# PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 and 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

A. Section Includes:
   1. Smoke detector activated elevator door smoke containment screen and control system designed to provide a tight-fitting, smoke- and draft-control assembly.

B. Related Sections include the following:
   1. Section 055000 "Metal Fabrications" for sheet metal backing in elevator shaft.
   2. Section 079200 "Joint Sealants" for joint sealers.
   3. Section 083113 "Access Doors and Frames" for access doors at control stations and junction boxes.
   4. Section 092216 “Non-Structural Metal Framing” for metal bracing in housing mounting area.
   5. Section 142400 “Vertical Transportation” for elevator door assemblies.
   6. Division 26 Sections for electrical service and connections for powered operators, and accessories, for boxes and for disconnect switches and circuit breakers for powered operators.
   7. Section 283111 "Fire Alarm Systems" for smoke detectors.

## 1.3 PREINSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Project site.
   1. Schedule and convene a pre-installation meeting prior to commencement of field operations with representatives of the following in attendance: Owner, Architect, General Contractor, smoke containment system sub-contractor, and electrical sub-contractor.
   2. Review substrate conditions, requirements of related work, installation instructions, storage and handling procedures, and protection measures.
   3. Keep minutes of meeting including responsibilities of various parties and deviations from specifications and installation instructions.

## 1.4 REFERENCES

A. ASTM A240/240M: Standard Specification for Heat Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels.

B. ICC Evaluation Service ES-AC77: Acceptance Criteria for Smoke-Containment Systems Used With Fire-Resistive Elevator Hoistway Doors and Frames.

C. ICC Evaluation Service report ESR-1136.

D. NFPA Codes and Standards:
   1. CEC: California Electrical Code.
   2. NFPA 105: Recommended Practice for the Installation of Smoke-Control Door Assemblies.
   3. NFPA 72: National Fire Alarm Code 2013 Edition with California Amendments

4. 2013 California Fire Code with California Ammendments.

E. UL Standards:
1. UL 268: Smoke Detectors for Fire Protective Signaling Systems.
2. UL 508: Industrial Control Equipment.
3. UL 864: Control Units for Fire Protective Signaling Systems.
4. UL 1784: Air Leakage Tests for Door Assemblies.

F. California Building Code.

1.5 ACTION SUBMITTALS

A. Product Data: For elevator door smoke containment assembly and accessory components. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes. Provide roughing-in diagrams, operating instructions, and maintenance information. Include the following:
1. Setting drawings, templates, and installation instructions for built-in or embedded anchor or backing plate devices.
2. Summary of forces and loads on walls and jambs.
3. Motors: Show nameplate data and ratings; characteristics; mounting arrangements; size and location of winding termination lugs, conduit entry, and grounding lug; and coatings.
4. Information describing fire-release system, including testing and resetting instructions.

B. Shop Drawings: For special components and installations not dimensioned or detailed in manufacturer's data sheets. Include the following as a minimum:
1. Wiring Diagrams: Detail wiring for power, signal, and control systems. Differentiate between manufacturer-installed and field-installed wiring and between components provided by smoke containment assembly manufacturer and those provided by others.
2. Elevator lobby ceiling height.
3. Hoistway door opening width and height.
4. Hoistway door frame profile, projection from finished wall and face width.
5. Hoistway door frame material and existing finish.
6. Mounting height.
7. Show all projections from wall within 12 inches of hoistway door frame, floor-to-ceiling.

1.6 INFORMATIONAL SUBMITTALS

A. Qualifications Data: For Installer and Testing Agency.

B. Product Certificates: Signed by manufacturer of elevator door smoke containment assembly certifying that the products furnished comply with specified requirements, including those for fire-test-response characteristics.

C. Oversize Construction Certification: For smoke containment assemblies exceeding limitations of labeled assemblies, submit certification of a testing agency acceptable to authorities having jurisdiction that oversize assembly has been constructed to comply with design, materials, and construction equivalent to requirements for labeled construction.

D. Research/Evaluation Reports: Evidence of elevator door smoke containment assembly compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.

1.7 CLOSEOUT SUBMITTALS

A. Operation and maintenance data for elevator door smoke containment assembly to include in operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data". Include instructions for periodic testing and resetting and certificates required by authorities having jurisdiction.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer certified, licensed, or otherwise qualified by elevator door smoke containment assembly manufacturer as having the necessary experience, staff, and training to install manufacturer's products according to specified requirements.

B. Testing Agency Qualifications: An independent testing and inspecting agency acceptable to authorities having jurisdiction and with the experience and capability to conduct the testing indicated without delaying the Work.

C. Manufacturer shall maintain a quality control program in accordance with ICC-ES Acceptance Criteria AC 77.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store elevator door smoke containment assembly in manufacturer's original packaging and in accordance with manufacturer's instructions.

1.10 COORDINATION

A. Coordinating Work: Coordinate construction of electrical components, openings, support, and backing items to ensure that elevator door smoke containment assemblies are installed per specified requirements.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Air Leakage: Not to exceed 3 cfm per sf of door opening at 0.1 in water pressure differential at ambient temperature and 400 degrees F tested per UL 1784 and CBC 710.5.2.2.

B. Opening Force: Maximum 15-pound force to disengage the curtain when applied perpendicular to the plane of the film at the boundary complying with CBC 1008.1.2 requirements.

C. Oversize Smoke Containment Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that doors comply with all standard construction requirements of tested and labeled fire-rated door assemblies, except for size.

D. Required Certifications:
   1. Manufacturer's ICC Evaluation Service report ESR-1136.
   2. California Department of Forestry and Fire Protection and Office of the State Fire Marshal Listing.
   3. Testing Laboratory Label.
   4. UL Listing.

