

SECTION 08 33 43

OVERHEAD COILING SMOKE CURTAINS FOR ELEVATOR DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Overhead Coiling Smoke Curtains for Elevator Doors.

1.2 RELATED SECTIONS

- A. Section 14 21 00 – Electric Traction Elevators.
- B. Section 14 24 00 – Hydraulic Elevators.
- C. Section 28 30 00 – Detection and Alarms.

1.3 COORDINATION

- A. Coordinate smoke curtain assemblies with power, signal, fire-alarm, and smoke-detection systems specified in Division 26 and Division 28.
- B. Coordinate elevator smoke-protective curtain assemblies with elevator hoistway door frames specified in Division 14.
- C. Coordinate smoke-protective curtain assemblies with ceilings for operational clearances and maintenance access requirements.
- D. Coordinate smoke-protective curtain assemblies with walls for support requirements, rating continuity above ceilings, and recessed wall switches.
- E. Coordinate requirements for metal supports required for smoke-protective curtain assemblies.

1.4 INFORMATIONAL SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Product Data: Manufacturer's product information and data sheets for each product specified in this section, including:
 - 1. Substrate preparation instructions and recommendations.
 - 2. Installation means and methods.
 - 3. Recommendations and requirements for proper storage and handling.
- C. Shop Drawings:
 - 1. Submit Manufacturer's approved shop drawings detailing the section and elevation views of each product to be installed.

2. Coordinate with locations listed on Contract Drawings.

D. Warranty Information:

1. Submit confirmation and details of manufacturer's warranty, extended warranty, and replacement policies.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For smoke-protective curtain assemblies to include in emergency, operation, and maintenance manuals.

B. Field quality-control reports for required testing.

1.6 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer: Minimum of seven (7) years experience in manufacturing draft-control curtain assemblies.
2. Installers: An entity that employs installers and supervisors who are trained and approved by manufacturer for both installation and maintenance of units required for this Project.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials and products in accordance with the manufacturer's instructions and recommendations and industry standards.

B. Store all materials in the manufacturer's original packaging until ready for installation. Protect all products from damage or exposure to adverse weather conditions.

1.8 PROJECT CONDITIONS

A. Prior to fabrication, verify that dimensions are consistent with those found in the construction drawings. Where discrepancies exist, confirm the proper dimensions with the Architect before proceeding with work.

1.9 WARRANTY

A. Manufacturer Warranty: Provide manufacturer's warranty covering parts and labor costs to repair or replace part that fail to perform.

1. Warranty Period: Parts and labor warranty for 12 months from date of Substantial Completion or date of purchase, whichever comes first.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: U.S. Smoke & Fire – ESC Curtain
 - 1. Phone: (888) 917- 8777 ext. 102
 - 2. Website: <https://ussmokeandfire.com>
- B. Substitution Limitations:
 - 1. Submit substitution requests in accordance with provisions of Section 01 60 00.
 - 2. Single manufacturer to provide, from a single source, a fully integrated smoke-and-draft containment system consisting of smoke-and-draft-protective curtains and the following components:
 - a. Smoke-and-Draft-Protective Curtain Operators.
 - b. Smoke-and-Draft-Protective Curtain Controls.

2.2 SMOKE-PROTECTIVE CURTAIN ASSEMBLIES FOR ELEVATOR ENTRANCES

- A. Alarm-activated transparent-curtain smoke curtain assembly complying with ICC-ES AC77, ESR-4888 and NFPA 105.
 - 1. Basis of Design Product: Model ESC, by U.S. Smoke & Fire.
- B. Alarm-activated transparent-curtain smoke curtain assembly complying with ICC-ES AC77, ESR-4888 and NFPA 105.
 - 1. Basis of Design Product: Model ESC, by U.S. Smoke & Fire.
- C. Smoke-Protective Curtain Assemblies: Provide smoke-protective curtains listed and labeled with the letter "S" by a qualified testing agency for smoke- and draft-control based on testing in accordance with UL 1784 without an artificial bottom seal; with maximum air-leakage rate of 3.0 cfm/sq. ft. (0.01524 cu. m/s x sq. m) of opening (vent gaps at the flexible magnetic strips) at 0.10 inch w.c. (24.9 Pa) for both ambient and elevated temperature tests in accordance with ICC-ES AC77.
- D. Curtain Materials: Provide manufacturer's standard curtain complying with each of the following:
 - 1. Flame-Spread and Smoke-Developed Indexes: No greater than 25 and 50, respectively, when tested in accordance with ASTM E84.
 - 2. Transparent Polymeric Material: Provide Transparent Polymeric Material in compliance with vision panel requirements of ASME A17.1.
 - 3. Screen Reinforcement Thickness: Provide nominal thickness of 0.004-inch to limit deflection or tearing.
- E. Curtain Egress: Provide curtain that is operable from the egress side without use of keys, tools, special knowledge, or effort in excess of the opening force requirements of authorities having jurisdiction.

