



National Reach. Local Service.

Section 142600

## LIMITED USE/LIMITED APPLICATION ELEVATOR

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Limited Use/Limited Application (LU/LA) Hydraulic Passenger Elevator.
- B. The scope of this section of work is the provision and installation of a LU/LA Elevator, all the necessary equipment required to fully complete the installation, and coordinate between the other associated work required by other trades. The equipment specifications are based on the Symmetry Elevating Solutions Elevation LU/LA product design.

#### 1.2 RELATED SECTIONS

- A. Section 00330 - Cast –in-Place Concrete: Concrete shaftway, anchor placement and required sleeves for service penetrations.
- B. Section 06100 - Rough Carpentry: Blocking in framed construction for lift attachment.
- C. Section 05500 – Metal Fabrications: Miscellaneous supports, lintels, etc.
- D. Section 07724 – Roof Hatches: Smoke venting hatch at top of hoistway.
- E. Section 07100 – Waterproofing: Pit waterproofing.
- F. Section 08310 – Access Doors and Panels: Fire rated access doors into hoistway.
- G. Section 09260 – Gypsum Board Assemblies: Gypsum shaft walls.
- H. Section 09650 – Resilient Flooring: Floor finish in cab.
- I. Section 09686 – Carpet: Floor finish in cab.
- J. Section 13850 – Detection and Alarm: Fire and smoke detectors and interconnecting devices.
- K. Section 15440 – Sump Pumps.
- L. Division 16 - Electrical:
  - 1. Electrical characteristics and wiring connections.
  - 2. Electrical service to lockable fused disconnect in elevator machine room.
  - 3. Electrical service for machine room, machine room convenience outlets, machine room lighting and lighting in elevator pit.
  - 4. Telephone service and wiring connection.

#### 1.3 REFERENCES

- 1. This elevator shall be designed and tested in accordance with ICC/ANSI 117.1, NEC and ASME A17.1 Guidelines.
- 2. All designs, clearances, construction, workmanship and installation shall be in accordance with the requirements and code adopted by the authority having jurisdiction.
- 3. This LU/LA elevator shall be subject to local, city and state approval prior to and following installation.

#### 1.4 REGULATORY REQUIREMENTS

- A. Provide passenger elevator in compliance with:
  - 1. ASME A17.1 - Safety Code for Elevators and Escalators.
  - 2. ASME A17.5 - Elevator and Escalator Electrical Equipment.
  - 3. Requirements of Americans with Disabilities Act.

#### 1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Information:
  - 1. Submit manufacturer's installation instructions including preparation, and equipment handling requirements.
  - 2. Show maximum and average power necessity.
- C. Shop Drawings:
  - 1. Show typical details of assembly, erection and anchorage.
  - 2. Include wiring diagrams for power, control, and signal systems.
  - 3. Show complete layout and location of equipment, including required clearances and coordination with shaftway.
- D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer: Company shall contain personnel with not less than ten (10) years of experience in the design and fabrication of LU/LA elevators.
- B. Technical Services: Manufacturer and authorized dealer shall work with architects, engineers and contractors to adapt the LU/LA elevator to the design and structural requirements of the building, site, and code requirements.
- C. Unit shall be tested in the factory before shipment. Elevator equipment shall meet or exceed the National and Local standards.
- D. All load ratings and safety factors shall meet or exceed those specified by all governing agencies and be certified by an independent professional engineer.
- E. Installer Qualifications: Factory trained and licensed to install equipment of this scope, with evidence of experience with specified equipment. Installing company shall have qualified people available to ensure fulfillment of maintenance and callback service.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Products stored in manufacturer's unopened packaging until ready for installation.
- B. Components stored off the ground in a dry covered space, protected from weather conditions.

#### 1.8 PROJECT CONDITIONS

- A. LU/LA Elevator not to be used for hoisting materials or personnel during construction.

#### 1.9 WARRANTY

- A. Unit shall have a THREE (3) year limited parts warranty covering replacement of defective parts of the basic unit, including all electrical and drive system components, at no cost. Labor costs required to replace parts is not included. Preventative maintenance agreement required.

