

Progress with Sprinkler Systems

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Organizadores / Organizers

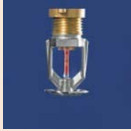


FUNDACIÓN **MAPFRE**

Madrid, 20 – 22 de Febrero de 2013
Centro de Convenciones Mapfre

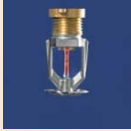
Agenda

Agenda



European Sprinkler Market

Agenda

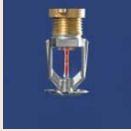


European Sprinkler Market



Review of Legislative Incentives for Sprinklers

Agenda



European Sprinkler Market



Review of Legislative Incentives for Sprinklers



European Sprinkler Standards



EUROPEAN SPRINKLER MARKET

European Sprinkler Market

Country	Sprinklers in millions	
	IFSA 2007	EFSN 2012
Germany	2.8	3.4
Russia & Eastern Europe	2.5	2.2
United Kingdom & Ireland	2.2	1.7
France	1.6	1.5
Nordic	1.4	1.4
Benelux	1.3	1.0
Spain & Portugal	1.2	0.7
Italy	0.9	0.6
Austria & Switzerland	0.7	0.9
TOTAL	14.6	13.4



REVIEW OF LEGISLATIVE INCENTIVES FOR SPRINKLERS

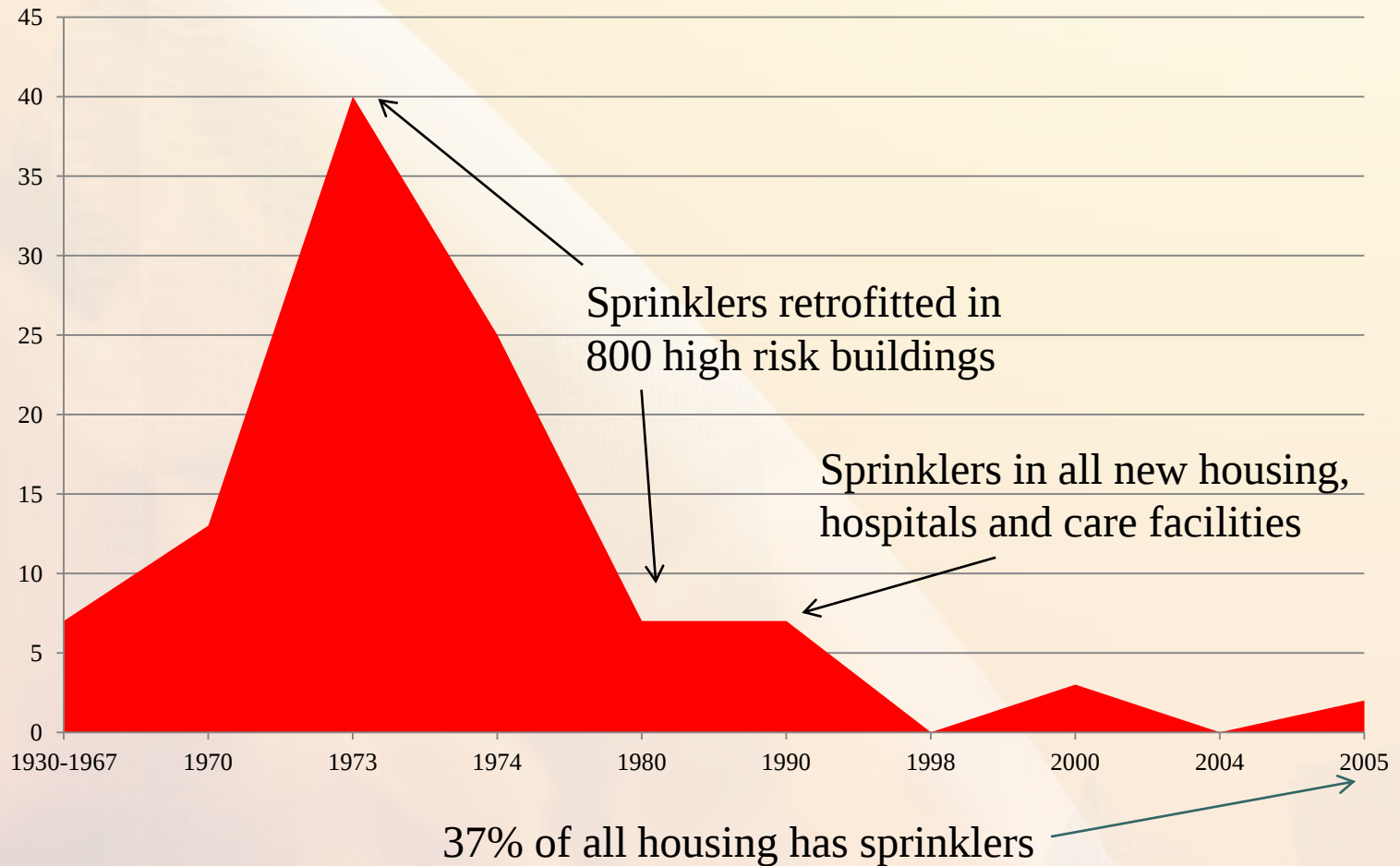
Arguments for legislative incentives

- ❖ *Life safety* – the purpose of most sprinkler mandates
- ❖ *Environmental protection* – large fires which cannot quickly be extinguished by fire-fighters can cause significant environmental damage
- ❖ *Property protection* – destruction of property also destroys employment and societal infrastructure (e.g. schools, shops, car parks, theatres)

Life Safety

- ❖ Sprinklers respond quickly to heat
- ❖ Prevent fire spread outside room of origin
- ❖ Much smaller fire so less toxic gases
- ❖ Temperatures remain survivable
- ❖ Fire often extinguished
- ❖ Usually maintain tenability in room of fire origin

Fire Deaths in Vancouver



An Economic and Moral Case

NIST economic case for sprinklers in new houses

NISTIR 7451



U.S. Department of Commerce
National Institute of Standards and Technology

Office of Applied Economics
Building and Fire Research Laboratory
Gaithersburg, Maryland 20899

Benefit-Cost Analysis of Residential Fire Sprinkler Systems

David T. Butry
M. Hayden Brown
Sieglinde K. Fuller



An Economic and Moral Case

**Study for NFPA found
house-building not
adversely impacted by
sprinkler ordinances**



National Fire Protection Association
The authority on fire, electrical, and building safety

*Comparative Analysis of Housing Cost
and Supply Impacts of Sprinkler Ordinances
at the Community Level*

*Final Report
June 2009*

An Economic and Moral Case

**Study by BRE for Chief Fire Officers' Association in UK
found economic case for sprinklers in new apartments
and care homes**

