



An Extended Guide · No. 1642

Carbon Monoxide Safety and the 20-Foot Rule

The #1 rule of any
generator install

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! Read this first — carbon monoxide is the real danger

A running generator's exhaust contains carbon monoxide — an invisible, odorless gas that can kill in minutes. Never run a generator indoors, in a garage, in a shed, or on a porch, not even with the door open and a fan going. Run it outside only, well away from the house — the safety agencies say at least 20 feet — with the exhaust pointed away from every window, door, and vent. Put battery-backup carbon-monoxide alarms on each floor and outside the bedrooms. If an alarm sounds, or anyone feels dizzy, sick, or sleepy, get everyone into fresh air first and ask questions later. Before we talk about switches, cords, permits, or anything else in this category, we talk about this — because where you set the generator down is the most important safety decision of the entire installation.

Start here: the one rule that matters most

Of everything that goes into setting up a generator, one decision matters more than all the rest put together — where you put it when it runs. Get that right and you have removed the danger that turns a power outage into a tragedy.

I'm Bill. For 30-plus years I've helped folks around Portage County set up the gear in their homes, and I'll be honest with you: nothing in this whole category of guides matters as much as this page. Carbon monoxide from a running generator is invisible, has no smell, and can take a life in minutes — and it is almost always completely preventable.

This guide is the anchor for everything else here. The guides on transfer switches, interlocks, standby units, gas hookups, and permits all assume you've taken this one to heart first. So let's slow down and get it right together.

★ You don't have to memorize all of it

The core rule is short — outside only, well away from the house, exhaust pointed away — and every other page here just reinforces it from a different angle. If you'd like a hand picking a safe spot at your own home, that's exactly the kind of visit I take most seriously. Call or text me at (330) 200-8042.

The 60-second version

If you read nothing else in this guide, read this page.

- ❑ Carbon monoxide (CO) is invisible, odorless, and can kill in minutes. You get no natural warning at all.
- ❑ Run the generator OUTSIDE ONLY — never in a garage, shed, carport, basement, or on a porch, even with the door open and a fan going.
- ❑ Keep it well away from the house — the safety agencies say at least 20 feet — with the exhaust pointed away from every window, door, and vent.
- ❑ Put battery or battery-backup CO alarms on every level of the home and outside every sleeping area, and test them.
- ❑ Know the symptoms — headache, dizziness, weakness, nausea, confusion, sleepiness — and get to fresh air right away if you suspect CO.
- ❑ An automatic CO shutoff is a wonderful backstop — not a reason to run the generator any closer to the house.

! This page is worth reading twice

Everything else in this guide expands on these six lines. If the power is about to come back on and this guide is headed for a drawer, this is the page to remember.

What carbon monoxide actually does

Understanding why carbon monoxide is so dangerous makes every rule in this guide make sense, instead of feeling like an arbitrary list to obey.

Any engine that burns gasoline or propane gives off carbon monoxide as part of its exhaust — it's simply a byproduct of burning fuel. A generator's engine produces it in real quantity, hour after hour, for as long as the power is out.

The trouble is that CO is completely invisible and has no smell. It doesn't announce itself the way a natural-gas leak does. Once you breathe it in, it crowds oxygen out of your blood far more readily than oxygen itself, starving your brain and heart — all while you may feel nothing worse than a vague headache or a wave of sleepiness that's easy to blame on a long day.

In an enclosed or partly enclosed space, CO can climb to dangerous, even fatal, levels within minutes. That speed is exactly why the placement rules here are so firm, and why 'just for a few minutes in the garage' is never actually a few minutes you can predict or take back.

! Why a generator is especially risky

A generator runs continuously, often overnight and often unattended — unlike a car that idles briefly. Add in how portable it is, and the very human urge to tuck it somewhere out of the rain, and you have exactly the recipe behind most generator CO tragedies.

The rule: outdoors only, at least 20 feet away

This is the rule the whole category orbits around, so let's spell it out completely and then never lose sight of it.

Run the generator outdoors, on a dry, level, open spot — never under a covered porch, breezeway, or carport, and never inside any structure at all, no matter how many doors or windows are open.

Keep it well away from the house itself. The safety agencies advise at least 20 feet, and that distance should be measured to the nearest wall, not the far corner. Twenty feet is farther than most folks picture — roughly a line of three parked cars — so it pays to pace it off once in daylight rather than guess in the dark and rain.

