

FIRESMART FACT SHEET

PERMANENT WOOD FOUNDATIONS

KEY POINTS:

- Permanent Wood foundations use preservative treated woods for a structural foundation.
- Exposed wood elements on exterior surfaces increase the vulnerability of the structure to ignition from wildfire.
- FireSmart recommends covering exposed PWFs with metal products to reduce ignition potential.

What is a Permanent Wood Foundation (PWF)?

A permanent wood foundation (PWF) is an engineered construction system that uses load-bearing exterior light-frame wood walls in a below-grade application. A PWF consists of a stud wall and footing substructure, constructed of approved preservative-treated plywood and lumber, which supports an above-grade superstructure¹.

PWFs are vulnerable to Wildfire

Wildfires spread to structures through embers, heat, and direct flame. Exposed wood on houses and structures increases the vulnerability of the structure to all three sources of wildfire spread.

To protect structures, FireSmart recommends a best practice of cladding the exterior of a home with non-combustible material, especially the first 15cm above grade, where the exterior wall meets the ground, to protect the wall base from the accumulation of embers and ground fires, which an unprotected PWF would be especially vulnerable to compared to a concrete foundation.

Protecting the structure – Choose Metal

Homes with a PWF can reduce ignition risk from wildfires by covering exposed wood foundation areas with non-combustible materials. While cement-fibre siding may seem suitable, manufacturers require minimum ground clearance to prevent moisture damage, freeze/thaw deterioration, and cracking. Because of these limits, FireSmart recommends metal cladding to fully cover exposed PWFs from just below grade to where the siding above begins.



Figure 1: Exposed wood of a PWF



Figure 2: Metal Clad Foundation

References

- Canadian Wood Council (n.d) Permanent Wood Foundations.
<https://cwc.ca/articles/permanent-wood-foundations/>
- CSA S406 Specification of permanent wood foundations for housing and small buildings
- FireSmart Residential Development Guide (2025)

Acknowledgements

This Fact Sheet was produced by FireSmart Canada, with input and review from our partners at the National Research Council, RDH Building Science, and VDM Fire Inc.