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What to Do Before, During and After a Natural Disaster in Alaska

by Art Nash

Alaska is subject to earthquakes, volcanic eruptions and an increasingly unpredictable climate. Extreme wind events are becoming more common, wildfires are increasing in frequency and severity, and flooding is occurring along rivers and coastlines.

Those living on the Gulf of Alaska know that tsunamis are a danger after an earthquake. Coastal residents are aware of potential flooding accompanied by erosion and storm surges, and residents of the Interior and elsewhere are concerned about wildfires and smoke during the summer months. No matter what the potential threat, most Alaskans are concerned about protecting their homes.

Protect Your Home

Wildfires and Defensible Space

Defensible space is the area needed to stop or slow the spread of wildfire around your home. This zone should extend at least 30 feet from the house in all directions. Within this zone:

- Thin trees and prune brush to at least 10 feet off the ground and dispose of dead limbs, leaves and other litter.
- Leave adequate space between groups of shrubs and the branches of trees.
- Reduce the density of the surrounding forest.
- Mow dry grasses and weeds.
- Maintain an irrigated green belt.
- Stack firewood away from home and locate fuel tanks at least 30 feet from the home.
- Keep roofs and gutters clean.

If you are building or remodeling, think about protecting your home from fire in other ways:

- Use fire-resistant or noncombustible roofing materials and treat combustible materials, such as decks, siding and trim, with fire-retardant chemicals.
- Plant fire-resistant trees (hardwoods rather than spruce or pine) and shrubs.
- Keep a rake, ax, handsaw or chainsaw, bucket, shovel and ladder handy.
- Maintain an outside water storage container with a pump and a hose with a "Y" junction long enough to reach any part of the house.

Wind Events

Extreme wind events can occur almost anywhere in Alaska. Although the state is rarely affected by tornadoes, thunderstorms may result in high winds. Coastal areas are vulnerable to fall and winter storms that bring strong winds that cause storm surges. To reduce property loss in the event of high-wind conditions, take the following precautions:

- Trim or remove trees close to structures and secure outdoor items.
- Fasten straps or clips to building roofs to reduce damage.
- Use storm shutters or plywood for window protection.

- Make sure to secure or store any loose items on your property.
- Check for trees that overhang power lines. Notify your electrical utility company so they can remove any hazardous trees.

Flooding

Flooding is a serious threat in Alaska, which has nearly 34,000 miles of tidal coastline and hundreds of rivers and streams. Storm surges caused by tsunamis, distant hurricanes or other weather events may lead to erosion and flooding. If you live in a flood-prone area, there are some measures you can take to protect your home:

- If possible, build flood barriers or drainage devices.
- If your home is more than one level, you may want to have your main level above the ground and store valuable items there, with waterproof items and items of lesser value in the garage at or below ground level.
- It may also be advisable to raise utilities and furnaces, water heaters and similar equipment off the ground and add sewer line check valves to prevent floodwater from backing up into your house drains.
- Consider sealing lower-level interior floors with waterproofing materials.

Earthquakes

More than 40,000 earthquakes were reported in Alaska in 2014. Know what faults are in your area, and prepare your home to withstand the potential damage from a quake.

Foundations

Securing your foundation is probably the best investment you can make to prepare for a natural disaster such as an earthquake, flood or tsunami. Make sure that the foundation material of your home is stable. Have an engineer/inspector look over your foundations and connections. This is all the more essential for pad-and-post buildings on permafrost. Also, be sure to try to prevent lateral as well as vertical movement or disconnection should there be a sideways shaking force from earthquakes or a vertical force/drop from flooding:

- Attach strong ties or clips to solidly connect any beams to the rafters or joists.
- If your home is set up on crib timbers, they need to be connected with some hardware to the structure.
- City codes for houses on the road system often require there to be large metal straps on

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the interior of the corners for seismic stabilization.

- To keep the insulation from shaking out of pad and post foundations, staple buffalo board or plywood between the floor joists to keep insulation in place. If you can afford it, foam board can provide added insulation to the fiberglass.

