

# Safer by Design

Where the numbers come from

Statistics and methodology November 2019



# Health and Safety risks in buildings

#### Table 11 Risk index categories for domestic health and safety hazards Domestic Health and Safety Hazard Index Category Hygrothermal conditions Slips, trips and falls on the level 78 Particles and fibres 78 Radon 78 Environmental tobacco smoke Slips, trips and falls on stairs, ramps and escalators Security and the effects of crime Noise 70 House dust mites 69 Burns and scalds 68 Fires in buildings 67 В Carbon monoxide 66 Fungal growth 62 Lighting 62 Space and crowding 62 Lead 61 Slips, trips and falls from windows, balconies and roofs 60 Oxides of nitrogen 60 Toilet facilities 60 Volatile organic compounds 59 Collision/entrapment involving doors 59 Sources of infection other than toilets 58 Electrical hazards 56 Drowning 56 Collision/entrapment involving windows Sulphur dioxide Cockroaches 48 Structural collapse and falling objects 48 Explosions in buildings 48 Land contamination including landfill gas 41 Biocides 26 Collision/entrapment involving lifts and escalators Electromagnetic fields NBRA

Review of Health and Safety Risk Drivers (2008) **BD 2518** 

#### Key to the risk categories

A Highest risk category

Second risk category

Third risk category
 Fourth risk category

NBRA No Basis for Risk Assessment

http://webarchive.nationalarchives.gov.uk/20120919132719/www.communities.gov.uk/publications/planningandbuilding/reviewhealthsafety