Then point the exhaust away from the house — away from every window, door, and vent, including the fresh-air intake for a furnace or air conditioner — and be just as mindful of the neighbor's windows and doors, especially on a close lot.

! There's no such thing as too far

If you're ever unsure whether a spot is far enough or aimed right, add distance and turn the exhaust further away. You will never regret placing a generator too far from the house. You can very much regret placing it too close.

Why a garage or open door doesn't make it safe

This is the single most common fatal mistake, so it earns its own page. Every 'partly outdoors' idea below has taken lives.

The garage, even with the door open

An open garage door does not turn a garage into the outdoors. CO still pools and builds inside the structure, then drifts into the attached house through every gap around doors, vents, and shared walls — very often while people are asleep and never feel it coming.

Sheds, carports, porches, and fans

A shed traps exhaust exactly like a garage. A carport or covered porch blocks enough airflow to let CO build to dangerous levels, and both sit right against the house so the gas drifts straight in. A box fan aimed at the generator does not clear the air fast enough to matter, and open windows are no substitute for being genuinely out in the open.

! If it has a roof and walls, it isn't outdoors

That's the simplest test I know. Outdoors means truly in the open air — not a garage, not a shed, not a carport, not a covered porch, no matter how many doors, windows, or fans are involved.

Which way the exhaust points — and the wind

Distance is half of it. The other half is direction, because exhaust drifts, and the wind has a vote.

Set the generator so its exhaust blows away from the house, not across the yard toward it. Then look at where that exhaust actually goes: a low window, a dryer vent, a crawlspace vent, or the fresh-air intake for your heating and cooling can pull it right back indoors even from a respectable distance.

Wind changes things. A breeze that was carrying exhaust safely away in the afternoon can swing around at night and push it toward the bedrooms. You can't control the weather, which is the whole reason the distance, the exhaust direction, and the alarms inside all work together — no single one of them is meant to carry the load alone.

- Aim the exhaust toward open yard, never toward a wall that will bounce it back.
- Keep it clear of low windows, dryer and crawlspace vents, and the furnace or AC fresh-air intake.
- On a still night, exhaust lingers instead of blowing off — add distance when the air is dead calm.
- Re-check the direction if the wind shifts during a long outage.

✓ Picture the smoke from a campfire

Exhaust behaves like campfire smoke — it drifts, pools in still air, and follows the breeze. If you'd get a face full of campfire smoke standing at a given window, that's not a safe place for the exhaust to point.

Carbon monoxide alarms — your early warning

Even a carefully placed generator can, in an odd wind or after one honest mistake, send CO toward the house. An alarm is what warns you in time when that happens.

Choose battery-powered or battery-backup carbon monoxide alarms specifically. A plug-in-only alarm is dark at the exact moment you need it, because you're running the generator precisely because the power is already out.

Where to put them

- One on every level of the home, including the basement.
- One outside every sleeping area, close enough to wake a sleeping person.
- Follow the manufacturer's instructions for mounting height and spacing.
- Don't lean on a single alarm to cover a large or multi-story home.

✓ Test monthly, and mark the replacement date

Press the test button monthly and change batteries when the alarm chirps for them. CO alarms also wear out — most carry a replacement date printed on the unit, so mark your calendar and replace the whole alarm when it comes due, not just the battery.

The symptoms, and exactly what to do

If you or anyone in the house feels any of these while a generator is running nearby, treat it as carbon monoxide until proven otherwise.

- Headache — often the very first sign
- Dizziness or feeling light-headed
- Weakness or unusual tiredness
- Nausea or an upset stomach
- Confusion or trouble thinking clearly
- Sleepiness, especially if it comes on suddenly

These mimic the flu or plain exhaustion, which is exactly what makes CO so dangerous — it's easy to explain away. If a generator is running anywhere nearby and more than one person feels the same vague symptoms at once, take it seriously right away.

- ☐ Get everyone — and pets — into fresh air outside immediately. Don't stop to open windows or hunt for the cause first.
- ☐ Once outside, call 911 and describe the symptoms and the generator.
- ☐ Do not go back inside for anything until emergency responders say it's safe.
- ☐ If someone has collapsed, is struggling to breathe, or won't wake up, say so plainly to the dispatcher.

! When in doubt, get out

You will never regret a false alarm that turned out to be nothing. You may deeply regret waiting to be sure. Fresh air first, questions later, every single time.

