

PROPRIETARY ITEM: SMOKESHIELD - H
AUTOMATIC HORIZONTAL COILING FABRIC FIRE CURTAIN

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Early detection activated, ceiling mounted, horizontal coiling fabric fire curtain.
 - 2. Self-closing UL864 listed controller
 - 3. For ceiling application at horizontal protected openings.
- B. Related Requirements:
 - 1. Access Panels.
 - 2. Load Bearing Header Framing
 - 3. Finish: Powder coating of specified components.
 - 4. Detection and Alarm: Provision of fire alarm.
 - 5. Site Electrical: Provision of 240VAC, 10Amp General purpose outlets (GPO's)
 - 6. Product Electrical: System connection including cable glands, junction boxes, conductors, wiring devices, and backup power.

1.02 REFERENCES

- A. National Construction Code and Fire Engineers Report:
 - 1. NCC 2014/2015
 - 2. FE Report Y; Version XX, Dated;
- B. Standards:
 - 1. AS1670 – Automatic detection and alarm systems
 - 2. CE Label
 - 3. AS1530.4 – Methods for fire tests on building materials, components and structures, Part 4 Fire-resistance test of elements of construction.
 - 4. AS1905.2 – Fire Shutters.
 - 5. AS3837– Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter

1.03 SUSTAINABLE DESIGN REQUIREMENTS

- A. ESD: Comply with sustainable design requirements including, without limitation, submittal and documentation requirements.
- B. Credit/Point Goals Applicable To This Section: In addition to global Project credit/point goals:
 - 1. Materials & Resources - Construction Waste Management
 - 2. Materials & Resources - Recycled Content
 - 3. Materials & Resources - Regional Materials
 - 4. Energy Consumption – Reduction in energy consumption of associated mechanical services
 - 5. Indoor Environmental Quality - Construction IAQ Management Plan

1.04 SUBMITTALS

- A. Comply with Submittal Procedures:
 - 1. NCC Clause A2.4 Evidence of Suitability – submit full scale fire test report and/or Formal Opinion from a *Registered Testing Authority* clearly identifying maximum Fire Resistance Level, maximum allowable sizes and approved fixing details.
 - 2. Manufacturers Product data
 - 3. Shop drawings:
 - a. Curtain location and unique identification number
 - b. Include opening dimensions
 - c. Show and identify related work performed under other sections of the specifications including access and electrical requirements
 - 4. Quality Assurance/Control Submittals:
 - a. Site Inspection and Test Plan.
 - b. Manufacturers ISO 9001 Quality Policy Manual

1.05 CLOSEOUT SUBMITTALS

- A. Comply with Project Closeout:
 - 1. Certificate of Compliance with reference to Fire Engineers Report and Evidence of Suitability.
 - 2. Operation and maintenance manual.
 - 3. Manufacturer's warranty.

1.06 QUALITY ASSURANCE

- A. Certifications:
 - 1. AS1530.4 full scale fire test on a complete assembly installed lightweight fire rated plasterboard construction.
 - 2. National Construction Code Clause C1.10 when tested to AS3837
 - 3. Cycle tested as a complete assembly 10m x 10m for no less than 350 maintenance free cycles
- B. 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, fire curtain sub-contractor, mechanical sub-contractor, electrical sub-contractor, and ceiling/fitout sub-contractor
 - 2. Review substrate conditions, requirements of related work, installation instructions, storage and handling procedures, and protection measures.
 - 3. Document the responsibilities of various parties and deviations from specifications and installation instructions.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with project delivery, storage, and handling requirements.
- B. Comply with manufacturer's instructions.

1.08 WARRANTY

- A. Provide manufacturer's standard one year warranty for Defect Liability Period.
- B. Maintenance and Testing:

1. Perform minimum quarterly maintenance and testing on each fire curtain as required by the manufacturer's warranty, AS1851 - Maintenance, and as required by the Fire Engineers Report.
2. Provide Commissioning documentation including Project name, project address, location and curtain number, number of cycles tested, observations, comments (eg: curtain out of alignment), notes (eg: curtain alignment repaired), Pass/fail.
3. Re-certification after the defect liability period

PART 2 - PRODUCTS

2.01 MANUFACTURED UNITS

- A. Proprietary item; Model Smokeshield - H horizontal automatic fire curtain.
- B. Manufacturer:
 1. Distributed by Smoke Control Systems Pty Ltd, 26 Ferndell St, South Granville, NSW 2142, Australia www.smokecontrol.com.au
- C. Label each fire curtain with following information:
 1. Manufacturer's name and contact details.
 2. Curtain location and unique identification number
 3. Fire Resistance Level
 4. Date of installation

2.02 DESIGN CRITERIA

- A. Maximum permissible size: 17m wide x 5m drop
- B. Head box (at maximum permissible size); 235 H x 320 W mm
- C. Foot box (at maximum permissible size); 235 H x 225 W mm
- D. Side guides (at maximum permissible size); 235 H x 148 W mm

See manufacturer's literature for head box and side guide mounting options.

- F. Fabric type; 660g/m² stainless steel woven fabric, incorporating a coated glassfibre material to reduce radiant heat transmission.
- G. Motor type; Proprietary Smoke Control 24V motors
- H. Leading Edge; 20mm thick (nominal) flat bar section
- I. Accessories;
 - a. Strobes and sounders (optional)
- J. Finishes; Dulux Duralloy colour range (Standard), (*amend as required*)
- K. Load (static) requirements at perimeter = 30kg linear m of perimeter.
- L. Mounting orientation

1. Installation Configuration: Housing, side guides and foot box attached directly to underside of slab.
2. Fabricate and install mounting brackets, hardware, and fasteners needed to attach fire curtain assembly to building structure.

