Fire and Smoke dampers – case of ”Better safe than sorry”?

Fire Safety Solutions | Raimo Parkkila

Halton INDOORS

Ventilation fire and smoke safety!
'safety is never a compromise'

Russia records about 18,000 fire deaths a year -- roughly 10 times the rate in the United States. Experts say fire fatalities have skyrocketed since the collapse of the Soviet Union, in part because of lower public vigilance and a disregard for safety standards.

http://www.iklimnet.com/hotelfires/hs_case18.html


112
VARSINAIS-SUOMEN PELASTUSLAITOS
T21
SCANIA
T21
SAMMUTUSAUTO
YGF-931

Official Journal
of the European Union

IV

(Notices)

NOTICES FROM EUROPEAN UNION INSTITUTIONS, BODIES, OFFICES AND AGENCIES

EUROPEAN COMMISSION

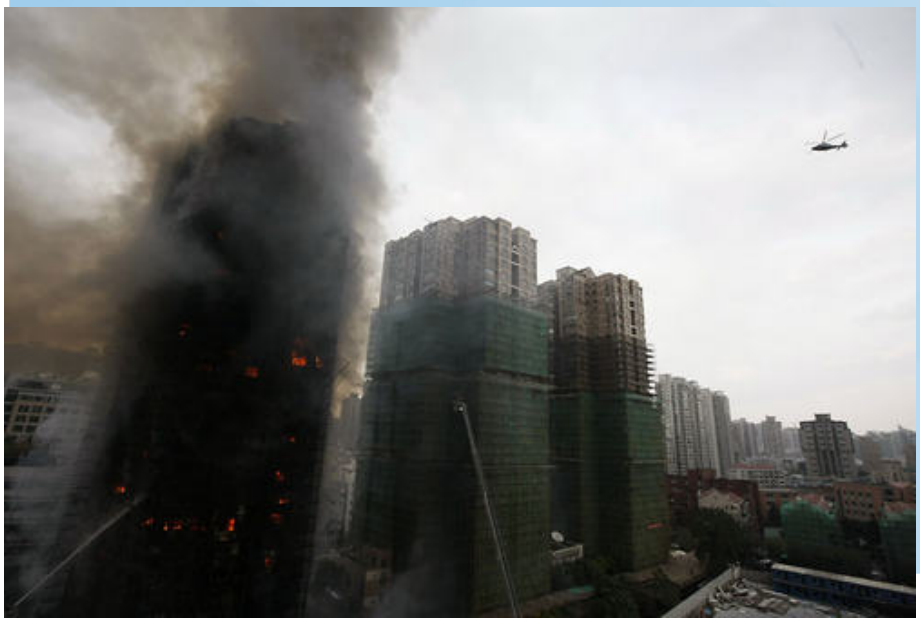
Commission communication in the framework of the implementation of the Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products

(Text with EEA relevance)

(Publication of titles and references of harmonised standards under the directive)

(2011/C 246/01)

ESO (1)	Reference and title of the harmonised standard (and reference document)	Reference of superseded standard	Date of applicability of the standard as a harmonised European standard	Date of the end of the co-existence period Note 4
CEN	EN 15650:2010 Ventilation for buildings - Fire dampers		1.9.2011	1.9.2012
CEN	EN 12101-8:2011 Smoke and heat control systems - Part 8: Smoke control dampers		1.2.2012	1.2.2013



Halton INDOORS

Introduction

”Smoke is recognized as the major killer in fire situations. **Smoke** often **migrates** to building locations **remote from the fire space**, threatening life and damaging property. Stairwells and elevator shafts frequently become smoke logged, thereby blocking evacuation and inhibiting rescue and fire fighting.

The MGM Grand Hotel fire *(Best and Demers 1982)* is an example of the smoke problem. The fire was limited to the first floor, but smoke spread throughout the building. Some occupants on upper floors were exposed to smoke for hours before rescue. The death toll was 85, and **the majority of the deaths were on floors far above the fire**.”

Source: Design of smoke management systems,
J.Klote, J.Milke, ASHRAE Special Publications, 1992.

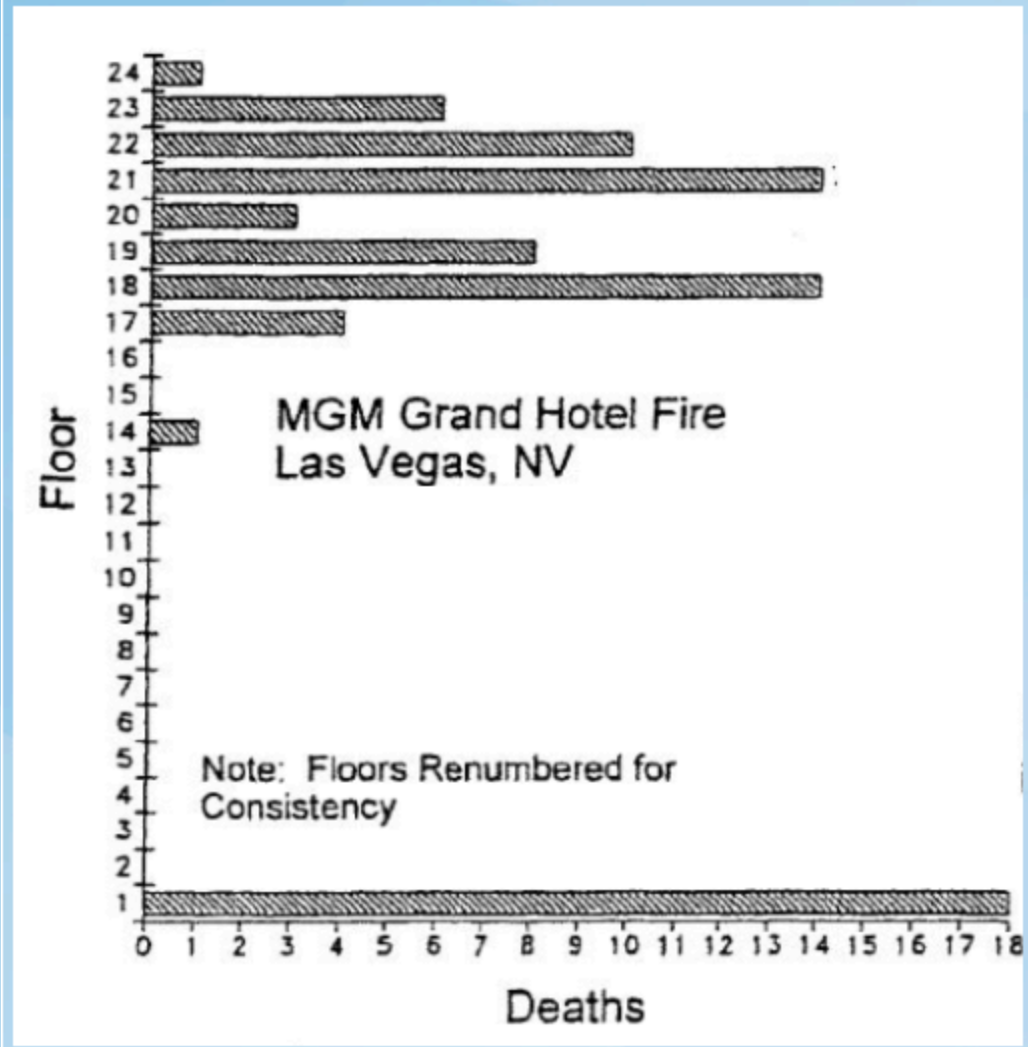
Introduction

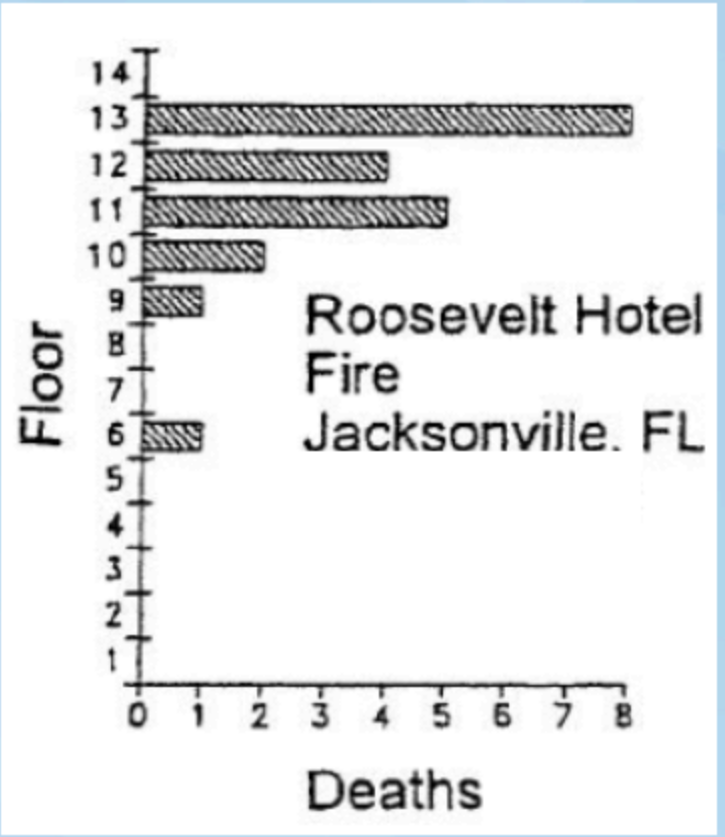
Hilton New York hotel fire in 2005

"A fire in an electrical shaft at the Hilton New York hotel yesterday afternoon forced the evacuation of the 45-story Midtown building, sent 33 people to the hospital with smoke inhalation and shut down traffic on Avenue of Americas between West 51st and 54th Streets for more than three hours, the Fire Department said. No one was seriously injured. **The fire** started about 4 p.m. as welders were performing maintenance, according to fire-fighters on the scene. It **was limited to a shaft running the length of the building**.

The smoke spread rapidly throughout the 2,017-room hotel through the ventilation system. Hotel guests from the 8th to the 33rd floors said that the hallways were thick with smoke.

Source: http://www.iklimnet.com/hotelfires/case52.html





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General timetable for improve fire and smoke safety in the future buildings.

