

**Dräger**

# Smoke Hoods

## Use in high rise residential blocks

### When every second counts

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**Tall Building Fire Safety Conference**

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**May 19, 2022**

# Agenda



## Item 01

Fire Statistics & Fires in High-Rise Buildings

## Item 02

What is an Escape Hood & What to look for in an Escape Hood

## Item 03

Escape Hoods in Regulated Use Today

## Item 04

Questions & Open Discussion

01

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# Fire Statistics & Fires in High-Rise Buildings

A photograph of firefighters in full protective gear, including helmets and oxygen tanks, kneeling on a tiled floor in a room filled with thick smoke and intense orange and yellow flames. The scene is dramatic and highlights the danger of firefighting.

Between 1993 and 2019, there was a  
total of 3.1 million reported fires around the  
world with 19.2 thousand recorded  
fire deaths.

- CTIF World Fire Statistics 2021

# Fire Statistics

— **354,400**

2019 National Estimates  
of residential fires in the  
USA<sup>1</sup>

- *US Fire Administration  
Residential Building Fire Trends  
(2010-2019)*

**14,500**

(2009 – 2013) Average  
number of structure fires  
in high-rise buildings.  
Causing an average of 40  
civilian death and 520  
civilian fire injuries<sup>2</sup>.

- *NFPA U.S. High-Rise Building  
Fires Fact Sheet.*

— **145,208**

Number of fires Fire  
Services attended in  
England (year ending  
Sept 21)<sup>3</sup>

- *Gov.uk*

**772**

of these fires in the  
UK were in high-rise  
buildings  
(10+ story)<sup>3</sup>.

- *Gov.uk*

# Major Fires in Tall Buildings



**1945**  
**Empire State Building**  
**11 casualties**



**1974**  
**Joellema Building**  
**227 casualties**



**9/11/2001**  
**Twin Towers**  
**2,606 casualties**



**6/14/2017**  
**Grenfell Tower**  
**72 casualties**



**Jan 2022**

Fire in the Bronx, NYC  
19 casualties (smoke inhalation)

**Feb. 22, 2022**

Fire in Essen, Germany  
0 casualties

## Recent Fires in Tall Buildings

**Top Fire Safety Issues in high-rise buildings\*:**

- 1.) Construction of the Building
- 2.) Evacuation of People

\* According to a study from 2018 titled Fire safety issues in the design and construction of high-rise buildings.



02

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## **What is an Escape Hood & What to look for in an Escape Hood**

# What is a Smoke Hood?

## SMOKE HOOD



Device covering head and face.

Visor for view during escape.

Filter protects the wearer from carbon monoxide and fire related gases.

## Definition:

A smoke hood is a hood wherein a bag seals around the head of the wearer while a filter held in the mouth connects to the outside atmosphere and is used to breathe. Smoke hoods are intended to protect victims of fire from the effects of smoke inhalation\*.

\* Source: Wikipedia

# What to look for in an escape hood

01

Ease of use

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02

Type of filter for hazards

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03

Approvals / certification

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04

Protection for unused filters / hoods

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05

Total service lifetime

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06

Carrying / storage / packaging options

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# PARAT® Filtering Escape Devices: Fire Escape Standards & Regulations

## EN 403:2004

- This European standard is valid for hooded filtering escape devices for the individual escape from particles, carbon monoxide and other fire-related gases.
- The standard defines the minimal requirements for an escape unit (e.g. min. 15 minutes of escape time), the scope of its purpose (e.g. definition as single use only) and describes the required tests and markings.
- This standard is not valid for escape devices, which can be used in case of oxygen deficiency  
→ O<sub>2</sub> concentration >17% (e.g. oxygen supplying escape devices Oxy / Saver)
- This standard is not valid for working devices.

### Tested gas capacity:

Test gas	Test gas concentration (ppm)	Breakthrough concentration (ppm)
Propenol (Acrolein)	100	0.5
Hydrogen Chloride (HCl)	1,000	5
Hydrocyanic Acid	400	10
Carbon Monoxide	2,500	200
"	5,000	
"	7,500	
"	10,000	

NO standard =  
no guaranteed protection

# Dräger PARAT® Escape Hoods

## Examples of victim rescue with fire services



# Escape Hoods in Use



“A West Midlands Fire Service spokesman said: ‘A man’s been rescued using one of our fire escape hoods this lunchtime (18 Jan). The call came in at 12.20pm.’”



“A woman was trapped by the nature of the fire on the 17th floor. She was given fire survival advice by control officers until firefighters located her. Fire crews used a fire escape hood to help lead the woman to safety via the internal staircase.”



“These hoods will also provide firefighters with vital extra time to consider their priorities and plan the safest exit route, as opposed to simply getting people out as quickly as possible.”



“Fifteen minutes of protection against toxic smoke can make the difference between life and death. We would always prefer an escape route away from smoke, but that isn’t always possible.”

# Dräger PARAT® Escape Hoods

## Examples of victim rescue with fire services



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## Escape Hoods in Regulated Use Today

# Active Markets for Escape Hoods

## Oil & Gas / Chemical



### Key Application(s):



1.) Operational use:  
→ Chemical / Fire escape



2.) Offshore accommodation:  
→ Fire escape



3.) Administrative buildings:  
→ Fire escape



# Active Markets for Escape Hoods Fire Services (Regional)

## Key Application(s):



### 1.) Victim Rescue:

→ Fire escape

(trend to Fire+Chemical)

## Extinguishing vehicles in Germany require:

DIN 14530-5 (LF10) / DIN 14530-26 (HLF 10)

- two escape hoods acc. EN 403

DIN 14530-11 (LF20) / DIN 14530-27 (HLF20)

- four escape hoods acc. EN 403

Similar requirements in NL, AU & CH.

In 2018 London Fire Brigade implemented use of Fire Escape Hoods, all other brigades in UK followed suit.



# Target Markets & Applications for Escape Hoods

## Hospitals & Retirement / Care Homes



### Key Application(s):



Every 14 days a fire occurs in a hospital and every 7 days in a care home – killing 25 patients / residents and injuring 232 further people\*.

\* Study from Hr. Klaus Wichert

### 1.) Fire escape

→ Patient / Personnel rescue

Wall placement/nurses stations/  
stocked

Mainly CO-P fire escape

Österreichischer Bundesfeuerwehrverband	Die österreichischen Brandverhütungsstellen	TRVB N 133
TECHNISCHE RICHTLINIEN VORBEUGENDER BRANDSCHUTZ		
..		

Es sind mindestens 40 Stück Fluchtfiltermasken zur Verwendung durch die Feuerwehr auf einer sofort

TRVB N 133 05

# Target Markets & Applications for Escape Hoods

Administrative (Financial institutions/ Insurance / Public Sector)



**Key Application(s):**



**1.) Administrative buildings →  
Fire escape.**

*Wall-mounted or desk placement*

**Individual projects, no general regulation.**  
*In the financial sector for companies working in high rise buildings e.g. New York, individual companies implemented the use of escape hoods in the buildings. Trend toward heightening awareness.*

# Escape hood potential applications in High-rise buildings



**University Buildings and Accommodation**



**Hospitals**



**Administration/Office Buildings**



**Residential High-Rise Flats**



**Hotels\***



**Airport Traffic Control Towers**



**Power Stations**



**Government Buildings**

\* Use of Escape Hoods in Hotels is regulated in China.

Upgrade PARAT Escape Hoods.



**PARAT® Escape Hoods -  
When every second counts**

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## Questions & Discussion

*Any*  
questions?

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Visit our  
stand for  
further  
information

# Many thanks

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