BILL'S HOME TECH

Home & Small Business Tech Solutions

An Extended Guide · No. 1606

Sizing a Portable Generator to Your List

Matching a portable unit to your real number

Tech Made Simple — Service Made Personal

BillsHomeTech.com · (330) 200-8042 · Atwater, Ohio

Free & printable — share it with someone who needs it

Book a visit —
billshometech.com/book

! Read this first — size for safety, not just comfort

Getting the size right is not only about comfort — it is about safety, too. An undersized unit gets overloaded and pushed harder than it should be: it runs hot, it strains, and a motor that can't get the surge it needs can hum, overheat, and be damaged. So take the size seriously and always leave yourself a margin — a little extra room — rather than sizing right to the edge. And one safety rule never changes: any fuel-burning generator gives off carbon monoxide, an invisible, deadly gas, so it runs OUTDOORS ONLY, well away from the house (the safety agencies say at least 20 feet), never in a garage or on a porch even with the door open. A battery or power station makes no exhaust and is safe to use indoors. A portable generator is only as safe as the match between its ratings and your list — undersize it and it runs hot and strains, so read the honest rated number, not the big bold peak, and leave yourself real headroom.

Turning your number into the right portable

You've done the hard part — you have a number, or you're close. This guide is about the next step: matching that number to the right portable generator, without getting fooled by the marketing.

I'm Bill. A portable generator is the workhorse of home backup — flexible, affordable, and enough for a great many homes. But the box it comes in is designed to sell you, and the biggest number printed on it usually isn't the one you should size by. I'll help you see past that.

The whole trick is that a generator, like your appliances, has two watt numbers — a steady one and a surge one — and each has to be matched to the right part of your list. Get that match right and everything runs calmly. Get it wrong and the unit strains at exactly the wrong moment.

★ Let's match a unit to your list together

Tell me your running-plus-surge number and what's on your must-run list, and call or text me at (330) 200-8042. I'll help you find a portable with the right ratings and outlets — free, and I sell no equipment, so there's nothing in it for me but helping you.

The whole idea, on one page

If you remember only this page, you can shop for a portable without getting talked into the wrong one.

- ❑ A portable has two ratings: running (or rated) watts for steady work, and starting (surge or peak) watts for a brief motor jolt.
- ❑ Match the running rating to your steady running total, and the surge rating to your single biggest motor's jolt.
- ❑ Don't size by the big bold number on the front — that's usually the brief peak, not the honest steady figure.
- ❑ For a 240-volt load like a well pump, you need a 120/240-volt unit with a 240-volt outlet, not a 120-volt-only one.
- ❑ Leave a comfortable margin above your number — but don't massively oversize either.
- ❑ A reputable maker's rated watts is the figure to compare from one unit to the next.

> **✔ The one-sentence version**
> Pick a unit whose rated watts clear your steady total and whose surge rating clears your biggest single jolt, with headroom — and judge it by the rated number, not the peak.

Start with your number, not the store

Before you look at a single unit, you want a number in hand. Otherwise the store sizes you, and the store's incentives aren't yours.

Your number comes from your own list, in three moves our worksheet guide lays out step by step: add the running watts of everything you'd run at once, add the single biggest surge on top, then add a comfortable margin. That gives you two figures to shop with — a steady total and a surge total.

If those words feel new, our running-watts-versus-starting guide explains the two-number idea in full. Come back here once you have your figures, and we'll match them to a unit.

> **✔ Two figures, not one**
> You're really carrying two numbers into the store: how much steady power you need, and how big a single jolt. A portable has a rating for each, so keep them both in mind.

The two ratings a portable advertises

Every portable lists two watt numbers, and they do very different jobs — just like the two numbers on your appliances.

The **running** (or **rated**) watts is what the unit can supply steadily, hour after hour. That's the honest working figure, and it's what you compare from one unit to the next. The **starting**, **surge**, **peak**, or **maximum** watts is the brief burst it can deliver for a moment to help a motor start.

Both matter, for different reasons: the running rating has to cover everything you run at once, and the surge rating has to cover your biggest single motor jumping to life on top of that. Two ratings, two jobs.

