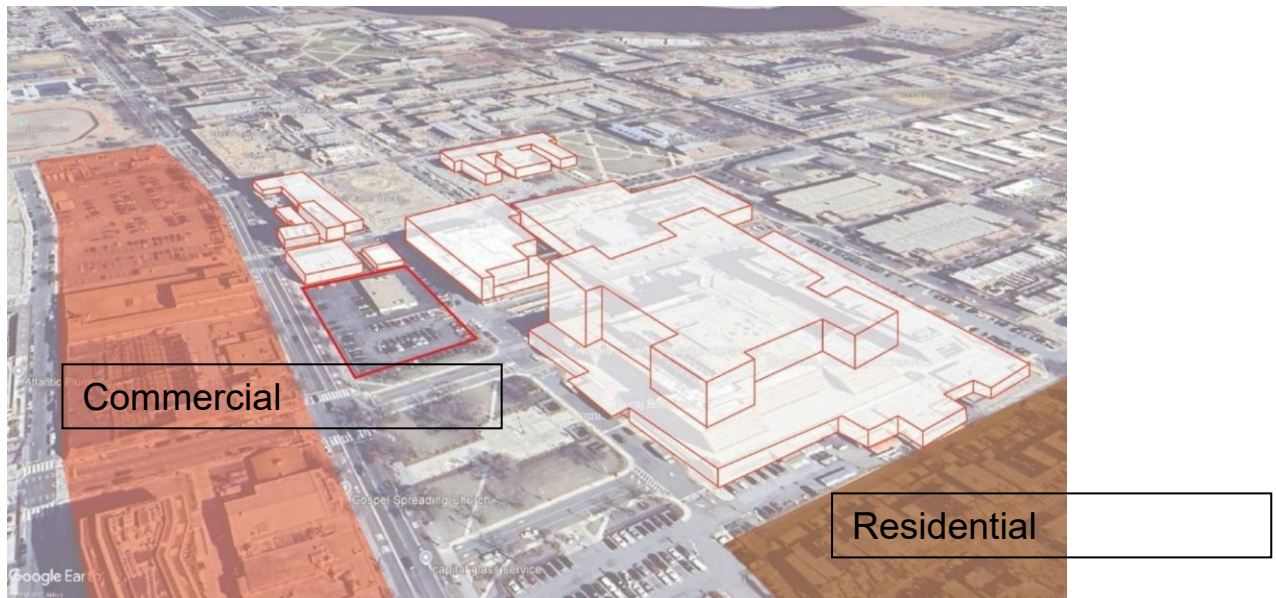


Figure 105. Zoning (Source: Google Earth Pro, diagram drawn by the author)

6.8 Site Observation

I started with a general observation of the site by just walking around, noting the types of buildings around, entrances, how people move, how vehicles move, transportation, and how the site connects to the hospital and street. I took photos, made quick sketches, and paid attention to layout, landscaping, and where people seemed to go.

I noticed that most of the site is taken up by parking, and the Sickle Cell Center itself is a small building. I assume it's an extension of the hospital system rather than a space with its own identity. The green space in front of the hospital stood out as one of the few welcoming elements, though it felt disconnected from the actual center.

6.9 Ethnography

There wasn't much movement at my site because it's mainly used as a restricted parking area. The existing building on the site seems to also be a part of the hospital but I'm unsure as to what its function is as I was not allowed to enter. However, I did spend time just watching how people moved in and around the nearby hospital.

There's not a lot of lingering or casual interaction. Some patients came in slowly, others waited on benches, stood at the entrance and front of the hospital. People are quiet, on their phones, or just staring ahead. The hospital feels very much like a traditional hospital, which is structured, clinical, and institutional.

6.10 Phenomenology

Walking toward the site, I felt indifferent at first because I didn't set any expectations for myself. As I approached the green space in front of the hospital, just south of my site, I felt a brief sense of joy and warmth. The sunlight on the grass and trees made the space visually pleasing and more alive. But as I moved closer to my actual site, that feeling faded. The area mostly consists of a parking lot and a small building, which felt empty and uninviting. Even with the green space acting as a kind of promenade for the hospital, the hospital itself didn't feel welcoming. Its heavy materials and lack of glazing gave it a closed-off, institutional feel. It felt more like a place of procedure than a place of healing.

I used these methods because I wanted to really understand the experience of the site and not just its layout. I think that's especially important in health care design. It's not

just about making functional buildings, but it's about how people move through, feel, and heal in those spaces. Ethnography helped me see how the site is used in real time. Phenomenology helped me tap into how the space made me feel. And documenting the physical conditions gave me the context I needed to tie it all together.

6.11 Conclusion: What the Site Needs

After my site analysis, I learned that the site needs more warmth, physically and emotionally. It could use more green space, more places to sit and rest, and better connections to the community around it. It's serving an important medical purpose, but it doesn't feel like a place made for the people who use it every day. It feels clinical and a bit isolating. The site is asking for more softness, more public space, and better design that respects the stories and struggles of the people it serves. The site and even the nearby hospital would really benefit from gardens or outdoor healing spaces, public art or murals that tell patient stories or honor local culture, community seating areas that aren't just for waiting, more shaded areas, and more transparency or welcoming features on the building's facade.

Chapter 7: Discovery Phase: Conceptual Testing of the Thesis

7.1 Introduction

This chapter shows my early design explorations for the proposed rural health and wellness center in rural Philippines. These initial concepts are based on everything I've studied and written about so far, especially the ideas from the theoretical framework, the literature review, the precedent studies, the program development, and the site zero analysis.

The site zero study was important because it helped me understand what works and what doesn't in the context of rural healthcare in the Philippines. It gave me a clearer idea of what kinds of spaces are needed, how people move through them, and how the building should respond to the existing infrastructure, climate, and local culture. I observed how accessibility and site conditions affect both the design and function of health care spaces. I also saw the importance of creating a welcoming environment that feels familiar and comfortable to the community. These insights shaped the way I began thinking about spatial arrangements and how to integrate both indoor and outdoor spaces into the overall design.

In this chapter, I included diagrams and massing studies to test out ideas about form, program, and circulation. Along with each drawing, I explain what I was trying to do, why I did it, and how it relates to what I've learned from research. I also reflect on how the design is influenced by precedent projects and local building methods.

Overall, this chapter is about testing and discovering, in which I try different ways of turning my thesis ideas into a real architectural proposal. It shows the direction I'm starting to take and sets the stage for more detailed design development in the next steps.

7.2 Massing Strategies

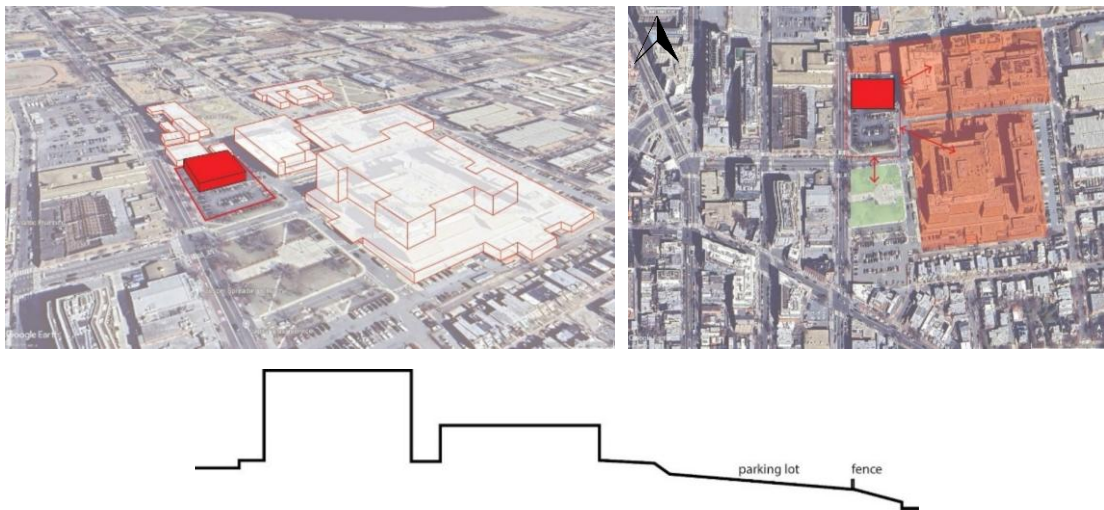


Figure 106. Massing strategy 1 (Source: Google Earth Pro, diagrams drawn by author)

Massing strategy 1 is a block with connection with nearby university medical department, hospital, and green space.

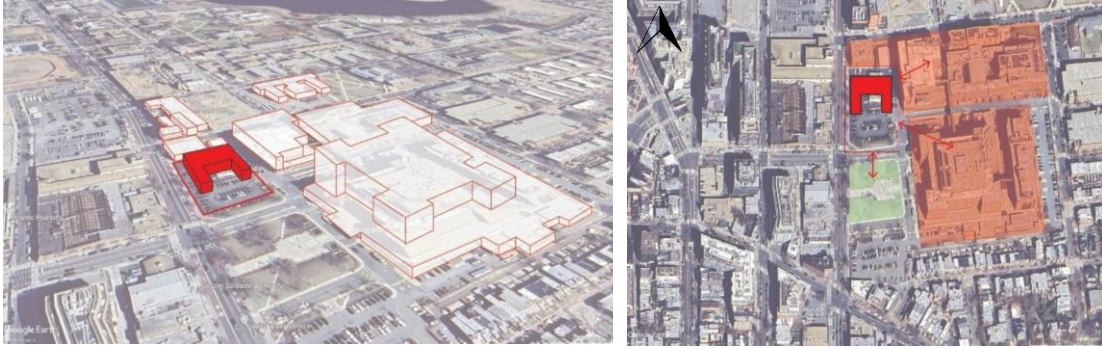


Figure 107. Massing strategy 2 (Source: Google Earth Pro, diagrams drawn by author)

Massing strategy 2 is U-shaped that creates a courtyard facing the sun for outdoor space. Connections with nearby university medical department, hospital, and green space.

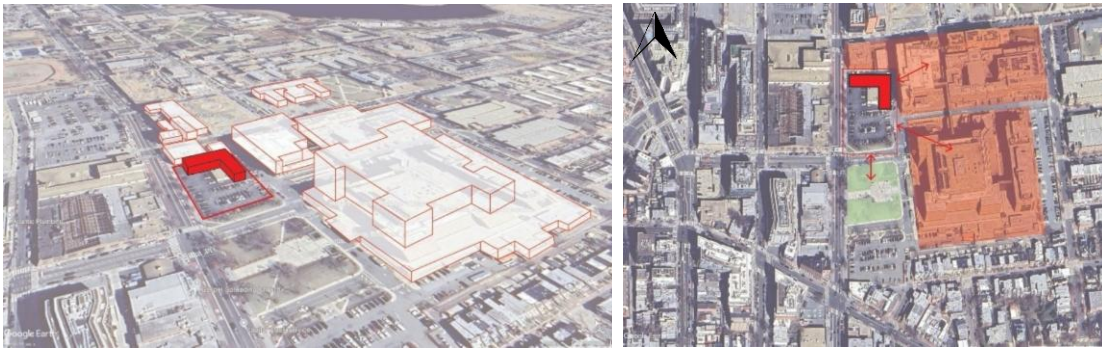


Figure 108. Massing strategy 3 (Source: Google Earth Pro, diagrams drawn by author)

Massing strategy 3 is L-shaped that creates more outdoor spaces. Connection with nearby university medical department, hospital, and green space. L-shape allows for outdoor space facing the sun.

