



National Reach. Local Service.

Section 142133 (In-Line Gear Drive) & Section 142433 (Hydraulic Drive)

### RESIDENTIAL ELEVATOR

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Residential Elevator.
- B. The scope of this section 1 provides explanation as to the installation of a Residential Elevator, and defines all the necessary equipment required to fully complete said installation, including work required by other associated trades. The equipment specifications are based off the Symmetry Elevating Solutions 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 04800 - Masonry Assemblies: Masonry shaftway and anchor placement.
- C. Section 06100 - Rough Carpentry: Blocking in framed construction for lift attachment.
- D. Section 09260 - Solid Core Wood Doors: Access doors at hoistway landings.
- E. Section 09260 - Gypsum Board Assemblies: Gypsum shaft walls.
- F. Section 09650 - Resilient Flooring: Floor finish in cab.
- G. Section 09680 - Carpet: Floor finish in cab.
- H. Section 13850 - Detection and Alarm: Fire and smoke detectors and interconnecting devices.
- I. Division 16 - Electrical:
  - 1. Electrical characteristics and wiring connections.
  - 2. Electrical service and wiring connections.
  - 3. Telephone service and wiring connections.

##### 1.3 REFERENCES

- 1. This elevator shall be designed and tested in accordance with ICC/ANSI 117.1, NEC and ASME A18.1 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 residential elevator shall be subject to local, city and state approval prior to and following installation.

##### 1.4 REGULATORY REQUIREMENTS

- A. Provide passenger residential elevator complying with:
  - 1. ASME A17.1 - Safety Code for Elevators and Escalators.
  - 2. ASME A17.5 - Elevator and Escalator Electrical Equipment.

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**Comment [1]: PRINTING INSTRUCTIONS:**

To print document WITHOUT comments.

\* Press Print

\* In the Print Box in the option "Print What" select "Document" in the drop down menu.

Any Questions call 877.568.5804 for immediate assistance.

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**Comment [2]:** This section is based on the

products of Symmetry Elevating Solutions. Tel:

877.568.5804, Web: [www.symmetryelevators.com](http://www.symmetryelevators.com)

Symmetry Elevating Solutions is a US Owned & Operated company specializing in the manufacturing of Wheelchair Lifts, Residential Elevators and Limited Use/Limited Application Elevators. A leader in the accessibility industry with a reputation for quality and reliability, Symmetry is industry leading with innovative products.

The Symmetry Elevating Solutions Residential Elevator is available as a Hydraulic Drive or In-Line Geared Drive elevating system expertly designed for use in private residences. The system fits within a vertical elevator hoistway connecting the floors to be serviced. For the Hydraulic model a small area outside of the hoistway is required to accommodate the controller and pump. For the In-Line Gear Drive model (a machine-room-less application) the controller is located in the hoistway. Check with local codes for machine-room-less application. The elevator stops level with the bottom floor requiring a small pit or recess in the concrete.

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**Comment [3]:** Delete any sections below not

relevant to this project; add others as required

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. Drawings shall include:
  - 1. Typical details of assembly, erection and anchorage.
  - 2. Wiring diagrams for power, control, and signal systems.
  - 3. Complete layout with location of equipment.
  - 4. Required clearances and coordination with shaftway.
- D. Manufacturer's Certificates must 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 residential elevators.
- B. Technical Services: Manufacturer and authorized dealer shall work with architects, engineers and contractors to adapt the residential elevator to the design and structural requirements of the building, site, and code requirements.
- C. Components shall be assembled and 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 shall be 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. 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.
- B. Extended Warranty: Provide an extended manufacturer's warranty covering the residential elevator components for the following additional period beyond the initial standard three year warranty. Preventative Maintenance every six (6) months required.
  - 1. 3 years (6 years total).
  - 2. 7 years (10 years total).
  - 3. Lifetime.

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**Comment [4]:** The manufacturers basic warranty is a 3 year limited parts. Warranty requires maintenance agreement during the warranty period.

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**Comment [5]:** Extended Warranty is optional. Select the Extended Warranty option and delete the ones not required.

1.10 MAINTENANCE SERVICE

- A. Maintenance of a residential elevator shall consist of regular cleaning, inspection, and adjustment of the unit at intervals no less than every six (6) months. Provide Maintenance contract for the following years:

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**Comment [6]:** Include this section if Standard or Extended warranty is specified above. Select one of the Maintenance Service options and delete the ones not required.

