

PATIENT HANDLING (LIFTING) EQUIPMENT COVERAGE & SPACE RECOMMENDATIONS

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INTRODUCTION

Health care providers are at high risk for musculoskeletal injuries. In fact they are one of the highest risk groups of any industry, and manual patient handling is considered to be the reason. For the caregiver, these musculoskeletal injuries not only cause pain and discomfort but can also result in life long disability. For patients, their safety may be impacted when injured staff move and lift them. As well, direct and indirect costs to the organization are huge as is the impact on the already short supply of nurses.

Research has confirmed the caregiver risk associated with patient handling. Biomechanical studies tell us that manually moving and lifting patients cannot be performed safely, that such movements exceed the biomechanical limits of workers. When these limits are exceeded, not only do muscles develop microtears, but microfractures occur to the spine, and result in the debilitating disc degeneration found in many nurses. In 2007, scientists determined that the maximum weight a caregiver should lift is 35 pounds, the weight of the leg of a man weighing 200 pounds.

Technology is now available to take the patient 'load' off of caregivers. And, in providing such technology assistance in moving and handling patients, the risk of injury for caregivers is decreased significantly, resulting in fewer and less severe injuries to nurses and other patient care providers.

Because each clinical unit, treatment area, diagnostic area, etc. includes patient populations with varying characteristics, technology recommendations will also vary. For this reason, recommendations must be developed for each unit/area included in new construction and in renovations of existing construction. This ensures the correct type and number of patient handling equipment are available on each unit as well as sufficient storage is allocated for this equipment.

However, to ensure appropriate equipment decisions are made, direct patient care providers who are familiar with the characteristics of their unique patient/resident populations must be included in this process.

The following gives direction in determining design, installation, and storage requirements for patient handling equipment that are used to lift and transfer patients and residents in new and existing construction. Many other types of patient handling equipment are available, but will not be addressed as their design/space impacts are not as substantial. The patient/resident lifting equipment that will be addressed include ceiling-mounted sling lifts (Figures 1 & 2), sit to stand lifts (Figure 18), and floor-based sling lifts (Figure 19). Sit to stand lifts are used to assist in the transfers of patients/residents with some weight-bearing abilities, upper body strength, and the ability to follow simple instructions. Floor-based sling lifts and ceiling-mounted sling lifts are both used for dependent patients/residents who are unable to substantially assist in their transfers and movement, as well as in assisting in mobility rehabilitation.

This document will first address coverage and installation issues surrounding ceiling-mounted lifts, then coverage and storage issues for portable/floor-based lifts, such as sit to stand and floor-based sling lifts.

PLEASE NOTE: This document does NOT provide direction on conducting a full patient care ergonomic evaluation. Such a comprehensive evaluation is important to determine patient handling technology required to be able to implement a 'Minimal Lift' or 'Safe Patient Handling and Movement' Policy. Organizations must understand that the information provided here focuses only on design and storage requirements, and only for ceiling-mounted and portable lifting equipment. It is highly recommended to conduct a thorough Patient Care Ergonomic Evaluation that will provide recommendations for other patient handling technology and programmatic issues related to patient handling. Information on safe patient handling, conducting complete ergonomic assessments, and other patient handling technology not included here, can be found at <http://www.visn8.med.va.gov/patientsafetycenter/safePtHandling/default.asp> or by contacting Mary Matz at (813) 558-3928.

CEILING-MOUNTED SLING LIFTS

Figure 1.



Figure 2.



1. CEILING LIFT COVERAGE REQUIREMENTS By UNIT/AREA

- Definitions:
 - Ceiling Lift SYSTEM refers to the lift unit that performs the lifting function and includes the motor, strap, and hanger bar.
 - Ceiling Lift TRACK refers to the pathway on which the lift system moves.

