The Risks You’re Exposed To When Heating Your Home

Due to various forms of cognitive bias, people tend to overlook low-key threats that are most likely to kill them in favor of preparing for more conspicuous hazards.

In their defense, we are wired to worry about getting shot before we worry about microbes, even though historical records for the war from WWII though Vietnam prove that microbes have hospitalized more military personnel than combat-related injuries even during wartime.

Even in normal times, the need to heat homes, tents, RV’s, cabins and boats sends more than 70K people to the emergency room per year due to carbon monoxide poisoning alone! In serious emergencies, people who normally hold down desks are forced to turn to alternate methods of heating homes, turning heating into a dangerous proposition.

Dangers of Obtaining & Storing Fuels

I live in the Rockies and even here, most families here are woefully unprepared to cook and heat their homes in wintertime.

In the Bosnian War, this meant that people trapped in urban areas went from house to house, pulling up wood flooring and breaking up furniture because they didn’t have anything to burn to keep warm. In the US, people would rip the framing out of abandoned homes, so they could burn it. I don’t know about you, it doesn’t take much to make one of my neighbors mad and I’m pretty sure we’d be in a shooting war if I demolished their home to heat mine whether the disaster was over or not.

All this can lead you to believe you can’t lose your primary source of heat, but you would be wrong.

Unless you have enough fuel stored to get you through a winter and spring into summertime, the constant need to scavenge or cut wood will drastically increase the calories you’ll consume. It will also put you at risk cutting and hauling wood and will almost certainly put you at conflict with others competing for limited resources.

Storing Fuels

There is fire danger associated with storing any fuels or flammable materials. Storing liquid fuels is generally more dangerous than liquid gases and liquid gases are generally more dangerous than solids.

Regardless of the fuels you store, check local safety ordinances. They will tell you how much of a given fuel it is legal to store and how. If you rent, you should check your lease too. Once you bring fuels into an occupied structure, the dangers increase. Where possible, store the bulk of your fuel a safe distance from occupied structures and only bring as much fuel as is necessary to meet immediate needs to occupied structures.

If you live in an urban area or apartment, nearly any method of heating your home, other than using the provided utilities, may be a violation of local fire codes, your lease agreement or both. Then again, it may be difficult to enforce lease agreements in an apocalypse, so weigh your options.

Options may include renting storage units (which you will clean out at the first sign of trouble), breaking a few rules here and there or joining a group with a retreat. Retreat owners need other families to double up with them to help provide security, so it's not as hard to work out as it sounds.

If you do decide to break some rules, keep in mind that the consequences could range from a fine for breaking a lease agreement on a storage unit to being held responsible for the deaths of innocent families if the fact that you stored too much fuel contributes to an apartment building or home burning down. So, the consequences may differ substantially should you bend rules at a storage unit vs at an occupied structure.

Propane

Propane is one of the easiest fuels to store. No need to worry about storage life. As long as the seals on the tank hold, you

can use the propane they hold. The down side of propane is that it’s not renewable. Once you run out, you may not be able to replace it, so propane is a great fuel to get you through the first year or two, but if a disaster lasts that long, a significant percentage of the population will have died off, reducing competition. Hopefully, people will begin learning how to product the things they need most themselves and supply and demand will reach some semblance of equilibrium in the years thereafter, but if you choose, propane for the bulk of your fuel storage at a given site, I’d plan on using wood as a backup.

Check local ordinances governing the storage of propane. They will tell you how far each size of tank should be stored from occupied buildings and each other. Personally, I store quite a bit of propane.

Natural Gas

Natural gas is not practical to store because of the high pressures involved, so it must be piped in. That said, NG often keeps flowing unhindered in disasters like hurricanes and most lines are moderately resistant to earthquakes. During any event that knocks out the grid, however, NG will eventually stop flowing because the SCADA controllers, valves and pumps that keep the lines properly pressurized require electricity to function. These systems would also suffer catastrophic damage in a HEMP, especially if an Enhanced Radiation Weapon (Super-EMP Weapon) is used.

Electricity

Unless you own a massive renewable energy installation that must dump excess electricity, electricity typically isn’t very practical for heating homes in cold environments using renewable energy. It requires far too much electricity compared to other applications.

Kerosene

Kerosene is less refined that white gas and consequently has a longer storage life but can develop problems with algae and other microorganisms, but there are additives that kill them and prevent their growth. Kerosene varies quite a bit in how much it is distilled across the globe, so some kerosene is dirtier than others. In general, it is a hard to light and dirty fuel, but has a strong following because of the storage life and the fact that it can be used for heating, cooking and light, so I do store some.

