Notes from the Field: A SAGE Post-Occupancy Evaluation of Brio of Johnston

Presented by Amy Carpenter and Mandy Kachur

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Society for the Advancement of Gerontological Environments

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Principal Consultant
Soundscape Engineering

Moderator:

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Senior Planner / Senior Interior Designer
Pope Design Group

SAGE Vice President

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SAGE1122

Presented by Amy Carpenter and Mandy Kachur
11/16/22

This program is AIA-approved for 1.7 Learning Units (LU|HSW)

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Course Description:

A multi-disciplinary team from SAGE conducted a post-occupancy evaluation (POE) of the award winning Brio of Johnston, A WesleyLife Community for Healthy Living. The team compared the designer's stated design goals against the outcomes to see how the building was functioning for both residents and staff. This moderate-income retirement community had looked to create better integration between care levels, provide a strong focus on wellness and used evidence-based design, including a POE of a sister community, to inform the design strategies here at Brio. One of the strong focuses of the building was improving acoustics. This research-based POE was approved by the IRB at Kansas State University and all SAGE team members participating had Collaborative Institutional Training Initiative (CITI) certificates.

Learning Objectives:

Understand how evidence-based design can be used to improve future building designs.

Hear about the acoustical design strategies used in the building, which ones were successful, and which could be improved.

Learn more about how the Design team integrated all care levels while keeping residents safe and active

See how the design team was able to control costs without losing aesthetic quality.

brio
of Johnston

A SAGE Post-Occupancy Evaluation to Explore What Works

Part 1: **Introduction**

An overview of SAGE and the History of the Post-Occupancy Evaluation

- Non-profit Organization
- Culture Change Organization Focused on the Built Environment
- Educational Focus
- Local and National Events

SAGE

www.sagefederation.org

Our 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.

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The History of the SAGE POE

- Process of evaluating buildings in use
- Levels of effort
  - Indicative
  - Investigative
  - Diagnostic
- Conducting POE's since 1999

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2022 SAGE POE Team

Amy Carpenter:
POE Team Leader, Architect
SFCS Architects, Inc.

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

Lauren Tines,
Interior Designer,
StudioSIX 5

Maggie Calkins,
Researcher, designer
Gerontologist
IDEAS Institute

Mandy Kachur,
Acoustics Engineer,
Soundscape Engineering

Chuck Childress,
Director of Operations
Buckner Retirement Services

Jay Weingarten,
Architect,
RDG Planning and Design

Part 2: **2022 Research POE**

Applying rigor to the process

2022 SAGE POE

ENVIRONMENTS FOR AGING

Design Showcase

Site Selection Process

- **ENVIRONMENTS FOR AGING** Award of Merit and Honorable Mention Projects were reviewed by a SAGE committee for clarity in the stated design goals of the projects and unique design features that could be of interest to other providers.
- Brio, a WesleyLife Community for Healthy Living, an Award of Merit Winner, designed by **Pope Architects**, Inc. was selected based on the **clearly stated programmatic goals, a middle-market price target** and the **emphasis on integration of care levels**
- Leadership at Brio and Jill Schroeder at Pope Architects were contacted about participating in a POE research case study.

2022 SAGE POE

KANSAS STATE UNIVERSITY

IRB Research Protocols

- All POE Team Members completed CITI (Collaborative Institutional Training Initiative) certification for full compliance Federal Guidelines for Research and the Use of Human Subjects in Research.
- An IRB application for this research project titled "*A SAGE Post-Occupancy Evaluation:* Investigating what Matters in the Design of Spaces for Older Adults," was submitted to the Kansas State University Office of Research Compliance and approved January 2, 2022. Project #9080.


https://sagefederation.org/initiatives/post-occupancy-evaluations/

Interviews

The team divided up into smaller groups and conducted interviews with various stakeholders.

These included:

- Residents
- Direct Care Staff
- Administration

Informed consent was obtained for all participants.

The SAGE Principles

Therapeutic Objectives of PEAP Principles	Caregiver Work Environment	Elements of the Physical Environment
• Maximize Awareness and Orientation • Enhance Continuity of Self • Opportunities for Personal Control • Facilitation of Social Contact • Provision of Privacy • Regulation & Quality of Stimulation • Support Functional Abilities • Maximize Safety and Security	• Job Activity Support • Communication • Technology	• Light • Use of Color • Floor Covering • Window Treatments • Acoustic Treatments • Circulation Patterns • Fixed Furnishing & Equipment • Moveable furnishings & equipment

Design Team

The following professionals were involved in the design and development of the brio Project.

