Feature

The Imperative of Climate-Responsive Design: Legal Implications for Building Enclosure Professionals

By Yvonne Castillo

THE RECENT 2024 election and anticipated policy shifts underscore a critical reality: As federal climate mitigation efforts potentially slow, the importance of climate adaptation will only grow. With accelerated global warming and increased severe weather events projected, building enclosure professionals face heightened responsibilities. This context amplifies the urgency of climate-responsive design—structures and infrastructure must be prepared not just for today's risks but for intensifying future conditions. This article emphasizes architects' and engineers' essential role in navigating this shift by addressing foreseeable climate impacts, a necessary step in safeguarding the built environment against an uncertain climate future.

Climate change is increasingly impacting our environment, creating a pressing need for building enclosure professionals, including architects and engineers, to adapt their practices to these new realities. The stakes are substantial: Structures that fail to account for reasonably foreseeable severe weather conditions risk becoming physical and legal liabilities. This article explores the evolving legal landscape surrounding climate adaptation, especially in US jurisprudence, and underscores the urgent need for a forward-thinking industry approach. Central to this discussion is the expanding concept of "foreseeability" in legal liability, especially regarding non-stationary climate conditions—where past weather patterns can no longer reliably predict future events. With scholarly debate highlighting a shift in legal standards, design professionals may increasingly be expected to anticipate and mitigate foreseeable severe weather impacts, even when a weather event may be considered anomalous.

CHALLENGING ASSUMPTIONS: THE CASE FOR NON-STATIONARITY

For decades, building design and construction have relied on the principle of stationarity—the assumption that natural systems fluctuate within a predictable range. This principle shaped everything from floodplain management to the thermal performance of building materials. However, as weather patterns become more volatile, this assumption is increasingly being challenged. As Rossi and Ruhl's article, "Adapting Private Law for Climate Change Adaptation,"[1] articulates, the concept of "non-stationarity" demands that we recognize the instability of our climate system, and that historical data can no longer serve as the sole basis for predicting future conditions.

Traditionally, architects and engineers have accounted for weather in their designs based on historical weather files and codes reflecting past weather patterns (also known as Stationarity displayed in **Fig. 1**). While this provided reliable guidance in the past, today's climate-change-driven severe weather events make it difficult to rely solely on historical data. Non-stationarity (**Fig. 1**) places design professionals in a complex position, facing growing obligations to address foreseeable future conditions, yet without the backstop of codes/standards; existing codes/standards largely fail to account for future-forward conditions. Some firms have

