



A SAGE Post-Occupancy Evaluation of the Cottage at Cypress Cove Memory and Dementia Care Households

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Overview

The **Society for the Advancement of Gerontological Environments (SAGE)** has been conducting post-occupancy evaluations for more than a decade. In 2018, a post-occupancy evaluation was conducted prior to the annual Environments for Aging (EFA) conference in order to present the results to conference attendees.

The post-occupancy evaluation (POE) was authorized by Mr. David Gray, Director of Health Services, Cypress Cove at HealthPark Florida. The POE was conducted within the newly constructed Cottage at Cypress Cove, a four-household assisted living building designed to provide services for special care dementia. Cypress Cove is located in Ft. Myers, Florida and is a life-care community. While on site the SAGE POE team was hosted by Mr. David Gray and Ms. Michelle Wasserlauf, Executive Director, at Cypress Cove.

Members of the SAGE POE team included Amy Carpenter, Migette Kaup, Teresa Whittington, Robert Soler, and Fred Worley. Keith Gray from J+J Flooring also accompanied the team. These individuals represented a broad cross-section of expertise in long-term care, dementia care, design for aging, codes and regulations, nursing, and operational and organizational management related to senior housing. David Gray with Cypress Cove and Melissa Pritchard with SFCS Architects provided onsite operational and design insights.



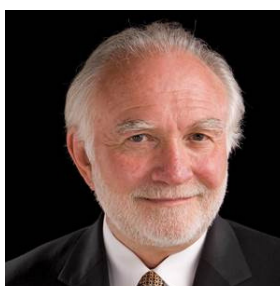


2018 SAGE POE Team



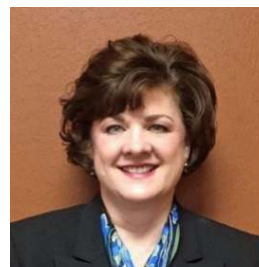
Amy Carpenter: POE Team Leader, Architect Specializing in Senior Living, SFCS Architects, Inc.

Migette Kaup: Research Coordinator, Environmental Gerontologist/ Interior Designer/ Educator, Kansas State University



Keith Gray: Director of Applied Research, J+J Flooring Group

Teresa Whittington: RN, Dementia Specialist



Robert Soler: Lighting/ Circadian Rhythm Specialist, BIOS: Biological Innovation & Optimization Systems

Fred Worley: Regulatory Expert, Retired, Former Regulatory Official with the State of Texas; Member of the NFPA Technical Committee





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: Cypress Cove Memory Care Assisted Living," was submitted to the Kansas State University of Research Compliance and approved December 29, 2017. Project #9080.

Project debriefing information was sent to Cypress Cove one month in advance of the site visit and distributed to staff as well as family members to provide notification about the SAGE Team's visit. Cypress Cove administrators also shared informed consent forms with family members of targeted residents who might be interested in participating in interviews and focus groups in order to allow enough time for families and residents to ask questions and provide signatures in advance. Some residents were capable of providing their own consent to participate in interviews (See Appendix for typical questions used in guided interviews and focus groups). Staff provided informed consent on the day of the site visit.



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.



The Setting

Cypress Cove was designed by the team at SFCS Architects and was an Award of Merit winner in the 2017 EFA Design Showcase. Melissa Pritchard, Senior Vice President at SFCS, was the lead architect and met with the SAGE POE team to share planning and design decisions as well as constraints and challenges that impacted the final project outcomes.



Melissa Pritchard

In the preliminary stages of the design process, SFCS looked at two different sites on campus. One near the existing assisted living building and one near the existing skilled nursing building. The initial concept had a three story building that had common space on the first floor and a connection back to the neighboring building. All buildings on the Cypress Cove campus are connected so that residents can walk around campus without being outside. However, due to site logistics and cost concerns, the connection back to the campus was omitted and the building dropped to two stories.