7.3 Site Zero Conceptual Program



Figure 109. Ground Floor Program Diagram (Source: Google Earth Pro, diagram drawn by author)

The ground floor will mainly feature therapy rooms and medical facilities arranged around a central courtyard, which will serve as an outdoor herbal garden. Additional outdoor spaces will include a healing garden, an open field, an outdoor gym, and designated parking areas.

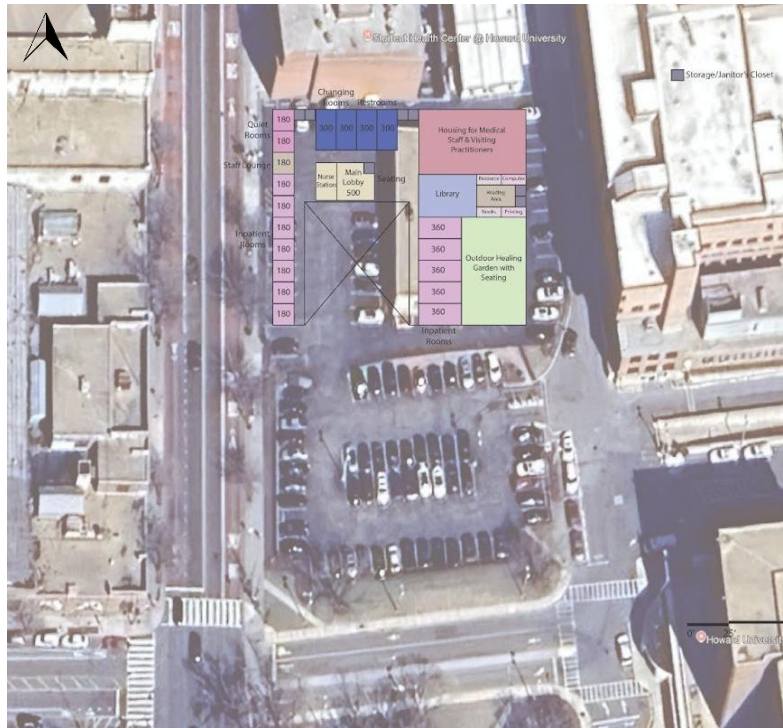


Figure 110. Second Floor Program Diagram (Source: Google Earth Pro, diagram drawn by author)

The second floor will primarily accommodate inpatient rooms, along with housing for medical staff and guests, designed for both short and long-term stays.



Figure 111. Ground Floor Plan (Source: drawn by author)



Figure 112. Second Floor Plan (Source: drawn by author)



Figure 113. Site Plan (Source: drawn by author)

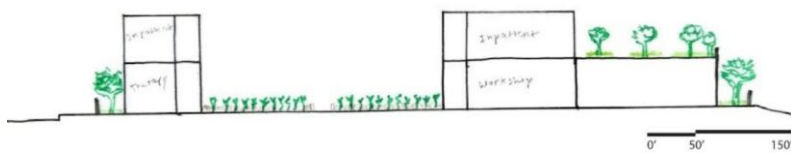


Figure 114. E-W Section (Source: drawn by author)

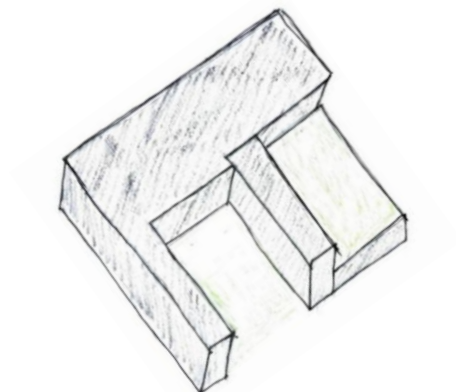


Figure 115. Axon (Source: drawn by author)

7.4 Potential Site Conceptual Program



Figure 116. Potential Site 2 Town Center (Source: Google Earth Pro)



Figure 117. Ground Floor Program Diagram (Source: Google Earth Pro, diagram drawn by author)

I took the program I developed from Site Zero and applied it to one of the potential locations, specifically, the town center, to explore how it would fit within the site. I envision the proposed thesis design as a two-story building, with therapy rooms and medical facilities on the ground floor, and inpatient rooms along with accommodations for medical staff and guests on the second floor. These spaces will be organized around a central courtyard that functions as an outdoor herbal garden. I also imagine incorporating outdoor areas for gardens and various activities.

7.5 Conclusion

This chapter was an important step in turning everything I've researched into actual design ideas for the rural health and wellness center. Through the massing studies and program testing, I started to imagine how the project could respond to the site, the local culture, and the needs of the community. The lessons I learned from site zero, the theoretical framework, and the precedent studies helped me think more clearly about how spaces should be arranged, and how the design can feel welcoming, accessible, and connected to nature.

By placing the program into the town center site, I was able to test how it might really work in that setting. Each massing idea gave me a different way of thinking about space, sunlight, and how people move through the building. This helped me see which directions might work best and how the design can better serve its users.

Overall, this chapter shows the early steps of turning my thesis into a real building. It's still a work in progress, but these first ideas give me a good starting point as I move forward into more detailed design development.

Chapter 8: Conclusion: Thesis Design Solution

8.1 Site Location and Context

The selected project site is located in Northern Luzon, within the Cagayan Valley Region (Region II), a region known for its expansive agricultural plains, river systems, and strong reliance on regional urban centers for access to healthcare, education, and public services⁸⁶.



Figure 118. Map of Northern Luzon, Philippines (Source: FREEWORLDSDMAP)

More specifically, the project is situated in Tuguegarao, the provincial capital of Cagayan and the administrative and institutional center of the Cagayan Valley region. As the primary urban hub of Northeastern Luzon, Tuguegarao supports surrounding

⁸⁶ “Population, Health, and Environment Issues in the Philippines: A Profile of Cagayan Valley.” PRB. Accessed December 19, 2025. <https://www.prb.org/resources/population-health-and-environment-issues-in-the-philippines-a-profile-of-cagayan-valley/>.

rural municipalities by providing government services, commercial activity, transportation networks, and healthcare facilities. The city is classified as a lowland settlement, positioned on a broad alluvial plain where the Cagayan and Pinacanauan Rivers meet. While this geographic condition contributes to agricultural productivity, it also increases vulnerability to environmental challenges such as extreme heat and seasonal flooding during the monsoon period⁸⁷.

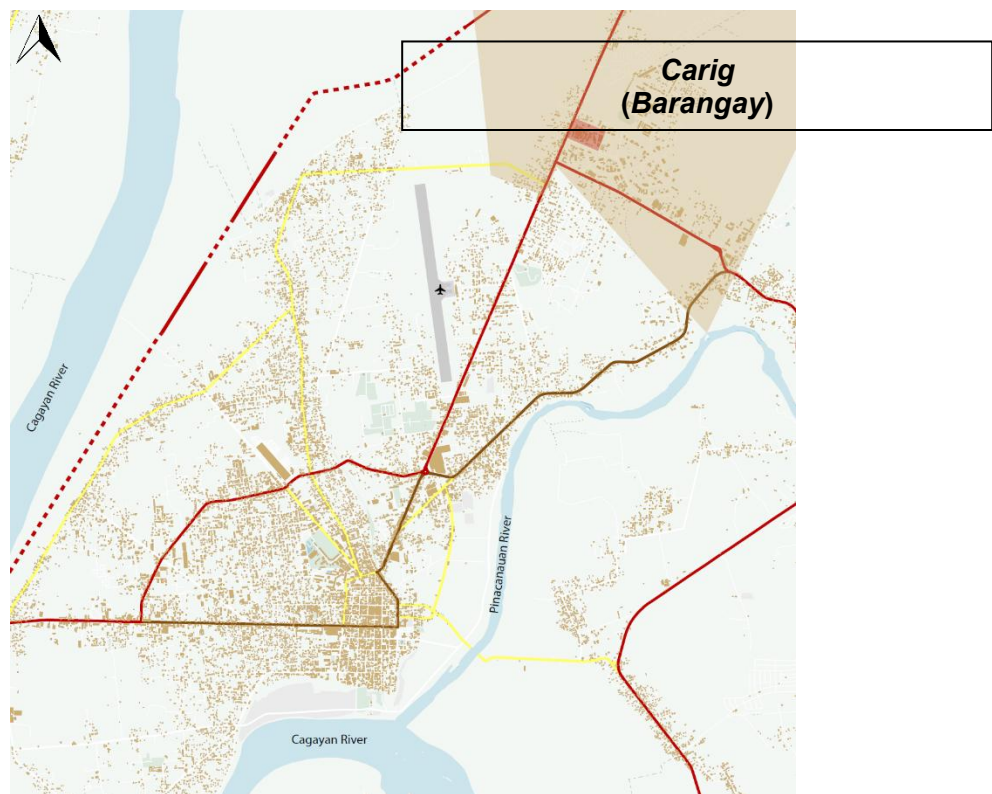


Figure 119. Map of Tuguegarao (Source: drawn by author)

At the neighborhood scale, the project site is located within the neighborhood (*barangay*) Carig, an urban district of Tuguegarao. With a median age of 25 and an

⁸⁷ “Tuguegarao City.” InvestInCagayanProvince.com.ph. Accessed December 19, 2025. <https://www.investincagayanprovince.com.ph/tuguegarao-city/>.

average household size of 3.54 members⁸⁸, Carig reflects the demographic conditions of a growing urban neighborhood where access to nearby and community-oriented health and wellness services is increasingly important.

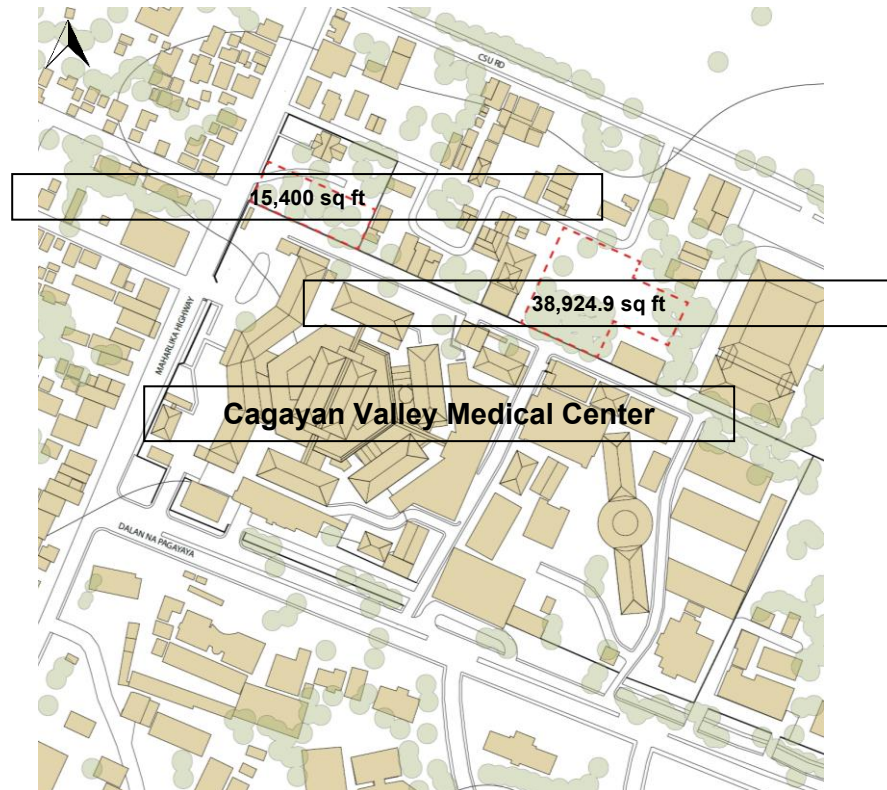


Figure 120. Existing Site Plan of Carig (*Barangay*) (Source: drawn by author)

The site is located adjacent to an existing public regional hospital called Cagayan Valley Medical Center, placing the project within an established healthcare zone. This proximity allows the proposed facility to complement formal medical services by supporting post-hospital recovery, preventive care, and holistic community-based wellness, while easing access for patients and healthcare workers. Given Tuguegarao’s role as a regional service center within a climatically vulnerable and

⁸⁸ “Carig, City of Tuguegarao, Province of Cagayan.” PhilAtlas. Accessed December 19, 2025. <https://www.philatlas.com/luzon/r02/cagayan/tuguegarao/carig.html>.

largely rural context⁸⁹, the site offers a strategic opportunity to explore small-scale, climate-responsive, and culturally rooted health care architecture, aligning directly with the objectives of this thesis.

