

[DRAFT] Quantitative Ranking for Emerging and Historical Hazards Attributable to the Built Environment [DRAFT]

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It would be an involved thesis to get this information synthesis fully fleshed out and accurate across more than a century. However, **it is better to be roughly right than precisely wrong**, as ecological designer Ianto Evans is fond of saying. The difficulty of attaining this level of data synthesis has put many off from even trying. However, I found even this analysis of the scale old and new hazards attributable to the built environment and how they've changed to thought provoking and galvanizing. The basic trends are overwhelming. Whether 1% or 10% of cancer deaths are attributable to toxins in the built environment hardly matters, compared to the point that this risk is thousands of times greater than the chance of being killed in an earthquake—which in turn means we are gravely misallocating safety resources. While buildings are subject to minute earthquake safety review to meet well-developed requirements, there is essentially zero attention to effects of the built environment on cumulative toxin exposure, reducing exercise, greenhouse gas emissions, etc.; new hazards which dwarf the old ones.

We are looking for institutional partners to further develop and refine this analysis; it would make a great thesis or group project. Please e mail oasis@oasisdesign.net if you are interested.

Note: This worksheet shows an executive summary of statistics and trends. The other sheets in this file contain the sources, references, and calculations. A word doc containing our complete research notes is available on request. Some numbers are very solid, some are estimates. The estimates were made conservatively. The exact quantities are likely to shift with more research, but it is highly unlikely that they would do so enough to change the primary conclusions regarding relative risk and trends (those in the three bold statements below). For example, it may be the case that the built-environment precipitated cancer deaths are 2,000 times more than from earthquakes, or 800 times more, but it is very unlikely that there are fewer people dying from built environment-precipitated cancer than structural collapse of buildings. If you wish to do a detailed review of this information or pass it on, please e mail oasis@oasisdesign.net with the file name to confirm that it is the latest version.

The existing Building Safety system is working extremely well for 19th century hazards...

195 Factor by which safety from earthquake-induced **structural collapse** has improved between 1850-1900 and 2001-2009

2.0 Factor by which the chance of dying in a **structure fire** has dropped from 1977 to 2007

[ADD] Factor by which dying of a **water borne disease** has dropped from...

The existing Building Safety system is not addressing 21st century hazards...

1,670 Estimated factor by which you are more likely to die from **cancer attributable to the built environment** than an earthquake

2% of cancer deaths assumed to be attributable to t

1,994 Factor by which you are more likely to die from a the **built environment discouraging exercise** than an earthquake

2% of heart disease deaths assumed to be attributa

3 Factor by which you are more likely to die from the 21st century **built environment discouraging exercise** to the chance of a **19th century building falling on you in an ea**

13,968 Number of worldwide **climate change deaths** in 2000 which are attributable to carbon emissions from US buildings

Together, the new hazards which codes do not yet adequately address are far bigger than all the old hazards together, and the new hazards are growing rapidly...

The US cancer death rate has tripled since 1900, despite greatly improved treatment. Today, one in 3 people is expected to develop cancer in their lifetime.

0 [CHECK] Worldwide deaths per year from climate disruption in 1950

140,000 Worldwide deaths per year from climate disruption in 2000, according to the World Health Organization

300,000 Worldwide deaths per year from climate disruption in 2009, according to Kofi Annan's Global Humanitarian Forum

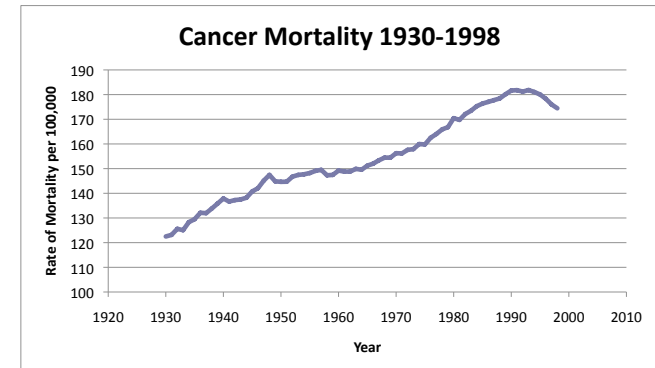
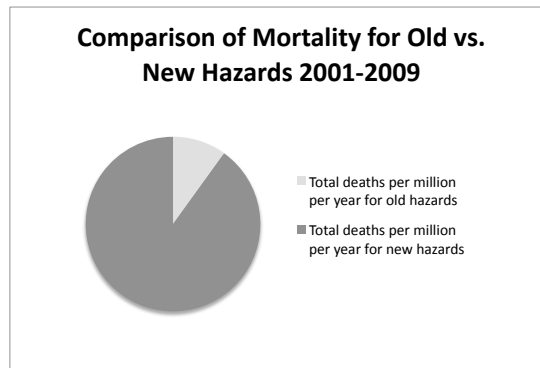
[ADD] Potential worldwide deaths per year from climate disruption in 2050, according to the World Health Organization

3,422 Combined total of US earthquake and structure fire deaths in year 2000

4 Factor by which deaths from climate disruption caused by US buildings exceeds the combined total of earthquake and structure fire deaths in these buildings

2,014 Estimated factor by which you are more likely to die from the US built environment making it hard to exercise, as compared to a US building falling on you in an earthquake

4 Estimated factor by which you are more likely to die of cancer from residential or occupational exposure to toxic building materials than from a house fire



Time Period	US population (average, millions)	Deaths from Various Hazards (Per million people per year)					
		Old Hazards			New Hazards		
1850-1900	47	4			0	0	0
1901-1950	114	29				12.1	
1951-2000	216	1	19		33	34.5	
2001-2009	296	0.02	9		45	37.7	
2011-2050	364	0.02			45	37.7	

[ADD INFO FOR BLANKS]

