

A GUIDE TO BUILDING A MORE



Resilient Home

If you could reduce the likelihood that your home would sustain damages of \$100,000 or more by spending a fraction of that today, wouldn't you do it?

There are many improvements you can make to your home today to help prevent costly and dangerous losses in the future. Many of the recommendations included in this guide cost a sliver of what they will protect, and for those implemented during construction, it often requires a much smaller investment than it would to retrofit a home later.

This guide was developed by experts from PURE's Claims and Risk Management teams as well as professional luxury home builders. It is based on insights learned from handling tens of thousands of homeowners claims.

When it comes to home protection, many jurisdictions—especially those located in areas with heightened catastrophic risk—have specific code requirements. In some cases, our recommendations exceed the protection standards required for your area. They are born out of our extensive experience with claims throughout the country and our desire to help you build your home to the highest standards.

PURE MEMBER ADVOCATES® ARE READY TO HELP YOU IMPLEMENT THIS GUIDE'S ADVICE.

Recommendations are nice, but we know that actively helping you to implement them is even better. A PURE Member Advocate can answer questions regarding any topics mentioned in this guide and assist you in locating high-quality vendors in your area, scheduling appointments and more. Connect with a Member Advocate by calling 888.813.7873 or emailing memberadvocate@pureinsurance.com.