1) CEN (European committee for standardization) Directive 1989

2) Update the needed standards for ventilation systems 1990 >

3) National building codes will be updated to equal in European wide

Compartmentation

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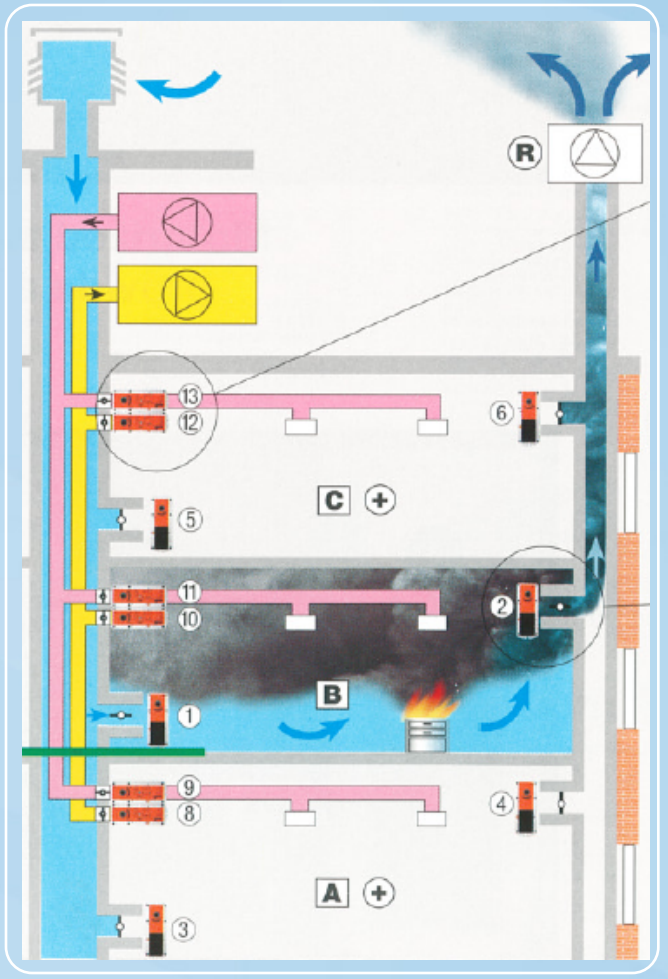
General Principles of Advanced Fire and Smoke Prevention System

- Fire compartment is located as quickly as possible by smoke detectors
- Fire and smoke dampers are closed in case of fire and
- Smoke extract dampers and fresh air paths are opened in affected fire compartment
- It is important to keep escape and emergency routes free of smoke



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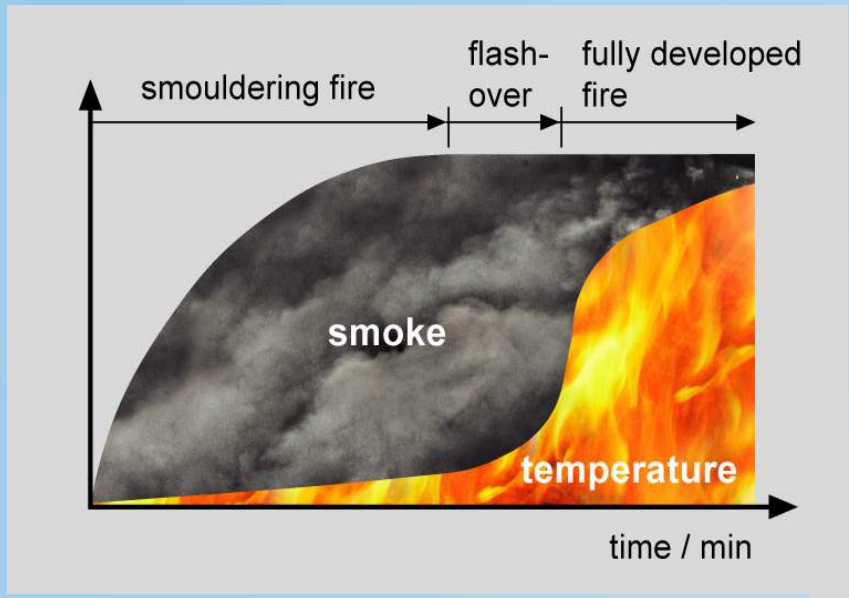
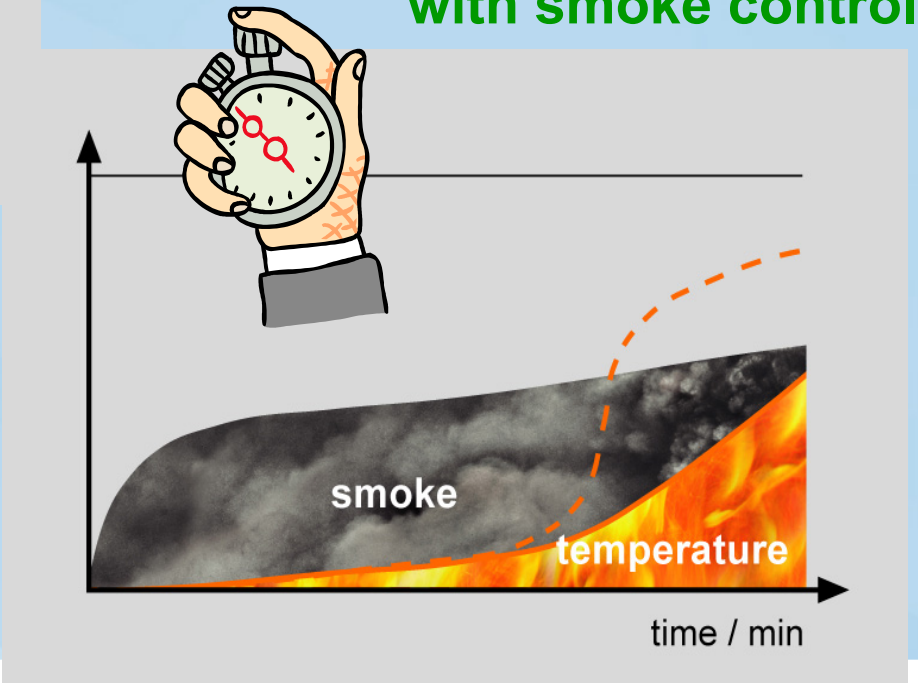
Powered Smoke Control – Principal



without smoke control

with smoke control



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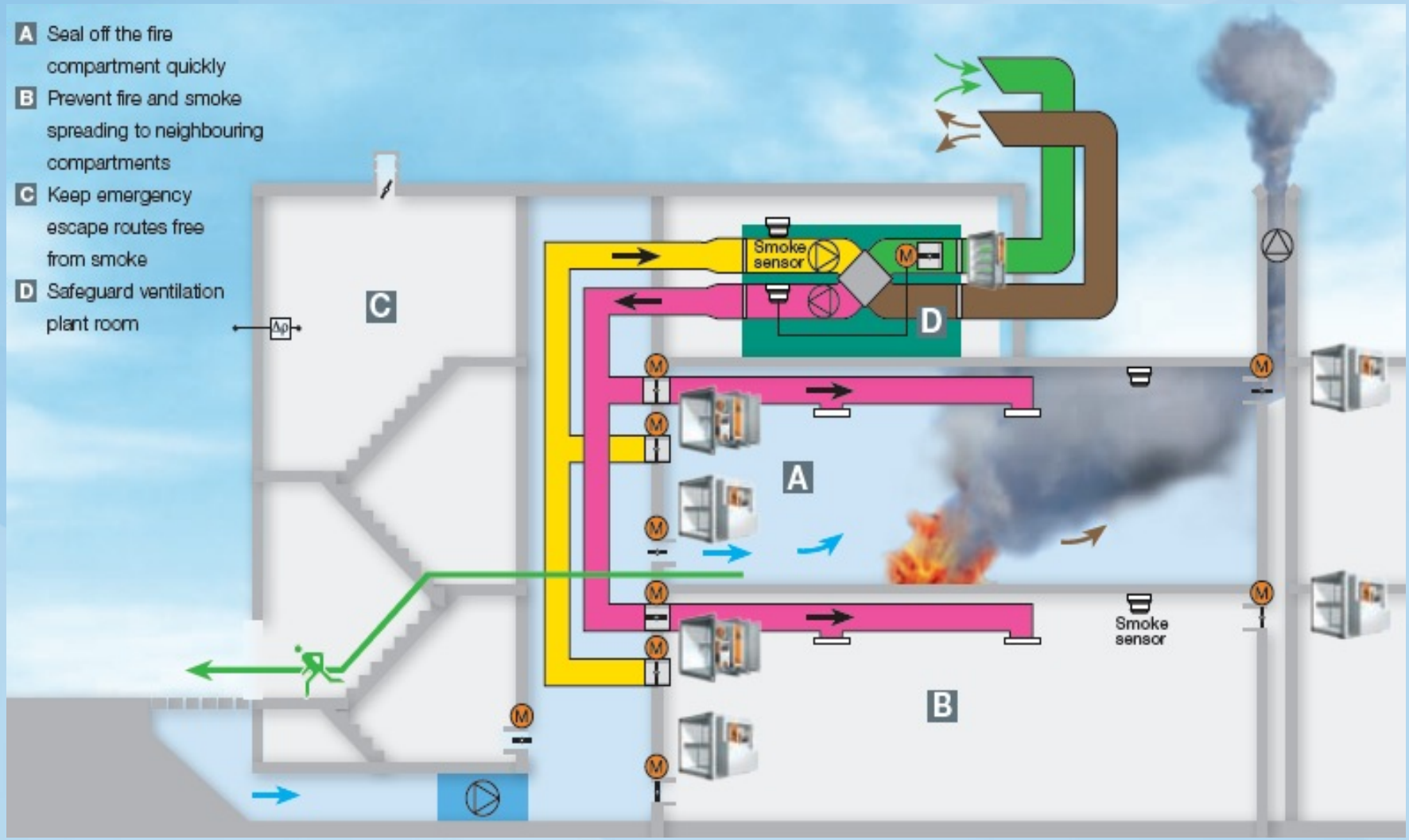
Powered Fire and Smoke Control – Principal



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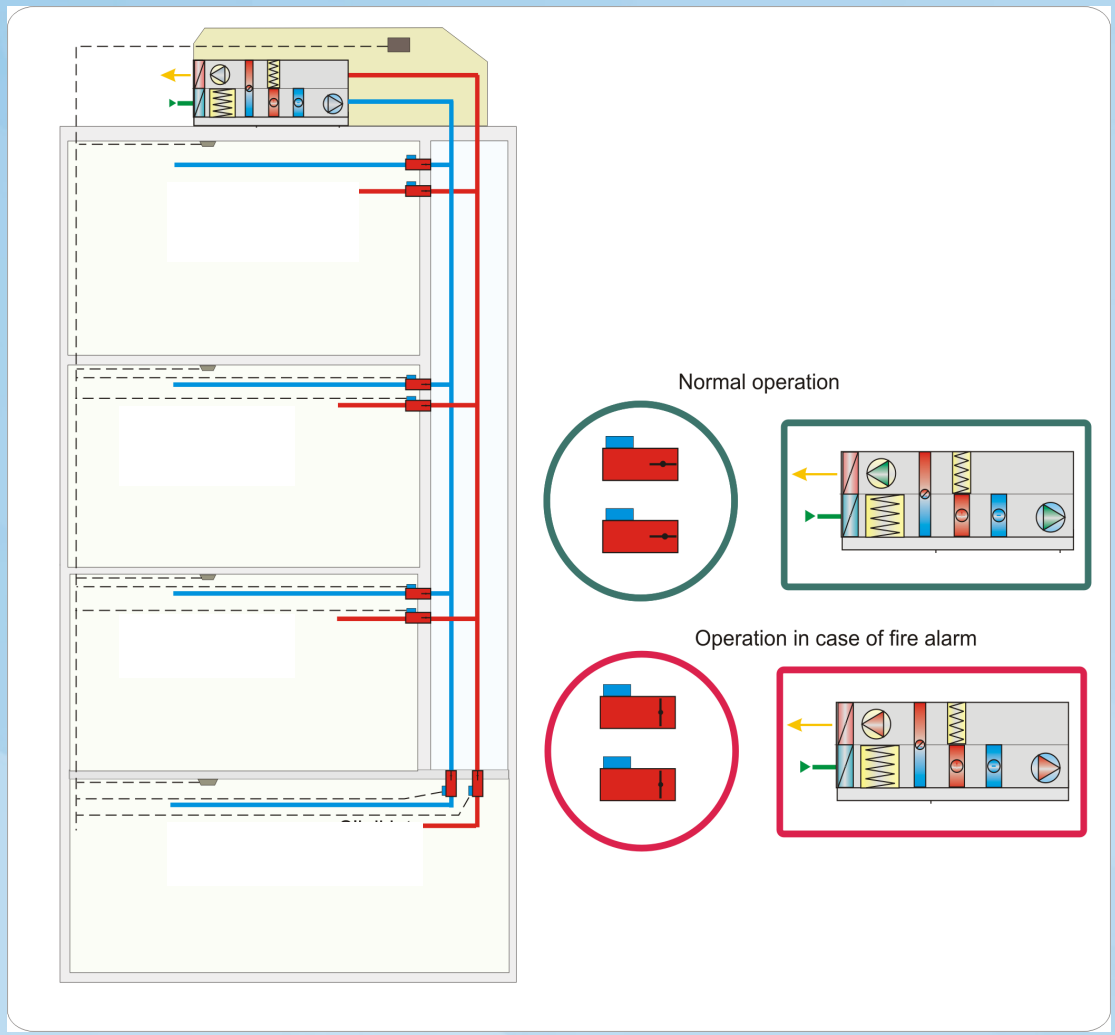
Automatic fire dampers with control system