Step 1. Determine ceiling lift system and track coverages needed in each UNIT/AREA

- Use Table 1 to determine the following.
 - Ceiling Lift SYSTEM Coverage:
 - Ceiling Lift ‘System’ Coverages relay the percentage of PATIENTS who should be covered on the particular unit in question.
 - **Because patient/resident characteristics of clinical units/areas vary widely, it is critical to base ceiling lift purchase decisions on these characteristics. Insufficient coverage will result in increases in risk of staff and patient injury.**
 - **For those clinical units/areas that specify a range (e.g., 30 – 100%), determine coverage as instructed in Step 2, using patient/resident characteristics to direct coverage requirements.**
 - Ceiling Lift TRACK Coverage:
 - Ceiling Lift “Track” Coverages relay the percentage of ROOMS that should be covered on the particular unit in question.
 - 100% CL Track Coverage is recommended in many areas proactively, as Ceiling Lift requirements are expected to increase and installation costs are minimized when included in new and renovation construction projects. (See Section 3, page 10.)

Table 1. Ceiling Lift (CL) Coverage and Track Configuration Recommendations by Clinical Unit/Area

CLINICAL UNIT/AREA	CL ‘SYSTEM’ Minimal <u>Patient</u> Coverage	CL ‘TRACK’ Minimal <u>Room</u> Coverage **	PREFERRED TRACK CONFIGURATION
Medical/Surgical Unit	50 – 100% *	100%	Traverse
Post-Surgical Unit <ul style="list-style-type: none"> Provide one supine sling and hanger bar system for unit. 	50 – 100% *	100%	Traverse
Rehab Unit <ul style="list-style-type: none"> Consider installing straight track down hallway for ambulating patients. Provide one supine sling and hanger bar system for unit. 	50 – 100% * (If unit is primarily neuro rehab, provide a minimum of 70% coverage) (For new construction or rooms large enough for ambulation w/in rooms, provide 100% coverage)	100%	Traverse
MICU	100%	100%	Traverse
SICU	100%	100%	Traverse
CCU	50%	50%	Traverse or straight
ICU (Combined MICU/SICU/CCU)	100%	100%	Traverse
Nursing Home/Longterm Care	70 – 100% * (Less coverage may be provided for primarily dementia units)	100%	Traverse (into bathroom)
Hemodialysis	50% - 100% *	50%	Straight or Traverse CL coverage is needed over areas where lateral transfers of patients from stretchers to dialysis beds occur. One straight track over several bays in a row would be appropriate.

Radiology (X-ray, CT, etc.) <ul style="list-style-type: none"> Overhead/ceiling lift system must be compatible with the ceiling-mounted radiological equipment. 	50%	100%	Traverse or straight
MRI	100%	100%	Straight track located in adjacent MRI patient transfer area
Nuclear Medicine	50%	50%	
Procedure areas (GI, Cystoscopy, etc.)	100%	100%	Traverse or straight positioned as needed
Cath Lab	100%	100%	Traverse or Straight
PACU	100%	100%	Straight Track (if possible, extend over all beds in a row using one lift system per row)
OR	100%	100%	Traverse
Physical Therapy Clinics	100%	100%	<ul style="list-style-type: none"> Preferred design – Rehab clinic design is best when an all-encompassing traverse system covers the entire area and 2 or more motors can be used simultaneously (on the parallel bars and at any two treatment tables). Alternate design – Install straight track over parallel bars. Install traverse track system covering treatment tables and activity areas.
Spinal Cord Injury	100%	100%	Traverse into bathroom
Outpatient SCI Clinic Exam/Treatment Rooms	100%	100%	Traverse

