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# DEMENTIA ENVIRONMENTS ASSESSMENT REPORT

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ST. JOHN'S HOME

JUNE 27, 2016

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150 HIGHLAND AVE.  
ROCHESTER, NY 14620

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ST. JOHN'S HOME

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# DEMENTIA ENVIRONMENTS ASSESSMENT REPORT

ST. JOHN'S HOME

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## DEMENTIA ENVIRONMENTS ASSESSMENT

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### INTRODUCTION

A dementia environments assessment was carried out by Addie M. Abushousheh, PhD, EDAC, Assoc. AIA (Consultant) from May 23-26, 2016. Addie is a gerontologist, researcher, and consultant for organizational and environmental development in long-term care. She explores cultural and bio-psycho-social perspectives, organizational structures and processes, physical environments, workforce models, and regulatory and financial frameworks in relation to decision making, resource management, and quality improvement. With combined expertise in architecture, organizational development, aging and applied research, Addie is uniquely positioned to advance comprehensive and translational agendas related to quality assessment and performance improvement within the continuum of care. In addition to independent consultation and research, Addie has also been retained as a Technical Expert by the Centers for Medicare and Medicaid Services and works on behalf of the Mayer-Rothschild Foundation in Chicago, IL.

The assessment of the environments in relation to dementia at St. John's Home combined a 24-hour dementia simulation with a 48-hour environmental assessment within three different representative areas of St. John's Home: South Building – 3<sup>rd</sup> Floor, Reservoir Building – 5<sup>th</sup> Floor, and Hastings Building – 5<sup>th</sup> Floor. During the assessment period, the Consultant participated in all meals, activities, independent and assisted bathing, and was accommodated in (private and shared) resident bedrooms. Light, sound and temperature measurements were systematically collected in various locations at time intervals and during peak use periods (e.g., dining). The consultant both observed the behaviors of elders and staff as well as continuously engaged a variety of individuals in conversation about their opinions and ideas.

An initial meeting with the St. John's Leadership Team provided an introduction and overview of past, present and future initiatives related to advancing person-centered dementia care. The leadership team emphasized the prevalence of dementia within the care population and the desire to maintain an integrated care approach rather than segregating individuals within memory care areas. The consultant commends this approach and believes that it will be a differentiating factor from competitors, as it is considered to be progressive within the industry. Not only does integrated dementia care eliminate using the environment as a resident restraint, additionally, all individuals may benefit from strategies aimed to enable those who have diminished physical and cognition abilities.

## OBJECTIVE

St. John's goal, as stated in the original request for proposal (RFP), is to create innovative environments that support and promote accessibility for residents living with dementia. The engagement of a dementia environments consultant is intended to ensure renovations will enable residents by meeting the specific needs of elders with dementia. The consultant's objective is to provide technical expertise in dementia-friendly communities and to recommend appropriate capital improvements to each community.

The Consultant's proposal that was accepted included carrying-out, evaluating and reporting the outcomes of a 24-hour subjective dementia simulation exercise as well as one 24-hour objective environmental assessment within a single representative dementia environment. The final consulting agreement modified the second phase to include one additional 24-hour objective environmental assessment that would take place within two additional environments. Both phases of the assessment (detailed below) were carried out one after another in order to use the Consultant's and St. John's Home's time and resources efficiently and effectively.

### *Phase 1: Dementia Simulation*

Phase #1 of the dementia environments assessment included the consultant carrying out a 24-hour dementia simulation within the South Building – 5<sup>th</sup> Floor. The simulation provided first-hand insight into the every-day experience of residents living with the symptoms of dementia. In order to provide a full-range of practical feedback, the Consultant slept in an unoccupied bedroom and participated in the typical meal/snack routines, activities and bathing schedule without being granted any special considerations. To this end, although staff were aware that the Consultant was not a long-term resident, they also understood that no special treatment or considerations were to be made that would not ordinarily be extended to any other elder who might be living within the community.

### *Phase 2: Environmental Assessment*

Phase #2 of the dementia environments assessment included the consultant carrying out environmental observations and interviews over the course of two additional 24-hour time-frames. The first 24-hour environmental assessment took place in the same location as the dementia simulation was carried out (South Building – 5<sup>th</sup> Floor). The rationale behind evaluating the same area in two different ways relates to the dramatic behavioral differences that an environment may elicit during dawn, daylight, dusk and at night. The second 24-hour environmental evaluation was carried out in simultaneously on the 3<sup>rd</sup> Floor of the Reservoir and Hastings Buildings. Temperature, lighting and sound measurements were recorded at a variety of locations throughout each of the environments in conjunction with occupancy and activities.

The following report provides a summary of outcomes garnered over the course of the dementia environments assessment as well as shares recommendations and resources available to St. John's Home to support operational approaches to person-centered care. Further, the consultant has reviewed current publications and guidelines for pertinent topics and selected several which she perceives to be both relevant and reliable.

## SCHEDULE

The dementia environments assessment schedule was coordinated by Joanne Braeunle. Meetings with the St. John's Leadership Team (Joanne Braeunle, Rebecca Priest, Diane Bogaczyk & Mimi DeVinney) were held at the commencement and conclusion of the site visit. A tour of the campus and renovated household on the 5<sup>th</sup> floor of the South Building was provided prior to engaging in environmental assessment activities. An additional tour of the GREEN HOUSES™ was provided in the morning on the final day.

- Day 1 – May 23<sup>rd</sup>:
  - 9:00 AM – Meeting with St. John's Leadership Team (Joanne Braeunle, Rebecca Priest, Diane Bogaczyk & Mimi DeVinney) and tour St. John's Home.
  - 11:30 AM – Commence Dementia Simulation: South Building, 5<sup>th</sup> floor. (Overnight accommodations provided in South Building single-occupancy room #582.)
- Day 2 – May 24<sup>th</sup>:
  - 1:00 PM – Conclude Dementia Simulation: South Building, 5<sup>th</sup> floor. Relocate and secure belongings in Reservoir Building.
  - 2:30 PM – Commence Environmental Assessment: South Building, 5<sup>th</sup> floor. (Overnight accommodations offered in Reservoir Building double-occupancy room #315; Slept in unoccupied single-occupancy room #582.)
- Day 3 – May 25<sup>th</sup>:
  - 1:30 PM – Conclude Environmental Assessment: South Building, 5<sup>th</sup> floor.
  - 2:00 PM – Commence Environmental Assessment: Reservoir & Hastings Buildings, 3<sup>rd</sup> floor. (Overnight accommodations provided in Reservoir Building double-occupancy room #315.)
- Day 4 – May 26<sup>th</sup>:
  - 9:00 AM – Tour of GREEN HOUSES™
  - 12:45 PM – Conclude Environmental Assessment: Reservoir & Hastings Buildings, 3<sup>rd</sup> floor.
  - 1:00 PM – Meeting with St. John's Leadership Team (Joanne Braeunle, Rebecca Priest, Diane Bogaczyk & Mimi DeVinney)

## DEMENTIA SIMULATION

The Consultant has developed a 24-hour dementia simulation approach that has been successfully used in a variety of settings to gain first-hand insight into the every-day experience of residents living with the symptoms of dementia.

The Consultant used material to simulate the physical symptoms of aging, including.

- Shoe inserts simulate the foot pain that often accompanies poor circulation, neuropathy, and arthritis.
- Gloves with PVC dots on the inside of both sides decrease sensory and fine motor skills.
- Tape around the fingers restricts joint movement consistent with arthritis as well as decreases sensitivity to touch, injury, and hot and cold.
- Special glasses with a black dot in the center of each lens simulate the yellowing and thickening of the eye lens as well as macular degeneration. The glasses also impair peripheral vision which becomes constrained as the occipital lobe of the brain is deteriorated by Dementia.
- A piece of sanding paper attached to the back of the shirt collar creates an uncomfortable annoyance that no one else can see which is consistent with the needs that frequently cannot be effectively communicated and, therefore, go unaddressed.

The Consultant also used equipment to reproduce the cognitive effects of dementia, including:

- An MP3 player, along with headphones and a specially designed audio track, replicate the hearing impairment and confusion associated with dementia. People have trouble discriminating sounds and report buzzing sounds.

The intended effect is to induce physical discomfort, over-all fatigue, and a chaotic mental state, similar to what many people with dementia experience, which can result in the loss of memory and concentration, confusion and agitation as well as cause difficulties in carrying out simple tasks.

The simulation of dementia may be used effectively as an empathy training tool for direct care providers by helping them to understand how elders perceive and are impacted by their environment. Empathy training is one of the strongest tools that can be used for working with those who have dementia and pre:post behavior and performance may be evaluated as an ongoing educational initiative.

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## TEMPERATURE, LIGHTING & SOUND

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### RECOMMENDED ENVIRONMENTAL AMBIENT CONDITIONS FOR ELDERS:

As people age they become more dependent on their environment to compensate for increasing frailty and sensory loss. Accessing and interpreting cues in the environment is essential to enable individuals to interact with their surroundings. Any impediment to the clarity and comprehension of cues in the environment can reduce a person's ability to understand or to safely (and independently) navigate their environment as well as manifest and exacerbate symptoms of dementia. While furnishings and finishes receive a great deal of attention, taken-for-granted environmental ambient conditions significantly affect the health, quality of life and functional abilities of older adults, especially those with dementia. This includes, but is not exclusive to: temperature, light and sound.

#### TEMPERATURE<sup>1</sup>

- CFR 483.15(h)(6) Comfortable and safe temperature levels. CMS certified skilled nursing facilities certified after October 1, 1990 are required to maintain a temperature range of 71 - 81° F.
- Temperatures may exceed 81° F for facilities in geographic areas where that same temperature is exceeded during rare, brief and unseasonable weather along with the stipulation that resident health and safety will not be adversely affected.

#### LIGHTING<sup>2</sup>

- Proper lighting for older adults is found in ANSI/IESNA (Recommended Practice) RP-28-2001 Lighting and the Visual Environment for Senior Living. (Please refer to the table for recommended ambient and task lighting on page #6.)
- While lighting quantity is measured in LUX and/or foot-candles (fc), providing the quality *and* quantity of light necessary for older eyes to see, entails employing a three-part solution: (1) raising light levels substantially, (2) balancing natural light and electric light to achieve even light levels and (3) eliminating glare.

#### SOUND<sup>3</sup>

- The World Health Organization (WHO) and the Environmental Protective Agency (EPA) recommend sound levels should not exceed 35 dBA, with peaks no louder than 45 dB, in healthcare facilities. Outdoor sound should not exceed 55 dB.
- The Facilities Guidelines Institute (FGI) contains specific acoustical criteria for residential care facilities, but the AS2017 provides recommendations for acoustical design specific to dementia in terms of recommended sound levels and reverberation time. (Please refer to the tables on page #7.)

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<sup>1</sup> State Operations Manual (SOM) - Centers for Medicare & Medicaid Services (CMS):  
[https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap\\_pp\\_guidelines\\_ltcf.pdf](https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltcf.pdf)

<sup>2</sup> ANSI/IESNA Recommended Practice-28-2001, 2001. *Lighting and the Visual Environment for Senior Living*. New York: Illuminating Engineering Society of North America.

<sup>3</sup> Standards Australia/Standards New Zealand Acoustics 2000. *Recommended Design Sound Levels and Reverberation Times for Building Interiors*.

RECOMMENDED LIGHTING FOR THE VISUAL ENVIRONMENT<sup>4</sup>

Normal age-related changes to the eye decrease the amount of light reaching the retina impacting both vision and circadian rhythm. Typical nursing home lighting does not provide adequate bright light exposure or the spectrum critical to synchronize circadian rhythms and stimulate Vitamin D synthesis necessary to maintain healthy bones. Accordingly, individuals living in nursing homes experience more falls, hip fractures, sleep problems, depression and greater dependency on staff.<sup>5</sup>

<b>AREAS</b>	<b>Ambient Light</b>	<b>Task Light</b>
Exterior Entrance (Night)	10	
Interior Entry (Day)	100**	
Interior Entry (Night)	10	
Exit Stairway & Landings	30	
Elevator Interiors	30	
Parking Garage		
Exterior Walkways		
Administration (Active)	30	50
Activity Areas (Day only)	30	50
Visitor Waiting (Day)	30	
Visitor Waiting (Night)	10	
Resident Room		
Entrance	30	
Living Room	30	75
Bedroom	30	75
Wardrobe/Closet	30	
Bathroom	30	
Make-up/Shaving Area	30	60
Shower/Bathing Rooms	30	
Kitchen area	30	50
Barber/Beautician (Day)	50	
Chapel or Quiet Area (Active)	30	
Hallways (Active Hrs)	30	
Hallways (Sleeping Hrs)	10	
Dining (Active Hrs)	50	
Medicine Prep	30	100
Nurses Station (Day)	30	50
Nurses Station (Night)	10	50
Physical Therapy Area (Active Hrs)	30	50
Occupational Therapy (Active Hrs)	30	50
Examination Room (Dedicated)	30	100
Janitors Closet	30	
Laundry (Active Hrs)	30	50
Clean/Soiled Utility	30	
Commercial Kitchen	50	100
Food Storage (Non-Refrig.)	30	
Staff Toilet Area	20	

\*Values are presented in footcandles (fc). Conversion to lux (1fc= 10.76 lux)  
 \*\* Utilization of daylight is encouraged in entryways to provide a transition between outside and interior illumination levels.

<sup>4</sup> Lighting Reference Table: ANSI/IESNA Recommended Practice-28-2001, 2001. *Lighting and the Visual Environment for Senior Living*. New York: Illuminating Engineering Society of North America.

<sup>5</sup> Brawley & Noell-Waggoner, (2008). Lighting: Partner in quality care environments. Available : <https://www.pioneernetwork.net/Data/Documents/BrawleyNoell-WagonerLightingPaper.pdf>



## RECOMMENDED ACOUSTICS FOR THE AUDITORY ENVIRONMENT<sup>6</sup>

Normal age-related changes often include hearing deficits which impair individuals' ability to interpret auditory information accurately which can cause anxiety, confusion, frustration, agitation and aggression. People with poor physical and cognitive functioning are particularly vulnerable to their immediate acoustic environment. Sensory overload at the same time as hearing (e.g., sight, touch, smell & taste) can bring about dramatic, unanticipated and, seemingly, uncontrollable behavioral changes. This is a prime example of individuals reacting *to* their environment rather than being enabled *by* their environment.

Common sources of sound may be divided into three general categories: 1) building systems, 2) equipment, and 3) individuals.

*Recommended design sound levels:*

Type of Occupancy/Activity	Recommended Design Sound level, $L_{Aeq}$ (dBA)
Sleeping areas	35
Common Areas	40
Toilets and bathrooms	45
Kitchen and service areas	45
Staff work areas	40
Corridors and lobbies	40

*Recommended reverberation times:*

Type of Occupancy/Activity	Recommended Reverberation Time (s)
Sleeping areas	0.5
Common Areas	<1.0
Toilets and bathrooms	Minimised as far as practical
Kitchen and service areas	Minimised as far as practical
Staff work areas	0.6 to 0.8
Corridors and lobbies	0.6 to 0.8

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<sup>6</sup> Sound Level Reference Table: Standards Australia/Standards New Zealand Acoustics 2000. Recommended Design Sound Levels and Reverberation Times for Building Interiors.

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## SOUTH BUILDING – 5<sup>TH</sup> FLOOR

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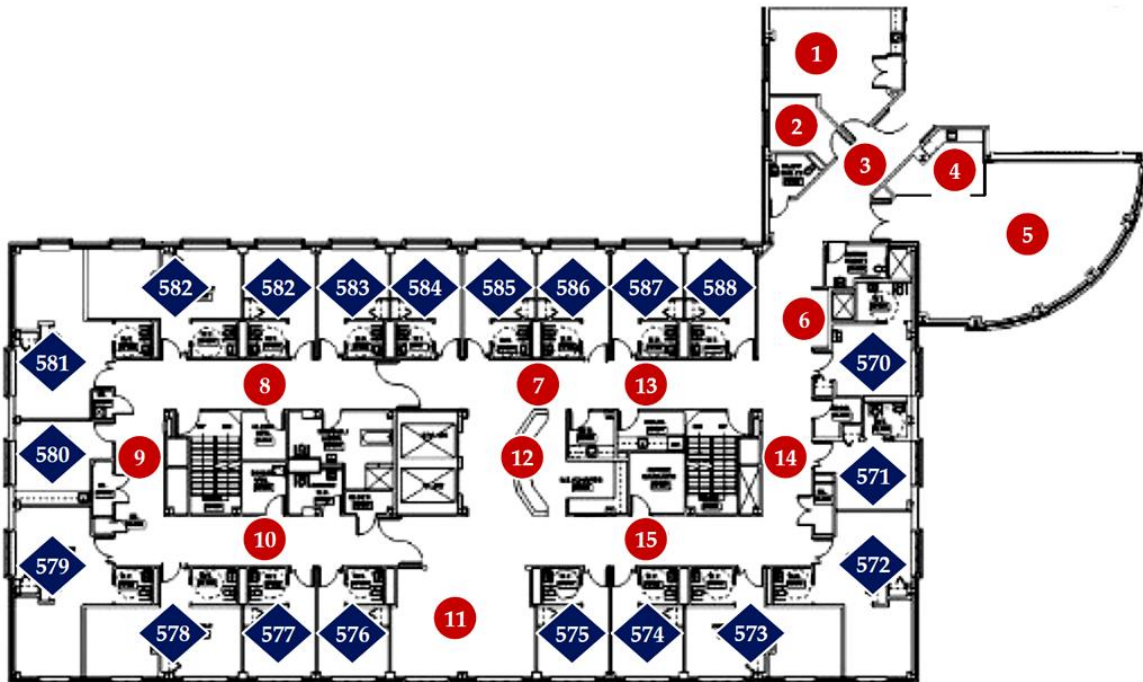
### TEMPERATURE, LIGHTING & SOUND MEASUREMENT TABLES<sup>7</sup>

An environmental assessment was conducted in the South Building on the 5<sup>th</sup> Floor beginning at 2:30 PM on May 24<sup>th</sup> and concluding at 1:30 PM on May 25<sup>th</sup>. The tables (1-15 + Bedrooms) on the pages that follow provide both a visual depiction and unit measure for temperature, lighting and sound assessment information. Each title is preceded by a number which corresponds with locations on a floor plan of the 5<sup>th</sup> floor of the South Building (depicted below).

The *actual temperature measurement* is reported in Fahrenheit degrees (°F). Please note that the recommended temperature range (71 - 81° F) provided by CMS, however, has been excluded from the tables in favor of simplification for ease of interpretation.

Lighting measurements are reported in foot-candles (fc), a common unit of light intensity measurement used by the lighting industry in the United States to calculate and specify adequate lighting levels for workspaces in buildings and outdoor spaces. The *recommended lighting level* is depicted as a dashed line in the same color as the *actual lighting measurement*.

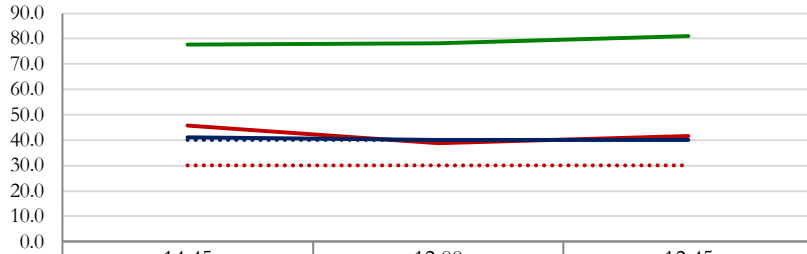
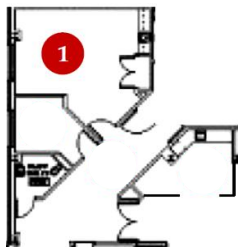
Average sound measurements are reported in decibels (dB), commonly used in the acoustics industry as a unit of sound pressure level. The *recommended sound level* is depicted as a dashed line in the same color as the average *actual sound measurement*. While the range of decibels varied greatly, peak sound levels were, typically,  $\pm 10$  dB in excess of the average sound measurement.