> **✔ Rated is the number you live with**
> Think of the rated watts as the power you actually get to use all day, and the surge as a brief helping hand for starting motors. You size your steady life around the rated number.

Don't be fooled by the big bold number

This is the single most common way folks end up with the wrong portable — so it's worth its own page.

Marketing loves the largest figure. The number printed hugest on the box and in the ad is very often the peak or maximum — the brief burst — not the steady rated watts the unit delivers all day. A unit that shouts one big number may quietly supply quite a bit less for steady work.

So when you read a spec, hunt for the smaller 'rated' or 'running' figure nearby. That's the honest one. Our running-watts-versus-starting guide digs into why the peak and the rated numbers differ, if you'd like the full picture.

> **! The headline number is usually the peak**
> If a unit brags a single giant number in huge type, treat it with suspicion until you find the rated watts. Sizing by the peak is how people end up with a generator that can't actually carry their steady load.

Match the running rating to your steady total

Here's the first half of the match: the everyday, all-day fit.

Take your steady running total — everything you'd have on at once — and make sure the unit's running (rated) watts clears it with room to spare. This is the number that keeps the fridge cold, the lights on, and the furnace blower turning for hours on end, so it needs honest headroom, not a squeaker.

If your steady total sits right at a unit's rated watts, that unit is too small — it would run flat-out with nothing in reserve. Step up so the unit loafs comfortably under its steady load. Our guide on margin and headroom explains just how much cushion is sensible.

> **✔ Steady load lives under the rated line**
> Everything you run all at once should sit comfortably below the unit's rated watts — never right at it. That comfort is what lets the unit handle a surge without stumbling.

Match the surge rating to your biggest jolt

Now the second half: the brief, dramatic moment when a motor kicks on.

Find your single biggest motor's starting surge — often the well pump on a rural list, or the fridge or air conditioner in town — and make sure the unit's surge (peak) rating clears it, on top of whatever's already running steadily. You size for the one biggest jolt, not the sum of every motor, because motors essentially never start at the same instant.

This is where the surge rating earns its keep. A unit can have plenty of steady rated watts and still fail to start a big motor if its surge rating comes up short. Check both ratings against both of your numbers.

> **! A short surge leaves a motor humming**
> If the surge rating can't cover your biggest jolt, that motor won't start — it'll hum, strain, and the unit will bog down. Forcing it over and over can damage both. When your surge sits near the line, size up.

The voltage fork: 120V-only or 120/240V

Beyond the watt numbers, there's a fork in the road that decides which units can even do your job.

Some portables put out only 120 volts — the ordinary household kind you get from a wall outlet. Others put out both 120 and 240 volts, with a special 240-volt outlet. The difference is about what you need to run, not just how much.

Ordinary things — lights, the fridge, the furnace blower, chargers — run on 120 volts, so a 120-volt-only unit and a few good cords can cover a lot of in-town essentials. But a 240-volt load, like most well pumps, an electric water heater, or a range, can only be fed by a 120/240-volt unit.

> **✔ Ask what voltage your must-haves need**
> Look at your list and note anything at 240 volts — usually the well pump, water heater, dryer, or range. If any of those must run, you need a 120/240-volt unit; if not, 120 volts may be plenty.

The 240-volt outlet and the well pump

If a well pump is on your list, this page is the one that shapes your whole choice.

A 240-volt well pump can't be run off an ordinary extension cord. It needs a 120/240-volt unit with a 240-volt outlet, connected to your home through a transfer switch or interlock at the electrical panel — and that panel work is a licensed electrician's job. The pump is also usually the biggest surge on the property, so it wants generous surge headroom too.

So a well pump drives two decisions at once: a 120/240-volt unit with enough surge, and a proper hookup. Our guide on sizing for a well pump goes deep on the surge, and our guide on your transfer switch's circuit count covers the wiring side.

> **★ I'll help plan the unit and the hookup**
> The well pump ties the size and the connection together. Call or text me at (330) 200-8042 and I'll help you pick a 120/240-volt unit with the right surge — and line up a licensed electrician for the transfer switch.

How fuel type nudges available power

The fuel a portable burns changes a few things — including, a little, how much power you actually get.

Many portables run on gasoline; some run on propane; and dual-fuel units let you switch between the two. From the very same engine, propane usually yields a little less available power than gasoline does. It's a modest difference, but worth knowing when your math sits near a line.