Outpatient/Primary Care Clinics	Depending on patient population, one or more regular &/or one expanded capacity/bariatric lift		Traverse
Emergency Dept/ Urgent Care Exam Rooms	50 – 100% *	100%	<ul style="list-style-type: none"> ○ Preferred design - Traverse over multiple bays in a row or in private rooms ○ Alternate design- Straight track over several bays in a row or in private rooms
Ambulance Bay	Depending on patient population, one regular or one expanded capacity/bariatric lift under canopy in ambulance bay		Traverse
Mental Health/Psychiatric Patient Care Areas	Ceiling 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 gero-psychiatry units that do not treat actively suicidal patient and may need ceiling lifts.		
Geri-psych	50 – 100%	50 – 100%	Straight or Traverse
Dental	Depending on patient population, one regular &/or one expanded capacity/bariatric lift	50%	Straight or Traverse
Morgue <ul style="list-style-type: none"> • Expanded capacity lift w/ minimum weight capacity of 600 lbs. or greater depending on patient population characteristics. Include Supine Lift Frame in purchase. 	100%	100%	Traverse or Straight Lift system should be able to assist in inserting & extracting trays into cooler as well as lifting & moving bodies into & w/in autopsy suite.
Nurse Training Area	One		Straight

* Proceed to Step 2 to calculate number of ceiling lifts required for each clinical unit/area.

** See Section 3, page 9.

Step 2. Calculate MINIMUM # of Ceiling Lift SYSTEMS required for each UNIT/AREA (use only for those units/areas with ranges of coverage in Table 1).

- Unit CL System Coverage is based on 1) type of clinical unit/area, thus dependency levels of patient/resident population and 2) # of private, semi-private, 3-bed, 4-bed rooms, etc. on unit.
 - 1. Determine Average % of Patients Requiring Ceiling Lift (CL) System Coverage:
 - Sum average % of total dependent and average % of extensive assistance patients/residents on the Unit
- $$+ \frac{\text{Average \% of Total Dependent Patients/Residents on Unit} + \text{Average \% of Extensive Dependent Patients/Residents on Unit}}{\text{Average \% of Patients Requiring CL Coverage}}$$
2. Determine # & Configuration of Rooms requiring Ceiling Lift Systems per unit:
 - Use **Average % of Patients Requiring CL Coverage** to calculate number of rooms needing ceiling lifts.

For units w/ only private patient rooms:

Average % of Patients Requiring CLs x # patients = # private patient rooms w/ CLs

For units w/ only semi-private rooms:

Average % of Patients Requiring CLs x # patients / 2 = # semi-private patient rooms w/ CLs

For units with a mixture of room configurations:

For cost effectiveness in existing construction, and if appropriate for the unit, first begin calculations with ceiling lifts placed in most or all larger wards (3-bed & 4-bed wards), then as appropriate in smaller rooms (private and semi-private).

Ex: MedSurg Unit with 30 patients has four (4) private rooms, ten (10) semi-private rooms, and two (2) 3-bed rooms. On this unit, approximately 70% of the patients will require use of Ceiling Lifts; therefore this unit should have coverage for 21 patients (70% x 30 patients). For cost effectiveness, and if appropriate for unit needs, ceiling lift coverage may be as follows: ceiling lifts in two (2) 3-bed rooms (covering 6 patients), seven (7) semi-private rooms (covering 14 patients), and one (1) private room (covering one patient) in order to have ceiling lift coverage for 70 % (21) patients.

2. Ceiling Lift System Weight Capacities

Ceiling Lift weight capacities range from around 440 lbs to bariatric expanded capacity lifts of 1,000 lbs. or more. Specification of 500 - 600 lb. capacity ceiling lifts will accommodate the greatest range of all patients. If bariatric admissions warrant, a minimum of one expanded capacity/bariatric lift per unit should be included, in addition to the lower weight capacity lifts.

3. Ceiling Lift Tracks

Track Coverage

Presently, not all clinical units/areas require 100% ceiling lift coverage (Table 1), but, with expansion in ceiling lift and sling technology, it is expected that this may change, and, in the near future, full coverage may be warranted in all patient rooms. For this reason, some patient handling experts recommend installation of TRACKS (excluding the ceiling lift ‘system’) in every room during new construction in order to accommodate installation of additional ceiling lift systems in the future. In existing construction this may also be considered. Such installation during new and renovation construction may decrease costs over time.