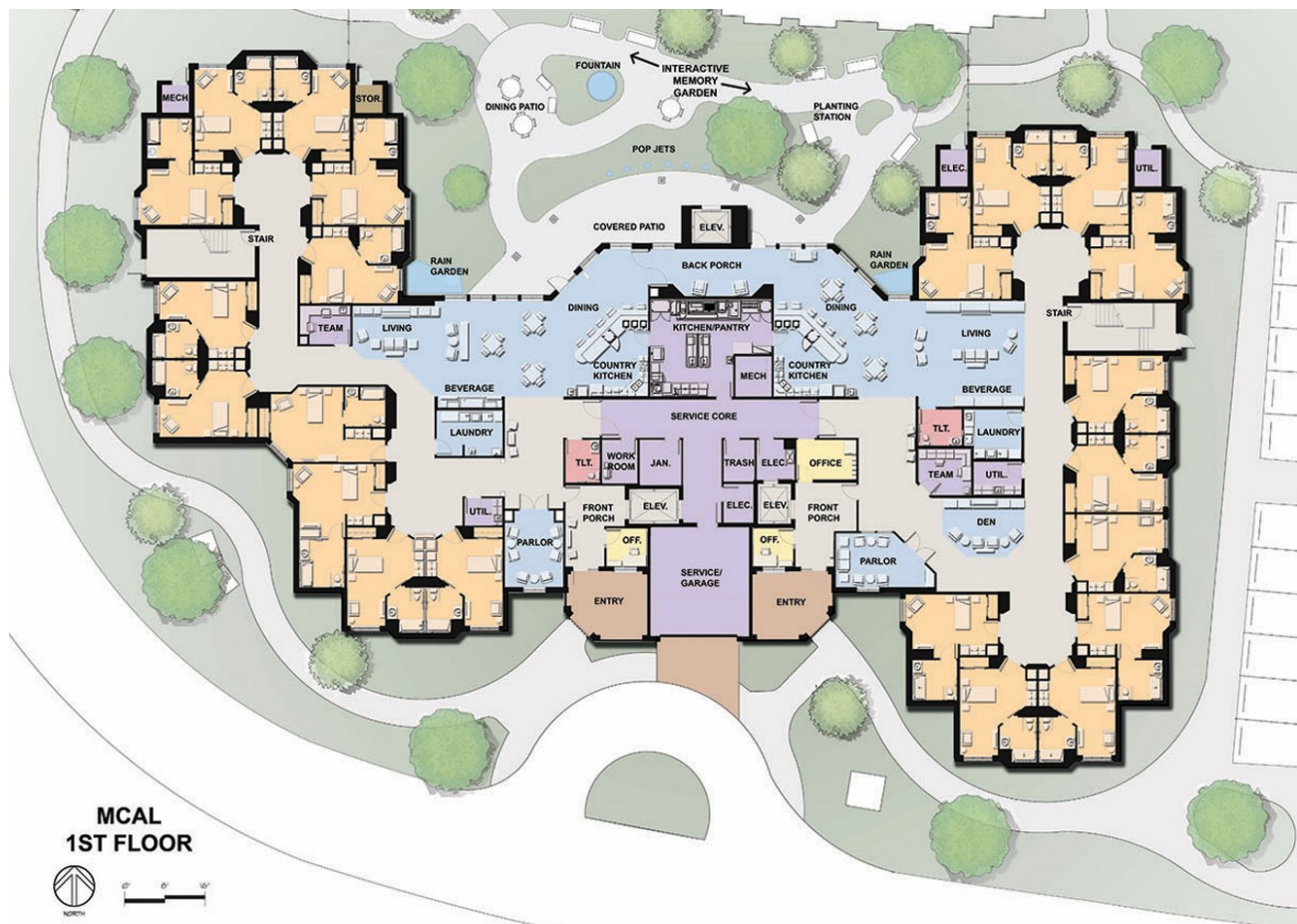


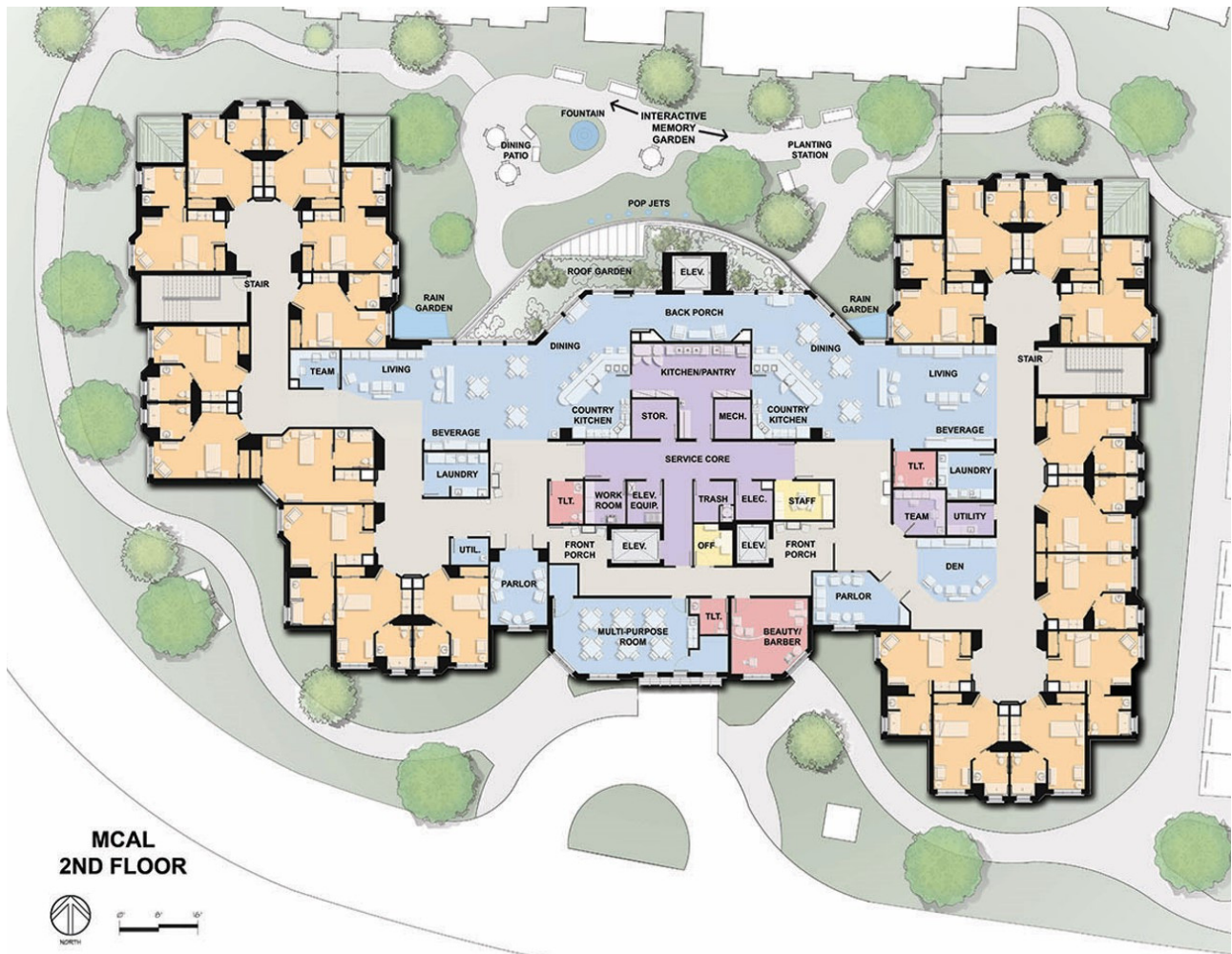
The administrator and project architect noted that the original two-story design intended to have 12 individual apartments in each of four households. The site, however, was too restrictive to provide the required area. The final site size was .65 acres and the final building footprint is 22,000 square feet. The existing ring road and utility easement along the road forced one side of the building to have a slightly different configuration from the other side.

David and Michelle said that, in the end, they are happy that the Cottage is stand alone. It helps it feel more like a home.



The memory care assisted living households opened in 2016. There are two households on each level (See Plans). The second level is designed to be able to transition to skilled care in the future if the needs of the resident population change and require higher levels of care. This design feature was not possible on the first floor due to the level of grade and regulations for flooding requirements. The spatial configuration for the four households is set up to place more public social areas towards the front of each household, and resident apartments further from the front door (See Plans). The entrances for each side of the building and the stacked households are located on the ground level on either side of a shared garage/service entrance. From here, family members and guests can enter the ground level households through an interior “front porch” or take the elevator to the second level to the upper households which also have a transitional interior front porch that leads to a secured door.

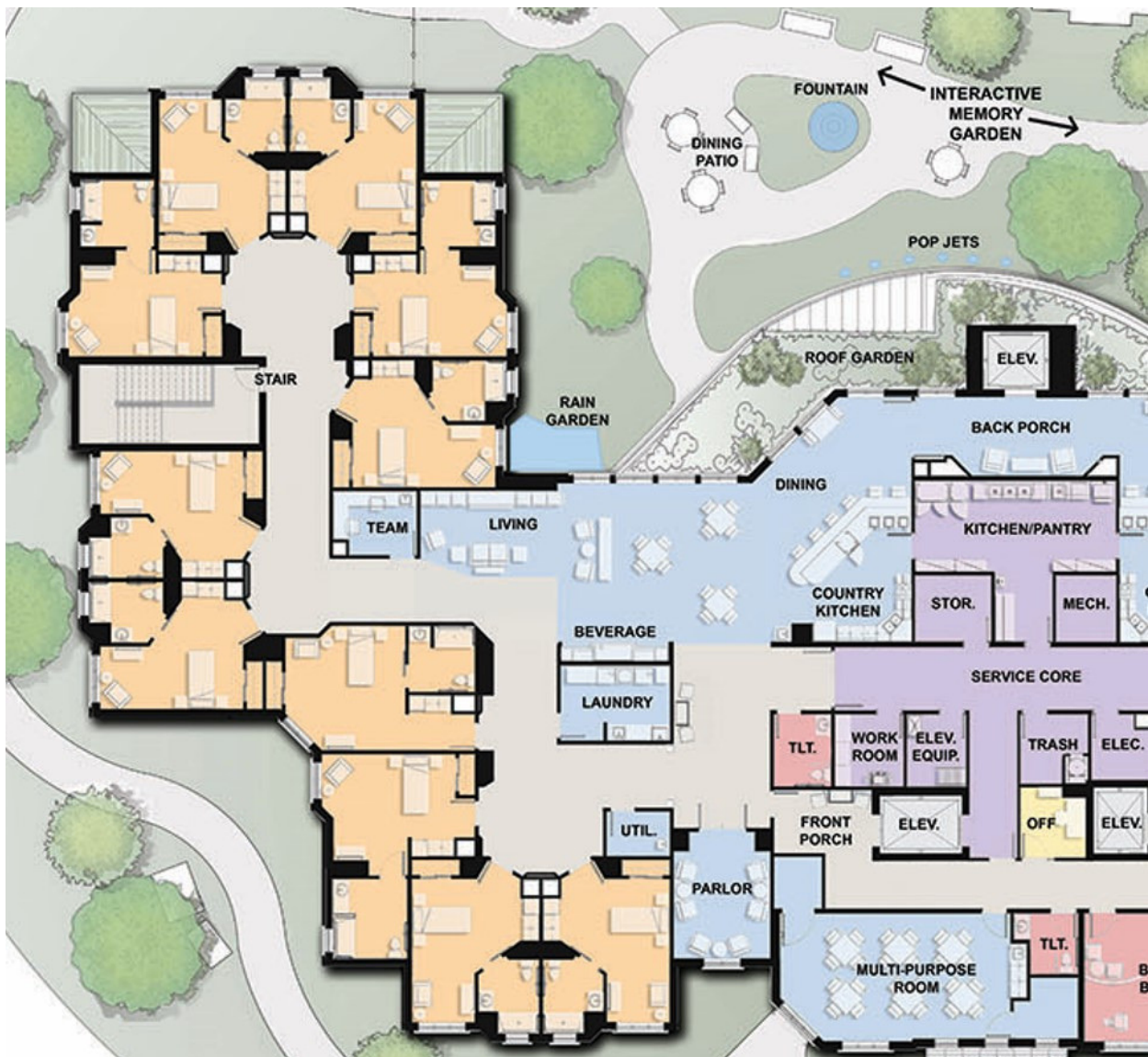




Each household has a parlor, dining room, functional country kitchen, and living room with a television for social activities. There is also a laundry room centrally located in each household as well as staff support spaces. Each pair of households on each level is connected through an interior back porch with provides open access for residents to move freely between households. There is also an elevator that can be accessed from the second level and the secured exterior courtyard providing residents a means to move freely from floor to floor and still be within a secured and monitored environment.



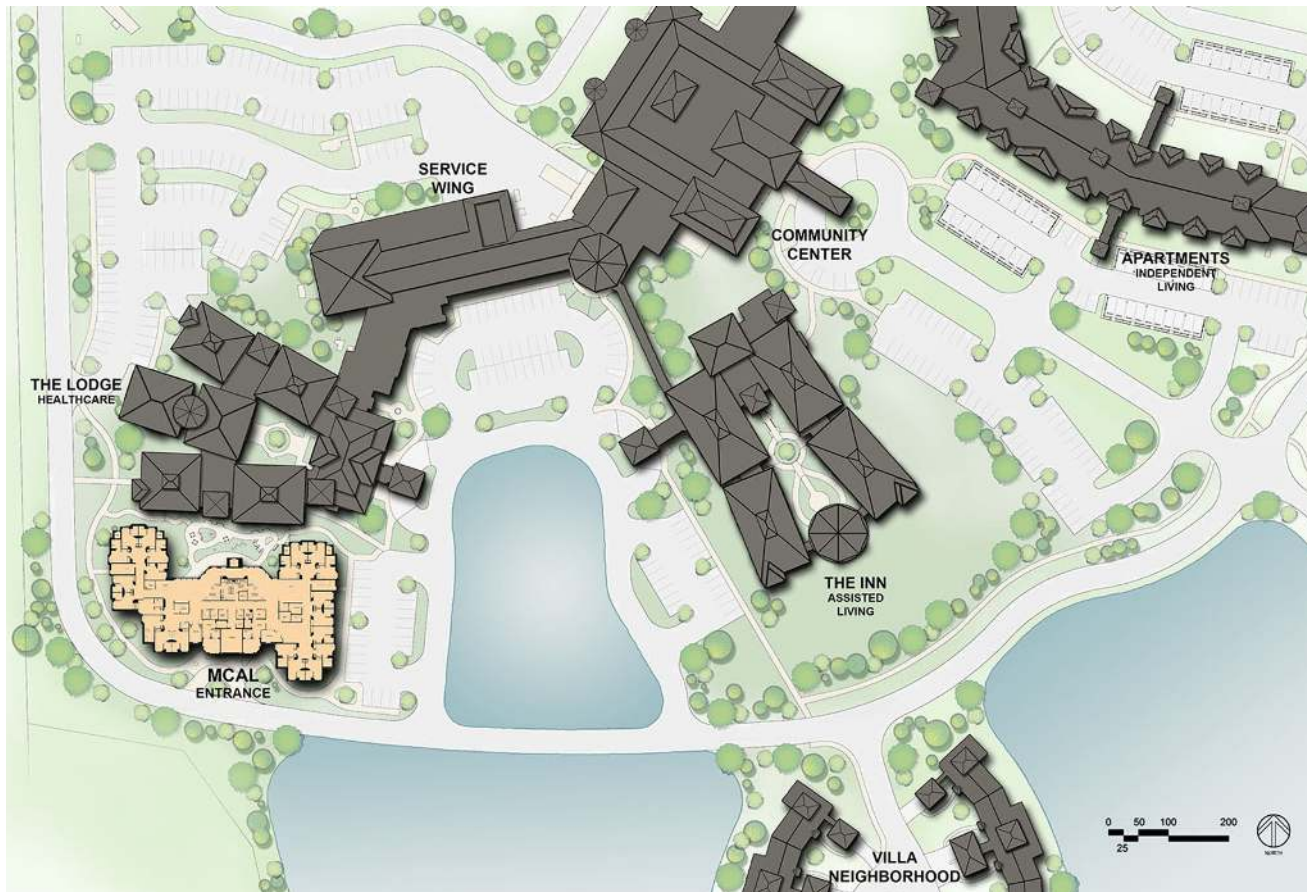
Due to the site constraints, the east-side households are more of the ideal layout, with corridors minimized. The households on the west side of the building did have to create a little more of a corridor to access the resident rooms, but the trade-off was that the west-side household has a little more space in the dining/kitchen area. Therefore, the staff have seen that the residents prefer to congregate on the west side, in the kitchen, just like you might do at home. Because the two households are connected at each floor by a corridor, the staff do see residents going back and forth often to visit with friends. David noted, though, that he has not heard residents or family members expressing a preference for one side or the other when selecting a unit.



West side household



The four households also share a common service core that is located centrally and run vertically for operations such as laundry and trash removal and food service. This service core was designed to provide seamless operational support for the four houses and still be “hidden” from the daily life of the residents. Because of these design approaches, this POE took into account how all of the four households were functioning to support the autonomy of residents as well as support the staff team.



Site plan, Cypress Cove at HealthPark



Design Objectives

The EFA Design Showcase awards submission package provided by SFCS and Cypress Cove identified several functional and therapeutic objectives for the project. These design objectives were summarized into six general goals :

Goal 1: Floor plans that site dining rooms, corridors, gathering areas, restrooms, etc., for optimal flow, practicality, and convenience for all. Access to a memory garden, second floor viewing roof garden and a secondary elevator.

Goal 2: Private resident rooms with all elements (hardware, lighting, furniture, visual cues, etc.) designed to best serve residents. Open plan in resident apartments provides visual connection to resident bathroom from sleeping area. Storage is designed to enhance function (ADLs). Night lighting (in apartments) is sensitive to nighttime orientation and sleep quality.

Goal 3: Incorporation of activities/programs including physical exercise programs, art therapy, computer interface activities, Montessori activities, and other sensory stimulation activities such as baking or musical performances.

Goal 4: Interior and exterior environments that bring daylight and elements of the natural world into the built environment; Thermal comfort and glare are managed by the location of windows and the proximity to key social areas. Wayfinding is enhanced through visual connections to both inside and outside spaces. Tunable circadian lighting system for 24-hour light therapy to help with light-related symptoms of dementia.

Goal 5: Embedded discrete staff spaces allowing for unobtrusive observation of household commons. Staff spaces are discretely integrated and "subtle shifts in environmental design promise to increase staff efficiencies and create a more satisfying work environment."

Goal 6: Layouts which minimize the intrusion of institutional services which can disrupt resident life. Central service core accessed through a street-facing garage.



SAGE Design Goals

SAGE has a set of guiding principles and goals that are the basis for assessing the effectiveness of senior housing for those who also require additional care services. These goals are especially relevant for residents who may have cognitive challenges.

| SAGE Goal | Definition |
|--|---|
| Maximize Awareness and Orientation | <i>Ways the building and systems support knowing where you are in relation to where you want to go.</i> |
| Enhance Continuity of Self | <i>Ways the environment supports continued expression of personal identity: through personal possessions and a non-institutional ambience.</i> |
| Opportunities for Personal Control | <i>Ways the environment provides opportunities for residents to exercise personal preference, choice and independent initiative to determine what will be done, and when.</i> |
| Facilitation of Social Contact | <i>Ways the environment supports residents to engage in a variety of meaningful social interactions.</i> |
| Provision of Privacy | <i>Ways that input from (e.g., noise) and output to (confidential conversations) the larger environment are regulated.</i> |
| Regulation and Quality of Stimulation | <i>Ways the environment controls excess, negative stimulation (noise, call bells) and enhances opportunities for positive stimulation (fresh breeze, positive aromas).</i> |
| Support Functional Abilities | <i>Ways the environment encourages practice or continued use of everyday skills (ADLs) and avoids unnecessary dependence or disability.</i> |
| Maximize Safety and Security | <i>Ways the environment minimizes threats to resident safety and maximizes sense of security.</i> |
| Job Activity Support | <i>Work spaces organized to provide efficient care delivery with appropriate attention to resident needs for accessibility to staff, and vice versa.</i> |
| Communication | <i>Ways the environment supports efficient communication among staff, among residents, and between residents and staff.</i> |
| Technology | <i>Extent to which new or innovative technologies are used to enhance care delivery or other goals.</i> |

SAGE goals for memory care units considered important in providing a therapeutic environment for residents and a supportive work environment for staff.



Architectural/Interior Elements

SAGE team members draw upon their expertise, familiarity with industry best-practices and experiences with dementia care and designing for dementia care as they rate the effectiveness of the household's features that serve elders with cognitive loss. Many of the SAGE principles can be evidenced by architectural and interior elements. The team also considers the historical context and input and feedback from staff as well as family members who volunteered to share their insights and perspectives.

| Architectural or Interior Element | <i>Considerations (Selected Examples)</i> |
|---|--|
| 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 six goals for the Cottage at Cypress Cove were cross-referenced to attributes identifiable in the SAGE principles. Please [CLICK HERE](#) for the full matrix.



Documentation/Evaluation Strategies

The SAGE POE team arrived at Cypress Cove in the morning on Monday, January 22, 2018. Team members met with David Gray and Michelle Wasserlauf from Cypress Cove, and Melissa Pritchard with SFCS Architects. This opening session was focused on understanding the context and history of the planning for the assisted living memory care units, major factors that impacted the planning and design process, operational goals and challenges, and practices that were guided by internal programs and policies.



After the 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. A rubric of design criteria was also used by team members to record observations of the presence or absence of features, details of design features, and operational issues that impacted patterns of use. These attributes included both desired goals (based on research in dementia care) and architectural and interior elements that can be critical for effective use and navigation of a space.

Team members met with different users of the space in small focus groups. Two residents met with three members of the SAGE POE Team and shared their perspectives on how their home felt to them. Three household staff (CNAs/ CMAs) met with three members of the POE Team; while three administrators met with another group of SAGE team members. A final session of interviews was conducted with a family member and an external care provider who worked directly with a resident in one of the households.

Using the criteria for goals and environmental features, the POE team identified distinct features and supporting practices for the households at Cypress Cove that had notable outcomes. These are summarized as they relate to each of the design objectives. Specific attributes for each of these assets as well as opportunities to enhance the experience of these features are highlighted in the following pages.



Design Goal 1: Access and Convenience

GOAL: Floor plans that site dining rooms, corridors, gathering areas, restrooms, etc., for optimal flow, practicality, and convenience for all. Access to a memory garden, second-floor view of roof garden, and a secondary elevator.

The POE team immediately noticed that although the layout of the households uses an open plan, there is a graduated hierarchy of spaces that moves from more public to more private. This helps to keep bedrooms quieter and support a regular daily routine. The clear views through spaces aid in wayfinding without creating voluminous spaces that expose residents to difficult distractions. Destinations can be visualized and supported through staff direction so residents can find their rooms independently.

There is an elevator located at the intersection of each of the households at the back porch. Residents on the second floor are able to use this elevator freely to access the courtyard on the ground floor. Residents on the first floor are free to take this elevator from the courtyard up to the households on the second level. Because all spaces off the elevator are secure, residents have a great degree of freedom in their movements and can be more autonomous in what they choose to participate in. Residents spoke positively about how they often visit friends or attend different activities in other households. Staff reported that the layouts of the households seemed to be easily navigated by residents and minimal redirection was required.



View through kitchen/dining area toward elevator.



View through dining area toward living room.

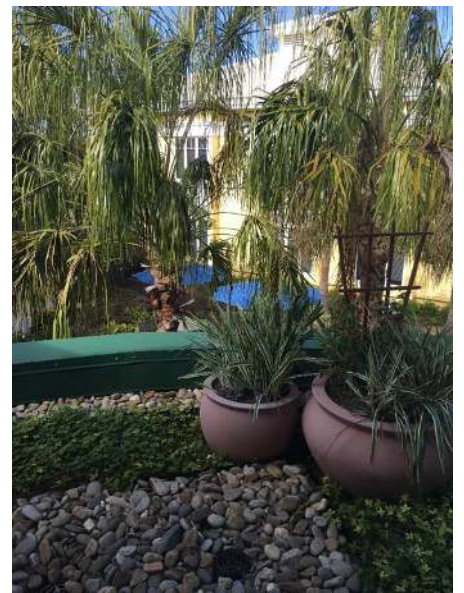


View to resident rooms from living room.



The longest hallway isn't very long.

Windows with pleasant views are available from every dining room. The second floor has a view of a carefully landscaped rooftop garden and the first floor has a direct view into the courtyard. Residents reported that they liked being able to watch activities in the garden without always having to go outside.



Second floor views of roof garden.



Design Goal 2: Resident Rooms that Serve

GOAL: Private resident rooms with all elements (hardware, lighting, furniture, visual cues, etc.) designed to best serve residents. Open plan in resident apartments provides visual connection to resident bathroom from sleeping area. Storage is designed to enhance function (ADLs). Night lighting (in apartments) is sensitive to night-time orientation and sleep quality.

Cypress Cove is licensed for assisted living so each resident has a private apartment of approximately 290 sf with a sleeping area, a living area, and an individual bathroom where they can take a shower. The layout and features of the apartments were carefully considered and SFCS and Cypress Cove engaged Dr. Margaret Calkins to consult with the design team on how to maximize functional support for residents.



Dr. Margaret Calkins demonstrating spatial considerations for the resident room layouts



A mock-up at full-scale allowed for exploration of different configurations and furniture arrangements. As a result of this careful planning the rooms provide the options for residents to bring in either a full- or queen-sized bed versus the commonly assumed twin size. Family members in particular were very complimentary about the apartments and the ability for their family members to have the types of furniture that made the apartment feel personal.

Residents had a variety of beds sizes in their rooms.

One feature that did not receive as much positive feedback was the closet. While staff and family reported that the closet was easy to access, family members noted that it needed a light and that it did not have enough space (a common complaint for many senior living environments).

Residents and families want more spacious closets





Access to the bathroom and the bathroom features were also carefully considered. The door to the bathroom is often a challenge in memory care. To help support continence, it is helpful to give residents the option of an open view of the restroom from their beds. Bathroom doors that swing out into the room can impede options for furniture layouts and doors that swing into bathrooms are a hazard if residents fall inside the bathroom and block the door from opening. Some bathroom doors have been removed for residents who are better supported by direct access. In these apartments, the doors are configured to roll on the outside of the bathroom wall in a barn-door style.

The door openings are greater than 36" so the handle to the door can be set off of the frame a couple of inches and provide easy gripping. The hardware for the track allows for a smooth gliding action that can be controlled with minimal force and after the door is open more than half way, it continues to move towards an open direction. The additional space for the door opening also provides plenty of room for easy clearance for a resident who might be using a walker or wheelchair to move through the opening without bumping their knuckles on the frame. This design feature was called out by a family member whose mother used a walker. She commented that the accessibility provided by the wider door was a benefit.



Barn-door style



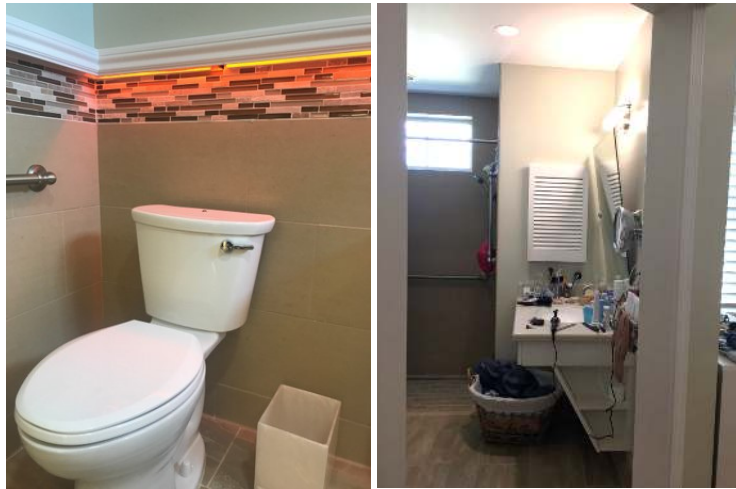
Space to hang pictures



Clearance for easy grip



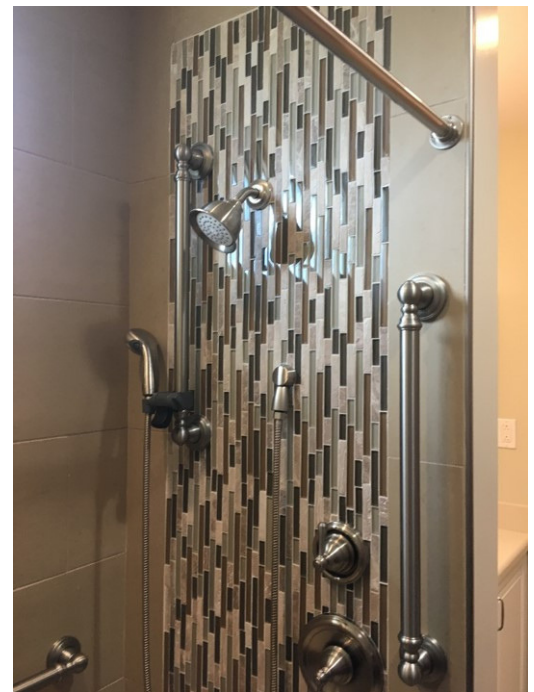
Within the bathroom there is a toilet, a walk-in/roll-in shower, and an open-front vanity. Behind the toilet, tucked under a wainscot detail, there is an LED fixture that was installed to provide just enough light to help a resident navigate to the toilet without having to turn on all of the bathroom lights. Staff noted that currently all of the residents are receiving assistance at night in moving from the bed to the toilet so they didn't have a strong perception of the effectiveness of this design feature.



The vanity is an open-front design with enough space below the surface for a wheelchair to pull up underneath. There is room on the surface of the vanity for personal items. A medicine cabinet is located to the side and a mirror is tilted forward at a slight angle – also making for additional accessibility for someone in a seated position. Space is also available in the bathroom for typical items such as a hamper for dirty clothes and a waste basket.

Bathrooms were designed to consider quality lighting details

Staff did comment on the scale of the shower. They felt like it provided a good depth for the resident but they could easily assist the residents without having to get soaking wet in the process. Shower controls are located along the short wall of the shower and the shower head is on an adjustable bar to accommodate a range of heights. One concern the POE Team had was the tile background that had been placed behind the controls. The busy vertical tile pattern almost camouflaged the controls. Residents are likely to have glasses off in the shower and may be additionally constrained by the lack of visual contrast in this particular area.



Decorative tile creates a bit of visual challenge for locating controls



Individual Personalization: Private apartments contribute to a high level of personalization for residents. Outside each room, there is a memory box for residents to place items that are meaningful to them, and some of the doors are decorated. Every room is furnished with personal items and there is enough space for a queen-sized bed, bedside tables, a comfortably sized lounge chair as well as other casework for storage and/or display of personal belongings. Most residents use the niche next to the window to locate a television and a comfortable chair with side tables.



Features around resident-room doors. Viewing angles and posture were considered.



Sample layout. Each apartment is 290 sf.



Design Goal 3: Meaningful Things to Do

GOAL: Incorporation of activities/programs including physical exercise programs, art therapy, computer interface activities, Montessori activities, and other sensory stimulation activities such as baking or musical performances.



The kitchens were designed to be a central hub in each of the households with an open plan, resident-friendly appliances, and a variety of places to hang out and participate at different levels on involvement.

The daily programming for the routines of the house are well matched to the interior features and attributes and create opportunities for planned activities as well as spontaneous engagement between all users of the spaces. The kitchen is a central hub of both passive and active engagement. The open plan allows for clear views into the cooking area if residents want to sit at the counter or a dining table and watch food being prepared. There are also opportunities for residents to participate in food preparation with the support of staff. The counter has a dual height configuration that provides a surface that was accessible from a seated position (included photo of counter). Induction appliances provide additional safety features to prevent injury that could be caused by hot surfaces. Overhead fire suppression systems are installed over burners. The refrigerator is conveniently located at the edge of the cooking triangle so residents can access foods without having to interrupt the flow of the kitchen routine that staff are engaged in.



Cooktop with fire suppression.



Commercial dishwasher.



Cooking appliances with safety features.



Other daily activities that are supported with embedded design features include a laundry room with residential equipment. Staff report that some residents enjoy participating in the process of laundering their own clothing. The scale of the room provides enough space for sorting and folding. The location of the room allows convenient access for both residents and staff. The owner and design team built a Snoezelen room in the common area between households on the second floor. However, the staff report that this room isn't currently needed and rarely used.



A multipurpose room was built in between the two households, above the garage. The staff originally intended to use this space for larger group activities with residents from all four households. They found it was too difficult to move the residents to this central room; it was difficult to take them out of their comfort zone, difficult getting them through the locked front door, and difficult to keep a resident occupied while they gathered more people. The activities director instead started doing activities in the household spaces and found it to increase attendance and is less of a hassle for staff.



Spontaneous engagement.



Types of socialization



Current events



Parties in the Garden



Happy Hours on Tuesday



Craft Groups

Cooking Groups

Exercise Classes



Did we mention Happy Hour?





The Courtyard and Garden: The outdoor space available to residents, staff, and guests is located at the back of the Cottage and accessible from both floors. Research has demonstrated that access and connection to the outdoors can aid in reducing agitation and other negative behaviors caused by dementing illnesses and conditions. Secure gardens can also provide for familiar activities such as raising and caring for plants which supports socialization and continuity of self.



The courtyard/secure garden for the Cottage at Cypress Cove is a great use of a small space with a nice mix of shade and sun with many seating choices. Brad Smith Associates created the landscape design, incorporating outdoor “rooms” for small seating areas with a sense of intimacy. The walking paths have a level surface that contrasts with the surrounding landscape to assist with mobility, ambulation, and wayfinding. Staff discussed the value of having a walking path even in a small courtyard, and of the covered porch. The covered porch areas provide protection from the elements while also incorporating features like comfortable seating to make being outside an enjoyable experience in a variety of weather conditions. From this location, an interactive water feature is easily viewed and heard. The fountain system was set to release water in rhythmic bursts. One resident called them the “plop-plop” fountains. His wife commented that even when he couldn’t see them due to the loss of his peripheral vision, he could still hear them when he went outside.



"Plop Plop" fountains. [CLICK HERE](#) for video.



The interactive water sculpture incorporates etched-glass panels with images of various sea creatures. This design element provides a conversation starter for staff and family members. The glass panels are low enough so that residents can reach over them to touch the water, but they are not in danger of falling into the water feature due to the protection of the panels.



In addition to the fountains, the courtyard also has sculptural elements that use rain water to give the residents something interesting to look at and listen to when it is raining. One of these elements is a gutter leading from the roof, with a series of rain chains hanging from it. When the rain water cascades down the chains it makes a sound that can almost be considered musical. As it was a beautiful day when the POE team visited, we did not personally observe these features in action, but we appreciate the thought that was put into providing stimulation for multiple senses.



Rain chains.



Gardening stations.

“

*I like this place and could
willingly waste my time in it.*

”

William Shakespeare



Design Goal 4: Quality Stimulation

GOAL: *Interior and exterior environments that bring daylight and elements of the natural world into the built environment; Thermal comfort and glare are managed by the location of windows and the proximity to key social areas. Wayfinding is enhanced through visual connections to both inside and outside spaces. Tunable circadian lighting system for 24-hour light therapy to help with light-related symptoms of dementia.*

Controlling the sensory environment has been shown to be an important element in maintaining quality of life, especially for those with cognitive impairments. The design of the households pays special attention to many features of the sensory experience. The general layout of each of the households avoids large voluminous spaces which can create challenges for controlling noise. Resident rooms located adjacent to the social areas are buffered by a hallway zone, and did not border activity spaces, which helps to keep conversation noise down in the more private areas of the household.

A thermostat in each resident room allows for individual control of room temperature, and overhead ceiling fans help with airflow. The thermostat for the general areas of the house is programmed to keep the temperature within comfortable ranges. The staff even noted how much they appreciated the thermal comfort they observed for both themselves and the residents.

A popular feature in each of the resident rooms is the ceiling fan. Several residents' family members made reference to the fan and mentioned that it made the room feel more like home, as most Florida homes have ceiling fans in the bedrooms. Another, however, didn't like the fan because, "Mom doesn't like the breeze." Giving each resident the option on whether to use the fan or not gives them greater personal control over their living space. The wife of one resident noted that she appreciated the individual temperature controls and the ability to open the window. Her husband loves having the window open.



Residents and family members appreciate the option of using the ceiling fan.



Dining Room: Cove lighting in main living areas is ideal, providing ample light with minimal glare.



Color Clash: Example of cooler (bluer) color temperatures with the wood ceilings

Lighting was given special attention in the design of the social areas. The design team employed circadian lighting in the common spaces, such as the dining room, living room (include image), and kitchen. Circadian lighting uses an automated control system with an astronomical clock. A static blue enriched spectrum is employed during the daytime hours, and a blue-depleted amber light is provided in the evening hours. This is set on an automated system to follow the natural rhythm of sunrise and sunset.

Providing sufficient daytime light signals to seniors is a general challenge as it requires bright and blue enriched light. Indirect lighting approaches such as cove lighting are a great way to provide the intensity required without causing too much glare. The design team used circadian cove up-lighting in the kitchen area, dining area, and living room. The spaces under the cove lights appeared bright and cheerful, without too much glare.

Some areas of the lighting scheme are impacted by other interior elements that impact color perception and glare. In the living rooms, for example, daytime circadian lighting clashed with the wood-tone ceilings. The light cove is shallower than in other rooms resulting in more glare.

More details on the circadian lighting component of this project can be found in the *Special Lighting Supplement*, available to SAGE members only.

For information about SAGE membership, visit <http://sagefederation.org/Sign-Up>.



In the residents' personal rooms, circadian lighting systems were not applied. Soft warm 3000K white light with minimal blue frequencies was specified. This is a good choice for areas where individuals sleep. Residents have the freedom to adjust their lighting to their individual preferences with dimmer switches and reading lights are provided over areas where beds are located. One family member said that she really appreciated the ability to dim the light because sometimes the light was too bright for her mom, and felt that the "gentle light" had a calming effect.

In the bathrooms of the resident spaces, lighting is provided in four key areas: over the mirror at the vanity, overhead, in the shower, and behind the toilet. The vanity lighting is a warm white, but the spectrum could use more deep reds for better skin-tone reflection. While R9 values in these areas is recommended to be greater than 50, readings at the vanity measured at 8. The lamp selected for the shower light had a better quality light for a bathroom setting; R9= 46. A special lighting feature was designed to aid in night-time navigation to the toilet. An amber light was placed at wainscot level underneath a molding detail. The illumination is hardly noticeable during the day, but provides enough light for seeing the toilet when the overhead lights are off at night. The amber light is absent of any blue spectrum that might disrupt sleep or circadian rhythms. Although staff reported that all of the current residents were receiving assistance with nighttime toileting, this feature is still beneficial for controlling the quality of visual stimulation.



Warmer light is a good choice for sleeping areas, and cove lighting is glare free. A dimmer is provided to make sure it's not too bright for nighttime use.



Middle of the night navigation: Just enough to see by. Source is well hidden.



The SAGE POE team gathers feedback from residents. Interviews with residents, staff, and family members are a key component of the SAGE POE.

Staff noted that they don't see the negative "behaviors" that you might typically see in a memory care setting, such as sundowning. In addition, they have taken in residents who were removed from other care communities due to aggressive behavior and have seen very positive improvement with those residents. The staff couldn't say whether it's the special lighting, the small house setting, the abundant daylight or the easy access to the outdoors—or the combination of all of these factors—that makes residents happy, but they certainly seem to be positively impacted by the sensory environment in the households.

Staff were quick to comment about the excellent quality of lighting in the households compared to other long-term care settings where they had worked. The lighting at Cypress Cove seemed to evoke a certain sense of calm, especially when the lighting patterns began to adjust into the evening hours. Family members and staff also noted that they observed improved sleeping patterns. The cost of the total light package was approximately \$70-75k per household. (See [special lighting supplement](#) for additional information on the science of circadian lighting. This resource is available to SAGE members only. For information about SAGE membership, visit <http://sagefederation.org/Sign-Up>.

Residential Atmosphere: The general scale and décor of the households provides a residential appeal with an upscale—slightly hospitality-inspired—flair. The family members and staff commented on the elegance of the spaces. Furnishings have been carefully considered for a “home-like” look and artwork in the hallways is warm and familiar.





Design Goal 5: Discrete Staff Support

GOAL: *Discrete Staff Support. Embedded discrete staff spaces allowing for unobtrusive observation of household commons. Staff spaces are discretely integrated and "subtle shifts in environmental design promise to increase staff efficiencies and create a more satisfying work environment."*

The staffing pattern for the households includes two CNAs on a morning shift, two CNAs on an afternoon shift, and one CNA at night. The four households are also collectively served by two nurses who work from 7am to 7pm, one nurse who floats between the houses 7pm to 7am to pass meds, a cook who works between 7am and 7pm, housekeeping and maintenance staff and a recreational therapist. There is also a targeted effort to involve students from the local college.

Embedded within the heart of the households is a small "team" room. This is one of the few places in the households where access is restricted to staff only. The door to this room has a window, and the location is discrete so as not to become an institutional feature. The room contains workspace for staff and visiting physicians. It is also the location of some of the technology controls for the lighting system. Medications that require refrigeration or narcotics are stored in these rooms. Other resident medications are stored in secured drawers in the residents' personal and private rooms. A computerized charting system is being integrated but at the time of this POE visit was not in full implementation; paper charting was still the primary source of record keeping, which can be done anywhere in the households. Staff in general do not spend long spans of time in this room.



Team Room



CNAs are very involved in helping to maintain an engaging atmosphere around the “normal” activities of life. This is supported by the layout of the households and the locations of natural touch-down spaces where staff can do their work in the presence of residents and other volunteers. Students recruited by the recreational therapist also play a central role.

CNAs are responsible for laundering residents’ clothing (unless their family members prefer to do this). A laundry room is conveniently located at the center of each household where CNAs can move fluidly between tasks. This room is equipped with washers and dryers as well as a sink for rinsing and soaking, a folding area, and places to hang up clothing. Some residents enjoy participating in this process as well, and because the space is conveniently located in the household, staff can easily involve residents in this normal activity of home life. There are still laundry services on campus for bulk linens that need to be laundered with special equipment.

Another design feature that supports staff efforts is strategically located storage for items such as walkers, activity supplies, and nutritional amenities (See image). Dedicated spots for placing items in easy reach of residents and staff add to the residential experience of the households.

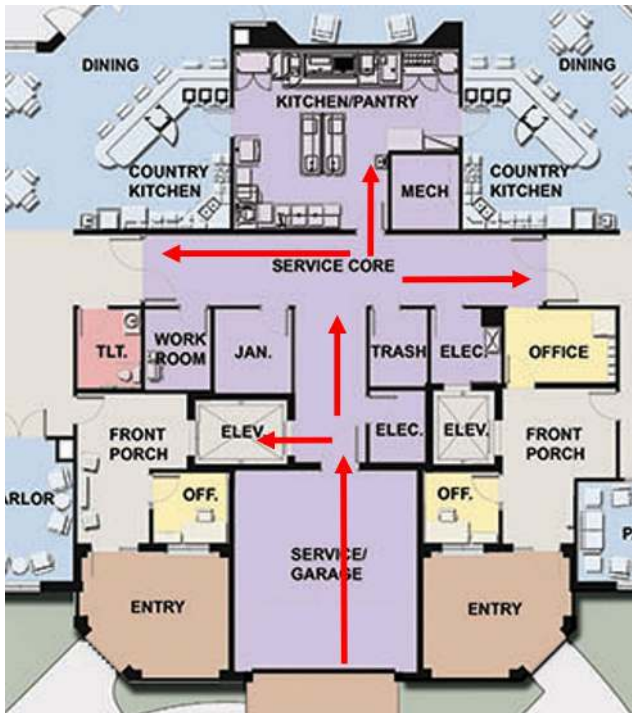


Convenient, discrete storage: Cabinetry for activity storage and supplies, including walker and wheelchair garage.



Design Goal 6: Stealth Service

GOAL: Layouts that minimize the intrusion of institutional services which can disrupt resident life. Central service core accessed through a street-facing garage.



Discrete Service Access: The connecting hallway between the households on the first and second floors allows for operational services and staff functions to come into the unit at the “back of the house” (See Image and floor plan). This arrangement was considered highly effective for delivering daily services such as meal delivery or laundry in a discrete manner without interrupting the flow of activities in the households or intruding upon the residential patterns of use. It was noted by several of the respondents that this area was kept in immaculate order and trash and soiled-laundry bins were never in the way.

The service hallway and dedicated elevator also allow for one main kitchen on the first floor, with one dietary staff member serving all four households with cook-to-order items. The household staff call the main kitchen with a special service request and the cook brings it right up when it’s done and can enter directly into the household kitchen from the service core. Staff also finish preparing many food items in the household kitchen.



Beverage Supplies



Dishwashing Support



Centralized Cooking



Garage Service entry: The location of the service entrance between the two front doors was necessitated by the tight space constraints of the building site. However, the design team noted that this really did enhance the residential feel of the façade. All service traffic goes in and out of the garage, which actually hides these functions quite well. One family member noted that she never sees trash being collected or any service items. The staff report that this setup makes it very easy to move furniture in and out.

Staff noted that the two different entrance doors, one on either side of the garage, do make it more difficult to direct people coming to the building for the first time. Most people see the first door and come to it, and staff has to re-direct them back outside to the other door, since there is no internal connection on the first floor. However, they said that family members have no issues once they know where they are going.



