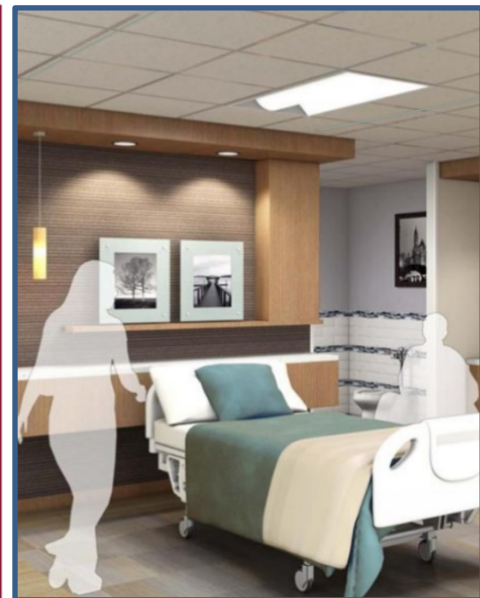


# Spinal Cord Injury/ Disorders Center design guide

Appendix - July, 2020



VA



U.S. Department  
of Veterans Affairs

Office of Construction &  
Facilities Management

## 5.0 Appendix, Site Visits

### 5.1 General

The team charged with updating the Spinal Cord Injury and Disorders Center design guide chapter, began by conducting post occupancy evaluations of existing Acute Care and Long-Term care SCI/D facilities. In order to gain an understanding of the VA's currently operations, the team toured multiple VA-operated SCI/D facilities. In addition, the team toured a pair of private acute spinal cord and brain trauma centers to see the private sector's variety of solutions and workflows. The group also focused on adjacencies of spaces, finishes, maneuvering clearances, medical equipment, and architectural details. The analysis was intended to be a learning experience for the design team which would translate into modifications, additions, or deletions from the previous chapter edition's criteria and design guide.



**VA**



U.S. Department  
of Veterans Affairs



**Spinal Cord Injury / Disorders (SCI/D) Center Standards Update**  
Department of Veterans Affairs  
Office of Construction and Facilities Management (CFM)  
**Site Visit Report #1: Chicago IL**

July 2020

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## 1 Introduction

The mission of the Department of Veterans Affairs is to provide the highest quality of healthcare services for our nations Veterans. In order to accomplish this mission, the planning, design, and construction of effective healthcare facilities is critical. Developing the standards and guidelines used for the design and construction of all VA healthcare facilities is the responsibility of the VA Office of Construction and Facilities Management (CFM).

As part of the Scope of Work (SOW) for this project, site visits to existing SCI/D Center facilities, both VA and non-VA, were arranged to observe how the planning and design of a SCI/D facility affects the ability for the organization to accomplish their mission and to deliver quality patient care.

Site Visit 1 included visits to the Shirley Ryan Ability Lab, in downtown Chicago, the VA Hines Medical Center Acute Care/Outpatient facility and VA Hines Long Term Care (LTC). Later site visits include the VA SCI/D facilities in near Boston MA, and the Spaulding Rehabilitation Hospital Boston (Charlestown historic neighborhood).

This report is intended to provide a record of the site visit. The information obtained during these site visits will be used in the development of the new planning and design standards for VA SCI/D Centers.

We would like to thank Dr. Michael Richardson, Chief of the SCI/D at VAMC Hines, and the Shirley Ryan Ability Lab Staff: Nancy Paridy – Sr. Vice President, Chief Administrative Officer, Jason Barbas – Director, Ability Lab Therapy, Katherine Earnest – Nurse Manager, Spinal Cord Innovation Center, Janet Bischoff-Rosario – Manager, Assistive Technology, Arun Jayaraman – Director & Business Development Officer, Office of Translational Research, Kimberly Brennan – Director, Outpatient Therapy, Janet McCarthy – Director, Performance Improvement for facilitating and leading the site visit tours.

## 2 Site Visit #1: Chicago IL

Monday April 8<sup>th</sup>

8:00am - 12:00 am: Shirley Ryan Ability Lab

1:00pm - 3:00 pm: VA Hines Medical Center AC/OP

3:00pm - 5:00 pm: VA Hines Medical Center LTC

### SCI/D Site Visit Team Members:

#### Department of Veterans Affairs

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### 3 The Shirley Ryan AbilityLab – Introduction

The Shirley Ryan AbilityLab, formerly the Rehabilitation Institute of Chicago (RIC), is a leader in physical medicine and rehabilitation for adults and children with the most severe, complex conditions including traumatic brain and spinal cord injury, stroke, amputation and cancer-related impairment.

Rehabilitation is a relatively new medical specialty, becoming certified as such in 1947. Immediately following World War II, which had a significant impact on the specialty of rehabilitation, President Truman appointed five-star General Omar Bradley to head the Veterans Administration (VA). General Bradley recruited Dr. Paul Magnuson, a U.S. Army orthopedic surgeon, who created the infrastructure for the VA to provide rehabilitation for Veterans. Dr. Magnuson served the Truman administration until 1951 and, shortly thereafter, declared his vision to establish a medical rehabilitation hospital for American citizens and incorporated as the not-for-profit Rehabilitation Institute of Chicago (RIC).

Breaking ground in 2013 and opening in March 2017, the 1.2-million-square-foot the AbilityLab is promoted as the first “translational” research hospital in which clinicians, scientists, innovators and technologists work together in the same space (often physical therapy rooms/gyms), surrounding patients, discovering new approaches and applying (or “translating”) research in real time. The guiding vision for the facility is “Integrating care and research in pursuit ability as an outcome, with Rehab as a process”.



*Lobby and healthy resource library available to patients and family*

The institute began an experiment organizing their work and space by an applied-research and therapeutic program. In the Shirley Ryan AbilityLab, the architecture and space layout allow

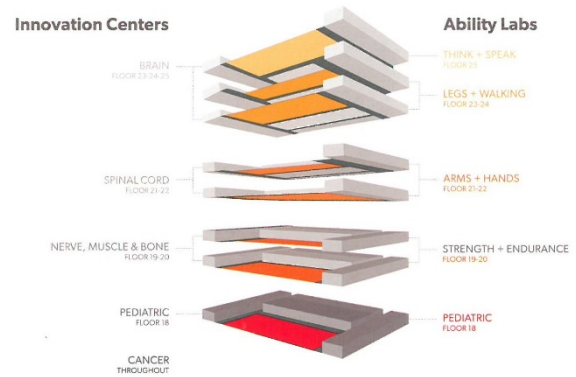
researchers to work shoulder-to-shoulder with patients, doctors and therapists. The planning and

design of the AbilityLab tailored the facility to provide ‘the best’ views from patient rooms (to downtown, lake, etc.) and foster the application of research during care through working translational ability labs. This approach created a building that is a tool to serve patients (and the vision) through improving outcomes.

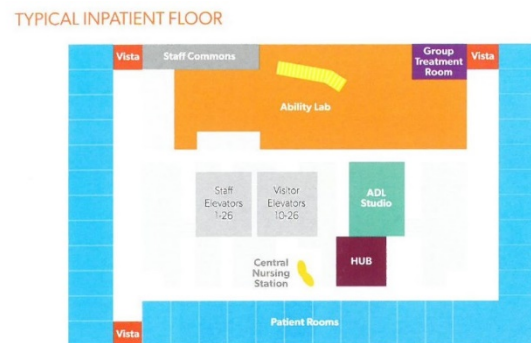
The floors and therapy spaces are programmed by treatment, not source of injury, with interdisciplinary teams to develop new research and insights intended to help patients gain more function (ability) and achieve better outcomes:

- Think + Speak Lab
- Legs + Walking Lab
- Arms + Hands Lab
- Strength + Endurance Lab
- Pediatric Lab

By necessity of the building’s placement in an urban center; the program is arranged vertically in a 27 story building, including parking, support, and garden space, in addition to clinical, treatment and patient bedrooms.



Wayfinding diagrams of vertical organization and floor plan.



#### 4 Shirley Ryan AbilityLab – Innovation Centers: Patient Spaces

The SCI unit includes three levels of care: Inpatient, Outpatient, day Rehabilitation. The design and construction included a high degree of attention on the quality of the environment in each space.

The facility includes inpatient acute care bedrooms situated around the three sides



Extra wide patient corridors to accommodate wheelchairs and lifts

(east/south/west) of the building with the best views. Support spaces and the HUB are in the building core without views and separated from the Ability Labs on that same floor but on the north perimeter.

Oversized, 12’ wide corridors are provided on patient bedroom corridors with rounded corners.

Extensive artwork displays throughout the corridors and



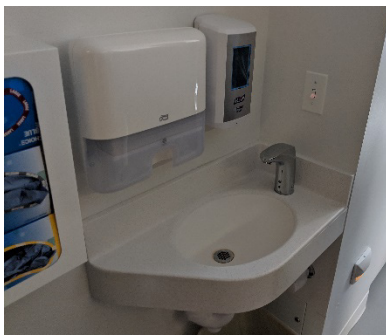
Overhead lift system



large volume spaces. Full height windows are common at perimeter spaces and the ends of corridors, the color palate helps define active vs restful areas.

The HUB is a multi-purpose space on each patient floor located in the center of the patient unit behind the unit reception desk/nurse station. This is where they serve meals, use for education and acts as a communal space. Patients have access to refrigerators in this space to store their own food. The tables are height adjustable, and originally electric but that proved to be problematic due to cords, plugs and related obstructions. They currently use a hydraulically assisted table – they recommended this type for future consideration.

## 5 Shirley Ryan AbilityLab – Patient Rooms:



Staff hand-washing sink (lavatory), customized to minimize space use.