Track Motorization

- 1) Preferred Design - Non-Motorized Track (Lift is moved manually by caregiver. Most caregivers prefer to move the lift manually horizontally rather than press a button and wait for the lift to move to the desired location. Movement is quite smooth and easy with this design but caregivers must manually pull lift to recharging area.)
- 2) Alternate Design - Motorized Track (Track has motorization component that enables caregiver to use hand-held operation device to move lift horizontally along the track, as well as vertically. Positive aspect is that most have function where lift will move automatically to charging station. The entire track movement can also be motorized, however this option increases cost and is most common in homecare applications.)

Track Design

If possible, all tracks should be recessed in order to diminish the aesthetic impact in patient/resident rooms. For recessed track, ensure dropped ceiling grid is butted up against track.

There are three track design options:

- Traverse (Room Covering) Track (Figure 3)
- Straight Track (Figure 4)
- Curved Track (Figure 5)

In most rooms, the traverse system (Figure 3) offers staff more options for transfers and performance of patient handling activities. This design also offers the patient more opportunity for rehabilitation and more timely patient handling assistance. Traverse system designs may impact the use of privacy curtains though. (See Section 5 for more information on privacy curtains/screens.) The only time a straight track configuration (Figure 4) is suggested is when the room is small and a straight track can reach all areas where patient handling and placement will occur (when the sink is in line with the bed, the chairs have easy access to the bed, etc.). Curved Tracks (Figure 5) are used for turns/transitions from one room into another, when ceiling obstructions such as lights, sprinkler, or other objects hang too low to use a straight rail, and to enhance appearance of the lift system.

The following are track design recommendations for specific clinical areas:

Standard Patient Room

- Preferred Design - Traverse System covering patient/resident room (Figure 3)

- Alternate Design - Straight Rail/Track over patient bed (Figure 4) (limits room coverage)

SCI Patient Room

- Traverse System covering patient/resident room extending into bathroom (Figures 6 & 7)

MICU/SICU/CCU/ICU Patient Room

- Preferred Design - Traverse System covering patient/resident room (Figure 3)
- Alternate Design - Straight Rail/Track over patient bed (Figure 4) (limits room coverage)

NHCU Patient Room

- Preferred Design - Traverse System covering patient/resident room extending into bath room (Figures 6 & 7)
- Alternate Design – Traverse System covering patient/resident room (Figure 3)

Bariatric Patient Room

- Traverse System covering patient/resident room extending into bath room (Figures 6 & 7)
- Traverse System covering patient/resident room extending into bath/shower area with open room/bathroom design (Figure 8)

Figure 3. Traverse System Design

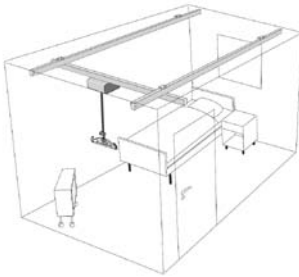


Figure 4. Straight Rail/Track System Design

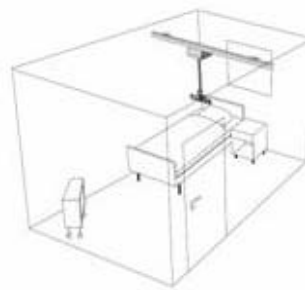
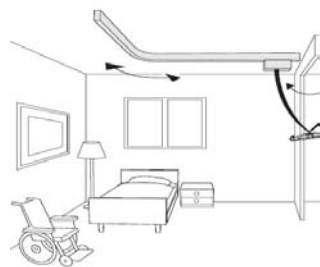


Figure 5. Curved Track



Track Design options for SCI, Bariatric, Nursing Home, and other patient/resident rooms that require coverage into bathroom areas have a few alternative designs. Two are shown below.

- 1) Ceiling Lift tracks into bathroom, through doorway. (Figures 6 & 7)
- 2) Bariatric Room design that incorporates the toilet/shower area into the bariatric patient room, using screens/privacy curtains rather than doors, making it easier to run track and transport bariatric patients from one area to the next. (Figure 8)

Figure 6.