E. Listing and Labeling: Provide electrical components specified in this Section that are listed and labeled.
   1. The Terms "Listed" and "Labeled": As defined in California Electrical Code, Article 100.

2.2 ELEVATOR DOOR SMOKE CONTAINMENT SYSTEM

A. Products: Subject to compliance with requirements, provide the following:
   1. Model M-400 Smoke Containment System as manufactured by Smoke Guard Corporation. (Basis-of-Design) (No Known Equal)

B. Smoke containment system shall be listed and labeled and in compliance with ICC Evaluation Service ES AC 77: Acceptance Criteria for Smoke-Containment Systems Used with Fire-Resistive Elevator Hoistway Doors and Frames.

C. Source Limitations: Obtain elevator door smoke containment assembly through one source from a single manufacturer.

D. System Description: Elevator door smoke containment assembly designed shall be placed over a fire-resistive elevator door to provide a tight-fitting, smoke and draft control assembly complying with CBC requirements. The assembly includes a curtain consisting of a reinforced transparent polyimide film attached to a flexible magnet. The lower curtain edge is attached to aluminum tube sections that are connected with an aluminum angle. A drive pulley is connected to the outside face of the aluminum tube section and is fitted to a stainless steel cable. The units are mounted over elevator doors and are housed within a galvanized steel container. The cables allow the film to unwind when signaled by an automatic smoke detector with an auxiliary contact, covering the elevator door opening and sealing tight to the elevator hoistway frame by the magnets in the film. A 90v DC motor rewinds the film back into the housing.

2.3 MATERIALS

A. Screen:
   1. Reinforced Transparent Film: Minimum 1 mil thick transparent polyimide film reinforced with minimum 100 denier Nomex yarn at 0.25 in each way.
      a. Fire-Test-Response Characteristics: Provide reinforced transparent film with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify film with appropriate markings of applicable testing and inspecting agency.
         1) Flame Spread: 25 or less.
         2) Smoke Developed: 450 or less.
   2. Magnetic Strips: Flexible multi-pole strips attached to longitudinal edges of film with low modulus silicone adhesive.

B. Housing: 20 gage, powder coated, cold rolled steel container with dust cover and door with concealed hinges and a latch.
   1. Size and Shape: Manufacturer's standard for application indicated.
   2. Metal Thickness: Not less than 0.0359-inch thick.
   3. Provide sheet metal without pitting, seam marks, roller marks, stains, discolorations, or other imperfections where exposed to view on finished units.

C. Rewind Motor: CEC, 90v DC.

D. Release Mechanism: Comply with UL Standard No. 864.

E. Label each smoke containment system with following information and complying with CBC labeling requirements:
   1. Manufacturer’s name.
   2. Compliance with UL 1784
   3. Maximum leakage rating at specified pressure and temperature conditions.
   4. Label of quality control agency.

F. Screen Rewind Switch: Include switch to rewind screen into housing. Minimum of 1 unit per rewind switch for multiple smoke containment units on a common floor activated by a single smoke detector.

G. Sealant: As recommended by curtain manufacturer.

2.4 FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

D. Powder-Coat Finish: Immediately after cleaning and pretreating, electrostatically apply manufacturer's standard, baked-polymer, thermosetting powder finish. Comply with resin manufacturer's written instructions for application, baking, and minimum dry film thickness.

2.5 SOURCE QUALITY CONTROL

A. Manufacture elevator door smoke containment assemblies under a factory quality control program meeting requirements of the ICC ES Acceptance Criteria for Quality Control Manuals and arrange for inspections by Omega Point Laboratories, Inc., or another independent inspecting and testing agency acceptable to authorities having jurisdiction.

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.
   3. Verify existing field painted elevator door frames to be used for screen adherence have been repainted in accordance with smoke containment system manufacturer's instructions or they have the original factory paint.

B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.

C. Commencement of work by installer is acceptance of substrate.

3.2 INSTALLATION

A. General: Install elevator door smoke containment units and operating equipment complete with necessary hardware, auxiliary rails, anchors, inserts, hangers, and supports according to manufacturer's written instructions, and as specified.
   1. Install smoke containment units to comply with applicable requirements of NFPA 105.

B. Mount housing unit level and plumb.

C. Install auxiliary rails in accordance with manufacturer's instructions.

D. Make required electrical connections.

E. Adjust curtain film for full contact with elevator hoistway door frames. Trim film as required and in accordance with manufacturer's instructions.

F. Attach drive pulley to each end of aluminum cylinder. Remove slack in cables and adjust for equal tension between cables.

G. Seal joints between materials and substrates in accordance with smoke containment unit manufacturer's instructions, as necessary to provide required smoke control, and in accordance with requirements of Section 079200 "Joint Sealants".

H. Protect components and assemblies during painting.

3.3 FIELD QUALITY CONTROL

A. Test each smoke containment unit by activating the release mechanism and inspecting deployment of the curtain for complete smoke seal of the elevator hoistway frame.
   1. Make adjustments in cable tension as required.
   2. Engage the rewind motor and observe operation. Adjust as necessary for proper operation.
   3. Repeat entire process 5 times for each smoke containment unit and record results and actions taken.
   4. Once operation of each unit is deemed acceptable, tighten set screws and drive pulleys.

5. Provide testing required by authorities having jurisdiction.
6. Include all test results and corrective actions in maintenance data.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to perform training session for Owner's maintenance personnel as specified below:
   1. Train Owner's maintenance personnel on procedures and schedules related to troubleshooting, servicing, preventive maintenance, and procedures for testing and resetting release devices, including semi-annual maintenance required by authorities having jurisdiction.
   2. Review data in the maintenance manuals. Refer to Section 017823 "Operation and Maintenance Data".
   3. Schedule training with University with at least 7 days' advance notice.

END OF SECTION