The automatic CO shutoff — a backstop, not a plan

Many newer generators include a genuinely valuable safety feature: a built-in sensor that watches the surrounding air and shuts the engine off on its own if carbon monoxide climbs to a dangerous level nearby.

It's a real, meaningful safeguard, and I steer people toward it. On the box or in the manual, look for language about a CO shutoff or CO sensor, or a note that the unit meets the safety standard known as PGMA G300 or UL 2201 — the two recognized standards for this feature. Different makers use different marketing names for the same underlying protection.

Here's the part I want to be very clear about: the sensor is a backstop for the unexpected, not a reason to relax any rule on the pages before this one. It exists for the rare moment something goes wrong despite good placement — a wind shift, an unusually still night — not as permission to run closer or in a garage 'because it'll shut off if there's a problem.'

! It's your last line of defense, not your first

Treat the CO shutoff the way you'd treat a smoke alarm — you still don't leave a candle burning unattended just because you have one. Outdoors, well away, exhaust pointed away, and alarms inside remain the real plan. The sensor is what catches you if, despite all that, something still slips through.

Propane and dual-fuel still make carbon monoxide

Propane burns cleaner than gasoline, and that leads to a common misunderstanding that turns dangerous: cleaner is not the same as safe.

A propane generator produces meaningfully less carbon monoxide than a comparable gasoline one — but it still produces CO, because CO comes from the burning itself, not from something unique to gasoline. Every rule in this guide applies exactly the same way to a propane unit.

The same holds for a dual-fuel generator running on its propane side, or for anything sold as lower-emission. Lower is real and worth choosing, but it has never meant zero. Treat every generator, on every fuel, with the same outdoor rule and the same 20 feet.

! 'Cleaner' is not a placement rule

Don't let propane's cleaner reputation talk you into a garage, shed, or porch 'since it's not as bad.' The outdoor rule doesn't bend for fuel type — same open air, same 20-plus feet, every time.

Pick and prep the spot before the storm

The worst time to figure out where the generator goes is at night, in the rain, with the power already out. Decide it now, calmly, in daylight.

Walk your yard and find a spot that is outdoors, at least 20 feet from every wall, on ground that stays dry and reasonably level, with room to aim the exhaust toward open space. Make sure you can reach it safely in bad weather without crossing ice or a steep slope in the dark.

- Dry and level — never a low spot that turns into a puddle in a storm.
- At least 20 feet from the nearest wall, with clear space for the exhaust.
- A safe, lit path to reach it — you may be walking out there at 2 a.m.
- Marked if it helps — a stake or a paver so there's no guessing in the dark.

★ This is a five-minute job on a sunny day

Pacing off your spot and marking it takes a few minutes now and saves a dangerous guess later. If you'd like company doing it, I'm glad to walk your yard with you — call (330) 200-8042.

Two kinds of homes, two sets of needs

Where you live changes exactly how the 20-foot rule plays out in your yard — even though the rule itself never changes.

If you live in town or the suburbs

A closer lot means less room to work with, but the rule still holds. You may just have to think harder about where 20 feet actually lands, and remember it applies to the neighbor's windows and doors too, not only yours.

- Attached garages are common — resist the strong pull to run it just inside the door or on the attached porch.
- Measure 20 feet in more than one direction; the only clear spot may be a side yard or toward the street, not the backyard you pictured.
- Point the exhaust away from the neighbor's windows as carefully as your own — close homes share air.
- A tight lot is exactly when a spot picked and marked in daylight pays off most.

If you are out in the country on a well

More open space makes a safe spot easier to find, but rural outages tend to run longer, so the generator runs unattended overnight for days — which is when alarms and good habits matter most.

- Use the room you have — with acres to work with, there's rarely a reason to place it close to the house.
- Don't treat a detached garage, pole barn, or lean-to as the spot 'since it isn't the house' — the same rule covers every structure.
- Longer outages mean more overnight running — fresh alarm batteries before the generator ever starts.
- Farther from neighbors and help means CO alarms and checking on each other matter more, not less.

★ Want a second set of eyes on your spot?

Whether it's a small in-town parcel or forty acres, I'm glad to walk it with you and help you pick a spot that's genuinely safe and still easy to reach in bad weather. Call (330) 200-8042.

The placement mistakes that take lives

Nearly every generator CO tragedy traces back to a small handful of placement mistakes. Knowing them in advance is genuinely protective.

- **Running it in the garage 'just for a few minutes'** with the door up — the most common fatal mistake there is.
- **Setting it on a covered porch or under a carport** to keep it out of the rain, not realizing the roof traps exhaust.
- **Placing it right outside a window or door** to keep the cord short, without thinking about where the exhaust drifts.
- **No working CO alarm**, or one that's plugged-in only, dead, or missing its battery during the very outage it was needed for.
- **Leaving it running overnight** with no alarms in place, so no one is awake to notice symptoms.
- **Trusting an open door or a fan** to make an enclosed space safe — it doesn't.

! None of these folks thought it would happen to them

That's the sobering truth behind almost every one — it was never anyone's plan. It was a shortcut taken once, in the rain, in the dark, in a hurry. These rules exist for exactly those moments, not just the calm ones.

Building your family's placement and CO plan

A few minutes of planning now means no one has to think hard in the moment it actually matters.

- ❑ A pre-picked, paced-off spot outdoors, at least 20 feet from the house, with the exhaust direction decided.
- ❑ CO alarms on every level and outside every sleeping area, tested and dated.
- ❑ Everyone in the house knows the symptoms and the rule: fresh air first, then call 911.
- ❑ A flashlight or headlamp where the generator is stored, so 'it was too dark' is never the reason for a bad placement.
- ❑ Anyone hard of hearing has a way to be woken by the alarm — check the manufacturer's options if needed.

✓ Walk it through once, calmly

Point out to your household where the generator will sit and where the alarms are, on an ordinary day rather than during a real outage. Five calm minutes now beats a confused scramble later.

Who is most at risk

Carbon monoxide is dangerous to everyone, but it doesn't affect everyone equally — worth knowing if your household includes anyone in these groups.

Infants and young children, older adults, and anyone who is pregnant or living with a heart or lung condition can be affected faster and more severely. Pets are affected too, and sometimes show distress before people notice anything themselves.

For older adults especially, early CO symptoms — a headache, feeling tired, feeling a little foggy — are easy to write off as an ordinary bad day. If a generator is running anywhere nearby, I'd far rather you check a symptom that turns out to be nothing than explain away one that wasn't.

★ This is exactly why I ask

When I help set up a generator, I ask a little about who lives in the house — not to pry, but because the safe distance and the alarm plan are worth getting extra right when someone vulnerable is home. No judgment, ever — just care.

How your hookup helps you keep your distance

The way you connect the generator to the house has a direct effect on how easy it is to obey the 20-foot rule — so the two decisions belong together.

If you power a few things with outdoor-rated extension cords, the cords need to be long enough to let the generator sit a full 20 feet out and still reach comfortably, without being stretched tight or run through a cracked door that pinches them. A hookup at the panel — an interlock kit or a transfer switch, both a licensed electrician's job — lets a single cord reach an inlet on the outside wall, so the generator can live well out in the yard with far less clutter.

This guide stays in its lane on purpose: the deep how-to for cords, inlet boxes, interlocks, transfer switches, and standby units each has its own guide in this category. The point here is simply that a good hookup makes safe placement easier, and a poor one tempts you to creep the generator closer than it should ever be.

! Never shorten the distance to fit the cord

If a cord won't reach, get a proper longer outdoor-rated cord or a panel hookup — never drag the generator closer to the house to make the wiring easier. The distance is the rule; the cord bends to it, not the other way around.

Myths people believe — and the truth

A few mistaken beliefs come up again and again. Here's the honest version of each.

Myth	Fact
'I'll smell it if there's a problem.'	CO has no smell at all. Without an alarm you get no warning.
'The garage door is open, so it's fine.'	An open door doesn't clear CO fast enough. Never run it in a garage, open or not.
'Ten feet is plenty if the exhaust points away.'	The agencies advise at least 20 feet — and direction matters too, not instead.
'Propane doesn't make CO.'	It makes less than gasoline, but still real CO. The outdoor rule holds.
'A CO shutoff means I can run it closer.'	The shutoff is a backstop for the unexpected, not a placement rule.

! A belief doesn't have to be true to feel true

Every myth above sounds reasonable at first, which is exactly why they persist. When something you've heard doesn't match this guide, trust the rule, not the rumor.

Questions worth asking

A few plain questions that clear up most of the confusion I hear about placement.

Q: Exactly where should I put mine?

Outdoors, at least 20 feet from the nearest wall, on dry level ground, with the exhaust aimed at open yard and away from every window, door, and vent — yours and the neighbor's. Pace it off once in daylight.

Q: Does this generator have an automatic CO shutoff?

Ask directly, and look for PGMA G300 or UL 2201 on the box or in the manual if you're not sure. It's a fine feature — just not a reason to run any closer.

Q: Do I need a CO alarm if I already have a smoke alarm?

Yes — they detect different things. Many combination alarms cover both, which is a convenient option.

Q: What if an alarm goes off but I feel fine?

Treat it exactly as if you felt sick — get to fresh air and call 911. Don't wait for symptoms to take it seriously.

★ There's no silly question here

This is the one topic where I'd genuinely rather you call and ask than guess. Reach me at (330) 200-8042 any time you want to talk through your setup.

Common Questions

The questions I hear most from folks working through this guide, answered plainly.

Q: Can carbon monoxide from my generator reach a neighbor's house?

Yes — which is exactly why the 20-foot rule accounts for their windows and doors too, not just yours.

Q: Is it safe to run a generator in a well-ventilated garage?

No. 'Well-ventilated' is not the same as outdoors, and no amount of open doors or fans makes a garage safe for a running generator.

Q: How fast can carbon monoxide become dangerous?

It can reach dangerous, even fatal, levels within minutes in an enclosed or partly enclosed space — usually faster than you'd notice and react if you're already inside.

Q: Do battery-backup CO alarms really matter if I have plug-in ones?

Very much — you're running the generator because the power is already out, so a plug-in-only alarm is dark at the exact moment you need it most.

! Read it again if it's been a while

This guide is worth revisiting once a year, or any time a new generator, a new house, or a new household member changes your setup.

Bringing it all together

Every page here points back to the same handful of ideas: outdoors, at least 20 feet away, exhaust pointed away, alarms inside, and a CO shutoff as your backstop.

Where exactly to place the unit for rain, snow, and keeping the peace with neighbors — beyond the CO distance rule — is its own topic, and our guides on safe placement and weather protection, winter placement, and noise and setbacks each go deeper. The distance and direction rule from this guide still applies no matter the weather.

And when it comes to actually connecting the generator to the house, our guides on extension cords, the inlet box and generator cord, interlocks, transfer switches, and standby installs pick up there — with the reminder that any panel or gas work is a licensed pro's job.

★ Let's set up your safe spot together

On a visit I'll help you pace off a genuinely safe spot, check your CO alarms, and make sure everyone in the house knows the plan. Call or text me at (330) 200-8042.

If you remember only one thing

Out of everything in this guide, one idea matters more than all the rest combined.

Run it outside. Not the garage, not the shed, not the porch. Outside, at least 20 feet from the house, exhaust pointed away. Everything else here — the alarms, the shutoff sensor, the symptoms to watch for — exists to back up that one rule, not to replace it.

! Say it back to yourself

Outside only. Twenty feet or more. Exhaust away from every window and door. Alarms on every level. That's the whole rule, and it's the difference that matters most in this entire category.

You don't have to do this alone

You just have to remember that a friendly, patient person is one call away.

I hope this guide made generator placement and carbon-monoxide safety feel a little less daunting and a lot more doable. Keep it in a drawer with your other home papers, come back to a page whenever you need it, and don't worry about memorizing anything.

When you'd rather have a hand, that's exactly what I do. I come to your home, work at your pace, and never make you feel rushed or silly for asking. A first visit is a flat \$99, and for the parts that don't need me on-site I can often help right on your screen for \$49. Every visit comes with a 30-day, come-back-free guarantee. I don't do the licensed electrical or gas work myself — for that I'll help you line up a trustworthy local pro.

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Is This Spot Really Outdoors?

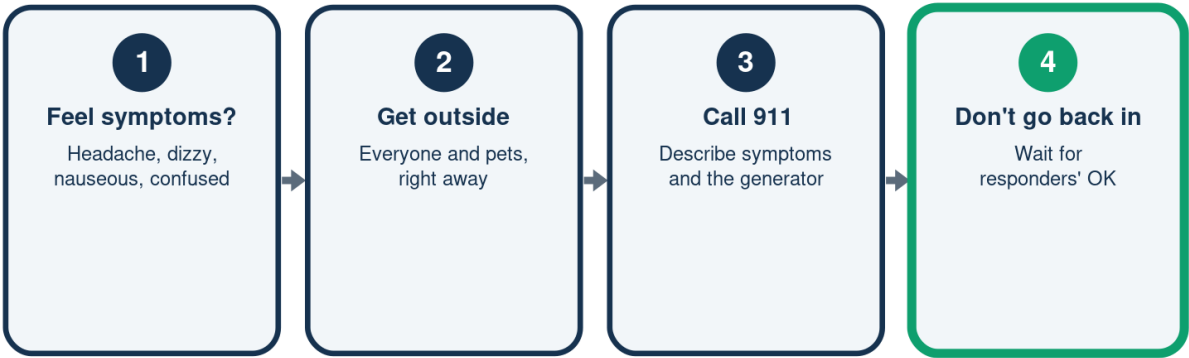
A quick check before you press start

	Safe?	Why
Open yard, 20+ ft away	Yes	True open air
Garage, door open	No	Still enclosed
Covered porch / carport	No	Traps exhaust
Shed or pole barn	No	Same as a garage

If it has a roof and walls, it isn't outdoors -- regardless of open doors or fans.

If You Suspect Carbon Monoxide

Fresh air first, questions later



Fresh air first, questions later -- every single time.

The 20-Foot Rule at a Glance

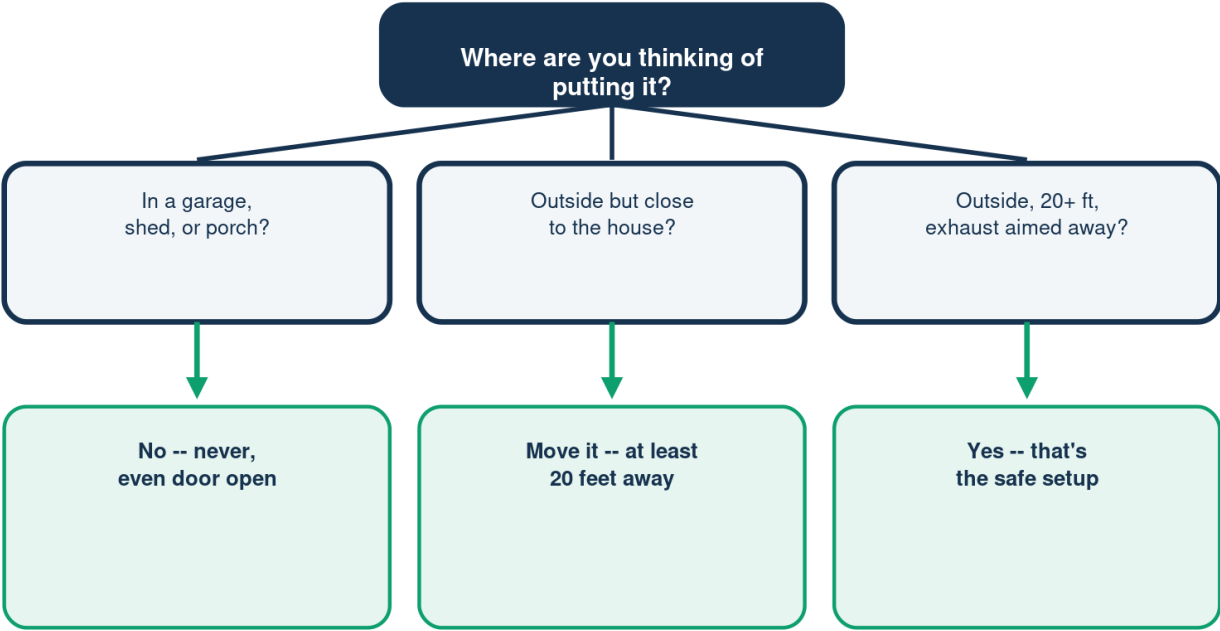
The four things that make a spot safe

	Do this	Why it matters
Outdoors only	No roof,	no walls
20+ feet from walls	CO can't	pool indoors
Exhaust pointed away	Keeps it off	windows & vents
CO alarms inside	Warns you	if it drifts back

Distance, direction, and alarms work together -- none of them alone.

Is This Spot Safe for the Generator?

Let the placement rule decide, not convenience



Still unsure? Treat it as unsafe until you've moved it farther away.

Illustration - a schematic, not to scale. Your setup may differ.



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A Note From Bill

A quick note from Bill.

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— *Bill*



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