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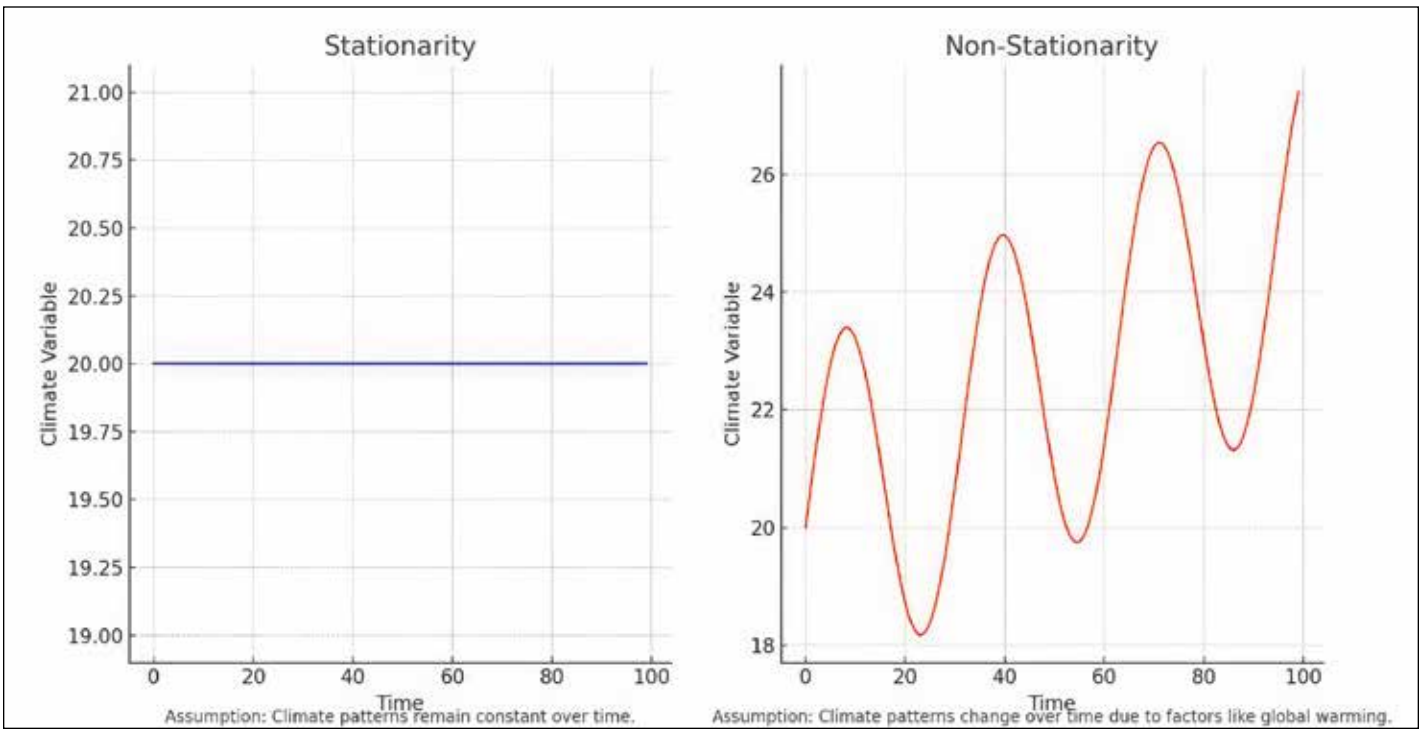

Figure 1. *Stationarity versus non-stationarity graph created by ChatGPT, an artificial intelligence (AI) model by OpenAI, 2024.*

started incorporating climate projection data into designs, while others wait for regulatory guidance—a risky approach as climate conditions continue to shift. Non-stationarity's legal implications are significant, affecting the core concept of foreseeability, which has traditionally been grounded in historical data. If an event that once seemed rare becomes common, for example, its foreseeability increases, necessitating a reevaluation of design responsibilities. This debate around non-stationarity is not academic; it directly influences legal interpretations of foreseeability, as an analysis of US case law reveals.

THE EVOLVING STANDARD OF CARE: LEGAL PRECEDENTS

Court cases demonstrate how judges and jurors expect design professionals to incorporate weather and physical impact considerations. For example, in L.H. Bell & Associates Inc. v. Granger,[2] the court determined that a project's design, despite meeting a 25-year flood standard per the professional services agreement with the county, failed to consider adjacent property impacts when a 100-year flood event occurred and, therefore, the engineer was negligent. Similarly, in Devillier v. Texas,[3] the US Supreme Court allowed Texas property owners to seek compensation for flooding caused by a highway designed without adequate attention to surrounding properties.

In Conservation Law Foundation v. ExxonMobil Corp.,[4] the court assessed whether ExxonMobil's petroleum storage facility design considered future climate conditions, ultimately finding a basis for claims that the facility was vulnerable to future sea-level rise and increasingly severe storms. This case underscored that "good engineering practices" should include foreseeable severe weather considerations—climate driven or not.

Another relevant case worth considering is Barnett v. City of Yonkers.[5] While this case had nothing to do with weather, it had everything to do with the legal concept of foreseeability and the way courts consider what is foreseeable or not in the context of design practice. In this case, the court found that the architect-defendant was not negligent for specifying asbestos in a building that was designed in the 1950s because the risks associated with asbestos were not widely known *at the time of the project's design and construction*. The key here is that a court of law looked at liability through the lens of what the design professional *could or should have known* about asbestos risks when providing the professional service. Analogously, in today's world, climate risks are well known and well documented—in the news, in science journals, and in industry conferences. Applying the Barnett standard,[5] imagine a claim scenario: an unprecedented flood or heat wave, for example, where the evidence presented in the case by the plaintiff against the design professional was that the design professional should have accounted for more severe weather conditions, given the known risks of climate change. What could or should the design professional have known about these risks at the time professional services were rendered for the design/construction of the project? This will be a central question to be explored by the fact finder in the case in assessing liability.

