

Table I: U.S. Burden of Poor IEQ

Data	Reference
For carbon monoxide, from 2004-2006 there were 20,636 emergency department visits annually in the US for nonfatal, unintentional, non--fire-related CO exposures. Approximately 73% of these exposures occurred in homes. Children under age 5 had the highest rate of ED visits (11.6 per 100,000 for children vs 7.0 per 100,000 for all ages).	Annest, J., et al., <i>Nonfatal, Unintentional, Non--Fire-Related Carbon Monoxide Exposures --- United States, 2004--2006</i> . Morbidity Mortality Weekly Report, 2008. 57 (33): p. 896-899.
The prevalence of asthma in industrialized nations has almost doubled since 1980.	Institute of Medicine, <i>Clearing the air: asthma and indoor air exposures</i> . 2000, National Academy Press: Washington, D.C. p. 1-18.
The prevalence of asthma in industrialized nations has almost doubled since 1980. Environmental asthma is primarily associated with indoor, not outdoor, exposures. A national survey of asthmatics found that only 30% of asthmatics have taken all the essential actions recommended to reduce exposure to asthma triggers.	Jacobs, D.E., T. Kelly, and J. Sobolewski, <i>Linking public health, housing, and indoor environmental policy: successes and challenges at local and federal agencies in the United States</i> . Environmental Health Perspectives, 2007. 115 (6): p. 976-982.
While much of the attention in regarding air quality has focused on outdoor pollution, it should be noted that IEQ is also related to outdoor pollution. Most of our exposures to outdoor pollutants (ozone, PM2.5) occur indoors. For example, indoor ozone levels were found to be 22-66% of outdoor levels and PM2.5 levels 35 – 64% of outdoor levels.	Mitchell, C., et al., <i>Current state of the science: health effects and indoor environmental quality</i> . Environmental Health Perspectives, 2007. 115 (6): p. 958-964.
A 2005 US EPA study found that only 22% of US school had an indoor air quality management plan that meets EPA standard for effectiveness.	Jacobs, D.E., T. Kelly, and J. Sobolewski, <i>Linking public health, housing, and indoor environmental policy: successes and challenges at local and federal agencies in the United States</i> . Environmental Health Perspectives, 2007. 115 (6): p. 976-982.
Poor IEQ can impact student learning, staff productivity, and absenteeism in schools. The impact of poor ventilation, discomfort and specific hazards have been estimated to affect performance by 2-8%.	U.S. Environmental Protection Agency, <i>Indoor Air Quality and Student Performance</i> . 2003: Washington DC.
The most common IEQ problems in schools are related to inadequate ventilation, moisture and mold, volatile organic chemicals, and allergens. Underlying causes include compliance with earlier standards/codes, inadequate maintenance, insufficient cleaning, poor construction/design.	Daisey, J.M., W.J. Angell, and M.G. Apte, <i>Indoor air quality, ventilation, and health symptoms in schools: an analysis of existing information</i> . Indoor Air, 2003. 13 : p. 53-64.

	Tranter, D.C., <i>Indoor allergens in settled school dust: a review of findings and significant factors</i> . Clinical and Experimental Allergy, 2005. 35 : p. 126-136
Studies have reported mold and moisture are common problems in homes. One study of 6,723 school children found 58% of homeowners reported water damage or mold, and another study of 16,000 homes found 22% of homeowners reported mold in their homes.	Wu, F., et al., <i>Improving indoor environmental quality for public health: impediments and policy recommendations</i> . Environmental Health Perspectives, 2007. 115 (6).
IEQ problems in homes may be on the rise. The percentage of households with children ages 0–17 that reported housing problems increased from 30% in 1978 to 40% in 2005.	Federal Interagency Forum on Child and Family Statistics, <i>America's Children in Brief: Key National Indicators of Well-Being, 2008</i> . 2008.
Five million families and over 4 million children live in substandard housing where families may be exposed to hazards such as lead, asbestos, mold, cockroaches, mice, rats, carbon monoxide and tobacco smoke.	Bashir, S., <i>Home is where the harm is: inadequate housing as a public health crisis</i> . American Journal of Public Health, 2002. 92 (5): p. 733-738.
One quarter of asthma cases in the US are estimated to be attributable to dampness and mold exposure in the home, at a cost of approximately \$3.5 billion per year.	Mudarri, D. and W.J. Fisk, <i>Public health and economic impact of dampness and mold</i> . Indoor Air, 2007. 17 : p. 226-235.
IEQ is an environmental justice issue. Poor IEQ disproportionately impacts low income populations—the poor are 3 times as likely to have sub-standard housing [2] and have 2.5 times the rate of blood lead levels above 2.5 ug/dL.	Federal Interagency Forum on Child and Family Statistics, <i>America's Children in Brief: Key National Indicators of Well-Being, 2008</i> . 2008.
Through the end of 2007, it can be estimated that about 4.5 million US homes have radon-reducing features, yet this is still a small fraction of US homes [1]. Every million homes mitigated have the potential to prevent about 900 premature lung cancer cases.	Jacobs, D.E., T. Kelly, and J. Sobolewski, <i>Linking public health, housing, and indoor environmental policy: successes and challenges at local and federal agencies in the United States</i> . Environmental Health Perspectives, 2007. 115 (6): p. 976-982.

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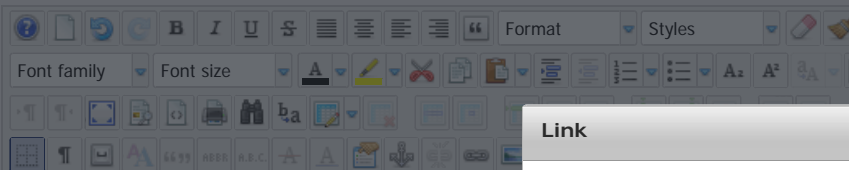
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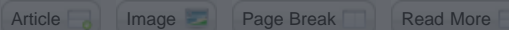
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