Legal Liability of Design Professionals for Failure to Adapt to Climate Change

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I. Overview

Our climate is changing, and new scientific evidence suggests that the scale and pace of climate change impacts could be even greater than originally expected.[1] While the results of climate change and their severity vary geographically, many areas will face increased temperatures and more frequent and more intense storms, and coastal areas will be especially prone to flooding because of rising sea levels. Other areas will see higher temperatures, increased instances of heavy precipitation, a rising sea level, and more intense storms.[2] These climate conditions will extraordinarily impact our built environment. Because it is already too late to avert significant and adverse climate changes through mitigation strategies,[3] and because we have new tools to model and assess climate risk for communities and regions, climate adaptation strategies have become crucial to regulation, planning, design, and related disciplines.

As of 2015, 34 states had climate action plans, with many more cities and towns involved in climate planning efforts of their own.[4] While it seems that data and research on climate resilience strategies and solutions are abundant, implementation efforts have been limited and largely voluntary, reflecting the range of

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[1]National Oceanic and Atmospheric Administration, Arctic Report Card: Update for 2016 (2016), retrieved from: http://www.arctic.noaa.gov/Report-Card/Report-Card-2016.

[2]U.S. Global Change Research Program, The Third National Climate Assessment (2014), retrieved from: http://nca2014.globalchange.gov/report/.

[3]R.K. Pachauri and L.A. Meyer, Climate Change 2014: Synthesis Report. Report prepared for the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Geneva, Switzerland (2014), retrieved from: http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full_wcover.pdf.

[4]Center for Climate and Energy Solutions, Climate Action Plans (February 2016), retrieved from: https://www.c2es.org/us-states-regions/policy-maps/climate-action-plans (last checked: October, 2017).

political, economic, fiscal, and social justice implications of adaptation at a community or regional scale.

To date, existing regulatory and statutory requirements that address climate adaptation have not brought about consistently applied, sector-wide changes in planning, engineering, land use, design, or development practices. The prevailing practice, even for most critical infrastructure,[5] is to design and build according to the climate patterns of the past rather than those observed in the present or anticipated imminently. This myopia has significant implications for public health and safety, for the integrity of communities at risk, and the resilience of our economy to extreme and catastrophic weather.

The omission of climate risk in prevailing practices, and omission of explicit standards for climate risk in extant laws and regulations, are relevant to, but not dispositive of, the issue of legal responsibility for harm that may result from failure to act reasonably in the face of ascertainable climate risk. Statutes and rules often impose general duties to reduce risk and take reasonable precautions, and these obligations can be heightened when considerations of public health or safety are implicated, as in the case of facilities handling oil or hazardous substances. Tort liability presents another avenue of potential liability, and courts often have considered prevailing scientific understandings about the nature of risk in determining whether and to what extent a party in a position to mitigate risk may have a duty of care with respect to a given hazard. Liability already has been explored as a basis to compel climate mitigation (e.g., through cases seeking relief in the form of greenhouse gas reduction measures),[6] but less attention has been paid to liability as a basis to compel climate adaptation.

This article provides a primer on the main theories of legal liability that could come into play if a design professional failed to adequately undertake climate adaptation measures, resulting in harm. Part II addresses the potential for tort liability, with a focus on the standard of care element in a negligence claim. Part III considers how liability can arise through contractual agreement by considering provisions from widely-used standard form

[5]United States Agency International Development, Addressing Climate Change Impacts on Infrastructure (2013), retrieved from: http://www.adaptationlearning.net/sites/default/files/resource-files/Addressing-Climate-Change-Impacts-on-Infrastructure-report.pdf.

[6]*See, e.g.*, American Elec. Power Co., Inc. v. Connecticut, 564 U.S. 410, 131 S. Ct. 2527, 180 L. Ed. 2d 435, 72 Env't. Rep. Cas. (BNA) 1609 (2011); Native Village of Kivalina v. ExxonMobil Corp., 696 F.3d 849, 75 Env't. Rep. Cas. (BNA) 1289 (9th Cir. 2012); Comer v. Murphy Oil USA, 607 F.3d 1049, 70 Env't. Rep. Cas. (BNA) 1808 (5th Cir. 2010).

design contracts. Part IV considers how statutory and regulatory requirements can create liability for climate adaptation measures. This primer is not intended to be an exhaustive analysis of existing case law, but rather an introduction, with relevant examples of the types of claims that could arise when parties do not adequately prepare for climate change.[7]

II. Common Law Torts

A. Negligence: Duty of Care

Negligence claims reflect and enforce the generally accepted principle that everyone should act in a reasonable way so as not to injure those around them. To establish a negligence claim in court, an injured party first must establish that the person or entity causing the harm had an obligation or "duty" to behave in such a way as to avoid the harm. This duty is often called the "standard of care," and professionals, such as architects and engineers, must meet it when acting in their professional capacity. Average citizens also are held to a duty of reasonable care.

