The United States Forest Service Has Used Aluminized Structure Wrap To Protect Critical Structures From Ember Attack, Radiant Heat, and Direct Flame Impingement for Over 25 Years.

History

Performance
- Design Opportunities
- Design Improvements
- Foam Vs. Wrap Analysis

Testing
- Radiant Heat
- Firebrands
- Durability

Use Tips
- Deployment
- Anchoring
- Roll & Store
Advantages

- **100% Environmentally Friendly**
- Can be Deployed Well in Advance of a Threat and Left Up for Days or Weeks, Still Effective
- Requires No Water or Power To Protect
- Reusable

It’s Used When:

- Structure Protection is Too Dangerous For Crews
- Not Enough Crews & Equipment are Available
- High Value Assets, Historical are Threatened
- Water & Power Is Scarce
- Time For Fire Arrival Varies Greatly
- Protecting Structures For Burn Outs- Preemptive

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The Product Remained Undeveloped Until Firezat Reengineered It Using Modern Technology To Improve Performance And Availability To The General Public.
Characteristics of a Wildfire As They Affect a Structure

Extremely Low Relative Humidity 6 to 9%
High Temperatures 90°F Plus
High Winds 30 to 60 MPH Plus
Loss of Power, Water Pressure & Supply
Ample Dry Fuel – Usually Drought Conditions
Firebrands Travel Over a 1 Mile and Start Spot Fires
Limited Access via Roads or Air Support
Extended Exposure To All These Elements

Aluminized Structure Wrap Reflects 96% of the Radiant Heat & 92% of Convective Heat
Structure Wrap Protects Structures From Firebrands- Proven to Cause 80% of Structure Fires- Spot Fires-
Requires No Water or Power – Can Be Left Up For Days, Weeks, or Months
Fire Shields Deny or Limit Oxygen Defeating Ignition Breaks Fire Triangle
The Old Way

The New Way
Structure Wrap Compared To Gels And Foam

**Gels & Foam**
- Requires Professional Application For Optimum Depth for Performance
- Must Be Applied Within A Couple Hours of The Fires Approach
- Single Use Must Buy More For Next Threat
- A Significant Water Supply – Pool Pond Lake or River
- Electrical Generator & Pumps In Power Outage
- Water Pressure - 30 PSI Will Give You 10 Feet Of Reach
- Calm Winds - Difficult To Apply In Strong Winds
- Endangers Crews & Homeowners Waiting Until The Last Minute
- After Use Gel Must Be Removed By Power Washing and Sometimes Power Steam Cleaning
- Can Cause Discoloration of Older Painted Surfaces or Untreated Wood - Limited Protection on Glass – No Protection of Attic Vents
- If Fire Front Stalls or Turns Gel Can Evaporate. Evacuations & Traffic Blocks May Prevent Rehydrating In Time

**Structure Wrap**
- Can Be Installed By Homeowners
- No Water Required
- No Pumps, Generators, or Power Required
- Can Be Installed When Winds are Calm
- No Fear of Evaporation
- Homeowners and Crews Can Deploy at First Sign of Danger in Hours
- Removal is Fast & Easy
- Minimal Damage To Structure if Sandbags and chicken wire are Used
- Can Be Left Up For Days or Weeks With Zero Performance Loss
- Protects Attic Vents & Windows
- ZERO Environmental Impact
- Stored For Next Use, Reusable for Years With Care in handling

Power Poles Often Burn Miles Away Cutting Power for Tools & Pumps
Fire Shield Roll

1. Optimum Aluminum Layer For Maximum Radiant Heat Reflection
2. Woven substrate Material For Superior Durability and Convective Heat Resistance
3. Custom High Temp Adhesive and Lamination Process for Superior Performance

Rolled for Shipping & Storage
1,500 Sq. Ft 64 Lbs.

Firezat Fire Shields

SD5300

Fire Shield Roll 5' X 300’ 64 Lbs.

Fire Shields can be reused and stored for extended periods of time and will not support mold or mildew. They are resistant to acids, alkalis, & solvents with the exception of hydrofluoric acid.

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Radiant Heat Test

Cone Calorimeter Used for Evaluation of Firezat Samples

Exposed to 33 kW/m² Heat Flux (625°C Cone Temp) for 600 seconds (10 minutes)

Kiln Dried Cedar 8 to 10% Moisture Content
Thermocouples Measure Heat at Edge and Center

Flame in 34 Seconds
Establishing a Baseline

Most Wildfires Pass Through in Approx 3 to 5 Minutes With 2 to 3 Minutes Of Preheating

Wood Will Combust Approximately 575° to 600 F Depending on Moisture

Goal is to Keep Heat Below Combustion Temperature For At Least 10 Minutes

Samples Were Exposed to 625 Degrees C (1157 F) of Radiant Heat For 10 Minutes to Simulate a Passing Fire

Established Base line Radiant Heat 1157 F

Off Gassing Organic Compounds within 10 Seconds. Igniter Simulates Firebrand

Established Base line Radiant Heat 1157 F
Unprotected

After 34 seconds exposure to this high heat, tests show unprotected cabin would ignite as wood reaches its flash temp approaching 575° F to 600 °F. Example shows results if a 16’ flame was within 19’ of the structure.

Protected

After 10 minutes exposure to the same high radiant heat, tests show the temp under the shield would only rise to 212°F and after 20 minutes only 248° F. Far below flash temp. Allowing fire to pass through.