8.2 Site Analysis

Tuguegarao functions as a regional healthcare center, with most medical facilities concentrated in the downtown area and primarily focused on acute and institutional care. However, the city lacks dedicated spaces for post-hospital recovery, preventive healthcare, and nature-based healing, resulting in a predominant clinical healthcare environment with limited opportunities for restorative engagement with nature. The selected site, located adjacent to the Cagayan Valley Medical Center, presents a strategic opportunity to address these gaps by complementing existing medical services with community-oriented, transitional, and wellness-focused programs. Currently unused and rich in natural vegetation, the site offers a quiet setting within the urban fabric that supports the integration of nature-integrated healing spaces while maintaining accessibility to the hospital and surrounding neighborhood.

8.2.1 Existing Healing Spaces in Tuguegarao

An important characteristic of Tuguegarao is the current distribution of its healthcare and healing-related facilities. Through site mapping and analysis, it was observed that most existing health and medical facilities are concentrated

⁸⁹ “Tuguegarao City.” InvestInCagayanProvince.com.ph. Accessed December 19, 2025. <https://www.investincagayanprovince.com.ph/tuguegarao-city/>.

within the downtown area, reinforcing the city's role as a regional healthcare center. However, while these facilities address acute and institutional medical needs, there are no dedicated spaces specifically designed for post-hospital recovery or transitional care within the city.

In addition, the city exhibits a limited presence of nature-based healing environments. The city lacks general parks and public gardens reflecting the broader condition in the Philippines where public parks are not commonly integrated into everyday urban life. As a result, opportunities for outdoor recovery, stress reduction, and therapeutic engagement with nature remain limited.

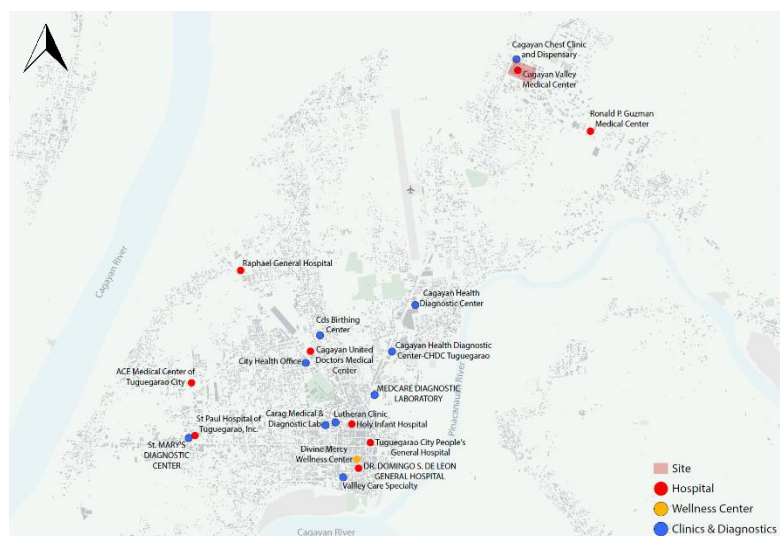


Figure 121. Existing Health and Medical Facilities in Tuguegarao (Source: drawn by author)

8.2.2 Cagayan Valley Medical Center

Locating the project next to the Cagayan Valley Medical Center responds to existing gaps in the healthcare system in the Philippines. While the hospital provides the necessary facilities and services for medical treatment, its focus

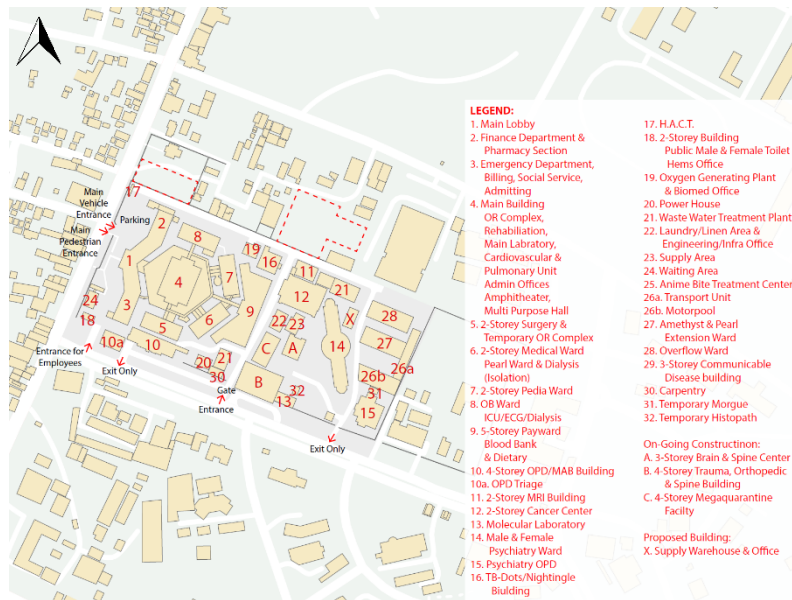


Figure 122. Existing Services Provided in Cagayan Valley Medical Center (Source: drawn by author)

is largely on acute care and does not fully support post-hospital recovery, preventive healthcare, or community-oriented spaces. The area also lacks gardens and nature-based environments that can contribute to healing, resulting in a setting that feels highly clinical. By positioning the project adjacent to the hospital, the design is able to complement formal medical services by offering a less institutional and more nature-integrated environment that supports recovery, wellness, and long-term health.

8.2.3 Site Opportunities

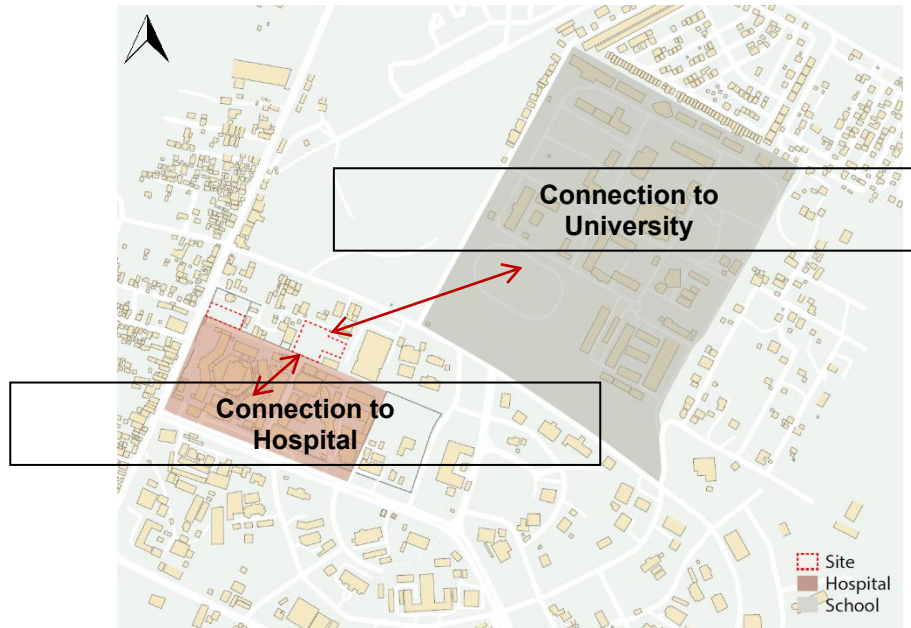


Figure 123. Site Connections to Existing Infrastructure (Source: drawn by author)

The site's location directly adjacent to the hospital creates several key opportunities for the proposed design. Positioned within an existing healthcare corridor, the project can function as a central health and learning node for the surrounding neighborhood district. Its proximity to the hospital allows for a smooth and convenient transition of care, supporting patients as they move from clinical treatment to recovery, preventive care, and ongoing wellness. In addition, the presence of a nearby university presents opportunities for student involvement and volunteer participation, strengthening community engagement while supporting health education, outreach, and wellness programs within the facility.

8.2.4 Existing Documentation

The existing site is currently unused and contains a significant amount of natural vegetation, offering a quiet and undeveloped setting within the urban fabric. This condition presents an opportunity to introduce a health and wellness center that is intentionally located away from high traffic and noise, while remaining easily accessible from the nearby hospital. The site's relatively calm environment supports the creation of a restorative setting where nature can play an active role in healing, recovery, and overall well-being.

