

# MENNO HAVEN

Rehabilitation Center



*Chambersburg, Pennsylvania*

2020 SAGE Post-Occupancy Evaluation to Explore What Works



Society for the Advancement of  
Gerontological Environments

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# Overview

The Society for the Advancement of Gerontological Environments (SAGE) has been conducting post-occupancy evaluations (POE) for more than a decade. In 2020, a post-occupancy evaluation was conducted on January 16, 2020. A presentation of the results was delivered on through the Environments for Aging Virtual Conference on June 2, 2020.

The post-occupancy evaluation was authorized by Deanna Beins, the Nursing Home Administrator for Menno Haven. The POE was conducted within the newly constructed post-acute recovery facility, a purpose-built short-term rehab on the Menno Haven Campus. Menno Haven is located in Chambersburg, Pennsylvania and is a life plan community with a range of housing and service options for older adults. While onsite, the SAGE POE team was hosted by Hugh Davis, CEO; Roger Beins, COO; and Deanna Beins.

Members of the SAGE POE site visit team included Amy Carpenter, Steve Lindsey, Kris Morphis, Lori Reynolds, Russ McLaughlin, and Keith Gray. These individuals represent a broad cross-section of expertise in long-term care, PT/OT, design for aging, codes and regulations, nursing, and operational and organizational management related to senior housing (See next page for team member information). They were also joined by Lori Bridgeman, Director of Operations for SAGE, who provided logistical coordination for the visit.





# 2020 SAGE POE Team

The 2020 SAGE POE team represented a broad cross-section of expertise in long-term care, occupational therapy, design for aging, codes and regulations, food-service design, and operational and organizational management related to senior housing.



**Amy Carpenter**  
POE Team Leader  
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SFCS Architects, Inc.



**Migette Kaup**  
POE Research Coordinator,  
Environmental Gerontologist/  
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**Kris Morphis**  
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KRM Foodservice Design



**Russell McLaughlin**  
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AG Architecture, Inc.

# IRB Research Protocols

All POE Team members completed CITI (Collaborative Institutional Training Initiative) Certification for full compliance with Federal Guidelines for Research and the use of Human Subjects in Research. An IRB application for this research POE titled “A SAGE Post-Occupancy Evaluation” was submitted to the Kansas State University of Research Compliance and approved December 29, 2018. Project #9080.

Project briefing information was sent to Menno Haven one month in advance of the site visit and distributed to provide notification about the SAGE team’s visit.

**KANSAS STATE**  
UNIVERSITY



The Society for the Advancement of Gerontological Environments (SAGE) is a nonprofit, membership-based organization whose mission is "To promote collaboration among aging services providers, design professionals, regulators, residents, researchers, manufacturers, educators, students and others interested in providing innovative and appropriate environments for older adults."

To achieve this mission, SAGE: Provides a nexus for collaboration among all disciplines involved in the development, operation, and regulation of settings for older adults; Offers educational forums that feature current research and best practices for the design of living environments; Evaluates senior living environments based on SAGE’s design principles and shares results through conferences and publications, and; Promotes regulatory change and research that supports resident-centered care.

SAGE has been conducting post-occupancy evaluations since 1999.

[www.sagefederation.org](http://www.sagefederation.org)

# Documentation/Evaluation

The SAGE POE team arrived onsite in the morning and was introduced to Menno Haven administration and the project architect. After an initial debriefing about the households, their development and current resident and staff use patterns, the team was given a walking tour. Locations of rooms as identified on the floorplan were confirmed along with information on key project goals.

During the tour, the POE team documented design features and spaces with photos and video recordings. Team members used an outline of design criteria to target observations of the presence or absence of features, details of design features, and operational issues that impact patterns of use. These attributes included both desired goals (SAGE design principles, based on research, see page 7) and architectural and interior elements that can be critical for effective use and navigation of a space (see page 8).

Team members met with different users of the space in small focus groups. Throughout the day-long process, the POE team met with a variety of stakeholders and users including guests, direct care staff, and administrators. Everyone who participated in the focus group gave their consent to participate and was provided another copy of the purpose of the. Photo releases were also obtained using the consent forms, so individuals pictured in reports and presentations have given permission for their photo to be taken, and included in the published or presented materials.





# SAGE Design Principles

## **SAGE holds the following values related to gerontological environments.**

**Physical safety and psychological security:** Provide appropriate safe guards and enhance perception of security.

**Environment as a therapeutic resource:** Utilize all aspects of the environment (physical, programmatic and organizational) as a resource for healing and improved functioning.

**Holism and well-being:** Focus on needs and desires of the whole person social, emotional, spiritual and physical, vocational and intellectual.

**Individual rights and personal autonomy:** Maximize available choices, opportunities for self determination, and accessibility of options.

**Communities and relationships:** Generate opportunities for meaningful interactions and relationships among peers, families and staff.

**Support of caregivers:** Create an environment that promotes safety, efficiency, and emotional support.

**Function enhancing technology:** Harness new technology to increase functionality of the environment.

**Creating and evaluating:** Encourage innovation, diversity of approaches, experimentation with new solutions, and systematic evaluation of outcomes.



# Architectural/Interior Elements

SAGE team members draw upon their expertise, familiarity with industry best practices, and experiences with senior living environments as they evaluate the effectiveness of the community's features that serve older adults and support staff. Many of the SAGE principles are evidenced by architectural and interior elements (see table below). The team also considers the historical context and feedback from the staff and residents as well as the interior designer's insights and perspectives.

<b>Architectural or Interior Element</b>	<b>Considerations (Selected Examples)</b>
Lighting	<i>Lighting levels, sufficient foot-candles. Control for glare.</i>
Use of Color	<i>Support for depth perception for aging eyes while maintaining residential or homelike aesthetic.</i>
Floor Coverings	<i>Support for ease of mobility while creating a soft surface to reduce potential injury from fall. Aesthetic supports a residential appeal and specification is appropriate for health care setting and required maintenance and life safety.</i>
Window Treatments	<i>Ability to adjust for different daylighting conditions (controlling glare). Aesthetic supports a residential appeal and specification is appropriate for health care setting and required maintenance and life safety.</i>
Acoustical Treatments	<i>Spatial volumes and potential sound transmission between private spaces is effectively designed to reduce negative stimulation and protect privacy.</i>
Circulation Patterns	<i>Movement through the space is supported by spatial layout and features that support autonomy in navigation and stamina (landmarks for reminders, handrails for support).</i>
Fixed Furnishings & Equipment	<i>Furnishings are supportive of frail adults. Aesthetic supports a residential appeal and specification is appropriate for health care setting and required maintenance and life safety.</i>
Moveable Furnishings & Equipment	<i>Furnishings are supportive of frail adults. Aesthetic supports a residential appeal and specification is appropriate for health care setting and required maintenance and life safety.</i>

*Elements of the physical environment that contribute to the goals for a therapeutic environment for residents and a supportive work environment for staff.*



# The Setting



**Jay Weingarten, AIA, WELL AP**

Menno Haven Rehabilitation Center was an Honorable Mention Winner in the 2018 Environments for Aging (EFA) magazine Design Showcase. Jay Weingarten, lead architect and partner with RDG Planning & Design, met with the SAGE POE team to share planning and design decisions, as well as discuss constraints and challenges that impacted the final project outcomes.

