Models 200 & 400 Operation & Maintenance Manual

including semi-annual testing procedures
for your Smoke Guard® System

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Call your local Smoke Guard System Distributor
for answers to questions about your system

Important

The purpose of your Smoke Guard System is to reduce the risk of death or serious injury due to vertical smoke migration in the elevator shaft during a fire.

The Smoke Guard System is designed to meet the requirements of the International Building Code. Our manufacturing quality control programs and network of factory-trained installers help ensure that your system functions as designed at the time of installation.

As with other components of your fire protection system, ***periodic maintenance is required***. The building owner must inspect and test each Smoke Guard system unit at least once every six months. Damage to the housing, improper painting of the elevator door frame, or other factors could hinder the proper operation of your unit. Failure to properly test and maintain your Smoke Guard System could result in death or serious injury in the event of a fire.

Table of Contents

Introduction

This is the official operation, maintenance, and testing manual for Model 200 and Model 400 smoke containment systems from Smoke Guard Inc.. This section includes the following topics:

- **Why the Smoke Guard System?**
- **Responsibilities of the building owner**

NOTE: Read this entire manual before operating, maintaining or testing your Smoke Guard System.

Why the Smoke Guard System?

Why are elevators a problem?

A natural ventilation cycle called “stack effect” occurs in every building over one story in height. Air typically infiltrates the lower portions of the building and is exhausted out of the top. The taller the building and the greater the temperature difference between the inside and outside temperatures, the greater the air flow. The elevator shaft acts like the chimney in a fireplace, drawing smoke from a building fire through the gap between the elevator door and frame, and exhausting the smoke into the upper floors.

How does the Smoke Guard system fit into the codes?

The Smoke Guard system is a rolling gasketing smoke containment system used in conjunction with a fire-resistance-rated elevator door and frame assembly to provide a smoke and draft control assembly. The system is installed over elevator openings and is intended to be used as an alternative to the requirement for a separated elevator lobby in the applicable code.

The responsibilities of the building owner

The Smoke Guard system is considered “connected equipment” as defined in NFPA 72. As such, the owner or a designated representative shall be responsible for inspecting, functional testing, recording of tests, and maintaining the system. Delegation of responsibility shall be in writing, with a copy made available to the authority having jurisdiction under the provisions of the building code and local ordinances.

Testing frequency

Visual inspection, functional testing, and maintenance described in this manual must be performed and recorded at intervals not longer than 6 months, more frequently where required by the authority having jurisdiction.

Alterations and additions

Visual inspection shall ensure that there are no changes that would affect equipment performance, such as building modifications, occupancy hazards, and environmental effects. Smoke Guard recognized personnel must perform any alterations or additions to your system.

System acceptance testing

Acceptance tests shall be performed after system components are added or deleted, after any modification, repair, or adjustment to the system hardware or wiring.

Painting

Do not field paint auxiliary rails, housing, or housing door without first contacting Smoke Guard or your installing distributor.

- Do not paint housing door shut.
- Painting auxiliary rails requires that you strip them of existing paint to base metal and repaint with a spray paint, which is resistant to 300 degrees Fahrenheit, to a maximum thickness of 0.005 inch.
- After painting any of the above said components, your system must be tested completely.

Operation

How the Smoke Guard system works

Ready

The system connects to an auxiliary relay in the smoke detector for the elevator landing. The smoke containment curtain is rolled into a housing located above the elevator door.

Alarm

There are two alarm conditions that deploy the smoke containment curtain:

- smoke detector goes into alarm (but NOT in response to a general fire alarm)
- continued loss of power

Under alarm conditions, the curtain automatically unrolls and magnetically attaches to auxiliary rails or ferrous elevator door frame. The curtain stops when it reaches the floor. An aluminum tube creates a seal at the floor when the curtain is fully deployed.

Deployed

When the unit is deployed, it remains deployed until you reset the smoke detector or re-establish power to the unit (see “Rewind” below). The curtain may bow slightly in or out due to the direction of the airflow. While the curtain is deployed, anyone who needs to move through the opening can press a rewind switch to retract the curtain temporarily. The curtain then unwinds to the fully deployed position if alarm conditions still exist; otherwise, it rewinds fully and remains in ready mode.

NOTE: The system is designed so there is a delay of several seconds after the unit has deployed before the rewind switch will operate.

Rewind

The curtain rewinds automatically when you reset the smoke detector or reestablish power to the unit. (Pressing the rewind switch rewinds the curtain only temporarily as long as an alarm condition exists.)

What makes up the Smoke Guard system

Housing

The housing is a sheet metal box, with a dust cover, mounted above the elevator door. The housing holds the curtain , the control circuit board (see below), up-limit switch, clutch, viscous governor, and rewind motor. In addition, the housing contains the electrical connections to 120VAC, the smoke detector, and the rewind switch.

Auxiliary rails (required for most installations)

Auxiliary rails attach to the wall next to the elevator door frame. These rails attract the magnets on the curtain and form a seal. In some installations, the elevator frame is of a ferrous metal and the auxiliary rails are not necessary.

