

Mobile Home Wildfire Safety

There are approximately 1400 mobile homes in Marin spread throughout 9 mobile home communities. These communities range from about 25 homes to as many as 396 homes. Several of these communities exist in areas considered to be at risk to wildfire.

The Difference Between Mobile and Manufactured Homes

Today most of what we refer to as mobile homes are more properly called manufactured homes. Both manufactured and mobile homes are regulated by the Department of Housing and Urban Development (HUD). The only difference between the two types of homes is the date they were built. According to HUD, a factory-built home prior to June 15, 1976 is a mobile home and one built after June 15, 1976 is a manufactured home. Both manufactured homes and mobile homes have several common traits:

Manufactured homes are completely constructed in a factory and then transported to the home site. Once they arrive at their destinations, they are somewhat similar to site-built homes. They are not usually moved again. They are built according to federal construction codes from Housing and Urban Development (HUD) plus any applicable State Title 25, or Fire Hazard Severity Zone amendments.

Safety

A common concern for homebuyers looking at manufactured homes is safety. The good news is that there is no significant difference between the safety of homes built on or off site.

Manufactured homes are produced according to the Federal Housing and Urban Development (HUD) safety standards. These unified national safety standards help make sure that manufactured homes are as safe as site-built homes.

Manufactured homes are built in one controlled environment and then transported to the home site. Red certification labels from HUD are affixed to the exterior.

A statistical analysis by the National Fire Prevention Association (NFPA) suggests modern manufactured housing is nearly three times safer than pre-HUD Code mobile homes.

<https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/Building-and-life-safety/osmanhome.ashx>

Wildfire Safety

Embers are the most common cause of ignition for both site built and manufactured homes. Embers are light enough to be blown through the air and can result in the rapid spread of wildfire by spotting (in which embers are blown ahead of the main fire, starting other fires). This wind-driven rapid spread scenario was observed, for example, in the 2017 Tubbs Fire in Santa Rosa and in the 2018 Camp Fire in Paradise. Should these embers land on or near your house, they can ignite nearby vegetation, accumulated debris, or enter the home through openings or vents. Recent research indicated that two out of every three homes destroyed during wildfires were ignited either directly or indirectly by wind-dispersed, wildfire-generated, burning, or glowing embers and not from the actual flames of the wildfire. “Indirect ignition” implies either a radiant heat and/or direct flame contact exposure to the building from the combustible item ignited by the embers.

Near-home ignitions can subject some portion of a house to either a direct flame contact exposure (where the flame actually makes contact) or radiant heat exposure (the heat felt when standing next to a campfire or fireplace). If the fire is close enough to a combustible material, or the radiant heat is high enough, an ignition will most likely result. Even if the radiant exposure is not large enough or long enough to result in ignition, it can preheat surfaces thus making them more vulnerable to ignition. In most mobile home parks the homes are sited relatively close together. This can make mobile homes more vulnerable if adjacent homes are ignited by wildfire.

All homeowners should take action in four areas to reduce wildfire risk.

First, prepare yourself and your family. Make a disaster plan, sign up for alerts and warnings, know your evacuation routes, pack a go bag, make a plan for your pets.

Second, create defensible space around your home. The first five feet around the home should be clear of all combustibles. In most mobile home communities in Marin, homes may be located close to each other. When there is sufficient space between homes, be sure to clear dead grasses, weeds, plants and foliage within 30 feet from your home. Limb up trees and create space between plants. Do not use highly flammable mulches like gorilla hair. Any kind of flammable mulch product (i.e., all bark mulch products) should be avoided in areas close to the home.

Third, take action to harden your home. Mobile homes sometimes have decks which must be protected from embers. There should be no combustible materials under decks or the home itself. Make sure decks are properly screened (from the edge of the deck, vertically down to the ground) with corrosion resistant 1/8-inch mesh or smaller metal screening to minimize ember intrusion in the area under the deck. If there is a fence, make sure there is a noncombustible section that connects to the home. That could be something like chain-link, hog wire, or iron. The immediate solution, if you are evacuated in the event of a fire is to prop the gate open to create a break in the fence. If you think of the fence like a candle, we want to break the wick so it can't burn any further.

