

Fire Protection in Norway



Fire protection principles

- Maximum safety with minimum damage
- Extended cost-benefit analysis
- Fire protection strategy



Risk analysis, causes of fire



Fire preventive measures



Remaining risk

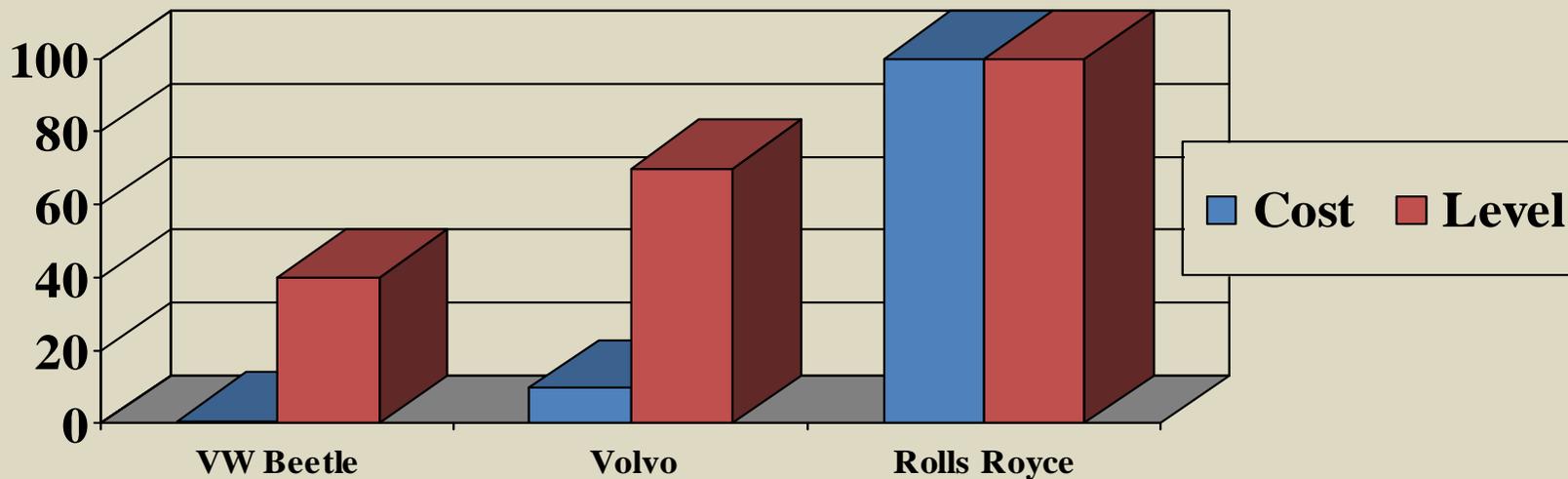


Fire limiting measures



Acceptable remaining risk





Cost: € 500,-
Safety: 40%

Cost: € 10 000,-
Safety: 70%

Cost: € 100 000,-
Safety: 100%



How to prevent fire?



Fire limiting measures

1. Passive measures, fire walls etc.

2. Active measures
 - a. Manual fire fighting equipment/local personnel
+ fire detection
 - b. Automatic fire suppression, sprinkler, water mist etc.

Fire protection of churches

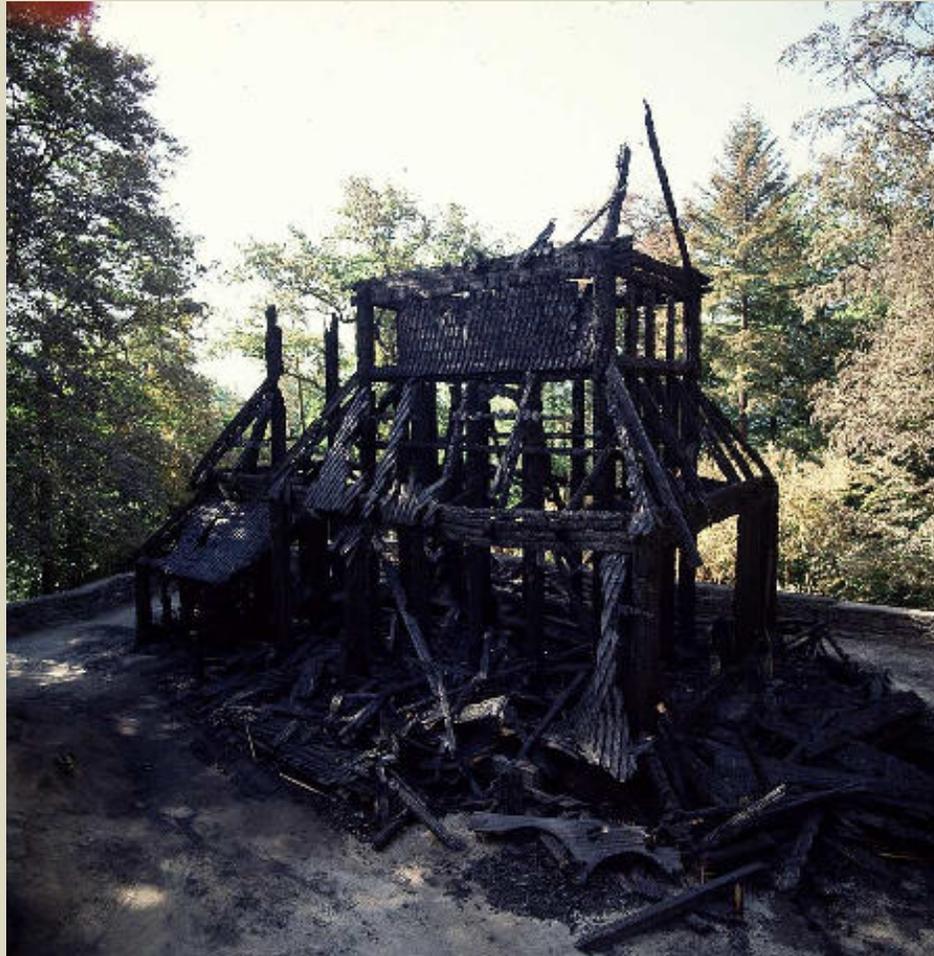




Fantoft Stave Church



Fantoft Stave Church Fire 06.06.1992



Stave Churches Test Water Mist



Stave Churches Test Water Mist



Stave Churches

Low-pressure Water Mist



High-pressure water mist



Stavanger Cathedral

High Pressure Water Mist



Lightning protection

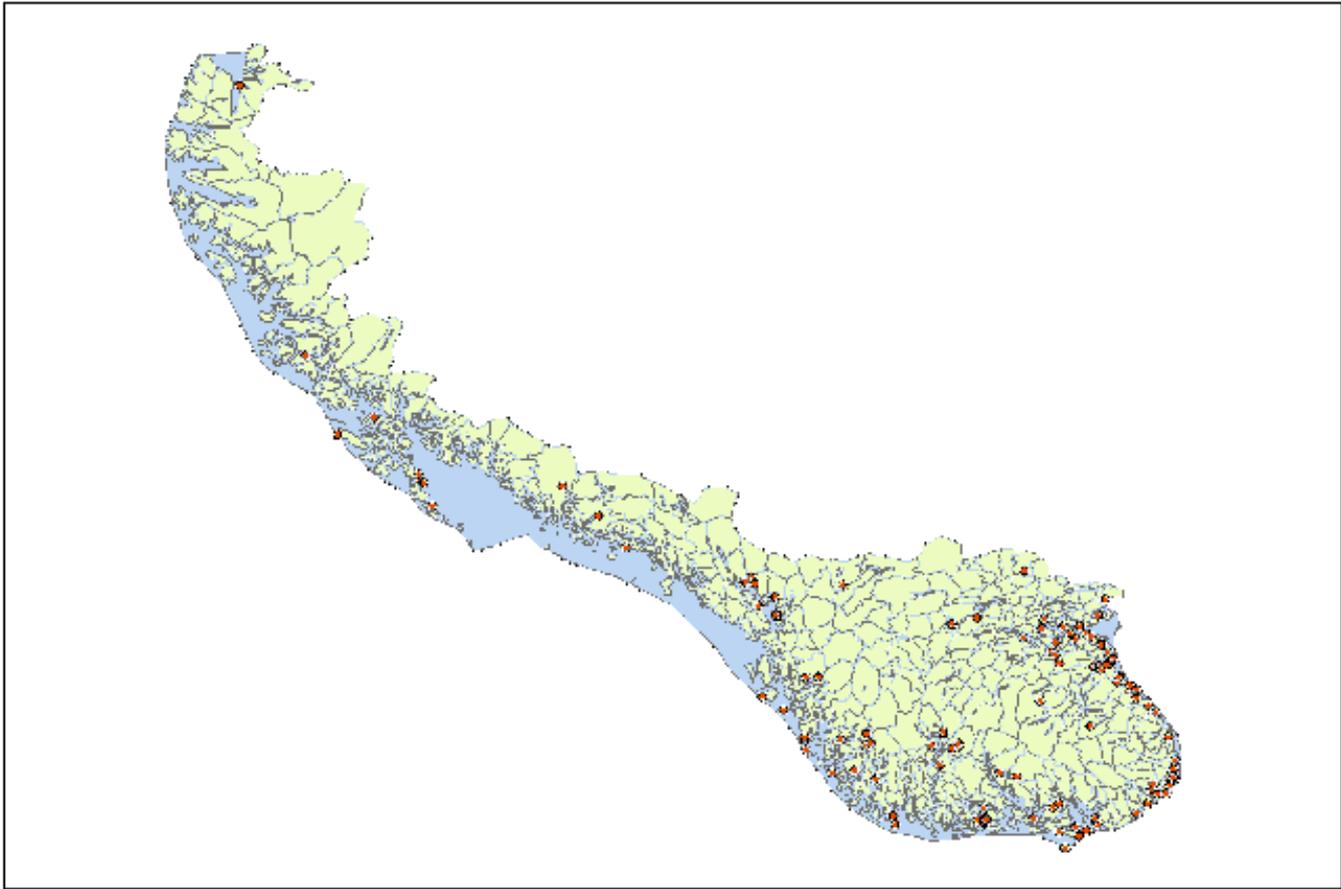


Facade sprinkler



Fire protection of wooden towns





Wooden towns

- Fire safety plan
- Fire prevention measures
- Fire suppression measures
- Suitable equipment for the fire brigade

Video Detection



Fire Hose



Attic sprinkler



Wooden towns



Wooden towns



Bryggen in Bergen



Bergen, Bryggen - Fires 1978-2000

No.	Year	Time	Cause	Ignition	Extinction
1	1978-80?		Arson	Fire set to gas container under wooden cladding	Sprinklers?
2	1986?	Afternoon	Arson	Fire set to wooden shavings	Sprinklers
3	1986-87?		Arson	Fire set to tarpaulin covering a scaffolding	By itself
4	1988-90?		Alcoholics	Open fire lit with building materials	Fire brigade?
5	1992-94?		Arson	Fire set to paper under wooden cladding	Sprinklers + Fire brigade
6	1995?	Day	Cigarette	Rubbish under wooden floor	Staff
7	1997-98?	2 AM	Self ignition	Self ignition in rag with linseed oil	Sprinklers
8	Feb. 2000	Evening	Arson	Fire set to paper	Staff