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Automatic Smoke extract system

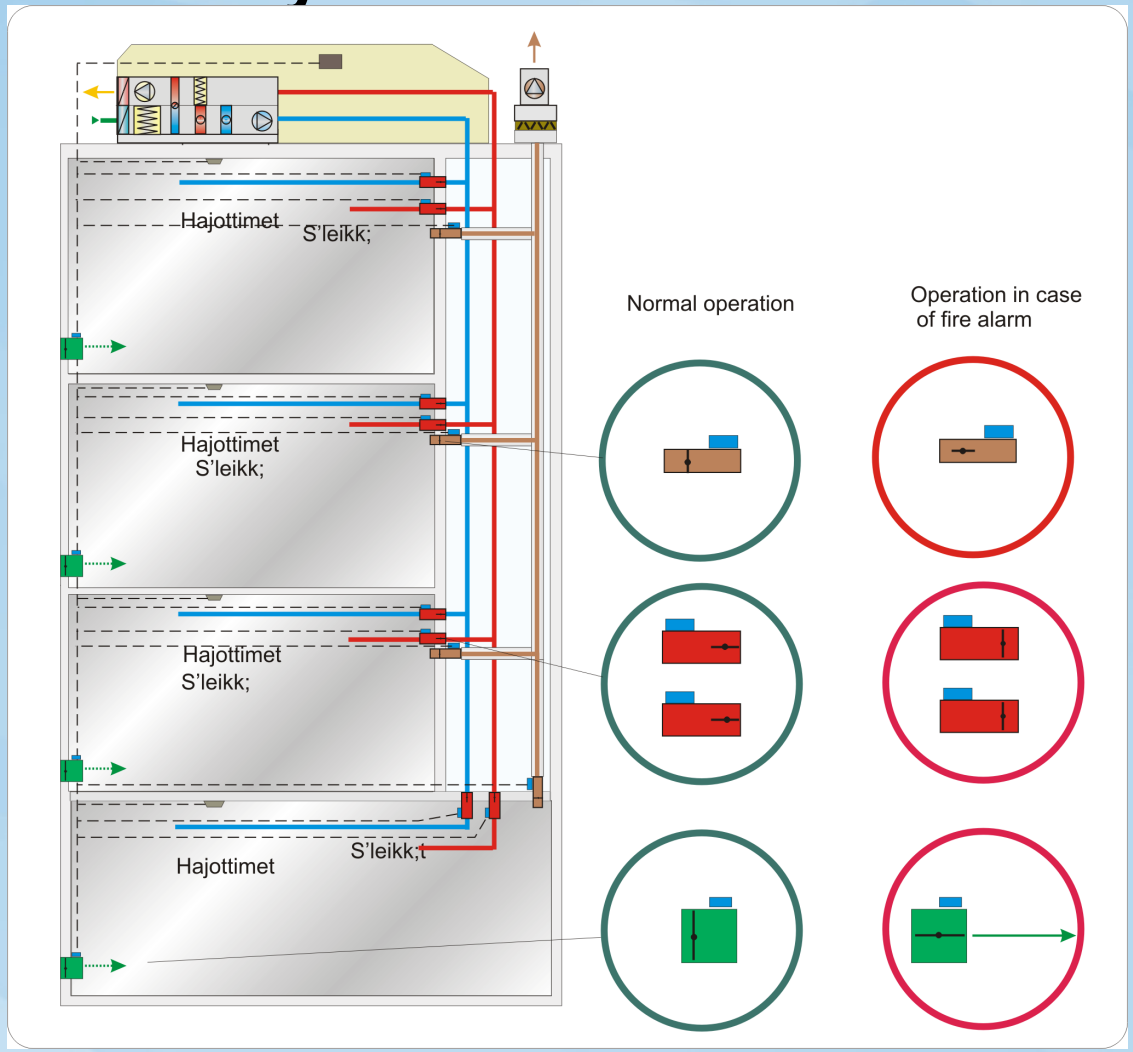
1. Fire Dampers are closed & Ventilation Fans are shut off

2. Smoke Exhaust and Pressure Relief dampers in the fire zone are opened

   & Smoke Fan is started

Advantages:

- Evacuation & Fire fighting easier
- Financial losses minimized, including Ventilation system
- Simple, fast response system approach



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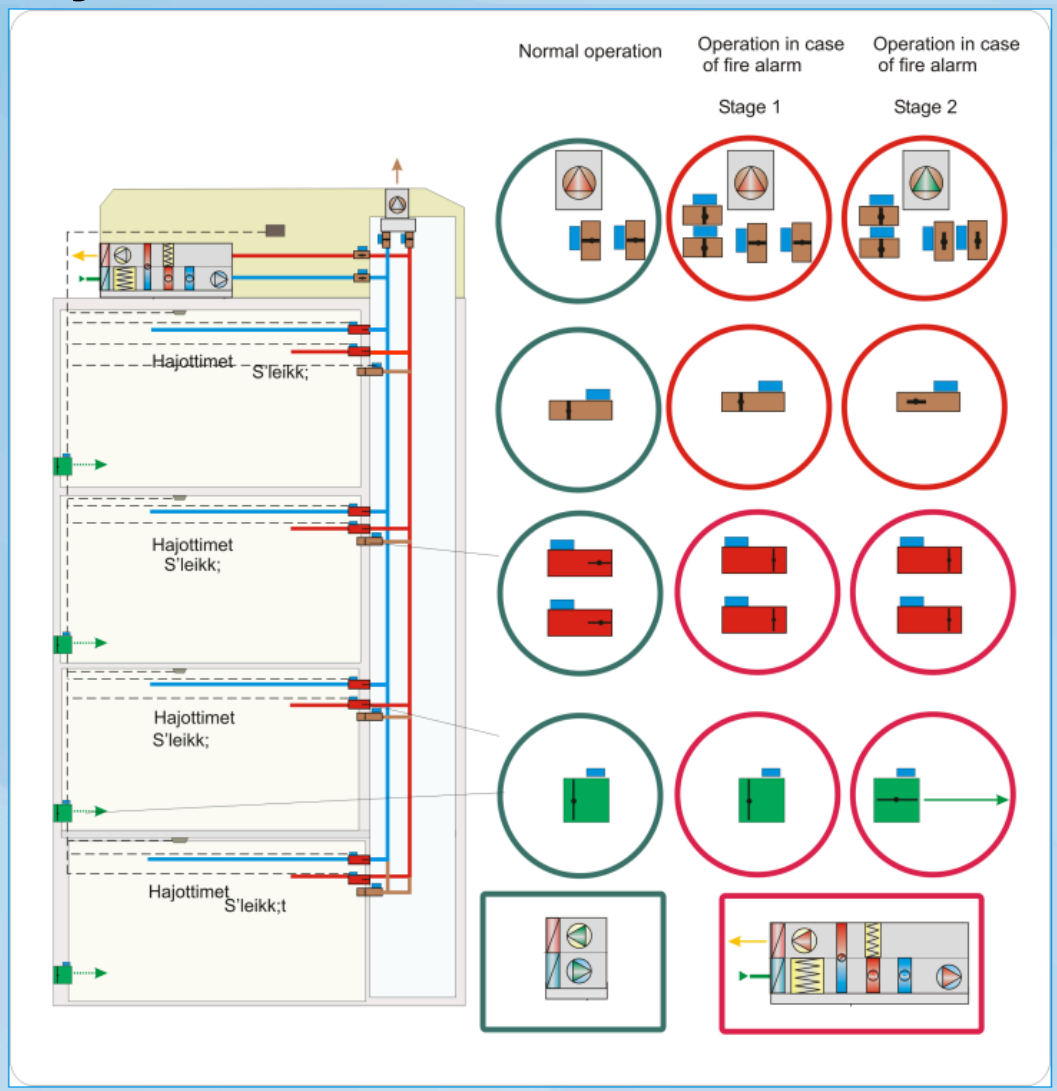
Ventilation System with Smoke Exhaust



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European fire damper based on EN 13501-3

The new regulations are mostly based on the operation of technical fire and smoke damper solutions

Fire Damper Classification *EI ve-ho (i<->o) S 60*

- E = Integrity flame and hot gas tight=tightness (<360 $m^3/h,m^2$ @ -300 Pa)
- I = insulation=transfer of heat
- S = smoke leakage gas and smoke tight (<200 $m^3/h,m^2$ @ -300Pa)
- 60 = fire-resistance time in minutes
- ho=horizontal installation
- ve=vertical installation
- o-i,i-o = outside-inside, (i<->o)

Supplier responsible of the damper performance - quality control of operations required

National certificates typically require both type testing and third party quality control

