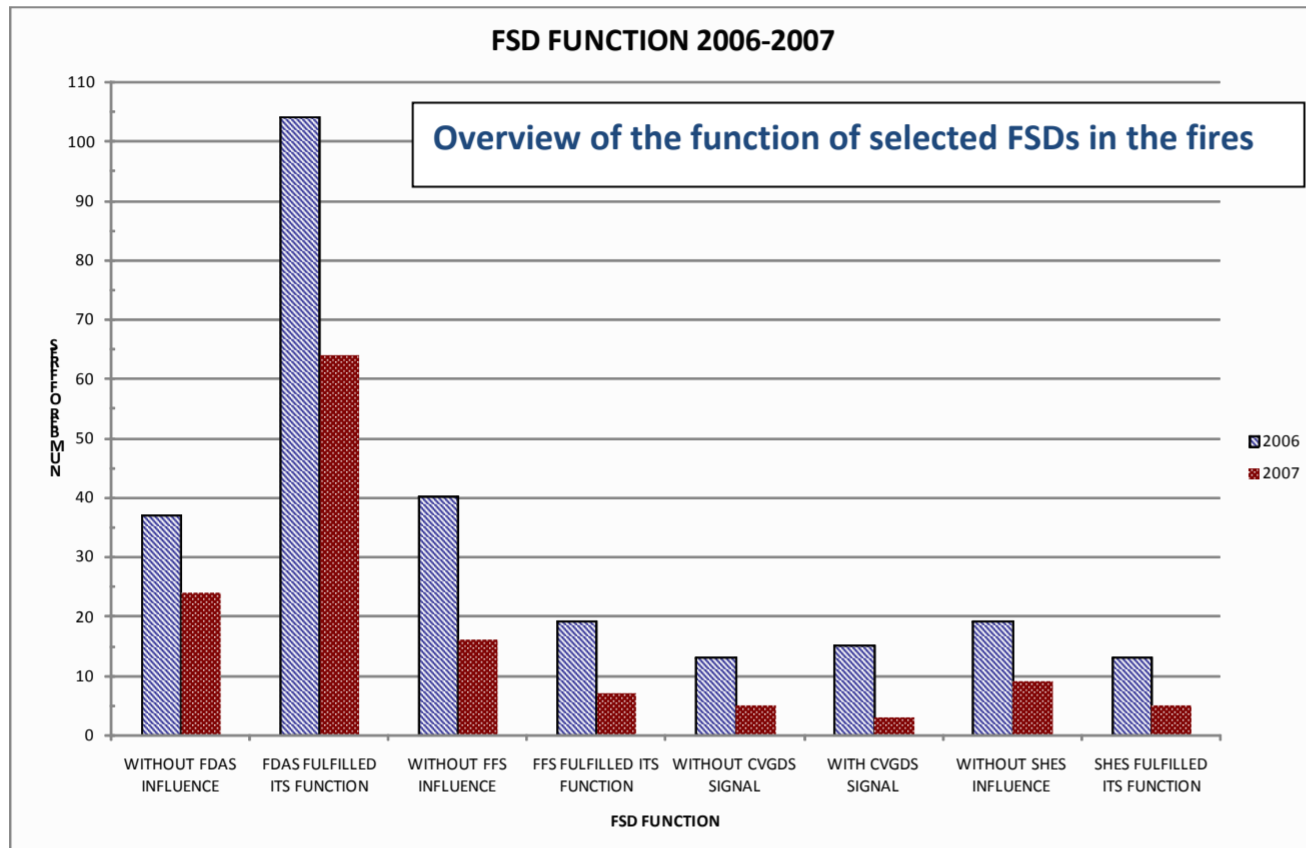


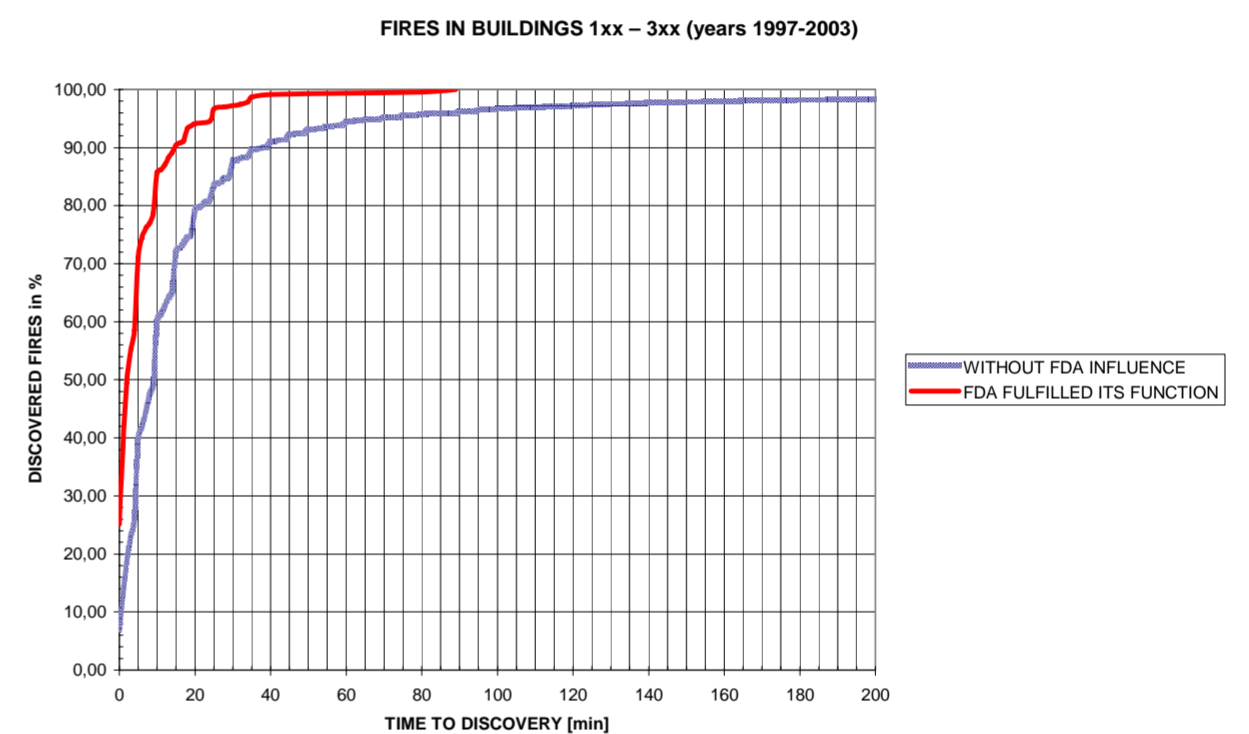
DECREASE IN FIRE LOAD ON STRUCTURES BY TIMELY FIRE DETECTION

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CVGDS	combustible gas and vapour detection system
FDAS	fire detection and alarm system
FFS	fixed fire fighting system
FSD	fire safety devices
SHES	smoke and heat exhaustion system



Dummy building	
Purpose	Wood processing
Single-storeyed hall	12 m x 18 m (216 m ²), height 5 m
Fire load	60 kg.m ⁻² (wood)
FDAS	Temp. Det. 70 °C/RTI=300 (m.s) ^{1/2} Smoke Det. 0,30 dB.m ⁻¹
SHES	Temp. 70 °C/RTI=100 (m.s) ^{1/2}

	Initial fire			
	A	B	C	D
Height of pallets [m]	1.0	1.5	1.7	2.0
Width of pallets [m]	0.8	1.6	1.6	1.6
Length of pallets [m]	6.0	6.0	6.0	6.0
Volume of pallets [m ³]	4.80	14.40	16.32	19.20
Heat release rate [MW]	16.80	50.40	57.12	67.20
Total energy released [MJ]	16 130	48 400	54 800	64 500

	Pc	Fire scenario					
		1	2	3	4	5	6
Door 140 x 210 cm	2	Close	Close	Close	Close	Close	Close
Gate 300 x 300 cm	2	Close	Close	Close	Close	Close	Close
Hole 50 x 50 cm 200 cm above the floor	1	Open	Open	Open	Open	Open	Open
Hole 300 x 300 cm	1	Close	Open	Open	Open	Open	Open
Hole 300 x 300 cm	1	Close	Close	Close	Close	Close	Open
SHES aerodynamic area [m ²]	1	N/A	N/A	2.16	4.32	6.50	6.50

	Fire scenario						
	A1	B1	B2	C3	C4	D5	D6
Flash-over [min:sec]	N/A	09:45	N/A	10:35	N/A	09:55	N/A
Temperature detector response [min:sec]	03:25	03:01	03:01	02:57	02:57	02:54	02:54
Smoke detector response [min:sec]	01:10	01:10	01:10	01:10	01:10	01:10	01:10
SHES opening [min:sec]	N/A	N/A	N/A	02:32	02:32	02:32	02:32
Maximum temperature of upper layer [°C]	222	1 123	461	1 160	462	1 178	458

