



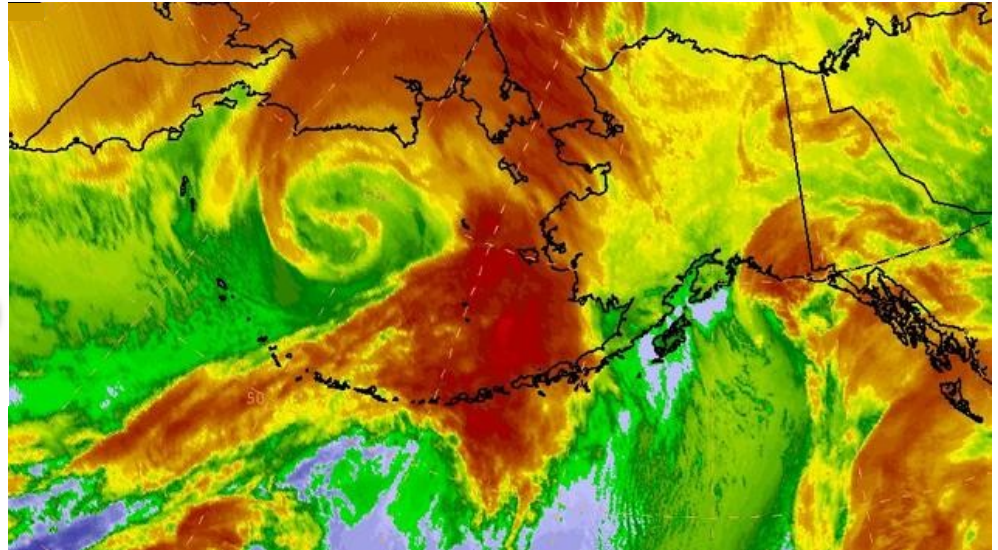
FEMA

Mitigation measures

Protect Your World From Natural Disasters

Alaska Winter Storms

Alaska



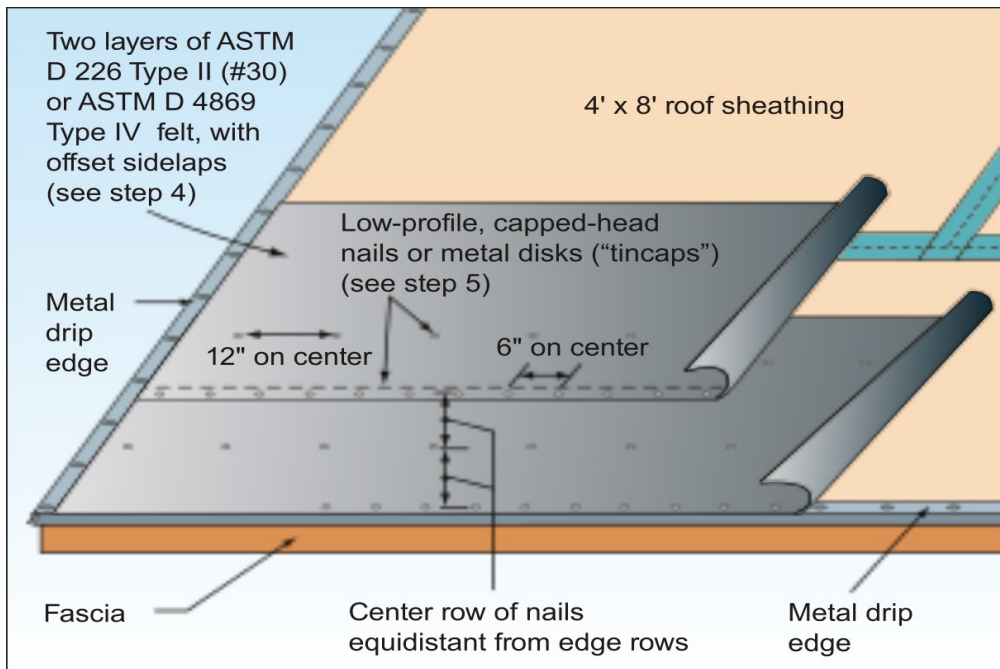
Strong materials and good connections between all of the parts of a house will provide a reliable “load path” to transfer wind and snow loads (or earthquake forces) from the roof, walls and floors down to the foundation.

Many Alaskan homes suffer damage from winter windstorms and heavy snow. Disaster resistant design, construction and retrofitting can reduce or eliminate many problems and keep your home safe, warm and dry.

During new construction or a re-roofing project you have opportunities to avoid water intrusion and consequent damage from missing shingles, flying debris, failure of the roof to wall connection or overloaded roof rafters:

- Metal connectors (hurricane clips) add tremendous strength where the rafters connect to the walls. You may want to add connectors during a re-roofing project by temporarily removing perimeter roof sheathing (to gain access). If the roof is already damaged, or is inadequate for possible future snow loading, consult a design professional to find the best way to add additional support.
- Plywood roof sheathing needs to be securely nailed, especially around the perimeter of each panel (see resources links on page 2 of this publication).
- During new construction or re-roofing consider sealing all plywood sheathing joints and roof deck penetrations (around vent pipe holes, etc.) with self-adhering modified bitumen tape (sometimes called “window flashing tape”). Taping the plywood joints is now a code requirement in certain high wind zones. This upgrade can keep water out of the house even after a wind borne tree branch or other flying object has swept away some of the roof materials.

- Fasten two layers of underlayment (felt) with low-profile, capped-head nails or metal (or plastic) disks, rather than the small staple (hammer-tacker) installation method.
- Apply roof cement under the “leading edges” of shingles around the roof perimeter and ridge. Loose shingles can start a domino-like failure. Roof cement is available in tubes for caulking gun application (and works best in warm weather).



Example of roof sheathing and underlayment design detail from *Home Builder's Guide to Coastal Construction* (FEMA Publication P-499)

Window protection may be needed during the most severe winter storms:

- Plywood panels, cut to fit the dimensions of each window, are an effective and economical solution. They can be secured with screws for easy installation and removal.
- Removable storm windows are another option that can protect the primary glazing and reduce heating costs, while still allowing light to enter the house. Wood frame storm windows with tough acrylic plastic sheeting are affordable and practical as a do-it-yourself project. Thicker polycarbonate plastic panels are another extremely sturdy option. They are far more expensive than plywood, however, and must usually be ordered from a specialty plastics dealer.

Weather stripping, caulking and insulation are a final barrier to Alaska winters:

- Find air gaps that allow wind and snow to enter and heat to be wasted;
- Carefully select the best products for each type of crack or gap: Acrylic caulking for small cracks; Foam rope helps with larger gaps; Use expanding foam products where appropriate; Install metal, felt, or vinyl weather strips around doors and windows.
- Add insulation to recommended levels (see UAF Cooperative Extension and Cold Climate Housing Research Center publications).

More Information and Resources:

Wind resistant construction details are available for download through the Federal Emergency Management Agency website:

www.fema.gov/library

Home Builder's Guide to Coastal Construction (FEMA Publication P-499)

Wind Retrofit Guide for Residential Buildings (FEMA Publication P-804)

Information about special considerations for building and maintaining a home in Alaska:

Cooperative Extension Service—University of Alaska, Fairbanks
www.uaf.edu/ces

Cold Climate Housing Research Center
www.cchrc.org

Alaska Building Science Network
www.absn.com

Important information on disaster preparedness:

Alaska Division of Homeland Security & Emergency Management
www.ready.alaska.gov