

Stair Lifts – Making the Change in Elevations Accessible

By Carol Lamkins, CID, CKMBD

The third article addressing accessible vertical travel for the physically-challenged individual is focused on stair lifts, also know as chair lifts, and platform lifts. Whether in a commercial environment or residential, these lifts allow the disabled person to change elevations when a ramp or elevator is not an option.



Courtesy of Bruno Stair lifts

The need for this type of accessible design may not be necessary in the initial plan of the space. However, preparing the initial construction of the step width for a future addition is not only practical but will also prove economical if a time comes to add a stair lift in the future.

Commercial buildings are governed by California Building Standard Codes. Standards include UL compliant (Underwriters Laboratory Inc) for mechanical and electrical hazards and ISO 9386:2-2000 International standard for stair lifts. Anywhere a lift is being installed into a non single family dwelling will most likely require permits, government approval and lift upgrades. The ASTM A18 tests how stair lifts are manufactured and installed. The ASME (American Society of Mechanical Engineers) A17.1 Committee develops and writes Private Residence Elevator standards. Accessibility Equipment Code for the State of California focuses on child safety and protection.

Residential dwellings are not required by the building codes to have mechanical aids to change floor levels. However, forethought in the design phase adds an advantage for aging in place and for resale even if the residence be sold before an installation is needed. As time goes on, the largest buyer market, baby boomers, will have need of barrier-free and accessible design. At this point in their lives, they are dealing with parent's special needs. Smart designers will get ahead of this curve.

So what can a stair lift offer an individual?

- Confidence that levels different from the main floor will be accessible
- Simple, safe and easy use for vertical travel
- Maintaining independence
- Ensuring the option to age in place



Courtesy of Bruno Stair lifts

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Stair lifts can run on either side of the stairs. They can take an inside or an outside curve and maneuver through landings easily managing 90° and 180° turns.

Stair lifts can be specially designed to fit on narrow stairs using a slim rail, a compact carriage and folding arms, seat and footrest. That way, the entire chair folds away neatly. The track may take approximately 12 inches of the staircase width. When folded up, the stair lift may use about 15 inches of space. If the staircase is less than 36 inches wide, it is recommended that you contact the manufacturer to determine the feasibility and minimum measurements for installing the stair lift.



Courtesy of Acme Home Elevator

Custom manufactured stair lifts can go round corners and double bends in straight, narrow or curved stairs. They can travel round bends on either side of the staircase and negotiate intermediate landings and corridors. Keep in mind that curved lifts require more service over time. This may be due to the extra stresses of the chair going around the curve on the track, the manufacturer's ability to make a very precise product and most important, the local dealers ability to measure accurately.

A two-way powered swivel option enables the chair to swivel to the safest position at both the top and bottom of the stairs, particularly in tight spaces. Wireless call/send controls make installation simple and clean, with no wires running along the wall.

There are models specifically manufactured with outdoor conditions in mind. An outdoor stair lift is weatherized to protect against the elements and comes with a chair cover. To prevent unauthorized use by others, it may also be equipped with a keyed operation system.

Following is a review list that sums up the stair lift factors that need to be considered in advance.

Safety: The chair should include a footrest safety sensor to stop the stair lift should it strike anything on the stairway. A swivel safety switch insures that the stair lift seat is in the proper position before lifting. A safety belt attached to seat for occupant safety. Cable tension safe guards insure that the lift will stop if the cable loses tension.



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Limit switches shut the stair lift off in the same place at the top and bottom of stairs automatically. Pressure controls make sure that the stair lift stops motion as soon as the controls are released.

Stair Lift Cost: As a guideline at the time of this article, prices range for a straight stair lift from about \$1700 for a do-it-yourself model to about \$3500 for a deluxe model installed.

Stair Lift Reliability: Most stair lift manufacturers will not honor the warranty unless their products are installed by a trained dealer. If a self-installed stair lift is being considered, make sure that the manufacturer warranty is in place for the specific model. The weight capacity is critical for all stair lifts. A few allow for a weight capacity of over 300 pounds. Stair lifts are designed for single occupancy. If user is close to 300 lbs. then the seat width may be to be considered. The average seat depth is 18" and if stair stair lift user is tall (6' plus) or is using a wheelchair, a deeper seat may be necessary for stability.