Make sure the area around the skirting of your home is tidy and free of brush and debris. Keep the roof clear of trash and leaves.

Fourth, consider becoming a firewise community. Mobile home parks tend to be community oriented. Neighbors helping neighbors is a great way to prepare.

Hardening a Manufactured Home

We have recommended hardening decks and fences which are attached to homes. But what about the home itself? No matter how much you want to prevent hazards in your house, you cannot make it 100% fire-proof. But you can certainly improve the fire resistance of your home exterior by choosing the right exterior cladding. New siding can also increase energy efficiency, improve curb-appeal, and protect against the elements.

Vinyl is installed on over 30% of all new homes making it the most popular siding choice for both (mobile) manufactured homes and site-built homes. As vinyl is a plastic material when exposed to a radiant heat or flames it will readily deform and melt, and would therefore not provide protection to your house.

An alternative to vinyl siding, fiber cement, a mixture of cement, sand, and wood fibers, has a high fire resistance rating. Fire resistance is a factor in the durability of the product. Many fiber cement products carry a Class A flame spread index, the highest level possible. Additionally, they slow fires from spreading into buildings and damaging property.

Steel siding, which is now more common, is a good choice for siding. Metal, in general, is fireproof. They do not catch fire or spread it. However, aluminum siding can melt if exposed to high-temperature flame such as a burning juniper bush. The melting point of aluminum is ~1200 F. That of steel is ~2500 F. Vinyl is ~200 F.

Brick and stone veneers over wooden frames reduce the risk of fire enormously. It is important to use solid brick or stone, not a thin veneer that has the appearance of brick or stone.

When making the house exterior fire-resistant, house owners forget about the trims, soffits and windows". Yes, the siding takes most of the space on the exterior walls. But if the trims do not provide comparable performance, they can be the vulnerable component on your home.

Pay attention to the materials it's made from. Check if they are noncombustible or not. If the trims are made with flammable material options, try to reinstall the better product during your next renovation. Make sure all openings are well sealed. Fiber-cement trim products are readily available.

Modifying or refurbishing a manufactured home to meet all the recommended wildfire resistant features can be an expensive, albeit very worthwhile endeavor. As an alternative, homeowners may want to consider the prospect of replacing an older fire-prone home with a new fire resistant home. All new manufactured homes placed in designated state or local fire hazard severity zones must conform to Title 24, Part 2, Chapter 7A in order to qualify for HCD building permits.

The costs for choosing either alternative are in constant flux due to numerous factors, but one may be pleasantly surprised at how little the difference may be considering the benefits of a new home.

Exterior Sprinkler Systems

The California wildfires have sparked much of the recent debate over sprinkler systems. The function of an exterior sprinkler system is to minimize the opportunity for ignition by wetting the home and surrounding property. Sprinkler systems should be able to protect a home against the three basic wildfire exposures: wind-blown embers, radiant heat, and direct flame contact.

Post-fire assessments have shown exterior sprinkler systems can be effective in helping a home survive a wildfire, but potential issues exist with their use. These issues include:

- The water supply should be adequate to deliver water when needed, for the time embers could threaten a home. This period could be up to 8 hours.
- Check with your local fire department if your sprinkler system uses water from a municipal supply; they may have suggestions to help minimize water consumption.

- The effectiveness of a sprinkler system is questionable when a neighboring home is burning since this would result in extended radiant heat and/or contact exposure to the home.
- Some of these systems can be activated manually or by an automated device, such as a sensor that detects heat or flame, or by an SMS-enabled cell phone. The ability of these systems to activate based strictly on an ember exposure has not been determined. Since wind-blown embers can be transported for up to a mile from the flame front of a wildfire, this may be a limitation.
- The most threatening wildfires occur during high-wind events and the homeowner should consider how the distribution/transport of water droplets may be influenced by elevated wind speeds. The water droplets will likely not land in the same locations as on a windless. Wind will also result in evaporation losses, also reducing the effectiveness of the applied water.
- Water spray may not protect the undersides of vulnerable structures such as eaves or beneath the home.
- Water spray landing on a hot window can break the glass and expose the home interior to ignition.

Given the potential issues regarding performance, it's recommended that use be a supplement to, and not a replacement for, already proven mitigation strategies, such as the reduction of potential fuels throughout the home ignition zones, along with removal of roof and gutter debris, and use of noncombustible and fire/ember ignition resistant building materials and installation design details

Interior Sprinklers

Interior sprinkler systems, designed to protect homes from interior fires, are extremely effective and save lives. They are required on most new construction in Marin. They provide no protection against wildfires. Interior sprinkler systems are for personal protection, when the house catches on fire from the inside, such as when a resident falls asleep with a

lit cigarette. In the case of a wildfire, an interior fire sprinkler would likely do little to nothing, as the house burns down from the outside in.

Additional Fire Safety Concerns for Mobile Home Owners

There are many benefits to living in mobile homes, but residents should be aware of some safety concerns unique to these structures. While they are vulnerable to all the same hazards found in permanent structures, mobile homes are built of lighter materials and they may not be fixed to the ground with the equal reinforcements.

Many mobile and manufactured homes in California have been retro-fitted with tie-downs to take advantage of a substantial discount offered by the state's earthquake insurance coverage. Only new Chapter 7A homes are engineered to carry the weight of cement composite walls plus the required interior sheetrock without a perimeter foundation. Retrofits with these additions are permitted by HCD provided they are also retrofitted with perimeter foundations as per HCD specs.

The primary cause for the increase is that fire spreads more rapidly through mobile homes due to the small space and light construction, while the structure itself intensifies the heat and smoke buildup. In addition, most mobile homes have fewer safe exits than a traditional home.

The number one cause of accidental mobile home fires is inadequate maintenance of the home's mechanical system. Other frequent causes include carelessness and accidents.

Several mechanical systems in a mobile home require maintenance. These systems include heating equipment such as furnaces, flues, fireplaces, space heaters, wood stoves, water heaters, kitchen stoves, as well as electrical systems and electrical appliances.

Storing all matches and lighters out of the reach of children can prevent a tragedy. Fires caused by a mobile homeowner's carelessness, such as a

grease fire or a fire that started because flammable liquids were stored inside the mobile home, are also preventable.

Here is some valuable mobile home safety information from AARP

<https://www.aarpforemost.com/mobile-home-safety-fire-prevention.asp>

An Ounce of Prevention Could be Worth a Life

- **Fire Drills.** It's important to hold family fire drills at least two times a year. If you have very young or elderly people in your mobile home, assign someone to help them. If there's a fire, get everyone out of the home, then call the fire department.
- **Exit Windows.** Make sure at least one window in every bedroom can be used for easy and fast escape in case of fire. Don't attempt to reach the front or rear door during a fire — always use a window as your exit.

To exit from a window, slide it up or sideways and remove the screen. Kick the screen out if you need to. If your mobile home has crank-out style jalousie or awning quick-exit windows, remove the interior storm sash by turning the pivot clips. Trip the exit latches at the window sill and slide the window open or open it at the hinges and make your exit. If there's no trip latch on the window or no time to open it, break it with a chair, lamp or shoe and get out.

- **Fire Extinguishers.** Keep one fire extinguisher in the kitchen and another near the furnace. Marin CERT training recommends installing a fire extinguisher at each exit of the home, as the first action should be to ensure a clear and safe egress before attempting to extinguish a fire. An extinguisher placed near the potential source of a fire may not be accessible when needed. Make sure they're multi-purpose, dry-chemical extinguishers, suitable for class A, B and C fires. Teach all family members how to operate them. Small home fire extinguishers operate for only five to ten seconds, so be sure of your aim.
- **Smoke Detectors.** Mobile homes built since 1976 come equipped with smoke detectors. If your home doesn't have smoke detectors, you need one high on the wall or ceiling adjacent to bedroom areas.

Place another in the kitchen. Check your smoke detectors once a month by pressing the test button. Replace the battery in each smoke detector at least once a year. Never remove the battery except when replacing it. If your smoke detector is a photo unit, replace the bulbs every three years. Keep the grill of the detector free of dirt by dusting and vacuuming it regularly.

If your home's smoke detectors are powered by electricity, add at least one detector that's battery powered in case of power outages.

- Be Careful Not to Overload Electrical Circuits. Lights that flicker or dim indicate trouble that must be corrected. When replacing fuses, install only recommended fuses. Use fuses and breakers that are the proper size for the wire. A ground monitor is a valuable tool for locating any shorts or other problems in the electrical system. If you are inexperienced in working with electricity, don't try to correct electrical problems yourself. Call a qualified electrician.
- Don't Overextend an Electrical Outlet with Extension Cords. Replace frayed or broken electrical cords. Make sure all appliances are properly installed. Buy electrical appliances and equipment approved by a certified testing laboratory. Never run cords under rugs. Keep dust from accumulating on televisions, electrical equipment and appliances.

Additional Tips

- Store flammable liquids in approved containers outside the mobile home.
- Never place combustible material under your mobile home — that includes bales of hay or straw.
- Check for worn spots on any heat tape that covers water pipes.
- Ground your television antenna to prevent damage from a lightning strike.
- Keep your yard tidy and free of debris.
- Don't plug multiple items into the same electrical outlet or circuit.
- Make sure lightbulbs are the recommended wattage for all of your light fixtures.

- Keep baking soda near your stove to extinguish grease fires.
- Keep matches and lighters out of children's reach, preferably in a locked cabinet.
- Don't smoke in bed or when you're drowsy. Run butts and ashes under water before disposing.
- Never install a double cylinder deadbolt lock on your exit doors. They require a key to unlock from the inside.
- Never use an extension cord on a permanent basis and avoid running them under rugs.
- Never leave home with the clothes dryer running. Clean dryer vents frequently and clean lint screens after each load to keep the airway clear.
- Make regular safety checks of your mobile home's major systems. Check for cleanliness, proper functioning and loose connections.
- Never block doors or windows with furniture or other large objects.
- Supplemental heating units like electrical space heaters, fireplaces, kerosene heaters and wood stoves can be dangerous. Be sure each device is approved for use in a home. Turn them off before you leave or go to sleep.

Take Action if a Fire Strikes

Smoke and toxic fumes are the leading cause of death in fires. That's why it's so important to get out immediately and stay out.

- Don't try to fight your own fire. Leave immediately and call for help from a neighbor's home.
- The clearest air is 12 to 24 inches above the floor, so crawl to the nearest safe exit.
- Carefully touch the bottom of all doors before opening them. If they're hot, don't open them. Find another way out such as an exit via a window.
- If your clothes catch fire, don't run. Stop, drop to the ground, cover your face with your hands to protect your face and lungs, and roll until you smother the flames. Remember: stop-drop-and-roll.

- In addition to fire safety issues, mobile homes are extremely vulnerable during high wind events. Keep an eye on weather systems that will potentially threaten our area.
- Make sure you have an evacuation plan in place which includes a safe place to stay and food, water, and supplies to last at least three days.
- Monitor your local news during all major storms for information specifically directed toward mobile home residents.

List of Marin Mobile Home/RV Parks

Contempo Marin
400 Yosemite
San Rafael
396 Lots

Deans RV Park / Silver Penny RV Park
7060 Redwood Blvd
Novato

Forest Knolls Trailer Community
6690 Sir Francis Drake Blvd
Forest Knolls

Golden Gate Trailer Court
2000 Redwood Highway
Greenbrae
20 Lots

Larkspur RV Park
11 Rich St
Greenbrae

Los Robles Mobile Homes
100 Roblar Drive
Novato
212 Lots

Marin Park
2140 Redwood Highway
Greenbrae
89 Lots

Marin Valley Mobile Community
100 Marin Valley Drive
Novato
315 Lots

Novato RV Park

1530 Armstrong Ave.
Novato
82 Lots