VA

U.S. Department of Veterans Affairs

Office of Construction & Facilities Management

Healing Environment design guidelines

September 2016

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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Executive Summary

Figure 0.1: American Legion Post 11 Honor Guard at ceremony honoring Veterans at Lambeau Field. Green Bay, Wisconsin.

A New Care Model

The mission of the Veterans Health Administration (VHA) is to honor America's Veterans by providing progressive healthcare that improves their health and well-being. One of the critical challenges faced by the VHA is transforming a medical model that focuses on treating only the illness into a model that focuses on the patient's comprehensive set of health-related needs. The Institute of Medicine (IOM) supports this paradigm with a position relative to the healthcare industry that is holistic rather than "reactive, episodic, inefficient and impersonal."

The new Patient Centered Care Model developed and implemented by the VHA Office of Patient Centered Care & Cultural Transformation (OPCC&CT) employs a personalized strategy that more fully addresses the health and well-being of Veterans. The model takes a broad look at the physical, emotional, mental, social, spiritual, and environmental factors that impact a Veteran's health. This approach involves understanding how the environment influences health, and how environments should be designed to best support positive health outcomes.

Figure 0.2: Grant Wood's memorial window within memorial room. Building re-opening ceremony. Veterans Memorial Building, Cedar Rapids, Iowa.

"The atmosphere of VA medical centers plays a crucial role in helping suffering Veterans overcome their stoicism and seek help. What Veterans require is an environment that clearly communicates, *This is a healing place. This is a place that welcomes Veterans, honors your service, and understands your needs. We will do everything possible to ensure you feel safe, comfortable, and relaxed as we help you heal.*

If an aging facility is not welcoming—even beckoning--in aspect, if it fails to provide for the changing needs—physical and non-physical—of Veterans, if it neglects the needs of visiting family members or the staff that serve within it, then the facility sadly contradicts the critically important mission of the VA. Many who need it will not go there, and many who go there will not feel comfortable enough to return.

The environment does not heal. The environment makes healing possible."

—Mary Edwards Wertsch,
author of Military Brats: Legacies of Childhood inside the Fortress

A Need For Healing

When trauma occurs, those most affected frequently experience suffering that continues long after the traumatic event has passed. These individuals have experienced more than stress—they've been wounded. A wound is a persistent loss of a person's ability to function as they normally would. If not successfully treated, a wound can persist for a lifetime. When people are mentally or emotionally wounded, they may say they do not feel like themselves, do not feel "whole," or that something in them has been lost. When a wound is invisible, the person affected may not be able to identify it or articulate why it is happening.

A Place For Healing

A VA Healing Environment is a facility whose carefully coordinated architectural features are designed and maintained to facilitate the healing process of wounded Veterans. Healing is a comprehensive repair effort that requires every available resource of body, mind and spirit. This repair effort is much more than just rest and relaxation, or stress management. The healing process often involves gradual functional improvement through a combination of ongoing professional treatment, community support, and suitable environment.

The short-term impact of a Healing Environment may not be as dramatic as the impact of a helpful therapy session or a positive social interaction, but Healing Environments are uniquely important to a Veteran's healing process. They provide structure and consistency - they are there twenty-four hours a day, seven days a week. In addition, Veterans have the ability to personalize their environments, and to choose their experiences from among an array of healing options.

Purpose

The purpose of the VA Healing Environment Design Guidelines is to establish a holistic Healing Environment framework. The guidelines describe ways to plan and design the key public elements of a healthcare facility to deliver safe, effective, and efficient healthcare to Veterans. The VA Healing Environment Design Guidelines are to be utilized by VA facility managers, architects, interior designers, planners, clinicians, and architecture/engineering (A/E) consultants.

Providing appropriately planned and designed facilities is critical for the mission of the Department of Veterans Affairs (VA) and the Office of Construction and Facilities Management (CFM). VA planning and design standards, located in the CFM Technical Information Library (TIL), provide guidance for the design professionals and VA personnel tasked with planning and designing VA facilities. These standards follow, respond to, and support VA/VHA directives, policies and procedures published by VA and VHA Program Offices.

Healing Environment Design Guidelines Team

The core team responsible for the guidelines is composed of representatives from CFM, professionals in the fields of architecture, medical planning and engineering, and researchers with experience

implementing Healing Environments within the VA and civilian communities.

Subject Matter Experts
The formulation of a Subject Matter Expert (SME) group was key to the development of the Healing Environment Design Guidelines. The Subject Matter Experts have a diversity of skills and life experiences that contribute important content, insights, and knowledge. The SME group includes: Veterans, mental health experts, medical researchers, architects, medical doctors, engineers, members of a community Veterans' center, Veteran peer mentors, educators, an artist, family counselor, healthcare administrator, an executive director of a community based Veteran center, a writer, and various VA personnel. The inclusion of Veteran Subject Matter Experts insures that the voices of Veterans contribute to the creation of the Healing Environment Design Guidelines. Focus groups and conference calls have allowed Veteran SMEs across the country to participate.

Figure 0.3: Historic image of the entry gate at the Milwaukee Soldiers Home, Milwaukee, Wisconsin.

Guideline Organization
The Healing Environment Design Guidelines are organized into five main chapters, each of which is intended to contribute to the reader's understanding of Healing Environments and the impact they will have in shaping future VA health care settings.

Figure 0.4: Veteran Job Fair at the Veterans Memorial Building in Cedar Rapids, Iowa.

1.0 Introduction
Chapter 1.0 defines the term "Healing Environment."

2.0 The Healing Needs of Veterans
Chapter 2.0 contextualizes the specific healing needs of Veterans, and surveys changing demographic information for U.S. servicemembers from WW II to Operation Enduring Freedom/Operation Iraqi Freedom/ Operation New Dawn (OEF/OIF/OND).

3.0 Healing Environment Design Principles
Chapter 3.0 outlines the key design principles affecting future VA construction projects, and provides evidence supporting the inclusion of each design principle. These principles aim to inspire high quality designs that meet the needs of patients, staff, and visitors in VA facilities, and that promote the VA's new patient-centered mission. Designers, staff, and all those involved in the design of VA Healing Environments will be able to reference these principles.

Figure 0.5: View of moveable exterior partitions and interior courtyard. VA Southern Nevada Healthcare System. North Las Vegas, Nevada.

4.0 Applying Design Principles to Space Typologies at a VA Facility
Chapter 4.0 examines how the design principles in Chapter 3.0 may be implemented through architectural and engineering solutions. The chapter is broken down into space typologies that make up a VA healing facility. Special consideration is given to the nature of a Veteran's healing journey from beginning to end.

Chosen examples highlight the spatial concepts, characteristics, relationships, and other design features that contribute to a Healing Environment. These examples compare space typologies through the use of diagrams, images, and supportive text.

Figure 0.6: Sweat lodges were utilized by particular American Indian tribes for healing of trauma of warriors after a military engagement. Sweat lodge facilitated by Michael Toahty, U.S. Army Veteran and member of the Southern Arapaho Tribe. Crescent City, Indiana.

5.0 Informing the Present and Shaping the Future: Gathering Evidence of Healing Impact

These guidelines introduce a framework for measuring the effects of Healing Environments. These measurements enable the healing effectiveness of VA facilities to be estimated. Correlation between healing outcomes at each facility and the built features of the facility will also help facility designers and managers understand how to improve Healing Environments.

Appendices

Appendix A provides resources for VA architectural standards and criteria. Appendix B is a narrative by Dr. James Munroe who founded the Veterans Improvement Program at the Boston VA. VA mental health providers brought Vietnam Veterans for up to three days to the Vietnam Veterans Memorial Wall in Washington, D.C. for mental health therapy and the resolution of loss. Appendix C is a case study of an adaptive re-use Veterans Memorial Building project in Cedar Rapids, Iowa. Appendix D examines the history of Healing Environments and analyzes five precedents ranging from the 5th century BCE Greek healing cities, Japanese tea gardens, Native American sweat lodges, to the post-Civil War Grand Army of the Republic Halls. Appendix E presents a case study of the conference/multipurpose room of a Veteran-serving facility, the Veterans Memorial Building in Cedar Rapids, Iowa.

Please note: The following chapters incorporate a significant number of relevant photographs and diagrams to aid VA facility personnel, design consultants, and clinicians with Healing Environment design decisions. However, many of the photographs have design attributes not directly related to Healing Environment design. Specific design elements are linked to bullet points listing the attributes served by them. The diagrams are generic and will need to be modified according to occupancy requirements, building codes, and location availability. However, it is important to be attentive to the critical adjacencies that accompany a proposed building component.

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1.0 Introduction: What Is A Healing Environment?

Figure 1.1: A view of the atrium from the second floor shows use of natural light and exterior views, a variety of seating options including family alcoves, attractive use of plants, and pleasing use of natural forms and materials. A "society of rooms" is created by means of a corridor connecting communal spaces, including cafeteria, chapel, bookstore, and main reception lobby. Lurie Children's Hospital, Chicago, Illinois.

"Every space must have its own definition for what it does, from that will grow the exterior, the interior, the feeling of spaces, the feeling of arrival. All these things indicate themselves once we think of them as being a realm of spaces—a hierarchy of spaces—and not just a feeling."

—Louis Kahn
Architect

A Healing Environment

The word "healing" is derived from the Anglo-Saxon word *haelen,* which means to "make whole, sound, and well." Healing is a comprehensive repair effort that requires the unification of the body, mind, and spirit. The healing process often involves gradual functional improvement that happens with a combination of ongoing professional treatment, community support, and therapeutic environments. The healing journey of a Veteran involves a regimen of therapies and human interactions. It is a collaborative effort between Veteran and Veteran, Veteran and family, Veteran and healthcare providers, Veteran and surrounding community. Healing does not occur in isolation; it is realized in a supportive community.

The common thread of this shared Veteran healing journey is the restoration of wholeness and well-being to a Veteran as an individual, family member, and active participant of society. A Healing Environment (HE) should encompass the whole facility, with each room and adjacent exterior component contributing to a different aspect of a Veteran's healing. These rooms and exterior components comprise a Healing Ecosystem. In such a Healing Ecosystem, Veterans challenged by serious health conditions may achieve a more satisfying outlook with regard to their own potential and their interactions with others. A Healing Environment promotes a Healing Ecosystem by providing differentiated spaces with strong interrelationships that

support a changing variety of healing activities. It also provides a menu of settings and potential healing modalities, to empower the healing Veteran through the exercise of choice. For a VA Facility to be a Healing Environment it must be an integrated system of healing activities supported by rooms with strong inter-relationships forming a "society of rooms" rather then isolated healing events scattered throughout the facility. Louis Kahn spoke about a society of rooms:

> *So sensitive is a room. The plan is a society of rooms. The rooms related to each other to strengthen their own unique nature.*

Spatial adjacencies with flexible attributes such as moveable interior/exterior partitions will enhance a Veteran's healing experience, addressing not just the wound or ailment, but the whole Veteran–mind, body, and spirit. A Healing Environment's "society of rooms" invites collaborative interaction of all the stakeholders: Veterans from different eras, families, healthcare providers, and visitors from the outside community. It also supports a mutually enriching mix of mainstream and complementary healing modalities. In these ways, a VA Healing Environment makes it possible for Veterans treated within it to be empowered and supported in their healing.

"In a civilian hospital, the common denominator is that everyone is sick or in need of medical attention. Though that remains the same at VA medical centers, all clients are united by something entirely different—the shared experience of military service. [....] By taking advantage of this shared experience, the VA has an opportunity to make their hospitals not just places for treatment, but places for healing."

—Jacques-René Hébert
OIF Veteran

The Uniqueness of Healing for Veterans

In the period after deployment and service, the relationship between the Veteran and his or her family, friends, and society changes profoundly.

The health issues faced by Veterans are different from those of the general civilian population. Many of those who have served in the military have been exposed to dangerous and life-threatening events while engaged in everyday duties. Those who have served in direct combat and support roles have experienced loss of comrades, wounds of the body, mind, and spirit, and other life-altering traumas.

It is the unique responsibility of the VA to treat all wounds after military service—physical, mental, and emotional. Because a person's emotions are often at the center of their suffering, emotions must be addressed in order for healing to take place. Unlike civilian healing settings, VA healing settings must take into account the fact that Veterans are wounded within the context of service to their country. The consequences of the losses these warriors sustain impact their healing journeys for the rest of their lives.

"A check around the premises revealed that there had been recent activity there. The tanks were engaging sporadic targets in the scrap yard. Deuce watched in amazement from a crouched position as an insurgent ran across the open area between two cars. The COAX machine guns from the MI were relentless at eliminating short-range moving targets, riddling the car's cheap metal with holes. The guns literally chopped him into pieces with the merciless barrage of fire. It was bloody, gruesome, and raw, as pieces of his screaming flesh were splattered over the ground. Deuce had been recently reincarnated from his boyhood insecurities since the night before. A young, small town kid, he grew up to be a man, overnight. No longer unsure and naive, his eyes would lay testament to his own rebirth."

—Nick Misiano,
OIF Veteran
from *Lava Dawgs: A Fight For Fallujah*

The Commemorative Component of Healing

Memorials and rituals that honor military service can contribute to Veteran healing. Boston VA psychologist James Munroe has used the Vietnam Veterans Memorial (U.S. National Parks Service) as a therapeutic tool for the resolution of Vietnam Veterans' emotional losses. Below is an excerpt from Dr. Munroe's description of an annual visit to the Vietnam Veteran Memorial Wall in Washington, D.C., which is described in full in Appendix B. Munroe writes:

"Continue to encourage the Veteran that asking for help is not a sign of weakness but a sign of strength. When we try to do things by ourselves it is usually a dismal failure. It's comparable to chemical dependency because before we can actually get help, we have to actually get help, we have to admit we have a problem to ourselves, another human being, and a higher power, then and only then can we begin to heal."

—Michael Toahty
"Singing Man"
Vietnam Veteran and member of the Southern Arapaho Tribe

Figure 1.2: Protective structures provide shelter during inclement weather. Alfred Caldwell Lily Pool. Chicago, Illinois.

Figure 1.3: An environment that promotes informal areas for seating and intimate conversations. Alfred Caldwell Lily Pool. Chicago, Illinois.

The Wall is a dedicated space that is clearly for the purpose of addressing grieving and loss. The names are all there as a reminder of the losses. While the Wall exhibits the enormity of loss from the Vietnam War, it also emphasizes the personal losses of the Veterans who visit there. They can see and touch the names of those they knew who died. People who visit know this is a place of mourning [....] There is a sense of this place being sacred. People do not picnic here and they do not pass by without the weight of the Wall touching them. They are respectful of others who are visiting because they know what is being dealt with.

The personal resources of Veterans are different from those of many civilians. Powerful Veteran attributes that can be utilized in a VA setting are the camaraderie formed among Veterans, and their trained ability to work as a team. A military unit's success depends on leadership, interpersonal relationships, and unit cohesion. This trust and interdependence creates a community capable of overcoming dire situations.

Healing care requires frequent visits to a VA facility. Peer support has been shown to help ensure successful Veteran participation in healing programs. In current VA settings, Veterans spend considerable additional time at VA facilities for the sole purpose of interacting with other Veterans. Alienation and self-imposed isolation are major issues affecting the health and well-being of Veterans; a successful VA facility must help reconnect Veterans to one another and to the community.

How Healing Environments Promote a Healing Ecosystem

Successful Healing Environments depend on factors that are not only logistical and architectural, but environmental and cultural. A physical structure must interface with its immediate surroundings in order to serve the community for which it is built. Building systems (structural, mechanical, plumbing, electrical, etc.) may limit an architect. He or she must also contend with finishes, spatial adjacencies and aesthetic design in order to ensure the functionality of a structure. Despite these limitations, a HE facility must be in harmony with its environmental and cultural context in order to be truly successful.

A viable Healing Ecosystem depends upon offering Veterans healing activities that are systematically integrated, rather than a succession of healing events in spaces with no relationship to one another. Spatial adjacencies that create a society of rooms will enhance a Veteran's healing experience, addressing not just the ailment but the whole Veteran: the mind, body and spirit. A comprehensive Healing Environment facilitates collaboration among Veterans, family, healthcare providers, staff, and community. A Healing Environment supports a Healing Ecosystem with the following critical elements:

Interdependence: Healing Environments support the interdependence of Veterans, healthcare providers, staff, family, friends, and community. Healing Environments promote these collaborative processes within communal healing spaces such as therapeutic gardens, ritual spaces, commemorative spaces, and spiritual spaces.

Sustainability: The long-term sustainability of a Healing Environment requires long-term planning and involvement by all stakeholders. The involvement of Veterans, Veteran families, healthcare providers, and staff in the planning process will ensure that Healing Environments are utilized as they were envisioned to be utilized.

Sensitivity to Natural Cycles: A Veteran's health may change in accordance with aging, the phase of the affliction, the season, or even the weather on any given day. A Healing Environment must be flexible. It must be adaptable to a Veteran's needs, even when those needs shift on a daily basis. A Healing Environment is responsive to those changing needs through planned, strategic adjacencies of spaces that can be enlarged or diminished in size, as well as altered in ambience, through moveable partitions and variable lighting.

Partnerships: Healing never occurs in isolation—it can only occur in community. Partnerships for healing are fostered in Healing Environments with design characteristics that are conducive to relationship building.

Diversity: The variety of spatial components within a Healing Environment allows Veterans, healthcare providers, and Veterans' families to formulate healing regimens that are adaptive to the changing needs of long-term healing. These diverse healing spaces must be contiguous in order to make clear the integrated nature of healing activities.

There is also diversity in the array of participants in this collaborative process: the family members and friends of Veterans, as well as the surrounding community. A Healing Environment welcomes their participation through providing spaces that anticipate their needs.

Figure 1.4: Natural ecosystems adapt to changes in weather and season. A Healing Environment similarly offers adaptability and options based on weather, seasons, and cyclical change. Alfred Caldwell Lily Pool. Chicago, Illinois.

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2.0 The Healing Needs of Veterans

Figure 2.1: Commemoration of 31 Marines perishing in a helio crash, Second Battle of Fallujah, Operation Iraqi Freedom.

Today's Veterans

While there are strong similarities among Veterans no matter when or where their military service occurred, there are also important differences. Any healthcare facility devoted to Veterans must take these similarities and differences into account. The U.S. military is an organic community that changes and evolves over time, while staying true to its core values. Designers of VA facilities should be informed and up-to-date concerning the changing needs and demographics of the Veteran community. VA facilities must be thoughtfully designed to meet the needs of current Veterans and to provide flexibility in the use of space as needs change in the future.

In this section we will highlight the similarities and differences among current Veteran populations eligible for VA services.

Changing Characteristics of the Military Population

There are about 22 million Veterans living in the United States. Of those, 9 million are enrolled in the VA health care system. A Veteran is anyone who has performed military service, regardless of whether he or she served in a combat zone. While Veterans from all periods share similar values, a Veteran from 1945 is not the same as a Veteran from 1970, 1991, or 2005. Conflicts, conditions, and societal changes produce different effects on Veterans who serve at different times. The chart on page 12 highlights differences among three lengthy periods of conflict and how military personnel were affected. The changes in the Veteran population affect the services provided by the VA. VA facilities must be designed for adaptability to changing needs and services.

"Something that many Veterans struggle with is an overwhelming amount of guilt. I certainly felt that way when I learned of my picture being selected for the Marine Corps museum. My father was proud but I was ashamed. How could my picture be glorified on a wall for so many people to see when there was nothing there to honor the 31 Marines from our helio crash. Four of those Marines' wives were pregnant. That means there are four nine year-olds out there who have never met their fathers. There is a unique opportunity to honor those Marines or to dedicate a segment to children who will grow up without their fathers. Just an idea, but sure would be special to think of those children and their fathers." **(Figure 2.1)**

—Colby Williamson, OIF Veteran

Comparison of 3 Major Conflicts

	WORLD WAR II AND KOREAN WAR 1939 -1945, 1950-1953	VIETNAM CONFLICT 1964-1975	POST-9/11: AFGHANISTAN, IRAQ 2001-ONGOING
DRAFTEES	Yes. In WW II, 61% of military personnel were draftees.	Yes. One quarter of those stationed in-country were draftees.	No draftees. Combat zone personnel equally divided between AVF and Reserve/National Guard.
NUMBERS	12.2 million in combat zones in WW II (16 million overall) 1.78 million in Korea (5.7 million overall)	2.7 million in combat zone (8.7 overall)	2.4 million, Iraq and Afghanistan.
RACE	Majority white. African-Americans in separate units (integration, ordered in 1948, not completed until 1954). WWII: About 1 million African-Americans. Hispanics were not tallied as such; estimates run from .2 to .5 million. .03 million Japanese-Americans. Korea: About 180,000 black. 148,000 Hispanics. 5,000 Japanese-Americans	All races. African-Americans accounted for 10.6% of military personnel, suffered 12.5% of deaths.	All races.
GENDER	Majority male. Women (total of 360,000 in WW II) in non-combat roles.	Of the 2.7 million in the combat zone, 7,400 were women in support roles.	Operation Desert Shield/Desert Storm: 92% male, 8% female. Note: The presence of women in the military is increasing. In Dec. 2015, DoD opened all combat roles to women.
MARRIED/UNMARRIED	Not known.	Not known. More than 17,000 of the 58,000 who died in Vietnam were married.	Majority married. About 7% of service members are in dual- career service marriages.
WITH CHILDREN UNDER 18	Not known.	Not known.	A majority of the married have children. Many families are large, with 4 or 5 kids, because of remarriage and stepchildren. About 7% of parents are single.
NUMBER AND LENGTH OF COMBAT TOURS PER VETERAN	Varied; one year to 33 months to indefinite. For pilots, sometimes measured in number of sorties or hours.	Usually a single tour of one year.	Six to 18 mos, with typical Army tour of 12 to 15 mos. But Iraq and Afghanistan have been characterized by repeated tours in the combat zone. An estimated 14,000 Veterans have spent the equivalent of 4 years in combat.
SIGNATURE WOUNDS FROM THE COMBAT ZONE	Both WW II and Korea: PTSD (Post-Traumatic Stress Disorder) not yet recognized or tracked, although shell-shock, combat stress reaction, combat fatigue, and other terms were applied. World War II: Petroleum burns Korean War: frost bite, nerve damage In WW II, 70% of those wounded in combat survived.	PTSD, although this is still not an official diagnosis. Napalm Exposure to Agent Orange and Agent White Amputations In Vietnam, 76% of those wounded in combat survived.	PTSD was added to the DSM III in 1980. Rates of PTSD among Veterans of these wars range from 11 to 33%. Traumatic Brain Injury (TBI) affects at least 15% of troops returning from combat zones. More than 90% of those wounded in combat have survived. The Gulf War Operations in the early 1990s, Operation Desert Shield/ Desert Storm, and OND/OEF/OIF are associated with the collection of symptoms known as CMI, or Chronic Multi-symptom Illness—formerly known as Gulf War Syndrome. There is still no known cause and no cure.

OEF/OIF Veterans

By 2030, Veterans serving in the Middle Eastern conflicts will represent more than 50% of the Veteran population. As David Finkel observes in his book, *Thank You for Your Service*:

> *Two million Americans were sent to fight in Iraq and Afghanistan. Home now, most of them describe themselves as physically and mentally healthy. They move forward. Their war recedes. Some are even stronger for the experience. But then there are the others, for whom the war endures. Of the two million, studies suggest that 20 to 30 percent have come home with post-traumatic stress disorder–PTSD–a mental health condition triggered by some type of terror, or traumatic brain injury–TBI–which occurs when a brain is jolted so violently that it collides with the inside of the skull and causes psychological damage. Depression, anxiety, nightmares, memory problems, personality changes, suicidal thoughts: every war has its after-war, and so it is with the wars of Iraq and Afghanistan, which have created some five hundred thousand mentally wounded American veterans.*
>
> *How to grasp the true size of such a number, and all of its implications, especially in a country that paid such scant attention to the wars in the first place?*[1]

VA Medical Centers have developed teams of medical experts devoted to helping OEF/OIF/OND Veterans adjust to civilian life. The teams include, among others, case managers and patient advocates who offer returning servicemembers confidential, one-on-one assistance with their healthcare concerns, as well as ensuring that they understand their healthcare benefits and rights.

These specialized teams recognize that Veterans are dealing with combat stress that can impact daily life in many ways and impede their interactions with colleagues, friends and family. Combat stress may cause a Veteran to feel hostile or angry. It can also lead to sleeplessness, and prevent a Veteran from connecting emotionally with others. In addition, stress can negatively impact a Veteran's professional life—stressed individuals fatigue more easily, have difficulty concentrating, and miss work more frequently.

Signature Wounds

Two types of wounds are considered the "signature injuries" of OEF/OIF: traumatic brain injuries and amputations.[2] As many as 15% of all troops deployed to these conflicts may have suffered TBI.[3] Most of these injuries are the result of improvised explosive devices (IEDs).[4]

Figure 2.2: Second Battle of Fallujah, Operation Iraqi Freedom.

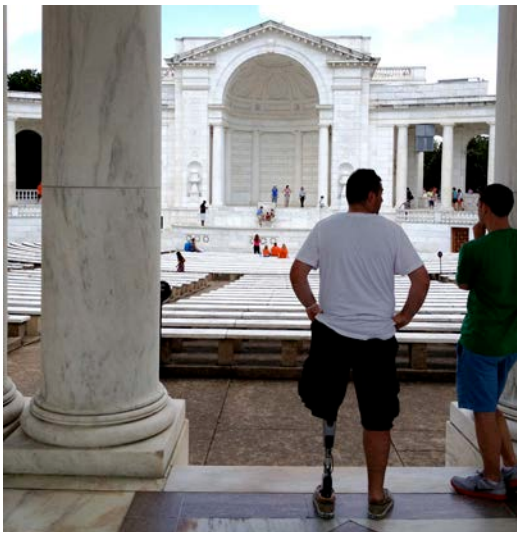

Figure 2.3: Veteran at Arlington Cemetery amphitheater. Arlington, Virginia.

Figure 2.4: Physical therapy room with overhead lifts, indirect lighting, low visual stimulation, and wood focus wall with controlled natural daylight. Audie L. Murphy VA Polytrauma Rehabilitation Center. San Antonio, Texas.

Figure 2.5: *Preparing for takeoff*. Photograph by Jerry Kykisz.

"I guess since the war I've been just cruising along. No highs, no lows. I know the right time to feel emotions. You go to a funeral, you feel sad. You watch your son being born, you feel happy. I know that's the right time to feel those things, but I don't really feel them. Cruise through."

—Jim Northrup,
Vietnam Veteran
"Warriors, Native American Vietnam Veterans"

Figure 2.6: Peer suicide prevention program. Dryhootch. Milwaukee, Wisconsin.

Physical and Mental Condition

Advances in medical care have saved thousands of lives that would have been lost to battlefield trauma in earlier conflicts. Because of improved battlefield medicine and body armor, more than 90% of those wounded in combat survive, compared with 76% during the Vietnam War and 70% during World War II. This means that today's Veterans include many with multiple prostheses, and many with mental disorders. Of OEF/OIF Veterans treated by the VA, 55% are currently living with a diagnosed mental disorder[5] **(Figure 2.6)**.

Post-Traumatic Stress Disorder

The impact on VA Medical Centers and CBOCs of Veterans diagnosed with PTSD is highly significant. In 2008, the VA treated 350,000 Veterans **(Figure 2.7)** for PTSD. In 2014, that number rose to 575,000 Veterans **(Figure 2.7).** The number of OEF/OIF/OND Veterans increased from 52,500 in 2008 to 165,000 Veterans in 2014 **(Figure 2.8)**.

Rates of PTSD in returning troops have ranged from 11%-32%.[6] Both TBI and PTSD have devastating effects on mission readiness, daily functioning, and the quality of life for service members and their families.[7] These rates of injury pose a profound challenge for the VA because of the numbers involved, the degree of disability, and because the evidence base for effective treatment is relatively small.[8]

Screening Veterans for PTSD is standard practice when they visit VA Medical Centers because many Veterans do not realize they are suffering from the disorder. The common characteristics of PTSD—depression, substance abuse, avoidance, denial, and mild cognitive impairment—may prevent Veterans from seeking help.

Homelessness

Research over the last 15 years has shown that Veterans are nearly twice as likely as the general population to be homeless, either temporarily or chronically. Veterans make up about 12% of the U.S. homeless population. While military service itself is not the cause of homelessness, a service members' experiences during deployment, and the injuries they sustain (both mental and physical) render them more susceptible to it. Veteran homelessness is often exacerbated by employment challenges, drug abuse, general mistrust of society and a struggle to socially re-integrate after service. The states with the highest homeless Veteran populations are California, New York, Florida, and Texas.[9]

Suicide Risk

It is estimated that 22 Veterans commit suicide every day in the United States **(Figure 2.6)**. The most recent study by the VA, conducted in 2012, showed that the majority of Veterans who have committed suicide were more than 50 years old.[10] However, the suicide rate for male Veterans under 30 increased by 44% between 2009 and 2011.[11] There is no data on the suicide risk for family members of Veterans.

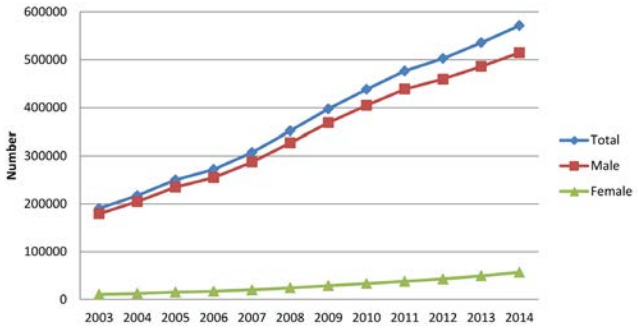

Figure 2.7: Total number of Veterans in VHA with a diagnosis of PTSD, by year

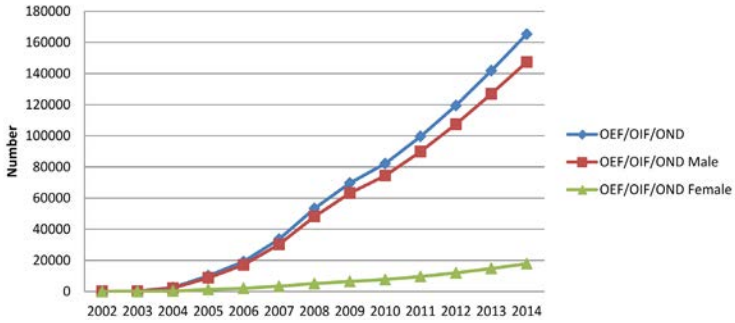

Figure 2.8: Total number of OEF/OIF/OND Veterans in VHA with a diagnosis of PTSD, by year

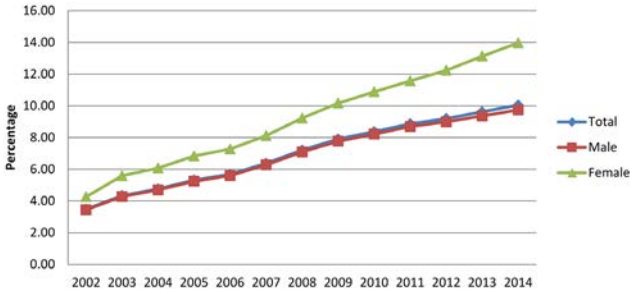

Figure 2.9: Percentage of Veterans in VHA with a diagnosis of PTSD, by year

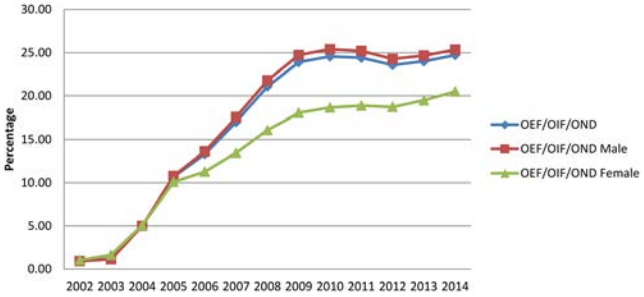

Figure 2.10: Percentage of OEF/OIF/OND Veterans in VHA with a diagnosis of PTSD, by year

*Figures 2.7-2.10 source: National Center for PTSD

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"To care for him who shall have borne the battle and for his widow and for his orphan"

—Abraham Lincoln,
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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3.0 Healing Environment Design Principles

Figure 3.0.1: Lobby provides a welcoming ambience composed of natural light, comfortable seating, and artificial foliage. VA Southern Nevada Healthcare System. North Las Vegas, Nevada.

Using EBD/EBM

Science deliberately limits itself. Traditional experiments attempt to limit everything they examine, except the chosen variable. Thus, the conclusions presented in research are equally limited. Additionally, the research tools have not yet been developed to measure much of actual human experience that is relevant to behavioral healing. EBD and EBM are another step in the continual process of discovery and improvement.

Design Principles

The design principles presented in this chapter are the foundation for developing Healing Environments. A well-designed Healing Environment is one that anticipates the needs of four distinct populations: the Veterans who are treated there, the family members who visit, the staff members who work there, and members of the community who interact with Veterans and healthcare providers. VA Healing Environments should aim to reduce stress, restore health, and cope with chronic illness in all user groups. The VA Healing Environment Design Guidelines apply to all new facility construction and facility renovation projects for VA medical centers and Community Based Outpatient Clinics (CBOC).

The principles in this chapter and the research that supports them represent a step toward evidence-based design (EBD) and evidence-based maintenance (EBM). In their best forms, EBD and EBM represent reliable collective wisdom, a collection of carefully tested research findings that can be distilled into a set of design principles. EBD and EBM use the same scientific and systematic approach to knowledge-building that has advanced many disciplines and increased their effectiveness.

The bottom-line message from scientific researchers to those who create and modify VA facilities is clear: **What you help create will directly affect Veterans' healing and well-being.**

In her book, *Healing Spaces: The Science of Place and Well-Being*, Esther Sternberg, M.D., Research Director, Arizona Center for Integrative Medicine, and Director, Institute on Place and Wellbeing, University of Arizona, writes about how stress reduction in hospital environments is important to a patient's well-being and also serves as a research benefit for future hospital design:

> *Patients in the hospital are constantly exposed to stressors that impair health, slow healing, and weaken the immune system. Understanding and reducing stress in the hospital environment is to twenty-first century medical care what understanding germ theory and reducing infection were to the nineteenth century care. Advances in psychology and neuroscience now provide a scientific basis for taking into account the effects of emotions on disease. This knowledge can do for hospital design and healthcare today what germ theory did in the nineteenth century. A precursor of this notion was common in nineteenth-century hospital design, but like everything else the medicine of that era, which separated the mind and body, features of the physical environment which supported a healthy mind were applied only to hospitals for the mentally ill.* [1]

Figure 3.0.2: A significant gathering place for social interaction. Vietnam Veterans Memorial. Washington, D.C.

The Healing Environment Design Principles

- **#1** Provide a therapeutic environment.
- **#2** Create a Veteran-embracing environment.
- **#3** Provide direct connections to nature.
- **#4** Design spaces and structures to reflect region and community.
- **#5** Be patient-centered.
- **#6** Provide a safe and supportive work environment for VA staff.
- **#7** Utilize state-of-the-art technologies to enhance the user experience.

"Indeed, positive social interactions are important buffers against stress. Sheldon Cohen and Bruce Rabin found that the more types of social interactions people reported over a period of time, the fewer upper-respiratory infections they developed. Cohen and Rabin concluded that the social support derived from these interactions helped ward off infection."

—Esther Sternberg M.D.

Healing Spaces: The Science of Place and Well-Being

Design Principle # 1
Provide a therapeutic environment

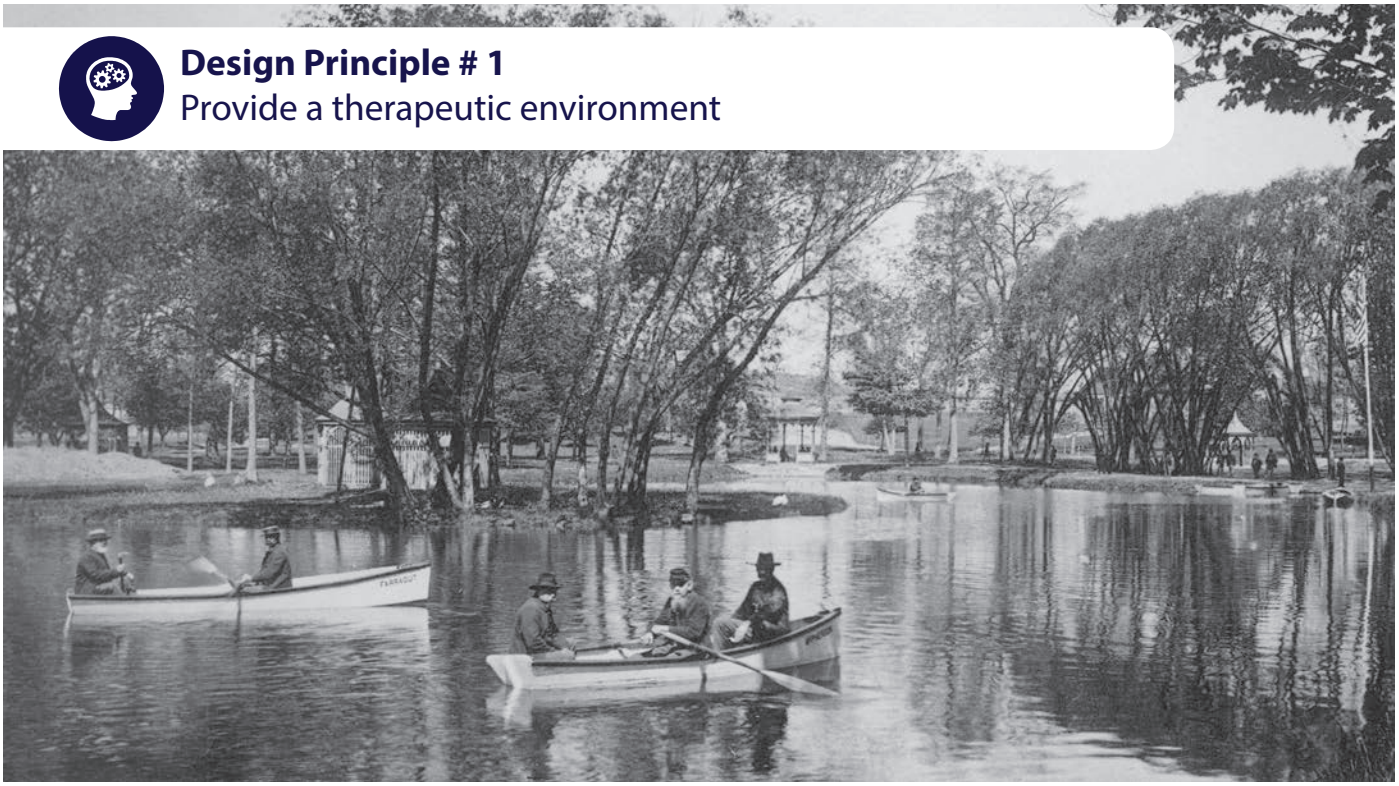

Figure 3.1.1: Historic image portrays Veterans canoeing on a pond with pavilions and gazebos in the background. The Veterans not only utilized views of nature to de-stress, they engaged in activities in nature. Milwaukee Soldiers Home. Milwaukee, Wisconsin.

Health Benefits

- Nearly all patients experience stress. Research has shown that stress can not only reduce the body's ability to fight disease, but can aid the spread of diseases. Stress impedes a patient's progress toward recovery.[4]
- Ample research suggests that visual, aural, olfactory, tactile, and even social stimuli contribute to physiological processes that actively promote physical and psychological healing.[5]

VA Healing Environments should positively impact Veterans, staff, and families. This is accomplished through proactively minimizing environmentally-induced stress, accommodating all therapeutic programs, and being aesthetically pleasing.

Healing Environments eliminate stressors and use architecture as a tool for healing programming. Correlations abound between healthy environments and healthy bodies. Access to natural light has been linked to shortened hospital stays. Quiet environments that are well isolated from external distractions have been shown to have the same effect.[2] Olfactory stimuli are associated with mood. Even certain kinds of tactile stimuli have been shown in animal and human subjects to have beneficial physiological effects. Conversely, excessive noise and harsh lighting that defies our circadian rhythms are deleterious to our physiological and psychological health.[3]

Veterans have particular stress-related design needs **(see Design Principle 2, page 26**; **and Appendix D, pages 172-179)**. While it is impossible to predict exactly what will trigger a stress response in every person who enters a building, much can be done to reduce everyday stressors and promote a therapeutic environment in each component of a VA facility.

The following design strategies can aid in minimizing stress caused by the physical environment and create a sensory-appropriate therapeutic setting:

DP 1.1 - Design Strategies for Stress Reduction

Design Healing Environments to reduce stress and promote healing.

As of this writing, the Facility Guidelines Institute (FGI) and LEED-HC contain both mandatory and optional criteria for indoor environmental quality related to natural light, ventilation, thermal comfort, acoustic performance, and indoor pollutants. These criteria, including those that are optional, constitute minimum standards for the quality of an indoor environment.

Suggested Tactics:

a. Incorporate small, protected areas into large public spaces to accommodate those needing a greater sense of security and privacy.
b. Furniture choice and room design should allow flexibility in seating configuration, to accommodate Veteran groups and families.
c. Select materials, lighting, colors, acoustics, and imagery to enhance comfortable, non-institutional settings.
    - Materials should be natural, and include wood, vinyl wood veneers, stone, plaster, manufactured stone, and copper.
    - Color selection should emphasize the palette of the surrounding natural environment, and should not be predominantly white or gray.
d. Consider the use of consultants to provide perspectives and expertise not available within the core design team, in such areas as environmental psychology, sleep, lighting, and acoustics.
e. Particular attention should be paid to provide 54" half walls / barriers located at the backs of seating as well as visible exits to promote a sense of security.

Sound and Stress

Our sense of hearing evolved as a means of monitoring events. Small sounds can trigger a fight-or-flight response, and noise which masks these events causes stress. Extensive research supports this.

This mechanism is an "always on" system—our senses of sight and smell are effectively switched off during sleep, but sudden noises, even soft ones, rouse the brain from sleep.

Quiet environments tend to reduce stress by reassuring the mind that critical information is not being masked. The serene environment that results from quiet is conducive to the healing process through this reduction in stress.

Stress is introduced by obstructing the ability to monitor the environment in this way, whether through hearing loss or by masking subtle but potentially informative events.

DP 1.2 - Acoustics

Design the acoustical environment to mitigate noise, minimize distractions, and facilitate social interaction.

Suggested Tactics:

a. Work with room enclosures, finishes, and systems to create acoustics appropriate to the activities that occur in each facility.
b. Prevent excessive mechanical noise and vibration throughout, but use background noise as a means of enhancing the character of differing spaces, as defined in **Section 4.0 Healing Environments: Components and Characteristics**.

Figure 3.1.2: View of earth tone perforated acoustical ceiling tiles. Fort Belvoir Community Hospital. Fort Belvoir, Virginia.

Veteran Hearing Loss

Hearing loss has been identified as a risk factor for dementia, contributing to the social isolation of those who suffer from it, a condition significantly aggravated by noise. With nearly a half million Veterans receiving compensation for service-related hearing loss, the need for careful attention to the sensory environment is critical.[7]

The hearing-impaired are particularly sensitive to noise in the environment. Spaces designed to enhance acoustic clarity and intimacy contribute to the overall quality of human communication of any kind. This is especially difficult to achieve in large multipurpose rooms, since ceilings in large spaces tend to be higher than what is acoustically optimal for smaller rooms. Control of reverberation and background noise is critical to the success of these multipurpose spaces. Communication in the healing process relies on spaces with excellent speech intelligibility that is based on control of background noise levels, external distractions, and appropriate reverberation time. While these factors are relevant to everyone, they are of critical importance to the hearing-impaired.

c. Enhance the acoustic isolation and acoustical attributes of counseling rooms, worship spaces, multipurpose spaces and other rooms requiring focus and privacy for their occupants. In addition, carefully consider interior partition assemblies as well as acoustical attributes of material surfaces to ensure both sound isolation and acoustical qualities.
d. Support speech intelligibility by incorporating the following (refer to **Section 4.0 Healing Environments: Components and Characteristics** for further detail):
    - Control reverberation time through room volume by increasing ceiling height.
    - Ceiling heights may vary according to the different utilizations of the space.
    - Ensure that areas of critical conversation in large spaces (such as reception desks) are subject to minimal background noise by providing acoustic wall and floor treatment, as well as lower ceilings with acoustical treatment.
e. When technology-based activities such as video conferencing and distance learning are part of the healing process, audio and video systems that enhance the sense of connection are important. Attributes to consider include camera/screen geometries that promote eye-to-eye contact, audio that coordinates accurately with visual images so that the sound appears to be coming from the image on the screen, and audio systems that are well-matched to the acoustics of the room so the experience is as authentic as possible.
f. Provide acoustical elements such as acoustical ceiling tiles, acoustical wall panels, reflecting panels, hanging baffles, and ceiling clouds.
g. Provide vibration and noise control to mechanical components such as ducts, air handlers, HVAC systems, and boiler rooms that are adjacent to acute care clinics, labs and communal spaces.

DP 1.3 - Natural Light

Utilize natural lighting where possible, and supplement with artificial lighting designed to support circadian rhythms and eliminate glare. The circadian rhythm is an essential component of the human body's ability to rest, detoxify, and increase activity levels.

As of this writing, the Facility Guidelines Institute (FGI) and LEED-HC contain both mandatory and optional criteria for indoor environmental quality related to natural light. These criteria, including those that are optional, constitute minimum standards for the quality of an indoor environment.

Suggested Tactics:

a. Work within natural cycles of light and dark in order to positively impact sleep cycles. Obtain expertise on proper color balance and brightness levels for artificial light used to extend hours of work and/or activity.

- Color and brightness of artificial lights should be designed to adjust automatically during the 24-hour cycle of each day to support good circadian rhythms for all occupants.

b. Provide shading devices to control natural light so that direct sun can be avoided when desired and so that lighting can be subdued where desired. Large surface areas of high contrast between light and dark can impair vision for some Veterans and thus increase the potential for tripping.
c. Where natural light from the exterior wall is not possible, consider the creation of light wells to bring natural light to lower floors.
d. For interior rooms with no access to natural light, consider borrowing natural light from the interior corridor utilizing clerestories, translucent glass panels, and clear glass interior partitions.

Figure 3.1.3: Veteran symbols and photographs are displayed in a corridor. VA Southern Nevada Healthcare System. North Las Vegas, Nevada.

DP 1.4 - Positive Attractions

Provide users with positive attractions, points of focus, and respite from challenging aspects of their healing journey.

Suggested Tactics:

a. Display Veteran symbols, Veteran artwork, photographs of warriors performing military tasks, etc. **(Figure 3.1.3)**
b. Install appropriate enclosed water features, such as fish tanks and water fountains.
c. Incorporate artificial plants throughout the interior of the space.
d. Provide wall space, lighted wall niches, appropriate track lighting, lighted glass cases for educational, historical, and service-related artwork displays.
e. Provide refreshment stands (coffee, tea, water, etc.).
f. Install wall features such as gas fireplaces and wall graphics.
g. Consider retail areas for refreshment and memorabilia.

Figure 3.1.4: Bright colors and contrasting text, accompanied by symbols, aid in ease of wayfinding. Palomar Medical Center. Escondido, California.

DP 1.5 - Clear Visual Wayfinding

Utilizing Visual Cues.

An effective wayfinding strategy is intuitive and not dependent exclusively on signage. A clear view of circulation elements, architectural features, surrounding exterior environments, and ultimate destinations will mitigate stress as Veterans travel to and from their medical appointments.

Suggested Tactics:

a. Provide highly visible architectural features such as: reception desk, stairs, elevator, lobby and corridors.
b. Add thematic cues to floors or areas of the facility through coordinated colors or iconographic systems **(Figure 3.1.4).**
c. Provide views of the exterior landscape so that Veterans can locate where they are according to exterior points of reference.
d. Consider single-loaded corridors with views of the exterior environment

Figure 3.1.5: Graphic and textual wayfinding at elevator banks helps users navigate complex facilities. Each floor is matched with an animal icon, which is echoed throughout each floor. Lurie Children's Hospital. Chicago, Illinois.

Figure 3.1.6: Signage prompts staff members to practice safe hygiene and wash their hands. Lurie Children's Hospital. Chicago, Illinois.

DP 1.6 - Safety

Ensure the safety of all Veterans, visitors, and staff.

A critical element of Veteran Care is to employ design strategies for safety and security. This covers everything from preventing the spread of infection to alleviating overcrowding and claustrophobia. Evidence indicates that well-designed Healing Environments play an important role in creating safe hospitals, better work environments for staff, and safe therapeutic environments for recovering patients.

Suggested Tactics:

a. Where possible, utilize materials and technologies (such as HEPA air filters, natural ventilation, and materials with low VOCs) that are known to improve indoor air quality.
b. Include accessible and dispersed handwashing locations, ceiling lifts, improved acoustics, and task lighting where needed. *See Natural Ventilation for Infection Control in Health-Care Settings (Switzerland, World Health Organization). Geneva: WHO Publication.*
c. Improve air quality through high air change rates, air flow (negative pressure and laminar airflow (LAF)) and effective air quality control measures, even during renovations. Although hospitals in other parts of the world offer patients natural ventilation, more evidence is needed to show operable windows do more good than harm in the U.S.
d. Single-bed rooms, strategic location of sinks and hand disinfectant dispensers, and cleanable interior finishes offer several environmental approaches to the reduction of contact-spread infections. Placement of handwashing sinks close to the entrances of patient rooms, with dedicated overhead lights, has been shown to increase handwashing compliance **(Figure 3.1.6)**.
e. The efficacy of carpeting with respect to infection control is inconclusive. Compared to VHA/vinyl flooring, carpet performs better in noise reduction. It also provides cushioning in case of falls. Carpet tiles offer an advantage over rolled products in that they are easier to repair and maintain.
f. Provide alternative pathways if necessary (separate from main lobbies and waiting areas) for those whose behavior or medical status poses an immediate threat to their safety or the safety of others. Healing Environments that promote de-stressing of patients utlizing design attributes for the inclusion of natural light, natural views, and direct access to nature helps lower the potential for confrontational situations and violent incidents.
g. Refer to **VA Mental Health Facilities Design Guideline** regarding placement of duress alarms for staff in behavioral health rooms and behavioral health emergency rooms.
h. Educate design teams about potential behavioral threats and violence.
i. Minimize blind spots in interior and exterior spaces.
j. Communal spaces such as main reception lobbies, waiting areas, highly trafficked corridors, multipurpose spaces, cafes, and cafeterias should (wherever possible) offer high ceilings, natural light, views of nature, and access to nature. These features will eliminate claustrophobia and alleviate any sense of overcrowding.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—Abraham Lincoln,
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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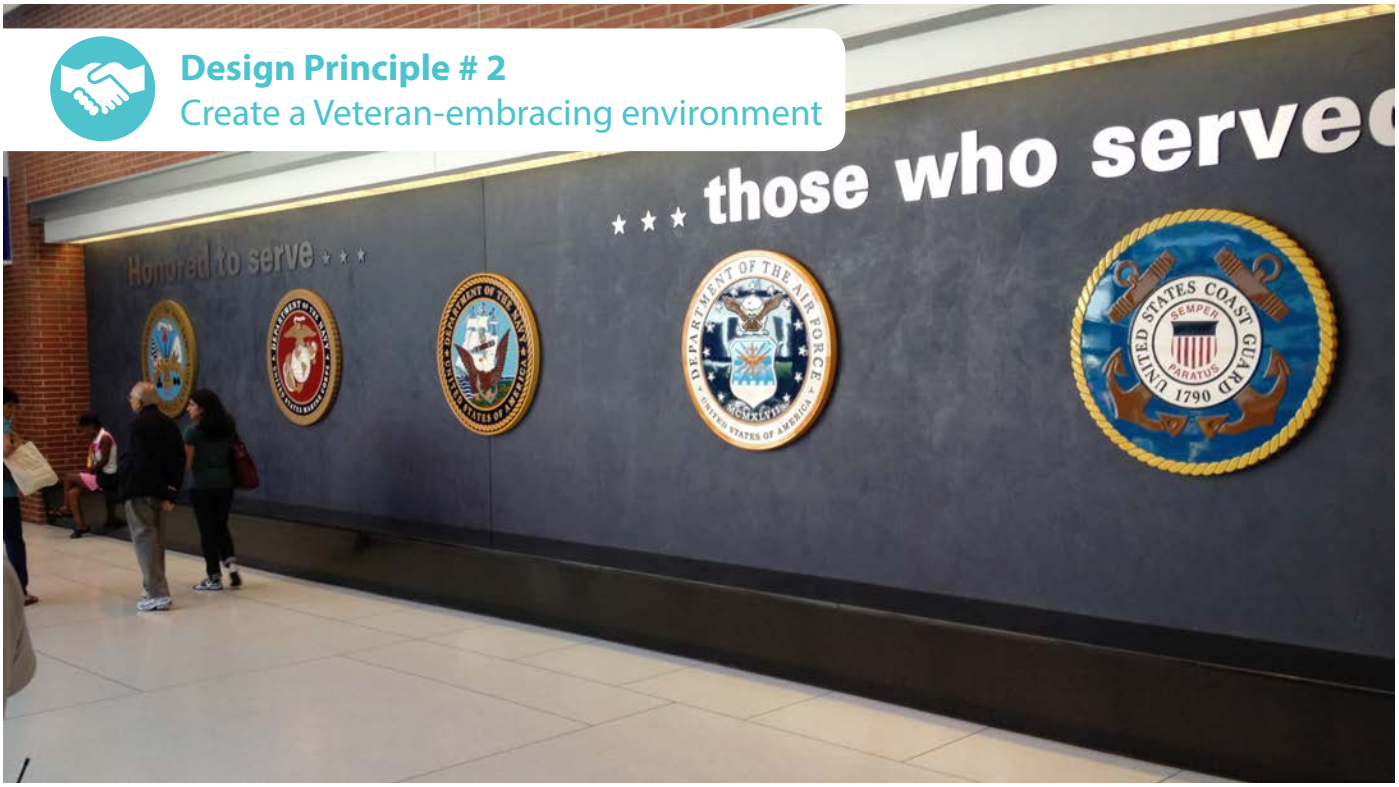

Figure 3.2.1: The recognition of Veteran service and sacrifice at the entry and main reception lobby as well as throughout the facility differentiates a VA facility from a civilian facility. Jesse Brown VA Medical Center. Chicago, Illinois.

