

PROPRIETARY ITEM: FYREHALT – V (Sm)
AUTOMATIC OVERHEAD COILING FABRIC FIRE CURTAIN

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Fire alarm or smoke detector-activated, overhead coiling fabric fire curtain.
 - 2. Self-closing without auxiliary power.
 - 3. For small and medium 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. Site alarm signal: Provision of 0 Volt, normally closed contact
 - 7. Product Electrical: System connection including cable glands, junction boxes, conductors, wiring devices, and backup power.

1.02 REFERENCES

- A. New Zealand Building Regulations and Fire Engineers Report:
 - 1. Approved Document for New Zealand Building Code
 - 2. Fire Engineers Report Y; Version XX, Dated;
- B. Standards:
 - 1. AS1530.4 – Methods for fire tests on building materials, components and structures, Part 4 Fire-resistance test of elements of construction
 - 2. NZS 4512:2010 – Fire Detection and Alarm Systems in Buildings
 - 3. AS1905.2 – Fire Shutters.
 - 4. AS/NZS 3837– Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter
 - 5. AS1530.7 – Methods for fire tests on building materials, components and structures. Part 7 – Smoke control assemblies – ambient and medium temperature leakage test procedure.

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. Indoor Environmental Quality - construction IAQ management plan

1.04 SUBMITTALS

- A. Comply with Submittal Procedures:
 - 1. Evidence of Suitability – submit full scale fire test report and Formal Opinion from a Registered Testing Authority clearly identifying maximum Fire Resistance Level and maximum allowable sizes.
 - 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 by others
 - 4. Quality Assurance/Control Submittals:
 - a. Site Inspection and Test Plan.
 - b. Manufacturer and installation sub-contractor ISO 9001 Certificate of Accreditation
 - c. Manufacturer and installation sub-contractor ISO18001 Certificate of Accreditation
 - d. Manufacturer and installation sub-contractor ISO14001 Certificate of Accreditation

1.05 CLOSEOUT SUBMITTALS

- A. Comply with Project Closeout:
 - 1. Producer Statement PS3 with reference to Fire Engineers Report and Evidence of Suitability.
 - 2. Operation and maintenance manual.
 - 3. Manufacturer's 12 month warranty.

1.06 QUALITY ASSURANCE

- A. Certifications:
 - 1. AS1530.4 full scale fire test on a complete assembly in plasterboard and masonry/concrete wall
 - 2. AS1530.7 full scale air (smoke) leakage test on a complete assembly
 - 3. Laboratory cycle tested on a 3m x 3m complete assembly
- 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 12 month 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.
 - 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 Fyrehalt - V (Sm) automatic fire curtain.
- B. Manufacturer:
 - 1. Smoke Control Systems Pty Ltd
 - 2. Distributed by **Smoke Control NZ Ltd**, 369 Queen Street, Auckland, 1010, New Zealand
www.smokecontrol.co.nz
- 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 Rating
 - 4. Date of installation

2.02 DESIGN CRITERIA

- A. Country of Manufacture: Australia
- B. Head box; 165 H x 163 W mm
- C. Bearing type: Standard fixed end bearings
- D. Side guide; 100 mm x 50mm

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

- E. Side guide restraint system; Standard tab and button type
- 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 tubular motor with torque selection based on curtain size, upper limited determined by overload current (resistance), reverting to hold current.
- H. Bottom bar; 35mm wide (at the base) Triangular section, requiring a 50mm min. slot in the ceiling lining.

