

From Incident and Subsequent Research to an EU-Directive

How some Fires changed the Tunnel Safety World

Promat

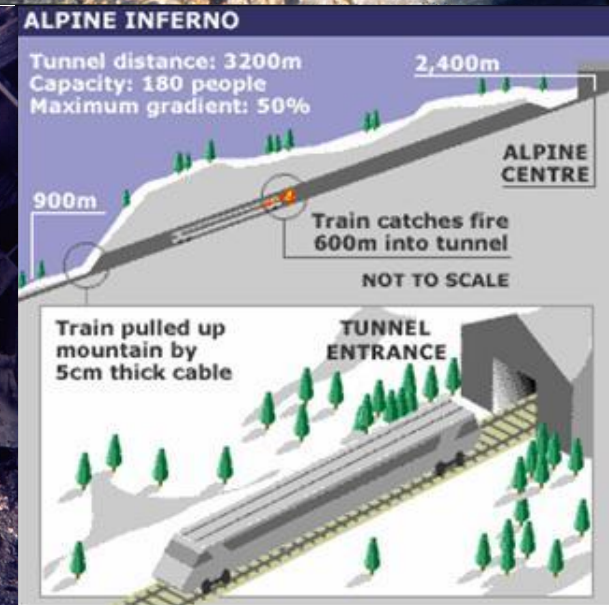
Who is Kees Both?

- Dutch, 53 yrs.
- Married, 3 boys
- PhD and MSc Delft NL), civil engineering, fire safety
- 1989-2011: TNO (Efectis), project leader, MD NL
- **2012-now: ETEX/Promat, manager standards®ulations**
 - Associations: SFPE (EU president), EAPFP & Fire Safe Europe (technical chair), Eurogypsum & Construction Products Europe (member), ...
 - Committees: NEN, NBN, CEN, ISO, ASTM, NFPA, UL (several of which chairing (sub)committees)



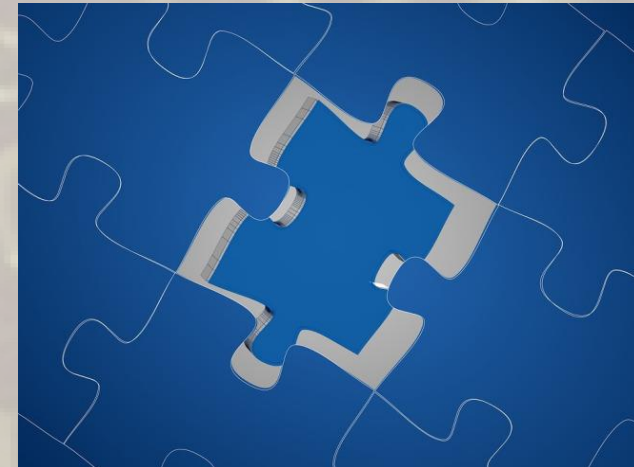
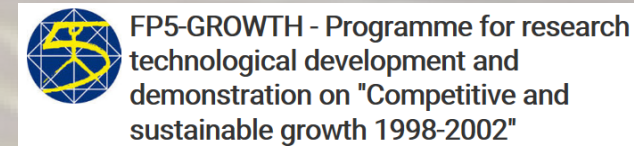






How it started ...

- Pre-2000: lobbying of Member States and others towards EU Commission
- 2000: European Commission adopted tunnel fire safety in “Framework Programme”
- 2000/2001: fragmented development of non-fitting projects aimed at EU subsidy in some 5-7 consortia (industry, r&d, ministeries, ...)
- 2001: EU Commission summoned main consortia leaders to submit coherent approach





The puzzle ...



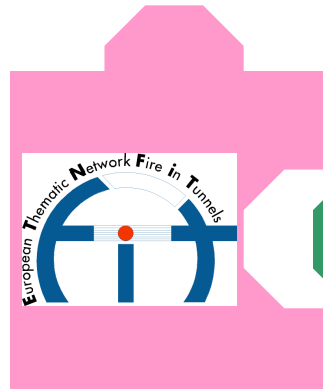
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New legislation
(2003-2006)



New tunnels (design)
(2001-2003)

Inventory and sharing
existing regulations and
knowledge
(2001-2004)



Other
projects
(national,
spin-outs,
...)



