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Climate Change - Trends and Strategies to Limit Claims and Mitigate Risk

The impacts of climate change have intensified significantly as the years have passed, and they will continue to. A higher prevalence of wildfires, mudslides, intense flooding, and wind stemming from more intense hurricanes can all be attributed to climate change. As these impacts become more common, there will be an increased expectation that design professionals understand how these impacts will influence their designs and standard of care. Additionally, cities have already begun to implement legislation seeking to avert the effects of climate change, such as the NYC Local Law 97 and the Building Emissions Reduction and Disclosure Ordinance passed in Boston. Both statutes involve the reduction of carbon emissions by specified buildings, and design professionals will certainly be called upon to help ensure compliance. Once there is a better understanding of what impacts are to come from climate change, steps can be taken to limit the liability of design professionals so that they can be better prepared for potential claims in the future.

I. Current Duty

Design professionals already understand that there are outside influences that need to be considered when creating a new design. Design professionals are required to perform the services described in their agreement with their employer. This is a contractual standard. The fashion in which these services are performed is judged by a professional standard of care. Under this standard, design professionals are held to use the same degree of care that one would expect to be practiced by other design professionals in that shared discipline. There are vulnerabilities that come with designing a project, and “understanding vulnerability is in the best interest of the project – and the architect.”¹

¹ <https://www.aia.org/articles/6454986-vulnerability-what-it-is-and-why-architect>

II. Effects of Climate Change on Future Design²

Some design professionals have already begun to adapt their designs to new and extreme weather patterns.

Flood Zones:

To combat large-scale flooding, design professionals have begun designing coastal buildings on stilts. This helps prevent flood damage and increases their stability as the sea level continues to rise. Additionally, design professionals are also utilizing flood-resistant materials in their designs, improving a structure's longevity. Many buildings utilize concrete, ceramic tile, foam insulation, and other naturally water-resistant materials to limit rotting that may come from water damage.

Extreme Low-Temperature Areas:

Many regions have been subject to a drastic increase in precipitation. Increased precipitation means more snowfall in colder regions. This leads to a greater need for heating in winter months, and therefore higher emissions. Building designers can and have reduced the stress on heaters by efficiently installing windows. Increasing the amount of sunlight inside a structure raises its temperature. "Many engineers are installing programmable, energy-efficient systems into buildings, improving their sustainability. The devices connect to the internet, accessing real-time weather readings and adjusting indoor temperatures for energy reduction."³ Motion detection systems have also begun to be installed, turning off a heating system if it detects a vacant building or floor.

Drought Ridden Areas

Rising temperatures have led to widespread droughts and wildfires in recent years. Warm and dry climates crack building foundations, leading to stability issues. Professionals are limiting these adverse effects of droughts by installing "cool roofs." This type of roof reflects solar radiation off and away from a building, protecting it from overheating. Cool roofs also decrease heat islands (an urban area or metropolitan area that is significantly warmer than its surrounding rural areas due to human activities), maintaining natural surface temperatures.

Case Law Involving Climate Change:

Conservation Law Foundation, Inc. v. ExxonMobil Corp., et al. US Court of Appeals

Synopsis: Plaintiff filed suit against operator of petroleum storage and distribution terminal alleging violations of Environmental Protection Agency (EPA) permit, the Clean Water Act (CWA), and Resource Conservation and Recovery Act (RCRA). The Conservation Law Foundation alleged that the defendant violated the Clean Water Act when it failed to consider the effects of climate change in designing its

² <https://www.construction21.org/articles/h/the-impact-of-climate-change-on-building-design.html>

³ <https://www.construction21.org/articles/h/the-impact-of-climate-change-on-building-design.html>

Everett, Massachusetts, oil terminal. Plaintiff alleges that ExxonMobil violated the CWA by failing to prepare the stormwater plan “in accordance with good engineering practices” as required by the permit since it did not account for the climate change factors, or because the stormwater plan failed to “identify potential sources of pollution that may reasonably be expected to affect the quality” of the stormwater discharges, as required by the permit, since the stormwater plan did not account for the climate change factors.⁴

Abraham Et al. v. Costello, Inc., District Court of Texas, 215 Judicial District, Harris County

Synopsis: Multiple lawsuits were filed against an engineering firm alleging poor design which resulted in severe rainwater intrusion and damage stemming from Hurricane Harvey. The defendant designed the levee and pumping systems for LID 19. LIDs (Levee Improvement Districts) are designed to remove developments out of flood plains and to prevent rainwater intrusion into homes. The lawsuit alleges that the defendant botched the design because it failed to consider the removal of another neighboring LID; LID 15. Because of this removal, rainwater from that district drained into LID 19, causing immense damage. The plaintiffs assert that with adequate design, the damages could have been wholly prevented.⁵

III. New Statutes Affecting Design

NYC Local Law 97⁶

In April 2019, New York City passed NYC Local Law 97. The goal of the law is to reduce the emissions produced by the city’s largest buildings by 40 percent by 2030 and by 80 percent by 2050. Most buildings over 25,000 square feet will be required to meet new energy efficiency and greenhouse gas emissions limits by 2024, with stricter limits coming into effect in 2030. The law also covers lots where two or more buildings on the same tax lot that together exceed 50,000 square feet, as well as situations where two or more buildings owned by a condo association are governed by the same board of managers and that together exceed 50,000 square feet.

