



## Resilience vs. Sustainability in Building Design

Sustainability and resilience are often discussed together in building design, but they address different performance objectives. Sustainability minimizes a building's long-term environmental impact. Resilience focuses on keeping buildings operational and occupants protected during and after disruptive events such as extreme weather, flooding, wildfire smoke, or extended power outages.

Both approaches need to be integrated from the start. A facility may achieve net-zero performance targets yet still require extended downtime after a flood. Conversely, a structure designed to resist extreme events may continue operating but still contribute to long-term environmental impacts through inefficient systems or high-carbon materials.

### How the Approaches Differ

Sustainability strategies reduce resource consumption and emissions through:

- High-efficiency systems, electrification, and renewable integration
- Water conservation and reuse
- Low-impact, durable materials and assemblies

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Resilience strategies protect building performance and occupant safety during disruptive events by:

- Designing for passive survivability and rapid recovery
- Locating and protecting critical systems outside hazard zones
- Providing redundancy in power, water, and communication networks

In summary:

- Sustainability reduces the building's impact on the environment.
- Resilience reduces the environment's impact on the building.



## Resilience vs. Sustainability in Building Design

### Resilience vs. Sustainability Strategies by Building System

#### Building Envelope

##### *Sustainability Strategies*

- High-performance glazing to reduce heat gain/loss
- Continuous insulation to improve thermal efficiency
- Low-embodied-carbon materials

##### *Resilience Strategies*

- Impact-rated glazing for windborne debris
- Flood-resistant wall assemblies and water-tight barriers
- Roof systems with enhanced uplift resistance

#### MEP Systems

##### *Sustainability Strategies*

- High-efficiency HVAC and lighting
- Electrification with renewable integration
- Demand-controlled ventilation

##### *Resilience Strategies*

- Passive ventilation and cooling for survivability
- Redundant HVAC and electrical systems
- On-site backup power generation

#### Site & Infrastructure

##### *Sustainability Strategies*

- Rainwater collection and reuse, and low-impact development
- Native landscaping to reduce irrigation demand
- EV charging stations

##### *Resilience Strategies*

- Elevating critical systems above flood levels
- Permeable paving for stormwater management
- Multiple utility feeds for redundancy

#### Operations & Maintenance

##### *Sustainability Strategies*

- Predictive maintenance for longer system life
- Commissioning to maintain efficiency
- Smart metering to track performance

##### *Resilience Strategies*

- Emergency response plans and drills

- Rapid damage assessment protocols
- Remote monitoring for critical systems

#### Occupant Health & Comfort

##### *Sustainability Strategies*

- Daylighting to reduce electric lighting demand
- Low-VOC materials for indoor air quality
- Acoustic strategies for comfort

##### *Resilience Strategies*

- Air filtration for wildfire smoke
- Shelter-in-place areas
- Flexible interior layouts for emergency use

### Integrating Both

When sustainability and resilience are addressed together, the result is a building that meets environmental performance goals while maintaining operational continuity under stress.

Intertek's new **The American Institute of Architects (AIA)-approved, on-demand course, Resilience in the Real World of Design**, offers technical guidance on integrating resilience strategies into projects while maintaining sustainability objectives.

Taught by **Alan Scott, FAIA, LEED Fellow**, and Director of Sustainability at Intertek, the course covers:

- Aligning resilience strategies with sustainability frameworks
- Assessing site-specific and climate-driven risks
- Designing beyond code minimums
- Applying LEED v5 and ASTM E3429 standards
- Enhancing building performance and occupant safety

Architects can earn 1 AIA LU/HSW credit by completing the course and can register **here**.

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