



SECTION 14 42 13

INCLINE WHEELCHAIR LIFTS

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Indoor inclined platform wheelchair lifts.
- B. Outdoor inclined platform wheelchair lifts.
- C. Portable emergency evacuation device.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete: Anchor placement in concrete.
- B. Section 04800 - Masonry Assemblies: Anchor placement in masonry.
- C. Section 06100 - Rough Carpentry: Blocking in framed construction for lift attachment.
- D. Section 09260 - Gypsum Board Assemblies: Stair walls.
- E. Section 13650 - Fire Alarm System: Building Fire Alarm Integration system to connect the lift control system with the building fire alarm system.
- F. Division 16 - Electrical: Electrical power service and wiring connections.
- G. Division 16 - Electrical: Concealed low voltage control wiring.
- H. Division 16 - Electrical: Intercom and wiring.

1.3 REFERENCES

- A. ASME A17.5 - Elevator and Escalator Electrical Equipment.
- B. ASME A18.1a 2001 - Safety Standard for Platform Lifts and Stairway Chairlifts.
- C. CSA B44.1 - Elevator and Escalator Electrical Equipment.
- D. CSA B355 - Lifts for Persons with Physical Disabilities.
- E. ICC/ANSI A117.1 - Accessible and Usable Buildings and Facilities.
- F. NFPA 70 - National Electric Code.
- G. CSA - National Electric Code.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. **Product Data:** Manufacturer's data sheets on each product to be used, including:
 - 1. Submit manufacturer's installation instructions, including preparation, storage and handling requirements.
 - 2. Include complete description of performance and operating characteristics.
- C. Shop Drawings:
 - 1. Show typical details of assembly, erection and anchorage.
 - 2. Show complete layout and location of equipment, including required clearances.
- D. Selection Samples: For each finished product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finished product specified, two samples, representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Firm with minimum 10 years documented experience in manufacturing of inclined wheelchair platform lifts of installations of type specified.
- B. Installer Qualifications: Firm licensed to install equipment of this scope, with evidence of experience with specified equipment. Installer shall maintain an adequate stock of replacement parts and have qualified people available to ensure timely maintenance and callback service at the project site.

1.6 REGULATORY REQUIREMENTS

- A. Provide platform lifts in compliance with:
 - 1. ASME A18.1 - Safety Standard for Platform Lifts and Stairway Chairlifts.
 - 2. ASME A17.5 - Elevator and Escalator Electrical Equipment.
 - 3. NFPA 70 - National Electric Code.
- B. Provide platform lifts in compliance with:
 - 1. CSA B355 - Lifts for Persons with Physical Disabilities.
 - 2. CSA B44.1/ASME A17.5 - Elevator and Escalator Electrical Equipment.
 - 3. CSA - National Electric Code.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store components off the ground in a dry covered area, protected from adverse weather conditions.

1.8 PROJECT CONDITIONS

- A. Do not use wheelchair lift for hoisting materials or personnel during construction period.

1.9 WARRANTY

- A. Warranty: Provide a two year limited warranty covering replacement of defective

parts and excluding labor. Preventive maintenance agreement required.

- B. Extended Warranty: Provide an additional five year limited warranty covering replacement of defective parts and excluding labor for a total of seven years. Preventive maintenance agreement required.

1.10 MAINTENANCE SERVICE

- A. Furnish service and maintenance for elevator system and components for the following period from Date of Substantial Completion.
 - 1. Two years.
 - 2. Seven years.
- B. Include systematic examination, adjustment, and lubrication of elevator equipment. Repair or replace parts whenever required. Use parts produced by manufacturer of original equipment. Replace wire ropes when necessary to maintain required factor of safety.
- C. Provide emergency call back service for this maintenance period.
- D. Perform maintenance work using competent and qualified personnel approved by elevator manufacturer or original installer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Garaventa Lift; United States - P.O. Box 1769, Blaine, WA 98231-1769. Canada 18920 – 36th Ave., Surrey, BC V3Z 0P6. ASD. Toll Free: 800-663-6556. Tel: (604) 594-0422. Fax: (604) 594-9915. Email: productinfo@garaventlift.com; Web www.garaventlift.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 STAIR LIFT FOR STRAIGHT OR TURNING STAIRWAYS

