

Protecting the Heart Heart of Your Home

A warm, cozy fire is one of the best parts of winter. But every year across New Zealand, Fire and Emergency (FENZ) crews attend hundreds of chimney fires that could have been completely avoided.

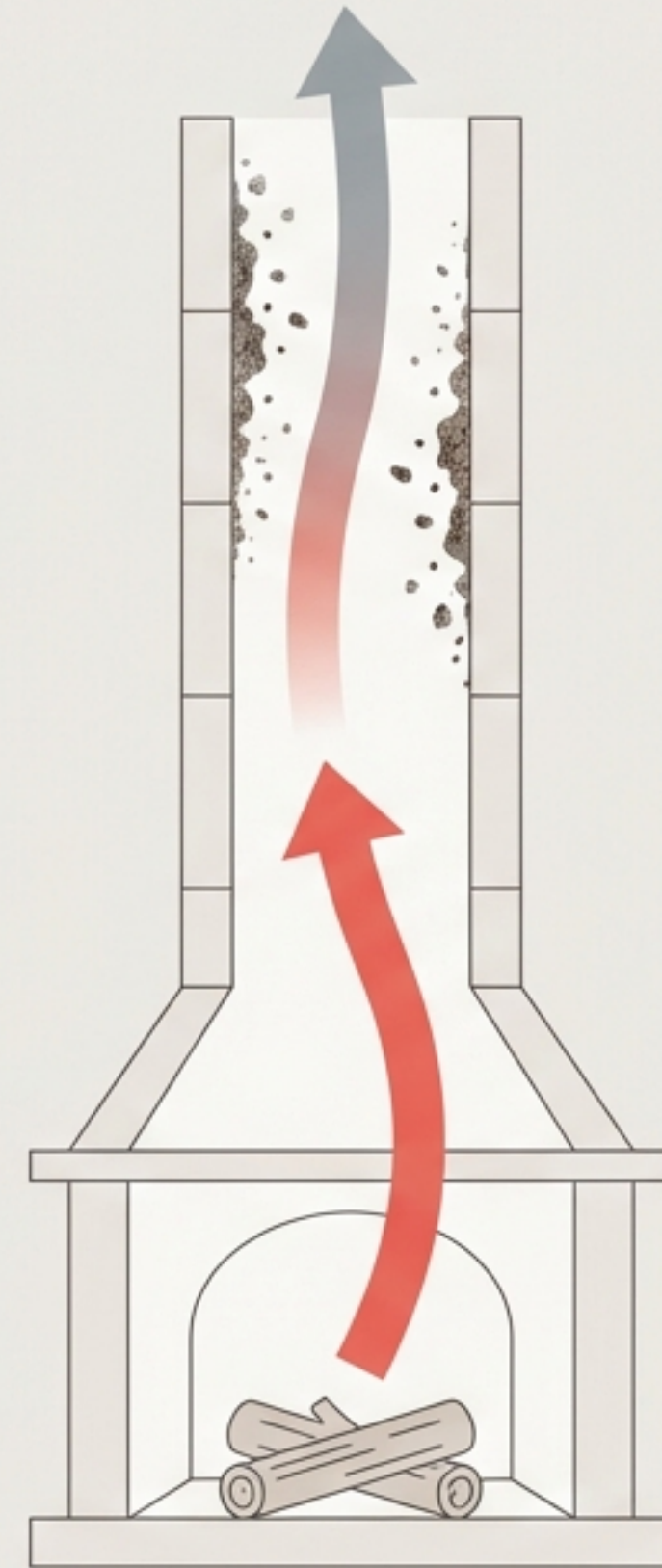
This guide explains the science of wood-burning, the mechanics of your chimney, and the simple habits that keep your home safe.



Smoke is Just Unburned Fuel

Creosote is the inevitable byproduct of burning wood. When firewood doesn't burn completely, it releases smoke filled with volatile organic compounds, moisture, and tar fog.

As this hot vapor rises into the cooler exhaust system of your chimney, it condenses on the walls. Over time, this sticky residue hardens into a highly combustible substance called creosote.



The Three Stages of Creosote Buildup



Stage One

A powdery, dusty soot. Easily removed with a standard chimney brush. Normal for all wood burners.