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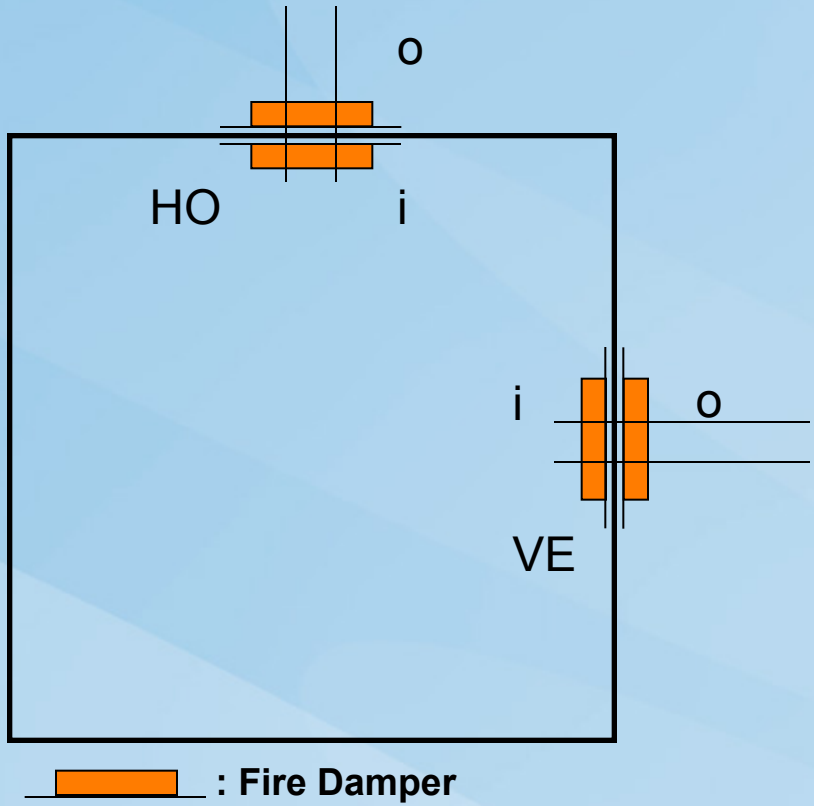
Important details about fire classification



Example EI ($_{VE, HO}$ i ↔ o)S 60

- VE : vertical installation
- HO : horizontal installation
- i : In
- O : Out
- → : One way flow
- ↔ : Both in and out
- Installation in concrete walls
- Installation in light walls eg. gypson

- Installation instructions is delivered with the fire damper
- Damper is marked with a label of certificate

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Communities and Local Government

The Building Regulations 2000

Fire safety

APPROVED DOCUMENT

ONLINE VERSION

VOLUME 2 – BUILDINGS
THAN DWELLINGHOUSE

B1 Means of warning a
B2 Internal fire spread
B3 Internal fire spread
B4 External fire spread
B5 Access and facilitie

Coming into effect April 2007

Building Regulations 2006

Technical Guidance Document B

Fire Safety

E7 THE NATIONAL BUILDING CODE OF FINLAND
MINISTRY OF THE ENVIRONMENT
Housing and Building Department

Decree of the Ministry of the Environment

on fire safety of ventilation systems

Adopted in Helsinki, 18 June 2003

Pursuant to the Decision of the Ministry of the Environment, the following guidelines on fire safety of ventilation systems to be applied for building works are enacted pursuant to Section 13 of the Land Use and Building Act (132/1999) adopted on 5 February 1999.

The guideline has been notified in accordance with Directive 98/34/EC of the European Parliament and of the Council as amended by Directive 98/48/EC laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society services.

This Decree shall enter into force on 1 January 2004 and shall repeal the Decision of the Ministry of the Interior adopted on 6 November 1980 on fire safety of ventilation installations (E7). The former guidelines may be applied to applications for permit brought up before effectuation of this Decree.

Helsinki, 18 June 2003

Minister of the Environment Jan-Erik Enestam *Technical Adviser, Building Inspection Jouni Vastamaki*

AN ROINN COMHSHAOIL, OIDHREACHTA AGUS RIALTAIS ÁITIÚIL
DEPARTMENT OF THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT

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Building Regulations 2006

Technical Guidance Document B

Fire Safety

Published by the Stationery Office, Dublin

To be purchased from:

The Government Publications Sale Office

Sun Alliance House

Molesworth Street

Dublin 2.

Price €13.00

Printed on recycled paper containing a minimum of 75% post-consumer waste

AN ROINN COMHSHAOIL, OIDHREACHTA AGUS RIALTAIS ÁITIúIL
DEPARTMENT OF THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT

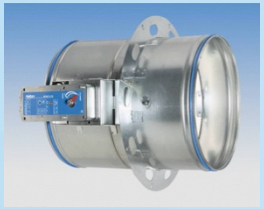
CE marked and approved Fire dampers from Halton

Insulated and Smoke tight EIS rated Fire Dampers

FDI EI ho-ve (I<-->O) S 60

NEW

FDT EI ho-ve (I<-->O) S 60



FDC EI ho-ve (I<-->O) S 120

FDR EI ho-ve (I<-->O) S 120

Smoke tight ES rated Fire Dampers and Fire valve

FDE E ho-ve (I<-->O) S 120

NEW

FDV E ho-ve (I<-->O) S 120

FDS E ho-ve (I<-->O) S 60

FDI European Approved ”Heavy” Round fire damper

- Type-approved and compliant with the EN 1366-2 and EN 13501-3 standards.
- Installation in separating concrete or masonry walls and ceilings
- Possibility of installation on lightweight plasterboard walls.
- Installation on the wall with the blade shaft in either horizontal or vertical orientation.
- Additional duct insulation (for EIS) according to building code.
- Installation in circular ducts with diameter 100…630 mm.
- Installation 1 side access only

Fire resistance classes

EI ve-ho (i<->o) S 60

E ve-ho (i<->o) S 90 in
Concrete ceilings

FDI

Halton INDOORS

Its lightest, its shortest, its easiest to install - no need to go behind the wall

Designer

- Type approved product
- Easy to choose for all installations
- Short construction - Minimum space
- CAD blocs available for accurate design

Installer

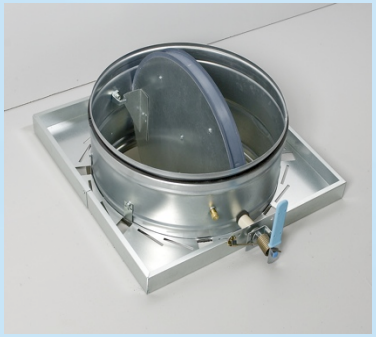
- Fast and easy installation “just 4 screws”
- Light to install,short body construction.
- Easy to order all in one for all installations
- Fire break made in front of fire damper-no need to go behind the wall (shaft)

- **Inspector / authority**
- Easy to acknowledge the right installation
  - frame filled with fire mastic
  - no need to see “inside” the wall
- Type approved for all installations

Distributor

- Small product dimensions minimum slot space required
- Light to transport
- All in one – no need any accessories needed.
- Easy to sell to all installations.

FDI



Halton INDOORS

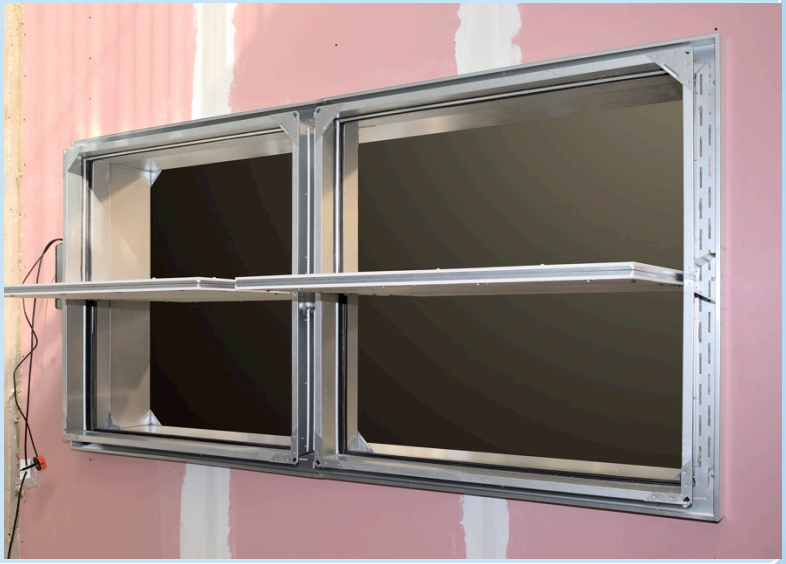
FDT NEW European approved rectangular fire damper

- Type-approved and compliant with the EN 1366-2 and EN 13501-3 standards.
- Installation in separating concrete or masonry walls and ceilings
- Possibility of installation on lightweight plasterboard walls.
- Installation on the wall with the blade shaft in either horizontal or vertical orientation.
- Installation in rectangular ducts with diameter 200x200 up 2100x1000 mm.
- Installation 1 side access only

Fire resistance classes

EI ve-ho (i<->o) S 60

FDT 2100x1000



Halton INDOORS

FDT Its lightest, its easiest to install - no need to go behind the wall

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FDT

- **Inspector / authority**
- Easy to acknowledge the right installation
  - frame filled with fire mastic
  - no need to see “inside” the wall
- Type approved for all installations

FDI and FDT …EI ve-ho (i<->o) S 60 fire dampers

FDI

NEW

FDT

Description

- Type-approved and compliant with the EN 1366-2 and EN 13501-3 standards.
- Fire resistance classes EI ve-ho (i<->o) S 60
- Installation in separating concrete or masonry walls and ceilings
- Possibility of installation on lightweight plasterboard walls.
- Installation on the wall with the blade shaft in either horizontal or vertical orientation.
- FDI Installation in circular ducts with diameter 100…630 mm.
- FDT installation in rectangular ducts up 2100x1000mm and with circular ducts with diameter 630… 1250mm.
- Installation 1 side access only
- Manual and motorised models
- Classification of casing leakage EN 1751 class C.

FDC and FDR …EI ve-ho (i<->o) S 120 fire dampers

FDC

FDR

Description

- Type-approved and compliant with the EN 1366-2 and EN 13501-3 standards.
- Fire resistance classes EI ve-ho (i<->o) S 120
- Installation in separating concrete or masonry walls and ceilings
- Possibility of installation on lightweight plasterboard walls.
- FDC Installation in circular ducts with diameter 160…500 mm.
- FDR installation in rectangular ducts up 1000x1000mm and with circular ducts with diameter 630…1000mm.
- Manual and motorised models
- Classification of casing leakage EN 1751 class C.

