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AICLA



ACC19 – Innovation, Disruption, & Forensic Advances in Claims

Cambodia - April 2019



CURRENT TRENDS IN FIRE / EXPLOSION LOSSES

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FRSC MSNIC AIFireE



Who Are We?

We are a global scientific and engineering consultancy, with 8 offices around the UK, and overseas offices in Australia, Dubai, Dubai, Hong Kong, and Singapore

Our UK offices are located in London, Basingstoke, Cardiff, Glasgow, Ilkley, Kenilworth, Manchester, and Stevenage which provide comprehensive coverage throughout the UK

Our overseas offices in Australia, Dubai, Hong Kong, and Singapore provide us with an excellent worldwide presence



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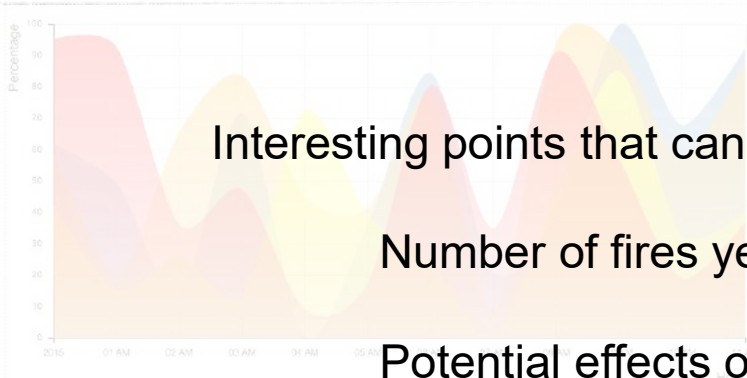
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A world map where each country is filled with its national flag. The map is centered on the Atlantic Ocean, showing North America, South America, Europe, Africa, Asia, and Australia. The text 'NATIONAL FIRE TRENDS' is overlaid on the map in a large, bold, orange-to-yellow gradient font with a black outline.

NATIONAL FIRE TRENDS



National Fire Trends

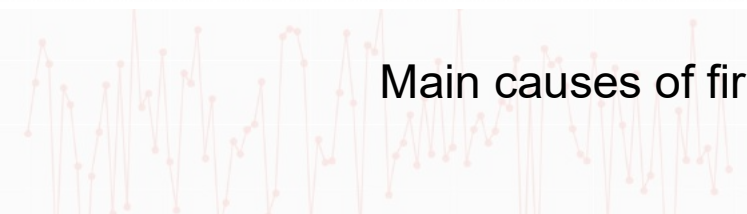


Interesting points that can be gleaned from national data:

Number of fires year by year

Potential effects of a nation's demographics and fire safety regulations and laws

Main causes of fire as determined by National Fire Services

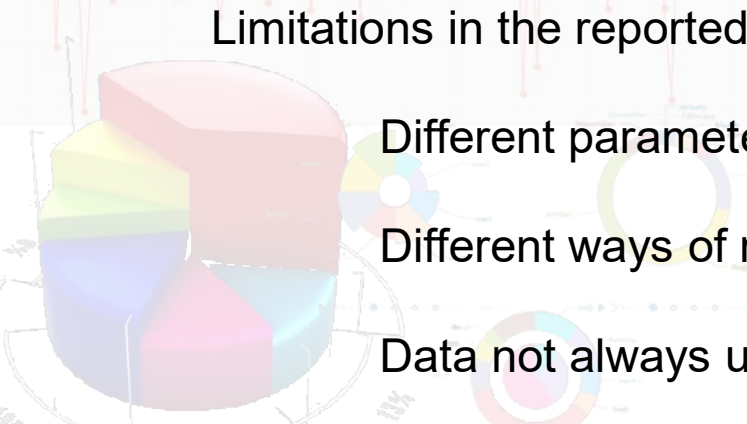


Limitations in the reported data :