Propane has its own conveniences — it stores for years and burns cleaner — so the choice isn't only about power. This guide stays in the sizing lane; our guide to choosing a portable generator weighs the fuel types in full.

> **✔ Size with your real fuel in mind**
> If you plan to run mostly on propane, remember the unit gives a touch less than its gasoline rating, and leave a bit more headroom to match. When in doubt, size to the leaner figure.

Two kinds of homes, two sets of needs

Which portable fits you depends a great deal on where you live — and, above all, on whether a well pump is on your list.

If you live in town or the suburbs

In town or a close-in suburb, you're usually on city water and your must-run list is lighter — the fridge, some lights, the furnace blower, the internet. A 120-volt portable and a few good cords can often carry it.

- With no well pump, your biggest surge is usually the fridge or a window air conditioner — a modest jolt.
- A 120-volt-only unit fed by cords to a few essentials is frequently enough.
- Match the rated watts to your steady total and the surge to that fridge or AC, with margin.
- If you'd like it quieter for close neighbors, see our guide on sizing an inverter generator.

If you are out in the country on a well

Out on a well, the portable has a bigger job. The well pump is a 240-volt motor with a large starting surge — usually the single biggest number on your list — and no power means no water at all.

- You need a 120/240-volt unit with a 240-volt outlet — a 120-volt-only portable simply can't run the pump.
- Size the surge rating around the pump's big 240-volt jolt, with generous headroom, since it's likely your largest.
- The pump connects through a transfer switch or interlock at the panel — a licensed electrician's install.
- Store several days of drinking water and fuel; rural outages run longer. Our guide on sizing for a well pump goes deeper.

> **★ Town or country, I'll help you match the unit**
> In town the choice is often a simple 120-volt portable; on a well it's a 120/240-volt unit sized around the pump. Tell me your list at (330) 200-8042 and we'll find the right fit — and coordinate the electrician if you need a transfer switch.

Leave yourself real headroom

A portable sized right to your number is a portable that never gets to rest. Give it room to breathe.

Running an engine flat-out, right at its rated ceiling, hour after hour makes it run hot, strain, and wear faster — and it leaves nothing in reserve for the moment something extra clicks on. A comfortable cushion above your calculated number keeps the unit relaxed and ready.

Headroom also quietly absorbs the things that shave power away: a hot day, a long or thin extension cord, running on propane, higher altitude. Our guide on margin and headroom explains how those add up and how much cushion is wise.

> **✔ Comfortable, not maxed out**
> A generator loafing at a comfortable fraction of its rating will start your motors more easily, run cooler, and last longer than one straining at its limit. Headroom is cheap insurance.

But don't massively oversize, either

Headroom is good; a giant unit you'll never load is a different kind of mistake.

It's tempting to think bigger is always safer, but too much unit has real costs. A larger portable weighs more (harder on the back and the arthritis), drinks more fuel for the same work, and takes more room to store. And a big engine run lightly loaded all the time isn't good for it — engines like to work.

So aim for a sensible cushion above your number, not the biggest unit on the lot. The right size is the one that carries your list comfortably, starts your biggest motor with room to spare, and doesn't punish you every time you move or fuel it.

> **✔ The right size, not the biggest size**
> Match the unit to your real list with a comfortable margin. That's kinder to your budget, your back, and the engine than chasing the largest number you can find.

Where a portable fits among the choices

A portable is one of three main kinds of generator, and knowing where it shines helps you feel sure of your choice.

A **portable** is flexible and affordable — you roll it out when you need it, feed cords or a transfer switch, and put it away after. It covers everything from a few essentials to a whole rural must-run list with a well pump, as long as you size it right.

An **inverter** generator makes cleaner, quieter power and sips fuel under light loads — lovely for electronics and close neighbors. A **standby** is permanently installed and starts itself automatically. Our guides on sizing an inverter generator and on a standby with load management cover those in full.

> **✔ The portable is the flexible middle**
> For most homes, a well-sized portable is the practical sweet spot between a small battery setup and a permanent standby. It asks a little of you at outage time, and rewards you with flexibility and value.