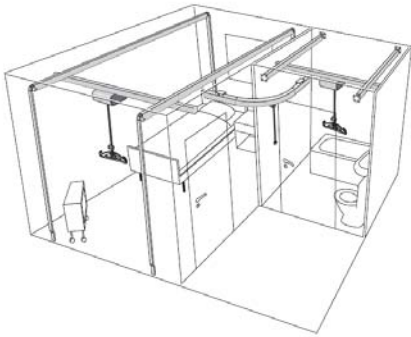


Figure 7.

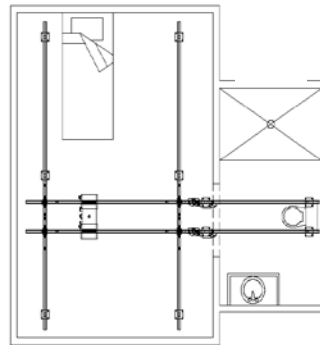
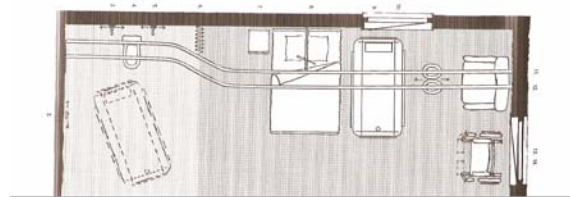


Figure 8.



Track Support/Fastening Options

The following are three types of attachment options. Others may be available that are not included below, so consult with ceiling lift manufacturers for options specific for their tracks. Be aware that the interstitial space dictates the amount of lateral bracing required and type of attachment method (rod or pendant) to achieve a stable system.

- Wall mount - attached to wall with toggle bolts or attached with wall bracket. Economical, appropriate for renovations. (Figures 9 & 10.)
- Pendant - steel plate is bolted to Unitstrut which is anchored to the concrete structure with Hilti anchors. Lateral support stabilizes rail when interstitial space is greater than 19.5 inches. Tracks can be fully or partially recessed into ceiling. (Figures 11 & 12.)
- Threaded rod - 3/8 inch threaded rod can be mounted to hard ceiling with Unitstrut support spanning beams or trusses. Tracks can be fully or partially recessed into ceiling. (Figure 13.)

Figure 9. Wall mount w/ bracket



Figure 10. Wall mount w/ upright support



Figure 11. Pendant



Figure 12. Pendant



Figure 13. Threaded Rod



4. Other Ceiling Lift Design Considerations

- Structural capacity (must be equal to or exceed weight capacity of lift)
- Positioning of light fixtures, A/C diffusers, fire sprinkler heads, Televisions, X-ray equipment, OR lights and other fixtures
- Items above ceiling such as other ceiling mounted equipment (radiology equipment, OR lights), HVAC, electrical conduits, plumbing, etc.
- Wall mounted barriers: TVs, Light Fixtures, Cabinets and door swing radius must be considered in determining track dimensions
- Materials in frame structure
- Unique architecture considerations: Multi-level ceiling heights, vaulted ceilings, soffits, non-structural or radius walls
- Header and Door walls (structural and non-structural walls). Use of structural walls creates more challenges in room to room tracking.
- Fire codes
- Ceiling Height compared to maximum lifting range required by patients
- Motor Maintenance: allow enough space between rail-end and wall for removal of motor
- Space for motor and hanger bar storage when not in use, that also allows immediate accessibility
- Head wall design in ICU areas must allow use of ceiling lifts
- Maintaining consistency in ceiling lift manufacturer throughout a facility is suggested primarily because of the need to ensure staff competency in use, and thus compliance in use. With a variety of manufacturers throughout a facility competency and use will decrease. Additionally, use of different manufacturers will impact sling needs, as most slings and hanger bars are not interchangeable from manufacturer to manufacturer.

Suspended track allows clearance for sprinkler heads, lights, curtain tracks, other obstacles but is not as aesthetically appealing as recessed. (Figures 14 & 15.)

Figure 14. Suspended Track



Figure 15. Suspended Track



- Location/Design of privacy curtains. The use of privacy curtains are impacted with the installation of traverse track systems. Use of privacy screens may be an alternative or in some situations, privacy curtains can be split then fastened together with Velcro.

Example of Privacy Curtain Options for Traverse Systems for Private Room (Figure 16) and Semi-Private Rooms (Figure 17)

Figure 16. Privacy Curtain for Private Room



Figure 17. Privacy Curtain for Semi-Private Room



PORTABLE/FLOOR-BASED LIFTS

Figure 18. Sit to Stand Lifts (STS)



Figure 19. Floor-based Sling Lifts (FBSL)



1. PORTABLE/FLOOR-BASED LIFT COVERAGE REQUIREMENTS By UNIT/AREA

- Definitions:
 - Sit to Stand (STS) lifts are for patients who can provide some assistance in transferring and ambulating. They are used for transfers from seated positions to seated positions (e.g., bed to wheel/chair or commode) and for assistance in dressing, peri-care, and toileting. They can also be used for assistance in ambulation therapy. (Figure 18)
 - Floor-based Sling Lifts (FBSL) provide total support and assistance for dependent and extensive assistance patients. Some can also be used for assistance in ambulation therapy and for extracting patients/residents from vehicles. (Figure 19)
- Weight Capacities range from around 350 lbs. to 1,000 lbs. for bariatric patients. Accordingly, space requirements vary with weight capacities and size of equipment.

Step 1. Determine Number of SIT TO STAND and FLOOR-BASED SLING LIFTS required for each UNIT/AREA

- Use Table 2 to determine the number of each lift needed for each clinical area/unit.
 - Floor-based Sling Lift Recommendations:
 - Floor-based Sling Lift recommendations are based on **Ceiling Lift Coverage** as specified and calculated **using Table 1**.
 - If Ceiling Lift coverage is less than that in Table 1, there will be an increased need for Floor-based Sling Lifts, thus more storage space will be required.
 - With full Ceiling Lift coverage as in Table 1, Floor-based Sling Lifts may be shared by units on one or more floors, thus decreasing the number required, thus space requirements.

- Sit to Stand Lift Recommendations:
 - Presently there is no ceiling lift adaptation for the sit to stand function provided by Sit to Stand Lifts. When this adaptation is available, Sit to Stand lift and thus space requirements will decrease.
- Consult with staff from existing units undergoing renovation and/or staff who are aware of projected patient populations characteristics for units included in new construction. They will be able to provide information on the number and types of existing equipment and/or assist in calculating such for new equipment.

Table 2. Portable/Floor-Based Lift Minimal Coverage By Clinical Area/Unit

CLINICAL UNIT/AREA	RECOMMENDED COVERAGE	
	Sit to Stand Lifts	Floor-based Sling Lifts (based on Ceiling Lift Coverage from Table 1)
General Medical Unit	One per 8 – 10 partially weight-bearing patients *	One per floor or unit
Med/Surg Unit	One per 8 – 10 partially weight-bearing patients *	One per floor or unit
Post-Surgical Unit	One per 8 – 10 partially weight-bearing patients *	One per floor or unit
Rehab Unit	One per 8 – 10 partially weight-bearing patients *	One per floor or unit
MICU	One per 8 – 10 partially weight-bearing patients *	One per floor or unit
SICU	One per 8 – 10 partially weight-bearing patients *	One per floor or unit
CCU	One per 8 – 10 partially weight-bearing patients *	One per floor or unit
ICU (Combined MICU/SICU/CCU)	One per 8 – 10 partially weight-bearing patients *	One per floor or unit
Nursing Home/Longterm Care	One per 8 – 10 partially weight-bearing residents*	One per floor/unit
Geri-psych	One per 8 – 10 partially weight-bearing patients *	One per unit
Psychiatry/Mental Health (If portable lifts are used in this setting,	One per 8 – 10 partially weight-bearing patients *	One per unit