Length of Time on the Market: If a stair lift model has been recently launched by the manufacturer, it would be best to consider this factor and select a stair lift model that has been on the market for at least two years. It is common for new stair lift models to take about 18 months to get the kinks out. A new model may undergo numerous tweaks in the first 18 months.

Cable, Rack and Pinion or Other Drive System: There are manufacturers and dealers that are extremely negative on cable drive systems. This does not make sense for a number of reasons. The most obvious is that your common elevator in a mall, office building or institution is driven by cables. Rack and pinion does require lubrication and can be some noise issues. Bottom line is that both systems are fine and one does not have a distinct advantage over the other.

Warranty: Warranties vary among manufacturers. One of the best is a 10-year period on the drive train and a 5-year period on all component parts of the lift. If battery operated, the battery is usually covered for one year of normal use.

Local Installation: It is clearly an advantage to use a local stair lift installation company to install the stair lift. Self-installed stair lifts are available but the warranty should be double-checked for coverage. Installation starts at about \$550. Installations on concrete, tile, or steel stair cases are more expensive.

Here are some other points to consider when selecting, installing and servicing a stair lift:

1. Rail mounts to stair treads, not to wall. Stairs must be in sound condition.
2. If the stairs are narrow (less than 37") than the track distance from the wall will be a key issue. This factor is also dependent on the height of the stair lift user and their leg length.
3. If your client has difficulty transferring to the seat of the chair then seat height will be a key issue.
4. Seat height at bottom of stairs is an important point if client is short.

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5. If lower back pain is an issue, then a soft start and stop are important. Direct current (DC) battery powered residential stair lifts may be more appropriate.
6. Stairway must have adequate lighting at top and bottom of stairs.
7. Confirm local government requirements for electrical plug and receptacle.
8. Track must be allowed to come all the way to the top landing and bottom landing for safe transfer to the seat of electric stair lift.
9. When lift is installed, the trip switches tend to be the most problematic part. Great care is required. Trip switches are easy to damage during installation regardless of the manufacturer or model.
10. The footplate hitting the stairs and activating a stop switch can be common if the lift is not installed properly.
11. Most manufacturers boast that their drive system is better than others. In actuality, most stair lift systems are comparable in durability. Rack and pinion or cable and chain are common.
12. Tracks require proper alignment to assure the stairway lift does not stop when no one technical is available.
13. Solutions can be found through information about handicapped stair lifts to assist in establishing a solution to those with a physical disability. Home stairways present mobility and accessibility barriers. This is especially true for electric scooters and wheelchair users.
14. Stair lifts should be serviced every six months or once a year as per the manufacturer's recommendations.
15. Most manufacturers will void the warranty if units are not serviced by an approved dealer.
16. Service usually requires the unit to be dismantled to some extent requiring some expertise.

Stair lifts should have a battery powered back-up system to work during a power outage. The battery charger should plug into a standard household outlet. Replacing the batteries are easier if they are common and off-the-shelf from any battery supplier. With normal use, batteries are usually good for an average of 3 years.

If your client has a need and is not convinced of the value of a stair lift, then another option is leasing a stair lift for a short period of time. Generally speaking, leasing a stair lift for three months or less is cost effective. For a period of time exceeding three months, it is usually less expensive to purchase a used stair lift and then to resell it back to the company from which it was purchased originally, This process is assuming that the company will repurchase the lift.

Conditions to lease a stair lift are:

1. Only straight stair lifts are rented. Any curve in your staircase will not be accommodated with a straight stair lift. The only exception to this fact is if the stairs have a flat landing at the midpoint and the client is willing to consider renting two separate straight stair lifts.
2. If the stairs are outside your home, then very few stair lift installation companies will lease an exterior stair lift. This is due to the fact that they would have to order

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a new lift with an exterior package and would find it difficult to find another lease application in the future to justify such a specific need.

3. A stair lift will last for about 10-12 years. Most stair lift rentals are used lifts with perhaps 3-5 years prior use. If a stair lift is older than 5 years old then your client should consider another option.

There are four components in the cost to lease a stair lift:

1. Cost to prepare the stair lift for installation to fit the stairway. This includes cutting the track to fit your stairs. This fee can range from \$100-\$200.
2. The stair lift installation can cost in the price range of \$450-\$600.
3. Removal of the stair lift costs approximate \$100-\$300.
4. Usually there is a three month minimum stair lift rental term. Price can range for three months from \$300 to \$600. The total approximate cost for a three month rental of a stair lift would be \$950-\$1500.