- A. Inclined Platform Lift: Garaventa Stair-Lift, Model GSL Artira inclined platform lift for straight and turning stairways. Lift consists of a tubular guide rail system, a folding platform that is moved along the guide rails by a rope sprocket drive system, overspeed safety system and call stations at each landing. Conform to the following design requirements:
 - 1. Application:
 - a. Indoor.
 - b. Outdoor.
 - 2. Platform Load Rating: 660 lbs (330 kg).
 - 3. Travel Speed: 20 fpm (101.6 mm/s), slowing to 50 percent of rated speed before entering and while rounding corners.
 - 4. Platform Deck: 16 gauge (1.6 mm) sheet metal coated with electrostatically applied and baked anti-skid Sandex black paint.
 - a. Platform Size A (ADA Compliant): 31-1/2 inches (800 mm) wide by 48 inches (1220 mm) long.
 - b. Platform Size B: 31-1/2 inches (800 mm) wide by 41-3/8 inches (1050 mm) long.
 - c. Platform Size C: 31-1/2 inches (800 mm) wide by 35-3/8 inches (900

- d. Platform Size D: 27-1/2 inches (700 mm) wide by 29-1/2 inches (750 mm) long.
- 5. Platform Operation:
 - a. Automatic Fold: Folded and unfolded electrically from the call station.
 - b. Emergency Manual Fold: When unit is left in the open position, platform may be manually folded and retained in closed position.
- 6. Under Platform Obstruction Sensing:
 - a. Provide an under platform sensing device to stop the platform from traveling in the downward direction when encountering 4 lbs (1.8 kg) of pressure.
 - b. Platform is permitted to travel in the opposite direction of obstruction to allow clearing.
- 7. Passenger Restraining Arms:
 - a. Platform equipped with retractable passenger restraining arms in compliance with ASME A18.1a.
 - b. Arms stop moving when an obstruction causing 4 lbs (1.8 kg) of pressure is encountered and will immediately retract when the signal is removed.
 - c. Provide with means to manually unlock and open the restraining arms for passenger emergency evacuation.
 - d. Arms are folded and unfolded electrically from the call stations or platform controls.
 - e. Top of arms mounted 37-3/8 inches (948 mm) above the platform deck. When in guarding position the arms are located above the perimeter of the platform.
 - f. The gaps between ends of arms shall not exceed 4 inches (100 mm).
- 8. Boarding Ramps:
 - a. Provide boarding sides of platform with retractable ramps positioned for travel at a height of 6 inches (152 mm) measured vertically above the platform deck.
 - b. Lock ramps in their guarding positions during travel. When the platform is at the landing, only the retractable ramp servicing the landing shall be operable.
 - c. Ramps shall be folded and unfolded electrically.
 - d. Retractable ramps, in the guarded position, shall withstand a force of 125 lbs (556 N) applied on any 4 inch (100 mm) by 4 inch (100 mm) area. This force shall not cause the height of the ramp, at any point in its length, to be less than 6 inches (152 mm) measured vertically above the platform deck.
 - e. Provide a means to manually unlock the ramps for emergency evacuation when platform is located at a landing.
 - f. Provide a bi-directional obstruction sensitive device on the travel direction end of the platform to stop lift when 1.8 kg (4 lbs.) of pressure is encountered, either from inside or outside of the platform. Platform is permitted to travel in the opposite direction of obstruction to allow clearing.
 - g. When platform folds, passenger restraining arms shall fold down and be covered by the folded platform.
- 9. Platform Kick Plate:
 - a. Provide non-boarding and non-guide-rail side of the platform with a kick plate barrier of not less than 6 inches (152 mm) in height, measured vertically from the platform deck.
 - b. When the platform is folded the kick plate shall cover the platform controls providing protection from vandalism.
- 10. Pedestrian Safety Lights:

- a. Equip platform with amber pedestrian safety lights located at both ends of the platform to alert pedestrian traffic that the platform is on the stairway.
11. Hand Grips:
- a. Equip platform with two 6-7/8 inch (174 mm) long by 1-1/4 inch (32 mm) diameter aluminum hand grips or grab bars on the front face of the platform with the top being 33-1/4 inch (845 mm) above the platform deck.
12. Clearance Dimensions:
- a. When folded platform shall not protrude more than 12-5/8 inches (321 mm) to 13-5/8 inches (346 mm) from mounting surface.
 - b. When unfolded and in use platform shall not protrude more than 40 inches (1015 mm) to 41 inches (1040 mm) from wall.
13. Controls:
- a. Platform Controls: 24 V Low Voltage type.
 - b. Platform equipped with emergency stop switch located within reach of the passenger 37-1/8 inches (942mm) above platform deck. When activated emergency stop button shall cause electric power to be removed from the drive system stopping lift immediately.
 - c. Operating controls shall be two separate 1-1/2 inches (36 mm) round constant pressure buttons with directional arrows mounted on the front surface of the platform control panel.
 - d. Directional buttons shall prompt the user with the available travel direction by illuminating the appropriate button.
 - e. When platform arrives at landing and the user releases the directional button, the passenger restraining arms and boarding ramp shall unfold automatically allowing passenger to disembark.
 - f. Platform shall equipped for:
 - 1) Keyed Operation.
 - 2) Keyless operation.
14. Passenger Seat: Fold-down type with safety belt.
15. Side Loading Platform: Provide with an automatic folding ramp on the side of the platform opposite the guide rails for loading where lower landing clearance is limited.
16. Platform Deck Light: Integral lamp automatically activated when platform is in unfolded position.
17. Platform Security Lock: Provide to prevent unauthorized unfolding of the platform.
18. Attendant Hand Held Pendant Control: Provide with plug-in socket on platform control panel.
19. Autofold Platform: Automatically fold platform into storage position when left unused in open position at any landing for:
- a) 3 minutes (recommended)
 - b) a specified delay of ____ minutes (1 to 10 minutes, factory set)
20. Pedestrian Audio Alert: Provide chime mounted on platform to indicate platform is folded up and in motion, traveling on stairway.
21. Platform On Board Emergency Alarm: Provide platform with on board alarm that sounds when emergency stop button is pushed. Provide battery back up for platform on board alarm.
22. Remote Platform Boarding: Platform shall travel beyond standard boarding position to remote boarding location away from stairs. Provide with ramp extensions 3 inch (76 mm) extruded aluminum added to the boarding ramps.
23. Under Hanger Sensing: Provide bottom of platform hanger with a sensing plate to stop the platform from traveling in the downward direction when encountered with 4 lbs (1.8Kg) of pressure. It shall be possible to drive the

- platform away from the obstruction.
24. Side of Hanger Obstruction Device: Provide a sensor that detects obstructions in the path of the side of the hanger. Lift shall stop immediately and not travel until the obstruction is removed. It shall be possible to drive the platform away from the obstruction.
- B. Drive and Guide Rail System
1. Operation:
 - a. Motor: 2 H.P. electric motor with an integrated brake.
 - b. Required power: 208-240 VAC, single phase, 50/60 Hz. on a dedicated 20 amp circuit. Rated current shall be 7 amps for operation with rated load.
 - c. Locate roped sprocket drive system consisting of a motor, gearbox and PCC controller (Programmable Configuration Controller) at the upper end of the tubes. PCC controller shall be custom programmed to soft start and stop and the slow down platform travel speed for all corners and landings of the lift. Normal operating speed shall be 20 feet per minute (6 m per minute), slowing to 50 percent of this speed before entering and while rounding corners.
 - d. Equip drive with an emergency manual lowering system.
 2. Standard Drive Cabinet:
 - a. Cabinet: 20-1/2 inches (520 mm) wide by 41-1/2 inches (1053 mm) high by 10-5/8 inches (270 mm) deep.
 - b. Cabinet door is key locked and monitored with an electrical cutout safety switch.
 - c. Provide an integrated lockable main disconnect switch and breaker on the drive cabinet.
 3. Compact Drive Cabinet with Separate Control Box:
 - a. Compact drive cabinet will house all mechanical drive system components and shall be located at the end of the tube system.
 - b. Controller box will contain all the electrical components of the drive system and be located up to 20 feet (6 M) away from the compact drive. Control box dimensions are 12 inches (305 mm) wide by 24 inches (610 mm) high by 11-1/4 inches (284 mm) deep.
 - c. Provide an integrated lockable mains disconnect and breaker in the compact drive control box.
 4. Guide Rail:
 - a. Construct of two 2 inch (51 mm) diameter steel tubes spaced 23-5/8 inches (600mm) apart vertically. Tubes will run parallel to the stairs and horizontal to landings throughout the length of travel.
 - b. When negotiating a horizontal landing a third 2 inch (51 mm) diameter steel tube shall be added to the tube system to guide and stabilize platform.
 - c. Tube system shall not protrude more than 4-7/8 inches (125 mm) to 5-7/8 inches (150 mm) from the wall.
 - d. Suspension means contained in the tubes shall be a 3/8 inch (8 mm) diameter galvanized steel core wire rope with a breaking strength of 9460 pounds (4300 kg).
 - e. Locate overspeed safety at the bottom of the tube assembly and shall consist of a mechanical overspeed sensor and brake with electrical drive cut-out protection.
 - f. Provide a final limit switch at the upper end of the tubes to stop the platform if it travels past the normal terminal stopping device.
 5. Auxiliary Power: Provide battery back-up system for normal up / down lift operation during power failure for a minimum period of 1/2 hour with rated load.