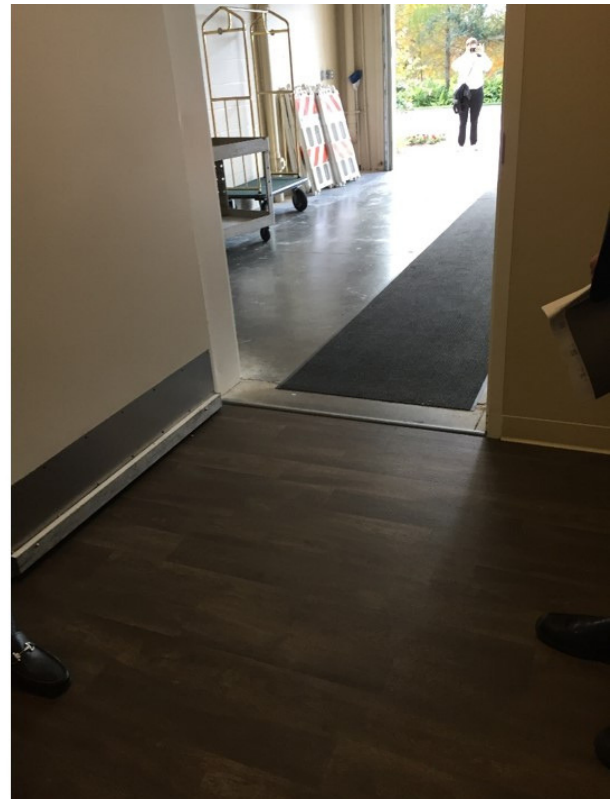
Front Door, West Households

Garage "Service Entry"

Front Door, East Households



Entry through garage



View back through garage from service core



Design Details

Details, details, and more details of note.

Hold the door: It was observed that some of the doors that residents and staff had to navigate were a bit heavy. This included the door to the restroom close to the dining room and the laundry room door. The staff also noted that they wished they had an automatic opener on the front entry door to make it easier to get residents through.



The floor: Creating a homelike environment usually involves the specification of different flooring types throughout the spaces to help indicate difference of function. The tradeoff with this benefit is that changing in flooring material are typically accompanied with color changes and even the creation of borders and patterns which can result in problems with depth perception. While this was a challenge at Cypress Cove as well, the flooring material was free of bulky transition strips that can be tripping hazards.

Support for ambulation: Handrails are a common feature in many senior care settings and are very useful for mobility and balance. They can, however, detract from a residential atmosphere. At Cypress Cove, the design team opted for lean rails that are integrated into the wainscot detailing. Observations revealed that they are indeed used naturally for their intended purpose.



Support for different abilities: Another sensitive design feature of note was the special attention to detail given to the pull-up counter in the dining room/kitchen. The height of the transaction counter was suitable for either a dining chair or a wheelchair. The depth of the counter allowed a resident to pull close enough to have a comfortable distance between their upper torso and a plate or other item in front of them. This is helpful for preventing spills that reduce one's sense of autonomy and dignity.



In Summary

The POE team concluded the following about the Cottage at Cypress Cove:

- Stated goals in their Environments for Aging Design Showcase award submission are clearly evident in the resulting design and are supported by the feedback of their users.
- Excellent application of many of the SAGE principles that support both residents and staff.
- Design carefully incorporates both functional and beautiful details into the spaces.
- Therapeutic design strategies (circadian lighting) continue to advance the field.
- Stealth service delivery was highly effective.
- Outcomes are strong because of the strong leadership at Cypress Cove.

The SAGE POE team is very grateful to the administration of Cypress Cove and the household staff for inviting us to review their memory care unit. There is a strong sense of community at Cypress Cove and the care and attention to resident needs and quality of life is clearly evident. As with all dynamic organizations, there is always a desire to continue to explore new ways of improving and living the vision and mission. We commend the staff for their vision in pushing the boundaries of design ideas that enhance the quality of life and the quality of care that their residents receive.



Why POE?



By Keith Gray

Director of Applied Research, J+J Flooring Group

This is Important Work: This is important work, which my colleagues from the SAGE POE team shared with you throughout this document. This work actually began, for me, nearly three years ago, at the SAGE POE presentation at the Environments for Aging Conference in Austin. This is where the idea of J+J collaborating with SAGE to build a sustainable platform to conduct post-occupancy evaluations of physical environments for older adults first crystallized.

I left that session with two clear impressions: 1. That the SAGE POE's are a critical tool in the evolution of the senior lifestyle experience and that, 2. The information contained in the SAGE POE is both anticipated and valued.

I consistently challenge myself to put myself in the place of that person who will learn from my work. And my measure of success is being able to share with them just one small bit of information that changes what they do in a meaningful way, every day. That is what I hope we have accomplished through the 2018 SAGE Post-occupancy Evaluation, subsequent presentations, and this white paper.

That Which Gets Measured Gets Improved: As one who finished graduate school and began my industrial career in the late 1980s, I was immediately exposed to--and embraced--the teachings of the "quality" movement being implemented by manufacturing industries, as expressed very compellingly by "That which gets measured gets improved". There are not many statements that are universally true. This statement is.

continued



As I see it there are two possible interpretations within this statement that relate to this project: one is that by conducting post-occupancy evaluations, and by analyzing and openly sharing what we learn, we will absolutely enhance the life experiences of seniors, even as we strive to define exactly what that is. The second is that as we conduct POE's, the POE process itself will be measured and will improve and will eventually meet one of my personal goals, which is to make POE's a part of every project.

A Rising Tide Lifts All Boats: Everyone wins when organizations like SAGE and J+J come together to address the many challenging questions faced by senior living, in its many embodiments, and apply what we learn to everyone's benefit. I look forward to J+J's continued involvement in the 2019 SAGE Post-occupancy Evaluation of LivGenerations Ahwatukee in Phoenix, Arizona.

SAGE is grateful for J+J's support of the SAGE Post-occupancy evaluation.



By Mitchell Elliott, AIA
Principal
RDG Planning & Design
SAGE President

The Post Occupancy Evaluation (POE) process has been a key initiative over the 20 years of SAGE's existence. The POE process reinforces SAGE's mission involving evidence-based design that contributes to quality care and quality life for older adults. The POE allows our profession to prove that design matters. Our collaboration with J+J Flooring Group in the SAGE POE extends well beyond flooring considerations. J+J Flooring Group's passion for research aligns with our commitment to measuring the impact that design can have in the lives of older adults through the built environment. We are grateful to everyone who has contributed to this robust white paper that extends well beyond a summary of the POE process. This white paper is thought-provoking and will serve as a catalyst for better design, better outcomes and better experiences for those who live and work in our senior living communities.



Additional Resources

CLICK HERE for access to the Circadian Lighting Approach Special Lighting Supplement to the 2018 SAGE Post-Occupancy Evaluation White Paper. This resource is available to SAGE members only. For information on SAGE membership, visit <http://sagefederation.org/Sign-Up>.

CLICK HERE to view a recording of the SAGE webinar, "An Analysis of Design Goals and Outcomes through a SAGE POE: Cypress Cove Memory Care Assisted Living Households." This webinar was presented on November 8, 2018.

CLICK HERE to view a recording of the SAGE webinar, "A Closer Look at the Sensory Environment through a SAGE POE: Cypress Cove Memory Care Assisted Living Households." This webinar was presented on December 6, 2018.