- I. Accessories;
 - a. Re-wind switch,
 - b. Linear obstruction sensors mounted at 200mm above finished floor level
 - c. Strobes and sounders
 - d. Bottom bar cover
- J. Finishes; Dulux Duralloy colour range (Standard)
- K. Load requirements at head = 25kg/m of width
- L. Load requirements at sides = 20kg/m of height
- M. Mounting orientation
 - 1. Installation Configuration: Housing attached directly to substrate above opening or face fixed to wall. *[delete mounting type not applicable]*.
 - 2. Fabricate and install mounting brackets, hardware, and fasteners needed to attach fire curtain assembly to building structure.
- N. Signage on curtain (standard stencils)
 - 1. Green running man (350 x 350mm)
 - 2. Arrows (350 x 190mm high)
 - 3. Fire Safety Curtain (150mm high x 1500mm long)
 - 4. Push Button (100mm high)

2.03 PERFORMANCE CRITERIA

- 1. Fire Resistance Rating (FRR): -/120/- Sm
- 2. Smoke leakage: $\leq 75\text{m}^3/\text{hour}$
- 3. Group Number for fabric: 1 when tested in accordance with AS3837
- 4. Durability; light duty – tested to 30,000 maintenance free cycles
- 5. Maximum pressure; $\Delta 25\text{Pa}$ when in the deployed position. $\Delta 0\text{Pa}$ during deployment.
- 6. Maximum allowable gap to non-combustible sill 25mm
- 7. Combustible floor coverings permitted at threshold (conditions apply)
- 8. Closing time of 100 - 200mm/sec
- 9. Time delay to required (exhaust/pressurization) fan speed = 60 seconds (min) – 90 seconds (max). Time is dependent on drop height of curtain.
- 10. Time delay for rewind; ensure fan speed is zero + 20 seconds prior to reset of alarm signal from FIP enabling curtain rewind.
- 11. Fail safe close on loss of power and/or signal trip using battery backup.
- 12. Motor rewind automatically on re-set of power and alarm signal, no service call needed.
- 13. Battery backup for nuisance deploys (power failure only) (*delete if not required*)
- 14. 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.
- 15. Maintenance shall be conducted quarterly by the Manufacturer and/or their nominated representative to the Manufacturers recommendations.

2.04 COMPONENTS

- A. Curtain Fabric: Fyrehalt fabric glass 2060/1A - Glass fibre material with stainless steel wire reinforcement, coated on a single side with polyurethane.
- B. Side Guide Assembly: 1.6mm thick Zinalume mild steel incorporating a welded pin along its spine for rigidity incorporating a tab and bobbin restraint system.
- C. Housing/Bearing Type: 1.6mm thick galvanized mild steel head box incorporating a fixed pivot bearing.

- D. Bottom Bar: 2mm thick galvanized mild steel triangular section to assist with resistance to pressure differentials incorporating staggered joints to span wider distances.
- E. SCS2000 Series Rewind Motor
 - 1. Tubular motor with fail safe gravity deploy operation.
 - 2. Upper limit set by placing physical obstruction in the path of the bottom bar.
 - 3. 24 VDC.
- F. SCS2034 Series Trigger Unit
 - 1. Battery backup (*delete if not required*).
 - 2. 240 VAC power
 - 3. Normally closed 0 Volt alarm signal

PART 3 - EXECUTION

3.01 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 are acceptable for installation of fire curtain system components
 - 3. Verify setout point locations.
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
- C. Coordinate electrical interface and connection with Electrical sub-contractor.
- D. Coordinate fire and alarm interface with fire sub-contractor.
- E. Commencement of work by installer is acceptance of substrate.

3.02 INSTALLATION

- A. Install fire curtain system components in accordance with fire test approvals and manufacturer's installation instructions.
- B. 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 fire curtains do not operate reliably once installed and attract extraordinarily high maintenance costs. For this reason multiple barrel, overlapped fire curtains are deemed not equivalent to this specification on this project and shall not be substituted for a single barrel continuous span system.
- C. Once installed it shall be demonstrated that the system shall gravity fail safe close on the receipt of an alarm signal or loss of power without the need of battery backup. 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 10 consecutive, error free cycle tests

2. Complete Inspection and Test Plan

B. Field Test 2: Balancing test (if mechanical smoke control present)

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.

END OF SECTION