Table 25: Likelihood values for each hazard at each level of risk

Hot surfaces and materials* 6 15 182 230  Lead		Likelihood values			
Falls associated with stairs and steps* 32 66 245 256   Falls on the level 18 49 135 160   Falls between levels* 6 15 1,693 2,132   Fire*	Hazard	Category	1 Actionable	Average	
Falls bot wheelevels* 6 15 1,693 2,132  Fire*	Excess cold	58	744	2,152	36,541
Falls between levels* 6 15 1,693 2,132  Fire*	Falls associated with stairs and steps*	32	66	245	256
Collision and entrapment*  2 5 39 42  Falls associated with baths etc*  18 53 4,026 4,026  Dempend mould-growth — 2— 40 — 464 — 500 —  Hot surfaces and materials*  6 15 182 230  Lead — 5— 9— 58,400 190,000 —  Entry-by intruders — 2— 40 — 40 — 40 — 400 — 400 —  Redow(radiation) — 910 — 1,020 — 10,000 — 40,000 —  Demsetic hygiene, reanitation and drainage — 0— 49 — 7,750 — 24,040 —  Demsetic hygiene, pestoand-refuse — 4— 3 — 5,685 — 5,505 —  Growding and space — 156 — 341 — 8,000 — 8,000 —  Maisa — 2 — 9 — 000 — 1,000 —  Carbon monoxide and fuel combustion products 2 3 1,250 1,250 —  Structural collapse and failing elements — 6— 43 — 11,770 — 44,764 —  Electrical husards — 20 — 69 — 16,669 — 46,669 —  Position and appearability of amenities (organomics) — 45 — 12,025 — 47,679 —  Uncombusted fuel gas — 22 — 65 — 83,784 — 490,000 —  Lighting — 6— 41 — 50,825 — 60,825 —  Matesaupply-fordomestic pusposes — 9 — 423,649 — 4,444,406 —  Excessive at — 326 — 652 — 900,000 — 190,000 —	Falls on the level	18	49	135	160
Collision and entrapment* 2 5 39 42  Falls associated with baths etc* 18 53 4,026 4,026  Deampend would growth — 2 — 40 — 464 — 500 — 464 — 600	Falls between levels*	6	15	1,693	2,132
Falls associated with baths etc*  18 53 4,026 4,026  Bumpand would growth	fire*	<del>- 56</del>		4,760	5,704
Hot surfaces and materials*   6	Collision and entrapment*	2	5	39	42
Hot surfaces and materials* 6 15 182 230  Lead	Falls associated with baths etc*	18	53	4,026	4,026
Lead	Dempend-mould-growth — — — —			464	500
Entry-by introders	Hot surfaces and materials*	6	15	182	230
Redom/radiation	Lead	_ 5	9	58 <mark>,400</mark>	
Description	Entry by introders			<b>— —</b> 40 —	100
Foodesfety	Rudon (adiation) — — — —	910-	<del>- 1,02</del> 0 <del></del>	<del></del>	10,000
Domestic hygiene, peste and refuse         4—         3         5,585         —5,585           Frowding and space         155         —91         —8,600         —8,600         —8,600           Noise         2         —9         —000         —1,00	Personal hygiene, canitation and drainage		19	7,750 —	
Growding and space         156         311         8,000         -8,000           Moise         2         9         000         1,000           Carbon monoxide and fuel combustion products         2         3         1,250         1,250           Structural collapse and fulling elements         6         13         11,470         -14,701         -           Electrical hazards         20         69         -16,869         -46,869         -           Position and operability of amenities (argonomics)         0         -15         -12,925         -17,679         -           Uncombusted fuel gas         22         55         83,784         490,000         -           Lighting         6         -11         -50,825         -50,826         -           Watersupply for domestic purposes         5         -9         1,423,649         4,414,406         -           Excessible         326         -900,000         150,000         -	Foodsefety		19	4,960 —	
Noise         2         9         600         1,000           Carbon monoxide and fuel combustion products         2         3         1,250         1,250           Structural collapse and failing elements         6         43         11,470         44,704         44,704           Clectrical hazards         20         59         16,869         46,369         46,369           Position and operability of amenities (ergonomics)         0         45         12,925         47,679         40,000           Uncombusted fuel gas         24         55         83,784         490,000         40,000           Lighting         6         41         50,925         50,925         50,925           Watersupply for domestic purposes         5         9         1,423,649         4,414,406           Excessibility         326         326         900,000         150,000	Domestic hygiene, peste and refuse		3	- 5,585	<b>— —5,585 — —</b>
Carbon monoxide and fuel combustion products       2       3       1,250       1,250         Structural collapse and failing elements       6       43       11,470       44,761       —         Electrical hazards       20       59       16,869       —       45,869       —         Position and operability of amenities (organomics)       0       45       12,925       —       47,679       —         Uncombusted fuel gas       22       65       83,784       490,000       —         Lighting       6       41       50,825       50,925       —         Watersupply for domestic purposes       5       9       1,423,649       4,414,406       —         Excessfleat       326       652       900,000       150,000       —	Growding and space	155	311	— 8 <del>,0</del> 00 —	8,000
Structural collapse and failing elements         6         -13         -11,470         -14,701         -           Electrical hazards         20         -69         -16,869         -46,869         -           Position and operability of amenities (argonomics)         0         -45         -12,925         -17,679         -           Uncombusted fuel-gas         22         -65         -83,784         -490,000         -           Lighting         6         -11         -50,925         -50,926         -           Watersupply for domestic purposes         5         -9         1,423,649         -4,414,406         -           Excessfleat         326         -652         -900,000         -150,000         -	Noise	_ 2	9	900	1,000
Electrical hazards         28         59         16,869         -16,869         -           Position and operability of amenities (organismics)         8         -15         -12,925         -17,679         -           Uncombusted fuelgas         22         -65         -83,784         +80,000         -           Lighting         6         -11         -50,925         -60,925         -           Watersupply for domestic purposes         5         -9         -1,423,649         -4,414,406         -           Excessfleat         326         -852         -900,000         -150,000         -	Carbon monoxide and fuel combustion produc	ts 2	3	1,250	1,250
Position and operability of amenities (organismics)	Structural collapse and failing elements		13	11,170 —	<b>— —14,701 — —</b>
Uncombusted fuelgas       22       55       83,784       480,000       —         Lighting       6       41       50,825       50,826       —         Matessupply-for demestic purposes       5       9       1,423,649       4,414,406       —         Excesshear       326       652       900,000       150,000       —	Electrical hazards	20		16,069 —	
Lighting       —<	Position and operability of amenities (organism	ics) 8 —	<b>— —</b> 15 — •	12,925 —	— —17,6 <del>7</del> 9 — —
Watersupply-for-demestic purposes 5 9 1,423,649 4,414,406	Uncombusted fuel-gas— — — —	27	55	83,784	
Excess heat 326 352 300,000 150,000	Lighting — — — — — —			50,825	50,835
	Water-supply-for-domestic purposes	_ = _	9	1,423,549	4,414,405
Fundamental	Excessileat	326	-652	900,000	<del>- 13</del> 0,660
	Emplosions		229	156,528	456,538

Different spread of harms for HHSRS Category 1 hazards only.