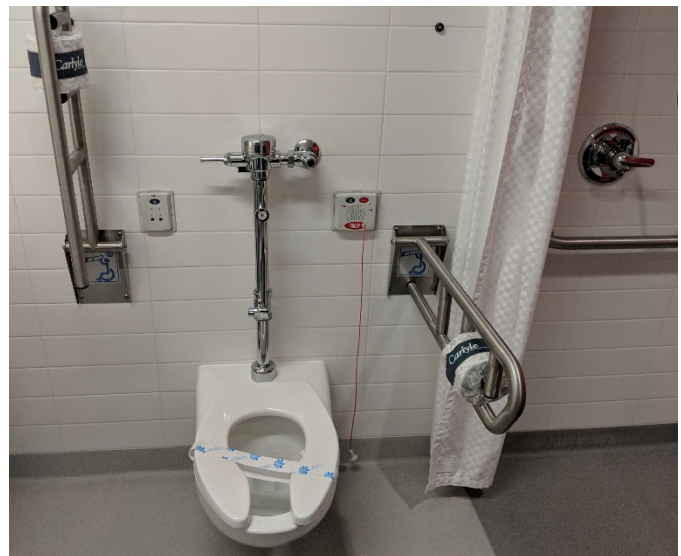


Patient bed with view and daylight



Patient foot-wall, with bench, shelves, and TV

Patient rooms are all private single occupancy. The entry door is a standard 4' wide door. The bathroom is just inside the entry to the room. A staff hand washing sink is provided on the wall opposite the bathroom and the same side as the headwall. There is a nurse work/charting space recessed into the headwall just past the sink. There is overhead storage and cabinet beneath. The bed is located in such a way that staff can see the head of the patient bed from the corridor. The head wall had basic medical gases, O2 and air, along with vacuum on either side of the bed. Rooms are primarily finished in white, allowing patients to decorate with art, cards, pictures etc. The patient bathroom had a sliding “barn” style door that has a large handle on it for ease of gripping on can be opened by pushing against it. The toilet is placed several feet away from the wall,



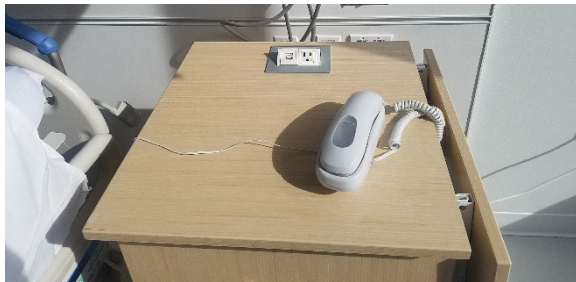
Customized ADA grab bars, for removal and patient practice transfers from either side, required local ADA code variance.



*Patient shower with accent wall and full perimeter grab bars.*

beyond ABA/ADA grab bar reach, with fold-out grab bars on either side such that a person can stand on one of either side of the toilet to provide assistance. This is not spaced per ADA/ABAAS compliance, but is viewed as a non-standard improvement with hinged grab bars on each side that allow for use by disabled patients and new (or right or left 'cheeked') patients to practice transfers from either side. The SRAL project team had to obtain a variance for code-review approval. There is a roll in-shower with a wand type head and typical controls. There is a sink on the same wall as the toilet that is ADA compliant. It has a mirror above. It was noted by one of VA staff that it was not tilted like they are used to seeing. The finishes are epoxy flooring with ceramic tile wall tiles, including red tile in the shower, and a hard ceiling.

The furniture includes a cabinet unit acting as a bedside table that had a pop-up power outlets/USB on the top that can fold flush with the top. The room included a love seat that converted into a bed for a guest/family member along the exterior wall/window. There was also an upholstered bench along the footwall with pull out storage beneath. A desk with overhead shelving and a wardrobe unit is build-in custom cabinetry. All patient-use casework and storage finishes in a light wood grain in a consistent material/color. Staff-use work/furniture is an easily determined different material/color (solid white) within patient rooms and also carried throughout the building.

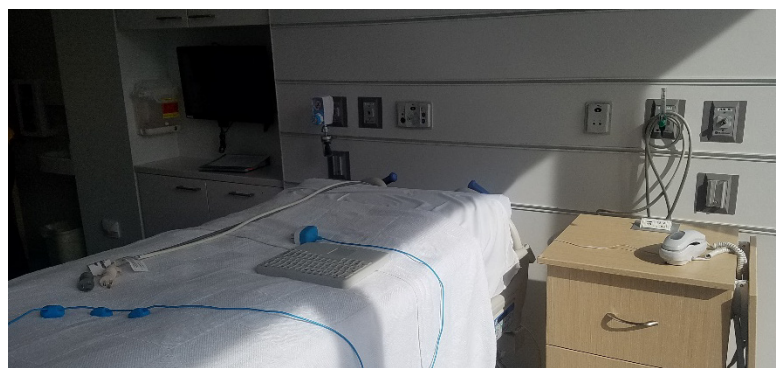


*Patient bedside table, with DC/LV and standard power*

There were several levels of technology serving the space. A flat panel television is mounted on the footwall, a staff monitor/tablet is provided at the nurse work desk. Patients are provided and trained with a wireless keyboard that controlled the TV service and applications, accessed educational programs on the main flat panel, and is connected



*Sleeper love-seat extends for guest/family use*



*New sensor technology intended for staff use in avoiding pressure injury has been standardized to also train patients in avoiding and managing pressure.*

to the building systems; the lighting, room temperature and the window shades. Emergency contact is provided by a separate nurse call pillow speaker. There was a display on the foot of the bed that displays real time pressure mapping from patient on the mattress, allowing identification of patient pressure points on the mattress, preventing bedsores or pressure lesions. This is relatively new technology and was intended for staff use in post-op wards or with bedridden patients. Future iterations of this tech could likely integrate into the room television system, rather than a small iPad sized monitor clamped to the bed frame.

The basic color-scheme is white within the patient rooms. The staff indicated that the patients have cards and flowers and that brings color to the room. There is wall protection from the floor to approximately 3' above the floor, per industry standard practice. However, it was noted that its not tall enough as the larger/taller power wheelchairs can still mark the walls.

## 6 Shirley Ryan AbilityLab – Ability Labs

These Multi-story spaces are focused on patient experience through views, finishes, and activity social interaction (suggesting neurological stimulation) from the co-located activity of the applied-research and therapeutic programs. The experience can be considered a reward for just attending therapy, regardless of progress or achievements. The perimeter full-height windows provide plenty of light, with bright colors and artwork everywhere decorating the walls, and views of Chicago skyscrapers, skyline or Lake Michigan through the windows (7 to 10 stories above street level).

There are doctor touch down pods “sprinkled” about the lab. They are a type of systems furniture with walls (5’ high) and sliding perforated doors. The doctors can observe activities between staff and patients from these locations.



*Exercise stairs are provided as a monumental stair, with daylight, views, and multiple overhead lift/support systems.*



*Clinical, research and therapy staff workstations and located in the ability lab for a extensive culture and continuum of care.*



*Lift/support track, workstations and therapy equipment within the PT/Ability lab gym.*

## Storage

Storage is provided on the therapy/ability lab floor, in storage rooms and in sliding closets, all along one wall. There are sliding doors with adjustable shelves, approximately 24" deep. The organization is managing an unforeseen challenge in needing significant storage space for shipping boxes for shipping loaner equipment. The vendors requirement to return equipment in same packaging.



*Perimeter wall storage throughout PT/Gym and therapy space.*

There was a fully functional kitchen and functions of daily living area (which included a work bench like you would find in a garage) off the Ability Lab. The kitchen, bed, and bathroom is used for training, but it is not ADA accessible. The rationale is that patients' homes will not be always be modified. There was some discussion about the logic about that.

There was a laundry room with standard and stacked washer and dryers for training in activities of daily living. The patients train on these and use them for their own clothes or sundries (The facility handles linens and towels at a commercial scale). Staff will also use laundry room for patient's laundry to assist them. The room is big enough to accommodate staff and wheelchair patients. A folding table for laundry was not observed.

## Tech and Digital Occupational therapy room

They assist in selecting and purchasing IT/tech assistances (Siri, Alexia, google home, etc) and OT in using keyboards, mouse, and laptops that requiring fine-motor skills. This therapy is not considered standard /required recovery in the private healthcare model, but it is more and more popular in our digital and interconnected society.



*Use of smart speaker and home devices in digital therapy.*

## 7 Shirley Ryan AbilityLab – Staff breakroom and touchdown



Staff workstations, “off stage” for charting, and reporting, with collaborative space.



Staff workstations, “off stage” co-located with breakroom for flexible program/use.



Technology storage in vented, but secure casework.

Is a shared multi-use space for charting, reporting and with collaborative space; kitchenette, storage lockers, touch-down stations, whiteboards and monitors (also used for meetings space, but not the only option) and is sub-divided into an active and quiet side (transparent barrier) to allow staff to work quietly on off-stage (or off-the clock) tasks.

### Other Spaces:

We reviewed other spaces as follows.

The Med Room is not centrally located in the unit and it can be quite a walk from the far side of the unit. It is equipped with high density storage bins and a material tracking system. The staff commented that Clean Storage could be larger to serve the various storage needs of rehabilitation, adaptive equipment and wheelchairs, etc.