- M. Signage on curtain (standard stencils)
1. Fire Safety Curtain (dimensions)
 2. Do Not Step (dimensions)

2.03 PERFORMANCE CRITERIA

1. Fire Resistance Level (FRL): -/120/-
2. Smoke leakage: negligible through construction design (no fabric overlaps or meeting edges within the opening).
3. Group Number: 1 when tested in accordance with AS3837
4. Duty; light – tested to 250 maintenance free cycles
5. Maximum pressure differential; $\Delta 25\text{Pa}$
6. Closing time; 150 mm/sec (nominal)
7. Time delay to required (exhaust/pressurization) fan speed = 60 seconds (min) – 90 seconds (max). Time is dependent on drop height of curtain.
8. Time delay for rewind; ensure fan speed is zero + 20 seconds prior to reset of alarm signal from FIP enabling curtain rewind.
9. Fail safe close on loss of mains power and/or signal trip.
10. Motor rewind automatically on re-set of power and alarm signal, no service call needed.
11. Battery backup for nuisance deploys (mains power failure only)
12. Commissioning shall be conducted in conjunction with Mechanical services and detection/alarm system. Systems shall be balanced to work together without over pressurizing the fire curtain.
13. Maintenance shall be conducted quarterly by the Manufacturer and/or their nominated representative to the Manufacturers' recommendations.

2.04 COMPONENTS

- A. Curtain Fabric: Protex 1100 – stainless steel woven fabric, incorporating a glass fibre material to reduce radiant heat transmission, coated on a single side with polyurethane.
- B. Fabric retaining method: Double stitched continuous pocket
- C. Side Guide Assembly: Manufacturer's standard
- D. Housing/Bearing Type: Manufacturer's standard
- E. Leading Edge: Manufacturer's standard
- F. Gravigen™ Rewind Motor
1. Tubular motor with fail safe gravity deploy operation
 2. Mechanical upper and lower limit settings.
 3. 240 VDC input.
- G. Control option 1:
- RZ-7 Master control with AM-S slave control set
1. Push button user interface and mode indicators
 2. Battery backup incorporating low voltage alarm
 3. 240 VAC input

4. Normally closed 0 Volt alarm signal

H. Control Option 2:

AM-E-EV Trigger unit (Master/slave required for widths greater than 16m wide).

1. 240 VAC power
2. Normally closed 0 Vol
3. Optional rewind button

2.05 FABRICATION

- A. Installation Configuration 1: Housing, side guides and foot box attached directly to underside of concrete and/or steel beams.
- B. Installation Configuration 2: Housing, side guides and foot box attached directly to a -/120/120 fire rated bulkhead.
- C. Fabricate and install mounting brackets, hardware, and fasteners needed to attach curtain assembly to building structure.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates to-which work will be installed.
 1. Verify related work performed under other sections is complete and in accordance with Shop Drawings.
 2. Any bulkheads shall provide a -/120/120 fire resistance level in order to receive service penetrations and allow the fire curtain system to be installed as it was fire tested.
 3. Verify wall surfaces are acceptable for installation of smoke containment system components.
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
- C. Coordinate electrical interface and connection with Division 26.
- D. Coordinate interface and connection with fire alarm system.
- E. Commencement of work by installer is acceptance of substrate.

3.02 INSTALLATION

- A. Install fire rated bulkhead -/120/120 to allow for both fire curtain fixings, weight and service penetrations. Service penetrations require a barrier of -/120/120 in order to be Certified in accordance with AS1530.4 and AS4072.1 unless otherwise fire tested.
- B. Install fire curtain system components in accordance with manufacturer's installation instructions.
- C. While some Registered Testing Authorities provide Formal Opinions in regards to the expected fire resistance level of fire curtains, they do not discuss nor provide a warranty in regards to their reliability. Experience shows that some manufacturer designs of horizontal fire curtains do not operate reliably once installed and attract extraordinarily high maintenance costs. For this reason bi-parting systems that attempt to meet in the middle and overlapped horizontal fire curtains are

deemed not equivalent to this specification on this project and shall not be substituted for a single barrel continuous span system that closes the complete span of the opening into a foot box.

- D. Once installed the system shall fail safe close on loss of power without using stored energy without the need of battery backup and on the receipt of an alarm signal. On reset of power and the alarm signal the system shall automatically rewind to its standby position.

3.03 FIELD QUALITY CONTROL

A. Field Test 1: Calibration

Follow manufacturer's cycle test procedures prior to application of mechanical services.

1. Conduct a minimum of 5 consecutive, error free cycle tests
2. Complete Inspection and Test Plan

B. Field Test 2: Balancing test

Test operation on general alarm in conjunction with mechanical services

1. Adjust fan speed and activation timing to ensure pressure does not exceed $\Delta 25\text{Pa}$ across fire curtain and to minimize gaps at the sill.

C. Field Test 3: Commissioning

Test operation on general alarm (or zone alarm as required by Fire Engineers Report) by activating an adjacent smoke detector

1. Notify Owner's Representative, local Fire Services and alarm sub-contractor minimum one week in advance of scheduled testing.
2. Complete Commissioning submittals.

3.04 DEMONSTRATION

- A. Demonstrate required testing and maintenance procedures to Owner's Representative.

END OF SECTION