In addition to establishing a "duty," an injured party must prove three other elements to prevail in a negligence claim: breach; causation; and harm. That is, the injured party must not only show that the person or entity had a duty to act a certain way but must also prove that the person or entity *breached* the duty, and the breach was a proximate *cause* of the *harm* to the injured party. However, the focus of this legal overview is the concept of duty because it is the element most susceptible to shift based on current circumstances and what one knows or should know about climate change.

Often, courts articulate the standard of care as the behavior of another similarly situated person (professional, or otherwise) acting in an objectively reasonable way. For instance, the Georgia Supreme Court defined the duty of design professionals as an "obligation to exercise a reasonable degree of care, skill, and ability, which generally is taken and considered to be such a degree of care and skill as, under similar conditions and like surrounding circumstances, is ordinarily employed by their respective professions."[8] Sometimes this duty is called the "reasonableness standard," for it essentially asks how a reasonable person in similar circumstances would act.

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[7]For an in-depth database of U.S. and international climate change litigation, *see* Columbia Law School's Sabin Center for Climate Change Law's "Climate Change Litigation Database," available at: https://tinyurl.com/y9bnj8y8.

[8]Bodin v. Gill, 216 Ga. 467, 117 S.E.2d 325, 330 (1960); *see also* Nelson v. Com., 235 Va. 228, 368 S.E.2d 239, 243 (1988) (describing the duty of design professionals to "exercise the care of those ordinarily skilled in the business" in

To apply the "reasonableness standard" set out above, courts must look at relevant evidence to determine what a reasonable design professional would have done under similar circumstances. In conducting this inquiry, courts review a variety of factors, including the following:

1. Standards in a Contract

A contract may contain clear, written standards to which a design professional must adhere—failure to do so could result in a breach of professional duty. For example, a contract may require hurricane straps on a building, or that infrastructure like a bridge should be constructed to a 75-year design life. These contractual terms establish a legal duty to which a design professional must adhere to avoid being vulnerable to negligence liability. Contractual liability is further discussed in Part III of this article.

2. Knowledge of Climate Change Impacts

Knowledge of climate change impacts could be used to establish a legal duty. For example, if publicly available storm surge maps indicate that a structure could flood during the lifespan of a building, a design professional has a duty to build the project to withstand that flooding, or at least inform the client of the issue. Moreover, although it may be a difficult case to make, a design professional could be found liable if harm results from designing a structure based on floodplain or other maps that the professional knew or should have known misrepresented risks, given climate projections.[9]

Thus, when planning a project, a prudent design professional would want to discuss with the owner the level of due diligence required to determine the appropriate design standards for climate resilience. It may be necessary to conduct research on publicly available weather data and projections, as well as climate impact maps and models, to determine if the building should be designed to guard against certain known or highly likely, future climate impacts. Also, as a matter of good practice, a design professional should consult with appropriate professionals to determine the accuracy of climate data, including flood or storm surge maps, and regional climate vulnerability studies. Design

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both the design and administration of the project); Davidson and Jones, Inc. v. New Hanover County, 41 N.C. App. 661, 255 S.E.2d 580, 584 (1979) ("An architect, in the performance of his contract with his employer, is required to exercise the ability, skill, and care customarily used by architects upon such projects.").

[9] *See, e.g.*, Uhley v. Tapio Const. Co., Inc., 573 So. 2d 390, 391 (Fla. 4th DCA 1991) (contractor, who relied on survey prepared by third party with specifications that were marked as "assumed" and "assigned," had an independent duty (i.e., standard of care) to ensure the correctness of that information, and therefore was liable for flood damages from negligent design.).

professionals, especially architects, increasingly are employing climate experts to assist with this stage in the design process.