accommodations must be made for their immediate storage after use. This does not apply to dementia care units or geri-psychiatry units that do not treat actively suicidal patients.)		
Emergency Dept/Urgent Care	One Also, consider providing one dedicated floor-based lift for use with a supine sling and hanger bar system.	One
Radiology (x-ray, CT, Nuc Med, MRI) (Specify x-ray tables without pedestals or with pedestal design that will accommodate placement of portable/floor-based lifts under table and around pedestal.)	One per entire radiology area Note: Tables must accommodate lift bases.	One per entire radiology area Note: Tables must accommodate lift bases.
Physical Therapy Clinics	One per clinic	One per clinic
OR	None	None
PACU	None	None
Procedure areas (GI, Cystoscopy, Cath Lab, etc.)	One per floor/unit	One per floor/unit
Spinal Cord Injury Unit	None or One (depending on patient population)	One per floor/unit
Outpatient SCI Clinic Exam/Treatment Rooms	None or One (depending on patient population)	None
Outpatient/Primary Care Clinics • Exam tables must accommodate lift base	One (May need additional lifts if clinics are not in close proximity to one another.)	One (May need additional lifts if clinics are not in close proximity to one another.)
Hemodialysis • Chair design must accommodate lift base	One (Depending on typical patient population & whether using chairs &/or beds for)	None
Dental • Dental chairs must accommodate lift base	One	None
Nurse Training Area	One	One
Morgue	None	If no CL, provide 'Morgue Lift'

* Collins, J., Nelson, A., and Sublet, V. (2006) Safe Lifting and Movement of Nursing Home Residents. DHHS (NIOSH) Publication Number 2006-117.

Step 2. Calculate SPACE REQUIREMENTS for Portable Lifting Equipment

- These recommendations are **based on ceiling lift coverage** as specified previously.
- Space requirements are based on 1) type of clinical unit, 2) # of patients/residents on unit, and 3) footprint/dimensions of floor-based lifts.
- Determine **minimal** space requirements for storing portable/floor-based lifts on each unit:
 1. Multiply the number of Sit to Stand (STS) Lifts required for the unit/area (as derived from Table 2) by the space requirements* for the lift/s in use or to be purchased
$$\# \text{ STS Lifts/Unit} \times 8 \text{ sf} = \text{Sit to Stand Lift Space Requirement (sf)}$$
 2. Multiply the number of Floor-based Sling Lifts (FBSL) required for the unit/area (as derived from Table 2) by the space requirements* for the lift/s in use or to be purchased
$$\# \text{ FBSL/Unit} \times 10 \text{ sf} = \text{FBSL Space Requirement (sf)}$$
 3. Sum the space requirements for the Sit to Stand and Floor-based Sling Lifts to obtain the minimal space requirements for the portable/floor-based lifts..

$$\text{FBSL} + \text{STS Lift Space Requirements} = \text{TOTAL Space Requirements for Portable Lifts}$$

* Lift Space Requirements:

- Use average (non-expanded base) dimensions (below or from lift manufacturer) to determine the minimum space necessary for the required number of both types of lifts.
- Space requirements will vary with lift weight capacities. The footprint of bariatric floor-based lifts will be greater than those of the non-bariatric lifts given below.
- Space requirements will depend on storage arrangement (side by side, end to end, or combination).

Lift Footprint/dimensions (Consult w/ staff &/or lift manufacturer for true dimensions.)

- Average Sit to Stand Lift = 27" wide x 43" long (~8 sf)
(Expanded base width = ~ 50")
- Average Floor-based Sling Lift = 27" wide x 54" long (~10 sf)
(Expanded base width = ~ 60")

Example: NHCU – One Sit to Stand (STS) lift is recommended for every 8 - 10 partially weight-bearing patients/residents, and one Floor-based Sling Lift (FBSL) is recommended for each unit or floor. On a NHCU with 60 beds and an average of 25 residents who are partially weight-bearing, there will need to be storage accommodations for 3 STS lifts and one FBSL. Using the above average non-expanded base dimensions to determine space necessary for these 4 lifts, there will need to be 34 sf allotted for these 4 lifts.