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PROTECTING YOUR HOME FROM

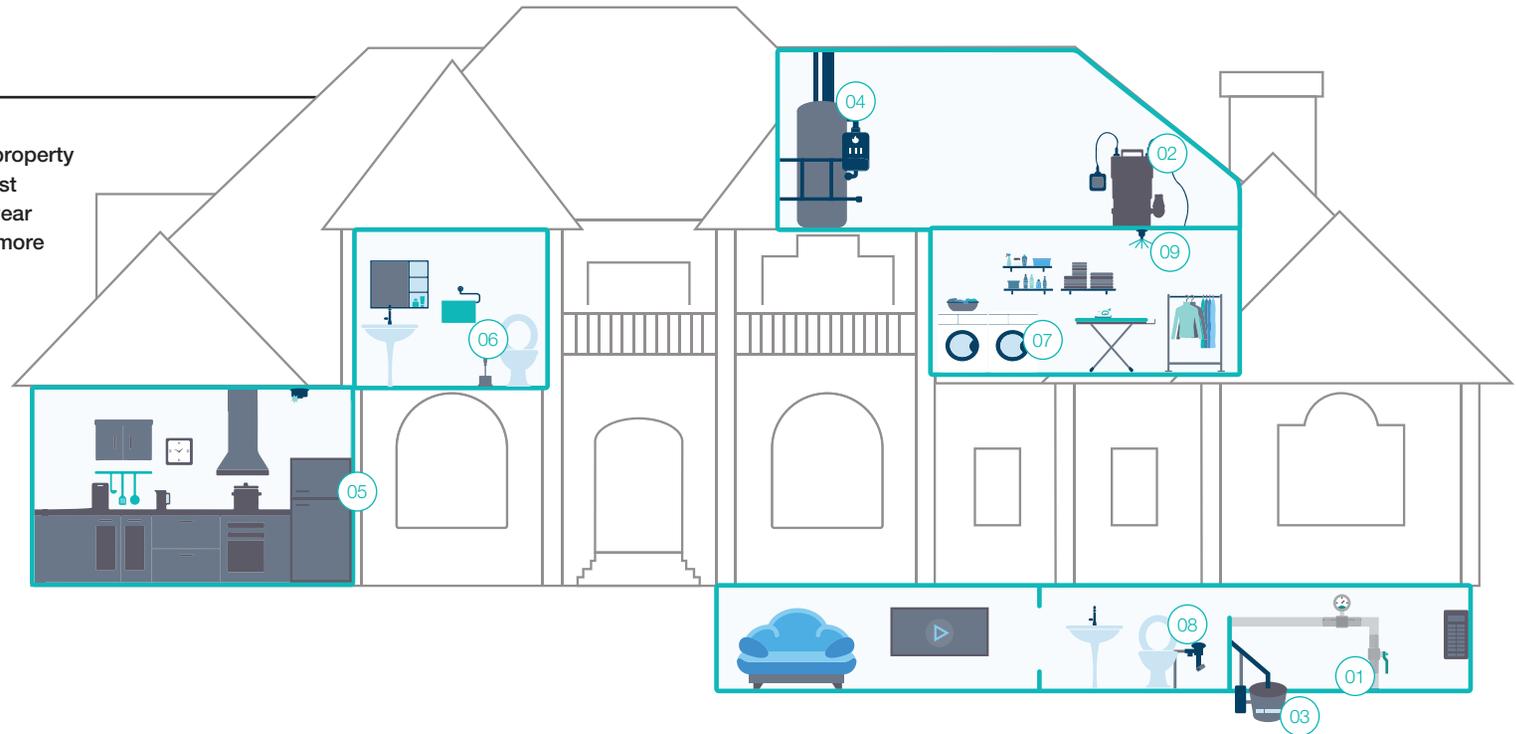
Water Damage

	RISK MANAGEMENT CONSIDERATIONS to prevent or mitigate losses	REQUIRED	DISCOUNT AVAILABLE	PRICE RANGE
01	<p>Water Shut-off Device</p> <p>A whole-house automatic water shut-off device monitors the flow of water in your home's pipes. When it detects a leak, the system automatically shuts off the water. Be sure it is equipped with a central station alarm so that it will notify you and your alarm company of the issue before serious damage can occur.</p>	○	●	\$\$\$
02	<p>Float Switch and Drip Pan</p> <p>Air conditioning units and other major appliances are usually equipped with a drain line to protect your home from leaks. However, natural causes like debris and rust buildup often cause them to become clogged. If this occurs, a drip pan will contain any leakage while a float switch turns off the unit to stop the flow of water. Combining these devices with a secondary drain line will provide even better protection.</p>			\$
03	<p>Sump Pumps</p> <p>Strongly suggested for homes with a high water table, sump pumps remove water from basements, crawl spaces and other areas that could flood during a storm. They also reduce the likelihood of fire, as flood water reaching outlets is one of the most frequent causes of electrical fire. We recommend a sump pump equipped with an alarm and back-up pumps with their own power sources. Note that it is much easier and less costly to dig the drain area for a sump pump during your home's construction. With this timing, it is likely that only the cost of the pump will be required.</p>			\$\$
04	<p>Tankless Water Heater</p> <p>Traditional water heaters are prone to bursting when they reach the end of their useful life—often about ten years. By contrast, tankless heaters have no set age at which they can be expected to fail. Most importantly, however, tankless heaters do not store water in a central location and thus cannot burst like traditional heaters do. What's more, tankless heaters are more convenient and energy efficient.</p>			\$\$
05	<p>Braided Stainless Steel Hoses</p> <p>Reinforced rubber hoses can become brittle over time and burst. Instead, choose braided stainless steel water supply hoses for all built-in appliances with waterlines.</p>			\$
06	<p>Metal Nuts</p> <p>Use metal, corrosion-free nuts to connect supply lines to toilets. It is easy to over-tighten plastic nuts, which will cause them to crack.</p>			\$
07	<p>Washing Machine Protection</p> <p>An efficient way to prevent damage from washing machine leaks is with a four-inch tiled curb and a floor drain. If this is not a feasible option, be sure to opt for a drip pan at the least.</p>			\$\$
08	<p>Backflow Preventer Valve</p> <p>A reverse flow occurs when sewage and water move in the wrong direction within a pipe. In such an event, a backflow preventer valve will close and prevent waste from entering your home. This device should be installed on the main sewage outflow pipe at or close to the point of exit from your home's foundation.</p>			\$\$
09	<p>Dry Sprinkler System</p> <p>Unlike a traditional sprinkler system, a dry sprinkler system does not fill with water until it detects excess heat. Thus, a dry system will not spray when there is no fire, even if it is bumped or broken.</p>		●	\$\$\$

○ In certain states ● For all homes

Excess water can lead to devastating property damage. In fact, it has been the costliest cause of loss among PURE members year after year—sometimes accounting for more than 40% of total claims.

An important reminder: direct damage caused by flooding is not covered by a homeowners policy. Your independent insurance broker can help you learn more about flood coverage such as PURE Flood Solutions®.



01
Improper installation caused the dishwasher's hot water supply valve in a PURE member's newly built secondary home to break. It was several days before the caretaker visited the home and found the issue. By that time, water had saturated more than eight rooms and damages totaled nearly \$1M.
SOLUTION: Water Shut-off Device

04
The traditional water heater located in a PURE member's attic burst and allowed more than 80 gallons of water to cascade throughout the home. The damages that resulted totaled more than \$1.5M.
SOLUTION: Tankless Water Heater

07
While a PURE member was away from home, the washing machine in her second-floor laundry room overflowed. Water rained into her kitchen below for several hours and caused nearly \$800K in damages.
SOLUTION: Washing Machine Protection

02
The drain line that was intended to carry excess water away from a PURE member's HVAC unit became clogged. As a result, water flowed onto and eventually through the attic floor. The result was more than \$1M in damages to all four levels of the home.
SOLUTION: Float Switch and Drip Pan

05
The rubber supply line to a PURE member's ice maker split, and the resulting leak caused nearly \$360K in damages to much of the first floor and basement.
SOLUTION: Braided Stainless Steel Hoses

08
Damage resulting from backed-up sewers can be significant—not to mention disgusting. After a severe rainstorm, one PURE member awoke to find 18 inches of sewage covering the floor of their finished basement. Damages totaled \$200K.
SOLUTION: Backflow Preventer Valve

03
A significant storm flooded one PURE member's basement. The water level reached an electrical outlet, starting a fire that ultimately destroyed the home.
SOLUTION: Sump Pumps

06
A plumber over-tightened a plastic nut connecting the water supply line to the toilet. It cracked, resulting in over \$180K in damages to the PURE member's home.
SOLUTION: Metal Nuts

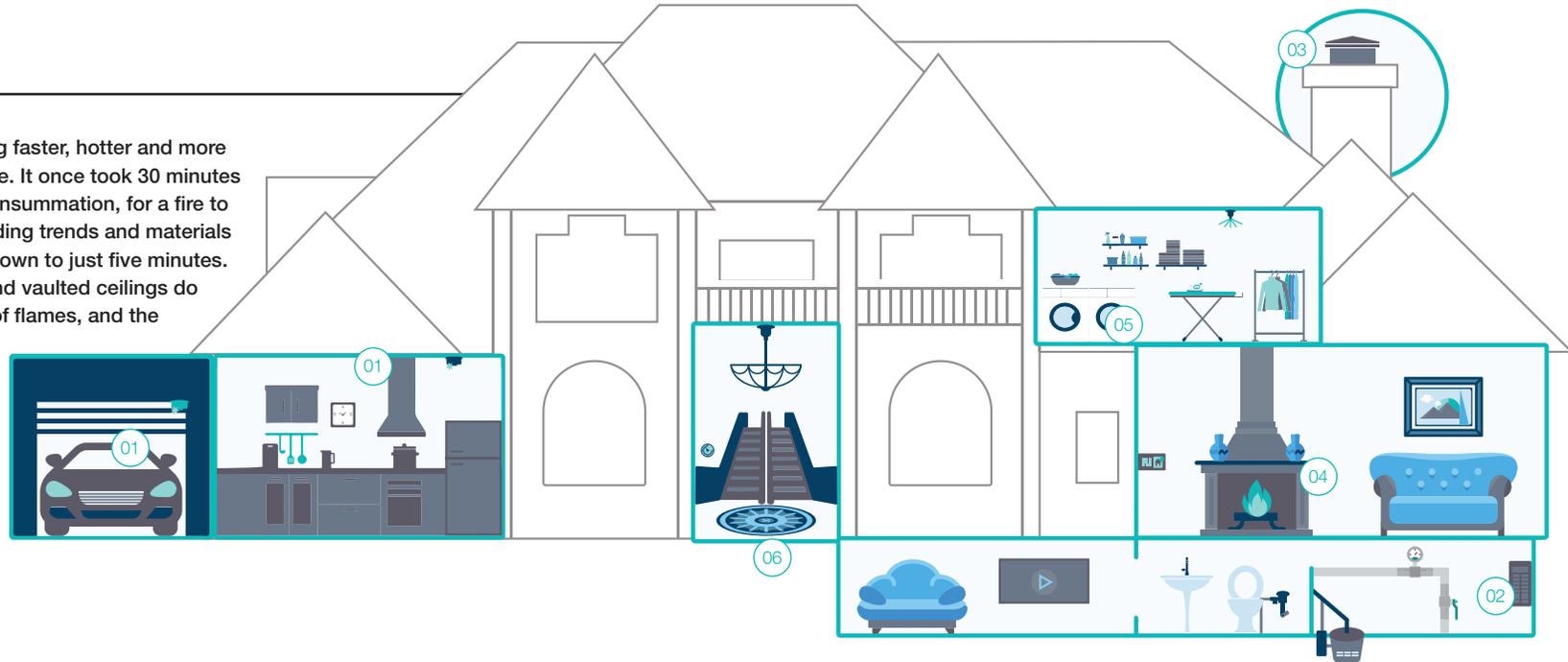
09
When a PURE member's traditional whole-house sprinkler system malfunctioned, it released hundreds of gallons of water throughout the home and caused over \$600K in damages.
SOLUTION: Dry Sprinkler System

Fire Damage

	RISK MANAGEMENT CONSIDERATIONS to prevent or mitigate losses	REQUIRED	DISCOUNT AVAILABLE	PRICE RANGE
01	<p>Central Station Fire Alarm with Heat Sensors All smoke detectors and heat sensors should be hardwired with battery backup and centrally monitored. They should also be equipped to use cell or radio signals to communicate with your alarm company if phone lines become interrupted. No matter what building codes in your area require, we recommend that you install at least one smoke detector per 1,000 square feet on every level of your home, including all stair landings and hallways. Heat sensors should be located in the kitchen, laundry room, attic, garage and other mechanical areas.</p>	○	●	\$\$
02	<p>Arc Fault Circuit Interrupters (AFCIs) Electrical shorts and ground faults create electrical arcs, which produce sudden high temperatures. If this occurs, any nearby combustible materials can easily catch fire. AFCIs sense impending electrical arcs and disconnect the defective circuit before damage can occur.</p>			\$
03	<p>Spark Arrestors A spark arrestor is a device designed to stop flammable materials from escaping through the top of a chimney. This significantly reduces risk to the roof and other combustible elements of your home.</p>			\$
04	<p>Fireplace Clearance There must be ample space between the firebox in a fireplace and the combustible construction materials of your home. If there is not, a fire could ignite between these spaces and burn unnoticed until it is too late. The International Residential Code (IRC) for building homes has strict requirements: 12 inches between the firebox and the home's walls on either side; four inches between the back of the firebox and the chimney wall; and six inches between the opening of the fireplace and any trim, mantels or other objects.</p>			\$
05	<p>Smooth, Metal Dryer Ducts Clothes dryer ducts should measure at least four inches in diameter and be made of smooth sheet metal. Ducts with screws, rivets or other fasteners and those made of corrugated metal will collect lint, a serious fire hazard that also obstructs airflow. Plastic ducts become brittle and worn due to the passage of time and the dryer's heat. Also, be sure that all ducts release to the outside of your home.</p>			\$
06	<p>Solid Wood Building Materials During a fire, lightweight engineered or composite materials fail significantly faster than traditional solid wood materials do.</p>			\$\$\$

○ For homes above a certain value ● For all homes

Home fires today are burning faster, hotter and more dangerously than ever before. It once took 30 minutes or longer, from ignition to consummation, for a fire to devour a room. Today's building trends and materials have brought that average down to just five minutes. Open-concept floor plans and vaulted ceilings do nothing to slow the spread of flames, and the synthetic materials used in today's furnishings and fabrics can burn as quickly as gasoline. They also produce a thick, black, toxic smoke, which makes firefighting difficult.¹



01
Garages contain many combustible materials and ignition sources, and yet homeowners often overlook this space when they install fire alarms and heat sensors. Without this protection, you may not discover a fire until it is too late. This was the case for one PURE member who, as a result, lost his entire garage and parts of the main structure. Damages totaled \$1.1M.
SOLUTION: Central Fire Alarm with Heat Sensors

04
After a storm left a PURE member's home without power for several days, he resorted to his wood-burning fireplace for heat. Unfortunately and unbeknownst to him, builders had installed sheetrock dangerously close to the firebox during a recent renovation. A fire started inside the walls of the chimney and was not discovered in time to prevent \$400K in damage to the member's home and belongings.
SOLUTION: Fireplace Clearance

02
An electrical short started a fire in one PURE member's second-floor study. Over several days, emergency crews battled flames that continued to rekindle. In the end, the entire home was damaged beyond repair.
SOLUTION: Arc Fault Circuit Interrupters (AFCIs)

05
Built-up lint in the ducts of a PURE member's dryer ignited, resulting in soot and smoke damage throughout the second and third floors. The home's structure as well as the member's custom décor and belongings sustained over \$76K in damages.
SOLUTION: Smooth Metal Dryer Ducts

03
Embers from a lit fire in one PURE member's fireplace floated up and out of the top of the chimney and landed on the roof. Flames spread into the attic, destroying a newly added wing of the home and causing a loss of nearly \$1.2M.
SOLUTION: Spark Arrestors

06
A recent study found that engineered floor beams, which are common in many homes today, could fail in as little as 3 minutes, 28 seconds. Solid wood floors lasted 11 minutes, 9 seconds. This difference has severe implications; annual firefighter fatality rates are rising as it becomes increasingly dangerous for them to enter modern homes.
SOLUTION: Solid Wood Building Materials

¹ Rohr, Lauren. "Why Today's House Fires Burn Faster, Hotter in Burbs." Daily Herald. Paddock Publications, Inc., 28 Nov. 2015. Web.