Health Benefits

VA facilities with spaces that encourage socializing among Veterans are likely to see increased success in treating PTSD symptoms. Studies have concluded that peer connectedness among Veterans increases the sense of social support, decreases the likelihood of developing PTSD after a traumatic event, and improves overall health.[7]

Those who have served in the military ascribe to a powerful value system that includes service to the country, loyalty to a brotherhood/sisterhood of Veterans, and patriotism. VA facilities should promote a sense of community and belonging for Veterans and their families. **(Figure 3.2.1)**. It is also important for the design of the VA's built environment to invite and encourage social interactions among Veterans, Veterans' families, and others from the outside community. Healing cannot occur in isolation. It is best initiated and sustained within a context of active support from fellow Veterans, family members, and the outside community.

The following design strategies will assist in creating a Veteran-embracing environment:

DP 2.1 - Accessibility

Designed spaces must be sensitive to the mental and physical wounds of war (e.g.: PTSD, TBI, visual impairments, loss of limbs, etc.) Reference the VA Accessibility guideline (http://www.cfm.va.gov/til/accessibility.asp). The seven principles listed in the Universal Design Guideline (http://universaldesign.ie/What-is-Universal-Design/The-7-Principles/) are a valuable reference for creating environments that are accessible to all Veterans.

Suggested Tactics:

a. Provide multiple seating arrangements that allow Veterans a menu of seating choices, from an individual chair to clusters of seating for friends and family. Wheelchairs and scooters should be easily integrated into seating arrangements.
b. Ensure a feeling of safety and security by highlighting multiple exits in waiting areas and communal rooms. Veterans with acute PTSD avoid communal spaces with fewer than two visible exits, because of combat training and experiences.
c. Provide acoustic mitigation in communal spaces so that noise levels do not trigger adverse reactions of Veterans afflicted by PTSD.
d. Public and/or common spaces should not be compartmentalized, with demising walls, because this can induce feelings of claustrophobia. Such rooms should utilize 54" half-wall seating partitions, planters, and / or positive attractions such as fish tanks.
e. Adjacent exterior environments should provide protection from inclement weather as well as excessive sunshine. For example, Veterans who have been severely burned cannot sweat and require protection from the sun. Architectural elements such as porches, porticos, arcades and outdoor pavilions should be considered.

Figure 3.2.2: Hallway display case with plaques honoring servicemembers' sacrifice and deeds, Fort Belvoir Community Hospital. Fort Belvoir, Virginia.

DP 2.2 - Honoring Service

Honor the service of Veterans by providing spaces for ritual, commemoration, and spirituality.

Suggested Tactics:

a. Design multipurpose spaces, courtyards, and spiritual spaces to accommodate ritual services (i.e., Memorial Day, Independence Day, Veterans Day, battle anniversaries).
b. Provide commemorative spaces where individuals and small groups can go to honor comrades and grieve the losses of war. For example, a courtyard could offer a pathway to an area with the U.S. flag and the flags of the five services. A commemorative pavilion could provide a place for Veterans to bring and meditate upon war memorabilia, and a gathering place to share stories. **(Pages 83-85).**
c. Place military symbols throughout the facility, for example in Veteran art displays and glass cases for memorabilia. **(Figure 3.2.2).**
d. Identify and create areas for individual reflection and solitude. **(pages 83-85)**

Figure 3.2.3: Veteran greeting another just returning from overseas deployment. General Mitchell International Airport. Milwaukee, Wisconsin.

"Military Veterans were conditioned in their branch of service to work together as a squad. Veterans will naturally adopt this approach in a group setting and the building design and its environment can enhance and promote patient recovery teams."

—David Kurtz
Cold War Veteran

"I recall hearing about soldiers who would avoid the front door of a 'Behavioral Health Clinic' on a Baghdad base because of the sign, but they would sneak in the back door when they needed to see a counselor."

—John E. Mundt, PhD
VA Clinical Psychologist

"One of the most poignant ways to symbolize loss is through art, in all its forms. Many Veterans who have had significant loss are better able to deal with trauma through clay, paint, charcoal, photography, or found objects. The art of war survivors can sometimes be the most arresting and affecting. For artists, the process can be exorcising. I believe the observer can feel a similar connection to the art, especially when presented in the right manner."

— Jacques-René Hébert
OIF Veteran

Figure 3.2.4: Military memorabilia space, Patriots' Casa, Texas A&M University-San Antonio. San Antonio, Texas

DP 2.3 - Peer Connections

Support camaraderie and interpersonal connections among Veterans, while allowing for varying levels of engagement, and a choice of activities.

Suggested Tactics:

a. Provide communal spaces (e.g., Veteran lounges) that invite Veterans to gather together, echoing the familiar feeling of a military unit (e.g., platoon), in which Veterans forge strong bonds. A platoon is composed of 12 military members, and is typically the most close-knit group in training and in deployment.
b. Provide spaces that can be easily modified as needed to accommodate groups of varied descriptions, sizes, and purposes. One of the purposes to keep in mind is peer mentoring, which requires a more intimate space. Two key ways to make space flexible and easy to modify are the use of moveable partitions, and the adjacency of indoor and outdoor spaces with soothing features. **(refer to Section 4.0 Healing Environments: Components and Characteristics for further detail)**.
c. Critical Adjacencies include a cafeteria, peer mentoring café, and an interior courtyard. These are important in order to encourage a natural flow of peer-to-peer engagement among contiguous spaces within a medical center or Community-Based Outpatient Clinic (CBOC).

DP 2.4 - Veteran Input

Actively collect input from Veterans and other facility stakeholders on the design and modifications of space. This is critical to the success of the Healing Environment.

Suggested Tactics:

a. Consult with members of the Veteran community, Veteran families, healthcare providers, researchers and the outside community in the planning of proposed environments.
b. Consider the use of surveys and interviews with focus groups consisting of Veterans, healthcare providers, Veteran families, and administrative staff to assist the designers' understanding Veterans' needs.

DP 2.5 - Privacy

Veterans have a special need for privacy. Meeting this need sends a message to Veterans that this need is recognized, respected, and provided for.

Suggested Tactics:

a. Provide family therapy spaces in an area of the behavioral health clinic that has an egress not adjacent to main circulation hallways.
b. Waiting rooms should be adjacent to consultation rooms and private kiosks in which healthcare providers and Veterans can exchange confidential information.

DP 2.6 - Personalization

Design spaces to accommodate user personalization. Personalization provides a sense of individual and communal ownership. It is essential that a Veteran not feel like a guest in a VA facility. In addition, personalization allows a Veteran to express pent-up emotions in a constructive manner.

Suggested Tactics:

a. Provide opportunities for Veterans to personalize spaces with bulletin boards or display cases for memorabilia, such as objects carried during deployment, personal letters, and poetry **(Figures 3.2.2 and 3.2.4)**. These should be located in reception lobbies, public corridors, waiting areas, and other public areas, as well as inpatient rooms.
b. Flexible art exhibits promote visual interest, a Veteran-embracing atmosphere, and personalization of spaces. Areas of display, whether in communal spaces or patient rooms, should have moveable lighting (e.g., track lights) for optimal viewing.
c. Provide lighting and climate systems that are adjustable where appropriate and possible.

DP 2.7 - Service Animals

Accommodate service animals, both indoors and outdoors.
VA regulations allow Veterans who use trained service dogs to bring them into VA facilities when seeking treatment and when visiting other Veterans who are hospitalized. The VA is currently undertaking a study to determine if companion dogs for Veterans with PTSD should be allowed the same facility access as trained service dogs. Providing for the needs of Veterans with service dogs assists Veterans in their healing and makes them feel welcome in VA facilities.

Suggested Tactics:

a. Consult with facility staff to understand what existing facility assets exist to assist in the caretaking of service dogs (and potentially companion dogs) this may include protected outdoor areas that are fenced in or even little courtyards.
b. Provide indoor and outdoor areas where service dogs are welcome, and make sure there is a drinking water source for dogs. These areas should be served by an appointment board or vibration device, so that Veterans know when they are called to an appointment, and the facility's animal caretakers know when and where to reunite Veterans with their animals.
c. Provide a storage locker for any dog-related supplies needed by the facility, based on facility staff and Veteran suggestions, and provide weather protection—such as a shady area or rain shelter in exposed outdoor space--for dogs and Veterans who choose to stay with their dogs while waiting to be called for an appointment.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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Design Principle # 3
Provide direct connections to nature

Figure 3.3.1: Restored historic memorial garden originally dedicated to women Veterans of WW II, West Los Angeles VA Medical Center. Los Angeles, California.

Exposure to natural landscapes has been proven to provide health benefits ranging from stress reduction to faster recovery from illness and an improved sense of general well-being.[8]

The following design strategies can assist in providing occupants with direct and indirect connections to nature:

DP 3.1 - Interior Space/Exterior Space Interrelationships

Provide direct access to exterior terraces, courtyards, porches, and gardens.

Suggested Tactics:

a. Locate courtyards and other exterior spaces adjacent to public and patient areas of a facility. For example, special consideration should be given to providing waiting areas with ready access to the outdoors, so that Veterans can choose where they feel most comfortable. Examples of such exterior spaces include terraces, patios, and porches. Interior courtyards additionally provide a sense of safety (provided there are two exits), and promote relaxation. **(Figures 3.3.1 and 3.3.3).**

Health Benefits

- Faster physical recovery from illness
- Reduction in pain medications[9]
- Long-term general improvement of health and well-being
- Improved social well-being
- Improved emotional well-being
- Reduced stress[10]
- Improvement in mood
- Faster recovery from stress or mental fatigue[11]

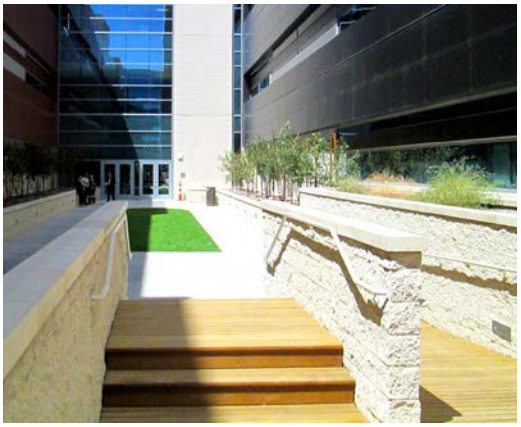

Figure 3.3.2: Garden with landscape and hardscape (stairs, ramp, pathways) designed to be used for physical therapy and testing prosthetics. VA Southern Nevada Healthcare System. Las Vegas, Nevada.

> "Artificial light does not light a space in architecture, because it must have the feeling of the time of day and season of the year—the nuance of this is incomparable with the single moment of an electric bulb. It is ridiculous to think that an electric bulb can do what the sun can do."
>
> *—Louis Kahn, Architect*

Figure 3.3.3: Garden area with social spaces, connected to views from the interior. VA Southern Nevada Healthcare System. North Las Vegas, Nevada.

b. All clinical and public spaces should have easy visual and/or physical connections to nature, or to interior nature features.
   - Provide exterior pathways that lead users to destinations and return them to the entrance for ease of access.
   - Pathways in therapy areas should be designed to provide users with the opportunity to work with different textures and surfaces, thereby facilitating rehabilitation **(Figure 3.3.2)**.

c. Design for use in all weather conditions, providing porches, porticos, pavilions, gazebos, and trellises **(Figure 3.3.4)**.
d. Natural elements such as trees, bushes, grass, and flora should be considered, with a rough guide of 1/3 greenscape to 2/3 hardscape. Use natural materials such as stone, brick, gravel and wood for hardscape.
e. Where appropriate, consider connecting to nearby bike paths and other community amenities.
f. Avoid selecting trees, bushes, and other plants that in maturity are large and dense enough to conceal the human form, as this is a stress trigger for many Veterans and a safety issue for pedestrians, especially in the evenings and at night.
g. In large exterior spaces, nearby public bathrooms with direct access are desirable and make the space more accessible to all users.
h. Consider moveable glass exterior partitions and double doors to allow easy transit between indoors and outdoors, as well as a means of enlarging or reducing space to suit different activities.

DP 3.2 - Views

Provide patient spaces that overlook a landscaped environment, a feature in the immediate area, or a panoramic vista.

Suggested Tactics:

a. Patient and resident rooms must have windows. To the greatest extent possible, arrange windows for direct views of nature and natural light.
b. Provide windows with clear views and as few window mullions as possible.
c. Strategize window-to-natural view relationships. Commemorative or reflective spaces located on the ground floor should be adjacent to blank (as opposed to fenestration) walls to ensure privacy.
d. Provide access to rooftop terraces with gardens and panoramic views, in compliance with a developed plan for safety and security.
e. Provide patient spaces that overlook a landscaped environment, a natural feature such as mountains, a body of water, a desert, a woods/forest, or cityscape.
f. Multipurpose spaces and waiting areas should always have access to views of surrounding natural elements or cityscape.

DP 3.3 - Social Spaces

Create outdoor spaces that offer a range of choices ranging from solitary activities to therapeutic regimens and social interaction.

Suggested Tactics:

a. Create a variety of outdoor spaces, including private, reflective spaces that allow users to select the space most suitable to their needs at any given time **(Figure 3.3.2)**. Use distance from the entrance as a sorting mechanism: place larger spaces closer to the entrance and private spaces more remotely.

b. Pavilions provide a refuge from inclement weather and insects, so that the outdoor environment can be used year-round **(Figure 3.3.5)**.

c. Develop outdoor spaces to accommodate social functions on various scales, from one-on-one conversations to group meetings.

d. Provide indoor/outdoor flexibility in the design of spaces.
   - Consider moveable partitions, such as sliding glass doors, French doors, etc. to open the space to nature or to an adjacent courtyard.
   - Locate terraces, patios, and porches adjacent to communal interior spaces in order to promote flexibility and access to nature.

e. Develop a master plan to assist in determining how exterior space can interface with interior space to promote social interaction at all levels from solitary/individual interaction to group interaction.

Figure 3.3.4: Job fair in enclosed courtyard at Jesse Brown VA Medical Center. Chicago, Illinois.

Figure 3.3.5: A contemplative garden within a small courtyard allowing for an individual to meditate or a small group to participate in a ritual. Mii Amo Resort. Sedona, Arizona.

"To care for him who shall have borne the battle and for his widow and for his orphan"

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Design Principle # 4

Design spaces and structures to reflect region and promote community

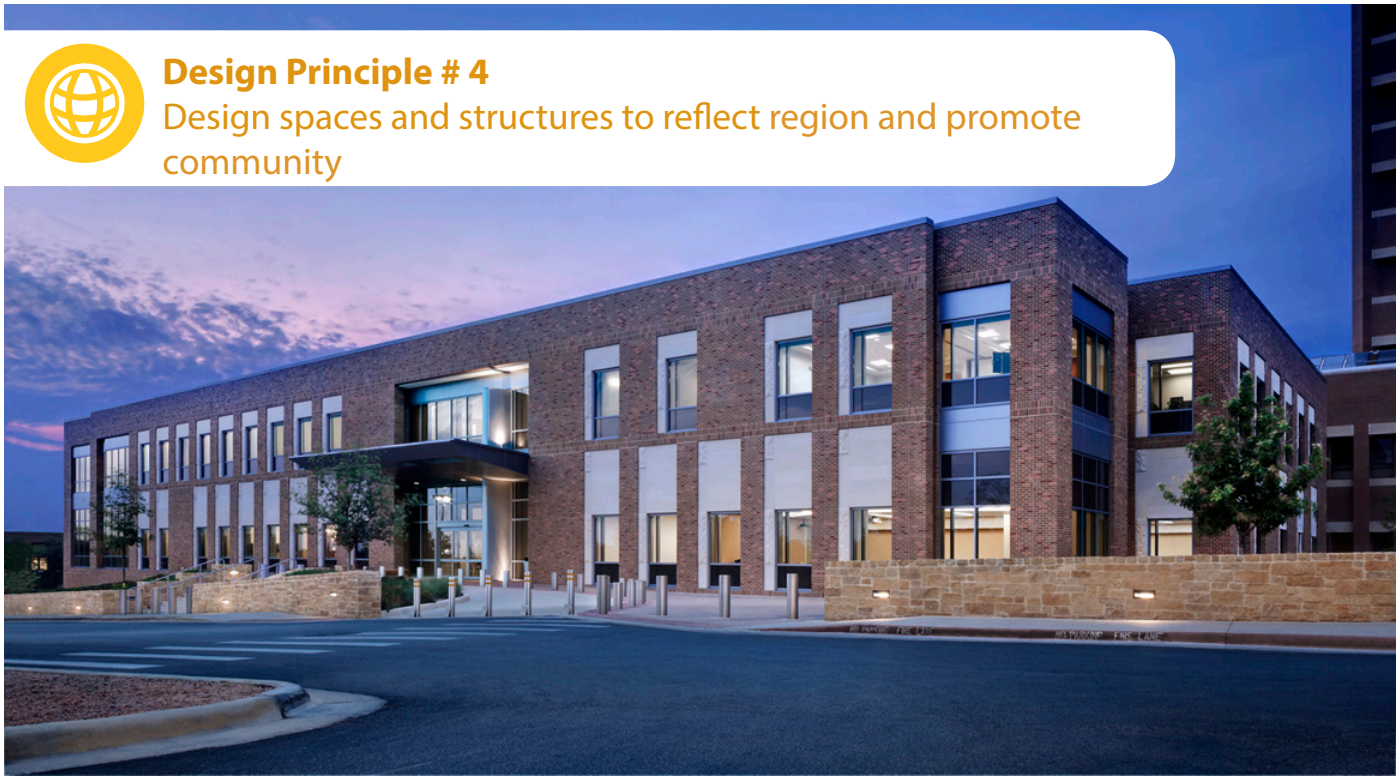

Figure 3.4.1: Regional building materials such as brick, plaster, and fieldstone are applied to the building and boundary fence. Polytrauma Rehabilitation Center, Audie L. Murphy Memorial VA. San Antonio, Texas.

Designing a facility is an opportunity to support the healing journey of Veterans. Designs that reference familiar aspects of the natural landscape and local culture help instill a sense of place, security, and comfort, greatly contributing to the healing process. A facility that is aesthetically pleasing and welcoming, with space for cultural events that appeal to the wider community, helps resocialize Veterans by giving them an opportunity to interact with their community. For an example of a facility that was successful at community engagement, see the study of the Milwaukee Soldiers Home **(Appendix D, page 176)**. Such designs and programs create a "healing ecology" that encourages and quickens the healing process.

The following design strategies can assist in developing structures and spaces that reflect regional characteristics and promote community.

Figure 3.4.2: A contemplative garden within a small courtyard allowing for an individual to meditate or a small group to participate in a ritual. Mii Amo Resort. Sedona, Arizona.

DP 4.1 - Aesthetics and Material

Provide an inviting setting through the use of architectural elements from the community and locally inspired aesthetics found in the natural landscape of the region.

Use materials and spatial configurations to reflect local traditions, culture, and the surrounding environment.

Figure 3.4.3: Artwork in hallway inspired by the color palette and natural landscape of the area. West Los Angeles VA Medical Center, Los Angeles, California.

Figure 3.4.4: Historical display case reflecting regional military history of the Northeast. Boston VA, Jamaica Plains Campus. Boston, Massachusetts.

Figure 3.4.5: Elevator lobby with strong visual connections to the outdoors, highlighting the desert/mountain features of the surrounding landscape. VA Southern Nevada Healthcare System. North Las Vegas, Nevada.

Suggested Tactics:

a. Utilize locally inspired, natural materials (e.g. stucco and stone in the Southwest, wood and stone from the forests of the Northwest, etc.) **(Figure 3.4.2).**
b. Utilize a color palette that reflects the local natural environment. **(Figures 3.4.1 - 3.4.3)**.
c. Create multipurpose rooms that invite the surrounding community to create events.

DP 4.2 - Site Selection

Site considerations should include connections to the built environment, natural landscape features, sun orientation, and prevailing winds. (Figures 3.4.3 - 3.4.5).

Suggested Tactics:

a. Connect to public transit systems where feasible.
b. Connect to walking paths and bike trails that extend into the community.
c. Take advantage of vistas of natural landscapes.
d. Consider sun orientation when locating patient rooms , communal rooms, and main entry:
    - Communal rooms should have north-facing windows to create a space with diffused light.
    - Entries should have south-facing windows to create a welcoming ambience with generous light.
e. Study wind directions and orient buildings to bring fresh breezes through interior courtyards, terraces, porches, porticos, and arcades.

DP 4.3 - Climate Considerations

Design for regional weather conditions.

VAs across the country exist in a wide variety of climates. Designs should be appropriate to the issues and opportunities presented by the local climate.

Suggested Tactics:

a. Select architectural elements that appropriately mitigate or optimize local climate conditions, such as covered walkways, breezeways, etc.
b. Utilize arcades and porticos for exterior pedestrian circulation, seating, and sun protection.
c. Where porches are proposed, consider screening to shield spaces from insects.
d. Provide openings in the building mass for cross-ventilation and prevailing winds to penetrate interior courtyards.
e. Consider design strategies that allow prevailing winds to pass through interior courtyards, utilizing loggias, arcades, and porticos.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—Abraham Lincoln,
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Design Principle # 5
Be patient centered

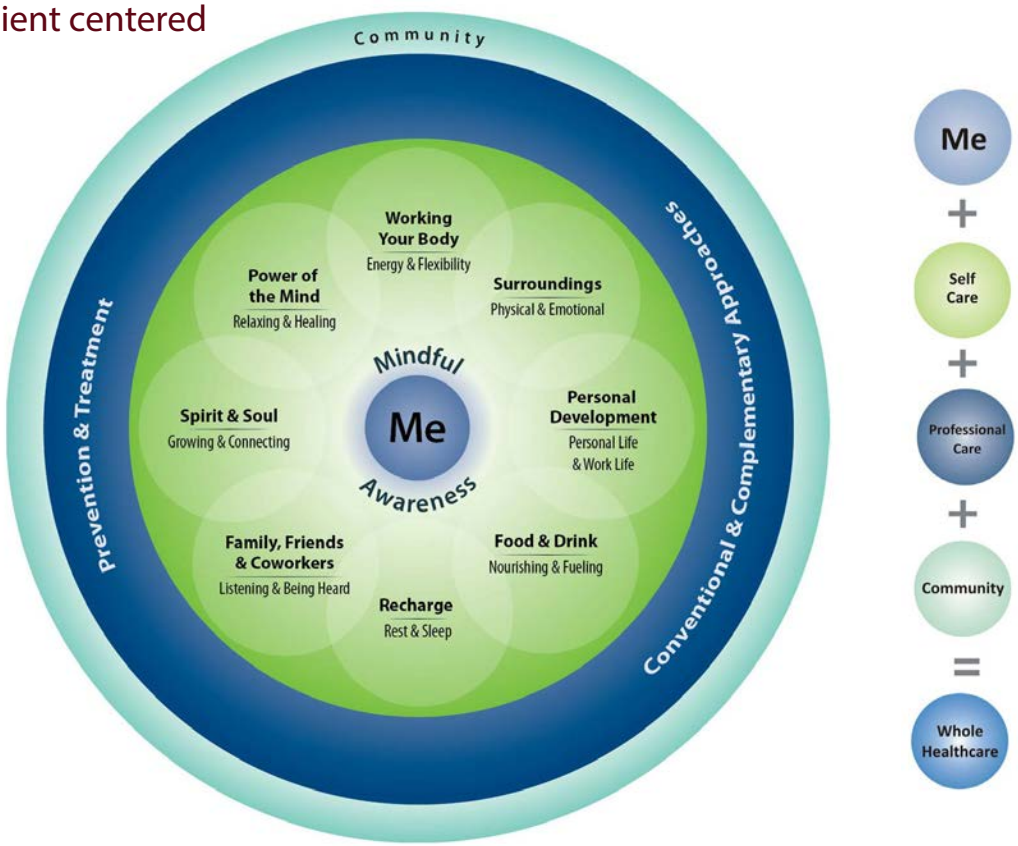

Figure 3.5.1: Healing Wheel: The components of proactive health and well-being, as defined by the Office of Patient Centered Care & Cultural Transformation.

Figure 3.5.2: The light-filled natatorium features a zero edge swimming pool, enabling patients suffering from limb loss to enter without assistance. Center for the Intrepid, Brooke Army Medical Center. San Antonio, Texas.

The VA's Patient Centered Care Model is personalized, proactive, and patient-driven **(Figure 3.5.1)**.

- **Personalized:** Configure healthcare plans to each Veteran's medical conditions, genes, characteristics, circumstances, etc.
- **Proactive:** Use strategies that strengthen Veterans' innate capacity for health and healing, such as mind-body approaches and nutritional strategies prior to surgery or chemotherapy.
- **Patient-driven:** Deliver healthcare based on and driven by what really matters to the person, and align healthcare and goals accordingly.

The VA serves a population with a common culture. Veterans are accustomed to serving the country, following a plan, and undergoing training and skill-building in the company of others who serve the same mission.

Under the VA's Patient Centered Care Model, healthcare providers partner with Veterans to create personalized health plans with four core military values in mind:

- **Mission:** Veterans commit to goals with great self-discipline and self-sacrifice.
- **Plan:** A Veteran wouldn't fight a war or go into battle without a plan.
- **Training:** Preparedness is essential to a Veteran's ability to accomplish the mission.
- **Trust and Reliance:** In order to succeed, Veterans put their lives in one another's hands.[12]

These core values empower Veterans by giving them control over their individual health within a supportive environment and with a supportive care team.

The OPCC&CT has defined the key elements of their Patient Centered Care Model **(Figure 3.5.1)** to include practice and experience. The Veteran is placed at the center of the circle. They partner with a multi-specialty care team to develop a mission, a plan, necessary training, and a support team to address the following eight components of health and well-being that comprise a Veteran's healing journey**.**

1. Working your body—energy and flexibility
2. Power of the mind—relaxing and healing
3. Spirit and soul—growing and connecting
4. Family, friends, and healthcare providers—listening and being heard
5. Recharge—rest and sleep
6. Food and drink—nourishing and fueling
7. Personal development—personal life and work life
8. Surroundings—physical and emotional[14]

The following design strategies can assist in developing a patient centered facility:

Planetree

Healing Environments that have a demonstrated positive impact on both the patient and visitor experience of care and the perception of care quality are those that support personalized choice, dignity, and control." [13]

--for more information, see the website Planetree.org

DP 5.1 - Proactive Care Settings

Create a variety of settings where Veterans can be proactive in the eight components of health and well-being before and after their medical appointments.

Suggested Tactics:

a. Develop an inventory to assess all existing places where Veterans can engage in each of the eight components of proactive health and well-being. **(Figures 3.5.2 and 3.5.3)**. Consider community resources immediately adjacent to the VA that are easily accessible.
b. Environments should be created for active physical exercise and working the body, e.g.: yoga, walking, swimming, weight rooms within the facility, as well as exterior to the facility.
c. Environments should be created for mindfulness, stress reduction, spirituality, and commemoration **(see Commemorative Space - pages: 83-85, Courtyards and Exterior Components – pages: 93 – 97, Spiritual Settings – pages: 107 – 111.)**

Figure 3.5.3: The open planned, indirectly lit outpatient therapy gym features a full coverage overhead lift system, a cool-toned interior with low visual stimulus, fitness stations equipped with personal entertainment systems, and access to an outdoor tree-canopied terrain park. Audie L. Murphy VA Hospital Polytrauma Rehabilitation Center. San Antonio, Texas.

"The greatest challenge is to reinstill a mission-oriented posture within the patient; it's what they had while in the military. Their recovery, reintegration into the civilian world, and family life must become Mission Number One. A sense of purpose within a sense of place can greatly enhance, or detract from that."

—Mike Jager

Operation Desert Storm Veteran

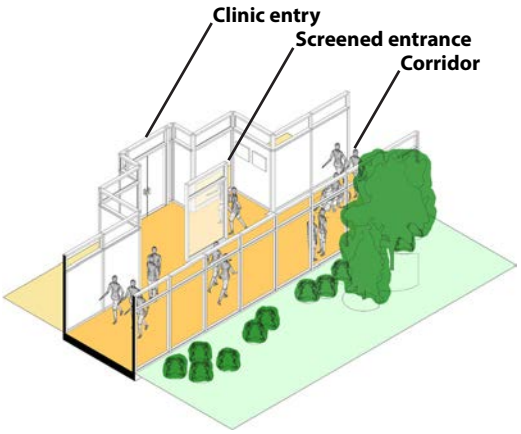

Figure 3.5.4: Main Arterial Corridor Diagram - Axonometric View

d. Environments should be created for Veteran interaction with other Veterans, Veteran families, and the community. **(see Cafeteria pages 113-118, Café/ Peer Mentoring Spaces – pages 120-126, Community/Multipurpose Spaces – pages: 128-132)**

DP 5.2 - Privacy

Incorporate appropriate degrees of privacy into all public and clinical areas. For example, the persistent cultural stigmas attached to Veterans seeking mental health counseling suggest careful master planning in the location of mental health clinics in relation to other highly utilized VA spaces, such as main reception lobbies and cafeterias. The same may apply to Veterans who have suffered severe disfigurements.

Suggested Tactics:

a. The entryways to the mental health clinics should not be directly located off high traffic areas, and should have more discreet or screened entryways. **(Figure 3.5.4).**
b. At times Veterans, facility healthcare providers, or family members may need a moment to step out of a room and compose themselves before returning. It is respectful of this need to provide adjacencies such as courtyards, gardens, and restrooms. Small waiting rooms, places of respite, and spiritual spaces allow for intimate conversation **(see Section 4.5.3).**
c. Include a variety of settings where providers can gather to discuss medical cases privately with one another, as well as with Veterans and Veteran families. Settings might include conference rooms, comfortable sofa areas for informal discussions, or group therapy rooms and peer mentoring rooms **(see Appendix C)**.
d. Provide seating or writing kiosks on the edges of conference rooms or similar spaces such that Veterans are able to engage in activities such as writing, mindfulness and solitude.
e. Provide group therapy rooms large enough that when seated in a circle, Veterans have space to walk around or sit outside of the circle without getting trapped in a corner or sitting with their backs to the door.
f. Provide private garden areas where access is limited but Veterans are able to visually monitor the entry and exit.
g. Provide locking hardware on clinical rooms and inpatient rooms.
h. Support privacy in waiting areas with some seating that allows Veterans to sit by themselves.
i. Provide audio privacy at check-in.

DP 5.3 - Families

Create a supportive and welcoming environment for the families of Veterans.

Without compromising safe and effective medical treatment, the well-being and needs of Veterans' families should be considered in the design. This can be achieved through the introduction of amenities, spaces, and programs for healthcare providers to engage in the

healing process. For a more detailed analysis of "patient centered care," see the VA standards here: **http://www.va.gov/QUALITYOFCARE/initiatives/patient-centered-care.asp**

Suggested Tactics:

a. Design patient rooms and other areas to encourage family involvement by providing a dedicated space for family members, including a comfortable sleeping chair or sofa, guest seating, work space, individually controlled lighting, and lockable storage. **(Figure 3.5.5)** (**Refer to the MEDICAL / SURGICAL INPATIENT UNITS & INTENSIVE CARE NURSING UNITS Design Guide for additional VA standards and design considerations.**)
b. Create areas of respite (such as access to adjacent gardens, terraces, porches, courtyards with pavilions, rooms of solitude, and commemorative spaces) for families to gather indoors and outdoors.
c. Create access to technology (wireless internet, TV, phone) so that family members can stay connected and accomplish their work.
d. Where appropriate, provide business centers in dedicated quiet settings that provide people with fax, copier, and computer access.
e. Create family lounges with areas for family group seating, access to a lactation room, and an indoor child play area. Where possible, provide direct access to an outdoor play area **(Figure 3.5.6).**
f. Create access to retail areas such as a canteen, cafeteria, coffee shop.

DP 5.4 - Critical Adjacencies for Interior and Exterior Building Components

Strategic placement of interior and exterior building components will enhance a Veteran Healing Environment by promoting flexibility of use, access to nature, and the opportunity for respite.

Facilities should be designed to provide a comprehensive and holistic approach to healing. During the phases of programming and conceptual planning, identify proactive care settings and professional care services that can be grouped together. Then locate relevant exterior spaces such as patios, porches, courtyards, pavilions, porticos, meditative areas, spiritual spaces, commemorative spaces, and terraces adjacent to interior healing environments to optimize healing therapies.

Suggested Tactics:

a. Establish a direct connection to nature by locating terraces, patios, courtyards, and pavilions adjacent to acute mental health clinics, outpatient mental health clinics, recreational therapy services, and other clinical services. This allows Veterans and healthcare providers to de-stress before and after therapies, and provides an option to hold therapeutic sessions in exterior space **(Figure 3.5.4)**.
b. Locate peer mentoring spaces and cafés adjacent to exterior building components such as terraces, courtyards, patios and porches to allow for casual socializing, as well as decompression

Figure 3.5.5: Private patient room with sofa bed for healthcare provider or family member. Forrest General Hospital. Hattiesburg, Mississippi.

Art Therapy

VA staff have long recognized that art helps Veterans express and examine feelings that are difficult for them to verbalize. Veterans have found that drawing, painting, and sculpture are very effective ways to safely get trauma-related feelings into the open, where VA staff can help them safely process and resolve them. In a study comparing 15 different types of therapy to reduce Veterans' PTSD symptoms, art therapy was the top performer. [15]

Figure 3.5.6: Large family room with sink, food preparation area, and refrigerator. The space is broken up into smaller areas with varied seating options in clusters, allowing multiple families to use the space, giving them the option to interact or remain separate. Lurie Children's Hospital. Chicago, Illinois.

Figure 3.5.7: The making of the mural "War Made a New Me," by artist and Veteran Dominic Fredianelli. National Veterans Art Museum. Chicago, Illinois.

after peer mentoring services **(Figure 3.5.4)**.

c. Provide meditative areas, rooms of solitude, gardens, spiritual space, commemorative space, and artwork (sculpture, outdoor installations, fountains, murals and flexible exhibits) adjacent to multipurpose spaces and therapeutic environments **(Figure 3.5.4)**.
d. Locate the cafeteria in proximity to terraces, patios and courtyards to allow Veterans and healthcare providers a connection to nature during meal times and in good weather **(Figure 3.5.4)**.

DP 5.5 - Integrate the Arts

Provide dedicated display areas and art-making spaces to support integration of the arts into the VA environment and into therapy regimens. The arts validate emotions and contribute to healing. They assist in creating bonds among Veterans of different generations and service units. Greek theater originated for the purposes of Veteran healing and public catharsis. The Greek comedies and tragedies were created by Veterans and performed by Veterans for Veteran audiences.

Suggested Tactics:

a. Recreational therapy spaces providing art therapy should be adaptable to support a variety of artistic expressions. These spaces can be located adjacent to an interior courtyard containing a storytelling pavilion, commemorative pavilion, ritual space, and gardens. Adjacency to behavioral health spaces such as inpatient and outpatient mental health clinics and multipurpose spaces is desirable.
b. Develop a facility-wide plane for the integration of visual and performance art, with suitable supporting spaces.
c. Identify major corridors and connections, main reception lobbies, waiting rooms, behavioral health clinics, and multipurpose spaces where Veterans' art can be displayed **(Figure 3.5.6)**.
d. Accent lighting for Veteran art displays should be incorporated when hanging the art to ensure proper viewing.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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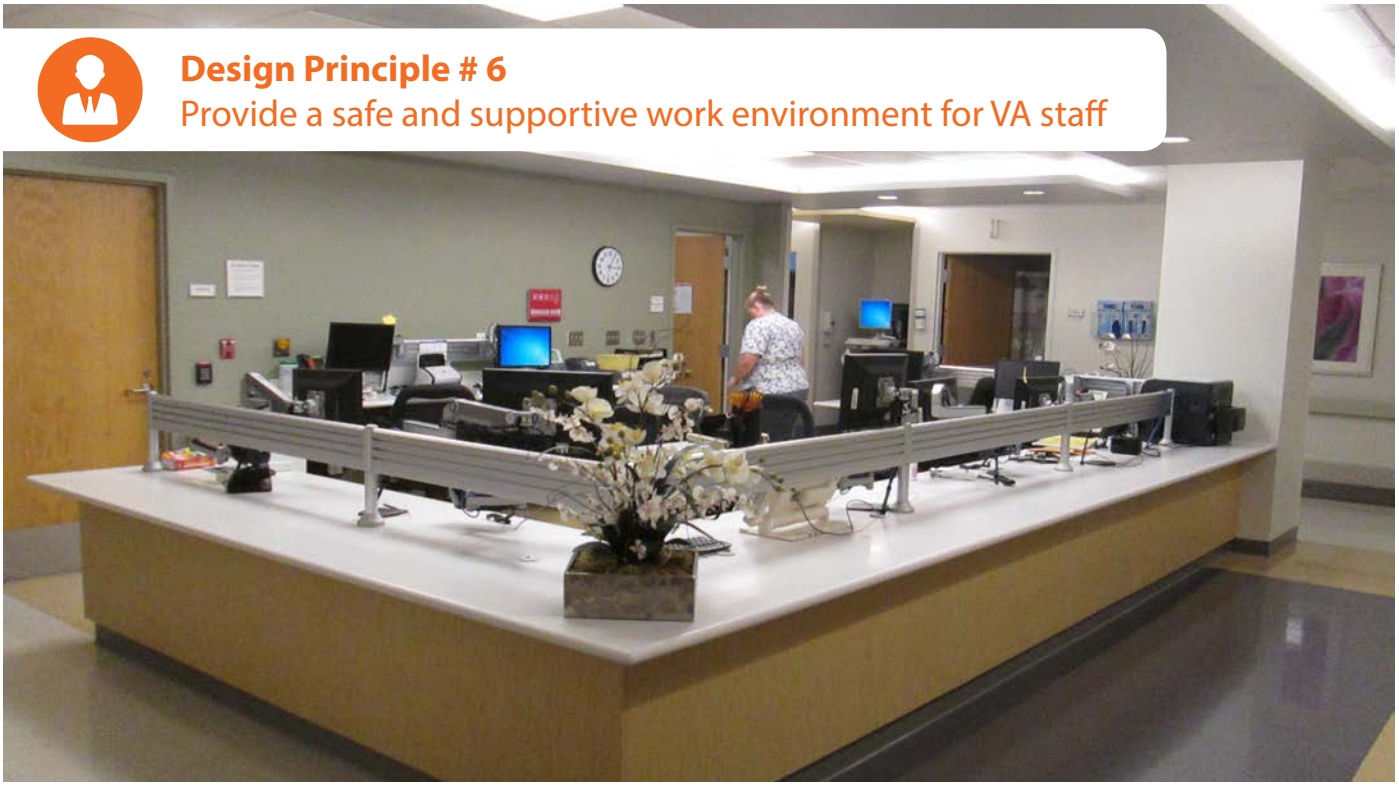

Design Principle # 6
Provide a safe and supportive work environment for VA staff

Figure 3.6.1: Nurses' station. VA Southern Nevada Healthcare System. North Las Vegas, Nevada.

Health Benefits of a Safe and Supportive Environment

- Improved health and well-being for staff[1]
- Higher staff satisfaction[1]
- Reduction in medical errors[1]
- Reduced number of sick days[2]
- Reduced number of work-related injuries[1]
- Higher staff retention[1]
- Improved staff and patient mood[3]
- Improved performance[1]
- Higher patient satisfaction[1]

Healthcare providers benefit from all Healing Environment design principles. In addition, the needs and safety of staff should be met in any Healing Environment. Such needs and concerns are discussed below, and suggested tactics focus on ways to provide safe and efficient work areas, as well as pleasant and comfortable settings for breaks and respite. A safe and positive environment for staff supports the best care for Veterans and their families.

DP 6.1 - Environmental Stress Strategy

Remove environmental stressors such as excessive glare and noise found in the work environment to optimize employee health and well-being.

Suggested Tactics:

a. Provide and maintain appropriate lighting levels on work surfaces and provide the ability to adjust lighting based on individual comfort level. Avoid lighting fixtures that create excessive glare.
b. Provide planning and design concepts that optimize staff time by locating areas for relevant support functions close to where care is delivered **(Figure 3.6.1)**.
c. Install low-impact flooring materials in areas where excessive standing or walking occurs to reduce noise.
d. Install low-resonance floor and ceiling materials.
e. As a means of keeping noise levels down, consider installing visual noise meters to encourage everyone in the vicinity to self-monitor the volume of noise they generate.

DP 6.2 - Supportive Environments for Staff

Positive work environments benefit everyone. Please note that: Figure's 3.6.2, 3.6.3, & 3.6.4 are not officially designated as support environments for staff members. However, these are good examples of potential staff support spaces.

Suggested Tactics:

a. Create staff break areas with views of nature and access to natural light.
b. Create direct access to outdoor spaces such as roof terraces, small balconies, porches, patios and courtyards. **(Figure 3.6.2)**.
c. Create designated areas for confidential staff communication other than the staff break room, which is specifically for restoration during the working shift.
d. Create a staff respite area where staff can find rest and solitude. Respite areas should provide dimmable lighting, low stimulation, and calming space away from noise and disruptions **(Figure 3.6.4)**.

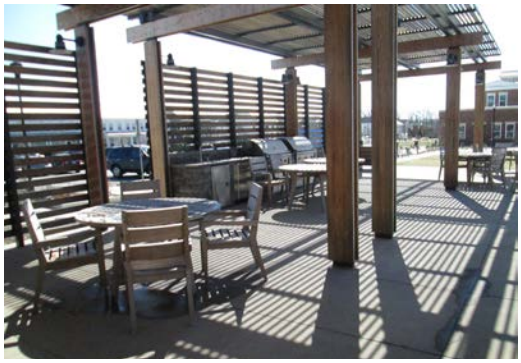

Figure 3.6.2: Outdoor barbecue and seating area. USO Warrior and Family Center. Ft. Belvoir, Virginia.

DP 6.3 - Teamwork & Communication

Improve communication among staff with dedicated meeting areas, use of technology, and maximum visibility.

Support the value of teamwork and communication among staff by increasing work satisfaction, decreasing stress and increasing control over the work environment.

Suggested Tactics:

a. Provide dedicated meeting areas for healthcare providers to gather for private discussions away from patients and visitors. Provide meeting areas that are flexible and offer comfortable seating and gathering spaces to encourage more social interaction.
b. Use information technology systems, mobile communication systems, and video conferencing.
c. Provide handheld/mobile information technologies to promote collaboration and improve communication among staff.
d. Maximize visibility within clinical staff work areas to increase team interaction and safety.
e. Provide unobstructed sight lines, open work areas, low partitions, and large windows to maintain visibility, where appropriate.

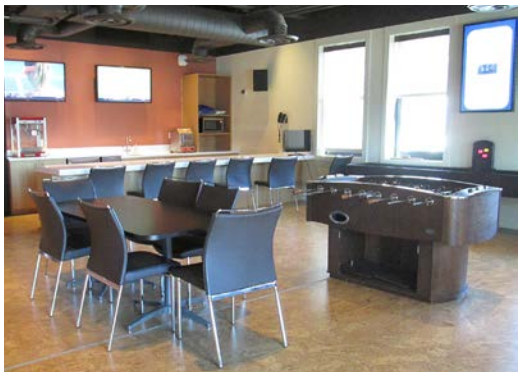

Figure 3.6.3: Recreational room. USO Warrior and Family Center. Ft. Belvoir, Virginia.

DP 6.4 - Physical Health

Provide on-site staff areas that support the physical and mental health and well-being of employees.

Suggested Tactics:

a. In addition to providing natural daylight to spaces as described in Design Principle #3, Connection to Nature, provide windows, clerestory, and skylights with control devices to adjust direct and indirect daylight into areas including, but not limited to:

Figure 3.6.4: Rocking chairs on the porch of the hospital, looking towards the Blue Ridge Mountains.
Martha Jefferson Hospital. Charlottesville, Virginia.

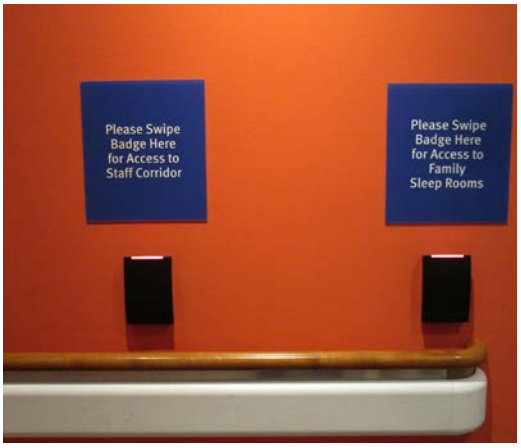

Figure 3.6.5: Card-swipe access point to staff-only area. Lurie Children's Hospital. Chicago, Illinois.

- Staff break areas/lounges **(Figure 3.6.3)**
- Staff respite areas **(Figures 3.6.2 and 3.6.4)**
- Staff dining areas **(Figure 3.6.2)**

DP 6.5 - Circulation

Support staff efficiency by providing off-stage staff circulation and collaborative work zones, which keep clinical work flow removed from patient and visitor circulation.

Suggested Tactics:

a. Develop circulation systems to remove unnecessary cross-traffic in public areas by staff, supplies, and equipment.
b. In cases where cross-traffic with supplies, carts, and staff cannot be avoided, consider scheduling material flow after hours or at low peak times to minimize disruption to public areas.
c. The "off-stage" zone can be for break areas and staff to circulate, move supplies and waste, and access lockers. These areas can be designed for efficiency and improved work performance.

Endnotes

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"To care for him who shall have borne the battle and for his widow and for his orphan"

—Abraham Lincoln,
Motto of the Department of Veterans Affairs
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Design Principle # 7

Utilize state-of-the-art technologies to enhance the user experience

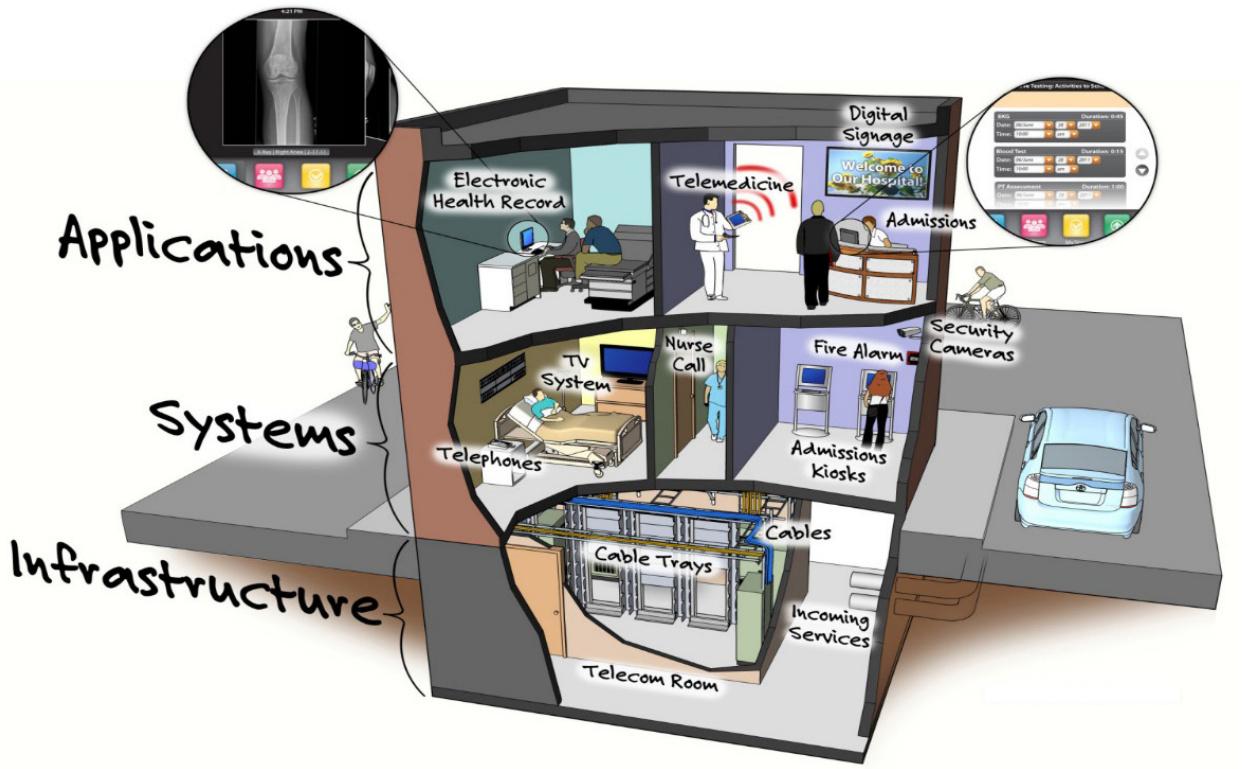

Figure 3.7.1: An illustration of several important technological systems integrated into a medical facility.

"Imagine entering a building that does not look like a typical hospital [...] You are early and your appointment is not for an hour, so they give you a beeper and show you to a beautifully-designed coffee bar adjacent to the lobby where you can enjoy the views of the outside gardens. There is also a Resource Room with computer terminals staffed by volunteers that contain all the training and educational programs, job openings and tickets to local entertainment and sporting events, specifically allocated for Veterans."

—Bruce Komiske
Veteran

A Healing Environment must be adaptable to changing needs of patients, visitors, and staff. Through integration of these design principles, the built environment can do much to achieve this, and in a way that allows individuals significant control over environmental conditions affecting their comfort. State-of-the-art technologies should be used to the fullest extent. **(Figures 3.7.1 and 3.7.2).**

The following design strategies should be considered:

DP 7.1 - Access to Information

Veterans must have access to information if they are to have control over their healing process. Currently, Veterans access such information—and communicate with care providers, family, and friends--through private computer kiosks throughout VA facilities.

Suggested Tactics:

a. Improve access to personal health information through bedside television and information kiosks.
b. Continue to enhance Wi-Fi accessibility throughout the facility, except in quiet-contemplative areas and specific clinical areas.
c. To facilitate wayfinding at the facility, and to ease access to registration and records, strategically locate electronic kiosks and bar code signage that can be read with smart phone applications.

d. Consider electronic monitoring of parking areas to communicate via smart-phone apps or by local video boards where parking is available and provide directions to the easiest and closest parking option.
e. Integrate technology systems such as Building Management Systems (BMS), security, electronic health records, nurse call, pharmaceutical dispensing systems, human resource systems, structured cabling infrastructure, etc. to reduce input time, decrease input errors, and improve coordination of records.

DP 7.2 - Personal Controls

Providing Veterans the means to adjust environmental conditions to their liking is an effective use of design to prevent feelings of irritation and powerlessness from ratcheting up their stress levels.

Suggested Tactics:

a. Localize lighting controls so that the Veteran can set the desired light levels for personal comfort and activity desired. In private and semi-private areas, control devices should be located for ease of patient access and controllability: integrated into bedside controls and pre-set multi-scene video screens that depict soothing images of the natural world **(Figure 3.7.2)**.
b. Install adjustable internal window shading devices to allow access to natural lighting, or to control for glare concerns or privacy.
c. Where possible, localize heating/cooling temperature controls for individual comfort. Pay particular attention to areas where Veterans may be expected to experience high stress, such as contemplative spaces, and spaces used for group behavioral therapy. An appropriate solution would be enabling Veterans to turn the temperature "up" or "down" without numerical specificity. In essence, provide a range of two to three degrees.

"I find that many of my clients don't have family involvement, period. It's rarely a matter of proximity, at least for the folks I see as outpatients. This may be more relevant when a vet is staying in the hospital for a period of time, which is more likely in facilities that are "Level 1" like Minneapolis, where more involved rehab happens. In mental health, we're rarely talking about lengthy hospitalizations anymore, with the exception of the residential treatment programs or the domiciliary programs. I would think that creative solutions to this kind of problem, if it is one of proximity, might include computer stations with Skype capacity or videochat, and of course with more privacy available than one finds in the usual "computer room". This might replicate (or improve upon!) the quality of long distance communications with families during deployments."

—John Mundt, PhD
VA Clinical Psychologist

DP 7.3 - Indoor Environmental Quality

Environmental factors, such as air quality, noise level, visual information, and auditory stimuli, affect Veterans' sense of comfort and safety within a facility. In all areas, from waiting rooms to clinical settings, make full use of environmental equipment and design techniques to achieve the highest possible environmental quality.

Suggested Tactics:

a. Heating, Ventilating and Air Conditioning (HVAC) systems, equipment and BMS systems should have readily maintainable and monitored temperature, humidity and pressure relationships for infection control and patient comfort.
b. Utilize HEPA filtration, ultraviolet filters or other advanced filtering options for emergency rooms, waiting rooms and other triage areas for increased infection control.

Figure 3.7.2: Controls surrounding patient bed. Lurie Children's Hospital. Chicago, Illinois.

Endnotes

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4. In a landmark study of stress and the common cold, Sheldon Cohen and colleagues assessed mental stress levels in 394 healthy adults. After the stress assessment, a nasal spray was used to intentionally expose each adult to a common cold virus. They found that the higher the level of mental stress in these adults, the more likely they were to become ill after exposure to the virus. See Sheldon Cohen, Denise Janicki-Deverts, William J. Doyle, Gregory E. Miller, Ellen Frank, Bruce S. Rabin, and Ronald B. Turner, "Chronic stress, glucocorticoid receptor resistance, inflammation, and disease risk," *Proceedings of the National Academy of Sciences* 109, no. 16 (2012): 5995-5999.

   Even minor stresses, such as working in an office that has annoying lighting or noise levels, can lower a person's resistance to illness. Research shows that daily hassles more often led to major psychological problems than major life events. See Allen D. Kanner, James C. Coyne, Catherine Schaefer, and Richard S. Lazarus, "Comparison of Two Modes of Stress Measurement: Daily Hassles and Uplifts Versus Major Life Events," *Journal of Behavioral Medicine* 4, no. 1 (1981): 1-39. Their research includes examples of 117 daily hassles, including: "[…]misplacing and losing things, declining physical abilities, not enough time for family, concerns about owing money, and pollution."
5. For a survey of this research and some of its implications for architecture, see Nalina Moses, "Environmental Psychology: Building with Feeling," *AIA Architect* 19 (2012), accessed April 29, 2014 http://www.aia.org/practicing/AIAB096792.

   For information on olfactory therapy research, see Janice K. Kiecolt-Glasera, Jennifer E. Graham, William B. Malarkey, Kyle Porter, Stanley Lemeshow, Ronald Glaser, "Olfactory influences on mood and autonomic, endocrine, and immune function," *Psychoneuroendocrinology* 33, no. 3 (2008): 328–339.
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7. Charlene Laffaye, Steven Cavella, Kent Drescher, and Craig Rosen, "Relationships among PTSD Symptoms, Social Support, and Support Source in Veterans with Chronic PTSD," *Journal of Traumatic Stress* 21, no. 4 (2008): 394-401.

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   Keren Lehavot, Claudia Der-Martirosian, Tracy L. Simpson, Jillian C. Shipherd, Donna L. Washington, "The Role of Military Social Support in Understanding the Relationship Between PTSD, Physical Health, and Healthcare Utilization in Women Veterans," *Journal of Traumatic Stress* 26, no. 6 (2013): 772-7755.

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"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.0 Applying Design Principles to Component Spaces at a VA

Figure 4.0.1: A shaded pavilion located in a natural environment within the city invites moments of contemplation as well as providing communal space. A variety of seating (stone, wood) encourages visitors to linger at the site. Alfred Caldwell Lily Pool. Chicago, Illinois.

This chapter shows how the seven design principles from the last chapter have been applied to Healing Environment component spaces within existing VA facilities.

Images of existing facilities have been chosen to highlight particular features. The images are not meant to represent completely realized Healing Environments. Many of the spaces pictured could be modified to enhance the healing experience of Veterans **(for VA referenced documents see VA CFM Technical Information Library (TIL)).**

Components

- Entrances
- Main reception and lobby
- Waiting areas
- Connections and pathways
- Mental health/spiritual spaces
- Courtyards and exterior components
- Small waiting rooms and spaces of respite
- Cafeteria
- Café/peer-mentoring spaces
- Multipurpose spaces
- Women's clinic
- Inpatient units

*Diagrams represented in ch. 4 represent conceptual and planning intent not for final design

> "The garden at Lincoln Park was planned as a sanctuary of the native landscape, a place sequestered from Megalopolis, the jungle of profound ugliness; a cool, refreshing, clear place of trees and stone and running water–an exposition, in little, of the structure of the land. It was planned as a hidden garden of the people of Megalopolis."
>
> *—Alfred Caldwell,*
> *Landscape Architect*
> *Author of* The Lily Pool, Lincoln Park

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—*Abraham Lincoln,*
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4.1 The Main Entrance

Figure 4.1.1: View of car canopy drop-off with seating, planters, and fountain. In addition, please note skylights allowing natural light to penetrate the space.

A Veteran's healing journey with the VA begins at the site boundary of a facility. The identifying feature of the main entry should be large enough to be seen and easily recognized by approaching drivers, passengers, and pedestrians. It should communicate that this is a space dedicated to the services and deeds of Veterans of all generations. The wayfinding from the parking lot to the main entry should be defined by architectural features such as the tower-like element, generous carport, drop-off areas, and regionally-inspired landscaping.

VA medical facilities, as part of the nation's critical infrastructure, require perimeter fencing, surveillance cameras, exterior illumination, and other physical security measures to support the safety and well-being of Veterans, healthcare providers, staff, family, and community. It is important to consider the site boundary of any VA medical facility as the first opportunity to directly influence the Veteran's healing journey by using design to establish that this is a Healing Environment. For example, the campus gate could be a prominent feature with imbedded symbols representing the service of Veterans.

> "Make the gateways solid elements, visible from every line of approach, enclosing the paths, punching a hole through a building, creating a bridge or a sharp change of level—but above all, make them 'things' [....] Whenever possible, emphasize the feeling of transition for the person passing through the gateway, by allowing change of light, or surface, view, crossing water, a change of level."
>
> —*Christopher Alexander, Architect*
>
> *Author of* Pattern Language

Figure 4.1.2: View of car canopy drop-off with memorial statue, seating, planters, skylight, and fountain.

Figure 4.1.3: View of car canopy drop-off with seating, skylight, planters, memorial statue, and fountain.

Figure 4.1.4: View of car canopy drop-off with seating, planters, and skylight.

The facility's main entrance should clearly convey the design principle that this is a place that embraces Veterans. The use of Veteran-embracing symbols differentiates a VA facility from a civilian health care facility, and is critical to establishing not only the identity of the facility but the message of welcome and belonging. These symbols may be echoed in the design of landscape elements leading from the site access point to the front doors.

What You Need to Know

- The main entrance to a VA facility should provide an atmosphere of calm, clarity, and hospitality. It should indicate that it is a technologically advanced place that offers high-quality care **(Figure 4.1.2)**.
- Areas in front of the main entrance as well as all other significant entrances (to outpatient clinics, emergency room clinics, car/bus drop-offs) should be protected by a canopy **(Figures 4.1.1-4.1.7)**.
- Seating areas should also be included within a protective canopy and should accommodate wheelchairs in seating configurations **(Figure 4.1.1)**.
- Natural materials such as wood should be considered for outdoor seating. Metal and stone become uncomfortably cold in low-temperature climates.
- Symbols at the entrance that honor military service can include large, wall-mounted seals of the individual military services, statues and other artwork depicting service members engaged in their duties, or artwork that incorporates representations of military gear.
- Landscaping elements leading from the site access point to the front doors can echo these symbols.
- Placing a Veteran-embracing symbol strategically in front of the main entry signifies that this is a place that honors, understands, and assists Veterans **(Figure 4.1.2)**.

Seating

- The area in front of the main pedestrian entrance should be inviting and protected by a canopy.
- Seating materials should be composed of materials that are comfortable year round. For example, concrete seating benches should not be utilized in cold climates.
- Seating should be designed in such a way as to tie in with the characteristics of the surrounding region.
- Consider a positive attraction located at covered car drop-off/entrances. This can provide multiple benefits such as seating opportunities, positive attractions, and stress relief. Positive attractions can allow for optional art accents to enhance the entry and departure experiences.
- Seating should not be oriented with back toward circulation or the exterior glass partition **(Figures 4.1.3 and 4.1.4)**.

Accessibility

- For large medical centers, multiple entrances may be needed to limit distances from parking areas and drop-offs.
- Dedicated entrances should be provided for outpatient services, emergency services, and those serving inpatient services. Separate entrances may be necessary for mental health and women's clinics to help address the needs of these populations, as appropriate.
- For outpatient entrances, Veterans are often long-term visitors with multiple medical issues. The degree of need varies depending on the affliction, and entrance designs must address mobility issues related to aging, physical and mental disability, and differences in perceptual ability.
- In addition to providing convenient access with a dedicated entrance, a covered car drop-off to outpatient treatment areas should be provided **(Figures 4.1.1-4.1.7)**.
- Veterans arriving on their own may need transport services from the car. Many VA facilities have implemented valet services to assist with Veteran access.
- Designs should dedicate space for wheelchair storage and transport service staff near main entrances.

Figure 4.1.5: Generously-sized car drop-off canopy. VA Southern Nevada Healthcare System. North Las Vegas, Nevada.

Lighting

- All lighting (i.e., parking lot, pedestrian paths, car drop-off) should be selected, designed, and located in order to provide safety and clear wayfinding, and to create a sense of welcome, comfort, and pleasing aesthetics by using warm colors, adequate light levels, and minimal glare. **(Figure 4.1.5)**.
- Make use of natural light. For example, the canopy over the car drop-off area may be made of translucent materials to take advantage of natural light and give an open, welcoming feel to this functional space **(Figure 4.1.4)**.
- The lighting fixture size should be considered to match the entry scale and to allow for integration into the architectural design.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.

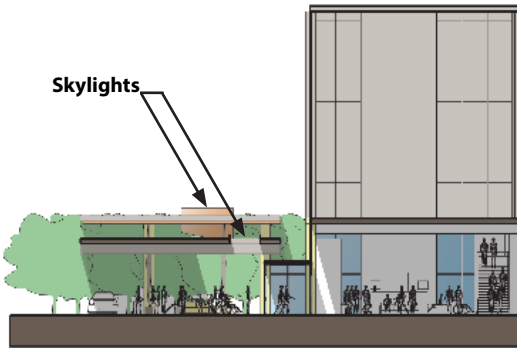

Figure 4.1.6: Section through car drop-off canopy. Please note skylights, which allow for natural light deep within the space.

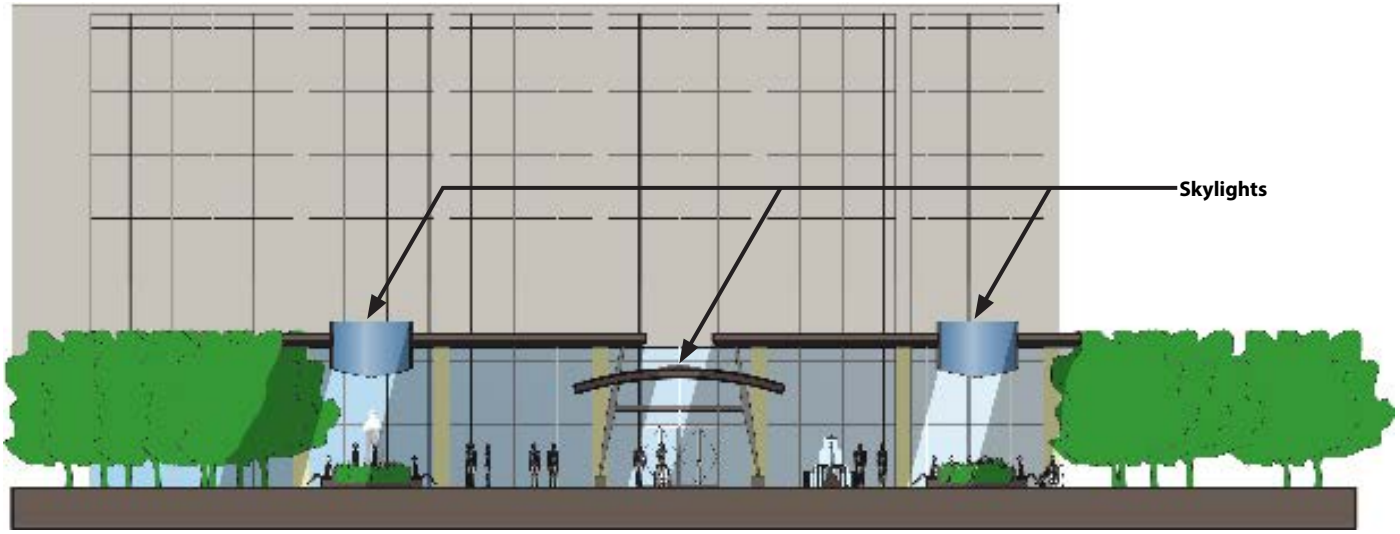

Figure 4.1.7: Section through car drop-off canopy. Natural light from skylights illuminate planters and seating below. Central pedestrian canopy also has a skylight to illuminate entry of buildiung.

"To care for him who shall have borne the battle and for his widow and for his orphan"

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4.2 Main Reception and Lobby

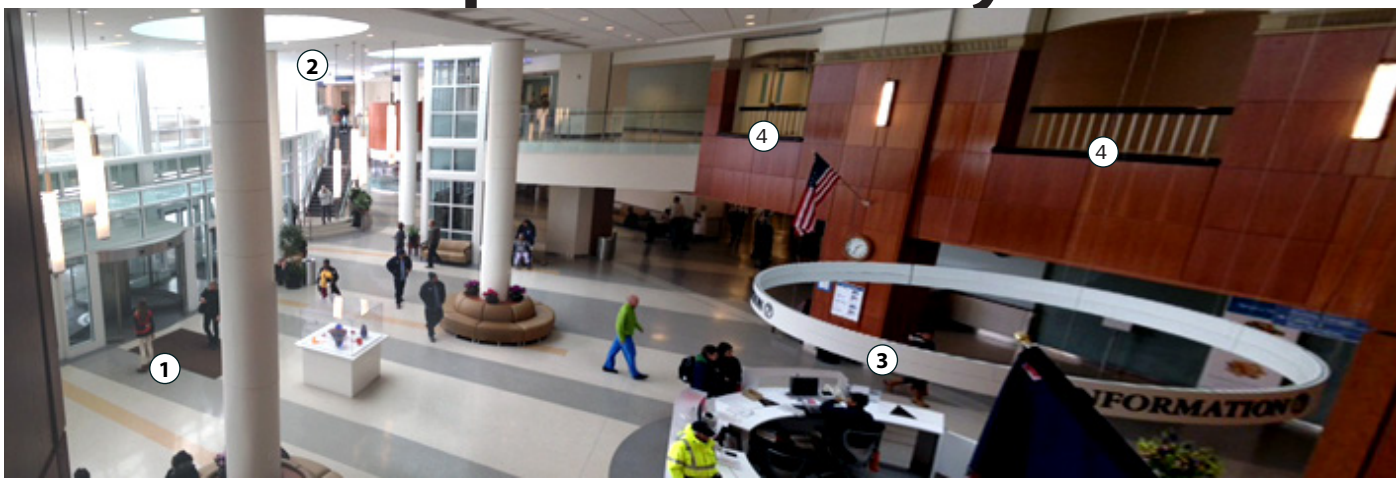

Figure 4.2.1: Patient-centered reception sequence. (1) Main entrance from car drop-off, (2) Sky lights and curtain wall providing main light source for large volume space, (3) Easily visible wayfinding element suspended over reception desk, (4) Second floor balcony. (Please note second floor balconies must have railings or screens to cover the opening completely). University of Virginia Hospital. Charlottesville, Virginia.

Veterans arriving for an appointment at a VA facility bring with them their own unique accumulation of stress, from physical pain and PTSD to challenges of family, job, and reintegration into civilian society. Even the travel experience to the VA that particular day may have contributed stress. It is important, therefore, for Veterans not only to feel welcomed and embraced from the moment they enter the grounds of the VA, but to find that every step of the way thereafter has been made as relaxing, easy to navigate, and stress-free as possible. The healing process itself is greatly assisted by helping the Veteran de-stress.

Image Key

1. Main Entry
2. Skylight over main entry
3. Wayfinding element above reception desk
4. Second floor balcony

The main reception and lobby set the tone for the Veteran's healing experience within the facility. It should convey the instant message: Veteran, all your needs are anticipated and provided for. We will make this easy for you. You are not a guest: this Veterans' domain is for and about you.

The main reception lobby must allow Veterans and their families the opportunity to refresh, gather their thoughts and emotions, and re-focus. If Veterans are given the opportunity to de-stress upon arrival, their ensuing medical appointments will be more successful.

What You Need to Know

The particular needs of Veterans must inform the design of this space. Many Veterans experience high stress in settings they perceive as overcrowded or claustrophobic. Crowds and chaos can trigger a fight-or-flight response from a Veteran with PTSD or TBI. Veterans are also made nervous when waiting room or lobby chairs are arranged with their backs to doorways, or in any fashion that would allow someone to approach unseen. Wayfinding signage that is confusing, especially in conjunction with an architectural layout that doesn't support wayfinding, creates stress and confusion that can complicate healing

> "Currently, the chairs in the waiting areas are set up in long regimented rows. When sitting down, it almost feels like you're sitting in formation."
>
> *—Jacques-René Hébert, OIF Veteran*

Main Lobby/Reception Diagrams

Figure 4.2.2: Axonometric View

Diagram Key

1. Covered vehicular drop-off
2. Main entry doors
3. Seating/planters (positive attraction)
4. Main reception desk
5. Positive attraction (gas fireplace)
6. Multiple configured seating area
7. Wheelchair storage
8. Veteran exhibit display (Veteran-Embracing)
9. Main ceremonial stair
10. Access to courtyard/nature
11. Covered porch
12. Courtyard
13. Positive attraction (soldier monument)

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

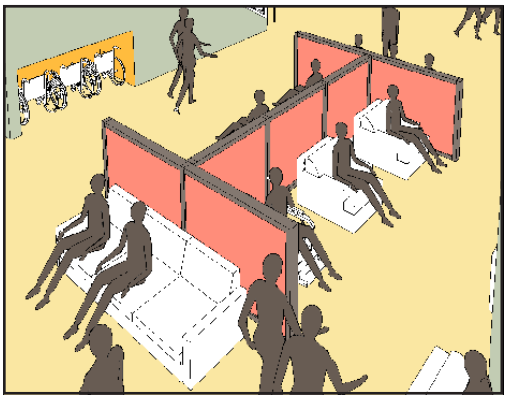

Figure 4.2.3: An example of multiple seating configurations with 54" interior partitions at the back side of seating.

therapies. Thoughtful design such as the following can alleviate these feelings:

- Create stations for refreshments, and areas of respite.
- Create a lobby with a double-height floor to ceiling, and generous square footage **(Figure 4.2.1)**, if possible.
- Locate the reception desk on the sightline of the main entrance doors **(Figures 4.2.1, 4.2.2, and 4.2.4)**.
- Locate the reception desk in the lobby such that it serves to draw Veterans into the space and towards the circulation elements such as the elevators and main circulation pathways.
- Organize seating elements so that there are multiple seating options with one's back against a wall.
- The waiting area should have windows of ample size, such that there is clear visibility to the pick up area outside **(Figures 4.2.3 and 4.2.5)**.

Main Lobby/Reception Diagrams

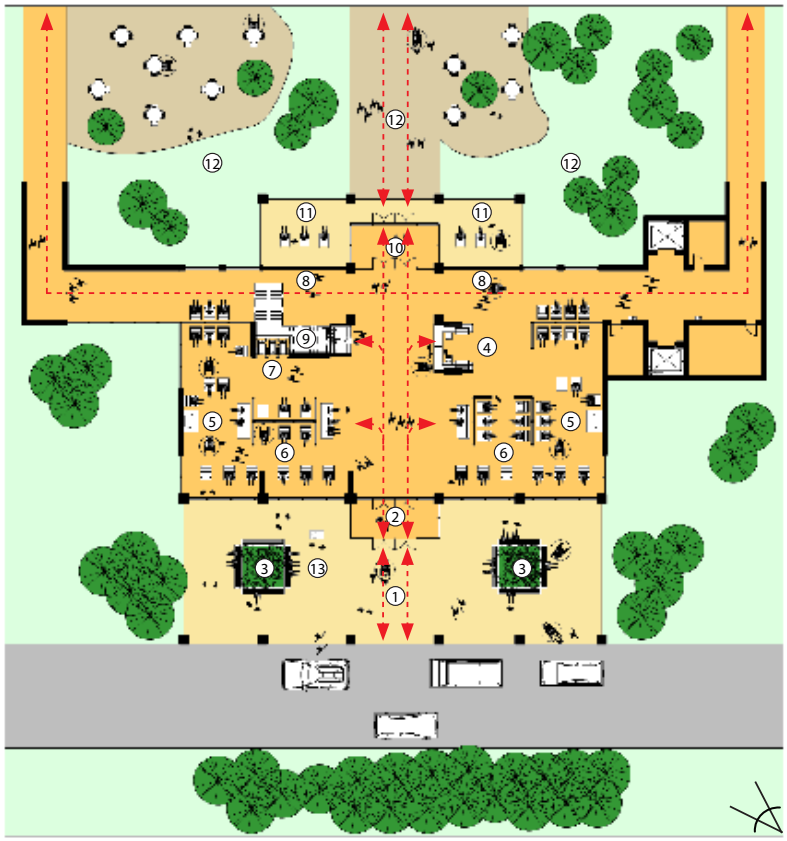

Figure 4.2.4: Plan View

Diagram Key

1. Covered vehicular drop-off
2. Main entry doors
3. Seating/planters (positive attraction)
4. Main reception desk
5. Positive attraction (gas fireplace)
6. Multiple configured seating area
7. Wheelchair storage
8. Veteran exhibit display (Veteran-Embracing)
9. Main ceremonial stair
10. Access to courtyard/nature
11. Covered porch
12. Courtyard
13. Positive attraction (soldier monument)

Circulation path

Viewpoint

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

Critical Adjacencies

- Car pick-up and drop-off
- Main circulation path
- Vertical circulation such as elevators and stairs
- Outdoor elements such as courtyards, patios, or porches
- Refreshment kiosks or café
- Toilet rooms
- Rooms of solitude
- Outpatient/ Administrative offices
- Lactation and baby changing room

Figure 4.2.5: Furniture is arranged in a variety of configurations, and natural light is utilized with varied direct and indirect light sources. Paul G. Allen Center for Global Animal Health. Pullman, Washington.

Figure 4.2.6: Main entry artwork honoring the service of service members who lost their lives during the Vietnam War. *Above and Beyond Memorial*, National Veterans Art Museum. Chicago, Illinois.

Figure 4.2.7: Metal leaf sculpture hanging in a double-height space offers a positive attraction and strong visual wayfinding. Fort Belvoir Community Hospital. Fort Belvoir, Virginia.

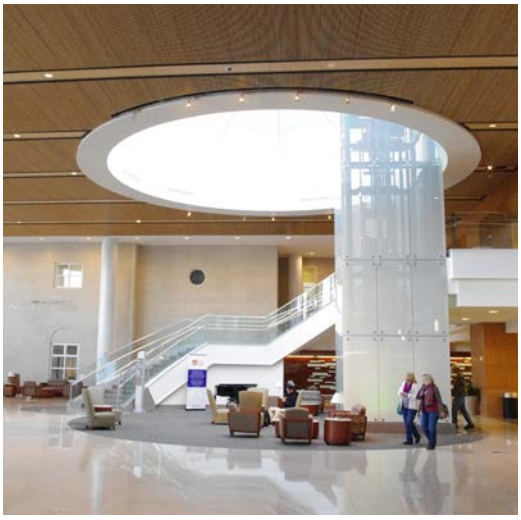

Figure 4.2.8: Natural light filters from above through major circulation elements visible from main reception lobby. Albert B. Chandler Hospital, University of Kentucky. Lexington, Kentucky.

Wayfinding

- A successful wayfinding strategy integrates architectural features such as main stairways, elevators, skylights, two-story interior spaces, balconies visible to other levels, and perimeter lobby windows allowing ample natural light to other levels **(Figures 4.2.1, 4.2.5, 4.2.7, 4.2.8, 4.2.9).** In addition to internal visual keys, external elements seen through the perimeter windows can be memorable wayfinding markers. For example, landscape, parking lots, and the covered pick-up and drop-off area can assist in the return passage.
- Colors, positive attractions such as artwork, graphic symbols, and hanging displays will assist in orienting Veterans within the facility **(Figures 4.2.6, 4.2.7, 4.2.10, 4.2.12).**
- The design and location of the main reception/lobby area, such as monumental stairs and elevators, ease wayfinding as well as provide places for incidental meetings. The location of the reception desk should be placed to draw visitors to the interior of the main reception lobby and to avoid crowding at the entryway. While situated in the lobby area, the reception desk should be clearly visible from the entry. A symbolic object suspended above it can help draw attention **(Figure 4.2.1)**.
- When seating is placed adjacent to these circulation elements, the ground floor and second floor become a single connected volume **(Figures 4.2.2, 4.2.4, 4.2.7, 4.2.8, 4.2.9, 4.2.13, 4.2.14).**

Elevator Lobbies and Stairs

The needs of disabled Veterans are of particular concern. Create spaces, such as elevator lobbies, that ease the movement of disabled Veterans. Elevators and stairs are very important elements of circulation and provide dynamic opportunities for community-building.

- Make sure there is adequate natural light and artificial lighting to make wayfinding clear, simple, and safe. Link main public elevator lobbies to main waiting spaces and main circulation corridors **(Figure 4.2.11)**.
- Where ramps are necessary to facilitate a change in elevation for individuals with disabilities, consider designing them close to the stairs used by unassisted pedestrians if possible, with common points of arrival and departure, so that there is little difference in the experience of these two kinds of users **(Figure 4.2.9)**.
- Allow ample space in the elevator lobby to accommodate wheelchairs as well as pedestrians **(Figure 4.2.8)**.
- Elevator lobbies are an appropriate location for positive attractions and Veteran-embracing symbols, artwork, etc. Consider Veteran-embracing displays in upper floor elevator lobbies to echo the theme of the facility and ease wayfinding **(Figure 4.2.12)**.
- Main stairs can serve a multi-story main lobby space such that Veterans in transit can meet formally or incidentally with other Veterans, healthcare providers, or friends. Consider oversized stair landing dimensions so that people can use the stairs while others pause on the landing for conversation. In addition, seating should be provided at the floor levels adjacent to these main stairs, allowing Veterans to wait comfortably or have a conversation **(Figure 4.2.8)**.

Veteran-Embracing Environment

As mentioned in the discussion of the entrance and in the Positive Attractions section, the lobby should contain artwork, symbols, text, and objects and display items honoring the service of the Veteran **(Figures 4.2.6, 4.2.7, 4.2.10, 4.2.12)**. Some other points to consider:

- The overall design of the lobby, in its sensitivity to the needs of Veterans both physical and psychological, communicates that this is a place where Veterans are honored and cared for. In VA facilities where Veterans feel especially comfortable and welcome, they have been known to show up hours before an appointment and socialize with one another. Thus, there is a need to size lobbies to accommodate these "non-programmatic" uses **(Figures 4.2.1, 4.2.2, 4.2.4, 4.2.5, 4.2.8, 4.2.9, 4.2.13)**.
- Consider the inclusion of lighted display cases with content about historic events or for holding objects contributed by Veterans that symbolize the experiences of their deployments **(Figure 4.2.10).**
- Design a portion of the lobby space, or even an adjacent gallery, for flexible displays of artwork by Veterans.
- Consider locations for Veteran greeters to be visible as Veterans enter the lobby.

Figure 4.2.9: The lobby features natural materials and a warm palette, along with moveable seating and a monumental stair visible from main enry and reception desk. Froedtert Hospital of the Medical College of Wisconsin Clinical Cancer Center. Milwaukee, Wisconsin.

Windows and Views

- Use large windows to the extent possible. This allows natural light to fill the space **(Figure 4.2.5)** and orients visitors to where they came from.
- Depending on building orientation, control direct sunlight with passive or active devices (i.e, fritted glass, brise soleil, arcades, porticos, and interior moveable blinds, etc.) to prevent glare and excessive heat build-up **(Figure 4.2.5)**.
- Avoid glare, since it inhibits depth perception for someone passing through a space and can cause tripping issues. In addition, glare exacerbates stress for Veterans with disabilities or suffering from PTSD.
- Interior and exterior windows facilitate wayfinding and views of adjacent or upcoming spaces. This assists Veterans in effectively navigating through space, and provides them with a better sense of safety. It also allows them to spot cars or buses arriving for pick-up.
- Locate windows to enhance views of gardens, courtyards, and other landscape elements, as they are calming and connect the the viewer to nature **(Figure 4.2.5)**.
- Provide full height exterior glass wall partitions on ground level to optimize intake of natural light and views of nature when possible **(Figures 4.2.5 and 4.2.9)**.

Figure 4.2.10: Display cases hold regional historic objects honoring military service. Jamaica Plain Campus, Boston VA. Jamaica Plain, Massachusetts.

Seating

- Seating grouped around a fireplace, enclosed water feature, or other positive attraction is calming and encourages socializing.
- 54" Half-wall partitions should be located behind seating **(Figure 4.2.3)**.
- Seating should be flexible to allow wheelchairs to be integrated into a furniture configuration and not appear added on at the periphery. Also consider occasional coffee tables, storage units, lamps, and privacy dividers.

Figure 4.2.11: Unique lighting and seating create a comfortable waiting area near the elevator. Seattle Children's Hospital. Seattle, Washington.

Figure 4.2.12: Zen gardens were the healing gardens of Samurai warriors. Elevator lobby on the third floor, Naval Hospital Camp Pendleton. Camp Pendleton, California.

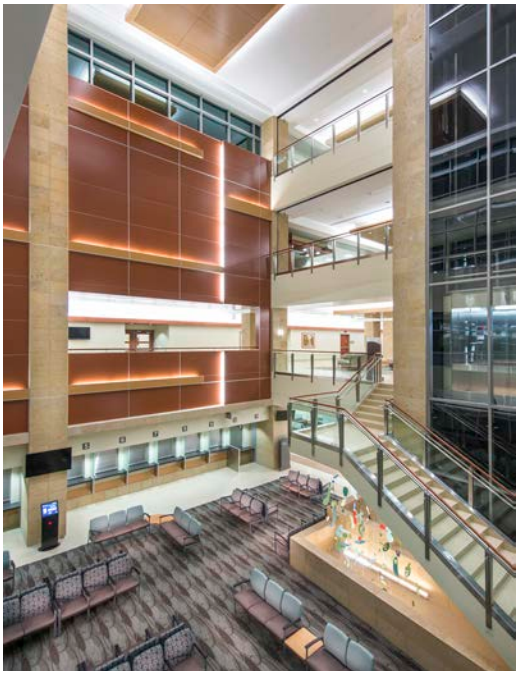

Figure 4.2.13: Lobby. Naval Hospital Camp Pendleton. Camp Pendleton, California.

*Please note screens would be utilized in balcony areas

- Create seating groups that allow for choice: large family/friend groups, intimate groups, individuals, etc.

Positive Attractions

- Positive attractions serve to provide elements for the mind to focus on an impending healing activity as well as to allow for positive emotions to replace anxiety. These elements could consist of gas fire places, enclosed water features, views of nature, art work, performances, and places of respite.
- Positive attractions include artwork, symbols, text, objects and displays that honor the service of Veterans and reinforce the bonds they share **(Figures 4.2.6, 4.2.10, 4.2.12)**.

Lighting

- Daylighting and artificial lighting should be adequately balanced in a Healing Environment. Diffused and ambient natural light may be desirable in some areas, depending on their function within the overall space. Waiting areas, for example, may benefit from daylight and views of the exterior or from appropriately placed reading lights **(Figures 4.2.7, 4.2.8, 4.2.9).**
- When natural light is not available, or in order to balance natural light, dimmable lighting with adjustable light levels and appropriate color temperature should be used. Lighting, such as task lights, should be controllable in order to meet the needs of the user. In some areas it may be desirable to use artificial lighting that simulates natural light.
- The lighting layouts and fixture selections should serve to create a sense of each part of the reception/lobby areas. Well thought out lighting design in conjunction with the control system, can help identify, organize, and personalize the space so that it appears more comfortable and less intimidating for patients, visitors, and staff.
- Large, open spaces can be subdivided into smaller, more comfortable spaces by providing different types of light fixtures, colors of light, and intensities of light in conjunction with other design components, such as finishes and furniture layouts. Key areas such as the registration desk, stairs, and elevator lobbies can be highlighted using focused accent lights in order to highlight the architectural features as well as provide light levels to assist with wayfinding. These techniques serve to decrease anxiety levels in those visiting the facility **(Figures 4.2.8, 4.2.9, 4.2.13)**.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.

Acoustics

Sources of potentially disruptive noise in lobby settings include visitor and staff conversations, mechanical systems, equipment, street traffic, and activity in nearby spaces. The appropriate acoustic character of lobby and reception spaces will prevent these sources from becoming overwhelming, while preserving enough background noise so that quiet conversations do not become unnecessarily public **(see VHA Program Guide: Design and Construction Procedures PG-18-3, Topic 11).** Fundamentals include the following:

- Incorporate acoustically absorptive materials on the ceiling **(Figures 4.2.12 and 4.2.14)**.
- Introduce shaped or textured surface materials on a portion of the wall surface and diffusive materials such as rough-cut masonry and similarly textured materials on 20% or more of the wall surface area **(Figure 4.2.9)**.
- Provide a small hard ceiling surface above the reception desk to enhance communication between visitors and staff members.
- Introduce background noise from HVAC systems and/or other sources to achieve a background noise level of Room Criteria 35, as defined by the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE).
- Ensure that spaces within the building which create excessive noise are separated from the lobby and reception areas by distance and/or soundproof barriers **(Figures 4.2.5 and 4.2.13)**.
- Consider an acoustical consultant to help identify where the designs can be improved to achieve optimal acoustical performance.

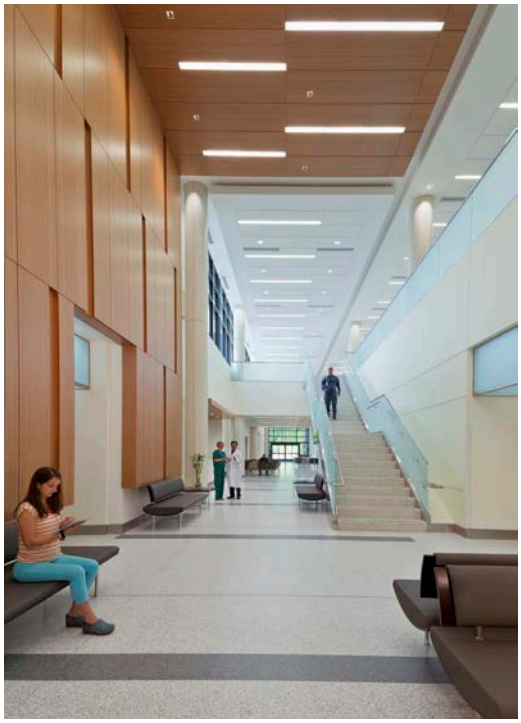

Figure 4.2.14: Naval Hospital Camp Lejeune. Camp Lejeune, North Carolina.

Communication and Technology

Technology is constantly evolving and is an integral part of the process of patient care. The integration of technology into the entry sequence of the lobby area can reduce Veterans' stress levels by providing access to important digital information for pending medical appointments, or a means to communicate with healthcare providers or other Veterans.

- Provide a strong cell phone signal for professional, social or family support.
- Consider electronic patient notification and tracking system identifying patient status, daily facility activities, educational information, etc.
- Consider electronic wayfinding kiosks in the lobby (and throughout the facility) to provide clear and graphic directions for navigating the building and the campus.

HVAC

The main reception and lobby areas are the first space a Veteran encounters inside the building. Air quality and temperature have a significant impact on a person's immediate sense of comfort in addition to the following factors:

- Consider if controlled access to natural ventilation is appropriate and controllable to potentially allow a sense of connection to the exterior as well as a less confining sense of the interior **(See Appendix A: (WHO: World Health Organization Guideline to Natural Ventilation. http://www.who.int/water_sanitation_health/publications/natural_ventilation.pdf)**.
- Analyze and address temperature and pressure relationships with adjoining areas to create an entry that is devoid of drafts, odors, etc., that could heighten a Veteran's stress level.
- Recognize both the transient usage of the space and the possibilities for energy optimization. This relates to the potential consideration of increased room temperature set points in the summer and cooler temperature set points in the winter to achieve energy savings, since the space is primarily transient in nature.

- Locate the registration and information desks so they are not affected by outside temperatures that are excessively hot or cold **(Figure 4.2.15)**.
- Be sensitive to the effect on acoustics of HVAC equipment, taking care to select and locate it so that the sound of its operation does not affect the functionality of the environment.
- Create an entry vestibule that will not cause drafts or introduce odors.

Case Study
Main Reception and Lobby
Fort Belvoir Community Hospital

Fort Belvoir Community Hospital exists as a comprehensive care facility serving active duty personnel and family members. The hospital design encompasses evidence-based design and uses these principles to create spaces that support treatment needs, while emphasizing healing aspects of architecture through natural light, generous communal spaces, privacy, and prominent circulation elements such as monumental stairs, elevators, and single loaded arterial hallways **(Figures 4.2.15 - 4.2.17)**. This facility is particularly effective in its succession of entry and circulation spaces leading from the front doors to the service and treatment areas within the hospital. Each of the three entry vestibules is specific to the type of care offered beyond, which simplifies wayfinding. Through creative use of color, nature themes, and clear, direct layouts, movement throughout the facility is possible without much stress or difficulty. Wayfinding is further aided by the presence of a greeter waiting out in front of the reception counter, ready to assist in answering questions or giving directions.

Figure 4.2.15: Large double-height space at the main reception counter with views of outpatient clinics. Fort Belvoir, Virginia.

The two-story volumes that announce the entry to each distinct pavilion lead in turn to a reception desk, circulation core, waiting areas, and treatment spaces **(Figure 4.2.15)**. The two-story volumes are interconnected through a network of passages that contain clusters of seated spaces for congregation or rest. This rhythm institutes a hierarchy and differentiation between public and private spaces throughout the facility. Entries and corridors become public, social environments, while the spaces closer to the treatment rooms become more private and individualized. Active duty personnel and family members are likely to feel less stressed when the degree of privacy within a healthcare facility is predetermined and uncompromised. Fort Belvoir enables this by establishing common entry points for clusters of related services (women's health clinic, behavioral health clinic, in-patient rooms, etc.), which also allows Veterans to navigate the hospital more easily.

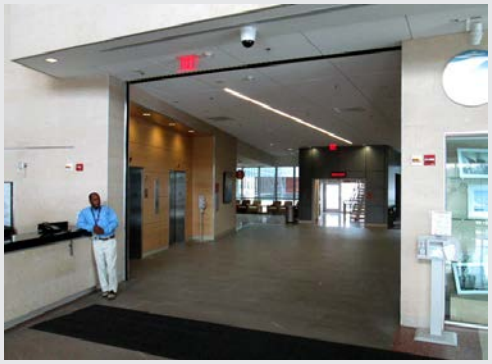

Figure 4.2.16: Greeter out in front of the main reception desk with views of elevator lobby and stair to upper floors and waiting room seating. Fort Belvoir, Virginia.

Fort Belvoir's entry sequence incorporates natural elements adjacent to the built environment. Natural buffers of greenery are placed between hardscape elements to create a balance along the path leading to the entrance. Interior views frame adjacent outdoor areas to remind the viewer of the relationship of the building to the surrounding site as well as to keep the facility in tune with the cycle of the day **(Figures 4.2.16 - 4.2.19).**

The design of this facility is deliberate in its placement of these spaces: views to the outdoors occur where there is an opportunity for pause in the architecture, such as a waiting area, corridor, or circulation space with seating. For example, a healing garden is placed adjacent to and within view of one of the circulation spines that host areas for patient treatment, allowing the active duty personnel and family members to focus on the serenity of nature and the outdoors rather than the impending medical appointment.

Figure 4.2.17: Single-loaded corridor with generous natural light, causal seating, and display area. Fort Belvoir, Virginia.

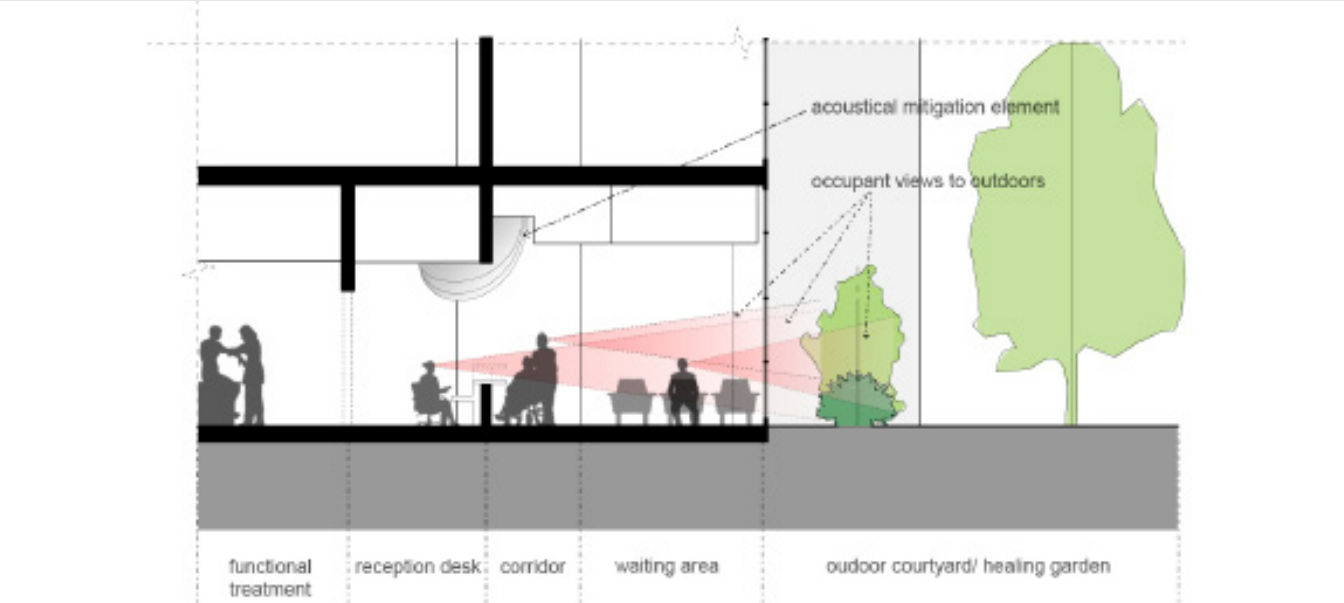

Figure 4.2.18: Waiting area section diagram. Fort Belvoir Community Hospital. Fort Belvoir, Virginia.

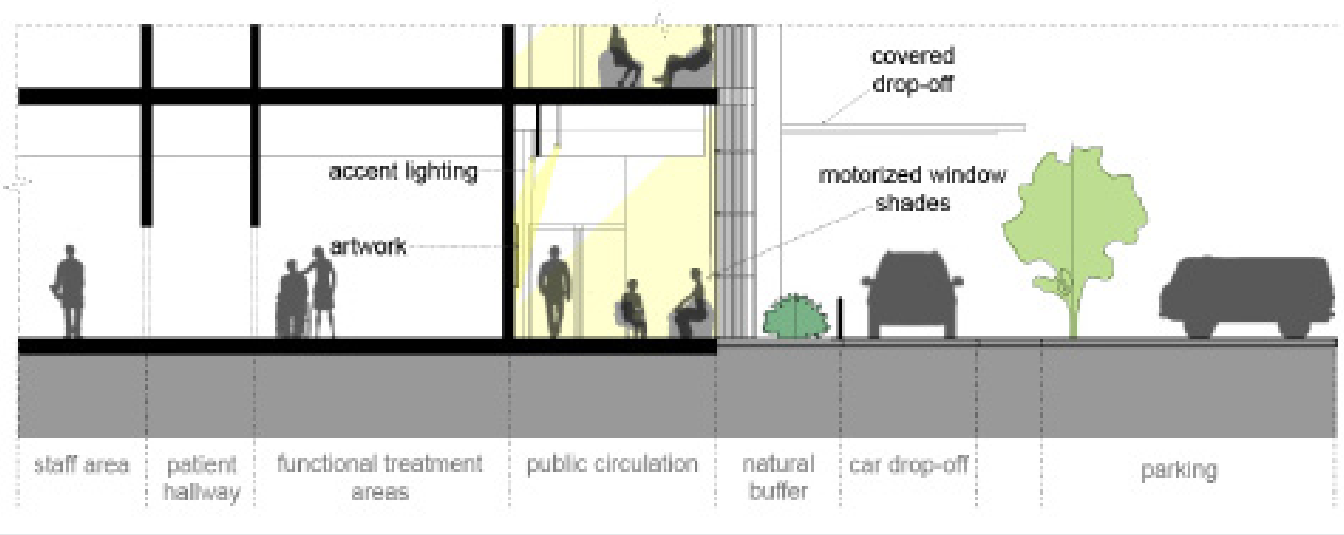

Figure 4.2.19: Entry sequence section diagram. Fort Belvoir Community Hospital. Fort Belvoir, Virginia.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—Abraham Lincoln,
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.3 Waiting Areas

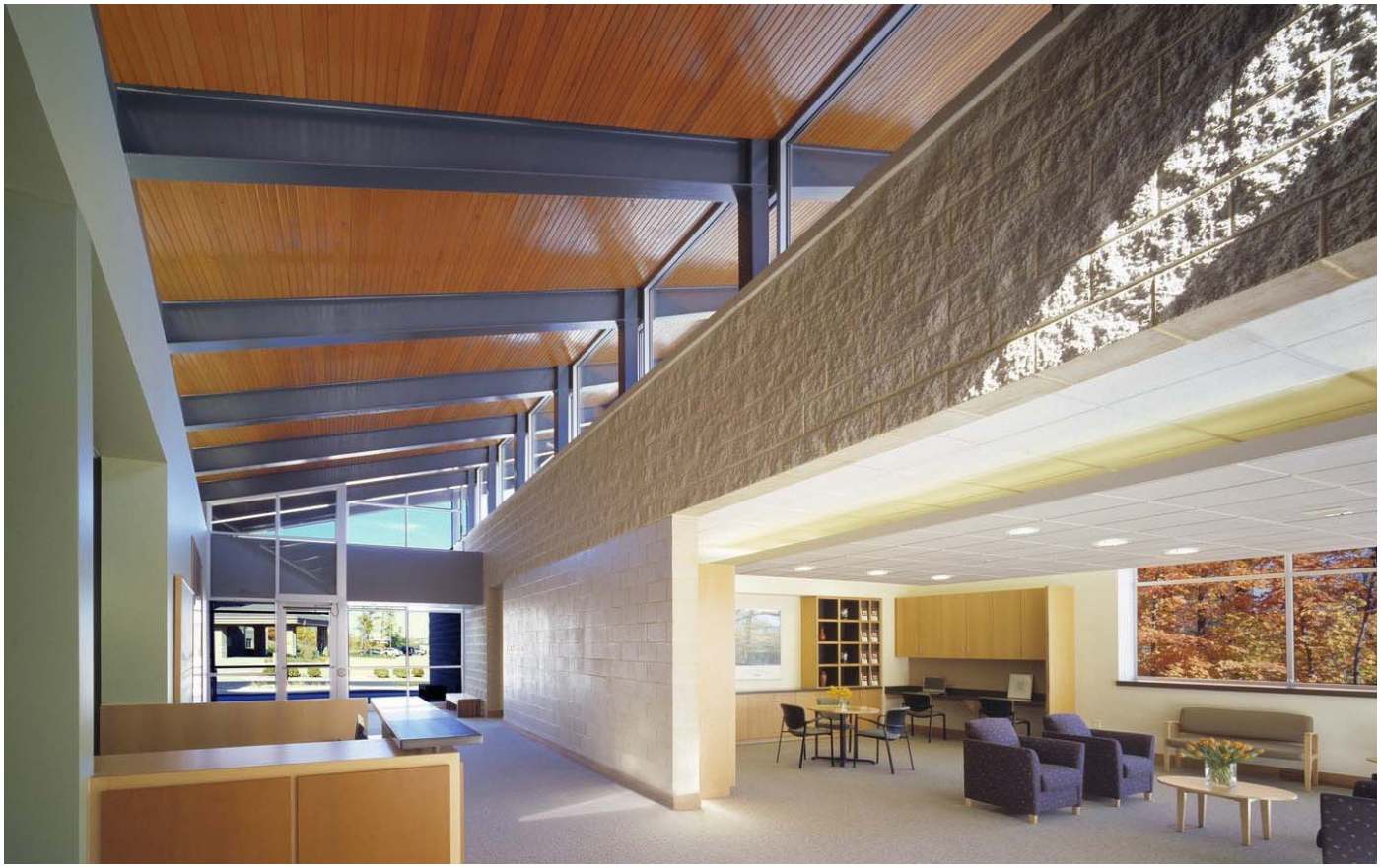

Figure 4.3.1: A waiting area with natural daylight, natural views, high ceilings, and earth tone colors creates a calm and therapeutic environment. UW Cancer Center Johnson Creek. Madison, Wisconsin.

> "The right atmosphere will come naturally if the waiting area provides some places that are quiet, and does not draw out the anxiety of the wait."
>
> —*Christopher Alexander, Architect*
>
> *The Author of* Pattern Language

Natural light is a key design feature for waiting areas and the well-being of Veterans. Artificial light should be adjusted to accommodate the different daylight, twilight and evening conditions to maintain the correct illumination requirements of the room as well as the comfort of Veterans and staff. Providing a variety of seating arrangements will accommodate preferences for solitude, conversation between two people, or small groups of Veterans, friends and family.

For existing facilities, improvement in the design of waiting areas should take into account: natural light, views of nature and the surrounding physical context, interior ceiling heights that exceed 9'-0", natural finishes or finishes that simulate natural treatments **(see all figures in this chapter).**

Currently, VA facilities make use of patient alert systems ranging from hand-held alerting devices to electronic boards displaying queues. These systems allow flexibility in waiting experiences: Waiting becomes a proactive experience involving choices and preferences, rather than a passive activity tied to one spot. Veterans can choose to

de-stress through socializing, meditation, listening to music or sitting outside on a terrace or a porch.

What You Need to Know

- Special consideration should be given to natural lighting, room volume, and views of nature. Naturally illuminated waiting areas create a calming environment.
- Where there is no outdoor access, create an appropriate lighting environment through spatial enhancement lighting features such as accent lighting and ambient lighting.
- Ceiling height should be a minimum of 9'-0", or higher where possible.
- Include stress-reducing positive attractions such as gas fireplaces, enclosed water elements, and the use of earth tone colors, natural materials, soft music, artwork, and acoustics that are effective and not disturbing.
- Seating configurations should allow for choice and flexibility to accommodate varied groupings, degrees of privacy, and lengths of stay. Seating configurations should accomodate wheelchairs and scooters
- Use handheld alert devices and electronic boards displaying queues to keep Veterans' waiting experiences as flexible as possible.
- Where possible, allow access to adjacent outdoor spaces. Patios, porches, and terraces will assist in relaxing Veterans before their appointments.

Critical Adjacencies

- Main circulation path
- Vertical circulation
- Multipurpose spaces
- Commemorative/Ceremonial spaces
- Exterior accessible spaces such as porches, patios, porticos pavilions, terraces, or courtyards where appropriate
- Toilet rooms, including a baby-changing station and lactation room
- Inpatient/outpatient services

Community

- The configuration of seating arrangements can foster socializing and support from family, friends, and other Veterans.
- Where possible, waiting rooms should be open to corridors, promoting incidental meetings with other Veterans or healthcare providers and reinforcing interpersonal relationships that strengthen community and promote healing **(Figures 4.3.6 - 4.3.12)** .
- Information systems and kiosks scrolling information about events, classes, and activities can lead Veterans to other opportunities that strengthen social connection and aid in healing.
- Artwork and interior colors should reflect the surrounding natural landscape.

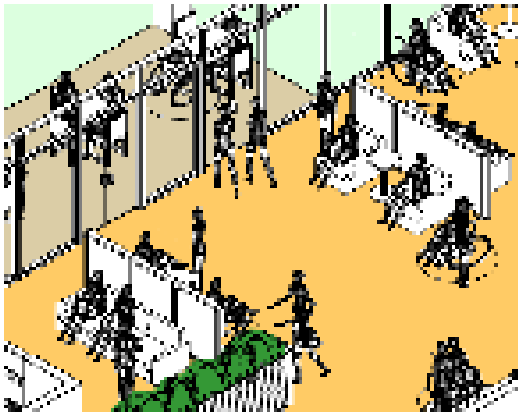

Figure 4.3.2: An example of multiple seating configurations with 54" interior partitions at the back side of seating within waiting rooms.

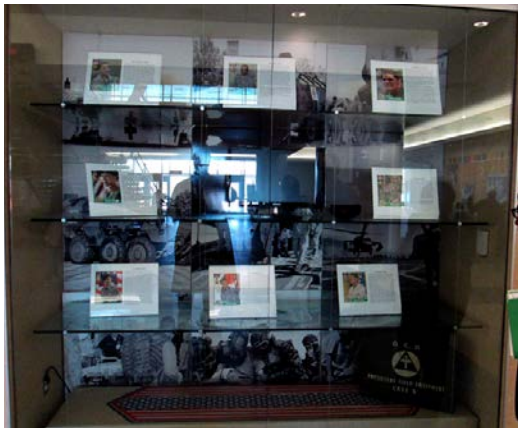

Figure 4.3.3: Display case honoring warrior sevice and sacrifice. Fort Belvoir Community Hospital. Fort Belvoir, Virginia.

Figure 4.3.4: Waiting area with generous ceiling height and volume adjacent to main circulation corridor. Floor to ceiling windows allow exterior views and natural light. A VA adaptation should consider opaque or textured glass halfway up the wall of windows, seating with some "protected" choices. Froedtert Hospital of the Medical College of Wisconsin Clinical Cancer Center. Milwaukee, Wisconsin.

Figure 4.3.5: Translucent screen wall provides privacy, and allows natural light to pass through. College of DuPage Health Careers and Natural Sciences Building. Glen Ellyn, Illinois.

Figure 4.3.6: Waiting area adjacent to elevator with abundant natural light and comfortable seating. Florida International University College of Nursing and Health Sciences. Miami, Florida.

Figure 4.3.7: This waiting area along a single-loaded corridor offers the opportunity for passersby to pause and rest or converse with staff, healthcare provider, or patient. NICOE Walter Reed National Military Medical Center. Bethesda, Maryland.

Space/Volume

- Waiting areas should have a minimum ceiling height of 9'-0" for small waiting rooms. The ceiling height for larger waiting spaces should be proportional to the floor areas **(Figure 4.3.4)**.
- When possible, waiting areas should be located adjacent to perimeter walls to allow for maximum exposure to daylight as well as views of adjacent natural surroundings **(Figures 4.3.5, 4.3.6)**.
- Interior partitions adjacent to corridors, especially double-loaded corridors, should be translucent partitions or partitions with clerestory windows to borrow as much natural light as possible.
- Half-wall partitions (allowing Veterans to sit with their backs to the wall) preserve borrowed light and visual contact with people traversing the corridor **(Figure 4.3.2, 4.3.5)**.
- Waiting areas located in arterial double-loaded corridors should allow for seating with the backs of chairs against walls. Accent lighting should be provided to allow for reading and artwork display **(Figure 4.3.7)**.

Windows and Views

- One of the most effective ways to reduce stress is the provision of views of nature and natural sunlight **(Figures 4.3.1, 4.3.4, 4.3.5, 4.3.6)**.
- Consider incorporating clerestory windows and/or translucent glass panels for interior partitions to borrow natural light from corridor or adjacent rooms.

Seating

- Waiting areas should offer patients a variety of seating options. It is important that Veterans be able to choose which seating options are most accommodating for their medical needs. **(Figures 4.3.1, 4.3.2, 4.3.4)**.
- Provide private seating options, such as niche seating, two-seat configurations, or translucent screens around a small seating area **(Figure 4.3.5)**. Others should accommodate larger groups of family members and friends **(Figures 4.3.6 and 4.3.8)**.
- 54" Half-wall partitions should be located behind seating **(Figures 4.3.7 and 4.3.9)**.
- Seating encourages social interaction when arranged in clusters of four chairs or fewer that are facing one other **(Figures 4.3.2 and 4.3.4)**.
- Allow space for wheelchairs and scooters within seating configurations.

Positive Attractions

Waiting for an appointment can be highly stressful. If a group of highly-stressed Veterans are seated in the same area, they can raise the level of anxiety in one another, and that can be detrimental to their ensuing medical appointments. It is important to provide positive stimuli as distractions.

- Art, music, and reading materials are important in waiting areas.
- Use positive attractions that honor the service of Veterans and reinforce a Veteran's sense of mission and purpose, such as artwork, sculpture, or historic memorabilia displays **(Figure 4.3.3)**.

- Introduce visual or auditory elements that reduce stress and induce calm.
- Positive attractions such as fish tanks or enclosed water features are desirable, and can be utilized as interior partitions.

Figure 4.3.8: Waiting area with natural light, views of the outdoors and comfortable seating. Seattle Children's Hospital. Seattle, Washington.

Lighting

- Whenever possible, controlled daylight should be introduced to waiting areas, while preventing glare **(Figure 4.3.1)**.
- Lighting should account for general room lighting, accent lighting, and task lighting with dimming capability to allow for flexibility of use and ability to accommodate a variety of activities such as reading or the use of computers.
- Consider varying the lighting layouts, fixture selections, and control systems to help identify, organize, and personalize spaces. Large open spaces can be reduced into smaller scale, more comfortable spaces through the use of different types of fixtures, colors, and lighting intensities.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.

Acoustics

Quiet, calm, and speech privacy define the primary acoustic requirements for waiting areas. Large waiting areas can become noisy when crowded and require more sound absorption than smaller waiting areas with fewer occupants. Background noise such as white noise systems, and mechanical systems helps provide reasonable speech privacy for those speaking quietly **(see VHA Program Guide: Design and Construction Procedures PG-18-3, Topic 11).** Acoustic design fundamentals for the room include:

- Incorporate acoustical ceiling tiles **(Figures 4.3.5, 4.3.7, 4.3.10)**.
- Incorporate absorptive panels on a minimum of 20% of the wall area to control noise levels
- Incorporate laminated glass into windows facing busy streets, or where exterior noise, such as the sound of mechanical equipment, is a problem.
- Design HVAC systems to achieve a background noise level of RC-35 (as defined by ASHRAE).
- Ensure that noisy spaces nearby are separated from waiting areas by partitions or door assemblies with higher sound attenuation properties.
- Analyze the effect on acoustics of HVAC equipment, taking care to choose it and locate it so that the sound of its operation is not a problem.

Figure 4.3.9: Seating areas exhibiting natural finishes for ceilings, floors, and walls. This aesthetic can also be achieved with materials such as vinyl or porcelain panels simulating natural finishes. Northwest Arkansas Free Medical Center. Fayetteville, Arkansas.

Communication and Technology

- Soft music and lighting can support a calm, soothing atmosphere.
- Ensure strong cell phone and Wi-Fi signals. Electronic communication technology can improve the experience of waiting rooms by giving Veterans the ability to use the toilet room, obtain refreshments, meet with peers, or visit a garden space until called to appointments.
- Provide sufficient electrical outlets and USB ports so that patients, family members, and others can recharge their electronic devices.

Figure 4.3.10: Large waiting areas near main pathways foster a greater connection to the surrounding hospital and create a communal setting. Forrest General Hospital. Hattiesburg, Mississippi.

HVAC

The waiting area is the living room of the hospital. To make it an inviting and livable space, it must have excellent air quality and thermal comfort. Additionally, it should be safe, which means there should be a high level of infection control. While triage management is essential and inherent in VA operations, there is always the potential for cross-contamination among patients, visitors, and staff.

- Consider if controlled access to natural ventilation is appropriate and controllable to potentially allow a sense of connection to the exterior as well as a less confining sense of the interior.
- Locate seating areas such that they are not affected by outside temperatures that are excessively hot or cold.
- Consider air distribution and control strategies, such as air stratification (low supply/high return) and direction of air flow to maintain clinical pressure relationships and increase level of odor control.

Waiting Room Diagrams

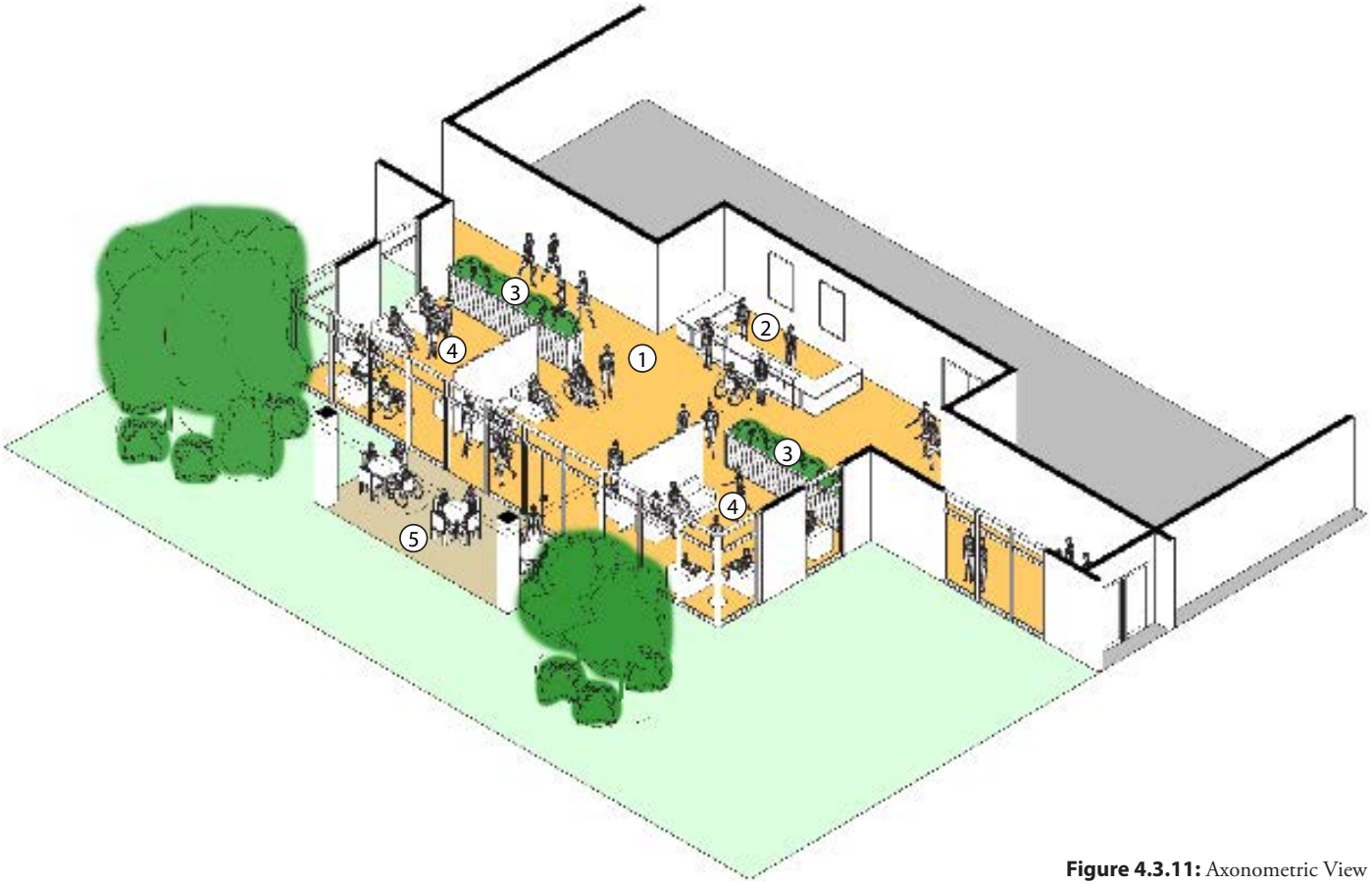

Figure 4.3.11: Axonometric View

Diagram Key

1. Main circulation
2. Reception desk
3. Indoor/Planter/Room divider
4. Multiple configured seating area
5. Outdoor seating where appropriate

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

- Recognize the transient nature of the space and the possibilities for energy optimization. This relates to the potential for increased room temperature set points in the summer and cooler temperature set points in the winter to achieve energy savings, since the space is primarily transient in nature.
- Consider infection-control strategies such as air stratification (low supply/high return) and directional air flow to reduce cross-contamination.
- **Refer to VA HVAC Design Manual, PG-18-10**

Waiting Room Diagrams

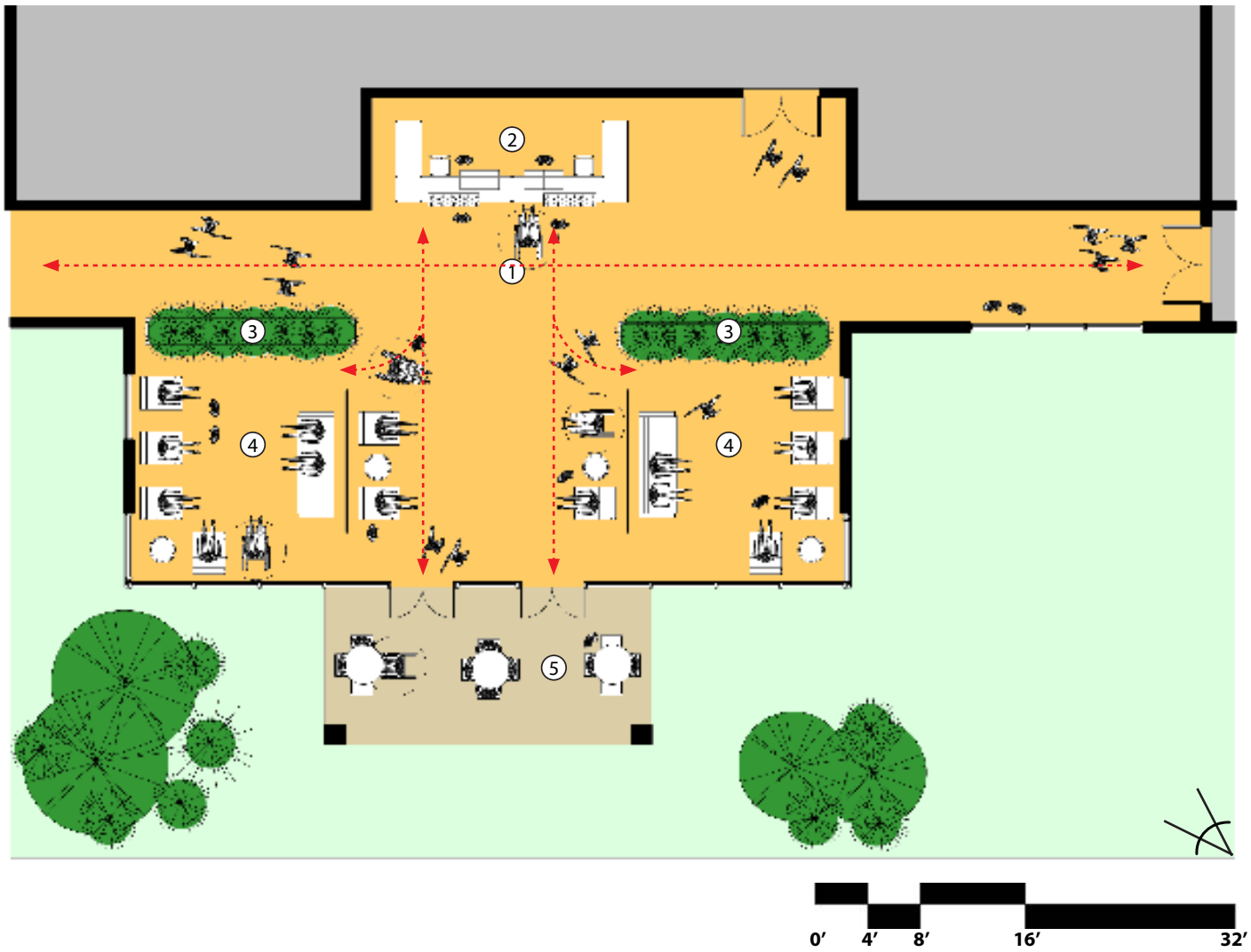

Figure 4.3.12: Plan View

Diagram Key

1. Main circulation
2. Reception desk
3. Indoor/Planter/Room divider
4. Multiple configured seating area
5. Outdoor seating where appropriate

Circulation path

Viewpoint

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.4 Connections and Pathways

Figure 4.4.1: Single-loaded corridor with a large window and seating, which allows users to rest, contemplate, or socialize. Center for Cancer Treatment and Prevention at Stanford University Medical Center. Palo Alto, California.

What You Need to Know

Connections and pathways facilitate wayfinding. The main circulation spine should have a destination, such as parking access, major public spaces, or specific patient care services. Such corridors assist in helping Veterans locate their destinations. Single-loaded corridors can allow an opportunity for natural light and exterior views. In many VA facilities, the corridors become de facto communal spaces, often becoming space for social meetings and facilitate incidental encounters with fellow Veterans and with healthcare providers.

> "The most profound issue, to our minds, is natural light. A hall or passage that is generously lit by the sun is almost always pleasant."
>
> —*Christopher Alexander, Architect*
> *Author of* Pattern Language

Critical Adjacencies

- Main facility entrance
- Gardens, courtyards, patios
- Onstage circulation for patients/Offstage circulation for staff
- Departmental check-in waiting areas
- Toilet rooms

Figure 4.4.2: Single-loaded corridor with an abundance of natural light and interspersed casual seating. Fort Belvoir Community Hospital. Fort Belvoir, Virginia.

Figure 4.4.3: An enclosed skyway connects two buildings, allowing views of the exterior during passage. Health and Science Center, College of DuPage. Glen Ellyn, Illinois.

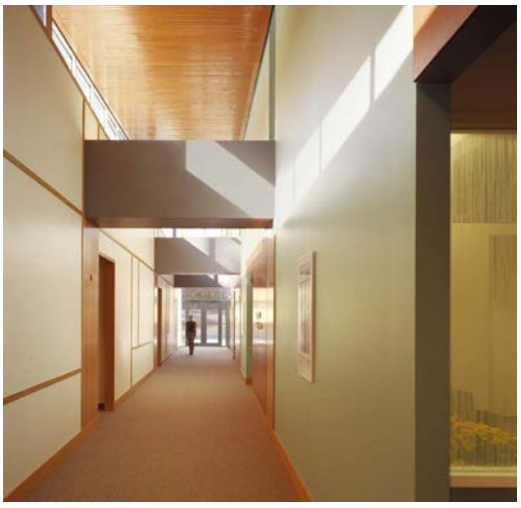

Figure 4.4.4: This one-story building element with clerestory allows natural light to penetrate a double-loaded corridor. UW Cancer Center Johnson Creek. Madison, Wisconsin.

Veteran-Embracing Environments

- Corridors with high ceilings create a generous atmosphere and many seating opportunities, reducing stress for Veterans, particularly those suffering from PTSD **(Figures 4.3.4, 4.4.2, 4.4.4, and 4.4.5)**.
- Veteran artwork and memorabilia can be exhibited in corridors and waiting areas, to enhance the Veteran-embracing environment.

Community

- Corridors and their junctures create opportunities for informational/educational displays and retail kiosks, creating destinations, places to gather, all of which reinforce community.
- Within corridors, seating nooks and alcoves can be located for casual waiting and incidental meetings **(Figures 4.4.1, 4.4.2, 4.4.5, 4.4.6, 4.4.8, and 4.4.9)**.
- Artwork and interior colors should reflect the surrounding natural landscape.

Space/Volume

- Ceiling height should generally be 9'-0" or higher if possible to enhance volume and create a greater sense of atmosphere. **(Figure 4.4.4)**.
- If possible, provide windows or space at the ends of hallways; this enhances the sense of space and provides a visual destination. To avoid glare, use adjustable blinds on windows facing east, west, or south.

Windows and Views

- Windows either at eye level or clerestory add visual relief **(Figures 4.4.1-4.4.3).**
- Provide a sense of connection to the outdoors **(Figures 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.8, and 4.4.9)**.
- Consider incorporating clerestory windows and/or translucent glass panels for interior partitions to borrow natural light from corridor or adjacent rooms. **(Figures 4.4.1, 4.4.4)**.
- Direct or adjacent connection to gardens, courtyards, and other landscape elements from hallways provides an environment where Veterans can pause and reflect, or gather with peers for community and stress relief **(Figures 4.4.1, 4.4.8, 4.4.9)**.

Seating

Seating areas within connections and corridors contribute to the healing experience:

- Bench seating along a window wall provides views of positive attractions such as nature, artwork, or water features **(Figures 4.4.2, 4.4.8, and 4.4.9)**.
- Nook seating provides a more established space, allowing for peer interaction and socializing.
- Seating areas allow for respite as well as a place for incidental meetings **(Figures 4.4.1, 4.4.2, 4.4.5, 4.4.6, 4.4.8, 4.4.9)**.
- Seating areas create visual stimulation and positive attraction, especially in lengthy corridors.
- In seating arrangements, care must be taken not to obstruct required widths in corridors.

Positive Attractions

- Hallway displays of artwork, symbols, text, ornament, and imagery that honor the service of Veterans reinforce the sense of identity and belonging **(Figure 4.4.6)**.
- Music or harmonious sounds of nature can be calming in corridors.
- Long interior corridors become livelier and more pleasant with the addition of positive attractions, such as wall fish tanks or lighted wall alcoves for art **(Figures 4.4.2 and 4.4.6)**.

Lighting

The design of connections and pathways requires a complementary lighting scheme which can be integrated into the architecture as both a functional layer of light and an enhancement to the architecture.

- The use of lighting to accent walls and architectural features creates visual interest along the corridor makes the space less institutional and, in addition, assists with wayfinding **(Figures 4.4.2 and 4.4.5)**.
- Indirect or cove lighting in corridors helps to eliminate harsh overhead glare while providing ambient light **(Figure 4.4.5)**.
- Consider accent lighting with tracks that allow flexible illumination and proper viewing of positive attractions such as artwork.
- Direct overhead lighting should not be used in patient areas as it affects patients in beds or stretchers who could be looking up at the ceiling.
- Consider the use of artificial light that simulates natural light to enhance the continuity between the outdoors and indoors.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.

Acoustics

As transitional spaces, connections and pathways have different acoustic attributes than spaces where occupants linger. Attention should be paid to areas that can widen connection and pathways, such as waiting or meeting areas to help alleviate the sense that one's voice is traveling the length of a corridor **(Figure 4.4.5)**. Similarly, footsteps reverberating down long corridors with hard floors may connote an undesirably institutional character. This effect can be reduced by increasing the acoustical properties of the ceiling rather than the floor **(see VHA Program Guide: Design and Construction Procedures PG-18-3, Topic 11).** General approaches to corridors and connections should include the following:

- Employ acoustically absorbent ceiling finishes **(Figures 4.4.2, 4.4.5, and 4.4.6)**
- Make sure mechanical background noise is held to a range between RC-35(N) and RC-45(N).
- White noise or sound-masking devices in areas that suffer from excessive noise levels and foot traffic. Such spaces include: inpatient and outpatient areas, waiting areas, spiritual settings, and places of respite.
- Position the location of HVAC units and exhaust ducts in relation to interior spaces, rooftop terraces, and other external spaces to reduce noise transmission from the HVAC equipment. Mitigate the

Figure 4.4.5: Atrium with skylights above and positive attractions below create an expansive corridor. VA Southern Nevada Healthcare System. North Las Vegas, Nevada.

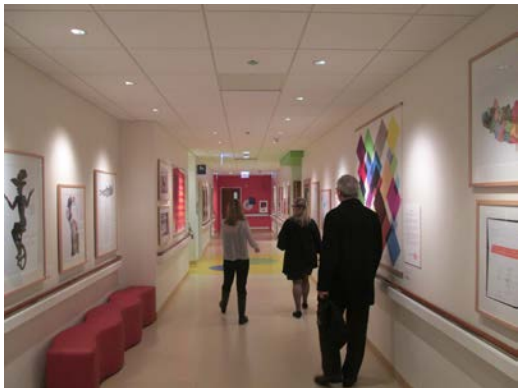

Figure 4.4.6: Lighting for artwork displays in hallway. Lurie Children's Hospital. Chicago, Illinois.

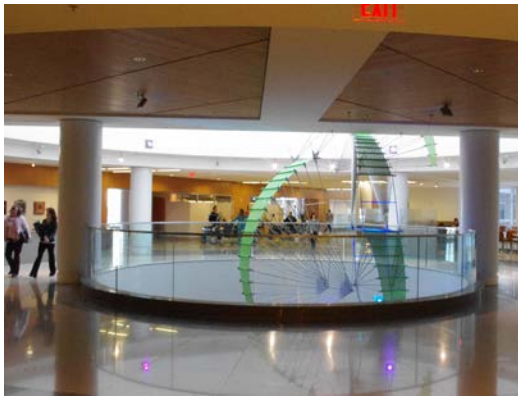

Figure 4.4.7: Light well in circulation space. VA Palo Alto Health Care System. Palo Alto, California.

sound of HVAC equipment placed over habitable spaces by using built-in suspension systems and bleeding ducts from outside to the interior space.

Communication and Technology

- Corridors with cell phone signal and Wi-Fi signal can assist in wayfinding.
- Provide sufficient electrical outlets and USB ports so that patients, family members, and others can recharge their electronic devices.
- Consider appropriate placement of electronic patient notification and tracking system identifying patient status, daily facility activities, educational information, etc.

HVAC

Despite being transitory spaces, connections and pathways require a quality of air and thermal control to provide comfort to users as they circulate through the facility.

Corridor Diagrams

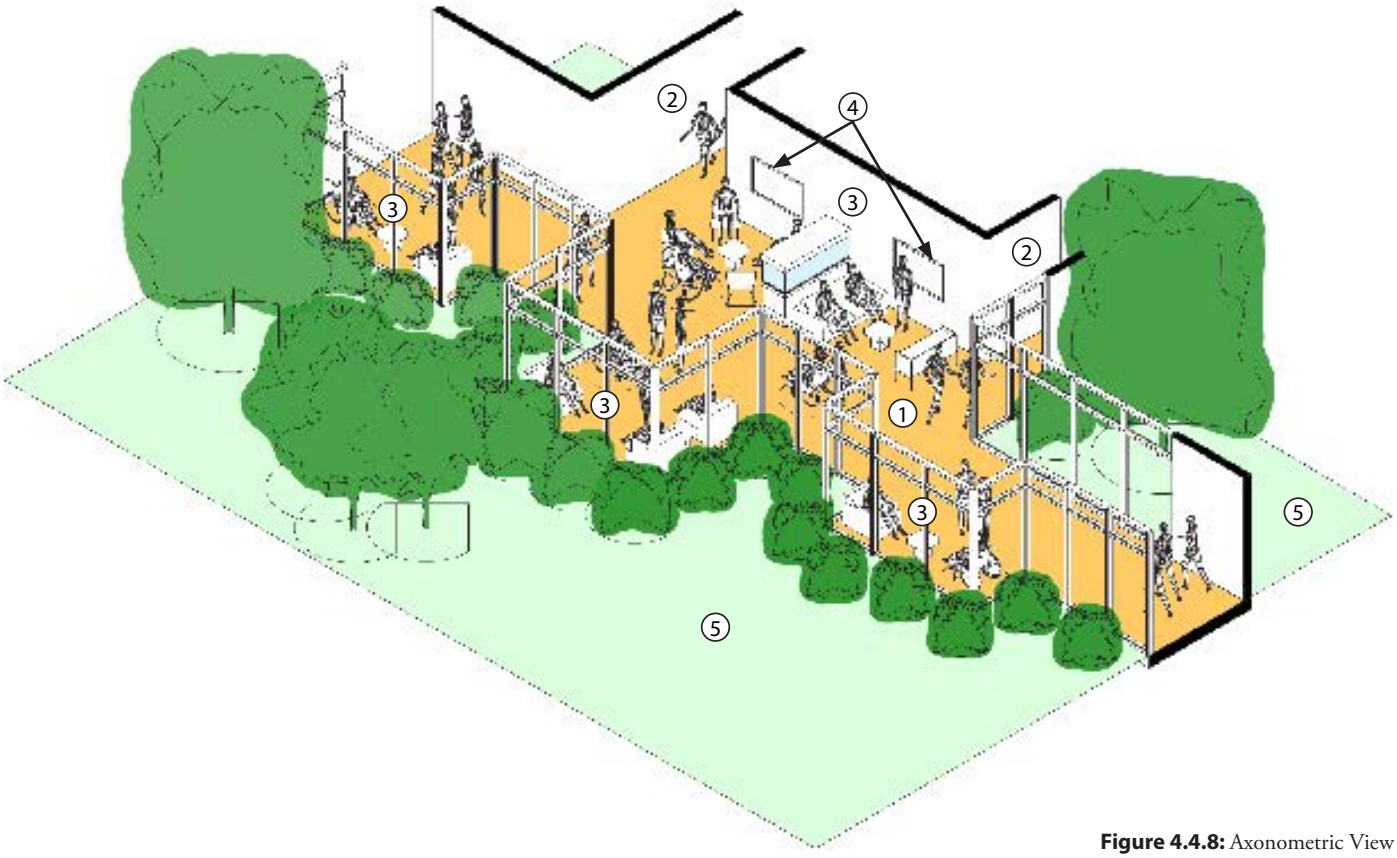

Figure 4.4.8: Axonometric View

Diagram Key

1. Main circulation/single loaded corridor
2. Hallway juncture
3. Various seating areas
4. Veteran artwork
5. Adjacent outdoor space

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

- Consider air distribution and control strategies, such as air stratification (low supply/high return) and direction of air flow to maintain clinical pressure relationships and increase level of odor control.
- Recognize the variable nature of the space and consider strategies for energy optimization in corridors. Consider saving energy by increasing the temperature set point in the summer and decreasing it in the winter.

Corridor Diagrams

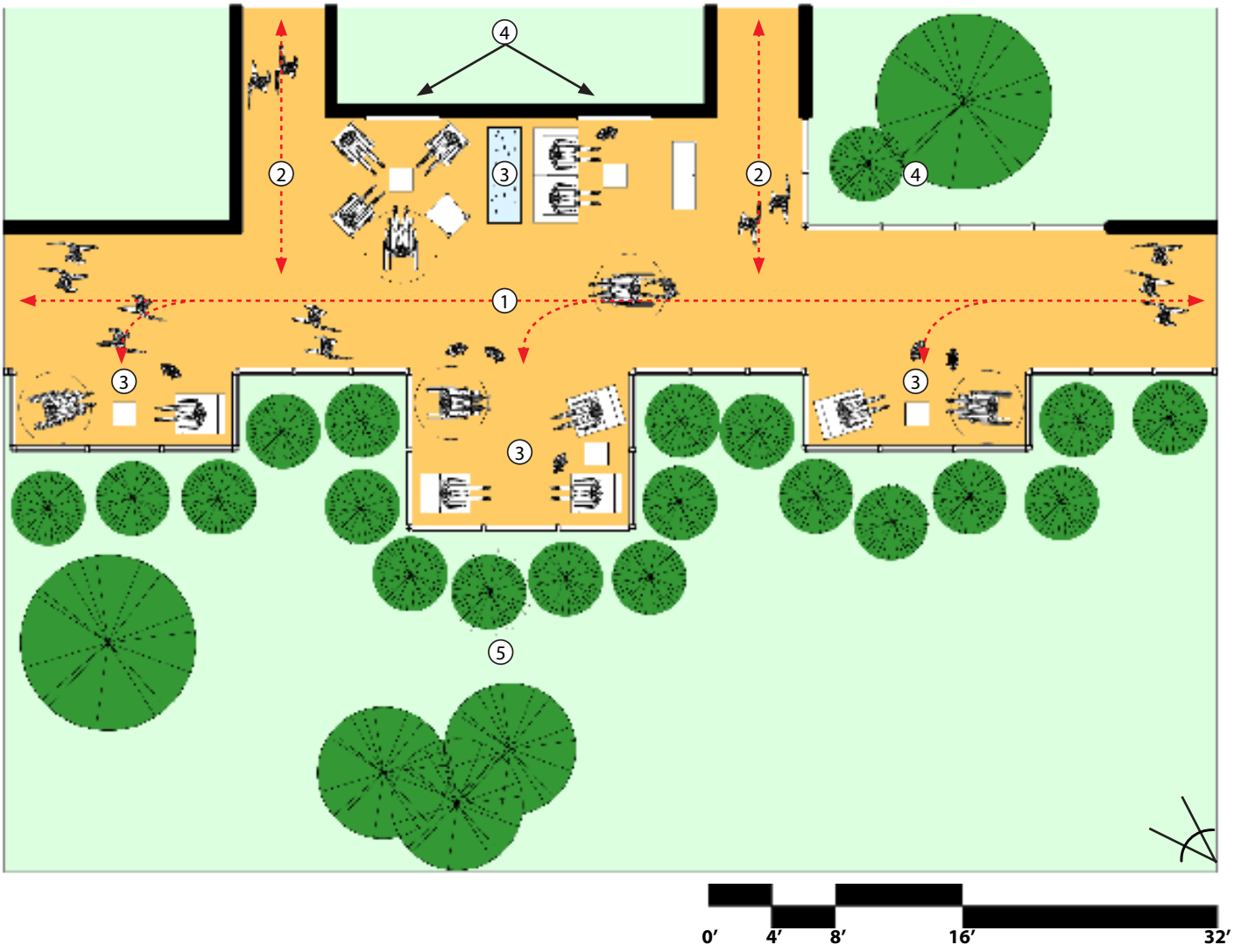

Figure 4.4.9: Plan View

Diagram Key

1. Main circulation/single loaded corridor
2. Hallway juncture
3. Various seating areas
4. Veteran artwork
5. Adjacent outdoor space

Circulation path

Viewpoint

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.5 Commemorative and Spiritual Settings

Figure 4.5.1: Visitors make a graphite or charcoal rubbing of a soldier's name engraved on the Vietnam Veterans Memorial. Washington, D.C.

Veterans are faced with mental health challenges. The common denominator is loss: of ideals, of brethren, and of a sense of connection to their families and to the civilian community. As Veterans re-enter the civilian sector, they are still coping with trauma and loss, and are vulnerable to having painful memories triggered by cues or associations as they move through their days.

Jonathan Shay, a retired Boston VA psychiatrist, documented Veterans' loss in his seminal book, *Odysseus in America*. He writes:

> *The process of constructing a narrative invariably arouses intense emotions, particularly of grief. [Veterans] grieve not only for comrades lost during and since the war, but almost always for irretrievable losses of pre-war relationships with parents, siblings, wives, and children. They mourn:*
> - *Relationships, ideals, and ambitions blighted by alcohol and drug abuse and its consequences [and, Shay goes on to say, by violence, and by the avoidance symptoms of PTSD and their consequences].*
> - *Lost innocence*
> - *Lost youth and health*
> - *Waste*

> "All through the trials of his voyage home, the temptation to find release in death has always been at hand— by suicide, as in his despair off Ithaca, or more subtly, at any moment of tension, by simply relaxing momentarily the constant vigilance, the quick suspicion, the inexhaustible resilience and determination, that keep him alive. Anyone who has been under a continual strain in action and especially in command knows the weariness that can tempt a man to neglect precautions, take the shortcut, let things go for once; it is a mood in which death is better than a life of unbroken tension and hardship."
>
> *—Bernard Knox, Historian,*
> *The Odyssey, translated by Robert Fagles*[1]

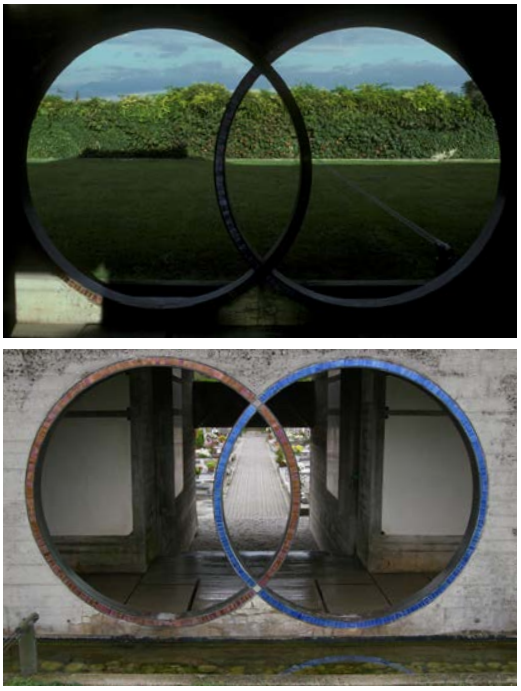

Figure 4.5.2: Entry to the Brion Cemetery. In Roman rituals water and fire were utilized in purification rituals. A blue circle (water) and a red circle (fire) greet the visitor. Brion Cemetery. San Vito d'Altivole, Italy.

"Infantry life was raw. Emotion was covertly minimal. There was a numbing effect to combat. The mind and body intrinsically shut down to preserve the most necessary emotions, fear and excitement (adrenaline). Exhibiting the fight-or-flight mechanisms that have led human beings to evolve to their zenith. Morbid humor and anger were just the temporary fallout, residual by-products of that fear, that fiending addiction. A thousand new drug addicts were created overnight. Each individual had to muster themselves, to keep their bearings, to temper the blood flash floods that gushed through their veins and kept their hearts from exploding out from their chests."

—Nick Misiano,
from Lava Dawgs: The Fight For Fallujah
OIF Veteran

What You Need to Know

It is important to understand the therapeutic needs of Veterans in order to design an environment that will meet those needs.

James Munroe, EdD, a psychologist with the Boston VA Healthcare System for 35 years, founded the Veterans Improvement Program (VIP), which focuses on the resolution of loss and symptoms of PTSD **(See Appendix B)**. Describing this work, he wrote:

> *A Veteran's mourning process can be complicated by PTSD, TBI, major depression, personality disorders, or moral injury. Veterans suffering from these conditions may require life-long therapies and healing regimens. There is no known cure for many of these wounds. The goal of therapy is, often, to build resilience, and to construct mental tools that will allow Veterans to live fulfilling, positive lives.*

Every day in a Veteran's post-deployment life brings challenges in health, family, job, and potential triggers for traumatic memories. His or her needs change accordingly—one day needing peer or family support, the next, solitude. Healing Environments that make possible a variety of ways to meet these needs--places for peer-to-peer interaction, private reflection, Veteran rituals and ceremonies, counseling, writing workshops and art therapy sessions, among others—help keep the Veteran on a steady healing track.

Currently, VA outpatient clinics allocate space for administration offices, individual therapy, group therapy, bio feedback, clinical care, and waiting rooms. Additional spaces should be considered and located adjacent to or within the vicinity of all care-giving spaces, in particular the mental health clinic, to create a comprehensive healing narrative. Such spaces could include the following:

- Spiritual settings such as: a chapel, meditative and ritual spaces should be located adjacent to courtyards with access to outdoor areas such as patios, porches, terraces, and ADA accessible pathways
- Small waiting rooms and spaces of respite that allow for intimate gatherings and one-on-one conversations as well as solitude, mindfulness, and contemplation.
- Peer mentoring spaces
- Courtyards with pavilions for commemoration and story-telling
- Ritualistic spaces that support celebration for Memorial Day, the 4th of July, Veteran's Day, and other historical events related to American military history
- Flexible-use spaces for complementary healing regiments such as art therapy, music therapy, writing workshops, and career counseling, located near commemorative and spiritual settings

Where possible, each environment should have its own spatial characteristics, such as room shape and access to exterior space where appropriate, as well as details such as built-in millwork, or the creative use of natural and artificial light. Where appropriate, use moveable partitions and built-in seating to facilitate peer-to-peer interaction **(See Appendix E)**.

Overall Recommendations for Commemorative Space and Spiritual Settings

- Multipurpose spaces that allow for group, as well as individual healing regimens and waiting choices are desirable.
- Incorporate flexibility into the design, so that space can be reconfigured to adapt to healing activity.
- Consider access between interior and exterior environments.
- Allow for Veteran personalization of the space through art, poetry, and writing that can contribute to a Veteran gallery and provide a setting for the sharing of emotion and experiences.
- Incorporate a variety of window opening sizes and shading devices, allow a variety of views, and keep control of direct sunlight **(Figure 4.5.2)**.
- For a courtyard or atrium, incorporate universal design characteristics **(http://www.section508.va.gov/support/webdev/1_2.asp)**, multiple entrances, pavilions for shelter and activities, and access to a bathroom. Water is an important element in the courtyard or atrium because of its calming effect **(Figures 4.5.3 and 4.5.4)**.
- Create a master plan illustrating the interrelationship of spiritual, commemorative, and contemplative spaces.

Veteran-Embracing Environment

The following conditions should be avoided for commemorative and spiritual settings:

- Claustrophobic public spaces created by low ceilings and lack of windows
- Spaces with only one entry/exit, as Veterans with PTSD may become anxious in rooms filled with people
- Potential PTSD triggers such as: seating arrangements where a Veteran's back is exposed to pedestrian circulation; seating adjacent to exterior windows that are aligned with windows or rooftops of nearby buildings

The following should be considered for such settings:

- Symbols and artwork honoring military service
- Generous natural light
- Adjustable and flexible artistic lighting to change mood if necessary
- Discreetly placed shelves near the entrance where meaningful, symbolic objects can be made available for individual or group use inside the setting.

Figure 4.5.3: View of reflecting pool, portico, gazon, tombs, and the Asolian Alps. Brion Cemetery. San Vito d'Altivole, Italy.

Figure 4.5.4: View of lily pool adjacent to chapel, Brion Cemetery. San Vito d'Altivole, Italy.

Figure 4.5.5: View of lily pool, bridge and chapel Brion Cemetery. San Vito d'Altivole, Italy.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.5.1 Mental Health Clinics

Mental Health Clinic Diagrams

Figure 4.5.1.1: Axonometric View

The mental health outpatient clinic is ideally located on the ground floor to facilitate access to exterior spaces when possible.

What You Need to Know

For Veterans, the stigma of weakness and dependency associated with seeking mental health services carries over from deployment to life after deployment. The location of the entry and articulation of the mental health clinic and entry should be carefully considered, with the following design considerations **(See VA Mental Health Facilities Design Guide):**

- The Mental Health Clinic should be on the ground floor, with an entry sequence that permits easy access and privacy **(Figure 4.5.1.9).**
- Utilize foyer space and interior partitions with translucent glass or fabricated screens **(Figures 4.5.1.2 and 4.5.1.3)**.
- All rooms should have access to natural light, either directly through the building's exterior or through sunlight borrowed via interior partitions with clerestories or translucent glass.
- Provide measures of sound mitigation for privacy.

Diagram Key

1. Reception
2. Main corridor with niches
3. Waiting room
4. Individual therapy rooms
5. Group therapy rooms
6. Adjacent outdoor space
7. Folding glass partitions
8. Storage
9. Toilet rooms
10. Biofeedback lab/ treatment area
11. Administrative offices

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

Mental Health Clinic Diagrams

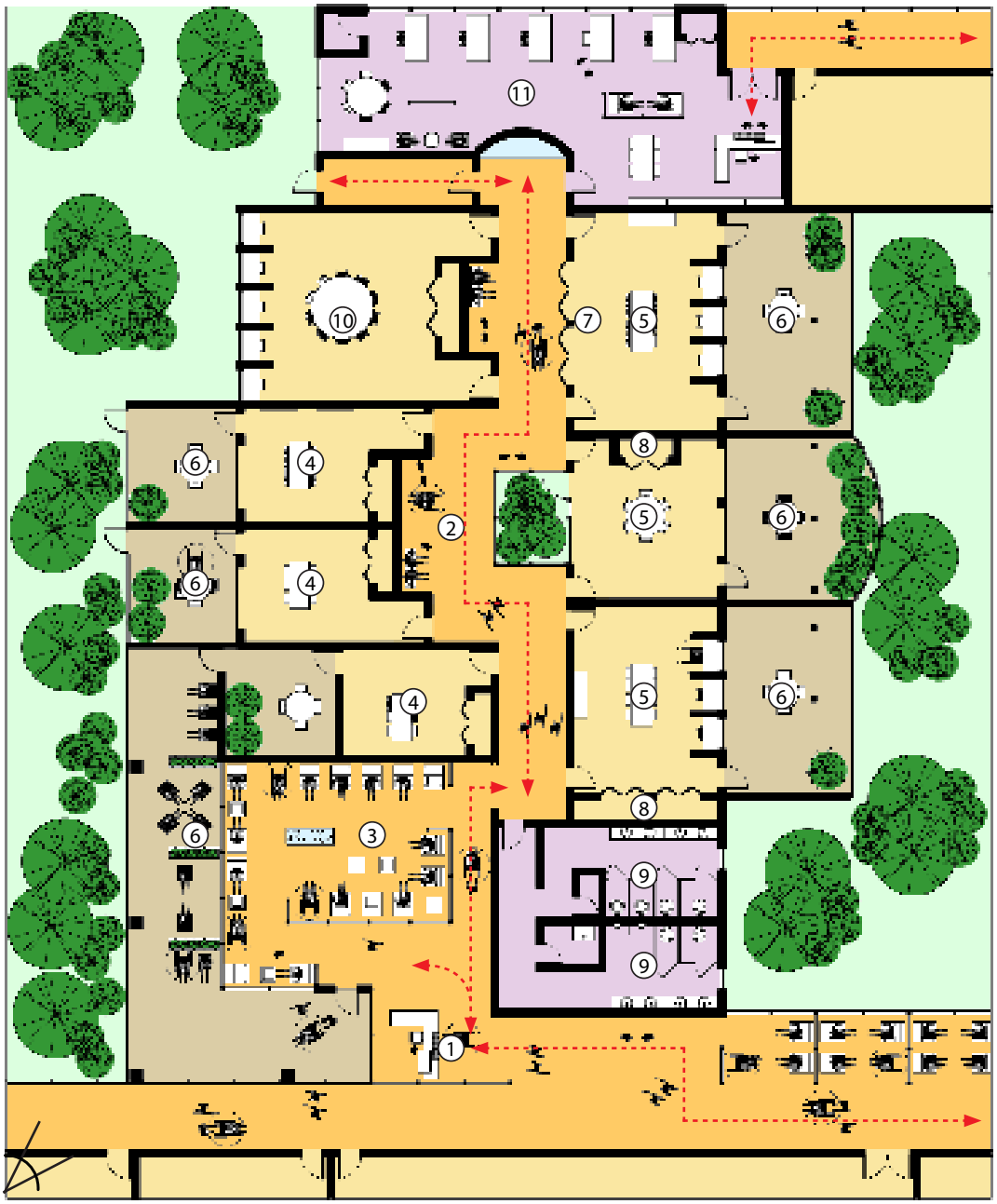

Figure 4.5.1.2: Plan View

Diagram Key

1. Reception
2. Main corridor with niches
3. Waiting room
4. Individual therapy rooms
5. Group therapy rooms
6. Adjacent outdoor space
6. Folding glass partitions
7. Storage
8. Toilet rooms
9. Biofeedback lab/treatment area
10. Administrative offices

Circulation path

Viewpoint

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

- Small interior courtyard, patios, or terraces located adjacent to individual and group therapy rooms, allow Veterans access to sunlight and fresh air, to decompress before/after emotionally intense behavioral health sessions. Provide appropriate security.

Critical Adjacencies
- Therapeutic gardens, enclosed patios or terraces
- Chapel
- Commemorative spaces
- Rooms of solitude
- Toilet rooms
- Other VA outpatient clinics

Veteran-Embracing Environment
- Create display areas for Veteran artwork.
- Use multipurpose spaces/group therapy rooms as peer mentoring rooms when available.
- Construct niches with workstations that allow Veterans to temporarily personalize the room with meaningful objects. **(Figures 4.5.1.3 and 4.5.1.4)**

Community
- Group therapy rooms with moveable walls can be opened for community meetings or events such as art show openings, literary readings, and other community-building activities.
- Artwork and interior colors should reflect the surrounding natural landscape.

Space/Volume
- Group and private therapy rooms should have a minimum height of 9'0", with large windows where possible, providing views of nature and sunlight to relieve claustrophobia and assist in de-stressing.
- Consider providing work areas adjacent to windows for journaling areas, and niches for the display of meaningful objects such as those carried during deployment **(Figures 4.5.1.3 and 4.5.1.4)**.
- All group and individual therapy rooms should have direct access to adjacent courtyards, patios, porches, and terraces, provided with required security levels.
- Provide group therapy rooms with retractable interior partitions to create larger venues for larger groups.
- Interior demising walls should consider borrowing natural light from adjacent naturally illuminated spaces utilizing screen translucent interior panels and clerestory windows.
- Internal corridors should be designed with niches for conversation, and with accent lighting to illuminate Veteran artwork and writing **(Figures 4.5.1.4 and 4.5.1.5)**.

Windows and Views
- Window space should maximize views to the exterior; i.e. gardens, landscape, and patio **(Figures 4.5.1.1 and 4.5.1.2)**.
- Natural light should be used to greatest extent possible with shading devices to reduce glare and heat.

> "In terms of 'behavioral health space' within VA facilities and related facilities: it's all 'behavioral health space.'"
>
> —*Mike Jager*
>
> *Operation Desert Storm Veteran*

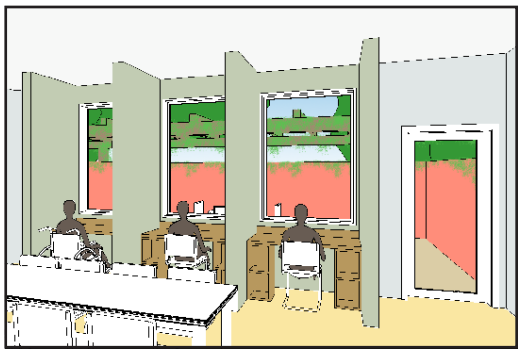

Figure 4.5.1.3: View of journaling niches within group therapy room of mental health clinic, adjacent to exterior patio.

Figure 4.5.1.4: Display niche exhibiting military objects utilized in deployment as well as books written by Veterans adjacent to the writing desk. Conference rooms. Veterans Memorial Building. Cedar Rapids, Iowa.

Figure 4.5.1.5: View of fold-down benches for mental health session. Conference room. Veterans Memorial Building. Cedar Rapids, Iowa.

Figure 4.5.1.6: Patient porch area. West Los Angeles VA. Los Angeles, California.

Figure 4.5.1.7: Marine gazing at Pacific Ocean on upper terrace of Naval Hospital Camp Pendleton. Camp Pendleton, California.

Seating

- Allow space for wheelchairs and scooters within seating configurations.
- The arrangement of furniture should not put the backs of chairs to pedestrian circulation, or to transparent floor-to-ceiling windows.
- 54" Half-wall partitions should be located behind seating.

Positive Attractions

- Exterior and interior enclosed water features
- Views of nature and adjacent gardens
- Patio or terrace for waiting in good weather
- Exhibitions of Veteran artwork
- Personal objects, such as military gear, good luck charms, and letters from home.
- Military memorabilia

Lighting

- Accent lighting can be used to highlight art, objects or design features within a larger space in order to visually highlight elements of interest that can provide positive attraction or visual comfort to visitors **(Figure 4.5.1.8).**
- Lighting should account for general room lighting, accent lighting, and task lighting with dimming capability to allow for flexibility of use and ability to accommodate a variety of activities such as reading or the use of computers..
- Cove lighting in corridors and bathrooms can eliminate harsh glare and contribute to a soft ambience that is more comfortable and reduces eye strain.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.

Acoustics

In one-on-one therapy rooms, the primary acoustic objectives are speech privacy and control of reverberation (liveliness) to yield clear, intimate acoustics **(see VHA Program Guide: Design and Construction Procedures PG-18-3, Topic 11).** Approaches that help achieve these conditions are as follows:

Enclose individual rooms with metal studs with sound attenuation batts and two layers of 5/8" gypsum board each side; staggering electrical boxes so those serving opposite sides of a partition do not occur in the same stud space.

- Extend partitions from floor slab to structure above, and sealing the top and bottom of each partition on both sides.
- Consider gaskets at head, jambs, and sills of all doors.
- Provide acoustical tile or other absorbent ceiling materials of not lower than NRC 0.70.
- Limit mechanical background noise to RC-30.
- Consider floating finished floors, carpet and tile for sound mitigation purposes.

Privacy, acoustic clarity, and intimacy are the primary objectives for larger spaces as well, with emphasis on clarity so that the nuances of a patient's story are not lost. Clarity and intimacy are more difficult to achieve in larger rooms, so attention to room geometry and finishes is required. In group therapy rooms, the following approaches are recommended:

- Design ceiling heights of 9'-0" optimally, and no greater than 10'-0", to limit total room volume while avoiding claustrophobic dimensions.
- Carpeting the floors provides an ideal material **(Figures 4.5.1.5 and 4.5.1.8)**.
- Add absorbent panels to approximately 20% of the wall area to further control reverberation (liveliness).

Communication and Technology

Within the clinic, providing ready access to information through digital, audio and video applications empowers Veterans, gives them more control over their treatment, and lessens their stress. Many of these systems are already deployed across the VA.

- Provide sufficient electrical outlets and USB ports so that patients, family members, and others can recharge their electronic devices.
- Consider appropriate placement of electronic patient notification and tracking system identifying patient status, daily facility activities, educational information, etc.
- Video replay capability for education and behavioral tools facilitate care delivery. Any recording device must be openly recognizable so that the Veteran understands and approves of its use.

HVAC

- Apply the guidelines for HVAC for many of the public spaces such as main reception and lobby; waiting area; and connections and pathways.
- Provide individual controls for rooms devoted to group therapy, one-on-one behavioral therapy, and waiting where possible. This will enhance Veterans' comfort and decrease levels of stress.
- Consider if controlled access to natural ventilation is appropriate and controllable to potentially allow a sense of connection to the exterior as well as a less confining sense of the interior.
- Be sensitive to the effect of HVAC equipment on acoustics, taking care to choose and locate it so that sound doesn't interfere with the activities of operationally sensitive areas.
- Select and locate an air distribution system (e.g. ductwork and diffuser velocity and noise criteria based upon ASHRAE Chapter 8 of the 2013 Fundamentals or better) to eliminate uncomfortable and distracting drafts and/or excessive noise generated by mechanical equipment.

Figure 4.5.1.8: Clinic reception area utilizing calming artwork with natural themes. Fort Belvoir Community Hospital. Fort Belvoir, Virginia.

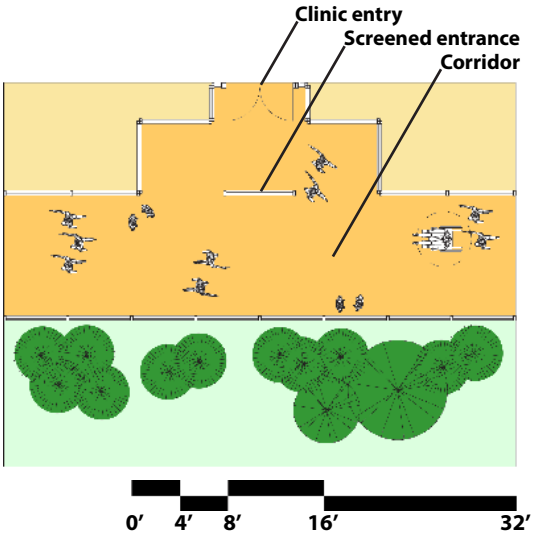

Figure 4.5.1.9: Main Arterial Corridor Diagram - Plan View

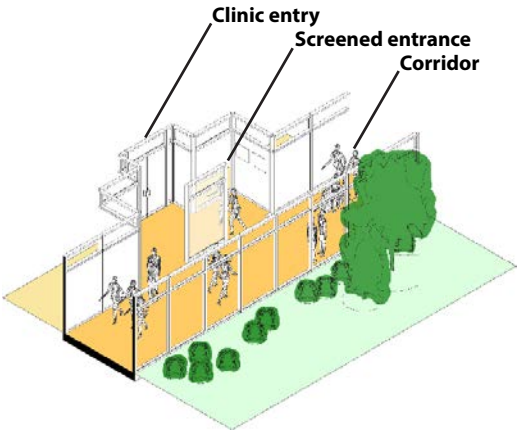

Figure 4.5.1.10: Main Arterial Corridor Diagram - Axonometric View

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.5.2 Courtyards and Exterior Components

Figure 4.5.2.1: Courtyard Diagram - Axonometric View

Encampments are a vital communal component of deployment. In the post-Civil War era, Grand Army of the Republic encampments reunited brethren who fought side-by-side. They shared a fire, shared stories, shared a meal, shared the common cause of honoring those who made the ultimate sacrifice. Direct connection to nature in a safe and protected courtyard recreates the spatial effect of encampment. It provides the opportunity for mental health activities from the interior of the facility to flow to the exterior, and for Veterans to congregate in a space that offers protection and safety.

What You Need to Know

Courtyards should include commemorative elements and spaces for therapeutic activities and gathering. Pavilions within the courtyard provide protection from inclement weather, and define a domain for structured individual and group activities**.**

The lessons of Dr. Munroe's work with Vietnam Veterans at the Vietnam Memorial suggest some important elements for an exterior Healing Environment **(See Appendix B)**. The courtyard should contain the following components **(Figures 4.5.2.1 and 4.5.2.2)**:

- Two means of egress, visible from any point in the courtyard
- Sheltered space for a variety of activities, including storytelling, commemoration, and solitary reflection
- Interactive gardens that provide a physical framework for Veteran rituals, activities, and contemplation.

Diagram Key

1. Main reception desk
2. Wheel chair storage
3. Main ceremonial stair
4. Positive attractions
5. Administration
6. Toilet rooms
7. Elevator lobby
8. Covered porch
9. Storytelling pavilion
10. Outdoor seating
11. Multipurpose room
12. Outdoor paved path
13. Service flags
14. U.S. flag
15. Outdoor patio mental health clinic
16. Mental health
17. Administrative offices
18. Commemorative pavilion
19. Chapel
20. Small waiting rooms
21. Meditative rooms/ counseling rooms

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

Courtyard Diagrams

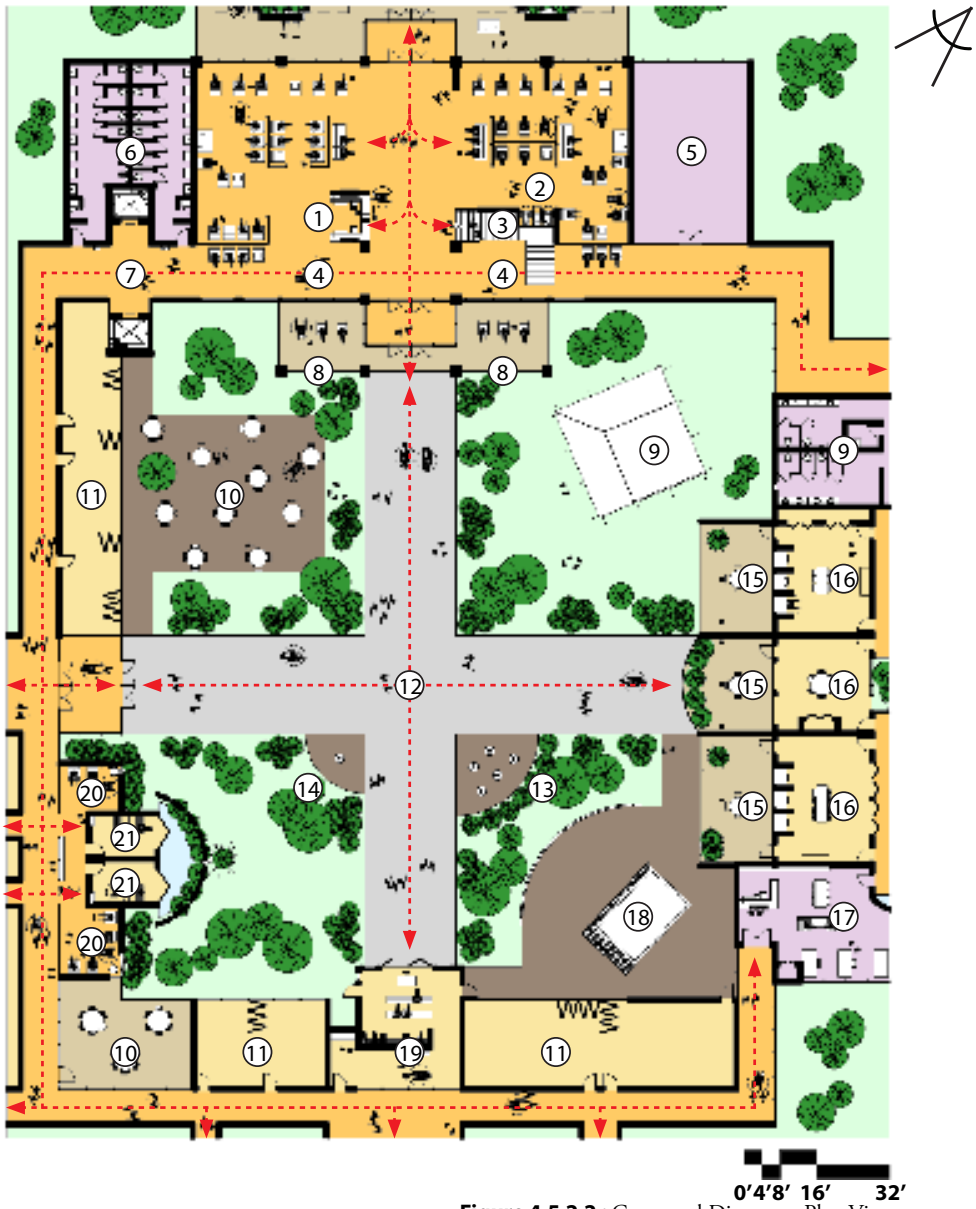

Figure 4.5.2.2 : Courtyard Diagram - Plan View

Diagram Key

1. Main reception desk
2. Wheel chair storage
3. Main ceremonial stair
4. Positive attractions
5. Administrative
6. Toilet rooms
7. Elevator lobby
8. Covered porch
9. Storytelling pavilion
10. Outdoor seating
11. Multipurpose room
12. Outdoor paved path
13. Service flags
14. U.S. flag
15. Outdoor patio mental health clinic
16. Mental health
17. Administrative offices
18. Commemorative pavilion
19. Chapel
20. Small waiting rooms
21. Meditative rooms/ counseling rooms

Circulation path

Viewpoint

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

- A variety of seating configurations allowing for conversation, waiting, and reflection
- Places to display Veteran artwork
- Paved pathways
- Patios
- Trellises
- Grassy areas
- Flag stations

Configuring Courtyard Elements

- Courtyard elements should be situated with care. If possible, a courtyard should be divided into four distinct outdoor areas. The commemorative space and the space for solitary reflection should be placed in areas of low activity. The adjacent edges of the building should be screened or walls left blank. Adjacent interior spaces should have folding interior partitions to afford flexibility with indoor and outdoor activities.
- A pavilion can be a place where Veterans can share their thoughts and memories of their lives and deployments. The pavilion **(Figure 4.5.2.4)**, like the Wall in Dr. Munroe's **(See Appendix B)** account, can be a gathering place for Veterans to begin the communal process of mourning in the supportive presence of peers. It is a place where a Veteran can choose to linger.
- Consider reflecting pools **(Figure 4.5.2.3)**.

Critical Adjacencies

- Places for rest and respite
- Spiritual settings
- Rooms of solitude
- Toilet rooms
- Multipurpose spaces
- Passive and interactive gardens
- Mental health clinics
- Main reception lobby

Veteran-Embracing Environment

- Pavilions provide a more focused and private therapeutic environment for the commemoration of lost comrades, for individual reflection, and for small groups sharing deployment memories **(Figure 4.5.2.4).**
- With ceremonies and rituals in mind, consider central courtyard locations for the U.S. and armed services flags, adjacent to a pathway.
- Consider locations for Veteran artwork and sculpture.

Community

Rituals are integral to a Veteran community and crucial for well-being. Ceremonies commemorating significant days of observation, including Memorial Day, the 4th of July, and Veterans Day are important events with the potential to ease the integration of the Veteran back into the Veteran community and back into the civilian world **(Figure 4.5.2.5)**. The Naval Hospital Camp Pendleton has an exterior courtyard defined by a parking garage to the north and the hospital to the south **(Figure 4.5.2.6)**. The parking garage is connected to the hospital by a skyway located on

Figure 4.5.2.3: View of gardens and Pool of Remembrance. Korean War Veterans Memorial. Washington, D.C.

> "[Veterans have] done everything they can to push these memories away. In the process, they haven't gained a full realization of the impact and the meaning that these stories have in their lives. I like to say we're staring the dragon in the eye."
>
> *—Kevin Reeder, PhD,*
> *VA Clinical Psychologist,*
> *Central Arkansas Veterans Healthcare System*

Figure 4.5.2.4: Pavilion in garden within the grounds of the Edward Hines, Jr. VA Hospital. Hines, Illinois.

Figure 4.5.2.5: Pavilion in historic garden on VA grounds, originally dedicated to women Veterans of WW II. The gardens integrate complementary healing programs (tai chi, yoga, art therapy) and spaces for relaxation and reflection. VA West Los Angeles Medical Center. Los Angeles, California.

Figure 4.5.2.6: Exterior courtyard for assembly and ritual services. The Naval Hospital Camp Pendleton. Camp Pendleton, California.

Figure 4.5.2.7: A bronze star medal left at the Vietnam Veterans Memorial. Washington, D.C.

the second level that leads to the mental health clinic and the four-story reception / lobby. Within the courtyard are the symbols of the Medal of Honor recipients of the Marine Corps and a ship bell that initiates rituals and speeches for a large assembly of Marines and seamen**.**

Lighting

Courtyards are often considered an extension of the building and should follow the mood and ambience of adjacent interior spaces. As such, the lighting within courtyards should be complementary to the design elements of the courtyard and should provide appropriate ambience as well as adjustable light levels.

- The use of lighting to accent walls and architectural features creates visual interest along the pathway, making the space less institutional and in addition, assists with wayfinding. Select and place fixtures so as to avoid glare or visual distraction.
- Uplighting for trees or other features can be incorporated to create positive attractions. These should be carefully placed and aimed so as to highlight the intended element while not causing glare or discomfort for those around **(Figure 4.5.2.6)**.
- Provide layers of lighting to assist in differentiating the space, lit pathways to assist in movement, and softer lighting in areas of reflection and solitude.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.

Acoustics

Outdoor spaces for commemoration must convey seclusion and freedom from distraction. Controlling on-site noise sources and mitigating off-site, uncontrollable sources are critical considerations **(see VHA Program Guide: Design and Construction Procedures PG-18-3, Topic 11).** Fundamental approaches to acoustic control include the following:

- Address noise from exterior mechanical equipment by locating it remotely from critical exterior areas, selecting equipment that does not generate excess noise, if possible, and providing acoustic attenuators and screens.
- Where ambient noise from off-site sources (such as traffic) cannot be adequately screened, consider introducing sources of masking noise such as exterior fountains.
- Employ exterior walls or other acoustic screens to separate contemplative exterior spaces from public exterior spaces, street traffic, and other off-site or uncontrollable noise sources. Plants do not serve well as appropriate acoustic barriers **(Figure 4.5.2.5)**.

Communication and Technology

- Commemorative spaces should be quiet and contemplative areas for meditation and stress reduction. Consider restricting cell phone usage in order to preserve an atmosphere of calm and quiet **(Figure 4.5.2.7)**.
- If the area is intended to have flexibility in its functions, the intended functions will dictate the choice and design of visual and auditory technologies.
- Access to Wi-Fi can be beneficial to allow access to media and connection to information. Consider access to a cable television signal for use in commemorative ceremonies.

- Consider appropriate placement of electronic patient notification and tracking system identifying patient status, daily facility activities, educational information, etc
- Provide for a sound reinforcement system for public assembly events. This system should be capable of incorporating calming background music.
- A video presentation, projection, and broadcast system will allow media presentations during commemorative events.

Case Study
Proposal for Commemorative & Storytelling Pavilions

Figure 4.5.2.8: Illustration of commemorative pavilion: entry, trellis, and altar.

Figure 4.5.2.9: Illustration of commemorative pavilion: inside/outside relationship within pavilion and view of memory boxes where objects taken to deployment would be placed for contemplation.

Figure 4.5.2.10: Illustration of storytelling pavilion: interior view of Veteran peer-to-peer storytelling session. The storytelling pavilion should be oriented in the direction of prevailing summer winds to take advantage of breezes.

This is a project conceived as a pair of pavilions within an outdoor environment, developed as a tool for Veterans to move toward resolution of loss. It is a critical function. Warriors who fail to resolve their losses often lose themselves to alcohol abuse, drug abuse, violence, homelessness, and even suicide.

The first human construction was not shelter. Early human societies dwelled in caves and the forests. The first human construction was the burial mound where a tribal member was laid to rest after contributing significant deeds to his tribe. The commemorative, spiritual, storytelling, and meditative environments are physical components allowing a Veteran to process loss in solitude, with a counselor or other confidant, or with other Veterans.

Commemorative Pavilion

Peter Homans, a former professor at the University of Chicago's Divinity School and author of *The Ability to Mourn* defined monuments: "Monuments contain a psychological core: they are also mnemic symbols. Experienced unconsciously as objects, the monument is sort of a compromise formation by means of which a group can unconsciously immerse itself in an experience of loss (loss of persons, ideas, ideals, or a lost "reality," such as when a traumatic disaster destroys many members of the group) but not directly feel the full force of the pain which the loss arouses. The group is thereby enabled to immerse itself in the past (the loss itself), move on into the present (the construction of the monument), and from there to release into the future (the ability to mourn and return to, or create a rapprochement with, the great necessities of life). Symptoms and monuments both begin with loss, and both seek to soften the loss by building structures within the context of the activity of mourning." [1]

The commemorative pavilion is a healing tool for the resolution of loss **(Figures 4.5.2.8 and 4.5.2.9)**. Similar to the purpose of a monument the pavilion becomes an environment to resolve personal and collective losses. In its interior configuration and the openness to nature and light, it offers an array of mourning options. Centered inside is a table of memory. To the right is a bench that can seat up to four Veterans. Above the bench is a wall of memory on which Veterans can mount anything they find important (i.e., photographs, maps, poetry, thoughts, quotations, etc.) that helps them cope with losses. There are two seats on the left side for a total capacity of six seated Veterans, plus space for those in wheelchairs.

Veterans can bring meaningful objects and place them in one of 12 memory boxes on the wall during their visit to the pavilion. A shelf adjacent to the two fixed seats allows Veterans the opportunity to journal, write letters, or compose poetry to assist them in the resolutions of their losses.

Storytelling Pavilion

The commemorative, spiritual, storytelling, and meditative functions of the storytelling pavilion invite Veterans to process their losses in a variety of ways, whether in solitude or in the company of a counselor or other Veterans. The storytelling pavilion allows up to 12 Veterans to share their experiences and begin the process of healing **(Figure 4.5.2.10)**. Attached to the storytelling space is a corridor and ADA-compliant bathroom.

Endnotes

1. Homans, Peter, *The Ability to Mourn: Disillusionment and the Social Origins of Psychoanalysis*, Chicago, Illinois, University of Chicago Press, 1989

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.5.3 Small Waiting Rooms and Spaces of Respite

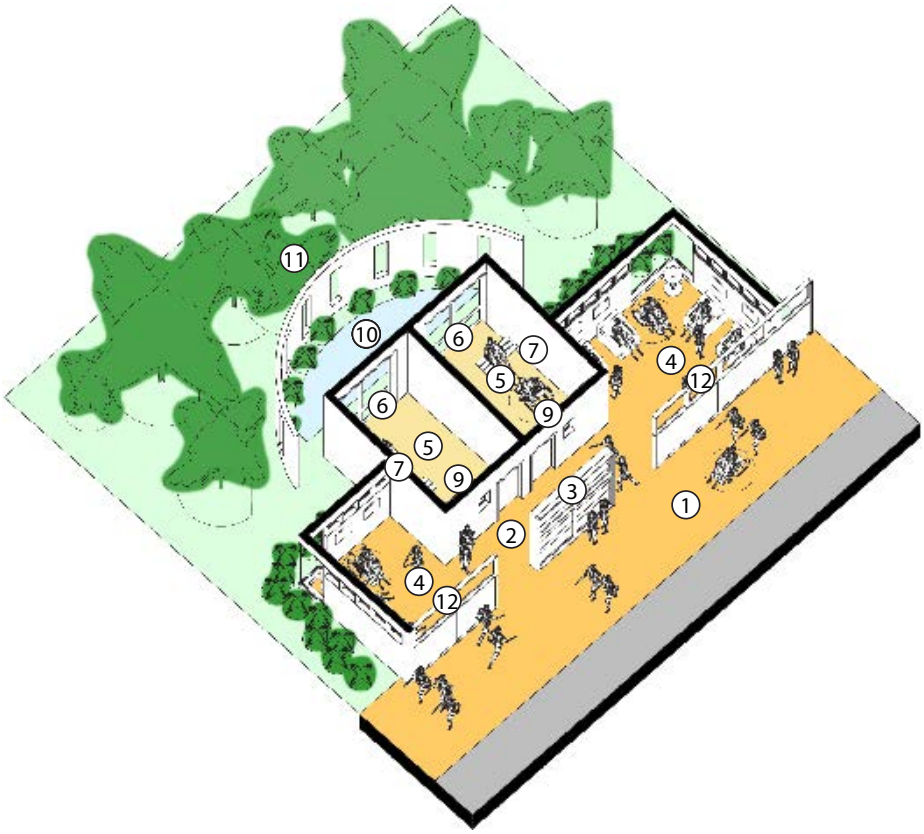

Figure 4.5.3.1: Space of Respite diagram - Axonometric View

In busy VA facilities, Veterans have a great need for places of solitude and quiet, where they can reflect, be spiritual, feel safe, and shut out environmental stimuli that potentially could become too overwhelming. Whether it is to gather thoughts after coming in from the outside world, or setting intentions for healing purposes, solitude enhances the Veteran's healing journey. Small waiting rooms and spaces of respite can enclose many activities that benefit from privacy, including journaling, contemplation, meditation, and relaxation **(Figures 4.5.3.1 - 4.5.3.4)**. These spaces could be controlled by adjacent clinical functions and have controlled access.

Diagram Key

1. Main circulation
2. Transitional space
3. Positive attraction wall (screen)
4. Small waiting room
5. Space of respite
6. Folding partitions opening to exterior space
7. Folding benches
8. Courtyard
9. Folding table for writing or memorabilia
10. Exterior water feature/ reflecting pool
11. Exterior courtyard
12. Fritted clerestory

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

What You Need to Know

The location of rooms of solitude involves careful consideration of internal space, external views, and adjacencies of other spaces, such that a Veteran's healing journey is a continuous experience. They should be readily accessible from a facility's entry points. The following are some possible locations to consider:

- On the ground level, in a therapeutic garden
- On an upper floor with views of cityscape or landscape features
- On a roof terrace with views of distant landscape or cityscape
- Consider providing an automatic indicator that the room is in use.
- Note these locations require careful attention to security and safety details.

Space of Respite Diagrams

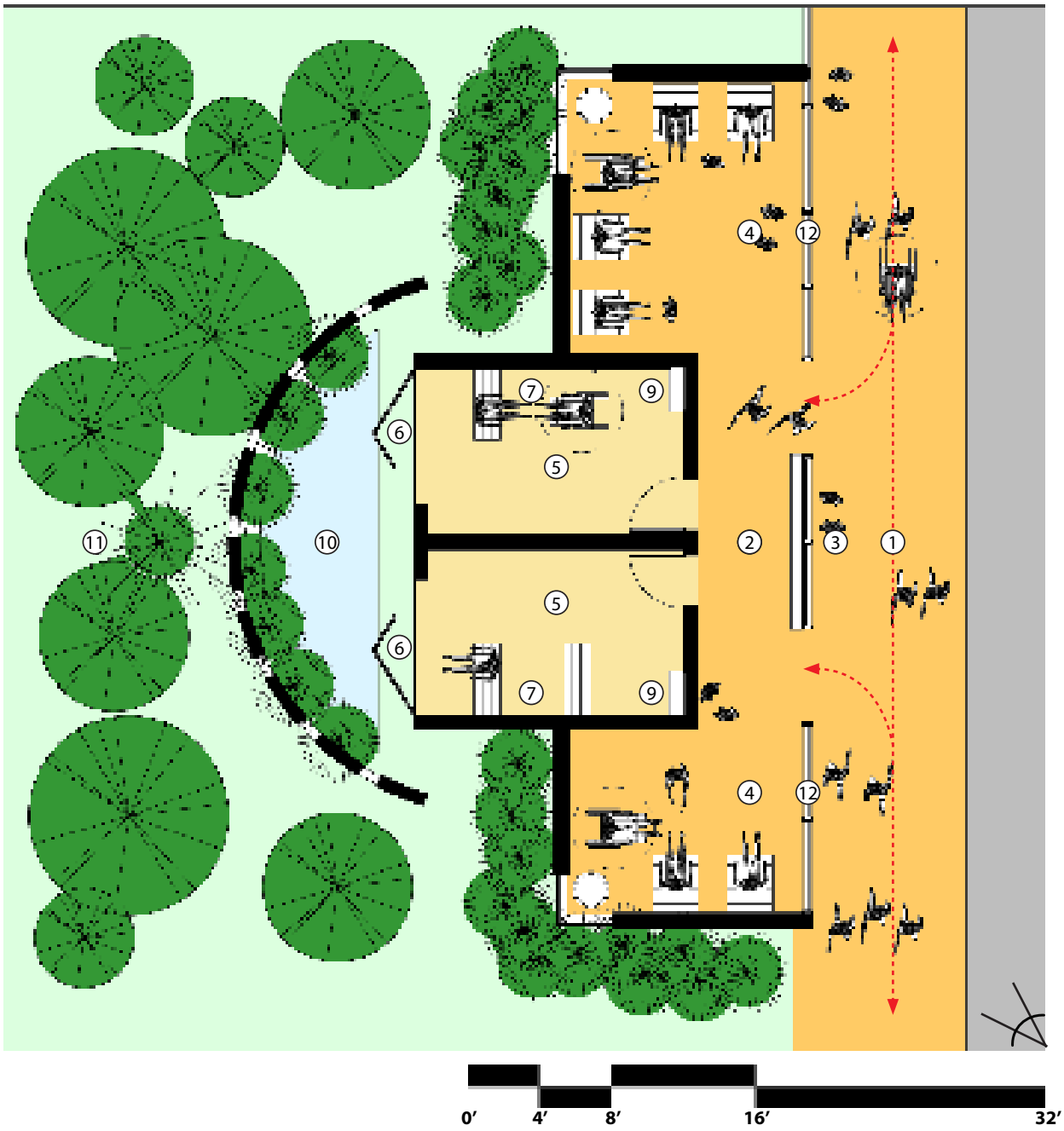

Figure 4.5.3.2: Space of Respite diagram - Plan View

Diagram Key

1. Main circulation
2. Transitional space
3. Positive attraction wall (screen)
4. Small waiting room
5. Space of respite
6. Folding partitions opening to exterior space
7. Folding benches
8. Courtyard
9. Folding table for writing or memorabilia
10. Exterior water feature/ reflecting pool
11. Exterior courtyard
12. Fritted clerestory

Circulation path

Viewpoint

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

Critical Adjacencies

- Garden, outdoor patios, terraces, courtyards, and porches
- Clinical areas, especially outpatient mental health area
- Chapel
- Main circulation pathway, with sound-buffering transitional space
- Toilet rooms

Veteran-Embracing Environment

- Veteran artwork and memorabilia can be exhibited in corridors, waiting areas, and the space of respite to enhance the Veteran-embracing environment.
- Construct niches with workstations that allow Veterans to temporarily personalize the room with meaningful objects. **(Figures 4.5.3.1, 4.5.3.2, 4.5.3.5, and 4.5.3.6)**
- The overall design of the space of respite should communicate a sense of safety and serenity, allowing Veterans to feel at ease while in personal reflection or one on one counseling.

Space/Volume

- The proportions of the space should be configured to accommodate one to four people, with minimum dimensions of 10'-0" x 15'-0".
- The ceiling heights should be a minimum of 9'-0". Consider varying ceiling height to add spatial interest.

Windows and Views

- Rooms of respite on upper floors provided with windows will allow views of gardens, sky, landscape or cityscape **(Figure 4.5.3.4)**.
- Consider connecting rooms of respite or corridors to a roof terrace.
- In the courtyard where multiple activities take place, create a wall with a water feature in front of the room or pavilion to ensure that privacy is provided for the occupants **(Figures 4.5.3.1-4.5.3.3)**.
- When pleasing views are not possible, consider use of clerestory windows to admit natural light.
- Provide seating, taking care that no seats have their backs to glass walls or windows.
- Consider clerestory windows for the interior rooms with no direct access to natural light.
- Consider moveable screens which can be repositioned to control how much light enters the space, or to frame a particular exterior view.
- Consider varying ceiling heights.

Seating and Furniture

- Furniture should be moveable for reconfiguration (benches and writing surfaces).
- Select furniture to allow for journaling or placement of personally significant objects.

Figure 4.5.3.3: Private meditation pavilion. Brion Cemetery. San Vito d'Altivole, Italy.

"One of the main things that can be incorporated into existing and future medical centers is space where reluctant Veterans in crisis situations can be separated from the stress of the ER/ Admitting process. We need calming rooms where clinician/peer specialists can engage with Vets where they are 'at' on the issues that brought them to the crisis point. This can reassure them that 'this, too, will pass,' and that recovery is possible. In many cases, this would help Vets move toward consenting to admission."

—David Rogers

Vietnam Veteran

Figure 4.5.3.4: Room of solitude with space for one to three people. Fort Belvoir Community Hospital. Fort Belvoir, Virginia.

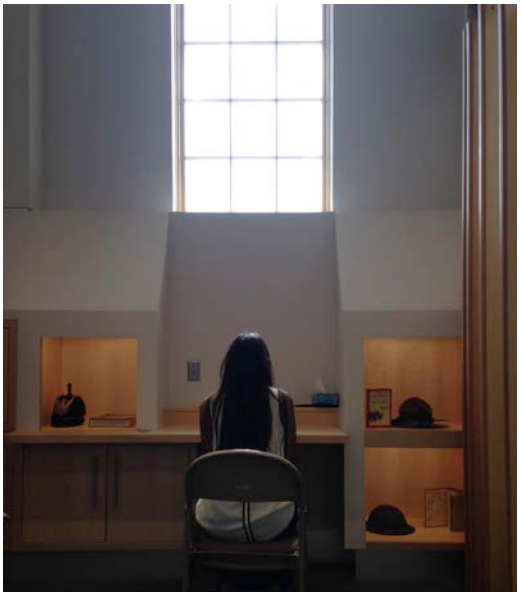

Figure 4.5.3.5: View of journaling/meditative niche and adjacent memorabilia display. Conference room. Veterans Memorial Building. Cedar Rapids, Iowa.

Figure 4.5.3.6: View of fold-down benches for mental health session. Conference room. Veterans Memorial Building. Cedar Rapids, Iowa.

Positive Attractions

- Calming artwork
- Enclosed water feature
- Music that can be manually adjusted or switched off
- Display niches for placement of personal objects of significance

Lighting

- Controllable dimmers permit the Veteran to find the best comfort level.
- Variety of lighting type and locations to provide visual interest, highlight significant meditative features, provide for flexibility of use of space.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.
- Consider introduction of natural lighting within the waiting areas.

Acoustics

Acoustic requirements for these spaces are very similar to those of individual therapy rooms. The objective is quiet, contemplative space that is protected from external distractions. **(Please refer to 4.5.1, Individual Therapy Rooms for recommendations, supplemented by limiting background noise from mechanical systems to RC-25(N)). (See VHA Program Guide: Design and Construction Procedures PG-18-3, Topic 11).**

- Interior partitions to underside of structural floor slab
- Gasketed doors, if possible
- Absorptive finishes, such as acoustical ceiling tiles and interior wall panels
- Control of mechanical noise
- Carpet (tile)
- Interior partitions will primarily consist of gypsum board on metal studs with fiberglass batt insulation. The partitions should extend to the underside of the roof or floor deck above. Some areas may require a double layer of gypsum board in addition to batt insulation to meet the minimum STC requirements. Wall penetrations such as doors, interior lights, electrical outlets and mechanical ductwork should be carefully detailed to avoid sound transmission.

Communication and Technology

- For small waiting rooms provide cell phone and Wi-Fi signals.
- Encourage a private, reflective, and noninvasive environment through "no cell phone" policy.

HVAC

- Provide separate temperature controls for the waiting room and space of respite.
- Select and locate a system, and design air distribution (ductwork sizing, diffuser) to eliminate uncomfortable drafts or acoustic distraction. Consideration should be given to the sensitivity of visitor thermal comfort regarding seating adjacent to exterior wall and windows.

- Consider if controlled access to natural ventilation is appropriate and controllable to potentially allow a sense of connection to the exterior as well as a less confining sense of the interior

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.5.4 Spiritual Settings

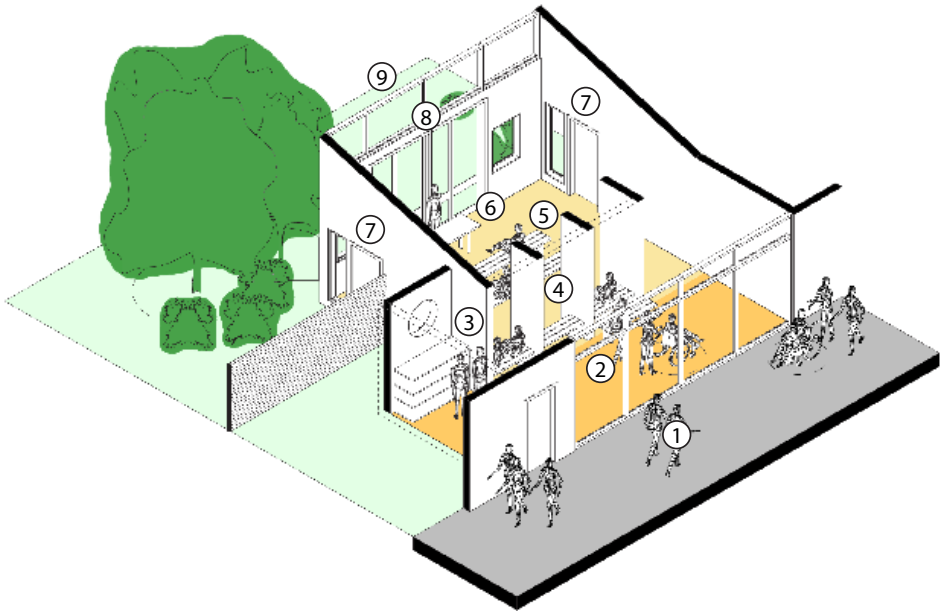

Figure 4.5.4.1: Spiritual Settings Diagram - Axonometric View

Diagram Key

1. Main circulation corridor
2. Foyer
3. Shelving for sacred objects
4. Private niches for 1-2 people (foldable benches)
5. Flexible chapel seating
6. Podium for speaker
7. Doors to exterior space
8. Clerestory windows
9. Exterior courtyard

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

The chapel is a non-denominational spiritual setting in a VA facility. It is here that regular as well as commemorative services are held, and where a chaplain, rabbi, or imam can address moral injury.

Spiritual practice, including worship in a setting designed for it, can play an important role in an individual's healing; for that reason, chapels have long been a standard part of hospitals and other healing settings. In addition, spiritual beliefs and practices have particular resonance for combat Veterans, who turn to them for hope, for strength, and for solace, and to reinforce the bonds of warrior brotherhood.

Nick Misiano is a Marine Veteran of the Second Battle of Fallujah, which took place in November and December of 2004 and was the bloodiest battle of the Iraq War. In *Lava Dawgs*, the novel he wrote (under the pen name Charlie Moose) based on his experience in that battle, he wrote:

> *He thought about all the guys in his squad, some were Christians, some were not. However, he knew the power of the written word. If it made some of the guys feel better, it couldn't hurt to have a little extra momentum. In previous "wars of attrition," it was said, "there are no atheists in a foxhole." Faith is like an invisible shield. If a person really believes they are protected, then they are. If nothing else, it offered them comforting words when their lives were in jeopardy. Following a unanimous decision, they adopted the practice themselves and recited the verse before every mission. Many of them carried a copy in their helmets and took turns reading it each day. It became as much a psychological advantage as a way to forge unity amongst the squad.*

"The essential thing, you see, is that the chapel is a personal ritual, and that it is not a set ritual, and it is from this that you get the form."

—Louis Kahn
Architect

Spiritual Settings Diagrams

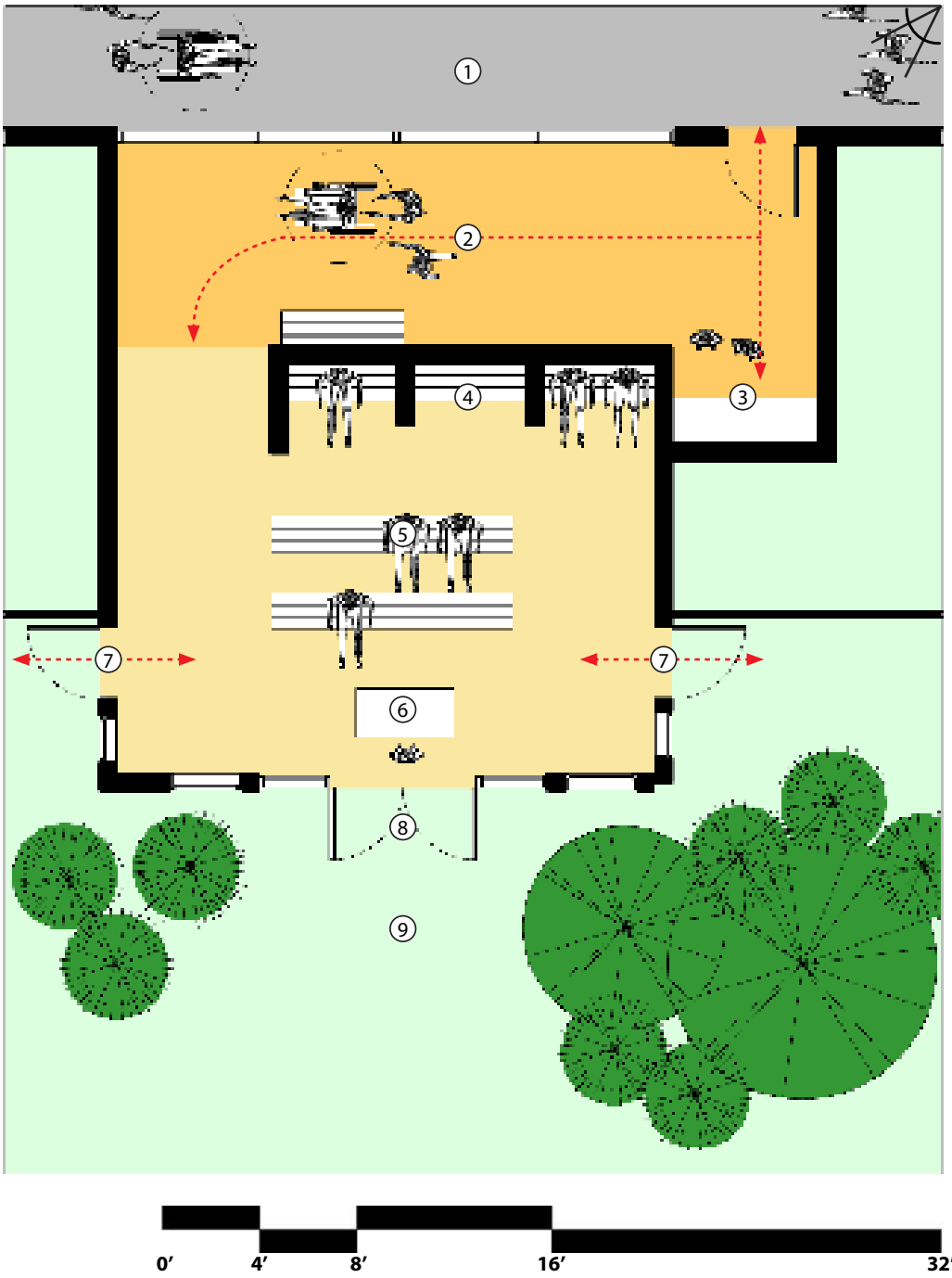

Figure 4.5.4.2: Spiritual Settings Diagram - Plan View

Diagram Key

1. Main circulation
2. Foyer
3. Shelving for sacred objects
4. Private niches for 1-2 people (foldable benches)
5. Flexible chapel seating
6. Podium for speaker
7. Doors to exterior space
8. Clerestory windows
9. Exterior courtyard

Circulation path

Viewpoint

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

What You Need to Know

For a chapel to serve as many types of spiritual or sacred interactions as users might need, the following should be considered:

- Consider the chapel to be an autonomous component, not necessarily enveloped by the building footprint—to optimize sunlight, views, and access to adjacent exterior space. Therefore, the chapel component may protrude from the building façade **(Figures 4.5.4.1 and 4.5.4.2).**
- The chapel should possess a transitional space (i.e. cloister, ante room) to allow the user to psychologically transition from the public world to the spiritual domain, as well as providing an acoustic and visual buffer from the main corridor **(Figures 4.5.4.1, 4.5.4.2 and 4.5.4.3)**.
- The ideal location would be on the ground floor, and adjacent to an interior courtyard to allow for views of nature, natural light, and indoor/outdoor access **(Figures 4.5.4.1, 4.5.4.2, 4.5.4.4).**
- The environment should be flexible to accommodate religious services, group therapies, and peer mentoring, with ample space for a gathering of Veterans in wheelchairs **(Figures 4.5.4.1 and 4.5.4.2).**

Spirituality and Healing

Brick Johnstone, PhD, of the University of Missouri's Department of Health Psychology points out that one of the most important factors associated with achieving positive health outcomes for individuals recovering from wounds or illness is a system of positive social support. Individuals with traumatic brain injury (TBI), for example, must learn to cope with stressors including changes in personality, thinking, physical functioning, and the ability to form and maintain relationships. Social isolation is not conducive to recovery following TBI. These individuals often have to redefine their core identities, with social support and in a community context, in order to move forward with their lives. Research has shown that strong spiritual beliefs and congregational support are primary predictors of positive long-term outcomes for individuals with TBI.

A VA hospital chapel, therefore, is a critically important space for healing. It is a place for wounded Veterans to deepen their spiritual reflection and practice, and a place for them to interact with their faith communities—including both receiving and providing support. Veterans who have found spiritual strength can minister very effectively to other Veterans trying to find their way.

Critical Adjacencies

- Exterior gardens, patio, courtyard
- Commemorative spaces
- Places of rest and respite
- Toilet rooms
- Main corridor

4.5.4.3: Chapel interior from entry vestibule and view of altar. Brion Cemetery. San Vito d'Altivole, Italy.

> "While in that sacred space, there is nothing but silence. As you begin to encounter thought, express your passion and purpose. If there are many goals, put them on paper...By simply planting the fertile seeds of your passions, they will come to fruition when the time is right. You simply release them in your silence."
>
> *—Michael Toahty*
> *"Singing Man"*
> *from* Seven Sacred Directions
> *Vietnam Veteran and member of the Southern Arapaho Tribe*

4.5.4.4: Operable partitions within chapel opens up, providing view of adjacent outdoor pool. Brion Cemetery. San Vito d'Altivole, Italy.

Healing and Spirituality

"Understanding the roles and contexts of spirituality among patients with life-threatening illness allows us to develop better palliative and supportive care plans. Spiritually-oriented supportive care may include support groups, yoga, meditation, nature, music, prayer, or referral to spiritual or religious counselors."

—Ann Berger MSN, MD
Chief of Pain and Palliative Care
National Institutes of Health Clinical Center

Figure 4.5.4.5: Artifacts and texts from multiple religions available near the chapel entrance. Lurie Children's Hospital. Chicago, Illinois.

Figure 4.5.4.6: Chapel with private niches, group seating, and stained glass. Lurie Children's Hospital. Chicago, Illinois.

Community

Chapels are essential not only for individual reflection, but for creating spiritual community for Veterans. The chapel's proximity to other vital VA environments is critical for full utilization. The chapel design should allow flexibility in community uses, including group therapies, peer mentoring, poetry readings, and study groups **(Figures 4.5.4.1 and 4.5.4.2)**.

Space/Volume

- Maximum ceiling height is critical to the experience of the space and spiritual aesthetic. The minimum finished ceiling height should be 9'-0".
- Create niche seating for solitude and privacy within a primarily communal space **(Figures 4.5.4.2 and 4.5.4.6).**
- For interior cladding, such as walls, floors, and ceilings, use natural materials such as wood, manufactured stone, porcelain panels imitating wood panels, plaster, etc., **(Figures 4.5.4.6, 4.5.4.7 and 4.5.4.9).**

Windows and Views

- Maximize sunlight and views **(Figures 4.5.4.1, 4.5.4.2 and 4.5.4.7).**
- Consider providing access from the chapel to an exterior garden, allowing for expanded space and inclusion of the exterior in chapel activities **(Figures 4.5.4.1 and 4.5.4.2)**.
- Glazing should be primarily clear glass to maximize views, coupled with stained or painted stained glass with artwork.
- If exterior views are problematic, the fenestration should be of stained or painted glass **(Figure 4.5.4.6).**
- Seating both indoors and out should be moveable and flexible, allowing for multiple configurations.
- Clerestory windows can also be utilized to provide daylight.

Positive Attractions

- Create spaces for different religious groups to display their religious symbols and artifacts for services **(Figure 4.5.4.5).**
- Create areas of stained or colored glass depicting a Veteran's service in vestibules or main entryways of the spiritual space.
- Create a direct connection to adjacent nature (garden, courtyard, terrace, patio).

Lighting

- To create a restful and contemplative spiritual setting, have soft accent lighting that does not cause glare or distraction and has adjustable light levels.
- Lighting fixtures should be dimmable so as to enhance the relaxing atmosphere and provide for a calm and comfortable visit.
- Lighting should be organized into zones (i.e. alter, statue niches, etc.) that can be individually controlled **(Figure 4.5.4.8).**
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.

Acoustics

A long tradition of monumentality in religious buildings has resulted in large and reverberant spaces. An acoustics specialist should be consulted to ensure that the acoustics of the chapel are suited to its intended uses **(see VA Program Guide: Design and Construction Procedures PG-18-3, Topic 11).** Ways to mitigate noise include the following :

- High ceilings and hard finishes best support traditional worship, but control of liveliness for speech and amplified music may require absorptive finishes as well; acoustic variability may be required to accommodate differing types of worship in a single space **(Figure 4.5.4.7)**.
- Background noise from mechanical equipment should be no greater than RC-20(N), achieved by selection of quiet equipment, incorporation of vibration control measures, situating equipment remotely from these spaces, sizing ductwork for low air velocities, and attenuating duct-borne noise through ductwork material.
- Isolation from adjacent spaces and exterior noise utilizing partitions incorporating solid masonry and/or extra layers of gypsum board, laminated glazing, and vestibules with gasketed, solid-core doors.
- Interior partitions will primarily consist of gypsum board on metal studs with fiberglass batt insulation. The partitions should extend to the underside of the roof or floor deck above. Some areas may require a double layer of gypsum board in addition to batt insulation to meet the minimum STC requirements. Wall penetrations such as doors, interior lights, electrical outlets and mechanical ductwork should be carefully detailed to avoid sound transmission.

Communication and Technology

- Sacred and spiritual settings require minimal technological infrastructure.
- Encourage a private, reflective, and noninvasive environment through "no cell phone" policy.
- A sound reinforcement system (public address system) should be integrated into the space with the dual capability of providing music.
- If the scale of the space allows, a video broadcast system and screen should be provided to allow media presentations during commemorative events.

HVAC

- Provide separate temperature controls for the chapel.
- Select and locate a system, and design air distribution (ductwork sizing, diffuser) to eliminate uncomfortable drafts or acoustic distraction. Consideration should be given to the sensitivity of visitor thermal comfort regarding seating adjacent to exterior wall and windows.
- Consider if controlled access to natural ventilation is appropriate and controllable to potentially allow a sense of connection to the exterior as well as a less confining sense of the interior.

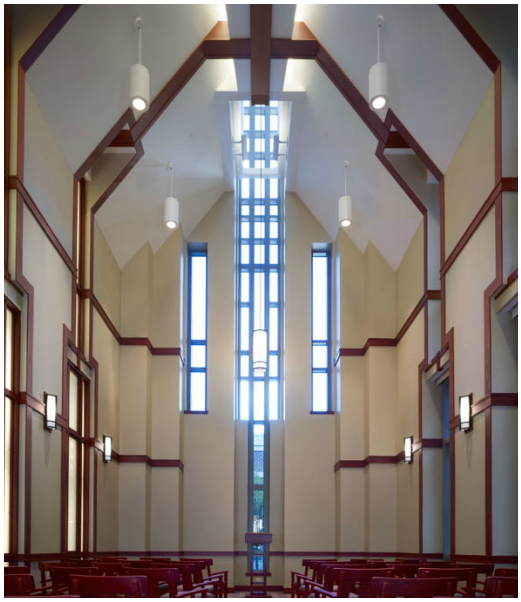

Figure 4.5.4.7: Natural light and wood accents in the hospital chapel. Elmhurst Memorial Hospital. Elmhurst, Illinois.

4.5.4.8: Subtle accent lighting enhances the contemplative setting of the chapel. University of New Mexico Cancer Treatment and Research Center. Albuquerque, New Mexico.

Figure 4.5.4.9: Alternative waiting rooms such as a space for meditation, solitude, and yoga may substitute for formal waiting rooms for some Veterans. National Intrepid Center of Excellence Satellite Facility. Ft. Belvoir Community Hospital, Virginia.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.6 Cafeteria

Cafeteria Diagrams

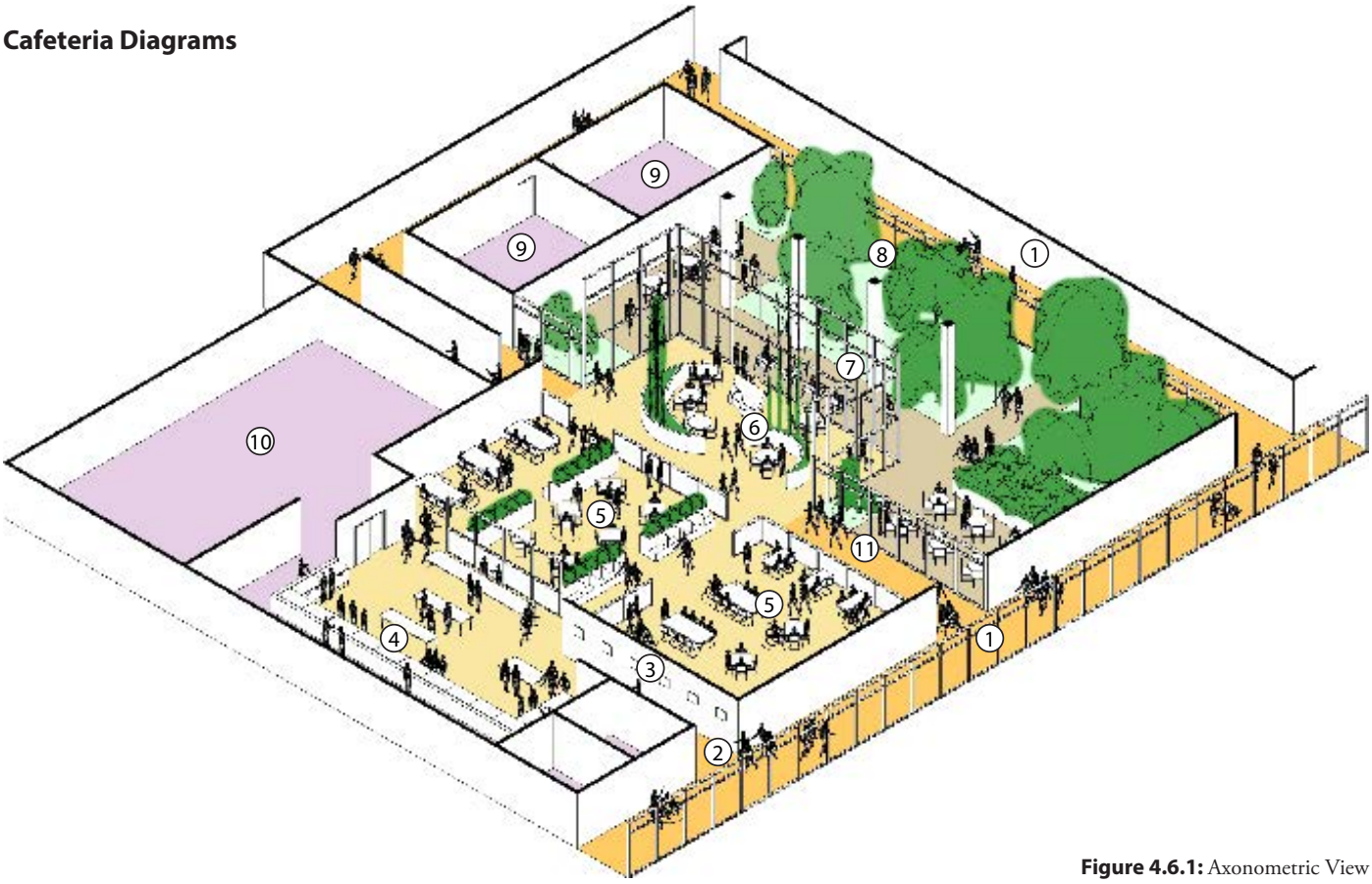

Figure 4.6.1: Axonometric View

Diagram Key

1. Main circulation corridors
2. Entry
3. Veteran artwork
4. Serving area
5. Dining area
6. Double-height atrium with seating
7. Adjacent courtyard with seating
8. Outdoor courtyard
9. Toilet rooms
10. Kitchen
11. Corridor

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

What You Need to Know

In existing VA facilities, the canteen (or cafeteria) is a well-utilized communal space, for dining, conversation and social gatherings. The cafeteria is a critically important element in the well-being of all Veterans in the facility. A canteen (here referred to as cafeteria), as defined by the Veterans Canteen Service (VCS), contains retail space, barbershop, cafeteria, café, and all accompanying auxiliary spaces.

Critical Adjacencies

- Main reception and lobby connected by main corridors
- Main corridors
- Healing garden, courtyard, terrace, or patio
- Multipurpose spaces
- Toilet rooms

> "When people eat together, they may actually be together in spirit – or they may be far apart. Some rooms invite people to eat leisurely and comfortably and feel together, while others force people to eat as quickly as possible so they can go somewhere else to relax."
>
> —*Christopher Alexander, Architect*
>
> *Author of* Pattern Languages

Figure 4.6.2: A variety of seating options, as well as physical and visual connections to a courtyard and landscaped elements. VA Southern Nevada Healthcare System. North Las Vegas, Nevada.

Veteran-Embracing Environment

- Provide a choice of seating arrangements, including some with a barrier at the Veteran's back **(Figures 4.6.1, 4.6.3, and 4.6.5)**.
- The cafeteria can be an opportunity to enhance a Veteran-Embracing Environment with the ability to show artwork, symbols, text and imagery that honor patriotism, and reinforce the bonds Veterans share.

Cafeteria Diagrams

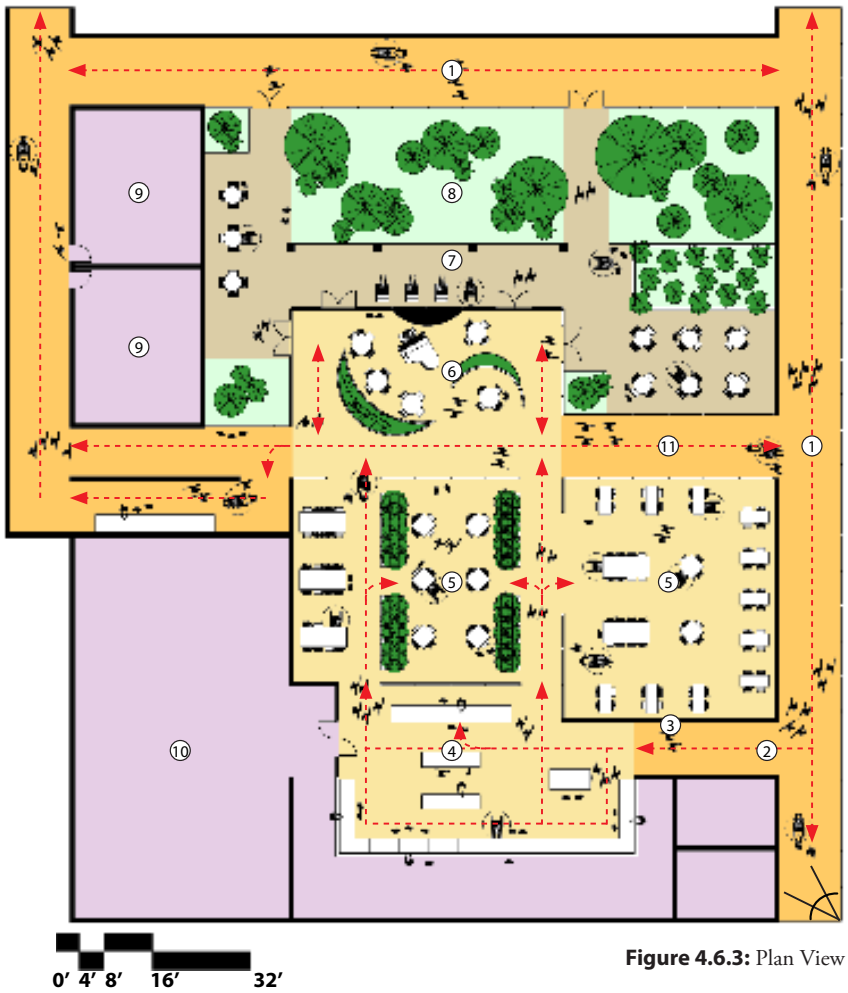

Figure 4.6.3: Plan View

Diagram Key

1. Main circulation corridors
2. Entry
3. Veteran artwork
4. Serving area
5. Dining area
6. Double-height atrium with seating
7. Adjacent courtyard with seating
8. Outdoor courtyard
9. Toilet rooms
10. Kitchen
11. Corridor

Circulation path

Viewpoint

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

Community

- The cafeteria is a heavily-used space in a VA facility. Sharing a meal is one of the most important methods of community-making: Veterans share thoughts, become better acquainted, and socialize before or after a medical appointment. Other activity areas such as; multipurpose spaces, waiting areas, and an exterior or interior garden) should be placed around the cafeteria to harness the dynamic interaction **(Figures 4.6.1 - 4.6.8 and 4.6.10)**.
- Nutritious meals are now becoming standard dining options for patient, staff, and family. Coffee bars, bakeries, and even small farmers' markets create a sense of community, bringing together Veterans, staff, and healthcare providers.

Space/Volume

- A ceiling height of 9'-0" or higher will mitigate excessive noise due to higher occupancy loads.
- As cafeteria dining areas are often large, the ceiling height should be raised proportionally to avoid a sense of crowding or close quarters.
- Consider locating the cafeteria adjacent to other communal spaces (such as interior gardens, patios, and waiting areas), and adding flexibility and a sense of connection through use of translucent barriers or moveable partitions **(Figures 4.6.1, 4.6.2, 4.6.3, 4.6.5, 4.6.8, and 4.6.10)**.

Windows and Views

- Cafeteria seating should be located with views of gardens, courtyards, and other landscape elements.
- Interior glass partitions can be used where possible to connect the dining area to the rest of the facility **(Figures 4.6.1 and 4.6.2).**
- Clerestory windows could be utilized to maximize exposure to natural light.

Seating

- Comfortable furniture in a variety of seating configurations allows the Veterans and family the choice of a private dining experience or communal dining with peers **(Figures 4.6.1 and 4.6.2)**.
- Seating grouped around a fireplace or other pleasant focal point adds to a calming atmosphere.
- 54" Half-wall partitions should be located behind seating **(Figure 4.6.5).**

Positive Attractions

- Visible outdoor or courtyard features such as trees, greenery, flowers, and water features, as well as pleasant natural sounds such as the chirping of birds, have been found to be the most effective natural elements for reducing stress **(Figures 4.6.1, 4.6.2, 4.6.3, 4.6.4, and 4.6.7)**.
- Music in the cafeteria is another strategy to introduce a calming, non-institutional atmosphere for dining.
- Artwork and interior colors should reflect the surrounding natural landscape.

Figure 4.6.4: Covered rooftop garden area with multiple seating options, including tables for eating. Palomar Medical Center. Escondido, California.

Figure 4.6.5: Multiple seating options are provided and architecture detailing of wood in the space provides comfortable and non-institutional communal dining. Elmhurst Memorial Hospital. Elmhurst, Illinois.

*Please note the barrier that seperates the seating is desirable. However, the backs of the individual chair seating with back exposed to a passageway is not acceptable.

Figure 4.6.6: The far end of the cafeteria has folding doors, which allow the space to open up into a multipurpose gathering space with AV capabilities. Naval Hospital Camp Pendleton. Camp Pendleton, California.

Figure 4.6.7: Outdoor cafeteria seating takes advantage of the mild, sunny weather generally present year-round in Southern California. Naval Hospital Camp Pendleton. Camp Pendleton, California.

Figure 4.6.8: Exterior windows bring natural light into the space and indoor plants connect to nature. Lurie Children's Hospital. Chicago, Illinois.

Figure 4.6.9: Café seating near windows. Fort Belvoir Community Hospital. Fort Belvoir, Virginia.

Lighting

- The lighting design can help break down the scale of a large space into smaller more intimate zones such as private vs. semi-private vs. communal. This can be done through using different types of light fixtures and different light intensities in conjunction with other design features such as finishes and furniture layouts.
- Certain areas should be designed with accent lighting in order to provide a visual cue to an important function, and to allow for variety in the scenes which are lighted based on the use of the space. This could include counter areas in a cafeteria setting, multipurpose spaces, etc. The multi-functional qualities of the cafeteria space should be enabled by varied, controllable, and flexible lighting solutions.
- Natural lighting and artificial lighting should allow for equal levels of illumination in order to provide appropriate lighting levels throughout the day.
- Natural and artificial lighting should be controlled for maximum comfort and minimal glare or thermal gain from windows.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.

Acoustics

The primary acoustic concern in cafeteria, canteen, and café spaces is that they not become too loud when populated to capacity. This is particularly important in VA facilities because of the large proportion of the Veteran population suffering from hearing loss, and in addition, Veterans who suffer from PTSD and TBI, which can make understanding speech very difficult in noisy environments **(see VHA Program Guide: Design and Construction Procedures PG-18-3, Topic 11).**

- Use acoustical tile or other absorptive ceiling materials of approximately NRC 0.70 **(Figure 4.6.6)**
- Limiting mechanical background noise to RC-40(N) to RC-45(N)
- Be sensitive to the effect on acoustics of HVAC equipment, taking care to choose it and locate it such that the sound of its operation is not a distraction to the users.
- Interior partitions will primarily consist of gypsum board on metal studs with fiberglass batt insulation. The partitions should extend to the underside of the roof or floor deck above. Some areas may require a double layer of gypsum board in addition to batt insulation to meet the minimum STC requirements. Wall penetrations such as doors, interior lights, electrical outlets and mechanical ductwork should be carefully detailed to avoid sound transmission.

Communication and Technology

The cafeteria area functions similarly to waiting areas: It is a transitory and socializing space, where individuals spend long periods of time socializing with one another. Supportive technology, such as the following, should be included:

- Cell phone and Wi-Fi signals.

- An electronic screen with real-time updates for patient status to keep families informed. Families are provided with a patient identifier number that allows them to track appointments and receive updates.
- Monitor that can scroll daily activities, destinations and hours of operation (gift shop, cafeteria, snack bar), and educational events such as nutritional classes.
- Provide an electronic way-finding kiosk with clear directions and maps to help visitors navigate the facility.
- Provide sufficient electrical outlets and USB ports so that patients, family members, and others can recharge their electronic devices.
- Provide access to a sound reinforcement system with the capability to provide background music. This could be a built-in microphone and speaker system or a portable sound reinforcement system.
- Consider a video broadcast system and screen for media presentations during larger public functions.

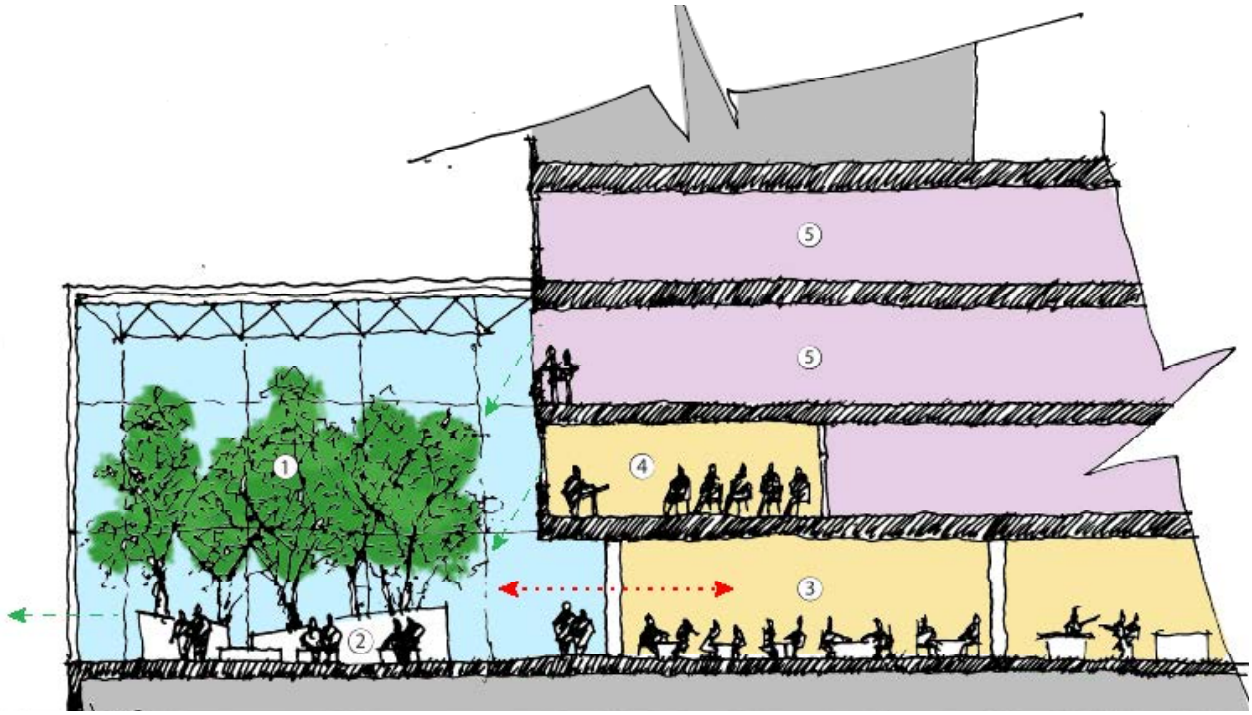

Figure 4.6.10: Cafeteria Section Diagram. Lurie Children's Hospital, Chicago.

Diagram Key

1. Atrium with abundant natural light, indoor plants
2. Quiet atrium dining area
3. Dining area
4. Chapel
5. Clinics

Figure 4.6.11: Natural elements create a comfortable backdrop in the cafeteria. Flexible seating allows for groups of various sizes to socialize or hold private discussions in comfort. Albert B. Chandler Hospital, University of Kentucky Chandler Medical Center. Lexington, Kentucky.

HVAC

The cafeteria HVAC systems must be responsive to highly varied functions and occupant loads of this space. The cafeteria must be a comfortable and welcoming place as a dining area and as an alternative to the more formal waiting areas. Attention must be given to thermal comfort, air quality, and odor control.

- Consider air distribution and control strategies, such as air stratification (low supply/high return) and direction of air flow to maintain clinical pressure relationships and increase level of odor control.
- Consider if controlled access to natural ventilation is appropriate and controllable to potentially allow a sense of connection to the exterior, as well as a less confining sense of the interior.
- Provide automatic and manual controls to regulate temperature. Automatic allows for facility control directly related to broad thermal comfort and energy efficiency.
- Recognize both the transient social usage of the space and the possibilities for energy optimization. This could include increased room temperature set points in the summer and cooler temperature set points in the winter to achieve energy savings.
- Consideration should be given to the sensitivity of visitor thermal comfort regarding seating adjacent to exterior wall and windows. Space should be both aesthetically pleasing and thermally comfortable, especially for areas where individuals may sit for extended periods.
- Consider creating foyers or other transitional spaces to address temperature and pressure relationships with adjoining areas to create a cafeteria that is void of drafts, odors, etc. that could heighten a Veteran's stress level.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—Abraham Lincoln,
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.7 Café/Peer Mentoring Space

Figure 4.7.1: The Dryhootch Milwaukee café provides food and refreshments to users and members of the community, as well as places for peer mentoring. Milwaukee, Wisconsin.

> "The question of "stigma" is difficult for many, (if not most), to overcome when addressing mental health issues. It is particularly troublesome for veterans in as much as they are conditioned in military training to act independently when the need to overcome personal challenges [....] What can ease this stigma is the concept of a group working together to face challenges. The camaraderie of the squad, platoon or company can be used [....] In addition, peer counselors can greatly ease the stigma, and in particular, veterans from other eras who have faced similar challenges can help a great deal. "
>
> *—David Kurtz,*
> *Coldwar Veteran*

In December, 2013 President Obama had issued an executive order to authorize the VA to hire 900 Veteran Peer Specialists. These Specialists, certified by a professional peer training organization, assist care providers in outpatient and inpatient settings throughout the VA system. A Peer Specialist is defined as someone with a mental health condition (and possibly other co-occurring condition) who is actively engaged in his or her own recovery, and who volunteers or is hired to help peers with these conditions to identify specific treatment and life goals and work toward achieving them:

Since the beginning of warfare, warriors have helped one another recover from the trauma of combat. In the Archaic Greek period, theater came into being as a way for warriors and the public to purge themselves of the traumatic memories and feelings associated with war. Veterans created the plays, which were performed by Veterans for audiences of Veterans and the general public. **(See Appendix D.)** In the United States following the Civil War, Veterans who fought for the Union side found fellowship and support in local posts of a fraternal organization, the Grand Army of the Republic, which eventually had posts in every state. Some states had one in nearly every town; Illinois had 800 posts. Membership was strictly limited to those who had participated in "the recent unpleasantness," as the Civil War was known, and one of the key functions was "to help one another." **(See Appendix D.)**

Café/Peer Mentoring Space Diagrams

Figure 4.7.2: Axonometric View

Diagram Key

1. Main circulation corridor
2. Multiple lounge seating configurations
3. Café area with bar seating and serving counter
4. Café-style seating
5. Peer mentoring rooms
6. Adjacent outdoor seating
7. Toilet rooms
8. Café storage

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

What You Need to Know

The café/peer mentoring space should be located near the main entry adjacent to the main corridor to allow easy access for Veterans, family and friends. A location near the main entry allows Veterans who are not part of the VA system to have a coffee, to observe, and meet Veterans who are patients, providers or staff of the VA. Consider a possible entry to the café/peer mentoring space that allows Veterans to bypass the main facility entry. However, the location of the peer mentoring café must be planned such that all traffic to it passes through a control point.

An example of community based Veteran Peer Support Services is located at Dryhootch in downtown Milwaukee **(Figures 4.7.1, 4.7.3, 4.7.5, 4.7.6, 4.7.8, 4.7.9)**. Bob Curry, the Director, has seen recently returned Veterans spend weeks observing from a corner before engaging in conversation.

Figure 4.7.3: Large, comfortable chairs and couches help reinforce the home-like feel of the space. Dryhootch. Milwaukee, Wisconsin.

Café/Peer Mentoring Space Diagrams

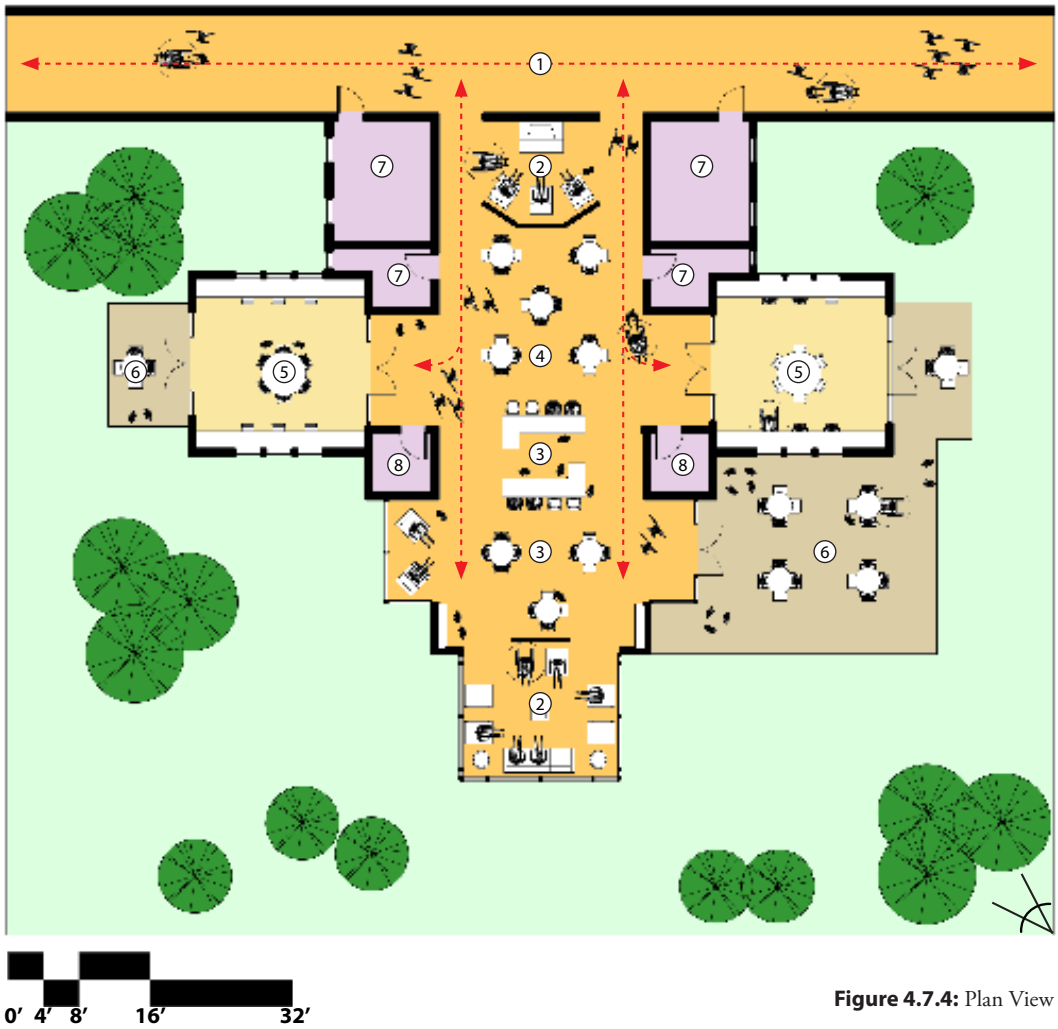

Figure 4.7.4: Plan View

Diagram Key

1. Main circulation corridor
2. Multiple lounge seating configurations
3. Café area with bar seating and serving counter
4. Café-style seating
5. Peer mentoring rooms
6. Adjacent outdoor seating
7. Toilet rooms
8. Café storage

Circulation path

Viewpoint

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

Figure 4.7.5: View of coffee bar in Dryhootch lounge. Milwaukee, Wisconsin.

The diagram in Figure 4.7.4 shows a proposed VA café located on the longitudinal axis, with peer mentoring rooms on the lateral axis. From the entry, the focal point is the café's counter with bar seating. The serving counter is not only the delivery point for food and beverages, but a control point when peer mentoring is in session. General café seating extends to the adjacent patio for dining and conversation. Toilet rooms are accessed from the café and from the main corridor. Realizing that there are many Veterans who do not avail themselves of VA services because of trust issues, peer mentors provide a direct connection of Veteran to Veteran for peer support services. The common bond of military service between mentor and patient establishes a platform on which to build trust and help the patient to re-enter community. A peer mentoring area

inside a VA serves as an important bridge from the community to the VA, and from the individual Veteran to the community.

The organization Dryhootch, Inc. of Milwaukee, Wisconsin provides a model for peer mentoring spaces. This model has four main elements:

- A café serving nutritious food is a place where Veterans of all generations can gather casually to get to know one another and build trust. **(Figures 4.7.1, 4.7.2, 4.7.3, 4.7.4, 4.7.7, 4.7.12, and 4.7.13).**
- A peer mentoring room with a capacity of up to 12 persons is used for closed-door sessions.
- An adjacent outdoor space such as a patio or therapeutic garden serves as an additional space for one-to-one confidential discussions.
- Food preparation is done off-site or in the cafeteria. Food is refrigerated or warmed up for delivering product to patron.

Critical Adjacencies

- Main reception/ lobby
- Primary circulation corridor
- Exterior spaces - courtyard, garden, patio, etc.
- Toilet rooms
- Small retail area
- Potential secondary entrance

Veteran-Embracing Environment

- Space should allow for the display of art honoring military service and art by Veterans.
- Display cases for Veteran memorabilia, artwork, and photos. **(Figure 4.7.6)**.

Community

- Providing a few different seating configurations and atmospheres can help foster social and peer therapeutic activities.
- A café area promotes conversation and camaraderie among Veterans, friends, and familiy.
- Consider a gas fireplace as a focal point for social gatherings.
- Artwork and interior colors should reflect the surrounding natural landscape

Space/Volume

- Ceiling heights should be 9'-0" optimally, and no greater than 10'-0", to limit total room volume while avoiding claustrophobic dimensions.
- Consider providing areas and niches adjacent to windows for journaling and for the display of meaningful objects such as those carried during deployment. These work in a complementary way with the peer mentoring rooms, as they can be used in a private group session or when the room does not have any scheduled programming. **(Figures 4.7.10 and 4.7.11).**

Figure 4.7.6: Veteran personalization of the space with a commemorative quilt. Dryhootch. Milwaukee, Wisconsin.

Figure 4.7.7: A patient and family room features coffee bar, flexible seating, computer access, Wi-Fi stations, tvs and direct access to canopy-covered basketball court. Center for the Intrepid, Brooke Army Medical Center. San Antonio, Texas.

Figure 4.7.8: People gathering outside of Dryhootch. Milwaukee, Wisconsin.

Figure 4.7.9: Veterans participating in one-on-one conversation. Dryhootch. Milwaukee, Wisconsin.

Figure 4.7.10: Journaling stations and places for war memorabilia. Conference rooms. Veterans Memorial Building. Cedar Rapids, Iowa.

Figure 4.7.11: Displays for war memorabilia and books about deployment. Patriot's Casa Texas A&M University-San Antonio. San Antonio, Texas.

- Create niche seating for solitude and privacy within a primarily communal space adjacent to windows and/or outdoor seating areas.

Windows and Views

- Provide windows, with appropriate sun shading devices to avoid glare.
- Landscaping and therapeutic gardens should be visible from windows **(Figures 4.7.2, 4.7.4, 4.7.12, and 4.7.13)**.
- A direct connection to an outdoor seating area is ideal to create a relaxing atmosphere and avenue for peer support **(Figures 4.7.2, 4.7.4, 4.7.12, and 4.7.13)**.
- Clerestory windows could be utilized to maximize exposure to natural light.

Seating

- Provide a variety of seating arrangements to promote social interactions as well as address individual needs for personal space.
- Allow space for wheelchairs and scooters within seating configurations.
- Flexible seating should be considered in order to allow Veterans to compose the seating arrangements depending on the interaction and the number of people involved.
- Seating storage should be adjacent to allow for easy access.
- 54" Half-wall partitions should be located behind seating.

Positive Attractions

- Provide a fireplace as a focal point in a seating area **(Figures 4.7.2 and 4.7.4)**.
- Create a direct connection to nature by providing access to outdoor seating areas, such as patios and terraces **(Figure 4.7.8)**.
- Provide an exhibit area for Veteran artwork and memorabilia **(Figures 4.7.10 and 4.7.11)**.

Lighting

- Lighting should account for general room lighting, accent lighting, and task lighting with dimming capability to allow for flexibility of use and ability to accomodate a variety of activities, such as reading or the use of computers.
- Natural light into the area should be maximized as it's important to patient and staff mood and keeps the space from feeling claustrophobic **(Figures 4.7.72 and 4.7.4)**.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.

Acoustics

The primary acoustic concern is that they do not become too loud when utilized to capacity. This is particularly important in VA facilities because of the large proportion of the Veteran population suffering from hearing loss, which can make understanding speech very difficult in noisy environments. **(see VHA Program Guide: Design and Construction Procedures PG-18-3, Topic 11).** Spaces also used for amplified music benefit from additional absorption on wall surfaces to preserve clarity of amplified sound:

- Use acoustical tile or other absorptive ceiling materials of approximately NRC 0.70.
- Limit mechanical background noise to RC-40(N) to RC-45(N)

Privacy, clarity, and intimacy are the primary objectives for mentoring rooms, with emphasis on clarity to support conversation in small groups. Privacy and a sense of separation from the adjacent café space are also desirable. The following approaches are recommended:

- Enclose individual rooms with metal studs with sound attenuation batts and two layers of 5/8" gypsum board each side; stagger electrical boxes so those serving opposite sides of a partition do not occur in the same stud space.
- Extend partitions from floor slab to structure above, and seal the top and bottom of each partition on both sides.
- Consider compression seals at head, jambs, and sills of all doors.
- Ceiling heights should be 9'-0" optimally or greater.
- Provide acoustical tile or other absorptive ceiling materials of not lower than NRC 0.70.
- Provide fixed acoustical panels on 20 to 25% of the total wall area, distributed on at least two adjacent walls
- Limit mechanical background noise to RC-30 (N).
- Consider the inclusion of "white noise" generators or air distribution background noise to buffer the café noise adjacent or noise from other adjacent functions to peer mentoring/meeting rooms.

Communication and Technology

Café and peer mentoring spaces require technology giving ready access to information, but also need to maintain a quiet and contemplative atmosphere allowing for controlled conversation.

- Encourage a private, reflective and non-invasive environment through "no cell phone" policy in meeting rooms.
- A Wi-Fi connectivity can provide access to information on the internet.
- Locate kiosks for My HealtheVet access within these areas.
- Consider providing a large-format monitor so groups can view digital media within peer mentoring meeting rooms.
- Consider video display equipment with video replay capability in mentoring spaces.

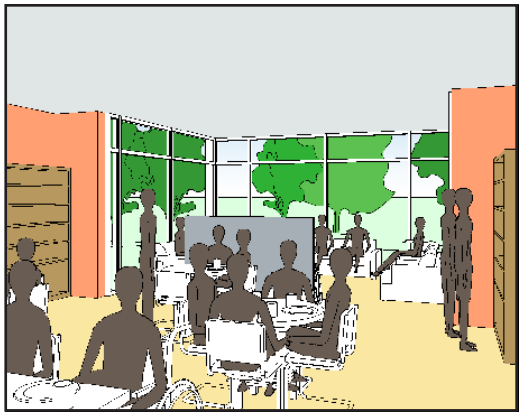

Figure 4.7.12: View of peer mentoring café and multiple seating configurations with 54" panel and access to an adjacent outdoor terrace.

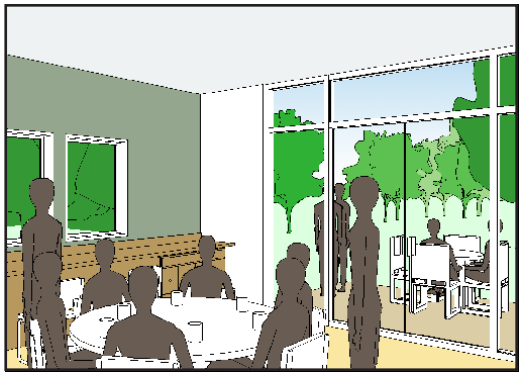

Figure 4.7.13: View of peer mentoring meeting room with access to an adjacent outdoor terrace.

HVAC

- Consider if controlled access to natural ventilation is appropriate and controllable to potentially allow a sense of connection to the exterior as well as a less confining sense of the interior.
- Provide individual room temperature controls as appropriate for spaces and layout.
- Locate HVAC equipment so that the sound of its operation is not interfering with interior activities.
- Consider providing revolving doors or other forms of air break foyer to avoid drafts or odors that could heighten a Veteran/s stress level.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—Abraham Lincoln,
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.8 Community/ Multipurpose Spaces

Community/Multipurpose Space Diagrams

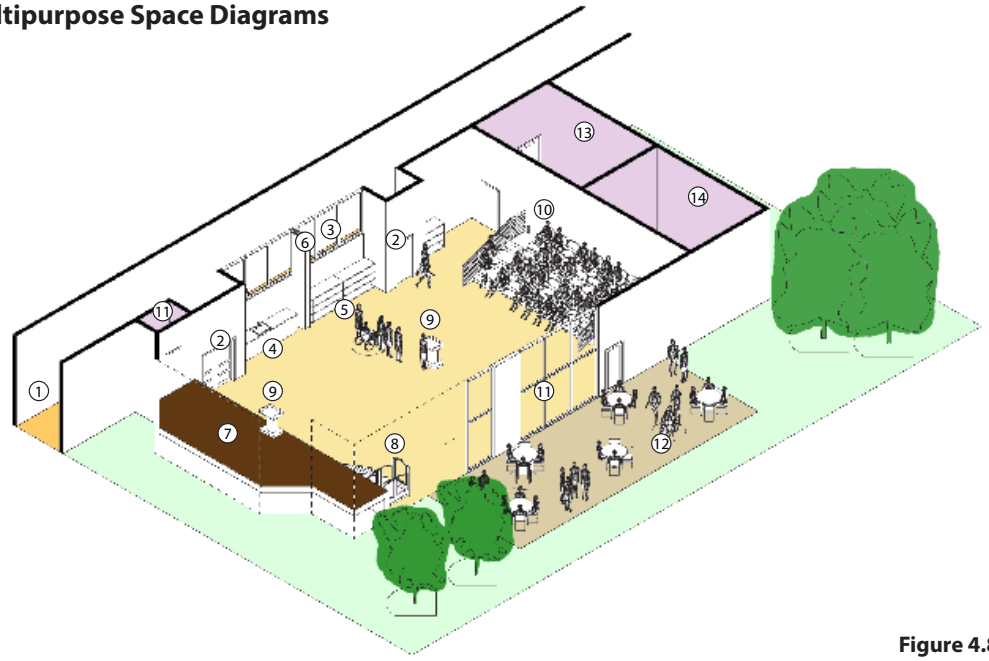

Figure 4.8.1: Axonometric View

Diagram Key

1. Main circulation corridor
2. Entry
3. Clerestories
4. Built-in cabinets and sink
5. Built-in cabinets
6. Moveable interior partition
7. Stage
8. Wheelchair lift
9. Moveable podium
10. Theater-style seating
11. Moveable partitions to exterior space
12. Outdoor patio/flex space
13. Prep kitchen
14. Storage

Circulation path

Viewpoint

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

Figure 4.8.2: Multipurpose area covering two level changes, moveable seating, AV capabilities and bright, non-institutional colors. Illinois Institute of Technology. Chicago, Illinois.

What You Need to Know

Multipurpose spaces are essential for developing and sustaining the VA's internal community as well as for encouraging community groups to interact with Veterans and VA staff. Such spaces are used heavily by Veterans, VA healthcare providers, and staff. Multipurpose spaces take on two different strategies. One design strategy is to have an empty room with no built-in features for maximum flexibility and for arrangement of interior furnishings. **(Figures 4.8.4, 4.8.5, and 4.8.6).** Another design strategy, found in older VA facilities, has built-in features such as stages and seating niches on the edges of the room, allowing for events to occur in-between the built-in elements.

- A stage area is desirable to facilitate presentations and performances. If possible, provide access to an internal courtyard or other external space for indoor/outdoor activities. A food prep or warming kitchen could be considered to permit refreshments or meals at events. Storage for chairs should be directly accessible from the space **(Figures 4.8.1 and 4.8.3)**.

Community/Multipurpose Space Diagrams

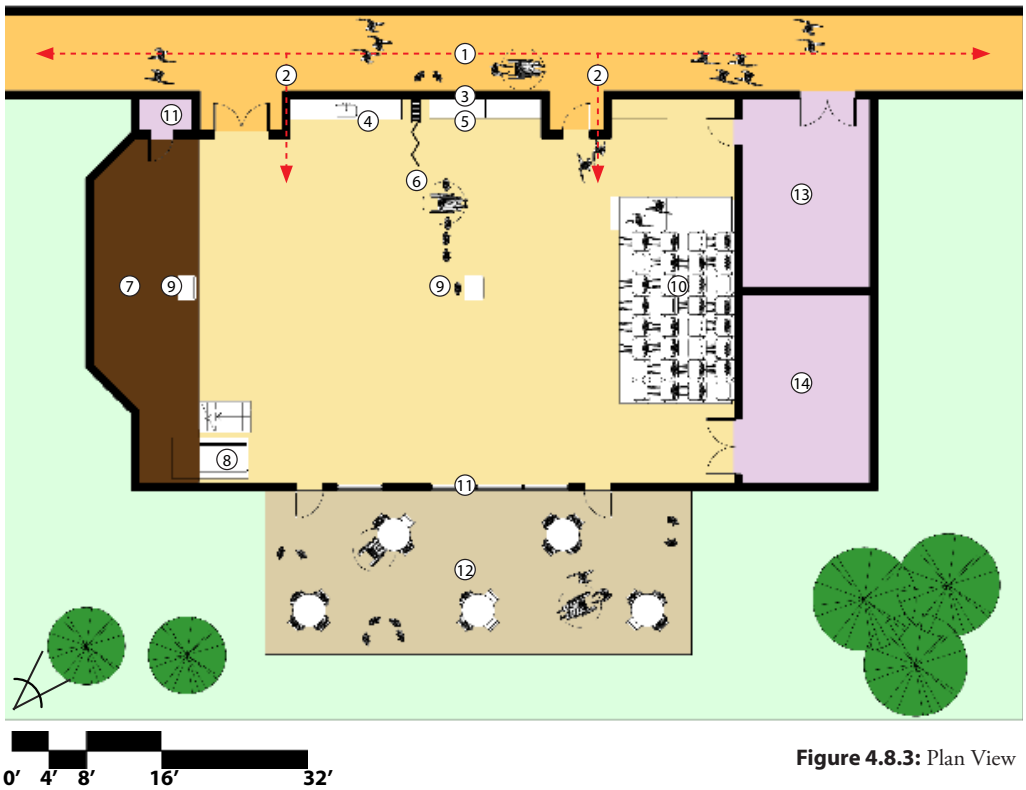

Figure 4.8.3: Plan View

Diagram Key

1. Main circulation corridor
2. Entry
3. Clerestories
4. Built-in cabinets and sink
5. Built-in cabinets
6. Moveable interior partition
7. Stage
8. Wheelchair lift
9. Moveable podium
10. Theater-style seating
11. Moveable partitions to exterior space
12. Outdoor patio/flex space
13. Prep kitchen
14. Storage

Circulation path

Viewpoint

* Consider using operable shades for all exterior fenestration that is susceptible to direct sunlight.

- These multipurpose spaces may transition into Veteran therapy activities, such as writing workshops, art therapy, etc. These types of activity spaces include storage, a sink, tables, chairs, a food service preparation kitchen, pre-function space for art receptions/presentations/social gatherings, and places to display artwork and memorabilia. Storage areas should be able to accommodate therapy equipment, art materials, and activity equipment **(Figures 4.8.1 and 4.8.3)**.
- Multipurpose support spaces consists of:
  * Stage
  * Storage
  * Food pantry and preparation area

Critical Adjacencies

- Garden, outdoor patios, terraces, or porches
- Convenient access from main lobby/reception
- Food service preparation kitchen
- Main corridor

Figure 4.8.4: A multipurpose space, arranged in a stage configuration. Mondavi Center for the Performing Arts. Davis, California.

Figure 4.8.5: A multipurpose space, arranged in a dining configuration, with visual connections to nature. Mondavi Center for the Performing Arts. Davis, California.

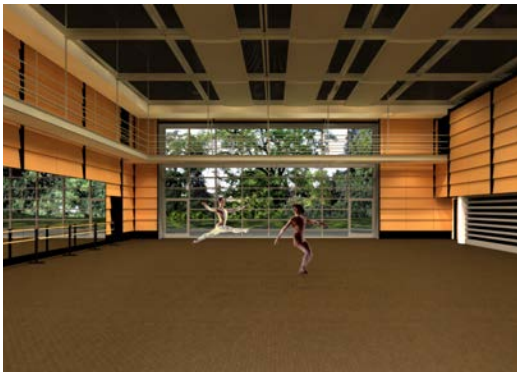

Figure 4.8.6: A multipurpose space, arranged in a performance configuration, with visual connections to nature. Mondavi Center for the Performing Arts. Davis, California.

- Pre-function space for art receptions, presentations, and social gatherings
- Toilet rooms

Veteran-Embracing Environments

Consider ways for Veterans to personalize the space with artwork, memorabilia, and writings or poetry.

Community

- The configuration of seating arrangements during events and therapeutic activities can foster socializing and support from family, friends, and other Veterans.
- Moveable interior partitions can be opened and closed to create different space sizes for community meetings or events such as art show openings, literary readings, and other community-building activities **(Figures 4.8.1 and 4.8.3)**.
- Sharing meals is an important communal experience.

Space/ Volume

- Moveable interior partitions within the multipurpose space offer interior/exterior functionality and expandable square footage for larger venues **(Figures 4.8.1 and 4.8.3)**.
- Places where a Veteran may utilize the Internet, prepare for a job, or study should be included in the room.
- Windows admitting natural light are essential to these areas, assisting in concentration on the task at hand **(See Appendix E).**
- Ceiling heights should be minimum 10'-0".

Windows and Views

- Provide windows, with appropriate sun shading devices to avoid glare.
- Landscaping and therapeutic gardens should be visible from windows and accessible from patios, terraces, and porches.
- Interior corridor glazing can highlight activities within the space and have shades for privacy.
- Clerestory windows are an option for interior corridor glazing **(Figures 4.8.1 and 4.8.3)**.

Seating

- Built-in features such as stages or stepped seating allow for ease of use **(Figures 4.8.1, 4.8.3, 4.8.7, and 4.8.8)**.
- Flexible seating should be considered in order to allow Veterans to compose the seating arrangements depending on the interaction and the number of people involved. Seating storage should be nearby and easily accessible **(Figures 4.8.1, 4.8.2, 4.8.3, 4.8.4, 4.8.5, 4.8.9)**.
- Fixed seating should be considered in some areas for performance, lectures, and presentations **(Figures 4.8.1, 4.8.2, 4.8.3, 4.8.7).**
- A moveable podium should be included.
- Allow space for wheelchairs and scooters within seating configurations.

Positive Attractions

- A stage area with moveable podium can be used for performances, lectures, presentations, and ceremonies **(Figures 4.8.1 and 4.8.3)**.
- Portable tables and chairs which can be set up for performances, lectures, and presentations, ceremonies, and banquets allow for maximum flexibility of the space.
- A floor with sufficient open area supports dining, dancing, art exhibits, storytelling, workshops, and other activities **(Figures 4.8.1 and 4.8.3)**.
- Adjacent gardens, patios, terraces, or porches add flexibility to multipurpose rooms and a change of atmosphere **(Figures 4.8.1 and 4.8.3)**.
- An exterior adjacency with nearby storage for outdoor café style tables and chairs has potential for special events.
- Veteran artwork, memorabilia, and writings or poetry can be exhibited in the space.

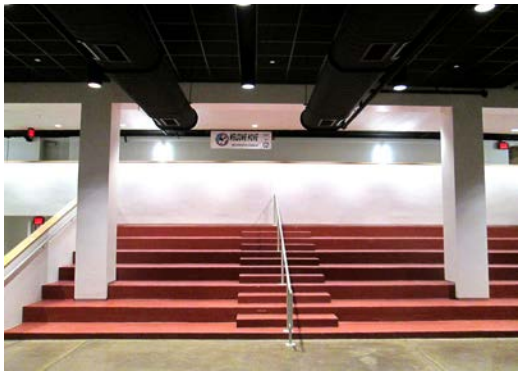

Figure 4.8.7: Built-in seating in a multipurpose space. Armory. Veterans Memorial Building. Cedar Rapids, Iowa.

Lighting

Multipurpose rooms house small to large group activities, including meetings, performances, and dinners. The design and lighting schemes in these spaces should support the intended area program in addition to enhancing the architectural features within the space. By providing a flexible lighting system the solution will support the different functions which may take place (i.e. group meetings, performances, dinners, and group activities). In addition, lighting design should enhance the architectural features within the space, and support flexibility depending on the event:

- Certain areas can be highlighted with accent lighting, such as food service counters, conference, and performance areas.
- Lighting solutions can include accent lighting on walls or counter tops, moveable track lighting, or theatrical lighting. The flexibility of a lighting solution is also dependent upon the zoning and controllability of fixtures.
- Electrical lighting options should be designed to flexibly blend with changing daylight conditions through the day and the seasons.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.

Figure 4.8.8: Stage area in a multipurpose space. Armory. Veterans Memorial Building. Cedar Rapids, Iowa.

Acoustics

Assembly spaces require specialized acoustic treatments that facilitate warmth, clarity, intimacy, and quiet. Mechanical noise and external distractions compete for an audience's attention and therefore should be controlled. An acoustics consultant could assist with these specifics within the following general framework **(see VHA Program Guide: Design and Construction Procedures PG-18-3, Topic 11).**

- Ceiling heights of at least 10'-0", tiered seating, non-parallel walls, and often an acoustic reflector above the stage characterize the overall geometry of multipurpose spaces
- Hard finishes best support unamplified music, but control of liveliness for speech and amplified music may require absorptive finishes, such as acoustic wall panels as well; acoustic variability will be required to accommodate various types of events.

Figure 4.8.9: Multipurpose room with seating arranged for presentations. VA Southern Nevada Healthcare System. North Las Vegas, Nevada

- Background noise from mechanical equipment should be no greater than RC-20(N). Noise can be mitigated through selection of quiet equipment, locating equipment remotely from the space in question, incorporating vibration control, sizing ductwork for low air velocities, and lining the ductwork to attenuate duct-borne noise.
- Isolate the multipurpose space from the noise of adjacent spaces.
- Acoustical ceiling panels should be colored darker than the chosen floor color to reduce glare.
- Interior partitions will primarily consist of gypsum board on metal studs with fiberglass batt insulation. The partitions should extend to the underside of the roof or floor deck above. Some areas may require a double layer of gypsum board in addition to batt insulation to meet the minimum STC requirements. Wall penetrations such as doors, interior lights, electrical outlets and mechanical ductwork should be carefully detailed to avoid sound transmission.

Communication and Technology

Community and assembly activities require access to technology to support video, media and sound. Consideration should be given to technology systems that support formal presentations as well as small group opportunities:

- Provide access to a public Wi-Fi system for access to media and the internet.
- Consider access to a cable television signal for media access.
- Consider access to a sound reinforcement system for public assembly events should be integrated into the space. The system should be able to double as a background music sound system.
- Consider a video presentation screen/projector and broadcast system (if appropriate to the scale of the space) to allow for presentations during larger assemblies **(Figure 4.8.9)**.

HVAC

Multipurpose space heating, ventilating, and cooling systems need to respond to a highly variable environment of both function (i.e. presentation, seating/waiting, community, etc.) and occupant loading.

- The control systems and equipment selections need to be readily responsive to a change in load in order to provide the thermal comfort and air quality to meet the demand.
- Consider if controlled access to natural ventilation is appropriate and controllable to potentially allow a sense of connection to the exterior as well as a less confining sense of the interior.
- Flexible temperature criteria should be established, based on identified functions within the space. Temperature settings that are automatic, as well as manual controls for a limited range of options, optimize both personal comfort and energy savings.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—Abraham Lincoln,
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.9 Women's Clinic

Figure 4.9.1: Women's Clinic in separate building on medical campus. Clement J. Zablocki VA Medical Center. Milwaukee, Wisconsin.

"Every day one of my patients has a need to be alone, to journal, to contemplate or to grieve."

—Colleen Heinkel, PhD
Woman Veteran Program Manager
Clement J. Zablocki VA Medical Center

What You Need to Know

Women Veterans are a growing population in VAs and in understanding their biological, psychological, and spiritual needs, design teams can better serve this Veteran population by creating women-centered healthcare environments.

Military women are much more likely to experience divorce and single parenthood than male service members. Opportunities to bring women Veterans together to support one another should be explored in the design and programming of women's clinics. A significant number of women Veterans suffer from military sexual trauma (MST), resulting from physical assault of a sexual nature, battery of a sexual nature, or sexual harassment suffered while the Veteran was serving on active duty.

In response to these issues, many VA facilities have been developing stand-alone women's clinics that could be in a separate area in a facility or in a freestanding center, and/or providing dedicated entrances to assuage women's concerns about coming to Veteran facilities that for decades served only men. The design of these clinics should

include space where women can gather to support one another **(See VA Space Planning Criteria)**. The Milwaukee Clement J. Zablocki VA Medical Center renovated a former residence close to the main entry of the medical center into a clinic for women Veterans **(Figure 4.9.1)**. The detached setting provides a high level of privacy and ease of access desired by women Veterans. The center features several private examination rooms, private counseling rooms, a children's play room **(Figure 4.9.2)** and two large group therapy rooms.

Figure 4.9.2: Children's room in Women's Clinic at Clement J. Zablocki VA Medical Center. Milwaukee, Wisconsin.

Critical Adjacencies

- In close proximity to main reception lobby of medical facility
- Peer mentoring/behavioral health rooms
- Patio, garden, porch, or courtyard
- Multipurpose space
- Parking

Veteran-Embracing Environments

- Display a Veteran identity—for example, photographs or artwork depicting women Veterans doing their duties.
- Provide communal space to facilitate building camaraderie for supportive social and educational activities.
- Provide access to a variety of areas such as a garden, an atrium, a courtyard, a café, or a seating area apart from a waiting room so that women Veterans can choose the right space for solitary reflection, one-on-one conversation, or small group discussions.

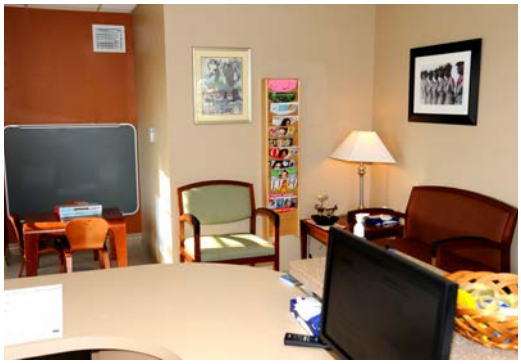

Figure 4.9.3: Women's Clinic waiting room with images of service women, a children's area, and comfortable seating. Clement J. Zablocki VA Medical Center. Milwaukee, Wisconsin.

Space/Volume

- Design a hospitable atmosphere through use of materials, textiles, and fixtures that are light in color. Use natural colors, indirect lighting, artwork, wood accents, and mirrors **(Figure 4.9.4)**.
- Hallway widths and exam room size and entry should be designed to accommodate baby strollers and wheelchairs.

Windows/ Views

- Size windows to maximize sunlight.
- Windows should provide views of nature when adjacent to interior space.

Seating

- Consideration should be given to furniture selections that feature organic forms and softer silhouettes.
- Provide a variety of seating arrangements to promote social interactions as well as address individual need for personal space.
- Waiting areas should have an area devoted to children's activities **(Figures 4.9.2 and 4.9.3)**.
- 54" Half-wall partitions should be located behind seating.
- Allow space for wheelchairs and scooters within seating configurations

Figure 4.9.4: Comfortable, quiet family space on an inpatient unit. Lurie Children's Hospital. Chicago, Illinois.

Positive Attractions

- Artwork/photos of women Veterans performing their military duties
- Display cases for memorabilia

- Enclosed water feature
- Refreshment area for water, coffee, light snacks
- Children's play area with toys and books

Lighting

- Provide indirect lighting to create a soft ambient atmosphere. Avoid fixtures with directly visible lamps or other high-glare sources.
- Provide multiple layers of dimmable lighting to allow the light level and atmosphere of the space to be adjusted as desired.
- Select fixtures with organic forms.
- Select fixture finishes to minimize contrast with adjacent materials and reduce eye strain.
- Maximize natural daylight within spaces, and provide operable shading devices to eliminate glare as needed.
- Provide dedicated low-level night lighting as needed.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.

Acoustics

Acoustic requirements for the various spaces in women's clinics are similar to the corresponding spaces described in the preceding sections. Particular attention should be given to absorptive ceilings in waiting areas and to the privacy of rooms for examination, counseling, and peer mentoring. **(Please refer to section 4.5.1, Individual Therapy Rooms, and supplement the recommendations by limiting background noise from mechanical systems to RC-25(N). See also VA Program Guide: Design and Construction Procedures PG-18-3, Topic 11.)**

- Gasketed doors
- Absorptive finishes
- Control of mechanical noise
- Interior partitions will primarily consist of gypsum board on metal studs with fiberglass batt insulation. The partitions should extend to the underside of the roof or floor deck above. Some areas may require a double layer of gypsum board in addition to batt insulation to meet the minimum STC requirements. Wall penetrations such as doors, interior lights, electrical outlets and mechanical ductwork should be carefully detailed to avoid sound transmission.

Communication and Technology

The technology infrastructure of the women's clinic must support personal communication and access to information. This infrastructure should include:

- Fully implement the VA's check-in kiosk system in a location that is accessible and allows for convenient access by VA staff to provide assistance wherever it is required.
- Provide cell phone coverage to the extent possible.
- High-speed Wi-Fi is necessary for efficient access to internet information, email, and social networking.
- Provide sufficient electrical outlets and USB ports so that patients, family members, and others can recharge their electronic devices.

HVAC

HVAC systems require incorporation of industry infection control and design standards **(Refer to the VA HVAC Design Manual for all requirements)**.

- Consider controlled access to natural ventilation in consultation, mentoring and waiting areas. This permits a sense of connection to the exterior and allows Veterans more control of their environment.
- Provide adjustable thermostatic controls in exam and consultation rooms for personal comfort.
- Select an air distribution system (ductwork sizing and diffuser selection) to eliminate uncomfortable and distracting draft conditions and air noise.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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4.10 Inpatient Units and Inpatient Rooms

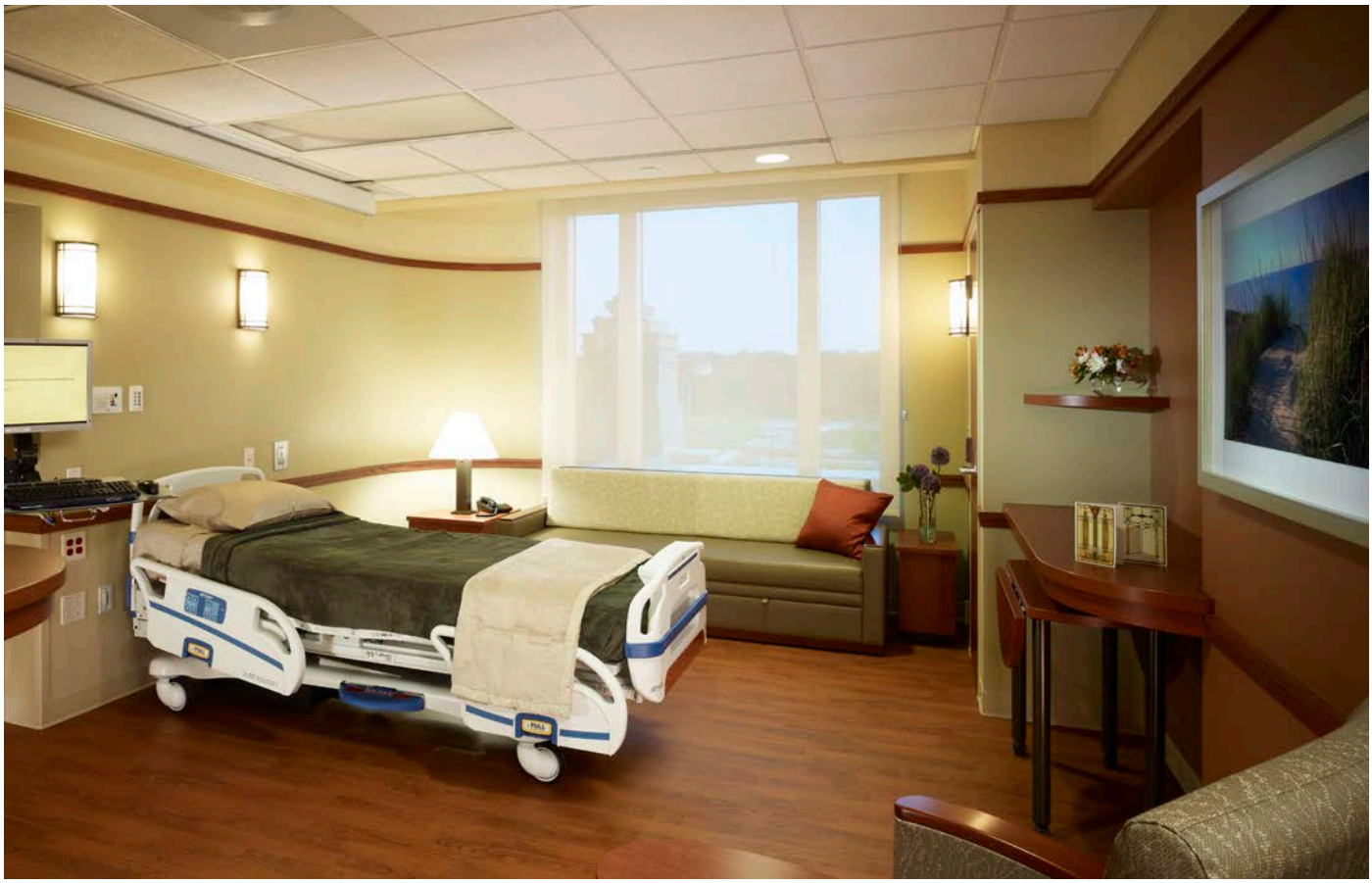

Figure 4.10.1: Inpatient room with comfortable seating, a palette of natural colors (such as green and terra cotta), desk, and patient-operable lighting (natural and artificial). Elmhurst Memorial Hospital. Elmhurst, Illinois.

What You Need to Know

The inpatient Healing Environment is intended to support patients and their families through illness, medical visits, healing therapies, hospitalization, and bereavement. An inpatient unit, therefore, is a collection of spaces designed to support that mission.

These spaces include patient rooms, a choice of gathering spaces for families and friends, nurse's station, re-supply areas for staff, other spaces as required by a given unit's treatment specialty, and corridors linking these elements. VA Medical/Surgical/Inpatient Unit Planning and Design Standards identify these spaces for use in VA medical facilities. **(Refer to the Medical/Surgical Inpatient Units and Intensive Care Nursing Units Design Guides for additional VA standards and design considerations).**

Figure 4.10.2: Generous natural light benefits both the visitor and the patient. Elmhurst Memorial Hospital. Elhmurst, Illinois.

Figure 4.10.3: Natural daylight and accent lighting in the patient room creates a more comfortable space. Seattle Children's Hospital. Seattle, Washington.

Figure 4.10.4: Cabinets are designed for easy accessibility. Audie L. Murphy Memorial VA Hospital. San Antonio, Texas.

Inpatient Unit

- The implementation of 100% private rooms, according to the VA standard of planning, supports several Healing Environment design principles by offering patient privacy, a quiet and therapeutic setting, and dedicated space for family members **(Figures 4.10.1, 4.10.2, 4.10.3, and 4.10.4).**
- Gathering spaces are crucial to Healing Environment goals within inpatient units, because they foster socialization and support, which aid greatly in healing. Critical design elements of such spaces include their type (lounge-style sitting area, sun room, terrace, patio), their location within the unit, their comfort, and the presence of amenities **(Figures 4.10.14, 4.10.15, and 4.10.16).**

Inpatient Room

- Design for infection control. Install staff use sinks in proximity to the door of every patient room to encourage hand-washing compliance and reduce cross-contamination.
- The VA Standard calls for ceiling-mounted patient lifts in every room to reduce patient and staff injuries **(Figure 4.10.4).**
- Place task lighting in medical prep areas, install grab bars and handrails in patient rooms, and provide night lighting to illuminate the path from the bed to the toilet.

Critical Adjacencies (Inpatient Unit)

- Nurse's station or nurse sub-station
- Family lounge
- Nursing unit support spaces for medication, supplies, and equipment.
- Consultation room

Inpatient Unit Design Attributes

- In accordance with VA Design Guidelines for Inpatient Units, the shared supply areas for medical devices, wheelchair storage, nourishment, and medication prep should be decentralized so that they serve 10-16 beds. This minimizes walking distance for staff and renders direct patient care more efficient. **(Figure 4.10.7).**
- When possible, locate supply doors along cross corridors to help reduce noise within the corridor and provide continuity of handrails along corridor walls of the central core in a racetrack unit design.
- Bring natural light to corridors with a window or borrowed light with clerestories, translucent screens, or interior glass partitions in rooms adjacent to the exterior of the building.
- Provide a centrally located collaborative space to encourage staff to coordinate care away from patient rooms. This area should allow for small team meetings and accommodate private charting. Use modular furniture systems to allow for flexibility in configuration.
- **(See Inpatient Unit Design Guide for additional details).**

Inpatient Room Design Attributes

- Surround the patient and family members with architectural finishes and furnishings that are familiar and non-threatening.
- Ease of maintenance, durability, and sanitation should be primary considerations when selecting materials and finishes.
- Vinyl wood-like flooring and solid-surface counter tops in rooms help create an inviting and natural aesthetic.
- Floor finish choices should strive for earth tone and subtle color tones and patterns with which all other finishes in the room can coordinate. The floor surface can help ground a space by using warm hues in contrast to neutral light-colored walls. Contrast between wall and floor surfaces also addresses the needs of Veterans with visual impairments **(Figures 4.10.1, 4.10.2, 4.10.3, and 4.10.4).**
- Raised thresholds create barriers and tripping hazards and are a problem for wheelchairs. Design bathroom floors to slope away from the patient room in order to eliminate thresholds and provide positive drainage.
- Reduce the number of material transitions in common paths of travel where the difference in slip resistance or change in materials requires change in ambulatory pattern and may introduce a tripping hazard for disabled Veterans.
- Consider built-in nurse-servers directly outside patient rooms to allow for easy access to frequently used supplies. It is important to minimize supply storage inside patient rooms, as unused supplies carry a risk of cross-contamination when the room is turned over to the next patient. Design these built-in nurse-servers to accommodate personal protective gear (PPG). **(Figure 4.10.8).**
- Provide lavatories at the entrance of patient rooms**.**
- Maintain door silencing hardware and door closers to ensure doors operate properly and any associated noises are eliminated.
- Provide an alcove system for cards and flowers into the footwall so these items can be clearly visible to the patient. **(Figure 4.10.1).**
- Every patient room is required to have a window to the exterior to provide natural light and views to the outside **(Figures 4.10.1, 4.10.2, 4.10.3, 4.10.4, and 4.10.12).**
- The window should be a minimum 18" off the floor and maximize views out as well as allow for natural light to penetrate into the space.
- A dual shading device is desirable to filter light as well as block it. Operation by a bedside remote affords the patient some control over his or her environment **(Figures 4.10.1, 4.10.2, and 4.10.4).**

Dayrooms

- For some inpatient units with longer lengths of stay, day rooms and dining rooms may be required. **(Figures 4.10.14 and 4.10.15).** Seating should be configured with a few seats by themselves, near the exit, so that Veterans who are not yet ready to interact may sit quietly and observe.
- These rooms can provide a setting for birthday celebrations, memorials, holidays events, and special VIP visitors.
- Day rooms are desirable, with direct access to outdoor settings such as porches, terraces, and patios for respite and fresh air.

Figure 4.10.5: Tranquil enclosed water feature in public waiting area. VA Southern Nevada Healthcare System. North Las Vegas, Nevada.

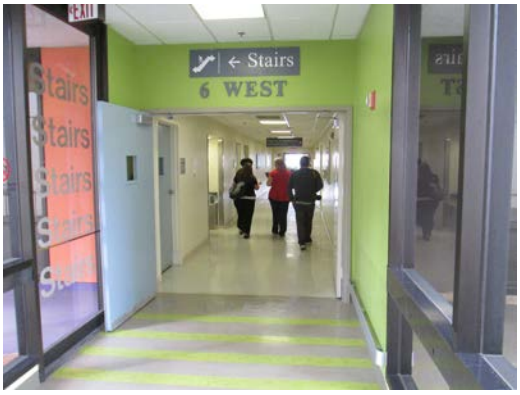

Figure 4.10.6: Multiple wayfinding methods (color changes, floor material changes, large and repetitive text) at juncture in the facility. West Los Angeles VA Medical Center. Los Angeles, California.

Figure 4.10.7: Niches in hallways allow for supplies to be stored outside of patient rooms, and easily accessed by staff. West Los Angeles VA Medical Center. Los Angeles, California.

Figure 4.10.8: Nurse computer station outside of a pair of patient rooms, with windows connecting to the interior. The window blinds are operable from both sides. There are also hand sanitizing stations on either side. Lurie Children's Hospital. Chicago, Illinois.

Figure 4.10.9: Linen hampers hidden by unobtrusive closet doors. Sentara Martha Jefferson Hospital. Charlottesville, Virginia.

Figure 4.10.10: Monitor with video of a nature scene, providing light in patient area. West Los Angeles VA Medical Center. Los Angeles, California.

Wayfinding

- Use color-coding and visual branding to reinforce wayfinding throughout inpatient units **(Figure 4.10.6).**
- Provide for wall-posted floor directories, building signage, and door signage. This assists wayfinding and reduces stress.
- Install facility directories that identify and communicate where to find the cafeteria, main lobby, gift shop, chapel, and other areas of interest.
- Refer to the **VA Signage Design Guide** for more information regarding wayfinding and other solutions for communicating directional information.

Community

- Being admitted to the hospital is stressful for Veterans and their families. They need a place for respite and retreat **(Figures 4.10.14, 4.10.15, 4.10.16).** Inpatient stays for Veterans often require more than an overnight visit, and the inpatient unit becomes a temporary home.
- Family well-being must be addressed through design in order to help reduce stress, encourage participation in caregiving, and foster positive patient interactions. Many families may not live near the medical center, may not have a car, must cope with job-related absences or work remotely to maintain their jobs. Access to amenities (including having a place to mail a letter, receive a package, recharge devices, or get a coffee) should be considered.
- There should be a family lounge where families and peers can gather, console each other, share a meal, and use a refrigerator or microwave. This lounge should be filled with natural light, provide an atmosphere that encourages families and peers to dine together and support each other during their stay. The family lounge should provide computer access and printer capability, as well as direct access to an outdoor setting for respite and fresh air. **(Figures 4.10.14, 4.10.15, 4.10.16).**
- Provide private consultation spaces for healthcare providers to meet with family. This improves care coordination and education, and provides families with emotional support.
- Artwork and interior colors should reflect the surrounding natural landscape.

Seating, Furniture, and Fixtures

- Every patient room should have a designated seating area, preferably near the exterior window, for a visitor to sit removed from the patient zone, allowing providers to maneuver with ease. This area should provide seating which can double as a sleeping recliner or sofa bed.
- Provide a place for storage of personal belongings, internet and USB ports and electrical outlets for charging devices, located where a bedridden patient can access them as well as in the family seating area of the room.
- A cubicle curtain adds to privacy by creating a visual barrier between the patient's room and the corridor outside.

- Configure walls and cabinets to conceal clinical equipment along the headwall and footwall to reduce visual clutter. In **Figure 4.10.4**, the cabinets are designed to store and conceal both the motor of the overhead bed lift and patient slings.

Positive Attractions

- Provide art in every patient room if possible, and consider other types of positive attractions in corridors to aid in wayfinding and provide visual interest. **(Figures 4.10.5 and 4.10.10).**
- Overhead music provides a distraction from pain, decreasing stress, depression, and the length of hospital stays. Controls to adjust volume should be provided. Music should also be available to patients either through the television or from the bed remote.
- Overstimulation may result when too much is going on in a given space. For example, too many colors, highly saturated colors, pieces of artwork, cluttered spaces, a noisy television, and bright lighting can contribute to over-stimulation.
- At the VA Southern Nevada Healthcare System, Veterans find that enclosed water features located at waiting areas provide soothing tranquility. **(Figures 4.10.5 and 4.10.10).**
- Provide alcoves in corridors for mobile carts and wheelchairs and other equipment to minimize visual clutter **(Figure 4.10.7).**

Lighting

- In order to reduce eye stress, use indirect lighting in areas of the inpatient unit. Avoid ceiling fixtures where the lamps, lenses, and other glare sources can be seen by the patient while in bed or prone in transit. Use indirect (or cove or other types) lighting in corridors, transport elevators, patient rooms, and bathrooms, in order to limit harsh glare and create a soft ambient atmosphere.
- Provide dimmable light fixtures and lighting controls in bathrooms, patient spaces, family spaces, and in all treatment/consulting rooms.
- Provide night lighting outside patient toilets and room entrances to help patients and staff navigate during evening hours or when lights are dimmed. Consider automated control of all night light functions so that rooms can be as dark as possible until patients leave the bed.
- Consider LED lighting with manual controls to allow for a wide array of color selection and hues.
- Within inpatient rooms, provide separate lighting control zones for the staff, patient, and family areas. In the patient bed area, provide controls for reading and ambient light functions via the patient pillow speaker. Ambient/exam luminaires should provide the increased levels required when cleaning rooms between patients.
- Place corridor lighting outside patients' line of sight from inpatient room.
- Task lighting for medical providers should be placed and controlled to minimize disruption to the patient's sleep.

Figure 4.10.11: Communication board and monitor in patient room for daily communication needs. Palomar Medical Center. Escondido, California.

Figure 4.10.12: Natural daylight, wood elements and minimal equipment create a less stressful environment for the patient. Legacy Salmon Creek Medical Center. Vancouver, Washington.

Figure 4.10.13: Nurse station in inpatient room. Elmhurst Memorial Hospital. Elmhurst, Illinois.

Figure 4.10.14: Terrace provided for patients. Palomar Medical Center, Escondido, California.

Figure 4.10.15: Family room at cancer treatment center. University of Virginia Emily Couric Clinical Cancer Center. Charlottesville, Virginia.

Figure 4.10.16: Meditative pavilion. Brion Cemetery. San Vito d'Altivole, Italy.

Acoustics

- Achieve acceptable noise class ratings by selecting an appropriate HVAC system and strategically locating it to mitigate noise from adjacent areas. **(Refer to HVAC Design Manual and Master Construction Specifications Section 23 05 41, Noise and Vibration Control for HVAC Piping and Equipment.)**
- Provide acoustical tile or other absorptive ceiling materials of not lower than NRC 0.70.
- Interior partitions will primarily consist of gypsum board on metal studs with fiberglass batt insulation. The partitions should extend to the underside of the roof or floor deck above. Some areas may require a double layer of gypsum board in addition to batt insulation to meet the minimum STC requirements. Wall penetrations such as doors, interior lights, electrical outlets and mechanical ductwork should be carefully detailed to avoid sound transmission.
- To assist in controlling noise levels, consider placing noise meters in corridors, elevator lobbies, outside sensitive areas, and near team work stations to remind staff and arriving visitors about the importance of reducing noise. Signage also helps to remind staff to move equipment as quietly as possible.

Communication and Technology

- Facilitate the use of information technology (IT) tools to make medical and nursing care more intelligent, faster, and safer. Use of real-time location tracking devices can bring patient information from the electronic medical records system to computer screens in the patient's room. Patient room IT systems allow clinicians and hospital staff to be recognized through ultrasound-enabled badges, gaining them access to patient data and simultaneously communicating to the patient and family within the room.
- Use two-way communication devices to improve staff communications.
- Provide patient and visitor access to a Wi-Fi system for email, social networking, Internet research, and hospital information.
- Consider bedside controls for motorized window shades, allowing patients to raise or lower shades, thus blocking or filtering light as they desire. **(Figures 4.10.1, 4.10.2, 4.10.3, and 4.10.4).**
- To enhance control over visual privacy, a motorized ceiling-mounted cubicle curtain track allows a patient to control his or her level of privacy while the door to the room is open.
- An electronic monitor can be located in the family lounge to provide real-time updates for families and peers regarding the status of patients undergoing medical procedures. The monitor can also scroll through daily activities on campus (educational events, nutritional classes, etc.) and the hours of operation of the canteen, snack bar, and gift shop.

HVAC

- For optimal air flow, supply registers should be placed near the patient, while return/exhaust vents should be placed closer to the door and the restroom. This will allow for directional flow away from the patient/caretaker area for both thermal comfort and infection control.

- Consider thermostatic controls that are adjustable from the bedside (through bedside remote) to allow the patient to control the temperature for personal comfort.
- Consider HVAC equipment relationship to room, ductwork sizing, and diffuser selection to address the indoor environmental quality and overall patient comfort satisfaction relating to uncomfortable and distracting air draft and/or air noise conditions **(Figure 4.10.17).**

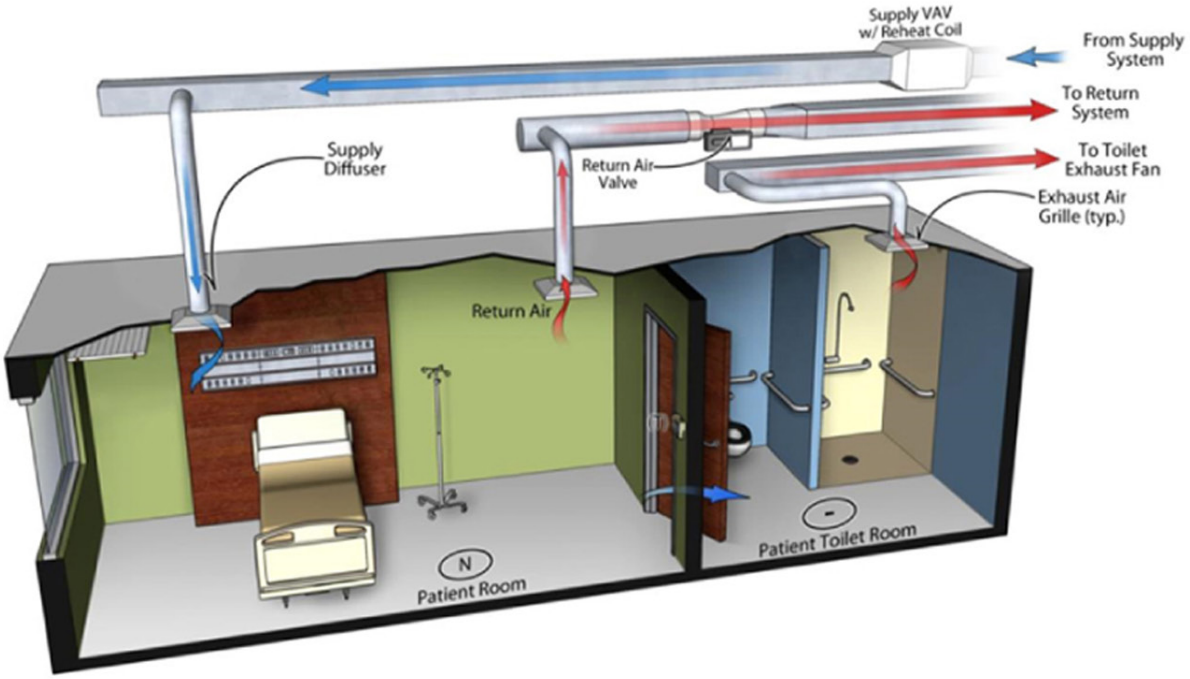

Figure 4.10.17 : Inpatient Unit Ventilation Schematic Diagram.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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5.0 Informing the Present and Shaping the Future: Gathering Evidence of Healing Impact

Figure 5.1: Naval Hospital at Camp Pendleton. Camp Pendleton, California.

It is unusual for a single guideline to be directed simultaneously to VA facilities personnel, architects/engineers, and clinicians. By training and experience these professionals follow different disciplines and pursue different goals. In the creation and the continuing improvement of Healing Environments, however, there is a natural confluence of the skills and vision of both designers and clinicians. Centuries of human healing experience affirm this collaboration. The lessons gleaned from this experience make two things axiomatic:

- The best techniques of healthcare require an environment tailored for their use.
- The best Healing Environments make possible the best healthcare.

The preceding four chapters represent the VA's effort to transform the care facilities of our nation's Veterans into models of seamlessly integrated Healing Environment and state-of-the-art holistic healthcare. In order for this vision to be realized, two things must happen.

Ongoing Dialogue

The collaboration does not end when the space is built. Just as it takes a strong interface of clinicians and designers to create the optimal synergy of spaces for the healing and care of Veterans, it takes a continuing dialogue to fine-tune, update, and improve the space to meet changing needs.

Architects and engineers must continue to take into account the healing priorities of each space. For instance, engineers who have acquired a depth of understanding of Healing Environments will ensure that large and noisy air-handling equipment is not installed in close proximity to treatment space requiring a restful, quiet atmosphere. Architects who have engaged in collaborative dialogue with clinicians will take pains to design exterior courtyards and components adjacent to interior therapeutic spaces.

For their part, clinicians must take note of how Veterans respond to the environment, and make best use of it. For instance, a therapist treating Veterans with PTSD or anger issues might recommend a patient come an hour before the appointment to de-stress in the therapeutic garden. A physician treating an inpatient who is expecting a stressful visit by family may direct the family to a musical performance in a multipurpose room, to a small waiting room or place of respite, or to the interior courtyard for casual dining. The objective is to de-stress the family such that they can emotionally support the Veteran during medical treatment.

The key questions every architect and engineer must pose at the start of any VA project are:

1. How can we collaborate with this facility's clinicians to make sure this project meets healthcare needs and contributes toward making this space a valued part of the Healing Environment?
2. Have we, in collaboration with clinicians here, considered every possible way this plan might unintentionally result in compromising the quality of healthcare of the Veterans treated here?
3. How can we create "an environment as a tool for healing modalities rather than a space containing healing activities."

The key questions every clinician must consider in order to bring informed participation to the design team are:

1. What have I observed in the ways my patients, their families, and other staff members use and respond to this space that suggest improvements that could be made to this Healing Environment?
2. How can I best incorporate use of therapeutic spaces in this facility in the healing regimen of each of my patients?
3. Given that "critical adjacencies" are an integral design attribute in the Healing Environment design guideline, what complementary environments would I like to see adjacent to my clinical space?

Evaluation

It is of crucial importance to VA facilities personnel, architects/engineers, to clinicians, and ultimately to Veterans to know that the effects of these changes will be gathered, measured, studied, and evaluated in a continuing process of updating and improving VA facilities to make them exemplary Healing Environments. Changes that are considered beneficial to Veterans will be replicated. Changes that compromise the healing benefits of a space for Veterans in any way will never be repeated.

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5.1 Viewing the Healing Environment as an Ecosystem

A rain forest is an ecosystem. So are grasslands. So is a desert. In all of them, plants, animals, and the natural resources of the environment are interdependent. But ecosystems are not exclusively found in the natural world.

Researchers in social science have found similar complexity and patterns of interdependency in such things as business start-ups, military conflicts, Internet search engines, even social media platforms. A Healing Environment, with its many complexities and interdependent relationships, is also an ecosystem.

This is valuable knowledge for VA facilities personnel, architects/engineers, and for clinicians. First, because it leads to the recognition that issues and challenges must not be addressed in isolation, but in the context of spaces, functions, and user needs that affect one another. Second, when it comes to the necessary process of evaluating the healing impact of a given space, this more nuanced view of the ecosystem's complex interrelationships rules out some evaluative methods and suggests others.

Scientists have gained great insight into what causes ecosystems to thrive and what can cause them to fail. Within the VA, understanding what makes the ecosystem thrive is key to measuring its effectiveness in caring for Veterans. The first step, therefore, is to gain an informed perspective on a VA facility as a functioning ecosystem. Broadly speaking, one way to understand a VA ecosystem is to start with scientifically identified patterns of thriving ecosystems (gleaned from researching ecosystems of many kinds), and study how these look and play out in the VA environment.

What Does a Thriving VA Facility Ecosystem Look Like?
Here are three identified qualities of thriving ecosystems, and how they should translate into a given VA Healing Environment:

1. **A thriving ecosystem operates simultaneously on multiple scales and in multiple dimensions.**
    - The physical dimension of a thriving VA Healing Environment ecosystem includes many kinds of spaces, small and large, interior and exterior, thoughtfully designed to meet a variety of needs of their users. These spaces function in a strategically interrelated manner, to serve the mission of healing Veterans holistically and in a way that accommodates changing needs.
    - The socially interactive dimension involves well-used channels of interaction and communication among all user groups of the facility—Veterans, clinicians, healthcare providers, families, community members, designers/

engineers, and other specialists—to actively improve the healing effects of the ecosystem.

- The time dimension of a VA Healing Environment ecosystem can be viewed in several ways. A thriving VA ecosystem is able to care for Veterans across all time spectrums: small moments of healing, such as Veterans coming from the outside community to participate in a ritual of remembrance; Veterans coming for care visits a handful of times; Veteran in-patients who are resident for long periods; Veterans who use the VA facility in many ways over many years, in life-long processes of healing. Another time aspect is the forward-looking functioning of the ecosystem to remain in touch with changing needs of Veterans, improvements in technology, and findings from medical, social, and other relevant research.

2. **A thriving ecosystem is dynamic and variable**

Any ecosystem has continually varying flows of matter, energy, and information. This variability, and the dynamic interactions of these flows, affect the health of the ecosystem as a whole. A thriving ecosystem is one in which there is enough flexibility and elasticity to adapt to fluctuations. In a VA Healing Environment ecosystem, there are flows of people, information, supplies, sounds, events, shared moods, activity; the ecosystem thrives when it is able to accommodate and respond to these fluctuating, crisscrossing currents.

- Information includes news coming in from the outside world: Reporting on politics, the economy, violence within communities, and war zones can be traumatic reminders of what Veterans under care experienced. The emotional reactions can ripple throughout the facility.
- In the lives of individual patients, such intangibles as family dynamics, medical prognoses, financial concerns, and updates about war buddies have emotional consequences and can affect healing.
- Coping ability of everyone in the facility is potentially affected by weather and seasons: temperature, amount and angle of sunlight, ability to spend time outdoors, the degree of hassle involved in traveling to and from the facility. Such factors affect mood and can be shared throughout the facility.

Architects and engineers need to be aware of such changes and variables, because to an extent the designs they implement can go a long way toward minimizing negative effects and enhancing positive ones. Anticipating the consequences of certain conditions, they can design a variety of relaxing spaces and diversions in the facility, and use calming color schemes and architectural features, sound buffering and other methods of protecting adjacent areas from blaring televisions, carports and covered parking to shield against inclement weather, and safety precautions of various kinds.

3. **A thriving ecosystem has organization, governing principals, and relationships.**

The ecosystem's strong interconnections and interdependencies enable the ecosystem to organize itself. A thriving Healing Environment ecosystem, for example, is not chaotic (i.e. wayfinding made easy). Each part affects many others, yet in a way that keeps restoring overall balance and goal-centeredness despite varying forces.

- In a VA Healing Environment, Veterans should feel well connected to their personal medical information, to their care providers, and to various spaces and activity options throughout the facility. They should also feel connected to other Veterans, family members, and the surrounding community.
- A VA Healing Environment ecosystem will continue to evolve as complementary healing modalities are added and new ones are developed. The location and setup of therapeutic spaces may change as a result, to keep mutually beneficial spaces in proximity to one another.
- In a thriving VA ecosystem, providers and staff come up with creative, collaborative solutions. For example, a Patient-Aligned Care Team (PACT) helps eliminate the "silos" of care components so that, for example, lab tests and specialist care can be conducted in the patient's room rather than requiring the patient to travel to many locations in the facility.

Architects and engineers who have developed their ecosystem awareness can design and renovate Healing Environments in a way that makes these connections much more likely. Impromptu discussions are encouraged by architectural features such as therapeutic courtyards, an inviting cafeteria, attractive meeting or multipurpose rooms, and comfortable places of respite adjacent to corridors. Computer stations and kiosks, digital bulletin boards, strategic "communities of rooms" and clear wayfinding help Veterans feel more connected.

Understanding such key relationships in VA Healing Environment ecosystems also suggests ways to evaluate the effects of a given change on the healing of Veterans. Physical spaces, organizational structures, functional relationships and interdependencies are all measureable elements of an ecosystem's vitality. They can tell us how well a Healing Environment is functioning over time.

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5.2 Evaluating A Healing Environment

When a VA health care facility is designed or modified as a Healing Environment to produce a therapeutic effect, additional data and effort are required to determine how well the actual performance of a clinical environment conforms to Healing Environment Guidelines and to the expectations of the facility's executive team, users, and designers. The performance will be assessed to answer, in great detail, the following broad questions:

- How well are Healing Environment Guidelines being implemented?
- How well are these implementations fulfilling the mission of the VA?
- How can this information be used to enhance the physical and mental well-being of all VA facility users?

Through thorough investigation, it will be possible to learn if Veterans heal faster or more completely in Healing Environments compared to non-Healing Environments. If so, we will be able to identify the elements of Healing Environment design and management that contribute to these outcomes, and think about how to improve them still further. The research will make it possible for each person involved in the creation of a VA Healing Environment to know if his or her efforts are making a difference.

Answering these questions requires a framework. In VA parlance, the word "framework" is used to describe a standardized, nationally coordinated program. For such a program to be meaningful, it is crucial for evaluations of Healing Environments to proceed in similar ways, using agreed-upon definitions, methods of data gathering, standards of comparison, and analysis. The resulting "evidence-based" insights will inform decisions of many kinds within VA Healing Environments.

The framework to establish definitions, standards, evidence-gathering, and analysis will be the outgrowth of a discussion among VA designers, Veterans, VA facility personnel, clinical staff, researchers, management (local, regional, and national), and industry consultants.

What kinds of information will be collected?
Data will be collected from every VA Healing Environment, and linkages will be made regarding facility features, facility usage, and the experiences of those who work, are treated, and visit there. The following are examples of the information to be gathered:

1. Data from building management systems (BMS) and other building sensor systems, including 24/7 computerized recording. This data will enable the evaluation of the physical performance of the facility (such as energy efficiency), and its level of usage (related to such factors as seasons and special events).

2. Informal comments will be gathered from facility users, including patients, staff, clinicians, and family.
3. There will be periodic collection of formal VA post-occupancy evaluations (POE) from all groups of facility users, which will make possible the correlation of facility conditions to the experience of individuals who spend time there. At all levels of POE, self-reported experiences from the clinicians, staff, patients and their families are essential for an effective evaluation. For the sake of efficiency, POE will be performed at three general levels of effort depending on the need. The standardization of POE must accommodate these levels to maintain efficiency.
    - A Phenomenological Review (or Observational Review) is the simplest and quickest level of investigation. It is a brief qualitative approach often used for the purpose of highlighting the major strengths and weaknesses of a built project. A Phenomenological Review often occurs in the early Operational Phase of the new facility to determine how well the new space is working and whether there are any immediate needs that should be resolved. The collected data is often in the form of face-to-face interviews with facility staff to obtain their personal observations of use and behavior, sometimes combined with a walkthrough of the facility by the POE team . This approach is frequently used when patients and family focus groups are not available during the POE process. This type of review can also provide useful information quickly when there is a need for immediate action.
    - An Investigative Review is a more thorough POE, offering both qualitative and analytical measures, and uses more rigorous research techniques to produce more conclusive data. In addition to the elements of a Phenomenological Review, the Investigative Review utilizes in-depth follow-up questionnaires to sample a broader population of occupants. Additional focus groups and interviews can then be used to help identify problems and explore solutions. This review may be carried out once the building has been operational for at least a full year (ensuring building systems have completed a full seasonal cycle). This allows users to function in the space during warm and cool periods of the year, and enables the POE to address thermal comfort as well as lighting concerns.
    - An Analytical Review is a very thorough systematic assessment focused on correlating a substantial set of physical performance data with occupant responses and outcomes. This approach is widely used in medical facilities to inform environmental decisions such as safety, satisfaction, and performance. It is often used to yield operational savings. This type of review includes analysis of building systems including acoustics, lighting, air handling, energy consumption, ventilation rates, and access to daylight.

- These data may be tracked to identify relationships between environmental characteristics and human performance. It is often conducted in a Strategic Planning Phase (or in the VA's Integrated Planning (IP) Phase): a recurring POE event held every few years after initial occupancy to identify any new demands that the original design may not satisfy. These may be due to organizational changes, service line growth, and long term spatial needs. An Analytic Review in the Strategic Planning Phase can often result in more long range space planning and better informed questions regarding facility renovation or expansion.

4. Patient narratives will be collected in accordance with developed techniques in order to present accounts of individuals' experiences in VA facilities over the course of care.
5. Data regarding medical outcomes will be collected and correlated, among other factors, with patients' usage of Healing Environments.
6. Patient care programming and staff care programs will be measured and evaluated, including the use of Healing Environment features.
7. The health and well-being of all facility users will be measured and correlated to VA Healing Environment design and management. Methods used to track health and well-being include sophisticated biometric technologies and video analytics.

As new research methods are developed to improve measures of various aspects, they will be incorporated.

Who Should Participate

For successful implementation of evidence gathering at VA facilities across the nation, buy-in of many different groups of stakeholders is necessary. Stakeholders include designers, patients, patients' family members, VA facility personnel, clinical staff, non-clinical staff, researchers, and management (local, regional and national). Each stage in the process of evidence framework development should be based on meaningful input and discussion with all groups involved or affected by VA facilities. Here are examples of questions which bring focus to such discussions:

- Does the building perform as intended?
- Have the users' needs been met or have needs changed since initial occupancy?
- What problems need to be addressed quickly, and are the solutions effective?
- Is the space highly utilized? Can other functions be considered in the space?
- What can be learned for future projects?

Although the national framework for evaluating VA Healing Environments has not yet been developed, some kinds of data are already collected as a matter of course: for example, facility usage, facility sensor data, patient outcomes, post-occupancy evaluation forms. Many other kinds of data collection will be added, and new techniques will be integrated as they become available. By all these means, it will be possible to assess the effectiveness of every part of a VA Healing Environment.

What VA facility personnel, architects/engineers, and clinicians should understand is that they are crucial stakeholders in this process. Their input in team discussions and their assistance in evidence gathering are essential to the creation, evaluation, and ultimate success of VA Healing Environments.

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6.0 Conclusion

Figure 6.1: Soldier being greeted by his family

Veterans, who have sacrificed personal gain, personal safety, and family health for the well-being of the collective whole, require an environment that can respond to their specific healing needs. The types of psychological and physical wounds from the recent conflicts in Afghanistan and Iraq have radically altered the physical and healing programming requirements of existing VA facilities. With distinct environmental requirements for recently returning military and their families, there is a new focus on treating the psychological wounds of war and trauma on an outpatient therapeutic level. With the commitment of the VA to a patient centered care strategy, Veteran Healing Environments will play an important role.

These design guidelines will provide a valuable environmental healing tool not only for the VA Health Care System and our Veterans, but for all health care systems.

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Appendix

Appendix A: VA Architectural Standards and Criteria

Background
http://www.cfm.va.gov/til/
This Technical Info Library and the current editions of the following documents, also found in VA's Technical Information Library, comprise VA's architectural standards and criteria.

Design Manuals
http://www.cfm.va.gov/til/dManual.asp
There are a number of Design Manuals in the following categories: Automatic Transport, Architectural, Asbestos Abatement, Critical Path Method, Electrical, Equipment, Fire Protection, HVAC, Interior Design, Plumbing, Sanitary, Site Development, Specifications, Steam Generation and Distribution, and Structural. The manuals are a guide and a master reference that are to be followed in the design and renovation of medical facilities for VA.

Design Guides
http://www.cfm.va.gov/til/dGuide.asp
These documents include planning and design criteria with integrated architectural, equipment, and environmental requirements that together provide planning and design standards for each service.

Design and Construction Procedures
http://www.cfm.va.gov/til/cPro.asp
A collection of VA requirements and guidance on various construction-related topics.

Equipment Guide List
http://www.cfm.va.gov/til/equip.asp
This is a list of equipment, furnishings, and utility requirements for each space in a department/service.

Room Finishes, Door and Hardware Schedule
http://www.cfm.va.gov/til/room/roomFinishes.pdf
The schedule includes room-by-room standards for interior finishes, doors, and door hardware.

Space Planning Criteria
http://www.cfm.va.gov/til/planning.asp
This includes approved space criteria for each room in a department/service, plus "design considerations" for that area, space relationship diagrams, and interfunctional relationship matrices.

Standard Details
http://www.cfm.va.gov/til/sdetail.asp
Standard Details include scale drawings of many specific items and conditions and are to be used as a guide only, except for standard details specifically stipulated by PG-18-3, VA Design and Construction Procedures.

Master Construction Specifications
http://www.cfm.va.gov/til/spec.asp
The Master Construction Specifications are the specific requirements for construction of VA facilities.

Mental Health Design Guide
http://www.cfm.va.gov/til/dguide/dgmh.pdf

Appendix B: Clinical Case Study Vietnam Veterans Memorial as a Healing Tool for Behavioral Health

The following is an account by James F. Munroe, EdD, clinical director of the Veterans Improvement Program (VIP) at the Boston Veterans Administration Outpatient Clinic, of a Vietnam Veterans' therapeutic group visit he organized to the Vietnam Veterans Memorial in Washington, D.C.:

We arrive at the Wall in the dark before dawn. We have prepared for this and we approach it as a community **(Figure B.1)**. Still, there is apprehension. Everyone is very quiet. The memories of events that have been avoided for decades are being stirred. We approach the Wall from the Lincoln Memorial **(Figures B.2 and B.3)** and slowly it comes into view, lighted in the dark. We arrive at the statue of the three Veterans who stare at the Wall **(Figures B.6 and B.13).** We have discussed that there is no right way to do this and that nobody will be expected to approach the Wall unless they choose to. The Veterans are given the power to control their own process of grieving. We are the only ones there. The group begins to spread out. Some stay at the statue **(Figures B.6 and B.13)**, some sit on the benches, some begin to move toward the Wall and start down the slope. Some are alone and others form small groups. This is the moment that the grief and loss is approached. As the Veterans walk down into the Memorial, the names grow higher and higher until they reach the center of the V. It is here that they can feel the enormity of the war and see all of the names stretching in both directions. Beyond the enormity of the names are the personal and specific names of the men they knew and lost. In the planning stages we always had the book of names that is used to look up the people on the Wall. Most Vets avoided doing this in advance. The books are provided at the Wall but the enormity of emotion overrides the intellectual skills required to look up a name and panel location. At this point if a Vet tried to locate a name he would probably end up staring blankly at the book. The staff is always ready to assist **(Figure B.4)**.

The Wall is overwhelming. The cost of war is laid out in front of them. For each of the Vets their grief is personal. It takes courage for them to be here and face the pain. There are articles left at the Wall. There is a pair of worn jungle combat boots with a dog tag in the laces and a folded piece of paper underneath **(Figure B.11)**. There are other letters and notes, some open for visitors to read and others sealed. Each item takes you from the large questions of war to the personal loss of someone known and cared for, each one a reminder of the stark reality of death. Our Vets leave items at the Wall as well. Being here, the Veterans are confronting the numbing they learned to embrace to survive the war and function despite the losses. Here

Figure B.1: Arriving in the dark at the Vietnam Veterans Memorial. Washington, D.C.

Figure B.2: Beginning the day at the Lincoln Memorial. Washington, D.C.

Figure B.3: Leaving the Lincoln Memorial. Washington, D.C.

Figure B.4: The catalog of names on the Wall of the Vietnam Veterans Memorial. Washington, D.C.

Figure B.5: Benches facing the Wall of the Vietnam Vereans Memorial, but removed from it. Washington D.C.

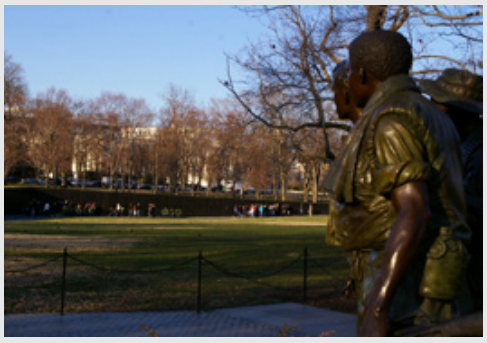

Figure B.6: View of the apex of the Vietnam Veterans Memorial from the Three Servicemen Statue. Washington D.C.

they begin to feel what could not be endured at the time of loss and for the decades in between. They can see the names and touch them. Many take rubbings of the names **(Figure B.12)**. Several make rubbings to take back for other Vets or family members.
Vets stand looking at a name or a group of names and remember. They tell the stories that bring the names back to life. They talk about who the person was and the good times they had. They talk about the day of loss and what happened. The Wall marks that day. It marks many thousands of days.

The grieving process brings back the loss and horrors but it also reconnects them to the person. That first morning in the dark is a very heart-wrenching time. All of the Vets eventually make the journey down to the Wall **(Figure B.1)**. Some do not linger too long. Others stay for a long time. Some stand in one place, others have several places to visit. They used the space in different ways. They might sit for a long time on the benches **(Figure B.5)** at a safe distance from the Wall, and enter only briefly, or they might stay directly in one spot at the Wall for a long time. The space allows for movement and different ways to encounter the Wall. We take as long as is needed. This is the time and place for the stories to be told and the memories painfully renewed. There are others to listen and support. There are other Vets who understand. There were the therapists who care and were allowed in. The community is there to endure the feelings together. It is the support of the community that allows the Vets to begin to open up and heal. The therapists move around with groups and individuals as needed. They also leave people alone as needed. The therapists mostly listened. We were not doing typical therapy sessions. We were being there with them and being available to talk for as much or little as needed. We might ask questions about the name they were standing by. Sometimes we just stood silently with them. Our annual trips always had some Vets who had been on a previous trip and others who were coming for the first time. For the new Vets it was always helpful to have others who had done it and survived. For those coming back they had more healing to do and knew they could do it. Eventually people began to collect back at the benches by the statue and the sun was coming up. For some it was difficult to leave but they knew we were coming back later in the day. We left as a group and went to breakfast. We ate all of our meals together.

We always visited other places during the trips, including the Smithsonian Museums, Arlington National Cemetery, a Civil War battlefield, the zoo, and the Tomb of the Unknown Soldier. One of the Smithsonian museums has a display of many artifacts left at the Wall. These other trips balanced the heaviness of being at the Wall. In the afternoon we go back to the Wall. This is a very different experience. Having the monument to ourselves in the dark allows Vets to feel safe in a private place. During the day the Wall is teaming with people and usually Vets are not comfortable with crowds. Again, we did this as a community, and the Vets had each others' backs. One Vet was relieved that there were no protesters. He had been met by protesters when he returned from the war and worried they might be here as well. One

of the things Vets frequently mentioned was how respectful people were at the Wall. This was unexpected, since respect was something they rarely experienced from non-Veterans. Even groups of school - children who normally would be running around and screaming were hushed and respectful when they started down the slope of the monument. Often the teachers would prepare the students to look up names on the Wall. These names might have been from their town, or or even from their school.

This was particularly touching for the Vets, to see children learning about the war and teachers making sure people do not forget. Some of the Vets were able to talk to the children and answer questions. Our community of healing got a little bigger. There were also other Vets at the Wall. Often our Vets would engage them and introduce them to others in our community so they would not be alone. The Veterans felt respected and were able to reach out to others a bit. Unlike the pre-dawn visit, they did not have to be alone. They could tell more stories to more people. They could recall lighter moments as well. Others could feel their grief. There was a sense of relief in coming back to the Wall and seeing how many others were paying their respects. The crowds legitimized their grief and loss. There were non-Veterans who cared. The space allowed for different experiences.

When we returned to where we were staying together, usually at VA or military barracks, we met as a group to review the experiences of the day. We asked what it was like on the two visits. They talked about their own experiences of remembering and touching the names of those lost. They also talked about other people they had interacted with. For many they were surprised at how well they were treated. They all appreciated the privacy and safety of the first visit but they felt respected and valued on the day visit. They were able to mourn privately but heal more publicly. Both were important. More stories were told at these meetings. There were stories about the distant war but also of the present Wall. There were now new memories connected to the old memories and shared with the community.

We returned to the Wall again the next day. There were the crowds again, and the Vets seemed able to be more open with others based on the experience of the previous day. This was the day that rubbings were more likely to be made. The raw emotions of the first visit were more subdued and they could think about the mechanics of finding names. Often the Vets would begin to help others find names and do rubbings. The memorial provides paper and pencils for rubbings. We always brought additional materials to make rubbings. Vets would use our materials to help others. The mood was lightened on this second day. They had faced the Wall and now could be in its presence and more relaxed. The difficult part of this visit was leaving. They had engaged the Wall and now it was difficult to go away. They had revisited the dead and now had to leave them behind again. There was also relief and a sense of having completed a difficult mission. We met as a group again that evening to review the trip before leaving in the morning. These meetings helped share the many different experiences of the trip. Vets talked about the many other people they

Figure B.7: Arrival at the Vietnam Veterans Memorial. Washington, D.C.

Figure B.8: Medals and photographs left at the Wall. Items left at the Vietnam Veterans Memorial are cataloged and stored by the National Park Service Museum Resource Center. Washington, D.C.

Figure B.9: Visitors make a rubbing of a name on the Vietnam Veterans Memorial. Washington, D.C.

Figure B.10: Photos and leters left at the Vietnam Veterans Memorial. Washington, D.C.

Figure B.11: Combat boots left at the Vietnam Veterans Memorial. Washington, D.C.

Figure B.12: Visitors make rubbings at the Vietnam Veterans Memorial. Washington, D.C.

interacted with. Their feeling of being valued and respected increased. They began their healing process alone. They risked reaching out and letting someone else in. They then built a small, tight community. The trip allowed them to include more people outside the community into their lives. They were able to mourn and not be alone.

Architectural Analysis of the Vietnam Veterans Memorial Visit

The following analysis identifies the architectural components contributing to the psychologically therapeutic effects of Dr. Munroe's group visits to the Vietnam Veterans Memorial.

The Approach the First Day:

- The design of the approach to the Memorial deliberately enables a psychological transition. A change of elevation in the approach landscape accentuates the transition into the realm of intimate personal encounter. A defined pathway (from the Lincoln Memorial) leads to the outer boundary, defined by a gateway element with adjacent seating **(Figures B.4, B.5, and B.6)**.
- Dr. Munroe's Veterans arrive as a group, a unit. This is a shared emotional journey, in which there are common bonds and emotional safety in being together, similar to when they were deployed more than four decades ago.
- The timing of the visit—before dawn—gives the Veterans the protective cover of darkness for the expression of emotion. The monument's open outdoor location (as opposed, for example, to the mostly enclosed Lincoln Memorial) allows this effective use of pre-dawn darkness. The Veterans-only environment provides emotional safety and support **(Figure B.1).**
- The seating at the boundary of the monument's domain allows the Veterans to exercise personal choice of pausing or proceeding toward the Wall. Most pause to collect themselves in preparation for encountering those they left behind **(Figure B.5).**

Engagement with the Wall on the First Day:

- The design of the Memorial is dramatic, with polished black granite reflecting the faces of visitors onto the names of the dead.
- The Veterans encounter objects left by others—teddy bears, military gear, beer cans, flowers, poems—and leave objects of their own: boots, opened letters, sealed letters, dog tags, service medals. Leaving these transitional objects before the names of lost brethren releases the intense emotions associated with the mourning process **(Figures B.8, B.10, B.11, and B.15)**.
- There are emotional individual and group encounters with the names found on the Wall. The Veterans support one another. In addition, mental health experts move quietly along the Wall, seeking those who may need support.
- They encounter other Veterans who come to visit the Wall. Some Veterans remain in solitude. Others join in small groups. Some linger a long time. Others do not. There is enough space around the Memorial to accommodate all these choices.

- Veterans become active participants, telling stories about those they lost. They make rubbings of the names engraved in the Wall. They comfort one another **(Figures B.9 and B.12)**.
- Some of the Veterans transition over the course of the visit from numbness to the release of powerful emotions. The pre-dawn darkness provided privacy.
- The visit culminates in the sharing of a meal commemorating their first communal visit to the Wall. This meal takes place off site, allowing Veterans to decompress and to express their feelings of their previous encounters at the Wall.

The Second Day

- This time the visit is in daylight. The Veterans engage with the monument in the same way. They observe others honoring their fallen brethren. The presence of a crowd validates their grief.
- They have incidental meetings with members of the public.
- Afterwards, the Veterans have peer discussions to talk about the events and emotions of the day.
- The second visit, in daylight and in the presence of members of the public, allows the Veterans to witness the respect and the mourning of others, and even to converse with them. This is an important validation of their service and of their own grief.
- On their third visit to the Wall, Dr. Munroe's group of Veterans makes rubbings of the names of their lost buddies. This brings them a sense of calm completion of the process, and as they witness other people doing the same thing, they have the experience of sharing their emotional vulnerability.
- *Summation:* The two-day experience of visiting the Wall has a major effect on the Veterans. They confront their losses and release powerful emotions. They leave objects in a personally meaningful ritual of mourning and connection. They share memories and feelings with the other Veterans on the trip, and form bonds. They begin their healing process alone, but then risk reaching out and letting others in. They voluntarily include more people—strangers—in their own moments of emotional vulnerability. They see their service respected and valued by others, and this begins to heal and reconnect them to the wider community. They have the experience of mourning privately and healing publicly.

Architectural Implications

Dr. Munroe has a clear and succinct definition of memorial space which in itself is a useful guide for architects: "It is a sacred and safe place that invites and encourages the memories of loss and begins the necessary process of healing."

Architecture can be an effective healing tool for Veterans. To adapt particular lessons learned from the Vietnam Memorial Wall to a VA facility, consider the following **(and also see Chapter 4.5.2, Courtyards and Exterior Components):**

Figure B.13: Three Servicemen Statue adjacent to the Vietnam Veterans Memorial. Washington, D.C.

