

SECTION 08 33 44 – AUTOMATIC SMOKE CURTAINS

PART I: REFERENCE

1.1 Scope of Work

Supply and installation of Automatic Smoke Curtains, complete with motors, fabric, headboxes, bottom bars, guides, and control systems. The system shall be **tested and certified for up to 3 hours** accordance with EN standards and shall function as a gravity-fail-safe smoke containment barrier during fire incidents.

1.2 Related Sections

- **Division 23** – Heating, Ventilating, and Air Conditioning (HVAC) for fire control systems that are part of mechanical equipment.
- **Division 26** – Electrical for fire control systems that are part of electrical equipment.

1.3 References

- **BS EN 12101-1+A1:2006** – Smoke & heat control systems. Part 1: Specification for smoke barriers.
- **BS EN 1363-1:2012** – Fire resistance tests. Part 1: General requirements.
- **BS EN 1634-3:2004** – Smoke leakage test
- **BS EN 13501-1:2018** – Fire classification of construction products and building elements.
- **BS EN 13501-4:2007+A1:2009** – Classification using data from fire resistance tests on components of smoke control systems.
- **ASTM E84 / UL 723** – Surface Burning Characteristics of Building Materials.

1.4 Submittals

- **Product Data:** Submit manufacturer's technical product data sheets.
- **Shop Drawings:** Submit detailed shop drawings showing plans, elevations, sections, and interfaces with adjacent work.
- **Warranty:** Submit executed copy of the manufacturer's standard warranty.

1.5 Certifications

Submit third-party test reports and certificates demonstrating compliance with:

- BS EN 12101-1+A1:2006
- ASTM E84 / UL 723
- ISO 9001, ISO 14001, ISO 45001

1.6 Delivery, Storage, and Handling

- Deliver components in **manufacturer-labeled packaging**, indicating product name, size, batch number, and origin.
- Store in **dry indoor environment**, protected from dust, moisture, UV rays, and physical damage.
- Do not install damaged materials; any damaged parts must be removed from the site.
- Follow manufacturer's handling guidelines strictly to avoid deformation or misalignment.

1.7 Quality Assurance

- System rated for up to **3 hours** for use in masonry wall type constructions.
- The **complete product** tested to **BS EN 12101-1+A1:2006**.
- Fabric is capable of withstanding smoke and temperatures up to **620°C**.

1.8 Field Conditions

- Contractor shall perform **site measurements** to confirm dimensions before fabrication.
- Verified measurements to be reflected in the shop drawings.

1.9 Warranty

- Provide manufacturer's **minimum 1-year warranty** from date of commissioning.
- Extended warranty options may be discussed based on project requirements.

PART II: PRODUCTS

2.1 Acceptable Manufacturers

Refer to **Approved Vendor List** in project documents or submit for consultant approval.

2.2 Automatic Smoke Curtains

A. Description

Electrically operated **HIRA Automatic Smoke Curtains** designed to prevent the movement of smoke and heat during fire incidents. Deployment is achieved via a **gravity fail-safe mechanism** upon fire alarm signal or complete power failure.

B. Performance

- Fire resistance rating: **Up to 3 hours** in masonry-type construction.
- Tested in accordance with **BS EN 12101-1+A1:2006**.
- Fabric resists temperatures up to **620°C**.

C. Curtain Design

- **Roller Assembly:**
 - Woven fiberglass fabric rolled onto **steel tube**
 - Integrated **24Vdc tubular motor**, heavy-duty bearing, and control board
 - Housed in **galvanized steel headbox** (minimum 170mm x 170mm)
 - Larger headboxes used for >3m drop or multiple barrels
- **Bottom Bar:**
 - Twin inverted **mild steel angle** as weight bar
 - Enables **gravity-based descent** upon signal or failure

D. Control System

Group Controller Operation:

- Controller may be located adjacent to or remotely from the curtain (inside ceiling void or dedicated panel room).
- Requires **230V AC**, 3A power supply via fused spur.
- Interface with fire alarm via **normally-closed volt-free contact** that opens on fire signal or failsafe.

Controller Capabilities:

- Operates up to:
 - 5 × 20W motors, or
 - 3 × 40W motors (depending on design).
- Includes **battery backup** providing up to **2 hours** of hold time in case of mains failure.
- Curtain automatically descends via gravity if voltage drops below threshold.
- Manual key switch provided for testing and override.
- **No limit switches**; position sensing achieved through electronic current detection.
- Motors to be wired using ring main configuration to minimize voltage drop.

PART III: EXECUTION

3.1 Contractor's Scope of Work

Measurement & Fabrication:

- Verify all openings and conditions before fabrication.

Installation:

- Fix headbox securely to ceiling structure.
- Ensure fabric is centered, smooth, and properly tensioned.

Electrical Coordination:

- Coordinate power supply and fire alarm interfacing with electrical contractor.

Testing & Commissioning:

- Conduct full operational test of descent and retraction.
- Demonstrate manual override and fail-safe operation.

Labeling:

- Each installed curtain to be labeled with manufacturer's name, fire rating, and batch number.

3.2 Acceptance

Final inspection and acceptance by **manufacturer's technician or authorized representative** to ensure:

- Installation per manufacturer guidelines
- Full operational compliance
- Proper response to fire alarm and manual activation

3.3 Warranty

- Minimum warranty period: **One (1) year**
- Extended warranty may be considered upon agreement between **client, consultant, and manufacturer.**