



Evolution of the Standard of Care Due to Climate Change

By Andrew D. Mendelson and Dion N. Cominos | Sunday, January 3, 2021



Legal and practice standards for design and construction professionals are evolving due to climate change. While the cause of climate change is an oft-debated topic, the fact of it is largely undeniable. The earth's global surface temperature and water levels are rising, while severe storms and climatic events have increased dramatically across the United States and not just in coastal areas.

Consequently, the standards of care and legal requirements applicable to design professionals, contractors and others involved in construction will need to be taken into consideration as part of the overall construction process.

To follow are key considerations and strategies to manage risk in response to the enhanced expectations of clients and the broader community.

UPDATE THE ASSESSMENT OF THE PROJECT'S PRESENT CONDITIONS AND LOCATION

The particular types of weather and other natural conditions to which the site or project may be exposed require careful and critical consideration. This includes asking:

- What are the most recent trends of frequency for storms—hurricanes, floods, tornados – or other natural events, such as wildfires?
- How are severe wind and rain events impacting the integrity and durability of infrastructure and building structure and envelope?

- How recently have the applicable flood, seismic and other pertinent maps been updated?
- For example, the standard of care for a lumber warehouse will differ dramatically from those of an essential facility (such as a hospital, power generation, government service building or utilities plant) where the continuity of operation is critical.

EVALUATE THE SUFFICIENCY OF EXISTING CODES, STANDARDS AND REGULATIONS

Professionals should evaluate and have a clear understanding of each territorial jurisdiction's codes and regulations—city, county, state and federal. They also need to anticipate the potential upgrades and changes to these standards. Unfortunately, simple compliance with existing codes may not offer sufficient defense against allegations of professional negligence. Rather, the codes often embody minimum standards and particular circumstances may require elevated criteria to meet the needs of a changing environment.

PROMOTE RESILIENT DESIGN IN DEFINING PROJECT CRITERIA

[Resilience](#) is defined as “the capacity to adapt to changing conditions and to maintain or regain functionality and vitality in the face of stress or disturbance.” In applying resilience to the built environment, the [International Code Council](#) describes four primary components of resilience in its 2018 publication Building Community Resilience through Modern Model Building Codes:

1. Efficient disaster mitigation and recovery;
2. Ensuring mental and physical health and well-being;
3. Improving building life cycles; and
4. Creating a sustainable community.

Resilient design strategies straddle sustainability and energy efficiency at all the levels of development: buildings, infrastructure and communities. At the building level, the focus starts with the creation of structures and envelopes that withstand extreme weather and remain habitable in the event of power loss and storms. This includes the design and build of self-sufficient strategies embodying elements like renewable energy, compostable toilets and rainwater harvesting. For the community, the focus begins with managing stormwater, protecting aquifers, implementing wildfire mitigation measures like defensible spaces, and reducing urban heat island (UHI) effects.

In addition, there are a number of non-binding standards embodying the latest resilient design guidelines. The [U.S. Green Building Council](#) has launched the RELi 2.0 Rating System in a format similar to LEED that highlights socially and environmentally resilient design and construction criteria for neighborhoods, building, and infrastructure.

The [American Society of Civil Engineers](#), *Adapting Infrastructure and Civil Engineering Practice to a Changing Climate* provides insights into the climate science, risk assessment and principles that could be incorporated into buildings and infrastructure. These are excellent guides to issues and impacts to consider when designing for resiliency. Every design and construction professional involved in the process should be aware of the legal ramifications that can result from lack of adherence to evolving issues, impacts and standards. This includes understanding, discussing and promoting resilient design practices with their clients (project owners) and then documenting those recommendations, the potential risks and the client decisions if not properly followed and implemented.

STANDARD OF CARE ISSUES

The adoption of comprehensive building codes and amendments addressing extreme weather events will provide a solid foundation for a community working to overcome evolving climatic conditions in the design and construction processes. While federal and state agencies have varied in their dedication to the advancement or even maintenance of these regulations, many cities and counties have actually stepped up the adoption of more stringent guidelines.

However, mere compliance with local codes may not preclude the liability of the design professional if comparable buildings are being designed and built to a higher standard. This is how the standard of care can stretch within a profession expected to exhibit a high degree of technical knowledge.

The fact is that the intersection between resiliency, client demands, local community expectations and industry aspirations is where the greatest potential for liability will heighten dramatically into the future.

RISK MITIGATION STRATEGIES

While risks accompany virtually every project, resilient design is likely to entail its own set of challenges. There are several recommendations for managing the potential exposures.

Anticipate climate change code and practice standard updates and upgrades

For example, if the current code for storm-water management calls for the design of structures to withstand a 100-year flood, it's probably best to promote design for a 500-year flood. Milestone floods are happening more often. In fact, Hurricane Harvey's flooding effect in Houston (2017) was the city's third "500-year" flood in three years.

With this in mind, professionals should consider promoting construction beyond code minimums and balance enhanced project criteria with the project's function and exposure. They should apply climatology models, reports and robust studies to guide project criteria in site design. For instance, an office building may not need to be as vigorously resilient as a hospital, water treatment plant, or other critical care facility or infrastructure component. Similarly, a major highway along a coastal waterway will likely have more stringent criteria than an inland arterial road.

Next, it is important to consider design structure, enclosure, energy services and storm-water management components with additional safety factors that are not yet memorialized in building codes. They will likely address the elements of increasing wind and rain due to more intense storms. These may include sea walls, retaining walls, bridge and power line supports and abutments, building foundations and structure, envelope and enclosure (roofing and roof structures, walls, and windows), flood plain areas, retention and detention ponds, spillways and piping.

Client recommendations for increased resilient design safety factors

A discussion should take place between design professionals, contractors and project owners pertaining to recommendations about increased factors of safety for resilient design and the owner's directives should be documented. This is especially important when working with private developers who may not have a long-term view of the project lifespan. For example, this could include developers who fail to see the value of installing enhanced storm water retention measures within residential subdivision designs. Compare their motivation to governmental agencies, such as the Army Corps of Engineers, which designs and constructs coastal protection systems with enhanced standards to address increasing impacts of climate change.

Do not allow enhanced design and construction criteria to be compromised during project implementation

Professionals dedicated to the standard of care and its advancement should always resist “value engineering” that may not only diminish the project’s quality and integrity, but also greatly increase the liability for all involved.

Risks are inherent in every construction project, but are more pronounced within projects lacking the design resilience needed to withstand increasing changes in climate conditions. By appreciating the dramatic effects of climate-related changes and adapting their approaches and processes accordingly, designers and other construction professionals can create better and longer-lasting projects that can help the industry at large and construction professionals nationwide avoid future liability issues, claims and even litigation.

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