



2010 ADA Standard Performance Area Requirements



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Description: Provides an overview of 2010 ADA Standards for Accessible Design and Code requirements regarding universal access and available options for providing stage access in schools, churches, and performing arts centers

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Learning Units: 1.00 This program qualifies for HSW credit.

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Learning Objectives

Upon completing this course, you will have a better understanding of:

- 2010 ADA Standards requirement for providing universal accessibility to stage areas
- Important design considerations for providing stage access
- Available accessibility options and the features of each type of lifting device
- The features, components, and operation methods of convertible stairway lifts
- Selection criteria for choosing between accessibility options



Accessibility Codes & Standards

Accessibility Codes & Standards

The 2010 ADA Standards for Accessible Design

- The 2010 ADA Standards set requirements for accessibility to public places and commercial facilities by individuals with disabilities
- "Universal Access" is providing safe, direct access to anyone desiring to use a building regardless of physical limitations
- The 2010 ADA Standards are to be applied during the design, construction, and alteration of such buildings and facilities to the extent required by regulations issued by Federal Agencies
- A revised ADA Accessibility Guidelines, combined with the Architectural Barriers Act (ABA), was adopted by the Department of Justice on September 15, 2010. The ADA/ABAAG was completed in July 2004 and is included in the 2010 ADA Standards for Accessible Design.

Overview

- The Department of Justice published revised regulations for Titles II and III of the Americans with Disabilities Act of 1990 “ADA” in the Federal Register on September 15, 2010. These regulations adopted revised, enforceable accessibility standards called the 2010 ADA Standards for Accessible Design “2010 Standards” or “Standards”. The 2010 Standards set minimum requirements – both scoping and technical – for newly designed and constructed or altered State or local government facilities, public accommodations, and commercial facilities to be readily accessible to and usable by individuals with disabilities.

Accessibility Codes & Standards

2010 ADA Standards for Accessible Design

- Number & Size of Wheelchair Locations

Assembly areas must provide an adequate number of accessible wheelchair locations based on total seating capacity. Each wheelchair location shall occupy a minimum space of 48" x 66" for front or rear access and a 60" x 66" space for side access.

- Placement of Wheelchair Locations

“Wheelchair areas shall be an integral part of any fixed seating plan and shall be provided so as to provide people with physical disabilities a choice of admission prices and lines of sight comparable to those for members of the general public.”

- Access to Performing Areas

“An accessible route shall directly connect the assembly seating area with the performance areas. Areas include stages, arena floors, dressing rooms, locker rooms, and other spaces used by performers.”

Accessibility Codes & Standards

Accessible and Usable Buildings and Facilities (ICC/ANSI A117.1)

- The International Code Council (ICC) and the American National Standards Institute (ANSI) have prepared this standard in order to:
 - “...make sites, facilities, buildings and elements accessible to and usable by people with such physical disabilities as the inability to walk, difficulty walking, reliance on walking aids, blindness and visual impairment, deafness and hearing impairment, uncoordination, reaching and manipulation disabilities, lack of stamina, difficulty interpreting and reacting to sensory information, and extremes of physical size. The intent of these sections of the standard is to allow a person with a physical disability to independently get to, enter, and use a site, facility, building, or element.”
- The message is clear - public buildings must be accessible to all!



Design Considerations

Design Considerations

Introduction

- When designing a new building, it is possible to eliminate the need for lift systems by designing a single level building, or incorporating gradual slopes or elevators into the final design.
- When working on renovations or retrofit projects, it can be much more difficult to provide an adequate accessibility solution due to the limitations of the existing structure.
- In either case, there may be some areas within a building that require an instant change in elevation and cannot be made accessible without the use of some type of lift system.
- For example, stage areas, altars, band rooms, projection rooms, and orchestra pits all present an immediate, low-rise change in elevation that can be difficult or even impossible for mobility impaired individuals to negotiate.

Design Considerations

Site Preparation

- What site preparation does the device require?
A large factor in determining how to provide accessibility to a raised platform is the amount and cost of site preparation. The more site preparation involved, the higher the cost, and the greater limitation on the use of available space. Structural issues often influence the decision.
- Will walls have to be moved? Will a pit be required?
Relocating walls can be very costly. If they are load bearing walls or have utilities running through them, the costs can quickly escalate. Many accessibility solutions require a pit below floor level. Providing a pit or elevating the surrounding floor can be expensive and in many cases unfeasible.
- What type of electrical power is available in the area?
Power requirements are a consideration. If additional power feeds or an abnormal voltage are required, providing power can be very expensive.

Design Considerations

Space Requirements

- How much space does the device require? What is the cost of floor space?
In any project, floor space is money. The higher the per square foot cost of the project, the more important efficient use of space becomes. With floor space costs exceeding \$250 per square foot in some parts of the country, providing access should require a minimum of space.
- Is the space available or will it need to be reallocated?
Was accessibility considered from project inception or was it an added requirement? Is the project a renovation where there was no accessibility provision in the original design? Is the space allocation competing between different uses?
- Will the space be well utilized or will it often sit idle?
With the high cost of floor space, it is desirable to have space fully utilized. If the space is only occasionally used, or worse, becomes a collection point for debris, the effectiveness of the design is diminished. Having the space used for multiple purposes is a great advantage.

Design Considerations

Traffic Flow to Stage Area

- How do mobility impaired people access the stage?
Part of the design and placement of accessibility solutions has to be consideration of the path a wheelchair user must take to get to the accessibility equipment and the stage. It is now required that everyone use the same path with no undue attention drawn to a mobility impaired person.
- Are the aisles wide enough for wheelchair access?
In many renovations, the center and side aisles of an auditorium are narrow. Providing adequate space for wheelchair traffic is a consideration.
- Is there adequate clearance between the seating and the stage?
Often the space between the first row of seating and the stage is too close to allow a wheelchair to pass through. This is another consideration in the design of an accessible stage.

Design Considerations

Traffic Flow to Stage Area Cont'd . . .

- Will foot traffic be diverted by the accessibility device?

The accessibility equipment should not interfere with foot traffic. Careful placement of the device and a good layout are required to prevent obstructions to primary traffic flow.

- Is there space available?

The intent of universal access is to have everyone use the same traffic patterns throughout a building.

The 2010 ADA Standards require the path from seating areas to the performance area (stage) to be the same for everyone.

Design Considerations

Sight Lines & Aesthetics

- Will the selected device interfere with audience sight lines?
A primary consideration in any auditorium or meeting room is ensuring that there is a clear view of the activity on stage from every seat. If some seats have their view of the stage obstructed by accessibility equipment, the effective capacity of the space is reduced. Every effort should be made to maintain sight lines.
- Will the selected device detract from the aesthetics of the stage area?
Aesthetics are a very important consideration for stage areas. Building owners hire architects to make their building as aesthetically pleasing and functional as possible. You don't want to have a beautiful auditorium diminished by the addition of an "appliance" to provide accessibility. The accessibility device should blend in with the architecture so that it is not a focal point.

Accessibility Options

Introduction

- The 2010 ADA Standards require facilities to provide universal access to individuals with physical limitations.
- Even short flights of stairs can present a real challenge for mobility impaired individuals unless some type of accessibility device is made available.
- What options are available for providing disabled individuals with access to stage areas or platforms where there is an immediate floor height transition?





Accessibility Options

Accessibility Options

Elevators

- Elevators consist of a totally enclosed cab that travels vertically between two or more landings.
- The space requirements for elevators are relatively large, since they typically require a hoist way, a pit, and a remote machine room.
- Elevators require annual inspections and preventative maintenance programs to ensure that safety standards are being met.
- Elevators typically have very large power requirements and often result in higher noise levels than other accessibility devices.



Accessibility Options

Ramps

- A ramp is a permanent, gradually sloped surface that allows travel between areas of different elevation.
- Code regulations specify that the slope of a ramp cannot exceed 1 inch rise per 12 inches of length and that a horizontal rest platform must be provided every 30 lineal feet.
- Ramps are typically expensive to construct, require large amounts of floor space and continual care to keep the surface clear and clean.
- The space dedicated to ramps is often poorly utilized because it is typically placed out of the area of main traffic flow and is slower to traverse than stairs.