Building Emissions Reduction and Disclosure Ordinance (BERDO)⁷

The amended Building Emissions Reduction and Disclosure Ordinance (BERDO) in Boston sets requirements for large buildings to reduce their energy and water use. Their goal is to gradually reach net zero emissions by 2050. The ordinance covers: non-residential buildings that are 20,000 square feet or larger, residential buildings that have 15 or more units, and any parcel with multiple buildings that sum to at least 20,000 square feet or 15 units.

⁴ Conservation L. Found., Inc. v. Exxon Mobil Corp., 3 F.4th 61 (1st Cir. 2021)

⁵ <https://www.abrahamwatkins.com/firm-news/423-residential-homeowners-file-suit-against-costello-inc-for-faulty-design-of-the-riverstone-subdivision-community/>

⁶ <https://www1.nyc.gov/site/sustainablebuildings/1197/local-law-97.page>

⁷ <https://www.boston.gov/departments/environment/building-emissions-reduction-and-disclosure>

IV. AIA on Climate Change

The AIA has expanded on their project “Framework for Design Excellence” to prioritize energy performance and carbon reductions toward carbon neutral buildings. The AIA has expressed their vows to support the design of sustainable and resilient communities. The AIA will be publishing its Climate Action Plan, along with resources to support its implementation. Their message to architects: “joins us in the fight for our future.”⁸

VI. AIA on Limiting Liability

Contractual Risk: AIA

The AIA highlights the risk of an architect's neglect of recent weather trends and patterns. “If an architect fails to consider a recent flooding history suggesting that current floodplain maps were inaccurate or out of date and a project sustains flooding, an owner could claim that by failing to appreciate current flooding history, the architect breached its contractual duties to adequately perform its contracted-for design services.”⁹ Due to climate change, an architect's standard of care is an “evolving benchmark.” This evolving standard of care may potentially lead to a higher prevalence of Force Majeure clauses. Force Majeure clauses are provisions in a contract that relieves both parties from obligation if an extraordinary event prevents one party from performing.¹⁰

AIA's Advice:

The AIA recommends that design professionals stay up to date on local weather patterns and trends (increased rain, drought, frequency, or severity of large storms). Design firms can also conduct a vulnerability assessment to determine the project's short-, medium-, and long-term vulnerability in consultation with local experts. Architects can perform specific risk assessments of buildings to inform design and decision making of conditions or events that may cause harm, injury, or loss of service over the life of the building. Lastly, emergency power generators, ‘safe rooms,’ and hurricane shutters can be more commonly installed so that structures can meet the needs of their occupants in the face of hazardous events such as a power outage or snowstorms as the climate continues to change.

Tort Risk: AIA

Climate change also adds tort risk for design professionals. An example of tort liability related to sustainability issues could stem from a building's inability to weather a prolonged winter storm. Here is an example provided by the AIA: A severe winter storm causes a prolonged electrical outage to a building. The building's architect may have planned for a limited amount of emergency power, but this

⁸ <https://www.aia.org/pages/6201381-architecture-and-climate-action-the-path-f>

⁹ <https://www.aia.org/articles/6255157-minimizing-risk-when-designing-for-climate>

¹⁰ https://www.law.cornell.edu/wex/force_majeure

storm is quite severe, and the power outage lasts for days.¹¹ If the architect does not plan for a sufficient supply of backup electrical power, then a building occupant could be injured while walking down a dark hallway or stairwell, or businesses may even need to delay operations and therefore, lose revenue.

The AIA advises architects and design professionals to consult with local experts to determine the potential impacts climate change may have on the specific locality if the architectural team isn't already knowledgeable about this subject. Architects must recognize that they are not in the best position to evaluate the potential impacts of climate change for their client. "Architects do not provide engineering services because they are not trained engineers. Similarly, because architects are not trained climatologists, they should not independently evaluate and advise on the potential impacts of climate change. Instead, architects should consult with experts who are trained to identify and evaluate the potential impacts of climate change so that architects can better understand the effect those impacts may have on a project."¹²

CONCLUSION

The impact Climate Change should be considered by design professionals and contractors in their work. Clients or non-clients may assert claims if the impact of climate change is not considered. Additionally, newly enacted statutes that attempt to address the root causes of climate change create requirements that must be complied with by developers in major cities.

¹¹ <https://www.aia.org/articles/6255227-minimizing-risk-when-designing-for-climate>

¹² <https://www.aia.org/articles/6255227-minimizing-risk-when-designing-for-climate>