Burglary

	RISK MANAGEMENT CONSIDERATIONS to prevent or mitigate losses	REQUIRED	DISCOUNT AVAILABLE	PRICE RANGE
01	<p>Central Burglar Alarm Arm your home with both internal and perimeter burglar alarm systems, especially if the edge of your property is far from the main structure. They should be centrally monitored and include a back-up cell or radio signal. This will allow the system to communicate with your alarm company if phone lines become interrupted—whether accidentally or through intentional tampering.</p>	○	●	\$\$
	<p>Remote Monitoring Today's technology allows you to activate alarms, lock doors, control appliances and more—all with the smartphone in the palm of your hand.</p>			\$
02	<p>Cameras and Lighting Indoor and outdoor cameras and motion-sensor lighting can deter burglars from targeting your home. Cameras can also aid the police in an investigation if necessary.</p>		●	\$\$
	<p>Gated Perimeter Installing a fence and gate around your house—if not the entire property—can help in deterring or slowing burglars. The gate should be locked or electronic and must allow access for emergency services.</p>			●
03	<p>A Secure Safe <i>Sturdiness:</i> A safe should weigh at least 750 lbs (1,000 lbs if it's installed on the ground floor) to prevent burglars from removing it. It should be made of 100% solid steel, ½ inch thick for the door and ¼ inch thick for all five walls. We recommend safes UL-rated at least TL-15 or comparable, indicating that a team of engineers with powerful tools could not crack the safe, even after 15 minutes of trying. <i>Installation:</i> If possible, build your safe into the structure of your home to make it difficult to remove, especially inside a short window of time. At the very least, bolt your safe to your home's structural elements. <i>Location:</i> There are many opinions about the best and worst places to install a safe. Yet even the most secure safe can't protect your valuables if they are not placed inside it. Install it in a place where you are likely to use it consistently and properly. <i>Alarm:</i> Designate a separate zone within your alarm system for your safe. That way, you and your alarm company will be notified immediately if it is compromised.</p>			\$\$\$

○ For homes above a certain value ● For all homes

Possessions are often worth more than their monetary value; things like jewelry, art and collector's pieces come with significant sentimental value as well. Home security considerations can keep these belongings and the people who love them safe.



01

One PURE member's housekeeper forgot to arm the security system before leaving. Burglars snuck in and stole large amounts of cash, jewelry, computer equipment and high-end clothing and accessories. Damages totaled just under \$170K.

SOLUTION: Central Station Burglar Alarm, Remote Monitoring

02

Safes and alarms are important. However, the best way to protect your home from burglary is to stop criminals from entering your property in the first place. Ample perimeter protection can slow or deter them. It also sends a strong signal; the University of North Carolina at Charlotte found that 60% of convicted burglars noted the presence of security measures when they decided whether to target a home.²

SOLUTION: Cameras and Lighting, Gated Perimeter

03

One PURE member left home to run a quick errand and was gone for only 40 minutes. While she was away, thieves ripped her master safe out of the wall and stole \$630K worth of highly sentimental jewelry. They threw the safe down the grand wooden staircase and dragged it out the front door, causing another \$32K in damage to her home. In the end, almost none of the jewelry was recovered.

SOLUTION: A Secure Safe

² Blevins, Kristie R., Joseph B. Kuhns, and Seungmug "Zech" Lee. "Understanding Decisions to Burglarize From the Offender's Perspective." The University of North Carolina at Charlotte Department of Criminal Justice & Criminology (n.d.); n. pag. Dec. 2012. Web.

Lightning Damage

		REQUIRED	DISCOUNT AVAILABLE	PRICE RANGE
RISK MANAGEMENT CONSIDERATIONS to prevent or mitigate losses				
01	<p>Lightning Suppression System As the highest level of defense, a lightning suppression system grounds lightning's dangerous electricity. Only trained experts, such as those listed by the Lightning Protection Institute, should install and help certify these systems.</p>		●	\$\$\$
02	<p>Whole-House Surge Protector High voltages can destroy electrical systems and appliances. Protect each structure on your property with a whole-house surge protector. We recommend UL-listed Surge Protective Devices (SPDs) or Transient Voltage Surge Suppressors (TVSSs). Surge breakers in the main AC panel can serve as backup in the unlikely event that the whole-house surge protector is not enough.</p>			\$\$
03	<p>Generator A whole-house generator restores electricity during a power outage. This mitigates costly losses that could arise when critical home systems and equipment stop functioning.</p>		●	\$\$\$
+	<p>Black Iron Gas Pipes Other piping options may be cheaper, more flexible and easier to install, but we strongly recommend black iron. It is the safest and most reliable method of supplying gas and propane to appliances like water heaters, stoves, dryers and fireplaces.</p>			\$

Lightning damage is more common than you may expect, and it is almost always devastating. Common effects range from whole-house fires to complete destruction of the electrical system and more.



01
One PURE member awoke to the sound of his fire alarm around 5 AM. The family smelled smoke and immediately evacuated. Lightning had struck the home and started a fire. Luckily, everyone inside got out safely, but the home was destroyed. Damages totaled over \$10M.
SOLUTION: Lightning Suppression System

02
Lightning struck the top of one member's chimney and damaged all the electrical systems throughout the home. This included pool equipment, lighting and audio/video systems, telephone and satellite systems, 24 televisions, HVAC thermostats and more. Damages exceeded \$607K.
SOLUTION: Whole-House Surge Protector

03
A major storm cut power to one PURE member's pool house, which shut down the dehumidifier. Heat and moisture caused over \$183K in mold damage to the walls and furniture.
SOLUTION: Generator

