

ICC-ES Evaluation Report

ESR-3322

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A Subsidiary of the International Code Council®

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 87 00—Smoke Containment Barriers

DIVISION: 08 00 00—OPENINGS

Section: 08 30 00—Specialty Doors and Frames

REPORT HOLDER:

BLE SMOKE AND FIRE CURTAINS

EVALUATION SUBJECT:

BLE SMOKE AND FIRE CURTAINS—MODEL SD60GS SMOKE CONTAINMENT SYSTEM

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2015, 2012, 2009 and 2006 *International Fire Code*® (IFC)

Properties evaluated:

- Smoke containment
- Opening protection

2.0 USES

The BLE Smoke and Fire Curtains Model SD60GS is a vertically rolling smoke-containment system used in conjunction with fire-resistance-rated elevator hoistway door and frame assemblies or in elevator lobbies to provide a smoke- and draft-control assembly. When installed over elevator openings equipped with a fire-resistance-rated elevator hoistway door and frame assembly, the system is intended for use as an alternative to the requirement for a separated, enclosed elevator lobby in accordance with Item 3 of Section 3006.3 of the 2015 IBC, Exception 3 of 2012 IBC Section 713.14.1, 2009 IBC Section 708.14.1 and 2006 IBC Section 707.14.1.

The Model SD60GS Smoke Containment System, when installed away from elevator openings at the intersection of the elevator lobby and a fire-resistance-rated corridor, is intended for use as an alternative to the requirement for an enclosed elevator lobby in accordance with 2015 IBC Section 3006.3, 2012 IBC Section 713.14.1, 2009 IBC Section 708.14.1 and 2006 IBC Section 707.14.1. The system, when installed away from elevator openings at the intersection of the elevator lobby and a non-fire-resistance-

rated corridor, is intended for use as an alternative to the requirement for a protective opening in smoke partitions to separate the lobby in accordance with Item 2 of Section 3006.2 of the 2015 IBC, Exception 5 of 2012 IBC Section 713.14.1, 2009 IBC Section 708.14.1 and 2006 IBC Section 707.14.1. When installed as described in this report, the system forms a protective opening in a smoke partition and is an alternative to the smoke and draft control doors required by 2015 and 2012 IBC Section 710.5.2.2, 2009 IBC Section 711.5.2 and 2006 IBC Section 710.5.2.

3.0 DESCRIPTION

3.1 General:

The BLE Smoke and Fire Curtains Model SD60GS smoke-containment system consists of a curtain, head box, side guides, bottom bar, roller assembly, and an electronically operated drive-control system (motor, motor-control circuit and group-control panel). The curtain is secured to the roller assembly, which is retracted in the head box positioned above the elevator or elevator-lobby opening. The edges of the curtain incorporate steel retaining tabs, which secure the curtain within the side guides. The side guides are installed from the floor to the underside of the head box on both sides of the opening. The bottom edge of the curtain is supplied with a bottom bar, which acts as a weight to enable the curtain to descend under gravity. Upon receipt of a signal of an alarm condition, the power supply to the motor is de-energized and the curtain deploys under gravity. Once power is resupplied to the motor, the curtain is retracted until the bottom bar is in contact with the underside of the head box.

The BLE Smoke and Fire Curtains Model SD60GS Smoke Containment System is connected to the smoke-detection system located in the elevator lobby, or to the building's fire-protection system, with the connection initiating deployment of the curtain within 10 seconds of smoke-detection or fire-protection-system alarm operation.

In the event that elevator occupants encounter a deployed smoke-containment system, rewind switches located on both sides of the elevator frame can be manually activated, per IBC Section 3002.6, to allow occupants to raise the curtain and exit from the elevator. The raised curtain will redeploy to the closed position after egress if the presence of smoke continues to be detected. In addition, occupants can exit by manually lifting the deployed curtain using a grab strap attached to the curtain. In the event of a loss of power, an uplift force of less than 15 pounds (66 N) applied to the grab strap is required to lift the curtain assembly to allow occupant egress. In addition

to the required rewind switches and integral grab strap, the curtains may also be installed by overlapping two curtain sections, thereby creating an optional separate pass-through slot which can be used by occupants to exit the deployed curtain. The system has a battery backup and will function as intended in the event of an interruption in the building's electrical power supply.