- Pope Architects – Architecture and Interior Design

POPE
ARCHITECTS

2022 SAGE POE Site: brio

New Construction: 175,000 Square Feet

Completed: January 2019

Total Construction Cost: $25.6 million

Construction Cost/ SF: $146

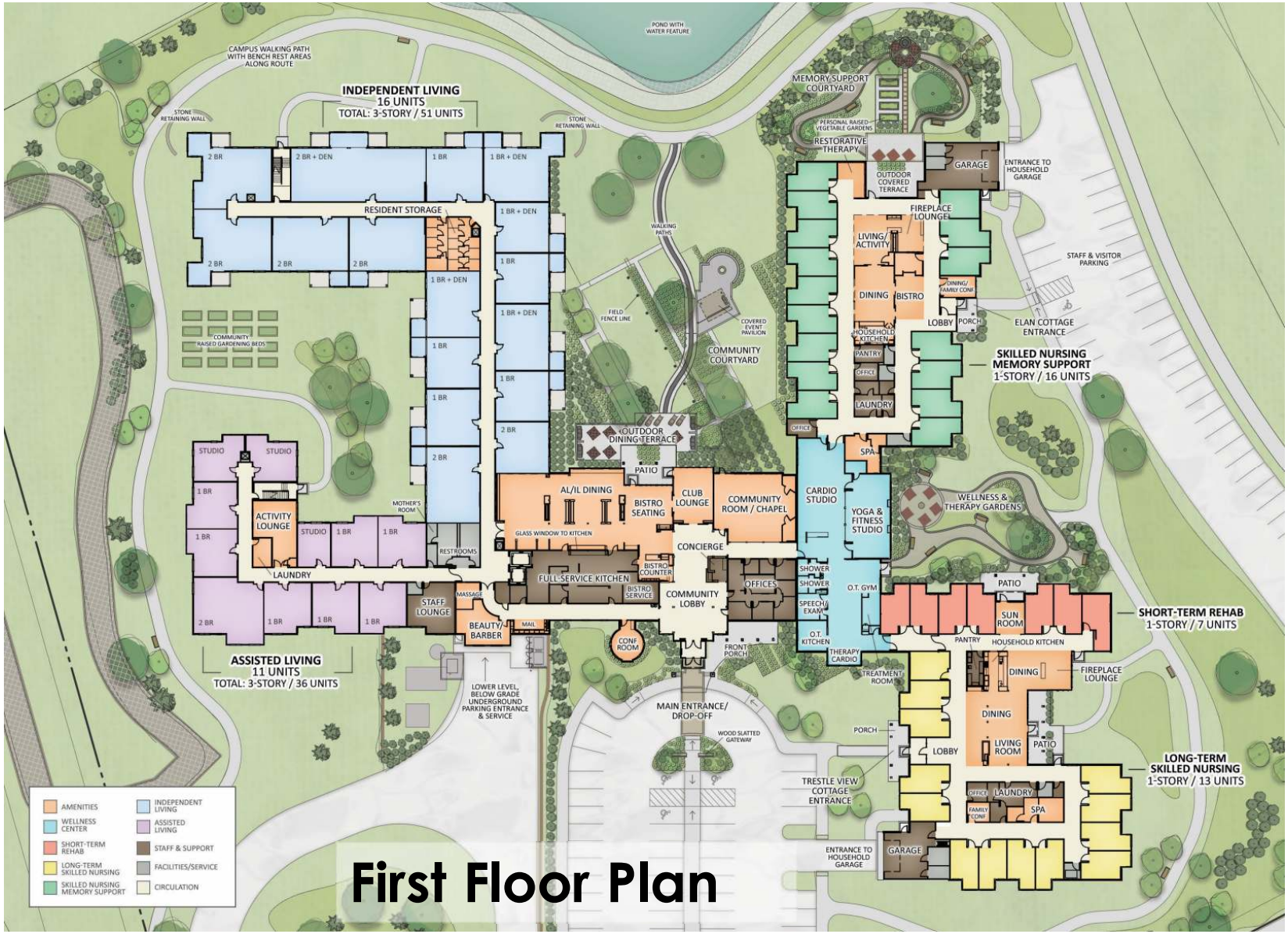
51 Independent Living

31 Assisted Living

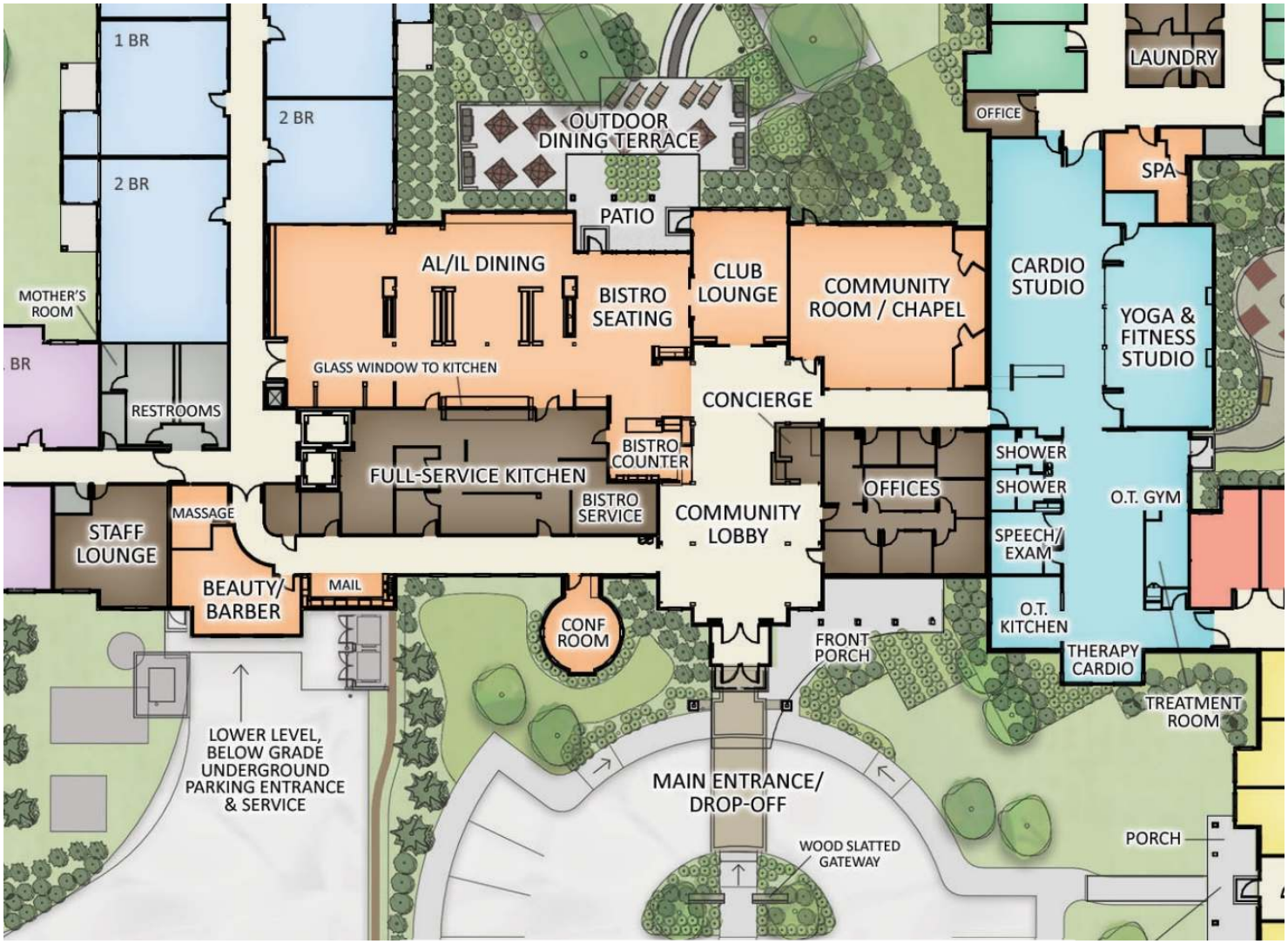
16 Memory Support (SN)