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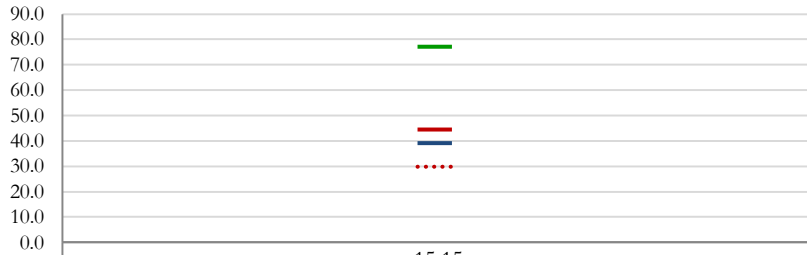
<sup>7</sup> For more detailed information on temperature, levels and sources of light and sound, and occupancy per location at various times, please refer to the “Environmental Measures - Raw Data” tables beginning on p 40.

(1) ACTIVITY AREA



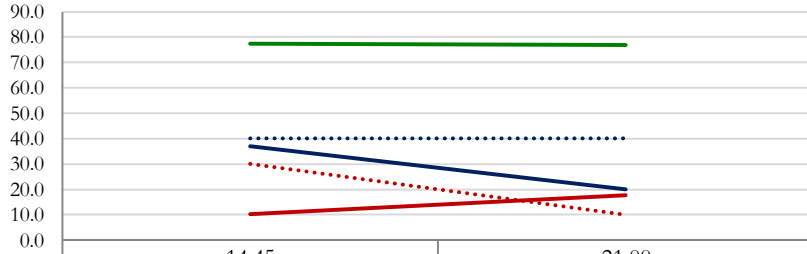
	14:45	12:00	12:45
— °F (Actual Temp)	77.7	78.1	81.0
..... fc (Min Recommended)	30	30	30
— fc (Actual Light)	46	39	42
..... dB (Max Recommended)	40	40	40
— dB (Actual Sound)	41	40	40

(2) ADMINISTRATION (NURSE OFFICE)

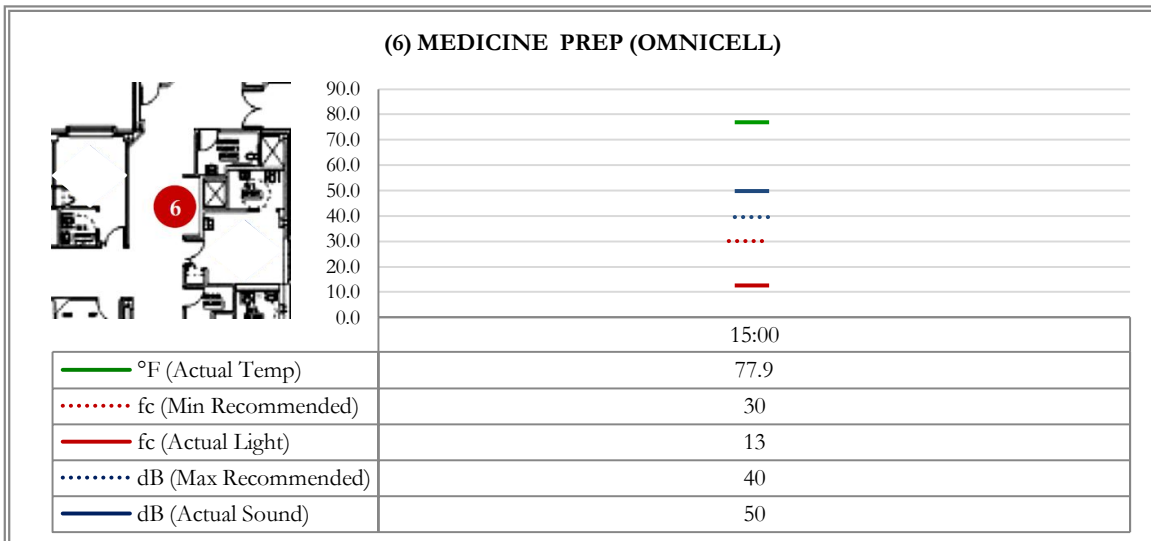
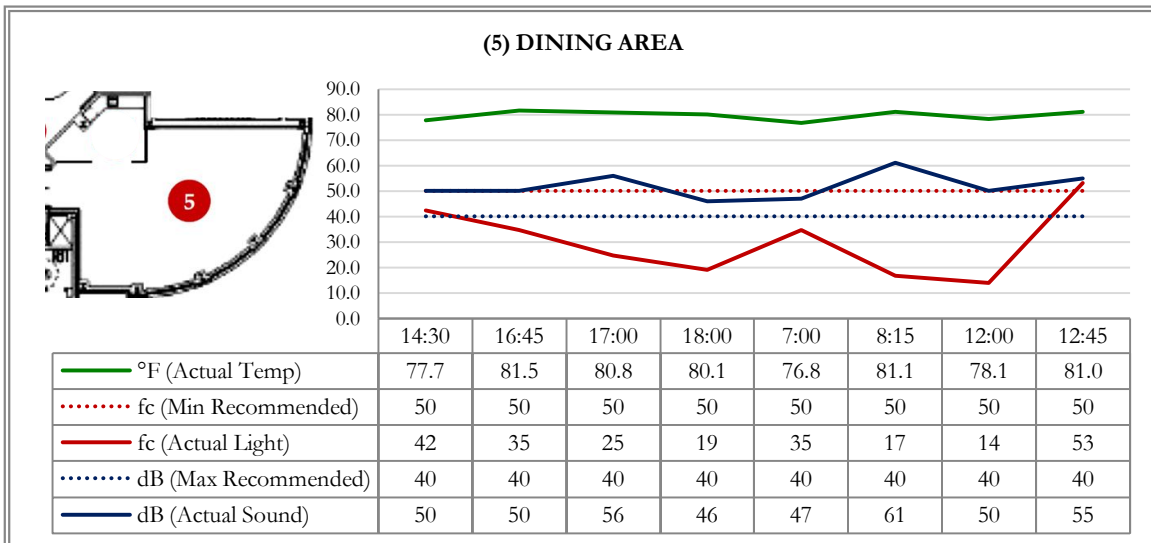
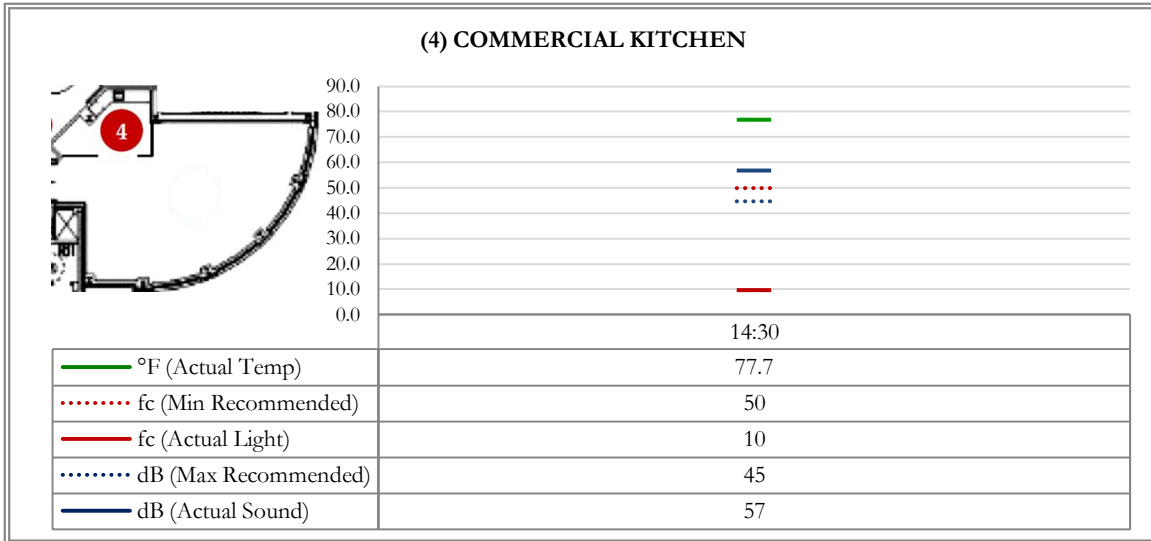


	15:15
— °F (Actual Temp)	78.6
..... fc (Min Recommended)	30
— fc (Actual Light)	46
..... dB (Max Recommended)	40
— dB (Actual Sound)	40

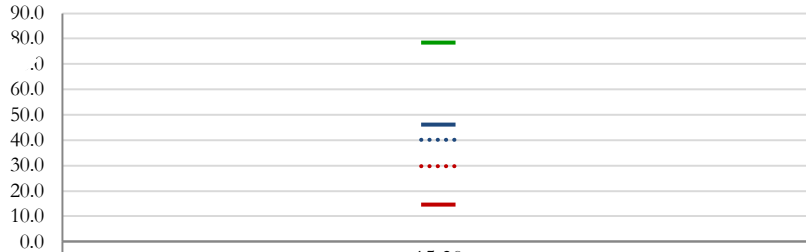
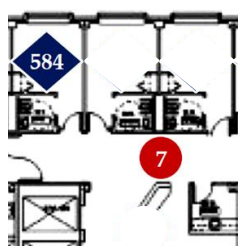
(3) HALLWAY (ENTRY)



	14:45	21:00
— °F (Actual Temp)	77.5	76.8
..... fc (Min Recommended)	30	10
— fc (Actual Light)	10	18
..... dB (Max Recommended)	40	40
— dB (Actual Sound)	37	20

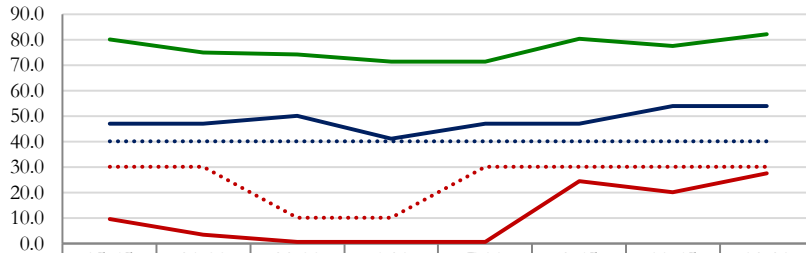
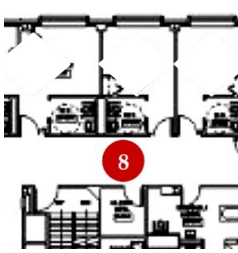


(7) ACTIVITY AREA (SEATING AREA)



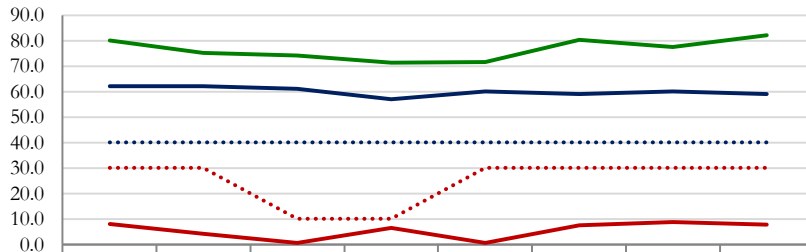
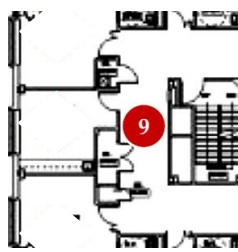
— °F (Actual Temp)	79.3
..... fc (Min Recommended)	30
— fc (Actual Light)	14
..... dB (Max Recommended)	40
— dB (Actual Sound)	47

(8) HALLWAY



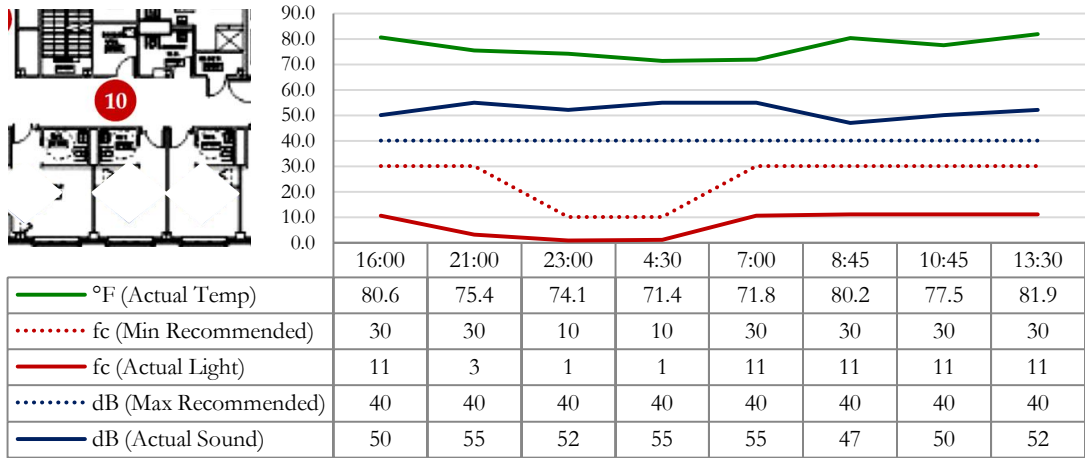
	15:45	21:00	23:00	4:30	7:00	8:45	10:45	13:30
— °F (Actual Temp)	79.9	75.0	74.1	71.4	71.4	80.2	77.5	82.0
..... fc (Min Recommended)	30	30	10	10	30	30	30	30
— fc (Actual Light)	10	4	1	1	1	24	20	28
..... dB (Max Recommended)	40	40	40	40	40	40	40	40
— dB (Actual Sound)	47	47	50	41	47	47	54	54

(9) HALLWAY

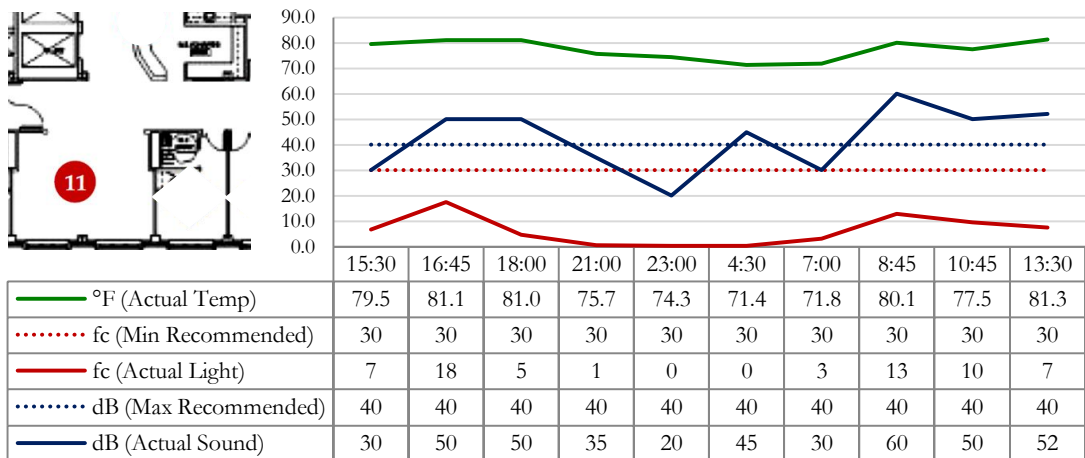


	15:45	21:00	23:00	4:30	7:00	8:45	10:45	13:30
— °F (Actual Temp)	79.9	75.2	74.1	71.2	71.6	80.2	77.5	82.0
..... fc (Min Recommended)	30	30	10	10	30	30	30	30
— fc (Actual Light)	8	4	1	7	1	7	9	8
..... dB (Max Recommended)	40	40	40	40	40	40	40	40
— dB (Actual Sound)	62	62	61	57	60	59	60	59

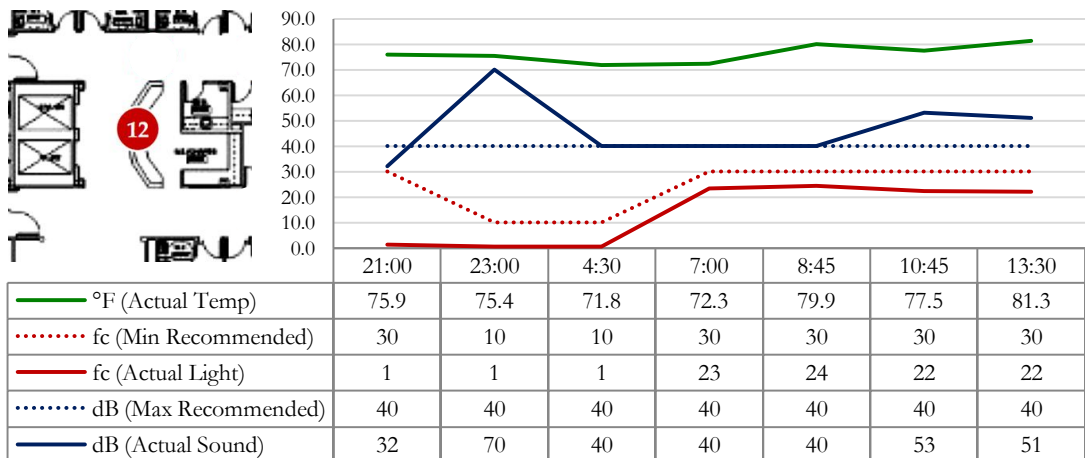
(10) HALLWAY



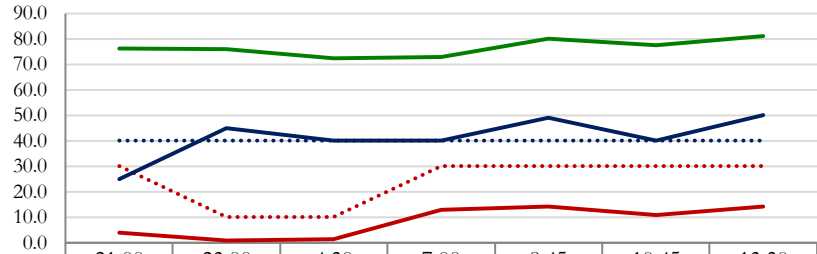
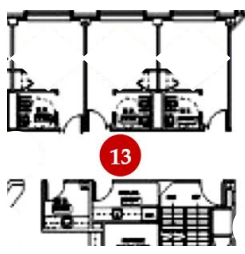
(11) LIVING ROOM



(12) NURSES STATION

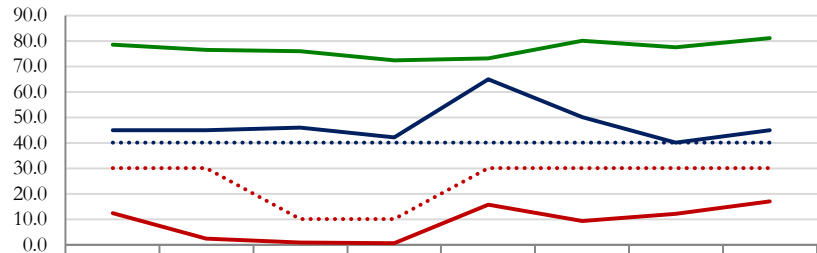
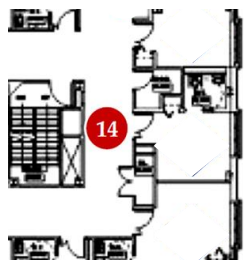


(13) HALLWAY



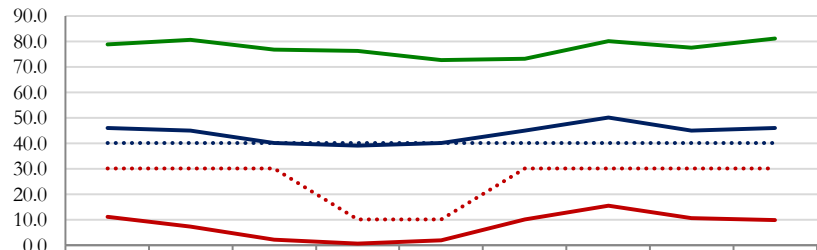
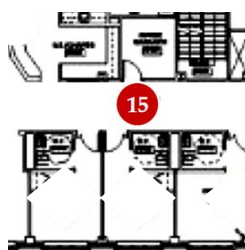
	21:00	23:00	4:30	7:00	8:45	10:45	13:30
— °F (Actual Temp)	76.3	75.9	72.3	72.8	79.9	77.5	81.1
..... fc (Min Recommended)	30	10	10	30	30	30	30
— fc (Actual Light)	4	1	1	13	14	11	14
..... dB (Max Recommended)	40	40	40	40	40	40	40
— dB (Actual Sound)	25	45	40	40	49	40	50

(14) HALLWAY



	15:00	21:00	23:00	4:30	7:00	8:45	10:45	13:30
— °F (Actual Temp)	78.4	76.5	75.9	72.3	73.0	79.9	77.5	81.0
..... fc (Min Recommended)	30	30	10	10	30	30	30	30
— fc (Actual Light)	12	3	1	1	16	9	12	17
..... dB (Max Recommended)	40	40	40	40	40	40	40	40
— dB (Actual Sound)	45	45	46	42	65	50	40	45

(15) HALLWAY



	15:15	16:00	21:00	23:00	4:30	7:00	8:45	10:45	13:30
— °F (Actual Temp)	78.8	80.6	76.6	76.1	72.7	73.2	79.9	77.5	81.0
..... fc (Min Recommended)	30	30	30	10	10	30	30	30	30
— fc (Actual Light)	11	7	2	1	2	10	15	11	10
..... dB (Max Recommended)	40	40	40	40	40	40	40	40	40
— dB (Actual Sound)	46	45	40	39	40	45	50	45	46

## OUTCOMES<sup>8</sup>

A total of 82 measurement events were executed in the South Building, 5<sup>th</sup> Floor, (excluding bedrooms) over a period of 23 hours (2:30 PM, May 24<sup>th</sup>, – 1:30 PM, May 25<sup>th</sup>).