### Consider hazards where BR 2010 likelihood:

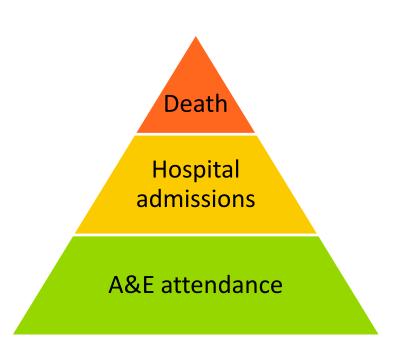
- Likelihood > 1:5,000
- Accidental injury related

Table 25, from FB81 The Full cost of poor housing

https://www.brebookshop.com/details.jsp?id=327672



## How can we measure them (available evidence)



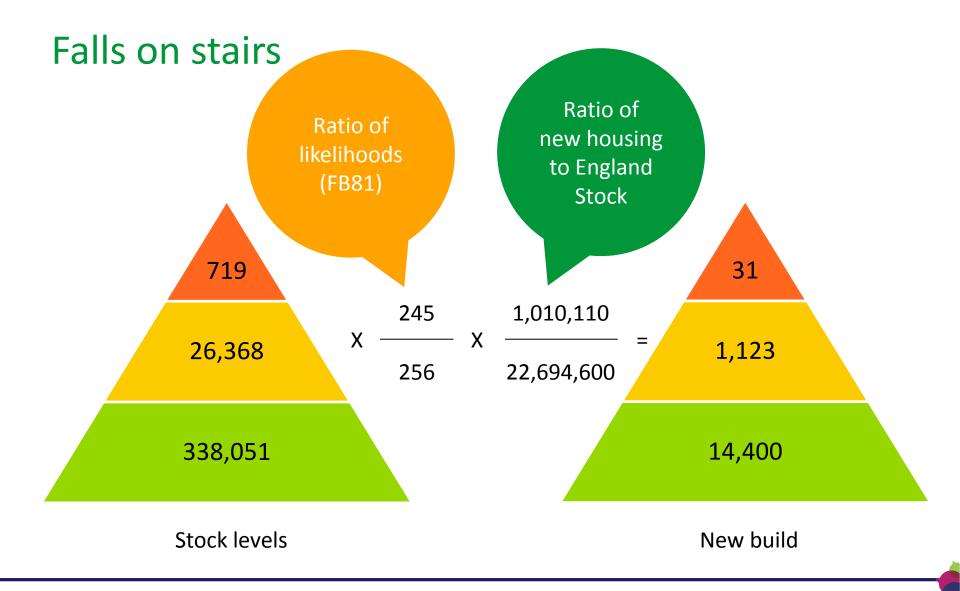
#### Levels of harm

- Deaths per annum (ONS, 2016)
- Hospital admissions (HES, 2016)
- Visits to A& E (HASS approximation)

#### Average to New build

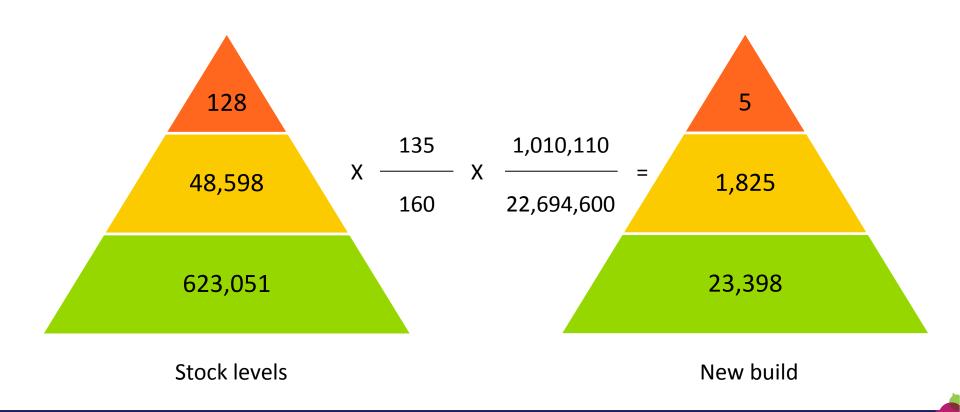
- Different likelihood
- Changing spread of harms
- Smaller number on homes
- New risks introduced