6. Platform Storage Beyond Upper/Lower Landings:
 - a. Platform shall travel in the folded position beyond the upper landing at the top stair nose to a remote parking position away from the stairs.
 - b. Platform shall travel in the folded position beyond the lower landing to a remote parking position. Provide with a ramp extension for this configuration.
 7. Final Limit Switch at Lower Landing: Platform will land over a flight of stairs and will have a final lower limit switch.
 8. Rail Mounting:
 - a. Direct Mount Solid Walls: Rails directly mounted to the stairway wall.
 - b. Direct Mount Wood Stud Walls: Upper rail attached to a 2 inch (51 mm) by 8 inch (203 mm) board that is secured to the wall. Lower rail attached to a 2 inch (51 mm) by 4 inch (102 mm) board secured to the wall. Fasten each board to every available stud with a minimum of two fasteners.
 - c. Tower Mount Struts: Provide with 2-1/2 inches (65 mm) by 2-1/2 inches (65 mm) hollow structural steel tubular posts to support the guide rails.
 9. In-Fill Safety Panels: Provide a filler panel system to act as a barrier where existing handrails are removed and there is no wall behind the lift. Filler panels between the support posts shall be between 34 inches (864 mm) and 38 inches (965 mm) above the stair nosing.
 - a. Steel Screen Fill Panels: Supports posts with steel mesh infill.
 - b. Filler Panel Mounting Brackets: Brackets welded to support posts to allow for a barrier panel system supplied by others.
 - 1) Filler Panel material provided by others: _____.
 - c. Steel Tube Filler: Provide additional 2 inch (51mm) diameter steel tubes added to the guide rail system for aesthetics or to create a further safety barrier with a maximum 6 inch (152 mm) opening between tubes.
- C. Pedestrian Handrail Integrated with Guide Rail:
1. A third rail acting as a handrail shall be added where existing handrails are either removed or blocked by the lifting equipment.
 2. The top of the handrail gripping surface shall be between 34 inches (864 mm) and 38 inches (965 mm) above the stair nosing and have a smooth gripping surface 1-1/2 inch (38 mm) in diameter.
 3. Handrail shall be in the same vertical plane as the guide rail system.
 4. Handrails shall be mounted to the tube assembly and shall not be interrupted by newel posts, or other construction elements or obstructions.
- D. Call Stations:
1. Provide a call station at each serviced landing that will automatically shut off if left unattended for over 2 minutes.
 2. Call stations, 24 V low voltage with four illuminated 2 inches (51 mm) by 2 inches (51mm) square membrane touch sensitive buttons: one touch platform fold, one touch platform unfold and two directional call and send buttons.
 3. Provide call stations with Smart-Lite Technology to prompt the user with the next sequential step of operation. Call station buttons will emit an audible "beep" when pushed to confirm button activation to the user.
 4. Provide intermediate stops between the upper and lower landings at the following locations:
 - a. As indicated on the Drawings.
 - b. _____.
 - c. _____.
 5. Call stations shall equipped for:
 - a. Keyed Operation.