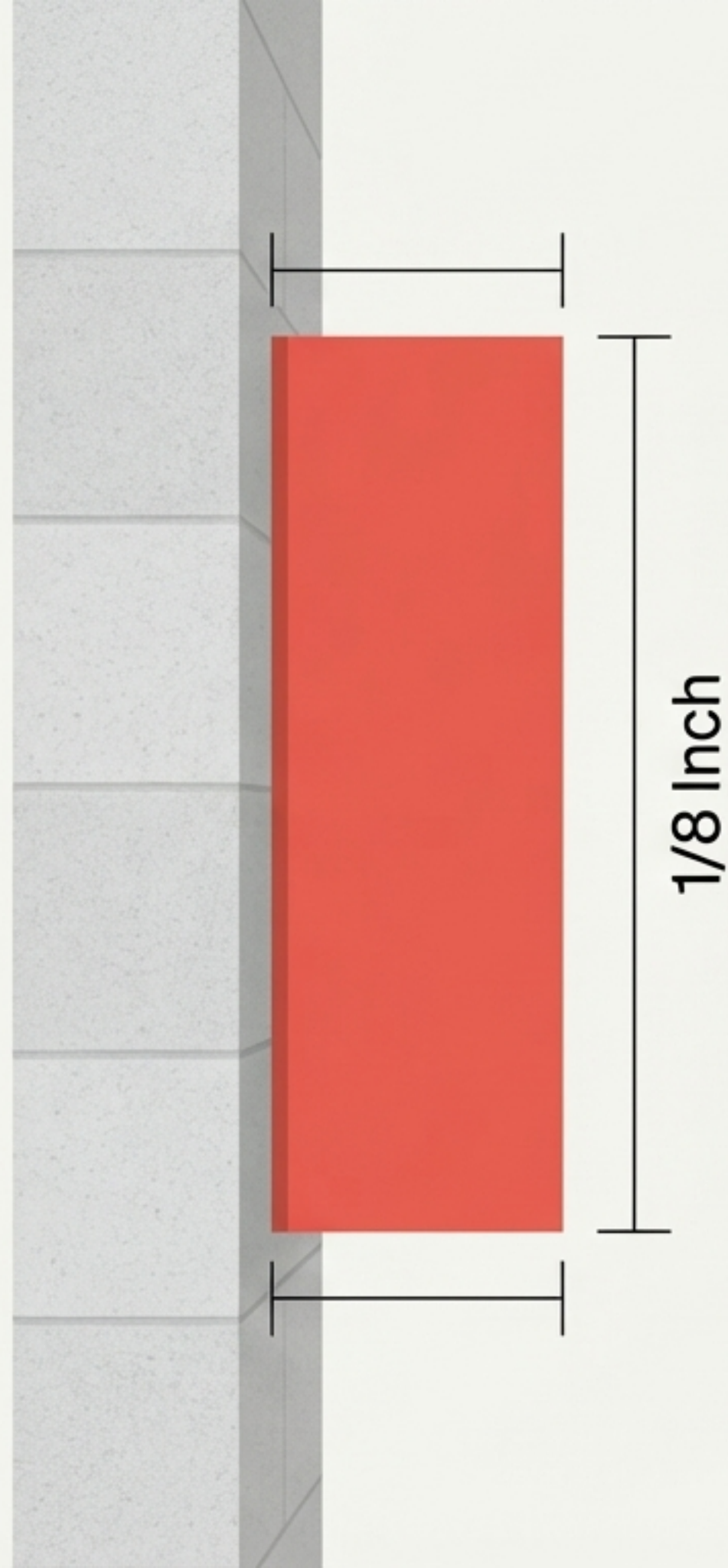
Stage Two

Sticky, tar-like flakes (often called "biscuits"). Harder to remove; restricts airflow and requires stiff professional brushes.



Stage Three

A hard, glossy, heavy glaze. Highly flammable. Requires professional chemical treatments or heavy chains to remove.



The 1/8-Inch Ignition Threshold

Creosote is highly reactive. It can ignite at temperatures as low as 451°F—a temperature easily exceeded by a standard wood fire.

It only takes 1/8 of an inch of Stage Three creosote buildup inside your flue to cause a catastrophic chimney fire.

Two Ways a Chimney Can Burn



Fast-Burning Fires

Explosive and loud. You will hear a roaring sound like a jet engine or bonfire, accompanied by dense smoke, shooting sparks, and a distinct smell of hot asphalt.



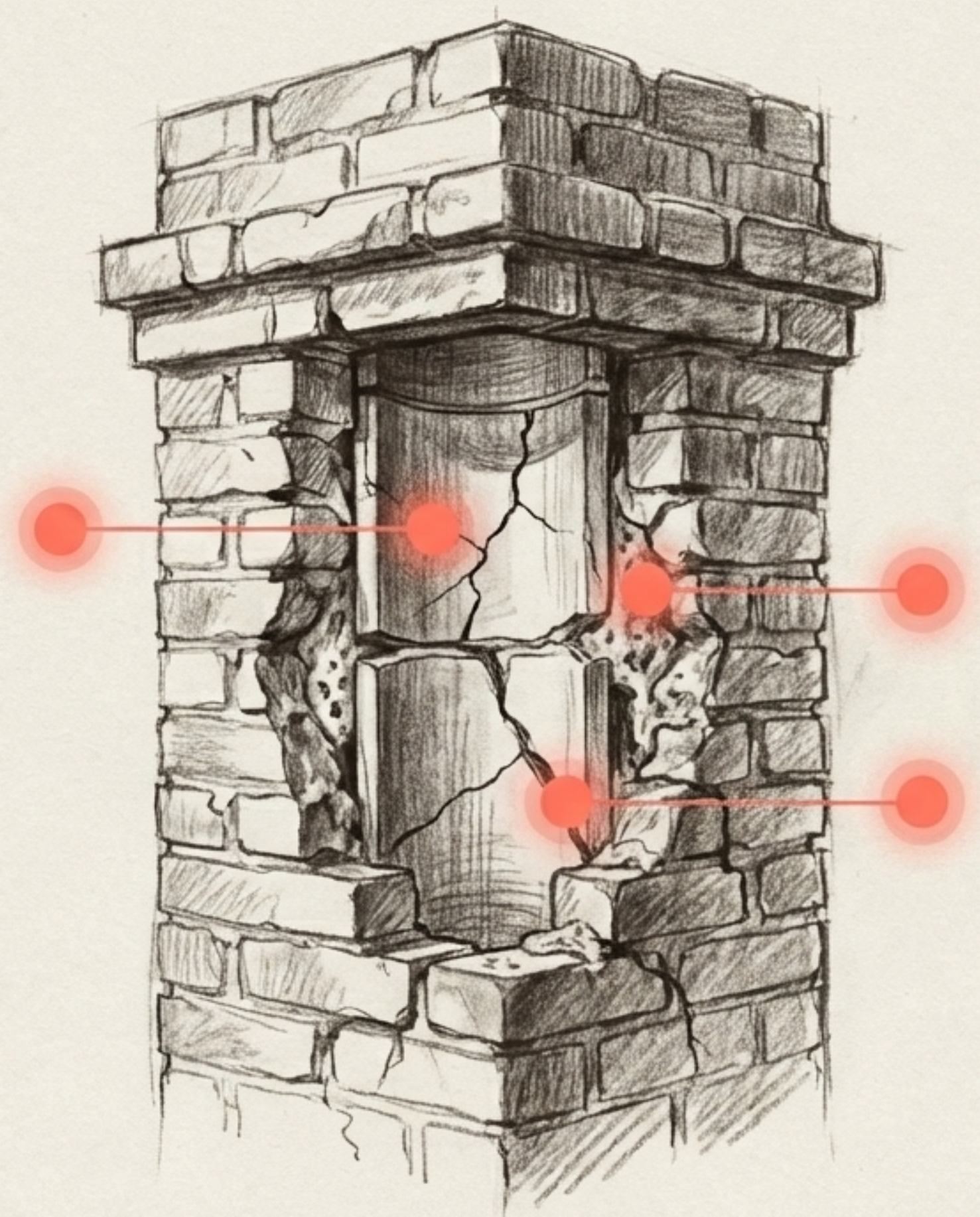
Slow-Burning Fires

Subtle and silent. The fire lacks the oxygen for a massive explosion but burns hot enough to slowly eat away at the chimney's structural integrity. Often goes unnoticed until the damage is done.