FDE and FDS …E ve-ho (i<->o) S 60/S90 fire dampers (non insulate)

FDE

FDS

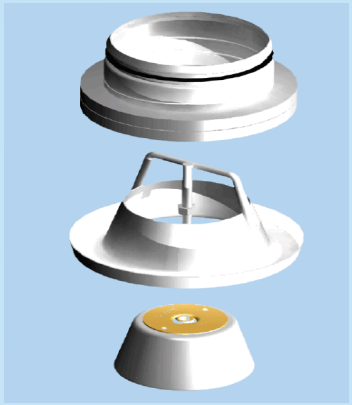
Description

- Type-approved and compliant with the EN 1366-2 and EN 13501-3 standards.
- Fire resistance classes FDE => E ve-ho (i<->o) S 90 or E ve-ho (i<->o) 120
- Fire resistance classes FDS => E ve-ho (i<->o) S 60
- Installation in separating concrete or masonry walls and ceilings
- Installation on the wall with the blade shaft in either horizontal or vertical orientation.
- Possibility of installation on lightweight plasterboard walls.
- FDE Installation in circular ducts with diameter 100…500 mm.
- FDS installation in rectangular ducts up 1500x800mm and with circular ducts with diameter 630… 1000mm.
- Installation 1 side access only
- Classification of casing leakage EN 1751 class C.
- Manual and motorised models (FDS manual model is ready 1.2.2011)

FDV Fire valve Combined exhaust valve and fire damper for circular ducts

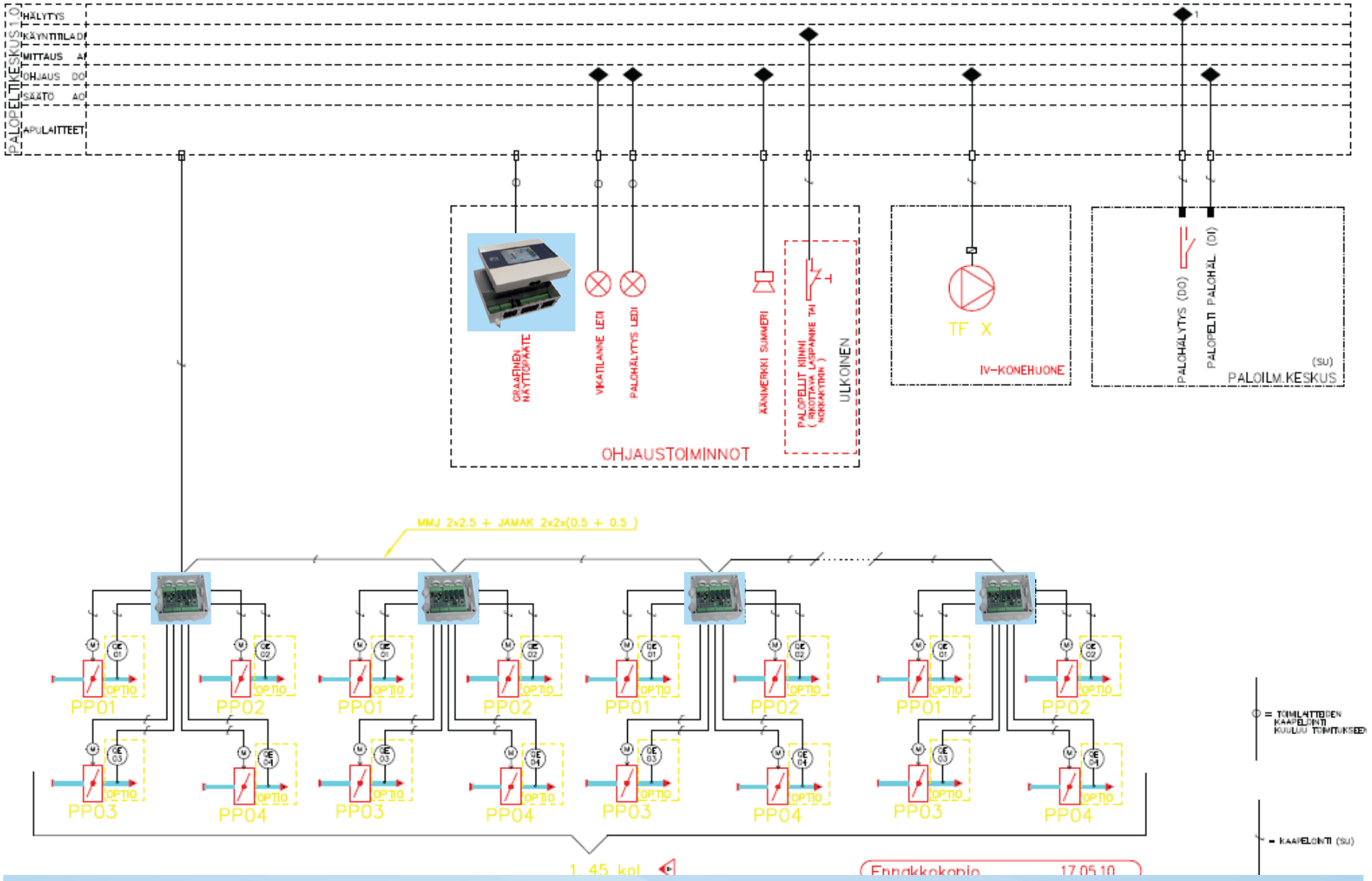
FDV

NEW



Description

- Type-approved and compliant with the EN 1366-2 and EN 13501-3 standards.
- Fire resistance classes ES120, EIS15 on light weight, concrete and masonry wall
- Fire resistance class ES120, EIS30 on concrete slabs.
- Installation in separating concrete or masonry walls and ceilings
- Airflow rate adjustment and measurement facility
- Fire damper/exhaust valve with adjustable pressure loss
- Release temperature of the fuse is +50°C, +72°C or 100 °C
- Installation in circular ducts with diameter 100…200 mm
- Classification of casing leakage EN 1751 class C.



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Ventilation smoke safety!

Smoke Exhaust, General Principles

Fire Safety Solutions | Raimo Parkkila

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Smoke Exhaust, General Principles

Targets:

- Enable safe evacuation
- Make fire fighting easier
- Minimize financial losses

Outcomes:

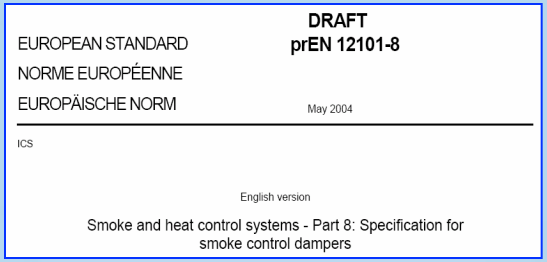
- Reduce pressure in the fire zone
- Reduce Temperature in the fire zone
- Clean air zone at lower level
- Controlled evacuation of the smoke

Function principles (EN 12101-8):

- Automatic (Mechanical)
  - Fully Automatic (30 seconds)
  - with Manual Override (25 minutes)
- Manual/Passive

European Standards for Smoke Control

Product Standard:
FprEN12101-8



DRAFT
prEN 12101-8

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

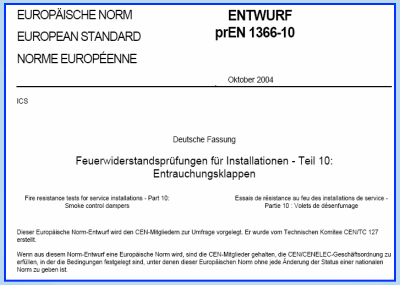
May 2004

ICS

English version

Smoke and heat control systems - Part 8: Specification for smoke control dampers

Test Standard:
FprEN1366-10



EUROPÄISCHE NORM
EUROPEAN STANDARD
NORME EUROPÉENNE

ENTWURF
prEN 1366-10

Oktober 2004

ICS

Deutsche Fassung

Feuerwiderstandsprüfungen für Installationen - Teil 10: Entrauchungsklappen

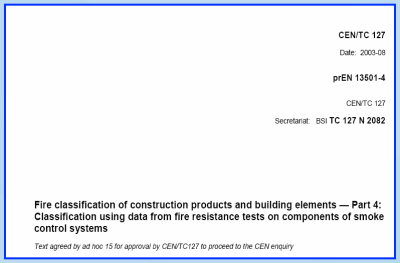
Fire resistance tests for service installations - Part 10: Smoke control dampers

Essais de résistance au feu des installations de service - Partie 10 : Volets de désenfumage

Dieser Europäische Norm-Entwurf wird den CEN-Mitgliedern zur Umfrage vorgelegt. Er wurde vom Technischen Komitee CEN/TC 127 erstellt.

Wenn aus diesem Norm-Entwurf eine Europäische Norm wird, sind die CEN-Mitglieder gehalten, die CEN/CENELEC-Geschäftsordnung zu erfüllen, in der die Bedingungen festgelegt sind, unter denen dieser Europäischen Norm ohne jede Änderung der Status einer nationalen Norm zu geben ist.

Classification Standard:
FprEN13501-4



CEN/TC 127

Date: 2003-08

prEN 13501-4

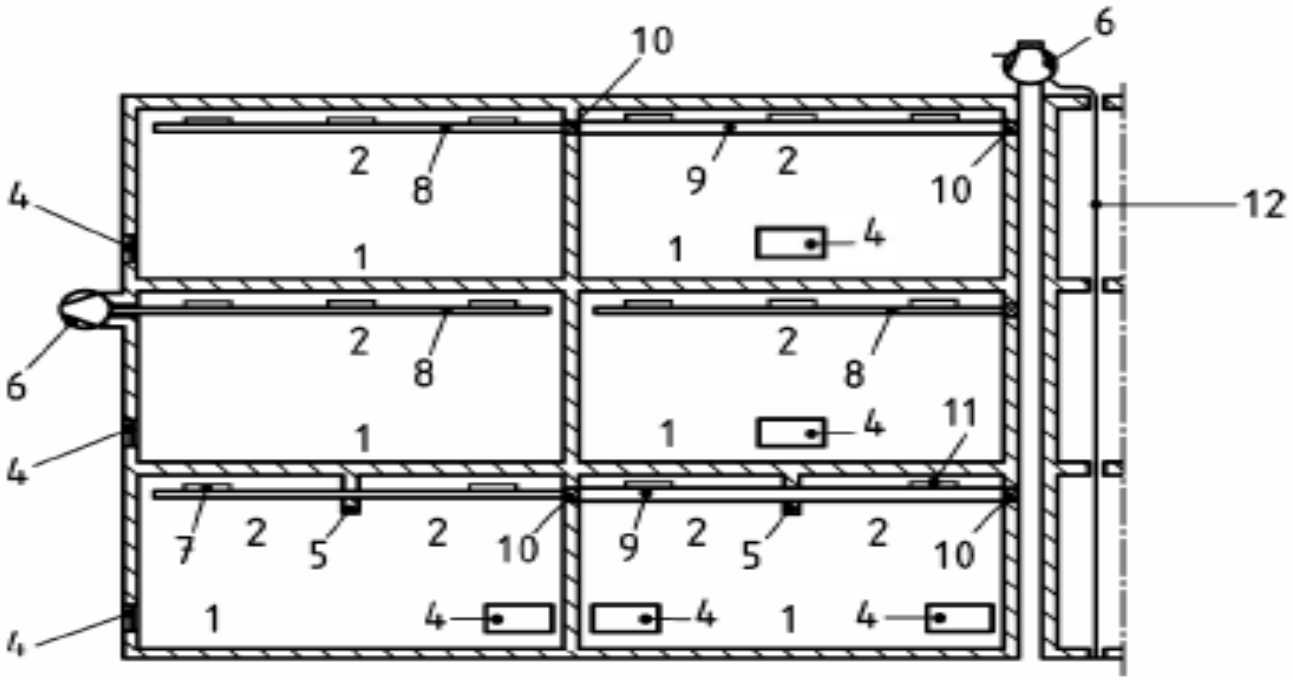
CEN/TC 127

Secretariat: BSI TC 127 N 2082

Fire classification of construction products and building elements — Part 4: Classification using data from fire resistance tests on components of smoke control systems