Curtain

The curtain material is reinforced transparent polyimide plastic film. The film is attached to a flexible magnet along each vertical edge by means of an elastomeric sealant that allows the film to expand under differential air pressures likely found in an elevator shaft.

Control circuit board

The control circuit board monitors current from the 120VAC and smoke detector. When it senses a continued loss of power, or a change in the current from the smoke detector, it deploys the curtain.

NOTE:

The smoke detector is part of the building smoke and fire alarm system and NOT a component of the Smoke Guard system. The smoke detecting system must be inspected, tested, and properly maintained in accordance with the equipment manufacturer's guidelines.

What to do if the curtain has deployed

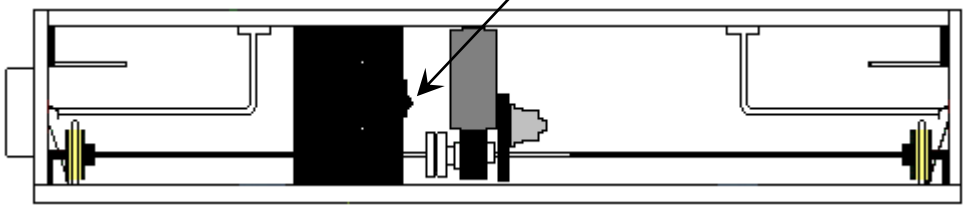
The curtain should only deploy if the smoke detector goes into alarm or power to the unit is interrupted for several seconds. After the unit deploys, activating the rewind switch rewinds the curtain temporarily. If the smoke detector is still in alarm, the unit then redeploys. When the local smoke detector is no longer in alarm, the curtain rewinds automatically. The door automatically closes behind a Model 400. If the unit is a Model 200, close the door manually.

If a unit deploys during a fire, notify Smoke Guard (800-574-0330) for a free service visit.

How to disconnect power to the unit

If you need to disconnect 120 VAC to the unit, hook the housing door key (provided with the unit) around the lip of the housing door to pull it open (door opens AWAY from the elevator) to reach the service disconnect switch.

housing door key provided with the unit



What to do if someone walks through a deployed curtain

If someone walks through a deployed curtain, DO NOT rewind the curtain into the housing until you realign the flexible magnetic strips to a vertically plumb orientation.

1. Turn OFF power to the unit using the switch inside the housing on the control box.

   Holding the outside edges of the magnets near the top of the curtain, lift the magnets off the rails. Gently pull both magnets apart to smooth out the film out and then allow the magnets to reattach to the rails.
2. Continue in this manner working down the length of the curtain to the floor. Both magnets should be plumb and cover the rails evenly.
3. Press the rewind switch. The curtain rewinds temporarily and then redeploys.
4. If there is any telescoping of the magnet rolls, repeat steps 1 through 4.
5. Turn ON power to the unit.

Semi-Annual Testing

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step	procedure	✓
1	Activate the elevator landing smoke detector connected to the unit per the smoke detector manufacturer recommendations.	
2	Observe the deployment of the curtain.	
	The curtain unwinds smoothly from the housing and stops when it meets the floor. (Some slack in both cables is normal.)	
3	Visually inspect the curtain assembly.	
	There is no damage to the curtain, flexible magnets, rewind switch, or the seal at the floor.	
4	Inspect the flexible magnets.	
	Both magnets are plumb and cover the auxiliary rails evenly (or the elevator frame in the absence of rails).	
5	Press the rewind switch on the face of the curtain. NOTE: The system is designed so there is a delay of several seconds after the unit has deployed before the rewind switch will operate.	
	The curtain rewinds briefly, and then it redeploys (if the smoke detector remains in alarm).	
6	Engage the rewind motor by resetting the smoke detector.	
	The curtain rewinds with a uniform roll around the threshold pulleys with no telescoping of 1/2 inch or more.	
	If the unit is a Model 400, the door closes behind the curtain as it rolls into the housing. **If it is a Model 200, the door catches securely when you close it manually.**	

Record of testing: Smoke Guard system

Installation Date: _____

Test date	Unit location	Results	Inspector's name	Inspector's signature

Test date	Unit location	Results	Inspector’s name	Inspector’s signature

Troubleshooting

Quick tips

PROBLEM	CAUSE	SOLUTION
System does not respond to the rewind switch on the curtain.	Attempt to utilize the switch too soon after deployment The system is designed with a delay to allow the switch to adjust to the deployed state.	Wait several seconds after deployment before pressing the switch.
Green LED on control cover is not on	No smoke detector diode installed OR Diode installed incorrectly	Fire alarm technician must install diode provided by Smoke Guard.
Red LED on control cover is not on.	No 120 VAC to unit junction box	Electrician must provide 120 VAC to housing junction box
constant clicking when power supplied	bad ground, clutch engaging and disengaging repeatedly	supply a good ground.
door won't close	ceiling/soffit pinches housing distorting door	Release pressure on the housing so there is at least a 1/8" gap between the housing and ceiling/soffit.

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or call

Smoke Guard Technical Services
1-800-215-6138