



Resilience at USGBC



The **U.S. Green Building Council (USGBC®)** and its community are changing the way buildings and communities are designed, built and operated. We believe in better buildings; places that complement our environment and enhance our communities. Places that give people better, brighter, healthier places to live, work and play.

re·sil·ience

/rə'zilyəns/

“the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events.”

USGBC joined with other industry leaders to broadly define the term resilience in 2014.

Industry Statement on Resilience

Representing nearly 1.7 million professionals, America's design and construction industry is one of the largest sectors of this nation's economy, generating over \$1 trillion in GDP. We are responsible for the design, construction, and operation of the buildings, homes, transportation systems, landscapes, and public spaces that enrich our lives and sustain America's global leadership.

We recognize that natural and manmade hazards pose an increasing threat to the safety of the public and the vitality of our nation. Aging infrastructure and disasters result in unacceptable losses of life and property, straining our nation's ability to respond in a timely and efficient manner. We further recognize that contemporary planning, building materials, and design, construction and operational techniques can make our communities more resilient to these threats.

Drawing upon the work of the National Research Council, **we define resilience as the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events.**

As the leaders of this industry, we are committed to significantly improving the resilience of our nation's buildings, infrastructure, public spaces, and communities.

- **We research** materials, design techniques, construction procedures, and other methods to improve the standard of practice.
- **We educate** our profession through continuous learning. Through coordinated and continuous learning, design, construction and operations professionals can provide their clients with proven best practices and utilize the latest systems and materials to create more resilient communities.
- **We advocate** at all levels of government for effective land use policies, modern building codes, and smarter investment in the construction and maintenance of our nation's buildings and infrastructure.
- **We respond** alongside professional emergency managers when disasters do occur. Industry experts routinely work in partnership with government officials to survey damage, coordinate recovery efforts, and help communities rebuild better and stronger than before.
- **We plan** for the future, proactively envisioning and pursuing a more sustainable built environment.

The promotion of resilience will improve the economic competitiveness of the United States. Disasters are expensive to respond to, but much of the destruction can be prevented with cost-effective mitigation features and advanced planning. Our practices must continue to change, and we commit ourselves to the creation of new practices in order to break the cycle of destruction and rebuilding. Together, our organizations are committed to build a more resilient future.

CULTIVATORS
led the effort to establish and implement the Statement with their industry peers



FOUNDERS
united to define the goals and objectives of a resilient built environment



AMPLIFIERS
joined the founding signatories in committing to the advancement of Statement goals



Even the earliest versions of LEED promoted many of today's most common building resilience strategies

- ✓ Inherently, high performing buildings and facilities that use fewer off-site resources will be better positioned to withstand and bounce back from adverse events.

All resilience is contextual. USGBC's green building programs can support achieving defined project goals.

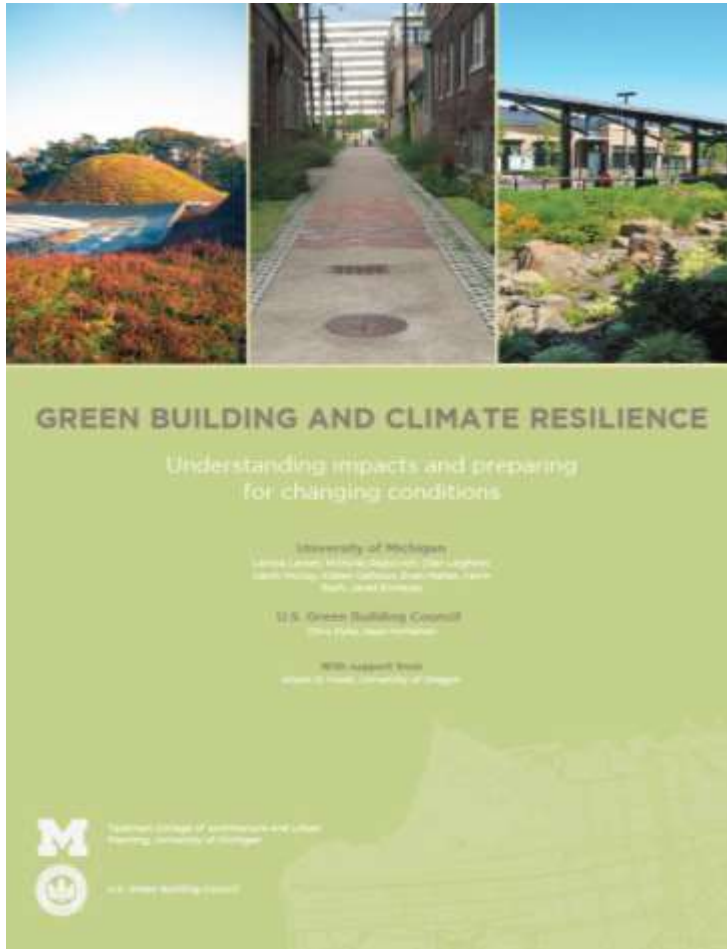
- ✓ Determine resilience priority based on potential major threats to community, priorities for hazard mitigation, existence of a community resilience plan, etc.