Text agreed by ad hoc 15 for approval by CEN/TC127 to proceed to the CEN enquiry

Future smoke control dampers prEN 12101-8



Key

1 Fire compartment
2 Smoke reservoir
4 Air inlet
5 Smoke barrier
6 Powered smoke and heat exhaust ventilator (fan)
7 Smoke control dampers for single compartments (EN12101-8 and EN1366-10)
8 Smoke control ducts for single compartments (EN12101-7 and EN1366-9)
9 Smoke control ducts for multi compartments (EN12101-7 and EN1366-8)
10 Smoke control dampers for multi compartments (EN12101-8 and EN1366-10) mounted inside or outside of wall or floor
11 Smoke control dampers for multi compartments (EN12101-8 and EN1366-10) mounted on the surface of the duct
12 Electrical equipment

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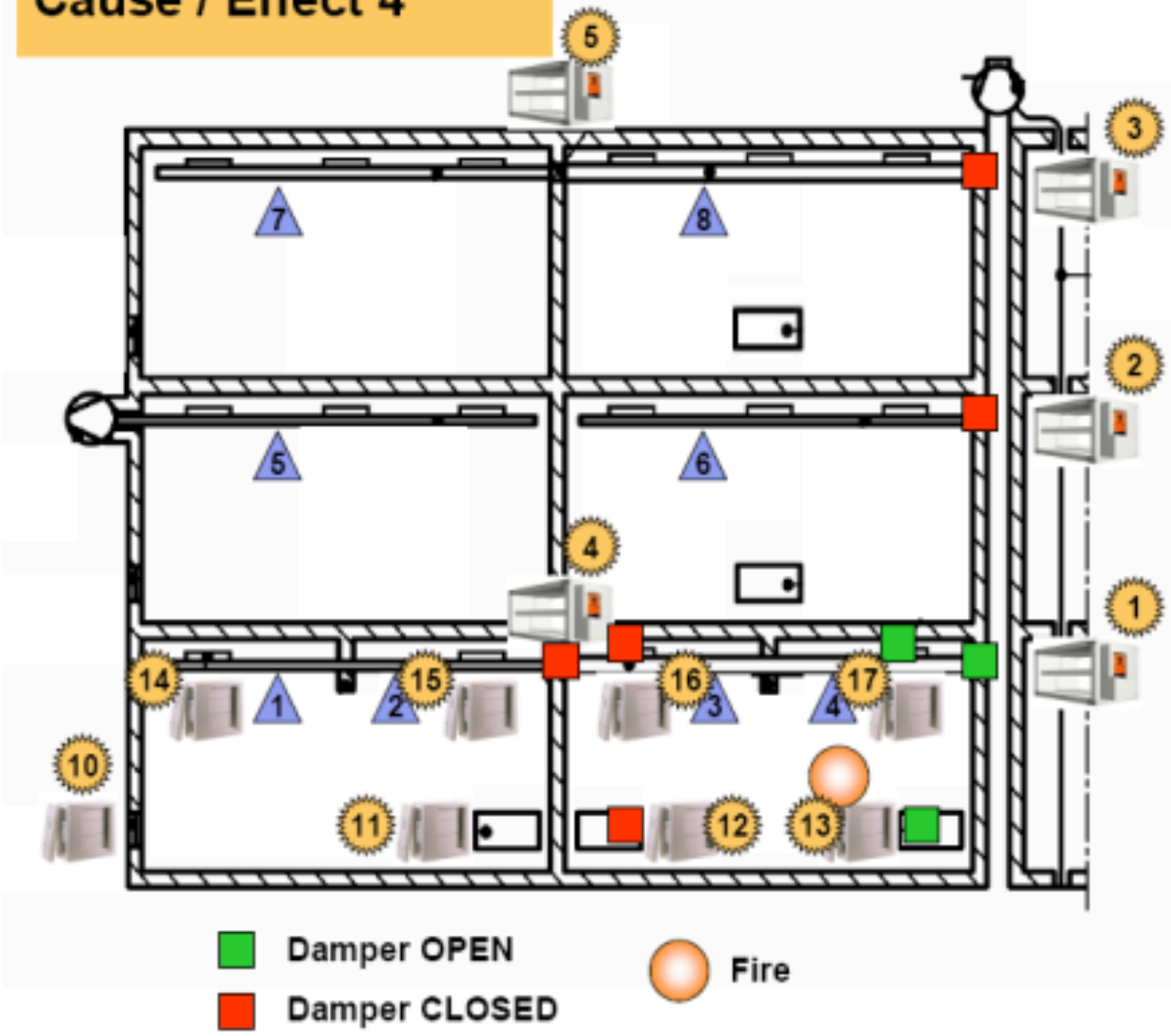
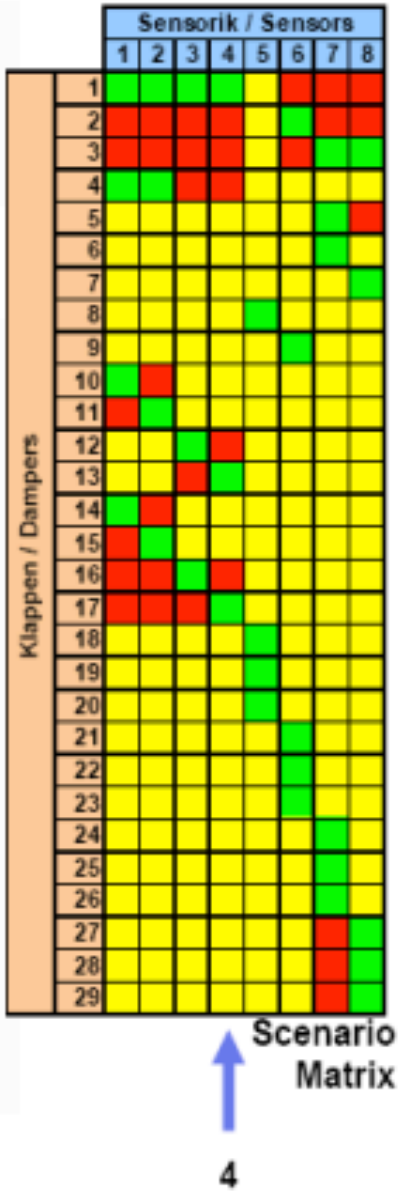
Cause / Effect 4





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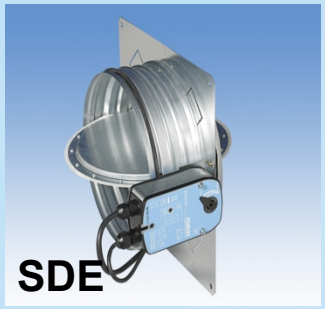
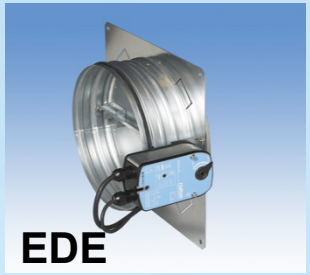
Halton Smoke & Smoke exhaust dampers

- **Smoke dampers** (safety position is closed)



- **Smoke Exhaust dampers** (safety position is open)



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EDE and EDS exhaust dampers

EDE

EDS

Description

- Construction based on type approved EN rated non insulated fire dampers
- Dampers in closed position keep tight also in extended temperatures
- Installation in separating concrete or masonry walls and ceilings
- Installation on the wall with the blade shaft in either horizontal or vertical orientation.
- Possibility of installation on lightweight plasterboard walls.
- EDE Installation in circular ducts with diameter 100…500 mm.
- EDS installation in rectangular ducts up 1500x800mm and with circular ducts with diameter 630… 1000mm.
- Installation 1 side access only
- Supplied with electrical motor without fuse, safety (power-off) position *open* with a spring

SDE and SDS Smoke dampers

SDE

SDS

Description

- Construction based on type approved EN rated non insulated fire dampers
- Type approved in Sweden as fire-gas dampers and in Russia
- ES rating guarantees immediate tightness at closing
- Installation in separating concrete or masonry walls and ceilings
- Installation on the wall with the blade shaft in either horizontal or vertical orientation.
- Possibility of installation on lightweight plasterboard walls.
- SDE Installation in circular ducts with diameter 100…500 mm.
- SDS installation in rectangular ducts up 1500x800mm and with circular ducts with diameter 630… 1000mm.
- Installation 1 side access only
- Supplied with electrical motor without fuse, safety (power-off) position *closed* with a spring

Fire and Smoke dampers – case of ”Better safe than sorry”?

Thanks !

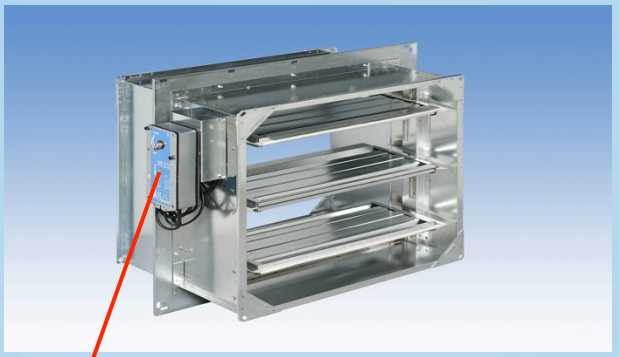
Fire Safety Solutions | Raimo Parkkila

Halton INDOORS

The new products: Automatic Activation (EN 1366-10)

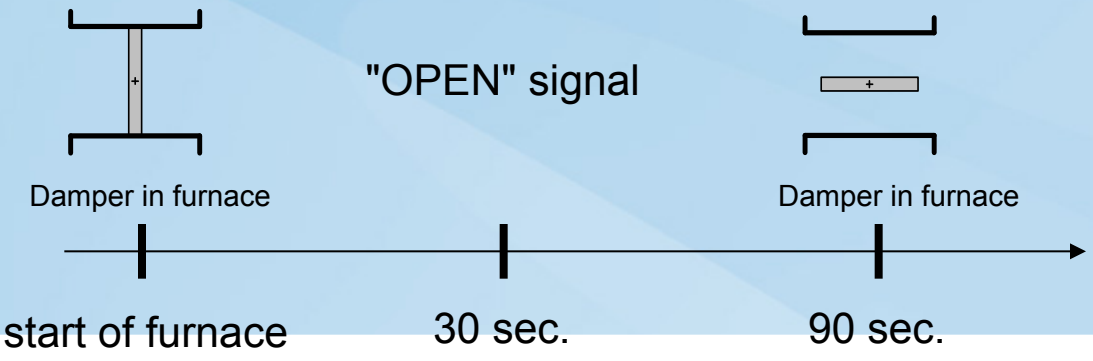
12101-8/ 4.3.1single compartment => E class

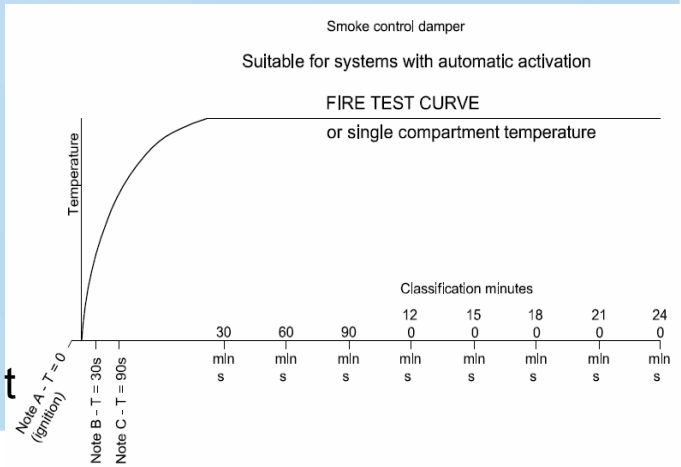
12101-8/ 4.4.2 multi compartment fire resisting => class EI or E



Actuator thermally not insulated,
Actuator opens before heat destroy cable and actuator.