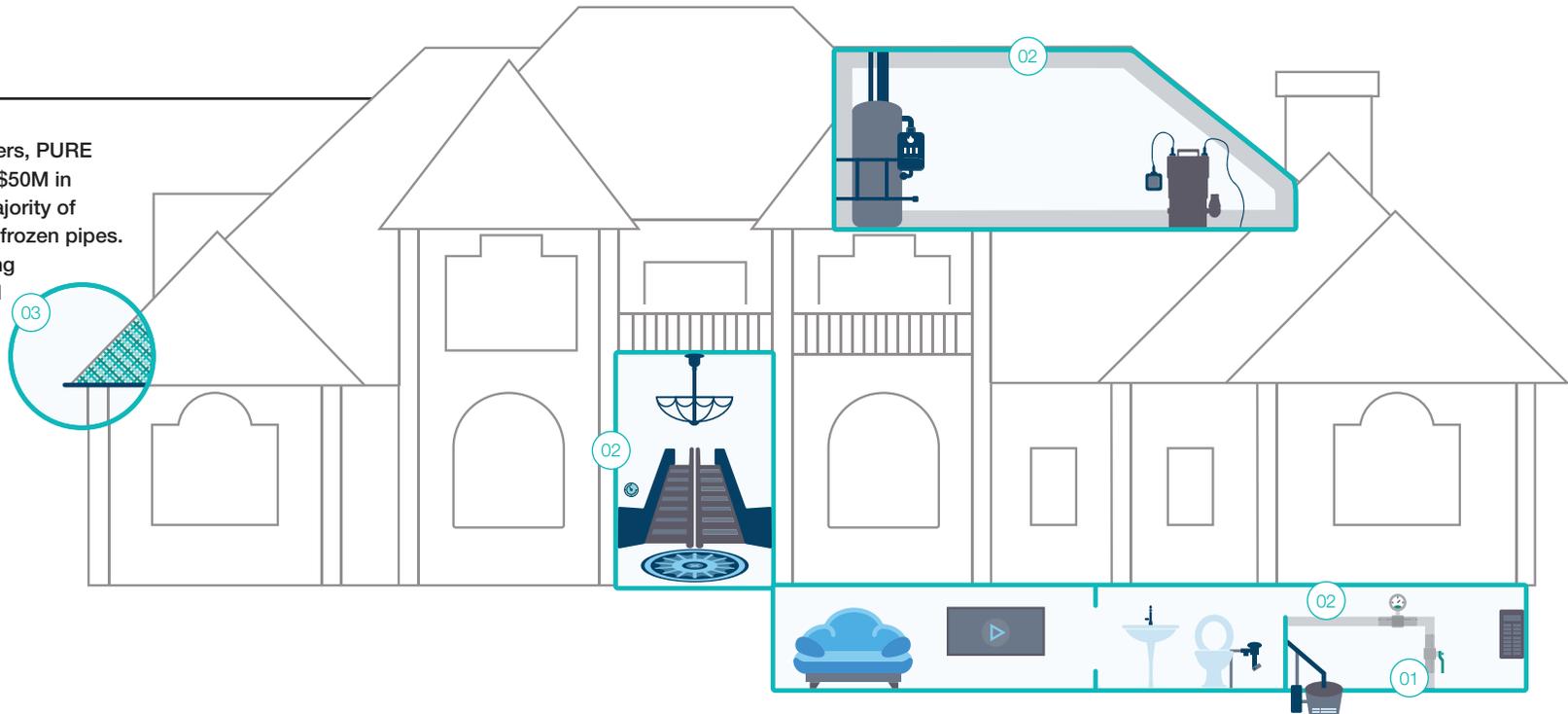
PROTECTING YOUR HOME FROM

Winter Weather

	RISK MANAGEMENT CONSIDERATIONS to prevent or mitigate losses	REQUIRED	DISCOUNT AVAILABLE	PRICE RANGE
01	<p>Water Shut-off Device A whole-house automatic water shut-off device monitors the flow of water in your home's pipes. When it detects a leak, it shuts off the water. Be sure the system is centrally monitored so that you and your alarm company are notified before serious damage can occur.</p>	○	●	\$\$
	<p>Piping Insulation Outfit all pipes inside exterior walls with simple foam-rubber pipe insulation to prevent them from bursting in the cold.</p>			\$
02	<p>Spray Foam Attic Insulation Traditional fiberglass or cellulose insulation allow small amounts of air to pass through. Spray-foam insulation, on the other hand, produces an air-tight seal and offers better protection.</p>	○	●	\$\$
	<p>Low-Temperature Alarm A centrally monitored low-temperature alarm is designed to give you the opportunity to intervene before a pipe can burst. If temperatures drop to concerning levels, it will alert you and your alarm company immediately so that you can take action.</p>			\$
	<p>Smart Thermostat A smart thermostat allows you to remotely monitor the temperature in your home and adjust your settings in response to any frigid temperatures or subzero wind chills that may occur while you are away.</p>			\$
03	<p>Roofing Underlayment A roofing underlayment is the protective layer that sits between your shingles and roof deck. We have seen code requirements fall short all too often, causing costly mold and water damage—especially if part of your roof covering blows off. Exceed these requirements by choosing an underlayment that specifically protects against rain and ice dams. Install it all the way from the eave's edge to a point at least two feet past the building's exterior wall (farther for low-slope roofs), as well as in roof valleys.</p>			\$
	<p>Heating Strips Heating strips or heat trace installed in drains and downspouts can prevent ice dams from forming and causing leaks.</p>			\$
+	<p>Generator A whole-house generator restores electricity during a power outage. This mitigates costly losses that could arise when critical home systems and equipment stop functioning. It will also maintain heat throughout the home, even if the power goes out—which can be instrumental in preventing burst pipes.</p>		●	\$\$\$

○ In certain states ● For all homes

During particularly severe winters, PURE members have had more than \$50M in weather-related losses. The majority of these are due to ice dams and frozen pipes. For perspective, claims resulting from Superstorm Sandy totaled around \$30M for PURE.



01 Contrary to popular belief, pipes do not burst as water freezes within them. Instead, a buildup of water pressure between the faucet and an ice blockage is usually the true cause. Damage can be severe, especially if the water flows freely through the home. These claims average \$122K for PURE members but can easily cause millions of dollars in damages.
SOLUTION: Water Shut-off Device, Piping Insulation

02 During a severe cold snap, neighbors noticed ice overflowing out of the windows and doors of a PURE member's home. A pipe had burst in the attic, and because the home was unoccupied, water had cascaded throughout the house for several days. Damages totaled over \$2M. This is more common than you'd think; on average, winter losses among PURE members are four times greater when a home is unoccupied at the time of loss.
SOLUTION: Spray Foam Attic Insulation, Low-Temperature Alarm, Smart Thermostat

03 When snow on a roof melts and refreezes, it can form sizable ice blocks in the gutters and prevent other melted snow from flowing off the roof. Water may then leak into the attic instead. Ice dam claims among PURE members average \$47K but are often substantially higher. For example, one member's roof suffered such significant destruction that it appeared to be "raining" in every room. Custom wallpaper, electronics, other belongings and many of the home's structural elements needed to be replaced, totaling \$760K in damages.
SOLUTION: Roofing Underlayment, Heating Strips