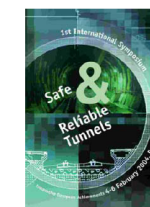
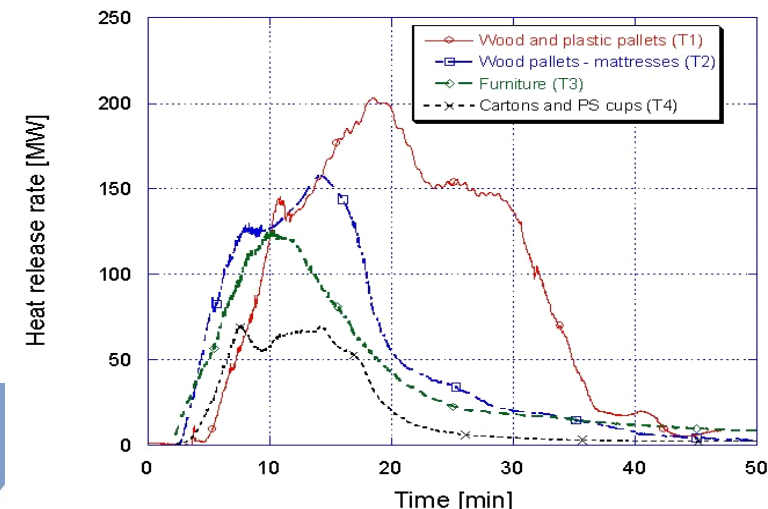
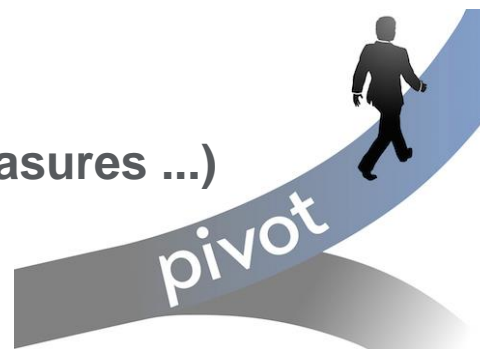
Some interesting lessons

Overcome initial hesitation

- To develop R&D (lack of tunnel fire safety not only due to lack of enforcement)
- To perform large scale fire tests ... (despite the big real fires !)

Critical successfactors

- Quantify socio-economic impact
- Technical alignment (sometimes unpopular measures ...)
- Organisational alignment (sometimes ...)
- Communication: joint workshops !
- Joint interest and collaboration (focus on what binds ...)