### *Temperature*<sup>9</sup>

- The temperature ranged from 71.2–82.0° F, with an average of 77.2° F (SD=3.29).
- 9 of 82 individual measures (11%) exceeded the temperature range of 71–81° F established by CMS.

### *Lighting*<sup>10</sup>

- Light levels ranged from 0.5–53.3 fc, with an average of 12.5 fc (SD=12.2).
- On average, the lighting level within all areas was 16 fc less than the minimum recommended light level. 76 of 82 individual measures (93%) failed to meet the lighting levels recommended by ANSI/IESNA.

### *Sound*<sup>11</sup>

- Average sound levels ranged from 20.0–70.0 dB, with an overall average of 47.3 dB (SD=9.4).
- The average overall sound level within all areas was 7.3 dB higher than the maximum recommended sound level. 61 of 82 individual measures (74%) exceeded the recommended sound levels.
- Peak sound levels were, typically, ±10 dB in excess of the average individual sound measurement.

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<sup>8</sup> For more detailed information on temperature, levels and sources of light and sound, and occupancy per location at various times, please refer to the “Environmental Measures - Raw Data” tables beginning on p 40.

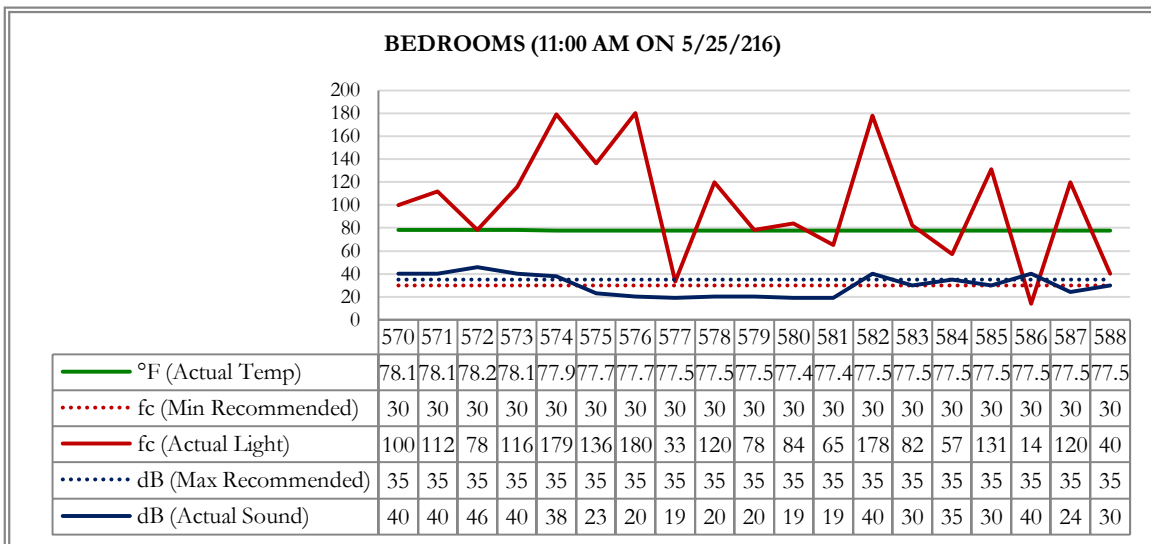
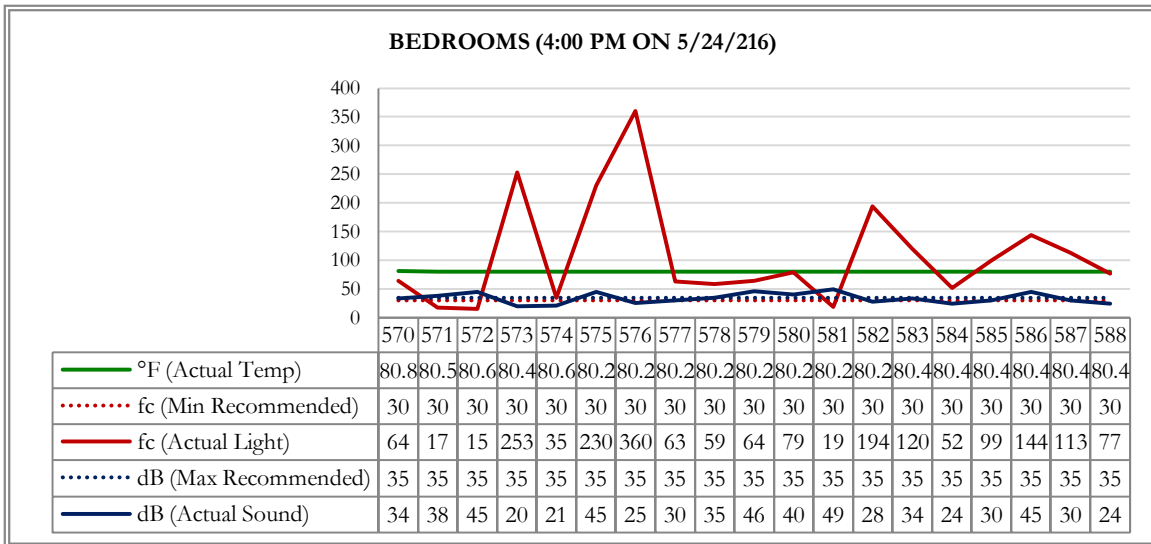
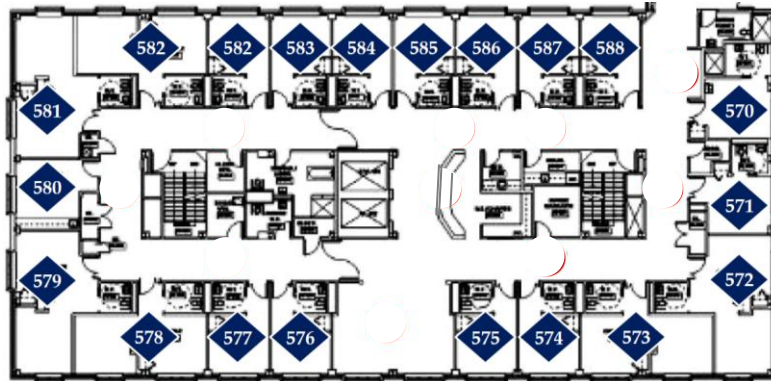
<sup>9</sup> State Operations Manual (SOM) - Centers for Medicare & Medicaid Services (CMS):  
[https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap\\_pp\\_guidelines\\_ltcf.pdf](https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltcf.pdf)

<sup>10</sup> ANSI/IESNA Recommended Practice-28-2001, 2001. *Lighting and the Visual Environment for Senior Living*. New York: Illuminating Engineering Society of North America.

<sup>11</sup> Standards Australia/Standards New Zealand Acoustics 2000. *Recommended Design Sound Levels and Reverberation Times for Building Interiors*.



Temperature, lighting and sound environmental measures were collected in each of the resident bedrooms on the 5<sup>th</sup> Floor of the South Building at 4:00 PM on May 24<sup>th</sup> and 11:00 AM on May 25<sup>th</sup>. Permission was gained prior to entering occupied bedrooms. The numbers in the first row of each table correspond with the room numbers (blue diamonds) located on the floor plan below.



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## RESERVOIR BUILDING – 3<sup>RD</sup> FLOOR

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### TEMPERATURE, LIGHTING & SOUND MEASUREMENT TABLES<sup>12</sup>

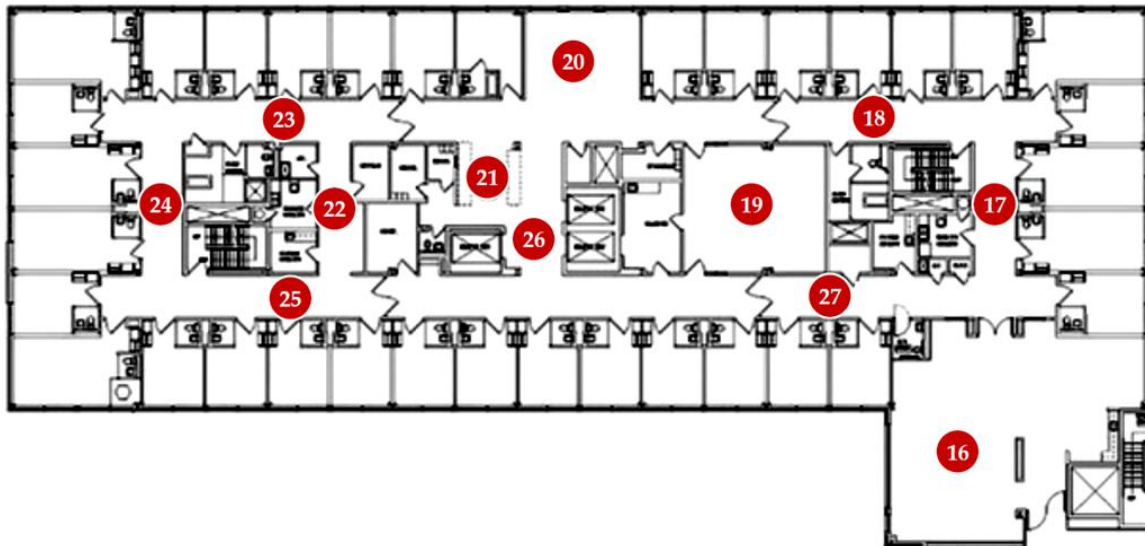
An environmental assessment was conducted in the Reservoir Building on the 3<sup>rd</sup> Floor beginning at 2:00 PM on May 25<sup>th</sup> and concluding at 12:45 PM on May 26<sup>th</sup>. The tables (16-27) on the pages that follow provide both a visual depiction and unit measure for temperature, lighting and sound assessment information. Each title is preceded by a number which corresponds with locations on a floor plan of the 3<sup>rd</sup> floor of the Reservoir Building (depicted below).

The *actual temperature measurement* is reported in Fahrenheit degrees (°F). Please note that the recommended temperature range (71 - 81° F) provided by CMS, however, has been excluded from the tables in favor of simplification for ease of interpretation.

Lighting measurements are reported in foot-candles (fc), a common unit of light intensity measurement used by the lighting industry in the United States to calculate and specify adequate lighting levels for workspaces in buildings and outdoor spaces. The *recommended lighting level* is depicted as a dashed line in the same color as the *actual lighting measurement*.

Average sound measurements are reported in decibels (dB), commonly used in the acoustics industry as a unit of sound pressure level. The *recommended sound level* is depicted as a dashed line in the same color as the average *actual sound measurement*. While the range of decibels varied greatly, peak sound levels were, typically,  $\pm 10$  dB in excess of the average sound measurement.

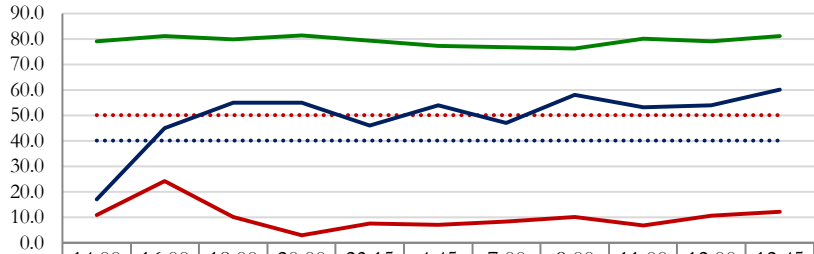
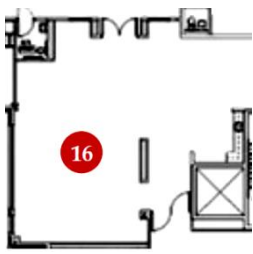
Please note: Environmental measurements were not collected in resident bedrooms.



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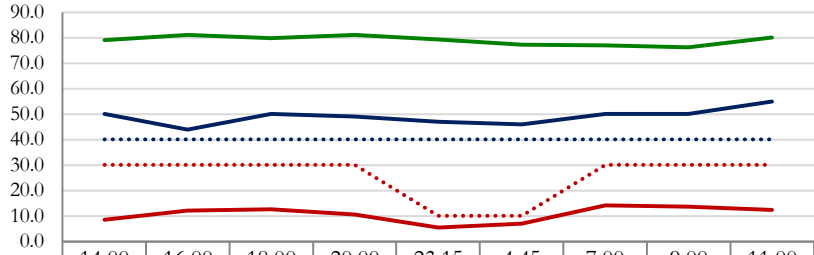
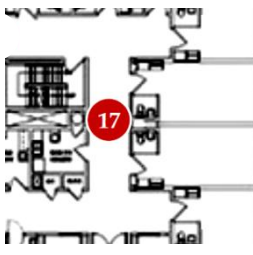
<sup>12</sup> For more detailed information on temperature, levels and sources of light and sound, and occupancy per location at various times, please refer to the “Environmental Measures - Raw Data” tables beginning on p 40.

(16) DINING AREA



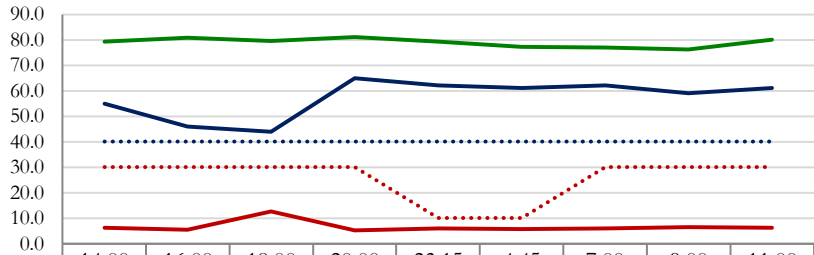
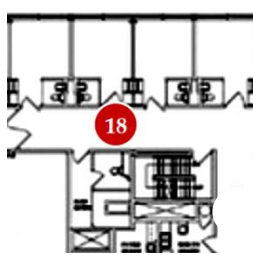
	14:00	16:00	18:00	20:00	23:15	4:45	7:00	9:00	11:00	12:00	12:45
F° (Actual Temp)	79.0	81.0	79.7	81.3	79.2	77.2	76.8	76.1	79.9	79.0	81.1
fc (Min Recommended)	50	50	50	50	50	50	50	50	50	50	50
fc (Actual Light)	11	24	10	3	7	7	8	10	7	10	12
dB (Max Recommended)	40	40	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	17	45	55	55	46	54	47	58	53	54	60

(17) HALLWAY



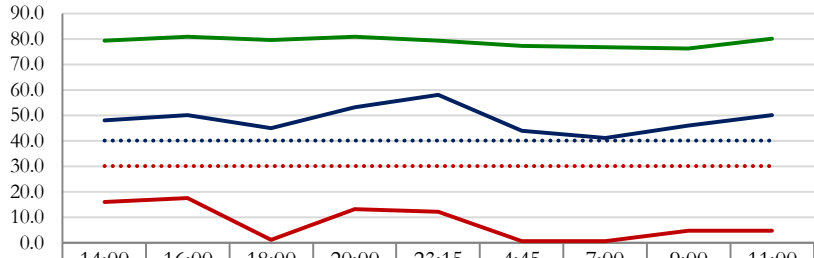
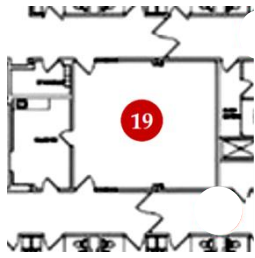
	14:00	16:00	18:00	20:00	23:15	4:45	7:00	9:00	11:00
F° (Actual Temp)	79.0	81.0	79.7	81.1	79.2	77.2	77.0	76.1	79.9
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	9	12	13	10	6	7	14	14	12
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	50	44	50	49	47	46	50	50	55

(18) HALLWAY



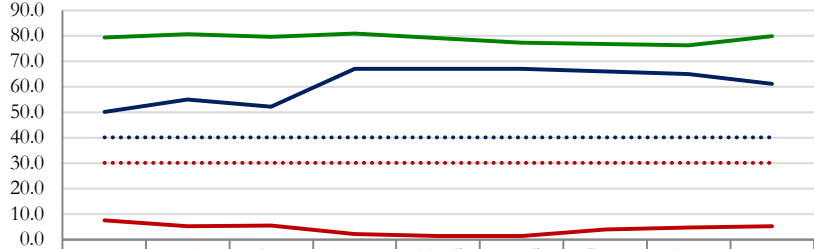
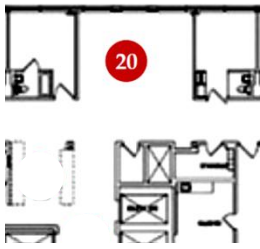
	14:00	16:00	18:00	20:00	23:15	4:45	7:00	9:00	11:00
F° (Actual Temp)	79.2	80.8	79.5	81.0	79.2	77.2	77.0	76.3	79.9
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	6	6	13	5	6	6	6	6	6
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	55	46	44	65	62	61	62	59	61

**(19) ACTIVITY AREA**



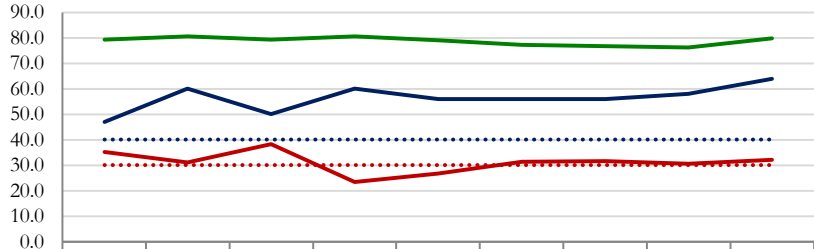
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F° (Actual Temp)	79.2	80.8	79.5	80.8	79.2	77.2	76.8	76.3	79.9
fc (Min Recommended)	30	30	30	30	30	30	30	30	30
fc (Actual Light)	16	18	1	13	12	1	1	5	5
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	48	50	45	53	58	44	41	46	50