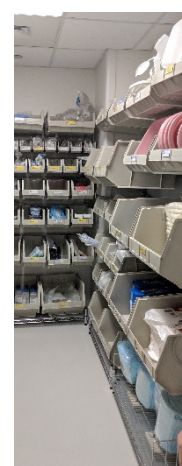
Open staff work space



Medication storage and prep-station



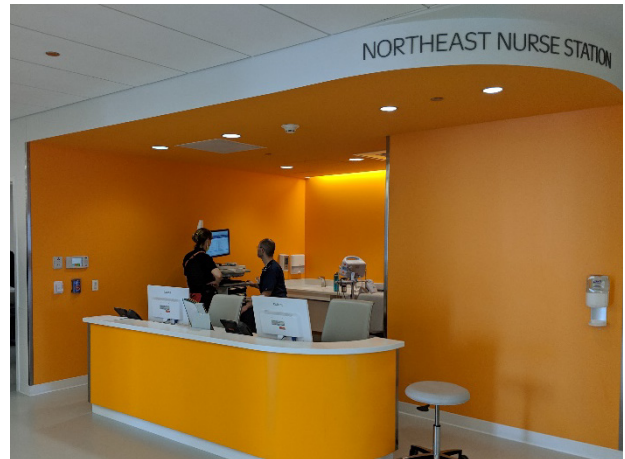
Clean supply high density storage.



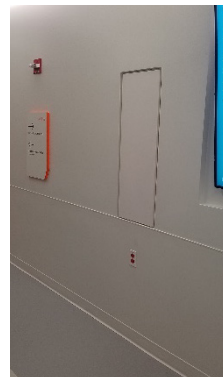
Each patient floor has a centralized nursing station which is readily identified by contrast with the overall white-aesthetic. Additional work space and storage for the staff is distributed around the buildings ‘core’, the ‘Hub’ and along patient corridors.



*Identifiable and customized nurse station*



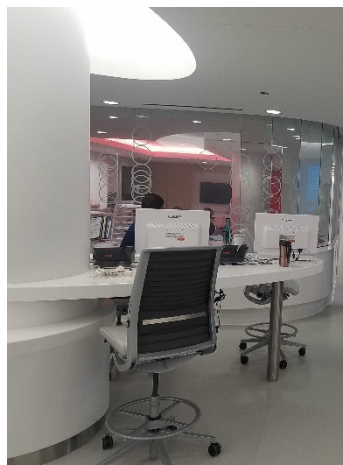
*Comparison of customized and identifiable nurse station.*



*Closed supply cabinet*



*Open supply cabinet*



*Semi-private team/work room with views of patient floor*



*Semi-private or team work room workstations.*

## 8 Shirley Ryan AbilityLab – Biomechanical Lab

Arun Jayaraman Director & Business Development Officer, Office of Translational Research presented the current technology they are researching and utilizing for inpatients and outpatients. The variety included but were not limited to standing wheelchairs, exoskeletons, external muscle/nerve stimulators, air bags to lessen the severity of falls, accelerometers and GPS devices (typical consumer step/physical activity trackers) that can be programmed (or have an application installed) to detect falls and contact help automatically, surface mounted sensors for more localized or group tracking.

The new or researched application of technology include monitors to assist with maintenance therapy, providing safety/responsiveness for falls or acute/emergency events for the patient and provides objective data back to clinicians or researchers for reliable care management (including early diagnosis, preventative care and early warning signs) and finally supporting other research to validate therapy or treatments instructions were followed or performed. This effort is always advancing and moving faster than medical approvals and medical practice, b/c “Moore’s Law”, but typical consumer products such as step counters may not need FDA/Medical approval for each iteration.



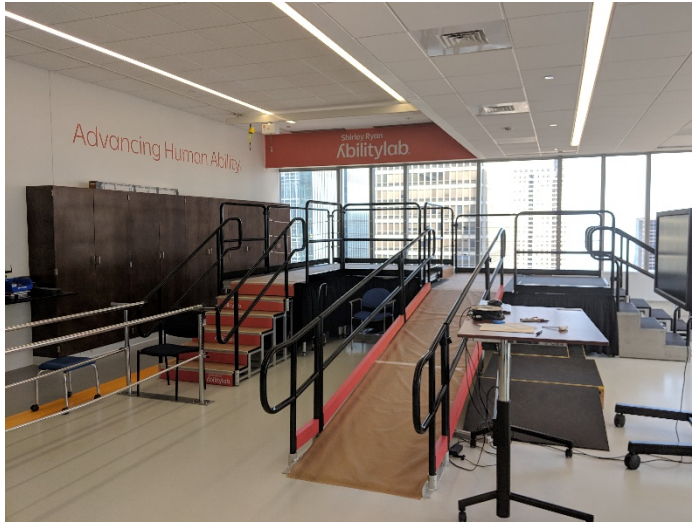
*Exoskeleton equipment for therapeutic use.*



*Digital/Smart and peripheral technology for patient safety, care management, often adapted from commercial/consumer functions.*

The discussion included the cost-effectiveness of technology and robotics equipment. The Ability Lab has anecdotally experienced that long-term cost of robotics outweigh the cost of repeat hospitalizations. This technology is rapidly advancing but patients often reject the technology or only accept it in a limited fashion.





*Physical therapy/exercise stairs and gait bars.*



*Experimental standing wheelchair built with bicycle engineering.*

## **9 Shirley Ryan AbilityLab – Observations:**

- a. Automatic doors need bump stops as they can close on patients. Auto-open should be provided for patients and staff use.
- b. Accessible door hardware should be kept intuitive for patients and guests, confusing appearance or operation means the lock is often missed by user and privacy is lost.
- c. Wall protection (Acrovyn) should be tailored to power chairs and equipment within the unit, which maybe higher than 3', for walls and doors.
- d. Supply rooms should have received more attention/design scrutiny from nurses/staff and designers.
- e. Patient Room Toilet doors need to have better bump stops. The factory bump stops were problematic and replaced by custom hardware by the staff.
- f. Electrical outlets need to be flush with flooring (or not in the floor). Some were observed to not be flush and present a trip hazard.
- g. Gait track (patient lift system) isn't always perfect, but is installed "everywhere" for patient use/therapy.
- h. They indicated they need to buy a lift to place wheelchairs on elevated platforms in wheelchair maintenance and storage shop. Their wheelchair storage is occupying floor space and vertical storage is very cost effective for empty chairs.

## 10 VAMC Edward Hines Jr. - Chicago IL., SCI/D Center (AC and LTC)



*Front entry and covered vehicle drop-off canopy.*

The VAMC Edwards Hines Jr. in Chicago IL, supports 60 Acute/Outpatient Spinal Cord Injury beds in two units and 30 long-term care beds, also subdivided into 2 units. Outpatients are generally former acute/rehab patients released to the community but return for annual evaluations in the clinic throughout a 5-10 day stay. This approach is due to the complexity of care, requiring a suite of exams and quick medical or equipment fitting to follow-up on site, and veterans may have difficulty traveling to the Center. The clinic also provides a covered drop-off canopy to easy transportation in all weather conditions.

The nature of care and services determine length of stay and layout of the SCI/D Center. An outpatient evaluation of 5-10 days is typical, while Acute Care treatment lasts for 4 months or longer, and Long Term Care can be for the remainder of the Veteran's life. Typical SCI/D patient care is supported by higher quantity and larger than typical equipment such as: motorized wheelchair, shower chair, telephone, commode in addition to the toilet, etc. Bedrooms and exam rooms need to be bigger to accommodate all these items. Veterans often choose VA SCI/D Centers over private offerings, seeing the VA as an economic choice for a condition that can be a significant burden. SCI/D has recently been designated foundational care because they receive a higher quality of care; adding to funding, visibility/publicity, and resources.



*Lobby and welcome desk, adjacent to covered canopy and waiting room.*

The VAMC Edwards Hines Jr. SCI/D Acute/Outpatient facility and Long-term care facility are situated at opposite ends of the Medical Center (campus). Travel between them is lengthy and time consuming so vehicle would be needed for patient transport. Patient discharge is often required from acute care to the community. Patients can enter acute care from the emergency department or other intake procedures.

Staff, materials and equipment commonly utilized in SCI/D are exchanged.

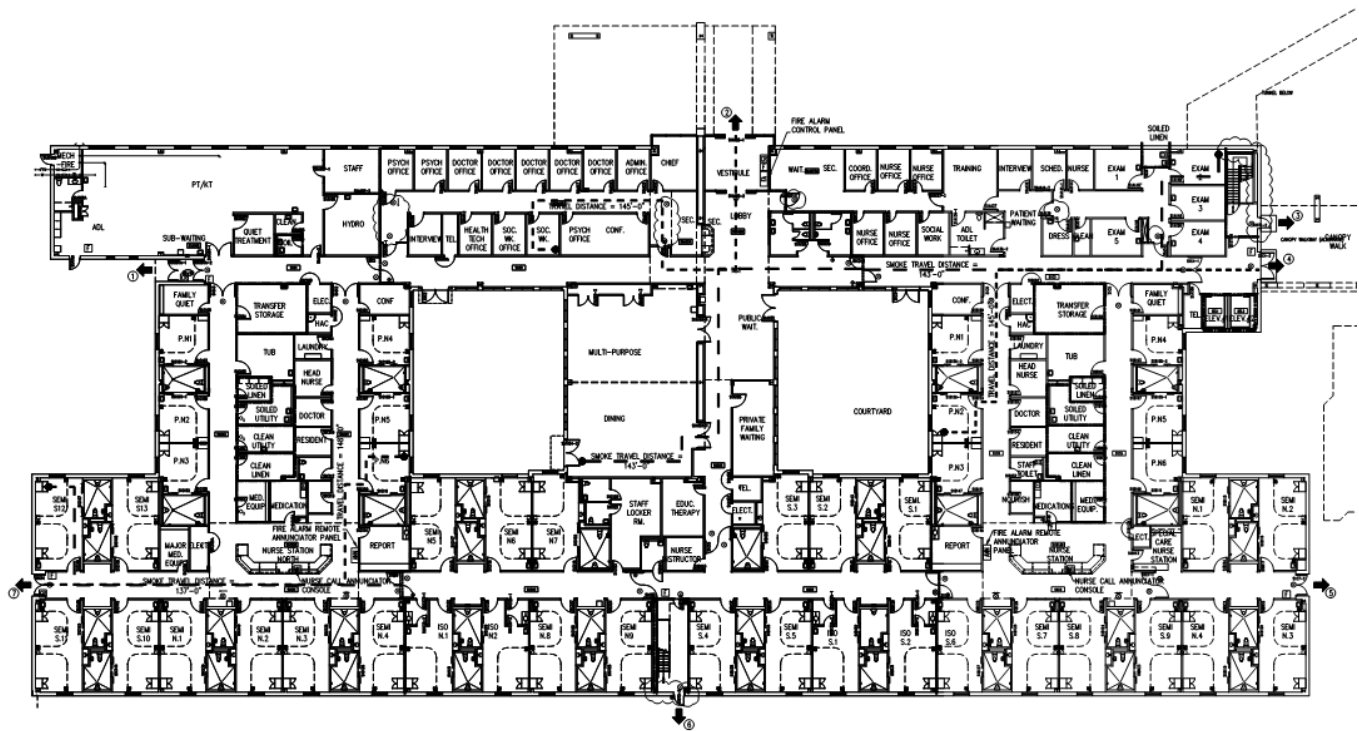
The site visit team members met with senior staff and administrative leadership of the SCI/D who shared their experience and wisdom from operating an SCI/D Center with acute care, outpatient clinics and long term care as follows:

- Patients often benefit from social/inter-personal connections in a shared room.
- Encourage family involvement.
- Supports patient lifts that transport patients from the patient bedroom to the bathroom.
- All patient rooms need to be as high tech as possible; all the latest innovative equipment and “future proofed” with spare conduit, circuits, wireless access points, bandwidth, voice activated, etc. New SCI/D centers can require years to scope/plan/design, fund and construct, and original technology could become obsolete.
- Create a “homelike” environment with private and ‘neighborhood’ type spaces. The LTC’s non-institutional quality is important but remains part of an integrated SCI/D Center.
- Provide patients with easy access to their everyday needs.
- Indicated the importance of having full coverage lifts in patient spaces.
- There needs to be more storage for wheelchairs and other SCI/D patient equipment. A 30-bed unit needs storage space for about 10 wheelchairs, plus charging capabilities.
- A team approach to therapy (translational) where there is a full time staff of doctors and therapists with offices would have positive impacts on the veteran. Especially when possible to have 4 rooms/offices that look into the therapy areas/clinics which would allow for the staff to be more beneficial to the care and success of the veteran.

## 11 VAMC Edward Hines Jr. - SCI/D Acute Care/Outpatient Clinic

The staff of the SCI/D at VAMC Hines led the tour and discussed SCI/D Center services. The catchment area (90 mile radius) and capacity of the SCI/D Center, within the context of the population density and demographics of Chicago resulting in a significant workload for the center. VA patients who have a spinal cord injury issue, whether it is inpatient, surgical, or long term care remain in the system for the life of the individual. The VA is perceived as a more economic choice for this extended recovery/therapy and care than the services available from private healthcare.

Currently they are not addressing mental/behavioral illness of SCI/D patients within the SCI/D acute care units. The current practice is to address their behavioral health needs in a mental health unit. Controlling SCI/D equipped space to the level of a behavioral health/self-harm prevention unit is currently too difficult and challenging.



VA Edward Hines Jr. SCI/D Center (Acute care and Outpatient care) floor plan

The requirement of having the patient rooms arranged around all the outside walls complicates expansion projects with patient and staff which is difficult due to longer stays and equipment storage. The staff stated that treatment and outcomes would be improved with better use of the outdoor space, which is currently utilized as a source for natural lighting. The staff recommended the required window in the patients' room look onto an area or scene with aesthetic quality for improved patient satisfaction and recovery. Currently a number of the outdoor views at VA Edward Hines Acute SCI/D center include the wall of an adjacent building and parking lot, which are not conducive to the improvement of the patient's health.

## 12 VAMC Edward Hines Jr. - SCI/D Center, Outpatient Services:

Currently the outpatient clinic is using outdated construction methods as the standard of care and technology has advanced since its construction, but a renovation has not been performed. New outpatient areas should be designed to follow the new PACT model based on one physician with nurse practitioner, psychologist, OT/PT, and other applicable VA Design guides. The number of exam rooms would be programmed based on catchment area or patient volume, which may or may not differ greatly from the current count. The clinic is lacking consult spaces for Veterans, counselors and their families. Support spaces should be more flexible.

Clinic spaces and corridors are considered too small for SCI/D uses. The exam rooms are standard size without consideration for lifts or SCI/D wheelchair and ADA/ABAAS clearance around exam beds. SCI/D Patients often experience incontinence issues; accidents require cleanup which can cause delays for exam rooms.



*Outpatient exam room*

- OPC and Acute Care should be adjacent to share staff, resources and patient services efficiently.
- The Urologist Suite should be attached or adjacent to SCI/D, as it is a common issue, and training/therapy is needed for new patients.
- The team did not tour basement level storage for housekeeping equipment and VA equipment.

Home Care offices/administration area is provided in the Acute/Care Outpatient Services unit. It is used to schedule and support the SCI/D caregivers that travel to patients' homes (RN, SW, Psych.) – one provider team can support 25-30 patients within a 90 mile travel distance.

The Hines staff inquired if this service was represented in the new PG 18-9 for these staff/FTE?



*Dual-purpose, conference room and Tele-health room*

A Telehealth room or space with suitable equipment, privacy and support is needed in each SCI/D Center. A conference room used sporadically can be utilized with proximity to an attending office. The equipment and room can be shared, but telehealth needs preference for care services. (i.e. would not be the only shared conference room).

### 13 VAMC Edward Hines Jr. - SCI/D Center, Acute Care Patient rooms and bathrooms:

#### Observations:

- Adequate ceiling height is critical to accommodate ceiling mounted patient lifts
- A centralized nurse station functions best for staff interface.
- Bathrooms are “wet rooms” with a four foot wide access door and accommodates a patient using a shower chair.
- The existing facility is constructed with one bathroom for double patient bedrooms, and that is insufficient for current design standards and infection control practices.
- Ceiling lifts in patient rooms are designed to transport patients from the bedroom to the bathroom.
- A single sink is provided in the patient bedroom. A single sink is provided in the bathroom, which is insufficient for current care practices.
- An inpatient therapy gym is provided which is also utilized by outpatient therapy at times.
- A limited number of patient rooms are able to support isolation measures.



*Patient bedroom shower/bathroom*



*Patient bedroom headwall, storage, screen, and bedside table.*



*Patient bedroom handwashing sink, clean supplies and mirror.*

## 14 VAMC Edward Hines Jr. - SCI/D Center, Outdoor and Therapy Areas

Outdoor areas for passive and active outdoor activities are provided.

Landscaped exterior spaces are provided for patients to experience the outdoors. Included in these outdoor spaces is an area for mobility training on ground surfaces, but the offering lacks diversity for a variety of training.

The courtyards accommodate horticulture therapy, when the season is appropriate.



*Exterior courtyard for patient use and PT and Mobility training.*



*Courtyard landscaping is not maintained or flourishing in early spring. Isolated from regular groundskeeping practices.*

Ceiling mounted tables that telescope for dining/ activity height are provided in the multi-purpose room. They are aging and sometimes break. When one table is inoperable in the down position the room loses some of its functionality.

A dividing partition is not installed but having one may provide additional flexibility for the space.



*Physical therapy gym*



*Multi-purpose room with athletic floor, movable tables, overhead tables and projection screen.*





and comradery that can be built in a shared space are better for the veteran and better for their families. However, the 2 individuals that are sharing a room should NOT share a bathroom as it creates an infectious control issue.

Nurse servers should be incorporated into all patient rooms for aiding in the stocking of a room.

Laundry areas need to be in the acute and long term care areas for the patients or residents. One set of washers and dryers would be appropriate for less than 30 patients, and 2 set sets if the population is 30 or larger.



*Multi-purpose and recreation space is adjacent to patient entry and exterior program space.*

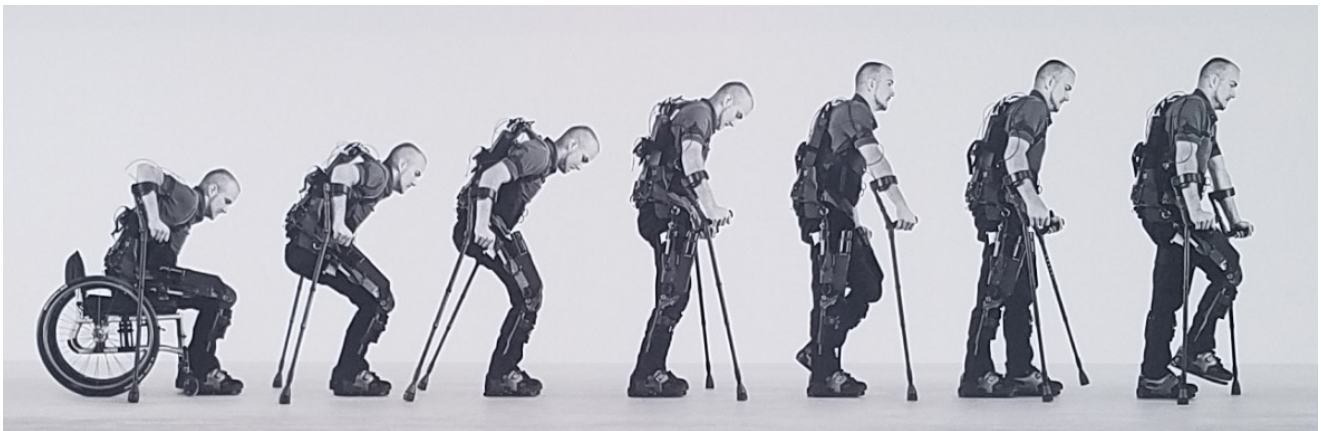


*Covered exterior space for use in meals, horticulture therapy, recreation and view of adjacent activity.*