3.2 Components of the Model SD60GS Smoke Containment System:

3.2.1 Curtain Material: The curtain is glass fiber cloth with a micronized aluminum coating on both sides. The curtain has a nominal weight of 0.11 lb/ft². The curtain consists of fabric panels stitched together vertically with cotton and stainless-steel blended thread. The system may be provided with a continuous curtain or overlapped curtains. When provided, the curtain overlap is a minimum of 23.6 inches (600 mm). When used for smoke and draft control as described in Section 3.3 of this report, the curtain may incorporate a vision panel constructed of a transparent fabric with a clear opening measuring 10.5 inches (270 mm) by 29.5 inches (750 mm). The maximum total area of the vision panel is 314 inches² (202,500 mm²).

3.2.2 Electronically Operated Drive System: The drive-control system, which controls the deployment and retraction of the curtain assembly, is intended for connection to the building's 120VAC power supply and to either the auxiliary contacts of the smoke detectors located in the elevator lobby and the adjacent corridor, or to the building's fire-protection system. The drive-control system is equipped with a 24VDC backup battery. The electrically operated, listed releasing device conforms to UL 864. The thermally protected motor operates at 24VDC. The motor operates a drive shaft located in the roller assembly, which rotates to retract the deployed curtain.

3.3 Smoke and Draft Control:

When tested in accordance with UL 1784 without an artificial bottom seal, the Model SD60GS smoke-containment system has an air-leakage rating that does not exceed 3.0 cfm per square foot (0.01524 m³/s·m²) of opening at a pressure differential of 0.10 inch of water (24.9 Pa) at both ambient and elevated temperatures.

3.4 Fire-resistance Rating:

The Model SD60GS Smoke Containment System complies with 2015 and 2012 IBC Section 716.5.3 and 2009 and 2006 IBC Section 715.4.3, and has a 20-minute fire-protection rating for use in corridors and smoke barriers based on testing in accordance with UL 10C without the hose-stream test.

4.0 INSTALLATION

4.1 General:

Installation of the system must comply with this report and the manufacturer's published installation and operating instructions. The BLE Smoke and Fire Curtains installation and operating instructions must be available at the jobsite at all times during installation.

The system must be attached to the wall with the head box installed above the elevator opening or to the ceiling directly above the opening in the elevator lobby. The maximum opening width and height must not exceed, respectively, 80 inches (2.0 m) and 120 inches (3.05 m).

The electrically operated drive-control system must be installed in accordance with the report holder's published installation instructions, the releasing device listing, and the applicable code. The two rewind switches must be

connected to the control system and mounted at the height specified in the manufacturer's installation instructions.

Once the system is installed and energized, the curtain assembly must be adjusted, tested and set in accordance with the report holder's published installation instructions.

4.2 Final Adjustment and Inspection:

After installation and initial testing, the installer must perform a final adjustment and inspection of the system in accordance with the report holder's published installation instructions. Simulation of the smoke alarm, activation of the releasing device, curtain deployment and rewind must be performed to ensure proper operation. After installation, the systems must be maintained in accordance with Section 5.9 of this report.