#### 1.10 MAINTENANCE SERVICE

- A. Maintenance of a LU/LA elevator shall consist of regular cleaning, inspection, and adjustment of the unit at intervals not longer than every six (6) months. Rule 10.2.1 of ASME A17.1 requires all LU/LA elevators to be inspected every six (6) months. Provide Maintenance contract for the following years:

1. 3 years.
- B. Maintenance of the LU/LA elevator until shall consist of regular cleaning, inspection, adjustment, lubrication and examination not less than every six (6) months. Repair or replace parts when necessary. Rule 10.2.1 of ASME A17.1 requires all LU/LA elevators to be inspected every six (6) months. Proved emergency call back service for this maintenance period.
- C. Maintenance work to be performed by factory trained and licensed technician.

## PART 2 PRODUCT

### 1.1 MANUFACTURER

- A. Acceptable Manufacturer: Symmetry Elevating Solutions  
Email: [customerservice@symmetryelevator.com](mailto:customerservice@symmetryelevator.com)  
Toll Free: 877.568.5804  
Website: [www.symmetryelevators.com](http://www.symmetryelevators.com)
- B. U.S. OWNED AND OPERATED: Manufacturer must be owned in the U.S. and operate in the U.S.
- C. Substitutions: Not permitted.
- D. Requests for substitutions will be considered in accordance with provisions of Section 01660.

### 1.2 LIMITED USE/LIMITED APPLICATION (LU/LA) ELEVATOR

- A. Symmetry Elevating Solutions LU/LA Elevator:
  1. Capacity:
    - A. 1400 pounds.
  2. Car Size: Maximum of:
    - A. 42 inches by 54 inches.
    - B. 48 inches by 54 inches.
    - C. 42 inches by 60 inches.
    - D. 51 inches by 51 inches (90 degree application only).
  3. Platform Configuration:
    - A. Single opening Rail Right.
    - B. Single opening Rail Left.
    - C. Straight Through.
    - D. 90° Rail Right.
    - E. 90° Rail Left.
  4. Travel:
    - A. \_\_\_\_\_ feet \_\_\_\_\_ inches.
    - B. As indicated on Drawings.
  5. Stops:
    - A. 2 stops.
    - B. 3 stops.
    - C. 4 stops.
    - D. 5 stops.
    - E. 6 stops.
    - F. As indicated on the Drawings.
  6. Speed: 30 feet per minute.
  7. Pit Depth:
    - A. 13 inches minimum with alternate bottom car clearance device standard Elastomeric Bumpers.

8. Overhead Clearance:
  - A. Total overhead clearance required is 108" (existing construction with alternate top car clearance device), 132" (new construction) above the upper landing level for standard height car.
9. Power Requirements.
  - A. 208/230 VAC, 30 Amp, Single Phase.
  - B. 208/230 VAC, 15 Amp, Three Phase.
  - C. A Separate 115 VAC 15 Amp circuit is required for car lighting.
10. Hydraulic Power Unit:
  - A. The pump shall utilize a 4 HP high efficiency, low power consumption motor.
  - B. The pump, submerged motor and valve shall be pre-wired, ready for connection to the controller in the field.
  - C. Acceleration, deceleration, and leveling speed controls shall be provided in the UP and Down directions. Full speed adjustment shall be provided in the Down direction only.
  - D. Two speed operation shall be provided.
  - E. Adjustable pressure relief valves shall be provided.
  - F. Manual emergency lowering valve shall be provided.
  - G. Pressure gauges and pressure gauge isolation valves shall be provided.
  - H. Manual valve isolation between pump unit and jack shall be provided.
  - I. Negative pressure switch shall be provided.
  - J. Testing: Shall be factory tested prior to shipment.
  - K. Muffler shall be provided for vibration & noise damping during elevator operation.
11. Cylinder:
  - A. Construction: Steel pipe with cylinder head having an internal guide ring and self-adjusting, Self-lubricating packing.
  - B. Safety Valve: Cylinder shall be equipped with an overspeed safety valve to prevent uncontrolled car descent.
12. Plunger:
  - A. Construction: Shall be machined steel shaft equipped with a stop, electrically welded to bottom end, to prevent plunger from leaving shaft cylinder.
  - B. Diameter: 90 mm.
13. Hoistway Access:
  - A. Keyed Hoistway Access
    1. Top Floor.
    2. Bottom Floor.
14. Components:
  - A. Suspension system: 1:2 system using (2) 3/8" – 7x19 Galvanized aircraft cables integrated with rams header sheave mounted to the plunger.
  - B. Guide Rail: Shall consist of two 8 lb. tee rails. Provide brackets to hold rail assembly to walls. Rail shall be furnished with steel splice plates and hardware.
  - C. Car Frame: Shall be equipped with non-metallic faced roller guide wheels.
  - D. Leveling Device: Provide Hall-effect Sensor based device integrated with tapeless Selector Package to maintain car within 1/4" of the landing.
  - E. Buffer Springs – No additional pit depth required.
15. Controls:
  - A. Selective collective PLC-based controller (Programmable Logic Controller) with Hardware Circuit Monitoring.