Accessibility Options

Inclined Platform Lifts

- Inclined platform lifts attach to the side wall of a stairway and move in a path parallel to the slope of the stairs between two landings.
- When the device is not in use, the platform is stored vertically along the wall, and is rotated into a horizontal position over the stairway when required.
- Unlike elevators or vertical platform lifts, this device offers minimal protection to the user while in motion.
- Inclined platform lifts reduce the width of the stairway when not in use, and block the stairway to foot traffic when in use.



Accessibility Options

Vertical Platform Lifts

- A vertical platform lift is analogous to a single passenger elevator with a vertical travel limited to a distance of 14 feet.
- This device provides protection to the user while on the platform, although it is not fully enclosed at the top.
- The space required for a vertical platform lift is often poorly utilized because of the extremely specialized nature of the device.
- The lift enclosure often becomes a storage area for all types of unsuitable materials.



Accessibility Options

Portable Lifts

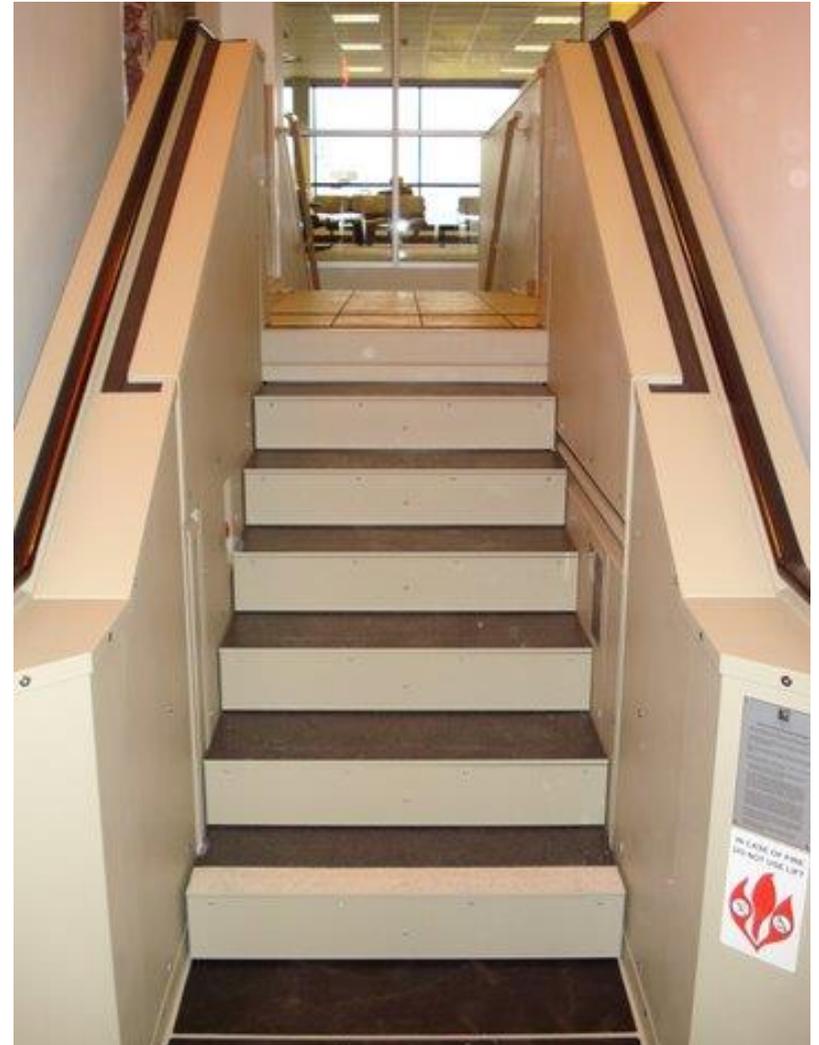
- Portable lifts are similar to vertical platform lifts, however portable lifts can be moved to the edge of an elevated stage or platform, used to provide access to the stage and removed when no longer required.
- Portable lifts are relatively large and heavy and must often be disassembled in order to fit through doorways. Because they can be difficult to handle, portable lifts are often left in storage and not used or left in place.
- Leaving the portable lift in place at the stage causes several problems, including blocked sight lines, and violation of codes for permanent lifting devices.



Accessibility Options

Convertible Stairway Lifts

- Convertible stairway lifts combine a stairway and a platform lift into one unit, allowing for both mobility impaired and pedestrian traffic to the stage area.
- These systems can accommodate floor height transitions from 18 inches to 50 inches, and require less space than ramps, elevators, and other types of lifting devices.
- Convertible lifts can be fully integrated into the design of the stage area, providing an aesthetically pleasing accessibility solution.





Convertible Stairway Lifts

AccessStair Sequence of Operation



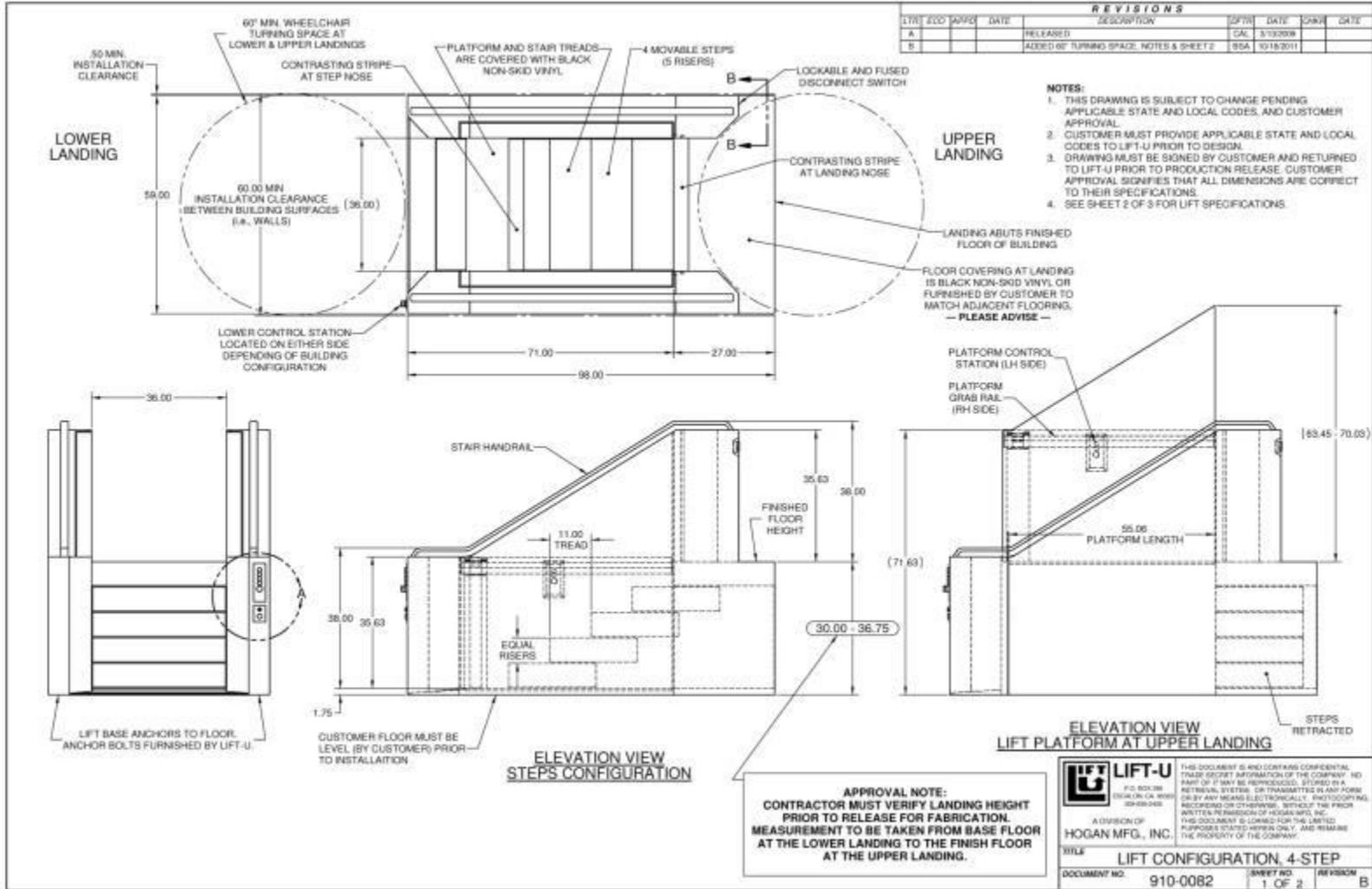
[Click Here to View Video](#)

AccessStair Video



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Convertible Stairway Lifts



Convertible Stairway Lifts

Features & Benefits

Aesthetics

- Convertible stairway lifts harmonize with the surrounding design and are virtually invisible when not in use as a lift.

Cost & Maintenance

- Convertible stairway lifts are designed to be highly reliable, while competitively priced with other devices on a total installed cost basis. Minimal site preparation is a major cost savings.

Maximum Space Efficiency

- Convertible stairway lifts require no more space than a standard stairway and occupy a smaller footprint than ramps, elevators, and vertical platform lifts.

Convertible Stairway Lifts

Features & Benefits Cont'd . . .

Ease of Operation

- Convertible stairway lifts provide users with independent access and require minimal dexterity to operate. The device cycles quickly and quietly from stairway mode to lift mode, minimizing attention to the user and distraction to others.

Ease of Installation

- Convertible stairway lifts can be installed on a level floor with little preparation. They do not require a pit or separate mechanical area, and are ideal for retrofit projects where space may be limited.

Convertible Stairway Lifts

Finishes

- Convertible stairway lift's standard finish is a durable, taupe textured powder coat. Custom colors are available at an additional cost.
- The standard floor treatment is a non-skid, composite vinyl, black in color. First step and upper landing nosing include a contrasting color stripe. Carpet and other flooring can be applied on-site by others.
- Standard handrails are black. Other colors are available at an additional cost.



Convertible Stairway Lifts

Installation

- The flooring under the unit should be stable and level from front to rear and side to side prior to installation.
- The base of the lift should be anchored to the floor. Depending on the vertical rise of unit, up to 6 anchors maybe required.



Convertible Stairway Lifts

Codes & Standards

- The stairway function is regulated by the International Building Code (IBC), standard ICC/ANSI A117.1 "Accessible and Usable Buildings and Facilities", and the 2010 ADA Standards for Accessible Design.
- The lift function is considered to be a "Runway Enclosure Not Provided, Vertical Platform Lift" under the American Society of Mechanical Engineers A18.1 Safety Standard for Wheelchair Lifts and Stairway Chair Lifts (ASME A18.1) which limits the vertical travel of the device to 5'-0".



Choosing an Accessibility Option

Choosing an Accessibility Option

Selection Criteria

Space Requirements

- How much space does the device require? How many square feet are required, in total, to install and use the device?
- Is space limited? Is space a primary or secondary consideration? Is this a renovation, restoration, or new construction?
- Are there competing uses for the space? Would you rather use the space for some other use? Could you choose a more space efficient solution?
- What is the cost per square foot on the project? Have you added in the cost of floor space to your determination of the cost of the solution?

Choosing an Accessibility Option

Selection Criteria

Utilization of Space

- Will the space required for the device be well used? Is the space used by everyone or just the mobility impaired?
- Will the space be utilized frequently or only occasionally? How often will the space be used?
- When not in use for accessibility, how will the space be utilized? Will the space become a storage catch-all?

Choosing an Accessibility Option

Selection Criteria

Visual Impact

- Does the device preserve the aesthetics of the design? Can the device be integrated into the design of the stage? What finishes are available?
- Will the device cause problems with sight lines? What visual accommodations might be required? Ideally, it should not be necessary to “hide” the accessibility device in order to maintain sight lines.

