SECTION 083343 - OVERHEAD COILING SMOKE CURTAINS

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes:

Smoke-protective curtain assemblies for elevator entrances.

Smoke- and fire-protective curtain assemblies for elevator entrances.

Deployable draft curtains.

Fixed draft curtains.

Refer to sections listed below for cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections. Sections listed below are for spec editor’s and design team coordination and are to remain as Editor’s Notes. Remove referenced specification sections within the body of the specification if not applicable to the project.

Section 083344 "Overhead Coiling Fire Curtains" for overhead coiling fire-protective curtain assemblies.

* + - 1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at Project site.
			1. COORDINATION

Review requirements with Design team and update requirements if required.

* + - * 1. Coordinate smoke curtain assemblies with power, signal, fire-alarm, and smoke-detection systems specified in Division 26 and Division 28.
				2. Coordinate elevator smoke-protective curtain assemblies with elevator hoistway door frames specified in Division 14.
				3. Coordinate smoke-protective curtain assemblies with ceilings for operational clearances and maintenance access requirements.
				4. Coordinate smoke-protective curtain assemblies with walls for support requirements, rating continuity above ceilings, and recessed wall switches.
				5. Coordinate requirements for metal supports required for smoke-protective curtain assemblies.
			1. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type of smoke-protective curtain assembly and draft curtain.

Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for smoke curtains.

Include points of attachment and their corresponding static and dynamic loads imposed on structure.

Include manufacturer’s installation instructions.

Retain subparagraph below for power-operated smoke curtains.

Include ratings, operating components, electrical characteristics, control systems, and furnished specialties and accessories.

* + - * 1. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.

Include plans, elevations, sections, and attachment details.

Include details of smoke curtain assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location of each field connection.

Include points of attachment and their corresponding static and dynamic loads imposed on structure.

Detail fabrication and assembly of fire-protective curtain assemblies.

Show locations of controls, detectors, and other accessories.

Retain subparagraph below if equipment includes wiring.

Include diagrams for power, signal, and control wiring.

Retain "Samples" paragraph below for single-stage Samples, with a subordinate list if applicable. Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs for two-stage Samples.

* + - * 1. Samples: For each exposed product and for each color and texture specified, 6 inches in length.
				2. Samples for Initial Selection: Manufacturer's finish charts showing full range of material and finish options available for units with factory-applied finishes.

Curtain guide.

Bottom bar.

* + - * 1. Samples for Verification: For each type of exposed finish, in manufacturer's standard sizes.

Curtain guide

Bottom bar.

* + - * 1. Product Schedule: For smoke curtain assemblies. Use same designations indicated on Drawings.
				2. Quality Controls Submittals:

Qualification Data: For Installer, manufacturer, testing agency, and Company Service Advisor.

Evaluation Reports: For curtain assemblies, from ICC-ES or another qualified testing agency.

Design Consultant to review code references and verify that the referenced sections/tables are current. Note that code references shall be based on the current version of the Uniform Code.

Retain "Field quality-control reports" paragraph below if Contractor is responsible for field quality-control testing and inspecting.

Field quality-control reports.

Sample Warranty: For manufacturer's special warranty.

* + - * 1. Contract Closeout Submittals:

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

Field quality-control reports for required testing.

* + - 1. QUALITY ASSURANCE
				1. Manufacturer Qualifications: An entity experienced in manufacturing smoke-and-draft-control curtain assemblies that have been successfully installed in compliance with requirements of authorities having jurisdiction.
				2. Installer Qualifications: 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.
				3. Smoke-Protective Curtain Assembly Inspector Qualifications: Inspector for field quality control inspections of smoke-protective curtain assemblies complying with NFPA 105.
			2. FIELD CONDITIONS
				1. Field Measurements: Field-verify and coordinate dimensions and indicate measurements on Shop Drawings.
			3. WARRANTY

When warranties are required, verify with Director’s Representative that warranties stated in this article are not less than remedies available to Facility under prevailing local laws.

* + - * 1. Special Warranty: Manufacturer agrees to repair or replace components of curtain assemblies that fail in materials or workmanship within specified warranty period.

Verify available warranties and warranty periods for curtain assemblies and components.

Warranty Period: [**Two**] <**Insert number**> years from date of Substantial Completion.

1. PRODUCTS
	* + 1. MANUFACTURERS, GENERAL
				1. Source Limitations: Obtain smoke-protective curtains from single source from single manufacturer.

Retain subparagraph below or revise to suit Project.