Lastly, the case of Myrick v. Mastagni[6] illustrates how courts view compliance with codes/standards as a minimum standard of conduct and not necessarily absolving defendants from exercising additional due diligence to avoid breaching the standard of care. In a climate context, this could mean that professionals should account for foreseeable climate risks by going above and beyond codes/standards when the site location and its physical vulnerabilities may warrant such (for example, the US Federal Emergency Management Agency flood designations being out of date or not accounting for future climate projection scenarios).

All of these cases highlight how foreseeability may broaden to include events that were once considered unlikely, signaling to professionals that a more forward-thinking approach is becoming essential. This reality, as challenging as it may be to address in delivering professional design services, may reflect a broader societal expectation that licensed professionals should use the best available science to protect public safety and welfare.

The good news is that courts will likely want to take a balanced approach (**Fig. 2**) on the question of liability in the context of climate-driven severe weather events in order to avoid excessive disruption in settled laws and traditional contracting methods. At the same time, given the urgency and profound impacts that climate change brings on economies and society, they will want to encourage adaptation behaviors, protect vulnerable populations, and advance innovation.

ADDRESSING NAYSAYERS: THE REALITY OF INCREASING RISKS

Despite mounting evidence, some professionals remain skeptical about climate adaptation's urgency. Common arguments suggest climate change is distant or irrelevant to design work. However, recent hurricanes, wildfires, and extreme heat waves demonstrate that severe physical risks are immediate concerns; certainly the insurance industry views it as such. Thus, professionals licensed to work within the built environment have an obligation to assess and respond to these potential impacts.

As highlighted in the legal and academic discussions above, foreseeability may be expanding. Courts expect that professionals will anticipate not just past events but also those reasonably projected based on current science. This expectation challenges the belief that merely adhering to codes is enough; instead, professionals must engage with the latest climate science and integrate this knowledge into their work.

Resistance to acknowledging climate change's immediacy often stems from a limited understanding of the scientific consensus and available data. Climate models and projections are increasingly sophisticated and provide actionable insights. For instance, the American Meteorological Society's State of the Climate reports[7] and the Intergovernmental Panel on Climate Change's *Synthesis Report for the Sixth Assessment Report*[8] offer data that can help professionals anticipate and mitigate risks. Ignoring these resources jeopardizes the safety and integrity of buildings and may also expose professionals to liability risks.

