

Home Hardening Basics

Strengthening Your Home to Resist Wildfire

Wildfires rarely destroy homes because flames directly sweep through a neighbourhood. In many cases, homes ignite when **wind-driven embers land on or around the structure and find vulnerable materials**.

Home hardening refers to **upgrading or protecting parts of a building so they are less likely to ignite during a wildfire**. This includes improvements to roofs, vents, siding, decks, windows, and other areas where embers or heat could start a fire.

When combined with **defensible space and property maintenance**, home hardening can significantly increase the chances that a house survives a wildfire event.

Why Home Hardening Matters

Wildfires spread in three main ways that affect structures:

Embers

Burning embers can travel **kilometres ahead of the fire front** and land on roofs, decks, or inside vents.

Radiant Heat

Nearby fires produce intense heat that can **dry and preheat building materials**, making them easier to ignite.

Direct Flame Contact

Flames can spread to structures through nearby vegetation, fences, or attachments.

Home hardening focuses on **removing weaknesses in the building itself**, making it harder for these ignition sources to start a fire.

The Most Vulnerable Parts of a Home

Certain parts of a house are **more likely to ignite during a wildfire**.

Understanding these weak points helps homeowners prioritize improvements.

Roofs

The roof is one of the most common places where embers accumulate.

If embers land on combustible roofing materials or debris, they can ignite the structure.

Recommended practices

- Use **non-combustible roofing materials** such as metal, asphalt composition shingles, tile, or treated materials
- Regularly remove leaves and debris from the roof
- Pay attention to roof valleys where debris collects
- Install gutter guards to reduce accumulation

Keeping roofs clean and using fire-resistant materials greatly reduces ignition risk.

Gutters

Gutters often collect **dry leaves and needles**, which can ignite when embers land in them.

Recommended practices

- Clean gutters regularly during fire season
- Install metal gutter guards where possible
- Avoid plastic or combustible gutter materials
- Keep roof edges clear of debris

Maintaining gutters is one of the **simplest and most effective wildfire prevention steps**.

Vents

Embers can be drawn into attic or crawlspace vents by wind and ignite materials inside the structure.

Recommended practices

- Install **ember-resistant vents** or metal mesh screens
- Use screens with openings no larger than **3 mm (1/8 inch)**
- Ensure vents are properly maintained and free of debris

Properly screened vents help prevent embers from entering the building.

Siding and Exterior Walls

Certain siding materials can ignite or melt when exposed to heat or embers.

More fire-resistant materials include

- Fiber-cement board
- Stucco
- Brick or masonry
- Metal siding

Materials that require more attention

- Wood siding
- Vinyl siding
- Composite materials

If combustible siding is present, it becomes especially important to **maintain defensible space and remove nearby fuels**.

Decks and Attached Structures

Decks are a common ignition point because embers can fall between boards or accumulate underneath.

Recommended practices

- Keep decks clear of leaves and debris
- Avoid storing combustible materials underneath
- Use fire-resistant deck boards where possible
- Maintain spacing between vegetation and the deck

Deck design and maintenance play a significant role in reducing wildfire risk.

Windows

Windows can break under extreme heat, allowing embers and flames to enter the structure.

Recommended practices

- Install **double-pane or tempered glass windows**
- Use metal screens where possible
- Keep vegetation away from windows

These upgrades help reduce the likelihood of heat damage and ember entry.

Fences and Attachments

Fences attached directly to homes can act as **pathways for fire to reach the structure**.

Recommended practices

- Use metal or non-combustible fencing near the home
- Break wood fence connections before they reach the structure
- Avoid attaching combustible structures directly to siding

Reducing fire pathways helps prevent flames from reaching the building.

Maintaining the Area Around the Home

Home hardening works best when combined with **proper defensible space management**.

Key steps include:

- Keeping vegetation trimmed away from structures
- Removing ladder fuels that allow fire to climb into trees
- Storing firewood away from buildings
- Keeping grass short during fire season

Managing vegetation helps reduce the intensity of fire approaching the home.

Active Protection Systems

In addition to structural improvements, some homeowners install **active protection systems** to reduce ignition risk during wildfire events.

Examples include:

- Rooftop sprinkler systems
- Perimeter sprinkler systems
- Water supply connections for firefighters

These systems help **wet surfaces and reduce ember ignition potential**, especially during periods of high fire danger.

Maintenance Is Critical

Home hardening is not just about construction materials. Regular maintenance is essential.

Important tasks include:

- Cleaning roofs and gutters
- Checking vents and screens
- Removing debris from decks and patios
- Maintaining vegetation spacing

Even fire-resistant materials can become vulnerable if debris accumulates.

Home Hardening Is a Layered Approach

Wildfire protection works best when **multiple strategies are combined**.

Effective protection typically includes:

- Defensible space around the property
- Fire-resistant building materials

- Regular maintenance and debris removal
- Ember-resistant vents and openings
- Active protection systems such as sprinklers

Each layer adds protection and reduces the chance of ignition.

Final Thoughts

Wildfire risk is increasing in many parts of Canada and the United States, especially in areas where homes meet forests or grasslands.

Home hardening focuses on **reducing the vulnerabilities of the structure itself**, making it harder for embers, heat, or flames to ignite the building.

By combining home hardening with defensible space and property maintenance, homeowners can take practical steps to **improve their property's resilience during wildfire events**.