SECTION 14 30 00

INCLINE ELEVATORS

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\*\* NOTE TO SPECIFIER \*\* Marine Innovations, Inc.; incline elevators, boat launchers.  
This section is based on the products of Marine Innovations, Inc., which is located at:  
908 W. Main Ave. P. O. Box 446  
Frazee, MN 56544  
Toll Free Tel: 888-334-4666  
Tel: 218-334-4666  
Fax: 218-334-4670  
Email: [request info (info@marineinnovations.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Marine+Innovations,+Inc.&coid=46973&rep=&fax=218-334-4670&message=RE:%20Spec%20Question%20(14310mar):%20%20&mf=)  
Web: [www.marineinnovations.com](http://www.marineinnovations.com)   
 [ [Click Here](http://www.arcat.com/arcatcos/cos46/arc46973.html) ] for additional information.  
MARINE INNOVATIONS Inc. manufacturers inclined elevators for exterior use, typically on hillsides. Weight capacities from 860 to 2000 pounds (390 to 900 kg) and up using drum drive or traction systems. Products comply with ASME A.17.1 5.4 (Residential) and ASME A.17.1 5.1 (Commercial), built with rugged, heavy-duty materials and components allowing flexibility in landscape and construction design. Engineering is available to tie into architectural plans. Options and accessories include automatic cab doors, canopies and umbrellas, cab lighting, docking stations, door interlocks, double-cable drive systems, enclosed heated cabs, energy chains, marine rails, PC systems and more.

1. GENERAL
   1. SECTION INCLUDES
      1. Provide the following components for exterior use:
         1. Incline elevators.
         2. Boat launchers.
   2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 05 50 00 - Metal Fabrications.
    2. Section 08 71 53 - Security Door Hardware.
    3. Division 16 - Electrical: Connections to building services.
    4. Division 16 - Electronic Safety and Security: Access control.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
       1. ASTM C387 - Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar.
    2. American Society of Mechanical Engineers (ASME):
       1. ASME A17.1 Safety Code for Elevators and Escalators. (5.4 Residential and 5.1 Commercial)
       2. ASME A.17.5 Elevator and Escalator Electrical Equipment
    3. Canadian Standards Association / National Standard of Canada:
       1. CAN/CSA-B44 - Safety Code for Elevators.
       2. CAN/CSA C22.1 - Canadian Electrical Code.
    4. National Fire Protection Association (NFPA):
       1. NFPA 70 - National Electrical Code.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data: Submit manufacturer's product data including:
        1. Materials, components, profiles, fabrication, and finishes.
        2. Weight capacities and operational data.
        3. Accessories and features.
        4. Preparation instructions.
        5. Storage and handling requirements.
        6. Installation methods.
        7. Operations and maintenance procedures.
     3. Shop Drawings:
        1. Submit engineering drawings, calculations, and analysis data signed and sealed by a professional engineer licensed in the jurisdiction of the project, and responsible for shop drawing preparations. Comply with the following:

\*\* NOTE TO SPECIFIER \*\* Inclined elevators residential or commercial. Trams typically residential. Boat launchers typically commercial. Delete type not required.

* + - * 1. Residential: ASME A.17.5.4.
        2. Commercial: ASME A.17.5.1.
      1. Indicate details and relationship with site conditions and adjacent construction.
      2. Include complete elevations, doors, frames, and sidelites, methods of anchorage, hardware and mounting heights, size, shape, joints, connections, options and finishes.
      3. Include wiring diagrams, operator, activation and control devices, and hardware schedule.
    1. Test Reports: Submit certified test reports indicating inclined elevators comply with the local building authority and specified performance requirements.
    2. Templates: Provide templates and diagrams to installers of adjacent work for field coordination.
    3. Samples: For each exposed finish, provide two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.
    4. Operation and Maintenance Manual: For operation and maintenance manual including spare parts list and local supplier information.
    5. Warranties: Manufacturer's standard form of warranty.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Minimum 10 years experience in manufacturing and installing elevator equipment of the types specified.
        1. Single Source Responsibility: All cab, carrier, and operational components shall be provided by the same manufacturer. Accessories by other manufacturers shall be approved by the primary manufacturer.
     2. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70 by a qualified testing agency.
     3. Pre-Installation Meeting:
        1. Convene at the project site a minimum of two weeks prior to starting work.
        2. All parties directly affected by work inclined elevator work shall attend (contractor, architect, landscape architect, elevator manufacturer, and major suppliers).
        3. Review site specific requirements, field quality control, adjusting, cleaning, protection, and coordination with other work.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Deliver products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation. Inspect all products for damage or defects, immediately report deficiencies to the architect and manufacturer for instructions.
     2. Store and handle materials in accordance with the manufacturers instructions to avoid damage.
  3. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

\*\* NOTE TO SPECIFIER \*\* Delete warranty if not required.

* 1. WARRANTY
     1. Warranty: Manufacturer's standard form to repair or replace elevator components against defects in material and workmanship, at no cost to owner, for the specified warranty period. Provide warranty to owner after completion of installation.
        1. Comprehensive Warranty Period: One year.
        2. Structure Warranty Period: 15 years.
        3. Motor, Gearbox, Brakes Warranty Period: 3 years.
     2. Maintenance Service: Include manufacturer's recommended preventative maintenance services, repair or replacement of defective components or components beyond their designated service life, using parts and supplies identical to those used in the original installation.
        1. Maintenance Service Period: Two years from date of Substantial Completion.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Marine Innovations, Inc., which is located at: 908 W. Main Ave. P. O. Box 446; Frazee, MN 56544; Toll Free Tel: 888-334-4666; Tel: 218-334-4666; Fax: 218-334-4670; Email: [request info (info@marineinnovations.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Marine+Innovations,+Inc.&coid=46973&rep=&fax=218-334-4670&message=RE:%20Spec%20Question%20(14310mar):%20%20&mf=); Web: [www.marineinnovations.com](http://www.marineinnovations.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. INCLINE ELEVATORS

\*\* NOTE TO SPECIFIER \*\* Select CBH 860 for distances up to 130 feet. UBH860 for unlimited travel.

* + 1. Model:
       1. CBH 860, Drum Drive by MARINE INNOVATIONS Inc.
       2. UBH860, Continuous Loop Traction Drive by MARINE INNOVATIONS Inc.
    2. Carriage:
       1. Material: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Select capacity, delete options not required.

* + - 1. Capacity: 860 pounds (390 kg).
      2. Capacity: 1,200 pounds (544 kg).
      3. Capacity: As shown on the drawings.
      4. Dimensions: 46 inches wide x 59 inches long x 42 inches high (1168 mm wide x 1498 mm long x 1066 mm high).

\*\* NOTE TO SPECIFIER \*\* Select opening size, delete option not required.

* + - 1. Opening Size: 25 inch (635 mm) wide.
      2. Opening Size: 32 inch (812 mm) wide.

\*\* NOTE TO SPECIFIER \*\* Select door type, delete option not required.

* + - 1. Door Type: Sliding.
      2. Door Type: Bi-fold.

\*\* NOTE TO SPECIFIER \*\* Select exit side, delete options not required.

* + - 1. Exit: Left side.
      2. Exit: Right side.
      3. Exit: As shown on the drawings.

\*\* NOTE TO SPECIFIER \*\* Select seat type for 25 inch opening, delete if not required.

* + - 1. Seating: Two flip up seats.
      2. Seating: Fixed bench seats.

\*\* NOTE TO SPECIFIER \*\* Select seat type for 32 inch opening, delete if not required.

* + - 1. Seating: One flip up seat.
      2. Seating: Fixed bench seat.
      3. Wheels: Ride on top of rail to enable inspection and service.
    1. Trolley:
       1. Equipped with rail brake, operates through pressure on rail.
       2. Safety switch on brake shuts system down when activated.
          1. Basis of Design: Honeywell LSA1A with Actuator L5Z52A or equal.
    2. Rail System:
       1. Rails: 2 x 3 inch (50 x 75 mm), 11 gauge galvanized track bolted together with grade #8 hardware. C-channel rails will not be accepted.

\*\* NOTE TO SPECIFIER \*\* Choose post size based on engineering requirements. Delete options not required.

* + - 1. Posts: 2 inch (50 mm) galvanized SS40 pipe.
         1. Crossmembers: 1-1/4 inch (30 mm) or 2 inch (51 mm) schedule 40 pipe.

\*\* NOTE TO SPECIFIER \*\* Maximum distance 500 feet. Delete options not required.

* + - 1. Distance: \_\_ linear feet (\_\_ meters).
      2. Distance: As shown on the drawings.

\*\* NOTE TO SPECIFIER \*\* Specify angle. Delete options not required.

* + - 1. Angle of Incline: \_\_ degrees.
      2. Angle of Incline: As shown on the drawings.
    1. Drive System: Includes motor, brake and gearbox with UL listed panel to E304700.

\*\* NOTE TO SPECIFIER \*\* Select power requirements. Delete options not required.

* + - 1. Power Requirements: 5 hp, 240 volts, 50 amp service.
      2. Power Requirements: 3 hp, 230 volts, 50 amp service.
      3. Power Requirements: 3 hp, 220 volts, 30 amp service.
      4. Cover: Aluminum with factory powder coat finish in color indicated.

\*\* NOTE TO SPECIFIER \*\* Select drive cable size, use 1/4 (6 mm) for angles under 40 deg, maximum 160 feet of travel. Use 5/16 (8 mm) for angle over 40 degrees, up to 130 feet of travel. Delete option not required.

* + - 1. Drive Cable: 1/4 inch (6 mm) galvanized steel with 7,000 pound (3,175 kg) breaking strength.
      2. Drive Cable: 5/16 inch (8 mm) galvanized steel with 9,800 pound (4,445 kg) breaking strength.
      3. Equipped with slack cable control.
      4. Machine Area: 3-1/2 x 3-1/2 inch (88 x 88 mm) galvanized tube of 3/16 inch (4.76 mm) wall thickness, cemented into the ground.
      5. Drive unit is bolted to the square tube and aluminum cover.
    1. Operating Speed: 70 feet per minute (0.36 meters per second).
    2. Controls:

\*\* NOTE TO SPECIFIER \*\* Select control type, delete option not required.

* + - 1. Top station, key operated.
      2. Bottom station, key operated.
      3. Wireless type.
      4. Selections: "Up", "Down", "Emergency Stop" red button with lockout.
      5. Over-speed Governor: Manufacturer's standard with spring dampeners to absorb shock. Drop arm systems will not be accepted or other braking mechanisms that do not allow carriage to come to immediate or gentle stop.
    1. Bottom and Top Landing Gates:
       1. Bifold aluminum gates with built-in interlock.
       2. Dimensions: 40-1/2 inch (18.37 mm) long x 42 inch (19 mm) high.
    2. Landings: Provided by others.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. BOAT LAUNCHERS
     1. Basis of Design Model: UBH5000 by MARINE INNOVATIONS Inc.
     2. Rail System:
        1. 5 x 2 inch (127 x 50 mm) 11 gauge galvanized rectangular tubing.
        2. 60 inch (1524 mm) outside rail width.
        3. Railing assembled on site.
        4. Rail supports, 2 inch (50 mm) galvanized pipe.
     3. Boat Trolley:
        1. Constructed of galvanized steel and aluminum.
        2. Includes spring tension for shock loads.
     4. Drive Cable:
        1. 5/16 inch (8 mm) galvanized steel with 9,800 pound (4,445 kg) breaking strength.
     5. Power Unit:
        1. Elevator Control Panel: UL-listed E304700.
        2. NEMA 4 waterproof enclosure.

\*\* NOTE TO SPECIFIER \*\* Delete motor not required.

* + - 1. AC drive with 3 hp motor.
      2. AC drive with 4 hp motor.
      3. Drive system includes 1-3/4 inch (44 mm) pillow block bearing and 2 inch (50 mm) solid steel axle.

