AIA

THE AMERICAN INSTITUTE OF ARCHITECTS: Sustainability Initiative

Understanding Resilience

The AIA supports policies, programs, and practices that promote adaptable and resilient buildings and communities. Buildings and communities are subjected to destructive forces from natural and human-caused hazards such as fire, earthquakes, flooding, sea level rise, tornadoes, tsunamis, severe weather, and even intentional attack. The forces affecting the built environment are evolving with climate change, environmental degradation, population growth, and migration; this alters long term conditions and demands design innovation. Architects design environments that reduce harm and property damage, adapt to evolving conditions, and more readily, effectively and efficiently recover from adverse events. Additionally, the AIA supports member training and active involvement in disaster assistance efforts, providing valuable insights and aid to communities before, during, and after a destructive event. —AIA Position Statement on Resilience

1. **Hazard:** poses a threat to safety

Hazards such as hurricanes, tsunamis, earthquakes, tornadoes, blizzards, drought, and wildfires are responsible for injury, death, and property damage as well as social and economic disruption. These events are no longer a one-off, once in a lifetime event; particularly when we look at the impacts of climate change.

2. **Risk:** quantifies hazard threat

Risk defines the likelihood of occurrence and intensity of the hazard. Determining the level of "acceptable risk" is critical to designing for the associated level of building performance. It is important to ask: What is the projected lifespan of the building? What are the building's critical functional requirements before, during, and after a hazard strikes? And how long is it acceptable for the building to be out of service due to the impacts of a hazard?

3. **Vulnerability:** personalizes risk

Vulnerability assesses the capabilities and interdependencies of individuals and communities associated with risk. A resilient building in a vulnerable community isn't truly resilient. Infrastructure, utilities, food supply and services are all necessary for adequate functionality.

Mitigation: reducing negative impact

Mitigation measures are often developed in accordance with lessons learned from prior incidents. Measures may include zoning and building codes or floodplain buyouts as well as efforts to educate governments, businesses, and the public on measures they can take to reduce loss and injury. Mitigation is most successful when policies and decision-making support appropriate development, land use, site selection, and adoption of model building codes.

Resilience: inherent durability or flexibility

When working within the built environment, it's important to have foresight: incorporating changing environmental, social, and economic conditions into projects. This requires designs that are tough as well as flexible; providing the ability to not only bounce back, but forward.

Adaptation: accommodating needs throughout service life

Hazards aren't the only threat. It is critical to acknowledge the changing conditions in the physical, economic and social environment as well. Communities and buildings are ultimately successful when they are adaptable to change.

Sustainability: considering present and future

The concept of meeting present needs without compromising the ability of future generations to meet their needs. Design that seeks to avoid depletion of energy, water, and raw material resources; prevent environmental degradation caused by facility and infrastructure development over its life cycle; and create environments that are livable, comfortable, and safe and that promote productivity.

Regenerative Design: creating better conditions

Restores and improves the surrounding natural environment by enhancing the quality of life for biotic and abiotic components of the environment.