Wind Damage

	RISK MANAGEMENT CONSIDERATIONS to prevent or mitigate losses	REQUIRED	DISCOUNT AVAILABLE	PRICE RANGE
01	<p>Window Protection If wind can enter your home, it will exert outward and upward pressure on the structure. To prevent this, windows, glass doors and other glass openings should have impact-rated glass and wind-rated frames. Other protection options exist, including storm shutters and hurricane panels or fabric, but they often require a contractor or specialist to install and remove them each time a storm is forecast.</p>	<input type="radio"/>		\$\$
	<p>Wind-Rated Garage Doors Wind-rated garage doors are reinforced to withstand and protect against high wind speeds. Impact-rated doors, which are required in certain counties in Florida, also protect against wind-borne debris.</p>	<input type="radio"/>		\$
	<p>Wind-Resistant Entry Doors Wind-resistant entry doors with a three-point latch are less likely to blow open, especially if they also have a two-inch deadbolt. Doors with three hinges and those that open outward rather than inward provide the most protection.</p>	<input type="radio"/>		\$
02	<p>Hurricane Straps Hurricane straps, which are preferred over clips, can make any roof more resistant to uplift, racking, overturning and sliding. We recommend double straps in coastal areas, but single straps are acceptable for inland locations.</p>			\$
	<p>Hip Roof Shape A hip roof design (four-sided pitch) is aerodynamic and inherently resistant to the upward forces of high wind. Other roof shapes have significant weaknesses; a gable roof (two-sided pitch) typically has a vulnerable “hinge” at the joint between its sides, and a flat roof causes wind to flow up and over each wall, curving into a spiral to form strong vortices along the roof edge. Note that although complex and costly, certain modifications can make either of these designs more resilient.</p>			\$\$\$
03	<p>Shallow Overhang and Soffits We recommend that overhangs and soffits be less than 1½ feet deep. This can prevent wind from entering under the eaves and causing the roof to lift.</p>			\$\$
	<p>Thick Roof Deck Choose a roof deck at least 5/8-inch thick and with a span rating of 40/20. Decks should also be attached to rafters or trusses with 8D ring-shank nails at 6 inches on center. This nailing technique is critical; if the deck isn’t sufficiently nailed, it won’t provide protection.</p>			\$\$
	<p>Roofing Underlayment A roofing underlayment is the protective layer that sits between your shingles and roof deck. We have seen code requirements fall short all too often, causing costly mold and water damage—especially if part of your roof covering blows off. Exceed these requirements by choosing an underlayment that specifically protects against rain and ice dams. Install it all the way from the eave’s edge to a point at least two feet past the building’s exterior wall (farther for low-slope roofs), as well as in roof valleys.</p>			\$\$
	<p>Wind-Rated Roof Covering We recommend installing a wind- and impact-rated roof covering. Choose one that is designed to withstand wind speeds of 130+ mph and approved for use on buildings in Miami-Dade County.</p>			\$\$

In certain states ● For all homes

High-velocity wind poses a great risk throughout much of the country, whether it is caused by a hurricane, tornado or other type of storm. Your home's roof is the highest point of the structure and catches the brunt of the wind's force, so it must be secure. Compromised windows or doors can also allow wind-borne debris to enter and damage your home's interior.



01
A tornado swept through a PURE member's neighborhood, wreaking havoc on his home. Included in the damages were most of the home's windows and doors as well as a unique oriental rug struck by falling glass. The loss amounted to \$707K.
SOLUTION: Window Protection, Wind-Rated Garage Doors, Wind-Resistant Entry Doors

02
A windstorm tore through one PURE member's community and ripped off a portion of his home's flat roof. Although he was able to secure it temporarily until the storm died down, damages exceeded \$70K.
SOLUTION: Hurricane Straps, Hip Roof Shape

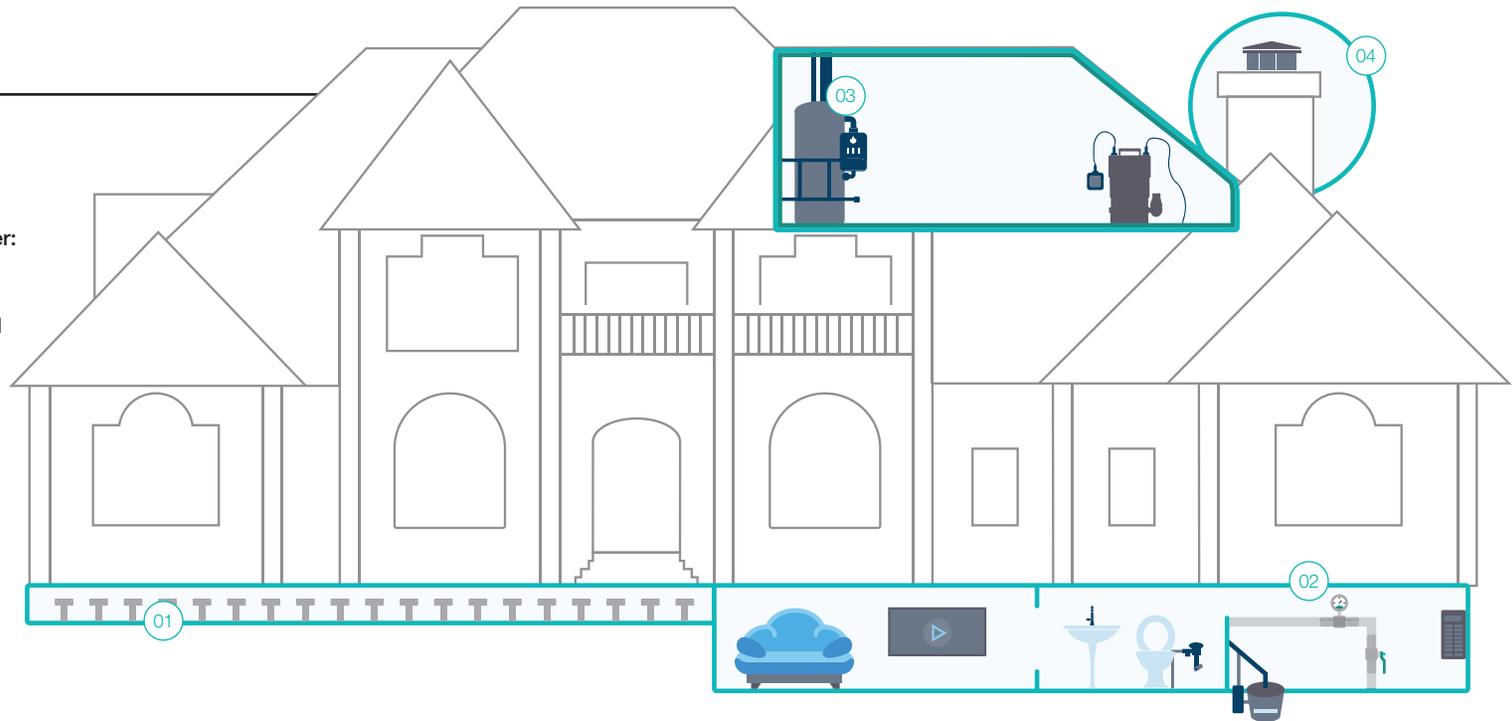
03
Hurricane Matthew blew off most of the shingles and other roofing components of one PURE member's roof. As a result, windblown rain entered the home and caused more than \$473K in structural and contents damage.
SOLUTION: Shallow Overhang and Soffits, Thick Roof Deck, Roofing Underlayment, Wind-Rated Roof Covering

