

Risky Buildings, Building Risk

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March 2004, as with most other months, included plenty news related to buildings and risk. A Kansas office building designed to reduce employees' obesity was reported along with nine deaths from building collapses in an earthquake in Turkey. Meanwhile, many countries were evaluating the vulnerability of key buildings to terrorism and then the U.K.'s Chief Scientific Advisor suggested that climate change poses a bigger threat than terrorism.



When planning, designing, constructing, operating, maintaining, renovating and decommissioning a building, is it possible to reconcile all these risk issues? Particularly when many risks from buildings are caused by our decisions, such as materials used, design decisions such as ventilation, activities performed in and near buildings, and the environmental processes and human attitudes which buildings influence. Plus the choices made for design loads to withstand extreme environmental events, such as wind, snow, ground shaking, extreme temperatures, and hail.

In designing buildings, all possibilities for building damage and, more importantly, harm to the individuals and societies using them, should be considered. Creeping environmental changes, such as the drying up of the Aral Sea and desertification in China, must be considered alongside the sudden, extreme events. The effect on buildings from thousands of small tremors over a decade should continue to be investigated alongside the impact of a single, big earthquake.

Could and should a building (or certain buildings) be designed to withstand a nearby explosive supervolcano eruption, a large meteor strike, an ice age, a collision with an aircraft carrier, or an impact from a rampaging kangaroo? Could and should a building be designed to reduce the probability of transmission of microbial pathogens such as the influenza virus or HIV or to discourage the survival of vectors such as mosquitoes and ticks?

No building can be designed to withstand all external risks or to eliminate all internal risks. We must make choices. Those choices often create buildings which are risky to some degree or which build some risk into a building. Defining the boundaries where we decide and accept that our social, political, legal, economic, scientific, and technological processes can no longer produce safe buildings or safe communities is perhaps more challenging than creating and maintaining a community which is safe within the boundaries which we select.



Further questions could be posed about designing buildings. Could and should buildings be designed to reduce risks to health, using the World Health Organization's definition: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Could and should buildings be designed to make individual and collective behaviour more environmentally friendly and less selfish?

How far should communications and information technology be incorporated into buildings so that the building monitors us and responds according to data received? How much control should be given to automatic systems compared to the individual? To what extent can buildings and communities be incorporated into the natural environment? How much must the natural environment be changed to produce a building or community that satisfies our needs? Or could buildings be designed to change our needs so that they—and we—are more sustainable? Is it feasible to design a building which meets or which adapts itself to the perceived needs or wants of every possible user?

The issues of risky buildings, building risk, and sustainable communities thereby merge while expanding into philosophy and ethics. Buildings are rarely built for the sake of building. Instead, they are meant to serve humanity and should facilitate creating and maintaining a sustainable society. Rather than being a partition between the environment and society, buildings should be part of their integration, through appropriate risk management amongst other tasks needed to progress towards sustainability.

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