**Cost benefit analysis of residential sprinklers
1st March 2012 Client report number 264227**

Environment

Warehouse fires extinguished by sprinklers



Environment

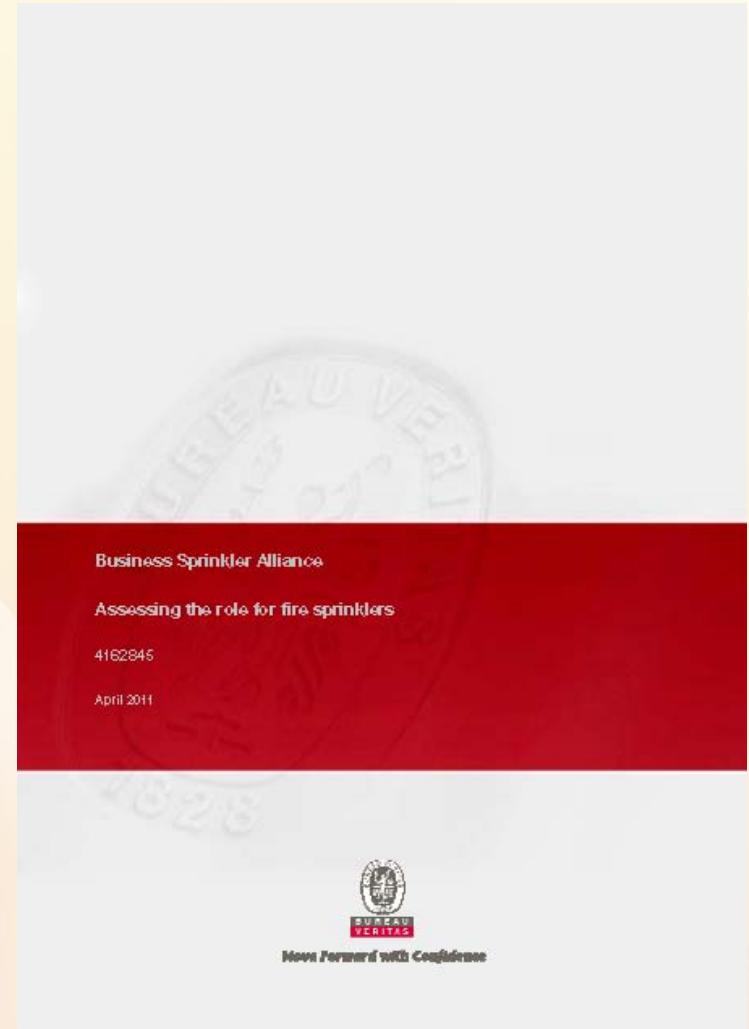
A warehouse fire without sprinklers



Sprinklers protect the environment

**Bureau Veritas report for
Business Sprinkler Alliance
shows environmental case for
sprinklers in warehouses and
factories**

www.business-sprinkler-alliance.org



Property protection – sprinklers reduce fire damage

- ❖ Respond before arrival of fire brigade
- ❖ Fire is still small and is not allowed to grow
- ❖ Less water is needed to deal with a small fire
- ❖ Average fire damage is reduced by over 85%
 - Scottsdale (88% commercial buildings; 96% residential)
 - Vancouver (92% residential)
 - NFPA (42% residential; 67% manufacturing)

Legislative incentives – Shopping Centres

Criterion	Country
All	Scotland, Switzerland
>1,000m ²	Czech Republic, Netherlands*
>1,500m ²	Lithuania, Spain
>1,800m ²	Norway
>2,000m ²	Belgium, Denmark, England
>2,500m ²	Greece
>3,000m ²	France, Germany, Luxembourg
>4,000m ²	Ireland
>8,000m ²	Hungary
>10,000m ²	Poland
>1,000 people	Portugal