Different parameters used when data recorded

Different ways of reporting data brief -v- detailed

Data not always up to date



Trends* in Fires in Countries of the World 2012 - 2016



	Country	Population, thous. inh.	Number of fires					Average	
			2012	2013	2014	2015	2016	per year	per 1000 inh. a year
1	USA	323 128	1 375 000	1 240 000	1 298 000	1 345 500	1 342 000	1 320 100	4.09
2	Bangladesh	154 331	17 504	17 912	17 830	17 488	-	17 684	0.11
3	Russia	146 270	162 900	152 959	150 437	145 900	139 500	150 339	1.03
4	Japan	128 130	44 101	48 095	43 741	39 111	-	43 762	0.34
5	Vietnam	93 000	1 900	2 540	2 375	2 451	3 006	2 454	0.03
6	Germany	82 218	-	-	175 354	182 078	-	183 716	2.23
7	France	66 628	306 871	281 908	270 900	300 667	285 700	289 209	4.34
8	Great Britain	63 786	272 800	192 700	212 500	191 647	201 009	214 131	3.36
9	Italy	61 000	241 232	196 196	189 375	234 675	245 727	221 441	3.63
10	Myanmar	51 486	1 219	1 673	1 629	-	-	1 507	0.03
11	Spain	47 079	142 500	135 000	128 000	137 000	122 828	133 066	2.83
12	Ukraine	42 673	71 443	61 144	68 879	79 640	74 221	71 065	1.67
13	Poland	38 454	183 888	125 425	145 237	184 647	126 228	153 125	3.98
14	Canada	35 544	45 005	37 194	36 445	-	-	39 548	1.11
15	Malaysia	31 800	29 874	33 640	54 540	40 865	49 875	41 759	1.31
16	Peru	30 741	11 329	11 264	9 430	9 473	12 648	10 829	0.35
17	Nepal	30 430	-	1 021	958	-	-	990	0.03
18	Taiwan	23 069	1 574	1 451	1 417	1 704	1 856	1 600	0.07
19	Romania	20 121	38 077	-	-	26 247	27 804	30 709	1.53
20	Kazakhstan	17 500	16 145	13 621	14 477	14 452	13 952	14 529	0.83
21	Netherlands	16 979	-	-	91 160	125 200	79 560	98 640	5.81
22	Greece	10 788	33 731	28 232	-	-	-	30 982	2.87
23	Belgium	10 700	21 369	21 228	-	-	-	21 299	1.99
24	Czech Republic	10 579	20 492	16 563	17 388	20 232	16 253	18 186	1.72
25	Sweden	9 851	22 657	25 392	-	22 785	-	23 611	2.40
26	Hungary	9 830	37 106	20 177	19 536	21 056	17 534	23 082	2.35
27	Jordan	9 700	23 981	25 644	20 795	32 488	28 693	26 316	2.71
28	Belarus	9 505	34 505	7 151	7 489	7 339	5 999	12 497	1.31
29	Austria	8 740	42 213	40 395	43 336	45 349	47 559	43 770	5.01
30	Switzerland	8 372	14 304	12 893	11 658	12 477	11 803	12 627	1.51
31	Israel	8 300	50 654	52 024	-	-	47 000	49 893	6.01
32	Bulgaria	7 245	44 939	32 903	23 199	30 009	37 362	33 682	4.65
33	Serbia	7 187	-	22 048	16 805	-	-	19 427	2.70
34	Singapore	5 800	4 485	4 136	4 724	4 604	4 114	4 413	0.76
35	Denmark	5 710	14 844	15 201	14 014	12 959	13 142	14 032	2.46
36	Kyrgyzstan	5 522	3 530	4 288	4 361	4 029	3 813	4 004	0.73
37	Finland	5 463	11 803	13 421	14 027	11 220	12 063	12 507	2.29
38	Slovakia	5 412	14 413	-	-	-	-	14 413	2.66
39	Norway	5 109	7 389	7 318	8 672	-	-	7 786	1.52
40	New Zealand	4 596	-	-	10 245	10 515	10 314	10 358	2.25
41	Croatia	4 290	10 657	8 062	7 317	12 156	11 143	9 907	2.31
42	Kuwait	4 052	5 609	4 661	4 889	4 914	4 771	4 969	1.23
43	Moldova	3 553	1 984	2 033	1 890	1 816	-	1 931	0.54
44	Mongolia	3 120	3 501	3 819	4 222	4 561	3 710	3 963	1.27
45	Armenia	3 017	-	-	-	6 617	4 615	5 616	1.86
46	Lithuania	2 889	11 257	11 333	13 324	13 512	10 041	11 893	4.12
47	Slovenia	2 064	5 570	4 175	5 917	6 983	-	5 661	2.74
48	Qatar	1 975	1 188	1 158	1 135	1 179	1 444	1 221	0.62
49	Latvia	1 969	8 536	9 821	12 873	11 004	9 929	10 433	5.30
50	Estonia	1 315	4 973	5 745	6 871	5 564	5 065	5 644	4.29
51	Cyprus	858	6 799	8 605	-	-	-	7 702	8.98
52	Bhutan	750	45	42	35	-	-	41	0.05
53	Suriname	585	-	-	3 274	3 485	-	3 370	5.76
54	Brunei	430	1 070	791	1 002	1 503	1 852	1 244	2.89
55	Malta	421	-	-	-	1 938	1 749	1 844	4.38
56	Andorra	78	235	212	257	246	274	245	3.14
57	Liechtenstein	37	32	46	24	42	-	36	0.97
	Total/Wrora/Gesamt	1 684 179	3 427 393	2 963 260	3 191 963	3 399 507	3 036 156	3 498 804	2.08

Reported fire decreases:

Bangladesh, Japan, Singapore, Nepal, China^ø

Reported fire increase:

Vietnam, Myanmar, Malaysia, Taiwan, Brunei, New Zealand, Philippines[#]

^ø China fire data not mentioned in the reviewed set but obtainable from www.china-fire.com.

[#] Philippines fire data not mentioned in the reviewed set but obtainable from Philippine Statistical Yearbooks: 2012 – 8,798; 2013 - 12,301; 2014 – 15,897; 2015 – 17,138; & 2016 – 19,292 (2017 – 14,197).

No reported fire data:

Australia, Thailand, Laos, Cambodia, Indonesia, Papua New Guinea, India, South Korea

* As collated in CTIF report no. 23 2018 authored by NN Brushlinsky et al

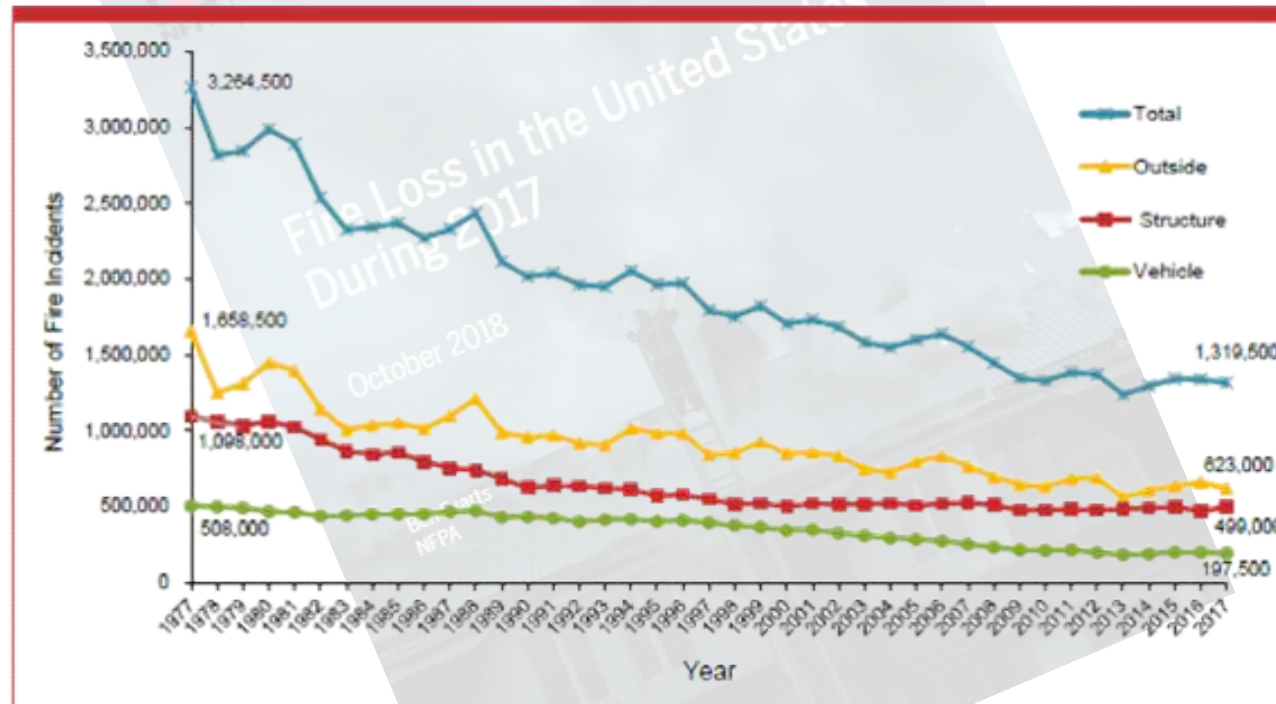




US General Fire Trends

Historic US fire trend reported*:

Figure 1. Fire incidents by Type in the United States, by Year (1977-2017)



* NFPA Research report authored by B Everts published October 2018 detailing Fire Loss in the United States of America during 2017



US General Fire Trends

In 2017 there was a total of 1,319,500 reported* fires (overall a 2% decrease) and of those:

623,000 Outside fires - 6% decrease over 2016

499,000 Structure fires - 5% increase

168,000 Road vehicle fires - 3% decrease

29,500 Other vehicle fires - 5% decrease



Approximately 22,500 deemed intentionally started fires
(13% increase on 2016)

(1.7% of number of fires reported)

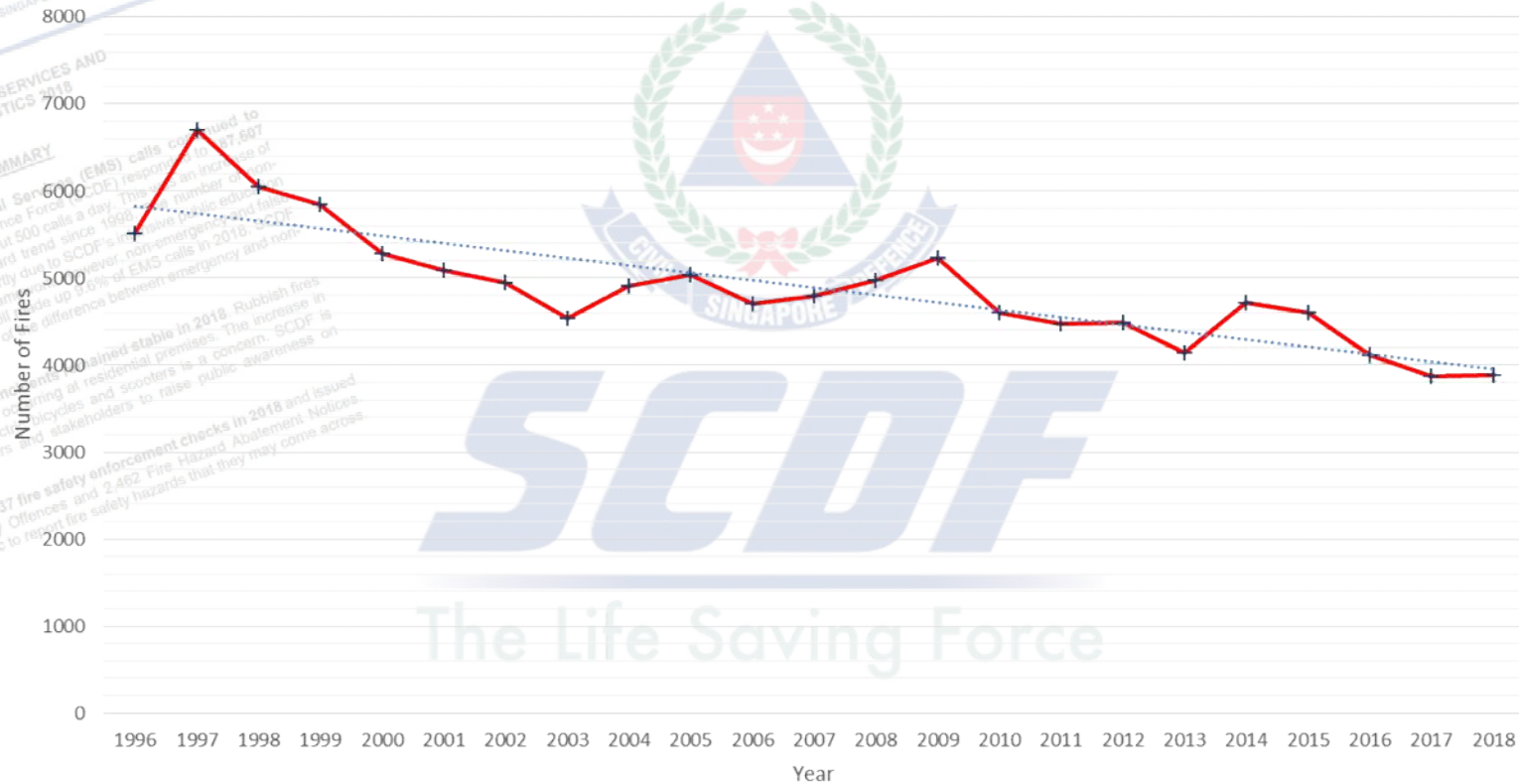
* NFPA Research report authored by B Everts published October 2018 detailing Fire Loss in the United States of America during 2017



Singapore General Fire Trends

Historic Singapore fire trend reported*:

Trend in the number of fires occurring in Singapore between 1996 and 2018



* SCDF Fire Incident Statistic Reports 2005 to 2018



Singapore General Fire Trends

In 2018 there was a total of **3,885** reported* fires (overall a 0.4% increase over 2017) and of those:

959 Non-building places – 28.4% increase over 2017

Vegetation 588 (59.8% Increase); Vehicles 221 (20.1% Increase); Rubbish 84 (37.3% Decrease)

515 Non-residential Premises – 10.3% increase

Commercial 259 (11.2% Increase); Industrial 170 (22.3% Increase); Social 88 (9.5% Decrease)

2,411 Residential Premises – 9.3% decrease

76% of residential fires are: Rubbish (1173), Unattended cooking (377), Discarded items (296)

SCDF
The Life Saving Force

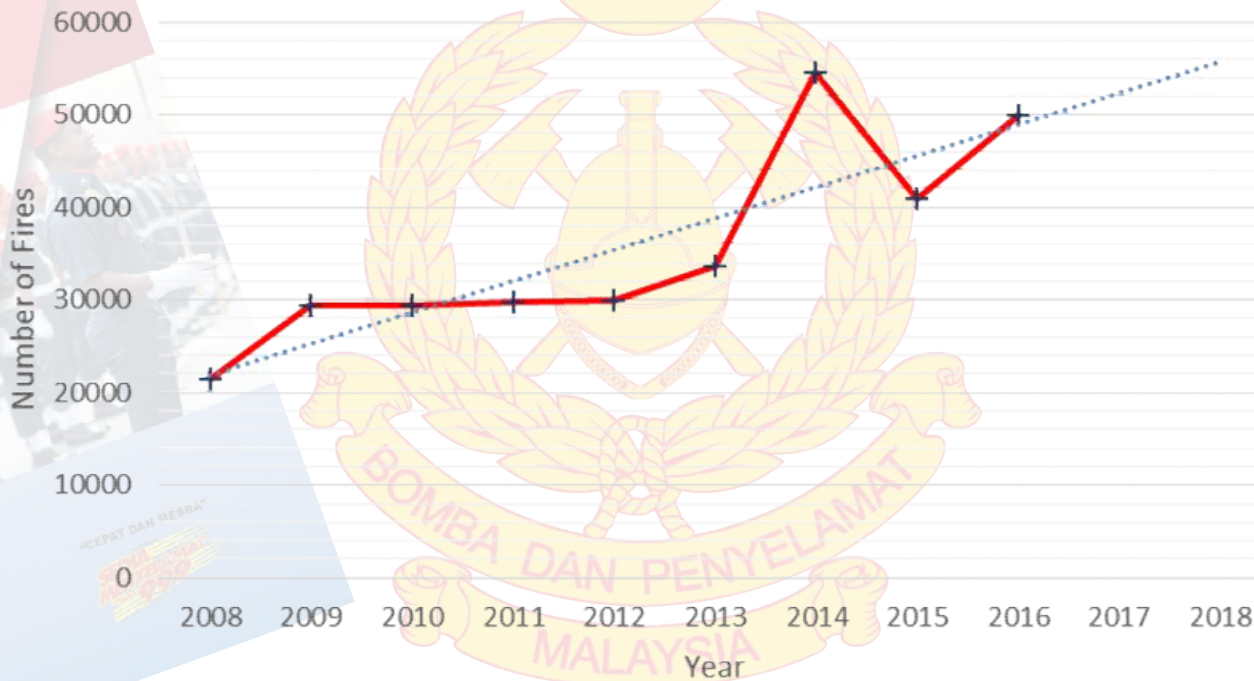
Special area of concern: Electric (Lithium battery) mobility devices - 74 fires in 2018 (51% increase)



Malaysia General Fire Trends

Historic Malaysia fire trend reported*:

Trend in the number of fires occurring in Malaysia between 2008 and 2016

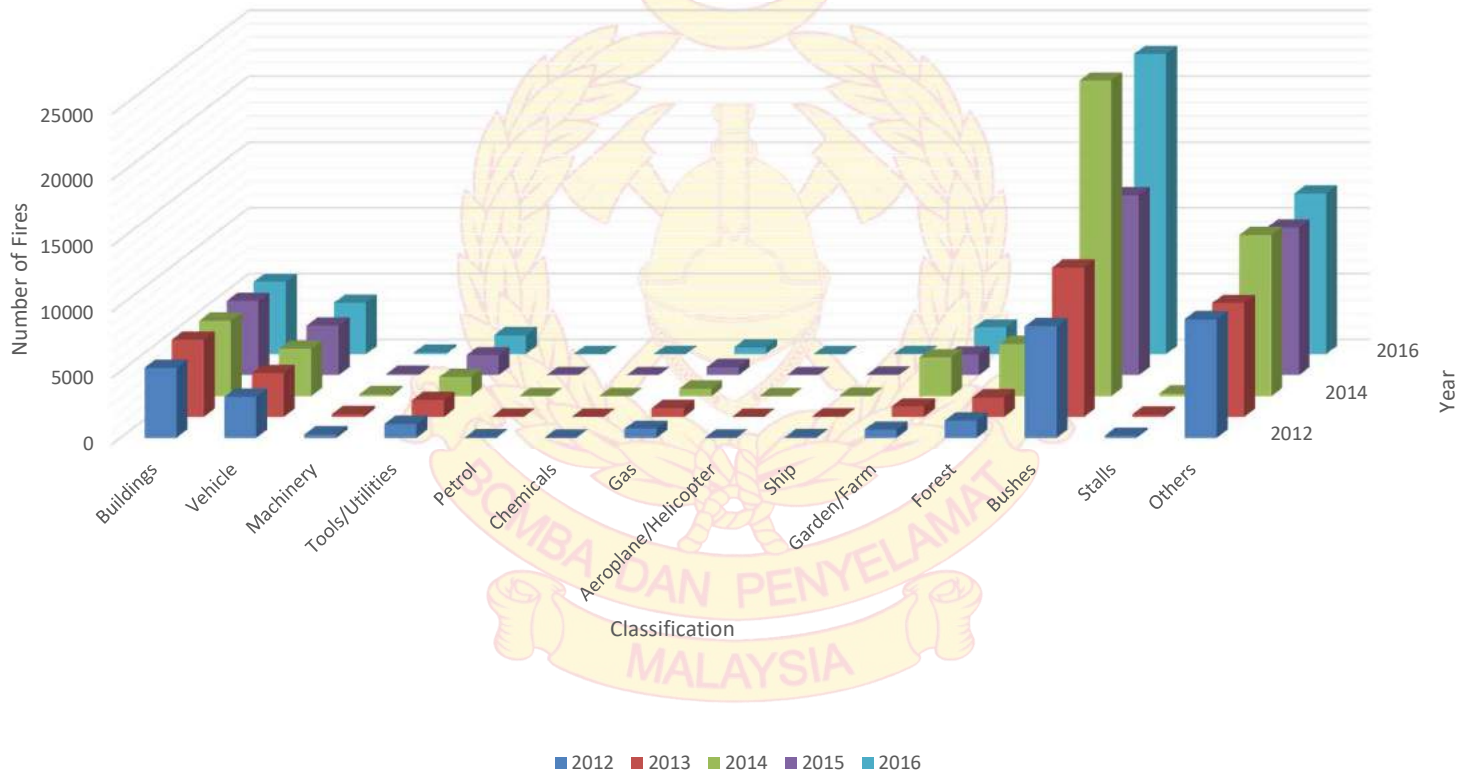


* Fire and Rescue Department of Malaysia Reports 2012 to 2016



Breakdown of reported locations of fire*:

Trend in the locations of fires occurring in Malaysia between 2012 and 2016

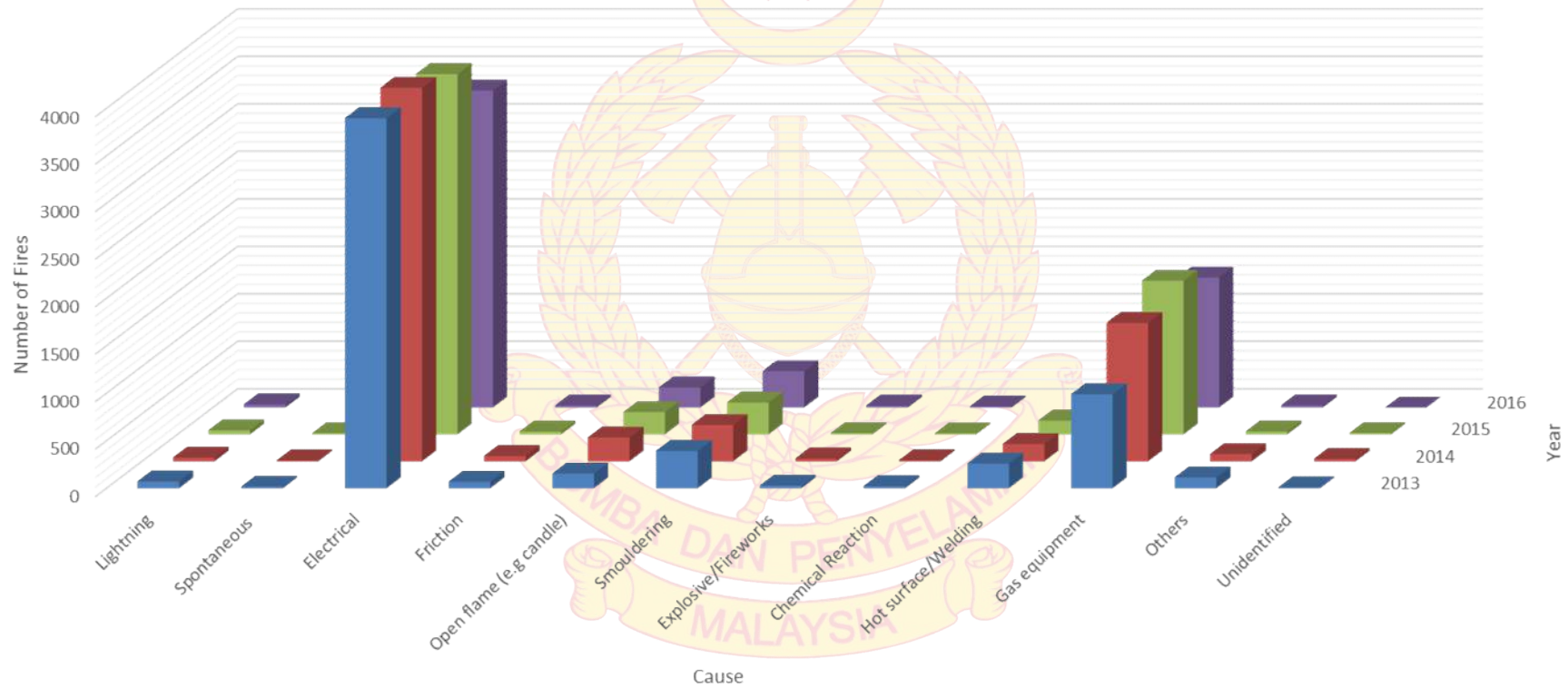


* Fire and Rescue Department of Malaysia Reports 2012 to 2016



Reported causes of fire*:

Trend in the causes of structural fires occurring in Malaysia between 2013 and 2016



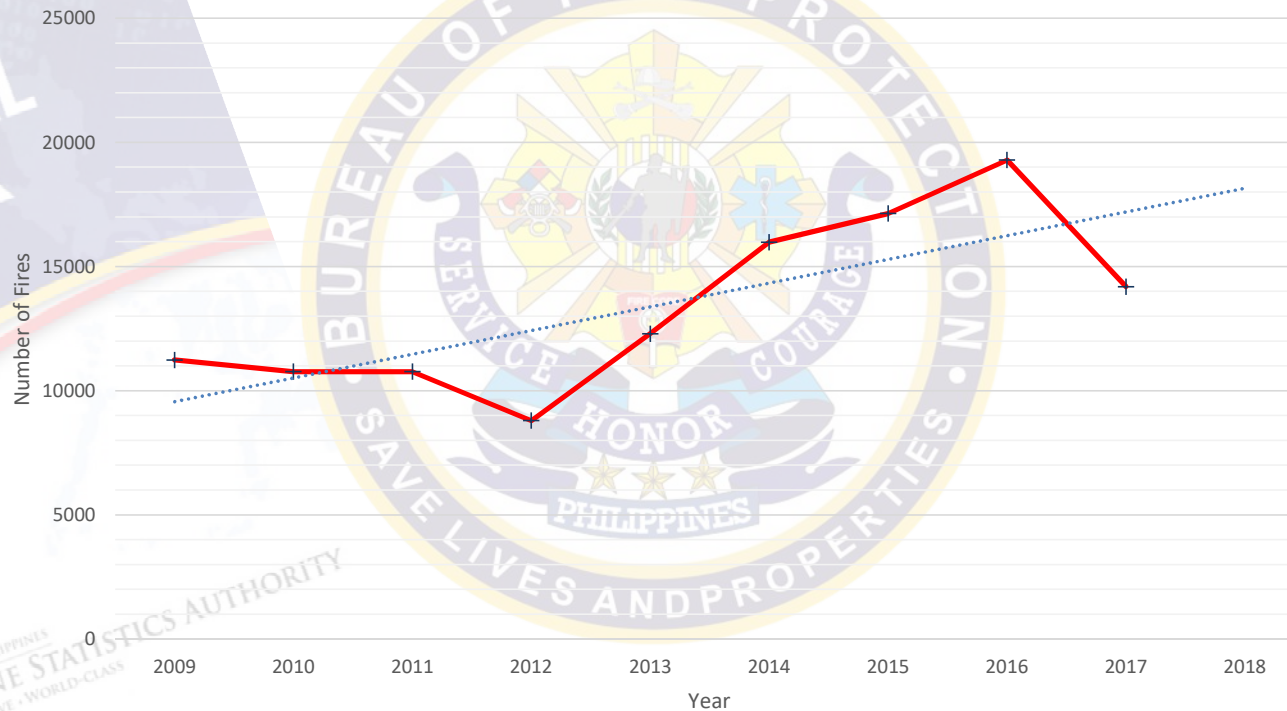
* Fire and Rescue Department of Malaysia Reports 2013 to 2016



Philippines General Fire Trends

Historic Philippines fire trend reported*:

Trend in the number of fires occurring in Philippines between 2009 and 2017

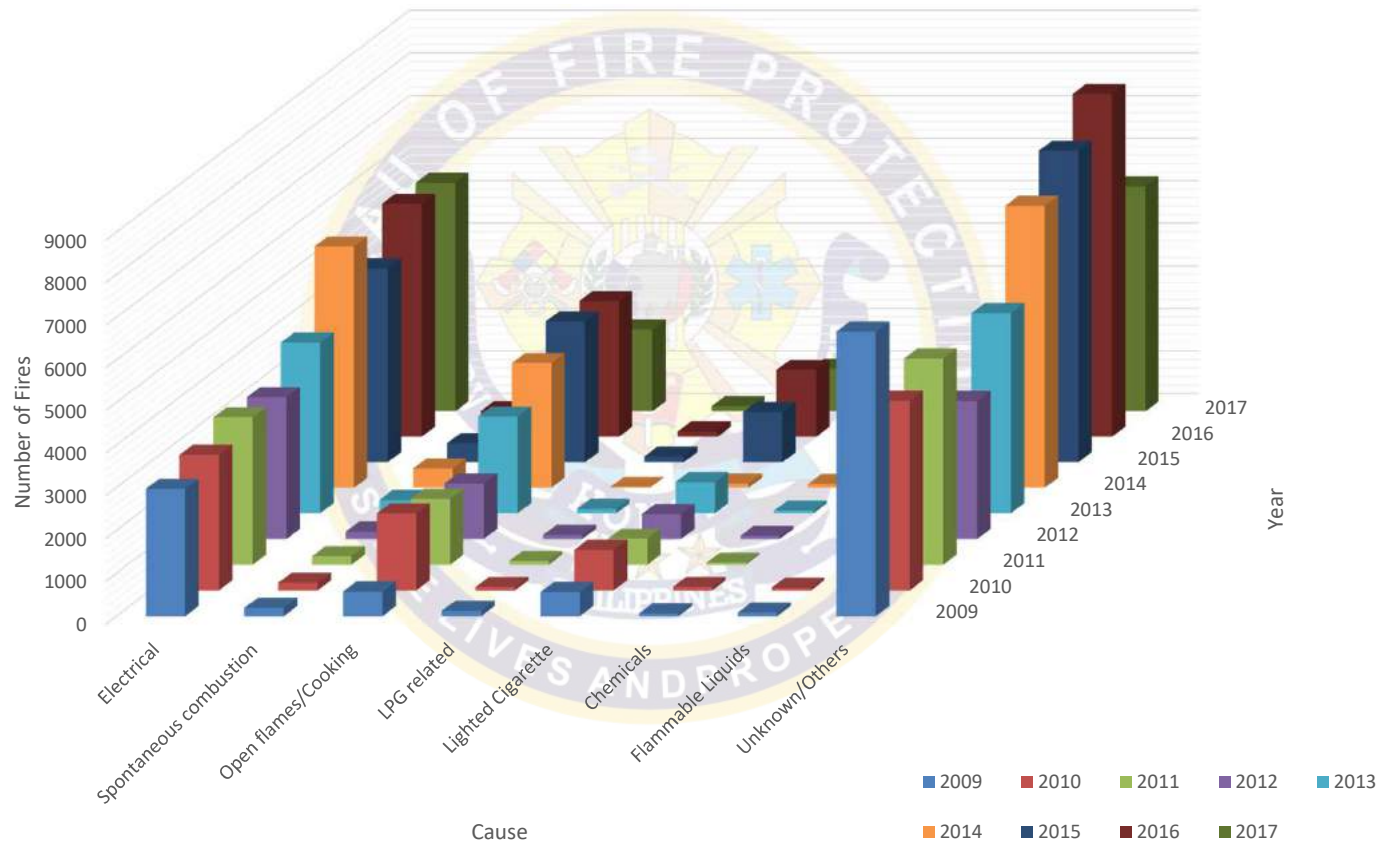


* Table 17.7 in Philippine Statistical Yearbooks 2010 to 2018 - Bureau of Fire Protection data.



Reported causes of fire*:

Trend in the causes of structural fires occurring in Philippines between 2009 and 2017



* Table 17.7 in Philippine Statistical Yearbooks 2010 to 2018 - Bureau of Fire Protection data.

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INSURANCE

MARKET DATA





Market Trends (Corporate Insurance Losses)

AGCS* 5 year study reports that:

75% of financial losses arise from a list of 10 causes (perils)

24% of the losses caused by fire/explosion

11 of the 20 largest non-natural catastrophe losses caused by fire/explosion

24% (or US\$16Bn) of the total claims paid during the study period covered losses caused by fire/explosion

TOP CAUSES OF LOSS BY TOTAL VALUE OF CLAIMS (2013-2018*)	
1. Fire/explosion	24%
2. Aviation collision/crash	14%
3. Machinery workmanship/maintenance	8%
4. Storm	7%
5. Defective products	7%
6. Damaged goods (including storage)	5%
7. Machinery breakdown (including engine failure)	5%
8. Vehicle collision	3%
9. Professional indemnity	2%
10. Negligence/misadvice	2%

* Allianz Global Corporate & Specialty (AGCS) data published December 2018. A survey of 471,326 claims across 206 countries/territories between 1 July 2013 and 1 July 2018 totalling an equivalent US\$66.5Bn



General Trends (Corporate Insurance Losses)

AGCS* 5 year study also reports that fire/explosion claims:

Most costly insurance peril but not particularly frequent

Sector	% Value of Sector Claims	% Number of Sector Claims
Energy	46	20
Marine	13	<3
Property	51	10
Engineering	27	7
Liability	7	<1

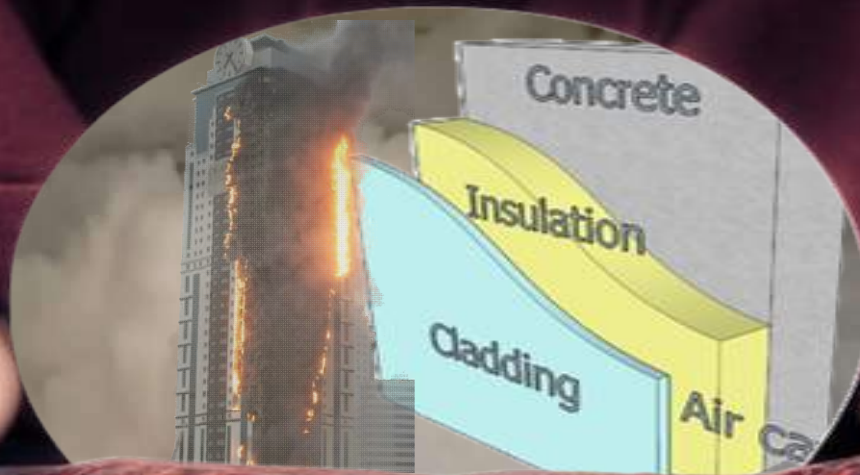


In 2019: container cargo fires aboard : YANTIAN EXPRESS {Jan 2019}, APL VANOUVER {Jan2019}, ER KOBE {Feb 2019}, GRANDE AMERICA {Mar 2019}.....!!
Quite a number of other vessel fires....