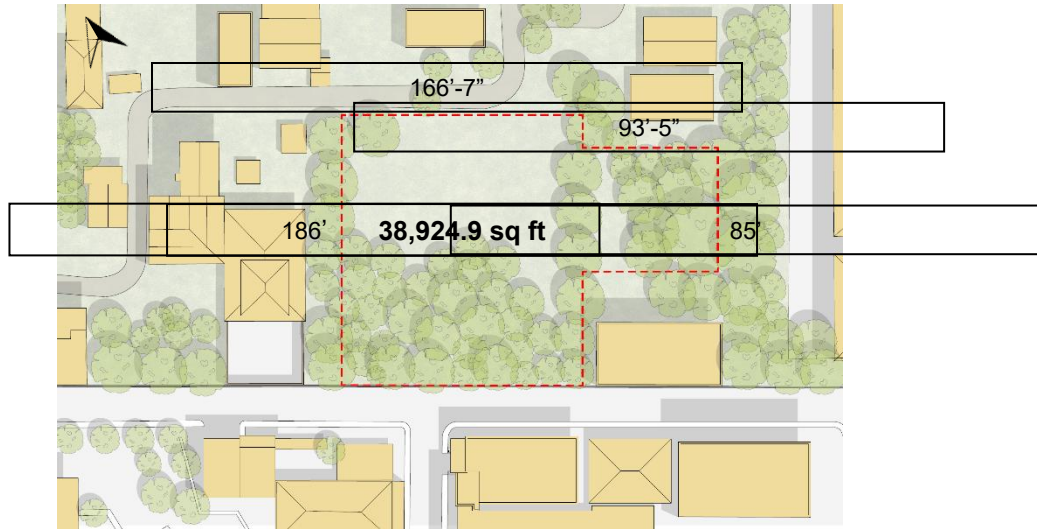


Figure 124. Existing Site Plan (Source: drawn by author)

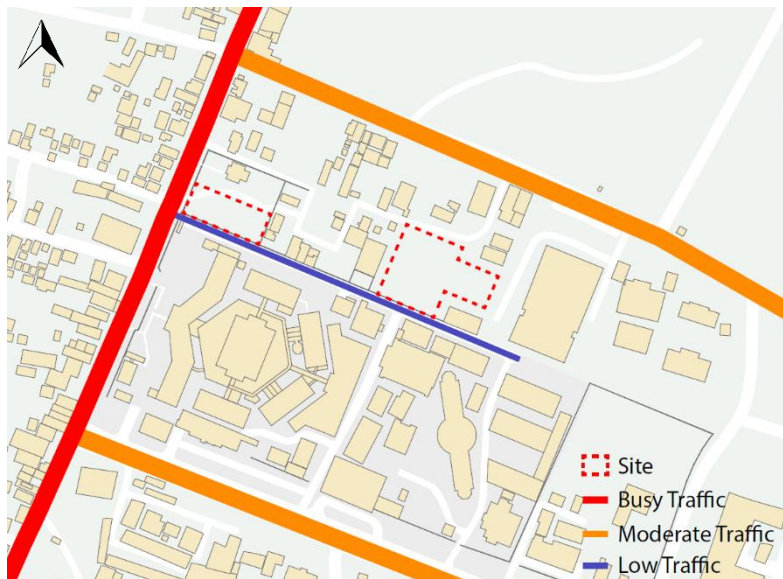


Figure 125. Vehicle and Pedestrian Traffic Diagram (Source: drawn by author)

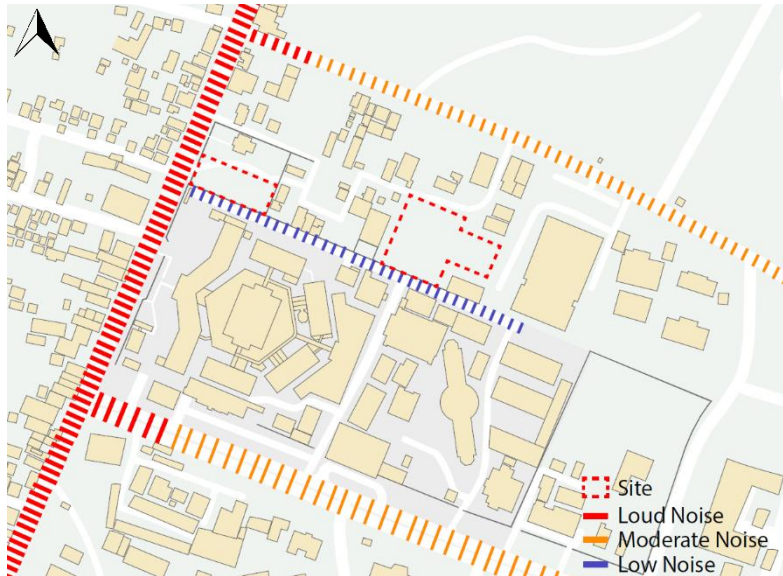


Figure 126. Noise Diagram (Source: drawn by author)

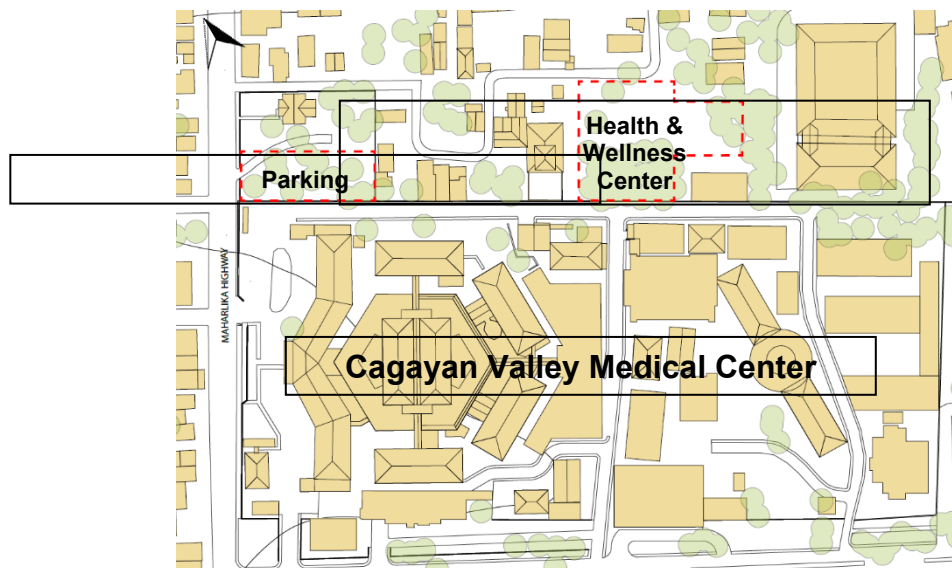


Figure 127. Existing Site Plan with Proposal (Source: drawn by author)

8.3 Design Proposal

The site location, context, and environmental conditions inform the design of the proposed Health and Wellness Center. The site is examined at the regional, urban, and neighborhood scales to understand its role within the city, Tuguegarao and the broader region, Cagayan Valley. Through this analysis, the chapter establishes how social, climatic, and spatial factors shape the project's approach to health care, wellness, and community-based design.

8.3.1 Concept Design



Figure 128. First Floor Plan (Source: drawn by author)

The proposed design is organized as a sequence of layered wellness spaces, gradually transitioning from public community engagement to more private and intimate healing environments. The front of the site welcomes the community through an open porch and accessible entry, with community engagement spaces extending onto the upper floors to strengthen visibility,

accessibility, and public use. Towards the rear, the building is anchored by a central herbal garden that supports the inpatient rooms, which are located at the back of the site to maintain privacy and quiet. An east-facing garden and pavilion further extend the healing environment outdoors, reinforcing a continuous indoor-outdoor relationship throughout the project and supporting a holistic and nature-based approach to recovery and care.

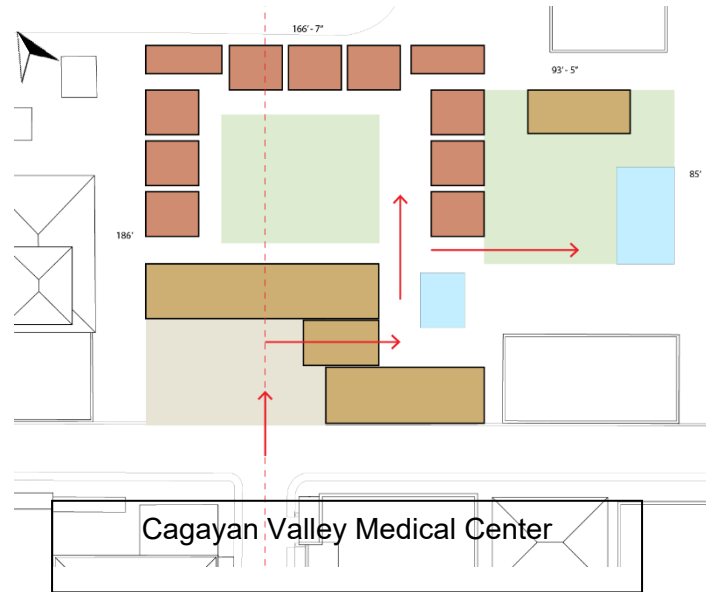


Figure 129. Parti (Source: drawn by author)

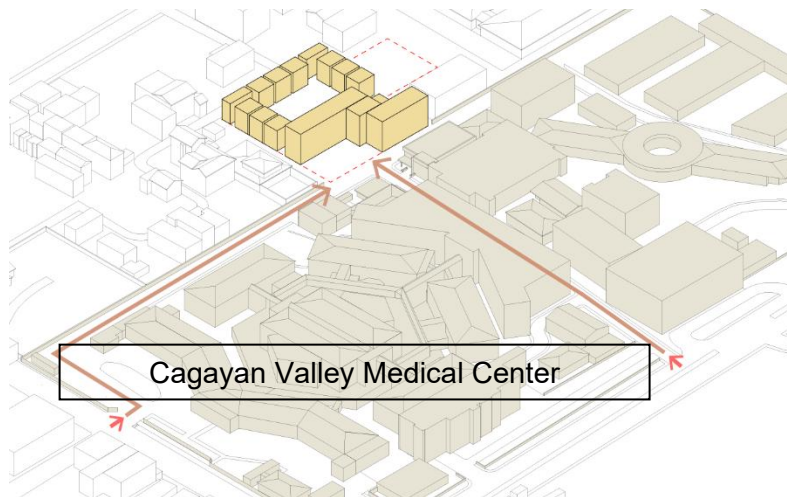


Figure 130. Entry Circulation through the Hospital (Source: drawn by author)



Figure 131. Second Floor Plan (Source: drawn by author)



Figure 132. Third Floor Plan (Source: drawn by author)

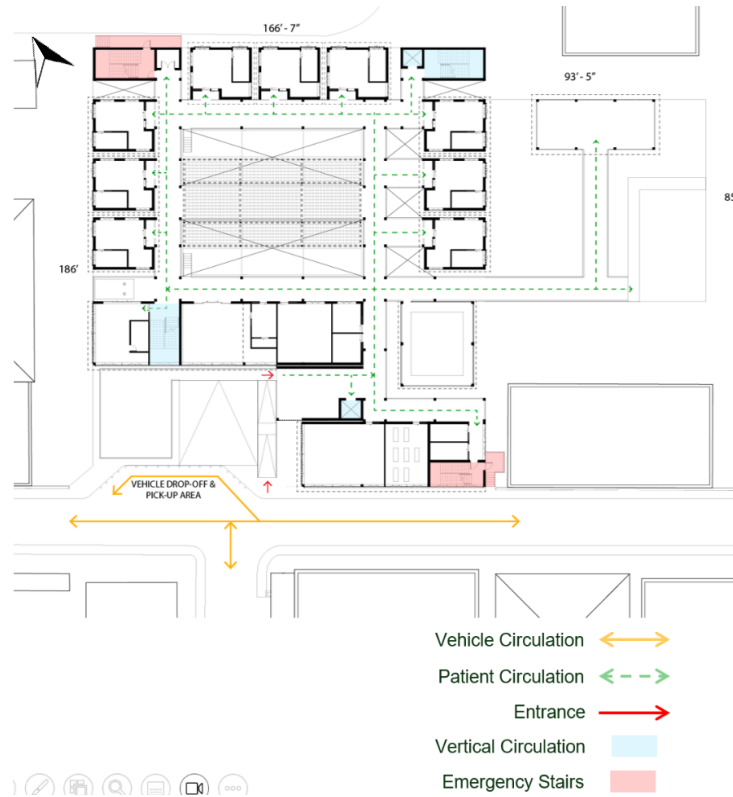


Figure 133. Circulation Diagram (Source: drawn by author)



Figure 134. Public vs. Private Diagram (Source: drawn by author)

8.3.2 Landscape Becomes Activated

The existing site is located outside the hospital grounds, which is currently defined by a boundary wall separating it from the surrounding neighborhood. At present, the site is largely undeveloped and covered with vegetation. The proposed design introduces a selective removal of portions of the boundary wall, allowing the landscape to transform into a functional gathering space that acts as an active public threshold between the hospital and the community. This intervention creates direct visual and physical connections to the hospital while maintaining clear and accessible routes, strengthening permeability, wayfinding, and community integration within the site.