Foundations with a crawl space

Nail or otherwise adhere vertical beams to the beam or joist above. Or better, have a cement pad embedded piece of rebar, which can be inserted into a drilled hole in the beam or joist above it to provide more stability in case of an earthquake or a horizontal blow to the home (such as in a tsunami). This also allows for jacking and shimming later should there be settling. It is also important to screw or nail the vertical supporting beam from several angles from underneath to avoid splitting the wood at a single point of adhesion, which could easily happen in an earthquake. If you are using dimensional or rough-cut milled lumber for your beams, use metal strong ties that fit so that you can nail or screw the galvanized tie to both the vertical supporting beam and the joist(s) or beam above.

Fuel Tanks and Combustion Devices

Many people have combustion devices and fuel tanks that need to be secured. The easiest way to keep large items like hot water heaters, which usually weigh close to 500 pounds when full, or vertical propane tanks secure is to wrap them in plumber's tape and secure them to the closest wall in a basement, utility room or crawl space.

Use small metal screws and duct tape to secure exhaust vents, which can be shaken loose or knocked loose without the home owner knowing. Any combustion creates carbon monoxide and because it is tasteless, odorless and invisible, it can harm residents long after a disaster has happened and people have returned to their homes.

Plumber's tape can be used to keep large items such as fuel tanks, hot water heaters and combustion devices secure during an earthquake or other natural disaster.

Prepare Your Family

If you must evacuate:

- Shut off any type of circulation zone valves on radiant heating and fuel drum lines immediately before or during a disaster.
- Shut off the utilities such as water and natural gas if you have them.
- Post emergency phone numbers in a common area of the house.
- Clearly identify your home and make sure there is good access.
- Have an evacuation plan with several escape routes and a meeting place and practice it with your family.
- Put together an emergency kit with supplies (food, water, first aid, clothing, radio, valuables, important documents, etc.). Remember the six "Ps:"
  - **People and pets** and other livestock
  - **Papers**, including important documents (Hopefully, these are all together and easily accessible.)
  - **Prescriptions**, including medication, eyeglasses and hearing aids/batteries
  - **Pictures** and irreplaceable memorabilia
  - **Personal computer:** It is always a good idea to have a backup on a small portable hard drive that is easy to carry.
  - **Phone:** Always keep your phone charged and ready to take with you, and remember that texting may be a better way to communicate.
- In the case of an earthquake, protect yourself under furniture or a solid doorway during earthquake shaking.

Elderly People and People with Disabilities

If you are an older Alaskan or have a disability or you're are a caregiver, you should have the following emergency supplies and other important accessibility items in case of evacuation:

- Portable grab bars with suction cups for hotel bathroom walls
- Walker with a fold-down seat
- Folding wheelchair
- Folding or telescoping ramps for getting wheelchairs into pickup beds or over high door thresholds
- Four-point cane
- Strong lighting that can project

Additional food items to consider:

- Fiber supplements in case of extended periods of immobility
- Salts, spices and flavoring to encourage eating
- Soft foods in case of dental or denture difficulties
- Large-lid water bottles that are easy to twist for hands that may be arthritic

Other items to consider:

- Extra batteries for hearing devices
- Inhalers and a nebulizer with extra batteries if respiratory distress is probable during exertion or a period of poor air quality
- Speech-to-speech/TTY equipment and number
- Ear plugs or headsets for those with sensory issues
- Communication cues on cards for emergency personnel
- Pictorial maps of meeting places in case of separation
- Different-colored med boxes for a.m. and p.m.
- Leather fingerless gloves for those using wheelchairs

- Volcanoes can cause serious problems from the ash that they let off. If you have a respiratory condition, you can protect yourself by wearing a simple N-95 mask.

Take Precautions After the Disaster

It is important to take precautions when returning to your home after any natural disaster:

- Conduct a walk-through of your home and scan for safety issues such as electrical hazards and unstable walls or bowing roofs. Be sure to use personal protective gear such as rubber gloves, eye gear and long sleeves.
- Saturated soils after an earthquake or tsunami can damage foundations. If you see any damage, have a structural engineer check out the foundation to make sure that it is safe to live in your home. Find out if there is any bracing or possible outside excavation that can create a more supportive option.
- Begin to clear and dry out the home by removing wet furniture, carpet, drywall, insulation, etc., to help mitigate future mold problems.
- Contact your local Department of Environmental Conservation office to find out how to sanitize drinking water systems and check your septic system.
- Check your fire and CO detectors and alarms.
- Inspect vehicles. Open the cab, roll down the windows and lift the hood to dry out the vehicle.