1. Egress Switch: Include switch to rewind screen into housing to comply with egress requirements of ASME A17.1.
 - a. Switch Size and Color: Provide switch no less than 4 by 4 inches and in contrasting color with curtain.
 - b. Switch Operation: Provide switch operable with a closed fist or a loose grip, not requiring finger movements in compliance with the requirements of authorities having jurisdiction.
 - c. Switch Location: Between 15 and 48 inches above finished floor level in compliance with forward reach requirements of authorities having jurisdiction.
 2. Manual Egress: Provide curtain allowing fail-safe manual egress with less than 15 pounds release pressure in the direction of travel.
 - a. Opening Size: Provide curtain with manual egress opening of at least 32 inches in compliance with the requirements of authorities having jurisdiction.
- F. Curtain Attachment: Provide curtain that forms a pressure-resisting seal by magnetic adhesion with flexible magnetic strips attached to vertical sides of the curtain with low modulus silicone adhesive.
1. Curtain Installation: Provide curtain attachment systems that do not require modification of the elevator jamb including direct or mechanical attachment.
 2. Elevator Door Frames: Type 430 ferritic stainless steel elevator door frames to create seal with curtain by magnetic adhesion.
 - a. Auxiliary Rails: Provide 16-gauge ASTM A240/240M, Type 430, ferritic stainless steel vertical rails above elevator door head to create seal with curtain by magnetic adhesion no less than 2 inches (51 mm) wide, 1 inch (25 mm) deep.
 3. Auxiliary Rails: Provide vertical rails to create seal with curtain by magnetic adhesion.
 - a. Material: 16-gauge ASTM A240/240M, Type 430, ferritic stainless steel.
 - b. Size: At least 2 inches (51 mm) wide, 1 inch (25 mm) deep.
- G. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- H. Curtain Housing: Provide sheet metal housing containing support roller and associated electronics.
1. Coordinate operator wiring requirements and electrical characteristics with building electrical system.
 2. Housing includes electrical junction box that does require the removal of any part of the building in accordance with NFPA 70.
 3. Provide electrical junction box access through housing in the open condition.
 4. Curtain housing to contain all components required for operation.
 5. Housing Finish Standard Option: Manufacturer's standard factory etch primed or RAL white.

6. Housing Finish Custom Option: Manufacturer's powder coat finish in custom RAL colors.
7. Housing Finish Custom Option: Manufacturer's standard stainless steel.
- I. Curtain Operation: Controlled descent automatically by fail-safe, gravity-closing deployment and motorized rewind.
 1. Curtain deploys on activation of one of the following:
 - a. Local Smoke Detector.
 - b. Building Fire Alarm.
 - c. Testing Key Switch
 2. Release Mechanism: Labelled as defined by UL864.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates upon which work will be installed.
 1. Verify related work performed under other sections is complete and in accordance with Shop Drawings.
 2. Verify wall surfaces and elevator door frames are acceptable for installation of smoke containment system components.
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Verify that locations of concealed reinforcements have been clearly marked for the installer.
- E. Locate reinforcement points and clearly mark their locations if not already done.

3.2 PREPARATION

- A. Clean surfaces prior to installation.
- B. Prepare surfaces as recommended for achieving optimal results.

3.3 INSTALLATION

- A. Install in accordance with the Installation Manual and industry recognized best practices.
- B. Install in accordance with all code bodies having jurisdiction.

3.4 CLEANING AND PROTECTION

- A. Clean and remove all stains, grime, or other soils using soap and water. Only use detergents approved by the manufacturer for use on the finishes specified. Do not use acid solutions, steel wool, and other harsh abrasives.

- B. Damaged products must be repaired or replaced prior to substantial completion.
- C. Protect installed products until completion of work specified in this section.

3.5 FIELD QUALITY CONTROL

- A. Field Test: Follow manufacturer's cycle test procedures.
 - 1. Notify Owner's Representative, local Fire Marshal, alarm sub-contractor and elevator sub-contractor or ESC Curtain Installer minimum one week in advance of scheduled testing.
 - 2. Complete maintenance service record.

3.6 END-USER TRAINING

- A. Virtual End-user Training provided for maintenance procedures, after warranty care, for the Owner's Representative.

3.7 MAINTENANCE AND TESTING

- A. Perform minimum semi-annual maintenance after warranty by a U.S. Care® Technician and testing on each smoke containment system as required by code agency evaluation reports, and as required by local authority having jurisdiction.
 - 1. Retain permanent record of tests.
- B. Future Painting: Paint elevator door frame and/or auxiliary rails in accordance with Operation and Maintenance Manual.
- C. Fire Event: Owner shall engage a qualified inspector to assess unit(s) after exposure to a fire event.

END OF SECTION