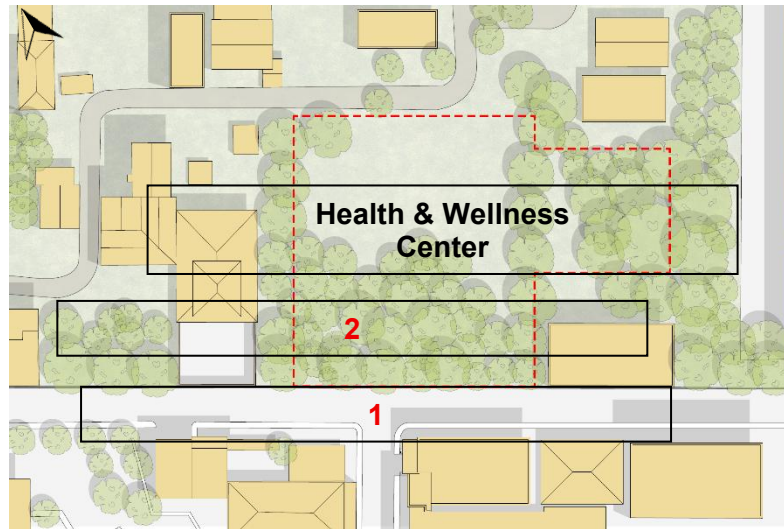


Figure 135. Existing Site Plan with Key for Site Images (Source: drawn by author)



Figure 136. 1 South of Site (Source: captured by Menaseh Sales)



Figure 137. 2 At the Site (Source: captured by Menaseh Sales)



Figure 138. Proposed First Floor Plan with Key for South Façade Perspective
(Source: drawn by author)



Figure 139. 1 South Façade Perspective (Source: created by author)

8.3.3 Journey from the Main Road

The approach to the Health and Wellness Center is organized as a clear and gradual sequence of arrival from one of the main access points off the primary road. As visitors turn the corner and move toward the site, the building slowly reveals itself, establishing intuitive visual cues that guide movement and provide clear wayfinding toward the main entrance.

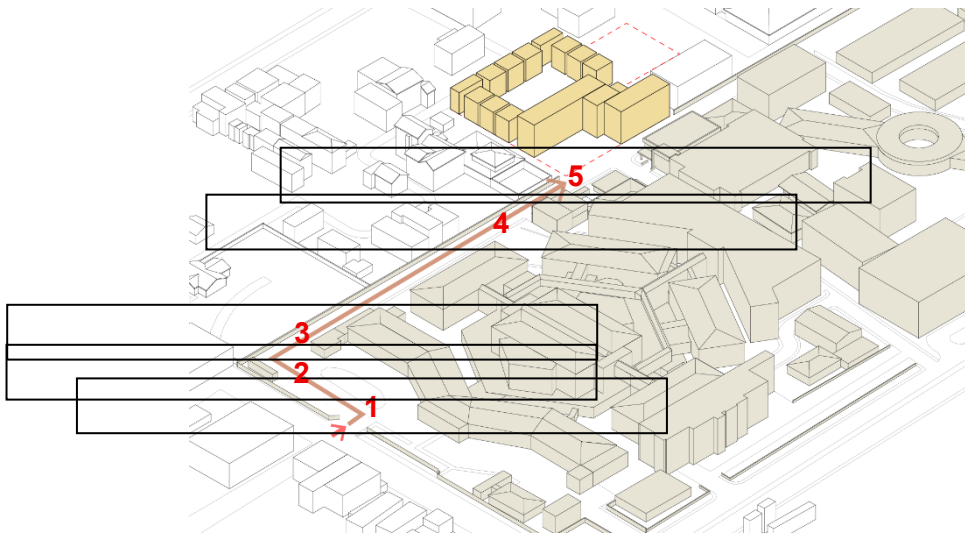


Figure 140. Axon with Key for Journey Perspectives (Source: drawn by author)

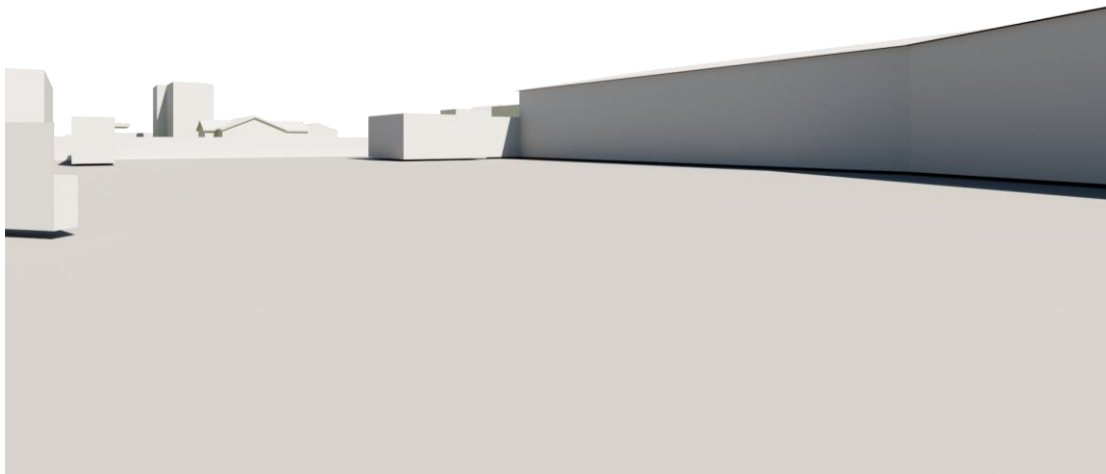


Figure 141. Entering the Hospital Campus (Source: created by author)

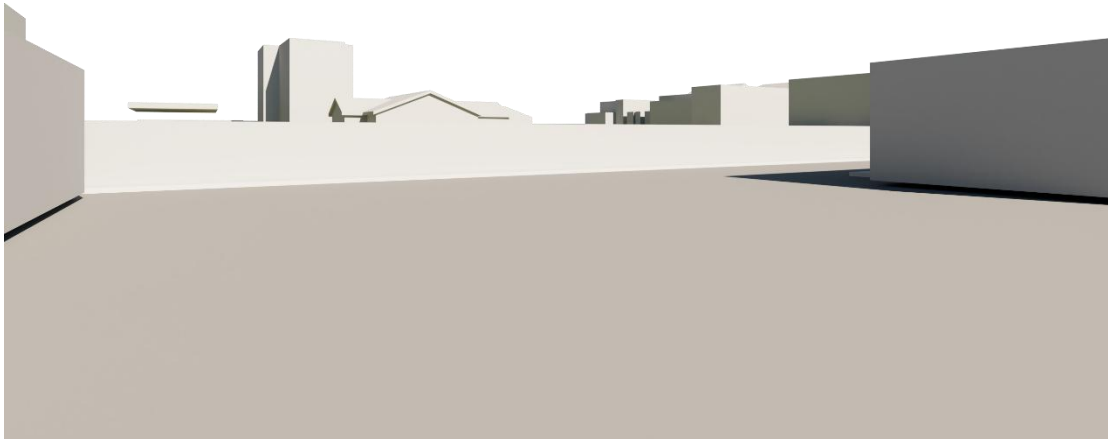


Figure 142. Walking Towards the Boundary Wall (Source: created by author)

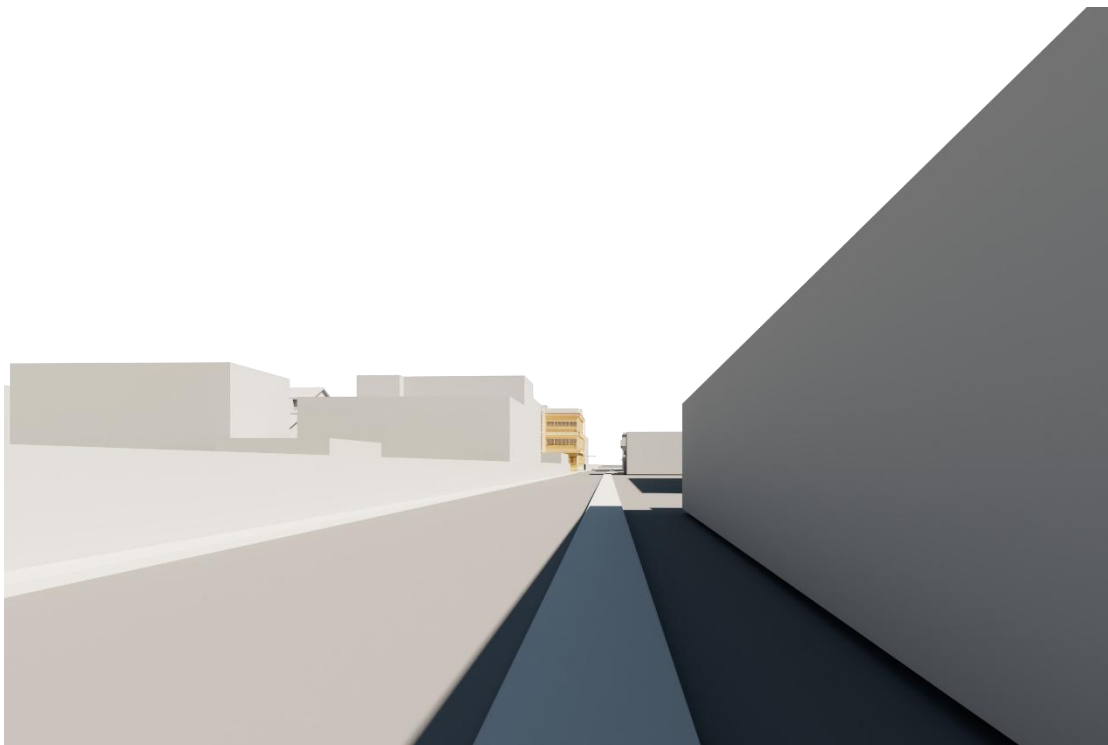


Figure 143. Turning the Corner (Source: created by author)

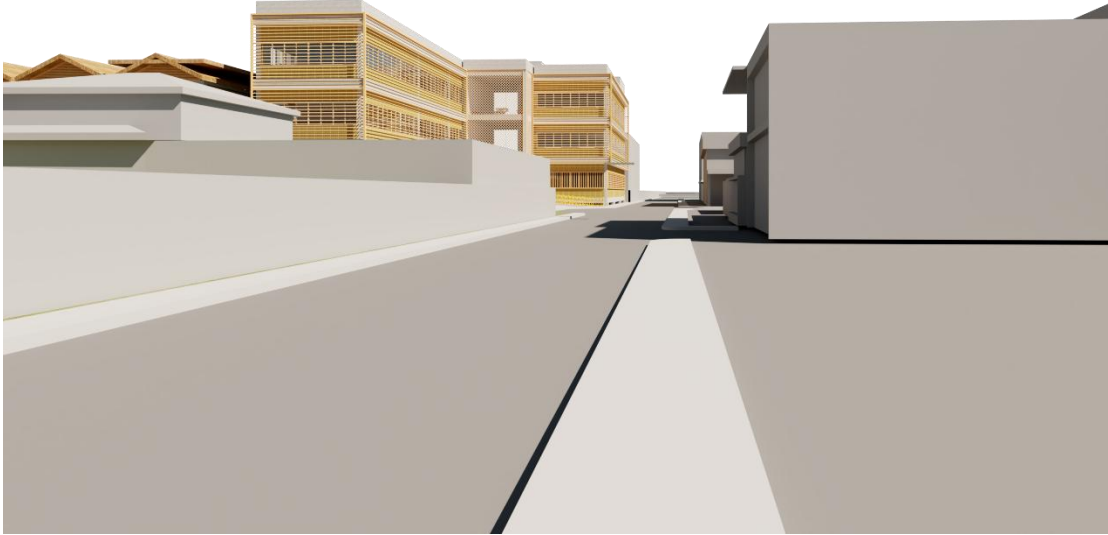


Figure 144. Walking Towards the Destination (Source: created by author)