* Allianz Global Corporate & Specialty (AGCS) data published December 2018. A survey of 471,326 claims across 206 countries/territories between 1 July 2013 and 1 July 2018 totalling an equivalent US\$66.5Bn



FUTURE TRENDS?



- **Combustible building cladding systems**



Cladding

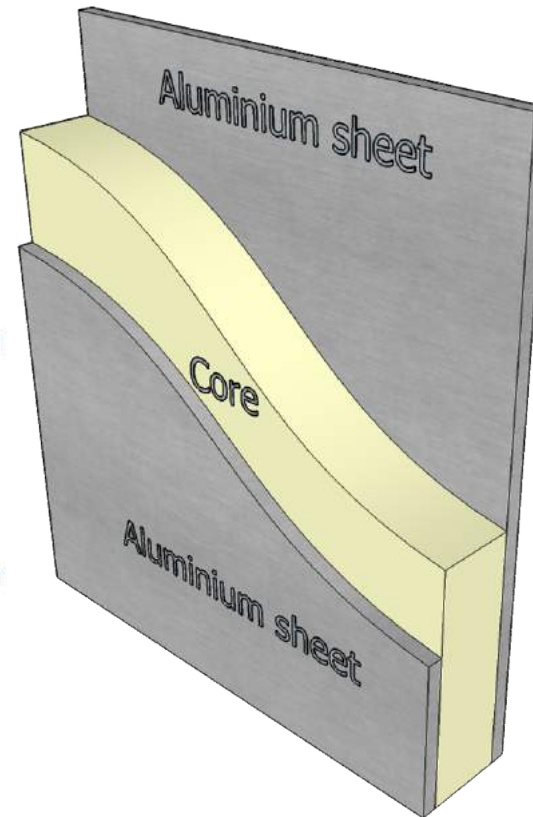




- **Curtain wall systems or building cladding**
- **New builds**
- **Refurbishment of old concrete buildings**
- **Façade face-lift**
- **No major structural works required**
- **Very low maintenance**

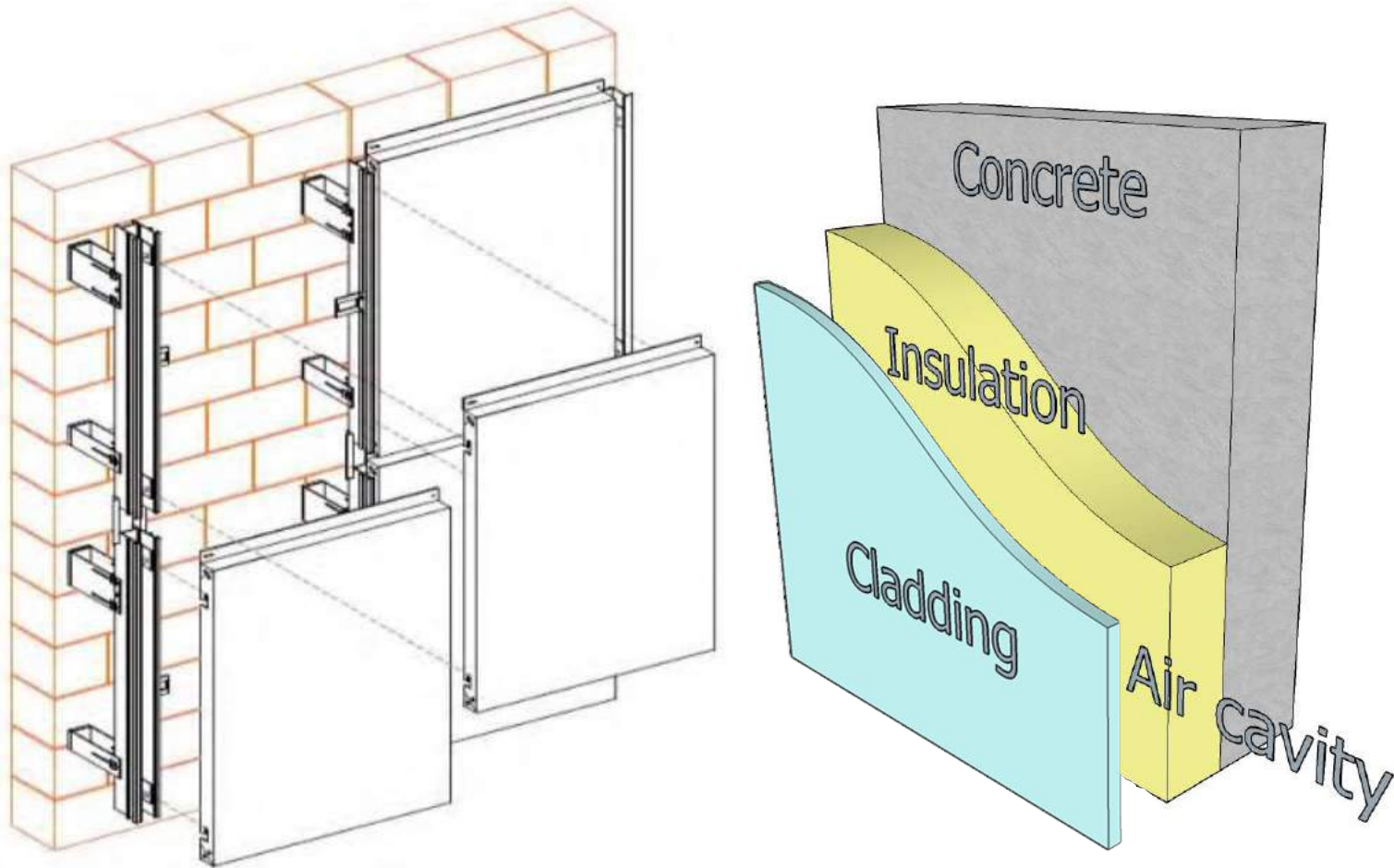


Composite Aluminium Panels





Installation





Building Cladding Fires

Several high profile fire incidents, including in the following countries:

- Dubai
- Indonesia
- South Korea
- Singapore
- United Kingdom

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**The Address
Dubai**



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The Palm's Oceania Residences, Dubai





30 Toh Guan Road, Singapore



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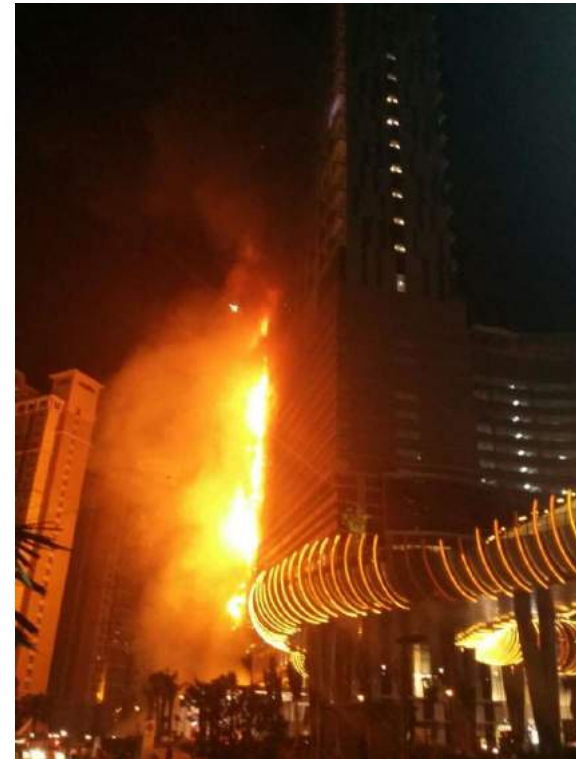


Grenfell Tower, London



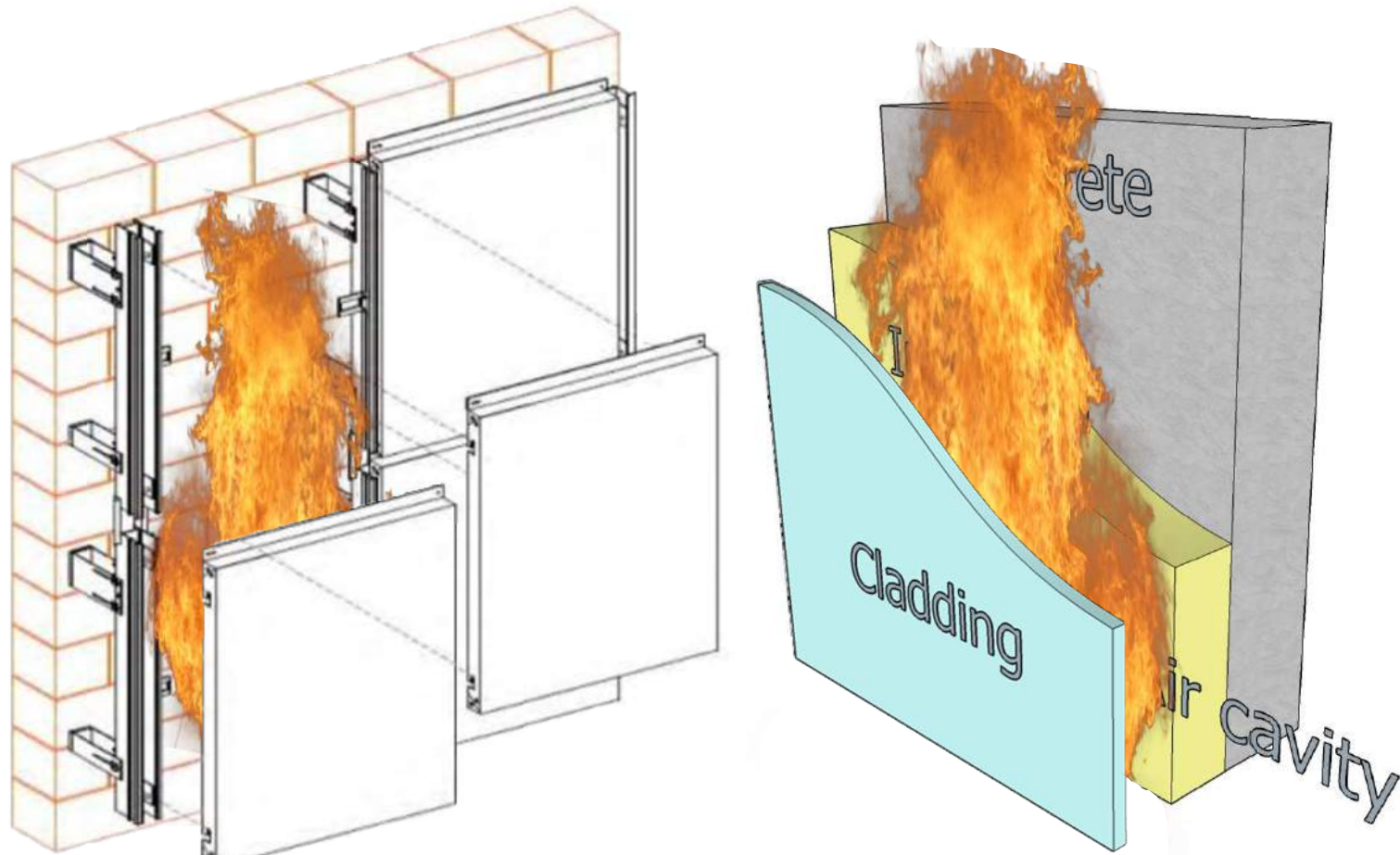


**Neo Soho Building,
Jakarta**





Installation



Lack of fire stopping in air cavity!



Cladding Fires Characteristics

- Rapid vertical fire spread, horizontal spread sometimes controllable
- Multiple storeys involved very quickly
- Re-distribution of fuel load
- Firefighting difficult because of restricted access
- Water repellent nature of cladding construction
- Fire spread in wall cavities
- Usually fire only under control after available fuel load in vertical dimension has been consumed

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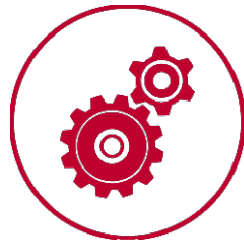
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THANK YOU



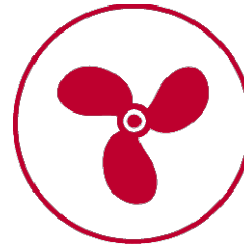
FIRE &
EXPLOSIONS



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