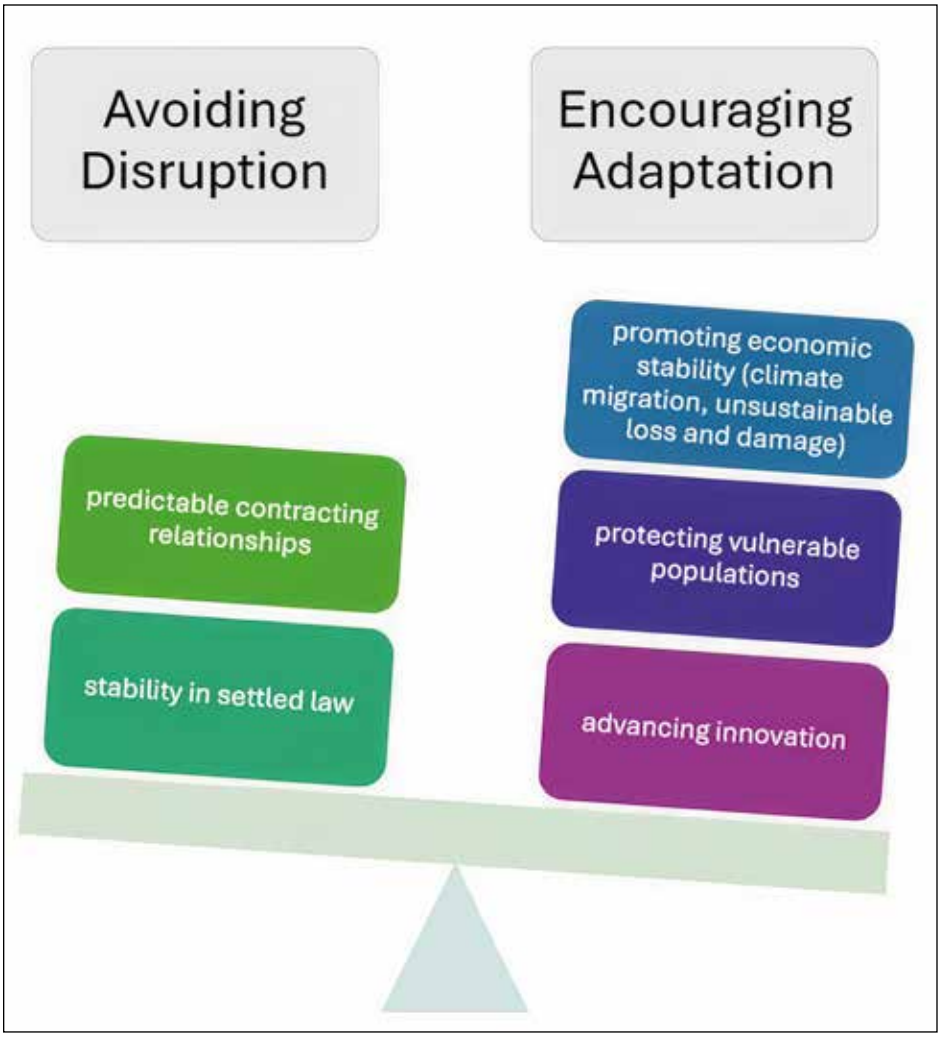

Figure 2. *Courts' balancing test.*

LEGAL AND PROFESSIONAL RESPONSIBILITIES: FORESEEABILITY OF NON-STATIONARITY

The evolving legal landscape places a greater onus on building enclosure professionals to anticipate a wide range of possible future scenarios, including more extreme and less predictable weather patterns. The principle of "foreseeability of non-stationarity" suggests that professionals must now consider the variability and unpredictability of climate factors in their designs. This includes accounting for the potential impacts of phenomena such as increased storm intensity, rising sea levels, wildfires, and more frequent heat waves.

For building enclosure professionals, this shift means that traditional design assumptions should be reevaluated. For instance, the selection of materials should consider not only durability under current conditions but also resilience to future extremes. Similarly, construction methods should incorporate flexibility to accommodate foreseeable changes in environmental conditions. This approach may require a holistic view of design, where every element of a building's enclosure—from the roof to the foundation—is considered in the context of a changing climate.

Moreover, professionals must engage in clear and comprehensive communication with clients about the risks and mitigation strategies (**Fig. 3**). This involves not only presenting the potential physical impacts of climate perils but also explaining the rationale behind specific design choices. For example, the decision to elevate a building's foundation or to use certain materials may be driven by projections of future precipitation levels or temperature extremes. Documenting these decisions is critical as it provides a record of due diligence that can be