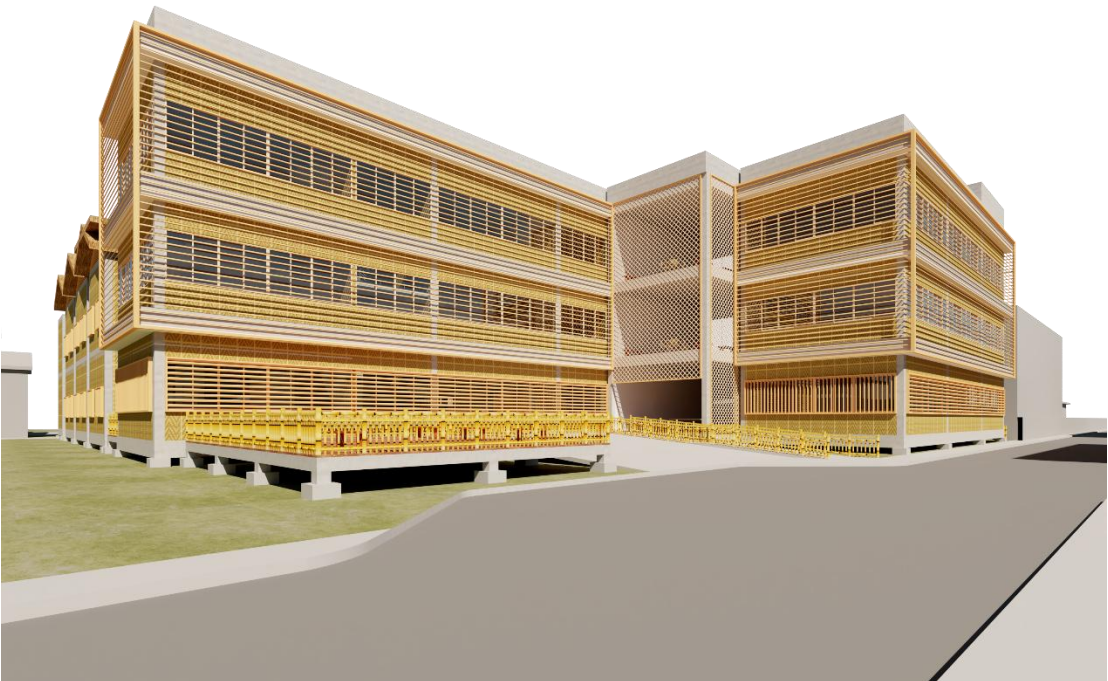


Figure 145. Arrived at the Destination (Source: created by author)

8.3.4 Climate Analysis

The climate of the Philippines is characterized by consistently high temperatures and humidity throughout the year, conditions that strongly influence daily life and the built environment. In Tuguegarao, the monsoon season typically occurs from May to October, bringing heavy rainfall and strong winds that often result in typhoons and flooding. Prevailing wind patterns shift seasonally, with southeasterly winds dominating during the monsoon months and northwesterly winds occurring during the drier season. The presence of the Cagayan River increases flood vulnerability in low-lying areas along its banks. However, while the project site is located away from the river and is therefore less susceptible to regular flooding, extreme weather events and major typhoons remain an important consideration in the site’s environmental and design response.

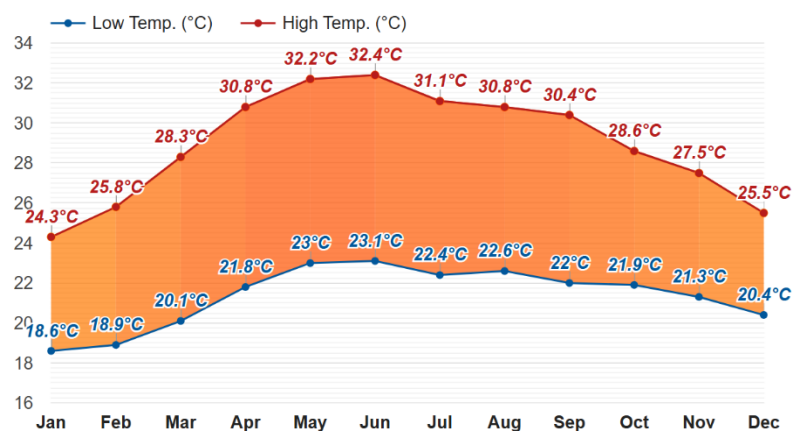


Figure 146. Temperature (Source: Weather Atlas)

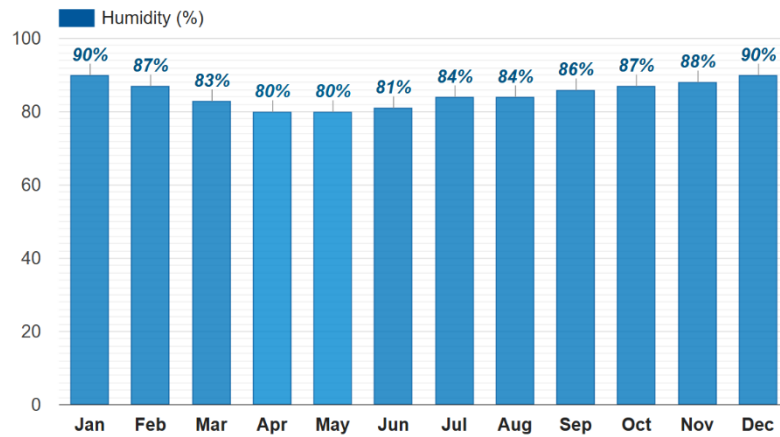


Figure 147. Humidity (Source: Weather Atlas)

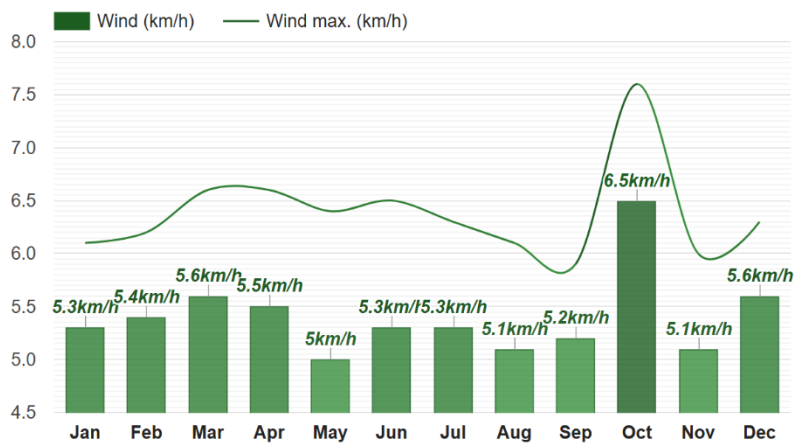


Figure 148. Wind (Source: Weather Atlas)

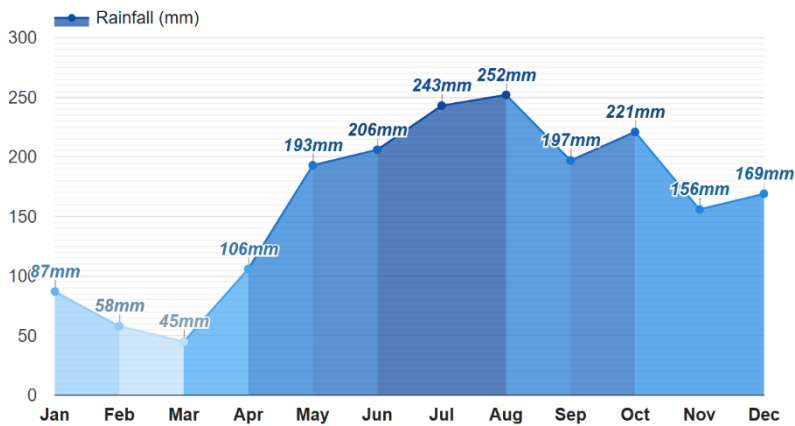


Figure 149. Rainfall (Source: Weather Atlas)

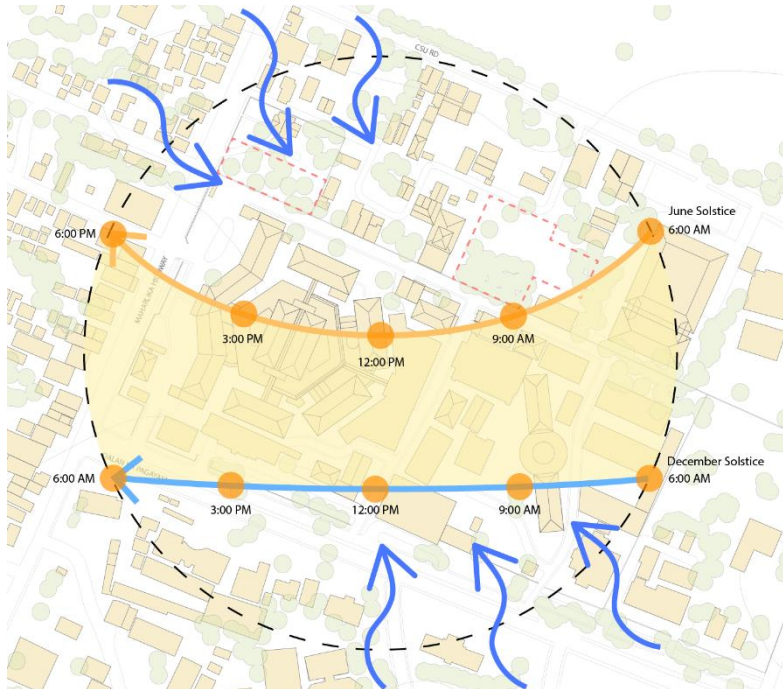


Figure 150. Climate Analysis (Source: drawn by author)

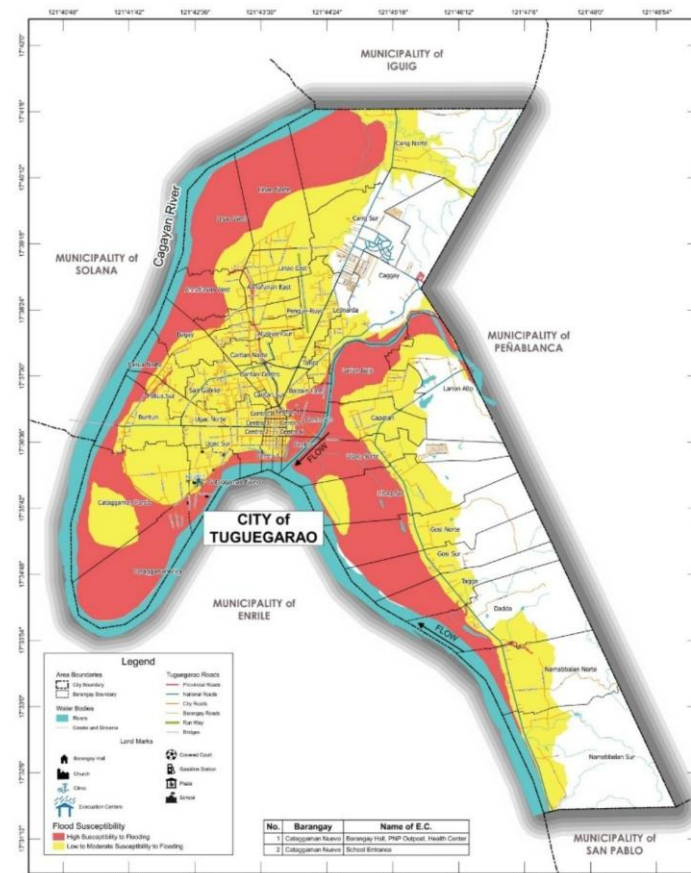


Figure 151. Flood Map in Tuguegarao (Source: Scribd)

8.3.5 Structure Strategy

The structural approach for the project responds directly to the hot and humid climate, as well as environmental risks such as typhoons, flooding, and earthquakes. Reinforced concrete is proposed for the primary structural system, including columns and beams, due to its durability, strength, and widespread use in the Philippines.

