**COASTAL PROPERTY CHECKLIST**

If you live along the immediate coast, you are more vulnerable to the effects of coastal storms. High winds and waves may damage and destroy improperly constructed homes. Floating debris can crack foundation piles, causing collapse of the home or severe damage to windows and doors. Pressure from floodwaters on solid foundations can lead to collapse.

You can prevent or minimize damage by taking precautions during initial construction or by making modifications to an existing home. The following checklist is not all-inclusive and is not intended to replace local building code requirements or to serve as the only options for protecting your home from storm damage. For more information, contact your local building official or a building professional such as a coastal engineer, architect, or experienced contractor.

**Flooding**

o Do you know the projected flood elevation for your area? Ask your building department to see a flood map of your community.

o Do you know the estimated long-term erosion rates for your area? The Massachusetts Shoreline Change Project (www.mass.gov/eea/agencies/czm/program-areas/stormsmart-coasts/shoreline-change/) can provide information on shoreline trends, including erosion and accretion rates. Are any actions such as beach nourishment or other erosion control projects being implemented to mitigate long-term erosion?

o Is the first floor of the dwelling located above the projected flood elevation for your area?

o Is your home located in a V zone? Inclusion in a V zone indicates the potential for waves of three feet or greater in a storm event having a 1 percent chance of being equaled or exceeded in any given year. Retaining walls, bulkheads, or other soil management structures located underneath, connected to, or in close proximity to existing or proposed buildings may be prohibited within V zones.

o If your house is elevated on piles, do you have an open foundation, free of obstructions (i.e., if flood flow and waves can pass through the area relatively freely and not cause flood damage) that allows fast-moving waves and water to flow beneath the building?

o If storage areas or other enclosures are needed below projected flood elevations, they must be constructed with breakaway walls to allow water to flow through unobstructed. Is your enclosure breakaway?

o Are steps used for accessing the beach from the structure or the pedestrian dune crossover elevated or removed out of the reach of waves and floodwaters?

o Are the main electric panel, outlets, and switches located at least 12 inches above predicted floodwaters?

o Are the washer, dryer, furnace, and water heater elevated above predicted floodwaters?

o Are outside air-conditioning compressors and heat pumps elevated above predicted flood levels?

o Is the fuel tank securely anchored? It can tip over or float in a flood, causing fuel to spill or catch fire. Is it protected from impact, buoyancy, and scour? Cleaning a house inundated with oil-contaminated water can be difficult and expensive. FEMA has information (DVDs, YouTube, PDFs) on anchoring home fuel tanks (search

Anchoring Home Fuel Tanks at www.fema.gov).

o What is the orientation of crossbracing on the pilings? Diagonal bracing will obstruct velocity floodwaters and waves and will often trap debris, therefore bracing is often placed parallel to the primary direction of flow. Check with your architect or engineer.

o Does the sewer have a backflow valve? Contact a licensed plumber to install the valve.

o Are there potential projectiles such as landscaping ties, cinder blocks, cement patio blocks, pile butts, or split rail fences located in the pathway of waves and flood waters? These objects can act like projectiles in a storm, cracking and damaging piles, windows, and possibly causing structural damage.

**Wind**

o Are windows and exposed glass surfaces protected by coverings? This is one of the best ways to protect your home against wind and flying debris.

o Is the roof fastened to the walls with galvanized metal hurricane clips? This will reduce the risk of losing your roof to high winds.

o Are the galvanized clips, straps, hangers, and joist-to-beam ties corrosion free? Corroded metal components can fail during extreme wind events. These should be replaced when corroded.

o Are the foundation piles notched less than 50 percent of the pile cross section? Overnotching can lead to failure of the piles.

o Are deck and lawn furniture, which are likely to become airborne debris, securely fastened or taken indoors?

**Erosion**

o Are your foundation piles deep enough to survive a coastal storm? How about back to back coastal storm events?

o Is your property protected by an artificially stabilized coastal bank or maintained beach and dune system?

o Is that project currently being maintained to its intended design? Is the bank or dune in front of your home well vegetated to reduce wind erosion? Is the dune of sufficient height and width to prevent overtopping by waves during a storm?

o Are there bare, low areas in the dune created by walking over the dune to access the beach? These areas are weak spots that will allow waves to flow over the dune and cause loss of the dune and subsequently allow waves and water into the house. Consider a zigzag pattern (if the dune is wide enough) so the water does not have a straight path towards your house. Stairways or seasonal walkways might also reduce erosion.

o Do not undertake any dune alteration activity unless a proper engineering analysis demonstrates that there will be no increase in flood risk. The NFIP prohibits man-made alteration of sand dunes within VE and V zones, which would increase potential flood damage.

o Is your home built on a concrete slab and located on the ocean or bay front? Concrete slabs can be undermined and destroyed during storms, causing the collapse of the structure. Crawl-space homes are also vulnerable to undermining. If feasible, elevate the structure on pilings to reduce future damages to the building.

o Does your home have a septic system located in a coastal high-hazard area (V zone)? Both buried and mound septic systems are frequently exposed, destroyed, or displaced during coastal storm events. Special design criteria must be used to protect septic systems in areas vulnerable to high-velocity flooding, wave action, erosion, and storm damage. (More information in 1999 Technical Fact Sheet FEMA P-348 available at

[www.fema.gov](http://www.fema.gov)).

**Structural**

o Inspect strapping and connectors for corrosion and replace if necessary.

o Check roof for loose or missing shingles. Be certain gutters are clear of debris.

o Inspect condition of storm shutters or plywood used to protect windows and doors. Cover all large windows and doors (especially patio doors) with securely fastened, impact-resistant shutters with proper mounting fixtures.

o Make sure all doors and windows are caulked and/or weather stripped.

o Inspect sewer backflow valves.

o Inspect condition of elevated utilities and supporting platforms. Be sure utilities are securely anchored to the supporting frame.

**Lot and Land Area**

o Before a storm: Remove, secure, or store any objects that may be carried by waves or winds (e.g., deck furniture, landscaping, construction materials.)

o Before a storm: Raise or remove steps accessing the beach.

o As part of regular maintenance: Check condition of dune (width and elevation.)

o As part of regular maintenance: Inspect condition of beachgrass. Replant bare areas in the spring and fertilize as needed (and permitted.)

o As part of regular maintenance: Trim back dead or weak branches from trees.

o As part of regular maintenance: Inspect condition of beachgrass. If permitted by your local Conservation Commission, replant bare areas in the spring and fertilize as needed.