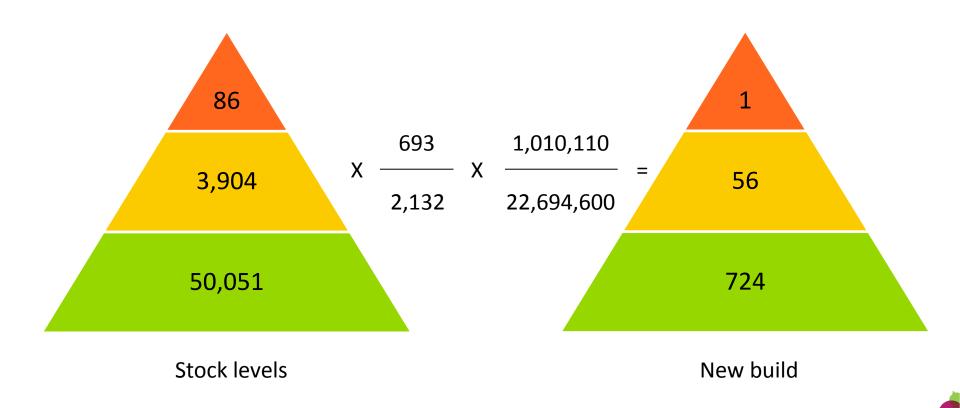


### Falls on the level



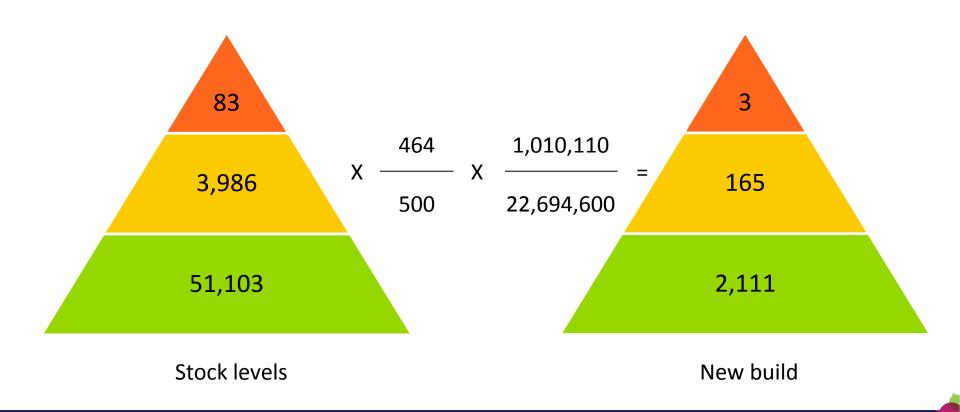


### Falls between levels



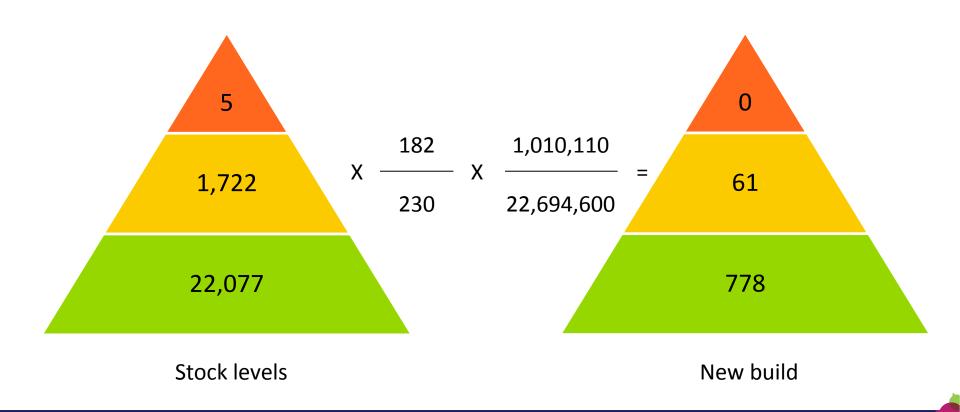


# Falls in bathrooms (estimate)



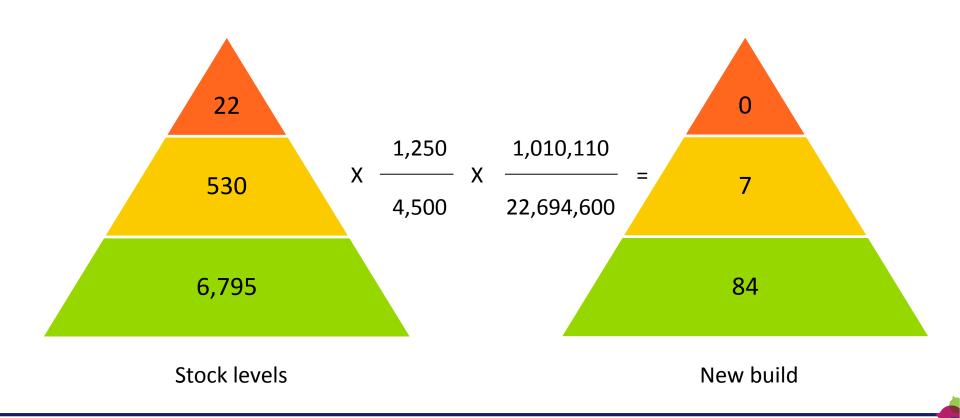


### Burns – Hot surfaces





# **Carbon Monoxide Poisoning**





# **Entrapment in doors**