Obtain operators and controls from smoke-protective curtain manufacturer.

* + - 1. PERFORMANCE REQUIREMENTS

Retain "Smoke-Protective Curtain Assemblies" paragraph below for smoke-protective curtain assemblies without fire-protection rating. Overhead coiling curtains are labeled by UL for sizes not exceeding 152 sq. ft., with no dimension exceeding 13 feet, 6 inches.

* + - * 1. Smoke Protective Curtain Assemblies: Provide smoke-protective curtains that are listed and labeled with the letter "S" on the rating label by a qualified testing agency for smoke- and draft-control based on testing in accordance with UL 1784; with maximum air-leakage rate of 3.0 cfm/sq. ft. of opening at 0.10 inch wg for both ambient and elevated temperature tests.

Retain "Smoke- and Fire-Protective Curtain Assemblies" paragraph below if applicable. Overhead coiling curtains are labeled by UL for sizes not exceeding 152 sq. ft., with no dimension exceeding 13 feet, 6 inches.

* + - * 1. Smoke- and Fire-Protective Curtain Assemblies: Complying with NFPA 80; listed and labeled by qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible in accordance with UL 10D.

Retain "Oversize Rated Curtain Assemblies" subparagraph below if required and acceptable to authorities having jurisdiction.

Oversize Rated Curtain Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that curtain assemblies comply with standard construction requirements for tested and labeled fire-rated curtain assemblies, except for size.

Smoke Control: Provide smoke-protective curtains that are listed and labeled with the letter "S" on the rating label by a qualified testing agency for smoke- and draft-control based on testing in accordance with UL 1784; with maximum air-leakage rate of 3.0 cfm/sq. ft. of opening at 0.10 inch wg for both ambient and elevated temperature tests.

* + - * 1. Curtain Fabric Fire-Test-Response Characteristics: Provide products that pass NFPA 701, as determined by testing of fabrics that were treated using treatment-application method intended for use for this Project by a testing and inspecting agency acceptable to authorities having jurisdiction.

Retain "Electrical Components, Devices, and Accessories" paragraph below for operable curtain assemblies.

* + - * 1. 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.

Retain "Seismic Performance" paragraph below if seismic design of draft curtains is required for Project. Revise to indicate specific loads determined by Project's Structural Engineer, or refer to loads indicated on Drawings. Model building codes and ASCE/SEI 7 establish criteria for buildings and components subject to earthquake motions. Coordinate requirements with Project's structural engineer.

* + - * 1. Seismic Performance: Smoke-protective curtain assembly shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

The value in "Component Importance Factor" subparagraph below is determined in accordance with ASCE/SEI 7 based on anticipated risk and need. Revise subparagraph if more than one sectional door is required and they have different component importance factors. Coordinate requirement with Project's structural engineer.

Component Importance Factor: [**1.5**] [**1.0**] <**Insert requirements**>.

* + - 1. SMOKE-PROTECTIVE CURTAIN ASSEMBLIES FOR ELEVATOR ENTRANCES
				1. Alarm-activated transparent-film smoke curtain assembly complying with ICC-ES AC77.

Design Consultant to review code references and verify that the referenced sections/tables are current. Note that code references shall be based on the current version of the Uniform Code.

Consult manufacturers for recommendations and availability. Local New York State and area manufacturers and distributers are preferred.

* + - * 1. Smoke Containment: Assemblies complying with UL 1784 for air leakage and requirements of ASME 17.1/CSA B44.
				2. Transparent-Film Curtain: Manufacturer's standard transparent film with flame-spread and smoke-developed indexes of 25 and 450, respectively, when tested in accordance with ASTM E84.
				3. Operation: Controlled descent automatically by fail-safe [**gravity**] [**motor-driven**] deployment and motorized rewind.
				4. Curtain Attachment: Curtain shall form a pressure-resisting seal by one of the following methods:

Retain one or more of "Magnetic Adhesion," "Auxiliary Rails," and "Captured Side Guides" subparagraphs below to suit Project.

Magnetic Adhesion: With Type 430 ferritic stainless steel elevator door frames, use magnets for closure with door frame.

Auxiliary Rails: With magnetic closure of curtain with incompatible elevator door frame material, provide magnetic stainless steel cladding for door frame, formed from ASTM A240, Type 430 ferritic stainless steel.

Finish: Match stainless steel elevator door frame.

Captured Side Guides: Formed from galvanized-steel sheet complying with ASTM A653 with integral pressure-retaining tabs.