1. 3 years.
  2. 6 Years.
  3. 10 Years.
  4. Lifetime.
- B. Maintenance of the residential elevator until shall consist of regular cleaning, inspection, adjustment, lubrication and examination no less than every six (6) months. Repair or replace parts when necessary.
- C. Provide emergency call back service for this maintenance period.
- D. 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 a registered U.S. owned company and manufacturing operations located in the United States of America – America Owned, American Operated.
- C. Substitutions: Not permitted.
- D. Requests for substitutions will be considered in accordance with provisions of Section 01660.

1.2 RESIDENTIAL ELEVATORS

A. Symmetry Elevating Solutions Residential Elevator:

1. Capacity:
  - A. 950 pounds.
2. Car Size: Maximum of 18<sup>2</sup> ft. with a maximum of 60" in either direction.
  - A. 36 inches by 48 inches.
  - B. 36 inches by 54 inches.
  - C. 36 inches by 60 inches.
  - D. 40 inches by 54 inches.
  - E. 42 inches by 60 inches.
  - F. 48 inches by 60 inches.
  - G. 54 inches by 40 inches.
3. Platform Configuration:
  - A. Enter/Exit Same Side.
  - B. Enter/Exit Straight Through.
  - C. Enter/Exit 90°.
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.

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**Comment [7]:** Select one of the Substitution options and delete the one not required.

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**Comment [8]:** Select one of the Car Size options and delete the ones not required. Custom Cab Sizes are also available in 1" increments. Maximum car size is a code related item. Verify maximum car size with local city and state authority having jurisdiction. Contact Symmetry Elevating Solutions for details.

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**Comment [9]:** Select one of the Platform Configuration options and delete the ones not required.

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**Comment [10]:** Select one of the Travel options and delete the one not required. If necessary add total feet and inches.

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**Comment [11]:** Select one of the Stop options and delete the ones not required.

6. Speed: 40 feet per minute.
7. Pit Depth:
  - A. 6 inches minimum.
  - B. 8 inches preferred.
8. Overhead Clearance:
  - A. Overhead clearance of 96 inches is required above the upper landing level for standard height car.
  - B. Overhead clearance of 108 inches is required for In-Line Gear Drive System with Electrical Control box located at top of hoistway for standard height car.
9. Drive System:
  - A. Hydraulic Drive: 1:2 Roped Hydraulic, heavy duty car sling with roller guide wheels running on 6-1/4 lb. per foot steel T-rails, quiet submersed pump and motor (3 HP), factory pre-set and tested 2-speed valve for smooth start and stop. Pump unit to be located in a machine room outside of the hoistway.
  - B. In-Line Geared Drive: Counterweighted geared drive, heavy duty car sling with roller guide wheels running on 6-1/4 lb. per foot steel T-rails. Motor (2 HP) mounted above guide rails. No machine room required. Motor controller can be located at the top of the hoistway or remotely located. A 9 inch by 9 inch access hatch located at the upper landing is required for emergency manual lowering.
10. Power Requirements:
  - A. 208/230 VAC, 30 Amp, Single Phase (Hydraulic Drive).
  - B. 208/230 VAC, 20 Amp, Single Phase (In-Line Geared Drive).
  - C. Lighting Requirements: Separate 115 - Volt, 15 Amp Circuit.
11. Controls:
  - A. Symmetry Elevating Solutions PLC Controller with self diagnostics and digital display. S.M.A.R.T. System (Self-Monitoring Alert Response Technology) generates on-demand diagnostic codes identifying trouble or maintenance codes, and broadcasts these codes to the Controller, Hall Stations, and to the Car.
  - B. One momentary pressure illuminated button for selecting the users desired direction of travel per landing.
  - C. Automatic car lighting.
  - D. Digital position indicator in Car.
12. Doors and Door Interlocks:
  - A. A solid core swing type wood door protecting entrance into the hoistway to be supplied at each landing as specified in Section 08200.
  - B. At each door entrance an interlock shall be provided. This will prevent operation of the elevator unless the hoistway door is closed and locked and prevent the hoistway door opening when the elevator cab is not within the landing zone.
  - C. Accordion style gate, equipped with a gate safety switch, preventing car from leaving landing zone when gate is open, to be mounted on all openings of the car.
    1. Birch/Maple laminate.
    2. White laminate.
    3. Antique White laminate.
    4. Dark Oak laminate.
    5. Light Oak laminate.
    6. Clear Acrylic.
    7. Bronze Acrylic.
    8. Birch Hardwood.
    9. Cherry Hardwood.

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**Comment [12]:** Select one of the Drive System options and delete the one not required.

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**Comment [13]:** Select one of the Power Requirement options and delete the one not required.

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**Comment [14]:** Select one or more of the door options and delete the ones not required.

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**Comment [15]:** If Accordion style gate used select finishing option and delete the ones not needed.