- B. "Self Diagnostic System" utilizing diagnostic codes displayed in car to provide information in the event the elevator will not operate. All required redundancies are monitored by the PLC and verified by a hardware monitoring system in compliance with A17.1 2.26.9.3.
  - C. Visual & Audible directional indicators passing chime.
  - D. All Elevator Electrical Systems shall conform to ASME A17.5.
16. Car Doors
- A. Size 3'0" x 6'8".
  - B. Closed Loop Linear 2 speed Door Operator.
  - C. Car Door Equipped with a full height safety light screen.
  - D. Car Door with electric switch to ensure the car door is closed prior to the operation of the elevator.
17. Hoistway Doors:
- A. Size: Minimum Dimensions 3'0" W x 6'8" H
  - B. Type and installation of doors and frames must comply with ASME A17.1, all local codes and manufacturer's layout drawings.
  - C. Locking Device: Door shall have a concealed locking device, interlocked with the car operation, to interrupt electrical power when the door is not securely closed and a car is not at the landing zone.
18. Safety Features:
- A. Slack cable protection: Provide an electronically monitored and mechanically actuated hardened steel device that stops and sustains the car in the event of breakage or slackening of cables.
  - B. Terminal stopping Device: Shall be provided at the top and bottom of the car travel.
  - C. Provide a platform toe guard at the car entrance.
  - D. Battery powered emergency operation system:
    - 1. Powers a light in the car.
    - 2. Powers an emergency alarm system.
    - 3. Powers a system to allow car to stop at the next available floor, then run down to the bottom floor stopping at each floor along the way. Door cycles at each landing.
    - 4. The batteries shall be re-chargeable type complete with an automatic re-charging system.
  - E. Emergency operation of Car Lights with half illumination level.
  - F. 1/2" x 2" Flat Handrail #4 SS w/ returned ends.
  - G. Overspeed valve.
  - H. Final limit switch.
  - I. Low oil protection timer circuit.

### 1.3 CAB DESIGN

- A. Cab Design:
  - 1. Interior Walls: Panel selections.
    - A. Metal Panel.
    - B. Flat Wood Panel.
    - C. Shaker Wood Panel.
    - D. Inset Wood Panel.
    - E. Raised Wood Panel.
  - 2. Interior Walls: Wood Species.
    - A. Alder.

- B. Birch.
  - C. Cherry.
  - D. Hickory.
  - E. Maple.
  - F. Red Oak.
  - G. Walnut.
  - H. White Oak.
3. Interior Walls: Wood Stain.
- A. No Stain – Unfinished.
  - B. Country Pine.
  - C. Golden Oak.
  - D. Satin Clear Coat.
  - E. Traditional Cherry.
  - F. Custom as selected by Architect.
4. Interior Walls: Metal Finish.
- A. Ivory.
  - B. White.
  - C. Gray.
  - D. Black.
  - E. Vintage Bronze.
  - F. Stainless Steel.
  - G. Custom (Sherwin Williams).
5. Car Doors:
- A. Ivory.
  - B. White.
  - C. Gray.
  - D. Black.
  - E. Vintage Bronze.
  - F. Stainless Steel.
  - G. Custom (Sherwin Williams).
6. Hoistway Door/Frames
- A. Gray Primer.
  - B. Ivory.
  - C. White.
  - D. Gray.
  - E. Black.
  - F. Vintage Bronze.
  - G. Stainless Steel.
  - H. Custom (Sherwin Williams).
7. Custom Cab Options:
- A. Fire retardant wood cab.
  - B. Custom Cab Height (Wood Cabs Only).
  - C. Applied Panels.
8. Fire Service Options:
- A. No Fire Service
  - B. Phase 1 (FEO-K1 2007).
  - C. Phase 1 & 2 (FEO-K1 2007).
  - D. Phase 1 (CT BFD-1 1996/98).
  - E. Phase 1 & 2 (CT BFD-1 1996/98).