Test procedure:





"single compartment temperature" 600 C 12101-8/4.3.

Halton INDOORS

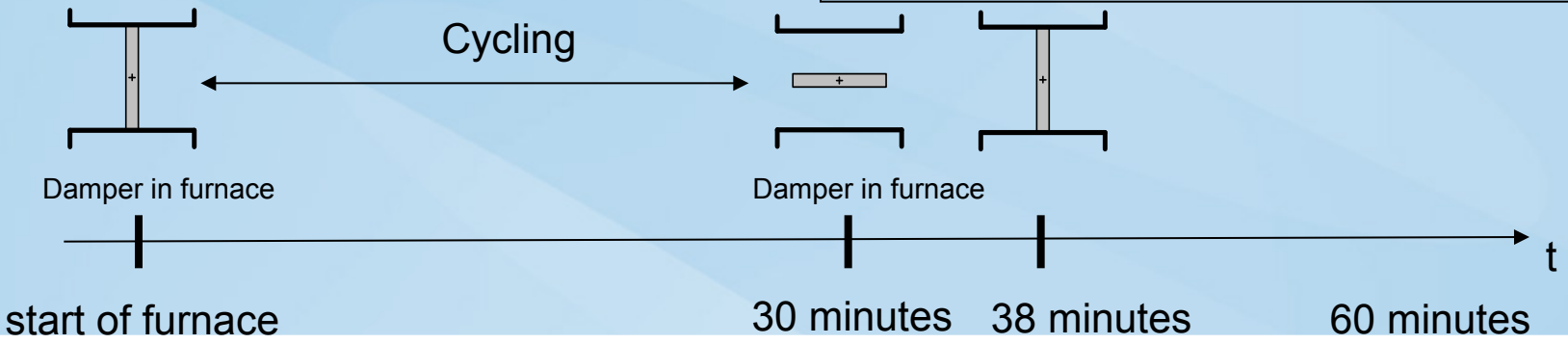
The new products: HOT400 (prEN 1366-10)
for multi compartment fire resisting smoke control damper

Actuator thermally insulated!

Temperature rice up 400 C and damper open and close every 150 s during 30 min. Then damper are closed and temperature raised up 877 C.

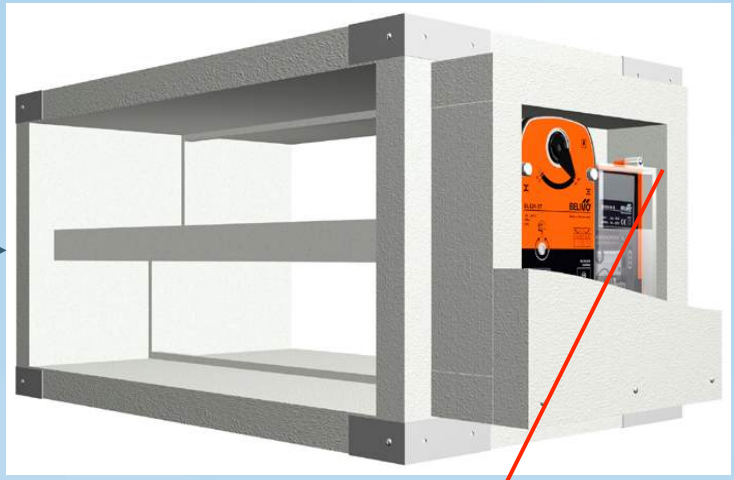
Test continuing until 60 minutes.

Test procedure:



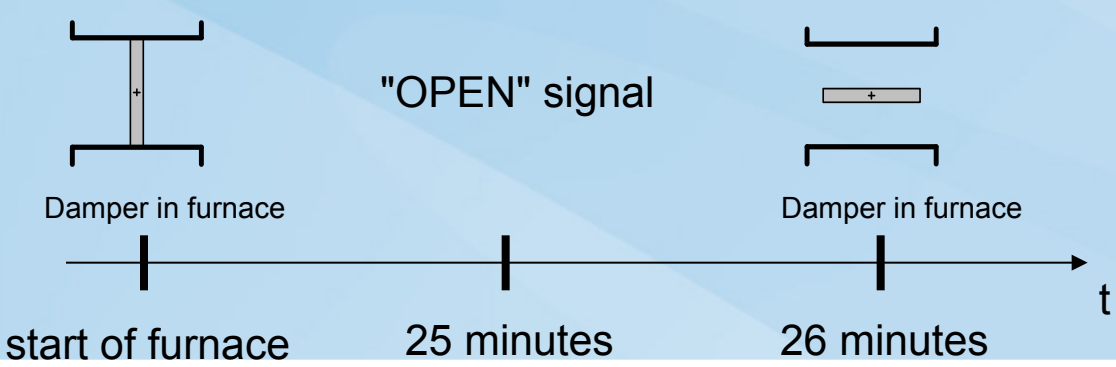
Halton INDOORS

The new products: Manual Intervention (prEN 1366-10)



Actuator thermally insulated!

Test procedure:



After 25 minutes damper will opened.

Temperature 600 C 12101-8/4.3. b)

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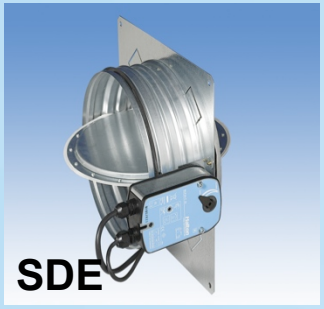
Halton tuotteet palon ja savunrajoittamiseen

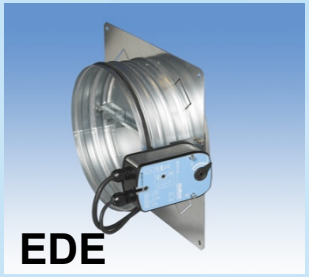
- Savu/savunpoistopellit



SDE

SDS

- Savu/korvausilmapellit



EDE

EDS

- Savunhallintapelti (smoke control damper)

SHP

Halton INDOORS

The new niche products: VAV- fire dampers

FDI+MSD+BLF24v-V-T+VRD3

FDE+MSD+BLF24v-V-T+VRD3

Description:

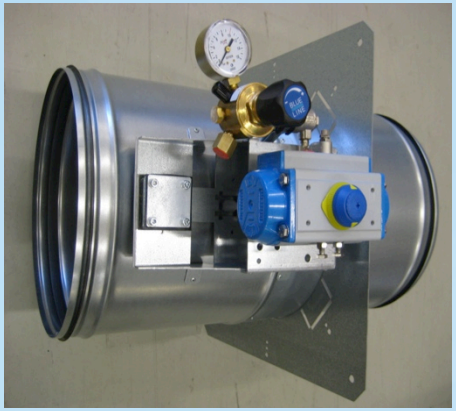
Combined products its normally VAV damper and in case of fire its closed.

Use and application:

Eg. Hotels where the hotel room is one fire cone.

The new niche products: Pressure release fire damper

ODC+AT101+decompression valve



ODR+AT101+decompression valve

Description:

Its fire damper

- with pneumatic actuator
- With decompression valve (200Bar)
- without fuse

Use and application:

It room/computer room In case of fire extinguishing gas (CO_2) will open pressure release fire damper and make sure that walls doesn't collapse. (let the oxygen away from room)

Limiting the spread of Smoke – with Smoke Dampers
Hotel/Hospital/Care Home Floor Plan

A Smoke dampers at each Guest room

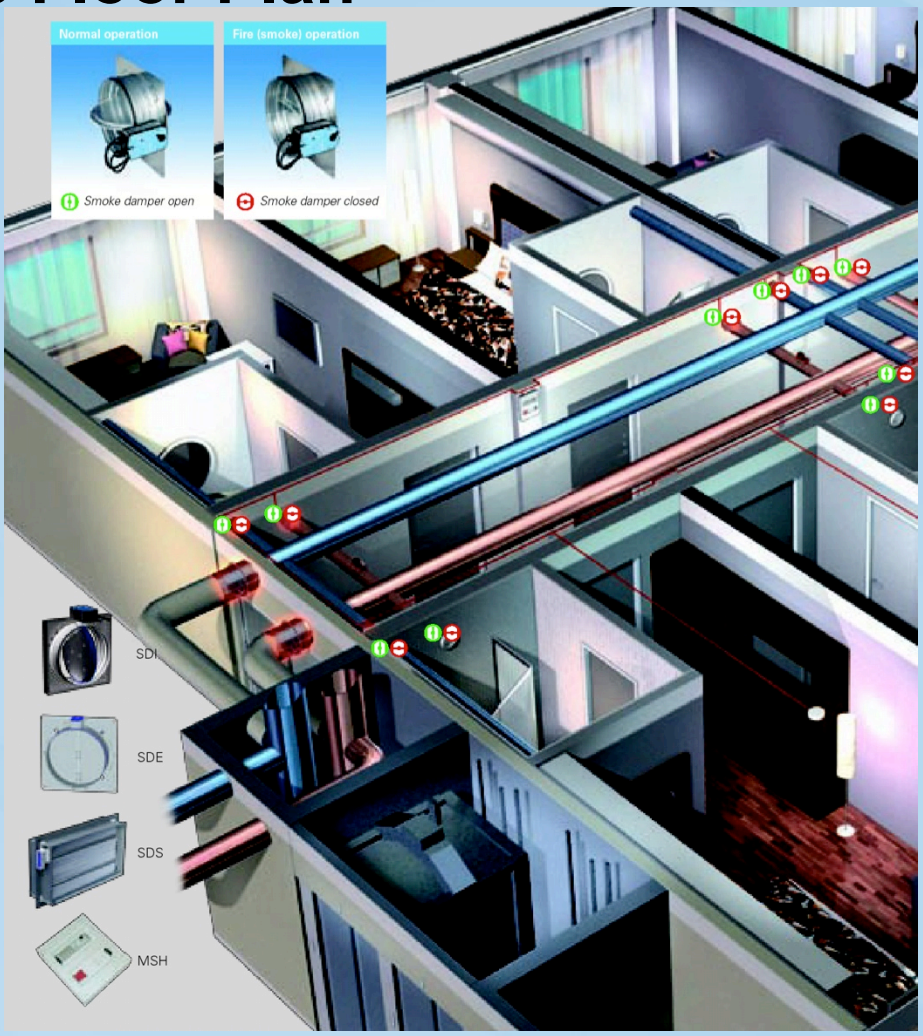
B In the case of fire:

1. All smoke dampers are closed

2. Fans and fire dampers react only if the fire spreads

Advantages:

- Spread of smoke to other cells minimized
- Evacuation easier
- Ventilation system protected



Halton INDOORS

EU Commission Decisions and Guidance Papers

The relevant EU Commission Decisions may be downloaded directly from the European Commission web site at;

http://europa.eu.int/comm/enterprise/construction/internal/essreq/fire/frg/firedec.htm

The relevant EU Commission Guidance papers may also be downloaded directly from the European Commission web site at;

http://europa.eu.int/comm/enterprise/construction/internal/guidpap/guidpap.htm

Harmonised product standards

A list of the harmonised product standards prepared from mandates issued by the European Commission under the CPD can be found on the NSAI website at www.nsai.ie

Halton Safe

Description:

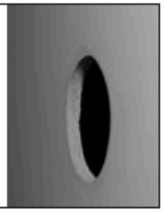
Fire and smoke damper management system
Operate up 200 fire or smoke dampers
Operate up 200 smoke detectors
User ethernet cables
Can be programmed of scenario matrix
Remote control via 3G modem

Halton INDOORS

The FDI fire damper is installed on walls or ceilings between fire compartments penetrated by the air inlet. The fire resistance class when the damper is installed through masonry walls or lightweight panel walls is EIS 60. In installation through masonry plates, it is EIS 60 or ES 90.

