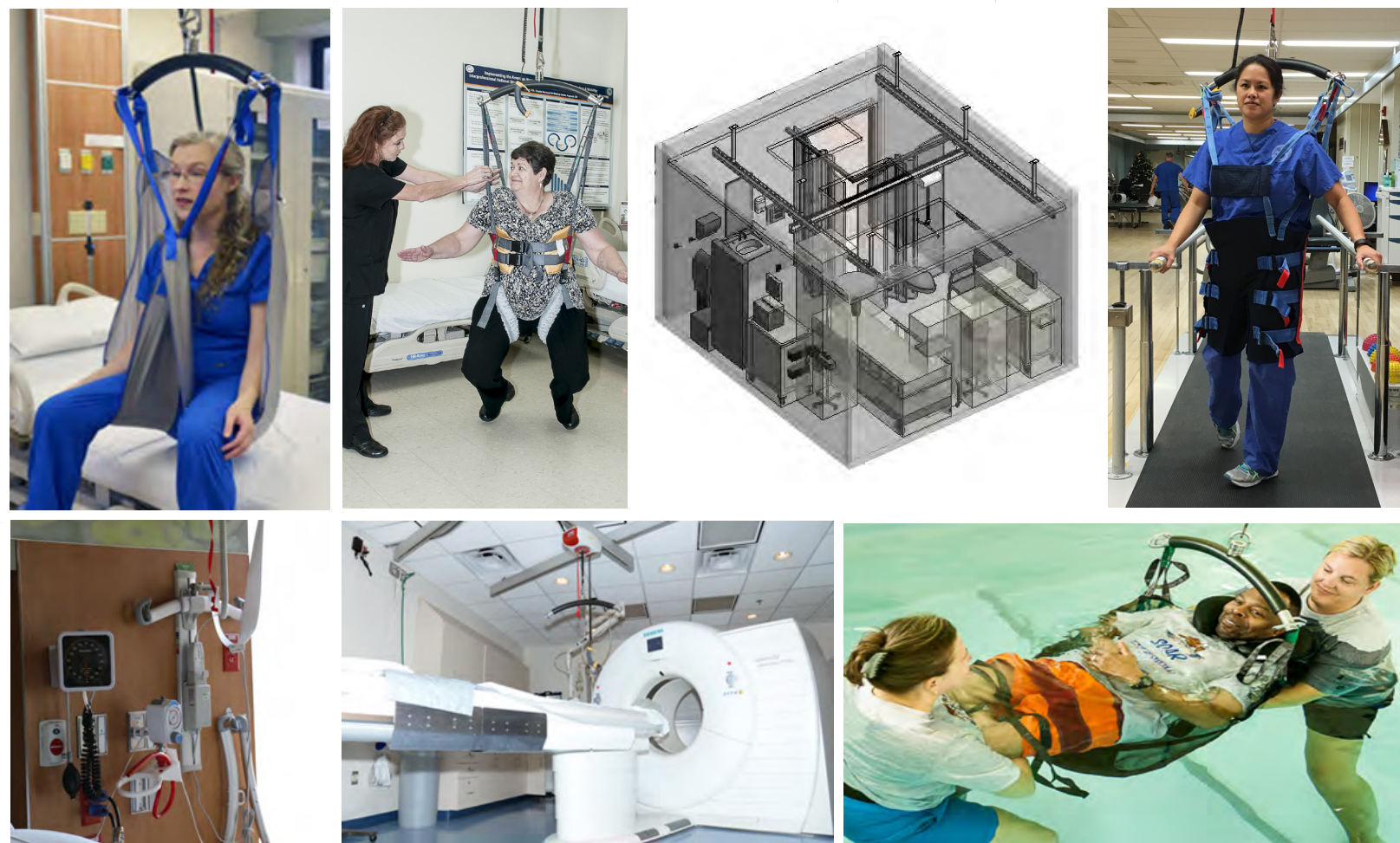




Safe Patient Handling and Mobility Design Criteria



FOREWORD

VA Program Offices, project teams, designers and constructors are obligated to our Nation's Veterans and taxpayers to make the most effective and efficient use of resources, by providing a continuum of safe, secure, high quality, high performance, and high value environments of care and service for Veterans. The VA Office of Construction and Facilities Management (CFM) supports the Department's mission through development and application of standards as a basis for disciplined planning, design, and construction of VA facilities.

The VA Technical Information Library (TIL) is the culmination of a partnership among the Department of Veterans Affairs (VA), the VA Administrations, Program Offices, Clinicians, Industry, Academic and Research Organizations, Expert Consultants, and the Office of Construction and Facilities Management. TIL publications are developed through integration of VA-specific requirements, Federal law and regulation, benchmarking of industry best practice, evidence-based research and design, and value-based analysis of leading-edge innovation. The VA TIL (<https://www.cfm.va.gov/TIL>) establishes the basis of planning and design for all VA projects. TIL documents, when properly applied to projects, will maximize the effectiveness and efficiency of the planning and design process and support a high level of functionality and quality in the environment of care.

For additional information regarding the VA TIL development and application of VA planning, design, and construction standards, please contact Donald L. Myers, Director, Facilities Standards Service, US Department of Veterans Affairs, Office of Construction and Facilities Management.

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1.0 GENERAL INFORMATION

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1.1 NEEDS ANALYSIS REQUIREMENTS

1.1.1 Directives and Policies

VHA Directive 1611, Safe Patient Handling and Mobility Program, specifies requirements for safe patient handling and mobility in VHA facilities. It specifies that “New construction and renovation projects will incorporate patient handling and mobility technology appropriate to the type of care setting in the design phase.” Appendix A requires new construction and remodeling projects in patient care areas to include the Safe Patient Handling and Mobility Facility Coordinator (SPHM FC) on the team for the duration of the project, to include planning, design, construction, activation, and installation.

VHA Directive 1611 requires Medical Facility Directors to follow relevant National Patient Safety Center Patient Safety Alerts, including AL14-07 and its associated checklists. The VHA Installation and Relocation Checklist for Ceiling Mounted Patient Lifts must be completed and given to the facility each time a ceiling lift is installed.

The Related Documents list in section 1.3 includes Directive 1611 and the VHA Installation and Relocation Checklist for Ceiling Mounted Patient Lifts but also includes a number of guidance documents. The Bariatric Safe Patient Handling and Mobility Guidebook includes guidance on construction for individuals of size. The Safe Patient Handling and Mobility Guidebook explains the VHA Safe Patient Handling and Mobility program. The Patient Handling and Mobility (SPHM) Technology Coverage & Space Recommendations are a 2016 version of the VHA SPHM program guidance for design and construction including ceiling lift coverage. Patient Handling and Movement Assessments, 2nd Edition is a publication of the Facilities Guidelines Institute (FGI) that describes safe patient handling and mobility design and programs in detail and serves as a reference within VHA.

Architects, medical equipment planners, facility engineers, construction contractors, and medical center staff are to use the SPHM Design Criteria as closely as possible to its context and intent. Use of the SPHM Design Criteria does not preclude the need for project specific design documentation. It is the responsibility of each Architect/Engineer (AE) Design Team to develop complete and accurate project specific design requirements that will best meet the user’s needs and applicable facility requirements.

The information and illustrations herein are intended to inform the requirements for planning, design, and the design process. They do not supersede, override or modify published room templates, space planning criteria, Design Guides, Design Manuals and other planning, design, and construction standards. These standards will be updated as needed incrementally, with an integrated methodology. The VHA SPHM representative is responsible for interpreting and applying the guidance of this criteria through the planning, design, and construction process in collaboration with project leadership and management.

These criteria are required to be used to inform planning, design, and construction for VA healthcare projects. Project teams shall develop project specific requirements based on an analysis of the needs of the local medical center.

1.1.2 Needs Analysis

When planning a construction or renovation project in health care space, safe patient handling and mobility shall be planned in for any location where patients or residents are moved, handled, transferred, repositioned, or assisted with mobility. This includes the entire continuum of care, including inpatient space, outpatient patient care space, rehabilitation space, spaces where patients may be assisted to or from vehicles, morgue space, bathrooms, and even some hallways.

The SPHM Facility Coordinator (FC) shall work with the design team to create a needs assessment. The architect shall generate a needs analysis that shall be used as the basis of design. This analysis shall include characteristics of the medical center patient and resident populations, staff needs, and clinical requirements as well as cost benefits, and improved services to Veterans. The basis of design shall include number of lifts and their location, as well as any specific requirements including bariatric capacity, track design, or added capability. Medical equipment planning expertise, as may be appropriate for each project team, should assist with cost, scheduling, equipment selection, and installation requirements.

1.1.3 SPHM Facility Coordinator

Every VA Health Care System is required to have at least one Safe Patient Handling and Mobility Facility Coordinator (SPHM FC) who is responsible for the safe patient handling and mobility programs in the system. They are responsible for ensuring that staff and patients are protected from the hazards of manual patient handling and that patients can be as mobile as is safe for them. They cover the entire health care system and identify patient handling needs using ergonomic evaluations of existing and new patient care areas where patients may be handled, repositioned, transferred, assisted with mobility, and rescued from falls.

The design team shall coordinate with the Director's office to confirm the identity of the SPHM FC. If the SPHM FC is not available, the Director's office can supply someone else for the role, and the national VHA SPHM program can help a SPHM FC or substitute with identifying the needs of the facility.

The SPHM Facility Coordinator (FC) needs to be included in planning, design, and construction in order to ensure that projects are built with the design and equipment necessary for safe patient care. They can specify the location and design of overhead lifts, the space and electric needs for equipment in rooms and storage, ceiling height requirements for patient lifts, door and clearance requirements for equipment and patient, as well as considerations such as location and capacity of bariatric spaces. They shall be consulted on the requirements for the type of lifting equipment, including any facility level standardization requirements, as well as bariatric needs.

The SPHM FC is empowered by the Facility Director, who has a responsibility in VHA Directive 1611 for “Ensuring that planning, design, and construction phases of new construction and renovation projects, including major, minor, NRM, and station-level equipment projects, incorporate appropriate and necessary patient handling and mobility equipment at all facilities, including SPHM FC input in any areas traversed by patients.”

1.2 MASTER CONSTRUCTION SPECIFICATIONS AND OTHER RELATED CRITERIA

Specifications related to this document are available on CFM’s Technical Information Library (TIL). Specification section 11 73 00 Ceiling Mounted Patient Lift System directly applies to this this Design Manual.

1.3 RELATED DOCUMENTS

The documents listed below are references that are important for design of safe patient handling and mobility in VHA spaces.

- 1) [VHA Directive 1611 Safe Patient Handling and Facility Design](#)
- 2) [Bariatric Safe Patient Handling and Mobility Guidebook: A Resource Guide for Care of Persons of Size](#)
- 3) [Safe Patient Handling and Mobility Guidebook](#)
- 4) [Patient Handling and Mobility \(SPHM\) Technology Coverage & Space Recommendations, 2016 Revision](#)
- 5) [Patient Handling and Movement Assessments, 2nd Edition](#)
- 6) [AL 14-07 Installation and Relocation Checklist for Ceiling Mounted Lifts](#)

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Arjo Inc. focuses on patient mobility and wound management solutions.

www.Arjo.com

Guldmann Inc., manufacturer of patient lifts for safe patient handling.

www.guldmann.net

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www.hovermatt.com

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1.5 INTRODUCTION

1.5.1 Purpose

The Safe Patient Handling and Mobility (SPHM) Design Criteria was developed to assist contracting officers, medical center facility staff, architects, planners, and SPHM Facility Coordinators with the selection, design and coordination of SPHM technology in a variety of patient care environments. The "Safe Patient Handling and Mobility Design Criteria" provides planning and functional requirements for proper SPHM equipment installations and applications. This document presents baseline planning and design requirements and is not project specific. These criteria must be aligned with project requirements through a disciplined planning and design process.

Diagrams of various patient handling technology applications are included in this document to illustrate typical patient handling task clearances. However, the SPHM technologies presented in this document are not unique to these sample clinical units/areas, departments or disciplines. Other environments of care may utilize the same/similar patient handling technology.

This document strives to be general regarding information presented. Actual physical dimensions, power requirements, and illustrative storage requirements and other specific information should be acquired from equipment manufacturers prior to finalization of designs and applications. Use of this document does not supersede the project architects' and engineers' responsibilities to develop a complete and accurate design that meets the facility needs and complies with appropriate code requirements.

1.5.2 VHA Directive 1611 Safe Patient Handling and Mobility Program

The Directive defines the specific requirements for the establishment of an SPHM Program, applicable to all VA facilities. Included in this Directive are policy definitions, assignment of specific SPHM Program responsibilities, and performance criteria for SPHM programs.

1.5.3 Background

The VHA began research in the late 1990's focusing on manual patient handling task safety and found that many common and repetitive tasks placed caregivers at high risk for musculoskeletal injuries. In 2008, the VA implemented a system-wide, structured and coherent SPHM program to address these risks. Within 10 years of implementing the SPHM Program, the VHA witnessed a 50 percent decrease in caregiver patient handling injuries. The recent development of bariatric-specific healthcare services and the increasing average weight of patients have only served to augment the risk of injuries to both caregivers and patients when improper patient handling procedures are carried out without SPHM equipment technology and procedures.

1.6 DEFINITIONS AND ABBREVIATIONS

Air-Assisted Lateral Transfer Device

A patient transfer mattress that utilizes the force of air to decrease friction and ease movement of patients from one surface to another in a supine position. It also decreases shear forces on the patient's skin and soft tissue during lateral transfers. Additionally, this modality can be used to move patients up in bed and side to side in bed.

Ambulate

To walk or move from place to place with or without assistance.

Bariatric Patients

Persons overweight by more than 100 pounds (lbs.) above a BMI of 25 or with a body weight greater than 300 lbs., or (more commonly) with a body mass index (BMI) greater than 40. It is also becoming more common to speak of "individuals of size."

Caregiver

Any person who provides direct patient care, such as moving and handling patients. Caregivers are of varying clinical disciplines and educational/licensure levels and work in every area where patient handling and movement occur, including long-term care; acute care; home-based care; clinical care; therapeutic care ; and morgue/autopsy.

Cumulative Trauma Disorder

The outcome of repeated damage, or an accumulation of damage over time, to a specific area of the musculoskeletal system. This damage includes micro-injuries such as micro-tears to the muscles and micro-fractures to the vertebral endplates of the spine. When uncontrolled, such micro-injuries result in more significant injuries, which often appear to be acute. For staff directly involved with patient handling, these injuries can be debilitating and career-ending.

Ergonomics

The scientific study of the relationship between work being performed, the physical environment where the work is performed, and the tools used to help perform the work. The goal of ergonomics is to provide a workplace designed to ensure that the biomechanical, physiological, and psychosocial limits of people are not exceeded.

Ergonomic Shower Chair

A commode/chair that is height and length adjustable to comfortably position a patient for ease in bathing and personal care.

Floor-Based Lifts

These lifts consist of a C-shaped or U-shaped support base including casters, a vertical mast, a pivoting boom, a swivel bar, a seat (sling or rigid), and the lifting mechanism; they are manually, electrically, or battery operated using hydraulic or screw jack lifting mechanisms. Such patient lifts are frequently used to transfer patients (e.g., to and from a wheelchair, toilet, or bathtub), reducing the risk of injury to the patient and to those assisting with the transfer. These lifts have a wheeled base that rolls on the floor and can be moved from room to room or area to area. Used for dependent patients and patients requiring extensive assistance. The lift motor functions to raise or lower the patient in a sling but caregivers must manually push the lift and patient to the desired location. Motorized design allows staff to move the lift without manually pushing the lift and patient.

SPHM Facility Coordinator (FC)

The person (or persons) responsible for facility SPHM Program management and education and serving as the facility subject matter expert for all projects and/or activity that involves patient handling, movement, and mobility. As referenced in this manual, the SPHM FC is an integral contributor to the facility design process regarding the appropriate selection, application and utilization of SPHM technologies.

Friction-Reducing Device (FRD)

Devices made of slippery materials that reduce friction during sliding movements, making it easier to move a patient from one surface to another, facilitate sling insertion, and reposition a patient in a bed or chair.

Gantry Lift (Freestanding Overhead Lift)

This type of freestanding lift is placed over a patient's bed and functions similarly to an overhead lift.

High-Risk Patient Handling Tasks

Patient care activities that result in musculoskeletal injuries in caregivers. Tasks are considered high risk based on frequency of repetitive motions, duration of stress, and the degree of musculoskeletal stress imposed by the task.

Lateral Transfer

Horizontal movement of a patient in a supine position from one flat surface to another (e.g., from a bed to a stretcher or bathing trolley).

Lateral Transfer Aids and Positioning Devices

Patient transfer aids are designed to laterally transfer patients without lifting the patient. A variety of devices are available for lateral transfer including mats, mattresses, and sheets that are inserted under the patient or strapped to the patient, and then pulled to transfer the patient; rigid boards covered with low-friction covers that are placed beneath the draw sheet, permitting the attendants to pull the patient across the roller onto another surface; devices that use the force of air to move a patient on a mattress; and devices that permit wrapping the draw sheet to a transfer rod and moving the patient laterally, using a powered mechanism. Horizontal/lateral patient transfer aids are used to move patients between two contiguous surfaces, such as bed and stretcher surfaces, that are at similar height.

Manual Patient Handling

Lifting, moving, sliding, transferring, or otherwise caring for a patient without mechanical assistance.

Mobilize

To move from place to place or shift position either with assistance or independently to help a patient maintain or increase physical activity, function, and movement, involving the entire body or just limb(s). For example, a patient who is dependent or requires extensive assistance can be mobilized in bed (turned, moved to head of bed) or a patient with partial weight-bearing capability can be assisted in ambulation using a lift. Mobilizing patients has been found to decrease negative patient outcomes such as pressure injuries, overall weakness, hospital acquired pneumonia and urinary tract infections.

Musculoskeletal Disorder (MSD) / Musculoskeletal Injury (MSI)

A disorder of or injury to the musculoskeletal system, including muscles, bones, joints, tendons, ligaments, nerves, cartilage, and spine. Most work-related MSDs develop over time. MSDs typically affect the back, neck, shoulders, and upper limbs; less often they affect the lower limbs.

Overhead Lift Systems

Patient handling technology that consist of a permanently mounted overhead track supporting a suspended seat (sling or rigid). These lifts include the following: a track usually mounted on the ceiling, but that may be wall-mounted or freestanding; a console containing the motor and pulleys; a strap that extends out of the console; a hanger bar that attaches to the strap and to which a sling or seat also attach; and a hand-held control box for lift movement regulation. Such patient lifts are used for many patient handling activities in healthcare facilities including moving patients within a patient room or bathroom; repositioning patients in bed, lifting appendages, ambulating patients, and others.

Patient

A recipient of care; also used here to refer to clients and residents in residential care facilities.

Patient Handling and Mobility Assessment (PHAMA)

Structured guidance to direct and assist the design team in incorporating and accommodating appropriate patient handling and mobility equipment into the health care environment. From Matz, M, et al., Patient Handling and Mobility Assessments, 2nd ed. *Facilities Guidelines Institute*, 2019. Explanation of PHAMA Components. In Borden, C.(Ed), *Patient Handling and Movement Assessments: A White Paper*. Dallas: The Facilities Guidelines Institute.

Patient Handling Tasks

Tasks performed by caregivers when caring for patients, including bathing, transferring, wound care, repositioning, feeding, and similar activities. Tasks considered high risk result in injury when performed manually without assistive devices.

Positioning/Repositioning

Adjusting a patient's position in bed, chair, or any other surface to provide body support for the prevention of pressure ulcers/injuries, promoting comfort, accommodating physiological functioning, or raising the patient to eye level to facilitate communication.

Power Assist (Power Add-on)

An accessory that attaches to manual devices such as wheelchairs, beds, or stretchers to provide similar functionality of a powered device.

Resident

A recipient of care in a long-term/residential care facility.

Sit-To-Stand Devices (Powered Stand Assist)

A mobile lift that is used to raise a patient from a seated position to a standing position and lower the patient to another seated position. This type of lift is also used to diaper, change clothes, toilet, and perform other patient care tasks. Some have a design that allows for patient ambulation. The patient must have some upper body strength, cognitive ability, weight-bearing capability, and the ability to grasp with at least one hand. A protective sling is used with powered sit-to-stand lifts. Non-powered sit-to-stand lifts do not utilize protective slings, so they are used for higher functioning patients.

Sling

A fabric device used with mechanical lifts to temporarily lift or suspend a patient or body part to allow a caregiver to perform a patient handling task, reposition/position a patient in a bed, chair, or other surface, or provide support when a patient is ambulating. Sling styles include seated, standing, ambulation, repositioning, limb support/strap, supine, toileting, bathing, and others.

SPHM Technology

A variety of tools or devices used to assist caregivers in performing safe patient handling and mobility (SPHM) tasks patient handling tasks transferring, ambulating, repositioning, lifting, toileting, transporting, and many other tasks.

Stretcher / Chair

Portable stretchers that can be converted from stretcher to chair and back to stretchers. In the stretcher position, the device facilitates lateral transfers. Some of these stretchers can be folded or hinged for compact storage and/or include two or four wheels to facilitate patient transportation.

Supine

Lying on the back or having the face upward.

Transfer

The movement of a patient from one position or surface to another. A vertical transfer is one from a seated to seated position (wheelchair to toilet) or supine to seated position (stretcher to wheelchair). A horizontal or lateral transfer moves a patient from one flat surface to another (bed to stretcher).

VA Safe Patient Handling and Mobility (SPHM) Program

A program for reducing ergonomic risk for caregivers from patient handling activities and for facilitating early patient mobilization and improving patient clinical outcomes. Includes support structures and change management strategies to facilitate use of patient handling equipment and foster a culture of safety in the patient care environment.

1.6.1 Acronyms & Abbreviations

AALD	Air-Assisted Lifting Device
AALTPD	Air-Assisted Lateral Transfer and Positioning Device
ADA	Americans with Disabilities Act
BMI	Body Mass Index
CCU	Critical Care Unit
CEOSH	Center for Engineering & Occupational Safety and Health
COR	Contracting Officer's Representative
CT	Computerized Tomography
DoD	Department of Defense
ED	Emergency Department
EMS	Emergency Medical Service; also, Environmental Program Service
FC	VA Safe Patient Handling and Mobility (SPHM) 'Facility Coordinator'
FDA	Food and Drug Administration
FGI	The Facility Guidelines Institute
FRD	Friction-Reducing Device
HAPU	Hospital-Acquired Pressure Ulcer
ISO	International Organization for Standardization
MICU	Medical Intensive Care Unit
MRI	Magnetic Resonance Imaging
MSD	Musculoskeletal Disorder
MSI	Musculoskeletal Injury
NCPS	National Center for Patient Safety
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
OR	Operating Room
OSHA	Occupational Safety & Health Administration
OT	Occupational Therapy
PHAMA	Patient Handling and Mobility Assessment
PT	Physical Therapy
SICU	Surgical Intensive Care Unit

SPH	Safe Patient Handling
SPHM	Safe Patient Handling and Mobility
TJC	The Joint Commission
VA	Department of Veterans Affairs
VACO	VA Central Office
VAMC	VA Medical Center
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network

2.0 TECHNICAL INFORMATION

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2.1 SPHM TECHNOLOGY DESCRIPTIONS - INTRODUCTION

The SPHM Design Criteria focuses on four main equipment types specific to patient handling and mobility tasks with ramifications for design:

Lifting Devices

Overhead Lifts

Ceiling-Mounted

Wall-Mounted

Gantry Lifts (Free-standing Overhead Lifts)

Floor-Based Lifts

Floor-Based Full Body Sling Lifts

Sit-to-Stand (Stand Assist) Lifts

Air Assisted Lifting Devices

Lateral Transfer Aids and Positioning Devices

Friction-Reducing Devices

Air-Assisted Lateral Transfer and Positioning Devices

Transport Assistive Devices

Stretchers/Chairs

Motorized Beds/Stretchers

Power Assist/Power Add-on (Wheelchair and Bed Movers)

Ergonomic Bathing, Showering, and Hygiene Assistive Devices

Ergonomic Shower Chairs

Shower Trolleys

Commodes / Toilet Assistive Devices

2.2 OVERHEAD LIFT SYSTEMS

2.2.1 Overhead Lifts – Fixed Installation (Ceiling-Mounted and Wall-Mounted)

This patient transfer lift system consists of a permanently mounted overhead track supporting a suspended seat (sling or rigid). These lifts include the following: a track usually mounted flush with the ceiling and supported from the structure above, but that may be wall-mounted; a mounting system that attaches the track to the ceiling or wall; a console containing the motor and pulleys; a suspension system including the seat; and a control box for lift movement regulation. The track spans the area to be served by the lift. The track is mounted at or near the ceiling, and either suspended from the structure above (Fig. 2-1), or on stand-off structural pilasters (Fig. 2-2).



Figure 2-1 – straight track with above-ceiling support



Figure 2-2 – wall-mounted end support of track

A lift motor travels on the track, and lifts a strap connected to a hanger (spreader) bar. Slings for specific patient handling tasks such as repositioning (Fig. 2-3) are then attached to the bar.



Figure 2-3 – patient repositioning with lift and sling

The lifting mechanism is motorized, and the electric motor re-charging is accomplished by a charging station, or by using continuous charging track/rail system. This type of lift is provided in two configurations:

- 1) In the Single Track System the motor is mounted on a fixed rail that is either straight or curved, allowing the lift to travel in 2 directions along the length of the rail.
- 2) In the X-Y Track System (Traverse Track System) the motor is mounted on a perpendicular moving rail that is attached to two parallel fixed rails, allowing the lift to travel in 4 directions (i.e., side-to-side and front-to-back). This configuration is preferred and provides the most flexible area coverage.

The overhead lift is used for the following typical patient handling procedures:

- 1) Seated to seated transfers (e.g., Bed-to-Chair)
- 2) Lateral transfers (e.g., Bed-to-Stretcher)
- 3) Patient repositioning and turning in bed
- 4) Bed to Bathroom travel
- 5) Assisted ambulation/Physical and Occupational Therapy (Fig. 2-4)
- 6) Lifting appendages
- 7) Lifting from floor due to fall
- 8) Bariatric patient handling

Variants of the above procedures are also employed in non-patient room environments (e.g., radiology, PT, exam rooms)



Figure 2-4 – ambulation assistance with lift & sling and overhead lift

2.3 FLOOR-BASED LIFTS – MOBILE SPHM TECHNOLOGIES

2.3.1 Floor-based Full Body Sling Lifts

Lifts designed for hoisting and transferring a patient safely and with minimal physical effort. These lifts consist of a C-shaped or U-shaped support base usually including casters, a vertical mast, a pivoting boom, a swivel bar, a seat (sling or rigid), and the lifting mechanism; they are manually, electrically, or battery operated using hydraulic or screw jack lifting mechanisms. Floor-based patient lifts are frequently used to transfer patients (e.g., to and from a wheelchair, toilet, or bathtub), reducing the risk of injury to those assisting with the transfer and of patient drop. The typical configuration of this lift is a cantilevered boom arm containing the lifting mechanism connected to a 4-wheeled mobile platform (Fig. 2-4?).



Figure 2-5 – patient transfer to seated position with floor-based lift

This lift can accomplish many, but not all, of the tasks associated with overhead lift systems. Special care must be taken during patient transport as floor surface and obstacles can compromise the overall stability of this lift. The legs of the lift must be able to fit underneath patient beds and stretchers. The floor-based lift is used for the following typical patient handling procedures:

- 1) Seated to seated transfers (e.g., Bed-to-Chair)
- 2) Patient repositioning and turning in bed
- 3) Bed to Bathroom transport
- 4) Assisted ambulation/PT

5) Lifting from floor due to falls

Variants of the above procedures are also employed in non-patient room environments.

2.3.2 Sit-to-Stand (Stand Assist) Lifts

These may be powered (Fig. 2-5) or non-powered (Fig.2-6). These devices are fully mobile able to move from room to room. Both provide patient standing and seating assistance. They may also be used for diapering, changing clothes, and toileting. The typical configuration of the lift is similar to the floor-based lift but includes a platform for the patient's feet and an adjustable padded retainer for the patient's lower legs. Variants of this type of lift are designed to allow for patient mobilization or assist in patient ambulation with the foot platform and knee pads removed. The powered design includes a safety belt. As with the floor-based lifts, care must be taken during use to ensure stability.



Figure 2-6 – powered sit-to-stand



Figure 2-7 – non-powered sit-to-stand

2.3.3 Gantry Lift (Freestanding Overhead Lift)

This design is configurable and includes at least one horizontal track supported by two vertical supports. This lift system is height adjustable and does not require permanent installation. 4-point traverse gantry systems are also available for more flexible coverage when overhead lifts cannot be installed. (Fig. 2-7).



Figure 2-8 – 4-point gantry lift over PT exam table

2.4 AIR-ASSISTED LIFTING DEVICES

2.4.1 Air-Assisted Lifting Device (AALD)

These devices are used to assist with patient lifting. They operate by inflating a series of stacked and connected mattresses that lift the patient to a safe height for transfer (Fig. 2-8). Once at the proper height, the patient can then be transferred onto a stretcher or bed. A blower motor with a hose is used to inflate the mattresses. The blower motor, hose and mattresses are stored in a two-level cart.



Figure 2-9 – patient raised with AALD

2.5 LATERAL TRANSFER AIDS AND POSITIONING DEVICES

These aids/devices are inserted under the patient or strapped to the patient, and then pulled to transfer the patient. These include friction-reducing devices; rigid boards covered with low-friction covers that are placed beneath the draw sheet, permitting the attendants to pull the patient across the roller onto another surface; devices that use the force of air to move a patient on a mattress; devices that permit wrapping the draw sheet to a transfer rod and moving the patient laterally, using a powered mechanism, and others.

2.5.1 Friction-Reducing Devices (FRDs)

Slip-sheets and slide boards are mainly employed for the lateral transfer and repositioning of patients in supine position, usually bed-to-stretchers or other lateral transfer (Fig. 2-9), although they may be able to assist in sling application or therapy. Storage must be available for these small items.



Figure 2-10 – transfer with slip-sheet & slide board

2.5.2 Air-Assisted Lateral Transfer and Positioning Device (AALTPD)

As with the FRDs, inflatable lateral transfer devices are also utilized primarily for the lateral transfer of patients in supine position. They are also used for in-bed patient repositioning. The design of these devices is like the air assisted lifting device, but with only one mattress. As the mattress is inflated, air is also allowed to exit the mattress through tiny pin holes, providing a cushion of air between the patient and the mattress. A blower motor with a hose is used to inflate the mattress (Fig. 2-10). The blower motor, hose and mattress are stored in a cart.



Figure 2-10 – transfer with AALTPD

2.6 TRANSPORT ASSISTIVE DEVICES

These devices assist caregivers in pushing heavy rolling objects such as beds, wheelchairs, and heavy equipment. These devices are especially helpful in facilities with heavy beds or varying levels of walkways, where caregivers must push up an incline or limit acceleration when pushing a patient down the incline.

Such devices include motorized beds and stretchers, and wheelchair and bed movers that attach to mobile devices to assist caregivers with moving equipment. Prior to purchase, it must be determined if the devices are compatible with specific mobile technologies, and that there is clear space to accommodate the use and maneuvering of this equipment in patient rooms, corridors, elevators, and other facility spaces. The stretcher/chair below may be used as a transport device (See Figure 2-12).

2.6.1 Stretcher/Chair

Portable stretchers that can be converted from stretcher to chair and back to stretchers usually have four wheels to facilitate patient transportation. Some of these stretchers can be folded or hinged for compact storage. Some portable stretcher/chairs are used for patient transportation in places of difficult access for stretchers and beds. The fully powered mobile device allows the patient to convert from a seated position (Fig. 2-11) to supine position. In the supine position, caregivers use a lateral transfer device to move a patient onto/off a bed or stretcher. Use of the powered lateral transfer device eliminates the high-risk task of transferring a patient from chair to bed in order to perform a lateral transfer.



Figure 2-11 – stretcher/chair in seated position

2.6.2 Motorized Beds & Stretchers

Motorized beds supplement caregiver pushing force when moving the bed or stretcher (Figure 2-12). The additional length may prevent ease in turning in standard size hallways or use of elevators that are not long adequately sized.



Figure 2-12 –A Bed with a Drive Motor

2.6.3 Power Assist/Power Add-ons (Wheelchair & Bed Movers)

Motorized Wheelchair and Bed Movers (Figure 2-13 and Figure 2-14) are usually battery-powered and attach to the equipment, head or foot of a bed or back of a wheelchair. To operate them, a caregiver steers the device in the intended direction of travel. For travel, bed movers will increase the overall length of the bed. This must be coordinated with elevator sizes if vertical travel in the facility is required. Often one or more devices are located on each floor where they are needed.



Figure 2-13– Wheelchair Mover



Figure 2- 14– Bed Mover

2.7 ERGONOMIC BATHING, SHOWERING, AND HYGIENE ASSISTIVE DEVICES

There are three main types of Ergonomic Hygiene Equipment; shower chairs, shower trolleys and commodes/toilet assist devices. The first two are specially constructed for wet area use.

2.7.1 Shower Chair

The power assist ergonomic shower chair (Fig. 2-15) can tilt the patient in the seated position for ease of caregiver access and is also height adjustable for better ergonomic positioning for caregivers during use.

2.7.2 Shower Trolley

The shower trolley (Fig. 2-16) is typically a fully mobile full-body basin for a patient in supine position and can be height adjustable for ease of patient transfer. On some models, the head can also be raised and lowered.



Figure 2-15 – shower chair in reclined position



Figure 2-16 – shower trolley

2.7.3 Toilet Assistive Device

The commode or toilet assist device with powered standing/lowering features (Fig. 2-17) can assist a caregiver in transferring a patient on/off a commode. The raising motion and adjustable arm rests can maximize independence and provide greater stability for patients who have difficulty standing from low toilets. The commode can function over a toilet as well as at the bedside.



Figure 2-17 – commode with power features

2.8 PLANNING AND DESIGN CONSIDERATIONS – OVERHEAD LIFT SYSTEM (FIXED INSTALLATION: CEILING-MOUNTING OR WALL MOUNTED)

2.8.1 General Planning Considerations

2.8.1.1 INSTALLATION LOCATIONS

- 1) May be installed in a variety of patient care areas within a healthcare facility. Refer to Part 5 for specific recommended applications.
- 2) **Must NOT be installed in any Mental Health areas (unit(s) and/or room(s)).**
- 3) May be installed in Emergency Departments or some rooms within an Emergency Department, but may NOT be installed in any dedicated Emergency Departments or any dedicated Emergency Mental Health Screening/Evaluation and Treatment Rooms within an Emergency Department. Overhead lifts in the Emergency Department shall be installed in the following rooms:
 - a. General Examination Rooms
 - b. Treatment Rooms
 - c. Procedure Rooms.
- 4) A floor lift shall be stored in a secured area near the main entrance of a healthcare facility and near the Emergency Department, such as in close proximity to the ambulance bay, to assist in vehicle extractions/transfers. An overhead lift may be installed in the ambulance bay at a Medical Center or ambulance drop-off/pick-up point for a CBOC.
- 5) May be installed in Physical Therapy (PT) Clinics, such as over parallel bars or over exercise tables/mats or over clear floor areas for ambulation therapy.
- 6) May be installed down the length of a clinical unit corridor for the purposes of gait training.
- 7) May be installed in bathing, showering, and toileting areas when attached to an inpatient bedroom, resident room, or a stand-alone bath/shower room on a nursing unit.

NOTE: Water/moisture resistant equipment should be installed in locations that are considered wet, damp, or humid environments such as bathroom or pool areas.

2.8.1.2 APPROXIMATE SIZE-LIFT MOTOR ONLY

Lift Motor: Approximately 6" H x 14" W x 12" D.

Lift-space: Area used or covered varies depending on design of rail system and charging method.

2.8.1.3 MINIMUM CLEARANCE CRITERIA

- 1) Minimum clear space requirements vary with patient handling tasks and the type of patient handling equipment being used. These variables must be taken into consideration in the design of patient rooms, exam rooms, treatment rooms, and other rooms when determining clear space dimensions. Refer to section 3.7 for more information and clearance diagrams.

- 2) When using a standard overhead lift while performing a bed or table-to-chair transfer, allow 3'0" x 10'6" minimum clear space. [Note: Clear space required for lateral transfers (5'6" x 10'6") defines the clearance required for a **patient room** or other room where lateral transfers take place. In a patient **exam room**, where there are no lateral transfers, 3'0" x 10'6" would be adequate for an overhead lift unless sit-to-stand lifts are used. For sit-to-stand use, the minimum clear space is 5'6" x 10'6" for sit-to-stand lift use. When using standard floor-based full body sling lifts, the clear space increases to 6'0" x 10'6" for a lateral transfer.]
- 3) When using an overhead lift to perform a bed or table-to-chair transfer with bariatric patients, allow 5'6" x 10'6" minimum clear space. [Note: Clear space required for lateral transfers (5'6" x 10'6") defines the clearance required for a patient room or other room where lateral transfers take place. In a bariatric patient exam room, where there are no lateral transfers, 5'0" x 10'6" would be adequate for transfer of bariatric patients using overhead lifts. When using bariatric floor-based full body sling lifts, the clear space increases to 7'0" x 10'6".]
- 4) Determine other clearance needs (bathroom, other rooms) by utilizing clearance recommendations provided in Part III, 7.0.1.

2.8.1.4 STORAGE

Overhead lift motors and slings must be stored in a location away from the paths of travel for staff, visitors and patients, and the storage location must not interfere with privacy curtains. Overhead lifts can have a continuous charge throughout the length of their track, or they may require charging at a set location on the track (such as a docking station, preferably at the end of a track). If the design includes a charging/docking station, the overhead lift motor must be placed back to the 'parked/charging' position within the installed room when not in use. For motors with continuous charged rails, they may be left anywhere on the rail for charging. A wall hook or small wall-mounted cabinet can be used for hanger bar storage when not in use.

2.8.1.5 NUMBER OF OVERHEAD PATIENT LIFTS PER AREA

There are many variables that will determine the number of Overhead Lifts needed in a Clinical Area and elsewhere throughout a hospital. Use of the room lists provided in Section IV of this document, as well as discussion with the SPHM FC, Safe Patient Handling and Mobility Facility Coordinator, early in the design process, will help to ensure the proper number of lifts for each area.

2.8.2 General Design Considerations

- 1) The lift motor, motor weight capacity and track system must be coordinated to the room type and room coverage required. The most useful and life cycle cost-effective system is the traverse track room-covering system. It allows the greatest utilization of the lift system. Traverse track systems are appropriate for both ceiling- and wall-mounted track systems. Straight track systems that track over one area of the patient bed are of limited assistance in performing many high-risk patient handling tasks but are still useful if a traverse system cannot be installed. Straight track systems may be appropriate for coverage over a row of chairs, as in dialysis.
- 2) A connecting track and switching provisions will provide conveyance from patient room traverse lift to toilet/shower room traverse lift. In this situation a straight or curved track will connect to a traverse system using an intermediary connecting track that only allows travel when the rails are aligned. (Fig. 2-18)



Figure 2-18 – traverse rail transition to curved track into bathroom

- 3) The use of a connecting track to private toilet/shower rooms will require door frame coordination with track, carriage and lift motor for lift access. Refer to section 3.6.1 for specific door coordination details.
- 4) The system may be a bariatric (expanded capacity) lift or a non-bariatric (standard) lift. VA specifications identify the minimum weight capacity for standard lifts at 550 lbs. Bariatric lift maximum weight capacities range from approximately 750 lbs. to 1200 lbs., depending on manufacturer. Consult with the SPHM FC for the bariatric lift weight capacity that is needed for the local region and patient population. Refer to section 3.7 for bariatric task clearances.
- 5) Lift equipment requires connection to the building electrical system. The electrical connection need to be verified and coordinated with the design and facility. Hard-wired connections are preferred for new construction. A duplex convenience outlet may be used for renovations. The electrical connection should be near or above ceiling height to avoid disconnection. Convenience outlets may be identified

specifically as the lift charging outlet. Track switching provisions may require power and low-voltage cable pathways specific to the manufacturer equipment. Refer to section 3.5 for electrical outlet coordination.

- 6) A ceiling height of 9' clear minimum is recommended for lift use. Lift installation with the lift trolley lower than 6'-6" above finished floor should be avoided. Specific lifting height requirements will depend on the design of the track/rail system, lift motor, spreader/hanger bar and sling, as well as ceiling height in the room. Other equipment used in the area where the lift system is being installed may also impact ceiling height requirements. Some bariatric and specialty beds, such as air fluidized beds, increase ceiling height requirements, as do some imaging patient table heights.

2.8.2.1 CEILING- OR WALL-MOUNTED LIFT RECOMMENDED APPLICATIONS

Although the preference is for ceiling mounted lift systems the potential complexity and coordination required may preclude their use. In such situations wall -mounted overhead lift systems may be more appropriate for retrofit applications. Ceiling-mounted overhead lift systems are best considered for new construction or when potential coordination issues can be examined and resolved during design development phases. Floor-based free-standing overhead lift systems may be an alternative when neither wall- nor ceiling-mounted systems are appropriate.

2.8.2.2 LIFT ACQUISITION/INSTALLATION

For Major and Minor projects, lift system equipment and supports are provided and installed as follows:

Below-ceiling lift components (rails, lifting motor) to be furnished and installed by the equipment vendor on behalf of VA, and tested by the vendor for compliance with VA requirements for lift systems.

Above-ceiling structural support components shall be furnished and installed by the equipment vendor in coordination with the construction contractor.

Any additional structural supports required for the lift system must be designed and certified by a structural Engineer as capable of supporting the required lift system and associated loads and installed by the construction Contractor.

Construction Contractor shall coordinate above ceiling elements.

For projects with no construction contractor, lift system equipment, supports and any additional custom supports must be provided and installed by the vendor in accordance with VA procurement policy.

All ceiling and wall mounted lift systems should be properly tested and commissioned. Include lift systems in the building design and construction commissioning plan.

2.8.2.3 VA EQUIPMENT DESCRIPTION – OVERHEAD RAIL SYSTEM

An overhead rail system shall be specifically designed for patient lifting and movement for patient room. The system will consist of recessed or ceiling mounted primary and secondary rails, lift motor with rolling carriage or trolley, patient harness or seat, and a hand controller or control box with charger. Minimum lift capability is 550 pounds. Custom design of track layout by manufacturer is essential to meet individual facility requirements.

2.9 PLANNING AND DESIGN CONSIDERATIONS – FLOOR-BASED SPHM EQUIPMENT

2.9.1 Floor-Based Full Body Sling Lift Design Information

2.9.1.1 EQUIPMENT APPLICATIONS

- 1) Designed for hoisting and transferring patients who are dependent or who require moderate to maximum/extensive assistance;
- 2) Used when overhead lifts are unavailable, where overhead lifts cannot be installed, and in locations that require infrequent full body lift capability;
- 3) May include a scale to assist staff in weighing patients;
- 4) With appropriate sling, may be used for ambulation, transfer from one seated surface to another seated surface (bed/chair/wheelchair/commode), toileting, and lifting appendages;
- 5) Used for patient falls and patient assistance in areas where no lift is installed;
- 6) Use for ambulation, high surfaces, and car extraction may require specific features that are not available on typical floor-based lifts.

2.9.1.2 APPROXIMATE SIZE

Approximately 74" H x 41" W x 48" D (This is with the legs fully in open dimension.)

2.9.1.3 MINIMUM CLEARANCE RECOMMENDATIONS

- 1) Minimum clear space criteria vary with patient handling tasks and the type of patient handling equipment being used. These variables must be taken into consideration in the design of patient rooms, exam rooms, treatment rooms, and other rooms when determining clear space dimensions. Refer to section 3.7 for more information and clearance diagrams.
- 2) When designing a standard inpatient room, and standard full-body sling lifts will be used to lift and move patients, allow 6' 0" x 10'6" clear space for patient transfers within the room. It is not recommended that full-body sling lifts be used in patient exam rooms due to their large footprint and difficulty in maneuvering within an exam room, but, if they are, the exam room would need the same 6'0" x 10'6" clearance.
- 3) When designing a bariatric inpatient room, and bariatric full-body sling lifts will be used to lift and move patients, allow 7' 0" x 10'6" clear space within the room. It is not recommended that bariatric full-body sling lifts be used in patient exam room due to their very large footprint and extreme difficulty in maneuvering within an exam room, but note that the exam room would require the same 7'0" x 10'6" clearance. Overhead lifts are recommended for bariatric patient care.
- 4) Refer to specific manufacturer's recommendations for other clearance requirements.

2.9.1.4 STORAGE LOCATIONS

- 1) Alcove or storage room;
- 2) Proximity to care is important to avoid delay of care for emergency situations requiring lift use; storage should be equidistant to the furthest points of use within the clinical area.

2.9.1.5 NUMBER OF FLOOR-BASED LIFTS PER CLINICAL UNIT/AREA

The number of floor-based lifts needed per area is dependent on the overhead lift coverage and percentage of dependent patients or who require extensive assistance.

- 1) If all patient bedrooms on a floor, comprised of multiple Inpatient Units, are covered by overhead lifts, one floor-based lift should be adequate for the floor, depending on the units' proximity to one another.
- 2) For Units without 100% coverage (over all beds), there should be one lift for every 8-10 patients that are not covered by the overhead lifts.
- 3) In a Clinical Area, such as Primary Care or Imaging, the number of floor-based lifts is dependent on the proximity of areas to one another and the physical size of the area. Provide a minimum of one lift within a quick, easy walk to lift a fallen patient per Primary Care or Imaging room.

2.9.1.6 GENERAL DESIGN CONSIDERATIONS

- 1) Battery operated lift motors will require electrical outlets for re-charging at the storage area;
- 2) For standard and bariatric lifts, verify use compatibility with beds, stretchers, and doorways.
- 3) May require special features to accommodate ambulation or high surfaces.

2.9.1.7 FINISH MATERIAL CONSIDERATIONS

- 1) Thresholds: Must be flush with floor surface to facilitate safe movement of rolling equipment.
- 2) Flooring Material: Vinyl and other non-carpeting flooring materials with a low coefficient of friction must be used in patient care settings and hallways where rolling equipment are used by patients and staff.
- 3) Refer to section 3.9 for floor and threshold materials and details.

2.9.1.8 CLEARANCE CONSIDERATIONS

- 1) Consult the specific manufacturer's specifications regarding equipment size, turning radius, and other equipment use factors to determine the proper clearances for safe and practical use.
- 2) Consult specific manufacturer's recommendations for the lift legs extension for stability during use.
- 3) Legs must be able to fit underneath patient beds and stretchers or around exam, diagnostic, and other tables.
- 4) In space planning, include enough room for the caregivers to maneuver the equipment.
- 5) Standard (non-bariatric) inpatient room and toilet/shower doors must accommodate the expanded width of floor-based lifts along with at least two staff members. See section 3.7 for Clear Floor Area Diagrams.
- 6) Bariatric patient room and bathroom doors must accommodate the expanded width of bariatric floor-based lifts along with at least three staff members. The width of bariatric room doors should be a 4' leaf and a 2' leaf of a double door design.

2.9.1.9 VA EQUIPMENT DESCRIPTION – FLOOR-BASED FULL-BODY SLING LIFT

Hydraulic patient lift with an adjustable U-shaped base and a 440 pounds (600-1000 pounds bariatric) capacity. Unit can also be equipped with battery power, an automatic recharger, nylon stretcher, and weighing mechanisms. The unit is mounted on locking ball bearing casters for safety and stability. Designed for patient lifting and movement. Integrated patient scale is optional.

2.9.2 Sit-to-Stand (Stand Assist) Device Design Information**2.9.2.1 VA EQUIPMENT DESCRIPTION – SIT-TO-STAND (STAND ASSIST)**

Mobile, battery powered, patient lifts primarily used as a raising and standing aid must be ergonomically designed and include a patient footplate, handles, knee pads, heavy duty locking casters and straps for safety. Must be capable of supporting a minimum load of 440 lbs. Integrated patient scale is optional.

2.9.2.2 EQUIPMENT APPLICATIONS

- 1) Sit-to-Stand devices are specifically for patients who are partially dependent, have some weight-bearing capability, can grasp with at least one hand, have upper body strength, and can follow simple instructions, who require powered assistance.
- 2) Patient transfer from one seated surface to another seated surface (bed/chair/wheelchair/commode) can be accommodated.
- 3) These devices can be used to assist in dressing, diapering, and toileting.

- 4) These devices can be used to assist patient movement from a sitting position into a standing position.
- 5) Some device configurations with appropriate slings and removable bases or foot plates can be used to assist with ambulation.
- 6) These devices can be used to assist a patient to or from a seated position during automobile transfers.
- 7) These devices can include a scale which assists staff in weighing patients.

2.9.2.3 APPROXIMATE SIZE

Approximately 70" H x 52" W x 48" D

2.9.2.4 MINIMUM CLEARANCE REQUIREMENTS

- 1) Minimum clear space requirements vary with patient handling tasks and the type of patient handling equipment being used. These variables must be taken into consideration in the design of patient rooms, exam rooms, treatment rooms, and other rooms when determining clear space dimensions. Refer to section 3.7 for more information and clearance diagrams.
- 2) Allow 5'0" x 10'6" minimum clear space when using a standard powered Stand Assist Device. However, clear space required for lateral transfer (5'6" x 10'6") defines clearance required for inpatient room. Clear space in a patient care rooms, where there are no lateral transfers, 5'0" would be adequate.

2.9.2.5 STORAGE LOCATIONS

- 1) Alcove or storage room. If device has battery provide proximate electrical outlets for battery recharging.

2.9.2.6 NUMBER OF SIT-TO-STAND ASSIST DEVICES PER INPATIENT NURSING UNIT

- 1) Provide at least one Powered Standing Assist Device on a Unit; consult with SPHM FC for additional requirements. Additional devices may be required based on percentage of patients who require partial assistance and the Inpatient Nursing Unit; consult with SPHM FC for specific requirements.
- 2) In a Clinical Area, such as Primary Care or Imaging, the number is dependent on the proximity of areas to one another, the needs of the population, and the physical size of the area.

2.9.2.7 DESIGN CONSIDERATIONS

- 1) Battery operated equipment will require electrical outlets for re-charging at the storage area.
- 2) For standard and bariatric weight capacity lifts, verify use compatibility with beds, stretchers, and doorways.

2.9.2.8 FINISH MATERIAL CONSIDERATIONS

- 1) Thresholds: Must be flush with floor surface to facilitate safe movement of rolling equipment.
- 2) Flooring Material: Vinyl and other non-carpeting flooring materials with a low coefficient of friction should be used in patient care settings and corridors where rolling equipment are used by patients and staff.
- 3) Refer to section 3.9 for floor and threshold materials and details.

2.9.2.9 CLEARANCE CONSIDERATIONS

- 1) Consult the specific manufacturer's specifications regarding equipment size, turning radius, and other equipment size and use factors to determine the proper clearances for safe and practical use.
- 2) Additional space may be needed if the device must have the legs fully spread for stability. Consult manufacturer's recommendations.
- 3) Device legs must be able to fit underneath patient bed or stretcher and around exam, diagnostic, and other tables.
- 4) Standard (non-bariatric) patient room and bathroom doors must accommodate the expanded width of stand assist devices along with at least two staff members. Standard doors are 48" with 24" leaves to patient rooms and a 48" door to the toilet and shower.
- 5) Bariatric patient room and toilet/shower doors must accommodate the expanded width of bariatric stand assist devices along with at least three staff members. The width of bariatric room doors should be a 4' leaf and a 2' leaf of a double door design.
- 6) In space planning, include enough room for the caregivers to maneuver the equipment. See section 3.7 for minimum recommended clearances.
- 7) Refer to section 3.7 for specific task clearance requirements.

2.9.3 Non-Powered Standing Aids Design Information**2.9.3.1 VA EQUIPMENT DESCRIPTION – NON-POWERED SIT-TO-STAND (STAND ASSIST)**

Mobile, non-powered patient transfer device that can support a minimum of 375 lbs. Device consists of a patient foot plate, knee pads, support straps, heavy duty locking casters and handle bar for stability.

2.9.3.2 EQUIPMENT APPLICATIONS

- 1) For patients who are mostly independent, have weight-bearing capability, can grasp with at least one hand, have upper body strength, can follow simple instructions, who do not require powered assistance;
- 2) Used to assist a patient (who does not require powered assistance) from a sitting position into a standing position. Used to steady patients who can stand but not safely walk or transfer between surfaces independently;
- 3) Can be used to transfer patient from one seated surface to another seated surface (bed/chair/wheelchair/commode);
- 4) Can be used to assist a patient to or from a seated position during vehicle transfers;
- 5) Frequently used in Medical/Surgical Units for toileting;
- 6) In Outpatient Clinics effective for assisting patient movement from chair to chair;
- 7) Designs with removable foot plates can be used for ambulation;
- 8) Frequently used in Imaging departments for transfer from wheelchair to table.

2.9.3.3 APPROXIMATE SIZE

Approximately 44" H x 37" W x 36" D

2.9.3.4 CLEARANCE RECOMMENDATIONS

- 1) Refer to section 3.7 for specific task clearance requirements.

2.9.3.5 STORAGE RECOMMENDATIONS

- 1) Alcove or storage room.

2.9.3.6 NUMBER OF NON-POWERED STANDING AIDS PER CLINICAL UNIT/AREA

- 1) Dependent on percentage of patients who require partial assistance.
- 2) Provide at least one Non-Powered Standing Assist Device on a Unit if a powered unit is not provided; for additional non-powered devices, consult with SPHM FC.
- 3) In a Clinical Area, such as Primary Care or Imaging, the number is dependent on the proximity of areas to one another and the physical size of the area. Consult with the SPHM FC for exact number and locations.

2.9.3.7 DESIGN CONSIDERATIONS

- 1) Non-powered device requires storage space but not a charging outlet;
- 2) Generally, a compact design. Does not take up as much space as Floor-based Full Body Sling and Sit-to-Stand lifts.

2.9.3.8 FINISH MATERIAL CONSIDERATIONS

- 1) Thresholds: Must be flush with floor surface to facilitate safe movement of rolling equipment.
- 2) Flooring Material: Vinyl and other non-carpeting flooring materials with a low coefficient of friction should be used in patient care settings and hallways where rolling equipment are used by patients and staff.
- 3) Refer to section 3.9 for floor and threshold materials and details.

2.9.3.9 CLEARANCE CONSIDERATIONS

- 1) Consult the specific manufacturer's specifications regarding equipment size, turning radius, and other equipment size and use factors to determine the proper clearances for safe and practical use.
- 2) In space planning, include enough room for the caregivers to maneuver the equipment.
- 3) Refer to Part section 3.7 for specific task clearance criteria

2.10 PLANNING AND DESIGN CONSIDERATIONS – ALTERNATE PATIENT HANDLING MODALITIES**2.10.1 Air-Assisted Lateral Transfer and Positioning Devices (AALTPD) Design Information****2.10.1.1 VA EQUIPMENT DESCRIPTION - AALTPD**

Air-assisted patient lift system for patient transfers, boosting and positioning while maintaining patient caregiver safety. Must be able to lift a minimum of 700 lbs. System is comprised of an inflatable air mat and a blower motor to lift a patient safely without causing further injury. Includes storage cart for when not in use.

2.10.1.2 EQUIPMENT APPLICATIONS

- 1) Lateral transfers from one flat surface to another (bed/stretchers/treatment table);
- 2) Adjusting the patients position in the bed toward the head or foot depending on the need;
- 3) Turning a patient from one side to the other.

2.10.1.3 APPROXIMATE SIZE

- 1) Approximately 16" H x 50" W x 78" D (Inflated).
- 2) Approximately 36" H x 20" W x 15" D (Not Inflated – dimensions include pump and cart).
- 3) Refer to section 2.5.2 for AALTPD image.

2.10.1.4 CLEARANCE

N/A

2.10.1.5 STORAGE

- 1) Located in storage rooms or alcoves. Devices consist of an air pump and mattress. They are typically stored together, usually in a cart.
- 2) Mattresses may be stored on stretchers or patient beds so they are readily available for use.
- 3) For specially defined areas such as OR's and PACU's, readily accessible storage proximate to these areas should be considered.

2.10.1.6 NUMBER OF AALTPD'S PER CLINICAL UNIT/AREA

- 1) Surgical Suites: provide one mattress per operatory with 2 or more motors in Surgical Suite;
- 2) Emergency Department: provide one mattress per 1 – 2 stretchers with 2 or more motors in ED. Consult with SPHM FC for exact amount;

- 3) Number on Inpatient Units are dependent on frequency of moving patients in and out of Unit ('road trips'), the frequency of positioning patients with AALTPDs, and whether deflated mattresses are left under patients for ease in positioning;
- 4) Use of single-use AALTPD mattresses will increase the number required.

2.10.1.7 DESIGN CONSIDERATIONS

- 1) For MRI-use, mattresses and hoses must be designed for MRI compatibility. A 25' MRI Hose enables caregivers to use the device in MRI areas by keeping the Air Supply out of the imaging environment. A securement method may be used to keep the pump from entering the imaging environment.
- 2) Multiple sizes available including bariatric. May be used on patients over 1,000 lbs., with correct mattress and pump.
- 3) Electrical outlet proximity is important. Pumps are typically electrically powered and must be connected to an outlet for use. However, some may have a re-chargeable battery and cart to use for mattress inflation. Battery operated air pumps will require electrical outlets for re-charging in storage areas.
- 4) Mattress (deflated) is often left under patient and travels with patient.

2.10.1.8 STORAGE RECOMMENDATIONS

- 1) Locate pumps wherever a lateral transfer may be required such as Radiology (IR/Angio, X-Ray, CT, MRI), Nuclear Medicine, Radiation Oncology, Cardiac Cath/EP lab, Dialysis, OR, or PACU, as well as Inpatient Units and ED where transfer to stretchers may be required.

2.10.2 Air-Assisted Lifting Devices (AALD) Design Information

2.10.2.1 VA EQUIPMENT DESCRIPTION - AALD

Air-assisted patient lift system capable of lifting a patient from the floor to a bed or stretcher. Must be able to lift a minimum of 700 lbs. System is comprised of an air mat with multiple inflating sections and a blower motor to lift a patient safely without causing further injury. Includes storage cart for when not in use.

2.10.2.2 EQUIPMENT APPLICATIONS

- 1) Lift patients using pump and inflation mattresses.
- 2) Pump inflates lowest mattress chamber, then each subsequent higher chamber until desired height is achieved for lateral transfer onto another flat surface (bed, stretcher).
- 3) Used for fall recovery - lifts a patient from the floor after a fall.

- 4) Can be used to slide/move patient from a tight space to a location where the system can be inflated and a lateral transfer conducted.
- 5) Certain Manufacturer/Models or type can be used for patient evacuations (horizontal and vertical).
- 6) With a cart with a built-in battery, this device is an all-in-one resource for rapid response teams.
- 7) Weight capacity is limited only by force of air into mattress system and by width.

2.10.2.3 APPROXIMATE SIZE

- 1) Approximately 36" H x 39" W x 70" D (Inflated).
- 2) Approximately 36" H x 24" W x 18" D (Not Inflated – dimensions include pump and cart).
- 3) Refer to section 2.4.1 for description and image.

2.10.2.4 CLEARANCE

N/A

2.10.2.5 STORAGE

Provide storage location in storage rooms or alcoves. Most likely stored on carts. Units consist of pumps and system of mattress chambers. They should be stored together.

2.10.2.6 NUMBER OF AIR ASSISTED LIFTING DEVICES PER CLINICAL UNIT/AREA

- 1) Provide one AALD for Emergency Departments;
- 2) Provide one AALD for Mental Health/Geri Psych Units;
- 3) Provide one AALD for each floor;
- 4) An AALD should be accessible for Diagnostics, treatment rooms, procedure rooms, Ambulatory Care, etc.

2.10.2.7 DESIGN CONSIDERATIONS

- 1) Electrical outlet proximity is important. Some pumps require electrical power and must be plugged in to use. However, some include a battery cart that provides a built-in, rechargeable battery.
- 2) Can use the same pump as Air-Assisted Lateral Transfer and Positioning Devices and are often used in combination.
- 3) Larger cart than Air-Assisted Lateral Transfer and Positioning Devices cart.

2.10.3 Friction-Reducing Devices (FRDs) and Repositioning Aids Design Information**2.10.3.1 EQUIPMENT APPLICATIONS**

- 1) Lateral transfers;
- 2) Moving a patient up in the bed;
- 3) Turning a patient from one side to the other;
- 4) Repositioning a patient in a chair;
- 5) Assisting with patient exercises;
- 6) Pulling a patient out of a corner into a more lift accessible location;
- 7) Inserting slings under patients, especially patients of size.

2.10.3.2 APPROXIMATE SIZE

Slider sheets or boards of various sizes.

2.10.3.3 CLEARANCE

N/A

2.10.3.4 STORAGE

Storage rooms, alcoves or patient rooms.

2.10.3.5 NUMBER OF FRDS PER CLINICAL UNIT/AREA

Number required dependent on the specific needs of the clinical unit/area. Consult with SPHM FC for specific requirements.

2.10.3.6 DESIGN CONSIDERATIONS

- 1) Can be reusable or disposable.
- 2) Weight capacities are limited. Heavier patients will require excessive force to move.

2.10.3.7 VA EQUIPMENT DESCRIPTION – FRICTION REDUCING DEVICES

A patient transfer board designed to make lateral patient transfers safer for staff and be more comfortable for the patients. The board uses a smooth, low friction and static free surface to eliminate the need for metal rollers. The board has a soft foam core that makes them lightweight for ease of use and storage. The long board device also enables the transfer of a patient in the Fowler position (also known as the seated position). The boards come in multiple sizes with the long boards being foldable.

Slide sheets are also included in this category.

2.10.4 Seated (Self-transfer) Slide Boards**2.10.4.1 EQUIPMENT APPLICATIONS**

Used for a patient with disability to independently move to and from a wheelchair to an exam table, patient bed, toilet, patient chair, automobile, etc.

2.10.4.2 APPROXIMATE SIZE

Approximately 1" H x 13" W x 32" D.

2.10.4.3 CLEARANCE

N/A

2.10.4.4 STORAGE

Storage Room or Patient Room; should be proximate to point of use.

2.10.4.5 NUMBER OF SEATED SLIDE BOARDS PER CLINICAL UNIT

Number required dependent on the specific needs of the clinical unit/area. Consult with SPHM FC for specific requirements. Most often used in SCI Units and Inpatient Rehabilitation Units, Inpatient, and Long-Term Care.

2.10.4.6 DESIGN CONSIDERATIONS**2.10.4.7 VA EQUIPMENT DESCRIPTION – SEATED SLIDE BOARDS**

See 2.10.3.7 above.

2.10.5 Ergonomic Bathing, Showering, and Hygiene Assistive Devices**2.10.5.1 EQUIPMENT APPLICATIONS**

Patient bathing, showering, toileting and other hygiene needs.

2.10.5.2 APPROXIMATE SIZE

- 1) Varies depending on device manufacturer;
- 2) Shower Trolley – Approximately 36" H x 30" W x 77" D;
- 3) Toilet Lift – Approximately 40" H x 24" W x 27" D;
- 4) Ergonomic Shower Chair – Approximately 69" H x 28" W x 26" D.

2.10.5.3 CLEARANCE

Determine clearance needs by utilizing footprint dimensions above or true dimensions of existing equipment in clinical unit/area. Refer to section 3.7 for specific clearance requirements.

2.10.5.4 STORAGE

Can be stored in unit communal shower rooms, patient toilet/shower, or other locations as needed.

2.10.5.5 NUMBER OF ERGONOMIC BATHING, SHOWERING, AND HYGIENE ASSISTIVE DEVICES PER CLINICAL UNIT/AREA

- 1) Number required dependent on the specific needs of the clinical unit/area. Consult with SPHM FC for specific requirements.
- 2) Provide at least one ergonomic shower trolley and/or ergonomic shower chair at each communal bathing/shower room, depending on the room design and size.
- 3) In Long Term Care or other patient areas, provide an ergonomic shower chair and/or shower trolley if patient room shower/bathing rooms are large enough, and if appropriate for patient.
- 4) In SCI, provide an ergonomic shower trolley in patient room bathing rooms if the room can accommodate the equipment size.
- 5) In specific Clinical Units provide a powered toilet lift in each bath/toilet room.

2.10.5.6 DESIGN CONSIDERATIONS

- 1) Shower trolleys: Design of trolleys vary for bariatric, turning or positioning uses. Consult manufacturer for specifications and requirements prior the design of the space.
- 2) Ergonomic Shower chairs: Designs vary for bariatric or ergonomic uses.
- 3) Generally, battery powered that require charging areas.
- 4) Commode/Toilet lifts require a covered GFCI outlet near the toilet and/or a battery charger. Some models allow use of existing toilet and will require extra space around the toilet.
- 6) Some toilet lifts can move from room-to-room and bedside to bathroom for use over the toilet or as a powered bedside commode, but they should not be used for patient transport or in-shower use.

2.10.5.7 FINISH MATERIAL CONSIDERATIONS

- 1) Thresholds: Must be flush with floor surface to facilitate safe movement of rolling equipment.
 - 2) Flooring Material: Tile, sheet vinyl and other non-carpeting flooring materials must be used in wet patient care settings. Sheet vinyl and other non-carpeting flooring materials should be used in patient care settings and in corridors where rolling equipment are used by patients and staff. Refer to VA Publication PG-18-14 for required finish materials.
 - 3) Refer to section 3.9 for specific floor and threshold material and details.
-

2.10.5.8 CLEARANCE CONSIDERATIONS

- 1) Consult the specific manufacturer's literature regarding equipment size, turning radius, and other equipment size and use factors to determine the proper clearances for safe and practical use.
- 2) In space planning, include enough room for the caregivers to maneuver the equipment. See section 3.7 for Clear Floor Area Diagrams.