10. Mahogany Hardwood.
11. Maple Hardwood.
12. Oak Hardwood.
13. Teak Hardwood.
14. Walnut Hardwood.
15. White Oak Hardwood.
16. Solid Aluminum Panel Brass.
17. Solid Aluminum Panel Clear.
18. Solid Perforated Aluminum Panel Brass.
19. Solid Perforated Aluminum Panel Clear.

D. Scissor Gate:

1. Classic Scissor:
  - a. Black.
  - b. Vintage Bronze.
  - c. Custom Color Option.
2. Vintage Scissor:
  - a. Black.
  - b. Vintage Bronze.
  - c. Custom Color Option.

E. Wrap around Gate: Wraps around the outside of your elevator car to leave a larger opening than is possible with traditional gates.

F. Automatic Sliding Doors (One touch enter/One touch exit).

1. Stainless Steel.
2. Antique Painted.

13. Provide Power Door/Gate Operators at the following locations:

- A. ADA Compliant.
- B. Low Energy Operator.
- C. Door opens and closes at landing.
- D. Provide at the following locations:
  1. Lower Landing: Door & Car Gate.
  2. Intermediate Landing(s): Door & Car Gate.
  3. Upper Landing: Door & Car Gate.

14. Standard Safety Features:

- A. Motor Controller supply disconnect (located in controller).
- B. Safety switch for car gate(s).
- C. Electromechanical hoistway door interlocks.
- D. Recessed Phone box.
- E. Uninterruptible Power Supply – (UPS) for car lowering and automatic gate operation (if gate operator provided) in case of power failure (to allow emergency lower of cab in case of main power failure).
- F. Automatic bi-directional floor leveling.
- G. Rupture Valve (Type "C" Safety) (Hydraulic Drive Only).
- H. Emergency alarm button in car, Emergency keyed stop switch in car.
- I. Battery backup emergency car lights and alarm.
- J. Upper and lower final limit switches.
- K. Low oil timer (Hydraulic Drive Only).

15. Options:

- A. Integrated telephone.
- B. Buffer springs (requires a minimum of 10" pit depth).

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**Comment [16]:** If Automatic Sliding Doors are used select finishing option and delete the ones not needed.

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**Comment [17]:** Select the Power Door Operator options and delete the ones not required.

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**Comment [18]:** Two Upper final limit switches and one lower final limit switch are standard on the In-Line Gear Drive Model.

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**Comment [19]:** Select the optional features required and delete the ones not required.

- C. Upper and lower final limits (Hydraulic Drive Only).
- D. Key switch for COP and hall stations.
- E. Power Door Operator: Automatically opens the door/gate when platform arrives at a landing. Will also open at landing by pressing call button or gently pulling the door.

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**Comment [20]:** Two Upper final limit switches and one lower final limit switch are standard on the In-Line Gear Drive Model.

- 16. Machine Location:
  - A. As indicated on the Drawings.

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**Comment [21]:** Include this section for Hydraulic Drive System only.  
 Coordinate the machine room size and location with your local Symmetry Elevating Solutions Distributor.

1.3 CAB DESIGN

- A. Cab Design:
  - 1. Interior Walls: Panel selections.

- A. Flat Panel.
- B. Shaker Panel.
- C. Inset Panel.
- D. Raised Panel.

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**Comment [22]:** Select one of the Cab panel options and delete the ones not required. Standard: Flat panel

- 2. Interior Walls: Wood Species.

- A. Alder.
- B. Birch.
- C. Cherry.
- D. Hickory.
- E. Mahogany.
- F. Maple.
- G. Red Oak.
- H. Walnut.
- I. White Oak.

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**Comment [23]:** Select one of the Wood Species options and delete the ones not required. Standard: Maple

- 3. Interior Walls: Stain.

- A. No Stain – Unfinished.
- B. Country Pine.
- C. Golden Oak.
- D. Satin Clear Coat.
- E. Traditional Cherry.
- F. Custom as selected by Architect.

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**Comment [24]:** Select one of the following Stain options and delete the ones not required. Standard: No Stain – Unfinished.

- 4. Ceiling: Panel selections.

- A. Flat Panel
- B. Shaker Panel
- C. Inset Panel
- D. Raised Panel

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**Comment [25]:** Select one of the following Ceiling Panel options and delete the ones not required. Standard: Flat Panel

- 5. Ceiling: Wood Species.

- A. Alder.
- B. Birch.
- C. Cherry.
- D. Hickory.
- E. Mahogany.
- F. Maple.
- G. Red Oak.
- H. Walnut.
- I. White Oak.

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**Comment [26]:** Select one of the following ceiling Wood Species options and delete the ones not required. Standard: Maple, Birch, or Red Oak.

- 6. Ceiling: Stain.

- A. No Stain – Unfinished.

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**Comment [27]:** Select one of the following stain options and delete the ones not required. Standard: No Stain – Unfinished.

- B. Country Pine.
  - C. Golden Oak.
  - D. Satin Clear Coat.
  - E. Traditional Cherry.
  - F. Custom as selected by Architect.
7. **Car Operating Panel Finish:**
- A. Brushed Stainless.
  - B. Polished Stainless.
  - C. Brushed Brass.
  - D. Polished Brass.
  - E. Oil Rubbed Brass.
  - F. Vintage Bronze.
  - G. Black.
8. **Handrail Finish:**
- A. Matching Wood.
  - B. Brushed Stainless.
  - C. Polished Stainless.
  - D. Brushed Brass.
  - E. Polished Brass.
  - F. Vintage Bronze.
  - G. Oil Rubbed Brass.
9. Floor: Unfinished plywood floor with sill set for .75".
10. Lighting:
- A. 110 VAC, single phase, 15 Amps.
  - B. Malfunction of one lamp shall not cause other lamps to turn off.
  - C. Lights shall illuminate automatically when the elevator door is opened and remain on for the entire duration of use. Lights shall automatically turn off after a preset time the elevator is not in use.
  - D. **Recessed LED Lights with Trim:**
    - 1. (2) Two.
    - 2. (4) Four.
  - E. **Finish:**
    - 1. Black Trim.
    - 2. Brushed Stainless.
    - 3. Bronze.
    - 4. Polished Brass.
- B. Hall Call Stations:
1. **Hall Station Type:**
- A. Keyless Push Button.
  - B. Keyed Push Button.
  - C. Biometric Interface.
  - D. Numeric Keypad.
2. **Finish:**
- A. Brushed Stainless.
  - B. Polished Stainless.
  - C. Brushed Brass.
  - D. Polished Brass.
  - E. Oil Rubbed Brass.
  - F. Vintage Bronze.

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**Comment [28]:** Select one of the following operating panel finish options and delete the ones not required. Standard: Brushed Stainless Steel.

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**Comment [29]:** Select one of the following handrail finish paragraphs and delete the ones not required. Standard: Matching Wood.

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**Comment [30]:** Select one of the following LED Lights quantity paragraphs and delete the one not required. Standard: (2) Two.

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**Comment [31]:** Select one of the following LED light finish paragraphs and delete the one not required. Standard: Black.

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**Comment [32]:** Select one of the Hall Station type paragraphs and delete the ones not required. Standard: Keyless Push Button.

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**Comment [33]:** Select one of the following finish paragraphs and delete the ones not required. Standard: Brushed Stainless.

- G. Black.
- H. Copper – Silver.
- I. Brushed Silver.
- J. Natural Metal.
- K. Brushed Bronze.
- L. Japanese Brown.
- M. Antique Brown.

### PART 3 EXECUTION

#### 1.1 ACCEPTABLE INSTALLERS

- A. Subcontractor Qualifications: A company that is listed as an authorized Symmetry Elevating Solutions dealer. See [www.symmetryelevators.com](http://www.symmetryelevators.com) for details.
- B. Electrical devices, service and final connections shall be by a qualified electrician.

#### 1.2 EXAMINATION

- A. Preliminary work must be properly prepared, including hoistway construction, landings and machine space, before installation.
- B. Verify hoistway shaft and machine space are the correct size and within acceptance.
- C. Verify required landings and openings are the correct size and within acceptance.
- D. Verify hoistway shaft and machine room designed maintain temperatures between 50 degrees F and 90 degrees F.
- E. When required verify machine room is provided with lighting, light switch, outlets and meets the clear space requirements of ASME A17.1
- F. Verify hoistway and openings are the correct size and within acceptance.
- G. Verify electrical power is available and of within acceptance.
- H. Notify Architect of any inadequate preparation when preliminary work is the responsibility of another installer.

#### 1.3 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the optimum performance of a residential elevator.

#### 1.4 INSTALLATION

- A. Unit shall be installed and operated in accordance with the ICC/A117.1, NAEC and ASME A18.1 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 residential 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.
- F. Adjust for smooth operation.

#### 4.2 FIELD QUALITY CONTROL

- A. Perform necessary tests in compliance with ASME A17.1 as required by authorities having jurisdiction.



- B. Load the residential 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 necessary tests with Architect, Owner, Contractor, and any authorities having jurisdiction.

1.5 PROTECTION

- F. Products to be protected 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