Choosing an Accessibility Option

Selection Criteria

Method of Operation

- Can the device be operated independently?
- Does the use of the device need to be monitored or controlled? Is the device in plain sight or is it in an area out of sight? Is it necessary to control unintended use, to keep the device from being “played” with?

Choosing an Accessibility Option

Selection Criteria

Ease of Use

- Is the device easy to use? Is the operation straight forward?
- Is it always available for use? Does the user have to wait for the device? How quickly does the device operate?
- Does it call undue attention to the user? Could this cause embarrassment for users by calling attention to their disabilities? Is the use of the device a normal part of the layout?

Choosing an Accessibility Option

Selection Criteria

Installation Costs

- What is the total cost to get the device installed and operational? What is the total cost of installation? Have you considered all the costs, not just the purchase price of the equipment?
- Are there any additional site preparation or post-installation costs? Site preparation and post-installation cost are often not identified or considered, they can be substantial and should be identified.

Choosing an Accessibility Option

Selection Criteria

Maintenance Expenses

- What will be the on-going costs of operating the device? Is the device reliable? Maintenance costs can make an inexpensive purchase very costly.
- How much energy does the device consume? How much electricity is used? What is the cost of electricity at the site? Is there emergency power available? Is it required? Is battery back-up required and specified?
- Does the device require a maintenance program or periodic inspection? What is the cost of a preventative maintenance program? Are annual inspection by a government agency required? What do they cost?

Choosing an Accessibility Option

Decision Matrix

- A decision matrix combines various decision criteria with importance ratings and device rankings in order to compare a variety of accessibility options.
- First, the architect or building owner should rate the importance of each criterion (e.g. installed cost) on a scale of 1 (not very important) to 10 (very important).
- Once the decision criteria are rated, each accessibility option is given a rank from 7 (best option) to 1 (worst option) for each decision criteria.
- The ranks are then multiplied by the importance ratings for each decision criteria to give total scores. The accessibility device with the highest score is the best option.

Choosing an Accessibility Option

The following is a sample of a completed decision matrix with importance ratings, rankings and total scores for various accessibility options.

Decision Criteria	Importance	Elevator	Ramp	Inclined Lift	Platform Lift	Out of Floor Lift	Portable Lift	Stairway Lift
Preservation of Aesthetics	10	7	1	4	3	5	2	6
Preservation of Sight Lines	9	5	2	4	3	6	1	7
Required Site Preparation	8	2	1	6	4	3	7	5
Egress from Stage Area	8	1	7	5	3	2	4	6
Space Requirements	8	2	1	6	4	5	3	7
Installed Cost	8	1	3	6	5	2	7	4
Traffic Flow to Stage Area	5	5	7	4	1	3	2	6
Utilization of Space	5	3	2	6	1	5	4	7
Ease of Use	5	6	7	2	3	4	1	5
Maintenance Expense	4	1	7	4	3	2	6	5
Total Score		237	232	336	222	268	256	409

Choosing an Accessibility Option

The following is an example of a decision matrix with importance ratings for various decision criteria, along with comments, ranking and a total score for Elevators.

Decision Criteria	Importance to Architect/Owner	Comments	Rank	Points
Preservation of Aesthetics	10	Out of Sight	7	70
Preservation of Sight Lines	9	Out of Sight	5	45
Required Site Preparation	8	Extensive	2	16
Egress from Stage Area	8	Wait for Access	1	8
Space Requirements	8	80 Sq. Feet	2	16
Installed Cost	8	\$105,000.00	1	8
Traffic Flow to Stage Area	5	Clear	5	25
Utilization of Space	5	Poor	3	15
Ease of Use	5	Simple	6	30
Maintenance Expense	4	High	1	4
Total Score				237

Choosing an Accessibility Option

The following is an example of a decision matrix with importance ratings, comments, rankings and a total score for Ramps.