2.10.5.9 VA EQUIPMENT DESCRIPTION – ERGONOMIC HYGIENE EQUIPMENT

Ergonomic Shower Chair: Chair intended for showering or toileting that has electrical controls to recline/tilt or raise the chair from sitting height to an employee's working height. It shall have a minimum lift capacity of 300 pounds. Casters shall be a minimum of 4" with wheel locking brakes.

Shower Trolley: Shall be a hydraulically height-adjustable shower trolley for patient transfer and shower. It shall be approximately 77" long x 30" wide with minimum height adjustments range between 23-33". It shall have a minimum lift capacity of 330 pounds. Casters shall be a minimum of 4" with wheel locking brakes. Shower trolley may be configured to work manually or with a battery/electric height adjustment.

Commode/Toilet Lift: Mobile, battery powered patient toilet lift. Unit must be able to support a minimum of 400 lbs. Capable for use as a portable bedside commode and an over-the-toilet lift. Should consist of large toilet seat, patient handles for stability, heavy duty locking casters, a removable commode bucket, and handheld lifting controls.

2.10.6 Height-Adjustable Powered Exam Tables**2.10.6.1 EQUIPMENT APPLICATIONS**

- 1) Used in Outpatient Clinic exam rooms or other patient locations where a height adjustable exam table is required.

2.10.6.2 APPROXIMATE SIZE

Approximately 37" H x 30" W x 60" D. Exam Table height lowers to 16-18 inches above finished floor.

2.10.6.3 CLEARANCE

N/A

2.10.6.4 STORAGE

N/A

2.10.6.5 NUMBER OF HEIGHT ADJUSTABLE EXAM TABLES PER CLINICAL UNIT/AREA

Provide a height-adjustable exam table for every Exam Room.

2.10.6.6 DESIGN CONSIDERATIONS

- 1) The height adjustable exam table must lower to 16 - 18 inches from the floor to allow patients to access the exam table from a wheelchair with minimal or no staff assistance. If not available, the patient will require other patient lifting methods to access the standard exam table or be examined in their wheelchair, usually resulting in less than a full examination.
- 2) These tables will provide smooth patient positioning by use of motorized raising and lowering of the table. It can be in the seated backrest or table position and may have a pelvic tilt option.
- 3) These tables can include patient support rails, assist handles or an adjustable arm system
- 4) Electrical power is required, and the placement of these tables within that space is important due to the need for a wall outlet. The electrical outlet shall be placed to accommodate the location of the exam table and ensure the power cord, or the table location does not become a tripping hazard within the exam/treatment space.
- 5) There must be adequate space for a wheelchair to maneuver in the exam room so patient can access and be adjacent to at least one side of the exam table. See room templates for exam table placement.

2.10.6.7 VA EQUIPMENT DESCRIPTION – HEIGHT ADJUSTABLE POWERED EXAM TABLES

Table, examination/treatment with cabinet for patients with accessibility requirements. Table should be able to lower to approximately 16 - 18 inches above the floor and raise to approximately 36 inches above the floor. Table can be raised or lowered by a powered foot switch control. The back rest can be adjusted either with power or manually. Table will include an upholstered top that can be adjusted into a full chair position. Table also includes concealed heel stirrups, dual outlets, drawers, and storage space. Unit is designed for VA Barrier Free Design Standards.

2.10.7 Transport Assistance Devices – Battery Powered**2.10.7.1 EQUIPMENT APPLICATIONS**

Used to reduce the physical effort required when moving a non-motorized wheelchair, stretcher, or bed by use of a compatible battery-powered transport device.

2.10.7.2 APPROXIMATE SIZE

Can vary, but approximately 42" H x 35" W x 32" D.

2.10.7.3 CLEARANCE

Determine clearance needs by utilizing footprint dimensions above in addition to bed, stretcher, or wheelchair dimensions.

2.10.7.4 STORAGE

Storage Room or Alcove; should be proximate to point of use.

2.10.7.5 NUMBER OF MOTORIZED PATIENT TRANSPORT UNITS PER CLINICAL UNIT/AREA

Number required is dependent on patient characteristics, thus needs of Clinical Unit/Area, and available storage space.

2.10.7.6 DESIGN CONSIDERATIONS

- 1) Motorized transports can attach to a bed or chair. The chair mover and the bed mover are two separate pieces of equipment.
- 2) Bed movers or wheelchair movers cannot connect to all models. Compatibility and elevator clearance need to be evaluated. Check with manufacturer specifications before purchase.
- 3) Requires charging and storage space.
- 4) Compact design, but they do not nest.
- 5) Attachable power transport devices increase turning radius and elevator space requirements.
- 6) Weight capacity is highly variable between 550 pounds and 1980 pounds, including the bed or chair.
- 7) For clinical units that transport patients in beds or stretchers frequently, use standardized powered beds or stretchers instead of bed movers.
- 8) Ensure hallways and door widths have turning radii for maneuvering beds/stretchers into rooms due to extended length. Check with manufacturer specifications before purchase.

2.10.7.7 FINISH MATERIAL CONSIDERATIONS

- 1) Thresholds: Must be flush with floor surface to facilitate safe movement of rolling equipment.
- 2) Flooring Material: Sheet vinyl and other non-carpeting flooring materials should be used in patient care settings and hallways where rolling equipment are used by patients and staff.
- 3) Refer to section 3.9 for floor and threshold materials and details.

2.10.7.8 CLEARANCE CONSIDERATIONS

- 1) Consult the specific manufacturer's literature regarding equipment size, turning radius, and other equipment size and use factors to determine the proper clearances for safe and practical use.
- 2) In space planning, include enough room for the caregivers to maneuver the equipment.

2.10.7.9 VA EQUIPMENT DESCRIPTION – TRANSPORT ASSISTANCE DEVICES

Power-assisted transport device for either patient beds or wheelchairs to allow for movement by a single caregiver. Wheelchair transports should include an IV pole arm mount and oxygen cylinder holder.

2.11 LIFT ACCESSORIES**2.11.1 Lift Slings****2.11.1.1 EQUIPMENT APPLICATIONS**

Used with patient lifts (overhead, floor-based full body sling lifts, and powered standing assist devices).

2.11.1.2 APPROXIMATE SIZE

Multiple styles and sizes

2.11.1.3 CLEARANCE

N/A – determined by lift in use

2.11.1.4 STORAGE

Storage Room, Alcove, or Patient Room; preferably proximate to the point of use.

2.11.1.5 NUMBER OF AND STYLES OF SLINGS PER CLINICAL UNIT/AREA

- 1) Number required is dependent on frequency of performing high-risk patient handling tasks and the types of slings required.
- 2) Sling styles include but are not limited to those that provide assistance in performing vertical transfers, lateral transfers, lifting appendages/pannus, repositioning in bed, lateral rotation, and toileting/hygiene.
- 3) Slings may be washable, disposable, or wipeable. The choice of sling and cleaning process will affect the required number of slings and the location of storage.

2.11.1.6 DESIGN CONSIDERATIONS

- 1) Store sling surplus in same location as lifts, or in clean linen area, as appropriate. Install large hooks for hanging slings or provide shelving for storage of folded slings.
- 2) Slings assigned to a specific patient should be stored in patient room. Preferable locations would include near the patient's closet, bedside, or somewhere near the entry door to provide ready accessibility.
- 3) Disposable slings are often supplied with other clean and sterile supplies.
- 4) Caregivers should verify that slings are compatible with and safely attach to hanger bars prior to use.

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Part II outlined various SPHM modalities and specific requirements for the effective planning of SPHM technologies in clinical applications. To further assist designers, facility coordinators and engineers with the proper detailing and installation of SPHM technologies, this section will outline installation details and specific coordination items required for the application of SPHM technologies.

When possible, illustrations in this section will be provided as they would be presented in architectural and engineering contract drawings, to help non-design professionals become familiar with the standard graphic representations as would be represented during the development of construction drawings.

3.1 OVERHEAD LIFT COMPONENTS – OVERVIEW

3.1.1 Overhead Lift System – Single-rail Basic Components

The illustration below identifies the below-ceiling components of a single-rail lift mounted to the surface of the suspended lay-in ceiling.

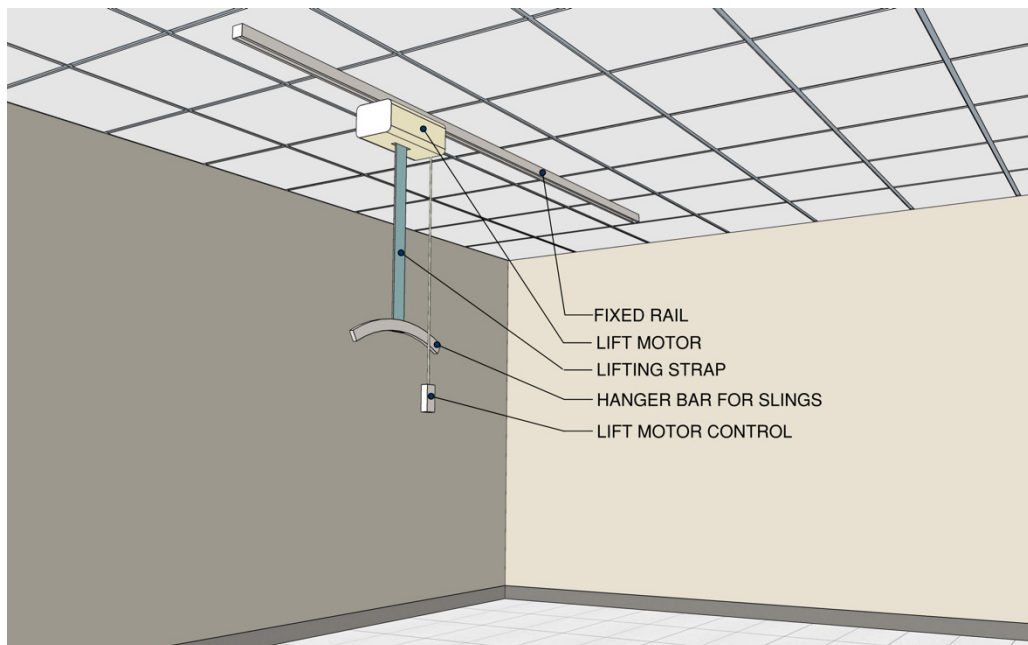


Figure 3-1 – This system consists of a fixed rail connected to structural supports above ceiling, a lifting motor within a carriage that moves along the rail, a lifting strap, a hanger bar for attaching various slings, and a lift motor control directly connected to the lift motor.

3.1.2 Overhead Lift System – Traverse-rail Basic Components

The illustration below identifies the below ceiling components of a traverse-rail lift mounted to the surface of a suspended lay-in ceiling.

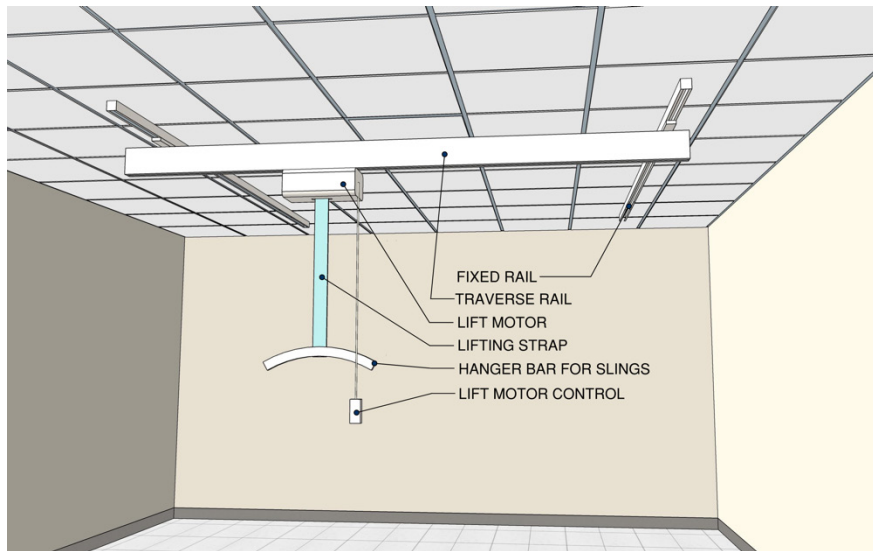


Figure 3-2 – This system consists of two fixed rails connected to structural supports above ceiling, a traverse rail that moves along the fixed rails in either direction, a lifting motor within a carriage that moves along the traverse rail, a lifting strap, a hanger bar for attaching various slings, and a lift motor control directly connected to the lift motor.

3.1.3 Overhead Lift System – Technical Representation

3.1.3.1 TRAVERSE-RAIL OVERHEAD LIFT

For technical documents such as architectural construction documents, a traverse-rail lift system should be represented as follows:

1) Floor Plan

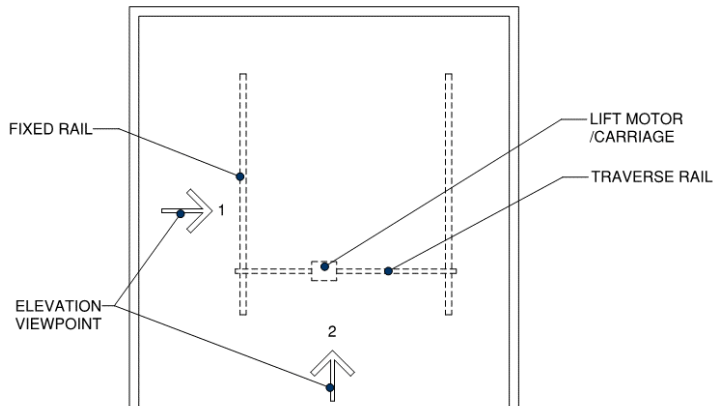


Figure 3-3 This view represents all visible elements from the floor plane to about 3 feet above the floor plane. Ceiling-mounted elements that require coordination with floor plan elements such as privacy curtains, booms, and overhead lift systems are typically represented as dashed lines. For this diagram, elevation (side) views are shown with arrows pointing in the direction of view.

2) Reflected Ceiling Plan

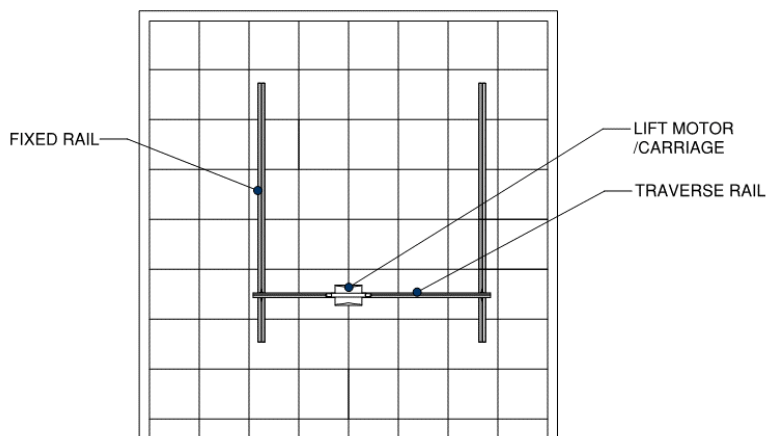


Figure 3-4 — This view represents the ceiling plane and all ceiling elements visible at or immediately below the ceiling plane.

3) Elevation 1

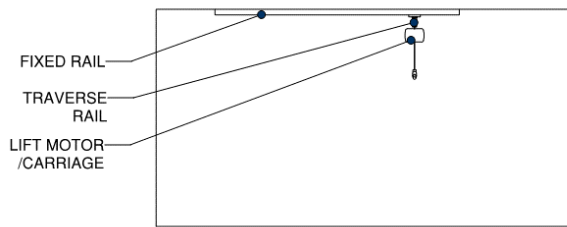


Figure 3-5 — This view represents the side view in the direction referenced on the floor plan.

4) Elevation 2

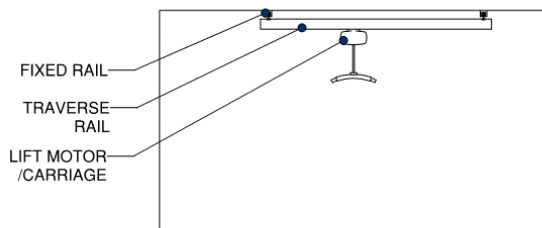


Figure 3-6 — This view represents the side view in the direction referenced on the floor plan.

3.2 LIFT STRUCTURAL SUPPORT SYSTEMS

3.2.1 Ceiling-mounted Lift Structural Support Systems

3.2.1.1 STRUCTURAL SUPPORT COMPONENTS AND DESCRIPTIONS

The ceiling-mounted overhead lift is suspended from structure above the ceiling with either manufacturer provided supports, custom fabricated supports, or a combination of the two. Prior to design it should be determined if the manufacturer or a custom fabricated support shall be used. Above ceiling structure should be analyzed and the most appropriate support system procured. The basic manufacturer-provided support structure includes:

- 1) Structural support fasteners to structure above;
- 2) Support members spanning between structure and fixed rail;
- 3) Lateral bracing;

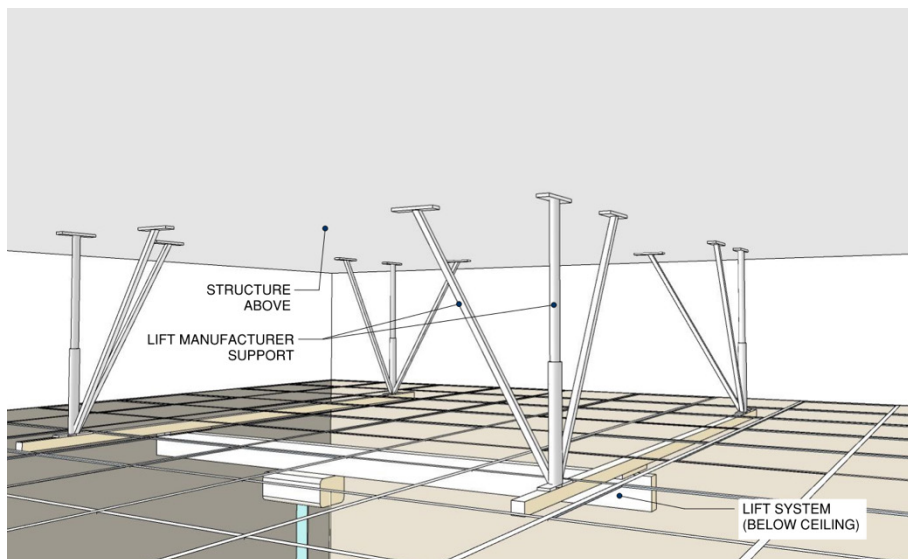


Figure 3-7 — The diagrammatic illustration above represents manufacturer provided supports attached directly to the underside of the structure above. Actual above ceiling conditions may vary. Supports may attach to a concrete slab, steel beams, or other structural elements depending on the building construction. Obstructions such as piping, or ducting may cause interferences to the support system. All above ceiling support systems shall be designed by a registered structural engineer.

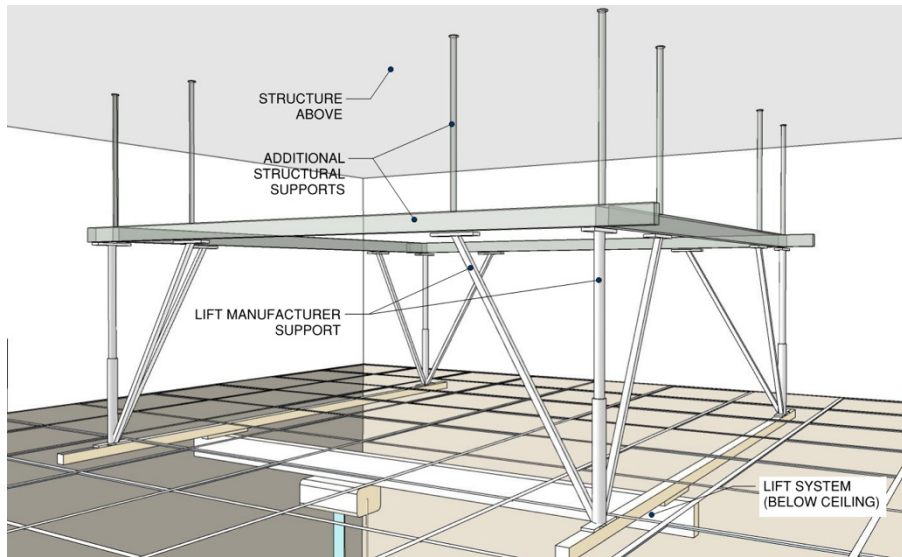


Figure 3-8 — The illustration above represents an additional structural frame for bridging between the manufacturer provided supports and the underside of structure above. The “Additional Structural Support” is designed and installed by a construction contractor separately from the manufacturer. Refer to section 2.8.2.2 for specific structural support installation responsibilities.

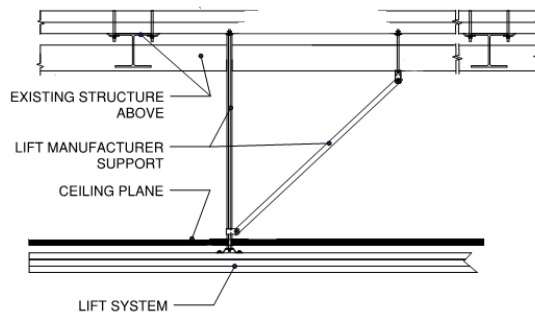


Figure 3-9 — The illustration above is an example of a shop drawing construction diagram for a manufacturer provided structural support connected to the existing building structure. The “Existing Structure Above” is designed by a structural engineer and furnished and installed by a construction contractor. The manufacturer would provide support under the “Additional Structural Support”. These two support systems need to be coordinated by the VA project manager.

3.2.1.2 ENGINEERING REQUIREMENTS

A licensed structural engineer must provide structural calculations for anticipated load capacities on the existing structure, and review shop drawings for conformance with lift system requirements. This requirement shall be included in the contractual requirements of the project. If an additional custom support structure is required, the structural engineer and VA Authority Having Jurisdiction must approve the custom support design prior to fabrication or installation of the support. It should be noted that some lift manufacturers do not allow custom supports between the building structure and the lift system. Review the lift manufacturer's structural requirements to insure additional custom supports can be provided.

3.2.1.3 STRUCTURAL COORDINATION

Above-ceiling items will require coordination with the structural system for complete installation; these include but are not limited to HVAC ducts, lighting, plumbing piping, med gas piping, fire suppression piping, and structural supports for other ceiling mounted equipment such as boom arms. Coordinating these systems with the lift structure early in the design process can help to avoid potential conflicts during installation.

3.2.1.4 ACCESSORY ITEMS

Lift accessory items for motor/carriage transition to adjacent spaces, track switching, and motor direction change include single-rail connecting tracks, turntables for changing direction, and track switches. These items will require separate structural supports and should be coordinated and verified as required for the total lift structural system.

3.2.2 Wall-mounted Lift Structural Support Systems**3.2.2.1 WALL-MOUNTED LIFT SYSTEM DESCRIPTION**

The wall-mounted overhead lift is a traverse configuration overhead lift, with the fixed rails fastened directly to opposite walls and the traverse rail spanning between the fixed rails. This support system can be used in existing building retrofits if there is not enough space or structure above the ceiling to provide ceiling lift structural support.

The fixed rails are fastened to either the wall framing, or a concealed structural support within the wall. For either method, the concealed supporting structure must be approved by the lift manufacturer prior to fabrication and installation. Standard wall framing will not be sufficient to support ceiling lifts and additional structure will be required.

This lift support system is entirely below the ceiling plane but requires coordination with other ceiling-mounted items and any wall-mounted items that might conflict with lift operation.

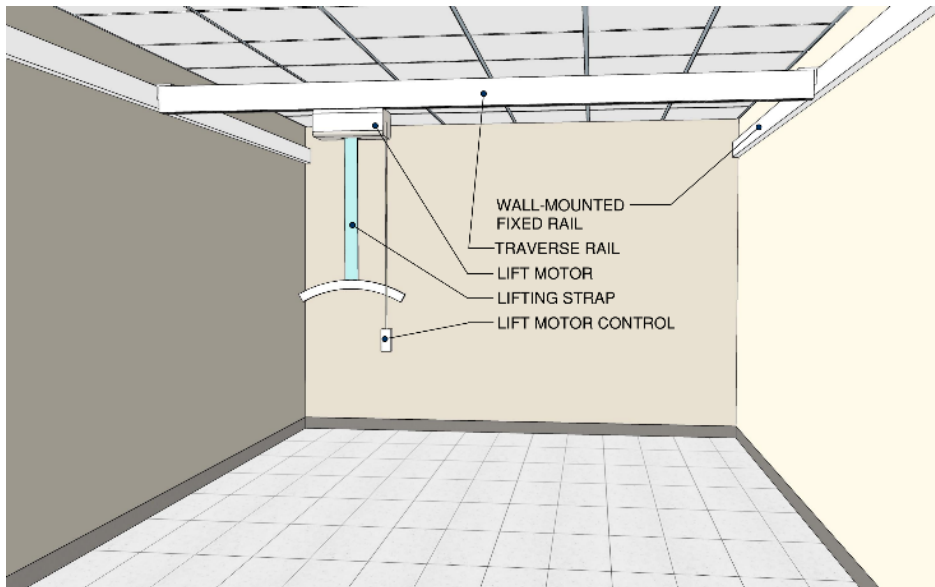


Figure 3-10 — The above illustration represents a direct-wall mounted fixed rail with traverse rail spanning between the fixed rails.

3.2.3 Wall-mounted Lift Structural Support Systems (with pilaster upright supports)

3.2.3.1 UPRIGHT WALL-MOUNTED LIFT SYSTEM DESCRIPTION

The wall-mounted overhead lift with upright supports can either be a straight-track or traverse configuration overhead lift, with the fixed rails supported at the ends with metal pilasters (uprights) fastened directly to the wall framing. With a traverse configuration, the two fixed rails are mounted in parallel, and the traverse rail spans between the fixed rails. This support system can be used in existing building retrofits if there is not enough space above the ceiling to provide ceiling lift structural support.

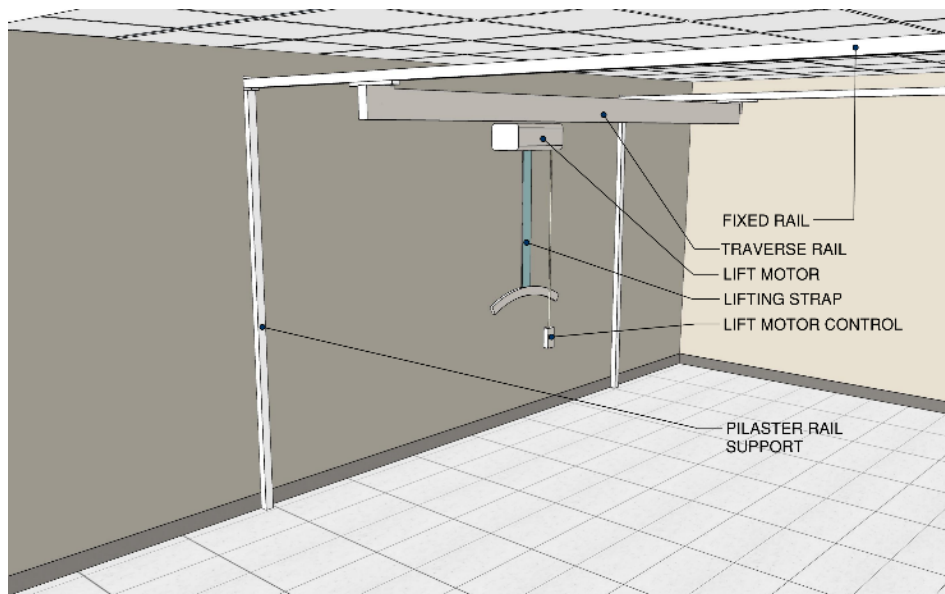


Figure 3-11 — The above illustration represents a wall-mounted system with pilaster upright supports. Note that this system can also be used in combination with a direct wall fixed rail support.

The pilasters are fastened to either the wall framing, or a concealed structural support within the wall. For either method, the supporting structure must be approved by the lift manufacturer prior to fabrication and installation.

This lift support system is entirely below the ceiling plane but requires coordination with other ceiling-mounted items and any wall-mounted items that might conflict with lift operation. This lift support system can be used in conjunction with either ceiling-suspended or wall-mounted structural lift systems.

3.3 OVERHEAD LIFT SYSTEM – CEILING HEIGHT RECOMMENDATIONS

3.3.1 Floor to Ceiling Height

Floor to ceiling height directly affects the effective lifting range of a lift system, and specific manufacturer requirements should be reviewed prior to selecting a specific system. A general rule-of-thumb for most ceiling-mounted applications is to allow for a minimum of 9 feet between the ceiling and floor. Shorter ceilings impair the ability to lift onto bariatric beds or high wheelchairs or mobilize while walking.

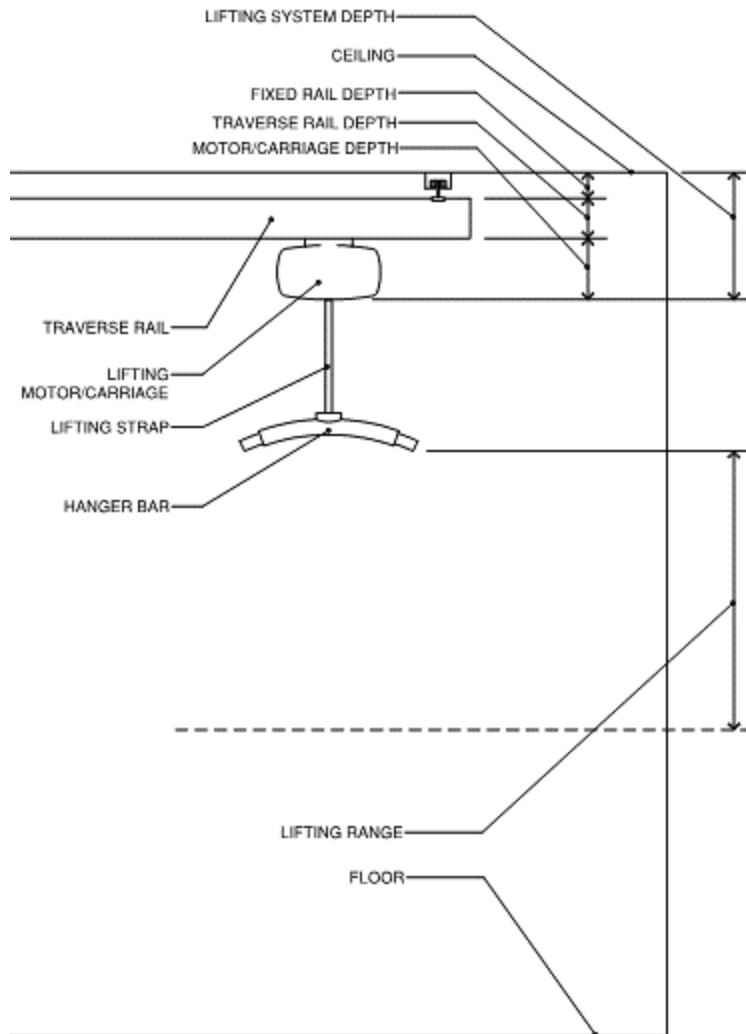


Figure 3-12 — The above illustration identifies the following items for consideration / coordination when selecting a lift system:

- a. **Lifting System Depth**
Note that both fixed and traverse rails will increase in depth with an increase in both span and anticipated load to be carried.
- b. **Lifting Range**
Consult with SPHM FC regarding lifting heights required for SPHM tasks.

3.3.2 Optional Traverse Lift Rail Configurations

Some lift manufacturers provide optional fixed/traverse rail configurations to accommodate a lower installation height.

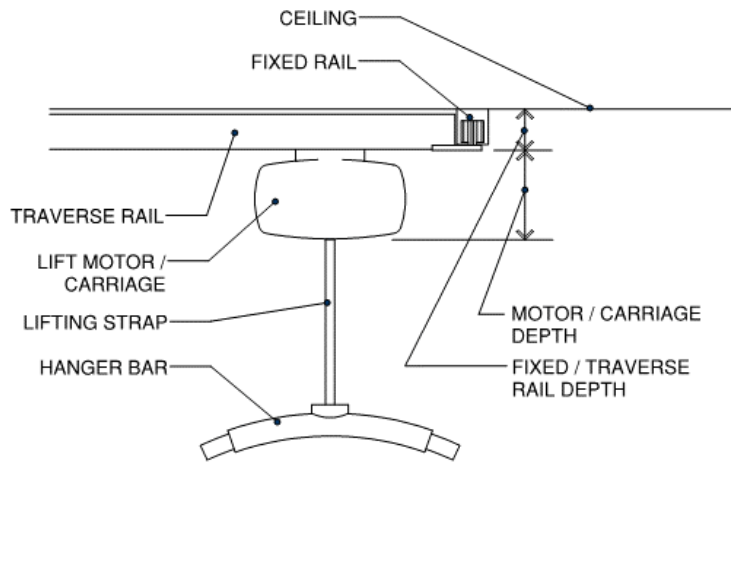


Figure 3-13 — The above illustration identifies a traverse lift system with the traverse rail carrier located at the bottom of the traverse rail. As this option leaves only a small gap between the top of the traverse rail and the ceiling plane, careful coordination with ceiling-mounted items is necessary for free traverse rail movement.

3.4 OVERHEAD LIFT SYSTEM – FIXED RAIL COORDINATION WITH CEILING PLANE

3.4.1 Installation Types

Depending on the type and location of lights, supply and return grilles, sprinklers and other ceiling-mounted items, the fixed rail of a straight-track ceiling lift or the fixed rails of a traverse ceiling lift shall be coordinated with the ceiling plane in three configurations:

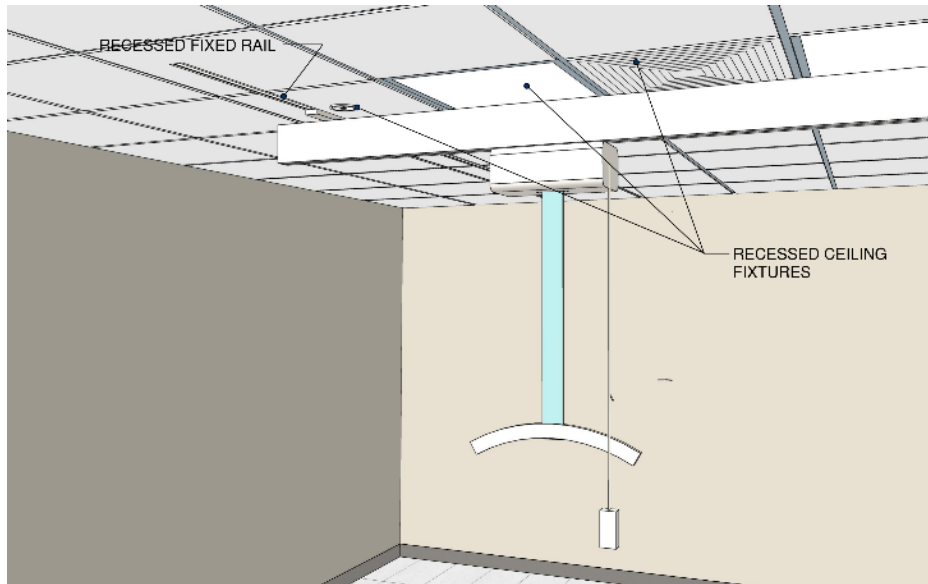


Figure 3-14 — Recessed configuration – as represented above, this installation is the cleanest and most unobtrusive of the three configurations. For this installation, the structural support must be above-ceiling, and other ceiling-mounted items in the coverage area must be recessed flush with the ceiling plane. Additionally, the ceiling material must be coordinated with the fixed rail locations for clean edge terminations.

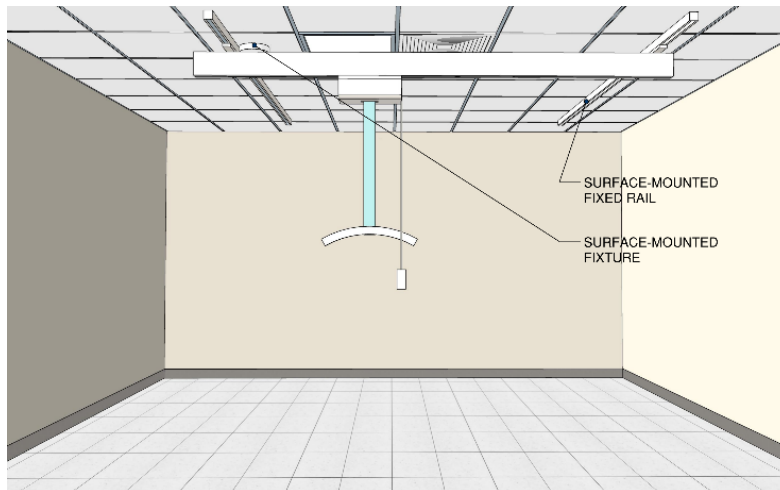


Figure 3-15 — Surface-mounted configuration – for traverse lift systems, this installation allows for a typical 4” gap between the top of the traverse rail and the ceiling plane. With this configuration, small protrusions from the ceiling plane such as smoke detectors, light fixtures and air distribution grilles can be accommodated. Surface-mounted or partially recessed sprinkler heads may require verification for clearance. The distance between the bottom of the traverse rail and the floor must be verified as acceptable by the manufacturer and SPHM Facility Coordinator for lift functionality. This installation is typically supported above-ceiling but may also be combined with wall-mounted or floor-mounted support systems.

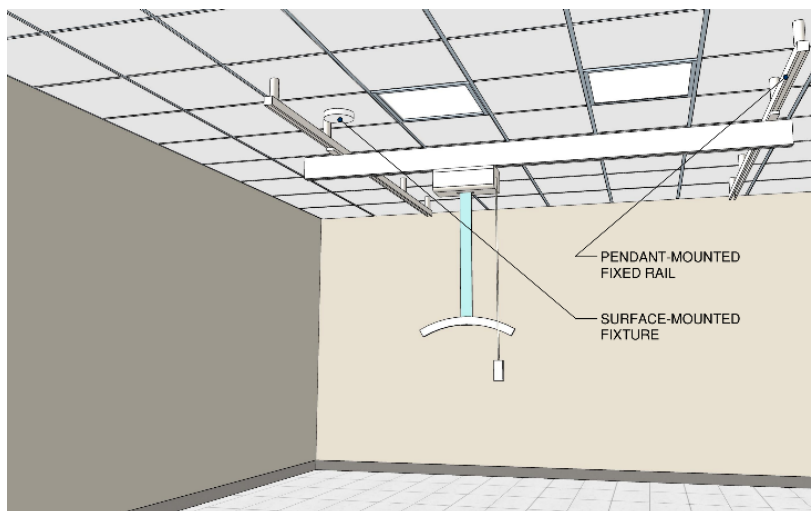


Figure 3-16 — Pendant-mounted configuration – this configuration allows for ease of coordination with other ceiling-mounted items but is the most visually obtrusive. As this system can be mounted at various heights below the ceiling plane, the distance between the bottom of the traverse rail and the finished floor must be verified as acceptable by the manufacturer and SPHM Facility Coordinator for lift functionality.

For both surface-mounted and pendant-mounted installations, coordination of light fixtures, air distribution grilles and other ceiling items with the fixed rail locations is necessary to ensure access to these items.

3.5 OVERHEAD LIFT SYSTEM – ELECTRICAL REQUIREMENTS

3.5.1 Electrical Requirement Descriptions

The electric lift motor contains a rechargeable battery that requires recharging when not in use, in order to provide lifting power when needed. There are three ways of providing dedicated electric power for charging, depending on lift model and manufacturer:

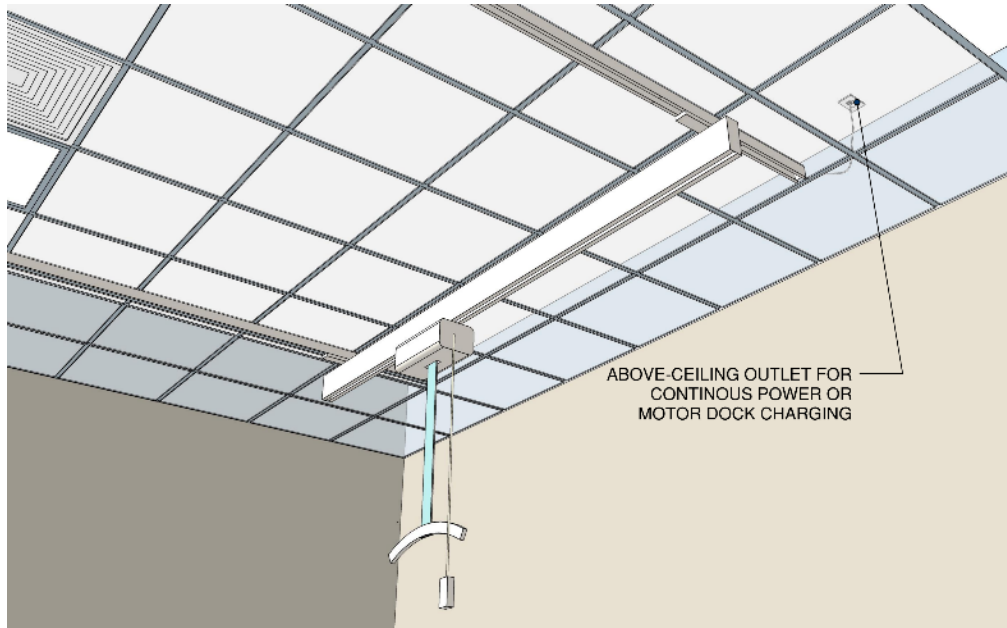


Figure 3-17 — Continuously charged rail – electric power may be delivered by near or above-ceiling outlet, or hard-wired to electric service above the ceiling. Preference is given to outlet-delivered electric service which allows for ease of disconnect for repair, maintenance or modification of the lift system.

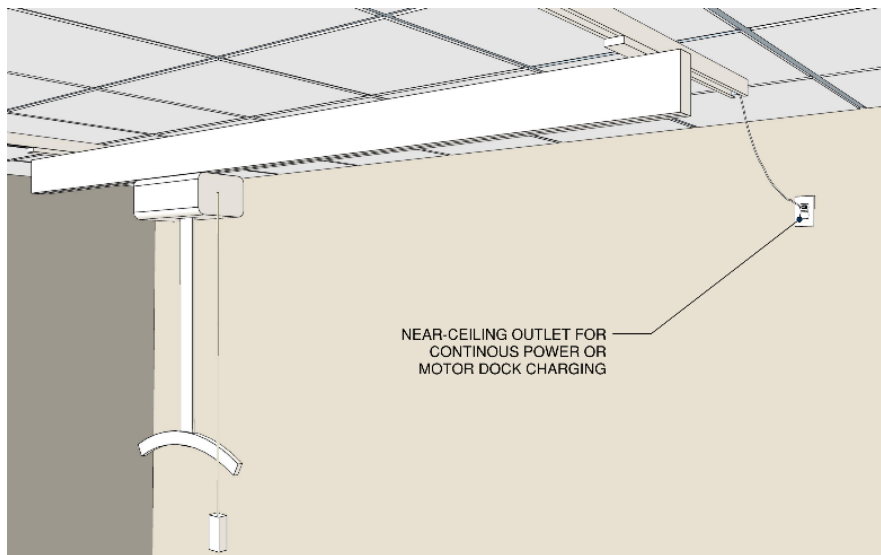


Figure 3-18 — Charging location at docking station – as with the continuously charged rail, the electric power is delivered either near the ceiling or flush in the ceiling tile, but the motor must be in a specific position on the rail in order to be charged. Coordinate docking station location on rail to prevent potential lift interference with other items when not in use.

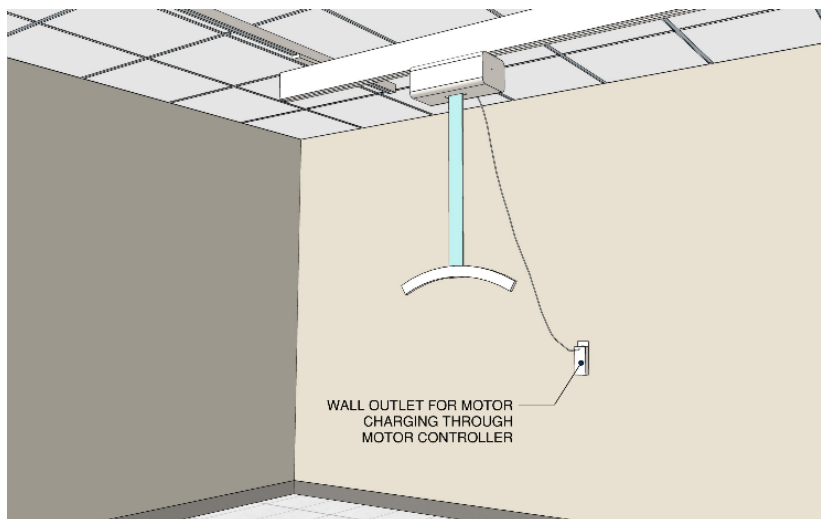


Figure 3-19 — Direct motor charging – the motor is connected directly to an outlet for charging through the motor controller. This option requires an outlet within reach of the user, and due to ease of access the motor may be inadvertently disconnected by staff or patient. For this method of re-charging the outlet should be identified as dedicated to lift charging to avoid disconnection.

The illustration above is the construction document plan representation for charging to the motor controller (3'-0" or to the fixed rail at ceiling (7'-4").

3.6 OVERHEAD LIFT COORDINATION ITEMS

3.6.1 Door Frame Coordination for Lift Motor Access Between Rooms

3.6.1.1 TRANSITION RAIL DESCRIPTION

To allow the lift motor of a traverse lift to travel between room traverse systems, an intermediary fixed straight track is required to transition through the openings between rooms. It is necessary that the bottom of this transition track align with the bottom of the traverse rail in each space served by the transition rail. During installation, internal stops are located on the traverse lift fixed rail in order to assist the user with rail alignment.

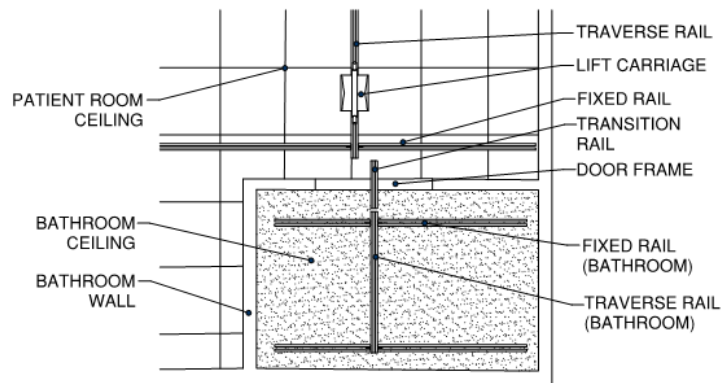


Figure 3-20 — The above illustration represents a reflected ceiling view of a lift transition from a patient room to a bathroom. The bathroom traverse rail is aligned with the transition rail at the door opening.

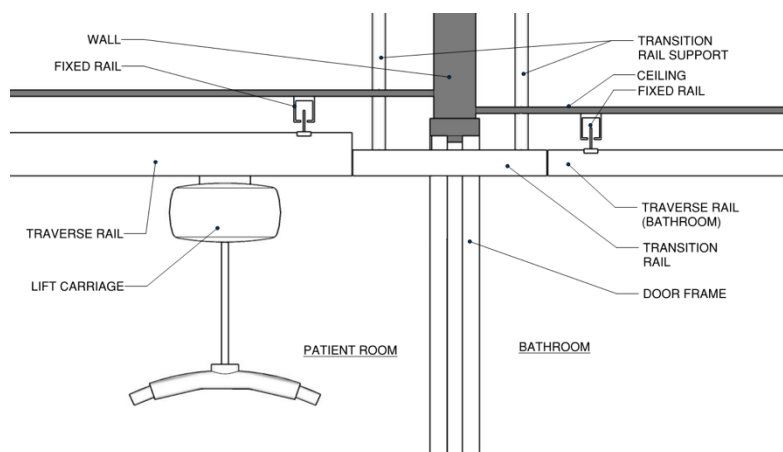


Figure 3-21 — The above illustration represents a section view of upper door opening, showing aligned rails, structural supports for the transition rail, and ceiling planes.

3.6.1.2 DOOR FRAME COORDINATION

The most common use for this transition is between patient rooms and attached patient bathrooms. For this specific transition, the bathroom door must be able to close. There are two door frame configurations that allow for straight-track transitions and will maintain the structural integrity of the door frame:

1) Tall Frame with Tall Door or Standard Door & Transom Panels

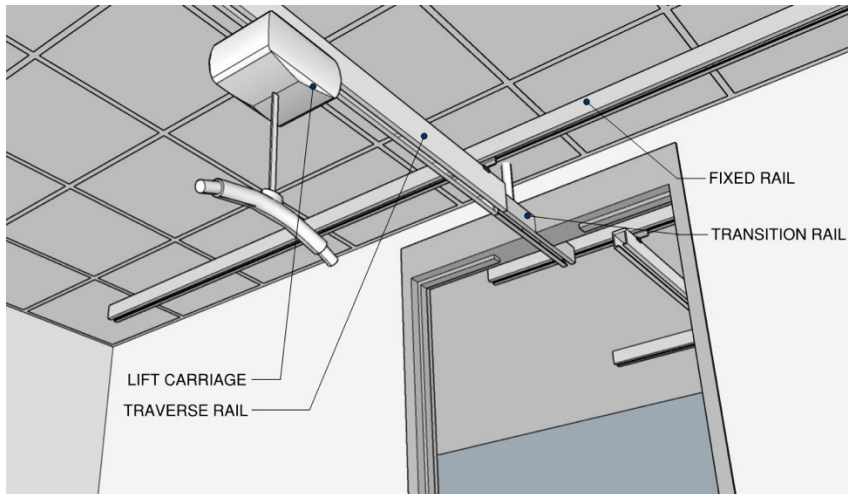


Figure 3-22 — In this example, the top of frame depth is increased to provide a gap for the transition rail to cross. Although this configuration will require custom frame fabrication and careful coordination between the door and the lift system, it provides the greatest privacy as there are no gaps between rooms when the door is in the closed position.

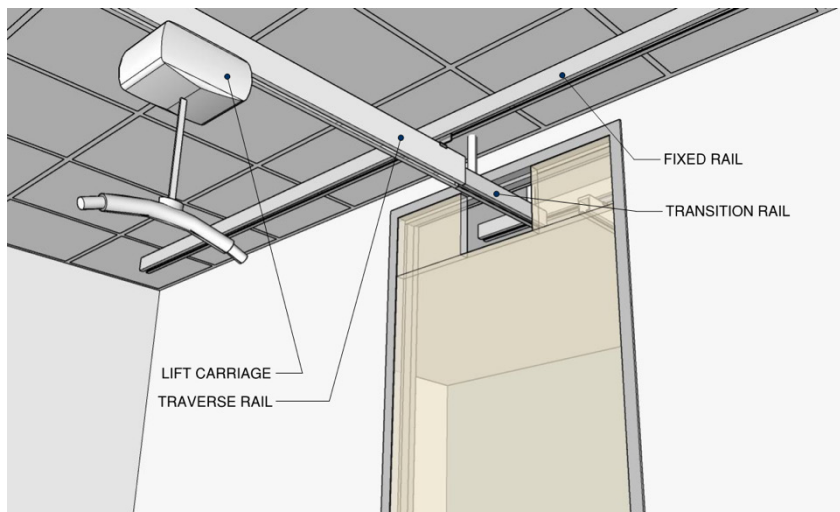


Figure 3-23 — In this example, the transition rail can be mounted below the frame, and a standard 7'-0" door can be used with transom panels provided to enhance patient privacy. Although this configuration provides less privacy between rooms, it is the easiest to coordinate with the lift systems.

2) Castellated Frame

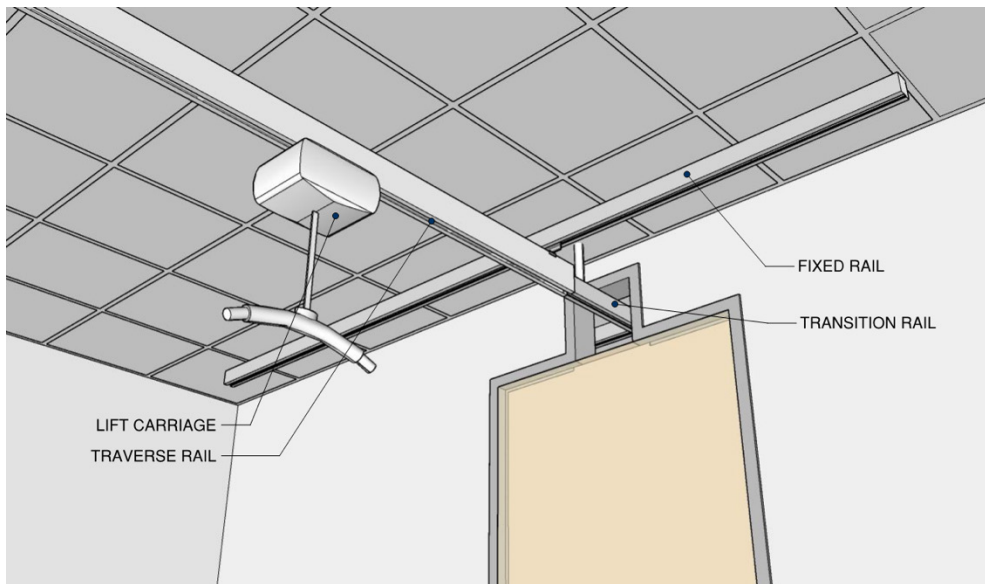


Figure 3-24 — For this configuration, the door frame is stepped up in the center to rail height for motor passage between spaces. Although this configuration will require additional frame fabrication, it is considered a more structurally rigid and visually cleaner frame. The top recess width must be verified to accommodate free movement of the motor/carriage through the frame.

3.6.1.3 DOOR FRAME REPRESENTATION – CONSTRUCTION DOCUMENTS

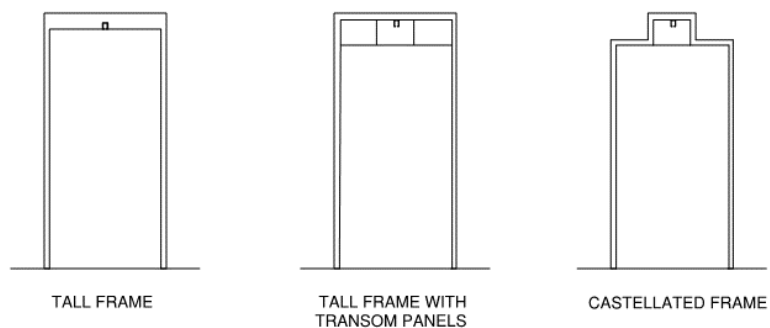


Figure 3-25 — The above frame elevations are typical for how they would be represented in construction documents.

3.6.2 Privacy/Shower Curtain Coordination with Overhead Ceiling Lifts

3.6.2.1 CURTAIN RAIL MOUNTING COORDINATION

As both lift systems and privacy/shower curtain mountings are at or near the ceiling plane, specific coordination is required if either privacy or shower curtains are to be used in the same area.

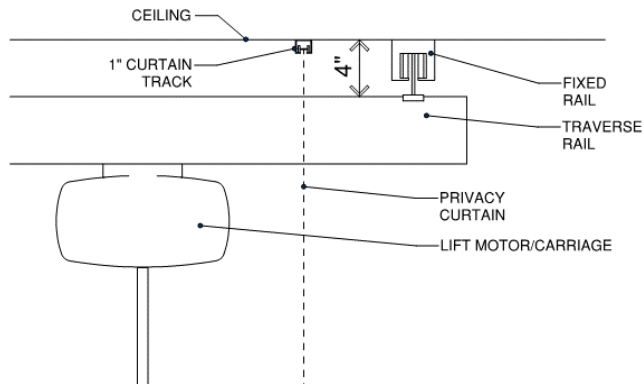


Figure 3-26— As shown in the illustration above, a surface mounted lift system allows for a typical 3"-4" gap between the ceiling plane and the top of the traverse rail. With smaller curtain tracks mounted at the ceiling, traverse lifts can operate below the curtain track when the curtain is stacked. It is important to note that if curtain tracks are to be suspended significantly lower than the ceiling plane, careful track coordination will be required to avoid conflicts with the traverse rail travel.

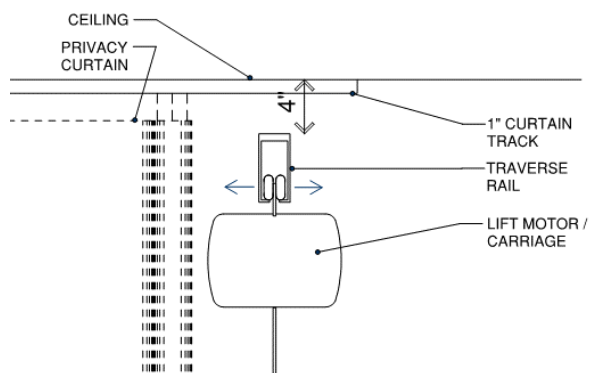


Figure 3-27 — Additionally, a recessed lift system or other configuration that minimizes the space between the ceiling plane and top of traverse rail will require curtain track coordination.

3.6.2.2 ROOM CURTAIN COORDINATION

There are 3 main strategies for coordinating privacy curtains with ceiling lifts:

1) Curtain Track Inside Lift Operating Area

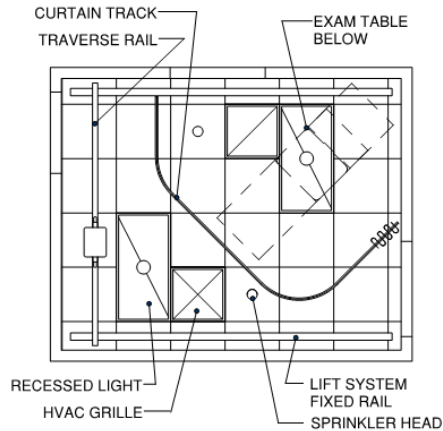
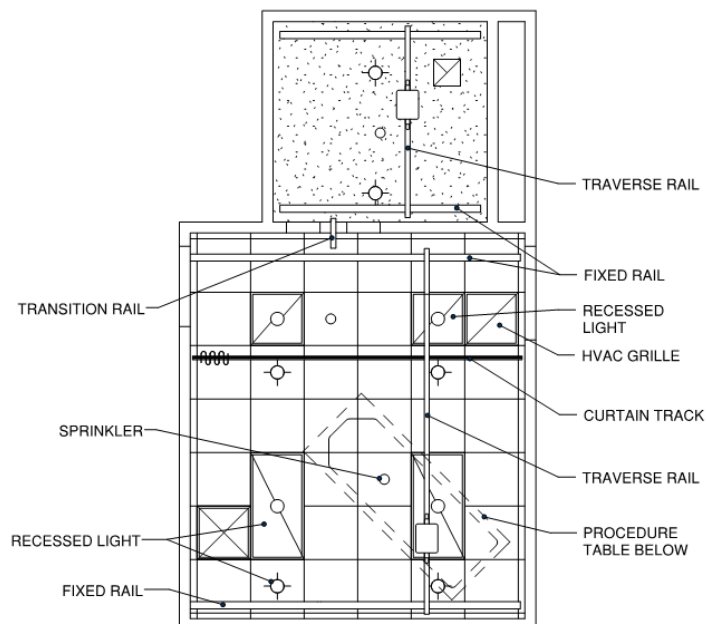


Figure 3-28 & Figure 29 — This configuration allows for curtain/lift coordination within a smaller area or room. As shown in the details above, the curtain track is installed above the top of the traverse rail, and the curtain can be stacked back to allow for lift use. The following reflected ceiling plans show both partial and full room privacy curtain installations within the lift operating area. Note that this coordination allows for the lift to travel to adjacent rooms.



2) Curtain Track Outside Lift Operating Area

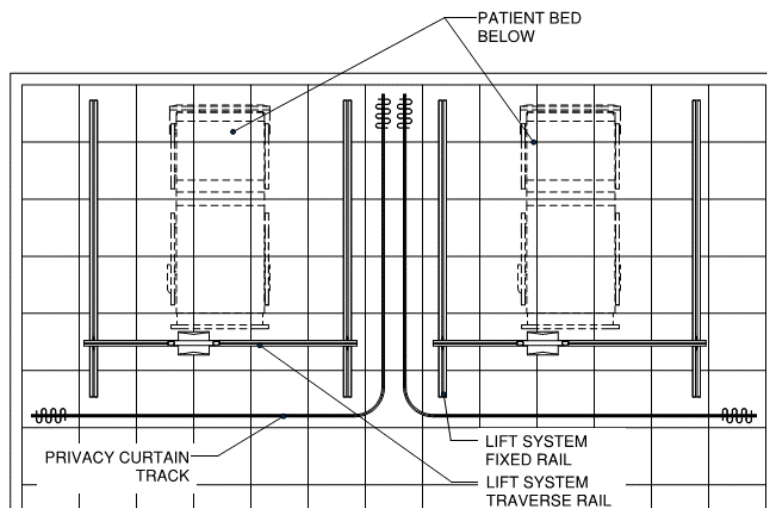


Figure 3-30 — This configuration can work with both single and double-bed applications. To provide complete privacy for the patient, sufficient space and clear ceiling area must be provided outside the operating area of the lift. The privacy curtain rail should also be mounted clear of the lift operating motor, and traverse rail ends. Note that this system does not allow for lift transition to other spaces.

3) Curtain Track Inside Lift Operating Area (with fixed rail gap)

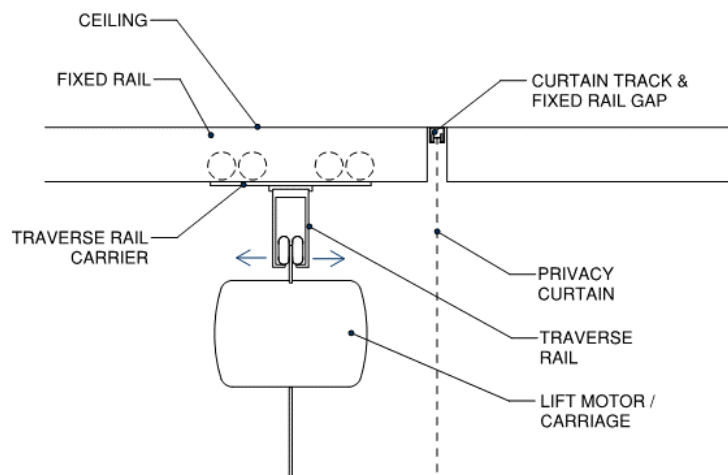


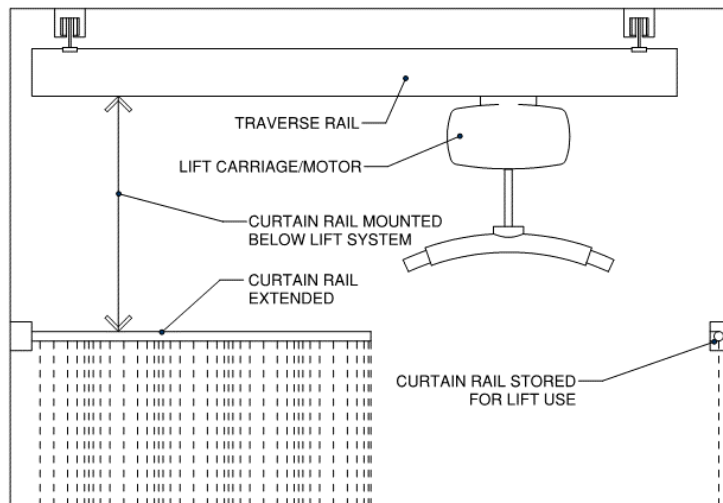
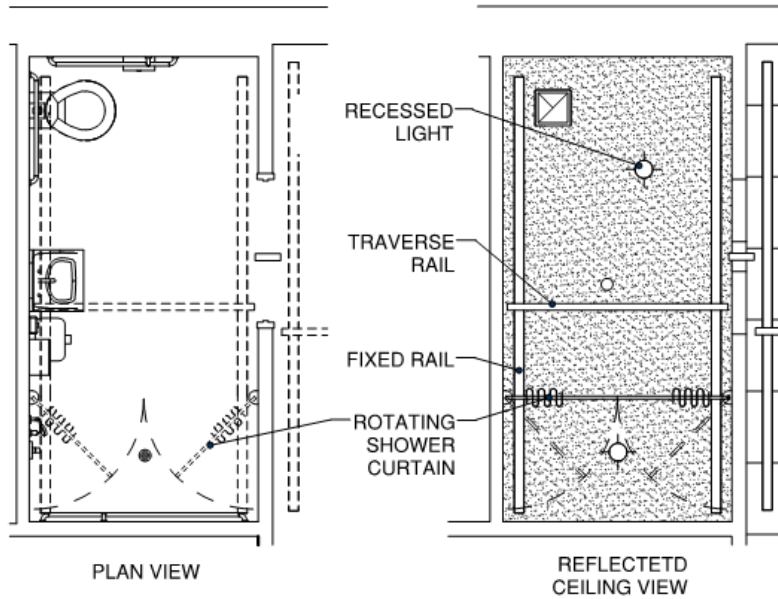
Figure 3-31 — For some installations, space restrictions may require a gap in the fixed rail to accommodate the privacy curtain. Gaps in the fixed rail must not compromise the safe operation of the lift system, and the lift manufacturer must be consulted prior to modification of the fixed rails. Typically, gaps need only be as wide as the curtain track, and narrow-width curtain tracks (1-1/2" or less) are recommended.

3.6.2.3 SHOWER CURTAIN COORDINATION

There are 2 main strategies for coordinating shower curtains with ceiling lifts.

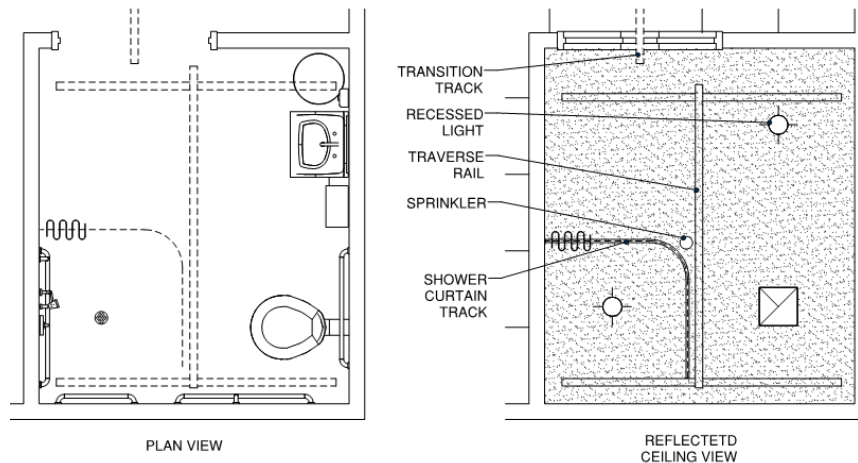
1) Rotating or Collapsing Curtain Rods

This configuration allows the curtain rod to swing or collapse out of the way of the lift.



2) Cubicle Curtain within Lift Area

A shower curtain based on a ceiling-mounted cubicle curtain track can either cross a lift rail as above in 5.0.2.2 (3), be outside the lift area as in 5.0.2.2 (2), or operate inside the lift area as shown below.



The use of pendant-mounted shower curtains is not recommended, as this type of mounting system usually cannot be coordinated with free traverse rail movement over the shower area.

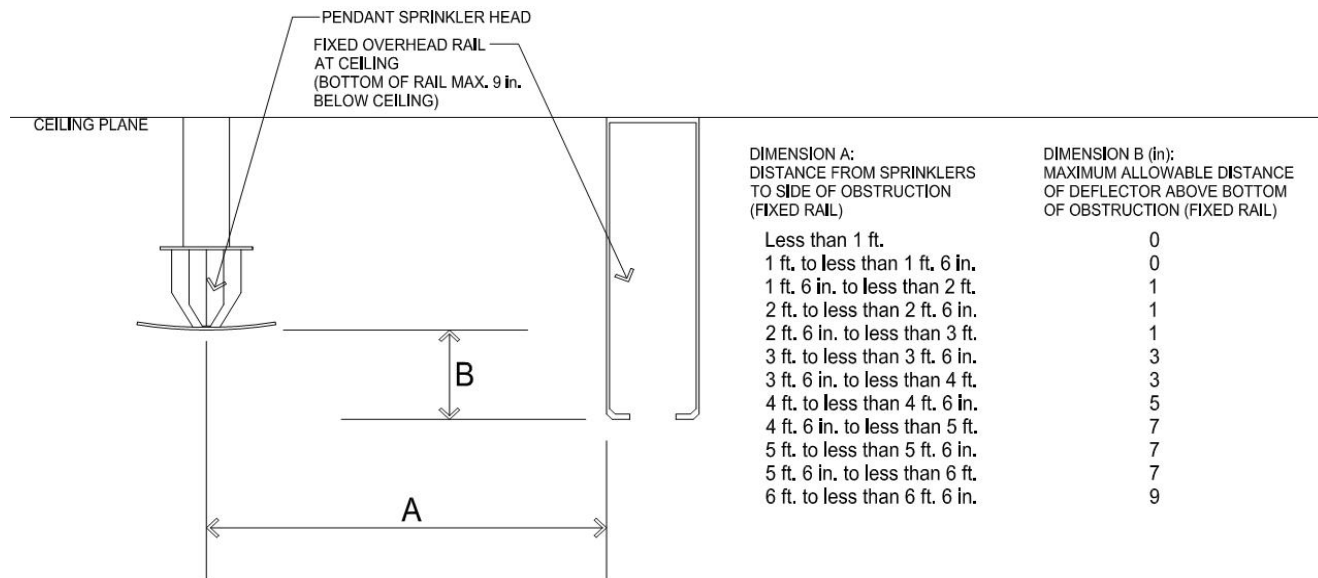
3.6.3 Ceiling-mounted Item Coordination with Overhead Ceiling Lifts

3.6.3.1 SPRINKLER HEAD CLEARANCE

Traverse rail and recessed fixed rail coordination with fully recessed or automatic drop-down sprinkler pendants is not necessary, as these fixtures do not conflict with lift operation. The location of fixed rails will necessarily be clear of sprinkler pendant locations. The required distance between surface or suspended fixed rails and adjacent sprinkler heads is outlined below.

Sprinkler pendants will require coordination with the lift system. Fixed rails will be required to be mounted at a height lower than the bottom of the lowest sprinkler pendant to allow free movement of the traverse rail. Fully recessed fixed rails will not require sprinkler coordination.

NFPA 13 defines the acceptable clearances for obstructions proximate to ceiling mounted sprinklers. Overhead lift fixed rails have the potential of impinging the required clearance as defined by NFPA and are required to be coordinated with sprinklers to avoid both functional and code conflicts.



It should be noted that discussion regarding both the fixed and moveable components of an overhead lift as they affected sprinkler clearance were discussed by the NFPA Healthcare Interpretations Task Force, and the following interpretations/clarifications have been adopted by the NFPA:

Question 1:

Is it the intent that the obstruction requirements of NFPA 13 apply to the fixed rails of the patient lifting system? Answer: YES.

Question 2:

Is it the intent that the obstruction requirements of NFPA 13 apply to the movable rail of the patient lifting system when the rail is “parked” in any position? Answer: NO.

ITF interpretation No. 5 June 2009

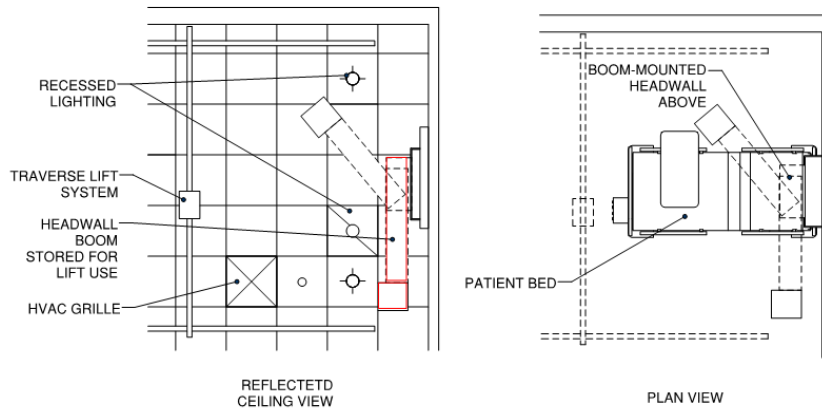
3.6.3.2 RECESSED/SURFACE-MOUNTED CEILING ITEM COORDINATION

For surface or suspended fixed rails of a traverse lift system, the depth of recessed light fixtures, HVAC diffusers and associated trim will allow for the free movement of the traverse rail (refer to 3.6.2.1 for typical clearance). If the fixed rails are recessed, the lift system configuration is as shown in 3.3.2 (bottom carrier on traverse rail) or if other ceiling-mounted items such as smoke detectors, Wi-Fi antennae or other projections are in conflict with the traverse rail, mounting height coordination will be required to assure free movement of the traverse rail.

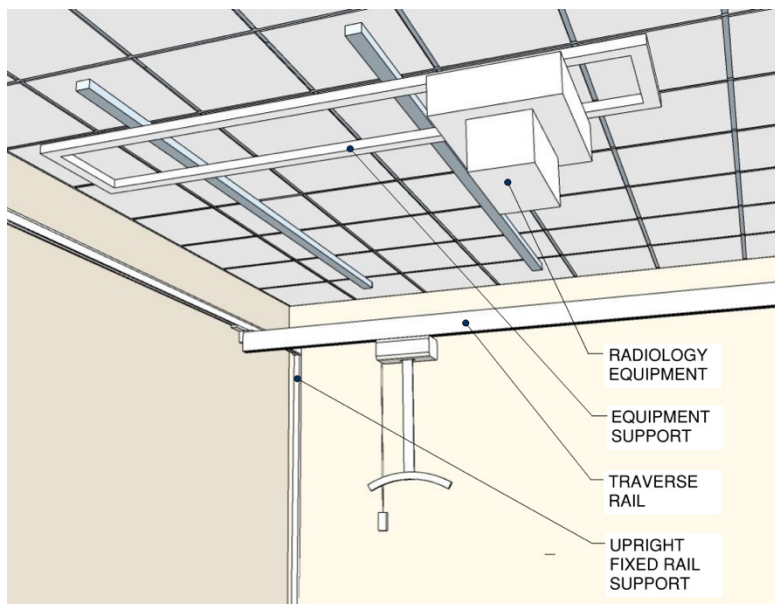
3.6.3.3 CEILING-MOUNTED EQUIPMENT COORDINATION

Ceiling-mounted Headwalls, Lighting and Equipment Booms

For ceiling mounted booms and equipment, the traverse lift system can be coordinated with lift coverage outside the stored position of the booms.



For imaging or other permanent ceiling-mounted equipment, the overhead lift can be installed at a height lower than the imaging equipment required clearance for use with either wall-mounted or floor-mounted supports. For lift use, the equipment can be moved clear of the lift operational area, and for equipment use the lift rail can be located clear of the equipment use area. Note that the overall ceiling height must account for both the ceiling-mounted equipment, and for the lift operation minimum height. As the imaging or other equipment above-ceiling structural support may occupy the space normally provided for the lift system, wall-mounted or upright-mounted lift support systems are recommended to provide ease of coordination.



3.7 SPHM EQUIPMENT USE – CLEAR FLOOR AREA DIAGRAMS

3.7.1 Recommended Clearances

Minimum clear space requirements vary with patient handling tasks. When considering standard or bariatric overhead lifts in the design of a Patient Room, lateral transfers (e.g., transfer from bed-to-stretcher) define the minimum clear space requirement because their space requirement (5'-6" x 10'-6") is the greatest. It is preferred that this clear space is allowed on both side of the patient bed. If floor-based full body sling lifts will be used for patient handling in standard Patient Rooms, the minimum clear space increases to 6'0" x 10'6". The minimum clearance increases to 7'0" when using bariatric floor-based full body sling lifts.

When considering overhead lifts in the design of a standard Exam Room where there are no lateral transfers, 3'-0" x 10'-6" would be adequate for use of an overhead lift unless sit-to-stand or floor-based full body sling lifts are used. The minimum clear space would be 5'-0" x 10'-6" for sit-to-stand lift use. When not using overhead lifts and using floor-based full body sling lifts, the clear space increases to 6'0" x 10'6".

When considering overhead lifts in the design of a bariatric Exam Room where there are no lateral transfers, 5'-0" would be adequate for transfer of bariatric patients using overhead lifts and sit-to-stand lifts. When not using overhead lifts and using bariatric floor-based full body sling lifts, the clear space increases to 7'-0" x 10'-6".

The following diagrams represent the minimum clear area recommended for specific tasks utilizing SPHM equipment including overhead lifts, sit-to-stand devices, and other modalities.

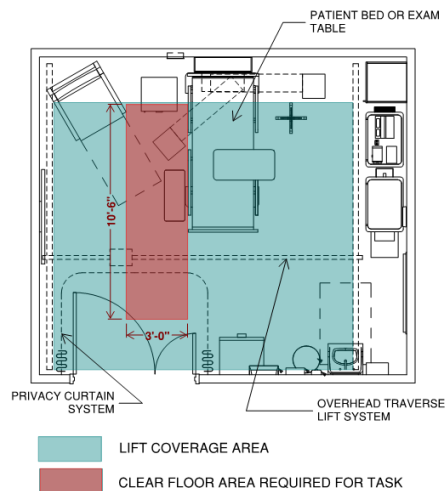


Figure 3-33 — The above illustration describes the minimum clear area recommended for the following tasks:

- a. Bed-to-Chair transfer with a standard overhead lift;
- b. Standard Sit-to-Stand equipment use;
- c. Wheelchair to exam table transfer with a standard overhead lift.

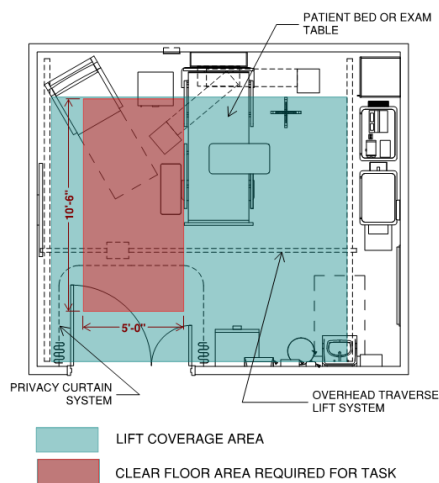


Figure 3-34 — The above illustration describes the minimum clear area recommended for the following tasks:

- a. Bed-to-Chair transfer with bariatric overhead lift;
- b. Bariatric Sit-to-Stand equipment use;
- c. Wheelchair to exam table transfer with a bariatric overhead lift.

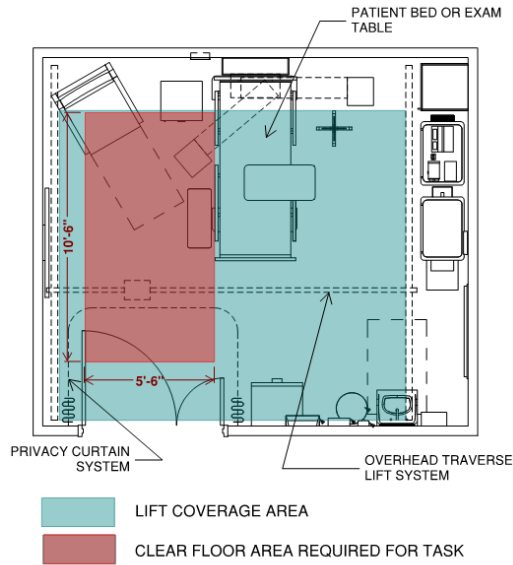


Figure 3-35 —The above illustration describes the minimum clear area recommended for the following tasks:

- a. Bed-to-Stretcher lateral transfer with standard & bariatric overhead lifts.

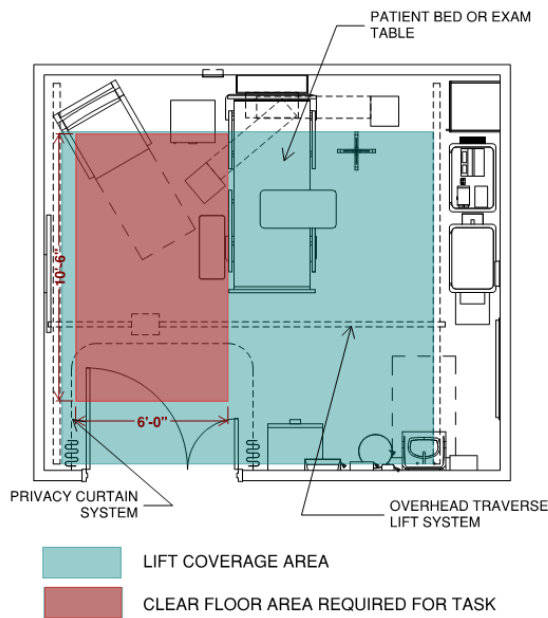


Figure 3-36 — The above illustration describes the minimum clear area recommended for the following tasks:

- a. Bed-to-Chair transfer with standard floor-based full body sling lift.

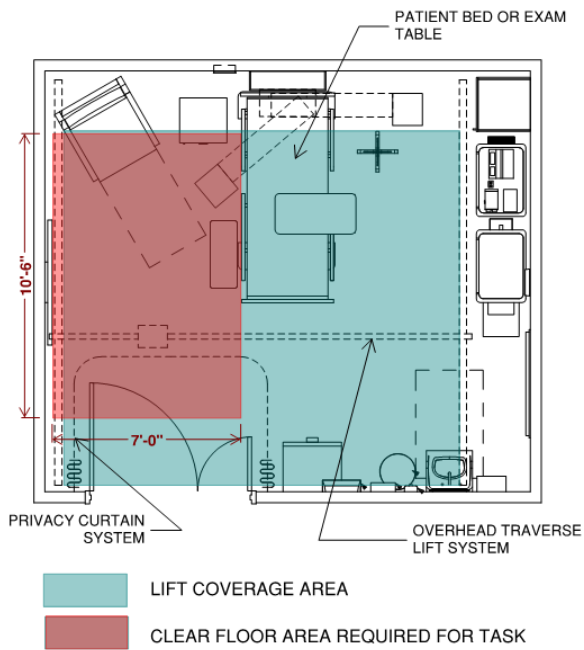


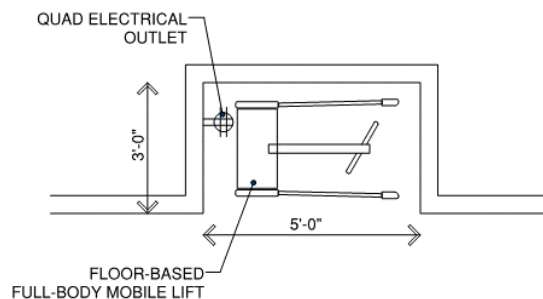
Figure 3-37 — The above illustration describes the minimum clear area recommended for the following tasks:

- a. **Bed-to-Chair transfer with a bariatric floor-based full body sling lift.**

3.8 SPHM EQUIPMENT STORAGE REQUIREMENTS

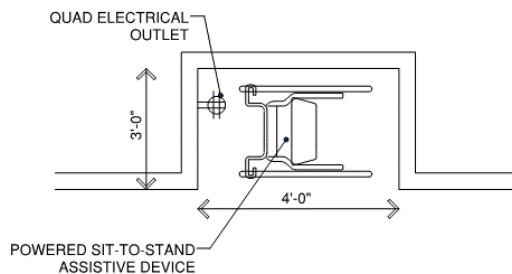
3.8.1 General Space Requirements for Floor-Based Full-Body Mobile Lift

The following diagram represents the minimum clear area necessary for storage of a floor-based full-body mobile lift. This diagram provides a general rule-of-thumb for area; specific space requirements will vary depending on manufacturer. Confirm manufacturer area recommendations. For equipment that requires charging, provide a minimum of one quadplex outlet.



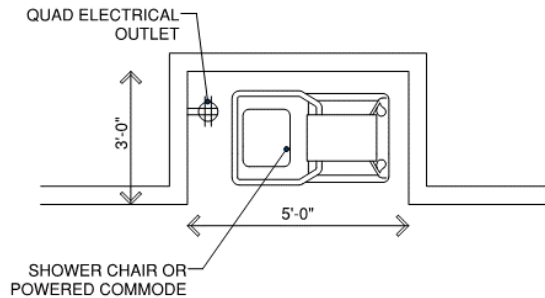
3.8.2 General Space Requirements for Sit-to-Stand Assistive Devices

The following diagram represents the minimum clear area necessary for storage of a sit-to-stand assistive device. This diagram provides a general rule-of-thumb for area; specific space requirements will vary depending on manufacturer. Confirm manufacturer area recommendations.



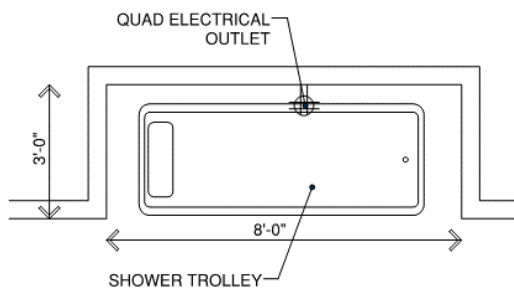
3.8.3 General Space Criteria for Shower Chair or Powered Commode

The following diagram represents the minimum clear area necessary for storage of a shower chair. This diagram provides a general rule-of-thumb for area; specific space requirements will vary depending on manufacturer. Confirm manufacturer area recommendations.



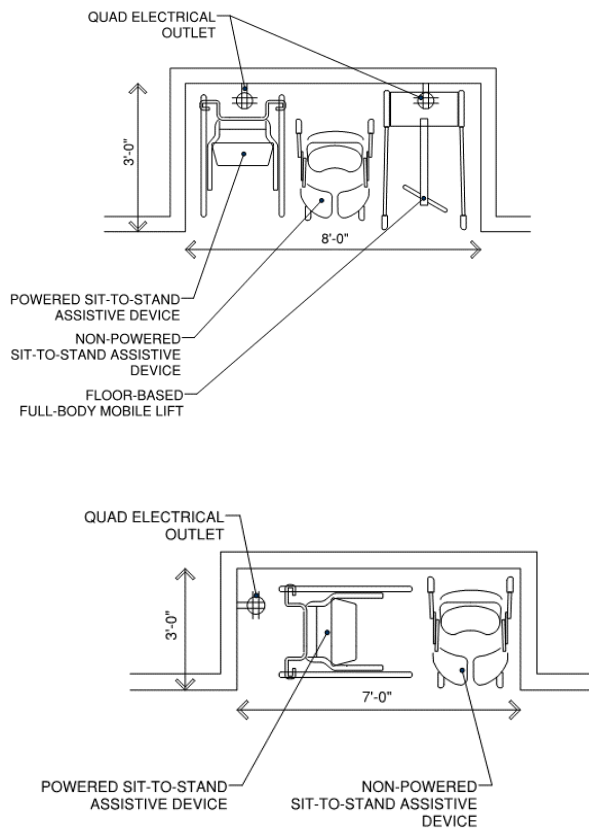
3.8.4 General Space Criteria for Shower Trolley

The following diagram represents the minimum clear area necessary for storage of a shower trolley. This diagram provides a general rule-of-thumb for area; specific space requirements will vary depending on manufacturer. Confirm manufacturer area recommendations.



3.8.5 General Space Criteria for Multiple Equipment Storage

The following diagram represents the minimum clear area necessary for storage of several mobile assist devices. This diagram provides a general rule-of-thumb for area; specific space requirements will vary depending on manufacturer. Confirm manufacturer area recommendations. If multiple devices are to be stored, provide at least two quadruplex outlets.

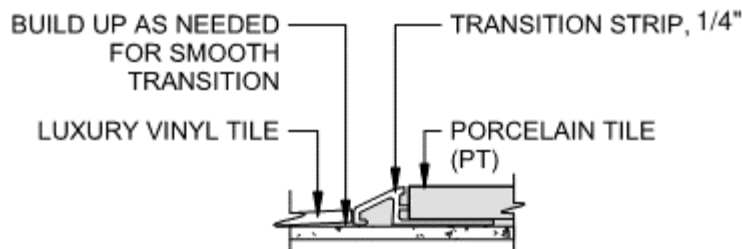


3.9 SPHM MOBILE DEVICES – ADDITIONAL DESIGN CONSIDERATIONS

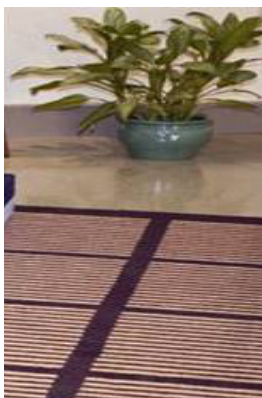
3.9.1 Floor Surface & Floor Transitions

It is critical that the floor surfaces where any SPHM mobile devices are to be used must be smooth, level, and free of obstructions which may hinder or make difficult caregiver use of the equipment. No carpeting can be installed where SPHM mobile devices are to be used. Ideal surfaces for SPHM include the following: Ceramic Tile, Vinyl Composition Tile, Sheet Vinyl Flooring, Luxury Vinyl Tile, Epoxy Flooring, Concrete Flooring, Wood Flooring.

Flooring transitions and thresholds cannot rise or change level greater than $\frac{1}{4}$ " above either flooring material, in order to allow for mobile device ease of use between flooring materials, or over thresholds.



Flooring transitions require substantive contrasts, especially going from one flooring material to another (e.g., carpet to tile) or leading down stairs.



4.0 DESIGN CHECKLIST

This Checklist is provided to assist both the A/E Team and the SPHM Facility Coordinator with identifying coordination items that affect overhead lift placement and installation. Use this checklist at both the Schematic Design and Construction Document phases of document development to insure proper coordination is achieved. The SPHM Facility Coordinator can also use this checklist to identify coordination items specific to the environment where lifts are to be installed.

CLINICAL APPLICATIONS		Completed
	Identify rooms and other areas (e.g., hallways, pools) to receive overhead lifts; refer to Section V Room List, and consult with SPHM Facility Coordinator	
	Determine if bariatric capacities are required; refer to Section V Room List, and consult with SPHM Facility Coordinator	

OVERHEAD LIFT ACQUISITION/INSTALLATION		Completed
	Determine lift system acquisition (Contractor or VA) and lift system installation (Contractor or Vendor) responsibility for Major projects	
	Determine lift system acquisition (Contractor or VA); lift system installation to be by vendor for Minor & NRM projects	

STRUCTURAL REQUIREMENTS FOR OVERHEAD LIFTS		Completed
	Determine required weight capacities for bariatric applications; consult with SPHM Facility Coordinator	
	Include bariatric weight requirements in Specification Section 11 73 00 'Ceiling Mounted Patient Lift System'	
	Determine structural support requirements for both standard and bariatric lift applications	
	Provide structural load calculations, and determine best structural support system	
	Determine lift manufacturer requirements for non-proprietary structural support	

AREA REQUIREMENTS		Completed
	Determine areas to be served by overhead lifts; consult with SPHM Facility Coordinator	
	Determine required overhead lift access to adjacent rooms/spaces; consult with SPHM Facility Coordinator	

AREA REQUIREMENTS		Completed
	Coordinate furniture and equipment with clearances required for patient handling, maneuvering and specific tasks for both overhead and floor-based lift use in patient rooms and other areas; refer to Section III for room and task clearances; consult with SPHM Facility Coordinator	
	Coordinate storage and alcove locations for floor-based lifts and other patient handling equipment; consult with SPHM Facility Coordinator	

UTILITY COORDINATION		Completed
	Determine overhead lift motor charging power delivery (Powered Rail / Docking Charge / Motor Charge); consult with SPHM Facility Coordinator	
	Determine overhead lift accessory (turntables/track switches) low-voltage power delivery	
	Coordinate convenience outlet location for overhead lift charging; refer to Section III for locations; show outlet locations on plan	
	Consult with the SPHM Facility Coordinator to determine the location and number of outlets required within storage areas for charging battery-operated floor-based lifts and other patient handling equipment; show outlet locations on plan	

INSTALLATION TYPE (CEILING-MOUNTED INSTALLATIONS ONLY)		Completed
	Recessed Installation: Fixed track bottom even with ceiling surface	
	Surface Installation: Fixed track top even with ceiling surface	
	Pendant Installation: Fixed track suspended below ceiling surface	

ABOVE-CEILING ITEM COORDINATION (SUSPENDED INSTALLATIONS ONLY)		Completed
	Coordinate location & clearance of the following above-ceiling items with the suspended lift installation:	
	HVAC Ducts & Related Equipment	
	Plumbing, Sprinkler & HVAC Piping	
	Light Fixtures & Electrical Conduit	
	Med Gas & Related Systems	
	WiFi Antennae	
	Structural Supports for Booms and other Ceiling-mounted Items	
	Supports for Privacy and Shower Curtains	
	Other	

CEILING ITEM COORDINATION		Completed
	Coordinate location & clearance of the following ceiling-mounted items with the lift installation:	
	Sprinkler Heads	
	HVAC Grilles & Diffusers	
	Light Fixtures	
	Smoke Detectors	
	WiFi Antennae	
	Television	
	Ceiling-mounted Booms & Boom Shrouds for Headwalls & other equipment	
	Privacy and Shower Curtain Tracks	
	Other	

OVERHEAD LIFT ACCESS TO ADJACENT ROOMS		Completed
	Determine Adjacent Room Lift System; consult with SPHM Facility Coordinator	
	Determine Opening or Door Frame Transition Type; refer to Part III for Door Frame Configurations	

CURTAIN COORDINATION WITH OVERHEAD LIFT SYSTEM		Completed
	Determine Privacy Curtain Layout for Coordination with Lift System; consult with SPHM Facility Coordinator & refer to Section III for curtain coordination options	
	Determine Shower Curtain Layout for Coordination with Lift System; consult with SPHM & refer to Section III for curtain coordination options	

MOBILE EQUIPMENT STORAGE		Completed
	Identify Mobile Equipment requirements; refer Section V for applications per Clinical Unit/Area and consult SPHM Facility Coordinator	
	Identify Mobile Equipment Storage Space; refer to Section III for Mobile Equipment Storage Dimensions and consult SPHM Facility Coordinator	

FLOOR FINISH & TRANSITION REQUIREMENTS		Completed
	Verification of appropriate floor finishes for areas with Mobile Equipment; refer to Section III for appropriate floor finishes	
	Verification of appropriate Transition/Threshold height for Mobile Equipment Access	

5.0 LIFT TYPE UTILIZATION BY ROOM/DEPARTMENT

The following rooms should be planned to have Overhead Patient Lifts or other recommendations as specified below. These are the recommended departments and rooms to be planned with the identified lifts, but actual planning/design requirements must also consider the patient population, staff workloads, and procedure types. All SPHM technology selections and locations should be reviewed by the SPHM FC during design and construction document phases.

Note: Standard lifts should have a minimum weight capacity of 550 lbs, and Bariatric lifts should have a minimum weight capacity of 750. Capacities up to 1100 lbs. or more are available depending on manufacturer. Consult with the SPHM FC for departmental or region-specific weight capacity requirements. The greatly preferred overhead lift track design is a traverse design.

NOTE: All lifts referred to in this list are fixed overhead lifts with traverse track design, unless otherwise indicated.

COMMUNITY LIVING CENTER (CLC) (106)

For CLC units, including hospice, rehab, and nursing home/long term care units, patient room lifts that connect to bathroom lifts are recommended at all inpatient bedrooms. Lift distribution may be reduced for dementia units or areas with many independent residents. If a unit-wide distribution of lifts is not necessary, provide a plan for new residents who may require lift assistance. Scales are recommended.

CHAPTER 106 Room Name	Recommended Lift Type	Comments
Bedroom, Resident	Bariatric / Standard	One bariatric lift required per 'home'. Consult with SPHM FC for additional lift requirements. Lift should connect to toilet room lift. Include a scale in lift if bed does not have one.
Toilet / Shower, with Bedroom	Bariatric / Standard	Match lift type to paired Bedroom, Resident. Toilet/shower lift to connect to patient room with single track. Coordinate door frame for lift motor access.
Bathing Suite	Standard	Provide lift or lifts to allow patient access to all bathing/hygiene equipment. Bathing Suite lift to connect to Toilet Room lift with single track.
Toilet, with Bathing Suite	Standard	Match lift type to paired Bathing Suite. Toilet Room lift to connect to Bathing Suite lift with single track. Coordinate door frame for lift motor access.
Hallway Walking Track as appropriate	Standard	Provide straight track lift for ambulation assistance. Verify ceiling height for proper installation. Lift system to include hanger bar parking station to avoid head strike.

CHAPTER 106 Room Name	Recommended Lift Type	Comments
Community Room as appropriate	Standard	Include lifts for PT/OT/KT/Recreation/Restorative procedures, and ambulation assistance. Verify ceiling height for proper installation. Lift system to include hanger bar parking station to avoid head strike.
Geri-psych areas	Standard	In Geri-psych areas without actively suicidal patients, include traverse lifts. Number of patient room applications depends on patient population. Include staff in determining where and how many lifts will be required.

DENTAL SERVICE (222)

In dental clinics, one lift is recommended in one exam room and one in a surgical room. Traverse lifts are recommended for flexibility of wheelchair location. Alternative equipment may include wheelchair tilters.

CHAPTER 222 Room Name	Recommended Lift Type	Comments
Dental Treatment Room (DTR), Special Needs Patient	Standard	
Patient Prep / Recovery Room	Bariatric / Standard	Review patient population for need of bariatric lift; install Standard if not required.
Oral Surgery Room	Bariatric / Standard	Review patient population for need of bariatric lift; install Standard if not required.

DIALYSIS CENTER (316)

For hemodialysis areas, traverse and/or straight track lifts are recommended wherever lateral transfer is necessary. Consider lift access to all beds and half of chairs with traverse lifts. One straight track or traverse over several bays in a row may be appropriate, with proper privacy curtain coordination. Scales are recommended to allow weighing before and after dialysis.

CHAPTER 316 Room Name	Recommended Lift Type	Comments
Renal Dialysis, Private Bed Station	Bariatric / Standard	Consider patient population for need for bariatric lift; install Standard if not required. Include a scale in lift if bed does not have one.

CHAPTER 316 Room Name	Recommended Lift Type	Comments
Toilet, with Private Bed Station	Bariatric / Standard	Match lift type to paired Renal Dialysis, Private Bed Station. Toilet Room lift to connect to Bed Station lift with single track. Coordinate door frame for lift motor access.
Renal Dialysis, Isolation Negative Pressure Bed Station	Bariatric / Standard	Provide bariatric lift for at least one Bed Station. Provide standard lifts for all other Bed Stations.
Toilet, with Isolation Negative Pressure Bed Station	Bariatric / Standard	Match lift type to paired Renal Dialysis, Negative Pressure Bed Station. Toilet Room lift to connect to Bed Station lift with single track. Coordinate door frame for lift motor access.
Renal Dialysis, Cubicle Chair Station	Standard	Provide access to multiple chairs with traverse lift (using curtain crossing traverse rail). Include a scale in lift if bed does not have one.
Renal Dialysis, Cubicle Bed Station	Bariatric / Standard	Review patient population for need of bariatric lift; install Standard if not required. Include a scale in lift if bed does not have one. Provide access to multiple beds/stretchers with traverse lift (using curtain crossing traverse rail).
Exam / Treatment Room	Standard	

DIGESTIVE DISEASES - ENDOSCOPY SERVICE (287)

In procedure areas such as GI lab, lifts are recommended on traverse or straight tracks, positioned as needed for turning, holding, transfer and repositioning needs.

CHAPTER 287 Room Name	Recommended Lift Type	Comments
Procedure Room, Endoscopy	Bariatric / Standard	Review patient population for need of bariatric lift; install Standard if not needed.
Procedure Room, ERCP / Endoscopic Ultrasound	Bariatric	Don't exceed capacity of fluoroscopy table. Depending on methods used, a system with 2 lifts that move independently may be better suited to this application.
Prep / Recovery Room	Standard	If there is a bariatric lift in 'Procedure Room, ERCP, Endoscopic Ultrasound', there should be a bariatric lift in Recovery Room.

CHAPTER 287 Room Name	Recommended Lift Type	Comments
Toilet, with Prep / Recovery	Standard	Match lift type to paired Prep/Recovery Room. Toilet Room lift to connect to Prep/Recovery Room lift with single track. Coordinate door frame for lift motor access.

EDUCATIONAL FACILITIES (402)

CHAPTER 402 Room Name	Recommended Lift Type	Comments
Clinical Education / Simulation Lab	Standard	In clinical training areas, an overhead lift is recommended on a traverse track system comparable to lifts in patient rooms.

EMERGENCY DEPARTMENT (ED) AND URGENT CARE CLINIC (UCC) (256)

In Emergency Department and Urgent Care Exam Rooms, lifts are recommended over all beds. Lift placement over beds and/or in exam rooms will depend on varying trauma and dependency levels in each area within the department.

For emergency rooms in high demand, every bed should have a lift. Track design can be traverse or straight, and may be designed to cover multiple bays, although traverse designs allow more flexibility that may save time during emergent situations.

CHAPTER 256 Room Name	Recommended Lift Type	Comments
Exam / Treatment Room	Standard	Include scale in lift.
Toilet, Bariatric, with Exam/Treatment Room	Bariatric	Match lift type to paired Exam/Treatment Room. Toilet Room lift to connect to Exam/Treatment Room lift with single track. Coordinate door frame for lift motor access.
Exam / Treatment Room, Negative Pressure Isolation	Standard	Include a scale in lift.
Exam / Treatment Room, Positive Pressure Isolation	Standard	Include a scale in lift.

CHAPTER 256 Room Name	Recommended Lift Type	Comments
Exam / Treatment Room, Bariatric	Bariatric	Review patient population to determine number of bariatric rooms. Include a scale in lift. Lift should travel from exam room into toilet room.
Toilet, Bariatric, with Exam/Treatment Room	Bariatric	Match lift type to paired Exam/Treatment Room. Toilet Room lift to connect to Exam/Treatment Room lift with single track. Coordinate door frame for lift motor access.
Resuscitation Room	Standard	
Procedure Room	Bariatric	Review patient population to determine number of bariatric rooms. If there is an Exam Room with a bariatric lift, then Procedure Room lift not required. Include a scale in lift.
Cast Room, Orthopedics	Standard	
Exam Room, Bariatric	Bariatric	Review patient population to determine number of bariatric rooms. If there is a Procedure Room with a bariatric lift, then the Exam Room lift not required. Include a scale in lift.
Toilet, Bariatric, with Exam Room	Bariatric	Match lift type to paired Exam Room. Toilet Room lift to connect to Exam Room lift with single track. Coordinate door frame for lift motor access.
Ambulance Bay/Outdoor	Bariatric	In ambulance bays, provide a lift over one ambulance bay or similar vehicle transfer area. The lift, controller and track must be protected from weather damage and from tall vehicles. Provide weatherproofing and a locked cabinet for the hanger bar and controller. Lift must be specially designed for extraction from cars and other vehicles. Avoid large hanger bars. Involve staff in design and placement. For bays with high ceilings, confirm with manufacturer if additional support may be required to install lifts at a useable

IMAGING SERVICES (295)

For MRI areas, a traverse or straight track lift is recommended in an area adjacent to the MRI suite designated as a patient transfer area. This allows transfer onto MRI-safe stretchers. Use lateral transfer aids such as friction reducing devices or air-assisted lateral transfer devices (with elongated tubes to keep the pump outside the room) within the scan room.

CHAPTER 295 Room Name	Recommended Lift Type	Comments
Patient Holding Bay, MRI, Patient Stretcher	Standard	Include lift in holding bay for any area where ceiling lift cannot be installed inside room.

NUCLEAR MEDICINE

In Nuclear Medicine, overhead lifts on room-covering traverse and/or straight tracks are recommended in or near every modality.

NUCLEAR MED Room Name	Recommended Lift Type	Comments
Class 1 Scanning Room, NM	Standard	At least one per modality; meet table weight capacity
Patient Holding Bay, NM Patient Stretcher	Standard	Include lift in holding bay for any area where ceiling lift cannot be installed inside room.

RADIOLOGY

For radiology areas, traverse and/or straight track lifts are recommended in or near every modality. Lift systems must be compatible with the ceiling-mounted radiological equipment. Design may vary by modality, and transfer and positioning requirements need to be addressed either with lifts, air-assisted lateral transfer devices, or a combination.

Where disabled patients are commonly transferred directly onto tables such as CT tables, lifts are recommended over each table to the extent possible. Consult with SPHM FC.

In ultrasound areas where disabled patients are seen, lifts are recommended over a percentage of tables for transfer and repositioning. Consult with SPHM FC for requirements.

Where substantial obstacles prevent overhead lift use in rooms such as X-ray or Interventional Radiology, lifts for patient transfers are recommended in nearby holding/transfer areas.

RADIOLOGY Room Name	Recommended Lift Type	Comments
Class 1 Imaging Room, General Radiology, and Class 2 Imaging Room, General Radiology	Standard	Each room should have a lift if installation if feasible. Lifts to be traverse, if possible. If traverse isn't feasible, use straight track and ensure track is installed in correct location over table for transfers.

RADIOLOGY Room Name	Recommended Lift Type	Comments
Class 1 Radiographic/Fluoroscopic (R/F) Imaging Room, General Radiology and Class 2 Radiographic/Fluoroscopic (R/F) Imaging Room, General Radiology	Standard	Each room should have a lift if installation is feasible. Lifts to be traverse, if possible. If traverse isn't feasible, use straight track and ensure track is installed in correct location over table for transfers.
Class 1 Scanning Room, CT and Class 2 Scanning Room, CT	Standard	Provide lift for at least one room. Lifts to be traverse.
Class 1 Scanning Room, Ultrasound and Class 2 Scanning Room, Ultrasound	Standard	Provide lift for at least one room. Lifts to be traverse.
Scanning Room, Bone Density	Standard	Provide lift for at least one room. Lifts to be traverse.
Patient Holding Bay, General Radiology, Patient Stretcher	Standard	Include lift in holding bay for any area where ceiling lift cannot be installed inside room.

INPATIENT SURGICAL / ENDOVASCULAR SERVICES AND AMBULATORY SURGICAL SERVICE (286)

In PACU/post-surgical areas, traverse lifts are recommended for all beds to allow repositioning. Traverse lift to be coordinated with privacy curtain for multiple bays.

In cardiac catheterization and electrophysiology labs, overhead traverse or straight track lifts are recommended if they can be made compatible with other equipment. Alternatively, a patient transfer area similar to MRI may allow preparation for use of air-assisted lateral transfer equipment in the room.

CHAPTER 286 Room Name	Recommended Lift Type	Comments
Patient Room, Pre-Operative Holding / Phase II Recovery	Standard	Only one lift required; confirm room use with staff.
Operating Room, General	Bariatric / Standard	Optional: Consult OR staff for possible lift applications In operating rooms, traverse or boom-mounted lifts can be coordinated with other ceiling mounted equipment and provide for lateral transfer, appendage lifting, and repositioning tasks.

CHAPTER 286 Room Name	Recommended Lift Type	Comments
Patient Bay, PACU / Phase I Recovery	Bariatric / Standard	Review patient population for need of bariatric lift; install standard lift if bariatric lift not required. Provide access to multiple beds/stretchers with traverse lift (using curtain crossing traverse rail).
Airborne Infection Isolation (All), Patient Room, PACU / Phase I Recovery	Standard	
Cardiac Catheterization Laboratory	Bariatric/ Standard	Review patient population for need of bariatric lift; install standard lift if bariatric not required.
Procedure Room, Electrophysiology	Standard	

INTENSIVE CARE NURSING UNITS (102)

For intensive care units, traverse lifts are recommended for all inpatient bedrooms. Scales are recommended if not included in bed.

CHAPTER 102 Room Name	Recommended Lift Type	Comments
Patient Bedroom, Intensive Care	Bariatric / Standard	Provide standard lifts for each patient room. Provide bariatric capacity lifts for bariatric specific patient rooms. Note: if a bariatric suite is capable of airborne isolation, provide standard lifts for subsequent isolation rooms. Provide traverse lift for each patient bed. Ensure patient chairs are accessible by lifts. Include a scale in lift if bed does not have one.
Toilet / Shower, with Intensive Care Patient Bedroom	Standard	Match lift type to paired Patient Bedroom. Toilet/Shower Room lift to connect to Patient Bedroom lift with single track. Coordinate door frame for lift motor access.
Patient Bedroom, Airborne Infection Isolation	Bariatric	Provide traverse lift for each patient room. Lift should travel into toilet room if connected to patient room. Ensure patient chairs are accessible by lifts. Include a scale in lift if bed does not have one. Provide 1 bariatric lift per ICU needed; review patient population.

CHAPTER 102 Room Name	Recommended Lift Type	Comments
Patient Bedroom, Protective Environment Isolation	Bariatric	Provide traverse lift for each patient room. Lift should travel into toilet room if connected to patient room. Ensure patient chairs are accessible by lifts. Include a scale in lift if bed does not have one. Provide 1 bariatric lift per ICU needed; review patient population.
Toilet / Shower, with Isolation Patient Bedroom	Bariatric	Match lift type to paired Patient Bedroom. Toilet/Shower Room lift to connect to Patient Bedroom lift with single track. Coordinate door frame for lift motor access.
Hallway (for rehab or post-surgical unit with ambulation)	Standard	Provide straight track lift for ambulation assistance. Verify ceiling height for proper installation. Lift system to include hanger bar parking station to avoid head strike.

MEDICAL / SURGICAL INPATIENT UNITS (100)

For rehab units, traverse lifts are recommended in all inpatient bedrooms. Consider installing a straight track down a hallway for fall protection while ambulating patients/residents. For new construction, rooms should be large enough to ambulate patients/residents within the room. (This does not include domiciliary and non-physical rehab such as substance abuse treatment.) Scales are recommended. For medical/surgical units, traverse lifts are recommended in all inpatient bedrooms. Scales are recommended.

CHAPTER 100 Room Name	Recommended Lift Type	Comments
Patient Bedroom	Standard	Provide traverse lift for each patient room. Include a scale in lift if bed does not have one.
Toilet / Shower, with Patient Bedroom	Standard	Match lift type to paired Patient Bedroom. Toilet/Shower Room lift to connect to Patient Bedroom lift with single track. Coordinate door frame for lift motor access.
Patient Bedroom, Airborne Infection Isolation	Standard	If no bariatric room is designed for isolation, provide a bariatric capacity lift in isolation patient rooms.

CHAPTER 100 Room Name	Recommended Lift Type	Comments
Patient Bedroom, Protective Environment Isolation	Standard	If no bariatric room is designed for isolation, provide a bariatric capacity lift in isolation patient rooms.
Toilet / Shower, with Patient Isolation Bedroom	Standard	Match lift type to paired Patient Bedroom. Toilet/Shower Room lift to connect to Patient Bedroom lift with single track. Coordinate door frame for lift motor access.
Patient Bedroom, Bariatric / Physical Disabilities	Bariatric	Note: if a bariatric suite is capable of airborne isolation, provide standard lifts for subsequent isolation rooms.
Toilet / Shower, Bariatric / Physical Disabilities Patient Bedroom	Bariatric	Match lift type to paired Patient Bedroom. Toilet/Shower Room lift to connect to Patient Bedroom lift with single track. Coordinate door frame for lift motor access.
Hallway (for rehab unit with ambulation)	Standard	Provide straight track lift for ambulation assistance. Verify ceiling height for proper installation. Lift system to include hanger bar parking station to avoid head strike.

MENTAL HEALTH AND BEHAVIORAL PATIENT CARE UNITS (110)

In mental health/psychiatric patient care areas, overhead lifts shall NOT be installed in mental health units with the potential for actively suicidal patients.

These statements do not apply to dementia care units or geri-psychiatry units that do not treat actively suicidal patient and may need overhead lifts.

OUTPATIENT / PACT CLINIC (265)

Outpatient Primary Care clinics have variable requirements depending on patient population and flow. Provide at least one lift in a procedure room or bariatric/expanded capacity room and redirect patients who require assistance to rooms with installed lifts. Provide traverse lifts for all lift applications to allow flexible lifting location and limb lifting. Consider the patient population to determine the number of standard and bariatric lifts required.

CHAPTER 265 Room Name	Recommended Lift Type	Comments
Exam Room, Patient Aligned Care Team (PACT)	Standard	Provide a standard traverse lift for one Exam Room in a PACT Module. Review patient population for additional lifts in subsequent exam rooms.
Procedure Room	Bariatric / Standard	Provide a bariatric capacity lift for one procedure room. Provide standard capacity overhead lifts for all other procedure rooms.
Exam Room, Multi-Specialty	Standard	Provide a standard traverse lift for one Multi-Specialty exam room. Review patient population for additional lifts in subsequent Multi-Specialty exam rooms. Include a scale in lift.
Exam Room (Special Care), Multi-Specialty	Bariatric	Provide bariatric capacity traverse lift. Include a scale in lift.
Treatment Exercise Area	Bariatric / Standard	Review patient population for bariatric lift requirement; install Standard if not required. Provide traverse lifts over exercise mats and throughout except over parallel bars. If area has parallel bars for ambulation, provide straight track over the center of the parallel bar walkway.
SCI Exam Room	Standard	Provide traverse lift for all SCI Clinic exam rooms. Include scale.
SCI Treatment Room	Standard	Provide traverse lift for all SCI Clinic treatment rooms. Include scale.
Ambulance Bay/Outdoor	Bariatric	May be appropriate at outpatient clinic entry if entry construction can accommodate lift installation. In ambulance bays, provide a lift over one ambulance bay or similar vehicle transfer area. The lift, controller and track must be protected from weather damage and from tall vehicles. Provide weatherproofing and a locked cabinet for the hanger bar and controller. Lift must be specially designed for extraction from cars and other vehicles. Avoid large hanger bars. Involve staff in design and placement. For bays with high ceilings, confirm with manufacturer if additional support may be required to install lifts at a useable height.

PACT PRIMARY CARE CLINIC (PPCC) (264)

CHAPTER 264 Room Name	Recommended Lift Type	Comments
Exam Room, Patient Aligned Care Team (PACT)	Standard	Provide a traverse lift for one Exam Room in a PACT Module. Review patient population for additional lifts in subsequent exam rooms.
Procedure Room	Bariatric / Standard	Provide a bariatric capacity traverse lift for one procedure room. Provide standard capacity overhead lifts for all other procedure rooms. Include scale.

PATHOLOGY AND LABORATORY MEDICINE SERVICE (240)

In morgue areas, overhead lifts are recommended on traverse or straight tracks, although traverse tracks are recommended for autopsy areas. The lift system should be able to assist in inserting and extracting trays into the cooler as well as lifting and moving bodies into and within the autopsy suite. These lifts need to include a Supine Lift Frame or other appropriate attachment depending on morgue design. Designs vary widely and need to be evaluated for ease of use and compatibility with the storage system.

Room Name	Recommended Lift Type	Comments
Autopsy Room	Cadaver Lift	Cadaver lift design MUST be able to lift between carts, drawers, and autopsy tables. Portable cadaver lifts often cannot.
Isolation / Teaching Autopsy Room	Cadaver Lift	Cadaver lift design MUST be able to lift between carts, drawers, and autopsy tables. Portable cadaver lifts often cannot.

PHYSICAL MEDICINE AND REHABILITATION SERVICE (270)

In Physical, Occupational or Kinesiotherapy Clinics, traverse lifts are recommended, installed so that two or more motors can be used simultaneously on tracks that move independently. Alternatively, some clinics have preferred a straight track over parallel bars or walking paths and a separate traverse track system covering treatment tables and activity areas.

CHAPTER 270 Room Name	Recommended Lift Type	Comments
Gait Lane	Standard or Gait System, Overhead Track	Therapy should consider requirement for biodynamic system. Gait Lane to be single-track, and may be elliptical or straight depending on application. Provide straight configuration over center of parallel bars. Check population for need for bariatric lift; provide Standard if not needed.

CHAPTER 270 Room Name	Recommended Lift Type	Comments
Mat Platform Area	Bariatric / Standard	Consider patient population for need of bariatric lift; install Standard if not needed. Mat platform Area: Note that full room traverse lifts can access large parts of a room, and multiple lifts can access an equivalent area. Consult with staff for specific requirements.
Private Treatment Table Room	Standard	
Full Immersion Hubbard Tank	Standard	
Partial Immersion Hubbard Tank	Standard	
Whirlpool	Standard	
Exercise Area	Standard	Note that full room traverse lifts can access large parts of a room, and multiple lifts can access an equivalent area. Consult with staff for specific requirements.
Pool	Standard	Review patient population for bariatric lift requirements; install Standard if bariatric not needed. Consult with staff for specific requirements. Lift motor to be configured for humid/wet area installation.
SCI/DC PT: Full Body Immersion Tank	Standard	
SCI/DC PT: Arm, Hip, and Leg Whirlpool	Standard	
SCI/DC ADL Separate: Activities of Daily Living	Standard	
Wheelchair Fitting Area	Standard	
Adaptive Sports Area (Spinal Cord Injuries)	Standard	Note that full room traverse lifts can access large parts of a room, and multiple lifts can access an equivalent area. Consult with staff for specific requirements.

POLYTRAUMA REHABILITATION CENTER (PRC) (111)

For patient rehab units, traverse lifts are recommended in all inpatient bedrooms. A hallway straight-track lift may be provided for fall protection while ambulating patients/residents. (This does not include domiciliary and non-physical rehab such as substance abuse treatment.)

Scales are recommended.

CHAPTER 111 Room Name	Recommended Lift Type	Comments
Toilet, Bariatric, General Use	Bariatric	
Bedroom, Patient	Bariatric / Standard	Provide a bariatric lift for at least one patient room. Provide traverse lifts for all patient bedrooms. Lift to travel into toilet room. Include a scale in lift if bed does not have one.
Toilet / Shower, with Patient Room	Bariatric / Standard	Match lift type to paired Patient Bedroom. Toilet/Shower Room lift to connect to Patient Bedroom lift with single track. Coordinate door frame for lift motor access.
Bedroom, Airborne Infection Isolation (All) Patient	Standard	Provide traverse lifts for all patient rooms. Lift should travel into toilet room. Include a scale in lift if bed does not have one.
Toilet / Shower, with Isolation Patient Room	Standard	Match lift type to paired Patient Bedroom. Toilet/Shower Room lift to connect to Patient Bedroom lift with single track. Coordinate door frame for lift motor access.
Gym, Rehabilitation Therapy	Standard or Gait System, Overhead Track	Provide traverse lift or Gait System. Consult with staff for use of biodynamic system. (See Physical Medicine and Rehabilitation Service (270): Gait Lane, Mat Platform, Exercise Area, others as appropriate)
Evaluation Room, PT / OT	Standard	Provide traverse lift.
Apartment, Living Skills Training	Standard	Special design to cover appropriate parts of apartment; consult therapy staff. In Activities of Daily Living (ADL)/ Apartment training areas, provide traverse lift – equal to or similar to typical home use lifts.
Bedroom, Resident	Bariatric / Standard	Provide a bariatric lift for at least one resident bedroom. Provide traverse lifts for all other resident bedrooms. Lift should travel into toilet room. Include a scale in lift if bed does not have one.

CHAPTER 111 Room Name	Recommended Lift Type	Comments
Toilet / Tub, with Resident Bedroom	Bariatric / Standard	Match lift type to paired Resident Bedroom. Toilet/Tub Room lift to connect to Resident Bedroom lift with single track. Coordinate door frame for lift motor access.
Toilet / Shower, with Resident Bedroom	Bariatric / Standard	Match lift type to paired Resident Bedroom. Toilet/Shower Room lift to connect to Resident Bedroom lift with single track. Coordinate door frame for lift motor access.
Apartment, Bedroom	Standard	Provide traverse lift for every apartment bedroom. Lift should travel into toilet room. Include a scale in lift if bed does not have one.
Toilet / Shower, with Apartment Bedroom	Standard	Match lift type to paired Resident Bedroom. Toilet/Shower Room lift to connect to Resident Bedroom lift with single track. Coordinate door frame for lift motor access.
Procedure Room	Standard	Lifts to be traverse

PROSTHETIC AND SENSORY AIDS SERVICE (308)

CHAPTER 308 Room Name	Recommended Lift Type	Comments
Fitting / Exam Room, Soft Goods Fabrication	Bariatric / Standard	Review patient population for need for bariatric lift; use Standard if not needed.
Fitting / Exam Room, Custom Fabrication	Bariatric / Standard	Review patient population for need for bariatric lift; use Standard if not needed.
Dynamic Alignment Room	Standard	
Facial / Body Fitting Studio	Standard	
Cast Room	Standard	
Wheelchair Repair Transfer Area	Standard	

PULMONARY MEDICINE SERVICE (212)

CHAPTER 212 Room Name	Recommended Lift Type	Comments
Physiology Lab, Pulmonary Exercise	Standard or Gait System, Overhead Track	Consult with staff for use of biodynamic system. Check population for need for bariatric lift; provide Standard if not needed.
Procedure Room, Bronchoscopy	Standard	Lifts to be traverse.
Sleep Study Room	Bariatric / Standard	Consider population and consult with SPHM FC when determining lift need. Lifts to be traverse.
Toilet / Shower, with Sleep Study Room	Bariatric / Standard	Match lift type to paired Sleep Study Room. Toilet/Shower Room lift to connect to Sleep Study Room lift with single track. Coordinate door frame for lift motor access.
Prep / Recovery Room	Standard	

RADIATION THERAPY SERVICE (277)

In Radiation Oncology, overhead lifts on room-covering traverse and/or straight tracks are recommended in or near every modality. They must be designed to avoid interfering with sensors and cameras.

CHAPTER 277 Room Name	Recommended Lift Type	Comments
Procedure / Exam Room	Standard	Minimum of one. Lifts to be traverse.
Holding Bay, Patient Stretcher	Standard	Include lift in holding bay for any area where ceiling lift cannot be installed inside room.

RECREATION THERAPY SERVICE (269)

For all Therapeutic and Recreation Pools, review patient population for bariatric requirements. Lift motors to be configured for humid/wet area installation and use.

CHAPTER 269 Room Name	Recommended Lift Type	Comments
Toilet, Patient	Standard	Locate near pool, if pool has a lift. Match pool lift capacity.
Therapeutic Pool, Small	Fixed Patient Pool Lift OR Standard Lift	Lift motor to be configured for humid/wet area installation.
Therapeutic Pool, Medium	Fixed Patient Pool Lift OR Standard Lift	Lift motor to be configured for humid/wet area installation.
Therapeutic Pool, Large	Fixed Patient Pool Lift OR Standard Lift	Lift motor to be configured for humid/wet area installation.
Recreation Pool, Small	Fixed Patient Pool Lift OR Standard Lift	Lift motor to be configured for humid/wet area installation.
Recreation Pool, Medium	Fixed Patient Pool Lift OR Standard Lift	Lift motor to be configured for humid/wet area installation.
Recreation Pool, Large	Fixed Patient Pool Lift OR Standard Lift	Lift motor to be configured for humid/wet area installation.

SPINAL CORD INJURY / DISORDERS CENTER (104)

In Spinal Cord Injury (SCI) inpatient areas, traverse lifts are recommended, covering the whole bed and transfer areas on both sides of the bed. All inpatient bathrooms are also recommended to have lifts on separate traverse systems.

CHAPTER 104 Room Name	Recommended Lift Type	Comments
Patient Bedroom, SCI, Acute Care	Standard	Provide traverse lift for each patient room. Configure lift for maximum room coverage. Include a scale in lift if bed does not have scale.
Patient Toilet/Shower, SCI Acute Care	Standard	Match lift type to paired One-Bed Patient Room. Configure lift for maximum room coverage.

CHAPTER 104 Room Name	Recommended Lift Type	Comments
Double Patient Bedroom, SCI Acute Care	Standard	Provide traverse lift for each patient room (one lift can accommodate two beds). Configure lift for maximum room coverage. Include a scale in lift if bed does not have scale. To cover each bed individually, provide individual traverse lifts that extend as far as possible beyond bed frame. At least one lift should travel from patient room to toilet room. Include a scale in lift if bed does not have scale.
Double Patient Toilet / Shower, SCI Acute Care	Standard	Match lift type to paired Two-Bed Patient Room. Configure lift for maximum room coverage.
Airborne Infection Isolation Bedroom, SCI Acute Care	Standard	Provide traverse lift for each patient room. Configure lift for maximum room coverage. Include a scale in lift if bed does not have scale.
Airborne Infection Isolation Toilet / Shower, SCI Acute Care	Standard	Match lift type to paired Patient Room. Configure lift for maximum room coverage.
Patient Toilet, SCI Acute Care	Standard	Configure lift for maximum room coverage.
Tub Room	Standard	Configure lift for maximum room coverage.
Exam / Treatment Room	Standard	Configure lift for maximum room coverage.
Hydrotherapy	Standard	Configure lift for maximum room coverage.
Urodynamics: Cystoscopy	Standard	Provide traverse or straight track lift. Lift to be positioned as needed for transfer and repositioning needs.
Urodynamics: Recovery	Standard	
Urodynamics: Patient Shower	Standard	Configure lift for maximum room coverage. Lift motor to be configured for humid/wet area installation.

CHAPTER 104 Room Name	Recommended Lift Type	Comments
Physical Therapy (PT), SCI Acute Care / Outpatient	Standard	Provide traverse track lift positioned as needed for transfer and repositioning needs.
Physical Therapy (PT) Wheelchair Fitting Room, SCI Acute Care / Outpatient	Standard	Provide traverse track lift positioned as needed for transfer and repositioning needs.
PT Exam / Treatment Room, SCI Acute Care / Outpatient	Standard	Provide traverse track lift positioned as needed for transfer and repositioning needs.
Kinesiotherapy (KT) Room, SCI Acute Care / Outpatient	Standard	Provide traverse track lift positioned as needed for transfer and repositioning needs.
Occupational Therapy (OT) Room, SCI Acute Care	Standard	Provide traverse track lift positioned as needed for transfer and repositioning needs.
Activities of Daily Living Area	Standard	Special design to cover appropriate parts of apartment; consult therapy staff. In Activities of Daily Living (ADL)/ Apartment training areas, traverse lifts are recommended – preferably as similar as possible to the lifts that are typically issued for home use.
Aquatic Therapy Pool	Fixed Patient Pool Lift OR Standard Lift	Lift motor to be configured for humid/wet area installation.

WOMEN VETERANS CLINICAL SERVICE (WVCS) (FOR MODELS 2 AND 3) (258)

CHAPTER 258 Room Name	Recommended Lift Type	Comments
Exam Room, Multipurpose	Standard	Provide lift for at least one room.
Procedure Room, Gynecology	Bariatric	

Appendix I: Room Diagrams

Disclaimer:

Room Diagrams show layout and orientation of ceiling lifts only. See design guides for actual room templates.

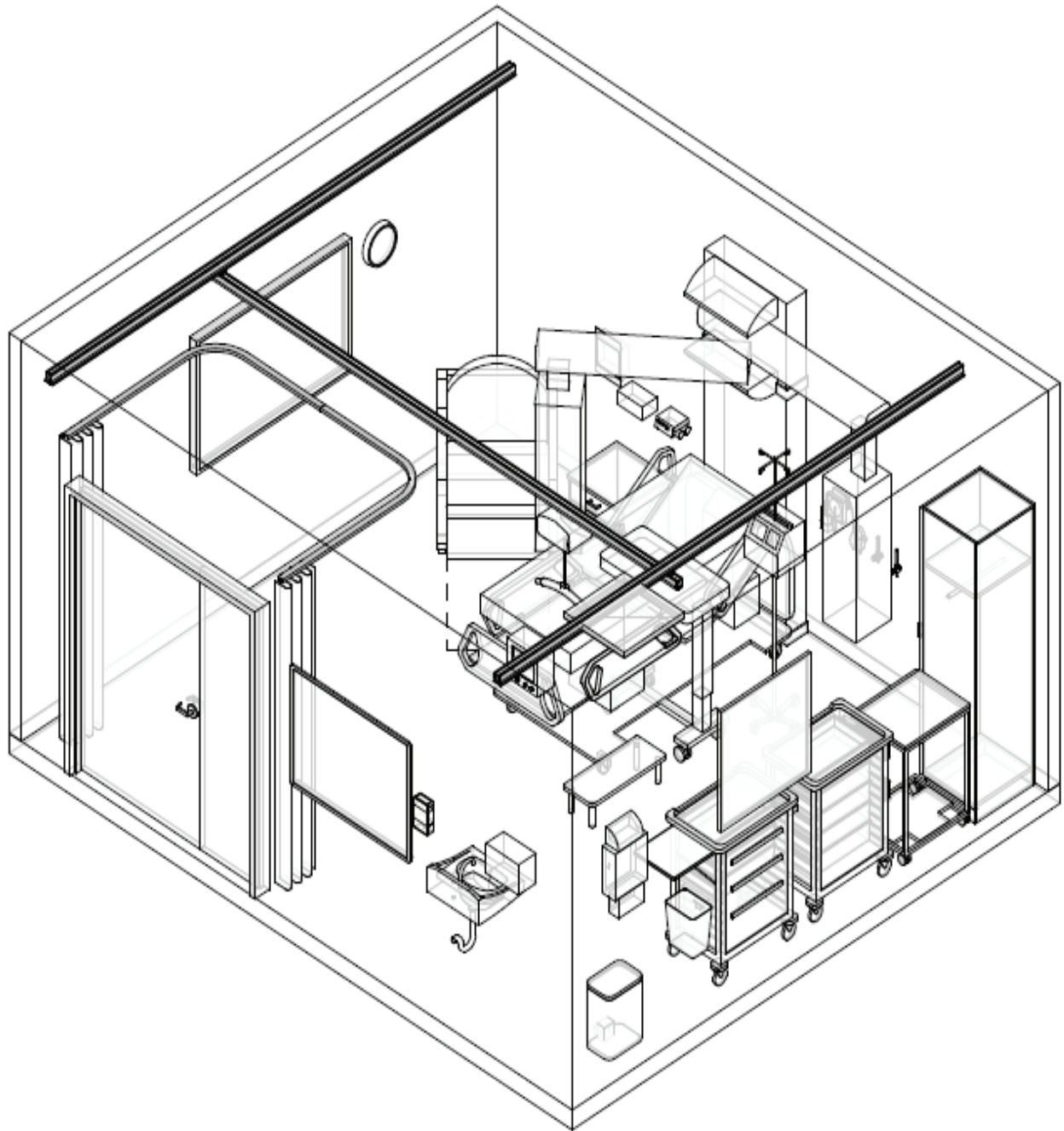


Figure 1. Bariatric Patient Bedroom

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

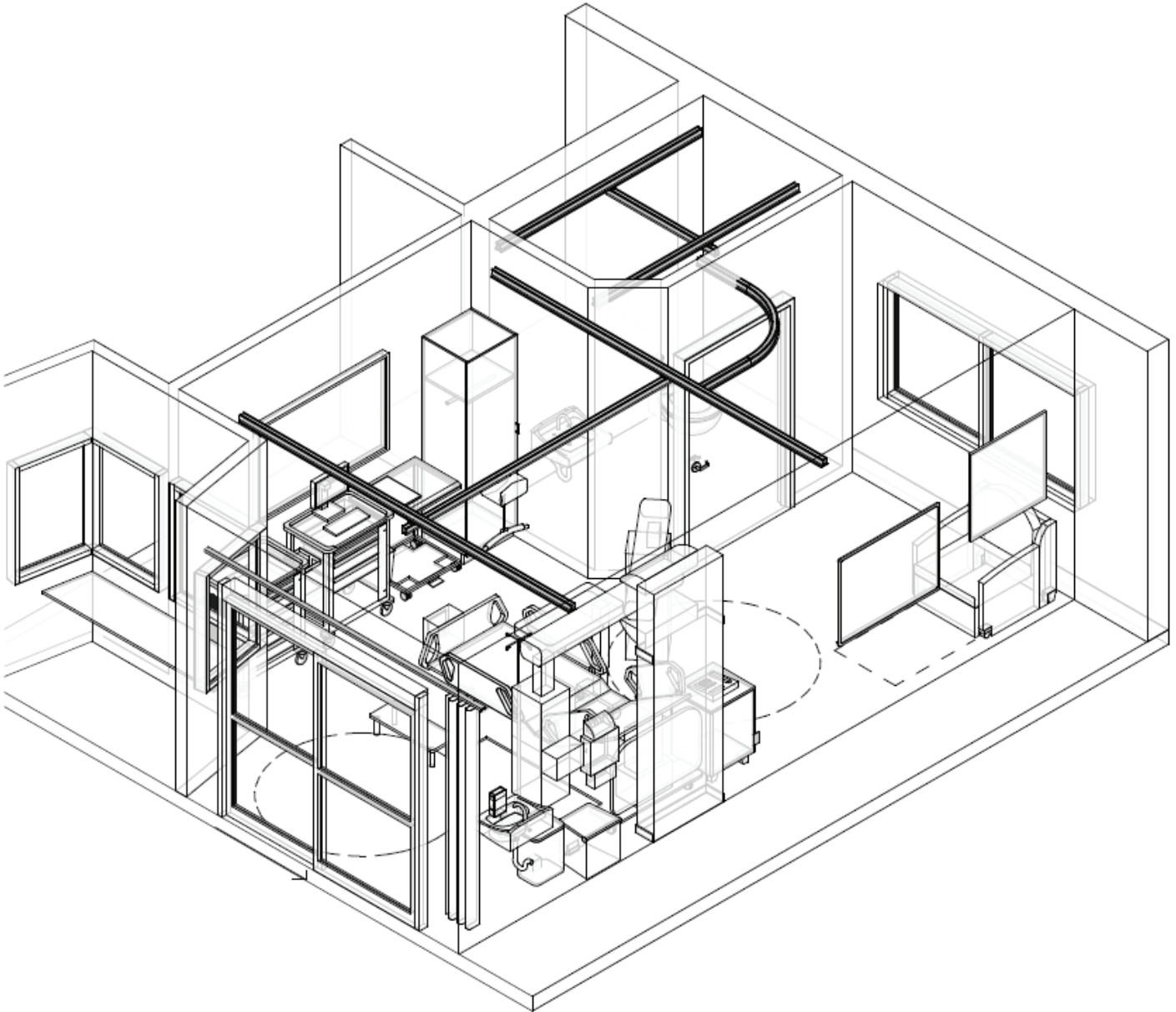


Figure 2. Intensive Care Patient Bedroom

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

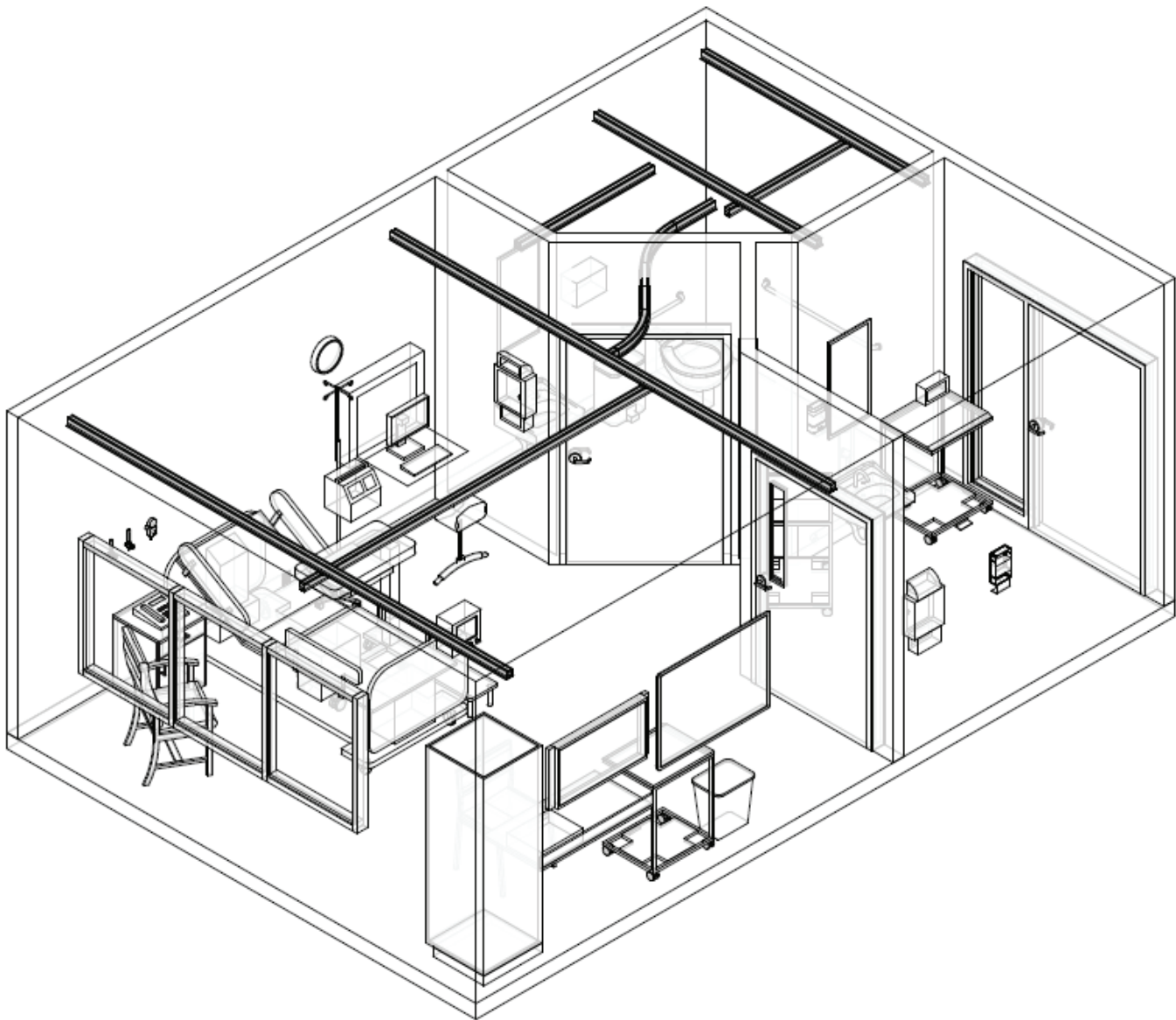


Figure 3. Patient Isolation Room

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

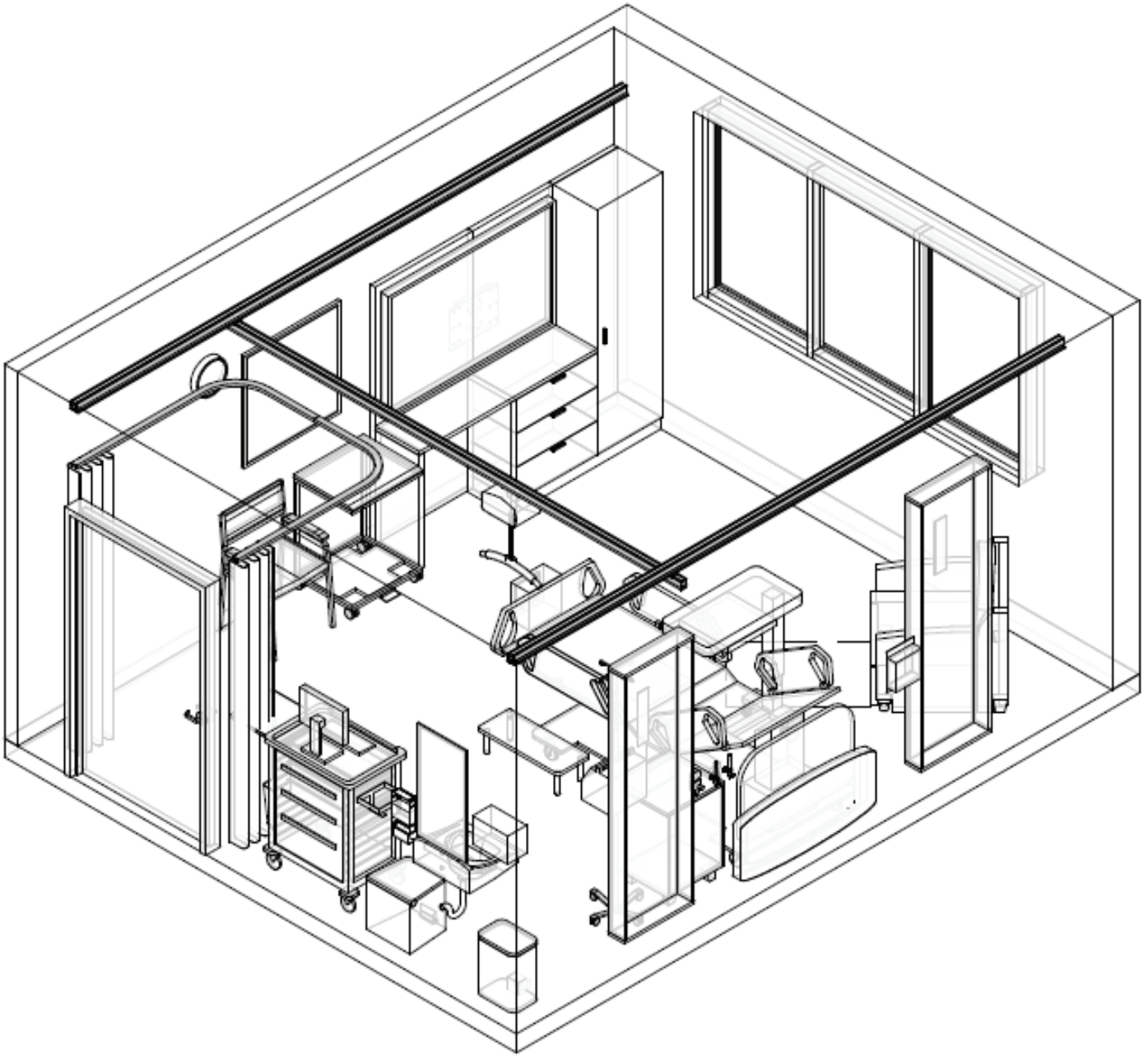


Figure 4. Protective Environment Patient Bedroom

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

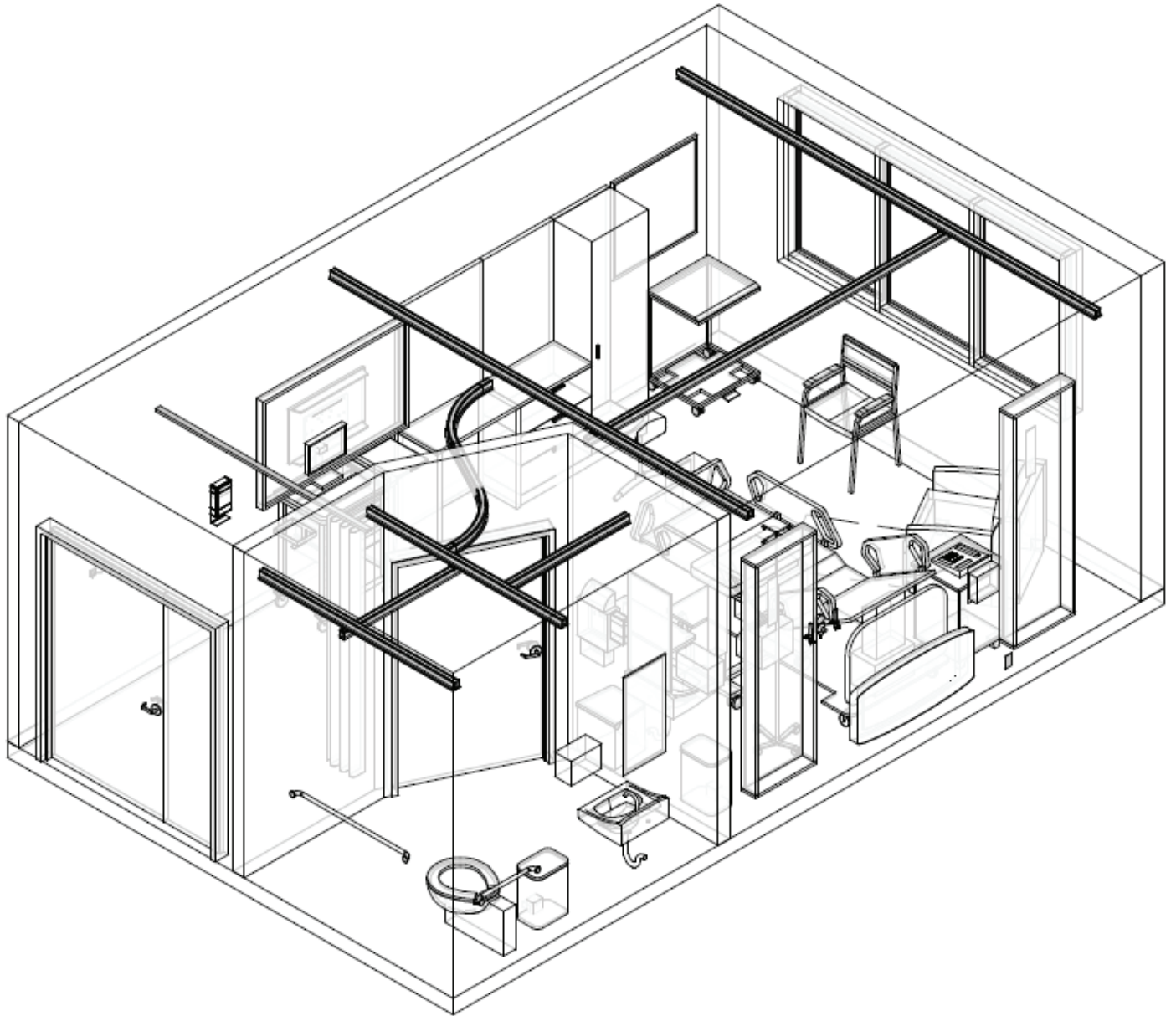


Figure 5. Patient Bedroom and Bath

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

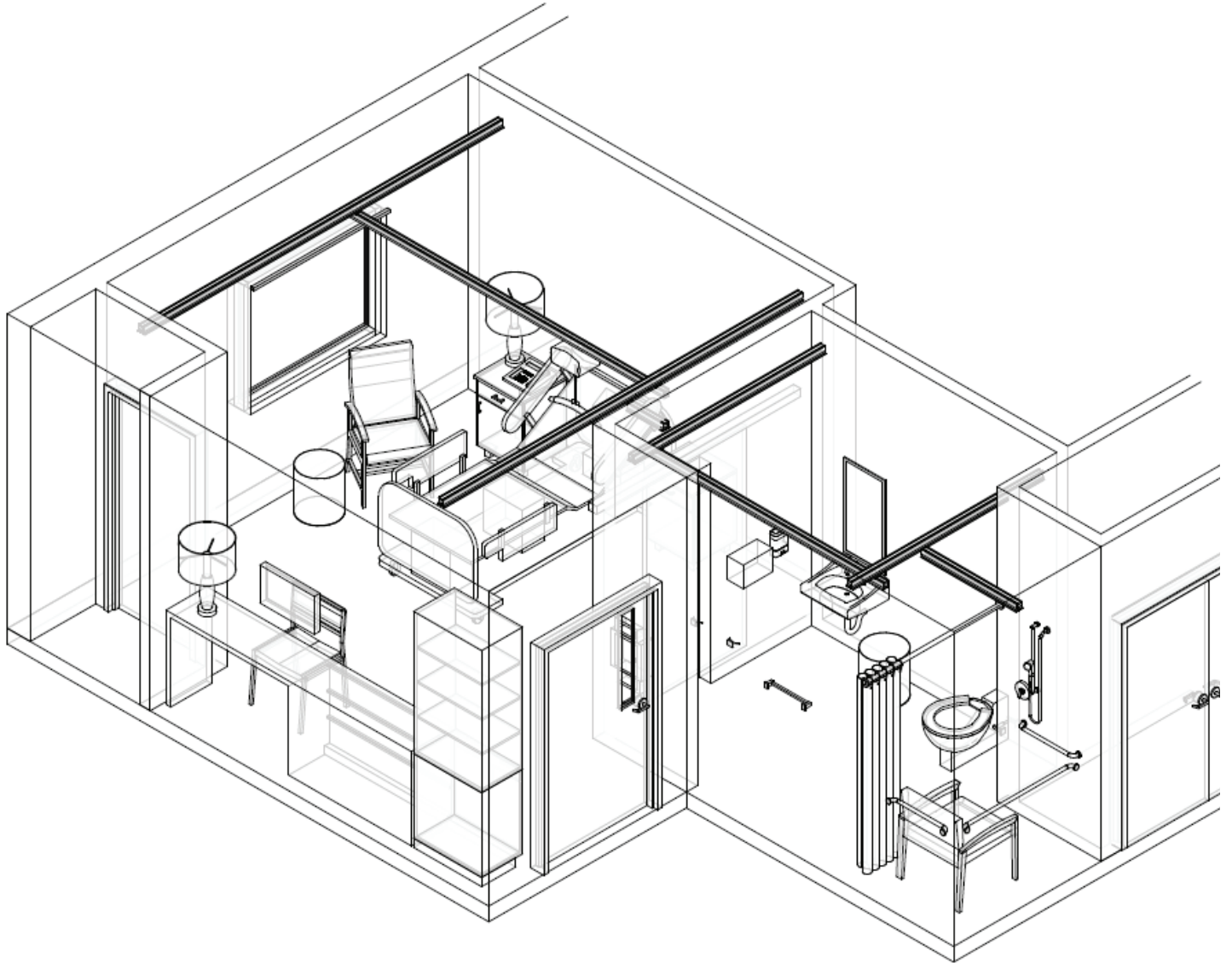


Figure 6. Bariatric Bedroom and Bath

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

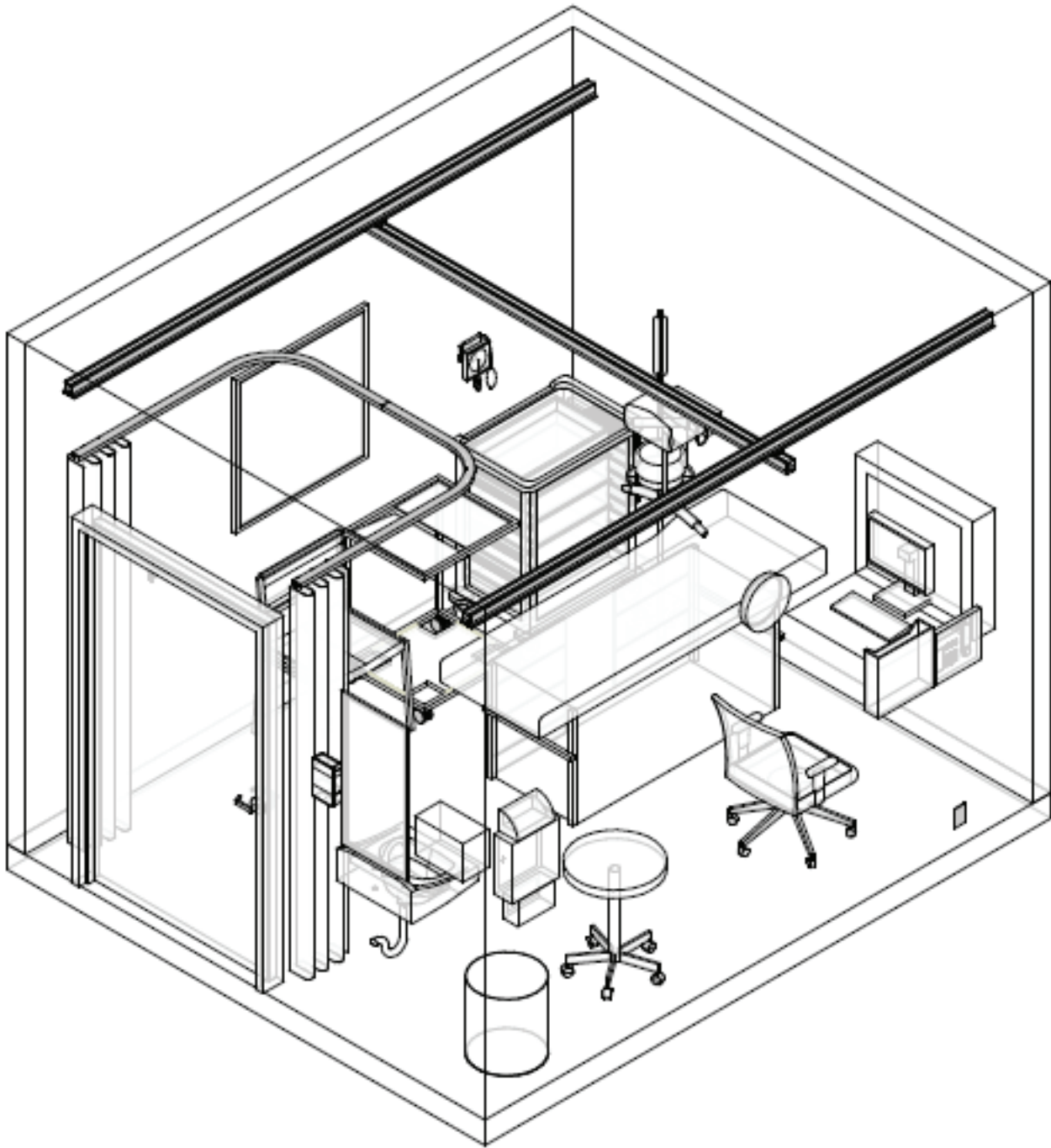


Figure 7. Exam Room

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

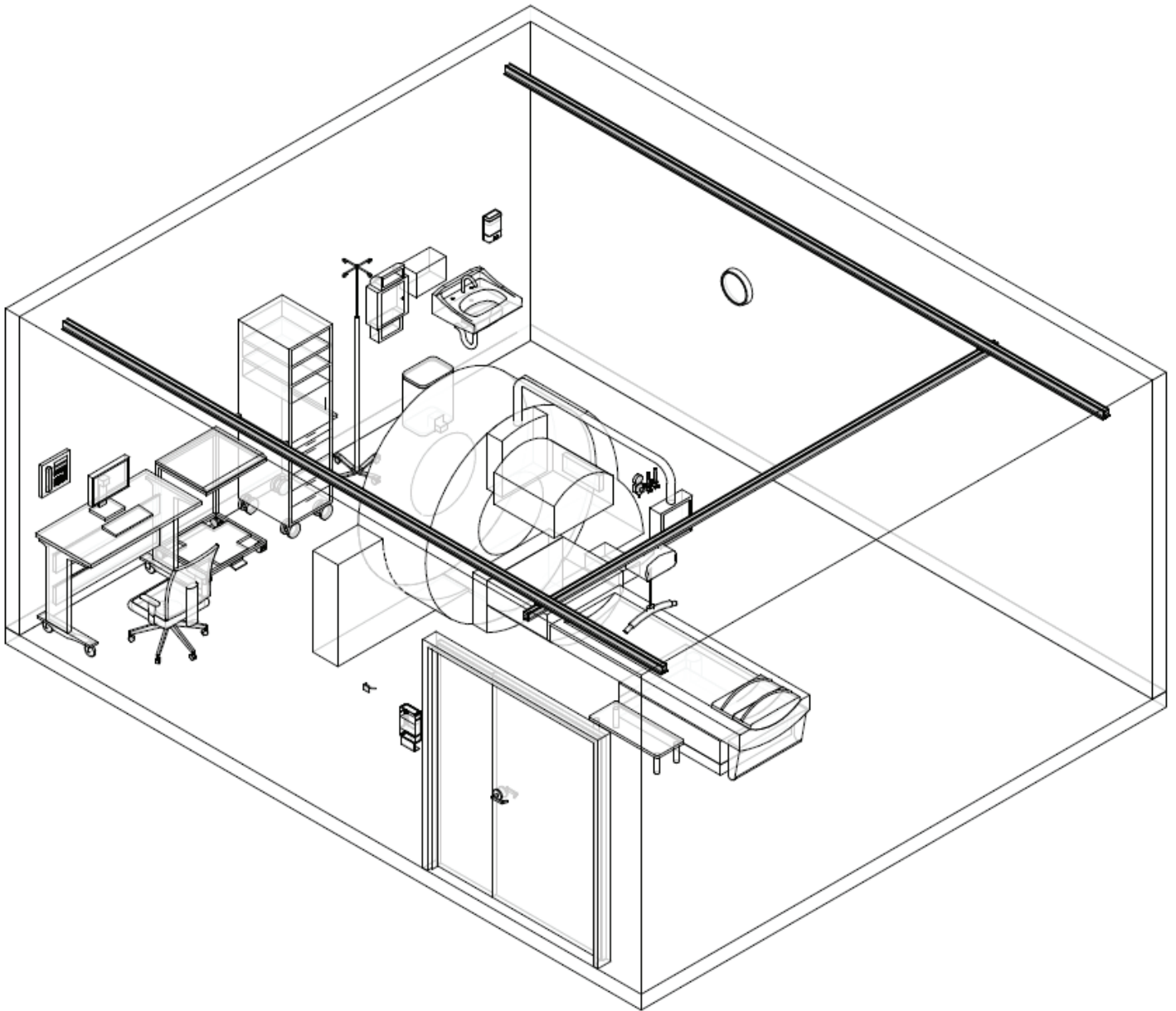


Figure 8. Nuclear Medicine Scan Room

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

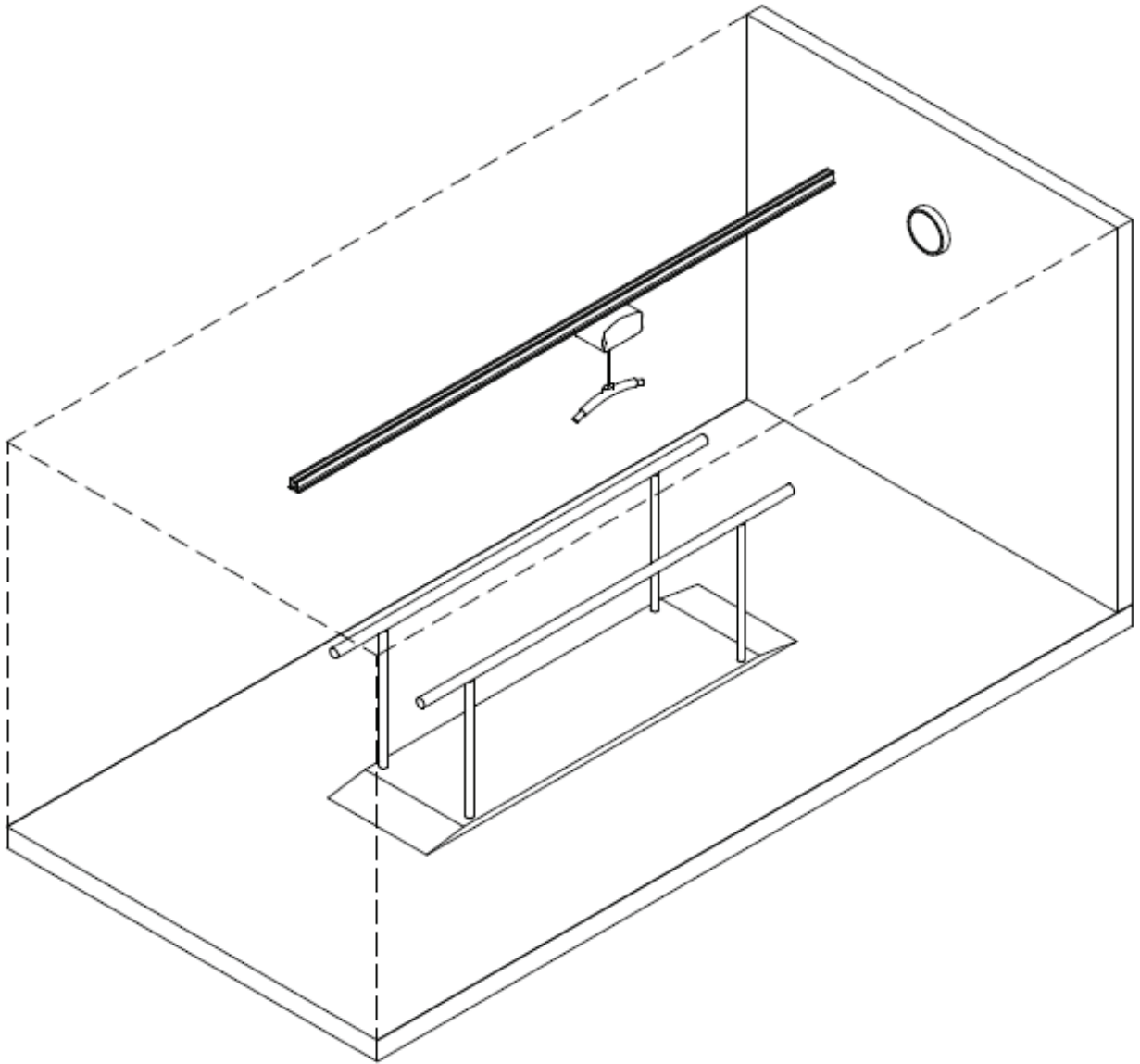


Figure 9. Gait Track

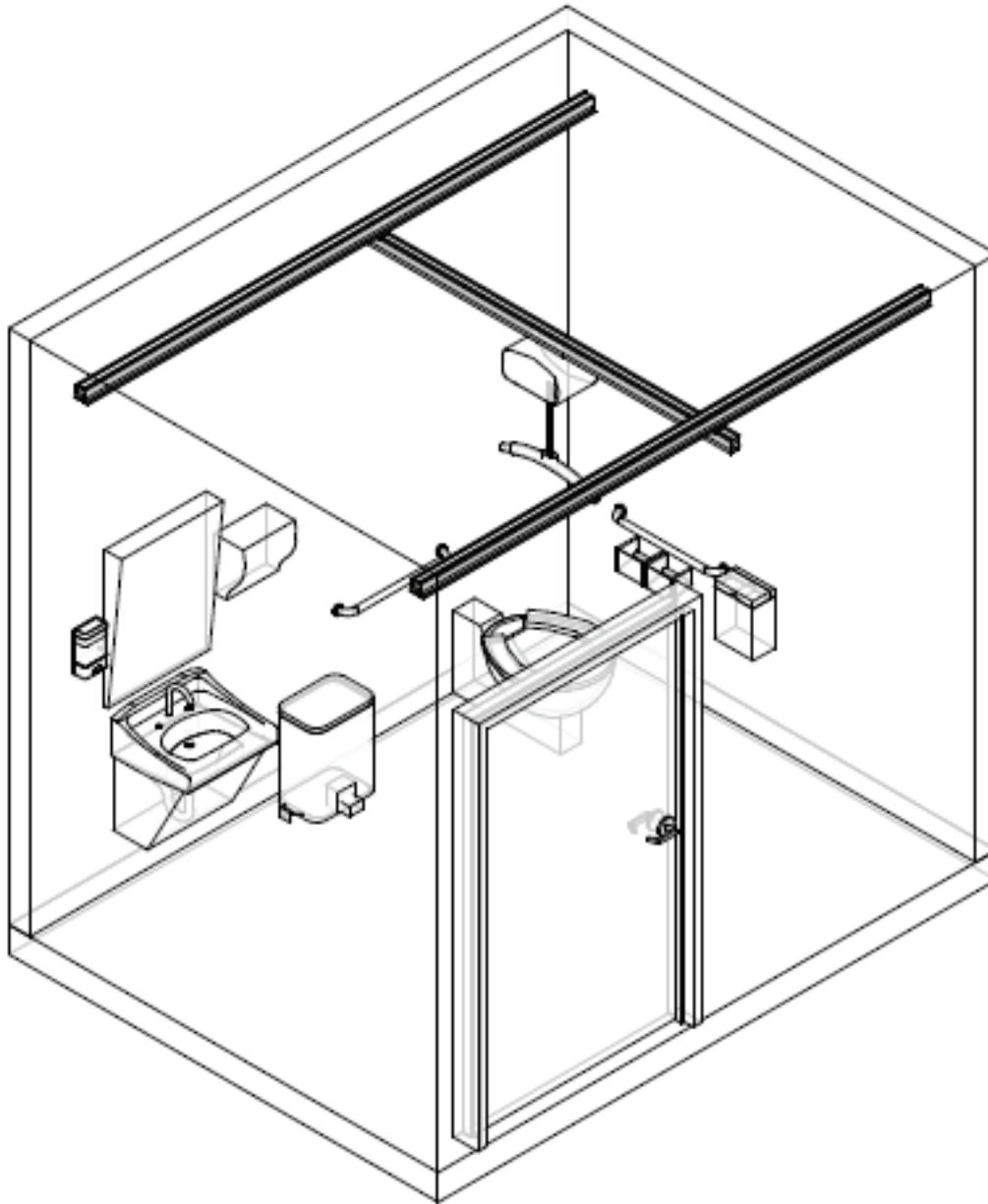


Figure 10. Bariatric Toilet

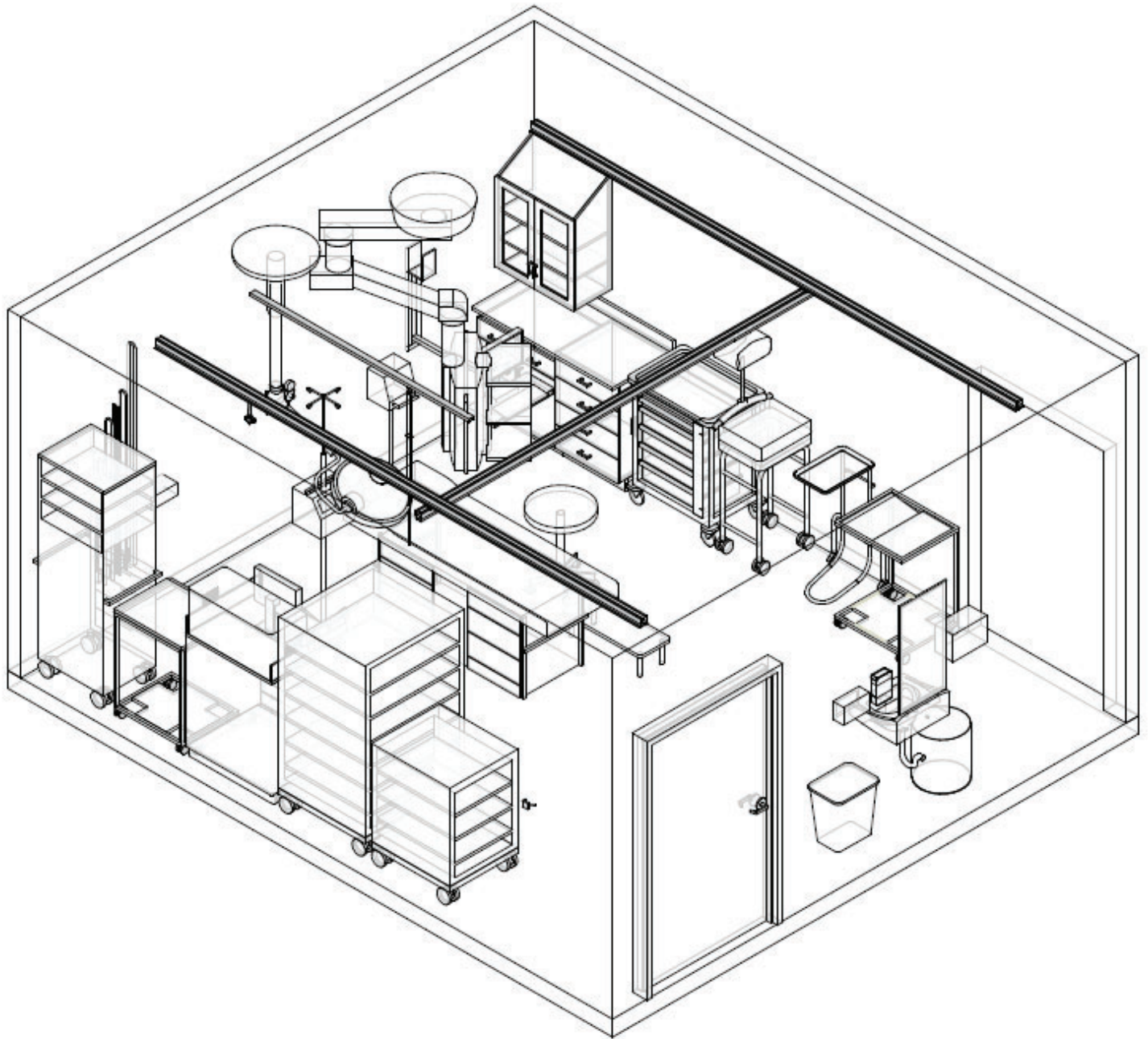


Figure 11. Endoscopy Treatment Room

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

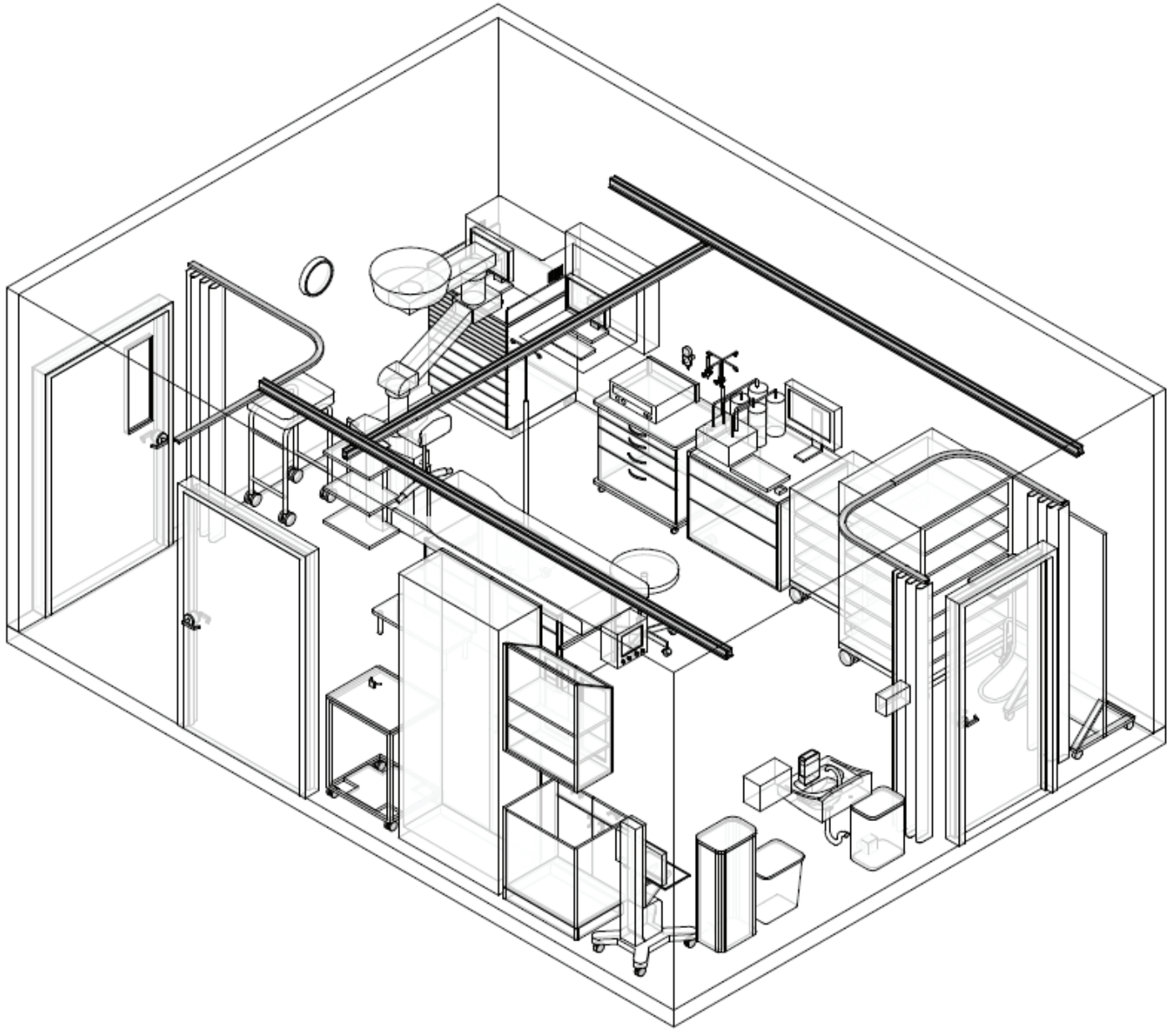


Figure 12. ERCP/Endoscopic Ultrasound Procedure Room

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

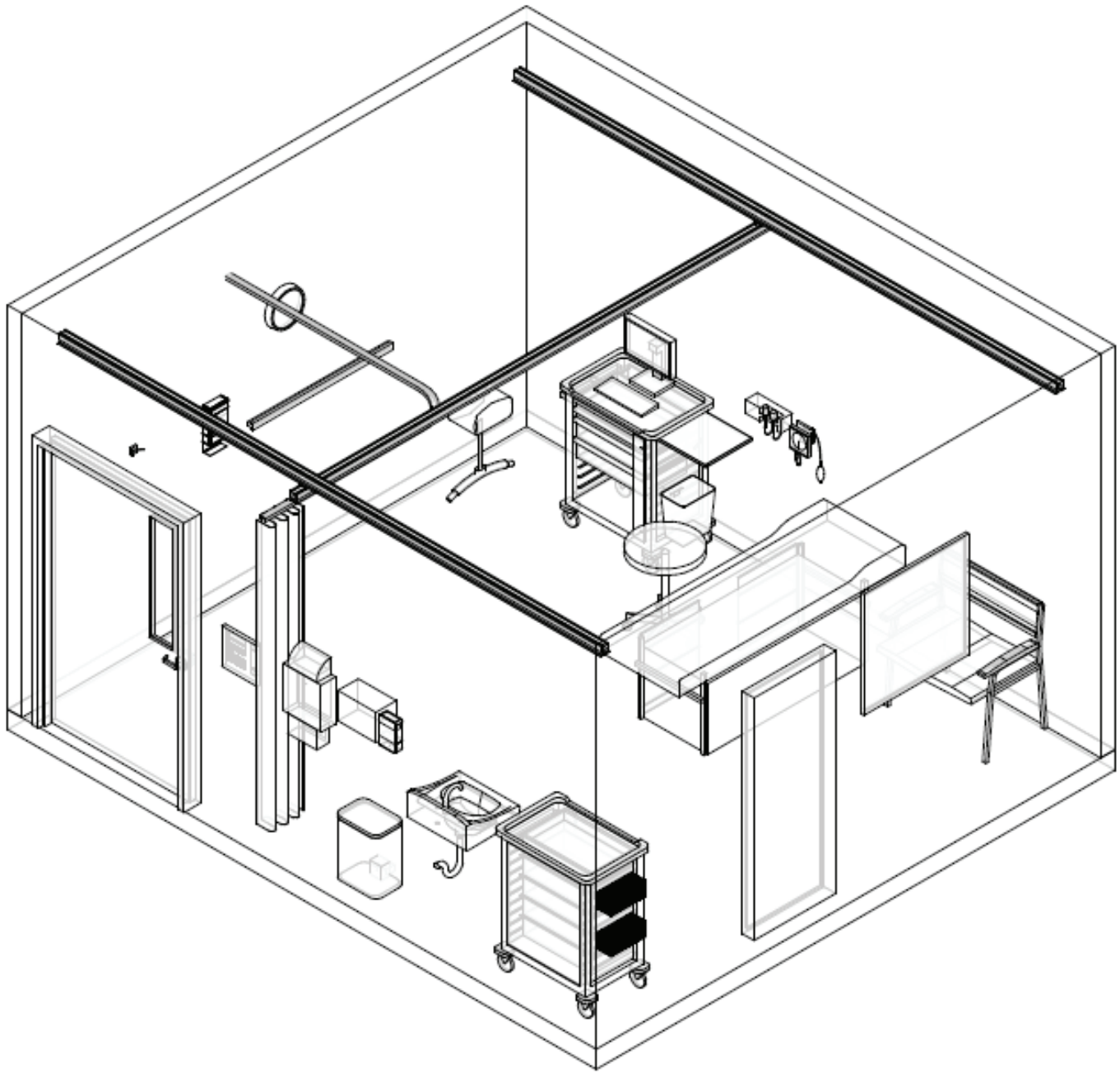


Figure 13. Treatment Room / Exam Room

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

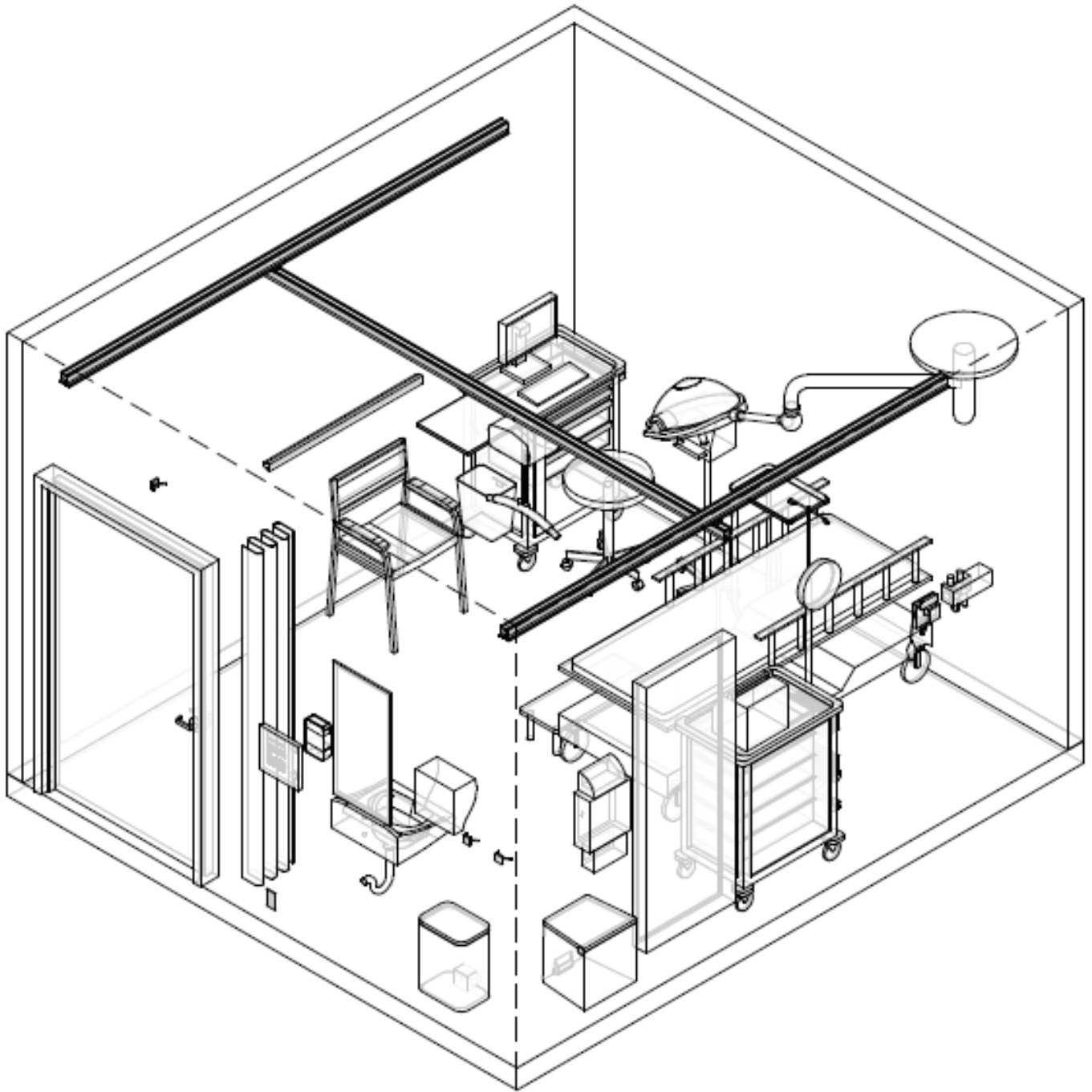


Figure 14. Procedure / Treatment Room

SAFE PATIENT HANDLING AND MOBILITY DESIGN CRITERIA:
APPENDIX I: ROOM DIAGRAMS

Appendix II: Case Studies

Introduction

As part of the research component for the VHA SPHM Design Manual, three facilities were selected for examination by the Design Manual team based on actual safe patient handling equipment installation and utilization. The three facilities selected demonstrated a wide range of equipment types and applications, and provided relevant installation information, coordination strategies and user input necessary for a concise and pertinent design guide.

The sites visited were the Martinsburg VAMC in Martinsburg West Virginia, and Beth Israel Deaconess Medical Center and West Roxbury VAMC, both in Boston Massachusetts. Each of the visits took a minimum of 4 hours for review, with emphasis on areas/units requiring recurring use of SPHM technologies.

Martinsburg VAMC – Martinsburg, West Virginia

FACILITY SPHM OVERVIEW

The SPHM FC for the Martinsburg VAMC has been with the facility since the beginning of the VHA SPHM Program in 2008. This consistent leadership and progressive expertise in the development and implementation of SPHM technologies has served this facility in all aspects of SPHM operations.

The Martinsburg VAMC fixed lift systems were purchased from a single manufacturer, which minimizes the coordination issues usually encountered with multiple vendor installations in a single facility. The structural supports for all the lift installations are rated for bariatric loads (1000 lb. capacity), and bariatric patient handling is accomplished by a single-track. This arrangement allows for the greatest flexibility and adaptability of standard patient care areas to bariatric use with minimal equipment coordination.

CURRENT SPHM TECHNOLOGY UTILIZATION

As the Martinsburg VAMC has been part of the VA SPHM Program since inception, most patient treatment areas have access to SPHM technologies. This coverage now includes overhead lifts in the Emergency Department, a relatively new application for this type of SPHM technology.

Martinsburg has a new Community Living Center (CLC) that has been designed with the expectation that over time, the residents will require increasing levels of mobility assistance. Central to this expectation has been the installation of traverse ceiling lifts with complete coverage in both resident rooms and bathrooms.

SPHM TECHNOLOGY OBSERVATIONS

Physical Therapy Clinic:

The Physical Therapy Clinic reviewed included a traverse lift over a high/low powered therapy mat/table (Fig. 1). The team observed an effective design for ambulation assistance in the Physical Therapy Clinic. In this Clinic a straight overhead track is in-line with the parallel bars (Fig. 2).



Figure 1 – traverse lift over PT exam/treatment area



Figure 2 – lift above PT parallel bars

Clinical /Nursing Unit Storage:

The team observed a large nook in a hallway where evacuation equipment and wheelchairs could be stored without impeding egress (Fig. 3). This type of alcove is perfect for storage of floor-based lifts and other SPHM technology.



Figure 3 – hallway storage alcove

Patient Room / Bathroom - Ceiling Lift Rail tracking from Patient Room into Bathroom:

In the patient room the fixed traverse rails were recessed, and care was taken to recess all other ceiling fixtures such as lights and sprinkler heads to allow free movement of the lift motor while travelling on the rail. Bathroom lift coverage was provided by a transition from traverse to single-rail overhead lift (Fig. 4).



Figure 4 – recessed track with junction for connection to single-rail into bathroom

Patient Room - TV Placement:

TV's were installed on retractable boom arms extending from the bedside. This design allows for flexible positioning of the television for viewing and allows for unobstructed lift use (Fig. 5).



Figure 5 – monitor on retractable boom arm

Patient Room / Bathing Room - Privacy Curtain Rail Designs:

In a bathing area, the team observed a low hanging curtain rail that allowed the curtain to minimize conflict with the lift (Fig.6). Review of privacy curtain designs included a design with fixed rail gaps to allow curtains to pass through fixed overhead lift rails (Figs. 7 & 8). Privacy curtains in semi-private rooms were not configured as effectively. Excessive curtain coordination is necessary (Fig. 9).



Figure 6 – lift rail above shower curtain rail minimizes interference



Figure 7 – gap in fixed rail for movement of privacy curtain



Figure 8 – privacy curtain showing rail and lift interaction



Figure 9 – conflict of travelling rail with privacy curtain

Patient Room/Clinical Unit: Power Sources:

Power sources must be accessible and available for certain SPHM mobile technologies, and should be located in the storage room or alcoves where powered SPHM devices are kept when not in use. Power sources for fixed ceiling and wall-mounted lifts should be located near the ceiling and out of the way of other equipment found on/near the ceiling (Figs. 10 & 11).



Figure 10 – power strip for SHM charging



Figure 11 – outlet near ceiling for lift motor charging

Patient Room / Bathroom - rail transition between patient room and bathroom:

The methods observed for providing lift access from the patient room into the bathroom included traverse coverage to single-track coverage, curved track transition and turntable transition. The ideal configuration for caregivers is traverse coverage in the bathroom, which allows lift access to both the toilet and the shower. It was observed that much more force was required by the caregiver to move the lift through the turntable transition than to move the lift on a single track transition (Figs. 12 & 13).



Figure 12 – door head gap for lift access to bathroom

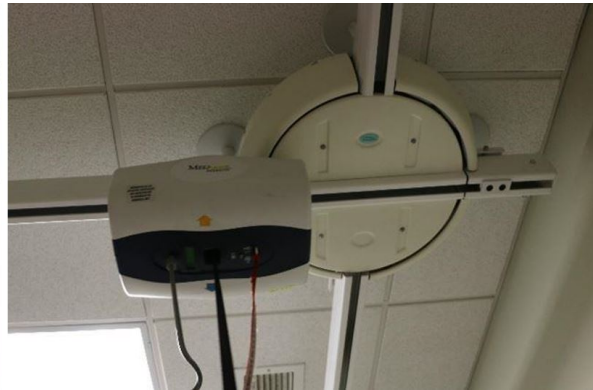


Figure 13 – lift turntable for transition from/to patient bathroom

In addition to these two transition approaches, a curved track transition from patient room to bathroom was observed (Fig. 14).



Figure 14 – traverse rail transition to curved track into bathroom

Emergency Department Exam Room:

The team observed the total room coverage from a traverse lift installation that was operable in a “full” procedure room/ED exam room (Fig. 15).



Figure 15 – traverse lift showing full room coverage at Emergency Department exam room

Patient Shower Rooms - Comparison of Shower Chairs:

The team compared the design of the older style of shower chairs (Fig. 16) with the newer, ergonomically designed shower chairs (Fig. 17) that make showering more comfortable and safer for both caregiver and patient. However, the newer ergonomic design requires more space during use and when stored.



Figure 16 – shower chair



Figure 17 – ergonomic mobile shower chair

Patient Room: Ceiling Lift Hanger Bar potential for being intertwined with IV pole

The team observed a potential problem with lift operation regarding tall floor-based equipment such as the IV stand shown (Fig. 18) that can obstruct both the travelling rail and the lift motor.



Figure 18 – potential conflict between carriage and top of IV stand

Bathroom Threshold Risk:

The team observed a high-profile threshold at one of the new residential rooms. This trim makes it difficult to use mobile technologies and is a potential trip hazard (Fig.19).



Figure 19 – tall floor transition strip

Beth Israel Deaconess – Boston, MA

FACILITY SPHM OVERVIEW

In 2006 there was a noticeable rise in the number of caregiver injuries due to improper patient handling techniques at Beth Israel Deaconess. In response, the Beth Israel Deaconess administration formed a study group to examine the implementation of new safe patient handling procedures.

There are no installed lifts in surgery; patient transfer is accomplished by either air assisted devices or roller boards. In the ED, a mobile lift is currently being utilized for patient transfer, but no car extractions have been performed to date.

In the outpatient clinic exam rooms, a lift has been installed in an exam room repurposed to accommodate bariatric patients. This lift is utilized on average about 3 times per week.

