# SECTION 08 34 90

**HOSE STREAM RATED SMOKE AND FIRE CURTAIN PART 1 - GENERAL**

## SUMMARY

* + 1. Section Includes: Fire and smoke rated fabric curtain system designed to provide a tight-fitting, smoke- and draft-control assembly as well as fire protection.
		2. Products Supplied but Not Installed Under This Section:
			1. Group Control Panel unit.
			2. Emergency Up Buttons (optional)
			3. Battery backup system
		3. Related Sections:
			1. 09 2200Non-Load Bearing Wall Framing: Metal backing in housing mounting area.
			2. 09 9100Paints: Field painting of specified components; repainting of existing field painted elevator door frames.
			3. 28 3000Detection and Alarm: Provision of smoke detectors.
			4. Division 26 Sections for 120VAC and 24V control circuit power including conduit, boxes, conductors, wiring devices, and emergency power.
			5. 08 3100 Access Panels

## REFERENCES

* + 1. ASTM E84-10 test report with calculated smoke development (CSD) of 2 and a smoke developed index (SDI) of 0 and a calculated flame spread (CFS) of 0.
		2. NFPA Codes and Standards:
			1. 70  National Electrical Code.
			2. 105  Recommended Practice for the Installation of Smoke-Control Door Assemblies.
			3. ASTM – E84 Test report with Calculated Smoke Developed (CSD) of 2 and a Smoke Developed Index (SDI) of 0 and a Calculated Flame Spread (CFS) of 0.
		3. UL Minimum Performance Standards
			1. UL 10B Fire test for door assemblies with hose stream test
			2. UL Oversized Certificate where units exceed the testing laboratory’s label size
			3. UL 1784  Air Leakage Tests for Door Assemblies.
			4. Gravity fail-safe design. No battery back-up will be required for deployment
			5. Certified to ISO 9001 1994 for the design, manufacturing, installation, and commissioning of Automatic Smoke Barriers and Partitions.
			6. Accredited testing lab follow up service report required.

## SUBMITTALS

* + 1. Product Data: For each type of product
			1. Shop Drawings: Show fabrication and installation details for automatic smoke curtains. Include plans, sections details, attachments to other work and the following:
1. Operating clearances
2. Requirements for supporting automatic smoke curtains, track, equipment.
3. Locations of equipment components, switches, motors and controls. Differentiate between manufacturer-installed and field installed wiring.
	* + 1. Quality Assurance/Control Submittals:
4. Certifications: Copy of specified items.
5. Manufacturer’s installation instructions and testing procedures

## CLOSEOUT SUBMITTALS

* + 1. Comply Section 01 7700Closeout Submittals; submit following items:
			1. Operation and Maintenance Manual
			2. Manufacturer’s Warranties

## QUALITY ASSURANCE

* + 1. Overall Standards:
			1. Provide units tested, approved, and labeled under UL 10B with Hose Stream and UL 1784 standards
			2. Accredited testing laboratory follow up Service Report
			3. Testing laboratory’s label permanently affixed to bottom bar
		2. Qualifications:
			1. Manufacturer Qualifications: Minimum five years’ experience in producing smoke curtain systems.
			2. Installer Qualifications: Factory trained by manufacturer.
		3. Certification:
			1. UL accredited Testing Laboratory Label for UL 10B 180-minute fire test of door assemblies with hose stream
			2. UL 1784 Label
			3. Oversized certificate labeled, listed, classified, certified, and marked where units exceed testing laboratory’s label size
		4. Pre-Installation Meeting:
			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, painting 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.

## DELIVERY, STORAGE, AND HANDLING

* + 1. Reference Section 01 6600Product Storage and Handling Requirements.
		2. Follow manufacturer’s instructions.

## WARRANTY

* + 1. Provide manufacturer’s standard one-year warranty.
		2. Maintenance and Testing:
			1. Perform minimum annual maintenance and testing on each smoke and fire containment system as required by the manufacturer’s warranty, code agency evaluation reports, and as required by local authority having jurisdiction.
			2. Provide test documentation.

# PART 2 - PRODUCTS

## MANUFACTURER

Model DSI-HS10B Hose Stream Rated Smoke and Fire Curtain

Manufacturer: DSI Smoke and Fire Curtains www.doorsysinc.com 866-534-3667

Label each smoke containment system with following information:

Manufacturer’s name.