Note: Radiant temp is statistically the same and regulated by flame height and separation distance. Scenarios are interchangeable.
Conclusions:
• Exposure to 1157° F Equivalent of:
  • 5m Flame With 6m of Separation or;
  • 32 foot Flame With 65 feet Separation

Temp Rise After 10 Minutes 100C (212F) Between Shield and Wood
After 20 Minutes Temp Rise of 120C (248F)

After 20 Minutes Well Below 575 ° Required For Combustion. Can Keep Temperature Below Combustion Point Long Enough For Fire To Pass Through

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Firezat, Inc
Next Generation Structure Wrap

Fire Shields Protect

More Than You Think

- Historical Structures
- Homes
- Cabins
- Bridges in Parks
- Roofs
- Walls
- Fences
- Railings & Decks
- Structure Supports
- Trees
- Railroad Trestles
- Microwave Equipment
- Broadcast Equipment
- Art Sculptures
- Propane Tanks

- Solar Panels
- Power Poles
- Attic Vents
- Windows
- Eaves
- Sliding Glass Doors
- Fences
- Beehives
- Gazebos
- Trailers
- Airplanes
- Business Inventories
- Equipment

5’ X 300’
Remember You Can Boil Water In A Paper Cup Over An Open Flame

By Placing HD Soaker Lines On The Roof Peaks Under The Fire Shields You Provide A Water Curtain That Will Deny Oxygen, Dissipate Heat, & Saturate Wood (Fuel)

- 50’ Soaker Hose
- Hose Provides A Water Curtain Barrier
- Up to 450 Gal/Hr Under The Fire Shields
- Shields Trap Moisture- No Evaporation, Denies Oxygen, Dissipates Heat- Defeats Ignition
- Worst Case Scenario Extreme Heat Creates Steam Which Recirculates Under Shields
Installation Tips and Tricks

1. Have a Plan
2. Do 1 panel or House Facing, Front, Back, or Side, at a time
3. Measure and cut to length

Cover any sharp edges that might tear the material with duct tape or rags. Be careful that the shields do not catch on vent pipes or other obstacles.

If you are using water under the shields, highly recommended, place your hose on each side of the roof peak with the sprinkler holes facing down. Do not turn on the water until you are done. SHIELDS ARE EXTREMELY SLIPpery WHEN WET!

Next unpack your fire shields and carry them to the roof. Unroll the shields anticipating where the edges will be when you unfold the wings.

Anchor the top part of the shields with sandbags or weights before you allow the bottom half to hang over the eave. Allow enough material to tuck under the eave at 45° angle, go down the wall at least 3 feet. Allow path for the water to flow against the wall under the shields for maximum protection.

Use the banding or staples to tack shield material on all seams. Remember winds can and will blow up to 40 miles per hour OR MORE during the fire. Make sure all seams and edges are secure and there are no holes where embers can enter. For best result use chicken wire on seams and eaves.

To wrap your walls or work in winds simply start at one edge and tack the material to the wall. Work around the house and try to extend past the foundation by 2 feet for anchoring room. Use shield banding for best protection.
Fasteners and Tricks

Fasteneners

There are many different ways to secure the shields. While the best is staples & Chicken wire, here are several other methods or items to consider.

- Staples
- Chicken Wire
- Sandbags
- Tie wire
- Chains (Around Skylights)
- Rocks
- Double Sided Tape
- Pony Clamps
- Pipes or bars
- Dirt

Tricks

- Twin Rolling Shields for Roof Placement - Unroll shield with aluminum side up. Roll both ends to the center so shield looks like a scroll and tie strap around to hold together. Carry to roof and place on peak. Remove tie and shield will roll down each side.

- Deploying in Wind - Prep site for wrapping and start at dawn or dusk when winds are quietest. Secure shield with banding on one end of structure, starting on windward or upwind side. Deploy wrap and secure every few yards. HD material deploys much better in wind.

- Wrapping Eave Overhangs - When shields overhang from roof to eave allow enough material to stretch down at 45° angle before attaching to structure. This allows heat to rise and be deflected away from under eave.

- Bolero Over Weak Roofs – When wrapping weak roofs you can attach lines to the shields with clamps and tie a weight to the other end. Throw the weight over the structure and pull shields over. Use a long broom or stick under the eave feeding the shield to prevent it catching on gutters.

- High Temp Foil Tape for Repairs – High temp foil tape can be used to repair any tears or staple holes in shields extending service life.
Firezat makes no claims or statements, or offers any assurance or assurances, guarantees, promises, either direct or implied, as to the effectiveness or suitability of its products to protect any property or possessions from fire damage or any other calamity whether anticipated or foreseen. Due to the extreme conditions of high heat, high winds, low humidity, and unpredictability associated with all fires it is impossible to make such guarantees. Before using, the user agrees to assume all risks and liabilities in connection with deployment, application, use and/or storage of Firezat Fire Shields. Sellers and manufacturers only obligation shall be to replace any unused Fire Shields found to be defective within one year from the date of purchase. Please see Disclaimer on Website for complete disclosure.

As a condition of any sale the Customer agrees and accepts all conditions, requirements, limitations, and terms as stated in the Firezat Disclaimer document and the Firezat Limitation of Liability statement located on the company website, and agrees and understands that acceptance of these conditions are required and mandatory in order to conduct business with Firezat or its suppliers and vendors.