Connecting a portable safely

How you connect a portable is as important as how you size it — and one shortcut can be deadly.

For 120-volt essentials, heavy-duty outdoor extension cords from the generator to each appliance are simple and safe. To power household circuits — and always for a 240-volt load like a well pump — you use a transfer switch or interlock installed at your panel by a licensed electrician. Our guide on your transfer switch's circuit count explains how that choice shapes sizing.

And wherever the generator sits, it sits outdoors. A fuel-burning unit gives off carbon monoxide, an invisible, deadly gas, so it runs well away from the house, never in a garage or on a porch even with the door open.

> **! Never back-feed the panel with a suicide cord**
> Plugging a generator into a dryer outlet with a double-ended cord can electrocute a lineman working to restore your power and can start a fire. A transfer switch or interlock, installed by a licensed pro, is the only safe way to feed your circuits.

Common portable-sizing mistakes

Nearly all portable-generator regret traces back to a handful of avoidable slip-ups. Now you'll spot them coming.

- **Sizing by the big peak number** instead of the honest running (rated) watts.
- **Buying a 120-volt-only unit** and then discovering the well pump or another 240-volt load can't run on it.
- **Sizing right to your number** with no headroom, so the unit runs flat-out and stumbles when a motor starts.
- **Forgetting the surge rating,** so the unit carries the steady load but can't start the biggest motor.
- **Planning the size but not the hookup,** then having no safe way to feed the house.

> **! The costliest mistake is guessing low**
> An undersized portable strains, runs hot, and can leave a motor humming and unstarted. When your math sits near the line between two sizes — especially with a well pump — it's almost always worth stepping up.

Questions worth asking before you buy

Whether you're talking to a salesperson or to me, these get you to the truth about a portable.

Q: Is that the running watts or the peak watts?

Always ask which number a quoted figure is. You want the running (or 'rated') watts for steady work, and a separate, larger surge figure for starting motors.

Q: Does it put out 240 volts, with a 240-volt outlet?

You need that for a well pump or any hardwired 240-volt load. If your list is all 120-volt essentials, you may not — but check before you buy.

Q: Will it start my biggest motor, not just run it?

Make sure the surge rating clears your biggest single jolt, on top of your steady load, with room to spare. Starting a motor and running it are different asks.

Q: What do I actually get on propane versus gasoline?

From the same engine, propane usually gives a little less. If you'll run on propane, size to that leaner figure and leave a bit more headroom.

> **✔ There's no silly question**
> If the ratings still feel slippery, that's normal — call or text me at (330) 200-8042 and we'll match a unit to your list together.

When to bring in a licensed pro

Some parts of this are squarely a professional's job, and knowing which keeps you safe and saves you money.

Any panel work — a transfer switch, an interlock, a 240-volt circuit for the pump — is a licensed electrician's install, usually with a permit. And when you're covering a whole house or your math sits near a line, a licensed electrician can do a proper load calculation and even measure your real draw. Our guide on when to get a professional load calculation walks through what to expect.

I'm a tech helper, not an electrician — but coordinating a trustworthy one is part of what I do. I'll gather your list and your nameplates so the pro can move fast, and help you make sense of what they recommend.

> **★ I'll get you ready for the electrician**
> Once you know your number and your must-run list, call or text me at (330) 200-8042. I'll help you pick the unit and line up the licensed electrician for the hookup — so the two halves of the plan fit together.

Common Questions

The portable-generator sizing questions I hear most, answered plainly.

Q: The box shows one huge number — is that the size I get?

Usually not for steady work. That's typically the brief peak. Look for the smaller 'running' or 'rated' watts — that's what the unit delivers all day, and the figure to size by.

Q: Can a portable run my whole house?

A large portable can cover a whole rural must-run list, but true whole-home coverage often points to a standby unit with load management. See our guide on sizing a standby generator.

Q: Why won't my well pump start on my portable?

Either the surge rating is too small, or the unit isn't set up for 240 volts. A 240-volt pump needs a 120/240-volt unit with a 240-volt outlet and generous surge headroom.

Q: How do I connect it to my house?

For 120-volt essentials, heavy-duty outdoor cords. For household circuits or a 240-volt load, a transfer switch or interlock installed by a licensed electrician — never a back-feeding cord.