- F. Phase 1 (Specific fire Key).
- G. Phase 1 & 2 (Specific Fire Key).
- 9. Floor: Prepared ¼" flooring by others.
- 10. Lighting:
  - A. 115 VAC, single phase, 15 Amps.
  - B. Failure of one lamp shall not cause the remaining lamps to extinguish.
  - C. Lights shall turn on automatically when the elevator door is opened and stay on while the elevator is in use. Lights will automatically turn off after a predetermined time interval when the elevator is not in use.
  - D. Overhead low power consumption LED light fixtures.
  - E. Color:
    - 1. Black.
    - 2. Brass.
    - 3. Nickel.
    - 4. Bronze.
- B. Call Stations:
  - 1. Control Panel:
    - A. One momentary pressure illuminated button for each landing
    - B. Keyed in car stop switch and alarm button.
    - C. Door open & close buttons.
    - D. Hands free ADA phone.
    - E. Keyed Calls.
    - F. Digital position indicator.
    - G. Finish:
      - 1. Stainless Steel.
      - 2. Brass.
      - 3. Vintage Bronze.
      - 4. Black.
  - 2. Hall Call Stations:
    - A. One momentary pressure illuminated button for selecting the users desired direction of travel per landing.
    - B. Non-Keyed COP
      - 1. Vintage Bronze.
      - 2. Black.
    - C. Non-Keyed Call.
      - 1. Vintage Bronze.
      - 2. Black.
    - D. Keyed COP
      - 1. Vintage Bronze.
      - 2. Black.
    - E. Keyed Call.
      - 2. Vintage Bronze.
      - 3. Black.

## PART 3 EXECUTION

### 1.1 ACCEPTABLE INSTALLERS

- 1. Subcontractor Qualifications: A company that is listed as an authorized Symmetry Elevating Solutions dealer. See [www.symmetryelevators.com](http://www.symmetryelevators.com) for details.

2. Electrical devices, service and final connections shall be by a qualified electrician.

1.2 EXAMINATION

- A. Do not begin installation until preliminary work including hoistway, landings and machine space has been properly prepared.
- B. Verify shaft and machine space are of correct size and within tolerance.
- C. Verify required landings and openings are of correct size and within tolerances.
- D. Verify hoistway shaft and machine room temperature is designed to have maintainable temperatures between 50 degrees F and 90 degrees F.
- E. Verify machine room, when required, is provided with lighting, light switch, convenience outlets and meets the clear space requirements of ASME A17.1 & NEC.
- F. Verify hoistway and openings are of correct size and within tolerance.
- G. Verify electrical power is available and of correct characteristics.
- H. If preliminary work is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

1.3 ADJUSTING

- A. Adjust for smooth acceleration and deceleration.
- B. Adjust automatic floor leveling feature at each floor to provide stopping zone of ¼ inch.
- C. Adjust door operation.

1.4 PREPARATION

- J. Clean surfaces thoroughly prior to installation.
- K. Prepare surfaces using the methods recommended by the manufacturer for achieving the optimum performance of LU/LA elevator.

1.5 INSTALLATION

- A. Unit shall be installed and operated in accordance with the ICC/A117.1, NAEC and ASME A17.1 Guidelines.
- B. A dedicated electrical supply provided to the disconnect shall be capable of supplying sufficient power.
- C. GC to coordinate “work by others” with elevator contractor.
- D. The installation of the LU/LA elevator shall be made in accordance with approved plans and specifications and to the manufacturer’s installation instructions.
- E. Startup and test unit in accordance with manufacturer’s instructions.

3.2 FIELD QUALITY CONTROL

- A. Perform tests in compliance with ASME A17.1 as required by authorities having jurisdiction.
- B. Load the LU/LA elevator to rated capacity and test for several cycles to insure proper operation. No mechanical failures shall occur and no wear that would affect the reliability of the unit shall be detected.
- C. Schedule tests with agencies and Architect, Owner, and Contractor present.

1.6 PROTECTION

- F. Protect installed products until completion of project.
- G. Touch-up, repair or replace damaged products before Substantial Completion.
- H. Clean unit prior to final inspection.



END OF SECTION