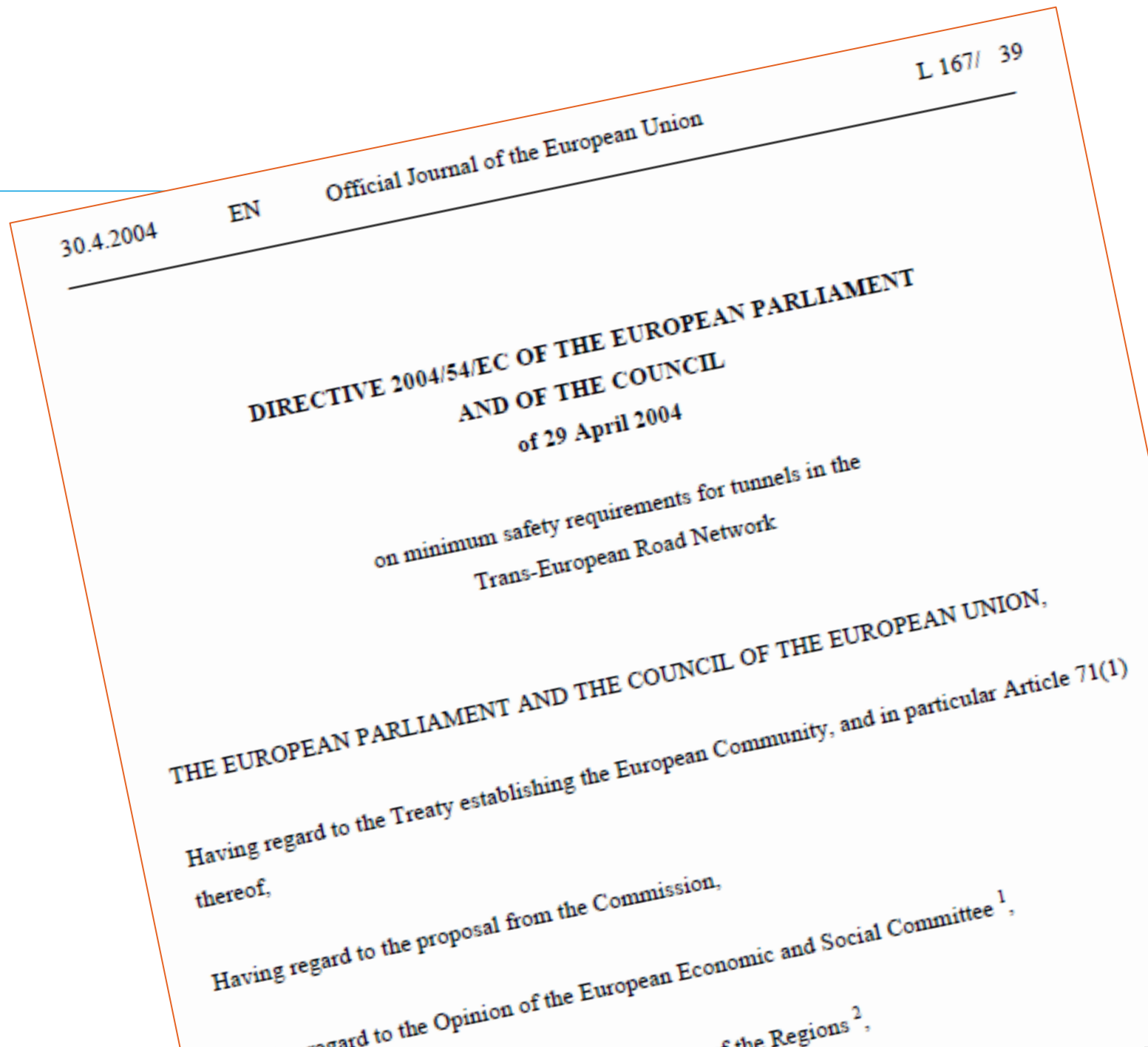
SHORT PRESS RELEASE

Successful symposium points the way forward for improved safety & reliability of tunnels

1st International Symposium
'Safe & Reliable Tunnels - Innovative European Achievements'
4-6 February 2004, Prague, Czech Republic

Spin-off

- EU Directive



- **Associations**

- L-SurF
- ITA-Cosuf
- Intensified cooperation ITA-PIARC





PIARC reports on Tunnels

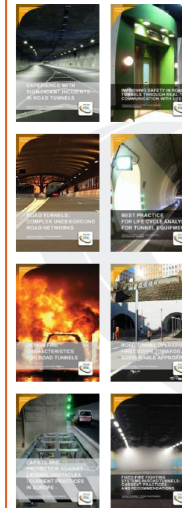
Recently published (2012 – 2015 work cycle):

1. Experience with significant incidents in road tunnels
2. Improving safety in road tunnels through real-time communication with users
3. Fixed Fire Fighting Systems in Road Tunnels: Current Practices and Recommendations
4. Road Tunnels: Complex underground road networks
5. Best practice for life cycle analysis for tunnel equipment
6. Lay bys and protection against lateral obstacles - Current practices in Europe
7. Design fire characteristics for road tunnels
8. Road tunnel operations: First steps towards a sustainable approach

Five forthcoming reports (available in 2019):

1. Sustainable road tunnel operations
2. Integrated road tunnel safety
3. Large underground and interconnected infrastructure
4. Persons with reduced mobility in the tunnel environment
5. Road tunnel emissions

All available for free in French English and Spanish

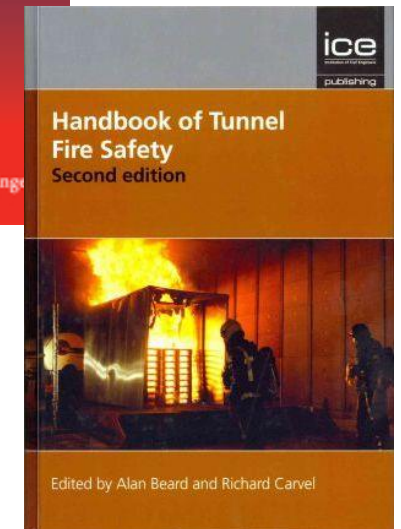
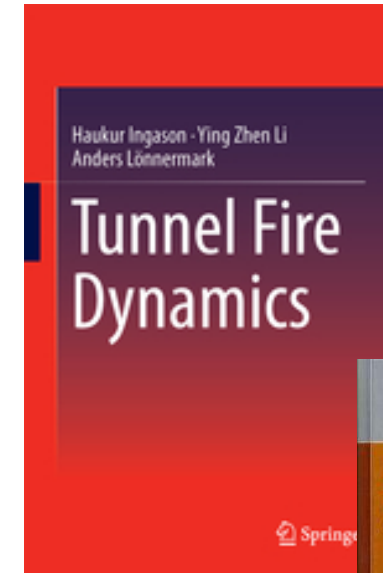
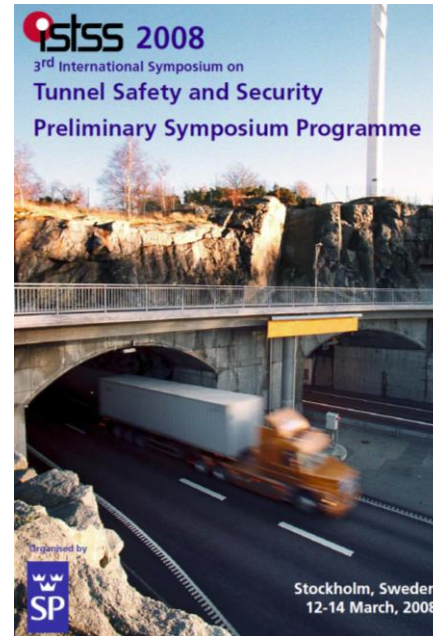


Spin-off, cont.

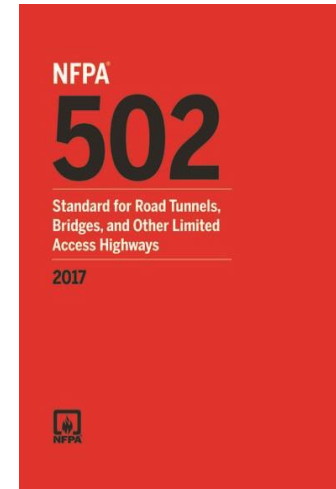
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- **Science**

- Boost for ISTSS
- FIVE
- Tunnel Fire Dynamics
- Tunnel Handbook
- ...



- **International legislation**
 - NFPA 502
 - ISO TC92 ...
- **And in national projects ...**
 - LTA fire tests
 - RWS-QRA



(new) challenges ...

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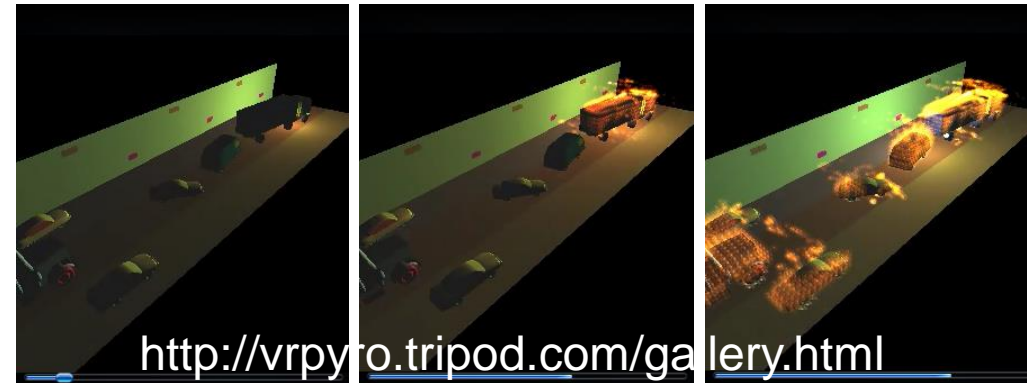
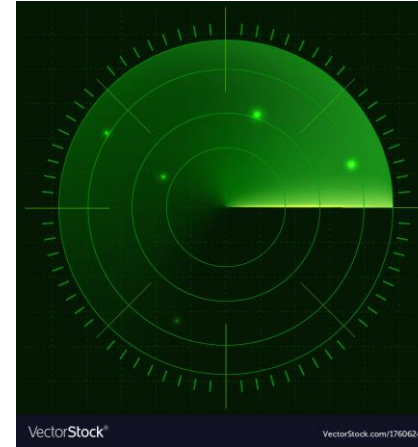
- 1 Continue to raise awareness
- 2 Do not forget the past
- 3 Do not underestimation of (new) risks
- 4 Appreciate the socio(-construction) economy

(new) challenges ...

Promat

1 Continue to raise awareness

- Tunnel fire safety disappearing from radar screen of politicians ...
 - Failing attempts to continue work at EU level (“Sinus”, H2020 ...)
 - Risk of losing appetite for researchers ... (and industry)
-
- Like in the late 1990’s early 2000’s we would appear to be in a state of denial: no large fires can occur (any more) ...

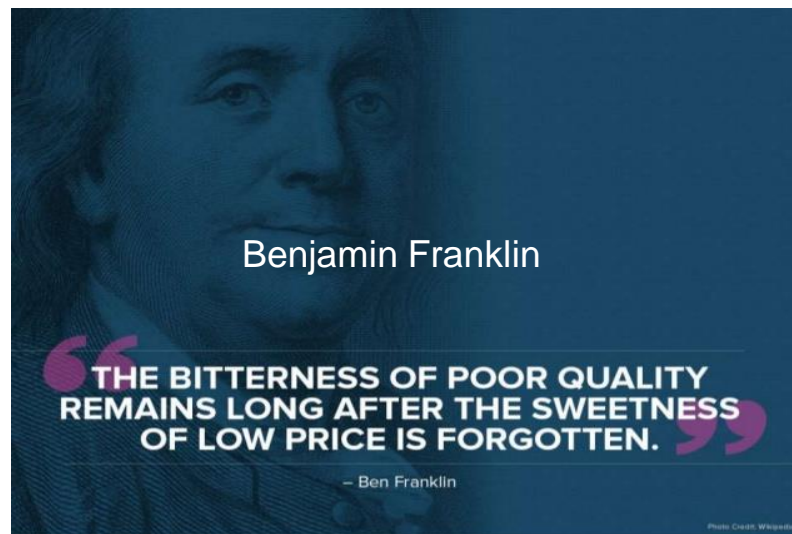


(new) challenges ..., cont.

Promat

2 Do not forget the past

- open door: large scale (fire) tests ...
- focus on safety (increase) instead of cost (reduction)



Porsche Freezes 911 GT3 Deliveries After Repeated Fires

FEB 16, 2014 / BY SHALI KLEINHAUS IN ACCIDENT



(new) challenges ..., cont.

Promat

3 Do not underestimation of (new) risks

- **Human related**
 - Urbanisation
 - Past focus TREN vs. city tunnels
 - Self-rescue (disability, obese and aging)
- **Digital & robotics**
- **Climate**
 - Forest fires
- **Change of traffic composition / vehicles**

The screenshot displays the top navigation bar of The World Bank website, including links for 'WHO WE ARE', 'WHAT WE DO', 'WHERE WE WORK', 'UNDERSTANDING POVERTY', and 'WORK WITH US'. Below the navigation bar, the 'Understanding Poverty / Topics' section features a circular image of a person walking and a text block titled 'Urban Development' stating: 'Globally, over 50% of the population lives in urban areas today. By 2045, the world's urban population will increase by 1.5 times to 6 billion. City leaders must move quickly to plan for growth and provide the basic services, infrastructure, and affordable housing their expanding populations need.' Below this, a horizontal strip of three images is shown: a night view of a busy highway interchange, a line of cars parked on a street, and a car engulfed in flames with the text 'Electric Car Fires' overlaid in red.

(new) challenges ..., cont.

4 Appreciate the (socio-)construction economy

- Resilient society (large life/loss fires)
- Sector: overheated? Link to existing projects !
- Grasp opportunities, build upon “hot topics”
 - BIM
 - Smart (self-healing) materials/structures (maintenance)
 - Continuous developments in fire safety engineering
 - FIEP ...
 - Exploit existing network: COSUF!



BG ES CS DA DE ET EL EN FR GA HR IT LV LT HU MT NL PL PT RO SK SL FI SV

Parliamentary questions

6 September 2018

Answer given by Ms Bieñkowska on behalf of the European Commission

Question reference: E-003592/2018

Under the principle of subsidiarity, fire safety in buildings falls under the responsibility of national authorities.

The Commission however took the initiative to create the **Fire Information Exchange Platform (FIEP)** to enhance the cooperation between Member States and stakeholders by exchanging regulatory experience and information on lessons learned from fire accidents.

The first FIEP meeting took place in October 2017, with more than 25 Member States and 25 European associations representing construction producers, firefighters, fire safety associations, test laboratories, and standardisers.

The meeting identified areas for future FIEP work on the regulatory approach for new products and tall buildings, the exchange of experience from fire accidents, effective fire prevention, harmonisation and collection of fire statistics, and the application of fire engineering science to building regulations.

The Commission has created Project Teams to elaborate proposals in these work areas. The first Project Teams regarding regulations for new products and tall buildings and on lessons learned from fire accidents have met already and are examining proposals. Progress in these areas is strongly depending on the involvement and commitment of the Member States.

The Commission is also working on the more complex areas of fire statistics and the application of fire engineering science to building regulations.

Last updated: 7 September 2018

Legal notice

- **Team up ! (set aside differences, and find common denominator: “safety increase”)**
- **Dare to quantify impact (of doing nothing) – set bold targets (“tunnel reopens day after fire”)**
 - Note: new energy carriers important, and maybe even pivoting, but not the only safety aspect ...
- **Prepare a draft roadmap**
- **Organise (and “own”) the EU debate and invite Commission (DG Move, DG Grow, DG JRC, ...)**
- **Lobby in EU Parliament**