**VA**



U.S. Department  
of Veterans Affairs



## **Spinal Cord Injury / Disorders (SCI/D) Center Standards Update**

Department of Veterans Affairs  
Office of Construction and Facilities Management (CFM)

### **Site Visit Report #2: Boston MA**

July, 2020

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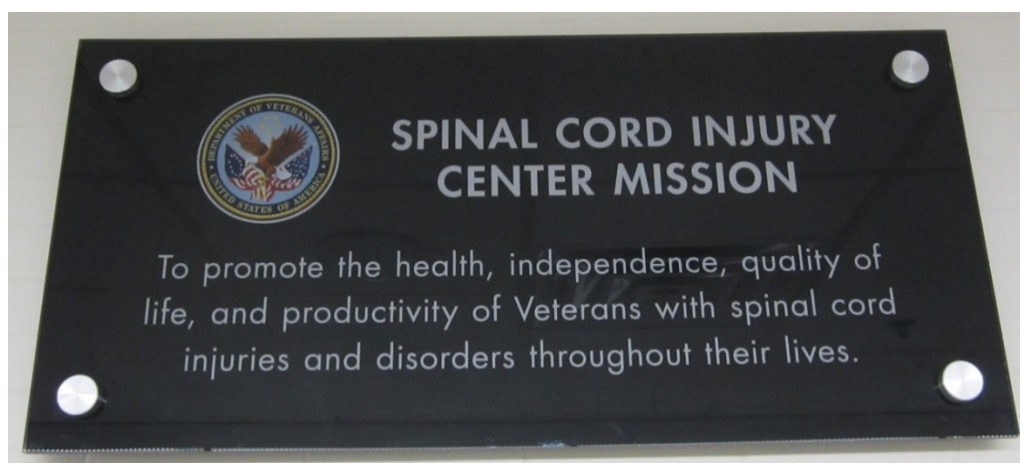
## 1. Introduction

The mission of the Department of Veterans Affairs is to provide the highest quality of healthcare services for our nations Veterans. In order to accomplish this mission, the planning, design, and construction of effective healthcare facilities is critical. Developing the standards and guidelines used for the design and construction of all VA healthcare facilities is the responsibility of the VA Office of Construction and Facilities Management (CFM).

As part of the Scope of Work (SOW) for this project, site visits to existing SCI/D Center facilities, both VA and non-VA, were arranged to observe how the planning and design of a SCI/D facility affects the ability for the organization to accomplish their mission and to deliver quality patient care.

Site Visit 2 included visits to the VA Boston Healthcare System SCI/D Center at West Roxbury, the VA LTC SCI/D at Brockton, and Spaulding Rehabilitation Hospital which is the primary facility of the Spaulding Rehabilitation Network. This report is intended to provide a record of the site visit. The information obtained during these site visits will be used in the development of the new planning and design standards for VA SCI/D Centers.

We would like to thank Dr. Sunil Sabharwal-Chief of the SCI/D at the VA Boston Healthcare System, Alicia Sullivan-Nurse Manager, Sandra Wettergreen- Patient Safety, Bernadette and the W. Roxbury PT/OT staff-who were particularly helpful, the nursing and therapy staff at VA Brockton SCI/D LTC, and Daniel Menninger-Director of Programs and Timothy Sullivan- Director of Communications at Spaulding Rehabilitation Hospital staff for their hospitality.



*SCI/D Mission plaque*

## 2. Site Visit #2: Boston, MA

Monday May 13<sup>th</sup> 2019

VA Boston Healthcare System – West Roxbury 8-11 am

VA Boston Healthcare System – Brockton 1-5 pm

Tuesday May 14<sup>th</sup> 2019

Spaulding Rehabilitation Hospital Boston 11-1 pm

### SCI/D Site Visit Team Members:

#### Department of Veterans Affairs

Dr. Itala M. Wickremasinghe	Executive Director SCI/D System of Care SCI/D National Program Office
Annette Couchenour	Nursing Director, SCI/D System of Care
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Ms. Fei (Linda) Chan	HC Planner/Architect Facilities Planning Development Service (FPDS)
Gary Fischer	Sr. Healthcare Architect Facilities Standards Service (FSS)

#### Paralyzed Veterans of America – Advocate Organization

Mark Thompson	Sr. Associate Director of Architecture Paralyzed Veterans of America
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#### Guidon Design Inc.- Consultants

Mark P. Jones	Sr. Project Manager
Stewart Whitcomb	Architect
Lee Pettit	Healthcare Planner – Innova Group

### 3. West Roxbury, MA VAMC SCI/D – Introduction

The team met with West Roxbury staff for a discussion of design elements that work to support and improve care, and also those that do not. Nursing started off with a brief description of what acute care is; new injuries (spinal cord injury), or other acute medical issues affecting SCI/D patients. Length of stay can be as short as a week or up to a month. Some patients are medically fragile and require more attention.

Many of their veterans are there for rehabilitation. The Center has 2 dedicated rehab rooms (CARF accredited). However, this type of care is typical for all VA SCI/D centers. Length of stay is determined by the progress of the veteran and not some other metric. Patient rooms are on the second floor of the unit. There where private, two-person and 4-person rooms. Patients typically shared bathrooms, with up to 4 persons sharing a single bathroom. The SCI/D outpatient clinic is also located on this floor.

The SCI/D Home Environment Living is on the first floor, and the aquatic program and therapy areas were on the ground floor.

The staff lounge is located immediately off the acute care corridor and includes lockers, break room, and mail cubbies. Ideally this space would be located away from patient areas. Academic affiliation – Medical residence space was recommended for all designs/centers. A space for the residents and an office, possible on-call room depending on size.

Life Safety – The ramifications and realities of having an entire population that is incapacitated on an elevated floor was discussed. It was discussed that the Life Safety Code and the International Building Codes address many of these issues. Patient evacuation sleds make emergency evacuation possible but are a labor-intensive undertaking. Areas of refuge; smoke compartmentalization and other design features, are meant to avoid evacuating patients from a floor. The guidelines do recommend these units be located on the first floor but recognizes this is not always feasible when renovation is the only opportunity for construction. Renovation teams should also look for horizontal egress if located on an elevated floor and connected to a larger medical facility.



*Life safety egress equipment including sleds*

#### 4. West Roxbury, MA VAMC SCI/D – Acute Care Unit

Private rooms are preferred and Hoyer and ceiling lifts coverage is necessary on both sides of the bed. Cubicle curtain locations must be carefully considered. As installed in the Roxbury facility the curtains the curtains interfere with the lift operations.



*Acute Care, Patient care unit corridor and equipment.*

An improved design for nursing stations would be smaller and central to a smaller groupings of rooms. Staffing ratios were discussed through dayshift, 2<sup>nd</sup> shift, and 3<sup>rd</sup> shift. The staff required per patient decreases as daily activities complete. Dayshift starts with a nurse per 2 or 3 veterans, then down to a nurse per 3 or 4 in evenings, and then 4 or 5 for nightshift. The actual staff required varies with acuity of the cases/patients.

Currently charting is done outside the patient room.

Electronic charting would be preferred immediately outside of room (adjacent/between doors). The staff and team discussed using a stationary computer in each room. Generally, the success of this would depend on the software's performance. The current login-logout process was too cumbersome and a computer on wheels (COW) is utilized to remain 'logged-in' while moving around. This creates a small infection control concern, and it was observed that the number of other things on wheels also clutters the corridors (med carts, crash carts, clean carts, treatment/wound carts, etc). Care should be taken in design to account for the carts to maintain an uncluttered patient/staff environment.

## 5. West Roxbury, MA VAMC – Therapy Space

The Physical Therapy and OT staff indicated their primary issue was lack of storage space. The SCI/D equipment is large, with a significant amount of accessories or customization/fitting options. Their current space is not optimal due to lack of space for organized storage. The equipment is a mix of sizes, but much of it is larger, requiring large rooms for therapy/exercise and mobility equipment. Occupational Therapy needs typically has smaller items for storage and use in sessions.

The therapy equipment storage space needs to be directly accessed from the therapy gyms. The nature of therapy and certain types of equipment requires that therapists retrieve a specific item or equipment for each veteran and/or therapy activity. Some therapy may be used outside of the therapy room. Additionally, accessing the storage room from the corridor would also be preferred.

The therapy activities and equipment require outlets, everything needs power (portable lifts, electrostimulation equipment, etc.). There are not enough outlets but adding them is problematic (in the new proposed guidelines there are no internal walls). Therefore, all outlets would be floor type, which are difficult to coordinate, often creating trip/fall hazards when not truly flat. These floors get mopped and it is not safe to have wet floor outlets. There needs to be more research done to see if there is a better option.



*PT Excise Staircase*



*PT gait parallel bars*



*PT gym, space and equipment*



*PT gym storage*

The therapist offices were accessible from both the therapy room and the surrounding corridor which works well. They would have preferred some natural light, but there were no windows in the main therapy space.





*Wheelchair storage, adjacent to PT gym*



*Stored wheelchairs*

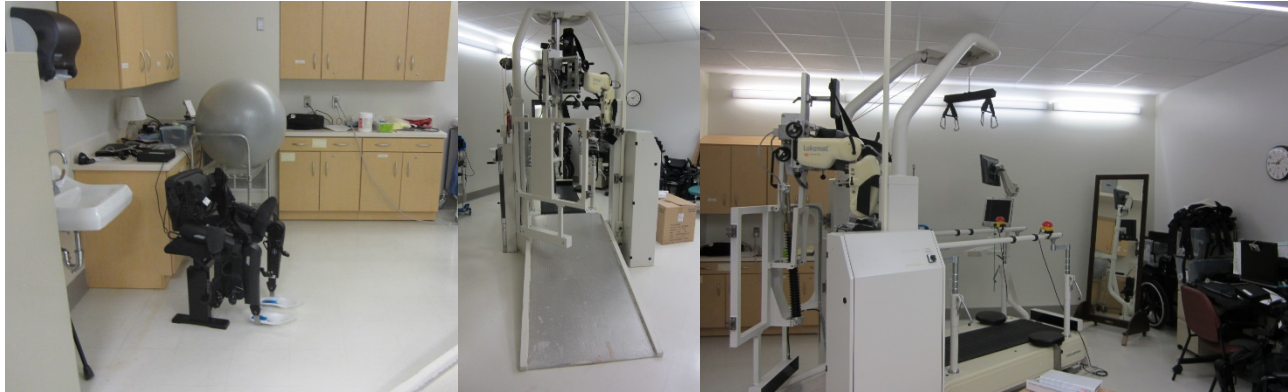


*Parts storage*

Space for Wheelchair storage and repair is a challenge at West Roxbury. They have numerous wheelchairs for temporary/trial use to fit to the veteran's condition and need. Wheelchair manufacture's provide demonstration/ sample wheelchairs to veterans. However, the chairs, their packaging (for return shipping), and their accessories need storage. Storage for new wheelchairs waiting to be fitted and delivered to the patient is also needed. There are accessories for fitting/adapting to each patient (foot pedals, arm rests, head rests, wheels, seats, backs) that need to be stored. A shelf over the chairs may be useful. Outlets and space for charging electric wheelchairs is also insufficient in the current facility.

The LokoMat room was required to be in a separate room. It was noted that this was not the preferred arrangement and is best located in the main gym with a high ceiling clearance. The current gym didn't have this and it is preferred that there be windows for the patient training on the LokoMat.

Currently the assistive technology equipment is co-occupying the LokoMat machine room and this is not ideal. Assistive technology needs a quiet private space for voice activated training and learning. There also needs to be space for patient computer stations.

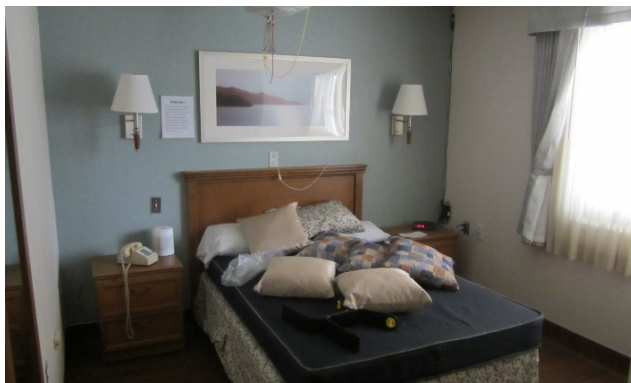


*LokoMat and adaptive technology shared space.*

It was noted that VAMC Minneapolis had a good example of assistive technology space. One room is equipped for telehealth conferences/visits and is used by any discipline/service, especially for telehealth when meeting with SCI/D patients that are having trouble getting to the SCI/D Center/VAMC. They often coordinate with satellite/Home care and social workers. Having additional VAMC space and more private accommodations would be an improvement.

The team discussed wheelchair fitting and wheelchair seating process with the VA staff. This can be a lengthy process that requires a veteran to sit in an adjacent seat while adjustments are made. Potentially 5 people participate in the fitting (patient, family, VA WC mechanic, WC vendor, clinical staff). The space for this activity should be located near the gym or primary therapy space, equipment, and staff, with access to views of the outdoors. Vendors deliver wheelchairs and wheelchair parts/accessories to VA but this may go to the SCI/D main entry or VAMC loading dock.

Staff mentioned that they have gone to electronic scheduling because there are more people wanting to use the PT/KT/OT equipment than there is equipment.



*Home Environment apartment bedroom*



*Home Environment apartment living room*

## 6. West Roxbury, MA VAMC – Outpatient Clinic

This clinic includes three exam rooms (two small, one large), one outfitted for CVT (primarily clinical pharmacy consultations). The exam rooms are supported by two offices, a meds room, a soiled utility, the waiting area with a check-in kiosk, and three computer workstations for patient use. The area has no dedicated restroom or sterile storage. The facility is performing about 3 checkups/day and each has a 4 hour length of encounter. The staff within the clinic includes 2 Registered Nurses and 1 Nurse Practitioner dedicated to OP, MD support from IP providers.

The larger exam room is preferred and is utilized the most. The staff feels it was a good size. The room was 16'x18' which is larger than the recommended typical exam room template. Other two exam rooms were 15'x12'. They also mentioned the need for a cubicle curtain at the door for privacy. They also mentioned that a full transverse rail system is preferred over a single rail system for OP exam rooms as well as acute patient rooms.

This Acute Care unit had 36 beds total, with (6) 4-bed rooms, (4) 2-bed rooms, and (4) private rooms. The private rooms are closest to the nurse station and are being used for the medically fragile patients and for male – female patient population separation. The Day Room incorporates the suspended table configuration, and is used for activities, therapy, dining, video connection for group classes, vending machines.

A shared office on the Acute Care floor was used for Home Care and Telehealth with two staff covering both services. Most telehealth consults are to the veterans in their homes. If providers don't have a private office, they utilize the common telehealth room in the facility. Best location for this service is directly within/adjacent to SCI/D center, not relying on a central location within the VAMC.



Exam workstation



Exam handwash sink



Exam bed in outpatient clinic exam room



Exam Kiosk, Check-in within waiting room

## 7. West Roxbury, MA VAMC – Outdoor Therapy Space

West Roxbury does not have dedicated space for outdoor obstacle training but the staff have found training opportunities all over campus. The most common outside location are the surfaces with varying slopes closest to the rehab gym, preferred for the proximity to support. PVA indicated that these spaces need to be private/visually screened. The learning and training process includes a lot of trial and error and it can be embarrassing to the patient while learning and practicing their techniques.

## 8. West Roxbury, MA VAMC – Specialized spaces

A discussion was had about the Internet Café having handsfree devices like Dragon speak. This needs to be incorporated into areas like the Internet Cafe. Height adjustable tables that are power operated or manually adjusted should be incorporated into the design. Home care providers are typically RNs, with other specialists; such as physical therapy, social work, and psychology. These providers provide less ‘hands-on’ care, but work to coordinate care from VHA and a veteran’s family or caregivers. They will also visit veterans in community nursing homes. There is a typical population of approx. 20 patients per RN for home care. VA guidelines indicate a 100-mile radius for home care services.



*Multi-purpose room, w/ entertainment and overhead mounted tables.*



*Nutrition options for LTC Residents, within multi-purpose room*

In the Aquatics area, there was discussion that there needs to be more enclosed space for changing and dressing. Currently they have curtains around these areas, and it is not private enough. Bathrooms also need to be in proximity, with clearance for SCI/D patient use, and in sufficient number for the pool occupancy. Patient safety requires a waterproof call button system for the therapists use in an emergency. The West Roxbury pool is sized for about 10 patients with multiple therapists and its primary use is for therapy but supports limited recreation activities.



*Aquatic therapy pool, partially above ground, perimeter wall is approximately 34" AFF.*



*Aquatic therapy pool, opposite side.*



*Aquatic therapy privacy area, changing or treatment*

### 9. Brockton, MA VAMC SCI/D – Long Term Care Unit

This unit is a one-story facility with a basement. All primary services are on the main floor. The 30 LTC residents are typically housed in semi-private rooms which are paired to share a bathroom. The room sizes and layouts result in a few instances of up to 4 persons sharing a single bathroom. Fewer residents are provided one-bed rooms with single or shared bathrooms. Residents sharing a bathroom has been identified as an infection control concern and is eliminated in current design guidelines.



*Entry lobby fish tank for welcoming active front*



*Entry lobby games and display for welcoming active public front*



*Bowling alley for recreational therapy*



*Entry lobby game intended for an active public front*

## 10. Brockton, MA VAMC SCI/D – Long Term Care Patient Rooms

The patient rooms had all the patient's belongings in their room. Typically, this was 2 seven foot wardrobes with 2'x4' footprints, including personal items stacked on top.

The staff indicated that the overhead lift system should provide full room coverage...not just immediately around the bed. If there is a fall, it is difficult to get the person up without the lift or a portable lift. Also full coverage would make it possible for the patients to be given latitude to move their bed into different locations. For these reasons the full room lift is vital.

The veterans power wheelchairs don't stay in the rooms overnight and are taken to a storeroom (approx. 20'x16') with charging stations arrayed around the room. The footprint of an average power chair is approx. 10-12sf. There needs to be a 4' wide path in the room to maneuver the chairs around. Most of the chairs had 24v DC chargers plugged into a 120v outlet.



*Patient Bed*



*Patient Storage*



*Patient bed with boom tv, and medical equipment*

## 11. Brockton, MA VAMC SCI/D - Wheelchair Workshop

Brockton has a wheelchair repair facility that services the LTC population, the main hospital and some surrounding VA facilities. They currently have 2 technicians only and no administrative support. The wheelchair workshop is responsible for new wheelchair setup or fitting, not just repair.

There are several rooms purposed for wheelchair repair. The main shop is a 30'x40' space with a power lift in the middle of the space, a hoist and shelving racks arranged around the room, a small office and restroom, and spare parts storage. There is another shop which is a 38'x12' space, a wheelchair storage room of 12'x36' and a new stock storeroom of 10'x12'. Vendor demo equipment is mostly stored with the rehab gym/seat fitting space and not in the basement shop. They currently support 3 major manufacturers of wheelchairs. This space was indicated to be enough. Repair workload is evenly split between manual and electric chairs. Their goal is to have repair take no longer than 5 days. Currently they are at a 1 ½ days for turnaround time and also support walk-in repairs which is usually 3-5 per day. Finished/repared wheelchairs stack-up until vets can make an appointment and retrieve them. They are stored in the corridor during the day, and moved into work space at night for security.



*Wheelchair repair parts storage*



*Wheelchair repair workspace*



*Parts and tool storage*



*Wheelchair backlog for repair*



*Parts and tool storage, chairs with completed repairs stored in corridor during the day*



## 12. Brockton, MA VAMC SCI/D - LTC Staff support spaces

A lactation room was provided at this unit for staff use. Discussion indicated that this needs to be included in every unit, which is a new request of VAMC personnel and medical personnel. We understood this was driven by a campus wide effort to provide sufficient staff support spaces for shared scheduled use rather than a specific need within the SCI/D Center. Access to a lactation/wellness room should be available nearby if not within the unit.



*Staff support room, meditation, lactation, and active workstation for charting and reports.*

## 13. Brockton, MA VAMC SCI/D - LTC Activities and Programming

The staff was very energetic. There were numerous programs that engaged the residents, from cooking classes that have 1/3 of the center's residents participating, to active rehab equipment use, outdoor gardening, indoor gardening, bowling, kayaking (in aquatic therapy pool), music, internet café, and other activities. Staff appeared very engaged and the residents are engaged as well.



*Exterior space and amenities are provided for horticultural therapy and other seasonal outdoor activities. Elevated growing can be relocated by a team of staff for a larger area.*



*Landscaped improvements adjacent to outdoor recreation/horticulture therapy area.*



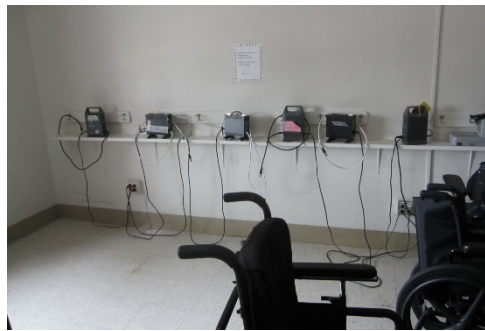
*Additional maneuvering clearance around laundry facility allows SCI/D Veterans to be active in caring for their own laundry.*



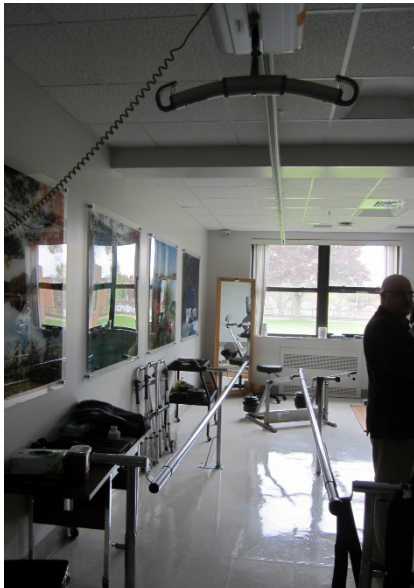
*The kitchen is utilized by SCI/D patients for hobby or event/social programming.*



*Space and circuits for charging powered wheelchairs are provided in storage room with supplementary ventilation.*



*Multiple inverters/charging accessories remain in the space for storage when chairs are in use.*



*Artwork and views to nature*

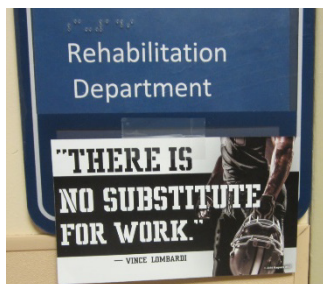


*Mirrors are used for self-evaluation in PT/KT, and additionally extend views and light.*



*Adapted exercise equipment, with artwork for viewing.*

The dedicated physical therapy gym is located at the end of a wing, with windows on one side providing light, with views of the landscape with bright or seasonal colors. Less attractive site improvements, such as roads and parking, are on the opposite side of the wing. The room's space is at capacity with the variety of therapy and exercise equipment required. The wall-mounted artwork and messaging provide additional inspiration for occupants.



*One example of inspirational messaging.*

Other spaces included at this facility:

- Separate OT room
- Education room with CVT
- Rec. Therapist office
- Wound RN office
- Driver training room

Several rooms are dedicated for specific veteran activities or program:

- Computer room
- Music room
- Rec. room with billiards, ping pong, movies, books...



*Recreation room with finishes that appear natural and welcoming.*



*Billiards are popular in the recreational space*

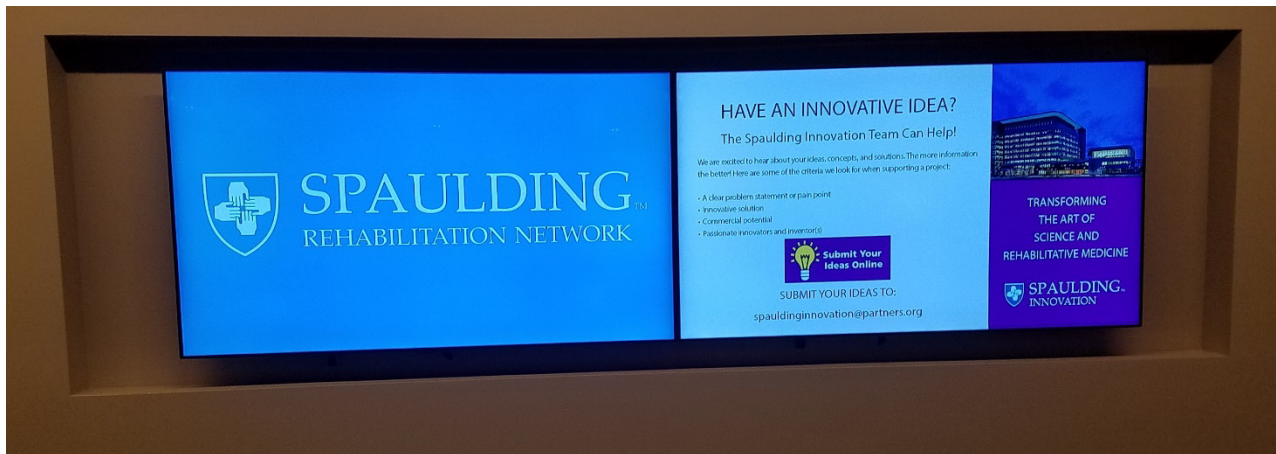


*Entertainment and kitchenette (coffee, water and juice) are provided for recreation.*



The aquatic therapy pool is open to the campus, but scheduled for specific clinical use like SCI/D patients.

## 14. Spaulding Rehabilitation Hospital – Overview



*Recessed screens and art provide information or enrichment without obstructing corridors or risk of impact with powered chairs*

The Spaulding SCI Unit is located on the 6<sup>th</sup> floor of the 8 story Spaulding Rehabilitation Hospital, which also includes Stroke, TBI, Comprehensive Rehab, and Pediatrics. The unit consists of 30 private beds, of which 7 are ventilator ready and 1 is ventilator and isolation (negative air). There is a small gym on this floor and staff support spaces. In addition to the unit, overflow capacity can be accommodated on the 5<sup>th</sup> floor. Additional therapy/gym space is located on the 3<sup>rd</sup> floor with an aquatics space on the 1<sup>st</sup> floor. There is also a Functional Living training apartment with a kitchen, bathroom and bedroom. This room has no more adaptive equipment than would be available in a normal home. There is an Activities of Daily Living suite that includes an adaptive kitchen with adjustable height counters, and adjustable depth wall cabinets to tailor these dimensions to a specific person so they can be replicated at home.

We met with various members of the Spaulding staff, with representatives from nursing, physical therapy, and occupational therapy. The team asked a series of questions about nurses, techs, physicians, residents, therapists, social workers, psychologists, and psychiatrists staffing needs.

Average length of stay for SCI patients is 31 days, with an average age of 53.9 years, and a higher percentage of men. Admits are evenly split between traumatic and non-traumatic injuries, and there is about a 60/40 split between tetraplegic/ paraplegic patients. Work with patients on ventilators is geared towards weaning them from support.



*A city park was constructed adjacent to the facility, which provides an active view and community connection opportunity.*

Staffing levels are based on acuity. Typical day and evening shifts consist of 5-6 RNs and 6 NAs, while the night shift drops to 3-4 RNs and 3 NAs. SCI also has two dedicated physiatrists, a dedicated dietitian, and has consulting specialists from other disciplines – Internal Medicine, Psychiatry, etc. Case managers (2.5 FTE for SCI/D) cover up to 12 patients each, with Social Work available on a consultant basis. Therapy staff includes 7 PT and 7 OT. They see 4 patients each, for 90 min. per day providing 3 hours of rehab a day for each patient). Two specialist provide Speech Therapy for the SCI/D population.



*Nurse stations provide workspace and visual control.*

Recreation therapy includes adaptive sports, music therapy and child life. Northeastern University provides 3 rehab aides through a co-op program. Vocational rehabilitation is not staffed on site and work with the Massachusetts Rehab Commission. They described volunteer programs to help with feeding and other duties as the number of volunteers allows, during 'peak' seasons or a surge in admittance/patient load.



*Practice driving rig for ADL/Mobility rehabilitation.*

Twice a month, demonstrations on vehicular modification are provided with connections to shops who may provide the work. They have a long-term care facility in Brighton as well. The criteria of admission are different than the VA – must have spent at least 3 days in an ICU, and for vent patients they must need oxygen support for at least 20 hours a day. They also have a skilled nursing facility, and other networked outpatient clinics.

Research is done offsite in various locations and at limited on-site locations. Dedicated room of researchers was on level 3, down the hall from the gym; "The Gordon Center for Cure & Treatment of Paralysis" and "research center" gift of Gordon's and Rubin Family Fund.