The Hidden Structural Risk

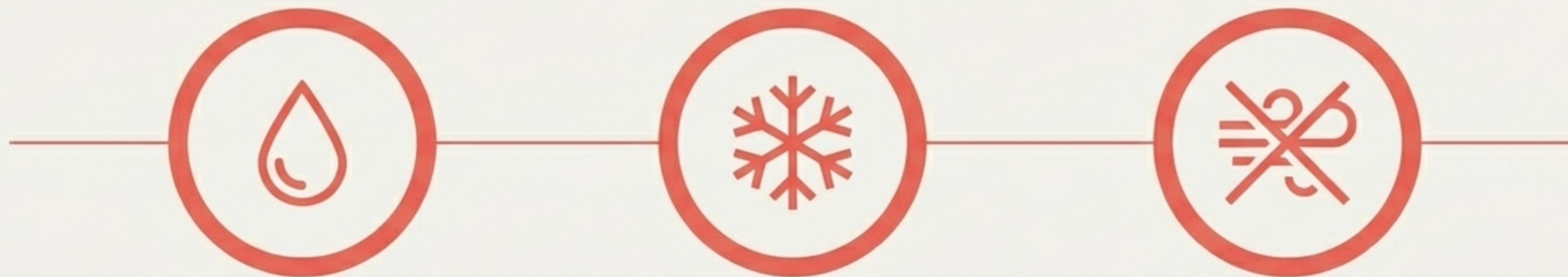
A chimney fire generates heat far beyond what masonry is built to withstand. This can crack ceramic flue tiles and melt mortar.

In areas with older housing stock and seismic activity, like Wellington, a creosote-damaged chimney becomes a severe earthquake risk. Even if the chimney doesn't collapse, cracked flues can leak deadly carbon monoxide directly into your living room.



Three Habits That Accelerate Buildup

Creosote production spikes when your fire fails to achieve complete combustion. This happens for three main reasons:



1. High moisture content in the firewood.

2. A chimney flue that is too cold.

3. A fire that is starved of oxygen.

The Problem with Unseasoned Firewood

Burning freshly cut or unseasoned wood is the fastest way to coat your chimney in tar.

High-moisture wood forces the fire to burn off the water before it can produce heat. This creates dense, cool smoke heavily laden with unburned particles.

Firewood must be seasoned outdoors for at least six months and have a moisture content below 20%.





The Cold Flue Magnet

Smoke needs to exit the chimney quickly. If the flue temperature drops below 250°F, the smoke cools prematurely and condenses into liquid creosote on the interior walls.

Exterior chimneys, or fires that are built too small on exceptionally cold days, struggle to heat the flue enough to create a clean, rapid upward draft.

The Danger of “Slumbering” Fires

Many homeowners try to make a fire last all night by dampening the airflow to let it “slumber” or smolder.

Starving a fire of oxygen guarantees incomplete combustion. Without enough air, the fire cannot burn hot enough to consume the volatile gases, sending massive amounts of creosote straight up your chimney.

DO THIS



NOT THAT



Best Practices for a Clean Burn

- ✓ **Use a Moisture Meter:** Ensure wood is below 20% moisture.
- ✓ **Prime the Flue:** Hold a lit roll of newspaper up the chimney before lighting your fire to pre-warm the air and establish a draft.
- ✓ **Give it Air:** Keep logs evenly spaced and dampers open.
- ✓ **Burn Hot:** Avoid artificial logs, which produce more combustion byproducts, and never let your fire smolder overnight.

Removing the Guesswork

Running a wood stove without a thermometer is like driving a car without a speedometer.

A simple magnetic stove pipe thermometer allows you to monitor your exhaust gases. Keeping the temperature consistently above the 250°F mark is your best defense against heavy creosote condensation.