White Gas

White gas or “Coleman Fuel” or naptha is the fuel of choice for most users of pressurized multi-fuel camp stoves. Many lanterns and stoves that run on white gas are dual-fuel devices that also run on kerosene and some stoves are also adaptable to propane if an adapter is used. White gas can store up to 10 years, but It begins to degrade once opened and can shellac burners and clog filters although this is more noticeable in the little pressurized stoves than the bigger camp stoves. Dealing with it is messy and it is only slightly safer than gasoline. I do store some though. Any fuel would become extremely valuable in a grid down event where I live.

Unleaded

While gasoline may seem like a convenient survival fuel since many vehicles and generators use it, it has the shortest storage life and is by far the most dangerous fuel to store listed in this article. Not only does the liquid gas burn, but also the fumes and it even a spark is enough to ignite them. High volatility, liquid form, flammable fumes and short storage life make gasoline one of the most troublesome fuels for a survivalist to store.

Wood

The basic tools to cut, haul and store wood for fuel are inexpensive enough that every household should own them as a backup, even in the city. It wouldn't be the first time that city-dwellers have burned anything flammable to stay alive. In wooded areas it makes a lot more sense, although you might have to haul firewood a lot farther than you would think. Every survivalist should have a wagon and a sled for hauling heavy materials and be able to repair them both. In addition to the tools to cut and haul wood, you'll need to build racks to season wood, cover it, keep it dry and up off the ground. While even quality tools and a basic rocket stove are not that expensive, they add up if you buy them all at once, so make a plan and get started.

While wood may not be as volatile as liquid or liquified gas fuels, it is still fuel, so it is safest to store wood piles in detached structures a safe distance from occupied structures. Cutting and transporting wood is also dangerous, especially when people who normally do not use hand tools often must begin using them daily to survive. Many more people are typically injured cleaning up after hurricanes and tornadoes than are injured by the storms and associated flooding

- **Don't Cut Wood When Tired or Fatigued**
- **Keep Tools Sharp & Clean**
- **Wear Personal Protective Equipment** – Wear gloves and eye protection. When using a chainsaw, also use a face guard, ear protection and safety chaps.
- **Keep an Adequate First Aid Kit Handy** – Such a kit should include a minor surgery kit and sutures or a stapler, trauma dressings, stump dressings, a tourniquet and hemostatic dressings to deal with serious cuts and even amputations. Woodcutting tools are no joke.
- **Wood Cutting or Burning May Create a Security Risk** –

With the exception of handsaws, woodcutting is loud and can be heard a long way off and therefore may attract unwanted protection. Depending on the efficiency of your stove, how much wood you are burning and the proximity of others, burning wood may alert others to the presence of your fire.

Use of Fuels

Using fuels has its own dangers. To reduce the danger of spillage, I recommend investing in various sizes of funnels and some good fuel transfer equipment, such as made by Gas Tapper or the excellent Jackrabbit pump by Black & Decker.

Heat & Cook Efficiently

Whatever fuel you choose, heating and cooking efficiently means using a whole lot less fuel. Unless you have a near-unlimited fuel source (some people do), here are a few things you can do to reduce fuel consumption.

- **Use Efficient Stoves & Heaters –** Instead of cooking on your BBQ grill, cook on a camp grill or backpacking grill. Create an insulated rocket stove instead of cooking over an open campfire. Install woodstoves instead of using fireplaces to heat your home.
- **Create a Micro-climate** – This means creating a smaller living and sleeping areas within your home and just heating that instead of heating the whole home.
- **Double Up** – More people in less space reduces the fuel required per person. It also may be necessary for security.
- **Super-Insulate** – Using tons of insulation means that less heat escapes the home, reducing the need to heat it.
- **Store Heat in "Heat Batteries"** – Use the low winter sun to heat up a dark-painted concrete floor stores heat in

the slab and radiates it day and night. Installing a baffled masonry oven can heat a home for days on a single load of wood because it heats up all that thermal mass which then re-radiates the heat for days. You can even build hot water tanks and pipes into these to help heat water.

- **Create an Efficient Water Treatment System** – Boiling water works great for water treatment if you have an unlimited fuel source. Otherwise, you may consider a combination chlorine and filtration or at least using a WAPI. The chlorine can come from a chlorine generator or you can make bleach stock from pool shock. $20 of HTH (60-70% free chlorine calcium hypochlorite pool shock) can treat tens of thousands of gallons of water. A bleach making kit stores much longer than chlorine bleach, which loses about 15-20% effectiveness per year. A WAPI is a Water Pasteurization Indicator. It's basically a wax pellet in a tube that you hang in the center of a pot of water to be boiled. When the wax melts, the harmful pathogens are inactivated, which occurs long before the water boils, even on Mt Everest. Bringing water for a rolling boil (even for a minute) won't make the water any safer, it just wastes fuel, which wastes calories and puts you in harm's way to get fuel.

Educate & Train Household Members

Transitioning from central air, electric cooktops & microwaves to using open flame to provide heat and cook involves a learning curve right at the time you can least afford it. Without the ability to run to the hospital or call the fire department, it is wise to invest in prevention. Children must be taught how to live with their new companion … fire. Adults must also learn to safely store, transport, refill and operate appliances.

Small details matter, such as:

- **Eliminate any open flame from the area when refilling appliances.**
- **Use appropriately-sized funnels with fuel filters.**
- **Replace lids and caps immediately after refiling.**
- **Storing fuel before lighting appliances.**

Security

Fuels, heaters and stoves are just as necessary to survive winter in some parts as food and the use of wood for heating is obvious to any nearby, therefore they may present potential security problems.

Conceal Fuel Dumps

People can’t steal what they can’t find. Conceal fuel dumps, maintain a perimeter and aggressively patrol observation points to keep others from learning about your fuel supply and attacking it.

Don’t Put All Your Eggs in One Basket

This goes for fuel too. Cache some fuel off-site. That way, hopefully some of your fuel will remain undiscovered and unused should you be forced to displace, whether you retake your original site or not.

Storing some of your fuel separately also ensures that you don’t lose your entire fuel supply because of a fire, a failed seal or leak in tank.

Carbon Monoxide Poisoning

I nearly lost an aunt, uncle and cousins who went to sleep in a boat with an alcohol heater and insufficient ventilation. Carbon monoxide is colorless and odorless and slowly mixes with the air. The onset is nearly undetectable in the early

phases. At low concentrations, it causes headaches, then dizziness, nausea, tachycardia, insensibility, convulsions, unconsciousness and death as concentrations increase. So, death from CO is not much like it is depicted in the movies.

Carbon Monoxide Detector

Every survivalist should have redundant carbon monoxide detectors. But what kind? I recommend having both battery powered CO detectors and plug-in CO detectors with battery backup. If your home has built-in models, you may consider adding some plug-ins, but add some battery powered models to allow adaptability and travel.

CO Detector Placement

Detectors should be place near sources of CO and near bedrooms. Keep battery powered CO detectors with camping equipment such as heaters and stoves in case you leave your home and camp out of a vehicle, hand cart or on foot.

Because carbon monoxide is only slightly lighter (about 3%) than air, it is moved about by convection and mixes with the existing air. Because of this, detectors should generally should not be placed on the ceiling or on the floor. Near head-level, when seated or sleeping, is ideal for detectors that do not stipulate. However, designs vary and detectors are designed to be mounted at different heights, so take manufacturer instructions into consideration. Because air stagnates in corners, detectors should not be installed within 16” of side walls (if mounted on the ceiling) or ceilings (if mounted on the wall.)

Fire Danger

There is increased fire danger associated with storing any kind of fuels. Add that to the increased fire danger of people who are not accustomed to living with open flame in their

homes adjusting to post-catastrophe life and security risks posed by other humans competing for your resources and every survivalist should have a fire fighting plan.

I have a brother who was badly burned in a structure fire and smoke inhalation and burns are terrible when society and hospitals are functioning. Without hospitals and antibiotics, the chances of infection would be even higher.

Smoke Detectors & Fire Alarms

Just as every home should have a Public Alert Certified All-hazards Radio so they don't sleep through the first hours of an emergency, they should also have CO and smoke detectors, so they don't sleep through the first minutes of fire and miss the chance to escape.

Escape

Whether from smoke inhalation or burns, casualties can often be avoided by ensuring that every room has a fire escape. Bedrooms and apartments above the first floor may need to purchase emergency ladders to store near windows. Fire blankets are another relatively inexpensive addition that families should consider.

Training

Most casualties and deaths from structure fires are from smoke inhalation and can often be prevented with proper training. Children should be taught to stop and drop down out of the smoke and crawl where the air is often much cleaner. They should also be taught to carefully feel doors with the back of a hand before opening them to make sure they don't expose themselves to smoke and flames in doing something that comes naturally at any other time.

Members of the household should be trained in household SOP

for fires: how to react, what to do and where to go in the event of a fire. Those who are capable should be taught basic firefighting techniques to extinguish small fires.

Fire Fighting Gear

Fire extinguishers and other fire firefighting equipment should be considered for more advanced retreats. After all, you won’t be able to dial 911 and call the fire department in a protracted grid-down emergency. Firefighting equipment is a real rabbit hole, though, so be sure to keep equipment purchases reasonable and higher end equipment should be acquire based on the threat to the homestead after more basic needs have been met.

That said, homesteads in forested terrain should create fire breaks and put serious consideration into firefighting. Fuel sources such as grass, weeds, tumbleweeds and fallen branches must be cleared seasonally. If they get out of control and you have a fire in dry windy weather, you may not stand a chance.

Store Fuels Away from Occupied Structures

Whether an enemy succeeds in setting fire to structures or it is set alight by accident, large amounts of fuel stored above ground practically guarantee you will be burned out of your home. Consider a detached fuel dump or even two with hidden underground tanks to mitigate this risk.

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