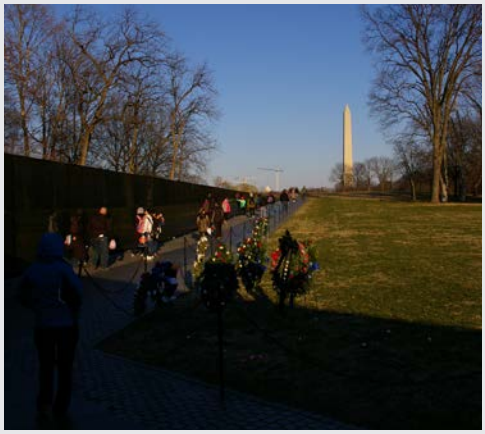

Figure B.14: The Vietnam Veterans Memorial with the Washington Monument in the distance. Washington, D.C.

Figure B.15: A bronze star medal left at the Vietnam Veterans Memorial. Washington, D.C.

- In order to de-stress and heal, Veterans must feel safe. An enclosed courtyard with two visible means of egress allows Veterans to benefit from the therapeutic attributes of nature and sunlight and therapeutic activities such as meditation, ritual, community building, and commemoration.
- A gateway or subtle change in elevation assists in the psychological transition from the busy VA facility to a more tranquil but active therapeutic environment.
- Pavilions provide a more private and intimate therapeutic environment in which individuals or small groups can commemorate lost comrades or share deployment experiences with one another.
- Special consideration should be given to ensuring privacy, such as locating a pavilion away from the busiest parts of the facility and near a windowless exterior wall, and making use of 54" half walls, shrubs, and plantings.
- Consider locating pavilions in proximity to compatible interior and exterior spaces in order to extend the reach of therapeutic activities.
- Consider locating the U.S. flag and the flags of the armed services near the center of the courtyard adjacent to an ADA-compliant pathway.
- Consider locations for Veteran artwork and sculpture.

Appendix C:
Multipurpose Space Adaptive Reuse Case Study
Veterans Memorial Building Auditorium, Cedar Rapids, IA

Background

The 2008 catastrophic flood that inundated eastern Iowa was the third largest natural disaster by monetary measures at that time. The Veteran Memorial Building is located on Mays Island and was at the center of the flood event. The basement, mezzanine, and first floor levels were under water for weeks, which left the building's Veterans Commission no choice but to radically transform the interior environment. In the two years leading up to the design and construction of the building renovation, few rooms were brought back into use, and much of the usable space was allocated to storage, or was simply left vacant **(Figure C.1)**. The 10,000 square foot auditorium, which once hosted large-scale performances and community events, had become obsolete even before the flood, sitting empty for all but a few days each year. Plagued by poor acoustics and limited sight lines, the venue was easily eclipsed by newer state-of-the-art performance spaces in the city. While the flood was a devastating and costly event, it also presented an opportunity for the Veterans Commission and designers to update and transform the old auditorium into a popular and versatile public asset.

Figure C.1: A dropped ceiling erected in 1949 obscured the clerestory windows. Flood levels reached 18" above the auditorium floor of the building. Veterans Memorial Building. Cedar Rapids, Iowa.

The Original Auditorium

The original auditorium wasn't a performance or event space, but rather a hybrid that could accommodate multiple functions. There was a stage, spacious enough for large-scale performances, but the 2,500 built-in seats oriented toward the center of the room made viewing the stage difficult, and in some cases impossible. The large floor area was used for sporting events, free-form performances, and even the Ringling Brothers Circus, but bulky columns obstructed views. The original auditorium was probably best suited to host banquets and other events requiring large floor areas. A ceiling installed in 1949 covered large clerestory windows, drastically reducing the amount of natural light **(Figure C.1).** The challenge faced by the Veterans Commission was how to utilize the auditorium during the majority of the day when special events weren't happening.

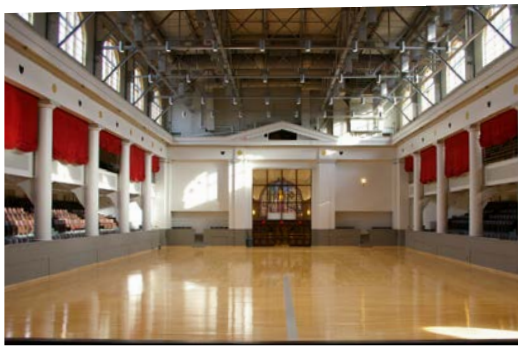

Figure C.2: View of the restored auditorium at the Veterans Memorial Building with clerestories revealed after 65 years. Moveable 60% shades allow for diffused natural light to enter the space. Veterans Memorial Building. Cedar Rapids, Iowa.

Transformation

- New removeable seating helps better utilize the stage, and makes the venue more attractive for performances.
- The new restaurant in the North Tower has a kitchen capable of serving up to 500, making the auditorium highly attractive for conventions, banquets, and other large scale uses.
- Removing the ceiling which was installed in 1949 allowed natural light to illuminate events on the auditorium floor. During the daytime, artificial lighting is unneccessary, making the venue more attractive for concerts, plays, and large presentations **(Figures C.2, C.4, and C.7).**

Figure C.3: View of proposed removeable galleries within the auditorium of the Cedar Rapids Memorial Building. Veterans Memorial Building. Cedar Rapids, Iowa.

Figure C.4: View of auditorium from auditorium stage. Veterans Memorial Building. Cedar Rapids, Iowa.

Figure C.5: View of auditorium fly space and corridors connecting restaurant and ballroom with new elevator. Veterans Memorial Building. Cedar Rapids, Iowa.

- The introduction of a new wood floor, warmer color palette, and natural light creates a warmer, more welcoming atmosphere **(Figures C.2 and C.4).**
- Modern HVAC equipment provides proper air and temperature control, making the space comfortable to use year round **(Figure C.7).**
- HVAC sound mitigation prevented noise from new air handler units to enter auditorium below.
- New stage rigging allows for more complex set design for plays and other performances.
- New electrical lines running under the auditorium's wood floor allow users to tap into power anywhere in the auditorium for exhibits and special events.
- All exhibits, flexible seating, and other structures are easily dismantled or reconstructed, allowing for great flexibility **(Figure C.3).**
- The addition of a new elevation connects the new restaurant and renovated ballroom to the armory mezzanine level, containing a new conference center and Veterans lounge, as well as the renovated auditorium. This connection allows food service for up to 500 people on the auditorium floor for special events, conferences, and conventions **(Figure C.7)**.

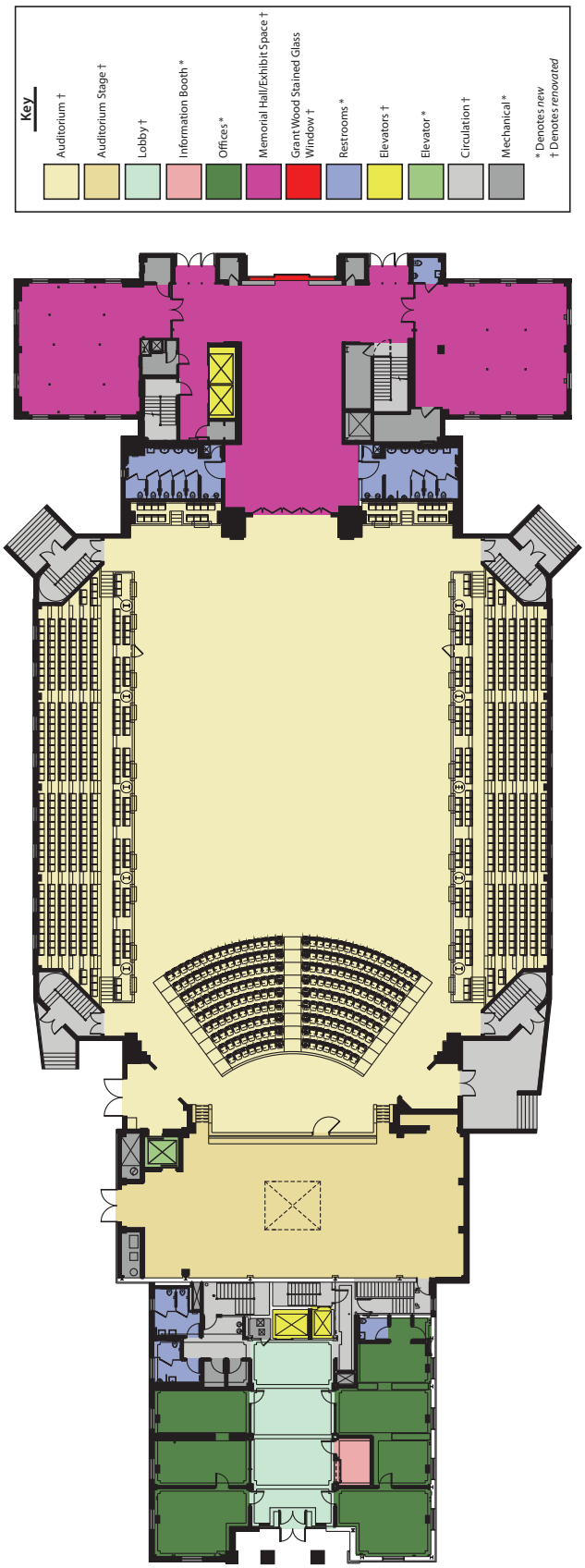

Figure C.6: Veterans Memorial Building first floor plan - after renovation, Cedar Rapids, Iowa.

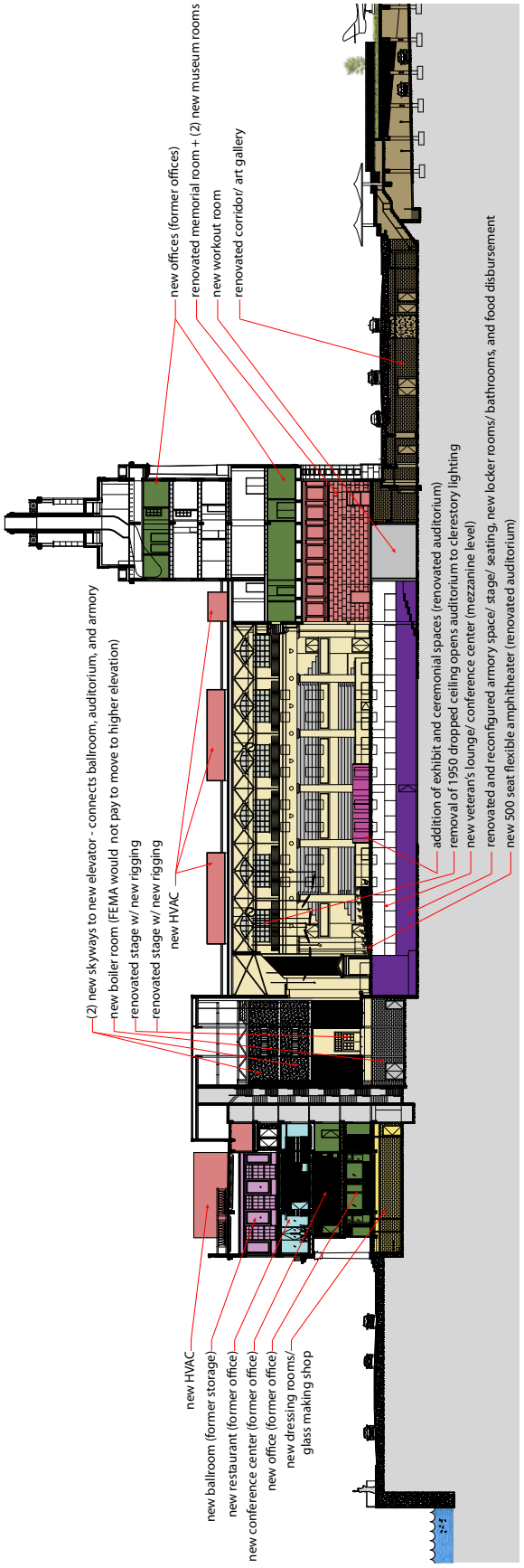

Figure C.7: Veterans Memorial Building first floor plan - after renovation Cedar Rapids, Iowa.

Appendix D:
Healing Environment Historic Precedents

Figure D.1: View of the Asklepian's Amphitheater. Bergama, Turkey.

Figure D.2: View of a tunnel at the Asklepian. Bergama, Turkey.

Figure D.3: View of the agora at the Asklepian. Bergama, Turkey.

" So architecture I know to be a great spirit. No, it is not something which consists of buildings which have been built by men on his Earth. Architecture is that great living creative spirit which from generation to generation, from age to age, proceeds, persists, creates, according to the nature of man, and his circumstances as they both change. That really is architecture".

- Frank Lloyd Wright

An Organic Architecture: The Architecture of Democracy

Introduction

Stakeholders involved in VA facility design and Healing Environments should consider environmental characteristics found in historical precedents of Healing Environments. Of particular interest are the 5th century B.C.E. city of Epidaurus, Greece, with its famed Asklepian (healing center), and the Asklepian at Bergama, Turkey, constructed about two centuries later. Also of interest are Japanese gardens and tea rituals used in the healing of Samurai warriors, and Native American sweat lodges. We will also survey the origins of contemporary VA health facilities, exemplified by the Northwestern Branch of the National Asylum for Disabled Volunteer Soldiers in Milwaukee, Wisconsin, and the Grand Army of the Republic (GAR) Halls.

The Asklepian at Epidaurus

The 5th century B.C.E. city of Epidaurus (located on the eastern side of the Peloponnese, in Greece) was believed to be the birthplace of Apollo's son, Asklepios, the god of healing. Its Asklepian, which sought to heal through uniting mind, body, and spirit to fight disease, became the most celebrated of the classical world. The sick and the wounded flocked there for the purification rituals conducted by priests. Upon the architrave of the propylaea (gateway) leading to the Asklepian's sacred grove, the following rhythmic words were inscribed: "Pure must be he who enters the fragrant temple. Purity means to think nothing but holy thoughts."[1] **(Figures D.1, D.2, and D.3)**.

The healing city campus contained a gate, baths, gymnasium, temple, sacred groves, dormitory, support buildings, and had stunning views of the Greek countryside and distant mountains. Within the temple, priests would work with the patient, surrounded by family, to uplift the spirit to fight disease. In addition, importance was placed on nutrition, physical activity, prayer, and theater, effectively creating a community of healing. Patients included pilgrims, children, and soldiers, among others.[2]

The modern symbol of medicine is derived from the staff of Asklepios, comprised of a rod intertwined with a serpent. These non-venomous serpents were crawling around the floor of the dormitories where the patients slept as part of the purification rituals. Modern medicine came into being when Hippocrates, an Asklepian-trained physician,

identified that the origins of disease were not from the gods but happened naturally. He practiced the healing modalities of mind-body-spirit while introducing the scientific approach that led to Western medicine as we know it today.

Japanese Gardens and Tea Rituals

> *The easier the path of destruction gets, the more likely we'll be to take it. This is another reason why warriors, above all, must fundamentally be spiritual people, that is, people who are on a different path to start with. Kierkegaard says, "It is not good works that make a good person, but a good person who does good works." It's probably why Bushido required the samurai to practice daily meditative art forms, such as the tea ceremony or writing haiku. It is through meditative practices that you observe how bad you are. It is only when evil is conscious that it can be countered.*
>
> *- Karl Marlantes, author of* What is it Like To Go to War

The Japanese tea gardens and associated tea rituals have evolved for more than a thousand years and continue to the present day. Tea rituals began as green tea was recognized for its medicinal qualities and the gardens were recognized for their calming effects on people.[3]

Japanese tea garden designs are layered in metaphor and allegory, assisting the participant in life's challenges and decisions. The garden domain possesses man-made objects consisting of pathways, reflecting pools, streams, stones, plants, and a tea pavilion, symbolizing the relationship between man and nature and his/her life's journey **(Figures D.4, D.5, D.6, and D.7)**. The peaceful gardens, with their framed, tranquil views, encourage quiet contemplation. The tea ritual was developed for use in the tea houses of such gardens in order to intitiate a transformative experience through inner spiritual growth and contemplation of the individual's life course.[4]

In the wake of the civil wars that preceded the Kamakura Period (1185-1392), the samurai came to power and had wide influence in Japan. The Zen-based tea ritual became a healing tool for samurai warriors dealing with the aftermath of battle as well as moments of contemplating their own mortality.[5]

The garden and tea ceremony were ingrained in the samurai culture and leadership. Hideyoshi, one of the samurai leaders of Japan, implemented many changes in the aesthetics of the tea ceremony that, in addition to being transformative and affirming, also exerted control over the samurai warrior class. He also reportedly utilized a tea house as preparation for combat.[6]

The design characteristics of Japanese tea gardens that could apply to VA facilities have to do with the relationships of the main building and the adjacent gardens, as well as elements placed within the gardens:

- Moveable screens adjustable for light and view of adjacent gardens
- Detached pavilions integrated into the garden as destination points for activities **(Figures D.4 and D.7)**

Figure D.4: Japanese tea garden pavilion. Chicago Botanic Garden. Glencoe, Illinois.

Figure D.5: View of rock garden. Ryōan-ji. Kyoto, Japan.

Figure D.6: View of landscape garden. Seibi-en. Hirakawa, Amouri Prefecture, Japan.

Figure D.7: View of Rokuon-ji pavilion and pond. Rokuon-ji. Kyōto, Kyoto Prefecture, Japan.

- Gardens that frame activities for Veteran rituals
- Different types of pavilions for contemplation, ritual, and socializing
- Extensive use of water features **(Figures D.4, D.6, and D.7)**
- Sense of enclosure and boundary of the garden domain **(Figure D.5)**
- Strong garden/building interrelationships **(Figure D.4)**
- Metaphorical and allegorical references to enhance mind/spirit healing through rituals and the garden aesthetic **(Figures D.5 and D.6)**

Native American Sweat Lodges

The sweat lodge, which helps participants to purify mind, body and spirit, is one of the alternative methods sought out by Native and non-Native Veterans to supplement their healing regimens. In his book, *Tribe: On Homecoming and Belonging*, author Sebastian Junger documents the experience of Gregory Gomez, an Apache and Marine Veteran of Vietnam, who served in a recon unit behind enemy liness:

> When Gomez came home to West Texas he essentially went into hiding for more than a decade. He didn't drink and he lived a normal life, except that occasionally he'd go to the corner store to get a soda and would wind up in Oklahoma City or East Texas without any idea how he got there.
>
> He finally started to see a therapist at the VA as well as undergoing traditional Indian rituals. It was a combination that seemed to work: "We do a lot of sweat lodge ceremonies as part of a cleaning and purification," he told me. "The vision quest ceremony is normally a four-day ceremony, and you do fasting so your system is pretty cleaned out. You're detoxified, as it were. You're pretty high."[7]

For thousands of years, Native tribes in every region utilized sweat lodge ritual as a means of healing. There is no standardized method for a sweat, although the purposes are the same. One of the major purposes is purification, to help cure sickness or to assist individuals in reaching a new state of spiritual being or to carry out a difficult deed. In addition, sweat lodges were used by warriors to prepare for and recover from battle:

> The sweat was used to achieve ritual purity after killing someone or touching a dead body, and after killing a royal eagle. The sweat also had martial uses: to prepare oneself for the warpath, to consecrate the weapons, and to prepare for stealing horses.[8]

The fact that the sweat lodge has historically been used by warriors makes it a valuable tool for the healing of Veterans. The sweat lodge can be configured to accommodate from six to 12 individuals, approximating a military squad or platoon but likely incorporating

*Please note all sweat lodge photos are used with Native permission, for the purpose of educating non-Natives.

Figure D.8: Contemporary Southern Arapaho sweat lodge construction. The covering is made of breathable canvas. Crescent City, Indiana.

different branches of service and different generations, as well as civilians **(Figures D.8, D.10, and D.11).**

Michael Toahty, known as Singing Man, is of Southern Arapaho, Pawnee, and Kiowa heritage. He is a decorated combat Veteran who served in Vietnam from 1970 to 1971. He witnessed atrocities by both sides, the deaths of brethren, and the deaths of enemies. When he returned to the United States, he began to self-medicate with drugs and alcohol in an attempt to suppress memories of battle, suffering, and death. It was during a hospital stay with his organs failing, that his mother, known as Killing After, a full-blooded Arapaho, urged him to seek out tribal elders in Wyoming. Eventually, through the Native rituals of sweat lodge and Sun Dance, and with the support of family and Native community, he found healing and a new mission: to heal others suffering from loss and trauma. A mission of serving community is known to be an important element in the healing of many Veterans. Singing Man became a drug counselor and also performed Native rituals, including sweat lodge, in healing Veterans, civilians, and incarcerated felons.

Figure D.9: View of ceremonial fire and sweat lodge constructed of saplings. Camp Renora. Watervliet, Michigan.

Singing Man employs the sweat lodge aesthetic and ritual of the Plains Indians. The process begins with participants working together, utilizing saplings, breathable canvas tarps, and firewood to build the domed lodge, said to represent the spirit of the sacred buffalo, courageous and invincible **(Figures D.8, D.9, D.10 and D.11).** This group effort breaks down barriers and builds the trust necessary for a successful sweat. In his book, Seven Sacred Directions: A Native American Message of Transformation, Toahty described the sweat lodge ritual as he has practiced it.[9]

Figure D.10: View of fire to heat "grandfathers," sacred objects, and sweat lodge. Camp Renora. Watervliet, Michigan.

The Ceremonial Man, who has trained for many years, consecrates the lodge with prayer and songs. Participants make their offerings to him, and then ask permission to enter the lodge, praying as they cross the threshold. Heated rocks, called "grandfathers," prepared in a fire pit outside the lodge, are brought inside by the Ceremonial Man. These "grandfathers" and a supply of water used to pour on them, are blessed by the assistants—helpers who earned this role through four days of fasting and prayer and a sweat lodge called a vision quest. Pure darkness envelops the participants inside the lodge, and the Ceremonial Man initiates the ritual by passing around a sacred object, such as an eagle's wing or a peace pipe **(Figures D.12 and D.13).** In turn, holding the sacred object, each participant offers a prayer to ancestors, community, mother earth, family members, loved ones, and self. Four rounds of prayer correspond to the four sacred directions, themselves associated with the seasons and the colors of the medicine wheel. East is green, and represents spring, sacred Mother Earth, and the beginning of life. South is yellow, for summer, warmth, and adolescence. West is black, the color of autumn, adulthood, and the spirit world. North is white, for winter, and the elder.

Figure D.11: View of fire to heat "grandfathers," sacred objects, and sweat lodge. Camp Renora. Watervliet, Michigan.

The Ceremonial Man increases the intensity of heat with the addition of more grandfathers as the stages of the ritual proceed **(Figure D.9)**. In the darkness, participants cannot see one another, but know they are not alone. They hear voices, breathing, and sometimes sobbing.

Figure D.12: View of sacred objects for sweat ceremony. Camp Renora. Watervliet, Michigan.

Figure D.13: View of sacred objects for sweat ceremony. Camp Renora. Watervliet, Michigan.

Figure D.14: Aerial rendering of Milwaukee Soldiers Home campus including therapeutic gardens, gazebos, and ponds. Milwaukee, Wisconsin.

The first round of prayers is for the formulation of intentions, and invites the ancestors to enter the lodge and "sit on your shoulder." Participants identify their lineage, calling the names of fathers, mothers, and grandparents, and the nations of their origin, seeking strength from the deeds of their ancestors and inspiration from their good deeds. Each participant articulates an intention for their healing before the members of their adopted tribal unit within the lodge.

In the second round of prayers, participants pray for others: the earth, wildlife, community, family, friends. Prayers are dedicated to community and family members known to be suffering from violence, oppression, illness, and adversity. There are prayers for the community's leadership to have vision, wisdom, and compassion, and to enact good deeds. Participants may choose to pray for the ancestors of another participant.

The third round of prayers is about gratitude. No matter what trials and tribulations have been endured, participants must always be grateful for the blessings and gifts bestowed on them. This gratitude will fuel the deeds that an individual will enact for others and for the mother earth.

In the fourth and last round of prayers, focus is on the self. In this round, when the heat is highest and toxins are released from the body, participants are at their most vulnerable, praying about their own personal traumas and losses. Gathering strength from the presence of others, each participant's voice merges with the voices of the rest, and they form a whole of prayer, empathy and bonding.

After several hours, the sweat lodge rituals conclude. The group disassembles the lodge and participates in a communal meal in the light of day. The ceremonial man blesses the food. It is in this phase that individuals of the sweat lodge adopted "tribe" offer sympathy and empathy to one another. The conversations shift toward gratitude for the food and companionship, for each person's experience, and for the activities that will complete the day.

Qualified practitioners may conduct sweat lodges on VA grounds. The ideal locations for sweat lodges are sheltered outdoor areas, such as courtyards of VA medical centers and CBOCs.

The Northwestern Branch, National Asylum for Disabled Volunteer Soldiers (The Milwaukee VA)

The Milwaukee VA originated as The Northwestern Branch, National Asylum for Disabled Volunteer Soldiers, with the first construction in 1867. It was one of the three original federal facilities that were the precursors to the contemporary VA. The largest building on campus was called "Old Main" and was completed in 1869 **(Figures D.14-D.15**). It contained sleeping quarters, dining room, offices, library, chapel, billiards room, staff residences, meeting hall, laundry, bathing facilities, and medical clinic.

Patricia A. Lynch's book, *Milwaukee's Soldiers Home,* provides a historical narrative in photographs and words, documenting the evolution

of Veteran care. "In the first year of the National Home, admission requirements were simple: an honorable discharge from U.S. volunteer service and disability by wounds received or sickness contracted in the line of duty."[10] However, as the Civil War Veterans aged, care was extended to the permanently disabled and elderly Veterans as well.

Post-Civil War medical care addressed the healing journey of the Veteran and focused on the mind, body, and spirit. It was reflected in the campus development over the course of the next 90 years. The campus expanded to include: gates, an occupational training building, library, theater, church, farm for provisions, green house, beer hall, cemetery, ceremonial reviewing stand, recreational hall, single and multipurpose hall, and landscaped grounds with picnic shelters, band shell and ponds for boating. The campus setting, located on one of the highest elevations in the city of Milwaukee, offered views of surrounding city and countryside, and ushered in sunshine and fresh air. In addition it was connected to Milwaukee's downtown by two trolley lines encouraging connections to the community. The Soldiers Home was an important asset to the city of Milwaukee, and it became a popular destination for many citizens, alleviating Veteran alienation.[11]

Figure D.15: Milwaukee Soldiers Home main building which housed residences, community spaces, and a canteen. Milwaukee, Wisconsin.

Design characteristics relevant to VA healthcare settings include:

- Landscaped grounds and pavilions providing connection to nature and opportunities for picnics, concerts, boating, and strolls **(Figure D.14)**
- Communal characteristics of architecture and landscaping
- Inclusion of important cultural institutions such as a library and a theater
- Inclusion of Veteran-embracing elements, such as a church with a commemorative window, a cemetery, and a reviewing stand for military parades

Figure D.16: Music performance. Milwaukee, Wisconsin.

The Grand Army of the Republic (GAR) Posts

The precursors of the Veterans of Foreign Wars posts and the American Foreign Legion posts were the Grand Army of the Republic (GAR) posts of the post-Civil War period **(Figures D.17 and D.18)**. There were 449 GAR posts in the state of Iowa and 636 posts in the state of Indiana.[12] To create a Veteran community in a GAR post, three principles were initiated:

- Fraternity, (a reformulation of the military unit for bonding, networking and sharing wartime stories)
- Charity, creating a mission and community service for widows and orphans of the fallen
- Patriotism, and rituals associated with Veterans Day, Memorial Day and the Fourth of July

A Veteran in today's post-war environment experiences many of the same issues as a Veteran following the Civil War. Even though the alienation of Veterans from civilians in 1865 was not as severe as it might have been, the Veterans remained, to varying degrees, estranged from those who had not enlisted.[13] In the current Middle Eastern wars, our Veterans represent slightly less than 1 % of the United States population.

Figure D.17: The community room at the Peninsula Ohio GAR, 1890's. Peninsula, Ohio.

Figure D.18: Stained glass dome with military symbols, by the firm of Healy and Millet, in the Grand Army of the Republic rotunda, Chicago Cultural Center. Chicago, Illinois.

The GAR environments varied according to region and sociocultural factors. In Chicago, the GAR post was constructed as part of the new city library on Michigan Avenue. The GAR post had a separate entrance with entry hall, ceremonial stair, rotunda entry hall with stained glass dome **(Figure D.18)**, memorial hall, lecture hall, archive room, and two small meeting rooms. The architecture was embedded with military symbolism, including victory wreaths, coats of arms, and symbols of the branches of service. The GAR post would host many types of community events, especially surrounding Veterans Day, Memorial Day, and the 4th of July **(Figures D.19, D.20, D.21, D.22, and D.23)**.

Figure D.19: View of Union soldier's tomb. Rosehill Cemetery. Chicago, IL.

Figure D.20: View of Civil War artillery caisson for Memorial Day service. Rosehill Cemetery. Chicago, IL.

Endnotes

1. R.A. Tomlinson, Epidaurus (Austin: University of Texas Press, 1983), 17.
2. Ibid, 16.
3. Jennifer L. Anderson, *An Introduction to Japanese Tea Rituals* (Albany: University of New York Press, 1991), 23.
4. Marc P. Keane, "Spiritual Passage: The Tea Garden," in *Japanese Garden Design*, 69-82.
5. Jennifer L. Anderson, *An Introduction to Japanese Tea Rituals* (Albany: University of New York Press, 1991), 25:
   "Many Samurai faced death frequently and undoubtedly had genuine concerns about the fate of their souls[….]Zen offered the samurai a satisfying spiritual alternative."
6. Ibid, 37:
   "On the battlefield, Hideyoshi constructed a portable teahouse so he could practice in view of the combatants. The sight of a general calmly preparing tea was calculated to intimidate the enemy and instill confidence in retainers. It is also possible that these tranquil moments helped soothe Hideyoshi's own jittery nerves."
7. Junger, Sebastian. *Tribe On Homecoming and Belonging* New York: Twelve Books, 2016.
8. Raymond A. Bucko, *The Lakota Ritual of the Sweat Lodge: History and Contemporary Practice* (Lincoln: University of Nebraska Press, 1999), 59.
9. Singing, Man. (2012). *Seven Sacred Directions, A Native American Message of Transformation*. Milwaukee, WI: MavenMark Books.
10. Patricia A. Lynch, *Milwaukee's Soldiers Home* (Charleston: Arcadia Publishing, 2013), 12.
11. Ibid, 31:
    "Eager to see what the government was doing for its volunteer soldiers and to enjoy the free entertainment and natural beauty of the grounds, the public flocked to the Milwaukee Home. Patriotic celebrations and concerts attracted as many as 300,000 visitors in a single year."
12. The number of Iowa GAR Posts could be in *The Detroit Tribune's Veteran Soldiers and Sailors Hand-Book*, Copyright 1889 or at http://iagenweb.org/civilwar/other/iagar_posts.htm. The number of Indiana GAR Posts could be found at: http://freepages.history.rootsweb.ancestry.com/~indiana42nd/GARhome.htm
13. McConnell, Stuart, *Glorious Contentment: The Grand Army of The Republic 1865-1900* (Chapel Hill: University of North Carolina Press, 1992), 22: "Even though the alienation of veterans from the civilians in 1865 was not as severe as it might have been, the ex-soldiers remained to varying degrees estranged from those who had not enlisted. They had shared a world in which the values of peacetime society had been stood on end. Violence had been justified, social distinctions leveled, individual preference submerged in discipline and order, death experienced as a daily occurrence. Then they come back to a society that by and large expected them to pick up where they left off, as if the strange passage of war had not been a reality."

Figure D.21: View of Civil War artillery caisson for Memorial Day service. Rosehill Cemetery. Chicago, IL.

Figure D.22: View of Civil War artillery caisson with artillery piece for Memorial Day service. Rosehill Cemetery. Chicago, IL.

Figure D.23: View of GAR Monument. Rosehill Cemetery. Chicago, IL.

Appendix E:
Conference/Multipurpose Room Study
Veterans Memorial Building Auditorium, Cedar Rapids, IA

Figure E.1: Conference rooms with interior moveable partitions allowing for flexibility. Veterans Memorial Building, Cedar Rapids, Iowa.

Figure E.2: Fold - down seating for peer mentoring in a conference room. Veterans Memorial Building, Cedar Rapids, Iowa.

Conference rooms are idle the majority of the business day in VA facilities. These spaces can be better utilized if flexibility is a consideration. Built-in features such a writing kiosks, display cases, and moveable interior partitions allow for other activities, such as journaling, writing, and the creation of art or contemplation of memorabilia. In the Veterans Memorial Building in Cedar Rapids, Iowa, this design strategy has been implemented with five adjacent conference rooms located on a mezzanine level of a basement armory **(Figure E.6).** Two of the conference rooms are connected by a folding wall partition, allowing them to connect and create a continuous space for group activities involving up to 30 people.

In each of the conference rooms there is built-in furniture underneath a large window consisting of a writing desk, open niches for objects or books, and storage **(Figures E.1, E.2, E.3, E.4, and E.5)**. The desks allow a Veteran to pull up a chair (or wheelchair), place individual commemorative objects where they can be seen, and write, meditate, reflect, or journal. The adjacent circulation corridor has built-in benches with a view into the armory, which has been redesigned as a multi-use space.

These spaces facilitate meetings, individual and group studying, writing workshops, peer mentoring, behavioral therapy on an individual and group level, job fairs, and symposiums. Two of the conference rooms have additional fold-down benches that allow for two people to have a face-to-face conversation or a behavioral health therapy session**.**

Writing Workshops

Often the first sign of Veteran healing is an expression or recollection of the traumatic event that occurred during deployment. Among the origins of Western literature are accounts of Achilles—a Veteran in war—and Odysseus—a Veteran struggling to return after war has ended. The need to recall the story of the Veteran's experience is often critical to a Veteran avoiding an odyssey of drugs, alcohol, and violence. However, if a Veteran is not within a peer group, the healing expression of those feelings and memories may not be forthcoming. This situation is depicted in Ernest Hemingway's *Soldier's Home*:

> *At first Krebs, who had been at Belleau Wood, Soissons, the Champagne, St. Mihiel, and the Argonne did not want to talk about the war at all. Later he felt the need to talk but no one wanted to hear it. His town had heard too many atrocity stories to be thrilled by actualities. Krebs found that to be listened to at all he had to lie, and after he had done this twice he, too, had a reaction against the war and against talking to about it. A*

distaste for everything that had happened to him in the war set in because of the lies he told [….] Krebs acquired the nausea in regard to experience that is the result of untruth or exaggeration, and when he occasionally met another man who had really been a soldier and they talked a few minutes in the dressing room at a dance he fell into the easy pose of the old soldier among other soldiers: that he had been badly, sickeningly frightened all the time. In this way he lost everything.

Mike Jager, a decorated Desert Storm Combat Veteran and the Executive Director of the Cedar Rapids Veterans Commission, contributed this description of a writing workshop for Veterans to this VAHE Guideline:

A writers' workshop titled "Writing My Way Back Home" was held March 28-30, 2014 at the newly renovated Veterans Memorial Building in Cedar Rapids, Iowa, for Veterans and active military. This workshop was sponsored by Midwest Military Outreach (MMO) in partnership with the University of Iowa Writers' Workshop, and led by representatives of MMO along with faculty from the University of Iowa and Kirkwood Community College. Topical workshops ranged from poetry and playwriting to memoirs, preparing manuscripts for publication, and therapeutic journaling. The intent of the weekend-long event was to assist individual Veterans with writing for personal growth, healing, and processing of war and trauma-related events. This was the second such event. The previous year's was on the U of I campus, sponsored by the Veteran Student Services Office.

With over two dozen participants, the age and demographic spectrum were covered; multiple Vietnam Veterans were present as participants in addition to post 9/11 Vets. We had male and female Veterans, retired and current active-component service, along with National Guard and Reserves. Officers, command sergeant majors, alongside first tour enlisted ranks. Brought together in one place, for one purpose, an inward reflective journey that simultaneously was shared with peers and newfound comrades.

This was one of the first activities in the Veterans Memorial Building, recently renovated by the firm of Alt Architecture and Research Associates. The design for the renovation incorporated evidence-based research on Healing Environments, with the goal of creating a welcoming and therapeutic environment for traumatized Veterans. The space was a converted National Guard Armory and former Reserve Center dating back to the 1920s, which had been "in service" for nearly four decades. From the start it was a military-embracing environment.

The adjoining conference center/small group meeting space was designed to facilitate a healing surrounding with flexibility in lighting, dimensions, and other aspects of the room **(Figure E.6).** Tall oversized windows exposed to the west allowed for ample natural lighting with raised ceilings, but motorized shades and track lighting with variable controls allow for "mood setting" when appropriate **(Figure E.2)**. Along the length of the room were built-in oak cabinets with recessed spaces,

FigureE.3: Two writing stations located underneath windows to take advantage of the natural light and views of the sky. Conference room. Veterans Memorial Building. Cedar Rapids, Iowa.

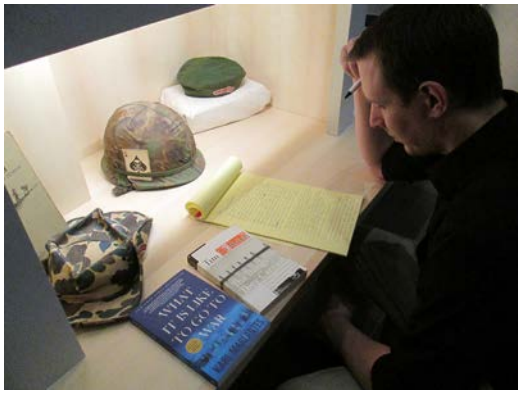

Figure E.4: Writing at one of the desks, surrounded by personal objects, books on combat experiences, as well as historical objects taken to deployment. Conference room. Veterans Memorial Building. Cedar Rapids, Iowa.

"Geography, history, and culture baffled the Marine. He thought of unsolved equations scribbled on chalkboards, connecting information to reason. He wanted to attend college after his tour. He wanted answers to his questions. He wanted to replace the persuasion of an M-16 with the indisputable power of an arsenal of knowledge."

—Nick Misiano

from Lava Dawgs: A Fight for Fallujah

Figure E.5: *The Things They Carried* and *What It Is Like to Go to War*, surrounded by historic military objects. Veterans Memorial Building. Cedar Rapids, Iowa.

amplified by case lighting or "back lighting" within these respective cubed "memory boxes" **(Figures E.1, E.2, E.3, E.4, and E.5).** The mere fact the overall space was a former military unit drill hall could by itself lend a sense of history and continuity to the space. But as the Veterans Memorial Building features a museum spaced, dedicated to honoring Veterans, and has an extensive on-site collection of military related items and gear—the writers workshop and the place where it was held provided a unique opportunity to bring these multiple elements together, for the express purpose of assisting the Veteran on the next leg of the long road march to personal recovery and understanding. We are all familiar with the term "writers block", which exists internally for the would-be author—for any number of causes and motivations which we will not delve into here. But at times the engine of creative expression needs the right amount and type of coal shoveled into it for the "train of thought" to leave the station and gain momentum towards its destination point.

The crossroads of the event, environment and artifacts were meant to be stimulating, without being overly so; evocative rather than provocative, which can be counterproductive, in particular with the Veteran who is trying to cope with the effects of trauma-induced life experiences. In the number of recessed cubicles with backlighting for effect, were a series of military headgear from different eras, juxtaposed and arranged with literature of various sources associated as closely as possible with the era of headgear. Starting with an Army officer dress helmet of the 1880s (often mistaken for a German Imperial Helmet, aka the "Hogans Heroes" hard hat/Kaiser's spiked helmet) through soft hats to helmets of different types and issues from different branches. A Cavalry campaign cap, World War One "Doughboys" helmet, a collection of covers from the four branches used during World War II, interspersed with books such as *Catch 22,* by Joseph Heller, alongside much less-known editions of local authors' books. Vietnam headgear of various types displayed next to Karl Marlantes' *What It Is Like to Go to War* and Tim O'Brien's *The Things They Carried*. A Kevlar of recent vintage alongside Ben Busch's autobiography *Dust to Dust* **(Figures E.4 and E.5).** An Air Force jet pilot's helmet from an earlier era sits with visor down, as if waiting for its wearer to pick it up and utilize it on a "scramble alert" for one more flight.

> "The things they carried were largely determined by necessity. Among the necessities or near-necessities were P-38 can openers, pocket knives, heat tabs, wristwatches, dog tags, mosquito repellent, chewing gum, candy, cigarettes, salt tablets, packets of Kool-Aid, lighters, matches, sewing kits, Military Payment Certificates, C-rations, and two or three canteens of water [....] They carried all the emotional baggage of men who might die. Grief, terror, love, longing—these were intangibles, but the intangibles had their own mass and specific gravity, they had tangible weight. They carried shameful memories. They carried the common secret of cowardice barely restrained, the instinct to run or freeze or hide, and in many respects this was the heaviest burden of all, for it could never be put down, it required perfect balance and perfect posture."
>
> —*Tim O'Brien*
>
> *from* The Things They Carried

Basement-Mezzanine Floor Plan Diagram

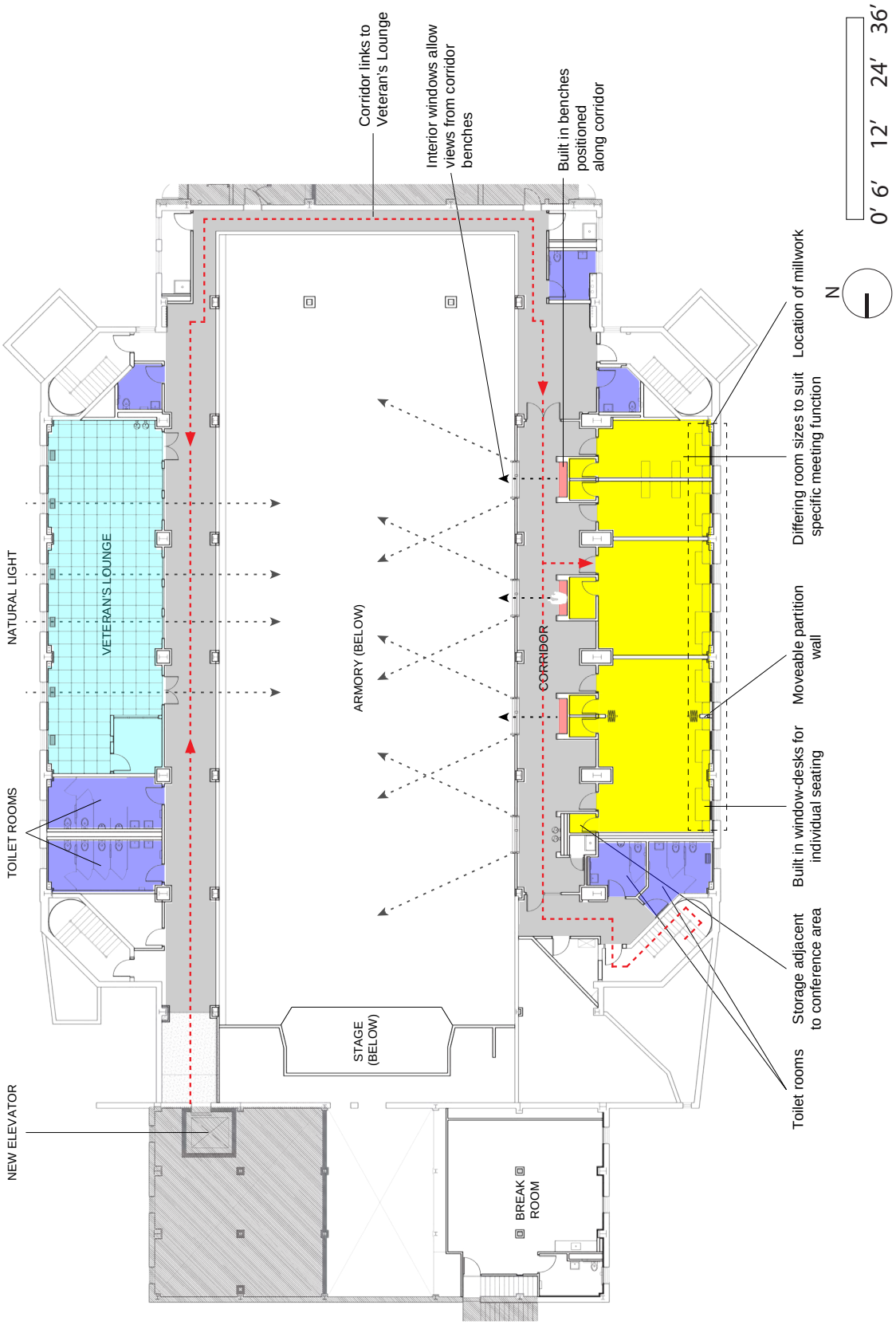

Figure E.6: Veterans Memorial Building, Cedar Rapids, Iowa.

"To care for him who shall have borne the battle and for his widow and for his orphan"

—*Abraham Lincoln,*
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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Glossary
Terms and Abbreviations

Agent Orange - one of the herbicides and defoliants used by the U.S. military as part of its herbicidal warfare program, Operation Ranch Hand, during the Vietnam War from 1961 to 1971.

Agent White - is the code name for a herbicide and defoliant used by the U.S. military in its herbicidal warfare program during the Vietnam War.

Americans with Disabilities Act 1990 (ADA) - a wide-ranging civil rights law that prohibits, under certain circumstances, discrimination based on disability.

Arterial spine - main hallway(s) of a facility for Veterans, community, staff, and caregivers to engage in a passage to inpatient areas, out patient areas, and communal environments within the healing facility.

Architectural Vulnerability Factor (AVF) - the probability that a fault in that particular structure will result in an error.

Building Automation System (BAS)- this is the building's computerized control system for HVAC, lighting, security, etc.

Behavioral Health - a branch of interdisciplinary health which focuses on the reciprocal relationship between the holistic view of human behavior and the well-being of the body as a whole entity. Behavioral Health is concerned with issues that can have a different outcome by changing "behavior".

Brunnstrom's Motor Recovery Stage (BMRS)- an assessment of an individual's ability based on six stages of motor recovery.

Building Management System (BMS) - a computer-based control system installed in buildings that controls and monitors the building's mechanical and electrical equipment such as ventilation, lighting, power systems, fire systems, and security systems.

Chronic Multi-symptom Illness (CMI)/ Gulf War Syndrome - a serious condition that imposes an enormous burden of suffering on our nation's Veterans. Veterans who have CMI often have physical symptoms (such as fatigue, joint and muscle pain, and gastrointestinal symptoms) and cognitive symptoms (such as memory difficulties).

Circulation - the way people move through and interact with a building.

Critical adjacencies - Healing Environment are not constructed to enclose isolated events in single rooms. To effectively support a Veteran's healing, a series of rooms could be utilized in tandem for different healing activities.

Department of Veterans Affairs (VA) - a government-run military Veteran benefit system responsible for administering programs of Veterans' benefits for Veterans, their families, and survivors.

Design principles - fundamental ideas about the practice of good visual design.

Diagnostic and Statistical Manual of Mental Disorders (DSM) - a common language and standard criteria for the classification of mental disorders.

Ecological cycles - seasonal change and how an environment is affected by weather.

Evidence-based Design (EBD) and Evidence-based Maintenance (EBM)- a field of study emphasizing credible evidence to influence design. This approach has become popular in healthcare to improve patient and staff well-being, patient healing, stress reduction and safety.

Facility Guidelines Institute (FGI) - a not-for-profit corporation, was founded in 1998 to provide continuity in the facility guidelines revision process, function as a contractual coordinating entity, and enhance the content and format of guidelines publications that encourage and improve their application and use.

Healing Environment - a physical setting and organizational culture that supports patients and families through the stresses imposed by illness, hospitalization, medical visits, the process of healing, and sometimes, bereavement.

Healing journey - a Veteran's healing is not limited to a particular wound or ailment but includes various transitional stages before culminating in meaningful, emotionally grounded re-integration into society. Healing activities include regimens that address a Veteran's mind, body, and spirit.

Heating, Ventilation, and Air Conditioning (HVAC) - the technology of indoor and vehicular environmental comfort. Its goal is to provide thermal comfort and acceptable indoor air quality.

High-efficiency particulate air (HEPA) - a type of air filter. Filters meeting the HEPA standard have many applications, including use in medical facilities, automobiles, aircraft and homes. The filter must satisfy certain standards of efficiency such as those set by the United States Department of Energy.

Indoor Environmental Quality - refers to the quality of a building's environment in relation to the health and well-being of those who occupy space within it. IEQ is determined by many factors, including lighting, air quality, and humidity.

Institute of Medicine (IOM) - an American non-profit, non-governmental organization whose purpose is to provide national advice on issues relating to biomedical science, medicine, and health.

Laminar Airflow (LAF) - Air moving at the same speed and in the same direction, with no or minimal cross-over of air streams or "lamina."

LEED for Healthcare (LEED-HC) - a set of rating systems designed to address the special needs of hospitals, which operate at all hours, have strict regulatory requirements, and use massive amounts of energy for their equipment.

Napalm - a mixture of a thickening/gelling agent and petroleum or a similar fuel for use in an incendiary device. It was initially used against buildings, and later was used primarily as an anti-personnel weapon that sticks to skin and causes severe burns when on fire.

Operation Enduring Freedom/Operation Iraqi Freedom/ Operation New Dawn (OEF/ OIF/OND) - the official name used by the U.S. government for the War in Afghanistan and Iraq, together with a number of smaller military actions, under the umbrella of the Global "War on Terror" (GWOT).

Office of Construction and Facilities Management (CFM) - is responsible for the planning, design, and construction of all major construction projects greater than $10 million. In addition, CFM acquires real property for use by VA elements through the purchase of land and buildings, as well as long-term lease acquisitions.

Office of Patient Centered Care & Cultural Transformation (OPCC&CT)- An agency at the Department of Veterans Affairs that is addressing patient centered issues at VA Hospitals.

Off-stage - service corridors limited to caregivers and staff and where all transport of supplies and patients occurs.

A Patient Aligned Care Team (PACT)- new model of primary care where each Veteran works together with health care professionals to plan for the whole-person care and life-long health and wellness.

Patient Centered Care model - supports active involvement of patients and their families in the design of new care models and in decision-making about individual options for treatment.

Patient-Centered Outcomes Research Institute (PCORI)- PCORI is a medical research funding organization created by Congress to afford patients more input in the guidance of medical research; see description at http://www.pcori.org.

Post-Occupancy Evaluation (POE)- A survey of occupants after they have been in the building for a period of time; in addition to the survey, additional data may be acquired and additional analysis may be performed.

Post-Traumatic Stress Disorder (PTSD) - a condition of persistent mental and emotional stress occurring as a result of injury or severe psychological shock, typically involving disturbance of sleep and constant vivid recall of the experience, with dulled or inappropriate responses to others and to the outside world.

Reserve / National Guard - a Reserve military force, composed of National Guard military members or reserve units of each state and the territories of Guam, of the Virgin Islands, and of Puerto Rico, as well as of the District of Columbia, for a total of 54 separate organizations.

Space typologies - a classification of a type of space - e.g.: inpatient rooms, outpatient clinics, cafeteria ect.

Spinal cord abscess (SCA)- is a rare condition capable of causing permanent damage to the spinal cord.

Technical Information Library (TIL) - library that contains design and construction standards for the VA.

Traumatic Brain Injury (TBI) - a non-degenerative, non-congenital insult to the brain from an external mechanical force, possibly leading to permanent or temporary impairment of cognitive, physical, and psychosocial functions, with an associated diminished or altered state of consciousness.

Universal Design Standards - broad-spectrum ideas meant to produce buildings, products and environments that are inherently accessible to older people, people without disabilities, and people with disabilities.

Veterans Health Administration (VHA) - component of the United States Department of Veterans Affairs (VA) led by the Under Secretary of Veterans Affairs for Health that implements the medical assistance program of the VA through the administration and operation of numerous VA Medical Centers (VAMC), Outpatient Clinics (OPC), Community Based Outpatient Clinics (CBOC), and VA Community Living Centers (VA Nursing Home) Programs.

Volatile Organic Compounds (VOCs) - are emitted as gases from certain solids or liquids including a variety of chemicals, some of which may have short- and long-term adverse health effects.

Wayfinding - encompasses all of the ways in which people and animals orient themselves in physical space and navigate from place to place.

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Figure 4.2.1: University of Virginia Hospital. Charlottesville, Virginia. Architect: Kahler Slater. Photo Credit: Alt Architecture and Research Associates LLC.
Figure 4.2.2: Diagram. Credit: Alt Architecture and Research Associates LLC.
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"To care for him who shall have borne the battle and for his widow and for his orphan"

—Abraham Lincoln,
Motto of the Department of Veterans Affairs
from the Second Inaugural Address, 1864

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