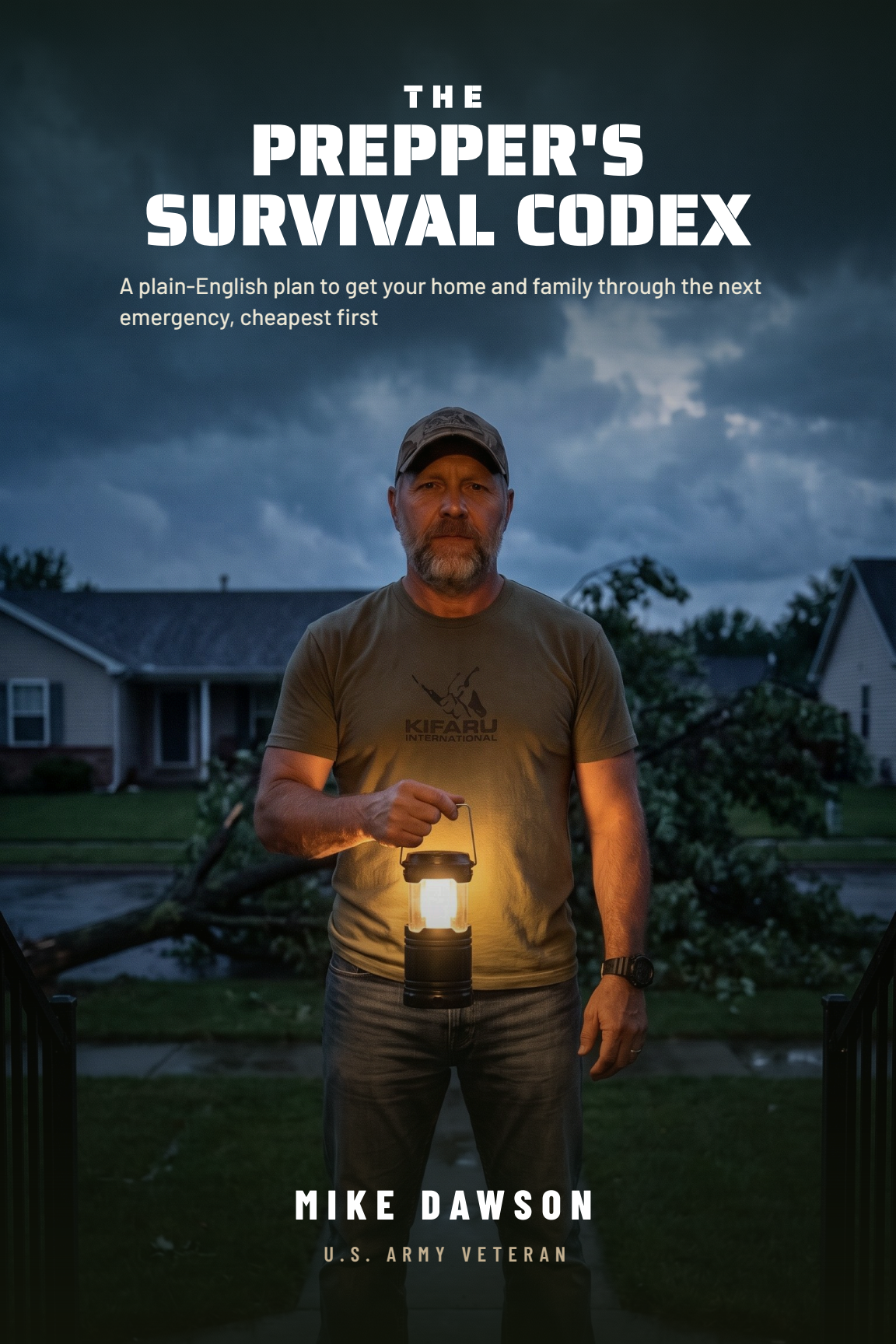
THE PREPPER'S SURVIVAL CODEX

A plain-English plan to get your home and family through the next emergency, cheapest first



MIKE DAWSON

U.S. ARMY VETERAN

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CHAPTER 14

THE OUTAGE KILLERS: CARBON MONOXIDE AND FIRE

Your CO alarm may die the moment the power does

Hurricane Laura came ashore in southwest Louisiana in August 2020, one of the strongest storms ever to hit the state. In Lake Charles, five people in one house died of carbon monoxide from a portable generator running in the attached garage.

Of the first fifteen deaths Louisiana confirmed after Laura, eight were carbon monoxide from generators. The storm did terrible damage, but more than half of those early deaths came from the machines people started up once it had passed.