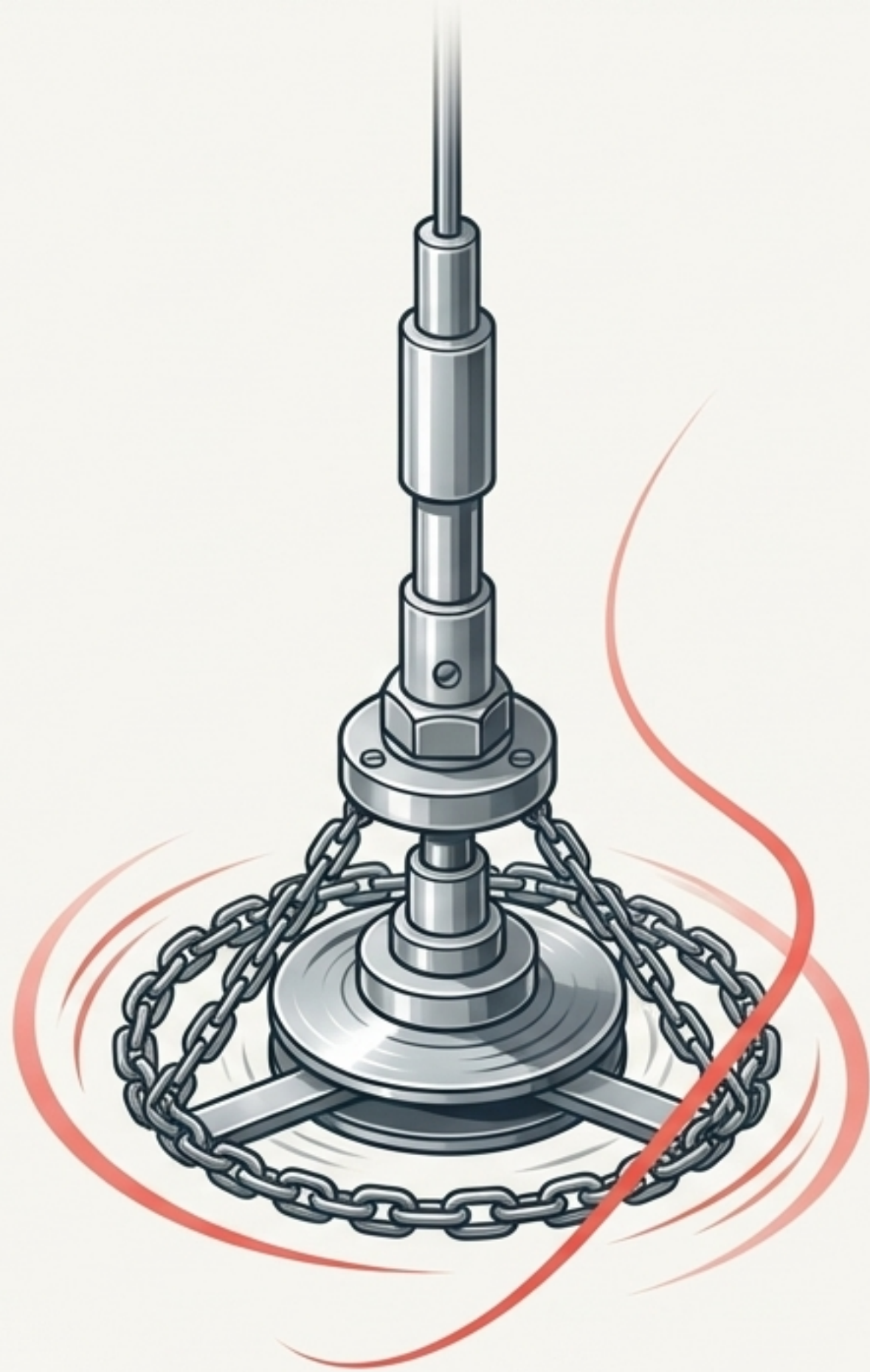
The Limits of Creosote Sweeping Logs



Chemical sweeping logs can help loosen Stage One and Stage Two creosote by breaking down the tar.



However, they do not remove the debris. The weakened creosote flakes off and accumulates lower in the chimney, creating a concentrated fire hazard if not manually swept out. They are a supplement to, not a replacement for, physical brushing.



Tackling Stage Three Buildup

Once creosote reaches the hard, glazed Stage Three, standard DIY brushes are useless. Professionals utilize specialized tools like rotary chain whips or chemical poultice removers (like PCR) that dry out and dissolve the heavy tar. In the most severe cases of neglect, the entire stainless steel 1 entire stainless steel chimney liner may require replacement.

Beyond the Brush: The Annual Inspection

A certified chimney sweep does more than scrub the flue. An annual inspection ensures your system complies with the NZ Building Code (Clauses C1–C6) and local council clean air bylaws.

Professionals check for structural masonry cracks, earthquake vulnerabilities, and clearance issues that DIY cleaning simply cannot spot.



A Clean Chimney is a Safe Home

The cost of an annual sweep is minimal compared to the price of a home fire. Enjoy the comfort of your hearth with complete peace of mind by following three simple rules:

1. Burn only dry, seasoned wood.

2. Burn hot, oxygen-rich fires.

3. Book a professional sweep every single year.