LEED + Resilience

- [LEED](#) promotes resilience in building design, construction and operation.
- [LEED Climate Resilience Screening Tool](#) evaluates resilience potential of each credit + identifying potential opportunities.
- [UT San Antonio study](#) found that most v4 credits help to increase resilience among several natural disasters
- More: [Resilience Pathway](#), [Resilience Brief](#), [Resilience Pilot Credits](#)

LEED + Climate Resilience



Analysis

Home User Guide Dashboard Results

Click to reset to original USGBC data

Rationale: Climate Sensitivity

Rating System	Credit Code	Rationale: Climate Sensitivity	Rationale: Climate Adaptation Opp
LEED NC v4	SSp1	prerequisite outcome is not sensitive to climate conditions	soil stabilization measures should be specific to local climate risks and impact
LEED NC v4	SSc1	sites excluded may be located in climate sensitive zones (floodplain)	development locations should consider climate risk and improve selection of
LEED NC v4	SSc2	lands may be located in areas with high climate sensitivity (floodplain)	protection areas should be mapped according to local climate risks (floodpla
LEED NC v4	SSc3	credit outcome is not sensitive to climate conditions	open space requirements should consider climate risk (slope preservation/fi
LEED NC v4	SSc4	Rainwater management plans should account for extreme events, and are contingent on climate	rainwater designs should reflect more extreme events (drought/storms)
LEED NC v4	SSc5	credit outcome is not sensitive to climate conditions	pervious or reflective surface selection should be dependent on local climate
LEED NC v4	SSc6	credit outcome is not sensitive to climate conditions	no climate adaptation opportunity for this credit
LEED NC v4	WEp1	prerequisite outcome is not sensitive to climate conditions	water use reduction baselines should differ in regions dependent on local wa
LEED NC v4	WEp2	prerequisite outcome is not sensitive to climate conditions	water use reduction baselines should differ in regions dependent on local wa
LEED NC v4	WEp3	prerequisite outcome is not sensitive to climate conditions	credit outcome could lead to increased water conservation measures
LEED NC v4	WEp4	credit outcome is not sensitive to climate conditions	water use reduction baselines should differ in regions dependent on local wa
LEED NC v4	WEp5	credit outcome is not sensitive to climate conditions	water use reduction baselines should differ in regions dependent on local wa
LEED NC v4	WEp6	credit outcome is not sensitive to climate conditions	credit outcome could lead to increased water conservation
LEED NC v4	WEp7	credit outcome is not sensitive to climate conditions	credit outcome could lead to increased water conservation measures
LEED NC v4	EAp1	prerequisite outcome is not sensitive to climate conditions	commissioning should consider climate adaptation opportunities and risks (i
LEED NC v4	EAp2	minimum energy performance is contingent on climate conditions (extreme heat/cold)	energy efficiency performance could be improved with climate adaptation a
LEED NC v4	EAp3	credit outcome is not sensitive to climate conditions	M&V plans should consider climate adaptation opportunity and risks (increa
LEED NC v4	EAp4	prerequisite outcome is not sensitive to climate conditions	no climate adaptation opportunity for this prerequisite
LEED NC v4	EAc1	credit outcome is not sensitive to climate conditions	commissioning should consider climate adaptation opportunities and risks (i
LEED NC v4	EAc2	energy performance standards should consider climate zone sensitivity (extreme heat/cold)	energy performance standards should consider climate conditions and other
LEED NC v4	EAc3	credit outcome is not sensitive to climate conditions	Credit outcome could lead to increased energy performance

<https://www.usgbc.org/resources/leed-climate-resilience-screening-tool>

<https://www.usgbc.org/resources/green-building-and-climate-resilience-understanding-impacts-and-preparing-changing-conditi>

Examples of Resilient LEED Buildings

MARCH 2018

POLICY BRIEF

PROFILES OF RESILIENCE: LEED IN PRACTICE



As part of our commitment to building a more resilient future for the built environment, USGBC defines resilience as “**the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events.**” To meet this goal, USGBC is driving [resilience](#) in more ways than one by making buildings more sustainable, durable, and functional through the application of LEED. Through integrative design and key credits, LEED guides project teams to invest in climate adaptation strategies to enhance building and community resilience.

This brief dives into several examples of LEED-certified buildings that have been tested and have demonstrated exceptional resilience. These LEED project teams attest that the LEED process – including purposeful design and third-party validation – has helped these projects achieve critical resilience outcomes.

ÁLVAREZ-DÍAZ & VILLALÓN OFFICES SAN JUAN, PUERTO RICO

Originally built in the early twentieth century, the building that is home to the offices of Álvarez-Díaz & Villalón (AD&V) was [renovated](#) in 2013 to maximize sustainability and resilience. In 2014, the AD&V offices became the first architecture and interior design firm in Latin America to earn [LEED Platinum](#) certification. The resilient features of both the office space and the building at large (outlined below), contributed to its quick recovery from Hurricane Maria in 2017.

certification. Each energy conservation measure (ECM) implemented as part of the project’s renovation helped contribute to overall greater efficiency, cost savings, and a shorter period required to restore building operations.



AD&V Offices

Following the devastation of Hurricane Maria, the AD&V office space returned to a fully functional work space within a few days, a

<https://www.usgbc.org/resources/profiles-resilience-lead-practice>