**(20) LIVING ROOM**



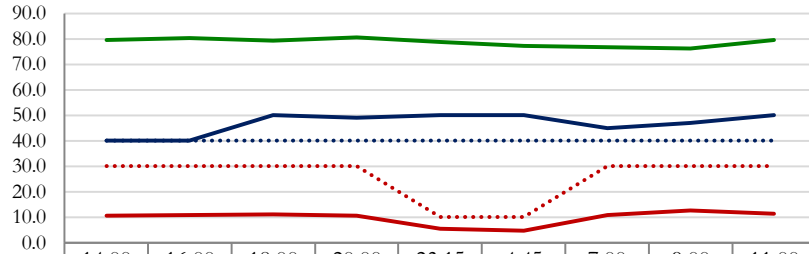
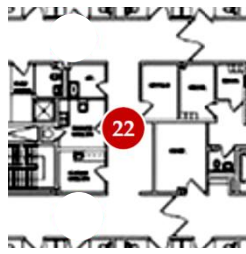
	14:00	16:00	18:00	20:00	23:15	4:45	7:00	9:00	11:00
F° (Actual Temp)	79.3	80.4	79.5	80.8	79.0	77.2	76.8	76.3	79.7
fc (Min Recommended)	30	30	30	30	30	30	30	30	30
fc (Actual Light)	8	5	6	2	1	1	4	5	5
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	50	55	52	67	67	67	66	65	61

**(21) NURSES STATION**



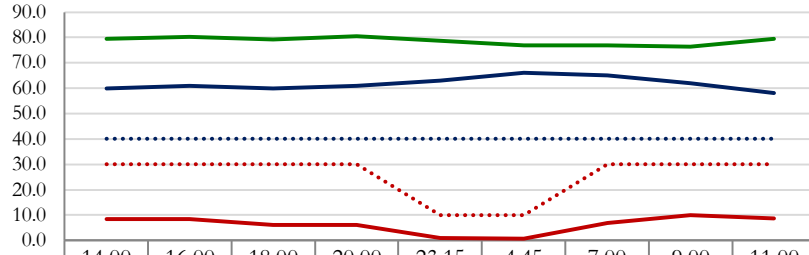
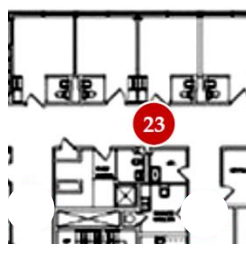
	14:00	16:00	18:00	20:00	23:15	4:45	7:00	9:00	11:00
F° (Actual Temp)	79.3	80.4	79.3	80.6	79.0	77.2	76.8	76.3	79.7
fc (Min Recommended)	30	30	30	30	30	30	30	30	30
fc (Actual Light)	35	31	38	24	27	31	32	31	32
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	47	60	50	60	56	56	56	58	64

(22) HALLWAY



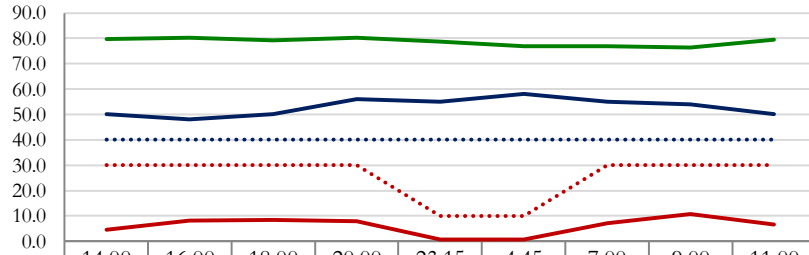
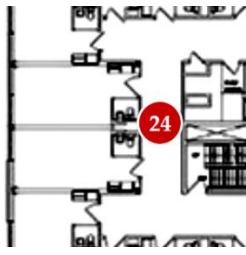
	14:00	16:00	18:00	20:00	23:15	4:45	7:00	9:00	11:00
F° (Actual Temp)	79.5	80.2	79.3	80.4	78.8	77.2	76.8	76.3	79.5
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	11	11	11	11	5	5	11	13	11
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	40	40	50	49	50	50	45	47	50

(23) HALLWAY



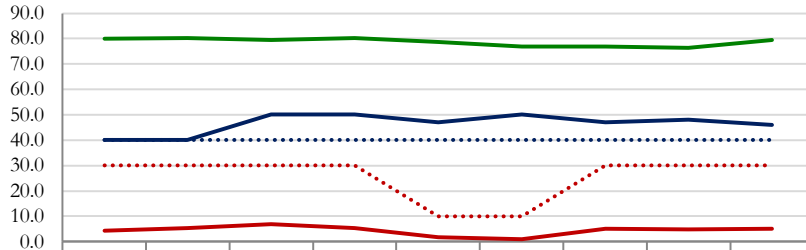
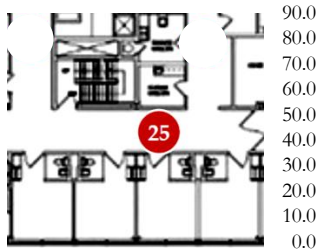
	14:00	16:00	18:00	20:00	23:15	4:45	7:00	9:00	11:00
F° (Actual Temp)	79.5	80.2	79.3	80.4	78.8	77.0	76.8	76.3	79.5
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	9	8	6	6	1	1	7	10	9
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	60	61	60	61	63	66	65	62	58

(24) HALLWAY



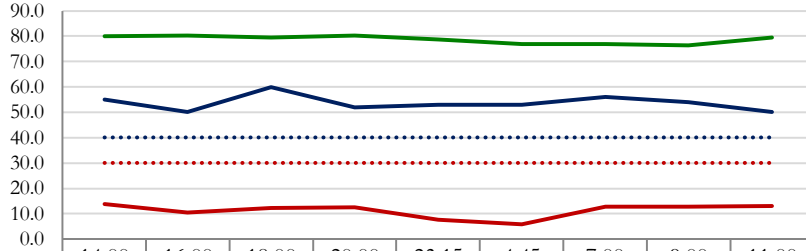
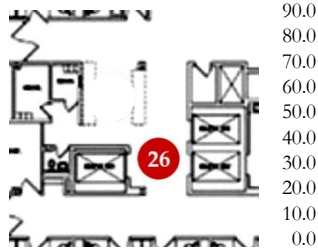
	14:00	16:00	18:00	20:00	23:15	4:45	7:00	9:00	11:00
F° (Actual Temp)	79.7	80.2	79.3	80.2	78.8	77.0	76.8	76.3	79.5
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	5	8	8	8	1	1	7	11	7
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	50	48	50	56	55	58	55	54	50

(25) HALLWAY



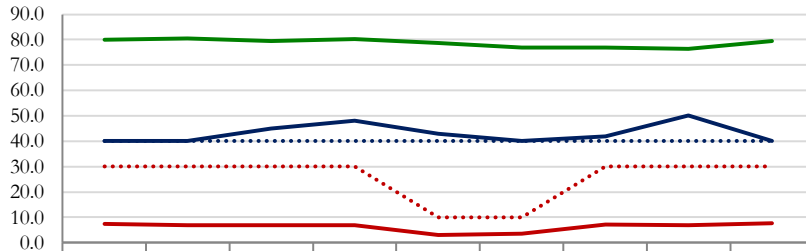
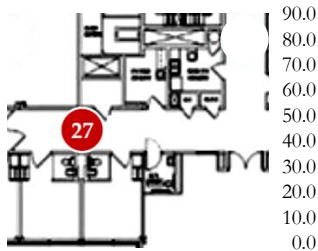
	14:00	16:00	18:00	20:00	23:15	4:45	7:00	9:00	11:00
F° (Actual Temp)	79.9	80.2	79.5	80.2	78.8	77.0	76.8	76.3	79.5
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	4	5	7	5	2	1	5	5	5
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	40	40	50	50	47	50	47	48	46

(26) HALLWAY (ENTRY)



	14:00	16:00	18:00	20:00	23:15	4:45	7:00	9:00	11:00
F° (Actual Temp)	79.9	80.2	79.5	80.2	78.6	77.0	76.8	76.3	79.5
fc (Min Recommended)	30	30	30	30	30	30	30	30	30
fc (Actual Light)	14	10	12	13	8	6	13	13	13
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	55	50	60	52	53	53	56	54	50

(27) HALLWAY



	14:00	16:00	18:00	20:00	23:15	4:45	7:00	9:00	11:00
F° (Actual Temp)	79.9	80.4	79.5	80.2	78.6	76.8	76.8	76.3	79.5
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	8	7	7	7	3	3	7	7	8
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	40	40	45	48	43	40	42	50	40

## OUTCOMES<sup>13</sup>

A total of 110 measurement events were executed in the Reservoir Building, 3<sup>rd</sup> Floor, over a period of 22¾ hours (2:00 PM, May 25<sup>th</sup>, – 12:45 PM, May 26<sup>th</sup>).

### *Temperature*<sup>14</sup>

- The temperature ranged from 76.1–81.3° F, with an average of 78.8° F (SD=1.5).
- 3 of 110 individual measures (3%) exceeded the temperature range of 71–81° F established by CMS.

### *Lighting*<sup>15</sup>

- Light levels ranged from 0.6–38.3 fc, with an average of 9.6 fc (SD=7.7).
- On average, the lighting level within all areas was 20 fc less than the minimum recommended light level. 103 of 110 individual measures (94%) failed to meet the lighting levels recommended by ANSI/IESNA.

### *Sound*<sup>16</sup>

- Average sound levels ranged from 17.0–67.0 dB, with an overall average of 52.1 dB (SD=8.0).
- The average overall sound level within all areas was 12.1 dB higher than the maximum recommended sound level. 101 of 110 individual measures (92%) exceeded the recommended sound levels.
- Peak sound levels were, typically, ±10 dB in excess of the average individual sound measurement.

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<sup>13</sup> For more detailed information on temperature, levels and sources of light and sound, and occupancy per location at various times, please refer to the “Environmental Measures - Raw Data” tables beginning on p 40.

<sup>14</sup> State Operations Manual (SOM) - Centers for Medicare & Medicaid Services (CMS):  
[https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap\\_pp\\_guidelines\\_ltcf.pdf](https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltcf.pdf)

<sup>15</sup> ANSI/IESNA Recommended Practice-28-2001, 2001. *Lighting and the Visual Environment for Senior Living*. New York: Illuminating Engineering Society of North America.

<sup>16</sup> Standards Australia/Standards New Zealand Acoustics 2000. *Recommended Design Sound Levels and Reverberation Times for Building Interiors*.

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## HASTINGS BUILDING – 3<sup>RD</sup> FLOOR

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### TEMPERATURE, LIGHTING & SOUND MEASUREMENT TABLES<sup>17</sup>

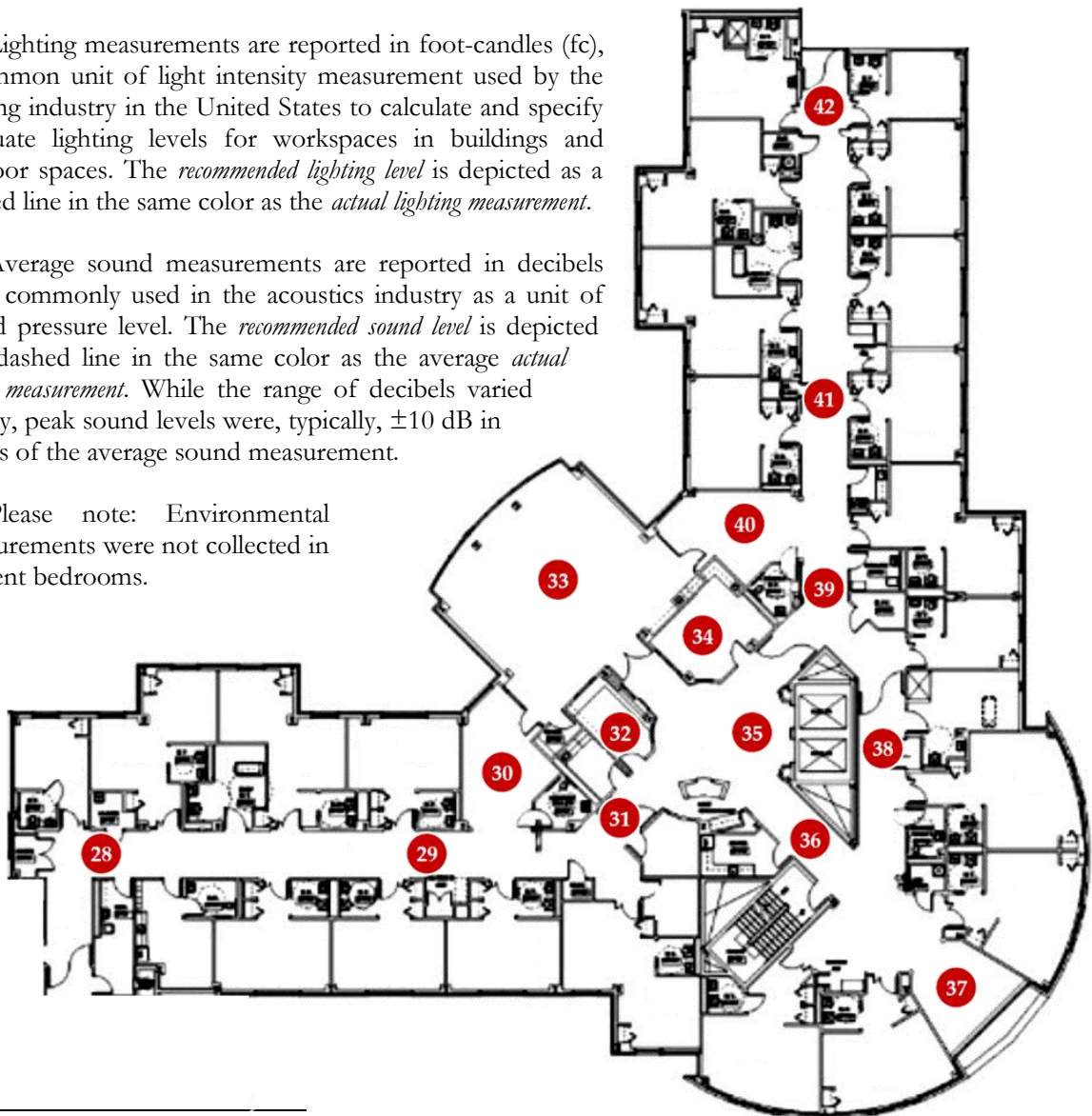
An environmental assessment was conducted in the Hastings Building on the 3<sup>rd</sup> Floor beginning at 2:00 PM on May 25<sup>th</sup> and concluding at 12:45 PM on May 26<sup>th</sup>. The tables (28-42) on the pages that follow provide both a visual depiction and unit measure for temperature, lighting and sound assessment information. Each title is preceded by a number which corresponds with locations on a floor plan of the 3<sup>rd</sup> floor of the Hastings Building (depicted below).

The *actual temperature measurement* is reported in Fahrenheit degrees (°F). Please note that the recommended temperature range (71 - 81° F) provided by CMS, however, has been excluded from the tables in favor of simplification for ease of interpretation.

Lighting measurements are reported in foot-candles (fc), a common unit of light intensity measurement used by the lighting industry in the United States to calculate and specify adequate lighting levels for workspaces in buildings and outdoor spaces. The *recommended lighting level* is depicted as a dashed line in the same color as the *actual lighting measurement*.

Average sound measurements are reported in decibels (dB), commonly used in the acoustics industry as a unit of sound pressure level. The *recommended sound level* is depicted as a dashed line in the same color as the average *actual sound measurement*. While the range of decibels varied greatly, peak sound levels were, typically,  $\pm 10$  dB in excess of the average sound measurement.

Please note: Environmental measurements were not collected in resident bedrooms.

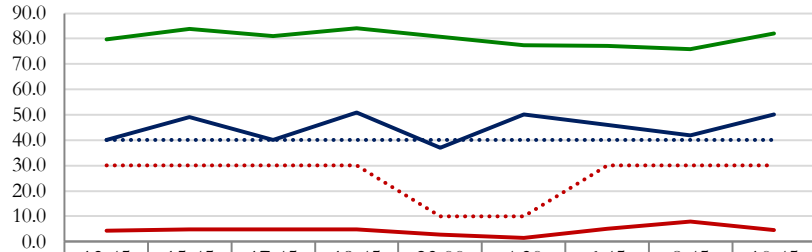
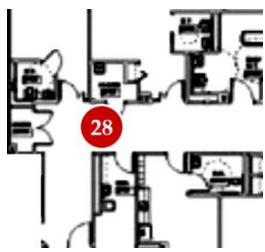


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<sup>17</sup> For more detailed information on temperature, levels and sources of light and sound, and occupancy per location at various times, please refer to the “Environmental Measures - Raw Data” tables beginning on p 40.