\*\* NOTE TO SPECIFIER \*\* Select drum system under 130 feet, traction over 130 feet. Delete option not required.

* + - 1. Drive Type: Drum.
      2. Drive Type: Traction.
      3. Cover: Aluminum with factory powder coat finish in color indicated.
    1. Operating Speed:
       1. Travel Speed: 70 feet per minute (0.36 meters per second).
       2. Jog Speed: 30 feet per minute (0.15 meters per second).
    2. Controls:
       1. Wireless hand held remote for each boat owner.
       2. Selections: "Up", "Down", "Emergency Stop" red button with lockout.
  1. MATERIALS

\*\* NOTE TO SPECIFIER \*\* Choose foundation type based on manufacturer's analysis of soil conditions.

* + 1. Pin Pile Foundations:
       1. \_\_\_\_\_.
       2. \_\_\_\_.
    2. Concrete Pier Footings:
       1. 12 to 18 inch (300 to 450 mm) diameter, 48 inches (1219 mm) deep.
       2. Set with quick concrete mix to ASTM C387.
    3. Fasteners: Grade #8, hardened galvanized steel
       1. Hex Bolts:
          1. 1/2 x 1-1/2 inch (12.7 x 38 mm).
          2. 1/2 inch (9.5 mm) diameter.
       2. U-Bolt: 1/2 inch (9.5 mm) fabricated from 1541 CRS, zinc plated.
  1. ACCESSORIES

\*\* NOTE TO SPECIFIER \*\* Delete options and accessories not required.

* + 1. Provide the following:
       1. Automatic cab doors.
       2. Carriage canopy / sunbrella.
       3. Carriage / cab lighting.
       4. Conduit for 110 power to lower landing.
       5. Docking stations for battery charging.
       6. Door interlocks.
       7. Double-cable drive systems.
       8. Enclosed, heated cabs.
       9. Energy chain.
       10. Marine rail.
       11. PLC system.
       12. Phone / communication system.
       13. Safety gates.
       14. Safety switches.
       15. Self-leveling system.
       16. Stairway system.
       17. Wheelchair doors.
  1. FINISHES

\*\* NOTE TO SPECIFIER \*\* Select finishes. Delete options not required.

* + 1. Factory Finish: Manufacturer's standard industrial grade powder coat.
       1. Product: Alesta by DuPont.
    2. Color: Provide the following color:

\*\* NOTE TO SPECIFIER \*\* Select color from manufacturer's website. Delete options not required.

* + - 1. Sparten Bronze.
      2. Hunter Green\_\_\_\_\_\_\_\_\_\_\_\_.
      3. Custom color as selected.

1. EXECUTION
   1. EXAMINATION
      1. Examine and measure installation areas are prepared to receive equipment and site conditions are within the manufacturers limits and shop drawing requirements.
      2. If site preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Prepare surfaces using the methods recommended by the manufacturer for achieving the best results for project conditions.
   3. INSTALLATION
      1. Equipment shall be installed by authorized installers in compliance with manufacturer's recommendations and shop drawings.
         1. Aluminum surfaces in contact with masonry, concrete or steel shall be protected from contact by use of neoprene gaskets, where indicated, or a coat of bituminous paint to prevent galvanic or corrosive action.
      2. Connect door operators and access control devices to building services.
      3. Install sealants in accordance with manufacturer's requirements.
      4. Lubricate bearings and adjust components for proper operation, balance, clearance and similar requirements.
      5. Adjust doors, controls, and hardware for operation and specified tightness.
   4. FIELD QUALITY CONTROL
      1. Manufacturers Field Service: Provide services of manufacturer to perform field quality control services and operational testing.
   5. CLEANING AND PROTECTION
      1. After installation, clean components as recommended by the manufacturer.
      2. Remove and legally dispose of construction debris from project site.
      3. Remove temporary coverings and protection of adjacent work areas. Repair or replace installed products damaged prior to or during installation.
      4. Protect installed products until completion of project.
      5. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION