



An Extended Guide · No. 1219

Carbon Monoxide Safety

The one chapter
that can save a life

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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. This entire guide is devoted to this one topic, walking through every part of it in depth, because nothing else about a generator matters as much as this does.

Let's talk about the one danger that matters most

Of everything I could teach you about generators, this is the chapter I most want you to actually read. Carbon monoxide is the danger that turns an inconvenience into a tragedy, and it is completely, entirely preventable.

I'm Bill, and in 30+ years of helping folks with the gear in their homes, nothing sobers me faster than a carbon monoxide story on the news. It is almost always preventable — someone ran a generator too close, in a garage, or on a porch, not fully knowing the danger, or thinking 'just this once' would be fine.

This guide is longer and more serious than my other generator guides, on purpose. Read it once carefully, then keep it where you can find it again. If you take nothing else from Bill's Home Tech, take this.

★ You don't have to memorize all of it

This guide is thorough because the topic deserves it, not to frighten you into paralysis. The core rule is simple — outside only, well away from the house — and everything else here just reinforces that one idea from different angles. If you'd like to walk through your own safe setup together, 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 cannot see, smell, or taste it coming.
- ❑ Run the generator OUTSIDE ONLY — never in a garage, shed, carport, basement, crawlspace, or on a porch, even with the door open and a fan blowing.
- ❑ 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 house and outside every sleeping area. Test them.
- ❑ Know the symptoms — headache, dizziness, weakness, nausea, confusion, sleepiness — and get to fresh air immediately if you suspect CO.
- ❑ An automatic CO shutoff is a wonderful backstop. It is not a reason to run the generator any closer.

! This page is worth reading twice

If you only have a minute before the power comes back on and this guide goes in a drawer, make it this page. Everything else expands on these six lines.

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.

Any engine burning gasoline or propane produces carbon monoxide as part of its exhaust — it's simply a byproduct of combustion. A generator's small engine produces it in real quantity, especially compared to the size of a room or garage it might be running near.

The danger is that CO is completely invisible and odorless. It doesn't announce itself with a smell the way a gas leak does. Once inhaled, it binds to your blood far more readily than oxygen does, crowding oxygen out and starving your brain, heart, and other organs — all while you may feel only a vague headache or drowsiness, easy to mistake for being tired.

In an enclosed or partly enclosed space, CO can build to dangerous, even fatal, levels within minutes. That speed is exactly why the rules in this guide are so firm, and why 'I'll just run it in the garage for a few minutes' is never actually a few minutes you can predict or control.

! Why generators are especially risky

A generator's engine runs continuously, often for hours, producing carbon monoxide the whole time — unlike a car that might idle briefly. Combined with its portability and the temptation to tuck it somewhere 'out of the weather,' that's exactly why generators cause so many CO tragedies every year.

Why generators, specifically, are so dangerous

It isn't that generators are uniquely poorly made — it's that the way people naturally want to use them lines up almost perfectly with what makes carbon monoxide dangerous.

- **They run for hours, often unattended.** Unlike a car you'd never leave idling in a closed garage, a generator is left running for the length of an outage.
- **They're portable and tempting to tuck out of the weather.** A garage, breezeway, or covered porch feels like a reasonable, dry compromise — it isn't.
- **They're often used at night, in storms, with the house sealed up.** Windows and doors are shut against the weather at the exact moment CO is being produced right outside them.
- **Outages can knock out CO alarms too,** if they're not battery-backed, at the exact moment they're needed most.
- **People underestimate 'just for a minute.'** Grabbing something from the garage while the generator idles inside it, 'just this once,' is a common, dangerous mistake.

! Every year, dozens of deaths

Carbon monoxide from generators kills dozens of people every year in the United States, almost always traceable to one of the situations above. Every single one was preventable.

The rule: outdoors only, well away from the house

This is the one rule the whole guide orbits around, so let's spell it out completely.

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 from your home, and that distance should be measured to every wall, not just the nearest one — remember the exhaust can drift. Point the exhaust away from your own windows, doors, and vents, including any fresh-air intake for your furnace or air conditioner, and be mindful of the neighbor's windows and doors too.

If you're not sure a spot is far enough or positioned well, err on the side of more distance. There's no such thing as running a generator too far from the house; there is very much such a thing as too close.

! Measure it once, mark it if you need to

Twenty feet is farther than it sounds — about the length of one and a half parking spaces. If you're not confident eyeballing it, pace it off once in daylight before you ever need the generator in an emergency, so you're not guessing in the dark and rain.

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

This is the single most common fatal mistake, so it deserves its own page. Every version of 'partially outdoors' below has killed people.

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, and it drifts into the attached house through every gap around doors, vents, and shared walls — often while people are asleep.

Sheds, carports, porches, and fans

A shed traps exhaust just like a garage does. A carport or covered porch blocks enough airflow to let CO build to dangerous levels nearby, and both sit right next to the house, letting CO drift in through windows and doors. A box fan aimed at a generator in an enclosed space does not clear the air fast enough to matter, and open windows in a garage are not a substitute for being genuinely outdoors.

! If it has a roof and three walls, it is not outdoors

That's the simplest test I know. Outdoors means genuinely in the open air — not a garage, not a shed, not a carport, not a covered porch, regardless of how many doors, windows, or fans are involved.

Carbon monoxide alarms — your early warning

A generator can be placed carefully and CO can still, in unusual conditions — an odd wind, a mistake made once — find its way toward the house. An alarm is your early warning when that happens.

Choose battery-powered or battery-backup carbon monoxide alarms specifically. Plug-in-only alarms are no help in the exact moment you need them most, since you're using the generator 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 exact mounting height and spacing.
- Don't rely on a single alarm for a large or multi-story home.

✓ Test monthly, and mark the replacement date

Press the test button monthly, and replace batteries as the alarm indicates — many chirp on their own when a battery runs low. Most CO alarms also carry a manufacturer's replacement date printed on the unit; 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 the following 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 fatigue
- Nausea or an upset stomach
- Confusion or trouble thinking clearly
- Sleepiness, especially if it feels sudden or out of place

These symptoms mimic the flu or simple tiredness, 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 in the house feels the same vague symptoms at once, take it seriously.

- ☐ Get everyone — and pets — into fresh air outside immediately. Don't stop to open windows or investigate first.
- ☐ Call 911 once you're outside and describe the symptoms and the generator.
- ☐ Do not go back inside for any reason until emergency responders say it's safe.
- ☐ If anyone has collapsed, is struggling to breathe, or won't wake up, say so clearly to the 911 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 sensor that watches the surrounding air and automatically shuts the engine off 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 manufacturers use different marketing names for the same underlying protection.

Here is the part I want to be very clear about: this sensor is a backstop for the unexpected, not a reason to relax any of the rules 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 the generator in a garage or closer to the house '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 candles burning unattended just because you have one. Outdoors, well away, exhaust pointed away, and CO alarms inside remain the real plan. The sensor is what catches you if, despite all that, something still goes wrong.

Propane still makes carbon monoxide

Propane is genuinely cleaner-burning than gasoline, and it's 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 combustion process itself, not from an impurity unique to gasoline. Every rule in this guide — outdoors only, well away, exhaust pointed away, alarms inside — applies exactly the same way to a propane generator.

The same holds for dual-fuel units running on their propane side, and for any generator marketed as lower-emission or similar — lower is real and worth choosing, but it has never meant zero. Treat every generator, of every fuel type, with the same outdoor rule.

! 'Cleaner' is not a placement rule

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

The deadly mistakes people make

Nearly every carbon monoxide tragedy involving a generator traces back to one of a small handful of mistakes. Knowing them in advance is genuinely protective.

- **Running it in the garage 'just for a few minutes'** while grabbing something, with the door up — the most common fatal mistake there is.
- **Running 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.
- **Not having a working CO alarm**, or having one that's plugged in only, dead, or missing its battery during the very outage it was needed for.
- **Falling asleep or leaving it running unattended overnight** without alarms in place, so no one is awake to notice symptoms.
- **Assuming an open door or a fan solves the problem**, covered in depth earlier in this guide.

! None of these people thought it would happen to them

That's the sobering truth behind nearly every CO death connected to a generator — it was never anyone's plan. It was a shortcut taken once, in the rain, in the dark, in a hurry. The rules in this guide exist precisely for those moments, not just the calm ones.

Two kinds of homes, two sets of needs

Where you live changes exactly how the outdoor rule plays out, 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 just yours.

- Attached garages are common — resist the very strong temptation to run it just inside the doorway or on the attached porch.
- Measure 20 feet in more than one direction; a small lot may mean the only clear spot is toward the street or a side yard, not the backyard you pictured.
- Point the exhaust away from the neighbor's windows and doors as carefully as your own.
- A tighter lot is exactly when a written plan for where the generator goes, made in daylight, pays off most.

If you are out in the country on a well

More open space makes finding a safe spot easier, but rural outages tend to run longer, and a generator running unattended overnight for days is exactly when alarms and good habits matter most.

- Take advantage of the extra space — there's rarely a good reason to place it close to the house when you have acres to work with.
- Resist using a detached garage, pole barn, or lean-to as the spot 'since it's not the house' — the same rules apply to every structure.
- Longer outages mean more overnight running — make sure every alarm has fresh batteries before the generator ever starts.
- If you're further from other houses and from emergency services, treat CO alarms and checking on each other as even more essential, not less.

★ Want a second set of eyes on your spot?

Whether your lot is 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 practical to reach in bad weather. Call (330) 200-8042.

Other carbon monoxide risks during an outage

Outages often bring out other fuel-burning things too — and the same danger applies to all of them, not just the generator.

- **Charcoal or gas grills** used indoors or in a garage 'to cook something quick' — another leading cause of CO poisoning during outages.
- **Camp stoves and propane heaters** not rated for indoor use, brought inside to save warmth.
- **A gas fireplace or furnace** with a blocked or snow-covered vent.
- **A car left running in an attached garage** to charge a phone or stay warm, door up or not.

! One set of alarms protects against all of it

This is one more reason whole-home CO alarm coverage matters beyond just generator season — it's protecting you from every fuel-burning risk under your roof, not just the one this guide is about.

Building your family's CO safety plan

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

- ❑ Alarms installed on every level and outside every sleeping area, tested and dated.
- ❑ A pre-picked, paced-off spot outside, at least 20 feet from the house, for the generator.
- ❑ Everyone in the house knows the symptoms and the rule: fresh air first, then call 911.
- ❑ A flashlight or headlamp near the generator's storage spot, so 'it was too dark to see' is never the reason for a bad placement decision.
- ❑ Younger or hard-of-hearing household members have a way to be woken by the alarm — check the manufacturer's options if needed.

✓ Practice it once, calmly

Walk through the plan with your household on an ordinary day, not during an actual outage. Point out where the generator will go and where the alarms are. Five calm minutes now beats a confused rush 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 with heart or lung conditions, or who is pregnant, can be affected faster and more severely. Pets are affected too, and can sometimes show distress before people notice anything themselves.

For older adults especially, early CO symptoms — a headache, feeling tired, feeling a little foggy — can be easy to write off as an ordinary bad day. If a generator is running anywhere nearby, I'd rather you check in on a symptom that turns out to be nothing than explain it away.

★ This is exactly why I ask

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

If you suspect it's already happened

What to do in the hours and days after a real CO scare, once everyone is safely outside and 911 has been called.

- ❑ Don't go back inside until firefighters or emergency responders say it's safe, even if you feel better standing outside.
- ❑ Get checked by a doctor or emergency room even if symptoms fade quickly — CO effects can be delayed or come back.
- ❑ Have someone look at why it happened — placement, wind direction, a dead alarm battery — before you run the generator again.
- ❑ Replace or have alarms tested if they didn't sound when they should have.

! There's no such thing as overreacting here

A scare that turns out to be minor is still worth a medical check and an honest look at what went wrong. Treat it as a warning that deserves a real response, not something to shrug off once the headache fades.

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. You get no warning without an alarm.
'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.
'Propane doesn't make CO.'	It makes less than gasoline, but still makes CO. The outdoor rule still applies.
'A CO shutoff means I can run it closer.'	The shutoff is a backstop for the unexpected, not a placement rule.
'I'd wake up if something were wrong.'	CO can make you sleepier, not more alert — it can happen while you sleep, undetected without an alarm.

! 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.

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.

Q: Where exactly should I put mine?

Somewhere outdoors, at least 20 feet from the house, with the exhaust pointed away from every window, door, and vent — ours and the neighbor's. Pace it off once in daylight.

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 do I do if an alarm goes off and I don't feel sick?

Treat it the same as if you did — get to fresh air immediately and call 911. Don't wait to feel 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 — that's exactly why the placement 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 actually become dangerous?

It can build to dangerous, even fatal, levels within minutes in an enclosed or partly enclosed space — there usually isn't time to notice and react if you're already inside.

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

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

! 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 in this guide points back to the same handful of ideas: outdoors, well away, exhaust pointed away, alarms inside, and a CO shutoff as your backstop.

Where exactly to place the generator for rain, snow, heat, and keeping the peace with neighbors — beyond the carbon monoxide distance rule — is its own topic, and our guide on placement and running it in bad weather covers it in depth. The rule in this guide about distance and direction still applies no matter the weather.

And if you're still working out what size generator to buy in the first place, our sizing guide walks through that calmly, without any wattage guesswork.

★ Let's set up your safe spot together

On a visit, I'll help you pace off a genuinely safe spot for your generator, 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 others combined.

Run it outside. Not the garage, not the shed, not the porch. Outside, well away from the house, exhaust pointed away. Everything else in this guide — 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 guide.

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 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 It Really Outdoors?

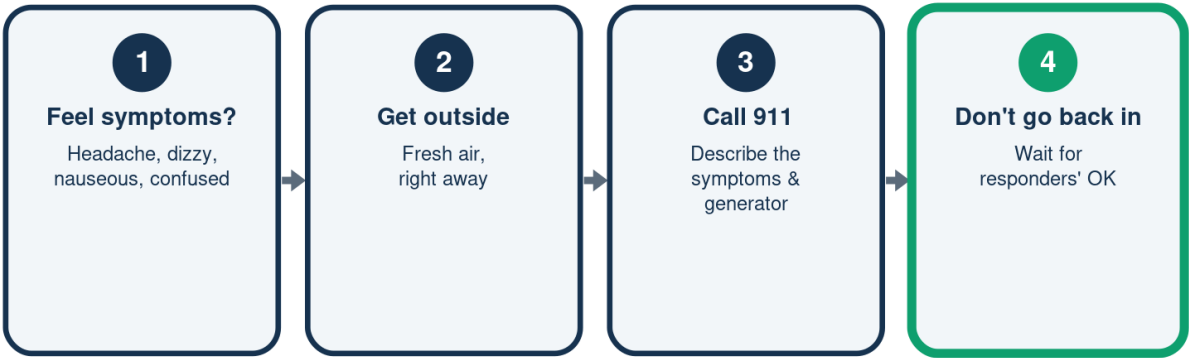
A quick check before you press start

	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.

CO Alarms -- The Essentials

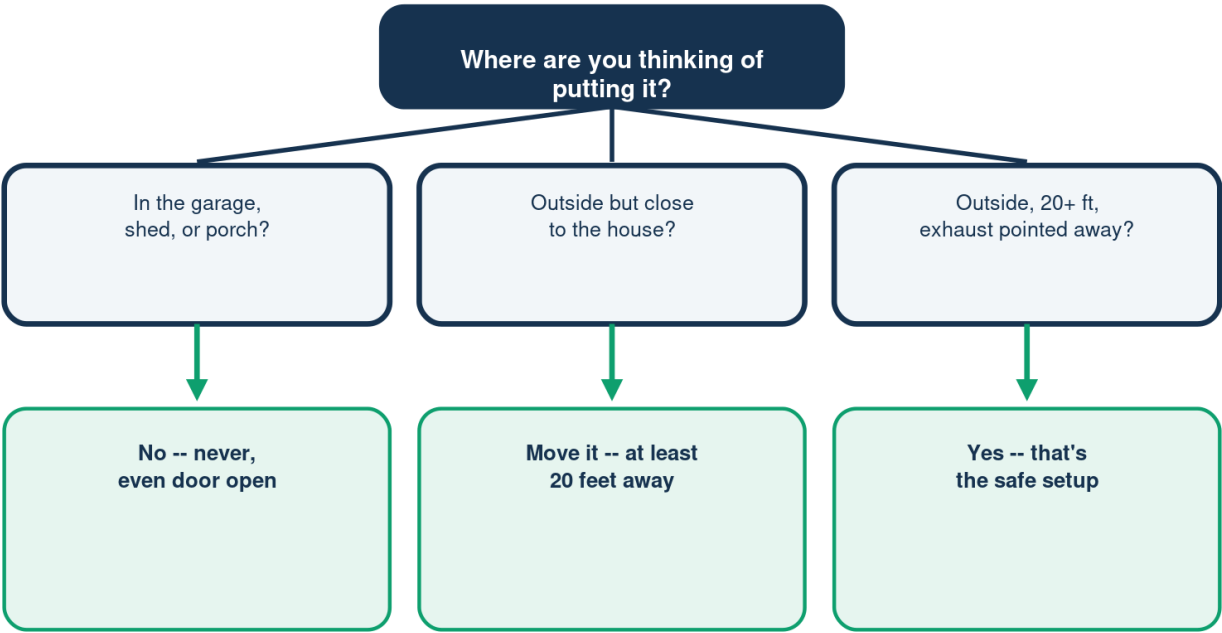
What a real alarm plan looks like

	What to do	Why
Battery-backup type	Works when	the power is out
Every level of home	No floor	goes uncovered
Outside bedrooms	Close enough	to wake you
Test monthly	Confirms it's	actually working

An alarm that isn't tested is just a decoration.

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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