

PROPRIETARY ITEM: SMOKE GUARD M400
AUTOMATIC LIFT DOOR SMOKE CONTAINMENT SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Fire alarm or smoke detector-activated, lift door smoke containment system.
 - 2. Self-closing without auxiliary power.
 - 3. For small 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. New Zealand Building Regulations and Fire Engineers Report:
 - 1. Schedule 1 - NZ Building Regulations 1992
 - 2. Fire Engineers Report Y; Version XX, Dated;
- B. Standards:
 - 1. NZS 4512:2010 – Fire Detection and Alarm Systems in Buildings
 - 2. AS/NZS 3837– Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter
 - 3. AS6905.1 – Smoke Doors
 - 4. AS1530.7 – Methods for fire tests on building materials, components and structures. Part 7 – Smoke control assemblies – ambient and medium temperature leakage test procedure.
 - 5. UL864 – Control Units for Fire Protective Signaling Systems

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 test report and Formal Opinion clearly identifying maximum Smoke Leakage Performance, maximum allowable sizes and fixing details.
 - 2. Manufacturers Product data
 - 3. Shop drawings:
 - a. Screen 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 Certificate of Accreditation

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. NZ Building Code Clause C1 – C7 when tested to AS3837
 - 2. AS1530.7 full scale air (smoke) leakage test on a complete assembly
 - 3. Laboratory cycle tested on a 3m x 1.1m 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, smoke 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. Provide manufacturer's standard 5 year product and installation warranty in conjunction with a Smoke Control's standard 5 + 5 year maintenance contract
- C. Maintenance and Testing:
 - 1. Perform minimum quarterly maintenance and testing on each smoke 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 Smoke Guard M400 automatic lift door smoke containment screen.
- B. Manufacturer:
 - 1. Smoke Guard Inc
 - 2. Distributed by **Smoke Control NZ Ltd**, 369 Queen Street, Auckland, 1010, New Zealand
www.smokecontrol.co.nz
- C. Label each smoke containment screen with following information:
 - 1. Manufacturer's name and contact details.
 - 2. Curtain location and unique identification number
 - 3. Smoke Performance Rating
 - 4. Date of installation

2.02 DESIGN CRITERIA

- A. Country of Manufacture: United States
- B. Maximum permissible size: 1400mm wide x 3050mm drop
- C. Head box; Single span, continuous without overlap system of dimensions as follows;
 - i) 270 H x 230 W mm
- D. Bearing type: fixed, inverted roll
- E. Side guide; surface mounted magnetic grade 430 Stainless Steel 50mm wide x 12mm or 25 mm as required.

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

- F. Side guide restraint system; Flexible multipole magnetic strips attached to longitudinal edges of film with patented system.
- G. Fabric type; Transparent polyimide film reinforced with 100 denier minimum cross hatch mesh.
- H. Motor type; 90V internal mount motor with mechanical upper and lower limit settings
- I. Rewind switch; Screen mounted (on both sides) rewind switch mounted 1050mm from finished floor level to comply with the Disability Discrimination Act (DDA) and WorkCover/WorkSafe guide lines.

- J. Accessories;
 - a. Strobes and sounders
- K. Finishes; Ceiling white
- L. Load requirements at head = 25kg/m of width
- M. Load requirements at sides (only if side guide required) = 20kg/m of height
- N. Mounting orientation
 - 1. Installation Configuration: Housing attached directly wall.
 - 2. Fabricate and install mounting brackets, hardware, and fasteners needed to attach smoke containment assembly to building structure.

2.03 PERFORMANCE CRITERIA

- 1. Air (Smoke) leakage: $\leq 9.5 \text{ m}^3/\text{minute}$ per m^2 of opening @ 200°C .
- 2. Group Number for fabric: 1 when tested in accordance with AS3837
- 3. Durability; medium – high duty – tested to 1,000 maintenance free cycles
- 4. Maximum pressure when fully deployed; $\Delta 25 \text{ Pa}$
- 5. Maximum allowable gap to non-combustible sill 25mm
- 6. Combustible floor coverings permitted at threshold (conditions apply)
- 7. Closing time of 100 - 200mm/sec
- 8. FIP enabling curtain rewind.
- 9. Fail safe close on loss of power and/or signal trip.
- 10. Motor rewind automatically on re-set of power and alarm signal, no service call needed.
- 11. Battery backup to reduce nuisance deploys required.
- 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 smoke containment screen.
- 13. Maintenance shall be conducted quarterly by the Manufacturer and/or their nominated representative to the Manufacturers recommendations.

2.04 COMPONENTS

- A. Curtain Fabric: Proprietary designed and manufactured transparent polyimide film reinforced with 100 denier minimum cross hatch mesh.
- B. Side Guide Assembly: 1.6mm thick 430 grade brushed stainless steel.
- C. Housing Type: 1.0mm thick galvanized mild steel head box incorporating motor brackets, and single span drive system. The housing incorporates a self closing door to conceal the system when in its standby position.
- D. Drive system: Drive shaft system forming a single continuous drive unit once installed. Powered by 90V motors and 240V Step down transformer to power 110V motor controllers. All, but the transformer concealed within the head box structure.
- E. Rewind Motor and Control box
 - 1. UL864 Listed Tubular motor with fail safe gravity deploy operation.
 - 2. Electromechanical upper and lower limit settings
 - 3. 110 VAC.