1

The maximum size of the installation opening on masonry structures is the duct diameter + 20 mm.



2 When installing the fire damper on lightweight panel walls, cut a round installation hole that is as close to the size of the duct as possible. The opening must not be larger than the duct diameter + 20 mm. A steel frame or a wooden joist must be mounted on the edges of the opening.

3

Cover the wall with a sheet, to achieve the required fire resistance time.

4

Fill the corners with a mineral wool that corresponds to the insulation of the wall, min. 40 kg/m³. The wool must reach the product along its entire perimeter.

5

For thick structures, the duct joint must be made before the product is placed on the opening in the structural element.

6

Fix the fire damper in the middle of the opening. Fasten the damper via the installation flange to the steel frame or wooden joist with screws or an 8-mm wedge anchor. Ensure the correct operation of the product before applying fire prevention mastic.

7 The position of the blade shaft is not limited. NOTE: For wall installations, the fuse for sizes Ø 400, 500, and 630 must be positioned at the centre line of the duct or above. If the manual actuator is installed below the centre line, the fuse must be moved to the opposite side of the manual actuator. Detach the fuse by the setting handle.

8

Remove the screw from the fuse's alternative location, and attach the fuse in place of the screw.

9

Insert the screw in the place of the original fuse.

10

To set the manually operated model, loosen the fuse (turn anticlockwise).

11

Lock the shutoff blade in open position by tightening the fuse (clockwise). If the shut-off blade does not lock, the fuse has to be worn out and replaced

12 Cover the actuator and fire damper while applying the fire prevention mastic. To achieve non-combustibility, the casing is filled to the edges with a type-approved fire prevention mastic, such as GBG (Palokatkomiehet Oy), CB 637 (Hilti), or Firebreak compound (Würth).

13 The fuse is installed either on the same side as the actuator or on the opposite side of the wall. Drill an approximately 10-mm hole, and attach the fuse to the duct with screws. Note the space required by the turning blade.

14

The electric actuator model can be tested when the power is on, by means of the fuse switch.

15

When the power is off, the electric actuator model can be tested manually by using a hexagonal spanner (included in the delivery).

2008.08

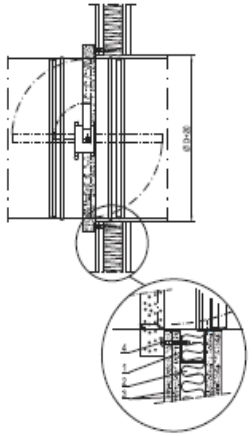
FDI/SDI

INSTALLATION INSTRUCTIONS AND CERTIFICATE

www.halton.com

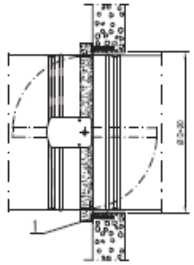
Halton
CARE FOR INDOOR AIR

Example of installation on a lightweight plasterboard wall.



1. Frame
2. Mineral wool, min. 40 kg/m³
3. Gypsum boards
4. Mounting screw

Example of installation on a concrete and masonry wall or ceiling.

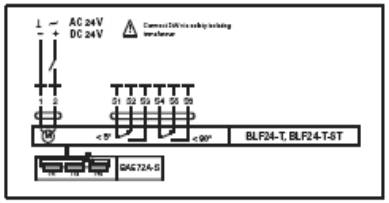


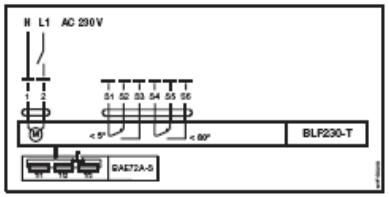
1. Mounting screw / metal wedge anchor

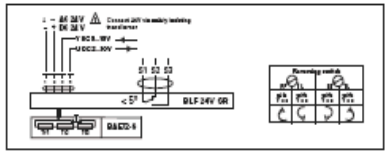
16

When fire dampers are installed side by side, the opposing metal edges of the casing can be removed, and the fire prevention mastic can be applied as shown in the figure. Fasten the damper via the installation flange to the steel frame or wooden joist with screws or to the masonry structure with 8-mm wedge anchors before applying the fire prevention mastic.

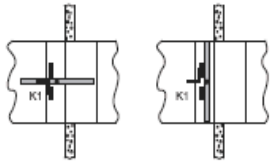
Electrical actuator wiring diagram







Manual actuator wiring diagram



Damper open
K1:13/14 closed,
21/22 open

Damper closed
K1:13/14 open,
21/22 closed

INSTALLATION CERTIFICATE **Halton** version 1.0 (09.06.08)

An installation certificate form must be completed when installing fire and smoke dampers.
A separate certificate must be filled in for each fire and smoke damper.
This installation certificate applies only to Halton products

FDI/SDI

FDI type approval decision number: YM61/6221/2008
The SDI is a motorised model and has no fuse (SITAC)

Name of the installation location: _____
Address: _____
_____
Individual product number from the type plate (production order no.): _____
Performance number of the fire damper fuse: _____

Installed by:

Company name: _____
Address: _____
Company telephone no.: _____
E-mail or Web address: _____
Installer's telephone no.: _____
Installer name(s): _____
Date of installation: _____
Installation location identification (section/floor/room): _____
Notes and considerations: _____
_____
_____
_____

I hereby verify that the installation of this fire damper, the tightness of the gland, and the product (manual and/or electric) testing have been performed according to the manufacturer's installation instructions:

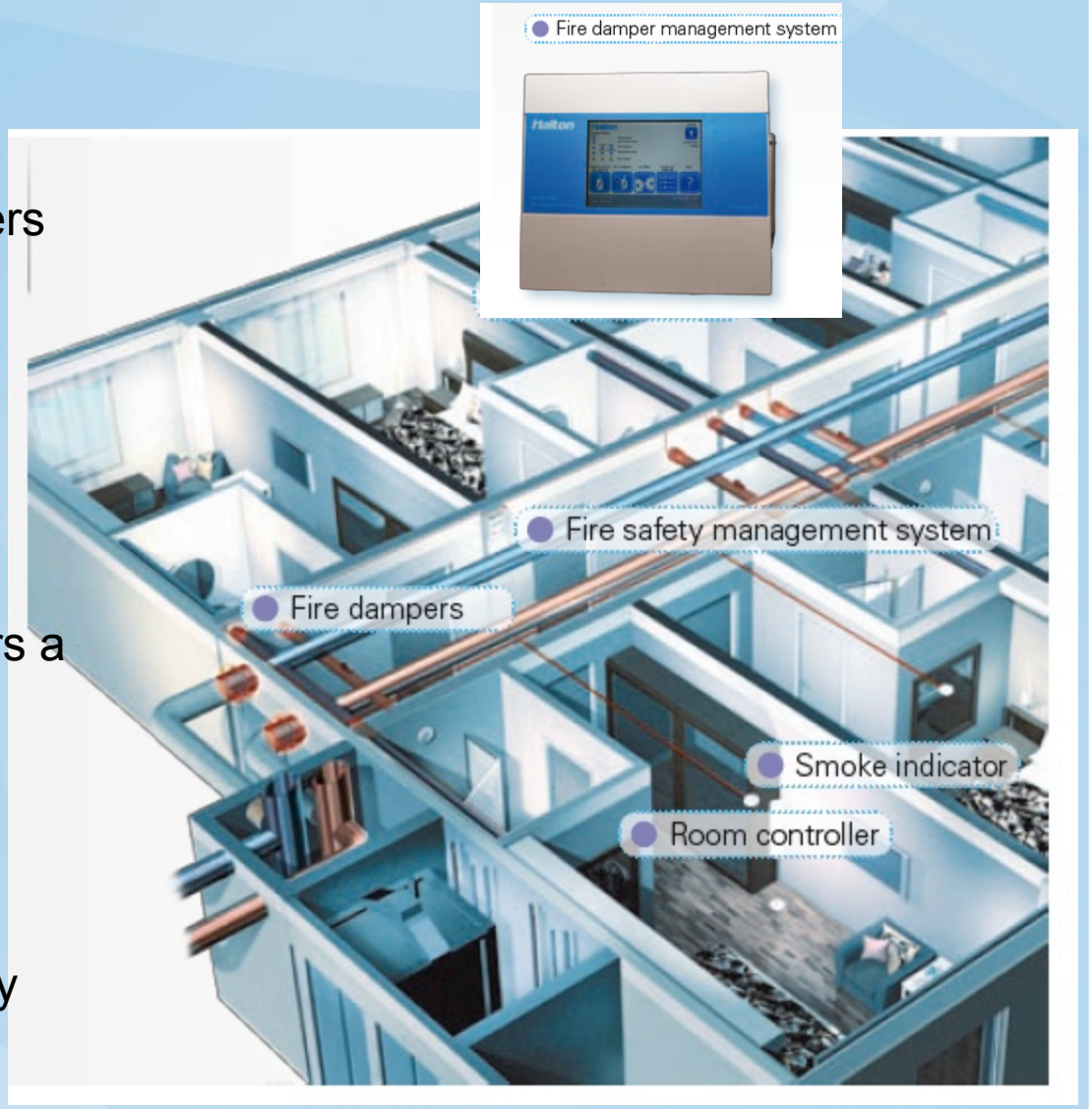
Place and date: _____ , on _____ , 20____ _____

Installer's name and signature: _____
Installation supervisor's name and signature: _____

This installation certificate must be enclosed with the deed of transfer of the building in question, and a copy of it must be given to rescue officials upon request.

Ventilation fire safety

The fire compartment is isolated quickly by means of smoke detectors. Fire and smoke dampers close, and smoke evacuation dampers and fresh-air paths are opened in the fire compartment, to keep escape and emergency routes free of smoke. Halton offers a ventilation fire safety system for the entire hotel, for the safety of the clients, staff, and the facility itself. The system can be remotely monitored, in order to cause the least disturbance to guests.



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Thanks !

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