

Catastrophe Management: The Coastal Imperative

Effective loss prevention can prepare property owners long before nature’s forces strike

More than 12,000 miles of coastline surround the USA. Add to that tally some 88,000 miles of tidal shorelines — bays, offshore islands, inlets, sounds and the tidal portions of rivers and creeks. Many of these coastal miles have the distinction of being the most developed and populated areas in the United States, with 53% of people living within 50 miles of the coast, including the Great Lakes coastal areas, according to the National Oceanic and Atmospheric Administration (NOAA).

Historically, coastal land was developed because of economic necessity. Oceans and waterways provided the routes to get goods from here to there. To take advantage of this, factories, warehouses, marine and other industrial operations sprang up near the coast and other waterways. Residential development, roads, and other infrastructure followed to meet the demands of an increasing population who had the desire to work and live near the ocean.

THE HIGH PRICE OF AN OCEAN VIEW

As a result, coastal areas have experienced significant physical changes. Where sandy dunes were once covered with beach grasses, hard surfaces like pavement have been added to the landscape. The topography of a flat beach would allow the natural flow for wind and water, allowing water to easily run off and seep into the sand. Add a few homes and a hotel with an ocean view, and a few roads to get to them, and the landscape and how it works with nature suddenly changes.

How the coastal landscape continues to change and how it can withstand the forces of nature pose some interesting challenges for property insurers and their loss prevention teams who help assess and mitigate the potential risks to coastal properties.

Buildings along the coast are often more valuable than inland properties. A recent study published in the *Natural Hazards Review* found that hurricane damage along the coast has increased dramatically, not because of the increase in number or severity of tropical systems but because the population and the value of property has skyrocketed in these areas. The study by a panel of government and private agency scientists found that if the 1926 Great Miami Hurricane were to hit the city today, the resulting damage would cost between \$140 and \$160 billion, which would be the most costly hurricane in history. In 1926, the hurricane left about \$100 million (or about \$2 billion in today’s dollars) in damage.

MAKING THE MOST OF MODELS

Catastrophe (Cat) modeling is one of many risk management tools that insurers and reinsurers rely on to assess and manage possible losses on a portfolio basis. Modeling combines historical disaster information with current demographic information about existing structures, along with scientific and financial data, such as property market value, to determine the potential cost of natural catastrophes — whether hurricanes, earthquakes, winter storms, tornadoes, hailstorms or floods — for a specific geographic area.

Cat models have been constantly updated and fine-tuned to incorporate the latest technologies, data, and research findings to get the most accurate picture of what could happen.

Often, property insurers will look to supplement the results of modeling with physical site surveys by their loss prevention engineers. Such surveys can provide even more specific building construction details (known as secondary modifiers) which can help fine tune the modeling results. Loss prevention consultants can provide valuable insight and direction to help clients by recommending adequate property protection systems, as well as helping to develop effective pre-emergency plans so clients can be prepared long before the site feels the effects of an approaching storm.


Planning ahead is the cornerstone of effective risk management. For new construction projects — especially vital infrastructure such as hospitals, power providers and other facilities — risk management plans start with finding the best and safest possible location.

FROM THE START

Choice locations are not always available but this has not prevented building either. Construction still occurs in flood-prone locations and people still like homes with ocean views. Therefore, when construction is adapted to the location and added precautions are taken to accommodate the risks associated with a location, potential property damage can be mitigated.



Property owners or developers often turn to loss prevention specialists to help assure that from the start, construction activity takes into account ways to mitigate potential future risks to the property. For instance, new structures are appropriately elevated such that the lowest finished floor is above the 100-year flood level and efforts would be made to make them as watertight as possible with roofs that can sustain high coastal winds. In the case of protecting a building from high winds caused by tropical storms, hurricanes, and gust fronts, the risk management focus is on sustaining the integrity of the building envelope, including roofs and windows, and designing or reinforcing a structure to withstand high winds. (See Sidebar for more risk mitigation tips).

Homeowners and businesses in coastal communities have learned many hard lessons about the impacts of a natural disaster, which fortunately have resulted in a clearer understanding of the vulnerability of structures to natural hazards, and have found how to minimize future damage in the face of nature's harshest forces. 

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Shoring Up Coastal Property

XL Insurance and XL GAPS, through its global network of loss prevention consultants, work with clients to carefully assess properties' potential exposures and help implement corrective actions to lessen a loss in the event of a natural catastrophe. Some common risk mitigation suggestions include:

- Ensuring that roof coverings meet the appropriate standard for wind resistance and that they are properly secured and free of damage;
- Directing roof drain discharge away from a building's foundation;
- Keeping roof drains clear of debris to prevent build-up or pooling of water;
- Installing impact-resistant windows and doors as needed;
- Ensuring seismic bracing is up to current codes;
- Installing seismic gas shutoff valves on incoming natural gas lines;
- Trimming and disposing of landscaping that may become wind-blown debris;
- Removing any loose yard equipment;
- Learning proper sandbagging techniques;
- Elevating stock and supplies in flood prone areas;
- Properly anchoring carports, canopies and overhangs;
- Installing an exterior lightning protection system (lightning rods); and
- Installing surge protectors on all computer systems, telephone lines and other electronic systems to protect against lightning damage that often accompanies windstorms.