Menno Haven had an initial goal of replacing a 152 bed nursing home by creating a “home” for those needing long-term care, plus a separate short-term post-acute facility in two distinct environments. This POE focused on the short-term post-acute facility.

This newly constructed building occupies over 47,000 sq. ft. and cost \$11.6 million (approximately \$247/ sq. ft.). The post-acute facility has 44 all private rooms with en-suite full baths. The building is licensed as skilled nursing.

The single-story building is laid out in a long rectangular formation that loops a central open-air courtyard (see floorplan, next page). The main public entrance is on the northeast side of the building. This is also the location of administrative functions as well as the therapy gym, spa, salon, and other public social spaces. A medical office suite, leased to an outside provider, is also accessed through the main entrance.

Guest suites extend down the two hallways on the northwest and southeast edges, with 22 private guest suites on each wing. These two hallways connect to the southwest side of the building where the bistro and culinary kitchen are located. Behind the kitchen is the loading area, where all food deliveries to the campus arrive and a smaller, refrigerated truck makes deliveries to other food service locations on campus.



# THE SETTING

continued



The process for planning the project involved a substantial amount of time listening to the stakeholders, which represented a variety of users. The leadership was committed to developing a legitimate shift in the health care continuum to provide high quality post-acute care that would reposition Menno Haven in the community. They recognized that in order to accomplish this, the building, the team, and the function needed to be able to readily adapt. The POE team was impressed with the intentional process to inform the design.

# Design Objectives

The EFA Design Showcase awards submission package provided by RDG and Menno Haven identified three primary objectives for the project. These design objectives were summarized into three general goals (see boxed insert). In addition, the planning team adopted WELL Building Standards as a supplemental objective for the project outcomes. Becoming WELL Certified is a big part of the story and makes this project unique.

## **GOAL 1 - Create a distinct environment that is NOT home.**

Create a first impression that changes public perception of senior living.  
Provide modern details, vibrant colors, plant life and natural materials, along with high ceilings.

## **GOAL 2- Design guest suites (patients' primary environment) to reinforce healthy sleep patterns, speed up recovery times, and reduce dependency on artificial light.**

Guest suites are designed to transition guests from a hospital to home as effectively as possible by incorporating research-based features such as concealed medical equipment, abundant natural light, views of nature, and natural materials.

## **GOAL 3- Integrate a culinary production center of excellence (Culinary Kitchen) that is producing tomorrow's food for the community without impacting the quality of life for guests in this building.**





# Observations

Using the criteria for goals and environmental features, the POE team identified distinct features and supporting practices that had notable outcomes. These are summarized as they relate to each of the design goals (page 11). Specific attributes for each of these assets as well as opportunities to enhance the experience of these features are highlighted below.



## DESIGN GOAL ONE

### **Create a distinct environment that is NOT home.**

This design goal relates to the SAGE Principle for **Creating and Evaluating**: encourage innovation, diversity of approaches, experimentation with new solutions, and systematic evaluation of outcomes.

Menno Haven CEO Hugh Davis said he wanted this building, which sits at the edge of the campus, along a main road, to set a new image for the campus. This building would signal a new direction for the campus, a more modern look that communicates that this isn't the same Menno Haven from the past. In addition, there was to be no confusion that this building is for anything but a temporary stay. For that reason, they sought a more resort-style look. Davis said he initially pictured a rustic mountain lodge. When he first saw the renderings of the building Davis said, "I thought it looked like a spaceship!" However, he quickly understood why this shift to modern design was needed and agreed that the building would not be confused with home.

Even the language the staff uses is intentionally designed to not be confused with home. The people coming to the building for therapy are "guests," not residents. Their rooms are "guest suites." Where they eat all their meals is not the dining room, but the "Bistro." All of the staff wear scrubs, and the different color shirts differentiate their role -- therapy, nursing staff, or housekeeping.





# DESIGN GOAL ONE

continued



The POE team noted that from the first moment you enter the building, it is evident that the environment is welcoming, but not intended to reflect a residential experience. One POE team member noted that the atmosphere gives a sense of a hotel that offers health services or a modern medical spa; not a place to live, but a place to recover.

Other features in the public spaces include high ceilings that allow for expansive glazing that provide views and bring in natural lighting. The interior details of the lobby include controllable window coverings and furniture with seat heights to support ease in rising out of the chairs. Vibrant colors are integrated through a diverse material palette and are carefully balanced with other neutrals so as to not overwhelm the visual field.

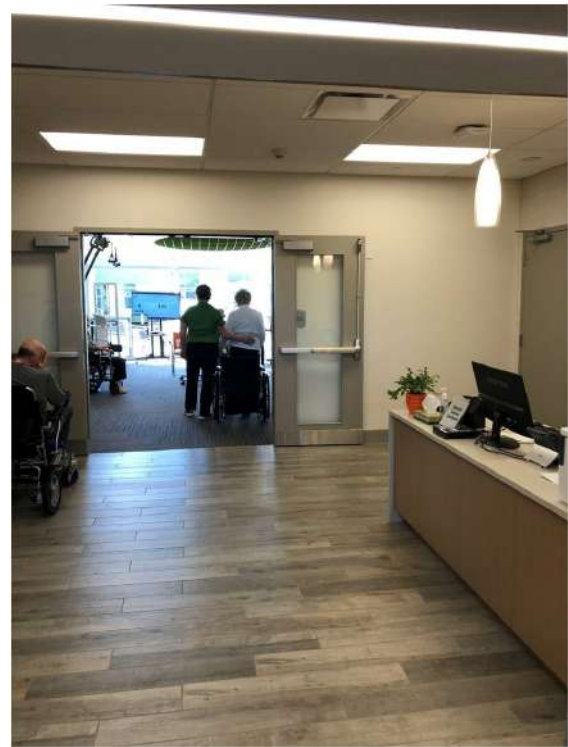






# DESIGN GOAL ONE

continued



Therapy space. The entrance to therapy space and spa are prominently located at the main entrance to reinforce the goals of recovery and wellness. A physician practice is onsite and also located at the main entrance to encourage community use. Beins noted that having the doctor's offices in the building allows for good word-of-mouth advertising for the rehab space.



Location of on-site physician practice.







# DESIGN GOAL ONE

continued



Therapy space was carefully programmed but the staff noted that the gym could have been larger. In the initial planning stages regulations had lower square footage limitations for group therapy. This changed mid-construction, and Menno Haven's outpatient volumes have been higher than anticipated (this has also created a bit of a problem with parking). The staff has managed the spatial challenges by choreographing the flow of the room including designating doors as "enter" or "exit" only and conducting some therapy in the guest suites.

From a programming perspective, the therapists mentioned that charting rooms are no longer necessary as they use mobile devices.

The therapy space incorporates both PT and OT. Specialized physical therapy equipment includes an AlterG treadmill that reduces gravitational load to ease weight on joints and help lessen pain. "VirtuSense" equipment views a user's movement and compares their performance against a national database to detail fall risks and changes in gait. With these therapy services, Menno Haven can screen rehabilitation-center guests as well as campus residents and assist them in planning the right living environment for their current and future needs.



The flooring transition from the lobby into the therapy space where the materials change from vinyl plank to ceramic tile creates a "bump" that guests recognize they need to look out for. They noted that, "the staff warn you."



# DESIGN GOAL ONE

continued



Other areas of the space include features that would be found in the home and community including steps, approaches to front doors, kitchens, and laundry spaces.

The therapy gym opens onto a therapy courtyard that also presents guests with features that simulate real-world conditions such as curbs, steps, grass, gravel, and surfaces that have variations. Different surface materials help guests strengthen their stability and gait. It was noted that the contrasts between some of the paving materials could have been stronger to increase visual acuity and depth perception as well as reduce glare.



Therapists commented that they really enjoy using these spaces with guests during nice weather. The courtyard is subject to the seasonal aspects of the region and during the POE team's visit it was winter, but one observation from the team was that there were minimal planted areas and no shaded spaces.





# DESIGN GOAL ONE

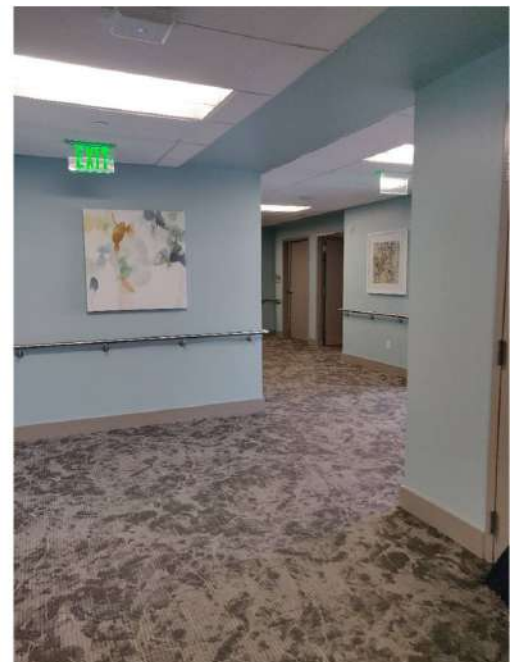
continued



*Different surface materials in the the therapy courtyard.*

## **Circulation and wayfinding**

The hallways off the guest suites are referred to as “neighborhoods” and are named Garden Way and Costal Way. Textures, patterns, lighting, and artwork were used to create interest in corridor spaces. A guest commented that the “flow of the building is good, you touch base with different things on the way around the circle. You have variety.” The team observed, however, that although the halls were differentiated by color, they are fairly non-descript as the colors (light green and light blue) are in the same value range and other artwork placed on the walls is not thematic or distinctive to the neighborhood. More contrast between locations or notable features placed at decision points along the hallway could improve orientation and wayfinding.







# THERAPY PERSPECTIVE



**Lori Reynolds, PhD, OTR/L**

Assistant Professor  
Northern Arizona University  
Occupational Therapy Program



Upon walking into Menno Haven you are welcomed with an abundance of natural light that almost instantly elevates your mood. This daylight and connection with the surrounding landscape is provided throughout the building and from each guest room, with a wall of windows in the therapy gym overlooking an outdoor courtyard. These features have been well-documented therapeutic benefit in reducing stress and depression which can often accompany recovery from illness and injury. This aids the traditional, medical model therapy process of restoration of client's performance in daily activities.

In addition to providing a connection with nature, the outdoor courtyard, off the therapy gym, includes steps, inclines, and uneven surfaces to simulate elements found in the community. These elements are beneficial to restoration of clients' community mobility skills. As is often the case with outdoor spaces incorporated into the design of healthcare facilities, they not only benefit patients but the staff as well. Staff of Menno Haven reported enjoyment of using the outdoor space for breaks and lunchtime.

While Menno Haven can be applauded for having an outdoor courtyard for staff and guests, the space would be more therapeutic if it had more greenery and less concrete and hard surfaces. In addition, areas of shade are needed and would benefit therapy occurring outdoors during times of direct sunlight. Staff note that areas for solitude and reflection are not provided in the interior. This could have been a beneficial and therapeutic element to have designed within the outdoor courtyard.

The wall of windows in the therapy gym also provides a connection with outdoors that has evidence-based benefits of not only promoting well-being but exercise as well. In addition to the therapeutic benefit of a connection with nature, the therapy gym has additional elements that promote restoration in performance of daily activities.



# THERAPY PERSPECTIVE

continued

The therapy gym has a full-size functioning kitchen and steps with a doorway simulating a home's entrance. The kitchen allows occupational therapists to help clients restore needed skills for their return home. Steps with a doorway helps therapists ensure clients have the skills needed to safely access their home. The fully accessible private baths in each of the client's rooms, also provide an environment conducive for therapy to help clients restore skills in basic self-care activities.



While therapy gyms in skilled rehab centers are similarly equipped, the therapy gym in Menno Haven has the addition of a unique therapy tool called VirtuSense. This technology assesses a client's fall risk and provides individualized therapeutic strategies to reduce that risk. This is not only beneficial to therapy clients returning home, but Menno Haven uses the VirtuSense as a prevention tool for residents in independent and assisted living on their campus. With the high rate of falls among older adults, this is a beneficial tool to promote the health and well-being of residents of Menno Haven.

The rehab director reported that the VirtuSense and the Alter-G, a piece of equipment for mobility training, have been beneficial in their marketing to outpatient clients. A testament to the quality of therapy being provided, within a unique therapeutic environment, is that the therapy department has almost outgrown its space, seeing approximately 60 clients a day!





# DESIGN GOAL TWO

**Design guest suites (patients' primary environment) to reinforce healthy sleep patterns, speed up recovery times, and reduce dependency on artificial light.**

The design goal relates to the SAGE Principle for Environment as a Therapeutic Resource: utilize all aspects of the environment (physical, programmatic, and organizational) as a resource for health and improved functioning. As well as the principle of Holism and well-being: focus on needs and desires of the who person social, emotional, spiritual, and physical, vocational and intellectual.

**Guest suites are designed to transition guests from a hospital to home as effectively as possible by incorporating research-based features such as concealed medical equipment, abundant natural light, views of nature, and natural materials.**

This aspect of Design Goal Two relates to the SAGE Principle for Function Enhancing Technology: harness new technology to increase functionality of the environment.



Individual guest rooms are designed with a standard configuration that is mirrored to share a plumbing and headwall wherever possible. The exterior wall of each room has a clerestory window with frosted glass for natural light, and a tall window that extends about six inches from the ceiling down to approximately 18 inches above the finished floor for views to the outdoors. This window is fitted with a roller shade to allow the occupant to control privacy.

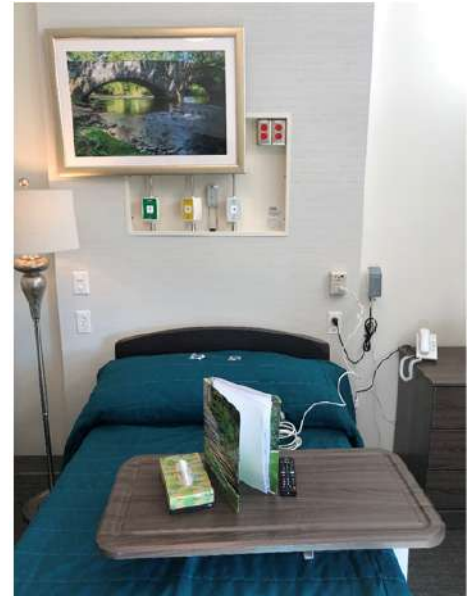
This configuration addresses the goal of decreasing the need for artificial light and reinforcing the natural patterns of the sun, which support circadian rhythms and good sleep hygiene. One guest commented, "It was so bright and sunny, today, it lit up my room even without raising the shade." While natural light levels are satisfactory, because the window configuration did not mirror like the room arrangement did, uneven task lighting configurations are created. For example, guests with the tall, vision window at the desk had ample task lighting, but those with the high window wished they had a desk lamp so they could see better. Likewise, those with the high window at the recliner felt the floor lamp did not provide enough light to be able to read. Another lighting detail noted by staff is the challenge for guests to access the lighting controls when they were lying in bed.





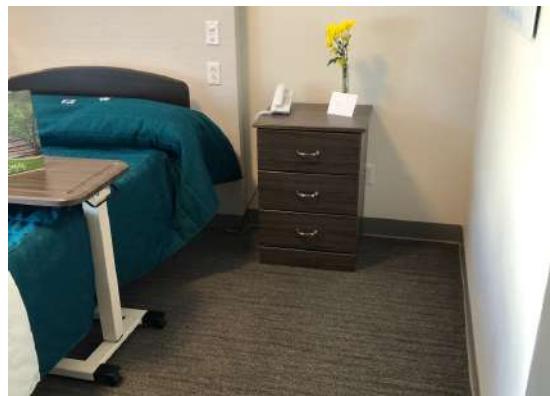
# DESIGN GOAL TWO

continued



Special features of the room include the integration of medical gas and suction into a headwall that is concealed by a framed picture. This equipment allows for flexibly to handle more complex recovery cases. The administrators at Menno Haven anticipate that there will be an increase in acuity and having each room set up in this fashion will allow for more complete care. The leadership team intentionally hired staff to maintain this flexibility. The Director of Nursing has ventilator experience and the medical director is a “hospitalist.” Menno Haven can now keep guests in the building for many routine things, like EKGs, cardiac monitoring, and starting an IV. In fact, they are already seeing a benefit. In the previous building, they averaged 6-8 hospital re-admissions per month. Now, in this building, they have had only one in their entire first year of operation, and that was the guest’s choice to go back.

Other specialized equipment are pads (called “Early Sense”) that can be placed under the mattress to detect and monitor heart and respiration rates and guest movement during the night. This significantly reduces the need for staff to disrupt sleep during the night to document and record vitals.





# DESIGN GOAL TWO

continued

Material choices in the guest suites included carpeted floors in the sleeping areas, painted walls, and ceilings. A careful balance of pattern and texture against soft neutrals and solid colors add visual interest and contrast. Attention to small details reinforces the experience of being hosted at a nice hotel, like having fresh flowers in the room and chocolates on the pillows. One guest noted, "When you are ill, your surroundings really matter."



All of the guests the team spoke with complained about the "stiff recliners" and noted that they couldn't sit in them for too long. One person noted, "my backside needs a rest after sitting in that chair!" In addition, another guest complained that the oxygen tubes kept getting caught in the gaps of the leg rest.

One detail that could be more age friendly for rehabilitation are the "theft-proof" hangers. These are common in hotels but more difficult for some to use especially when recovering from arm or shoulder surgery. Regular hangers would be a better option for rehabilitation, as this is what people have in their homes.



# DESIGN GOAL TWO

continued



Materials in the bathrooms in the guest suites are also a strategic blend of materials with different patterns and textures contrasting solid fields for visual distinction. Other functional features that staff is very grateful for are drop down grab bars that can fold flat against the wall if they were not in use. These also have a nylon-coated finishes, versus the standard metal finish, which is warmer to the touch and more aesthetically appealing for the hospitality-based décor. The mirrors also swivel, which provide flexibility in the viewing angle from seated to standing positions.



The showers are designed to be ADA compliant and are equipped with a sturdy, folding seat and there is a rubber dam at the front edge to help keep water from extending past the enclosure. One feature that is inconvenient from staff is the placement of the water controls. Located at the back of the shower behind a wing wall, the reach is too far for staff to assist a guest during the bathing process. This is a common current challenge that can be addressed through a waiver to request alternate placement. New codes coming in 2021 will allow for alternate placement for assisted showering.



Another supportive feature of the bathroom is the night lighting that provides a soft amber glow that allows for a low-level ambient light for navigation and is best for not disturbing sleep.





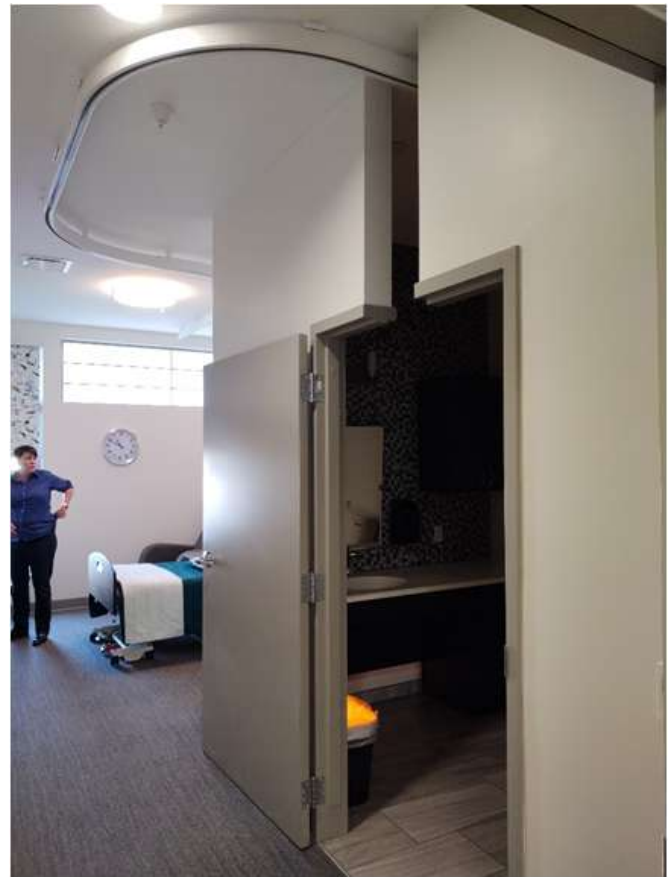


# DESIGN GOAL TWO

continued

The building design includes one negative pressure room for infection control and four rooms that have additional features for individuals of size. These rooms are the same square footage as the other guest rooms, but are equipped with a ceiling lift system that can transfer a guest from the bed to the bathroom. Maneuvering around the bed in this room was noted as a challenge for a larger guest. It might be a better option to add square footage to rooms designed to serve these needs.

Another configuration difference in these special rooms is the use of a swinging door versus the barn door for the bathroom. This is necessary to accommodate the ceiling lift. One of the guests who stayed in this style of room said that he had difficulty using the door so he often left it open, but then there was a clear view from the hallway into the bathroom (which is not desirable). Options could have been to hinge the door on the other side, and deal with the conflicting management of the hallway door, or using a bi-parting barn door.





# DESIGN GOAL TWO

continued



Each hallway of guest suites has a semi-public living room located about halfway down the corridor. This is designed to be a casual gathering space for guests and their visitors. This is another area where a strategic use of natural light has been introduced to keep the interior hallway space from feeling dark and disconnected from the outside.

Each of these living rooms spaces is equipped with a wet bar, a fireplace, and a large TV making it a destination location. One guest noted, "I don't feel like I have to spend time in my room by myself, I can go out and visit or get hot chocolate. I like that I can have family come in and eat with me or visit in the living rooms."



*Living room location*



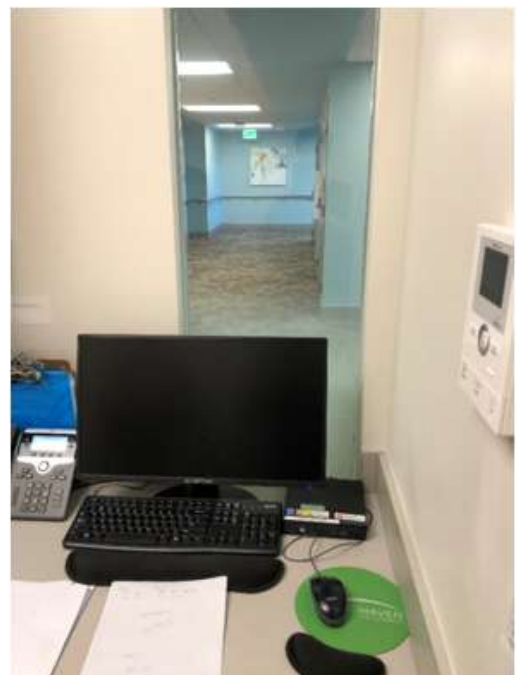


# DESIGN GOAL TWO

continued

Also located in the center of each neighborhood hallway is a cluster of staff spaces. This clinical hub provides staff with a team room, med room, and equipment storage. The team rooms are called Care Bases (not nursing stations) to keep with their intentional use of design and language that supports a different model of care. Features of the Care Base are a small alcove open to the corridor with a small (closet sized) room adjacent for making private calls to assure compliance with HIPPA requirements. Each Care Base has a panic button that can quickly lock down all of the doors in the event of an emergency such as an active shooter.

The Department of Health required the addition of a window at the care base so that staff could see the med room door from that space. Staff later came back and added a frosted film to the lower half of the window to obscure the view of the knee space below the desk.







# DESIGN GOAL TWO

continued

Because a med room is centrally located on each of the neighborhoods, there is no need for medication carts. Guest medications are sorted and stored in bins within the med room and staff administer medications and treatments in the guest suite. Staff mentioned that the under-counter refrigerator location was not ergonomically supportive and didn't provide quite enough storage space. There is an "overflow" room in the back of house area with a larger refrigerator and a back-up supply of medications but this is not central to work flow.

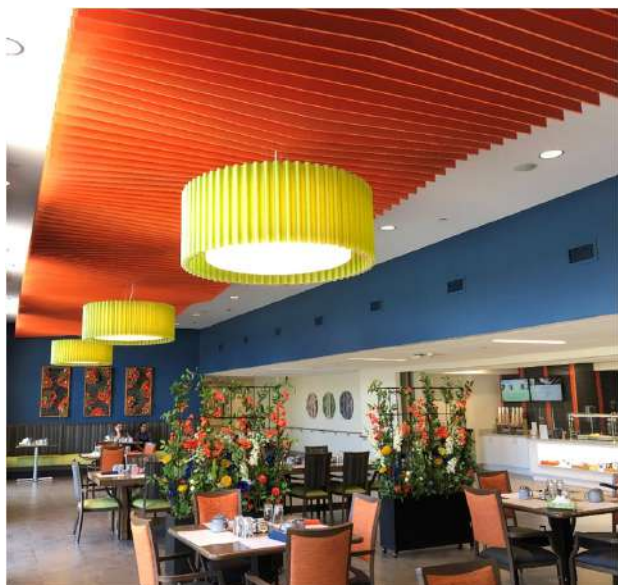
Equipment alcoves are dispersed around the building for quick storage of mobility devices, lifts, or other needed equipment. This keeps the hallways free of obstacles and, provides staff with fast access to lifts, which reduces the incidences of staff injury. These spaces are also designed to provide charging stations and standing desks where staff can quickly "touch down" and chart.





# DESIGN GOAL TWO

continued



**Dining.** The neighborhoods are connected at the far end of the building by the Bistro. The dining room opens onto the central courtyard and also brings in an abundance of natural light.

However, after the facility opened, it became clear that there was an acoustic challenge with the open kitchen design and large open dining space. To help solve the problem, the designers incorporated a striking baffled ceiling treatment in vibrant orange that compliments the color scheme. The light fixtures were also wrapped in an acoustical baffle to absorb sound. The team observed that decibel levels were still a little high for the space and additional acoustical applications (e.g. wall panels) might be helpful.



The team was impressed with the variety of seating options for the guests. The long common table is a popular location, as are the banquette. The individual tables are also available for those who want less social interaction. Staff said that visitors enjoyed eating here with guests and at times there weren't enough seats to accommodate everyone. The team talked with the staff about the option of eliminating the faux flower planters in the center of the space and adding another common table if accommodating more people continued to be an issue.



When the weather allows, guests and visitors can sit outside in the adjacent dining courtyard. This space is graciously laid out to support passive enjoyment of the outdoor space including the incorporation of water features. A guest commented, "The water is really nice. The pools and lilies and carp are worthwhile." As with the therapy courtyard, the lack of shading was noted. Another comment from a guest was, "I can't get too much sun and there is not shade, so it limits the time I can be outside."





# DESIGN GOAL THREE

**Integrate a culinary production center of excellence (Culinary Kitchen) that is producing tomorrow's food for the community without impacting the quality of life for guests in this building.**

This design goal relates to the SAGE Principle for Creating and Evaluating: Encourage innovation, diversity of approaches, experimentation with new solutions and systematic evaluation of outcomes.



Above: Food ready for campus distribution.

Below: A box truck delivers food to campus dining locations.

A large part of the Menno Haven campus master plan was to streamline and consolidate the food service operations. Instead of operating full kitchens in multiple locations on campus, the leadership and design team determined that it made the most sense to locate the new central kitchen in this new building. The rehabilitation center is located at the edge of the campus, along a main road, which makes access for delivery trucks easier. Having all food deliveries come to this building also removes a great deal of truck traffic through the rest of the campus, improving safety and reducing environmental noise.

Each satellite prep kitchen prepares a menu for the week and a “grocery list” of supplies. The Central production kitchen does all the prep and delivers meals and supplies once a day to each satellite location in a refrigerated box truck, purchased by the campus for this purpose. This reduces the amount of food storage space and equipment needed at each satellite location.





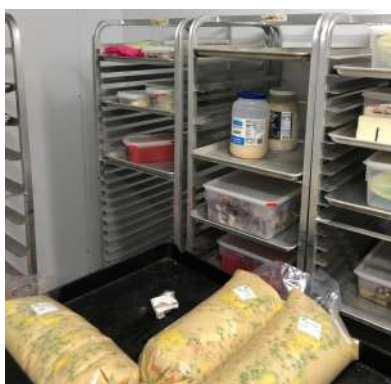


# DESIGN GOAL THREE

continued

By centralizing the production of all food in the main kitchen, Menno Haven has been able to standardize the food quality and menu across all levels of care. Less skilled staff can be utilized at each dining location as most of the preparation has already been done for them. Utilizing a Sous Vide process (see page 31 for more information) food is completely cooked, then frozen in the main kitchen. Staff in the satellite kitchens can “re-therm” the item, using specialized ovens that have pre-programmed settings, making it quick and easy for them. All prep work, like dicing onions, is also done in the main kitchen using a special piece of equipment that can be operated by a less-skilled worker rather than a fully trained chef.

Menno Haven has been able to reduce their total FTEs in the culinary department by three people by consolidating production in this way. In addition, because of the improved efficiency of the central kitchen, and less reliance on trained chefs at each dining location, the kitchen staff only works eight-hour shifts, Monday through Friday. This has greatly improved the quality of life for the kitchen staff and has reduced turnover significantly.



Streamlined food service operations have resulted in cost savings and consistent food quality across the Menno Haven campus.



# CULINARY PERSPECTIVE



**Kris Morphis**

President

KRM Foodservice Design

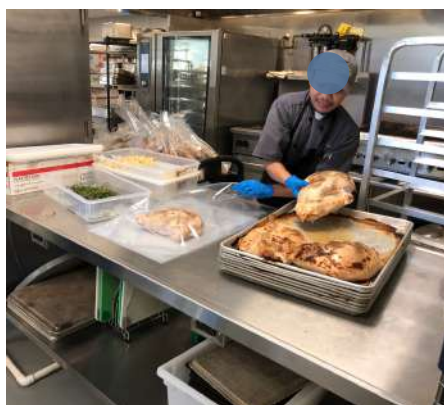
As an expert food and dining consultant, my role on the 2020 SAGE POE team was to focus on the new food service operation at Menno Haven. I had the opportunity to meet with food service staff as well as guests in the rehab center to learn how the culinary center was meeting the goals set in the original building program.

The goals for the food service operation set forth by Menno Haven were the following:

- Change public perception of skilled nursing care
- Create a dining room that promotes health by reducing reliance on artificial light and helps support speedy recovery by promoting healthy eating.
- Create a Culinary Center for Excellence



Menno Haven designed a new rehabilitation center with a full-service kitchen that would provide three meals a day, seven days a week to guests, staff, and community members. The kitchen also delivers food to remote warming kitchens located in other buildings on campus. Grab-n-go, pre-prepared snacks are available to guests 24 hours a day.



The central kitchen is approximately 4,400 square feet and is located on the backside of the newly constructed building, opposite from the main public entrance. This is ideal for deliveries to arrive at the rear of the building without interruption to guests. This location also helps with food distribution and transport to other facilities on the campus. This new kitchen (at the rehab center) has space for the bulk storage which provides central supplies. This eliminates the need for large drop deliveries at other facilities. The bulk storage capacity is more than adequate for the scheduled three deliveries a week to meet the meal count for the entire campus. The culinary staff uses CBORD software system to control and communicate all efficiencies and food ordering within all kitchens on campus.



Sous-Vide is a big part of the efficient and quality meal prep at the central kitchen. A one-of-a-kind large Sous-Vide bath was purchased and installed. There are many benefits to sous-vide cooking: reduced risk of contamination, healthier cooking, enhanced flavors, and is great for bulk cooking. The food runs through the sous vide bath after being prepped and placed in an airtight bag. The food is uncooked before being vacuum sealed.





# CULINARY PERSPECTIVE

continued



The sous-vide bath cooks several chickens at a time.

Sous-Vide is a very versatile way of cooking a wide range of proteins and vegetables. The process of sous-vide is using precise temperature control of the water bath and the bath temperature is the same as the target cooking temperature, which enables a very precise control of cooking. The temperature of the sous-vide bath varies depending on the product. The food is cooked evenly throughout and lessens the breakdown of the cellular tissue of plants and keeps the juices within the protein. If desired, proteins can be thrown on the grill for a short amount of time after completion to get the chargrill flavor.



Food is vacuum sealed for sous-vide preparation.

With conventional cooking, the food is cooked at higher temperatures than the desired interior temperature and is removed from the heat, therefore not always getting the proper or perfect temperatures. Sous-vide can sometimes stay in the lower temperature water bath for 24-72 hours to get the desired interior temperature. The food product is then frozen for storage and to be rethermalized later in combi-ovens. Other kitchen cooking equipment includes cooktop ranges, a large kettle, convection oven, and tilt skillet. The culinary staff is completely satisfied with the decision at design to go this route, as it provides the best product for the residents.



Guests and their visitors can order food in the Bistro.

Menno Haven employs a full-time dietician who works with culinary team on nutrition, allergens, and special diets. This is extremely important for the guests in rehab in support of a speedy recovery, not just from physical therapy but through taking care of what is being put in their body to enhance the wellbeing of the resident. Meal plans are included as part of the Menno Haven room and board charges. Visitors who come to see guests can purchase meals and a la carte options that are available through a point of sale register at the open serving area. This space is connected to the large dining room with floor to ceiling windows that opens up to the beautiful courtyard where guests and their visitors can dine together.



# WELL Building Standard

As the planning process was implemented, the desire to incorporate WELL building standards as an overlay became another way to demonstrate the objectives of what the leadership team wanted to accomplish. This building type proved to challenge some of the assumptions in the WELL standards, however, and RDG had to help the administrators of the WELL program understand the context of post-acute recovery and the therapeutic nature of specific design ideas. For example, WELL requires that all bedrooms be painted in dark colors to promote more restful sleep. The RDG team had to explain that the guest rooms are more than just sleeping spaces; they also provide important therapeutic space during the day when guests need appropriate stimulation for other activities. In addition, the light reflectance value (LRV) of the wall color had been specifically selected to work with available natural light to reduce the reliance on artificial lighting.

In the end, WELL and RDG created a custom scorecard that worked for skilled nursing. As a result, Menno Haven is the first WELL Certified senior living project in the world. WELL also made modifications to their Version 2.0 that incorporated many of the concepts used in the project including air, water, food, biophilic, and other details.

## THE WELL BUILDING STANDARD™

### SEVEN CONCEPTS FOR HEALTHIER BUILDINGS



2017 © INTERNATIONAL WELL BUILDING INSTITUTE PBC

**AIR:** Indoor air quality is closely monitored through procedures and documentation to comply with the WELL standards. For example in cleaning, no scented hand soaps are permissible, only approved chemicals can be used for housekeeping and microfiber cloths, and mop heads must meet detailed specifications. Vacuuming of all areas is expected twice a day, and custodial staff are trained to run the machines in multiple directions. High touch areas must be wiped down at least twice a day. Every cleaning procedure must be documented and submitted to WELL on a quarterly basis to maintain certification.



# WELL STANDARD

continued

Air filters on every air handler have to be replaced quarterly, and the coils inspected and photographed to ensure that there is no mold growth. Menno Haven has 96 air handlers in their new building, and they estimate that this has added .5 FTE to their staffing loads.

The maintenance and housekeeping staff acknowledged that the added work of the regular documentation can be frustrating. However, the housekeeper who spoke with the team said that even if she was not required to follow all of the WELL requirements, she would still absolutely use some of the techniques. She specifically mentioned the mopping protocols, which use a container of cleaning solution instead of a mop bucket because it works much better.

One of the guests, who was on his second stay in the facility, noted that he was very positively impacted by the air quality. "I have asthma, and I breathe so much better when I'm here. They must clean the air in here." He reported that his oxygen level readings improved greatly.

**WATER:** The municipal water supplied to the site didn't meet WELL standards so a whole-building water filter had to be added. Each piece of equipment that uses potable water (like ice and coffee makers) must also have its own water filter, in order to maintain the equipment warranty. The results in double filtration. This step can be frustrating, but the coffee tastes great!

**FOOD:** The menu design and the delivery of food is specifically designed to promote healthy eating habits. All menus contain information on the specific nutritional attributes of items including things like calories, fat content, sodium levels, carbohydrates, nitrates, and allergens. Entrees and side dishes that are served campus wide have been developed to reduce sugar content, and portion sizes follow USDA guidelines. Soda is served in small, eight-ounce cans. There is nothing preventing guests from taking more than one can, but the staff and guests both said most don't, and feel satisfied after just one.



Guests notice the high air quality.



The double filtered water is delicious!



Nutrition information is listed on the menu.



# WELL STANDARD

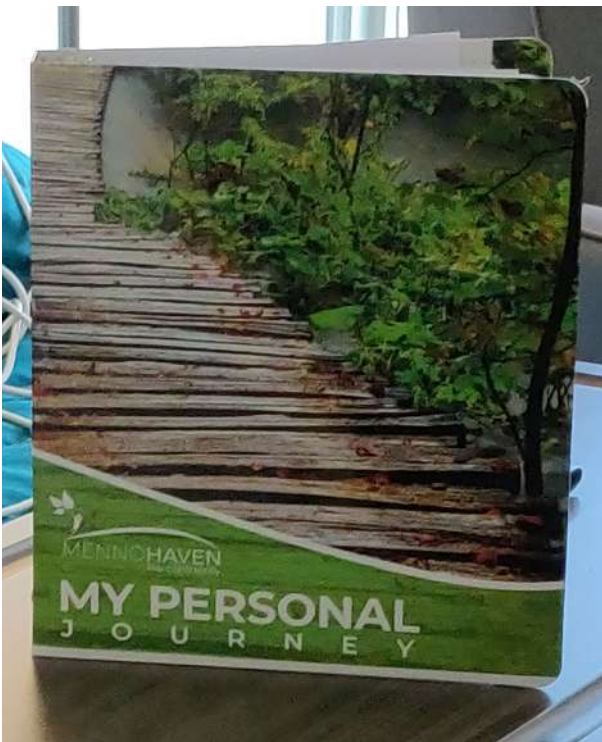
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Fruit and healthy snack items are displayed at point-of-sale locations. Items that are “less healthy” like ice cream and chips can still be purchased, but they are not listed in the menus and are not located in high profile places. Guests reported that they really enjoy the food, but confessed that they don’t pay a lot of attention to the content information provided on the menus.



Live greenery can be found through the rehabilitation center.

**MIND:** Biophilia is another requirement for WELL certification as part of the “Mind” category. Research has demonstrated that engagement with nature reduces stress and improves health. In addition to good views to the outside through an abundant use of large windows, RDG brought nature inside the building. The design team used a combination of live and artificial plantings throughout the spaces. The live greenery has been more successful. Artificial foliage incorporated into artwork creates visual interest, but staff is less enthusiastic about the planters in the dining room with artificial arrangements.



Each guest is given an educational binder and journal upon check in.

**EDUCATION:** Informing individuals about strategies for living well and being well are also a component of certification. In addition to the nutritional information on menus, Menno Haven provides a binder for each guest that explains all the features of the building, the health benefits, and the intention behind the design. It also gives information about fitness and stress relief.

**TESTING AND COMPLIANCE:** In order to be certified, several tests were completed once the building was ready to be occupied. These included air and water quality, radon, noise, and thermal comfort. When asked how they viewed the value and impact of being a WELL certified building, staff answered that they absolutely follow the guidelines because they see the value and the impact, but the additional expense and paperwork of continual reporting is burdensome and they do not recommend that future buildings make full WELL certification a priority.





# WELL PERSPECTIVE



**Deanna Beins, NHA**

Administrator

Menno Haven Rehabilitation Center

## **How has the Rehabilitation Center fared with COVID-19?**

The Menno Haven Rehabilitation Center has been very fortunate during this season of COVID. Since March 1st (through September 30th), we have had 294 admissions from various referral sources and to date, remain COVID naïve.

Menno Haven as a whole (Independent Living, Personal Care, Memory Homes, Skilled Care) has had 27 cases – mostly team members sprinkled with a few residents from various levels of living. Only one has experienced symptoms.

## **Did any guests, testing positive for COVID, come over from other parts of the campus?**

No. Menno Haven created a COVID unit in an unoccupied wing of its largest healthcare centers. Residents from other parts of Menno Haven isolated within that specified unit.

## **Did you receive any guests recovering from the virus, coming out of the hospital?**

No

## **We know that you have one airborne isolation room. Was that effective?**

Again, to date, we remain COVID naïve. We have utilized that room for other isolation purposes and we believe it has served us well. To date, we have not needed to create any “makeshift” isolation rooms within the Rehabilitation Center.

## **Do you think the WELL Building standards, particularly the cleaning protocols and air filtration made a difference for your ability to handle COVID?**

Definitely! I felt our team was ahead of the curve outlined by Department of Health because of the WELL cleaning protocols – we were already doing it! So amid the stressors of all the changing guidance, our environmental services team continued with “business as usual.” I believe everyone in the building feels more confident knowing our air filtration system was already designed with UV lights to treat our air supply. Our maintenance team has been diligent in changing the filters as required.

## **Additional thoughts/comments:**

I believe the benefits of WELL Building have been a blessing to each of us who work or heal in the Rehab Center’s environment. Our guests must quarantine in their suites for 14 days... How sad that these folks are experiencing a fragile health situation, distanced from their loved ones, and cannot even leave their suite for 14 days! We take some solace in knowing our guests are in a healthy environment, being offered the best nutrition, drinking the purest water while working with a great rehab team. We are thankful for the opportunity to experience our Menno Haven Rehabilitation Center especially during this time of uncertainty.

# Concluding Thoughts

The POE team heard many positive comments about the experience of being at Menno Haven and the impact that the design has on human wellbeing. One guest noted, “Fabulous place, rooms are well designed, and comfortable, relaxing. There are items of interest everywhere you look.” There is a sense of great pride that a building of such high caliber is located in their community. It makes the guests and their families feel special. The popularity of the services has created the unintended consequence of a crowded therapy gym, but the staff said they make it work.

Staff also expressed a great sense of pride in their place of work. They said the building provides a “WOW” experience for their guests and contributes to healing by instilling a sense of hope and optimism. The design and services provided at Menno Haven are changing the perceptions of what it means to receive skilled care. They noticed that a lot more families come to visit in this building. They feel the openness of the dining room is a really positive feature. One staff member said, “The sense of community that has quickly formed in the building is great. It is easier to come to work when it is bright and cheery. Even the water tastes better.”



The work environment is supportive of staff needs. Therapists love having private rooms and the en-suite bathroom where they can work with their guests on recovery. They did point out some details that they would change in a future design including adding a space to the care bases for private phone calls and conversations, but the standing desks are very popular. They noted that the access to outdoors for staff and residents is great, but they wished there were automatic openers on the courtyard doors to give residents easier access. They appreciate the attention to the acoustic environment. Not having a call bell system makes the environment more peaceful and quiet. So much so that they noticed how noisy the auto-locks are at night.

Other features they thought would be a good addition is a chapel / meditation room, and they noted that the large group room isn't actually large enough to for some of their important meetings.



# A Note From J+J Flooring



2018 POE Team

J+J Flooring has been a proud partner of the SAGE POE program since 2018. We have now completed three SAGE post-occupancy evaluations together: The Cottage at Cypress Cove in Ft. Myers, Fla., LivGenerations Ahwataukee in Phoenix, Ariz., and Menno Haven Rehabilitation Center in Chambersburg, Pa.



2019 POE Team

Of course many other SAGE POEs came before these. Without a doubt, they have become a critical tool in the evolution of senior living and residential care environments. The papers and webinars are valuable resources that can be referenced over and over.



2020 POE Team

Our support of the SAGE POE program has allowed the passionate and dedicated SAGE team to plan and execute its POEs with greater efficiency. In addition, SAGE has been able to utilize a broader base of expertise and choose from a wider variety of site options. This is what we hoped would happen and we have been pleased to have been part of this meaningful work.



FLOORING



# About SAGE

Founded in 1994, the Society for the Advancement of Gerontological Environments (SAGE) is a membership-based organization that represents excellence in all facets of the senior-living industry industry.

To achieve its mission, "To promote collaboration among aging services providers, design professionals, regulators, residents, researchers, manufacturers, educators, students and others interested in providing innovative and appropriate environments for older adults," SAGE:

- Provides a nexus for collaboration among all disciplines involved in the development, operation, and regulation of settings for older adults;
- Offers educational forums that feature current research and best practices for the design of living environments;
- Evaluates senior living environments based on SAGE's design principles and shares results through conferences and publications; and,
- Promotes regulatory change and research that supports resident-directed care.

SAGE members enjoy networking and design-jury opportunities, free AIA-approved monthly webinars, committee participation to advance the SAGE mission and initiatives, exclusive member discounts, and more. To learn more about the benefits of SAGE membership, visit [www.sagefederation.org](http://www.sagefederation.org).

## PRESIDENT'S MESSAGE

Since 1999 SAGE has recognized the critical importance of studying occupied environments in order to bring relevant data forward to inform new environments and problem solving. Each year our SAGE POE team visits a senior housing community to reflect on both the successes and potential failures of the built environment to support the building occupants and intended program.

With the incredible support of J+J Flooring, SAGE has been given the opportunity to vault the POE to the level of rigor found in the 2020 POE of Menno Haven Rehabilitation Center. Our SAGE multidisciplinary team has been allowed a full year to plan, visit, write, and publish this thorough and insightful white paper that has valuable information for all members of the senior living industry.

On behalf of SAGE I hope you have found this paper to be professional, thought provoking, and applicable to whichever facet of the industry you represent.

I challenge you to consider assessing your own ongoing work with the same rigor displayed in this paper. Only through continuous reflection, improvement, and use of a research-informed design process will we collectively provide innovative and appropriate environments for older adults.



**Rob Simonetti, AIA**  
Design Director  
SWBR Architects  
**SAGE President**

# Helpful Links



## **SAGE Webinar Recording:**

Notes from the Field: The 2020 SAGE  
Post-Occupancy Evaluation  
*Presented 10/27/20*



## **SAGE Webinar Recording :**

Menno Haven Sets the Standard  
Through Food Service Centralization  
*Presented 12/9/20*

**Click below to learn more about all the organizations involved in the 2020 SAGE POE.**