* + - * 1. Control System: Provide factory-assembled control unit as required for assembly specified.

Fail-safe[**, gravity-closing**] device[**with battery backup**] deploys on activation of local smoke detector[**and building fire alarm**] or testing key switch in compliance with UL 864.

Curtain Rewind Switch: Include switch to rewind screen into housing.

Motor Operator: Provide factory-assembled electric operation system of size and capacity recommended in writing by curtain manufacturer for assembly specified, with electric motors and factory-prewired motor controls, control devices, and accessories required for proper operation.

Electrical Components, Devices, and Accessories: Listed and labeled in accordance with NFPA 70, by a qualified testing agency, and marked for intended location and application.

* + - * 1. Housing Type: Sheet metal housings containing support rollers and associated electronics.

Coordinate operator wiring requirements and electrical characteristics with building electrical system.

* + - 1. SMOKE- AND FIRE-PROTECTIVE CURTAIN ASSEMBLIES FOR ELEVATOR ENTRANCES
				1. Alarm-activated flame-resistant fabric smoke curtain assembly complying with ICC-ES AC77.

Design Consultant to review code references and verify that the referenced sections/tables are current. Note that code references shall be based on the current version of the Uniform Code.

Consult manufacturers for recommendations and availability. Local New York State and area manufacturers and distributers are preferred.

* + - * 1. Smoke Containment: Assemblies complying with UL 1784 for air leakage and requirements of ASME 17.1/CSA B44.
				2. Fire-Resistance Rating of Fabric: Comply with UL 10D; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

Rating: 1-hour [**As indicated in door schedule**].

* + - * 1. Operation: Motorized automatic operation with controlled descent.
				2. Automatic-Closing Device: Equip each deployable curtain assembly with fail-safe, gravity-closing device or holder-release mechanism and governor unit complying with UL 864 and NFPA 105, and an easily tested and reset release mechanism. Automatic-closing device shall be designed for activation by the following:

Retain one or more of three subparagraphs below and insert others if required to suit Project. If more than one type of activation (or combination) is required, identify primary and secondary closing devices. Verify requirements of authorities having jurisdiction. See the Evaluations.

Manufacturer's standard UL-labeled smoke detector and holder-release devices.

Manufacturer's standard UL-labeled heat detector and holder-release devices.

Building fire-detection, smoke-detection, and fire-alarm systems.

* + - * 1. Hood/Head Box: Manufactured from galvanized steel in accordance with ASTM A653; rated at the same temperature as the curtain fabric.
				2. Curtain: Manufacturer's standard multilayer glass-fiber fabric woven-coated on one or both sides [**with egress**] [**and**] [**vision panel**].

Fire Rating: UL-listed fabric tested in accordance with UL 10D and ASTM E119 for [**1-hour**] <**Insert rating**> fire resistance.

* + - * 1. Roller: Manufacturer's standard curtain roller assembly to contain motor.
				2. Weighted Bottom Bar: Provide weighted bottom bar to ensure smooth operation and hold curtain taut.
				3. Curtain Guides: As selected by Director’s Representative from manufacturer's available standard materials and finishes.
				4. Motor Operator: Provide factory-assembled electric operation system of size and capacity recommended by curtain manufacturer for assembly specified, with electric motors and factory-prewired motor controls, control devices, and accessories required for proper operation.

Include wiring from control stations to motors. Coordinate operator wiring requirements and electrical characteristics with building electrical system.

Electrical Components, Devices, and Accessories: Listed and labeled in accordance with NFPA 70, by a qualified testing agency, and marked for intended location and application.

Battery Backup: Manufacturer's standard battery backup sized for motor power requirements.

* + - 1. DEPLOYABLE DRAFT CURTAINS
				1. Alarm-activated fabric smoke curtain assembly.

Consult manufacturers for recommendations and availability. Local New York State and area manufacturers and distributers are preferred.

* + - * 1. Smoke Containment: Assemblies complying with UL 1784 for air leakage.
				2. Operation: Motorized automatic operation with controlled descent.
				3. Automatic-Closing Device: Equip each deployable curtain assembly with fail-safe, gravity-closing device or holder-release mechanism and governor unit complying with UL 864 and NFPA 105, and an easily tested and reset release mechanism. Automatic-closing device shall be designed for activation by the following:

Retain one or more of three subparagraphs below and insert others if required to suit Project. If more than one type of activation (or combination) is required, identify primary and secondary closing devices. Verify requirements of authorities having jurisdiction. See the Evaluations.