Earthquakes

RISK MANAGEMENT CONSIDERATIONS to prevent or mitigate losses		REQUIRED	DISCOUNT AVAILABLE	PRICE RANGE
01	<p>Anchoring Your home should be bolted to its foundation every six feet along the outer edges of the house. Use either mechanically anchored (a.k.a. expansion) bolts, wedge-anchors or epoxy/epoxy-set bolts.</p>	●		\$\$\$
02	<p>Automatic Seismic Shut-off Valve An automatic seismic shut-off valve cuts gas service when it detects a high-magnitude earthquake. This prevents one of earthquakes' most common risks: fire due to broken gas lines.</p>		○	\$\$
03	<p>Secured Appliances and Furniture Water heaters, top-heavy furniture and mechanical and electrical components should be strapped down or secured to the studs of a load-bearing wall. Be sure to include piping systems such as sprinklers, as they will cause significant water damage if they break during a seismic event.</p>			\$
04	<p>Reinforced Chimney Frame chimneys generally perform better in earthquake-prone areas. However, you can make a masonry chimney safer by designing and reinforcing it for lateral forces. Secure it to the ceiling, roof joists and underside of the floor using metal straps sized to restrain the expected load. Do not extend the chimney more than two feet above the rooftop. Also, avoid locating children's play areas, patios and parking spaces near any chimney.</p>			\$\$
+	<p>Window Protection Tempered glass or shatter-resistant safety film protects windows and prevents breakage.</p>			\$\$
+	<p>Generator A whole-house generator restores electricity during a power outage. This mitigates costly losses that could arise when critical home systems and equipment stop functioning.</p>		●	\$\$\$

○ In certain states ● For all homes

Your home's structure has to absorb an earthquake's energy and provide a stable path to transfer it back into the ground. Your home must therefore be tied together: the roof anchored to the walls, the walls anchored to each other, the walls braced and anchored to a strong foundation, and your belongings secured.



01
In order to transfer structural stresses into the ground, your home's construction elements must all move together. Like a weak link in a chain, if any small part of the home fails, the structure could move off its foundation. It could cost hundreds of thousands of dollars to place it back on its slab—if doing so is possible. Otherwise, the home would need to be completely demolished.
SOLUTION: Anchoring

04
Rebuilding a chimney often costs \$50K or more, and damages are likely to reach hundreds of thousands of dollars if the chimney falls on property such as a roof, car or custom pool. In the 1994 Northridge earthquake, for example, the destruction of approximately 60,000 masonry chimneys caused copious amounts of damage.⁴
SOLUTION: Reinforced Chimney

02
One of the most significant hazards associated with earthquakes is fire attributed to broken gas lines.³ Fire departments are likely to face difficulty in responding to every call following an earthquake, and so damage from fire is often more devastating than that from the earthquake itself.
SOLUTION: Automatic Seismic Shut-off Valve

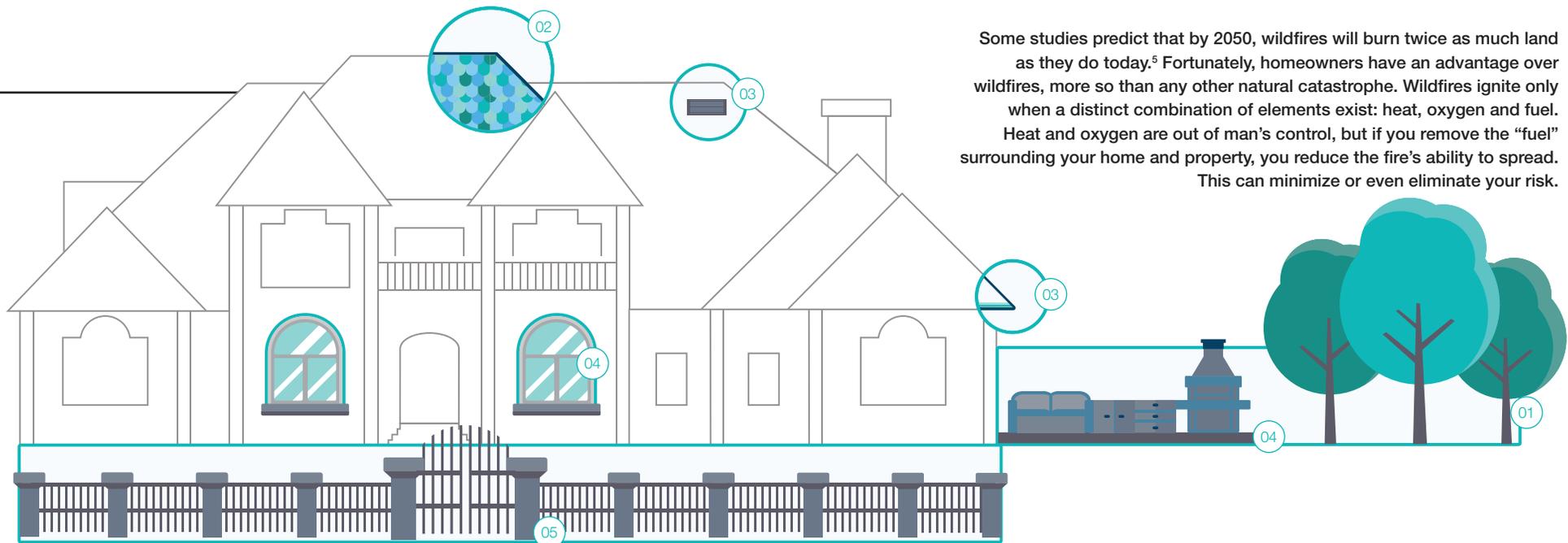
03
A traditional hot water heater can hold as much as 80 gallons of water and is connected to water and gas supply lines. If it were to tip over, serious structural, water or fire damage could ensue. Outdated methods of securing water heaters may not provide adequate support; plumber's tape, for example, was widely recommended in the past but consistently failed during the 1989 Loma Prieta and 1994 Northridge earthquakes in California. Heavy-gauge metal strapping is now recommended as an alternative.
SOLUTION: Secured Appliances and Furniture

³ FM Global. Understanding the Hazard: Fire Following Earthquake. N.p.: FM Global, n.d. Feb. 2015. Web.