3. Applicable Codes and Regulations

Design and engineering professionals should pay special attention to any applicable codes and regulations for design or construction, since failure to do so could result in negligence *per se*.[10] And it is noteworthy that, even where applicable statutes, codes, and regulations, or the permits issued under them, make no explicit reference to climate or weather risk, they may include narrative requirements (such as a duty to take reasonable care), general duties (e.g., to use best engineering practice), or references to privately developed codes, any of which may import a duty to identify and address risks, like climate risk, that are well understood and reasonably quantifiable for purposes of design and construction.

Moreover, compliance alone with explicit regulatory requirements does not necessarily shield a design professional from liability, since many building and design regulations may not incorporate climate changes that have occurred or become evident since enactment or adoption of the statute or regulation, or that are anticipated during the expected life of the project or permit timeframe.

Some countries have recognized this shortcoming. For example, according to the Australian Building Codes Board, the Building Code of Australia is "likely to be deficient in some areas" in the event of "climate changes in accordance with high emissions scenarios."[11] Similarly, Australia's National Construction Code does not account for "hail, storm tide, or have specific requirements relating to heat stress."[12] The joint Australia-New Zealand Design Standards expressly acknowledge that regarding wind

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[10]The rule of negligence *per se* states that if a defendant's action violated a law or regulation, then the court will consider the action to be negligent without asking whether or not a reasonable person would have done the same thing. That is, the court presumes a breach of duty occurred, and moves on to assess what (if any) damages occurred as a result of that breach. The rule of negligence *per se* states that if a defendant's action violated a law or regulation, then the court will consider the action to be negligent without asking whether or not a reasonable person would have done the same thing. That is, the court presumes a breach of duty occurred, and moves on to assess what (if any) damages occurred as a result of that breach.

[11]Australian Building Codes Board, Resilience of Buildings to Extreme Weather Events (2014), retrieved from: https://www.abcb.gov.au/Resources/Publications/Consultation/Resilience-of-Buildings-to-Extreme-Weather-Events.

[12]Australian Building Codes Board at 9.

speed calculations, "[n]o account has been taken of any possible future trend in wind speeds due to climate change."[13]

The United States similarly has recognized the shortcomings of its building codes.[14] In the United States, every state has adopted the International Building Code ("IBC"), either in full or with amendments, yet the IBC fails to account for sea level rise or climate change more generally.[15] Thus, while zoning, building codes, and other regulations can help determine the appropriate standard of care, compliance alone with these laws will not necessarily shield a design professional from liability for damages resulting from failure to account for climatic changes not considered or evident at the time of code adoption.

4. Industry Custom

Similarly, while the prevailing industry custom may offer courts a useful guide to establish the appropriate standard of care, even a pervasive practice may not meet the relevant standard of care. In a landmark admiralty case called *T.J. Hooper*, a tugboat owner sought to limit his liability after losing the cargo of two barges in a storm.[16] The tugboat at issue in the case, like most tugboats at the time, lacked a functioning radio that could have received the daily weather report warning of the impending storm.[17] The court nevertheless rejected mere compliance with industry custom as a defense to liability. As the famous federal Appeals Court Judge Learned Hand wrote, "[A] whole calling may have unduly lagged in the adoption of new and available devices . . . Courts must in the end say what is required; there are precautions so imperative that even their universal disregard will not excuse their omission."[18] Thus, adherence to common industry practice does

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[13]Council of Standards Australia and Council of standards New Zealand, Structural Design Actions Part 2: Wind Actions (2011), retrieved from: https://shop.standards.govt.nz/catalog/1170.2:2011(AS%7CNZS)/scope.

[14]National Oceanic and Atmospheric Administration, U.S. Climate Resilience Toolkit (2016), retrieved from: https://toolkit.climate.gov/topics/built-environment/buildings-and-stuctures ("[Building] codes are based on historical data and do not reflect future risks, including the impacts of climate change.").

[15]International Code Council, International Building Code (2015).

[16]The T.J. Hooper, 60 F.2d 737, 737, 1932 A.M.C. 1169 (C.C.A. 2d Cir. 1932).

[17]*The T.J. Hooper*, 60 F.2d at 739.

[18]*The T.J. Hooper*, 60 F.2d at 740.

not foreclose liability,[19] especially if the practice ignores an available and reliable means to avoid a safety risk.[20]

5. Foreseeability of the Harm

Whether the harm that occurred was *foreseeable* also can be an important factor in establishing negligence. Foreseeability is one of the most complex concepts in negligence, but distilled to its core, it is the ability of the party being blamed for the injury to have anticipated that such an injury could happen. It is not a question of whether the party *actually* did foresee the loss, but whether he or she should have anticipated that such an injury could occur.

Of particular note for climate change risk, an event need not actually have occurred in the past for a court to find that it was foreseeable that it could happen in the future. For example, an Illinois appeals court upheld a jury verdict finding several engineers liable for negligently designing a concrete pylon that, due to strong winds, collapsed onto a customer as she entered a shopping mall, despite the fact that such high wind speeds had never been recorded at the site.[21] The jury concluded that the engineers could have predicted the high winds with existing technology, and that the engineers "failed to exercise that degree of care in the performance of professional duties imposed upon them as members of a licensed profession which exists in large part to prevent harm to the public from structurally unsafe buildings."[22]

Another important point about foreseeability is that design professionals may be expected to design around circumstances that are not identified in a particular contractual agreement. That is, even when a design professional fulfills her contractual duties, she still may have a duty to account for reasonably foreseeable events.[23] Thus, merely fulfilling the terms of a contract may not be enough to shield a design professional from negligence liability when reasonably foreseeable risks are ignored.

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[19]There are instances, however, in which compliance with industry standard is "relevant, if not conclusive, evidence." *See, e.g.,* Rutherford v. Lake Michigan Contractors, Inc., 28 Fed. Appx. 395, 398 (6th Cir. 2002) (allowing deckhand to handle steel cable on his own did not establish owner's negligence, in part because such conduct was standard industry practice).

[20]*See, e.g., The T.J. Hooper*, 60 F.2d at 739. "An adequate receiving set suitable for a coastwise tug can now be got at small cost and is reasonably reliable if kept up; obviously it is a source of great protection to their tows."

[21]Laukkanen v. Jewel Tea Co., 78 Ill. App. 2d 153, 222 N.E.2d 584, 587 (4th Dist. 1966).

[22]*Laukkanen,* 222 N.E.2d at 588.

[23]*See, e.g.,* L. H. Bell & Associates, Inc. v. Granger, 112 Ariz. 440, 543 P.2d 428, 433 (1975) (although an engineer's bridge design met *contractual* stan-

B. Defenses to Negligence

1. Assumption of the Risk

One common complete defense to a negligence claim is termed "assumption of the risk." This defense is available when an injured party either expressly or impliedly consented to the risk of injury.[24] This principle means that if a design professional identifies to the client that climatic changes may create a risk of structural damage, and the client chooses to go forward with the design, then the design professional may have a defense to a negligence claim from the client (however, unless the client also indemnifies the design professional, this defense would not apply to claims by third parties).

2. Fault

A plaintiffs' ability to recover damages for a negligence suit may be limited if the plaintiffs contributed to the harm.[25] This defense may appear in a climate change damages scenario where both the designer and the property owner played a role in relying, for example, on outdated flood maps, which led to the flooding of a home.

C. Nuisance

To be awarded monetary damages in a nuisance claim against a design professional, actual harm must occur; however, some courts will consider injunctive relief to prevent likely *future* harm to a plaintiff.[26] A successful nuisance claim may need to establish that the design professional had "strict control" over the property

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dards, the engineer negligently failed to protect against foreseeable flooding of neighboring properties).

[24]*See, e.g.,* Stelluti v. Casapenn Enterprises, LLC, 203 N.J. 286, 1 A.3d 678, 695, 61 A.L.R.6th 659 (2010) (gym patron who signed a contract assuming the risks of using the facility released the owner from liability, even when an exercise bike broke and injured the patron).

[25]This defense is likely available in both comparative and contributory negligence jurisdictions. *See, e.g.*, Cigna Ins. Co. v. Oy Saunatec, Ltd., 241 F.3d 1, 16–17, Prod. Liab. Rep. (CCH) P 16015 (1st Cir. 2001) ("In a negligent design action, a defendant may always prove comparative negligence in an attempt to reduce or prevent recovery"); Olympic Products Co., A Div. of Cone Mills Corp. v. Roof Systems, Inc., 88 N.C. App. 315, 363 S.E.2d 367, 374 (1988) (noting that an "owner's failure to obtain a building permit . . . constituted contributory negligence *per se* if it proximately caused his damage").

[26]*See, e.g.,* Prah v. Maretti, 108 Wis. 2d 223, 321 N.W.2d 182, 187, 12 Envtl. L. Rep. 21125, 29 A.L.R.4th 324 (1982) (owner of a solar-heated home successfully sued under private nuisance to prevent neighbor's proposed construction of residence that would block sunlight, claiming unreasonable interference in the use and enjoyment of his property).

causing the nuisance.[27] A design professional also may be sued for nuisance *per se* if the conduct causing the nuisance violates a specific statute or regulation.[28]

Thus, design professionals should be careful not to implement a project that could unreasonably interfere with a party's use or enjoyment of the property as a result of anticipated climatic changes, such as increased flooding, higher temperatures, and sea level rise. For example, including a basement in the design of a building and failing to account for climate impacts could cause harm to the client if it is likely to be subject to chronic flooding from rain storms or increased high tides. Such chronic flooding could cause significant damage to the property by way of mold and even make the space unusable.

D. Limitations on Tort Liability

Certain limitations on liability may shield design professionals from negligence actions.

1. Statutes of Repose

Most jurisdictions protect design professionals through "statutes of repose," which prohibit suits against design professionals, among others, after a specified number of years from the completion of the design or of the project. The time period for filing a suit typically begins when the project is "substantially completed," and can last anywhere from four to 12 years.[29] Out of a concern that such statutes of repose unfairly protect a specific class of people, however, some states have found them unconstitutional.[30]

2. Statute of Limitations

Design professionals may also be protected by the applicable statutes of limitations, which preclude filing a claim after a given

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[27]*See* Long v. O'Reilly's Automotive Stores, Inc., 2013 WL 12148122, *4 (D.S.C. 2013) (engineering firm not liable for nuisance claim resulting from drainage pipe flooding neighbor's property because the firm lacked "strict control" over offending property).

[28]Shurpin v. Elmhirst, 148 Cal. App. 3d 94, 195 Cal. Rptr. 737, 741 (2d Dist. 1983); *see also* discussion of negligence *per se* above.

[29]*E.g.* Tenn. Code § 28-3-202 (2016) (requiring actions to recover damages against design professionals to be made within four years after substantial completion); 42 Pa. Stat. and Cons. Stat. Ann. § 5536 (West) (requiring civil actions against design professionals to be commenced within 12 years after the completion of construction).

[30]*See, e.g.*, Castellani v. Bailey, 218 Wis. 2d 245, 578 N.W.2d 166, 175–76, 117 A.L.R.5th 643 (1998). Kentucky, Utah, Wisconsin, Alaska, South Dakota, New Hampshire, Florida, and Hawaii have held statutes of repose unconstitutional at some point. James Acret, Construction Litigation Handbook, § 22:4 Statutes of Repose (3d ed. 2017).

amount of time has elapsed. Unlike statutes of repose, the time period for a statute of limitations typically begins to run once the plaintiff suffers an injury, or if the plaintiff does not immediately know she suffered an injury, when she knows or reasonably should know about the damage. Thus, because the time periods are triggered by different events, a claim can be precluded by one statute, even though it otherwise still would have been valid under the other. Statute of limitations periods typically are shorter than those for statutes of repose, usually lasting between two and five years. In some states, the statute of limitations for property damage is longer than the statute of limitations for personal injury,[31] which should be of particular note to design professionals considering the effects of climate change in their designs.

3. Sovereign Immunity

Design professionals employed by the federal or state government may enjoy an added layer of protection against negligence related tort claims through sovereign immunity. Because of sovereign immunity, a negligence claim against the government because of the actions of a design professional employed by a federal or state government agency can be brought only if the government explicitly permits it. For instance, the Federal Tort Claims Act ("FTCA") provides a cause of action against the United States (i.e., the government's sovereign immunity is waived) for injury caused by the negligent or wrongful act or omission of any employee of the federal government.[32] While the FTCA covers some government contractors, the government is not liable for injury caused by the negligent or wrongful acts of an *independent* contractor, and the contractor does not have the protection of sovereign immunity.[33] Most states have laws that serve a similar function and allow suits against the state for the negligence of its employees, and also typically exclude independent contractors from coverage.[34]

Concerning potential negligence liability for design issues, some states that do not blanketly waive their immunity explicitly allow

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[31] *For example, compare* Ga. Code § 9-3-32 (2016) (four years for destruction of property) with § 9-3-33 (two years for personal injury).

[32] 28 U.S.C.A. §§ 2671 et seq.

[33] *See*, Heinrich ex rel. Heinrich v. Sweet, 83 F. Supp. 2d 214, 216 (D. Mass. 2000), judgment aff'd, 308 F.3d 48, 59 Fed. R. Evid. Serv. 1229 (1st Cir. 2002). An independent contractor is one whose "day-to-day operations" are not supervised by the federal government. *Heinrich*, 83 F. Supp. 2d at 214.

[34] *See*, e.g., Ku v. Town Of Framingham, 62 Mass. App. Ct. 271, 816 N.E.2d 170 (2004).

some design-based negligence claims.[35] On the other hand, some states with blanket waivers include some design-based claims as *exceptions* to the wavier of sovereign immunity, meaning that a negligence claim cannot be made on those design issues.[36]

III. Contract Law

A. How Contractual Liability Arises

A design professional can be sued for breach of contract. For instance, if a contract requires the design professional to build a stormwater system that can handle a certain designated storm size and the system is built below that capacity, there may be a breach of contract claim. It is noteworthy that a claim can be brought if a party can prove that an element of the contract was not fulfilled, even if no harm has occurred. A brief analysis of some of the standard form contractual agreements frequently used by design professionals illustrates some of the ways in which contractual liability for failing to adapt to climate change can arise. Specifically, this article considers the Engineers Joint Contract Documents Committee (EJCDC) document E-500, Agreement Between Owner and Engineer for Professional Services (2014);[37] the American Institute of Architects (AIA) Document B103—2017, Standard Form of Agreement Between Owner and Architect for a Complex Project (2017); and ConsensusDocs 240—Standard Agreement Between Owner and Design Professional (2017).[38]

1. Standard of Care

Just like in a negligence claim, a design professional can be found contractually liable for violating the pertinent standard of care applicable to the project. In the case of a contract claim, however, the standard of care comes from the contract itself, as opposed to being determined by a court upon review of the factors articulated above. While many of the same considerations discussed above also may apply, they must have a "hook" in the contract.

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[35]*See* Tenn. Code Ann. § 9-8-307(a)(1)(I) (allowing claims for "[n]egligence in planning and programming for, inspection of, design of, preparation of plans for, approval of plans for, and construction of, public roads, streets, highways, or bridges and similar structures").

[36]*See, e.g.,* 12 V.S.A. § 5601(e)(8) (noting that Vermont is not liable for "[a]ny claim arising from the selection of or purposeful deviation from a particular set of standards for the planning and design of highways").

[37]The EJCDC is sponsored by the National Society of Professional Engineers, the American Council of Engineering Companies, and the American Society of Civil Engineers.

[38]ConsensusDocs contracts are developed by a coalition of national industry associations in the design and construction industry.

When setting out the applicable standard of care for the project, the EJCDC E-500 Agreement provides that the standard will be "the care and skill ordinarily used by members of the subject profession practicing under similar circumstances at the same time and in the same locality."[39] Similarly, the AIA B103—2017 Agreement states that "[t]he Architect shall perform its services consistent with the professional skill and care ordinarily provided by architects practicing in the same or similar locality under the same or similar circumstances."[40] Likewise, the ConsensusDocs 240 Agreement requires that services "be performed in accordance with the standard of professional skill and care required for a project of similar size, location, scope, and complexity, during the time in which the Services are provided."[41]

Common to each of these provisions is the idea that the standard of care is tied to locality and circumstances. Thus, the design professional's standard of care could include considering the effects of climate change in that locality, especially as those effects continue and are manifest more frequently. This also means that the standard of care may require extra care be taken in some aspects of the project in some parts of the country, but not others. For example, design professionals working in a coastal city must consider rising sea levels or increased flooding as part of their standard of care, while professionals in the Midwest might need to consider increased snowfall or more frequent tornadoes. While climate hazards obviously vary by location, these provisions also outline a time element, suggesting that failing to monitor these conditions over time and forecast changes in the future might create contractual liability for failing to follow the standard of care set out in the contract.

2. Scope of Work

Design professionals also are obligated to conform to other standards that may be set out in the owner's requirements. For example, the ConsensusDocs 240 Agreement articulates that "the Design Professional shall furnish or provide the architectural and engineering Services necessary to design the Project in accordance with Owner's requirements, as outlined in Owner's Program and other relevant data defining the Project . . ."[42] The standard form documents provide Owners with the ability to control and enhance the design professional's scope of work in ways that could capture an obligation for the design professional to consider climate change impacts on the design.

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[39]EJCDC E-500 § 6.01(A).

[40]AIA B103 — 2017 § 2.2.

[41]ConsensusDocs 240 § 2.1.

[42]ConsensusDocs 240 § 2.1.

For example, the AIA B103—2017 Agreement allows the owner to identify sustainable objectives for the project, which, if identified, requires the use of AIA Document E204-2017, Sustainable Projects Exhibit (2017) to fully outline what those objectives are and how they should be achieved.[43] This provision creates additional possible liability for the architect because of increased responsibilities in an area where the effects of climate change may be especially relevant. More generally, the ConsensusDocs 240 Agreement notes that the "Owner's Program" is the "initial description of Owner's objectives that shall include budgetary and time criteria, space requirements and relationships, flexibility and expandability requirements, special equipment and systems, and site requirements."[44] To the extent that the owner has information in its program that could put the design professional on notice of climate change effects, such as a requirement that the project is built to withstand increased flooding, such considerations could be covered by the design professional's standard of care. The EJCDC E-500 Agreement accounts for the engineer's services in a separate exhibit (Exhibit A), which allows greater flexibility on the part of the owner to introduce into the scope of services the engineer's responsibility to account for climate change in her work. Exhibit A also specifically requires the engineer to visit the site—thus creating a heightened awareness of local conditions—, advise the owner of additional information and testing needed, propose solutions to achieve the owner's objectives, and work with governmental authorities on environmental assessment issues.[45] Each of these required responsibilities also introduces in their normal course the potential for liability to arise from the effects of climate change.

Additionally, the Owner's ability to purchase additional services from the design professional beyond the basic requirements in the standard form contracts creates additional exposure for liability. For example, according to the EJCDC E-500 Agreement, an owner can hire the project engineer to perform the additional services of preparing or reviewing environment assessments and impact statements and obtaining required government approvals for the anticipated impact.[46] Similarly, the ConsensusDocs 240 Agreement notes that the Owner can purchase from the design professional surveys, site evaluations, and soils and environmental studies, each of which creates an additional point at which

[43] AIA B103 — 2017 § 4.1.3.

[44] ConsensusDocs 240 § 2.5.12.

[45] EJCDC E-500 § A1.01(A).

[46] EJCDC E-500 § A2.01(A)(1).

climate change effects might be considered, and liability may attach for failure to do so.[47]

3. Indemnification Clauses

A design professional also has exposure to liability through indemnification clauses. The ConsensusDocs 240 Agreement provides that the design professional will indemnify the owner from any claims or liabilities for personal injury or property damage that arise from the performance of or failure to perform the services under the contract.[48] The AIA B103—2017 Agreement also requires the design professional to indemnify the owner, though its scope is limited to third-party claims.[49] To the extent that adapting the design to address the negative effects of climate change was contemplated by the owner's program, local statute or ordinance, or was otherwise generally foreseeable, the design professional could be on the hook under this indemnification clause.

The EJCDC E-500 Agreement also has an indemnification provision, although it does not cover destruction of tangible property that is the project itself.[50] Thus, if the project itself is the subject of the claim for negligence that it was not designed to account for climate change phenomena, then the design professional would not be required to indemnify.

B. Defenses to Liability

Defenses are available to a defendant design professional against breach of contract claims arising out of damages caused by the effects of climate change. Some likely come from the contract language itself. If the Owner waives consequential damages, the design professional is not liable for damages resulting from the effects of climate change that are indirect and not foreseeable. The ConsensusDocs 240 Agreement provides that the owner "agrees to waive damages including but not limited to Owner's loss of use of the Project, any rental expenses incurred, loss of income, profit, or financing related to the Project, as well as loss of business, loss of financing, loss of profits not related to this Project."[51] The AIA B103—2017 Agreement also waives consequential damages,[52] as does the EJCDC E-500 Agreement.[53] Though, a design professional still may be liable for the direct cost of repairs if the effects of climate change were foreseeable.

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[47]ConsensusDocs 240 § 3.3.

[48]ConsensusDocs 240 § 7.1.1.

[49]AIA B103 — 2017 § 8.1.3.

[50]EJCDC E-500 § 6.11(A).

[51]ConsensusDocs 240 § 5.4.1.

[52]AIA B103 — 2017 § 8.1.4.

Another defense to liability may be available if the design professional relied on information, testing, or studies provided by the owner. In the ConsensusDocs 240 Agreement, while the owner may not have been initially responsible to obtain this information,[54] once obtained and given to the design professional, she "shall be entitled to rely on the accuracy of such information and services."[55]

As with negligence claims, defenses under a statute of repose or a statute of limitations may also be available. Because construction defects—and thus a breach of contract—might not be immediately apparent, the statute of limitations might not start running immediately upon completion of the project if those defects were "inherently unknowable" at the time the contract was breached, in which case the statute of limitations begins to run when the defect was or reasonably should have been discovered.[56] It is nevertheless still the case that a statute of repose may bar a claim, even if a defect was not discovered until a sufficiently long time after the completion of the project.

IV. Statutory and Regulatory Requirements

Design professionals also may be held liable for failing to adequately consider climate change in infrastructure design plans based on requirements in federal or state statutes or their implementing regulations.

For example, the nonprofit environmental advocacy organization Conservation Law Foundation ("CLF") sued ExxonMobil, Inc. under the Clean Water Act and the Resource Conservation and Recovery Act. The Clean Water Act counts allege, among other violations, that ExxonMobil[57] failed to comply with regulations and permit language requiring that oil production and storage facilities be built, maintained, and inspected "in accordance

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[53]EJCDC E-500 § 6.11(F).

[54]ConsensusDocs 240 § 3.3. *See also*, EJCDC E-500 §§ A1.01(A), A1.02(A)(5).

[55]ConsensusDocs 240 § 4.1.1. This protection is provided by the contract language and is not necessarily available absent such language in the contract. *See* n. 10.

[56]*See, e.g.,* Melrose Housing Authority v. New Hampshire Ins. Co., 402 Mass. 27, 520 N.E.2d 493, 497–98 (1988) (defects in construction of a building's wall were not "inherently unknowable" to the owner, and thus the statute of limitations was not tolled, barring the owner's breach of contract claim).

[57]In part, the Complaint alleges that it was the unreasonable conduct of *engineers* employed by ExxonMobil that amounted to the Clean Water Act permit violation.

with good engineering practice."[58] CLF contends, in part, that because ExxonMobil failed to consider current or imminent increases in intense precipitation, more intense storms, rising seas, or other extreme weather in its management of the oil terminal facility at issue, it has not met the regulatory standard of good engineering practice.[59] CLF further alleges that actions in accordance with good engineering practices would necessarily contemplate how climate change impacts like these might cause or exacerbate potential spills at the oil terminal.

On September 13, 2017, the United States District Court for the District of Massachusetts denied ExxonMobil's Motion to Dismiss the case in its entirety due to CLFs purported lack of standing.[60] The judge noted in the order that CLF stated "a plausible claim that there is a 'substantial risk' that severe weather events, such as storm surges, heavy rainfall, or flooding, will cause the terminal to discharge pollutants into [nearby communities] in the near future and while the [Clean Water Act] Permit is in effect." Therefore, with respect to claims concerning such harms to plaintiffs' recreational and aesthetic interests, the case may proceed to trial.

The District Court granted ExxonMobil's Motion to Dismiss with respect to alleged injuries that are unlikely to occur until after the Permit has expired or, if the Permit remains in effect indefinitely, in the future. In particular, the court ruled that CLF "does not have standing for injuries that allegedly will result from rises in sea level or increases in the severity and frequency of storms and flooding that will occur in the far future, such as in 2050 or 2100."[61]

However, whether ExxonMobil has a legal duty to address immediate and imminent threats to the communities and waters surrounding the terminal from current and prospective conditions caused by climate change still remains at the center of the case.

V. Conclusion

While the issue of climate adaptation liability remains a relatively undeveloped area of law, it is all but certain to increase in importance as the effects of climate change continue to increase

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[58]Compl. for Declaratory and Injunctive Relief and Civ. Penalties at 59–60, CONSERVATION LAW FOUNDATION, INC., Plaintiff, v. EXXONMOBIL Corporation, ExxonMobil Oil Corporation, and ExxonMobil Pipeline Company, Defendants., 2016 WL 5426194 (D. Mass. 2016).

[59]*Conservation Law Foundation*, No. 1:16-cv-11950-MLW.

[60]Order of First Circuit Court Judge Wolfe, on file with author.

[61]Order of First Circuit Court Judge Wolfe, on file with author.

in size and scope. Accordingly, this area is ripe for expansion; each of the issues raised in this Article could likely merit a paper of its own. Furthermore, while this Article focused on design professional liability, designers are only one leg of the three-legged stool for a construction project—the other two being the owner and the constructor. Reviewing their roles and responsibilities in the climate adaptation liability context is another area that might be the subject of further research and analysis.