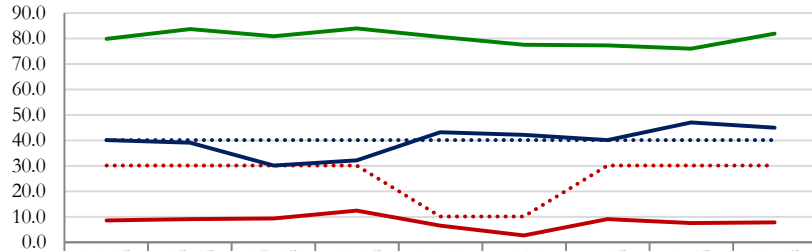
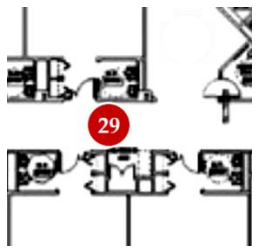


(28) HALLWAY



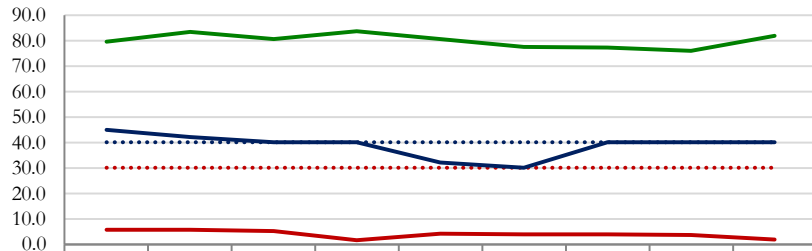
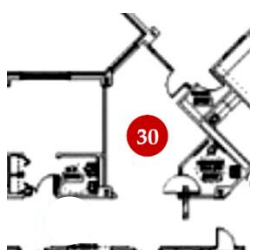
	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45
F° (Actual Temp)	79.7	83.8	81.0	84.0	80.8	77.5	77.2	75.9	82.0
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	4	5	5	5	3	2	5	8	5
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	40	49	40	51	37	50	46	42	50

(29) HALLWAY



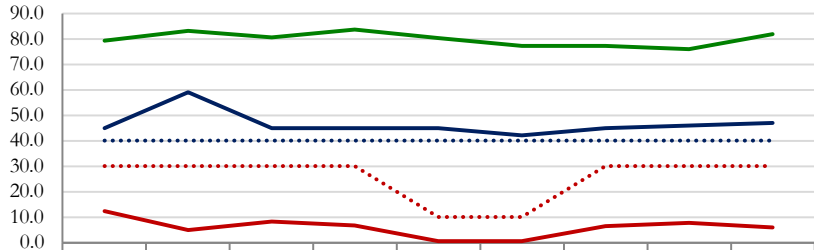
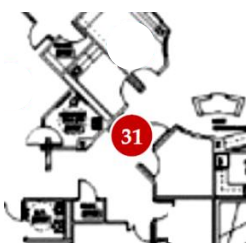
	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45
F° (Actual Temp)	79.7	83.7	80.8	83.8	80.4	77.4	77.2	75.9	81.7
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	9	9	9	12	6	3	9	7	8
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	40	39	30	32	43	42	40	47	45

(30) LIVING ROOM



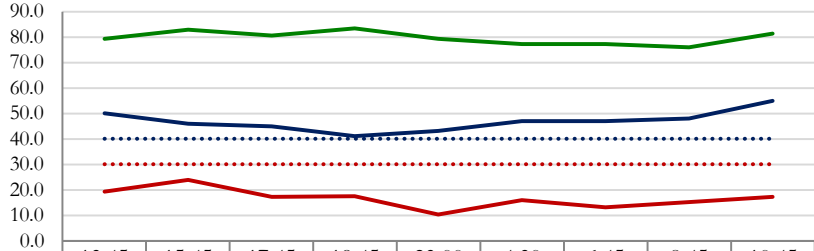
	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45
F° (Actual Temp)	79.5	83.3	80.6	83.7	80.4	77.4	77.2	75.9	81.7
fc (Min Recommended)	30	30	30	30	30	30	30	30	30
fc (Actual Light)	6	6	5	1	4	4	4	4	2
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	45	42	40	40	32	30	40	40	40

**(31) HALLWAY**



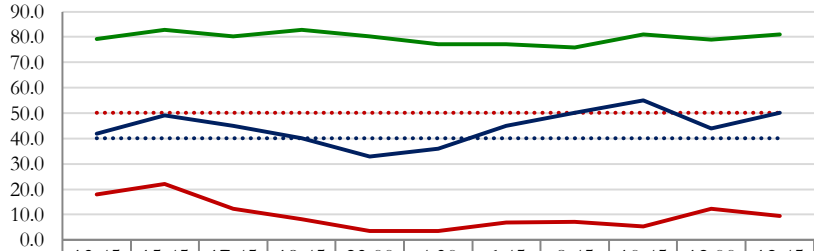
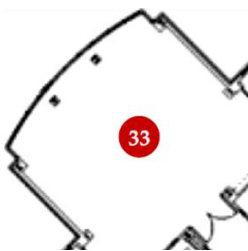
	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45
F° (Actual Temp)	79.3	83.1	80.4	83.5	80.2	77.2	77.2	75.9	81.7
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	12	5	8	7	1	1	6	8	6
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	45	59	45	45	45	42	45	46	47

**(32) NURSES STATION**



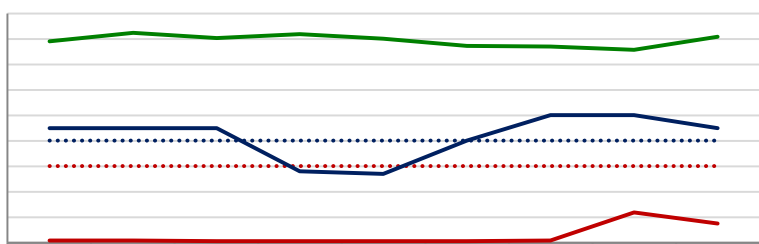
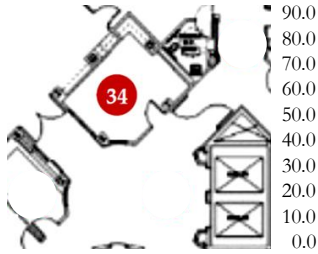
	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45
F° (Actual Temp)	79.3	82.9	80.4	83.3	79.3	77.2	77.2	75.9	81.3
fc (Min Recommended)	30	30	30	30	30	30	30	30	30
fc (Actual Light)	19	24	17	17	10	16	13	15	17
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	50	46	45	41	43	47	47	48	55

**(33) DINING AREA**



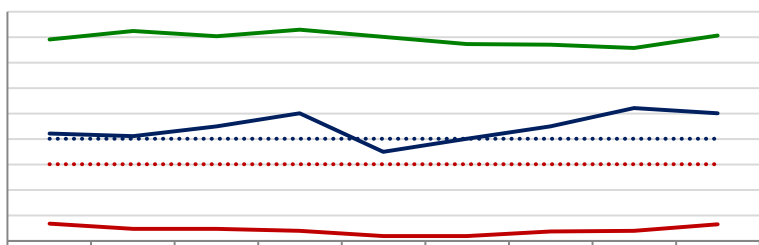
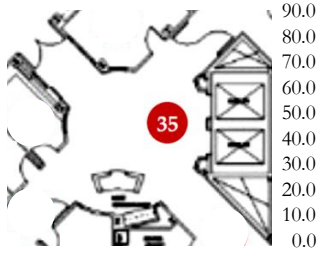
	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45	12:00	12:45
F° (Actual Temp)	79.2	82.8	80.2	82.9	80.1	77.2	77.2	75.9	81.1	79.0	81.0
fc (Min Recommended)	50	50	50	50	50	50	50	50	50	50	50
fc (Actual Light)	18	22	12	8	4	4	7	7	5	12	10
dB (Max Recommended)	40	40	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	42	49	45	40	33	36	45	50	55	44	50

**(34) LIVING ROOM**



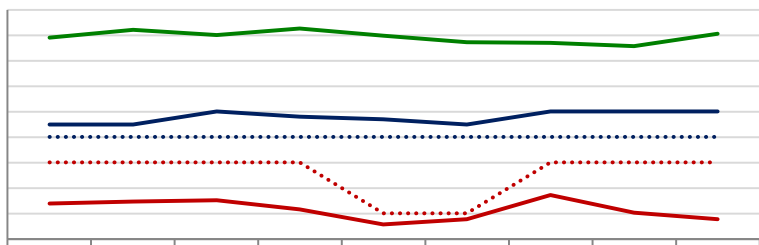
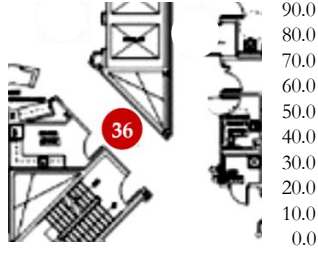
	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45
F° (Actual Temp)	79.0	82.4	80.2	81.9	79.9	77.2	77.0	75.7	80.8
fc (Min Recommended)	30	30	30	30	30	30	30	30	30
fc (Actual Light)	1	1	1	1	0	1	1	12	7
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	45	45	45	28	27	40	50	50	45

**(35) HALLWAY (ENTRY)**



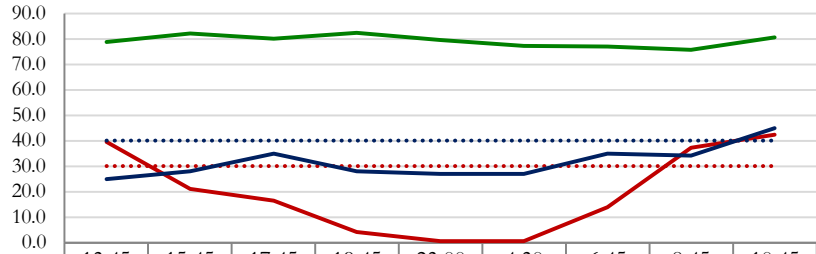
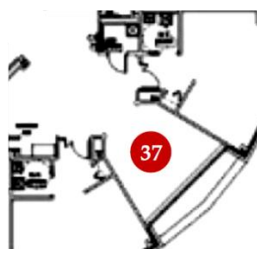
	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45
F° (Actual Temp)	79.0	82.2	80.2	82.8	79.9	77.2	77.0	75.7	80.4
fc (Min Recommended)	30	30	30	30	30	30	30	30	30
fc (Actual Light)	7	5	5	4	2	2	4	4	6
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	42	41	45	50	35	40	45	52	50

**(36) HALLWAY**



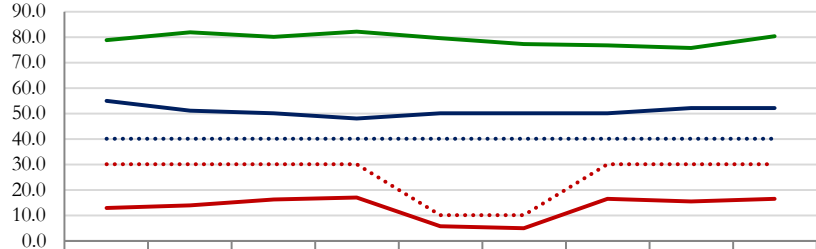
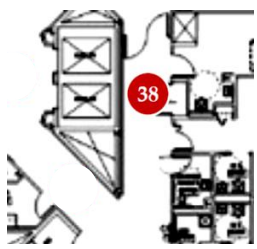
	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45
F° (Actual Temp)	79.0	82.0	80.1	82.6	79.7	77.2	77.0	75.7	80.4
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	14	15	15	12	6	8	17	10	8
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	45	45	50	48	47	45	50	50	50

**(37) LIVING ROOM**



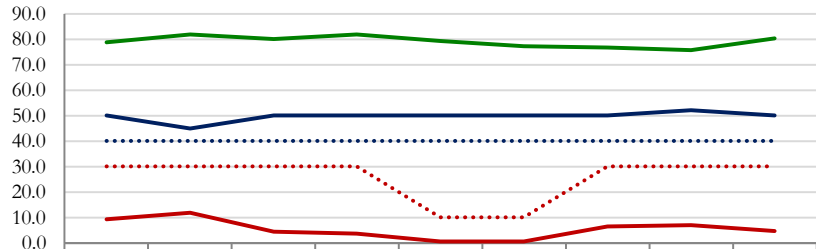
	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45
F° (Actual Temp)	78.8	82.0	79.9	82.2	79.5	77.2	77.0	75.7	80.4
fc (Min Recommended)	30	30	30	30	30	30	30	30	30
fc (Actual Light)	39	21	16	4	1	1	14	37	42
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	25	28	35	28	27	27	35	34	45

**(38) HALLWAY**

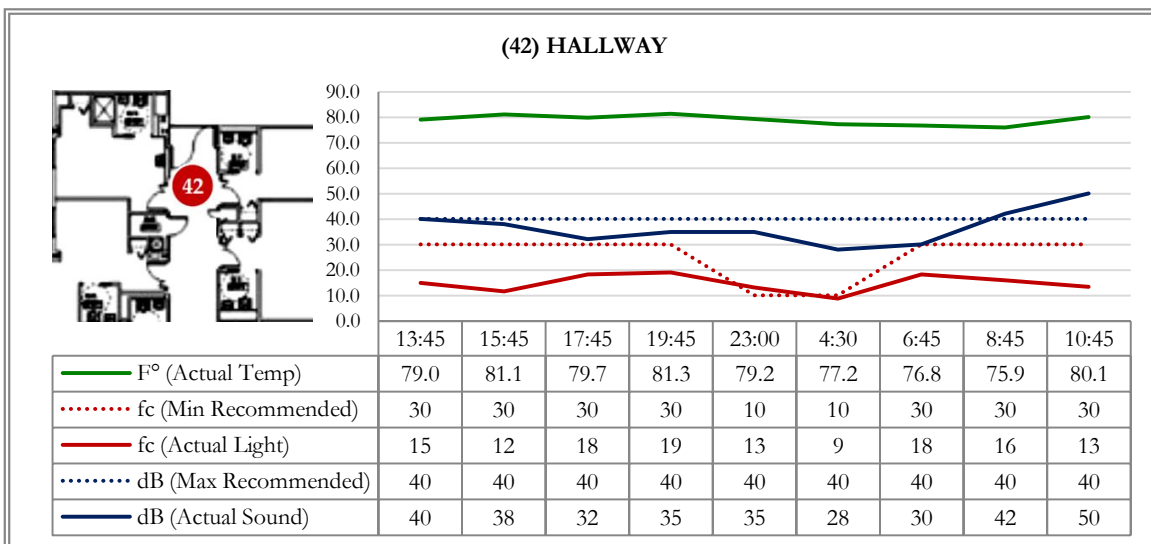
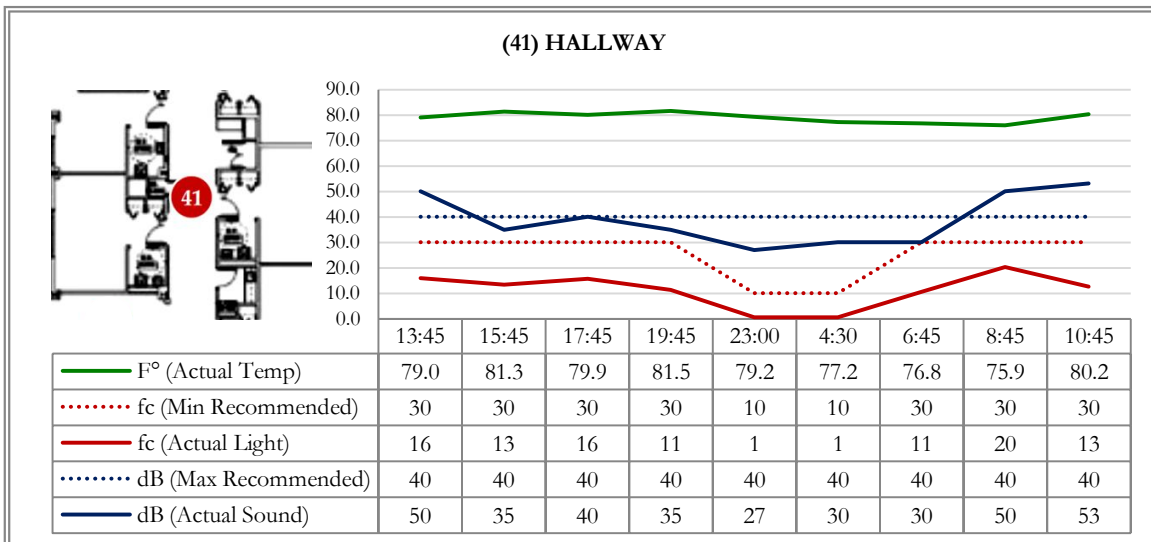
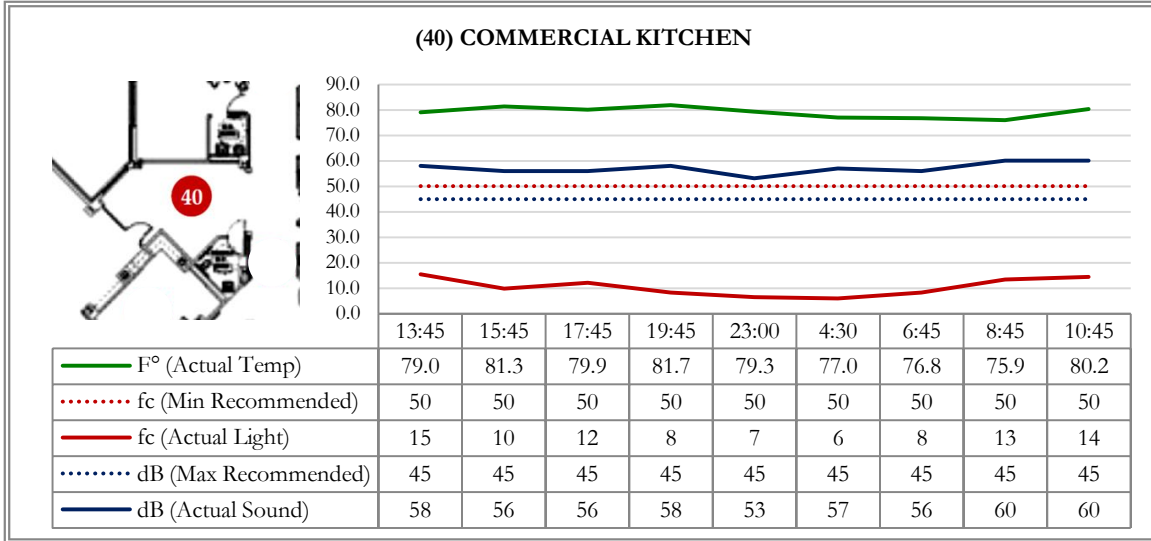


	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45
F° (Actual Temp)	78.8	81.7	79.9	82.0	79.5	77.2	76.8	75.7	80.2
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	13	14	16	17	6	5	16	15	16
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	55	51	50	48	50	50	50	52	52

**(39) HALLWAY**



	13:45	15:45	17:45	19:45	23:00	4:30	6:45	8:45	10:45
F° (Actual Temp)	78.8	81.7	79.9	81.7	79.3	77.2	76.8	75.7	80.2
fc (Min Recommended)	30	30	30	30	10	10	30	30	30
fc (Actual Light)	9	12	4	4	1	1	6	7	5
dB (Max Recommended)	40	40	40	40	40	40	40	40	40
dB (Actual Sound)	50	45	50	50	50	50	50	52	50



## OUTCOMES<sup>18</sup>

A total of 137 measurement events were executed in the Hastings Building, 3<sup>rd</sup> Floor, over a period of 22¾ hours (2:00 PM, May 25<sup>th</sup>, – 12:45 PM, May 26<sup>th</sup>).

### *Temperature*<sup>19</sup>

- The temperature ranged from 75.7–84.0° F, with an average of 79.4° F (SD=2.3).
- 36 of 137 individual measures (26%) exceeded the temperature range of 71–81° F established by CMS.

### *Lighting*<sup>20</sup>

- Light levels ranged from 0.5–42.3 fc, with an average of 9.0 fc (SD=7.3).
- On average, the lighting level within all areas was 21 fc less than the minimum recommended light level. 133 of 137 individual measures (97%) failed to meet the lighting levels recommended by ANSI/IESNA.

### *Sound*<sup>21</sup>

- Average sound levels ranged from 25.0–60.0 dB, with an overall average of 44.0 dB (SD=8.1).
- The average overall sound level within all areas was 4.0 dB higher than the maximum recommended sound level. 93 of 137 individual measures (68%) exceeded the recommended sound levels.
- Peak sound levels were, typically, ±10 dB in excess of the average individual sound measurement.

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<sup>18</sup> For more detailed information on temperature, levels and sources of light and sound, and occupancy per location at various times, please refer to the “Environmental Measures - Raw Data” tables beginning on p 40.

<sup>19</sup> State Operations Manual (SOM) - Centers for Medicare & Medicaid Services (CMS):  
[https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap\\_pp\\_guidelines\\_ltcf.pdf](https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltcf.pdf)

<sup>20</sup> ANSI/IESNA Recommended Practice-28-2001, 2001. *Lighting and the Visual Environment for Senior Living*. New York: Illuminating Engineering Society of North America.

<sup>21</sup> Standards Australia/Standards New Zealand Acoustics 2000. *Recommended Design Sound Levels and Reverberation Times for Building Interiors*.