Legislative incentives – Hotels



A sprinklered hotel fire

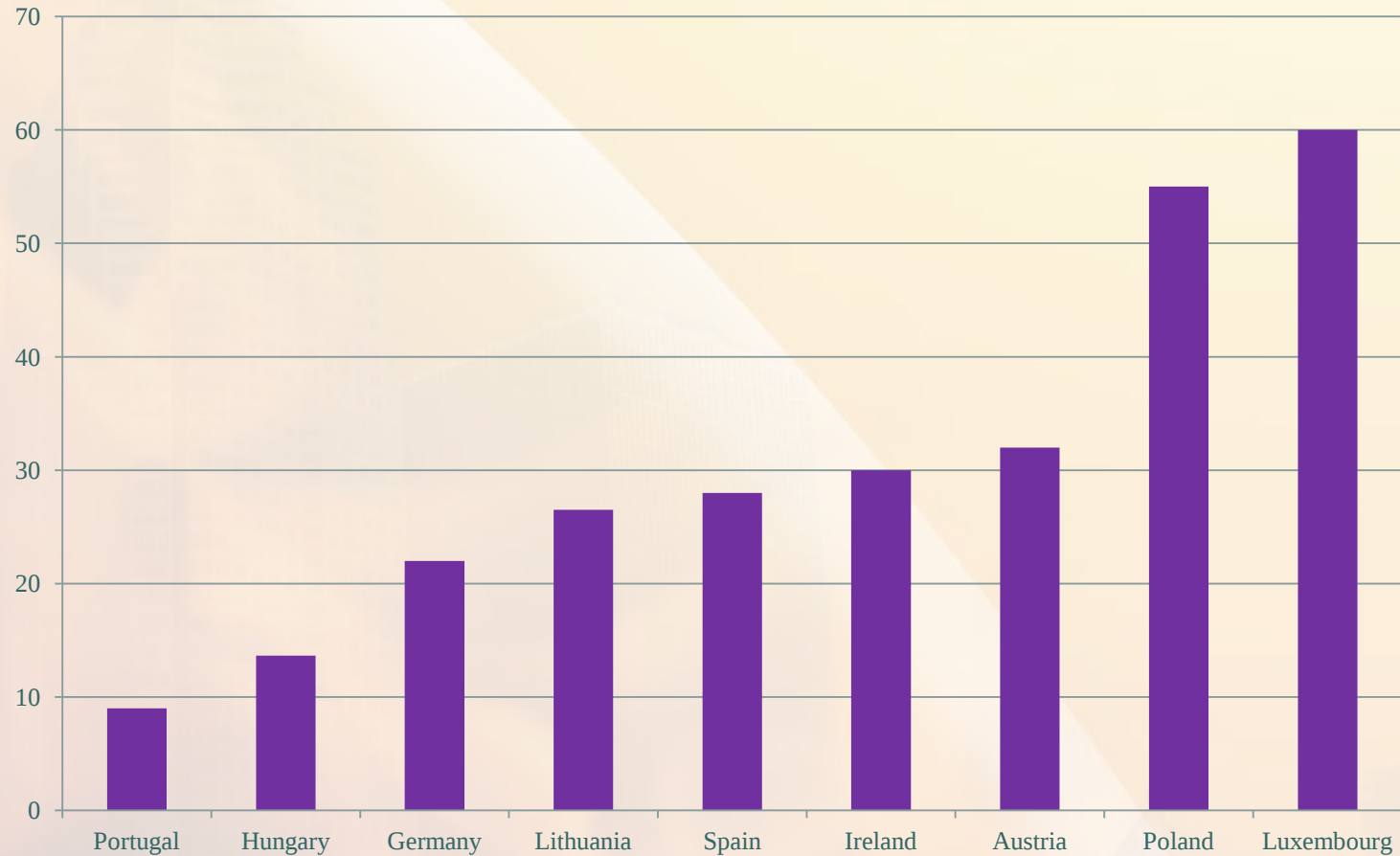


Legislative Incentives - Hotels

Criterion	Country
All	Norway
>9m	Portugal
>13.65m	Hungary
>22m	Germany
>26.5m	Lithuania
>28m	Greece, Spain
>30m	Czech Republic, Ireland*
>32m	Austria
>55m	Poland
>60m	Luxembourg
>2,500m ² + >10m	Belgium
>1,000 beds	Italy
>200m	France

Legislative Incentives - Hotels

Sprinkler threshold, m – *Hotels*



European Commission review of hotel fire safety

1986 Recommendation on fire safety in existing hotels

- ❖ Largely ineffective for existing hotels
- ❖ Commission probable preference is to update it with guidance drafted by the hotel industry
- ❖ Current draft guidance positive about sprinklers
- ❖ Commission will take forward in a green paper
- ❖ **The process is dominated by political considerations and is highly unpredictable – Dalli resignation**

Legislative incentives – high-rise buildings

- ❖ Above 18-25m fire-fighters cannot attack a fire or rescue people externally
 - ❖ To attack a fire internally requires an additional 20 minutes of setup time
 - ❖ People in the building may have to travel past the fire to get out
- ⇒ Greater risks than for low-rise buildings
- ⇒ **Reduce the risks with sprinklers!**



Legislative incentives – high-rise buildings

Height, m	Country
>22m	Germany
>28m	Portugal
>30m	Hungary, Ireland*, UK*
>32m	Austria
>45m (15 storeys)	Lithuania
>55m	Poland
>60m	Luxembourg
>70m	Netherlands**
>80m	Spain
>200m	France

Legislative incentives – warehouses



Legislative incentives – warehouses