13 Long-Term Skilled Nursing

7 Short-Term Rehab/Transitional Care

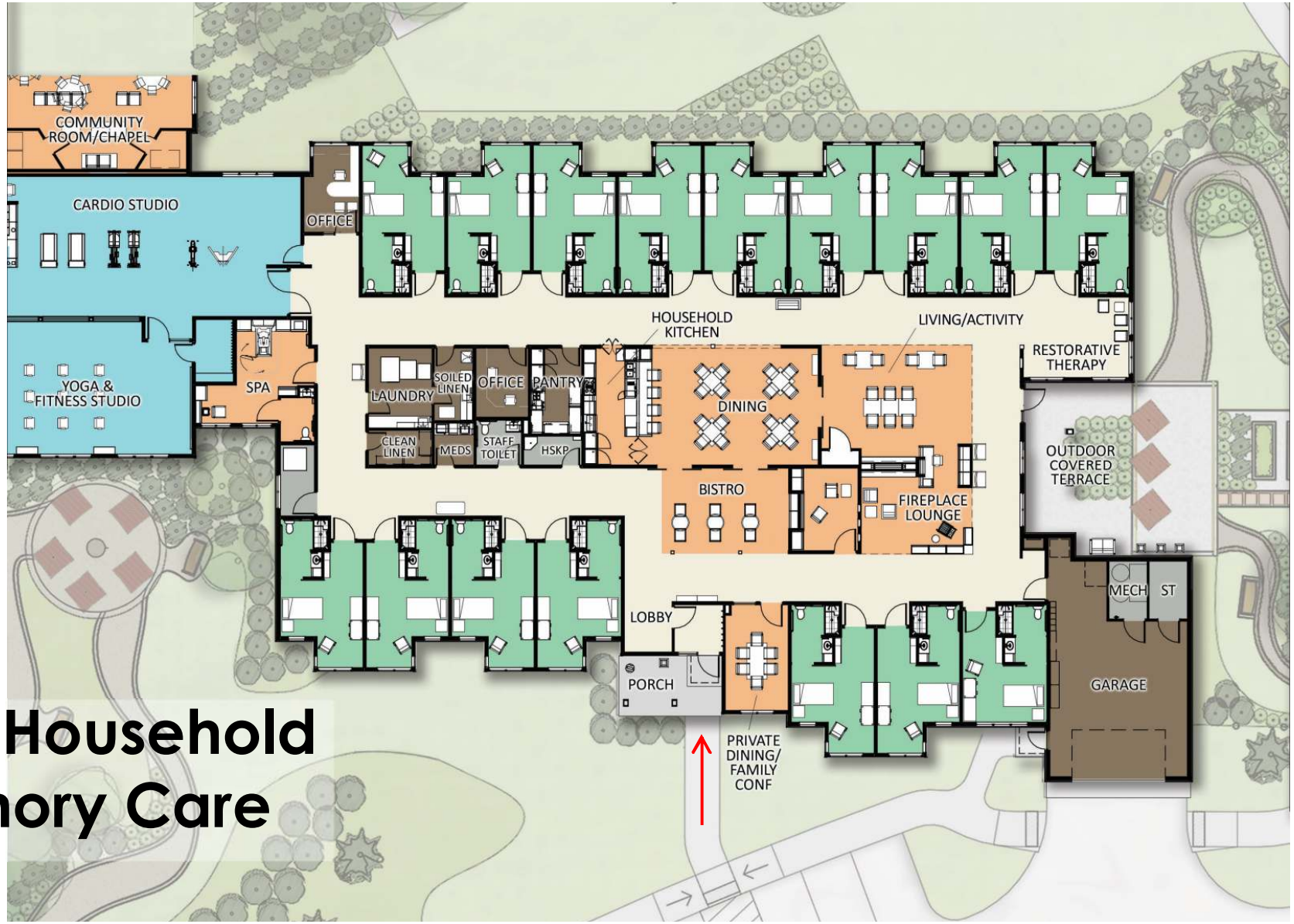


First Floor Plan

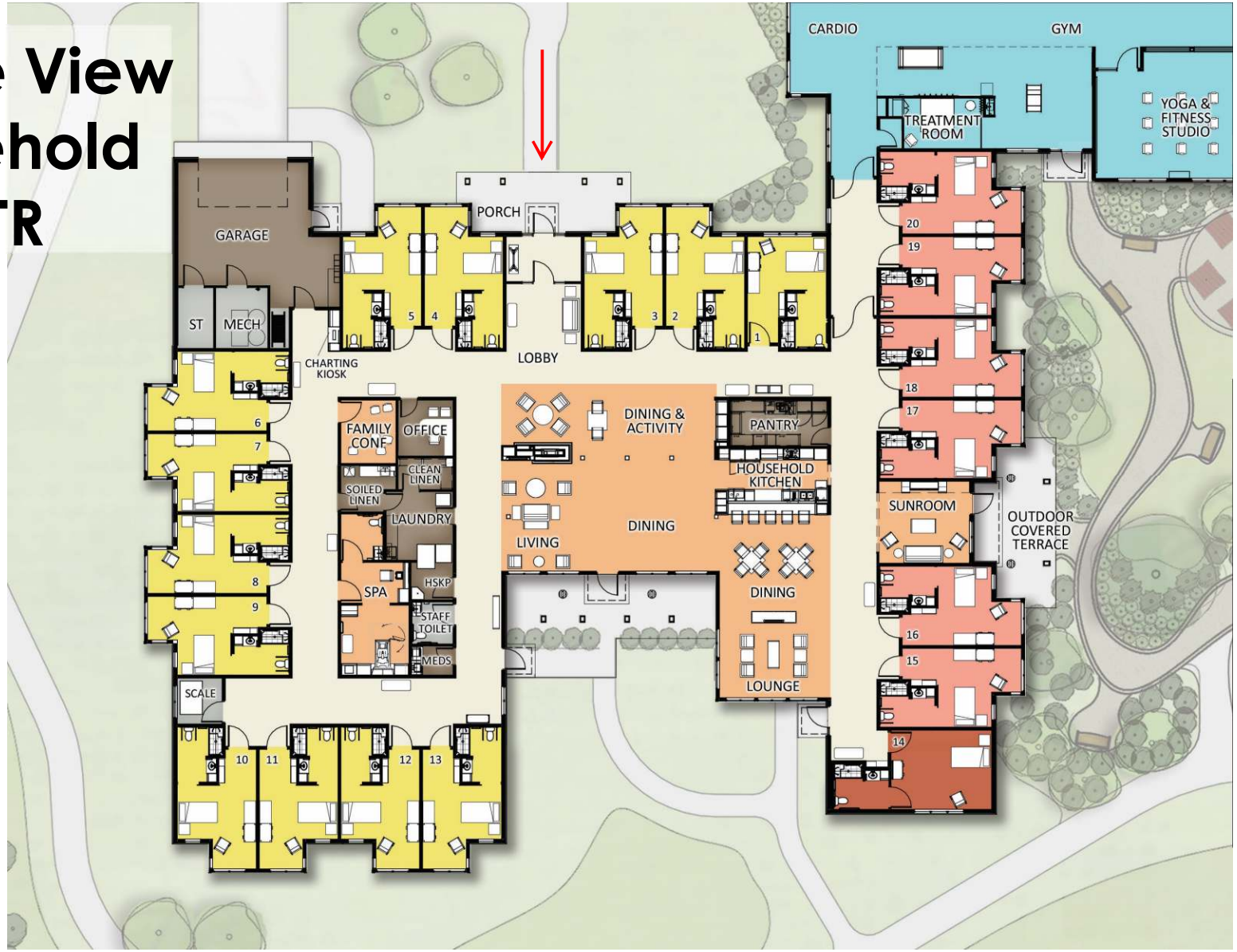


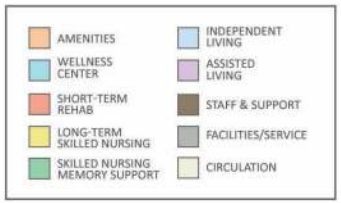
Common spaces

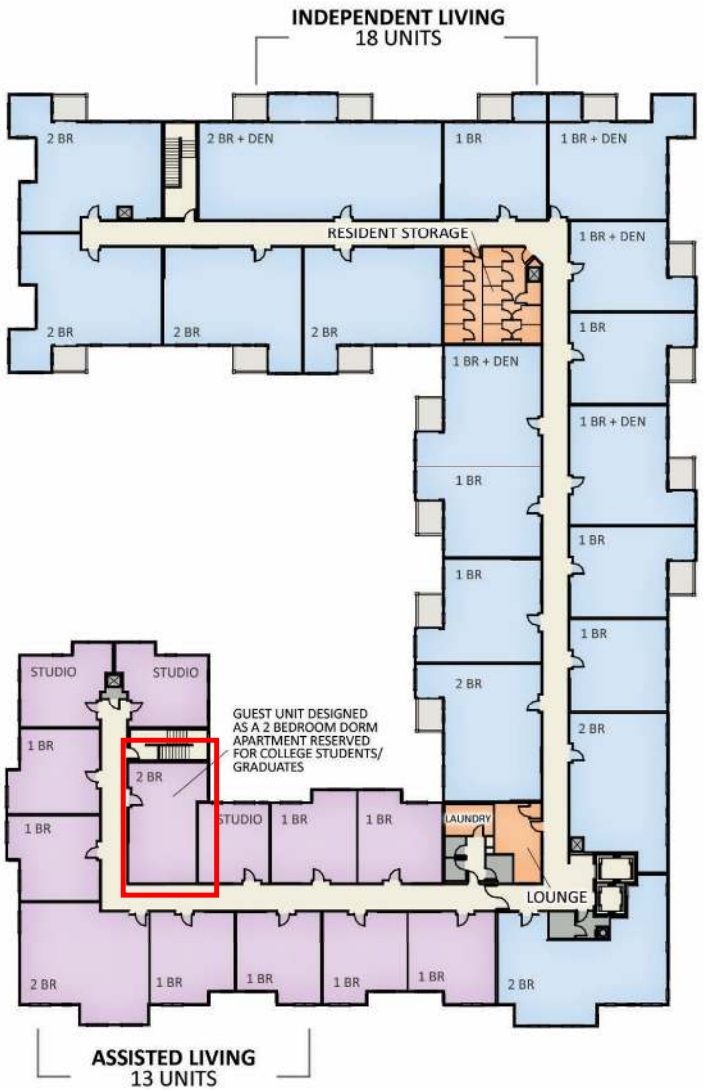
Elan Household Memory Care



Trestle View Household LTC/STR







2ND FLOOR PLAN

3RD FLOOR PLAN

Part 3: **Findings of the POE**

Project goals and highlights

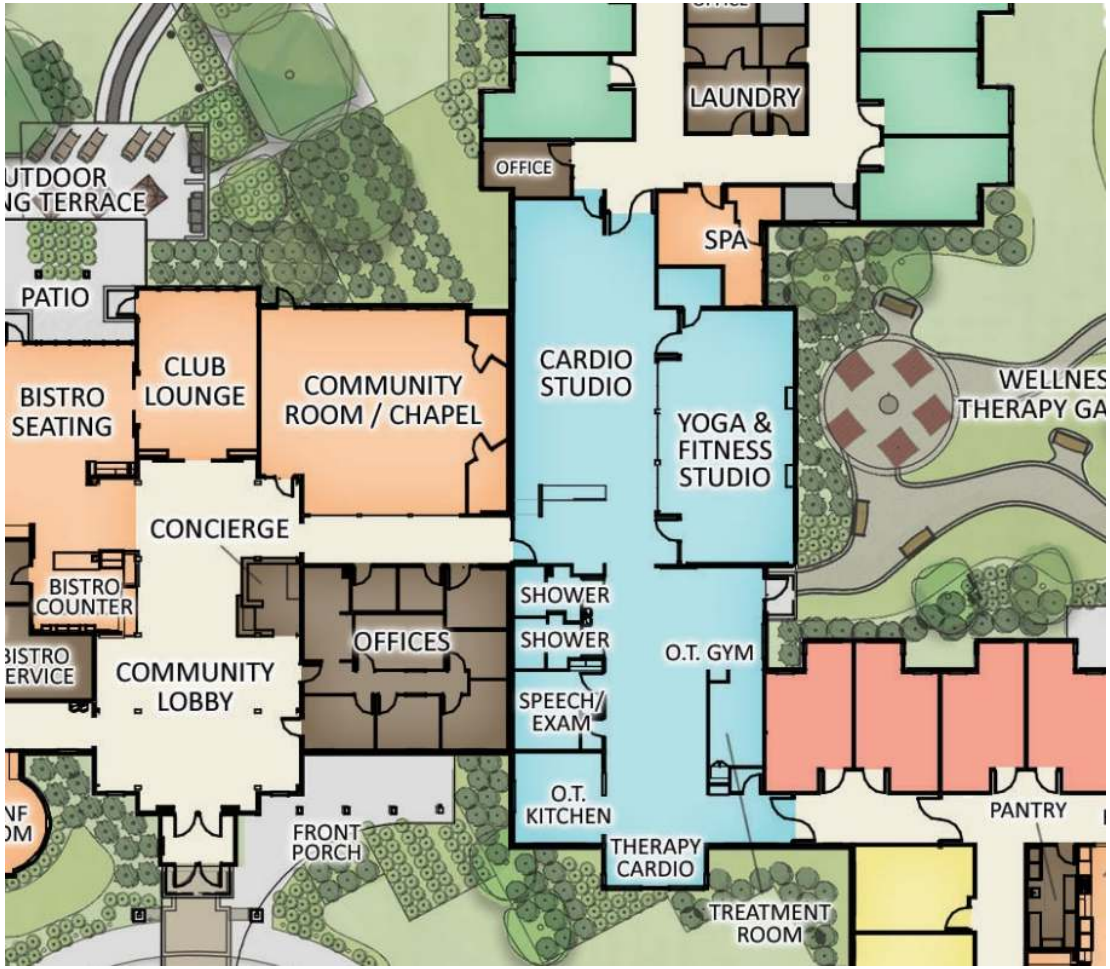
Themes

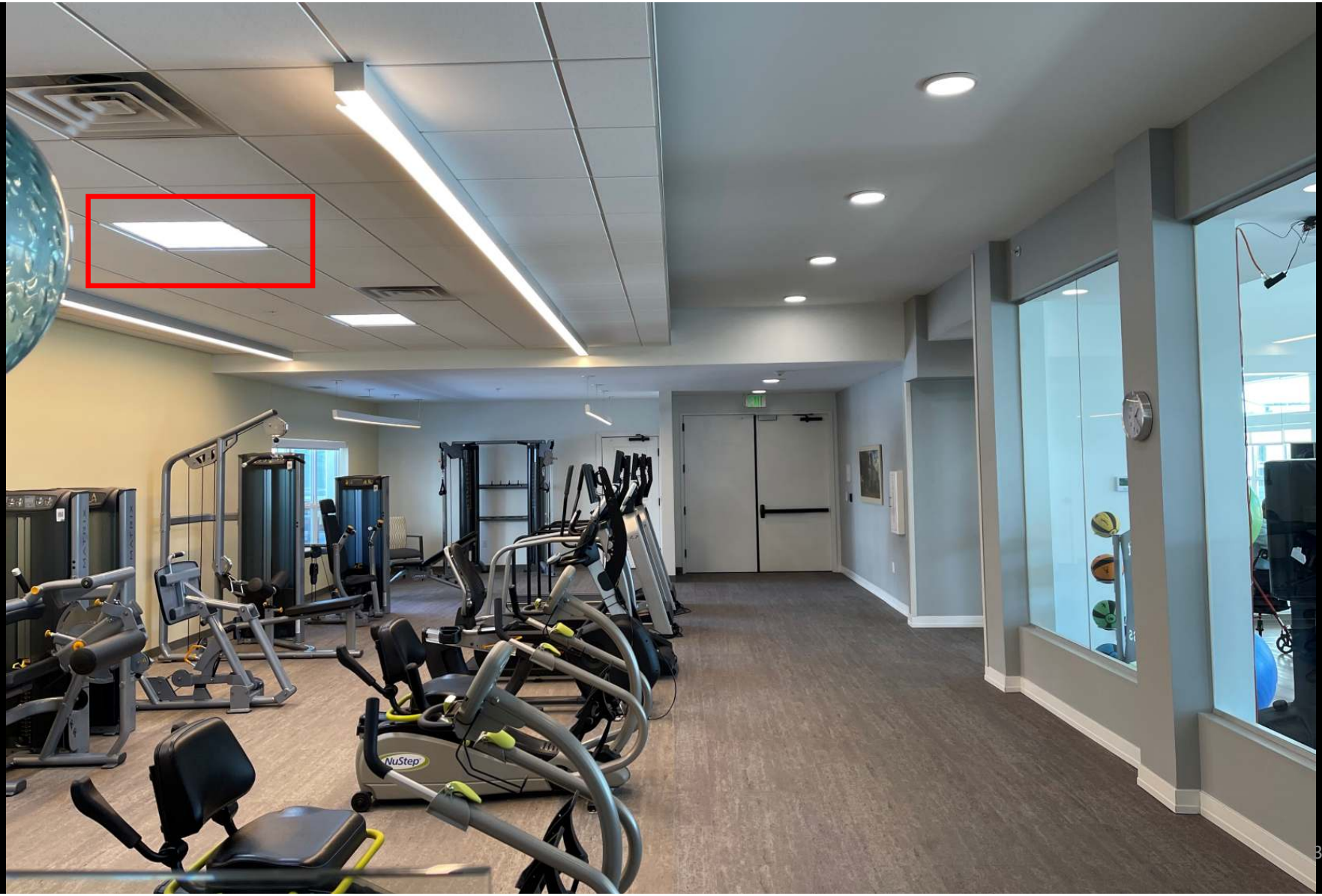