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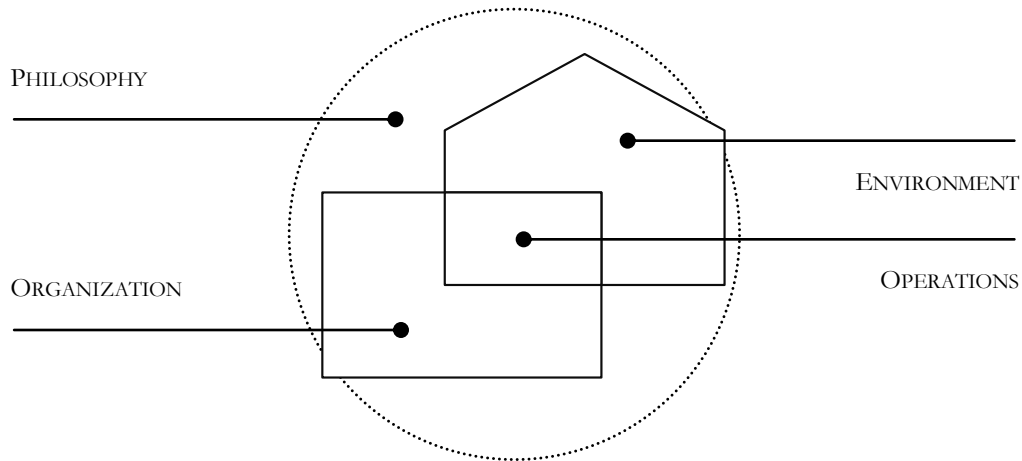
## SUMMARY & RECOMMENDATIONS

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### MODEL OF PLACE<sup>22</sup>

After visiting a variety of areas within the campus, St John’s commitment to experimentation is clearly evident. I applaud this strategy as you have the opportunity to, not only tailor solutions to individuals and changing circumstances, but you also have the potential to extend successful solutions and “best practices” to other areas within the building. In order to fully capitalize upon this strategy, I would suggest monitoring patterns of use for the first 6-18 months and then talking with staff, elders and family members to understand their perceptions. This will give you the greatest likelihood of collecting current insights that are not shared in a reactionary fashion.

The Consultant’s insights and recommendations are organized using an adapted version of Weisman’s *Model of Place*, which effectively divides an organization into 4 fundamental components:



#### **Philosophical Foundation:**

- Organizational ideals
- Basis for decision-making



#### **Environmental Features:**

- Built environment
- Sensory properties



#### **Organizational Directives:**

- Functions, roles & directives
- Policies and procedures



#### **Operational Processes:**

- Interaction of people & buildings
- “Organizational” & “Environmental”

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<sup>22</sup> Weisman, G. D. (2001). *The place of people in architectural design*. Architectural design portable handbook: A guide to excellent practices. ed. A. Pressman, McGraw-Hill, New York; 158-70.



## PHILOSOPHICAL FOUNDATION

In order to fully enable individuals living in the care community, and especially those with dementia, the tenets of Person-Centered Care should serve as the basis for all decision making. There were several instances where the Consultant either observed, or discerned as a result of interviews, several opportunities to capitalize upon quality improvement initiatives, including:

- Make sure to educate and emphasize the priority placed on philosophical ideals. For example, should the person be prioritized before the task? Should an elder's preference be prioritized if it carries some risk? In any event, all policies and procedures should appropriately convey the priorities to support the caregivers.
- Empowerment and accountability have been described as the yin and yang of person-centered care. In order to spontaneously respond to elder preferences and/or concerns, decision-making must reside closest to them. Organizational Leaders must ensure that staff have the necessary empowerment and resources at their disposal, the wherewithal to understand the way in which solutions should be prioritized and enacted, and evaluation mechanisms to ensure action has been administered appropriately. This also requires that elders and families understand where to direct immediate inquiries and/or concerns, which may require redirection or mechanism development on the part of Organizational Leaders.
- Involve the elder and those closest to them in care planning activities. Every individual has unique expertise and insight to contribute to conversations. Direct care providers are among the most important to involve in discussions that pertain to formulating practical solutions.
- Employ consistent staffing within care/living areas to maximize relationship development and familiarity. Care providers who know the nuanced behavior of various individuals are able to identify discrete differences earlier which often results in increased quality of living and care for the elder as well as better financial outcomes for the organization.
- Hybrid staff scheduling employs a system where staff working in a particular care/living area are empowered to create a schedule that reflects the unique needs of the elders and the staff. The staff in all care/living areas are, however, accountable for relaying their schedule to a central scheduler who may assist in the event that there are unforeseen absences.
- No one wants to work "short." *When* (not *if*) staff do have an unscheduled/unforeseen absence, there should be an on-call pool of floating staff to call-in such that those who DO show up as scheduled are not "punished" (staff's word, not mine) by floating them or their colleagues to different care/living areas.





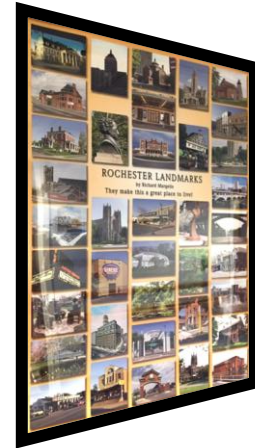
## ENVIRONMENTAL FEATURES

Environments that support Person-Centered Care should be designed and maintained in such a way that they effectively enable individual to be as self-sufficient as possible, resulting in increased self-determination and decreased dependency staff. There were several instances where the Consultant either observed, or discerned as a result of interviews, opportunities to improve environmental conditions, including:

- The signage locations within the care/living areas were frequently mounted too high to be easily visible to those seated in wheelchairs. While the size, style and contrast of the numbers, images, and names tended to be very good, the pane intended to be populated by photos has the potential to confuse elders, especially individuals with dementia and/or impaired vision. It would be beneficial to either have one single large-scale picture of the individual or divide the pane into 4 equal quadrants to limit the visual complexity.
- The type and amount of equipment stored in the hallway compromises elder's ability to use the continuous handrail, prevents the ability of individuals using wheelchairs to easily pass by one another, and adds an unnecessary amount of visual sensory stimulation. While it is evident that storage is extremely limited, it would be highly beneficial to pull a group of multi-disciplinary individuals together to think creatively and critically about potential solutions.
- The sink and countertop surface area in the elder's bathrooms is extremely limited. The lack of a horizontal flat surface with which to set personal items on (even temporarily) restricts access to personal belongings and can result in personal injury when bending down to pick up items that could not be successfully balanced on the rim of the sink. A short-term solution may be to install a wall-mounted shelf within easy reach of the sink.
- In the interest of keeping personal items secure within the elders' bedrooms, it would be beneficial to have an option for one drawer that could be successfully secured. When using the bedroom in the South Building, it did not appear that one was available. When using the bedroom in the Reservoir Building, the key could not be located.
- In order to improve continence, it would be beneficial to place a night-light over the toilet. Nightlights that are amber in color work especially well, as the color does not dilate the pupils, which enables individuals to more easily navigate their surroundings at night. A similar mobile amber task light would enable nurses to administer necessary treatments and discretely make checks during sleeping hours.
- Access to exercise equipment such as a recumbent bicycle or similar machine would be nice for those wishing to enhance or maintain muscle strength, but who fail to qualify for rehabilitation therapy. Exercise equipment is especially helpful for individuals who need an opportunity to expel an excess amount of energy.
- In some communities, it is common to see activity and reminiscing area/stations that are intended to enable individuals with dementia to spontaneously engage in a familiar activity, such as putting on jewelry, typing on a typewriter, attending to a baby, etc.
- Adequate lighting cannot be overemphasized in environments for aging. The use of light layering has become a widely known and embraced strategy to provide an even amount of light throughout the entirety of care/living areas. Current florescent fixtures in the hallways are far enough apart that they create "hot spots" that result in an alternating light to dark pattern. This increases the probability of falls in populations with impaired vision.

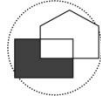
*Environmental Features (continued...)*

- When selecting finishing and furnishing material for the care/living areas, take special consideration to “design out the damage.” It’s not a matter of *if*, but *when*, something will occur that will scrape, gouge, nick, or crack a surface. Selecting materials that are comprised of the same color all the way throughout will help to maintain a nice appearance and decrease the amount of maintenance required by environmental services.
- When possible, it is good to decorate common areas with images, art and/or pictures that are familiar and meaningful to the individuals living there. They can serve to spur conversation and way-finding. The Rochester Landmark poster to the right is a good example of having the right content at the wrong scale. Each of the 38 images would be far more successful if they were the size of the large poster and hung at a height visible from a seated and standing position. Additionally, environmental services should be given access to picture hanging equipment such as wall-buddies (<http://wallbuddies.com/>) instead of a single wall hanger. Wall-buddies are attached to both of the upper corners and keep pictures from tipping left to right and being pulled away from the wall. These are both important points if you are going to include décor intended to spur interaction.
- Individual care/living areas benefit from including enough variety that they may be successfully distinguished from one another. Designing for differentiation means more than a change in paint color or changing the picture that hangs opposite elevator doors. The level of differentiation should be similar to what one might expect if they were going to different houses on the same street. Further, the naming of various care/living areas is aided by choosing titles that are meaningful, familiar, and sufficiently different from one another.
- As we age our skin becomes more fragile and prone to break-down. Therefore, it is critical to consider the quality of linens and towels as well as options for laundering detergent and softeners. The Consultant recommends that quality checks be performed by the members of the Leadership Team and other designated individuals by randomly selecting linens and towels to take home for a single use.
- The configuration of the building results in several roof tops adjacent to the courtyard that are highly visible from the upper floors of the building. In order to maximize views to nature, it would be nice to consider including some roof-top plants/gardens. Please note that the structure and material of the roof should be verified by an engineering professional for both dead and live loads prior to planting. Further no planting material or maintenance option should jeopardize the integrity of the roofing membrane.
- Both the appearance and the height of all transition strips should be minimized to enable individuals to be self-sufficient and decrease trip hazards. Highly contrasting floor surfaces should also be avoided even in the absence of a vertical change in height.
- In order to maximize the comfort of an individual receiving a shower and increase the efficiency for staff, it would be helpful to have one stationary shower head and one removable water wand. The heat generated from the lighting was sufficient for the Consultant, but would benefit from being adjustable to accommodate the personal preferences of elders.
- Individuals with impaired eye sight and limited attention spans benefit during dining from the inclusion of tablecloths with contrasting plates, glasses and utensils.



### *Environmental Features (continued...)*

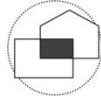
- Broken, worn out, and excess furniture should be replaced and/or removed from all care/living areas. The quality, appearance and functionality should be similar to what one might expect to have in their own home. Individuals who use wheelchairs should be able to use a space without feeling as if they are in the way or excluded, which requires using voids between or adjacent to furniture.
- In the interest of promoting a home-like environment, it would be ideal if there were entry vestibules outside of the elevators on each of the floors. Access would be granted to the individual care/living areas from the vestibules.
- The building showed evidence of multiple modifications of various scales. In order to avoid leaving "scars" from previous décor, unused curtain rods should be removed, holes should be patched, the matching color of paint should be used to conceal blemishes, wall paper should be adhered, etc.
- While the consultant recognizes that in some instances it would require significant renovations in order to retrofit doors onto bathrooms, it would be extremely desirable from a marketability and personal use perspective. When the consultant was accommodated in the shared room, night-time use resulted in the unavoidable introduction of light, sound, and smell.
- General maintenance should be performed on all doors and equipment in order to avoid squeaky wheels and hinges.
- Environmental audits should be performed on an ongoing basis to verify the functionality of all alert systems. Staff reported that the wander guard alerts did not consistently work.
- If it is determined that the building structure and envelope could accommodate outdoor 3 or 4-season terraces, that would be a highly beneficial environmental feature within each care/living area. Current outdoor areas are well maintained, but difficult for individuals who either require assistance or supervision to use on a regular basis. The benefits of light exposure and access to nature are well-documented in the literature for supporting positive clinical outcomes.
- Double occupancy rooms in many of the care/living areas may be referred to as “enhanced privacy” shared rooms, since they do not require one elder to transition through the personal space of their roommate when accessing either the toilet or the hallway. For the rooms, however, that are currently configured in a side-by-side arrangement, environmental service staff may easily reorient beds and re-route hanging curtains to afford elders more privacy.
- When touring the different floors within the South Building, the Consultant made special note of the sitting area on the first floor. The elimination of the solid corner in that location is helpful for interconnecting the dining and living areas on that floor. It would be beneficial to collect individual’s perceptions related to the use of this space to determine if a similar solution ought to be used on other floors.
- To increase the level of engagement in the kitchen area, it would be helpful to have a seated height dining counter. This would also extend the variety of seating/dining options available to elders.
- Although it may seem simple, employee badges are one of the most important elements within a long-term care environment. Large first names are critical. The badge should also be designed to be single-sided if it is going to be attached to clothing or double-sided if it will be suspended around the neck. It is also helpful to indicate where badges ought to be displayed such that elders may easily and consistently access the names of staff on an ongoing basis.



## ORGANIZATIONAL DIRECTIVES

In order to advance Person-Centered Care, staff and elders need the assistance of a clearly and concisely articulated “owner’s manual” for how an organization is supposed to work along with expectations for how they are supposed to fit in. This encompasses all organizational documents pertaining to job descriptions and evaluations, policies, procedures, practices, etc. There were several instances where the Consultant either observed, or discerned as a result of interviews, several opportunities to capitalize upon the development or refinement of organizational directives, including:

- In order to maximize the probability of success, staff who work most frequently with individuals who have dementia should receive dementia specialist training. Training may be available from the local Alzheimer’s Association or through educational organizations.
- While specialty training may be reserved for direct care providers, all staff should be equipped with a basic understanding about dementia and how they, in their role, can improve or diminish individual’s quality of living.
- It would be very desirable to include a social history collection measure during the admissions process that may be supplemented in an ongoing fashion. This information may be used to formulate activities, influence rehabilitation, encourage socialization and intake during meals, understand schedules and nuances, etc.
- There are many options for bathing individuals with dementia that accommodate their mood and desires. In order to benefit both staff and elders, the consultant recommends considering the *Bathing Without a Battle* program cited in the resources section of this report
- In order to overcome the inherent scheduling conflict that arises when an organization has extended dining hours in the morning coupled with a set schedule for medication administration, the Consultant recommends consideration of a person-centered med pass. A similarly extended medication schedule enables staff to accommodate elders’ preferences for how and when they take their medication. A positive byproduct of the person-centered med pass is increased medication compliance and reduced stress for staff.
- In the interest of balancing empowerment with accountability, staff’s job descriptions should clearly relate expectations and explanations back to decision-making principles. These expectations should also serve as the basis for staff evaluations. The Consultant recommends considering multi-source evaluations that include insights from professional peers and the elders themselves.



## OPERATIONAL PROCESSES

Within any organization, there are likely to be observable differences between the way things are “supposed” to happen, and the way things “actually” happen. This usually occurs when there is a mismatch between the expectations of the organization, available resources, staff expertise, and/or elders’ preferences. There were several instances where the Consultant either observed, or discerned as a result of interviews, several opportunities to improve or refine particular operational approaches, including:

- Spontaneous activities should be supported by both the presence of environmental features and interaction from staff. Age-appropriate materials should be readily accessible to individuals who have the desire and ability to self-initiate activity. This will decrease the work load for staff.
- The aroma of soiled linen became pungent in the corridors at various times throughout the day. In order to maintain a pleasant smelling environment, staff not only needs to dispose of soiled linen and clothing immediately, they need secure locations with which to do so. The carts currently used and stored in the hallway, while convenient to staff, fail to contain the smell.
- Access to the kitchen and dining room was restricted to meal times. The Consultant acknowledges that the current design could compromise the safety and wellbeing of elders given the remote location and unsecured cooking equipment. Ongoing access to food and beverages should be available to elders and convenient to staff.
- The number of items and equipment stored in bathing rooms resulted in a haphazard appearance that diminishes the bathing experience. Special attention should be given to the design and inclusion of storage options along with sound absorbing surface treatments and material to minimize reverberation.
- Similarly the quantity and variety of equipment stored in the hallway is both an environmental concern and an operational issue. Staff should be enabled to remove broken and excess equipment.
- The infusion of light into the spaces is necessary, especially for those who have dementia, as is direct and vicarious access to nature. Maximize natural light and views into and from commonly inhabited spaces during daylight hours by raising blinds if it does not result in glare. This, along with activities at key transition times, will assist with sun-downing behaviors.
- Staff must understand that they are not allowed to use furnishings as restraints in order to restrict elder’s mobility. The Consultant observed a recliner being used in this fashion and was offered a corresponding explanation when inquiring with staff.
- Staff need to understand that their interaction with the environment in proximity to the elders can elevate the anxiety of individuals. Especially with regard to sound, it is important to eliminate all noise during sleeping hours (e.g., mow farther away from building first thing in the morning 6:00 AM start and then adjacent later) and minimize noise during waking hours (e.g., removal and tossing of bed rails, carrying on loud conversations, and impromptu fire door/alarm tests).
- In order to assist staff to experience, understand and emulate a preferred environment of care, it may be beneficial to conduct some staff training at the GREEN HOUSE™ locations.

## DESIGN FOR DEMENTIA

Based upon the Consultant's knowledge and experience in combination with the dementia simulation and environmental assessments, the following environmental strategies and features are recommended for consideration:

### **Wayfinding/Orientation**

Using cues and information aids in orienting oneself to the environment as well as navigating through and to desired locations. Because different individuals process information in different ways, it is beneficial to use complimentary approaches, such as a combination of nodes, landmarks, paths, zones, signage and decor to create familiar and intuitive understanding. Additionally, it is important to consider the distances between decision-making points such that one is visible from the other (e.g., a person with limited sight is far less likely to walk if they cannot see a place where they may stop for an intermediate rest).

### **Privacy/Socialization**

Certain environmental features serve as inhibitors or facilitators for controlling privacy and social contact. Large unmanageable spaces may be subdivided into interconnected spaces using changes in décor, ceiling treatments, furnishings, cues and camouflage. Maintaining connection with organizations outside the care community can be important to some elders. By finding mutually beneficial common ground, other organizations may be engaged in partnerships. Single occupancy rooms are essential for providing the degree of privacy many individuals grow accustomed to over the course of their lifetime. Consistent staffing and enabling elders to age in place helps to promote the deep knowing that serves as the foundation for meaningful socialization and provision of privacy.

### **Personalization**

The design and construction of the environment can encourage or discourage the degree to which elders control the placement and arrangement of personal effects. First and foremost, don't over-decorate and avoid using generic and hospitality-style or institutional materials. In order to promote more personalization, minimize the number of "fixed" furnishings in bedrooms. Use niches outside of doors, plate rails and windowsills in the rooms, and a neutral finish palette that encourages personalization. Care communities may go so far as to provide a range of finish selections that may be selected by elders prior to move-in. Certain construction material that are more adaptable and repairable than others.

### **Safety/Security**

The degree to which the environment is designed to mitigate occurrences of accidents varies by individual and use of the spaces. Everyone's risk tolerance and perception of safety is different and it would benefit the organization and the staff to understand this sooner, rather than later. To this end, a *Process for Care Planning for Resident Choice* is included as a resource. In general try to decrease distances between destinations, maximize the quality and quantity of lighting, minimize all noise, provide a range of seating in a variety of locations, staff consistently, and partner with residents and family to negotiate risk.

### **Self-Sufficiency**

This area of interest emphasizes the extent to which the environment facilitates or inhibits residents' ability to carry out daily activities. It is important to place daily items within reach (e.g., closet rods, light switches, and thermostat controls). It is commonly acknowledged that "if you don't use it, you lose it;" staff members need to understand how to provide services in such a way that elders are encouraged to engage in the routines and activities of daily living to the degree they are able. Contrasting plates and utensils may be used to encourage eating. Walk-to-dine programs may be used to increase the number of times elders ambulate by six times per day. Bright sunlight exposure and outdoor access offer the greatest assistance with regulating circadian rhythms, sleep, mood, falls, etc.

### **Interior Décor**

The style, location, appearance, etc. of the furniture, finishes and equipment is an important consideration when designing spaces to support individuals who have dementia. Perhaps most important is to select a variety of residential looking, but commercial grade, furnishings that accommodate differently abled and sized people and may be arranged in different configurations. Create destinations that are actually destinations, not superficial distractions that lack meaning and substance. To this end, designing for differentiation between care/living areas promote curiosity and visitation.