Manufacturer's standard UL-labeled smoke detector and holder-release devices.

Manufacturer's standard UL-labeled heat detector and holder-release devices.

Building fire-detection, smoke-detection, and fire-alarm systems.

* + - * 1. Hood/Head Box: Manufactured from galvanized steel in accordance with ASTM A653; rated at the same temperature as the curtain fabric.
				2. Curtain: Manufacturer's standard multilayer glass-fiber fabric coated on one or both sides.

Retain "Fabric Egress Slot" subparagraph below if optional egress is required.

Fabric Egress Slot: Outlined by stenciling.

Curtain fabric to include an overlap with magnets at center.

Fabric Pull Strap: Mounted on pull side of egress slot at 42 inches AFF.

* + - * 1. Roller: Manufacturer's standard curtain roller assembly to contain motor.
				2. Weighted Bottom Bar: Provide weighted bottom bar to ensure smooth operation, hold curtain taut, and prevent deflection from air movement.
				3. Motor Operator: Provide factory-assembled electric operation system of size and capacity recommended by curtain manufacturer for assembly specified, with electric motors and factory-prewired motor controls, control devices, and accessories required for proper operation.

Include wiring from control stations to motors. Coordinate operator wiring requirements and electrical characteristics with building electrical system.

Electrical Components, Devices, and Accessories: Listed and labeled in accordance with NFPA 70, by a qualified testing agency, and marked for intended location and application.

Battery Backup: Manufacturer's standard battery backup sized for motor power requirements.

* + - 1. FIXED DRAFT CURTAINS
				1. Fixed fabric smoke curtain assembly.

Consult manufacturers for recommendations and availability. Local New York State and area manufacturers and distributers are preferred.

* + - * 1. Operation: Fixed.
				2. Curtain: Manufacturer's standard multilayer glass-fiber fabric coated on one or both sides.
				3. Top and Bottom Bar: Provide top bar for suspending curtain and weighted bottom bar to hold curtain taut and prevent deflection from air movement.
1. EXECUTION
	* + 1. EXAMINATION
				1. Examine substrate areas and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.
				2. Examine locations of electrical connections.
				3. Proceed with installation only after unsatisfactory conditions have been corrected.
			2. INSTALLATION

Retain "Smoke- and Fire-Protective Curtains" paragraph below if required.

* + - * 1. Smoke- and Fire-Protective Curtains: Install in accordance with manufacturer's written installation instructions, NFPA 80, and NFPA 105.

Retain "Smoke-Protective Curtains" paragraph below if required.

* + - * 1. Smoke-Protective Curtains: Install smoke-protective curtain assemblies in accordance with manufacturer's written installation instructions and NFPA 105.

Retain subparagraph below for smoke-protective curtain assemblies for elevator entrances.

Install smoke-protective curtain assemblies for elevator entrances in accordance with ASME 17.1/CSA B44.

* + - * 1. Power-Operated Curtains: Install in accordance with UL 864.
				2. Install anchorage devices to securely fasten assembly to substrate and building framing without distortion or stress.
				3. Securely brace components suspended from structure.
				4. Fit and align assembly, including vertical guides, level and plumb, to provide smooth operation.

Retain "Field Quality Control" Article for operable curtain assemblies.

* + - 1. FIELD QUALITY CONTROL

Retain "Testing Agency" paragraph below to identify who shall perform tests and inspections. Retain "Field quality-control reports" paragraph in "Informational Submittals" Article.

* + - * 1. Testing Agency: Engage a qualified opening protective assembly inspector to perform tests and inspections and to furnish reports to Director’s Representative.
				2. Perform the following tests and inspections[**with the assistance of a Company Service Advisor**]:

Test release mechanism, closing, and alarm operations when activated by smoke detector or building's fire-alarm system. Test manual operation of closed curtain. Reset closing mechanism after successful test.

Inspections: Inspect each smoke-protective curtain assembly in accordance with NFPA 105.

* + - * 1. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
				2. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.
				3. Prepare and submit separate inspection report for each smoke-protective curtain assembly indicating compliance with each item listed in NFPA 105.
			1. DEMONSTRATION
				1. Engage a Company Service Advisor to train Facility’s maintenance personnel to adjust, operate, and maintain overhead coiling smoke curtains.
			2. MAINTENANCE
				1. Engage a manufacturer's authorized service representative to test, adjust, and maintain the smoke-protective assemblies once per year, as required by NFPA 105.

END OF SECTION 083343