- Modern Farmhouse Style
- Integration of Care Levels
- Acoustics
- Household design

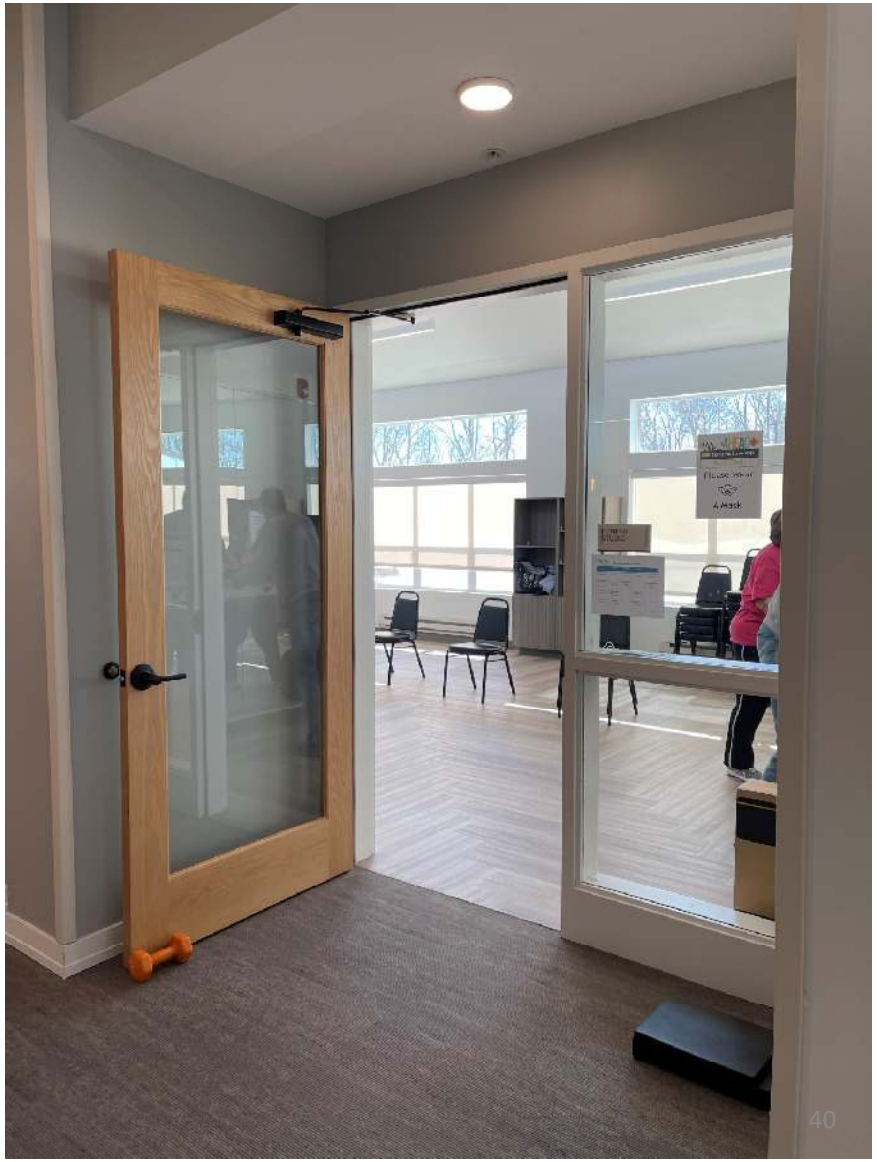
Theme 1: Modern Farmhouse Style


brio
OF JOHNSTON
A WESLEYLIFE COMMUNITY

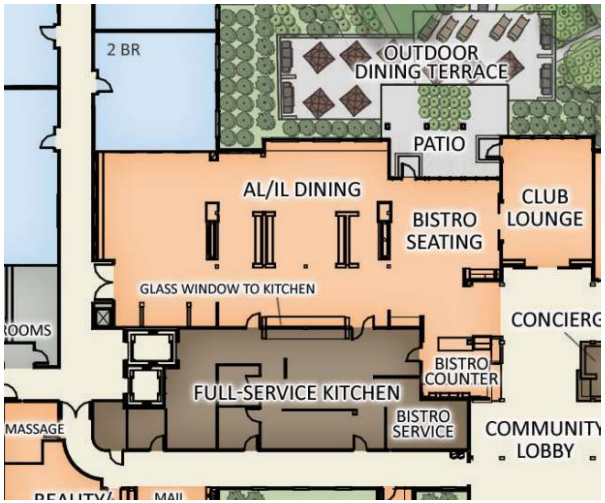
Theme 2: Integration of Care Levels

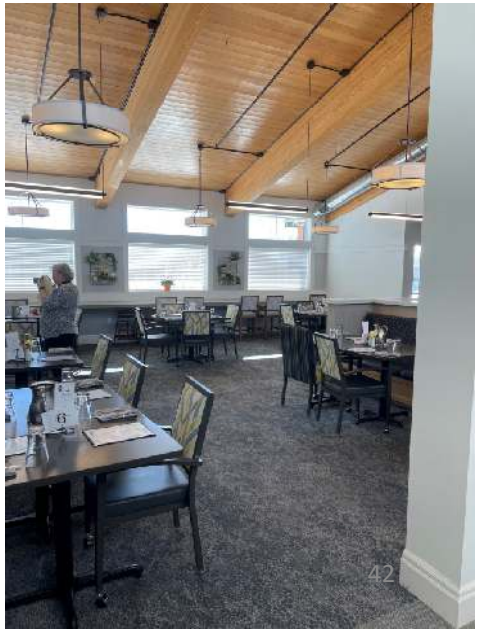



NuStep



2ND FLOOR PLAN


2 BR
OUTDOOR DINING TERRACE
PATIO
AL/IL DINING
BISTRO SEATING
CLUB LOUNGE
GLASS WINDOW TO KITCHEN
CONCIERG
BISTRO COUNTER
FULL-SERVICE KITCHEN
BISTRO SERVICE
MASSAGE
COMMUNITY LOBBY