### **Ambient Conditions**

The impact of ambient conditions emphasizes the ability to control stimulation, lighting, temperature, sound, smells, etc. Specify HVAC equipment to minimize drafts and provide adequate air-changes per hour. Engage lighting engineers that have special gerontological expertise to design adequate lighting systems. Create equipment storage and charging areas close to working areas that conceal equipment when not in use. Enable temperature to be controlled within each room to respond to the preferences of individuals. Maximize natural light and exterior views throughout the building, especially those that are most frequently occupied during the day. If possible, cook pleasant smelling foods within the care/living areas prior to dining in order to stimulate hunger. Similarly use diffusers to dispense fresh, pleasant and calming scents throughout the care/living areas. Minimize the amount of sound and reverberation times by using sound-absorbing surface materials and furnishings in conjunction with staff training.

### **Size & Scale**

The appropriate number of people and square footage allocated to a particular delineated area (e.g., household, neighborhood, unit, cluster, care/living area etc.) is a subject of debate. In general, where design for dementia is concerned, smaller tends to be better (e.g., 10-12). However, if individuals are enabled to age-in-place, the desire to have meaningful social engagement may increase the number of individuals deemed appropriate (e.g., 16-20). In the Consultant's own research, elders tended to adapt to and prefer whatever living conditions in which they were currently residing. Family members, however, indicated a clear preference for 11-16 individuals per care/living area. One of the most important considerations after the number of people living in a particular area is the configuration of the space itself. Careful consideration should be given to the layout to ensure that shared public spaces are immediately accessible upon entering residential living spaces (including, a full kitchen and direct uninhibited outdoor access) that progress in the level of privacy afforded as one approaches the single occupancy bedrooms that include showers.

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## RESOURCES

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During the course of observations and activities, the Consultant looked for untapped opportunities and initiatives to suggest for consideration. Please refer to the resource list below:

### **A Process for Care Planning for Resident Choice – The Rothschild Foundation**

The Rothschild PCC Planning process supports long term care communities in their efforts to honor residents' choices that influence quality of care and quality of life, while mitigating potential risks associated with those choices. This process is specifically aimed at care planning when the choice carries sufficient risk, perhaps related to impaired cognition and inadequate decision-making capacity, and the community is considering not honoring the resident's wishes. Following the Rothschild Person-Centered Care Planning process will help the community work with the resident to understand and respect choices to the greatest extent possible, in line with CMS regulations.

### **Policy for Resident-Centered Med Pass – ENM at Alliance Pharmacy**

Regulatory requirements are not a barrier to giving medications when and where Elders prefer, provided that policies reflect the desire for individualized care and the safe administration of medications per the applicable regulations. Strict medication pass times serve to determine Elders' schedule and patterns of living. Person-Centered care communities are setting up new times to pass medication based on the preferences of the Elders and the needs of staff. Physicians may also be asked to decrease the number of "QID" (4 x per day) and TID (3 x per day) medication orders. Instead doctors are asked to use BID (twice per day) or Q-day (once per day) administration models.

### **Bringing the Arts to Life – Hulda B. & Maurice L Rothschild Foundation**

This resource is a result of a multi-year collaboration between IDEAS Institute and Global Alliance for Arts and Health. This guide walks care communities, artists and arts organizations step-by-step through the process of: identifying training needs of staff, developing an arts program, implementing a program that focuses on active engagement, securing funding, evaluating programs and disseminating information, and celebrating successes.

### **Dementia Design Info – UWM Institute on Aging & Environment**

<https://www4.uwm.edu/dementiadesigninfo/>

This is a website for designers, facility providers, and anyone interested in creating supportive environments for persons with dementia. It contains searchable databases of environment-aging literature, white papers that summarize information by topic, and other practical resources.

### **David A Green Memorial Award – SAGE Federation**

<http://www.sagefederation.org/David-Green-Memorial-Award>

The David A. Green Memorial Award has been established to encourage, inspire, recognize and subsidize the innovative projects and actions of providers, researchers, and designers that improve the lives and environments of older adults. Applications are being sought that share outcomes associated with seating and resting areas inside 8 feet wide corridors. Submissions may be either a proposed project/activity or one that has already been implemented that can be further disseminated and documented. The Society for the Advancement of Gerontological Environments (SAGE) is the administrator of the award. Proposals should exemplify one or more of the SAGE principals and values related to the built environment.



*Resources (continued...)*

*\*Note: While many of these resources have been provided by the Consultant to St. John's Home in conjunction with this report, resources that require additional financial investment have been marked with an asterisk.*

**\*The Virtual Dementia Tour (VDT®) – Second Wind Dreams®**

While it may be impractical and cost-prohibitive to enable St. John's Home personnel to engage in 24-hour on-site dementia simulations, there are products and resources available which reduce a dementia simulation experience to 12 minutes. The most reputable is The Virtual Dementia Tour (VDT®) which uses sensory tools and instruction based on research conducted by P.K. Beville, M.S., founder of Second Wind Dreams®. The VDT helps educate, sensitize and change the way staff, families, and the community connects with and care for those with dementia.

**\*TimeSlips Creative Storytelling – TimeSlips**

<http://www.timeslips.org/>

TimeSlips offers an elegantly simple revolution by a shifting from "managing behaviors" toward infusing creativity into care relationships and systems. TimeSlips provides hope and improves well-being through creativity and meaningful connection.

**\*Forget Memory: Creating Better Lives for People with Dementia – Anne D. Bastings**

Memory loss can be one of the most terrifying aspects of a diagnosis of dementia. The book by Bastings emphasizes the importance of activities that focus on the present to improve the lives of persons with Alzheimer's disease and other dementias. Based on ten years of practice and research in the field, this book includes specific examples of innovative programs that stimulate growth, humor, and emotional connection; translates into accessible language a wide range of provocative academic works on memory; and addresses how advances in medical research and clinical practice are already pushing radical changes in care for persons with dementia.

**\*Memory Bridge – Memory Bridge**

<http://www.memorybridge.org/>

Memory Bridge creates programs that connect people with Alzheimer's disease and related dementias to family, friends, and other people in their local community. We also create programs that reveal to the general public the depths of memory that dementia does not erase.

**\*Bathing Without a Battle© – UNC**

<http://bathingwithoutabattle.unc.edu/>

The program combines person-centered techniques with simple, practical approaches to make showering, tub bathing, in-room bathing, and hair washing safe and comfortable for the persons giving and receiving care.

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**ENVIRONMENTAL MEASURES - RAW DATA**

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The tables in this section contain all data collected during the environmental assessment.

**SOUTH BUILDING – 5TH FLOOR:**

(1) ACTIVITY AREA

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	14:45	77.7	46 (30)	41 (40)	0	on	unoccupied activity &
5/25	12:00	78.1	39 (30)	40 (40)	4	on + blinds 1/3 drawn	conversation
5/25	12:45	81.0	42 (30)	40 (40)	4	on + blinds 1/3 drawn	music on + conversation

(2) ADMINISTRATION

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	15:15	78.6	46 (30)	40 (40)	0	on	none

(3) HALLWAY (ENTRY)

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	14:45	77.5	10 (30)	37 (40)	0	on	hallway TV on
5/24	21:00	76.8	18 (10)	20 (40)	0	emergency + sconces	none

(4) COMMERCIAL KITCHEN

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	14:30	77.7	10 (50)	57 (45)	0	on	kitchen + refrigerator

(5) DINING AREA

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	14:30	77.7	42 (50)	50 (40)	0	on	icemaker running
5/24	16:45	81.5	35 (50)	50 (40)	0	on + c open	none
5/24	17:00	80.8	25 (50)	56 (40)	Full	on + blinds open	Conversation
5/24	18:00	80.1	19 (50)	46 (40)	½ Full	on + blinds open	dining room starting to clear
5/25	7:00	76.8	35 (50)	47 (40)	0	on + blinds open	adjacent kitchen equipment
5/25	8:15	81.1	17 (50)	61 (40)	15	on + blinds open	conversation + adjacent kitchen equipment
5/25	12:00	78.1	14 (50)	50 (40)	16	on + blinds open	conversation + Jason kitchen equipment
5/25	12:45	81.0	53 (50)	55 (40)	19	on + blinds open	conversation + adjacent kitchen equipment

(6) MEDICINE PREP

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	15:00	77.9	13 (30)	50 (40)	0	on	Omniceil machine + TV on

South Building – 5<sup>th</sup> Floor (continued...)

(7) ACTIVITY AREA

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	15:30	79.3	14 (30)	47 (40)	1	on	adjacent shift change reports

(8) HALLWAY

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	15:45	79.9	10 (30)	47 (40)	0	on	no HVAC
5/24	21:00	75.0	4 (30)	47 (40)	0	emergency + sconces	TV on
5/24	23:00	74.1	1 (10)	50 (40)	0	emergency	none
5/25	4:30	71.4	1 (10)	41 (40)	0	emergency	none
5/25	7:00	71.4	1 (30)	47 (40)	0	emergency	none
5/25	8:45	80.2	24 (30)	47 (40)	0	on	none
5/25	10:45	77.5	20 (30)	54 (40)	0	on	none
5/25	13:30	82.0	28 (30)	54 (40)	0	on	none

9) HALLWAY

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	15:45	79.9	8 (30)	62 (40)	0	on	TV on in adjacent room
5/24	21:00	75.2	4 (30)	62 (40)	0	emergency + sconces	TV on
5/24	23:00	74.1	1 (10)	61 (40)	0	emergency	none
5/25	4:30	71.2	7 (10)	57 (40)	0	emergency	none
5/25	7:00	71.6	1 (30)	60 (40)	0	emergency	none
5/25	8:45	80.2	7 (30)	59 (40)	0	on	none
5/25	10:45	77.5	9 (30)	60 (40)	0	on	none
5/25	13:30	82.0	8 (30)	59 (40)	0	on	none

(10) HALLWAY

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	16:00	80.6	11 (30)	50 (40)	0	on	none
5/24	21:00	75.4	3 (30)	55 (40)	0	emergency + sconces	none
5/24	23:00	74.1	1 (10)	52 (40)	0	emergency	none
5/25	4:(30)	71.4	1 (10)	55 (40)	0	emergency	none
5/25	7:00	71.8	11 (30)	55 (40)	0	just turned all lights on	none
5/25	8:45	80.2	11 (30)	47 (40)	0	on	none
5/25	10:45	77.5	11 (30)	50 (40)	1	on	none
5/25	13:30	81.9	11 (30)	52 (40)	0	on	none

*South Building – 5<sup>th</sup> Floor (continued...)*

(11) LIVING ROOM

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	15:30	79.5	7 (30)	30 (40)	7	off + blinds drawn	TV on
5/24	16:45	81.1	18 (30)	50 (40)	3	off + blinds ¼ drawn	TV on
5/24	18:00	81.0	5 (30)	50 (40)	7	off + blinds ¼ drawn	TV on
5/24	21:00	75.7	1 (30)	35 (40)	3	off	none
5/24	23:00	74.3	0 (30)	20 (40)	2	on	none
5/25	4:30	71.4	0 (30)	45 (40)	3	off	TV on
5/25	7:00	71.8	3 (30)	30 (40)	2	no + blinds ¼ drawn	none
5/25	8:45	80.1	13 (30)	60 (40)	3	off + blinds ¼ drawn	TV on + 1 person singing
5/25	10:45	77.5	10 (30)	50 (40)	14	off + blinds ¼ drawn	TV
5/25	13:30	81.3	7 (30)	52 (40)	7	off + blinds pulled	TV + conversation

(12) NURSES STATION

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	21:00	75.9	1 (30)	32 (40)	2	overhead + adjacent can lights	none
5/24	23:00	75.4	1 (10)	70 (40)	3	can + office on	shift change
5/25	4:30	71.8	1 (10)	40 (40)	3	office + can lights only	conversation
5/25	7:00	72.3	23 (30)	40 (40)	0	on	none
5/25	8:45	79.9	24 (30)	40 (40)	0	on	none
5/25	10:45	77.5	22 (30)	53 (40)	3	on	none
5/25	13:30	81.3	22 (30)	51 (40)	0	on	none

(13) HALLWAY

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	21:00	76.3	4 (30)	25 (40)	0	emergency + sconces	none
5/24	23:00	75.9	1 (10)	45 (40)	3	emergency	none
5/25	4:30	72.3	1 (10)	40 (40)	0	emergency	none
5/25	7:00	72.8	13 (30)	40 (40)	0	on	TV
5/25	8:45	79.9	14 (30)	49 (40)	0	on	none
5/25	10:45	77.5	11 (30)	40 (40)	0	on	none
5/25	13:30	81.1	14 (30)	50 (40)	0	on	none

*South Building – 5<sup>th</sup> Floor (continued...)*

(14) HALLWAY

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	15:00	78.4	12 (30)	45 (40)	0	on	none
5/24	21:00	76.5	3 (30)	45 (40)	0	emergency + sconces	none
5/24	23:00	75.9	1 (10)	46 (40)	0	emergency	none
5/25	4:30	72.3	1 (10)	42 (40)	0	emergency	none
5/25	7:00	73.0	16 (30)	65 (40)	1	on	talking
5/25	8:45	79.9	9 (30)	50 (40)	1	on	restocking supplies
5/25	10:45	77.5	12 (30)	40 (40)	0	on	none
5/25	13:30	81.0	17 (30)	45 (40)	0	on	none

(15) HALLWAY

<u>Date</u>	<u>Time</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	15:15	78.8	11 (30)	46 (40)	2	on	conversation
5/24	16:00	80.6	7 (30)	45 (40)	3	on	no HVAC
5/24	21:00	76.6	2 (30)	40 (40)	0	emergency + sconces	none
5/24	23:00	76.1	1 (10)	39 (40)	0	emergency	none
5/25	4:30	72.7	2 (10)	40 (40)	0	emergency	none
5/25	7:00	73.2	10 (30)	45 (40)	0	on	TV
5/25	8:45	79.9	15 (30)	50 (40)	1	on	person crying
5/25	10:45	77.5	11 (30)	45 (40)	0	on	none
5/25	13:30	81.0	10 (30)	46 (40)	0	on	none

*South Building – 5<sup>th</sup> Floor (continued...)*

(14:00) BEDROOMS

<u>Date</u>	<u>Room</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/24	570	80.8	64 (30)	34 (35)	2	on	on
5/24	571	80.5	17 (30)	38 (35)	0	off	on
5/24	572	80.6	15 (30)	45 (35)	1	off/on	off
5/24	573	80.4	253 (30)	20 (35)	0	off	on
5/24	574	80.6	35 (30)	21 (35)	0	off	off
5/24	575	80.2	230 (30)	45 (35)	0	off	off
5/24	576	80.2	360 (30)	25 (35)	0	on	off
5/24	577	80.2	63 (30)	30 (35)	1	off	off
5/24	578	80.2	59 (30)	35 (35)	0	on	off
5/24	579	80.2	64 (30)	46 (35)	0	off/on	on
5/24	580	80.2	79 (30)	40 (35)	0	on	off
5/24	581	80.2	19 (30)	49 (35)	1	off	on
5/24	582	80.2	194 (30)	28 (35)	0	off	off
5/24	583	80.4	120 (30)	34 (35)	0	off	off
5/24	584	80.4	52 (30)	24 (35)	0	on	off
5/24	585	80.4	99 (30)	30 (35)	0	off	off
5/24	586	80.4	144 (30)	45 (35)	0	on	on
5/24	587	80.4	113 (30)	30 (35)	0	off	off
5/24	588	80.4	77 (30)	24 (35)	2	off	on

(11:00) BEDROOMS

<u>Date</u>	<u>Room</u>	<u>°F</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	570	78.1	100 (30)	40 (35)	0	off	on
5/25	571	78.1	112 (30)	40 (35)	0	off	on
5/25	572	78.2	78 (30)	46 (35)	2	off	off
5/25	573	78.1	116 (30)	40 (35)	1	off	on/off
5/25	574	77.9	179 (30)	38 (35)	0	off	off
5/25	575	77.7	136 (30)	23 (35)	1	off	off
5/25	576	77.7	180 (30)	20 (35)	0	off	off
5/25	577	77.5	33 (30)	19 (35)	1	off	off
5/25	578	77.5	120 (30)	20 (35)	0	off	off/on
5/25	579	77.5	78 (30)	20 (35)	0	off	off
5/25	580	77.4	84 (30)	19 (35)	0	off/on	off
5/25	581	77.4	65 (30)	19 (35)	0	off	off
5/25	582	77.5	178 (30)	40 (35)	0	off	off
5/25	583	77.5	82 (30)	30 (35)	0	off	off
5/25	584	77.5	57 (30)	35 (35)	1	on	off
5/25	585	77.5	131 (30)	30 (35)	0	off	off
5/25	586	77.5	14 (30)	40 (35)	0	off	off
5/25	587	77.5	120 (30)	24 (35)	0	off	off
5/25	588	77.5	40 (30)	30 (35)	1	on	on

**RESERVOIR BUILDING – 3RD FLOOR**

(16) DINING AREA

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.0	11 (50)	17 (40)	16	on	piano
5/25	16:00	81.0	24 (50)	45 (40)	1	on	refrigeration equipment
5/25	18:00	79.7	10 (50)	55 (40)	7	on + windows	conversation & kitchen equipment
5/25	20:00	81.3	3 (50)	55 (40)	0	½ on	kitchen equipment
5/25	23:15	79.2	7 (50)	46 (40)	0	on	kitchen equipment
5/26	4:45	77.2	7 (50)	54 (40)	2	on	kitchen equipment & conversation
5/26	7:00	76.8	8 (50)	47 (40)	1	on + windows	kitchen equipment
5/26	9:00	76.1	10 (50)	58 (40)	full	on + windows	kitchen equipment & conversation
5/26	11:00	79.9	7 (50)	53 (40)	1	on + windows	adjacent kitchen equipment
5/26	12:00	79.0	10 (50)	54 (40)	Full	on + windows	conversation & kitchen equipment & dining activity
5/26	12:45	81.1	12 (50)	60 (40)	full	on + windows	conversation & dining

(17) HALLWAY

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.0	9 (30)	50 (40)	0	on	piano in adjacent room
5/25	16:00	81.0	12 (30)	44 (40)	0	on	oxygen equipment
5/25	18:00	79.7	13 (30)	50 (40)	0	on	adjacent conversation & dining
5/25	20:00	81.1	10 (30)	49 (40)	0	on	none
5/25	23:15	79.2	6 (10)	47 (40)	0	emergency	adjacent TVs
5/26	4:45	77.2	7 (10)	46 (40)	0	emergency + sconces	HVAC
5/26	7:00	77.0	14 (30)	50 (40)	0	on	adjacent oxygen machine
5/26	9:00	76.1	14 (30)	50 (40)	0	on	distant med pass + dine
5/26	11:00	79.9	12 (30)	55 (40)	0	on	adjacent TV

(18) HALLWAY

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.2	6 (30)	55 (40)	1	on	conversation in adjacent room
5/25	16:00	80.8	6 (30)	46 (40)	0	on	adjacent conversations
5/25	18:00	79.5	13 (30)	44 (40)	0	on	none
5/25	20:00	81.0	5 (30)	65 (40)	0	on	fan
5/25	23:15	79.2	6 (10)	62 (40)	0	emergency	fan
5/26	4:45	77.2	6 (10)	61 (40)	0	emergency + sconces	adjacent fan
5/26	7:00	77.0	6 (30)	62 (40)	0	on	adjacent conversation + fan
5/26	9:00	76.3	6 (30)	59 (40)	1	on	med pass + fan
5/26	11:00	79.9	6 (30)	61 (40)	0	on	adjacent fan

Reservoir Building – 3<sup>rd</sup> Floor (continued...)