STS space requirements:	$27'' \times 43'' = 8 \text{ sf} \times 3 \text{ STS} = 24 \text{ sf}$
FBSL space requirements:	$27'' \times 54'' = 10 \text{ sf} \times 1 \text{ FBSL} = 10 \text{ sf}$
TOTAL space requirements	34 sf

2. Portable/Floor-Based Lift ‘Use’ Design Considerations

- **DOOR WIDTHS:**
 - Standard patient room and bathroom doors must accommodate the expanded width of portable/floor-based lifts along with at least two staff members. Standard Sit to Stand Lift Expanded base width = 40 – 50” and Standard Floor-based Sling Lift Expanded base width = 50 - 60”.
 - Throughout the facility, all doors through which patients must pass should accommodate the expanded width of portable/floor-based lifts and other equipment such as standard and motorized beds/gurneys/ stretchers.
 - Bariatric patient room and bathroom doors must accommodate the expanded width of bariatric portable/floor-based lifts along with at least three staff members. The width of bariatric room doors should be a minimum of 5’ and use of a double door design is recommended.
 - When the bariatric population dictates, doors of procedure rooms and other areas must accommodate the expanded width of bariatric beds/stretchers/etc.
- **THRESHOLDS:** Must be flush with floor surface to facilitate safe movement of rolling equipment.
- **FLOORING MATERIAL:** 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.

STORAGE CONSIDERATIONS

LOCATION OF UNIT STORAGE AREAS for PATIENT HANDLING EQUIPMENT

Accessibility of patient handling equipment is critical to ensure appropriate use, therefore storage alternatives are found below.

- For small units, have storage area located centrally
- For large or small units, provide storage in alcoves interspersed throughout unit
- For large units, provide storage locations in multiple areas throughout unit
- For mental health/ psychiatric units: If portable lifts are used in these settings, accommodations must be made for their immediate storage after use. This does not apply to dementia care units or gero-psychiatry units that do not treat actively suicidal patients.

STORAGE for LIFT SLINGS & HANGER BARS and OTHER PATIENT HANDLING EQUIPMENT

- SLING STORAGE:
 - Store sling surplus in same location as lifts. Install large hooks for hanging slings or provide shelving for storage of folded slings.
 - Install large hooks for hanging slings in patient rooms. Slings assigned to a specific patient should be stored in patient room, for instance, on a hook on the outside of a patient's closet, bedside, or somewhere near entry door to provide instant accessibility and ensure compliance.
- BATTERY CHARGING: Include battery charging areas for floor-based lifts
- SHELVING: Standard shelving 4' wide x 6 ½' tall by 2' deep is acceptable for storing:
 - assortment of slings for lifts
 - extra lift hanger bars (Figure 20.)
 - other patient handling equipment: friction-reducing devices (Figure 21.) and air assisted lateral transfer aids w/ motor (Figure 22.)

Figure 20. Lift Hanger Bars Styles

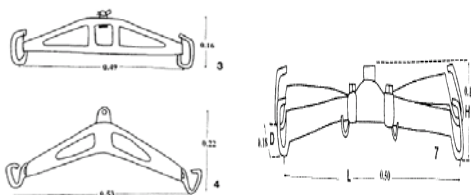


Figure 21. Friction-reducing devices aids (Folds into small package)



Figure 22. Air assisted lateral transfer device w/ motor (Air mattress folds into smaller size)



STORAGE FOR INFREQUENTLY USED EQUIPMENT

An Equipment Bank located in the basement or other such area of the hospital is helpful for storing infrequently used equipment such as bariatric beds, portable bariatric lifts, supine set-up portable lifts, extra lifts. Such an area would need electric supply for charging batteries.

OTHER DESIGN CONSIDERATIONS

ELEVATORS: There should be at least one facility elevator that will accommodate attending staff and motorized patient beds 8 feet in length and expanded capacity (bariatric) beds 60 inches wide.

EMERGENCY EVACUATION of BARIATRIC PATIENTS: If a bariatric unit is planned, if possible, locate bariatric patients on street-access level.

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