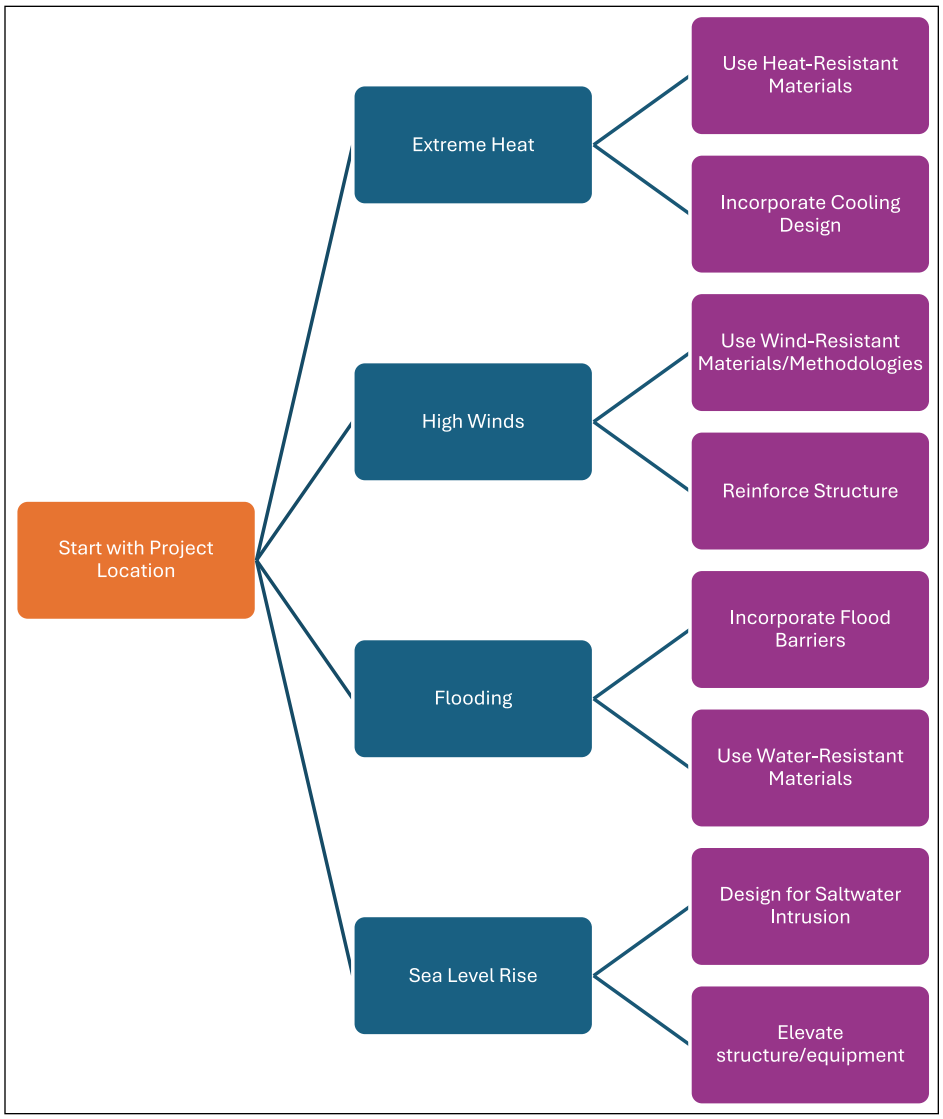

Figure 3. *Climate peril and risk mitigation analysis.*

crucial in defending against future claims of negligence.

While starting with the project location is indeed critical, there are other important considerations as well that should be taken into account by the design professional early in the project when assessing climate resilience needs. For example, the type of project and occupancy use, client requirements and expectations, the regulatory environment, budget and resources, the expected lifespan of the building, and community and environmental impact.

IMPLICATIONS FOR BUILDING ENCLOSURE PROFESSIONALS

For building enclosure professionals, legal precedents imply a broadened scope of foreseeability. Depending on a project's location and specific risks, compliance with existing codes alone may not suffice. Professionals should actively integrate the latest scientific knowledge and technical guidance into their practices.

Following regional climate resilience design guidelines, if available, is critical. For instance, cities like New York City and Boston provide prescriptive measures to manage heat, precipitation, and sea level rise. Additionally, reviewing state, county, and city hazard mitigation plans can inform climate-responsive design choices.

Professionals should also recognize the complex legal landscape they navigate. The cases discussed earlier emphasize that US jurisprudence expects professionals to act reasonably, applying professional judgment in line with evolving science. Understanding duty and foreseeability in climate adaptation is emerging as integral to responsible design practice.

CONCLUSION: LEADING THE CHARGE IN CLIMATE-RESPONSIVE DESIGN

As the legal and environmental landscapes shift, building enclosure professionals should proactively integrate climate resilience into their designs. The concept of foreseeability, especially regarding future climate conditions, is increasingly central to liability considerations. By anticipating and addressing climate impacts, professionals can protect clients and their investments, the public, and themselves from the severe consequences of inadequate design.

The responsibility is clear: If design professionals do not account for foreseeable future climate risks, who will? Those involved in creating our built environment bear a duty to ensure resilience against the challenges of a changing climate and the physical impacts that lie ahead. Decisions made today will affect future generations profoundly.

The legal principle of "foreseeability of non-stationarity" offers a framework for understanding building enclosure professionals' emerging responsibilities. By adopting a forward-looking perspective, professionals can meet the demands of an evolving legal landscape and play a vital role in building resilience for the future.

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