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 smoke containment 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 smoke containment screen components in accordance with smoke containment approvals and manufacturer's installation instructions.
- B. While some Registered Testing Authorities provide Formal Opinions in regards to the expected smoke performance level of smoke containment screens, they do not discuss nor provide a warranty in regards to their end use. The National Construction Code in addition to other Regulations including but not limited to the Disability Discrimination Act and Work Health and Safety Act. To avoid discrimination and/or risk of injury or death to occupants devices covering lift door openings shall be able to be operated without any special skills or knowledge. This means that smoke curtains with side guides may cause entrapment issues and therefore may contravene these and other Acts and shall not be used in this application for this project.
- C. Once installed it shall be demonstrated that the system shall gravity fail safe close on loss of power 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 10 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

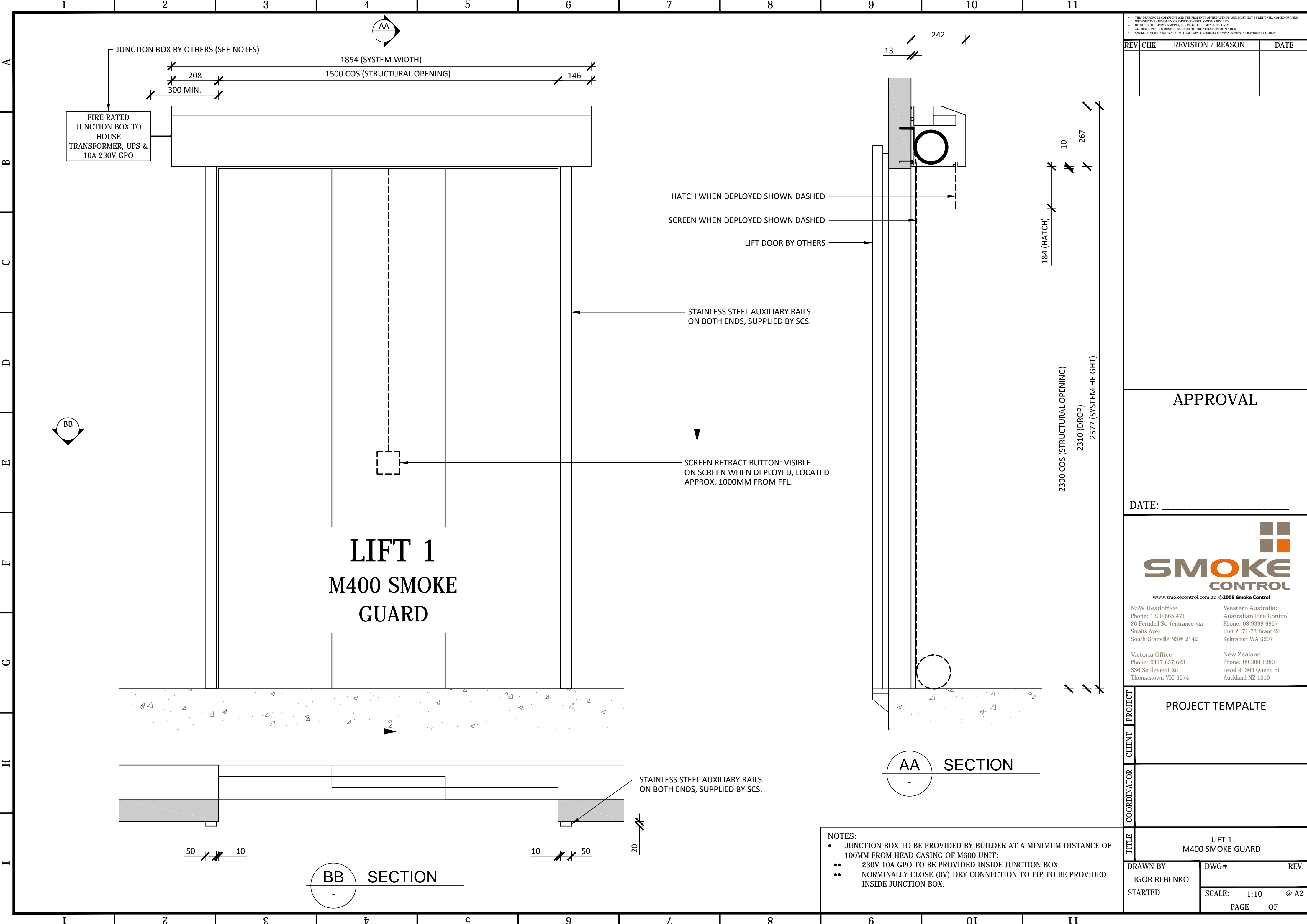
- 1. Adjust fan speed and activation timing to ensure pressure does not exceed $\Delta 25\text{Pa}$ across smoke containment and to minimize gaps at the sill.

- 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



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REV	CHK	REVISION / REASON	DATE

APPROVAL

DATE: _____



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PROJECT	CLIENT	COORDINATOR
PROJECT TEMPALTE		

TITLE	DRAWN BY	DWG#	REV.
LIFT 1 M400 SMOKE GUARD	IGOR REBENKO		
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