Decision Criteria	Importance to Architect/Owner	Comments	Rank	Points
Preservation of Aesthetics	10	Eyesore	1	10
Preservation of Sight Lines	9	May Block	2	18
Required Site Preparation	8	Extensive	1	8
Egress from Stage Area	8	Immediate	7	56
Space Requirements	8	280 Sq. Feet	1	8
Installed Cost	8	\$65,000.00	3	24
Traffic Flow to Stage Area	5	Out of Way	7	35
Utilization of Space	5	Poor	2	10
Ease of Use	5	Simple	7	35
Maintenance Expense	4	Low	7	28
Total Score				232

Choosing an Accessibility Option

The following is an example of a decision matrix with importance ratings, comments, rankings and a total score for Inclined Platform Lifts.

Decision Criteria	Importance to Architect/Owner	Comments	Rank	Points
Preservation of Aesthetics	10	Detracts	4	40
Preservation of Sight Lines	9	Hidden	4	36
Required Site Preparation	8	Minimal	6	48
Egress from Stage Area	8	May Impede	5	40
Space Requirements	8	20 Sq. Feet	6	48
Installed Cost	8	\$25,000.00	6	48
Traffic Flow to Stage Area	5	May Impede	4	20
Utilization of Space	5	Poor	6	30
Ease of Use	5	Complex	2	10
Maintenance Expense	4	Medium	4	16
Total Score				336

Choosing an Accessibility Option

The following is an example of a decision matrix with importance ratings, comments, rankings and a total score for Vertical Platform Lifts.

Decision Criteria	Importance to Architect/Owner	Comments	Rank	Points
Preservation of Aesthetics	10	Detracts	3	30
Preservation of Sight Lines	9	Hidden	3	27
Required Site Preparation	8	Some	4	32
Egress from Stage Area	8	Disabled Only	3	24
Space Requirements	8	72 Sq. Feet	4	32
Installed Cost	8	\$40,000.00	5	40
Traffic Flow to Stage Area	5	Out of Way	1	5
Utilization of Space	5	Poor	1	5
Ease of Use	5	Moderate	3	15
Maintenance Expense	4	Medium	3	12
Total Score				222

Choosing an Accessibility Option

The following is an example of a decision matrix with importance ratings, comments, rankings and a total score for Portable Lifts.

Decision Criteria	Importance to Architect/Owner	Comments	Rank	Points
Preservation of Aesthetics	10	Detracts	2	20
Preservation of Sight Lines	9	Blocks	1	9
Required Site Preparation	8	None	7	56
Egress from Stage Area	8	Disabled Only	4	32
Space Requirements	8	72 Sq. Feet	3	24
Installed Cost	8	\$25,000	7	56
Traffic Flow to Stage Area	5	Out of Way	2	10
Utilization of Space	5	Poor	4	20
Ease of Use	5	Complex	1	5
Maintenance Expense	4	Medium	6	24
Total Score				256

Choosing an Accessibility Option

The following is an example of a decision matrix with importance ratings, comments, rankings and a total score for Convertible Stairway Lifts.

Decision Criteria	Importance to Architect/Owner	Comments	Rank	Points
Preservation of Aesthetics	10	Excellent	6	60
Preservation of Sight Lines	9	Excellent	7	63
Required Site Preparation	8	Minimal	5	40
Egress from Stage Area	8	Immediate	6	48
Space Requirements	8	40 Sq. Feet	7	56
Installed Cost	8	\$70,000	4	32
Traffic Flow to Stage Area	5	Normal	6	30
Utilization of Space	5	Excellent	7	35
Ease of Use	5	Moderate	5	25
Maintenance Expense	4	Medium	5	20
Total Score				409

Course Summary

In Conclusion

Convertible stairway lifts are a fiscally responsible alternative to more traditional ways of achieving handicapped access to raised platforms and stages in various new and retrofit situations, applicable for use in schools, churches and performing arts centers. They require a minimal amount of space, are quick and easy to install, and they don't require a separate fixed stairway to accommodate regular pedestrian traffic.





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Innovative Products for Independent Access

Thank You for Your Time

**This concludes the American Institute of Architects
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