Steel framing is used to support the thatched roof, allowing for longer spans and a lighter roof structure that can better resist strong winds during typhoons. In addition, bamboo elements are incorporated where appropriate, as bamboo is a locally available material that can help regulate indoor humidity while reinforcing the project's connection to vernacular construction practices.

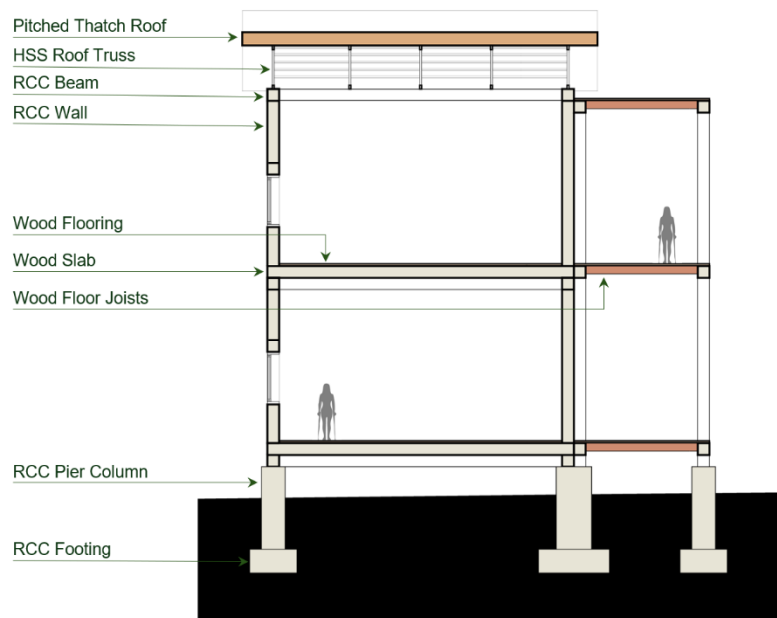


Figure 152. Section of Inpatient Rooms Showing Structure (Source: drawn by author)

Although Tuguegarao City is not located directly on a major active fault line, the region experiences occasionally small to moderate earthquakes. To address this, the project is organized into three separate building masses, divided by expansion seismic joints. This strategy allows each mass to move independently during seismic activity, helping to reduce cracking and structural stress while improving overall building resilience.

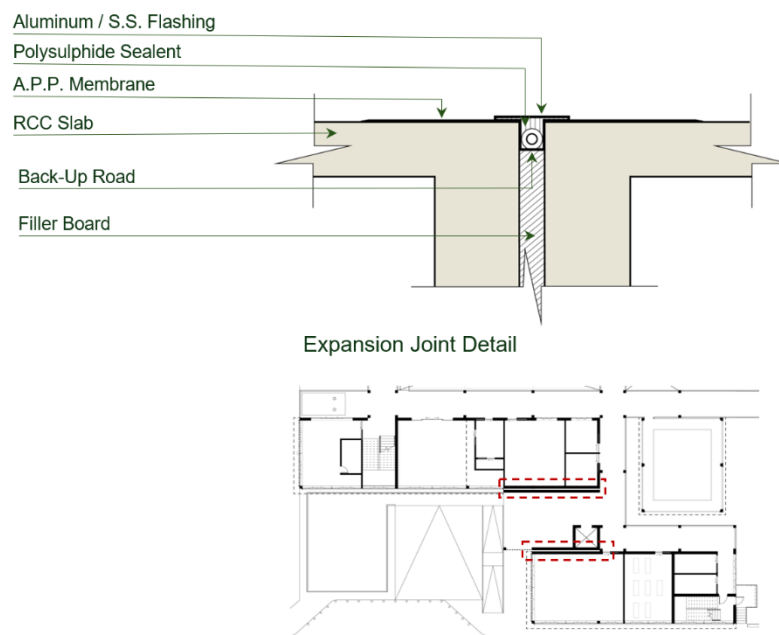


Figure 153. Detail Drawing of Expansion Joints with Location in Plan (Source: drawn by author)

8.3.6 Climate Responsive Elements

The project incorporates a range of climate-responsive design elements to address the hot and humid conditions of Tuguegarao while maintaining thermal comfort. Operable louvers are used throughout the building to function as sun shading, noise buffers, and devices for controlled natural ventilation, allowing occupants to adjust airflow and daylight as needed. Each

room is also equipped with ceiling fans to enhance air movement and improve thermal comfort.

Drawing inspiration from the vernacular architecture *bahay kubo*, the inpatient rooms are designed to support stack ventilation and are covered with pitched thatch roofing, which helps reduce heat gain and efficiently shed rain during the monsoon season. Along the front massing, a double-skin façade integrated with planting provides additional sun shading, filters noise from the street, and creates a cooler microclimate.

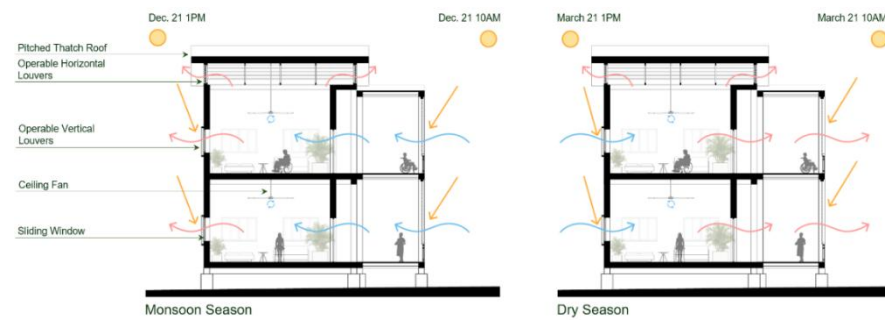


Figure 154. Sections of Inpatient Rooms Showing Climate Responsive Elements (Source: drawn by author)

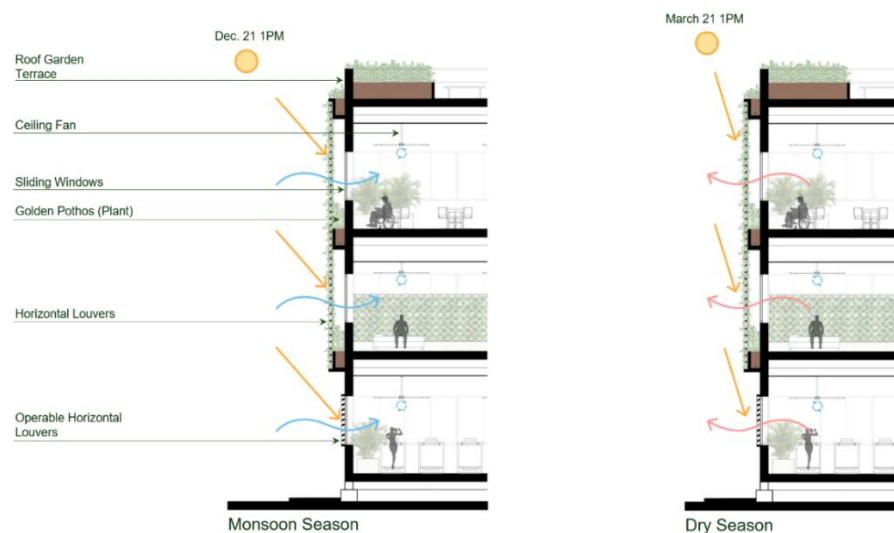


Figure 155. Sections of Community Spaces Showing Climate Responsive Elements (Source: drawn by author)

While passive strategies are prioritized, air conditioning is also provided in each room to ensure comfort during extreme heat and high humidity, allowing the building to balance passive and mechanical systems in response to changing climate conditions.

8.3.7 Building Facade Elements

The building elevations are designed to clearly express the project's passive design strategies, allowing the façade to function as both an environmental and architectural element. *Amakan*, a traditional woven bamboo panel commonly used as wall material in the *bahay kubo*, is incorporated as exterior and interior wall cladding. While historically used in vernacular Filipino



Figure 156. Amakan (Traditional Woven Bamboo) (Source: Razzle Dazzle, captured by Jim Richter)



Figure 157. South Elevation (Source: drawn by author)

housing, *Amakan* is now widely adapted in contemporary architecture, making it suitable for both cultural continuity and modern application.

Two distinct façade approaches are used to respond to the different programmatic needs of the project. The front massing, which engages directly with the hospital and public realm, adopts a more institutional architectural expression that aligns with the surrounding healthcare buildings. In contrast, the inpatient rooms at the rear are designed with a more vernacular language, drawing from traditional Filipino architecture to create a warmer and healing environment. This contrast reinforces the transition from public to private spaces while reflecting the dual nature of the project as both a community facility and a place of recovery.



Figure 158. West Elevation (Source: drawn by author)

8.3.8 Site Topography

The site has a gentle slope of approximately 1.7%, which informs the project's response to both topography and flood risk. To address these conditions, the building is elevated approximately three feet above grade, a strategy inspired

by the *bahay kubo*. Raising the structure helps improve drainage, reduce potential flood impacts, and promote airflow beneath the building, while also reinforcing a climate-responsive and culturally rooted design approach.



