

SECTION 10 52 00

HORIZONTAL FIRE PROTECTIVE AUTOMATIC SMOKE CURTAINS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Division 5 Section "Metal Fabrications" for supplementary metal members supporting smoke curtain systems to structure.
2. Division 26 Sections for electrical wiring and connections and for smoke curtain machines.
3. Division 28 Section "Fire Alarm" for connections of smoke and fire curtain machines to fire alarm, UL 864 label required.

B. Products Furnished Under This Section:

1. This Section includes Fire Protective Automatic Smoke Curtains with Model number - U.S. Smoke & Fire SD240GS Horizontal Fire Protective Smoke Curtain

C. Related Requirements:

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

1.02 REQUIRED TEST REPORTS & MINIMUM PERFORMANCE STANDARDS - Underwriter Laboratory Label Requirement for Fire Protective Automatic Smoke Curtains

A. Required Testing Reports, Label Requirements, and Minimum Performance Standards:

1. UL 864- UL Labeled, Listed, Classified, Certified and Marked Control units and accessories for Fire Alarms Systems.
2. Exnova Warrington Fire Report #333819 - British Standard for The Fire Resistance of a Horizontally Mounted Openable Fabric Curtain in Accordance with BS EN 1634-1: 2008

3. Exnova Warrington Fire Report #333952 - British Standard for The Reliability, Response Time, and Durability Tests Performed in Accordance with Annex D of BS 8524-1: 2013
4. Exnova Warrington Fire Report #337802 - British Standard for The Fire Resistance of a BLE Horizontal Fire Curtain
5. "Tested in Accordance to" standard not acceptable for Fire Protective Curtains. Intertek label not acceptable.
6. ASTM E84-Test report with a calculated smoke developed (CSD) of 2 and a smoke developed index (SDI) of 0 and a calculated Flame spread (CFS) of 0.
7. ASTM 136 Test Report
8. NFPA 701 Test Report
9. NFPA 105

1.03 SUBMITTALS

A. Product Data:

1. For each type of product indicated.

B. Shop Drawings:

1. Show fabrication and installation details for automatic smoke curtains. Include plans, sections, details, attachments to other work, and the following:
 - a. Operating clearances.
 - b. Requirements for supporting automatic smoke curtains, track, and equipment. Verify capacity of each track and rigging component to support loads.
 - c. Locations of equipment components, switches, motors and controls. Differentiate between manufacturer-installed and field-installed wiring.

C. Samples:

1. For each type of fabric from dye lot to be used for the Work, with specified treatments applied, and showing complete pattern and texture

repeat, if any. Mark top and face of fabric. Prepare Samples of not less than 36 inches (900 mm) square.

D. Qualification Data:

1. For Installer. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. U.S. Green Building Council (USGBC)- LEED- local and regional materials. Assembled in the United States by factory-trained employees.

1.04 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data:

1. For automatic curtains to include in maintenance manuals.

B. Warranty Documentation:

1. Special warranties specified in this Section.

1.05 QUALITY ASSURANCE

A. Overall Standards:

1. Manufacturer shall maintain a preventative maintenance service for follow up service in accordance with ICC-ES Acceptance Criteria 77.

B. Qualifications:

1. Installers:

- a. A firm or individual in the United States with no less than five years on-site installation experience in the United States, experienced in installing automatic smoke curtains similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- b. Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.06 FIELD CONDITIONS

A. Existing Conditions:

1. Verify rough and clear openings and the dimensions of other construction by field measurements before fabrication and indicate measurements on shop drawings.

1.07 WARRANTY

A. Manufacturer Warranty:

1. Warranty one year on motors, Motor Control Circuits (MCC) and Group Control Panels (GCP) from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 FIRE PROTECTIVE AUTOMATIC SMOKE CURTAINS

A. Manufacturers:

1. U.S. Smoke & Fire Corp., 888.917.8777 Ext 102 or 106
www.ussmokeandfirecurtain.com, www.ussmokeandfire.com
1. Fabrilok, Smoke & Fire Prevention Systems, 434.374.8537
2. The Smith Overhead Door Company, Inc., 702.541.8786

B. Description:

1. Provide Horizontal Model SD240GS, Fire Protective Automatic Smoke Curtains as manufactured by U.S. Smoke and Fire.
2. There are no substitutions of materials specified allowed during the bidding process. If, for any reason a deviation from materials specified by the designers is desired or warranted, a cover letter and a request for deviation. Transmittal form must be submitted to construction manager (CM). If the proposed deviation is rejected by the CM or the Designers, it is this subcontractor's responsibility to obtain the specified product and maintain the original construction schedule. The Designer has the right to require the originally specified material or item and their

decision on the matter is final.