5.0 CONDITIONS OF USE

The BLE Smoke and Fire Curtains Model SD60GS smoke-containment system described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** Installation must comply with this report; the report holder's published installation instructions, and the applicable code.
- 5.2** Installation must be by installers authorized by BLE Smoke and Fire Curtains.
- 5.3** The smoke containment system must be cycle-tested by the building owner of record or the owner's representative on a semiannual basis. A permanent record of the cycle tests must be retained by the building owner of record or the owner's representative.
- 5.4** When installation is as a smoke-and-draft-control door over an elevator hoistway door and frame, a smoke detector complying with UL 268 must be installed at the ceiling in front of the elevator hoistway door. When installation is at the intersection of the elevator lobby and corridor, smoke detectors complying with UL 268 must be installed at the ceiling on both sides of the protected opening. The smoke detectors must be equipped with an auxiliary contact and battery backup (not provided by BLE Smoke and Fire Curtains) or an emergency electrical system. When approved by the building official or his designated representative, the smoke-containment system may be connected to the building's fire protection system instead of the smoke detectors at the elevator hoistway doors or at the protected opening.
- 5.5** The smoke-containment system must be used with fire-resistance-rated elevator hoistway doors in order to comply with the "S" label requirements for tight-fitting smoke and draft control assemblies in accordance with the requirements of 2015 and 2012 IBC Section 716.5.3 and 2009 and 2006 IBC Section 715.4.3. This allows the elevator doors to open directly into the fire-resistance-rated or non-fire-resistance-rated corridor, eliminating the need for an enclosed elevator lobby in accordance with Item 3 of Section 3006.3 of the 2015 IBC, Exception 3 of 2012 IBC Section 713.14.1, Exception 3 of 2009 IBC Section 708.14.1 and Exception 3 of 2006 IBC Section 707.14.1. In the absence of a corridor, elevator doors equipped with the Model SD60GS may open directly onto an open floor plan.
- 5.6** When used as an alternative to the enclosed elevator lobby required by 2015 Section 3006.3, 2012 IBC

Section 713.14.1, 2009 IBC Section 708.14.1 and 2006 IBC Section 707.14.1, the Model SD60GS must be installed at the opening created by the intersection of the elevator lobby and a fire-resistance-rated corridor.

- 5.7** When used as an alternative to the smoke- and draft-control doors required by 2015 and 2012 IBC Section 710.5.2.2, 2009 IBC Section 711.5.2 and 2006 IBC Section 710.5.2, the Model SD60GS must be installed at the opening created by the intersection of the elevator lobby and a non-fire-resistance-rated corridor, to allow elimination of the enclosed elevator lobby in accordance with Item 2 of Section 3006.3 of the 2015 IBC, Exception 5 of 2012 IBC Section 713.14.1, Exception 5 of 2009 IBC Section 708.14.1 and Exception 5 of 2006 IBC Section 707.14.1.
- 5.8** Model SD60GS is not intended for use where elevator hoistway pressurization in accordance with 2015 and 2012 IBC Section 909.21, 2009 IBC Section 708.14.2 and 2006 IBC Section 707.14.2 is provided, except when the products recognized in this report are used in smoke-control systems designed by a registered professional in accordance with the applicable requirements of Section 909 of the IBC and the IFC.
- 5.9** The Model SD60GS may be used in smoke control systems designed by a registered professional in accordance with the applicable requirements of Section 909 of the IBC and the IFC.
- 5.10** Under the 2015, 2012 and 2009 IBC and IFC, openings protected with the Model SD60GS for smoke-and-draft control must be maintained in accordance with Sections 107 and 703.1.2 of the IFC and Chapter 5 of NFPA 105. Annual inspection must be in accordance with Section 5.2 of NFPA 105.
- 5.11** Under the 2015, 2012 and 2009 IBC and IFC, openings protected with the Model SD60GS for fire-resistance-rated smoke-containment system must be maintained in accordance with Sections 107, 703.1.2, and 703.1.3 of the IFC, Chapter 5 of NFPA 105 and Chapter 5 of NFPA 80. Annual inspection must be in accordance with Section 5.2 of NFPA 80 and Section 5.2 of NFPA 105.
- 5.12** The smoke-containment system recognized in this report is intended for use with elevators or elevator lobbies when, in accordance with IBC Section 1003.7, the elevators are not used as a component of a required means of egress from any part of the building.
- 5.13** The BLE Smoke and Curtains smoke-containment system is manufactured in Sheffield, England, under a quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Smoke-containment Systems Used with Fire-resistance-rated Elevator Hoistway Doors and Frames and at the Intersection of Elevator Lobby and Corridor (AC77), dated June 2013 (editorially revised May 2017).

7.0 IDENTIFICATION

- 7.1** The BLE Smoke and Fire Curtains smoke-containment system described in this report must bear a label indicating the manufacturer's name (BLE Smoke and Fire Curtains), the manufacturer's address, the product name, the model number (SD60GS), the leakage rating (unless specified in the installation instructions), and the evaluation report number (ESR-3322).
- 7.2** The report holder's contact information is the following:

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