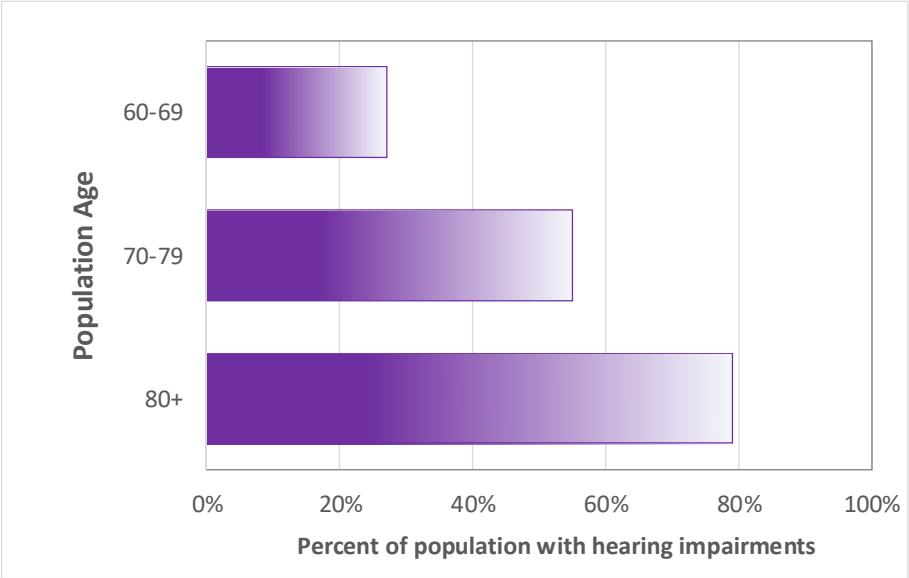

EXIT


15

Theme 3: Acoustics

Hearing Among Seniors

- More difficult to hear in noisy environments with hearing impairment
- Hearing aid use at 30% of those in need (NIDCD, NHIS & NHANES)
- Many hearing aids amplify all sound, not just the desired sound
- Reduced ability to hear speech-in-noise is a quality-of-life issue
  - Limits enjoyment, communication, and well-being
  - Increases social isolation
- Noise increases stress
  - Negative physiological & psychological health outcomes



(Lin, F.R., Niparko, J. K., Ferrucci, L. (2011). Hearing loss prevalence in the United States. *Arch Int Med.* 171(20):1851-1852.)

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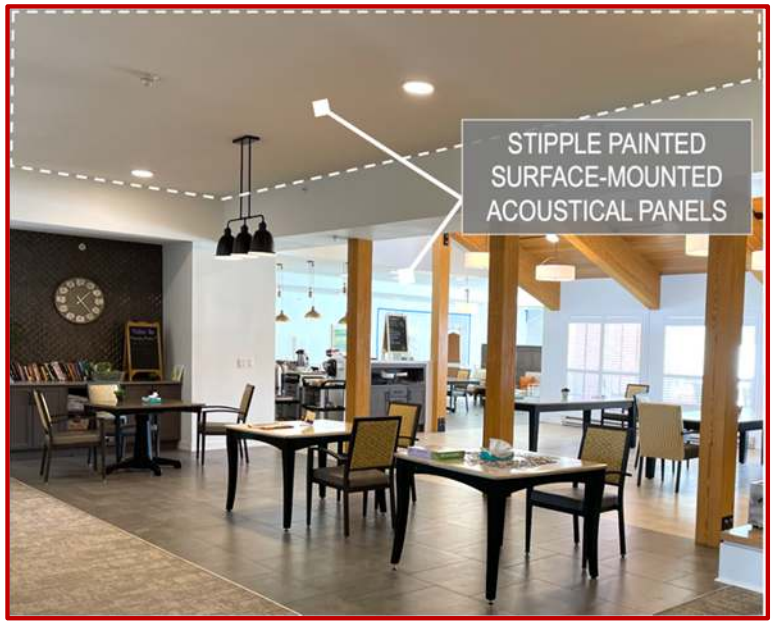
Acoustics Inspiration

- A 2014 POE at a Pope/WesleyLife facility, Hearthstone, informed the acoustics design at Brio of Johnston
- WesleyLife invested in acoustics and Pope Architects wisely and compassionately targeted improving community spaces where resident communication occurs

Reverberation

Dining - Skilled Nursing

Brio of Johnston



Hearthstone

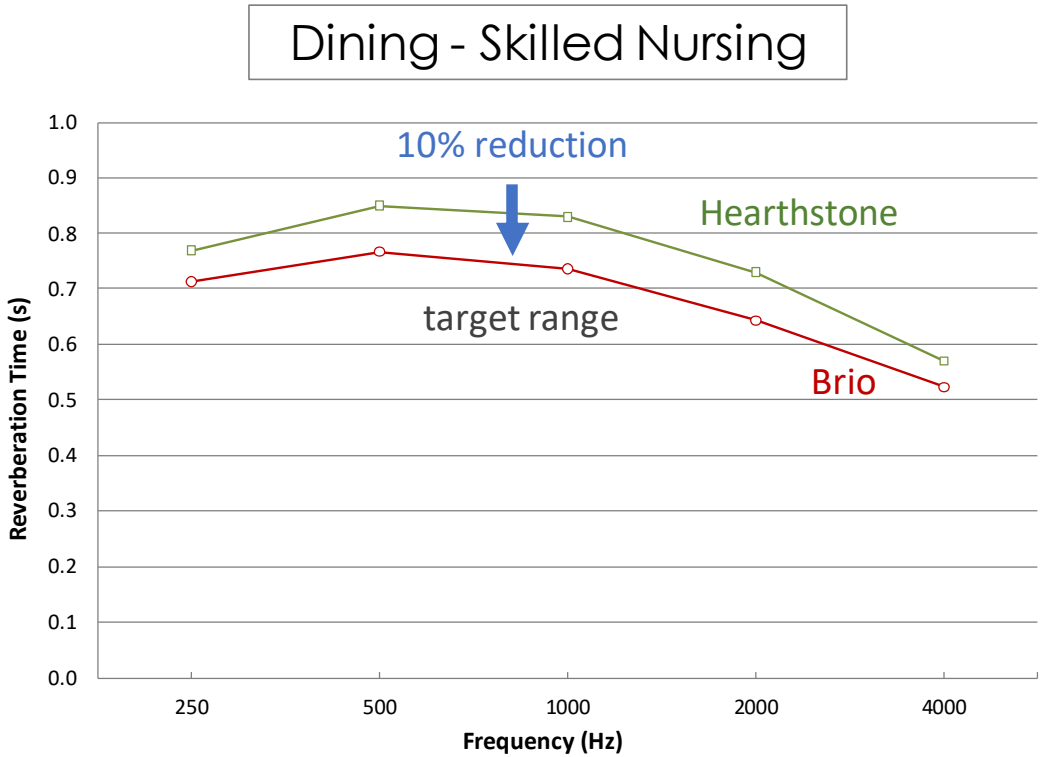
Reverberation

Goal: FGI & an environment that *sounds* residential

- Smaller, divided spaces with sound absorbing materials have a shorter reverberation time.

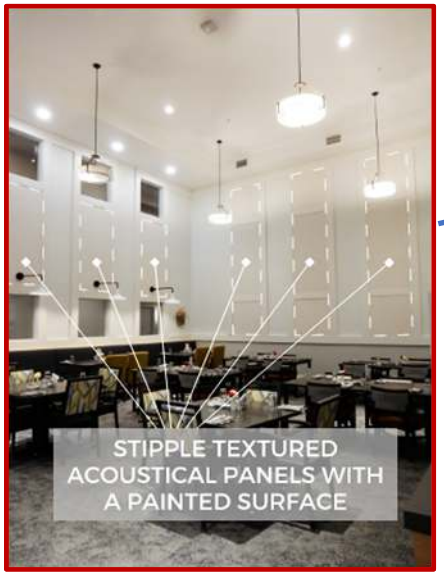
Fix: At Brio, reverberation was reduced by installing stipple painted acoustical panels on the ceiling in neighborhood dining spaces and partitioning dining into multiple smaller more intimate rooms in Memory Support.

Result: Improved acoustics while balancing budget needs.

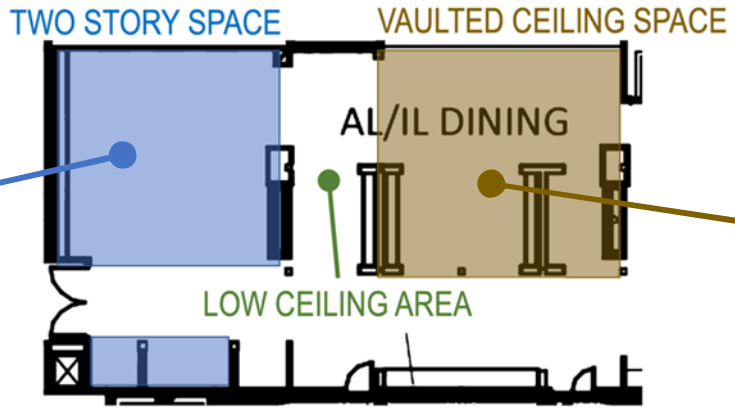


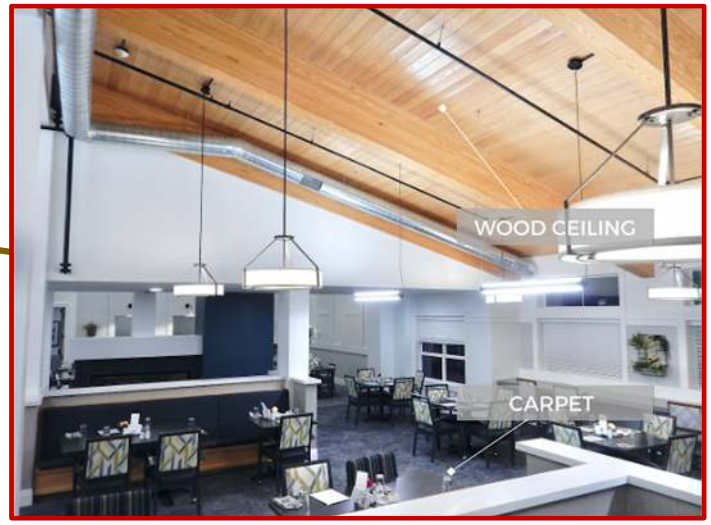
Reverberation

Dining - Assisted & Independent Living



Brio of Johnston





Brio of Johnston

Hearthstone

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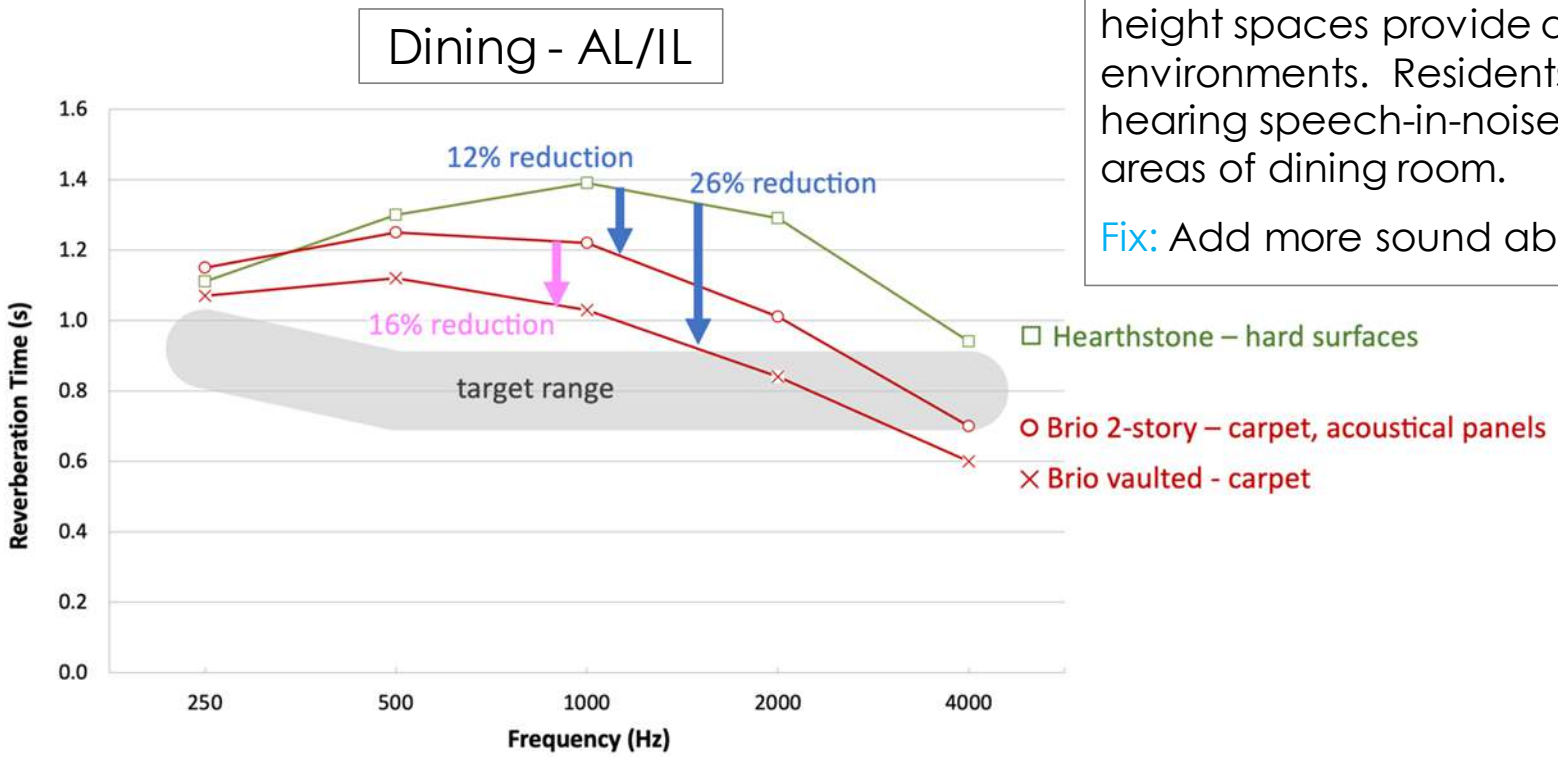
Reverberation

Goal: FGI Guidelines & good speech intelligibility

Result: FGI quantity of material not reached (about half), though different height spaces provide different acoustical environments. Residents with difficulty hearing speech-in-noise seek out quieter areas of dining room.

Fix: Add more sound absorbing materials



Sound Isolation

Goal: Provide sound isolation for meeting spaces without losing a sense of community and to support the sensory needs of residents.

Result: Low Noise Isolation Class (NIC, similar to STC) allows a significant amount sound to transfer.

- Accomplishes aural connection for dining/activity spaces
- Could be distracting during meetings
- AL/IL residents and staff did not cite meeting room sound isolation as a concern for sound isolation

Fix: Sealed swing doors and sealed glass would improve the NIC by 10 to 20 points.

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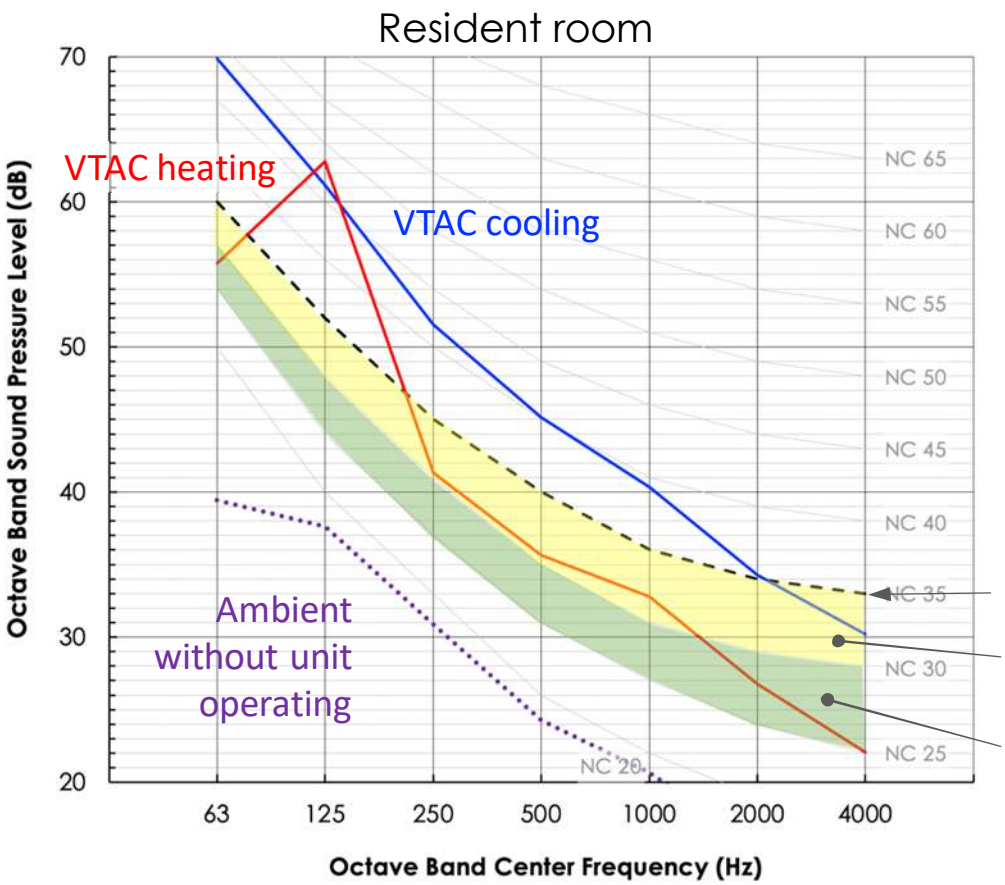
HVAC Noise



Goal: FGI & ASHRAE Noise Criterion(NC) rating

Result: Not reached in the units sampled

- In a resident room, loud HVAC can mask speech and make it difficult to hear the TV or people talking
- Sleep disturbance

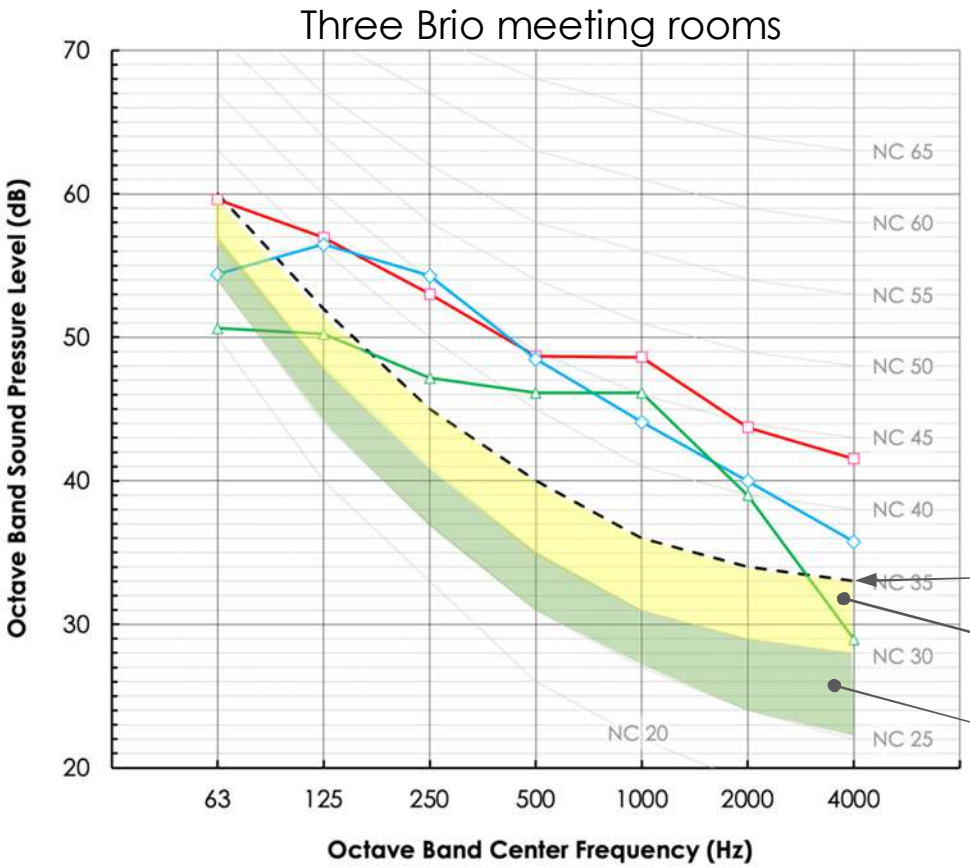
Fix: Buy quiet units & don't locate mechanical closet near occupied spaces, especially in bedrooms

2022 FGI maximum (NC 35, 40 dBA)

ASHRAE upper range (NC 30-35, 35-40 dBA)

ASHRAE lower range (NC 25-30, 30-35 dBA)

HVAC Noise



Goal: FGI & ASHRAE Noise Criterion(NC) rating for quiet background to facilitate communication

Result: Not reached

- In a meeting room, it is more difficult to hear the talker when the background sound is elevated (masking sound)

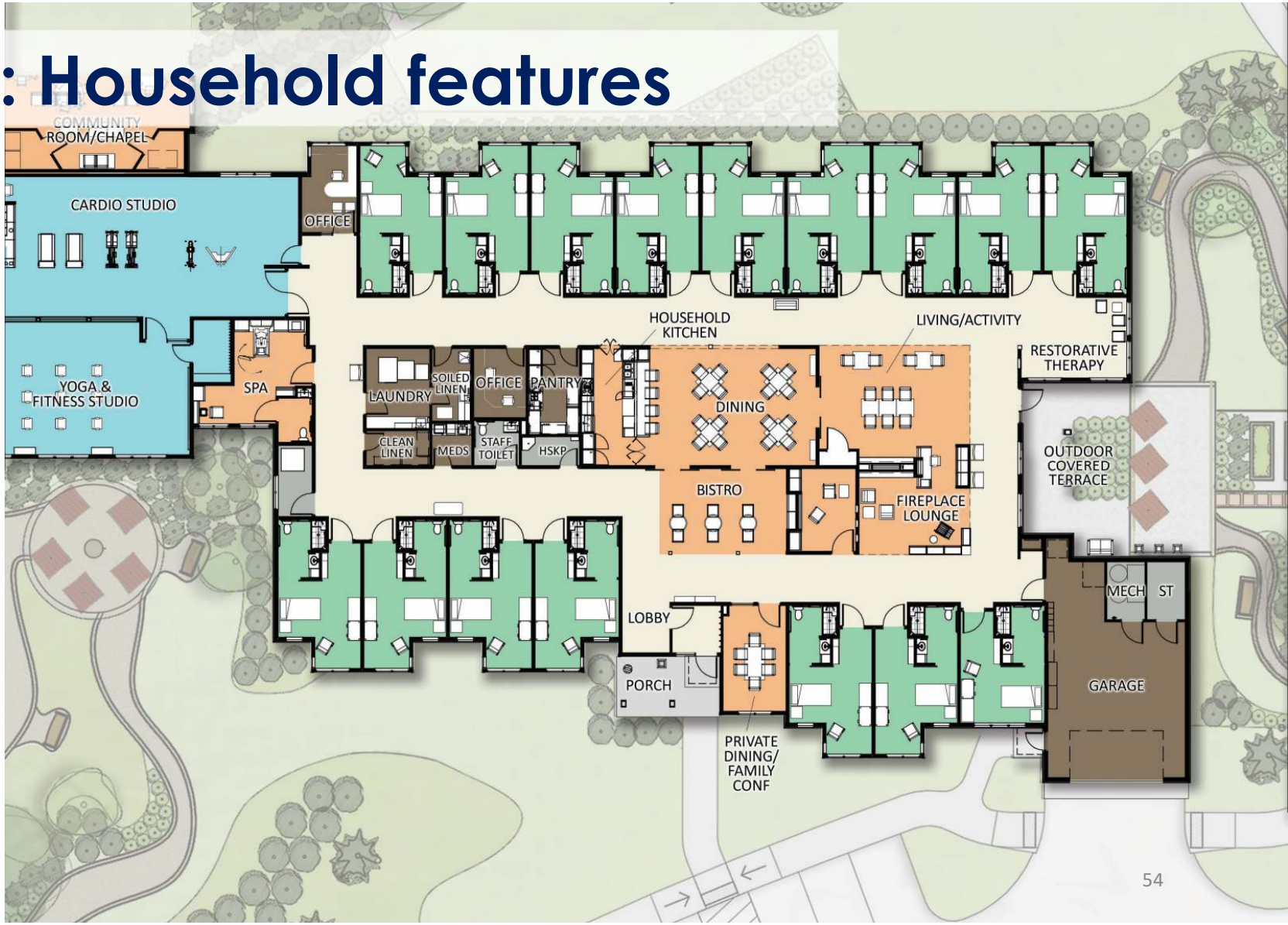
Fix: Buy quiet units, acoustically line ductwork, duct silencers, lower velocity air, quiet diffuser/grille selection

2022 FGI maximum (NC 35, 40 dBA)

ASHRAE upper range (NC 30-35, 35-40 dBA)

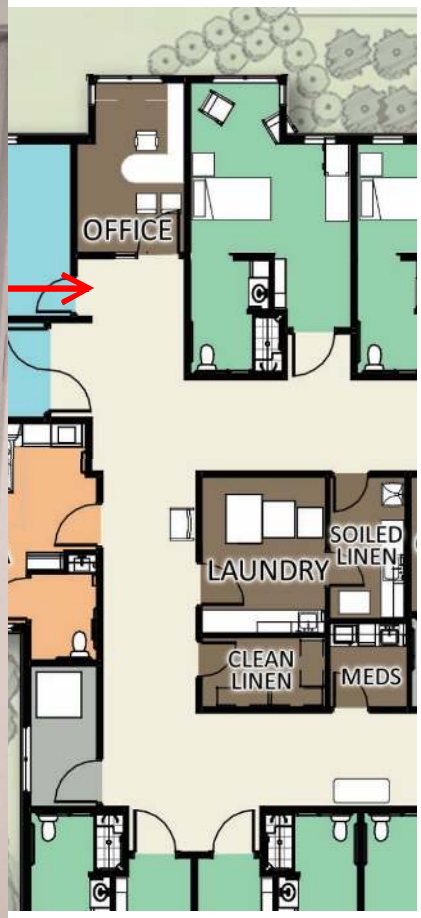
ASHRAE lower range (NC 25-30, 30-35 dBA)

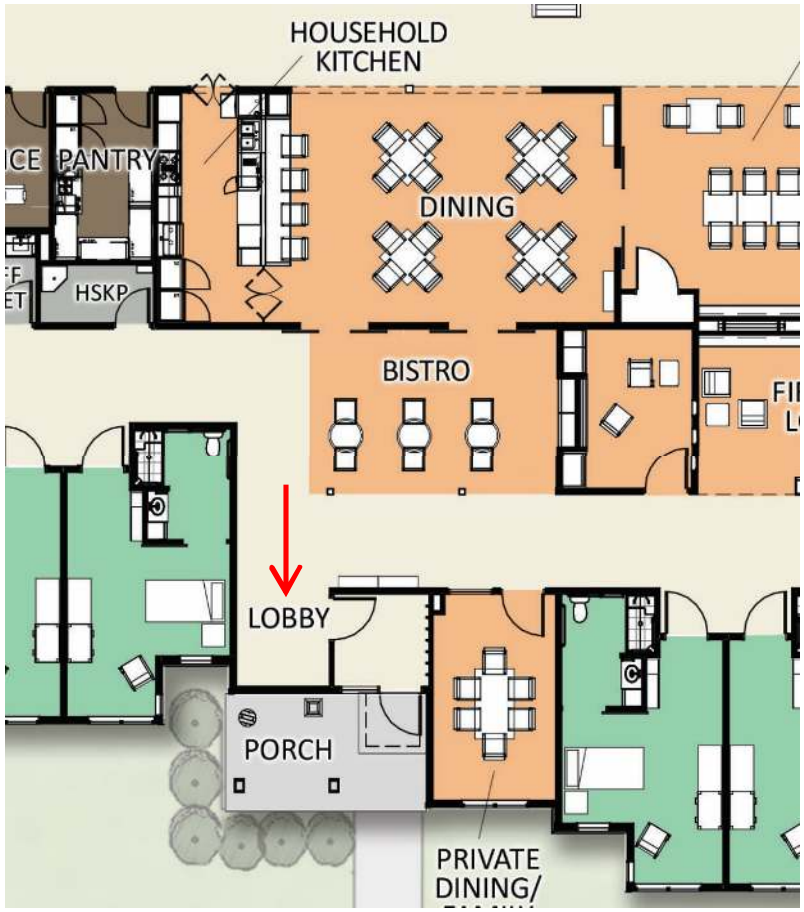
Theme 4: Household features



Elan Household Memory Care

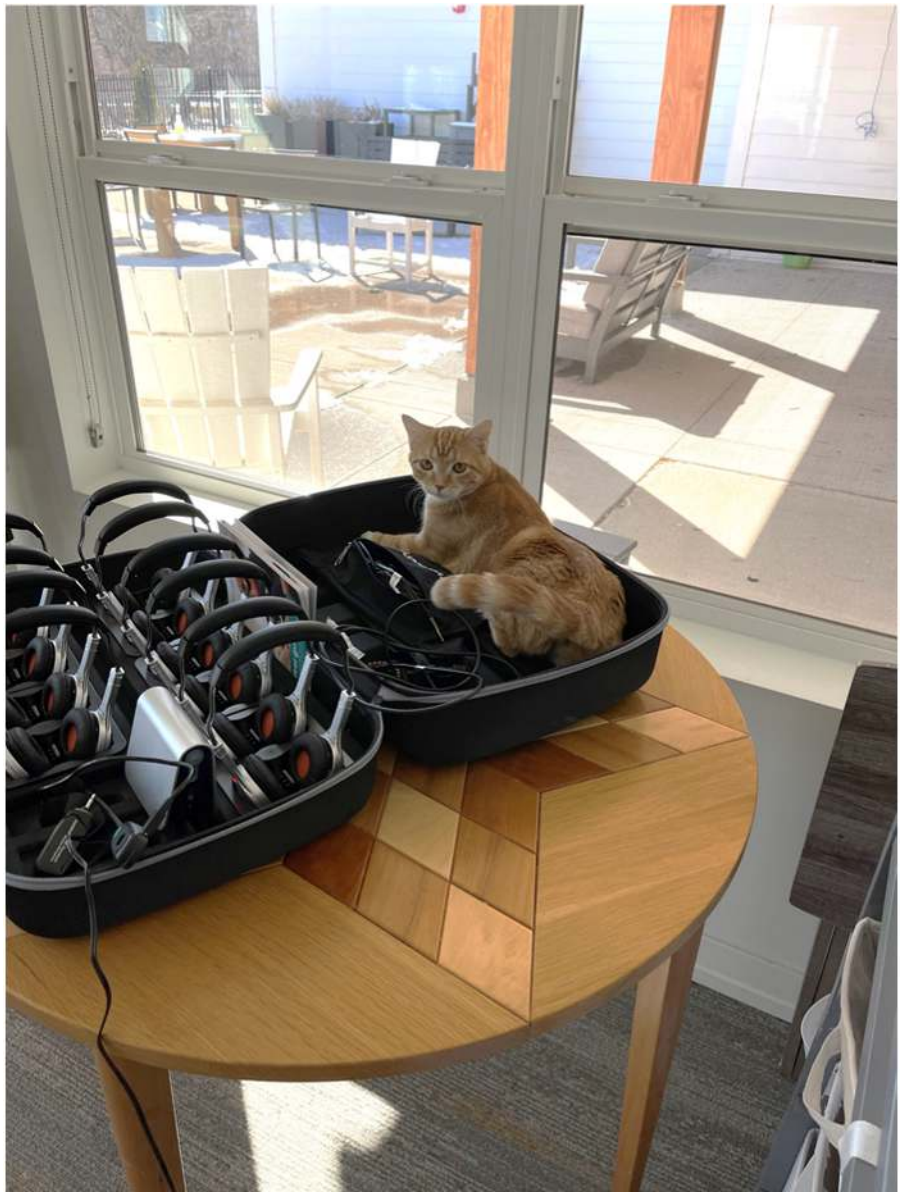

EXIT


OFFICE
LAUNDRY
SOILED LINEN
CLEAN LINEN
MEDS


HOUSEHOLD
KITCHEN
PANTRY
DINING
HSKP
BISTRO
LOBBY
PORCH
PRIVATE
DINING/


SCALE


OFFICE
SPA
LAUNDRY
SOILED LINEN
OFFICE
PANTRY
CLEAN LINEN
MEDS
STAFF TOILET
HSKP

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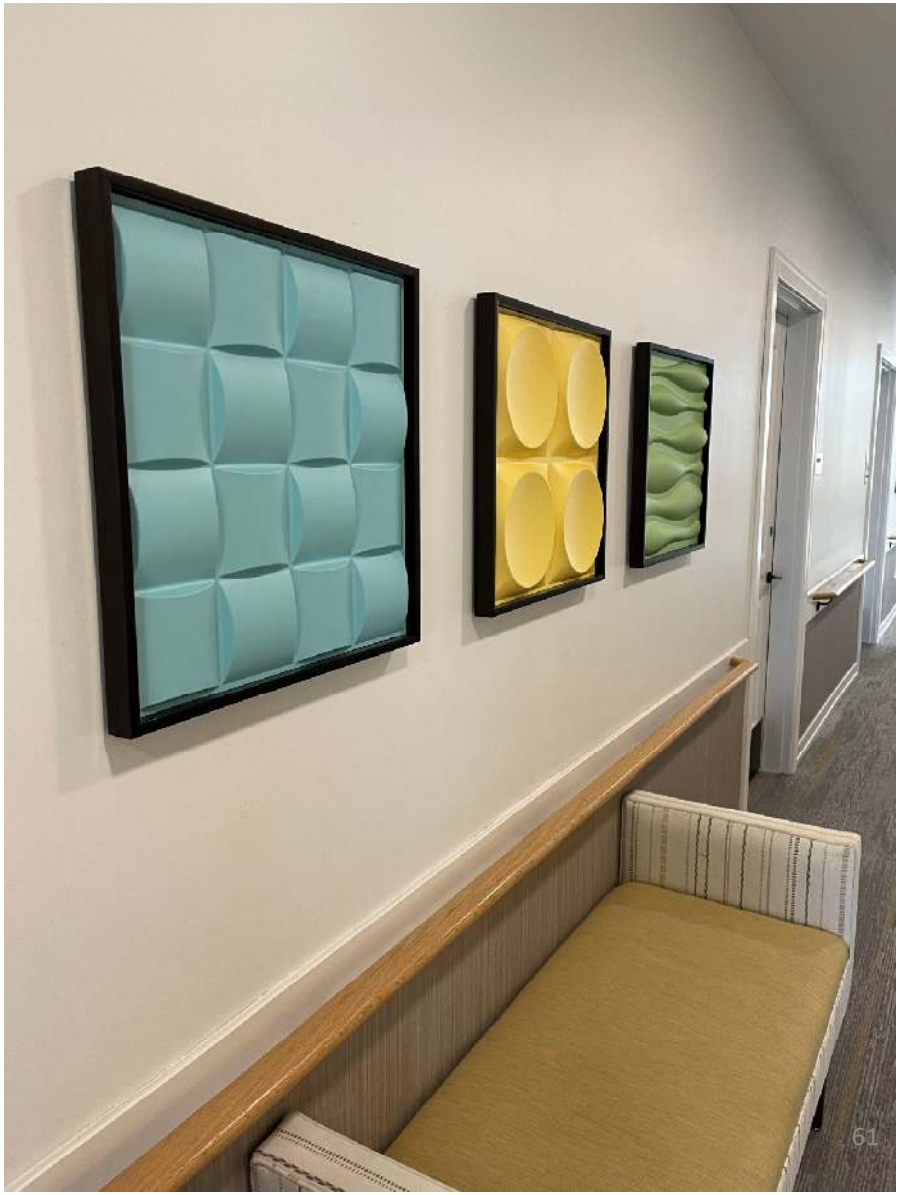
MAIL


farmhouse
COUNTRY CHARM



Summary

Concluding Thoughts

- Applied Lessons Learned
- Lower Tier product with great details
- Integration of care levels allows for less redundant common spaces.
- Importance of paying attention to Acoustics, and working with consultants

AIA Continuing Education Provider

This concludes The American Institute of Architects Continuing Education Systems Course

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Questions?

www.sagefederation.org

Questions?

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