⁴ "Chimney Safety and Earthquakes." Association of Bay Area Governments Resilience Program. Association of Bay Area Governments, 16 Dec. 2016. Web.

	RISK MANAGEMENT CONSIDERATIONS to prevent or mitigate losses	REQUIRED	DISCOUNT AVAILABLE	PRICE RANGE
01	<p>Defensible Space Defensible space is by far the most critical factor in stopping the spread of wildfire. Manage vegetation strategically to create a buffer of space between any structure and the surrounding grass, trees, shrubs or wildland. Be sure to store things like firewood and liquefied petroleum gas at least 50 feet from any structure.</p>			\$\$
02	<p>Class A-Rated Roof Covering Roof covering materials like metal or tile that have been Class A-rated are much less likely to ignite from flying embers. This is a very real danger, since roofs are large, usually low-sloping surfaces. Block any spaces between roof decking and covering as well.</p>	○		\$\$\$
03	<p>Fire-Resistant Soffits Soffits with a 1-hour fire-resistance rating reduce the risk of fire when embers and heat become trapped underneath an overhang. Removing the overhang from your home's design altogether will eliminate this risk. If this is not possible, use flat, horizontal soffits instead of those that attach to the sloped joists. For the fascia, use non-combustible or fire-resistant materials (e.g., fire-retardant-treated lumber, fiber cement board).</p>		○	\$
	<p>Covered Openings Cover all vent openings, chimneys and stovepipes with 1/8-inch to 1/4-inch thick metal mesh to prevent flying embers from entering your home. Avoid fiberglass or plastic mesh, as it can melt and burn. For vents in eaves or cornices, however, even metal mesh is not enough; protect these areas with baffles.</p>		○	\$
	<p>Weather Stripping Weather stripping around and under the garage door will prevent embers from blowing in.</p>			\$
04	<p>Window Protection Windows should have dual-paned tempered glass, corrosion-resistant screens and non-combustible shutters. Consider limiting the size and number of windows that face large areas of vegetation.</p>			\$\$
	<p>Fire-Resistant Home Finishings Use fire-resistant and non-combustible home finishing materials throughout your home, especially for things like fencing, decks, patio covers, rain gutters and downspouts. Don't forget the smaller details such as pet doors and address markers.</p>			\$\$\$
05	<p>Emergency Access It is crucial that your home's gate, driveway and landscaping allow emergency vehicles to reach your home, especially if you live in a remote area. Gates should open inward and be wide enough to accommodate trucks. An electric gate override system, which allows emergency responders to use a master key or other technique to access your property, is essential and required.</p>	●		\$
	<p>Water Supply Ample water supply can make a world of difference during a fire. Be sure you have multiple faucets and garden hoses long enough to reach all areas of your home and property. You can also install a pump to turn a pool into an additional water source.</p>			\$\$
+	<p>Fire Protection System A permanent exterior fire protection system can guard against wildfire 24/7. Water-based, foam-based and gel-based systems are all good choices depending on your home. Some systems offer pretreatment as well as emergency response treatment and can alert you when the system is activated.</p>		○	\$\$

○ In certain states ● For all homes



Some studies predict that by 2050, wildfires will burn twice as much land as they do today.⁵ Fortunately, homeowners have an advantage over wildfires, more so than any other natural catastrophe. Wildfires ignite only when a distinct combination of elements exist: heat, oxygen and fuel. Heat and oxygen are out of man's control, but if you remove the "fuel" surrounding your home and property, you reduce the fire's ability to spread. This can minimize or even eliminate your risk.

01

In many cases, a wildfire destroys a home because of small, overlooked details, like an umbrella left on the patio or a stack of firewood next to the garage. Yet during the High Park fire of 2012 in Rist Canyon, Colorado, diligent attention to defensible space guidelines—including vegetation and landscaping management as well as plant selection—helped spare one family's home while 294 others in the community were destroyed.

SOLUTION: Defensible Space

04

A PURE member was on the way home from vacation when they received word that their neighbor's home was engulfed in flames. Firefighters sprayed the member's home and saved it from structural damage. Still, all the siding that had faced the flames melted, and the windows cracked from the heat. Smoke and ash permeated the inside of the home as well. In the end, the claim totaled \$365K.

SOLUTION: Window Protection, Fire-Resistant Home Finishings

02

A home with an untreated wood roof is two to 21 times more likely to be destroyed in a wildfire than one with a fire-resistant roof. Wood shake shingles are particularly dangerous: their ignition temperature is around 378°F, while a simple glowing cigarette is 550°F.⁶

SOLUTION: Class A-Rated Roof Covering

05

A typical fire truck holds 400 to 500 gallons of water, which is only enough to put out a car fire. If enough trucks cannot access a property or if water supply is inadequate, there may not be much first responders can do to save the home.

SOLUTION: Emergency Access, Water Supply

03

Contact with flames isn't usually what causes a home to burn down during a wildfire. Often, embers and the strong winds that carry them to flammable objects—like pine needles in a home's gutters—are the true culprits. This effect can be so severe that "ember tornadoes" has become a common term. In fact, research findings indicate that approximately 85% of home ignitions during wildfires are caused by flying embers.⁷

SOLUTION: Fire-Resistant Soffits, Covered Openings, Weather Stripping

⁵ Perry, Caroline. "Wildfires Projected to Worsen with Climate Change." Harvard John A. Paulson School of Engineering and Applied Sciences. President and Fellows of Harvard College, 28 Aug. 2013. Web. ⁶ Smith, Ed, John Christopherson, and Gerry L. Adams. "The Wood Shake and Shingle Roof Hazard." UCCE Central Sierra Cooperative Extension. University of Nevada Cooperative Extension, n.d. Web. ⁷ Maranghides, Alexander, and William Mell. "A Case Study of a Community Affected by the Witch and Guejito Fires." National Institute of Standards and Technology (2009): n. pag. Apr. 2009. Web.

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