Carbon monoxide and fire come with every long outage, for one plain reason. When the power goes out, people bring flames and engines close to where they live and sleep. Both dangers are almost entirely preventable, with cheap gear and a few rules that usually get learned too late.

I spent seventeen years on our county school district's maintenance crew, and the generators were my job. I like those machines, and I respect them the way you respect a chainsaw.

The first fix takes about a minute, and you can do it tonight.

Turn your CO alarm over tonight

Plenty of carbon monoxide alarms plug straight into a wall outlet, and some of them have no battery at all. **A plug-in CO alarm with no battery backup is dead in a blackout.** It goes quiet the moment the power fails, which is the exact moment people start the generator and light the heater.

So check yours tonight. If it plugs in, pull it out of the outlet and turn it over, looking for a small battery door. No door means it has to go. If the outlet sits down by the baseboard and your knees object, that's a two-minute favor to ask a neighbor.

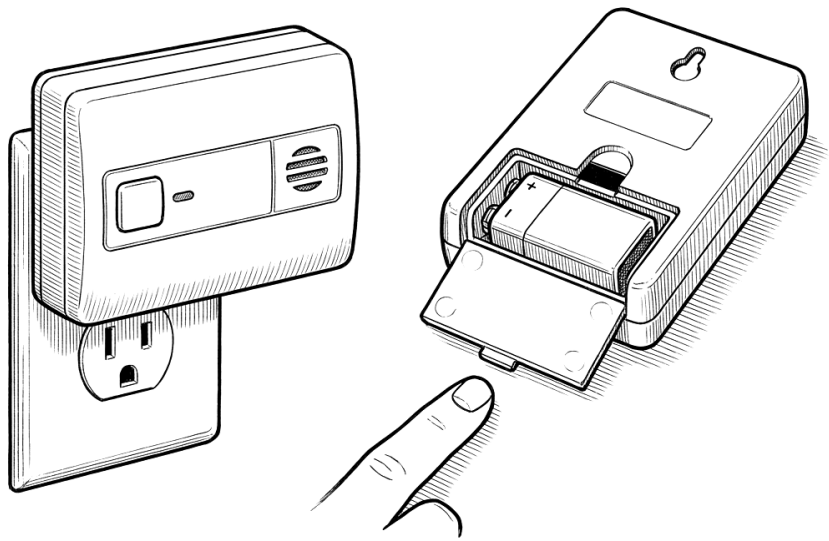


FIG. 14-A Check your plug-in CO alarm tonight: no battery door means it goes dead in a blackout

The replacement can be a battery-only alarm or a plug-in model with battery backup. Easiest of all is a sealed alarm with a 10-year battery built in, which you never open and simply replace on the date printed on it. Expect to pay about $20 to $50. Buy from a store you trust rather than the cheapest listing online, and look for the UL mark on the box.

On a calm fall afternoon, I turned over the CO alarm in the kitchen of the widow across the road. It was a plug-in with no battery door, and she'd had it for years without knowing what that meant. A battery model was on her wall by supper, and she paid me in apple butter, which is the going rate on our road.

Put one alarm outside each sleeping area, close enough to wake whoever sleeps there, and one on every level of the house, basement included. With an attached garage, add one near the door into the house. For height, go by the maker's manual. Carbon monoxide weighs about the same as air and mixes right into it, so it won't settle on the floor or collect at the ceiling, whatever your brother-in-law says.

A smoke alarm can't sense carbon monoxide at all, unless it's a combination unit marked on the label for both.

CO alarms wear out, too. The sensor lasts roughly 5 to 10 years, and most alarms carry a "replace by" date, or at least the date they were made, on the back. On most models the test button checks the horn and the battery rather than the sensor, so a worn-out alarm can pass its own test. When the sensor is spent, the alarm chirps a different pattern from a low battery, and the label or the manual tells you which is

which. Press the button once a month anyway, and read the date while you're at it.

> INTEL
>
> **Your CO alarm is designed to wait**
>
> Home CO alarms are built to a safety standard that tells them to hold off at low levels, so they don't go off over every passing whiff of car exhaust. At a low but harmful level, an alarm can stay silent for hours. Someone sensitive, like an older person with heart trouble, can have a pounding headache before it makes a sound. So your body may warn you first, and the signs are at the end of this chapter. An alarm with a digital display also shows the low readings the horn ignores. Pick one with a peak-level button, and in the morning you can see the highest reading the house hit overnight.

Generators: outside isn't enough

The Consumer Product Safety Commission's rule for portable generators is short enough to tape to the handle. Run it outdoors only, at least 20 feet from the house, exhaust pointed away from doors and windows. Never in a garage, even with the door open. The porch and the carport are out too, and so is anywhere near a window or a vent.

The Lake Charles generator was running in an attached garage. An open garage door doesn't make that safe. Carbon monoxide builds up in a garage faster than an open door can clear it, and it hangs around for hours after the engine stops, seeping into the house around the door you use every day.

If you rent an apartment, you can't run a generator safely at all, balcony and parking garage included. Your protection is the battery alarm and a practiced way out, with an extinguisher in the kitchen.

The CDC learned what distance is worth after the 2005 hurricanes. When its investigators traced carbon monoxide poisonings in Alabama and Texas, most of the generators involved were running outdoors, right where the label says they belong. They were simply too close to the house, and the exhaust drifted in through open windows and doors. Few of those homes had a working CO alarm. **Outside is half the rule. Distance and the direction of the exhaust are the other half.**

Twenty feet is farther than people guess. Pace it off, and it's about seven long steps, or the length of a full-size pickup truck. Add the run from the outside wall to the freezer, and you need more extension cord than most garages hold. That's where people cheat, pulling the generator closer until the cord they own reaches. In real life, the cord decides where the generator sits, so buy a heavy-duty outdoor cord long enough to let it decide right.

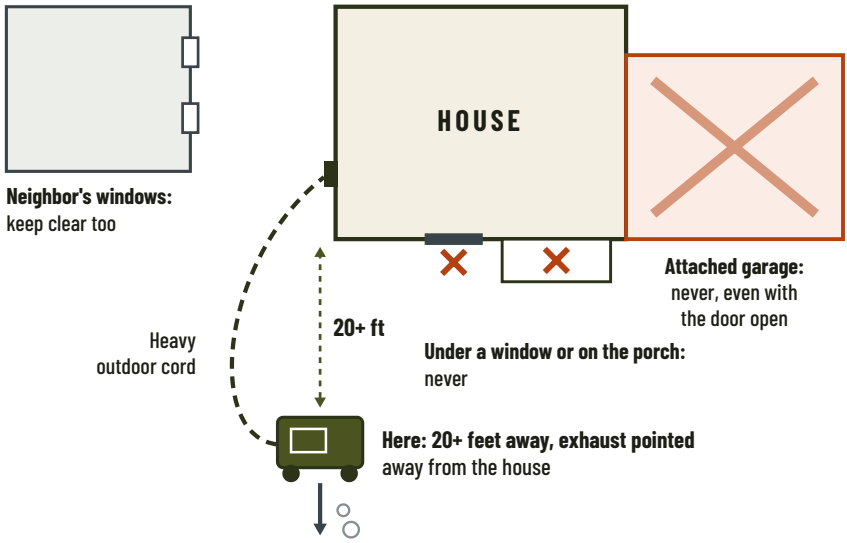


FIG. 14-B Where the generator goes: far from the house, exhaust pointed away

Rain is the next temptation. A generator shouldn't run wet, so it gets rolled into the garage "just until this lets up." Buy a cover or tent made for running a generator in the rain instead, and leave the machine out where it belongs.

Exhaust drifts across property lines, too. On a still night it can slip into the neighbor's bedroom window as easily as yours, so set the generator down with their house in mind, and ask them to return the favor.

FIELD TRICK

Mark the generator spot now

On a calm, dry day, take a tape measure to the side of the house away from the windows and doors, the neighbor's as well as yours. Measure out 20 feet or more and mark the spot. A paving stone set flush in the grass works, or a stake you can push in standing up, with reflective tape around the top to catch a headlamp beam. Then lay your cord from there to the door once, to be sure it reaches with slack to spare. In the dark, with rain coming sideways, nobody judges distance well. You'll just walk to the mark. It takes ten minutes and a few dollars.

The worst stretch comes in the first few days after a storm, and the worst hours come at night. That's when worn-out people run a generator close to the house to keep a fan or the fridge going while they sleep, and nobody's awake to notice a headache. The battery alarm inside earns its money on those nights.

When you shop for a generator, look for automatic CO shutoff. Many newer models carry a sensor that kills the engine when carbon monoxide builds up around it. It's a real backstop for the night somebody gets careless, and never a reason to set one closer. Chapter 17 covers fueling and hooking up a generator, down to the gauge of the cord.

Everything else that burns

Generators get the headlines, but an outage brings out every other thing in the house that burns fuel, and all of it makes carbon monoxide.

Charcoal is the sneakiest. Never burn it indoors or in the garage, not even to get it started out of the wind. Briquettes go gray and quiet long before they go cold, and they keep putting out carbon monoxide for hours. So the grill cools off outdoors, even in the rain and even when it looks dead.

Gas grills and camp stoves are outdoor tools too (Chapter 11 sorts out the few cooking stoves made for indoor use). And never heat the house with the gas oven or the burners on the range. A range has no chimney. It's built for an hour of cooking, and left burning for hours in a closed-up house, it can fill the place with carbon monoxide.

If a fuel-burning heater runs indoors, it runs with a battery CO alarm in the same room and a window open a crack. Which heaters are built for indoor use at all is a question for Chapter 15.

Then there's the car. Never idle it in an attached garage, even with the big door up, and that includes sitting in it to charge a phone or warm up during an outage. Push-button cars run so quietly that people have walked inside with the key fob in a pocket and left the engine running in the garage overnight. Some of them never woke up. If you're ever stuck in snow with the engine on, keep the tailpipe dug out, because a

buried tailpipe pushes exhaust up into the cabin (Chapter 36 covers being stranded).

The household rule fits on a sticky note. Anything that burns fuel makes carbon monoxide, and when in doubt, it goes outside.

Why fires follow the outage

House fires climb during long outages, for ordinary reasons. People light candles to see by and pull heaters up close to the bed. Somebody refuels a hot generator in the dark. Supper gets cooked in places never meant for a flame, and the smoke alarm that should catch any of it has a dead battery.

Candles are the easiest to retire. A headlamp or an LED lantern throws better light and won't start a fire (Chapter 17 covers lights that last a long outage). If you do burn candles, set each one in a sturdy holder on a surface that can't burn, at least a foot from anything that can, and blow it out when you leave the room. Keep them out of the bedroom at night, because more home candle fires start there than in any other room. Never leave one alone with a child or a pet.

A space heater needs three feet of clear space all around, and that includes the bedding. Plug it straight into a wall outlet. A heater pulls a heavy load for hours at a time, more than a thin extension cord or a power strip is made for, and either one can get hot enough to melt. If the plug or the outlet feels hot, unplug the heater and have that outlet checked. Turn it off

when you leave the room and before you go to sleep. In bed, let warm layers and an extra blanket do the work.

> INTEL
>
> **The heater behind a third of the fires and most of the deaths**
>
> By the National Fire Protection Association's count, space heaters start only about a third of home heating fires, yet they account for most of the people killed in them. The leading cause of those deaths is the plainest one. Something that burns sat too close, like a bedspread that slid off in the night, a curtain, an easy chair or clothes hung up to dry. The deadliest hours come after midnight, while people sleep. Check the floor around every heater before bed, the way you check the lock on the door.

Refuel a generator only after you've shut it off and let it cool. Gasoline splashed on a hot muffler can ignite, with you standing over it holding the can.

Keep an ABC extinguisher, the multipurpose kind made for household fires, in the kitchen, and another near wherever the heater runs. Buy one you can lift and aim. For most of us that's a 2.5- or 5-pound model, since a 10-pounder you can't swing does nothing in the closet. Check the gauge monthly; the needle belongs in the green. Look for the year stamped on the cylinder, too. Many home extinguishers are the disposable kind, and those are due for replacement 12 years after that date.

To use one, think PASS. Pull the pin. Aim low, at the base of the fire, where the fuel is. Squeeze the handle. Sweep side to

side. A small extinguisher runs dry in about ten to fifteen seconds, so start at the base and stay there.

Fight only a small fire, no bigger than a wastebasket, and only with your way out at your back. If it's bigger than that, or smoke is coming down from the ceiling, get out and call 911 from outside. Even when you knock one down, call the fire department to make sure it hasn't crept into a wall. On a well, the outage that brought out the candles also shut off the garden hose, so the extinguisher is your whole fire department until the real one arrives.

Smoke alarms are the other half. Test them monthly, pressing the button with a broom handle instead of climbing a chair, and replace each alarm 10 years after the date on its back. Every bedroom gets one, and so does the hall outside the bedrooms, with another on each level of the house. If yours are wired into the house, a blackout leaves them running on their backup batteries, the same batteries people yank out when an alarm chirps at 3 a.m.

Age makes the shrill beep of a standard alarm harder to hear, and sleep makes it harder still. Alarms with a low, loud tone, sold for people with hearing loss, wake older sleepers far better. Sleeping pills or a drink before bed make anyone harder to wake.

Getting out, and the CO warning signs

An escape plan is easy to make at the kitchen table and nearly impossible to invent in a smoky hallway. Know two ways out

of every room where you can, usually the door and a window. Pick one meeting spot outside, like the mailbox or a neighbor's big tree, so nobody goes back in for someone who's already out. After a smoke alarm sounds, you may have as little as two minutes.

Plan for the dark, since that's when fires do their worst. Keep shoes and a headlamp by every bed, with your glasses if you need them to find the door. A whistle on the nightstand lets anyone who's trapped tell rescuers where they are. Before you open a closed door, feel it up high with the back of your hand, and if it's hot, use your other way out. Smoke and heat rise, so the cleanest air is near the floor. Get as low as your knees will let you.

If you sleep upstairs, an escape ladder that hooks over the windowsill is your second way out. Keep it in that bedroom, within reach of the person who'd use it, since a ladder in the hall closet helps nobody trapped behind a bedroom door. Consult your knees before you count on one. If climbing down sounds like a fall waiting to happen, a ground-floor bedroom during winter outages, when the heaters and candles come out, is worth considering.

In an apartment building, the second way out is the other stairwell. Count the doors from yours to each one, since in smoke you'll be finding them by feel, and leave the elevator alone.

Then walk the plan once with everyone in the house, the dark part included. Turn off the lights and find both ways out by feel. If you live alone, walk it alone. It takes ten minutes, and

it's how you learn that the bedroom window was painted shut in 1987.

Carbon monoxide poisoning feels like the flu without the fever. A headache is the most common first sign, then dizziness, nausea, confusion and a heavy sleepiness.

The timing gives it away. The symptoms start while something is burning fuel, and they ease when you step outside or spend a few hours away from home. That pattern is reason enough to act, even for someone alone in the house. Several people sick at once, or a dog acting off, is a strong extra sign, but never wait for a second patient. Babies, pregnant women, older people and anyone with heart or lung disease get hit hardest.

Old textbooks describe cherry-red skin. That sign is rare, and it often shows up too late to matter, so never wait for it. The fingertip oxygen meter in your first-aid kit won't help either, because it reads carbon monoxide as oxygen. A poisoned person can show a perfectly normal number.

⚠ CAUTION

If you suspect carbon monoxide

If a CO alarm sounds, or you feel those signs while anything is burning fuel, get out into fresh air at once, and take everyone with you, pets too. If you're alone, take your phone only if it's within reach on the way out. Call 911 from outside, even if you start to feel better, because carbon monoxide leaves the blood slowly and the medics carry oxygen that clears it faster. Don't go back in to open windows or shut anything off. Wait outside until the fire department says the house is clear. Tell the medics you suspect carbon monoxide, because a blood test can confirm it.

Tonight, before bed, turn over every CO alarm in the house, and replace any plug-in with no battery door this week. This weekend, walk a tape measure out past 20 feet, set your mark and buy the cord that reaches it. Then put shoes by the bed and walk your way out once in the dark. None of it costs much, and all of it works on the one night you need it.

DO THIS NOW

- ☐ Tonight, turn over every CO alarm in the house. Replace any plug-in with no battery door (about $20 to $50).
- ☐ Put a CO alarm outside each sleeping area and on every level, plus one near the door from an attached garage.
- ☐ Mark your generator spot 20 feet or more from the house, and buy a heavy-duty outdoor cord that reaches it.
- ☐ Put shoes, your glasses and a flashlight or headlamp you already own by every bed. **(Free.)**
- ☐ Buy an ABC extinguisher you can lift for the kitchen, about $25 to $45.
- ☐ Test your smoke alarms and read the date on the back of each. Replace any older than 10 years.
- ☐ Walk your escape plan once in the dark, with everyone in the house, or on your own if you live alone. **(Free.)**

ABOUT MIKE



Mike Dawson spent two decades in the U.S. Army, most of them as a supply sergeant, keeping soldiers fed, watered, warm and equipped, with two deployments overseas and a few winters at a post up north. Then he spent seventeen years on his county school district's maintenance crew, minding the boilers, generators and roofs, and running the generators when the high-school gym became the town's storm shelter.

He lives with his wife, Linda, on three acres at the edge of a small town in southern Missouri, a day's drive or less from their three grandkids. He still hunts deer in the fall, still tests his generator every month, and still keeps a clipboard.