(19) ACTIVITY AREA

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.2	16 (30)	48 (40)	1	on	none
5/25	16:00	80.8	18 (30)	50 (40)	0	on	none
5/25	18:00	79.5	1 (30)	45 (40)	0	off	none
5/25	20:00	80.8	13 (30)	53 (40)	0	on	adjacent fan
5/25	23:15	79.2	12 (30)	58 (40)	0	on	TV + fan
5/26	4:45	77.2	1 (30)	44 (40)	0	TV light	TV
5/26	7:00	76.8	1 (30)	41 (40)	0	off + TV light	TV
5/26	9:00	76.3	5 (30)	46 (40)	0	½ on	adjacent fan
5/26	11:00	79.9	5 (30)	50 (40)	2	on	distant fan

(20) LIVING ROOM

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.3	8 (30)	50 (40)	3	off + blinds open	TV
5/25	16:00	80.4	5 (30)	55 (40)	8	off + blinds open	TV + woman humming
5/25	18:00	79.5	6 (30)	52 (40)	2	off + windows	TV
5/25	20:00	80.8	2 (30)	67 (40)	4	off + windows	TV
5/25	23:15	79.0	1 (30)	67 (40)	0	emergency	TV
5/26	4:45	77.2	1 (30)	67 (40)	1	sconces	TV + adjacent fan
5/26	7:00	76.8	4 (30)	66 (40)	2	off + windows	TV + adjacent fan
5/26	9:00	76.3	5 (30)	65 (40)	5	off + window	TV + fan + conversation
5/26	11:00	79.7	5 (30)	61 (40)	8	off + windows	conversation + TV

(21) NURSES STATION

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.3	35 (30)	47 (40)	4	on	office conversation
5/25	16:00	80.4	31 (30)	60 (40)	5	on	Conversation
5/25	18:00	79.3	38 (30)	50 (40)	0	on	fan
5/25	20:00	80.6	24 (30)	60 (40)	2	on	conversation + fan
5/25	23:15	79.0	27 (30)	56 (40)	2	on	fan
5/26	4:45	77.2	31 (30)	56 (40)	0	on	fan
5/26	7:00	76.8	32 (30)	56 (40)	5	on	conversation + fan
5/26	9:00	76.3	31 (30)	58 (40)	2	on	fan + conversation
5/26	11:00	79.7	32 (30)	64 (40)	3	on	conversation + fan



Reservoir Building – 3<sup>rd</sup> Floor (continued...)

(22) HALLWAY

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.5	11 (30)	40 (40)	0	on	adjacent conversation
5/25	16:00	80.2	11 (30)	40 (40)	0	on	adjacent conversation
5/25	18:00	79.3	11 (30)	50 (40)	0	on	adjacent TV
5/25	20:00	80.4	11 (30)	49 (40)	1	on	adjacent conversation
5/25	23:15	78.8	5 (10)	50 (40)	1	emergency	restocking linen
5/26	4:45	77.2	5 (10)	50 (40)	0	emergency	HVAC
5/26	7:00	76.8	11 (30)	45 (40)	0	on	none
5/26	9:00	76.3	13 (30)	47 (40)	0	on	none
5/26	11:00	79.5	11 (30)	50 (40)	0	on	distant TVs

(23) HALLWAY

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.5	9 (30)	60 (40)	0	on	TVs
5/25	16:00	80.2	8 (30)	61 (40)	0	on	adjacent TVs
5/25	18:00	79.3	6 (30)	60 (40)	1	on	adjacent TVs + trash bag
5/25	20:00	80.4	6 (30)	61 (40)	0	on	adjacent TVs
5/25	23:15	78.8	1 (10)	63 (40)	0	emergency	none
5/26	4:45	77.0	1 (10)	66 (40)	0	emergency	adjacent TV
5/26	7:00	76.8	7 (30)	65 (40)	0	on	distant conversation
5/26	9:00	76.3	10 (30)	62 (40)	0	on	adjacent conversation
5/26	11:00	79.5	9 (30)	58 (40)	0	on	adjacent TVs

(24) HALLWAY

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.7	5 (30)	50 (40)	0	on	TV
5/25	16:00	80.2	8 (30)	48 (40)	0	on	adjacent TVs
5/25	18:00	79.3	8 (30)	50 (40)	0	on	adjacent conversations TVs
5/25	20:00	80.2	8 (30)	56 (40)	0	on	adjacent TVs + conversation
5/25	23:15	78.8	1 (10)	55 (40)	0	emergency	none
5/26	4:45	77.0	1 (10)	58 (40)	0	emergency	none
5/26	7:00	76.8	7 (30)	55 (40)	0	on	none
5/26	9:00	76.3	11 (30)	54 (40)	0	on	adjacent housekeeping
5/26	11:00	79.5	7 (30)	50 (40)	0	on	distant TVs

Reservoir Building – 3<sup>rd</sup> Floor (continued...)

(25) HALLWAY

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.9	4 (30)	40 (40)	0	on	conversation + TVs
5/25	16:00	80.2	5 (30)	40 (40)	0	on	adjacent TVs
5/25	18:00	79.5	7 (30)	50 (40)	3	on	conversation + adjacent TV
5/25	20:00	80.2	5 (30)	50 (40)	1	on	none
5/25	23:15	78.8	2 (10)	47 (40)	0	emergency	remote fan
5/26	4:45	77.0	1 (10)	50 (40)	0	emergency	adjacent fan
5/26	7:00	76.8	5 (30)	47 (40)	0	on	distant fan
5/26	9:00	76.3	5 (30)	48 (40)	0	on	distant fan
5/26	11:00	79.5	5 (30)	46 (40)	0	on	distant fan

(26) HALLWAY (ENTRY)

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.9	14 (30)	55 (40)	3	on	conversation
5/25	16:00	80.2	10 (30)	50 (40)	5	on	adjacent conversation
5/25	18:00	79.5	12 (30)	60 (40)	3	on	floor cleaner
5/25	20:00	80.2	13 (30)	52 (40)	0	on	adjacent conversation
5/25	23:15	78.6	8 (30)	53 (40)	1	emergency	elevator + fan
5/26	4:45	77.0	6 (30)	53 (40)	0	emergency	adjacent fan + TV
5/26	7:00	76.8	13 (30)	56 (40)	4	on	conversation
5/26	9:00	76.3	13 (30)	54 (40)	1	on	adjacent fan
5/26	11:00	79.5	13 (30)	50 (40)	2	on	adjacent conversation + fan

(27) HALLWAY

<u>Date</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	14:00	79.9	8 (30)	40 (40)	0	on	piano in adjacent dining room
5/25	16:00	80.4	7 (30)	40 (40)	0	on	adjacent TVs
5/25	18:00	79.5	7 (30)	45 (40)	1	on	adjacent TV
5/25	20:00	80.2	7 (30)	48 (40)	0	on	adjacent med pass
5/25	23:15	78.6	3 (10)	43 (40)	0	emergency	remote fan
5/26	4:45	76.8	3 (10)	40 (40)	0	emergency + sconces	adjacent stocking cart
5/26	7:00	76.8	7 (30)	42 (40)	0	on	none
5/26	9:00	76.3	7 (30)	50 (40)	2	on	adjacent med pass + distant fan
5/26	11:00	79.5	8 (30)	40 (40)	0	on	adjacent TV + distant fan

**HASTINGS BUILDING – 3RD FLOOR**

(28) HALLWAY

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	28	13:45	79.7	4 (30)	40 (40)	0	on	HVAC
5/25	28	15:45	83.8	5 (30)	49 (40)	0	on	HVAC
5/25	28	17:45	81.0	5 (30)	40 (40)	0	on	HVAC
5/25	28	19:45	84.0	5 (30)	51 (40)	0	on	HVAC
5/25	28	23:00	80.8	3 (10)	37 (40)	0	emergency	HVAC
5/26	28	4:30	77.5	2 (10)	50 (40)	0	emergency	HVAC
5/26	28	6:45	77.2	5 (30)	46 (40)	0	on	none
5/26	28	8:45	75.9	8 (30)	42 (40)	0	on	none
5/26	28	10:45	82.0	5 (30)	50 (40)	0	on	HVAC & adjacent soiled utility

(29) HALLWAY

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	29	13:45	79.7	9 (30)	40 (40)	2	on	HVAC & people
5/25	29	15:45	83.7	9 (30)	39 (40)	0	on	adjacent TV
5/25	29	17:45	80.8	9 (30)	30 (40)	0	on	adjacent TV
5/25	29	19:45	83.8	12 (30)	32 (40)	0	on	adjacent TV
5/25	29	23:00	80.4	6 (10)	43 (40)	0	emergency	none
5/26	29	4:30	77.4	3 (10)	42 (40)	0	emergency	none
5/26	29	6:45	77.2	9 (30)	40 (40)	1	on	door opening
5/26	29	8:45	75.9	7 (30)	47 (40)	0	on	rolling cart
5/26	29	10:45	81.7	8 (30)	45 (40)	0	on	adjacent TV

(30) LIVING ROOM

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	30	13:45	79.5	6 (30)	45 (40)	5	off	TV
5/25	30	15:45	83.3	6 (30)	42 (40)	0	off	TV
5/25	30	17:45	80.6	5 (30)	40 (40)	5	off	TV
5/25	30	19:45	83.7	1 (30)	40 (40)	5	off	TV
5/25	30	23:00	80.4	4 (30)	32 (40)	0	emergency	none
5/26	30	4:30	77.4	4 (30)	30 (40)	0	emergency	none
5/26	30	6:45	77.2	4 (30)	40 (40)	0	off	adjacent conversation
5/26	30	8:45	75.9	4 (30)	40 (40)	0	off	TV
5/26	30	10:45	81.7	2 (30)	40 (40)	1	off	med pass

Hastings Building – 3<sup>rd</sup> Floor (continued...)

(31) HALLWAY

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	31	13:45	79.3	12 (30)	45 (40)	0	on	adjacent people
5/25	31	15:45	83.1	5 (30)	59 (40)	0	on	adjacent conversation
5/25	31	17:45	80.4	8 (30)	45 (40)	0	on	adjacent conversation
5/25	31	19:45	83.5	7 (30)	45 (40)	0	on	med pass
5/25	31	23:00	80.2	1 (10)	45 (40)	0	emergency	none
5/26	31	4:30	77.2	1 (10)	42 (40)	0	emergency	none
5/26	31	6:45	77.2	6 (30)	45 (40)	0	on	none
5/26	31	8:45	75.9	8 (30)	46 (40)	1	on	housekeeping
5/26	31	10:45	81.7	6 (30)	47 (40)	0	on	adjacent conversation

(32) NURSES STATION

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	32	13:45	79.3	19 (30)	50 (40)	1	on	none
5/25	32	15:45	82.9	24 (30)	46 (40)	3	on	office conversation
5/25	32	17:45	80.4	17 (30)	45 (40)	1	on	none
5/25	32	19:45	83.3	17 (30)	41 (40)	0	on	none
5/25	32	23:00	79.3	10 (30)	43 (40)	2	on	typing
5/26	32	4:30	77.2	16 (30)	47 (40)	0	on	none
5/26	32	6:45	77.2	13 (30)	47 (40)	0	on	HVAC
5/26	32	8:45	75.9	15 (30)	48 (40)	0	on	housekeeping
5/26	32	10:45	81.3	17 (30)	55 (40)	2	on	conversation

(33) DINING AREA

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	33	13:45	79.2	18 (50)	42 (40)	5	on	Machines & people
5/25	33	15:45	82.8	22 (50)	49 (40)	5	on + windows	conversation & TV
5/25	33	17:45	80.2	12 (50)	45 (40)	full	on + windows	conversation
5/25	33	19:45	82.9	8 (50)	40 (40)	0	on + windows	kitchen equipment
5/25	33	23:00	80.1	4 (50)	33 (40)	0	emergency	kitchen equipment
5/26	33	4:30	77.2	4 (50)	36 (40)	0	emergency	kitchen equipment & HVAC
5/26	33	6:45	77.2	7 (50)	45 (40)	2	on	conversation & dishes
5/26	33	8:45	75.9	7 (50)	50 (40)	full	on + windows	kitchen equipment TV & conversation
5/26	33	10:45	81.1	5 (50)	55 (40)	Full	on + window	bingo + kitchen equipment
5/26	33	12:00	79.0	12 (50)	44 (40)	1/2 full	on + windows	kitchen equipment & dining & conversation
5/26	33	12:45	81.0	10 (50)	50 (40)	full	on + windows	conversation & dining

Hastings Building – 3<sup>rd</sup> Floor (continued...)

(34) LIVING ROOM

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	34	13:45	79.0	1 (30)	45 (40)	2	off	TV
5/25	34	15:45	82.4	1 (30)	45 (40)	2	off	TV
5/25	34	17:45	80.2	1 (30)	45 (40)	1	off	TV
5/25	34	19:45	81.9	1 (30)	28 (40)	1	off	TV
5/25	34	23:00	79.9	0 (30)	27 (40)	1	off	none
5/26	34	4:30	77.2	1 (30)	40 (40)	1	off	none
5/26	34	6:45	77.0	1 (30)	50 (40)	0	off	conversation
5/26	34	8:45	75.7	12 (30)	50 (40)	0	on	TV
5/26	34	10:45	80.8	7 (30)	45 (40)	3	on	TV & adjacent bingo

(35) HALLWAY (ENTRY)

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	35	13:45	79.0	7 (30)	42 (40)	11	on	people
5/25	35	15:45	82.2	5 (30)	41 (40)	5	on	conversation
5/25	35	17:45	80.2	5 (30)	45 (40)	3	on	adjacent conversation
5/25	35	19:45	82.8	4 (30)	50 (40)	3	on	resident crying out
5/25	35	23:00	79.9	2 (30)	35 (40)	2	on	adjacent conversation
5/26	35	4:30	77.2	2 (30)	40 (40)	1	on	none
5/26	35	6:45	77.0	4 (30)	45 (40)	2	on	adjacent conversation
5/26	35	8:45	75.7	4 (30)	52 (40)	5	on	med pass
5/26	35	10:45	80.4	6 (30)	50 (40)	4	on	conversation & coughing

(36) HALLWAY

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	36	13:45	79.0	14 (30)	45 (40)	2	on	speech
5/25	36	15:45	82.0	15 (30)	45 (40)	0	on	none
5/25	36	17:45	80.1	15 (30)	50 (40)	0	on	none
5/25	36	19:45	82.6	12 (30)	48 (40)	3	on	med pass
5/25	36	23:00	79.7	6 (10)	47 (40)	0	emergency	conversation
5/26	36	4:30	77.2	8 (10)	45 (40)	0	emergency	none
5/26	36	6:45	77.0	17 (30)	50 (40)	0	on	none
5/26	36	8:45	75.7	10 (30)	50 (40)	0	on	distant med pass
5/26	36	10:45	80.4	8 (30)	50 (40)	0	on	adjacent conversations

Hastings Building – 3<sup>rd</sup> Floor (continued...)

(37) LIVING ROOM

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	37	13:45	78.8	39 (30)	25 (40)	3	on + window	none
5/25	37	15:45	82.0	21 (30)	28 (40)	0	off + window	none
5/25	37	17:45	79.9	16 (30)	35 (40)	1	off + window	TV
5/25	37	19:45	82.2	4 (30)	28 (40)	0	off + windows	adjacent conversation
5/25	37	23:00	79.5	1 (30)	27 (40)	0	TV light	none
5/26	37	4:30	77.2	1 (30)	27 (40)	0	TV light	none
5/26	37	6:45	77.0	14 (30)	35 (40)	0	off + windows	none
5/26	37	8:45	75.7	37 (30)	34 (40)	0	off + windows	distant housekeeping
5/26	37	10:45	80.4	42 (30)	45 (40)	2	off + windows	conversation

(38) HALLWAY

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	38	13:45	78.8	13 (30)	55 (40)	0	on	radio
5/25	38	15:45	81.7	14 (30)	51 (40)	0	on	none
5/25	38	17:45	79.9	16 (30)	50 (40)	0	on	none
5/25	38	19:45	82.0	17 (30)	48 (40)	0	on	none
5/25	38	23:00	79.5	6 (10)	50 (40)	0	emergency	none
5/26	38	4:30	77.2	5 (10)	50 (40)	0	emergency	HVAC
5/26	38	6:45	76.8	16 (30)	50 (40)	0	on	adjacent TV
5/26	38	8:45	75.7	15 (30)	52 (40)	0	on	none
5/26	38	10:45	80.2	16 (30)	52 (40)	0	on	adjacent conversation

(39) HALLWAY

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	39	13:45	78.8	9 (30)	50 (40)	0	on	radio
5/25	39	15:45	81.7	12 (30)	45 (40)	1	on	nurse cart
5/25	39	17:45	79.9	4 (30)	50 (40)	0	on	none
5/25	39	19:45	81.7	4 (30)	50 (40)	1	on	men paths
5/25	39	23:00	79.3	1 (10)	50 (40)	0	emergency	distant conversation
5/26	39	4:30	77.2	1 (10)	50 (40)	0	emergency	adjacent kitchen equipment
5/26	39	6:45	76.8	6 (30)	50 (40)	0	on	none
5/26	39	8:45	75.7	7 (30)	52 (40)	0	on	distant housekeeping
5/26	39	10:45	80.2	5 (30)	50 (40)	0	on	but Jason conversation, bingo & housekeeping

Hastings Building – 3<sup>rd</sup> Floor (continued...)

(40) COMMERCIAL KITCHEN

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	40	13:45	79.0	15 (50)	58 (45)	0	on	refrigeration equipment
5/25	40	15:45	81.3	10 (50)	56 (45)	0	on	refrigeration equipment
5/25	40	17:45	79.9	12 (50)	56 (45)	0	on + window	refrigeration equipment
5/25	40	19:45	81.7	8 (50)	58 (45)	0	on	refrigeration equipment
5/25	40	23:00	79.3	7 (50)	53 (45)	1	on	accessing drawers & kitchen equipment
5/26	40	4:30	77.0	6 (50)	57 (45)	0	on	kitchen equipment
5/26	40	6:45	76.8	8 (50)	56 (45)	0	on + window	kitchen equipment
5/26	40	8:45	75.9	13 (50)	60 (45)	0	on + window	kitchen equipment & conversation
5/26	40	10:45	80.2	14 (50)	60 (45)	2	on + window	refrigeration equipment, housekeeping & conversation

(41) HALLWAY

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	41	13:45	79.0	16 (30)	50 (40)	0	on	radio
5/25	41	15:45	81.3	13 (30)	35 (40)	2	on	adjacent TV
5/25	41	17:45	79.9	16 (30)	40 (40)	0	on	adjacent conversation
5/25	41	19:45	81.5	11 (30)	35 (40)	0	on	adjacent TV
5/25	41	23:00	79.2	1 (10)	27 (40)	1	emergency	none
5/26	41	4:30	77.2	1 (10)	30 (40)	0	emergency	none
5/26	41	6:45	76.8	11 (30)	30 (40)	0	on	none
5/26	41	8:45	75.9	20 (30)	50 (40)	1	on	none
5/26	41	10:45	80.2	13 (30)	53 (40)	2	on	adjacent music & conversation

(42) HALLWAY

<u>Date</u>	<u>Area</u>	<u>Time</u>	<u>F°</u>	<u>fc (min)</u>	<u>dB (max)</u>	<u>#Occ</u>	<u>Lights</u>	<u>Noise</u>
5/25	42	13:45	79.0	15 (30)	40 (40)	0	on	TV & radio
5/25	42	15:45	81.1	12 (30)	38 (40)	0	on	TVs
5/25	42	17:45	79.7	18 (30)	32 (40)	0	on	adjacent TV
5/25	42	19:45	81.3	19 (30)	35 (40)	0	on	adjacent TV
5/25	42	23:00	79.2	13 (10)	35 (40)	0	emergency	adjacent conversation
5/26	42	4:30	77.2	9 (10)	28 (40)	0	emergency	adjacent TV
5/26	42	6:45	76.8	18 (30)	30 (40)	0	on	adjacent TV
5/26	42	8:45	75.9	16 (30)	42 (40)	0	on	adjacent conversation
5/26	42	10:45	80.1	13 (30)	50 (40)	2	on	adjacent conversation & distant music