Figure 159. Existing Topography (Source: drawn by author)

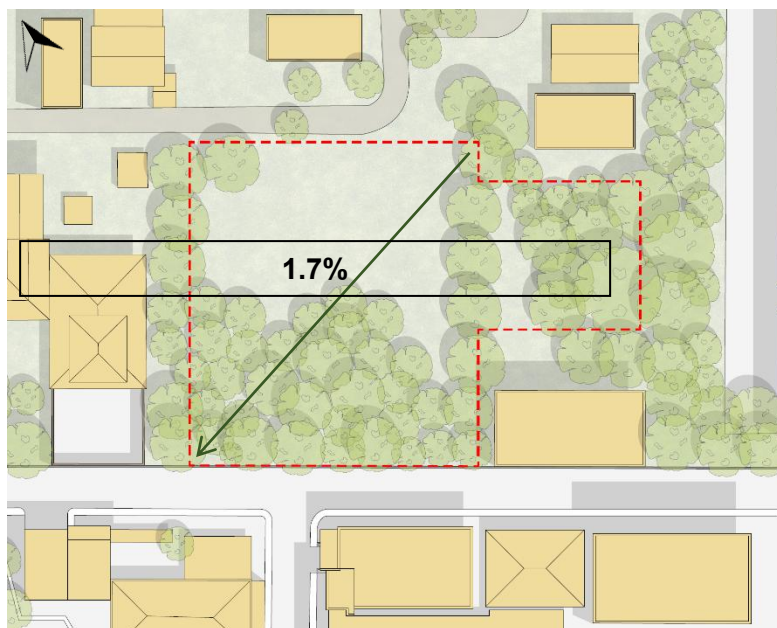


Figure 160. Site Elevation Change (Source: drawn by author)

8.3.9 Rainwater Harvesting System

The project incorporates a rainwater harvesting system to capture and store rainfall for emergency use, particularly during typhoons and flooding events. Collected rainwater can also be reused for non-potable building needs, such as toilet flushing, cleaning, and landscape irrigation, reducing reliance on municipal water and supporting a more resilient and sustainable building system.

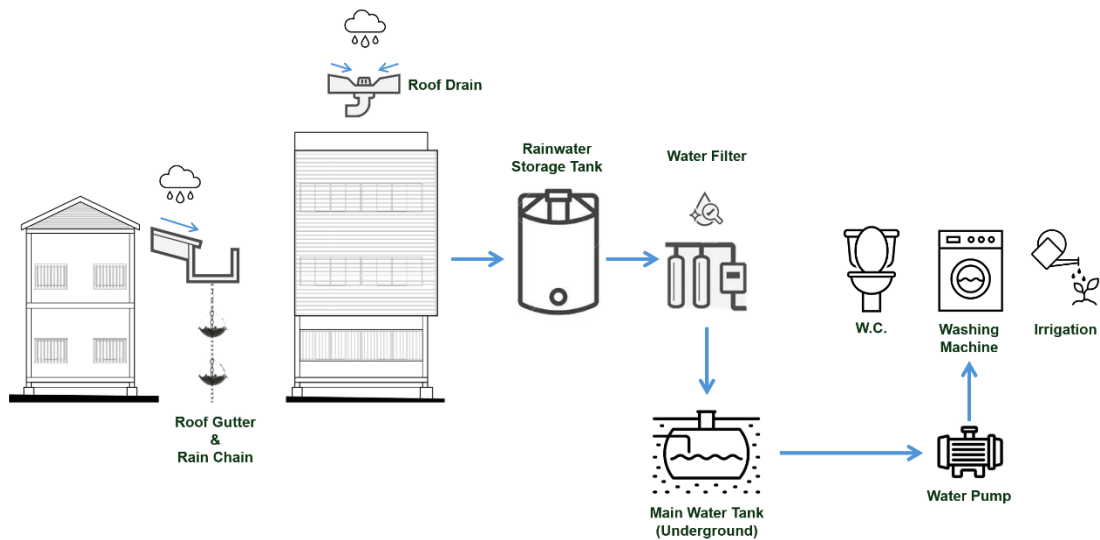


Figure 161. Rainwater Harvesting System (Source: created by author)

8.3.10 Integration of Biophilia and Holistic Medicine

The project integrates biophilic design principles with holistic approaches to health through the inclusion of an herbal garden that supports preventive health care and everyday wellness. The garden is informed by research on traditional Filipino medicinal herbs, which are commonly used to help treat or manage some of the most prevalent diseases in the region. By incorporating these plants into the design, the project reconnects healthcare with cultural

knowledge and everyday healing practices, while promoting education, prevention, and community engagement.

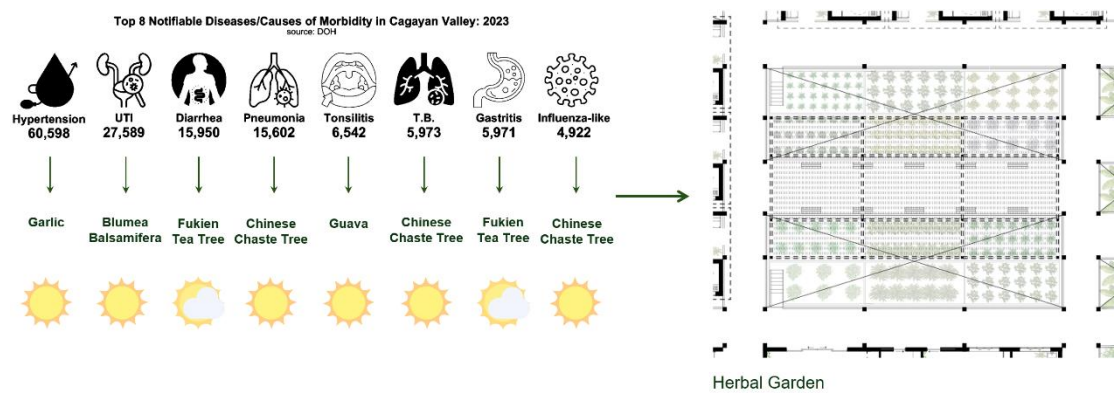


Figure 162. Herbal Garden Plant Species (Source: Philippines Statistics Authority, plan drawn by author)

8.3.11 Perspectives of Spaces



Figure 163. Perspective of Herbal Garden: Healing Through Biophilia (Source: created by author)



Figure 164. Perspective of Herbal Apothecary: Healing Through Biophilia (Source: created by author)



Figure 165. Perspective of Massage Therapy: Healing Through Biophilia & Holistic Medicine (Source: created by author)



Figure 166. Perspective of Indoor Gym: Healing Through Physical Activity (Source: created by author)



Figure 167. Perspective of Therapy Pool: Healing Through Physical Activity (created by author)



Figure 168. Perspective of Cooking Workshop: Community-Centered Learning (Source: created by author)

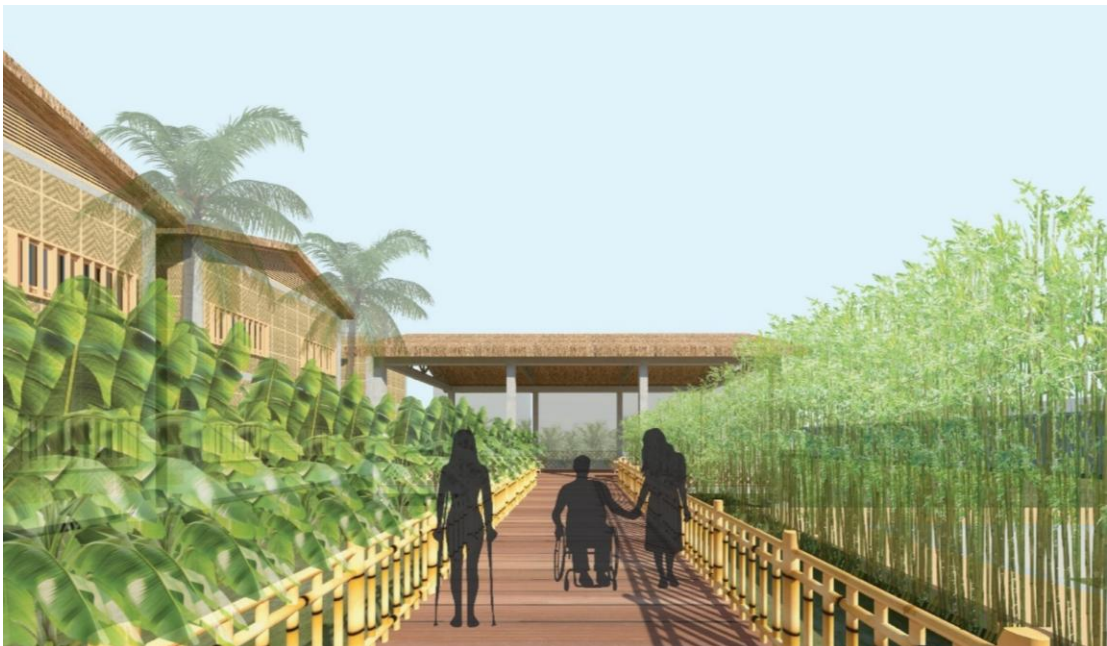


Figure 169. Perspective of Pavilion: Community-Centered Healing (Source: created by author)



Figure 170. Perspective of Inpatient Room: Quiet Rest & Recovery (Source: created by author)

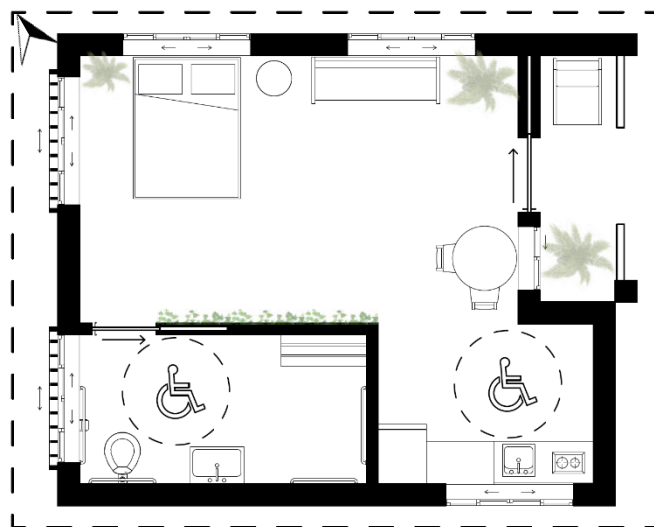


Figure 171. Typical Inpatient Plan (Source: drawn by author)

8.4 Conclusion

This chapter establishes the regional, urban, and environmental context of the site as the foundation for the proposed Health and Wellness Center. Located in Tuguegarao, a key regional hub that serves surrounding rural communities, the site reflects both the importance of centralized healthcare and the limitations of the existing system in Northern Luzon. While Tuguegarao functions as a primary center for medical services, healthcare in the city remains largely institutional and lacks spaces that support recovery, prevention, and nature-based healing.

The site's location next to the Cagayan Valley Medical Center places the project within an existing healthcare zone, allowing it to complement formal medical treatment through transitional care, preventive programs, and community-oriented wellness spaces. At the neighborhood scale, the demographic conditions of Carig further highlight the need for accessible and locally grounded health facilities that support everyday well-being.

Local environmental conditions, such as extreme heat, monsoon rainfall, and flood risk, directly inform the project's climate-responsive strategies, structural approach, and elevated building design. Drawing from vernacular Filipino architecture and biophilic design principles, the proposal integrates passive cooling, natural ventilation, activated landscapes, and culturally familiar materials to create a healing environment that responds to both climate and place.

Overall, the site's physical, social, and environmental characteristics present a strong opportunity to explore an alternative model of health care architecture, which is one

that bridges institutional medicine and community-based wellness, and demonstrates how small-scale, climate-responsive, and culturally rooted design can contribute to more resilient and accessible health care systems in regional and rural Philippine contexts.

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