The general population lifts are rated for 440 lbs. max., with bariatric lifts rated at 880 lbs. max. All patient lift rails have been installed with structural support able to accommodate bariatric loading.

Space for mobile lift/device storage was available prior to acquisition. Mobile device types have been matched to specific procedures/uses as necessary.

SPHM TECHNOLOGY OBSERVATIONS

Intensive Care Unit (ICU):

The ICU reviewed has an 18' x 14' ceiling suspended traverse lift. Guide rails are coordinated with room perimeter radiant heat panels (Fig. 20). The privacy curtain was installed at the ICU entrance, fully resolving any coordination issues with lift operation (Fig. 21).



Figure 20 – travelling rail extending beyond fixed rail



Figure 21 – privacy curtain at ICU door

Post-Anesthesia Care Unit (PACU):

The PACU reviewed is multi-bed, with privacy curtains arranged to provide an implied circulation corridor. The traverse lift covers a 5-bed area and is wall-mounted on standards. The single rail serves all beds and is coordinated with all ceiling mounted items. Between-bed privacy curtains are wall mounted and cantilevered from the lift guide rail. It was noted that the privacy curtain support ends tended to strike a ceiling bulkhead when fully extended (Fig. 22).



Figure 22 – PACU with telescoping privacy curtain

Radiology/Imaging:

The Radiographic Room traverse lift is a retrofit installation and well-coordinated with the ceiling mounted imaging equipment, given the x-ray equipment size and complex room configuration (Fig. 23). This is accomplished by supporting the lift on wall standards at a height below the imaging apparatus support rails, with 14' x 16' coverage centered over the imaging exam table. In addition to the ceiling lift, a mobile full-body lift is stored in this room. Under most circumstances, a floor-based lift is not stored in the same room where there is a ceiling lift. And, generally, floor based lifts do not fit under the long side of pedestal tables in X-ray and fluoroscopy rooms. Sometimes staff position patients from the front of the table with the lift. A full length slide board (white plastic) is hanging on the wall next to the lifts for those patients who need to remain immobile. (Fig. 24).



Figure 23 – traverse lift at imaging



Figure 24 – slide board (on wall) at imaging

West Roxbury VAMC – Boston, MA

FACILITY SPHM OVERVIEW

The West Roxbury VAMC is a tertiary inpatient medical center, and was one of the facilities included in the initial SPHM Program implemented by the VA in 2008. With many of the ceiling lifts and SPHM technology still in service since initial implementation, both lift longevity and lift application issues were evaluated.

CURRENT SPHM TECHNOLOGY UTILIZATION

The West Roxbury VAMC currently utilizes both ceiling and mobile lifts in all units/departments requiring SPHM procedures. For this case study, the following areas were examined:

1. Physical Therapy, including therapeutic swimming facility
2. Spinal Cord Injury and Disorders (SCI/D) Center
3. Medical Intensive Care Unit
4. Diagnostic Exam Room
5. Radiology Department
6. Emergency Department

There are no installed lifts in surgery; patient transfer is accomplished by either air assisted devices or roller boards. In the ED and at the main entrance, mobile lifts are currently being utilized for patient transfer.

The following mobile SPHM technologies are currently being utilized at all units/departments:

1. Floor-based Mobile Full Body Sling Lifts
2. Sit-to-Stand Powered Assist Lifts
3. Sit-to-Stand Chairs
4. Shower Chairs
5. Transfer Chairs
6. Low/High Ambulatory Patient Lift Platform

SPHM TECHNOLOGY OBSERVATIONS

Physical Therapy Pool:

In addition to a seated transfer device from poolside to shallow end corner, a traverse ceiling lift was installed at the shallow end of the pool with a coverage of 12' x 14'. This lift is used for full-body patient transfer to the pool and for ambulation assistance during therapy while in the pool. There are no ceiling obstructions or coordination issues with this installation (Fig. 25), and it is used frequently. Charging for the lift is by controller docking at a dedicated wall outlet.



Figure 25 – traverse lift over therapy pool

Physical Therapy:

There are three ceiling traverse lift installations in the physical therapy area with a fourth traverse lift in the wheelchair assessment room. This lift installation was requested after the caregivers' positive experiences with the originally installed lifts. A 20' x 12' traverse lift with two travelling rails (for bariatric applications) covers three evaluation beds (Fig. 26), and an additional two 12' x 16' traverse lifts cover the physical therapy/assisted ambulation areas of the unit.



Figure 26 – two travelling rails at PT

SCI/D Patient Rooms:

The SCI/D patient rooms observed were 2-bed (opposite wall) configurations, with one traverse ceiling lift covering both beds (Fig. 3). The fixed rails are ceiling mounted and extend the length of the room, with a 12' traversing rail. Charging for the lift is by controller docking at a dedicated wall outlet. It was noted that there were issues with lift/privacy curtain coordination (Figs. 27 & 28).



Figure 27 – privacy curtains inside lift access area



Figure 28 – lift/privacy curtain conflict

Patient Room - Privacy Curtain Configuration:

Privacy Curtain is found outside of ceiling lift rail, thus neither interfering with use of the other (Fig. 29).

Telescoping feature allows curtain to provide privacy barrier between beds in semi-private room (Fig3. 30 & 31).



Figure 29 – privacy curtains outside lift access area in patient room



Figure 30 – telescoping privacy curtains extended



Figure 31 – telescoping privacy curtains retracted

Mobile SPHM Technology:

It was observed that mobile SPHM technologies are readily available and proximate to areas of use. Mobile technology storage was usually provided by wide service hallways connecting main corridors, or storage alcoves within both the main corridors and service hallways (Fig 32). In most cases the space provided allows the mobile SPHM technology to be ‘nested’ for greater storage (Fig. 33).



Figure 32 – mobile lift in storage alcove



Figure 33 – nested mobile technology

Patient Room - Straight Track Over Bed

The team observed significant lift use limitation when a patient bed is served with a straight track configuration. This design limits the use of the overhead lift in assisting caregivers in performing high risk tasks such as lifting an appendage of an obese patient. Note the slings hanging on the hooks affixed to the side wall. This provides easy access to the slings when needed. On the left side of the photo there is a trapeze hovering over the bed. It is easy for the lift hanger bar and strap to get caught up in the trapeze, so care must be taken when using both over a bed, however, it is recommended that lifts and trapeze not be used over the same bed (Fig. 34).



Figure 34 – straight track at angle over bed

Ceiling Lift Docking Station/End of Rail

The team noted that the docking station of this ceiling lift was at the very end of the rail. Care must be taken to ensure that the caps or other stopping devices on the end of rails are firmly in place to prevent the motor from slipping off the end of the rail (Fig. 35).



Figure 35 – end cap of travelling rail

Wall-Mounted Lifts - Two types of Attachment/Support

For lift installations in existing facilities, wall supported overhead lifts can provide full coverage without the problems associated with coordinating above ceiling suspension members with existing systems, ducts, and other obstructions which may make a suspended ceiling-mounted lift system difficult to install (Figs. 36 & 37). Proper structural reinforcing and finish coordination with supports are necessary for installation.



Figure 36 – wall mounted fixed rail perpendicular to wall



Figure 37 – wall mounted fixed rail parallel to wall

Patient Room - Partial/Limited Room Coverage with Traverse Track:

Although there is a traverse track shown below, the team observed that if a patient fell outside of the coverage area in the room, the ceiling lift would not be able to reach the patient. A limited track also limits the functionality of the lift (Fig. 38).



Figure 38 – lift with limited room access and coverage

TV Placement to Avoid Interference with Overhead Lifts

Ceiling mounted equipment and other fixtures are problematic when using Overhead Lifts (Fig. 39). TV on arm that swings out in front of patient. When in stored position, it does not interfere with the overhead lift (Fig. 40). TVs can easily be configured to eliminate interference with the use of overhead lifts.



Figure 39 – monitor on wall mount



Figure 40 – monitor on boom arm

Patient Room - Space Consideration

The team noted the space required when a stretcher is next to a bed for performance of lateral transfers to/from bed and stretcher. Not only is space required for both of these, but there must be room for caregivers on both sides to safely assist in lateral transfers. When space is limited caregivers are at higher risk of injury when performing patient handling tasks (Fig. 41).

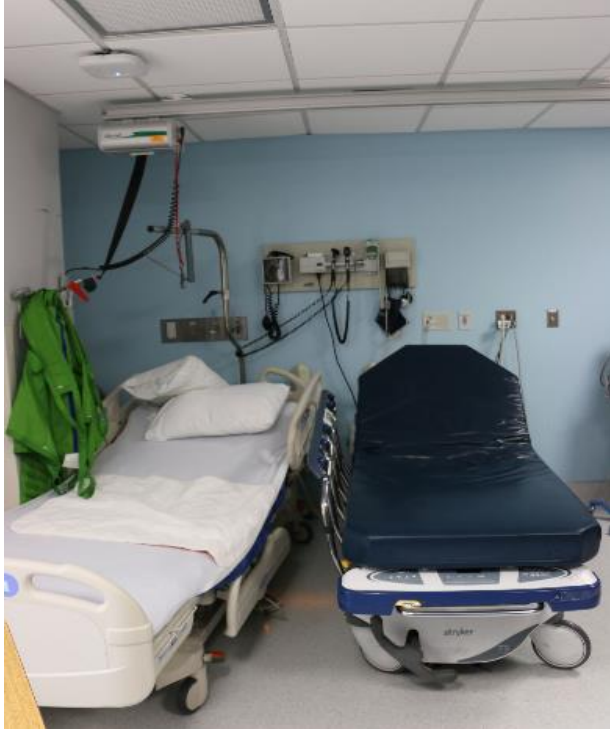


Figure 41 – space required for stretcher to bed transfer

Storage Room - Air Assisted Lateral Transfer and Positioning Devices

The team observed the mobile storage cart arrangement for the AALTPDs, with space reserved for the motor in the top storage bin and the mattress in the lower storage bin (Fig. 42).



Figure 42 – alternate modality storage

Appendix – Sling Storage Options

There are a myriad of ways to store slings used with overhead and floor-based lifts. The Huntington VAMC has provided space in their storage room to hang a variety of slings on a row of hooks (Fig. 43).



Figure 43 – sling storage