- b. Keyless operation.
 - 6. Provide Attendant Call buttons on each call station.
 - 7. Call Station Mounting:
 - a. Lower and Intermediate landing call station.
 - 1) Provide surface mounted call station.
 - 2) Provide flush mounting call station painted finish collars to trim all call stations that are recessed into the walls.
 - b. Upper landing call station.
 - 1) Provide surface mounted call station on guide rail.
 - 2) Surface mount on wall.
 - 3) Provide flush mounting call station painted finish collars to trim all call stations that are recessed into the walls.
 - c. Provide free-standing mounting pedestals for call stations located as follows:
 - 1) Lower landing.
 - 2) Intermediate Landing.
 - 3) Upper landing.
- E. Additional Safety or Code Requirements
- 1. Wall Mounted Audio Visual Alerts: Provide with adjustable volume control that sound while the lift is in operation and are visible by pedestrian traffic from all flights and landings.
 - 2. Building Fire Alarm Integration: Coordinate with Section 13650 Building Fire Alarm System to connect the lift control system with the building fire alarm system. If the lift is not in operation when the building fire alarm system is activated power will be cut to the lift preventing use during fire evacuation. If the lift is in use when the building fire alarm system is activated, the lift shall only allow the passenger to travel to the designated landing with the emergency exit.
- F. Finish Environment Requirements:
- 1. Design and fabricate lift to manufacturer's standard design for indoor location.
 - 2. Stainless Steel Components: Design and fabricate lift using the following:
 - a. Guide rails shall be supplied in stainless steel.
 - b. Handrails shall be supplied in stainless steel.
 - c. Support towers shall be supplied in stainless steel.
 - d. Drive box shall be supplied in stainless steel.
 - e. Wall mounted audio visuals shall be supplied in stainless steel.
 - f. Platform sensing plate shall be supplied in stainless steel.
 - g. Fasteners for rail assembly and anchoring shall be supplied in stainless steel.
 - 3. Design and fabricate lift to manufacturer's standard design for outdoor location.
 - a. Lift to include all modifications recommended by manufacturer for reliable performance in outdoor climate of lift installation site.
 - b. Provide an outdoor weatherproofing package including zinc rich primer on steel surfaces, weather-resistant sealant on the electrical components, stainless steel or plated fasteners and a weatherproofed stainless steel or zinc plated drive box.
 - c. Platform control cover shall be fabricated of a Silver Grey injection-molded polymer.
 - d. Platform Cover: Provide a durable and weather resistant nylon platform cover for protection.
 - 4. Painting: After pretreating paint with electrostatically applied and baked powder coat as follows:
 - a. Fine Textured Satin Grey (RAL 7030).

- b. Custom color as selected by Architect from manufacturers standard RAL colors.

2.3 EMERGENCY EVACUATION DEVICE

- A. Portable evacuation chair, Garaventa "Evacu-Trac" with steel storage enclosure:
 - 1. Capacity: 1 person, 400 lbs (180 kg).
 - 2. Maximum Stair Angle: 40 degrees.
 - 3. Speed Governor: Piston brake.
 - 4. Brake: By manual mechanical brake, attendant must release for descent.
 - 5. Surface Mount Cabinet:
 - a. Steel cabinet and door panel. Available only in Satin Gray, left hinged only.
 - b. Size: Height 45-3/8 inches (1151 mm), width 20 inches (508 mm), depth 11 inches (279 mm).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify required supports are correct.
- C. Verify electrical rough-in is at correct locations.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install platform lifts in accordance with in compliance with regulatory requirements specified and the manufacturer's instructions.
- B. Install system components and connect to building utilities.
- C. Accommodate equipment in space indicated.
- D. Startup equipment in accordance with manufacturer's instructions.
- E. Adjust for smooth operation.

3.4 FIELD QUALITY CONTROL

- A. Perform tests in compliance with regulatory requirements specified and as required by authorities having jurisdiction.
- B. Schedule tests with agencies and Architect, Owner, and Contractor present.

3.5 PROTECTION

- A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION