NATURAL CATASTROPHES: Recovering Damages in the Aftermath of Disaster
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INTRODUCTION

A hurricane sweeps across the Southeast shattering its structures. Fires rage through the West ravaging the landscape. A flood runs through the Midwest ruining crops and city buildings. A blizzard blasts through the Northeast bringing businesses to the brink of bankruptcy. Lives are lost, and livelihoods. Whole industries take a hit, the insurance industry in particular.

But something can be done. With today’s technological advancements, the onset of natural disasters is often predictable and the hazards can be contained. Those who fail to properly prepare for and respond to the danger can increase the zone of risk to others. The insurance industry can and should look for recovery opportunities from third parties whose carelessness contributed to the damages of their insureds.

Cozen O’Connor has extensive experience in pursuing those recovery opportunities. From Hurricane Andrew in ‘92 to the Blizzard of ‘96 to the Western fires of 2002, we have identified and pursued third parties whose failures and omissions exacerbated the damages.

About This Guide
This is a guideline to legal recovery against third parties in the natural disaster context. It addresses hurricanes, tornadoes, wildland fires, floods, severe winter storms, and earthquakes. Section I provides an overall legal analysis of third-party liability in the face of natural disasters. Section II addresses construction practices and response systems to consider when evaluating third-party liability for improper disaster preparedness. Section III addresses the six primary disasters and their particular planning considerations. Section IV provides a list of disaster resources.

I. OVERVIEW OF LIABILITY IN THE DISASTER CONTEXT

Negligence
As with any negligence claim, the elements for a negligence claim against a third party for damage caused to adjoining or affected businesses or property owners are: (1) duty of care, (2) breach of the duty, (3) proximate cause, and (4) actual damages. In the natural disaster context, these elements have special considerations.

Duty of Care
Almost all jurisdictions agree that a party with actual or constructive knowledge of an unreasonably dangerous condition owes a duty to adjoining property owners to make the condition safe. In addition, courts in an increasing number of jurisdictions will impose the added duty of inspecting the property for potential defects.

Breach
The question of whether a party failed to take the appropriate precautions and thus breached the standard of care is typically an issue for the jury to decide after hearing all of the evidence.

_Proximate Cause_
Even if a landowner breached a duty of care and was thus technically negligent, the landowner will not be liable if the damages would have occurred from an act of God regardless of that negligence. However, the party will be liable for negligence committed in _concurrence_ with an act of God:

“He whose negligence joins with the act of God in producing injury is liable therefor.” 1 Am.Jur.2d, Act of God, § 11.

_Trespass and Nuisance_
Even if negligence cannot be proven, an action for trespass or nuisance may still lie. A trespass is generally defined as an unauthorized entry onto property which results in interference with the property owner’s possessory interest therein. The owner must prove an invasion of the land that interfered with the right of exclusive possession of the land as a direct result of _some act_ committed by the defendant. Any physical entry upon the land constitutes such an invasion, whether the entry is “walking upon it, flooding it with water, casting objects upon it, or otherwise.” W. Page Keeton et al., Prosser and Keeton on the Law of Torts § 13, at 70 (5th ed. 1984). Similarly, nuisance is any act that unreasonably interferes with the quiet use and enjoyment of the land of another. Unlike trespass, however, a nuisance can occur without actual physical entry upon the land. Sounds, smells, and other detractors can suffice.

In the natural disaster context, trespass or nuisance claims can provide a basis for third-party liability even when “the act” of that third party was not technically “negligent.” In _Akers v. Mathieson Alkali Works_, 151 Va. 1, 144 S.E. 492 (1928), for example, the plaintiff sued under theories of continuing trespass and nuisance for leakage of chemical “muck” from the defendant’s storage basin. Defendant argued that the right of recovery was predicated upon a finding of negligence by defendant. The court rejected that argument, stating:

The law requires that every person so use his own property as not to injure the property of another …. When defendant permitted the muck to escape from its land and injure land of the plaintiff, without his fault, defendant was liable for the damages sustained by the plaintiff. The loss in such cases must be borne by plaintiff or defendant and it seems just that it fall upon the defendant by whose conduct it was made possible.

_Maritime Law_

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Coastal storms will often involve at least some damage to marinas, docks, and other structures along the coastline, often implicating federal maritime law. Admiralty jurisdiction will be triggered if the loss arises out of the storage and maintenance of boats in a marina on navigable waters.

The elements of a negligence claim under maritime law essentially mirror the common law elements: duty, breach, proximate cause, and damages. Determining the duty element, however, requires a balancing between (1) the likelihood of the disaster causing injury to others, (2) the potential extent of the injury, and (3) the expense and effort of adequate precautions to avoid the occurrence.

In states with statutory guidelines governing the conduct of marina and boat owners, the question can arise as to whether the state law is pre-empted by federal maritime law. Under the “maritime-but-local” doctrine, federal law will generally govern unless (1) the matter is one which has great local significance and (2) the state law to be applied does not threaten the uniformity of federal maritime law.

II. THIRD-PARTY PREPAREDNESS AND RESPONSE

Disaster Preparedness
Disaster preparedness is the process of planning for, responding to, and mitigating the damages of the event. The process should start early and stay dynamic, including:

a. Proper construction of buildings and other structures
b. Regular inspection of structures and landscaping
c. Testing of equipment
d. Keeping emergency back-up power and communication systems
e. Keeping a NOAA Weather Radio with a warning alarm tone and battery backup.
f. Establishing emergency training and drills
g. Coordinating the preparations with adjoining property owners, businesses, and community organizations.

Contractors, property owners, and businesses should consider whom they might affect by failing to properly prepare against the effects of a natural disaster. The ramifications of improper planning can be widespread, affecting customers, suppliers, other contractors, shareholders, related businesses, tenants, landlords, and neighbors.

Structural Considerations
There are several ways to build, fortify, and/or retrofit a structure to prevent or minimize the effects of natural disasters, including:

a. Upgrading facilities to withstand the shaking of an earthquake or high winds.
b. "Floodproofing" facilities by constructing flood walls or other flood protection devices

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c. Installing fire sprinkler systems

d. Installing fire-resistant materials and furnishing

e. Installing storm shutters for all exterior windows and doors

f. Removing dead or decaying trees or limbs

g. Securing light fixtures and other items that could fall or shake loose in an emergency

h. Moving heavy or breakable objects to low shelves

i. Attaching cabinets and files to low walls or bolting them together

j. Placing Velcro strips under typewriters, tabletop computers and television monitors

k. Moving work stations away from large windows

l. Installing curtains or blinds that can be drawn over windows to prevent glass from shattering onto employees

m. Anchoring water heaters and bolting them to wall studs

Establishing Response Systems

Property owners and businesses can and should develop response systems that minimize the impact of natural catastrophes. When a third party fails to adopt such a response system, an affected party may have a basis for recovery against that party. Some issues to consider are whether the third party conducted an analysis of and developed a plan for addressing the following:

a. Potential damage to adjoining property or connected businesses as a result of:
   1. Inadequate construction
   2. Inadequate foundation
   3. Inadequate fire protection systems and/or fire walls
   4. Inadequate floodproofing
   5. Susceptible gas mains
   6. Explosive materials
   7. Poorly secured chemicals

b. Proximity to flood plains, seismic faults, dams, dry wildlands, and heavy storms.

c. Governing codes, laws, or ordinances, including:
   1. Occupational safety and health regulations
   2. Environmental regulations
   3. Fire codes
   4. Seismic safety codes
   5. Transportation regulations
   6. Zoning regulations

d. In-house response teams, including:
   1. Fire brigade teams
   2. Hazardous materials response team
   3. Security teams

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4. emergency management group
5. evacuation team
6. public information officer

**e. In-house response equipment, including**
1. fire protection and suppression equipment
2. communications equipment
3. first aid supplies
4. emergency supplies
5. warning systems
6. emergency power equipment
7. decontamination equipment.

**f. In-house site maps that indicate:**
1. Utility shutoffs
2. Water hydrants
3. Water main valves
4. Water lines
5. Gas main valves
6. Gas lines
7. Electrical cutoffs
8. Electrical substations
9. Storm drains
10. Sewer lines
11. Location of each building (include name of building, street name and number)
12. Floor plans
13. Alarm and enunciators
14. Fire extinguishers
15. Fire suppression systems
16. Exits
17. Stairways
18. Designated escape routes
19. Restricted areas
20. Hazardous materials (including cleaning supplies and chemicals)
21. High-value items

**Post-Disaster Mitigation**
Damages in the aftermath of a disaster, especially business interruption losses, can sometimes exceed the initial physical losses. It is therefore critical to initiate repairs and bring systems back on-line as quickly as possible. Failure to do so can extend the damages not only of the affected property owner or business but also of lessees, renters, and adjoining property owners or businesses. In determining whether a third party has exacerbated the post-disaster damage, consider whether that party did the following:
a. Promptly assessed and protected against remaining hazards.
b. Protected undamaged property by:
   1. Closing building openings
   2. Removing smoke, water, and debris
   3. Protecting equipment against moisture
   4. Restoring sprinkler systems
   5. Physically securing the property
   6. Restoring power
c. Kept detailed records, including photographs, videotape, audiotape.
d. Coordinated actions with appropriate government agencies.

III. SPECIAL PLANNING CONSIDERATIONS FOR EACH DISASTER

This section provides specific planning considerations for each of the most common, significant natural disasters. These planning considerations apply primarily to businesses, building landlords, and building tenants, though some apply to any property owner including homeowners. A third party’s failure to follow some or all the considerations can, in some circumstances, form the basis of a cause of action against that party.

**Hurricanes**

Hurricanes are severe tropical storms with winds that rotate clockwise and reach sustained levels of at least 64 knots (74 miles per hour). They develop over warm tropical oceans and can produce torrential rains and flooding. They can also spawn tornadoes. The winds can reach 160 miles per hour and extend inland for hundreds of miles causing tremendous property damage along the seaboard states. The hurricane season lasts from June through November. Satellite systems and hurricane hunters provide ready information on the development of hurricanes over the ocean. The National Hurricane Center in Miami will issue hurricane watches and warnings as soon as a hurricane appears to be a threat. A hurricane watch will typically provide advance warning one to two days before the hit.

Planning considerations include:
   a. Listening for hurricane watches and warnings.
   b. Having the facility inspected by a structural engineer, especially awnings and roofing systems.
   c. Code compliance when constructing a facility or making major renovations.
   d. Protecting windows, preferably with permanent storm shutters or with 5/8' marine plywood.
   e. Listening for community evacuation plans from the local emergency management office.
   f. Establishing warning and evacuation procedures for the facility.
   g. Establishing shutdown procedures for the facility.
   h. Considering the need for backup systems, including:  
      1. Portable pumps to remove flood water
      2. Alternate power sources such as generators or gasoline-powered pumps
3. Battery-powered emergency lighting
   i. Preparing to protect or move records, computers and other items within the facility or to another location.

Tornadoes
Tornadoes are storms with violent whirling winds that extend from thunderstorm clouds down toward the ground. The winds can reach 300 miles per hour, uprooting trees, buildings, and other objects and turning them into devastating projectiles in the process. They can create paths of damage over a mile wide and fifty miles long. They form with little advance warning. Every state is susceptible to potential tornadoes, but they occur most often in the Midwest, Southeast and Southwest. It should be noted that auditoriums, cafeterias, and gymnasiums that are covered with a flat, wide-span roof are not considered safe shelter areas.

Planning considerations include:
   a. Asking the local emergency management office about the community's tornado warning system.
   b. Listening for tornado watches and warnings.
   c. Designating “spotters” to look out for approaching storms.
   d. Establishing protective areas underground or in:
      1. Small interior rooms on the lowest floor and without windows
      2. Hallways on the lowest floor away from doors and windows
      3. Rooms constructed with reinforced concrete, brick or block with no windows and a heavy concrete floor or roof system overhead
   e. Conducting tornado drills.

Wildland Fires
Wildland fires are quasi-natural events. They can arise both from natural forces, as from lightning, and from human hands, accidental or otherwise. Most wildland fires are relatively harmless and, indeed, are prescribed by land managers -- governmental and private -- in an effort to stimulate biotic processes and/or reduce the potential fuel load of dried wildlands should lightning or errant human hands strike. Whether a minor wildland fire will become catastrophic depends upon such factors as wind, temperature, humidity, slope, topography, and the surrounding fuel load. Strong winds can carry burning embers or sparks to other areas, causing spot fires, or can push the flames toward new fuel sources. Wind can also dry out the surrounding fuel sources. The convection currents of wildland fires can also create additional winds, thus fanning their own flames. Solar heating affects the spread of wildland fires by speeding up the time it takes for surrounding fuel loads to reach their ignition point. Humidity affects the spread in that the lower it gets, the less moisture there is to dampen the fuel load. Topography can affect the spread in several ways. The shape of the land determines how much sunlight or shade it gets and how much wind gets through. Rock formations can affect the amount of fuel that can grow. Certain natural or manmade barriers can stop or slow the spread, including highways, boulders, and bodies of water. Elevation and slope can contribute to how quickly the fire will reach the crest of the land form. Fires that start at the bottom of the slope
will preheat the uphill fuels by the rising air, increasing the chances of ignition. Fires that start uphill can also roll downward when burning material drops by the force of gravity.

Planning considerations
a. Learning the history of wildfires in the area.
b. Inspecting the roof and exterior structure of the structure for non-combustible or fire resistant materials such as tile, slate, sheet iron, aluminum, brick, or stone.
c. Replacing wood roofing or exterior paneling or applying fire retardant chemicals.
d. Clearing roof surfaces and gutters of pine needs, leaves, branches, and other combustible materials.
e. Creating a “fuel break” around all structures by clearing away foliage or other combustibles (e.g., picnic tables)

f. Protecting the flue opening of every stovepipe or chimney with a non-combustible screen with mesh openings no larger than 1/2 inch in diameter.
g. Clearing the flue opening of any foliage with ten feet.
h. Spacing the trees and bushes away from the structure or surrounding vegetation.
i. Pruning away tree branches less than 15 feet high.
j. Storing gasoline and propane in approved containers away from occupied buildings.
k. Making sure roads and driveways are at least 16 feet wide.
l. Keeping fire equipment and tools on hand, such as:
   1. Extinguishers
   2. Ladder long enough to reach the roof
   3. Shovel
   4. Rake
   5. Water buckets.
m. Keeping garden hoses connected to the outlets.

Floods and flash floods
Of all the natural disasters, floods are perhaps the most common and widespread throughout the states. Most floods develop from spring rains, heavy thunderstorms, or winter snow thaws. They often develop slowly over a period of days. Flash floods, however, come without warning, descending upon communities in a crash of water in mere minutes, usually from intense storms or dam failure.

Planning considerations include:
a. Asking the local emergency management office whether the facility is located in a flood plain.
b. Learning the history of flooding in the area.
c. Learning the elevation of the facility in relation to streams, rivers and dams.
d. Inspecting areas in the facility subject to flooding.
e. Considering the feasibility of floodproofing the facility, such as:
   1. Protecting windows, doors, and other openings with bricks, blocks, flood shields, or other water-resistant materials.
2. Equipping water and sewer lines with check valves.
3. Sealing or reinforcing walls to resist water seepage or pressure.
4. Protecting equipment or work areas with water-tight walls.
5. Building outdoor floodwalls or levees to protect the facility, without causing water diversion to neighboring property owners.
6. Elevating the facility on walls, columns or compacted fill.
7. Installing permanent watertight doors
8. Constructing movable floodwalls
9. Installing permanent pumps to remove flood waters
10. Stacking sandbags against building walls.
11. Constructing a double row of walls with boards and posts to create a "crib," then filling the crib with soil
12. Constructing a single wall by stacking small beams or planks on top of each other

f. Considering the need for backup systems, including:
   1. Portable pumps to remove flood water
   2. Alternate power sources such as generators or gasoline-powered pumps
   3. Battery-powered emergency lighting

g. Participating in community flood control projects.
h. Reviewing the community's emergency plan and learning the community's evacuation routes.

i. Knowing where to find higher ground in case of a flood.
j. Establishing warning and evacuation procedures for the facility.
k. Listening for flood watches and warnings.
l. Identifying records and equipment that can be moved to a higher location and making plans to move them.

Severe Winter Storms

Winter storms can bring heavy snow, heavy winds, hail, ice, and freezing rains. Each region is equipped to handle them differently depending on the historical frequency and severity the storms. When they hit, however, they can shut down even the most prepared of cities.

Planning considerations include:

   a. Listening for storm warnings and watches.
   b. Having the facility inspected by a structural engineer.
   c. Assuring that the roofing system complies with code.
   d. Code compliance when constructing a facility or making major renovations.
   e. Storing food, water, blankets, battery-powered radios with extra batteries and other emergency supplies for employees who become stranded at the facility.
   f. Providing a backup power source for critical operations.
   g. Arranging for snow and ice removal from parking lots, walkways, loading docks, roofs, etc.

Earthquakes

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Earthquakes are perhaps the most sudden and unpredictable of the natural disasters. Though they are mostly confined to the states west of the Rocky Mountains, the most violent earthquakes in history have occurred in the central United States. In addition to damaging buildings and utility services, they can trigger avalanches, landslides, flash floods, and tsunamis. They are often followed by aftershocks that can last for weeks.

Planning considerations:

a. Assessing the facility's vulnerability to earthquakes.
b. Asking local government agencies for seismic information for the area.
c. Inspections of the facility by a structural engineer.
d. Developing and prioritizing strengthening measures, which may include:
   1. Adding steel bracing to frames
   2. Adding shear walls to frames
   3. Strengthening columns and building foundations
   4. Replacing unreinforced brick filler walls

e. Following safety codes when constructing a facility or making major renovations.

f. Inspecting non-structural systems such as air conditioning, communications and pollution control systems.

g. Assessing the potential for damage and prioritizing measures to prevent damages.
h. Inspecting the facility for any item that could fall, spill, break or move during an earthquake and taking steps to reduce these hazards.

i. Moving large and heavy objects to lower shelves or the floor.
j. Hanging heavy items away from where people work.
k. Securing shelves, filing cabinets, tall furniture, desktop equipment, computers, printers, copiers and light fixtures.
l. Securing fixed equipment and heavy machinery to the floor; larger equipment can be placed on casters and attached to tethers which attach to the wall.
m. Adding bracing to suspended ceilings, if necessary.
n. Installing safety glass where appropriate.
o. Securing large utility and process piping.

p. Keeping copies of design drawings of the facility to be used in assessing the facility's safety after an earthquake.

q. Reviewing processes for handling and storing hazardous materials and storing incompatible chemicals separately.

r. Establishing procedures to determine whether an evacuation is necessary after an earthquake.
s. Designating areas in the facility away from exterior walls and windows where occupants should gather after an earthquake if an evacuation is not necessary.
t. Conducting earthquake drills.

IV. RESOURCES

This section provides the following information sources:

**Publications**

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The Federal Emergency Management Agency (FEMA) provides numerous publications on their website, www.fema.gov. Hardcopies can also be obtained by writing to: FEMA, Publications, P.O. Box 70274, Washington, DC 20024. Useful publications include:

- Disaster Mitigation Guide for Business and Industry (FEMA 190) -- Technical planning information for building owners and industrial facilities on how to reduce the impact of natural disasters and man-made emergencies.
- Principal Threats Facing Communities and Local Emergency Management Coordinators (FEMA 191) -- Statistics and analyses of natural disasters and man-made threats in the U.S.
- Floodproofing Non-Residential Structures (FEMA 102) -- Technical information for building owners, designers and contractors on floodproofing techniques (200 pages).
- Non-Residential Flood-proofing -- Requirements and Certification for Buildings Located in Flood Hazard Areas in Accordance with the National Flood Insurance Program (FIA-TB-3).
- Building Performance: Hurricane Andrew in Florida (FIA 22) -- Technical guidance for enhancing the performance of buildings in hurricanes.
- Building Performance: Hurricane Iniki in Hawaii (FIA 23) -- Technical guidance for reducing hurricane and flood damage.
- Answers to Questions About Substantially Damaged Buildings (FEMA 213) -- Information about regulations and policies of the National Flood Insurance Program regarding substantially damaged buildings (25 pages).
- Design Guidelines for Flood Damage Reduction (FEMA 15) -- A study on land use, watershed management, design and construction practices in flood-prone areas.

Publications from other sources include:


**Websites**

- National Weather Service: [www.nws.noaa.gov](http://www.nws.noaa.gov)
- The Weather Channel: [www.weather.com](http://www.weather.com)
- Accuweather.Com: [www.accuweather.com](http://www.accuweather.com)
- The Weather Network: [www.theweathernetwork.com](http://www.theweathernetwork.com)

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Weather Underground: www.wunderground.com
Intelicast Weather: www.intellicast.com
Online Meteorology Guide: http://ww2010.atmos.uiuc.edu
World Climate: www.worldclimate.com
National Climatic Data Center: www.ncdc.noaa.gov
Automated Weather Service: www.aws.com
The Weather Center/WeatherWatch.Com: www.weatherwatch.com
WeatherNet: http://cirrus.sprl.umich.edu/wxnet
WeatherConcepts: www.weatherconcepts.com
National Interagency Fire Center: www.nifc.com
Stormtrack: www.stormtrack.com
Center for Analysis and Prediction of Storms, Univ. Oklahoma: www.caps.ou.edu
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