The going price range for a used stair lift supplied and installed can range from \$1600 to \$2400. This price range included preparing the lift for your stairs, installing the lift and a warranty of some period of time. If the initial stair lift installing company will offer to repurchase the lift at a later time, for half of what they could resell it for, then buying a used stair lift and reselling it back to them will be less expensive than leasing a stair lift should the client plan to keep it for longer than three months.

Other types of lifts include platform lifts (or wheelchair lifts) and hillside lifts. Vertical and inclined platform lifts are for both the home and in commercial settings. They are efficient and safe and will meet ADA compliance providing access to all levels.

The inclined platform lift for single, straight flights of stairs carries a passenger with wheelchair up and down stairs by travelling along a rail system mounted alongside the stairs. This lift is suitable for home or commercial applications where an elevator or vertical lift cannot be easily accommodated.

Designed for a single flight of interior straight stairs, the inclined platform is generally easy to install with minimal construction required. The motor is housed on board the unit with no need for a machine room. The folding platform, available in ADA-compliant size, allows easy access the stairs when the lift is not being used, making this a good choice for schools, churches and other public buildings.



Courtesy of Acme Home Elevator

The system should have a continuous rechargeable battery to allow it to operate through a power failure. Charging stations at the top and bottom ensure the lift is controllable from either level. An unobtrusive design attributes to space-saving accessibility.

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Hillside lifts are available in two types of operating systems - a cable lift and a track lift. These lifts are made to traverse steep hillsides. They provide home and beach access, cargo hauling, and handicapped access.

Platforms are also designed for access over stairs with multiple levels, curves or intermediate landings. This type of lift carries a passenger with wheelchair up and down stairs by travelling along a rail system mounted alongside the stairs.



Courtesy of Acme Home Elevators

An alternative to an elevator or vertical platform lift, the platform lift requires minimal construction. The foldaway platform allows full access to the stairs when the lift is not in use and optional out-of-the-way parking makes this a suitable choice for commercial applications.

Flexible for many types of installations, including inside and outside curves, spiral stairs and multiple levels, the platform lift can be custom built to your specifications. The available ADA-compliant platform, included fold out seat and audio visual movement alarm that meets public building access requirements.

Vertical Platform or access lifts offer cost effective and space-efficient solutions. Functional solutions range from the rugged outdoors, to the most luxurious office tower lobbies. They are suitable for installations in public and commercial buildings, as well as private homes and are extremely versatile in design. They can be customized to suit virtually any project requirements and aesthetic needs.



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The hydraulic or a screw drive system enables the lift to travel up and down a rail system enclosed in the lift tower. The tower is supported with attachment to an existing wall or through a constructed hoistway. Because the drive system is contained within the lift tower, no additional machine room is required for installation.

Enclosed models for outdoor applications use aluminum and acrylic inserts and top dome with corrosion-resistant steel components or tempered or laminated glass panels. Multiple stops are an option. There are many powder-coat finishes available. An interior ventilation system is necessary to keep the inside comfortable. The gates and door can be motorized. An ADA hands-free phone may also be available.

Commercial interior designers need to have a working knowledge of vertical lift design and related building codes. Stair and vertical lifts provide a viable solution if an elevator is not feasible.

Residential designers can make everyday life easier by understanding and furnishing information to clients who face the challenge in climbing stairs whether for themselves or for friends and family. Stair vertical lifts can restore the ability to enjoy the entire home, not just the first floor. Straight rail or custom curved rail, a stair lift can be customized with no stairway modification required. This is another way in which the interior designer can make a difference.

Resources:

<http://acmestairlifts.com/our-stairlifts.html>

<http://www.ameriglide.com/Electric-Powered-Stair-Lift.htm?ref=navside>

<http://www.bruno.com/socal-stairlift-info.html>

http://california.acornstairlifts.com/?source=google&adg=california&u2=Stairlift_High_Volume_b&gclid=CM29ipHv2bUCFQwFnQodA38ANQ

http://california.acornstairlifts.com/?source=google&adg=california&u2=Chairlift_e&gclid=Clvn8cnhh7YCFWGrPAodyBoAYw

<http://www.silvercross.com/stairlift-reviews.html>

<http://www.stairlift-tips.com/stair-lifts.htm>

NOTE: Prices will vary and are referenced at the date of this article (May 2013).