- Dry out home electronics. Check the fans. Use an air compressor to remove silt and blow other debris from vents on appliances. Put small devices, such as cell phones and tablets, in a zipper-type bag of rice to help the drying out process
- Decide whether to keep or dispose of clothing, linens, leather and other household items. If you decide to keep them, be sure to clean and dry them properly.
- Replace all electrical wiring that was soaked and replace switches that were submerged. Check your fireplace if you are able to stay in your dwelling after a disaster to see if the chimney is intact and venting fumes. You may even have a simple flat sheet of plywood with sheet metal on one side and handles on the other to cook like an outdoor "oven." If you have a direct-vent heater, be sure to raise the exit point for exhaust well beyond the height of known water lines from past floods.

In Summary

We can't avoid natural disasters but we can mitigate our losses and shorten the time it takes to get back into our homes. With the structures on your property, you want to prepare the foundation and think of ways to prevent moisture damage or a problem with your floors. To some extent, carefully choosing your building materials may help to reduce problems.

Hopefully, you will have a supply kit for at least seven days in Alaska regardless of whether you're on the road system or in a remote community. Also, you will also want to leave other family members/friends with a copy of critical documents such as a driver's license or birth certificate, baptismal papers, passports, family photos, stocks/bonds, etc., in case you get separated from the documents you have stored in the supply kit.

It is suggested that families have some sort of combustion device that can utilize local fuel sources that will last at least a week before power is restored and possibly longer. Finally, when you get back home after a major disaster, you want to be sure to have it inspected to make sure all the mechanical elements are operating properly. And, of course, make sure you have functional smoke and carbon monoxide detectors with fresh backup batteries near those devices.

Resources

Alaska Center for Climate Assessment and Policy, https://accap.uaf.edu/

Alaska Division of Forestry, http://forestry.alaska.gov

Alaska Ready.Gov

American Red Cross

CalFire. 2012. Wildfire Is Coming. Are You Set? www.readyforwildfire.org

Department of Homeland Security-Federal Emergency Management Agency (FEMA)

Extension Disaster Emergency Network (EDEN), https://nifa.usda.gov/extension-disaster-education-network

Firewise Alaska, http://forestry.alaska.gov/fire/firewise

Wildfires, www.ready.gov/wildfires

Emergency Supply Checklist

Survival

- ☐ Water and disinfectants: 2 quarts to 1 gallon per person per day and a disinfectant such as iodine tablets or chlorine bleach to purify water
- ☐ First aid kit, freshly stocked and stored in a central location with emergency instructions
- ☐ First aid book
- ☐ Food (packaged, canned, dried, no-cook and baby food, food for special diets) to last one week
- ☐ Can opener (non-electric)
- ☐ Blankets or sleeping bags
- ☐ Portable radio and extra batteries for receiving emergency broadcasts and current disaster information
- ☐ Flashlight and extra batteries
- ☐ Essential medication and glasses
- ☐ Fire extinguisher ABC type, easily accessible and suitable for all types of fires
- ☐ Food and water for pets
- ☐ Money

Sanitation Supplies

- ☐ Large plastic trash bags for trash, waste, water protection
- ☐ Large trash cans
- ☐ Bar soap and liquid detergent
- ☐ Shampoo
- ☐ Toothpaste and toothbrushes
- ☐ Feminine and infant supplies
- ☐ Toilet paper
- ☐ Household bleach
- ☐ Newspaper to wrap garbage and waste

Safety and Comfort

- ☐ Sturdy shoes for walking through debris
- ☐ Heavy gloves for clearing debris
- ☐ Candles and matches
- ☐ Extra clothing to stay warm
- ☐ Knife or razor blades
- ☐ Garden hose for siphoning and firefighting
- ☐ Tent

Cooking

- ☐ Camp stove, propane appliances
- ☐ Fuel for cooking (camp stove fuel, etc.)
- ☐ Plastic knives, forks, spoons
- ☐ Paper plates and cups
- ☐ Paper towels
- ☐ Heavy duty aluminum foil

Tools and Supplies

- ☐ Ax, shovel, broom, woodcutting saw
- ☐ Crescent wrench for turning off gas and water valves
- ☐ Screwdriver, pliers, hammers
- ☐ Coil of ½-inch rope

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