C. Performance/Design Criteria:

1. 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.
2. Removable cover plates shall be incorporated to allow access to the curtain rollers.
3. Standard head box size shall be 9" [210mm] x 9" [210mm]. There will be one headboxes on opposite ends of the opening. One headbox will be the curtain headbox containing the fabric and the other will be the receiver headbox which receives the fabric during deployment.
4. The roller shall be constructed from an octagonal tube, which will incorporate a 24v DC motor and gearbox and a sealed heavy-duty ball bearing assembly.
5. A motor control circuit housed in a steel enclosure shall be mounted onto the motor end of the head box.
6. Provide each motorized curtain with back Electromagnetic force controlled speed of deployment of no less then 6 inches per second and no more then 24 inches per second.
7. The fabric curtain shall be manufactured from C41000WK wire inserted woven glass fiber fabric. The woven glass fiber fabric shall have a nominal weight of no less than 540g/square meter and shall be UL listed for at least two hours.

D. Operation

1. The Horizontal Fire Protective Automatic Smoke Curtain shall deploy upon a signal from the fire alarm system in an emergency situation.
2. The system must contain a housed battery system at the Group Control Panel(s).
3. Under normal operating conditions the curtains would be held in the retracted position via the motors operating at low voltage. Upon activation of the fire alarm the control panel will remove the supply

voltage and the curtain shall deploy in a controlled manner. A dynamic braking system housed in the motor control circuit shall control the speed of the descent of the curtain.

4. To retract the curtain the control panel shall supply 24v to the motor control circuits and motors will drive the curtain back to the receiver headbox. As the curtain bar contacts the head box, a current limiting circuit will step back the voltage and hold the bar in the retracted position.
5. Group Control Panel: Provide Group Control Panel (GCP) capable of controlling up to (5) 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 deploy in a controlled manner.

PART 3 - EXECUTION

3.01 INSTALLERS

A. Installers:

- A. U.S. Smoke & Fire Corp., 888.917.8777 Ext 102 or 106
- B. Door Control Services 512.930.1541

3.02 EXAMINATION

A. Verification of Conditions:

1. Examine areas and conditions, with Installer present, for compliance with requirements for supporting members, blocking, installation tolerances, clearances, and other conditions affecting performance of automatic smoke-curtain work. Proceed with installation only after unsatisfactory conditions have been corrected.
2. Examine inserts, clips, blocking, or other supports required to be installed by others to support boxes. Proceed with installation only after

unsatisfactory conditions have been corrected.

3.03 INSTALLATION

- A. Install horizontal fire protective automatic smoke-curtain system according to manufacturer's written instructions.
- B. Interface with Other Work:
 - 1. Monitoring relays shall be installed in the group control panel to provide BMS contacts for mains failure and curtain zone deployment.

3.04 FIELD QUALITY CONTROL

- A. Field Tests and Inspections
 - 1. Fire alarm testing, the smoke curtain is required to deploy upon a signal from the fire alarm in an emergency situation. The test to verify deployment shall be conducted in the presence of the authority having jurisdiction per NFPA guidelines.
 - 2. When a smoke curtain is required to deploy in an emergency situation, it is probable that the main supply to the control panel may have already failed and that the cables linking the curtains to the control panel might have become damaged.
 - 3. A total power failure should be simulated during each test to ensure deployment. A test in which a curtain is powered down under normal test conditions from either main power or the battery supply only proves that the smoke curtain can be deployed when powered.

3.05 CLOSEOUT ACTIVITIES

- A. Demonstration:
 - 1. Engage a factory-authorized service representative to test system.
- B. Training:
 - 1. Engage a factory-authorized service representative to train Owner's Personnel to adjust, operate and maintain automatic smoke curtains.

3.06 MAINTENANCE

- A. Engage a factory authorized service representative to test, adjust and maintain system once per annum required per NFPA 101 and NFPA 80.

END OF SECTION 10 52 00