There was a brief discussion about how they handle veteran's that present themselves to the Spaulding Rehabilitation Hospital. Approx. three vets arrive per month, and typically, they are re-directed to one of the area VA facilities at the earliest opportunity. Apparently, the VA is better equipped to provide access to equipment and support programs that private hospitals cannot provide due to insurance limitations, particularly in regard to wheelchair transition on discharge.

In hindsight of Spaulding's design and construction project, the staff felt that they would have preferred to be on a lower floor but as there is limited space for outdoor occupational and physical therapy. They utilize rooftop patio and offsite opportunities. The urban lot and context require elevators to be used so the actual height of floors becomes irrelevant. However, from an evacuation standpoint, a lower floor would be better.



*Art created by patients in physical therapy is displayed in patient bed corridors.*

## 15. Spaulding – Patient care floors

The Patient floors/units allow overnight stays for family; however, shortly after opening the visitors began to outnumber the patient in the hospital overnight. They have had to develop guidelines to control this. The unit was not designed for this type of utilization, and the nursing staff is not intended to handle it.

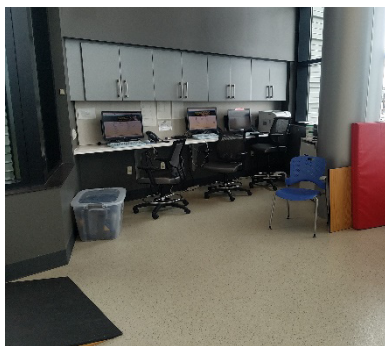
There was a discussion of meals and how they hold meals if the patient is not there or wants meals at a non-traditional time or simply doesn't like their food. The trays can keep the food hot or cold for a period, however therapy schedules pretty much drive mealtimes into their normal timeframes so the problem usually solves itself.

Administration had just installed a system that monitors handwashing with sensors in the ceiling and special badges wore by staff. That level of staff tracking and process quality control is state of the art technology and not widely used. The patient rooms themselves are very contemporary but are no larger than a typical med-surg bed in a non-SCI unit and have tight clearances. There was only a small 24" wide desk, a sleep sofa and chair in the room, in addition to a 3' wardrobe unit with drawers beneath, small handwashing sink, and countertop just inside the door.

The gym on the 3<sup>rd</sup> floor was very large with high ceilings, floor to ceiling glass all around. All equipment was powered from electrical outlet in the floor. There were 3 computer stations in one corner for charting, however there was a large charting PT/OT hoteling space just down the hall. There were also several private curtained space down around the one side. There was an outdoor obstacle pathway that is well designed and simulated numerous real-world obstacles with pavement changes, surface types and elevation changes.



*Mobility assistance equipment, stored in exam/fitting space*

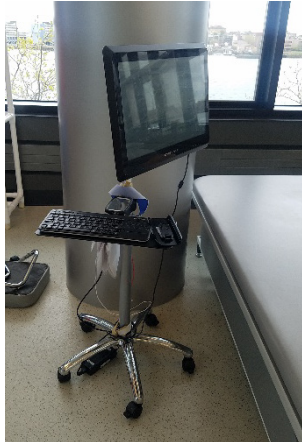


*Charting and workstations at perimeter of physical therapy gym*



*Main physical therapy gym, (above pool) with two-story windows, ample views to the exterior and natural daylight.*

They noted that the size of the floors can result in a 2 minute or slightly longer response time to a patient that has a ventilator issues that results in a code being called. These are critical minutes, so clinical staff (pulmonary therapy/equipment techs) move with ventilator patients when they are at distance locations in and around the facility.



*Mobile workstation in PT gym.*



*Physical therapy gym equipment and organization.*



*PT accessory and equipment storage*



*Private restrooms and changing rooms at PT gym.*



*Aquatic Therapy Pool with double-skin envelope for comfort and energy efficiency.*



## 16. Spaulding – Patient bedrooms

The space has a few unusual features. All patient room doors swing out towards the hallway, but within a recessed alcove that prevents door swings from interfering with traffic flow, and provides an out of the way, off-corridor ‘parking’ space for mobile charting equipment and meal carts, etc. This saves space in the room as the bathroom swings out into the patient room where the room door would typically be. There was a cubicle curtain that ran just inside the door as there was no interference. The bathroom has the shower in the middle with a “rainforest” and ceiling mounted shower head. There is circular shower curtain to control water spray. The bathroom is not designed to be litter friendly and is a much smaller space than the 150-160 sf bathrooms proposed in the templates.



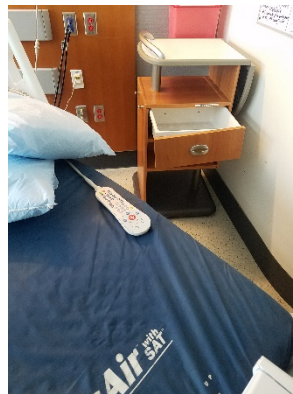
*Patient rooms are identified by image, color and number for patients with cognitive difficulties.*



*Controllable clerestory windows provide quality light*



*Patient bed with lift track and headwall.*



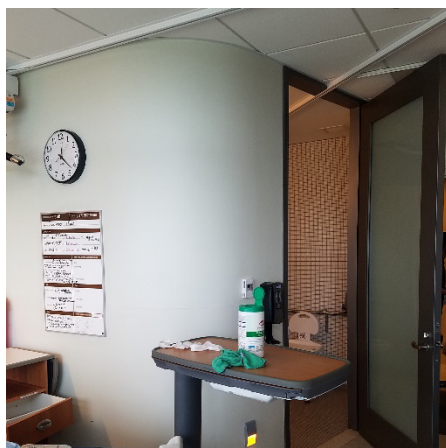
*Patient bedside storage, table and control unit.*



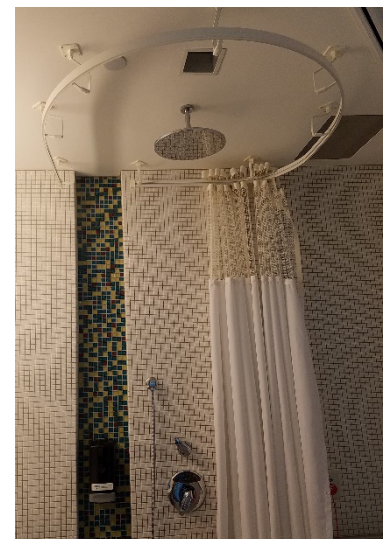
*Sofa is provided for sleeping guests.*



*Customized integral sink is intended for ease of use and cleaning.*



*Patient lift track runs through modified door frame and ceiling, into bathroom.*



*Patient shower with full circle curtain*

## 17. Spaulding – Support spaces

A number of support spaces are included in the SCI unit. A huddle room for small conferences/private discussions is located adjacent to the main waiting. The welcome center is a more robust reception area providing more amenities than a central nurse station. A patient/family lounge space is located on each floor, as well a Case Management office with 3 workstations. Admin spaces include private offices for directors and practice leads, and individual cubicles for support staff. Spaulding's staff indicated that their number 1 issue is storage. The unit and the whole hospital is lacking adequate storage for their operation and patient type.

Staff areas are not located on patient corridors. They are located off staff corridors that are accessible only via controlled access devices. The result is that the patient corridors are generally very quiet.

The staff lounges on the floor are small (10'x12') with one wall being dedicated to kitchen (refrigerator, microwave, dishwasher and countertops) cabinetry. The dishwasher was noted as rarely used, and additional cabinet space would be preferred. Another wall was dedicated to 12"x12"x16" deep lockers – size was noted as generally OK (good depth) combined with a separate shared closet for coats and boots. There is a table in the middle of the room for 6 to 8 people, but most staff eat in the staff dining room on the 3rd floor.



Waiting room with graphics and wayfinding signage



Central nurse station for visual control and greeting. Counter height shown may not be ADA Compliant.



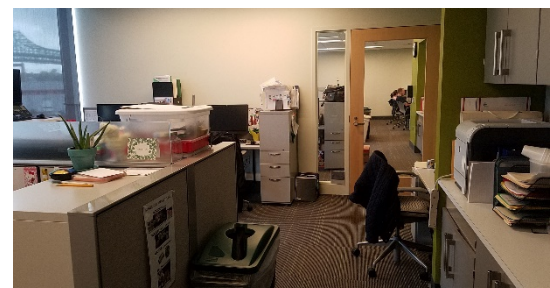
Adjustable counter in patient nutrition/kitchen.



Shared space storage to minimize clutter



Staff breakroom with kitchenette and storage



Open plan workstation, with exterior views.

## 18. Spaulding - Wheelchair support

The hospital has a wheelchair clinic (really just storage – they do some work here because it is the only available space – hospital has no appropriate, dedicated wheelchair assembly/repair space) located next to the main gym on the 3<sup>rd</sup> floor. This is a room of appropriately 150 sf and was neatly maintained with heavy duty shelving along 2 walls and various styles of wheels hung from hooks on the walls. They indicated they do repair in this room without a lift, hoist or work bench. Final adjustment is done in this room and in the adjacent hallway, by the chair vendor and finally the OT therapist.

Wheelchairs that are supplied with insurance funds create a difficulty for Spaulding and their patients. The hospital's wheelchairs are fitted to patients for use in the hospital, but insurer's wheelchairs are typically not provided to patients for home use until they are discharged. This process requires a new fitting to each patient often with a different model, and adjustments through follow-up visits to the hospital. Various organizations donate the wheelchairs used within the hospital and for therapy.



*Wheelchair workshop, intended for fitting with little repair/maintenance includes part/wheel storage.*



*Workspace is adjacent to PT gym, without a ceiling to provide natural lighting and a connection to the rehabilitation activities.*