Legislative incentives – warehouses

Criterion	Country
>800m ²	Norway
>1,800m ²	Austria, Germany
>2,000m ²	Denmark, Lithuania, Spain
>2,500m ²	Netherlands*
>3,000m ²	France, Hungary
>5,000m ²	Belgium
>14,000m ²	Ireland, Scotland
>20,000m ²	England, Wales

Legislative incentives – care homes

Sprinkler



Legislative incentives – care homes

Criterion	Country
All	Norway, Sweden, Scotland, Wales
Risk assessment	Finland
>1,000m ²	Denmark
>3 storeys	Hungary
Alternative to fire doors	England

Many care homes have been retrofitted in Finland & Norway

Legislative incentives – residential



Legislative incentives – residential



Legislative incentives – residential



Legislative incentives – residential

Criterion	Country
All	Wales (from Sep 2013)
>2 storeys	Norway
3-8 storeys timber-framed	Finland
>18m	Scotland
>22m	Germany, Austria
>30m	England, Hungary, Ireland
>32m	Austria (more fire resistance)
>15 storeys	Lithuania
>55m	Poland
>60m	Luxembourg, Germany (external fire separation between floors)
>80m	Spain

Other legislative incentives

Some countries require sprinklers in:

- ❖ Places of Assembly
- ❖ Factories
- ❖ Hospitals
- ❖ Car parks
- ❖ Schools

For details see www.eurosprinkler.org

More legislative incentives

Some countries permit sprinklers to compensate for:

- ❖ Lengthy escape routes (fewer staircases)
- ❖ Inadequate compartmentation
 - Reduced fire resistance
 - Prevent external fire spread
- ❖ Inadequate fire brigade access
 - Building behind other buildings
 - Building long time from fire station

Fire engineering!

For details see www.eurosprinkler.org



EUROPEAN SPRINKLER STANDARDS

EN 12845 Revision 1

- ❖ Text of Amendment 3 was ready in 2011
- ❖ Too many modifications for an amendment (ESFR, CMSA, excessive clearance, test line, electrical cables, K factor >115, third party inspection, new annex F...)
- ❖ Text incorporated into EN 12845 as the first revision
- ❖ Will soon go to the members of CEN for a vote with publication (we hope) in autumn 2013

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12845: **REVISION 1 -2012**

Nov 2012

DS 13220:20

Supersedes EN 12845:2004 + A2

English Version

Fixed firefighting systems - Automatic sprinkler systems -
Design, installation and maintenance

Installation et maintenance des systèmes à extinction automatique du type sprinkler - Conception, installation et maintenance

Ordnung und Wartung von Sprinkleranlagen - Automatische Sprinkleranlagen - Planung, Installation und Instandhaltung

This European Standard was approved by CEN on 18 April 2012 and includes Amendment 1 approved by CEN on 22 February 2009 and Amendment 2 approved by CEN on 22 February 2009.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving the European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation and the responsibility of a CEN member into its own language and referred to the CEN Management Centre has the same status as the official version.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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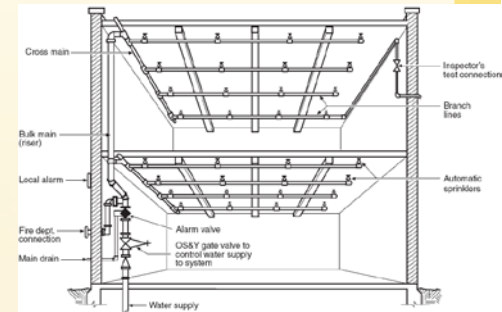
Management Centre Avenue Marmite 17, B-1000 Brussels

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Ref. No. EN 12845:2004 + A2 2009:1

EN 12845 Revision 2

- ❖ Meanwhile we are working on **Revision 2**
- ❖ New, more logical structure of document:
 - Section 1: definitions & scope
 - Section 2: risk evaluation
 - Section 3: design
 - Section 4: installation
 - Section 5: water supply
 - Section 6: maintenance
 - Annexes



❖ Principles

- Follow the natural flow of installation thought process
- Performance-based if possible
- Avoid annexes
- Include good practice from different countries
- Each country has been asked to submit proposals for improvement of current EN 12 845

❖ Incorporate concepts from NFPA and FM

❖ Target: first draft for 2013

Residential sprinkler standards

System standard

- ❖ INSTA 900-1, BS 9251 and CEA draft on table
- ❖ Each a combination of NFPA 13R and 13D but with important differences, most of which add cost
- ❖ First committee meeting 29 November 2012

Residential sprinkler standards

Product standard

- ❖ INSTA 900-2 to be sent to CEN members for comments
- ❖ It is UL 1626 under licence and in CEN format

NS-INSTA 900-2:2010

Residential sprinkler systems — Part 2: Requirements and test methods for sprinklers and their accompanying rosettes

(DK) *Boligsprinkling – Del 2: Krav og testmetoder for sprinklere med tilhørende rosetter*

(S) *Hemmiljöskydd – Del 2: Krav och provningsmetoder för sprinklare med tillhörande rosetter*

(NO) *Boligsprinkler – Del 2: Krav og prøvingsmetoder for sprinklere med tilhørende rosetter*

(E) *Boende sprinkler – Del 2: Krav och testmetoder för sprinkler och tillhörande rosetter*

(F) *Asynksprinklerstandard – Del 2: Vækningskrav og testmetoder for sprinklere med tilhørende rosetter*

Gracias por su atención
Thank you for your attention



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