Maximum leakage rating at specified pressure and temperature conditions.

Label of quality control agency.

## PERFORMANCE REQUIREMENTS

Air Leakage: Not to exceed 3 cfm (0.001416 m3/s) per sf of door opening.

Fire Rating: UL-10B 180-minute fire rated and labeled.

## COMPONENTS

The curtain head box shall be manufactured from 1.2mm galvanized steel. The enclosure shall be rated at the same temperature as the curtain fabric.

Removable cover plates shall be incorporated to allow access to the curtain rollers.

Standard head box sizes shall be 9” x 9” for single rollers (maximum width 16’-0”) and 15” x 9” for multiple rollers (over 16’-0” wide). Larger head boxes may be required where the curtain drop is in excess of 10’-0”.

Side guide rails shall be 2” deep x 4” wide, primed steel finish.

A weighted bottom bar shall be provided to prevent deflection and ensure correct operation under gravity.

The roller shall be constructed from an octagonal tube which will incorporate a 24v D.C. motor and gearbox and a sealed heavy-duty ball bearing assembly.

A motor control circuit housed in a steel enclosure shall be mounted onto the motor end of the head box.

Provide each motorized curtain with back Electromagnetic force-controlled speed of descent of no less than 6 inches per second and no more than 24 inches per second.

The fabric curtain shall be manufactured from multiple layers of woven glass cloth and wired mesh.

## OPERATION

The smoke and fire curtain shall deploy upon a signal from the fire alarm system in an emergency situation.

The system must be proven to “fail safe” to the operational position on total loss of primary and auxiliary power.

Under normal operating conditions the curtains would be held in the retracted position via the motors operating at low voltage. The manufacture must be able to confirm that the motor windings are suitable for this type of operation.

Upon activation of the fire alarm the control panel will remove the supply voltage and the curtain shall descend under the power of gravity in a controlled manner. A dynamic braking system housed in the motor control circuit shall control the speed of the descent of the curtain. The descent shall be electronically synchronized on overlapping curtains with a bottom bar.

To retract the curtain the control panel shall supply 24v to the motor control circuits and motors will drive the curtains to the upper position. As the bottom bar or stopping bar hits the curtain head box a current limiting circuit will step back the voltage and current and hold the bottom bar in the retracted position.

Limit switches are not to be used to control the upper position of the curtain.

Should the main power fail to the group control panel, the supply is automatically switched to the integral standby battery. The curtain remains in the retracted position for 1 hour (fully retracted loaded system). The curtain will remain fully operational until the battery low voltage cutoff facility reads a voltage of 21v; the curtains will then safely descend under the power of gravity to the operational position.

Group Control Panel: Provide Group Control Panel (GCP) capable of controlling up to 3 no. 24v motor assemblies. During normal operation, the GCP will provide a 24v AC supply to the curtain motor holding them in the retracted position. Should smoke be detected, the fire alarm contact in the GCP will be opened by the fire alarm control system, the GCP will remove the 24v supply to the curtain motors and the curtains will descend under the power of gravity in a controlled manner.

Open on fire- configured to be gravity fail safe

Test Facility switch required

# PART 3 - EXECUTION

## EXAMINATION

* + 1. 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 are acceptable for installation of smoke containment system components.

## INSTALLATION

* + 1. Install smoke containment system components in accordance with manufacturer’s installation instructions.

## FIELD QUALITY CONTROL

* + 1. Field Test: Follow manufacturer’s cycle test procedures.
			1. Notify Owner’s Representative, local Fire Marshal, alarm sub-contractor a minimum one week in advance of scheduled testing.
			2. Complete maintenance service record.

## DEMONSTRATION

* + 1. Demonstrate required testing and maintenance procedures to Owner’s Representative.
		2. Maintenance and Testing:
			1. Perform minimum annual maintenance and testing on each smoke and fire curtain system as required by the manufacturer’s warranty, code agency evaluation reports, and as required by local authority having jurisdiction.
			2. Retain permanent record of tests.
		3. Qualified Door Systems, Inc Inspector assesses unit(s) after exposure to a fire event.

## MAINTENANCE

* + 1. Engage a Door Systems authorized service representative to test, adjust and maintain the system once per annum as required per NFPA 101 and NFPA 80.

END OF SECTION 08 34 85