Q: Should I get a bigger one just to be safe?

A comfortable margin is wise, but a giant unit weighs more, burns more fuel, and doesn't like running lightly loaded. Aim for the right size with headroom, not the biggest on the lot.

> **★ Still weighing a portable?**
> Send me your list and your number at (330) 200-8042, and we'll match it to a unit with the right ratings, outlets, and headroom — at your pace.

A quick self-check at your kitchen table

You can pressure-test your choice in about a minute with these questions.

- ❑ I have my two numbers — a steady running total and my biggest single surge.
- ❑ The unit's rated watts clear my steady total, with comfortable headroom.
- ❑ The unit's surge rating clears my biggest motor's jolt, on top of the steady load.
- ❑ If I have a 240-volt load, the unit is 120/240-volt with a 240-volt outlet.
- ❑ I've planned the hookup — cords for essentials, or a transfer switch by an electrician.
- ❑ I sized by the rated number, not the big bold peak.

> **✔ If any answer is 'not sure', that's fine**
> That's exactly what a friendly phone call is for. Reach me at (330) 200-8042 and we'll fill in the blanks together.

Bringing it all together

Sizing a portable comes down to a clean match: two of the unit's numbers to two of yours, judged by the honest rating.

Match the rated watts to your steady total, match the surge rating to your biggest jolt, add comfortable headroom, and make sure the voltage and outlets fit what you need to run. Size by the rated figure, not the peak, and plan the hookup alongside the size.

From here, our running-watts-versus-starting guide explains the two numbers, our guide on margin and headroom sets your cushion, and our guides on inverter and standby generators help you compare a portable with the other kinds.

> **★ Let's pick the right portable together**
> If you'd rather talk it through than puzzle it out on paper, that's exactly what I'm here for. Call or text me at (330) 200-8042 with your list and your number — free, with nothing to sell you.

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 sizing a portable generator to your list 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.

> **★ Bill's Home Tech — real help, close to home**
> Call or text me at (330) 200-8042, or visit BillsHomeTech.com. Serving Atwater and all of Portage County. 30+ years of patient, plain-English tech help — and if you're ever not 100% happy with a visit, I'll make it right or refund it. That's a promise. — Bill

Matching a Portable to Your Number

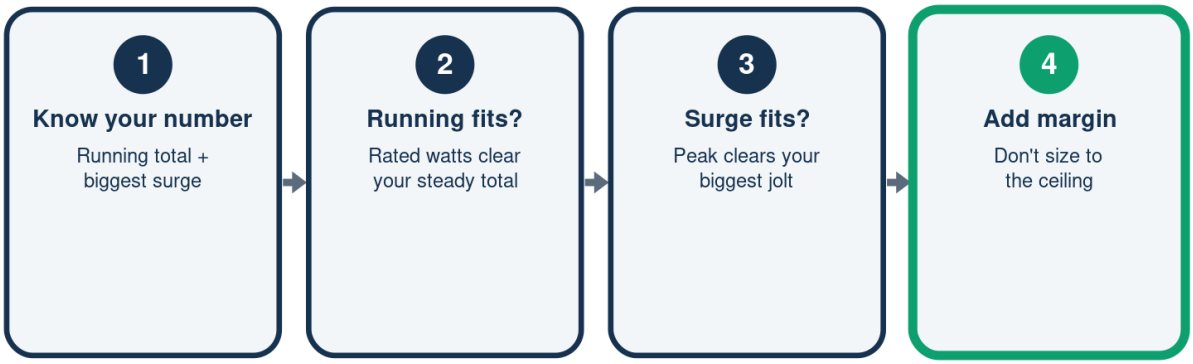
Two of the unit's ratings, matched to two of yours

	Unit's rating	Match it to...
Steady work	Running / rated	Your steady total
Motor starts	Surge / peak	Your biggest jolt
240-volt loads	120/240V outlet	Well pump, range
Cushion	Rated, not peak	Add margin on top

Match the running rating to your steady total, the surge rating to your biggest single jolt.

Four Steps to the Right Portable

Take your number to the store, not the other way round



Compare against the honest rated number -- not the big bold peak.

120-Volt-Only vs. 120/240-Volt

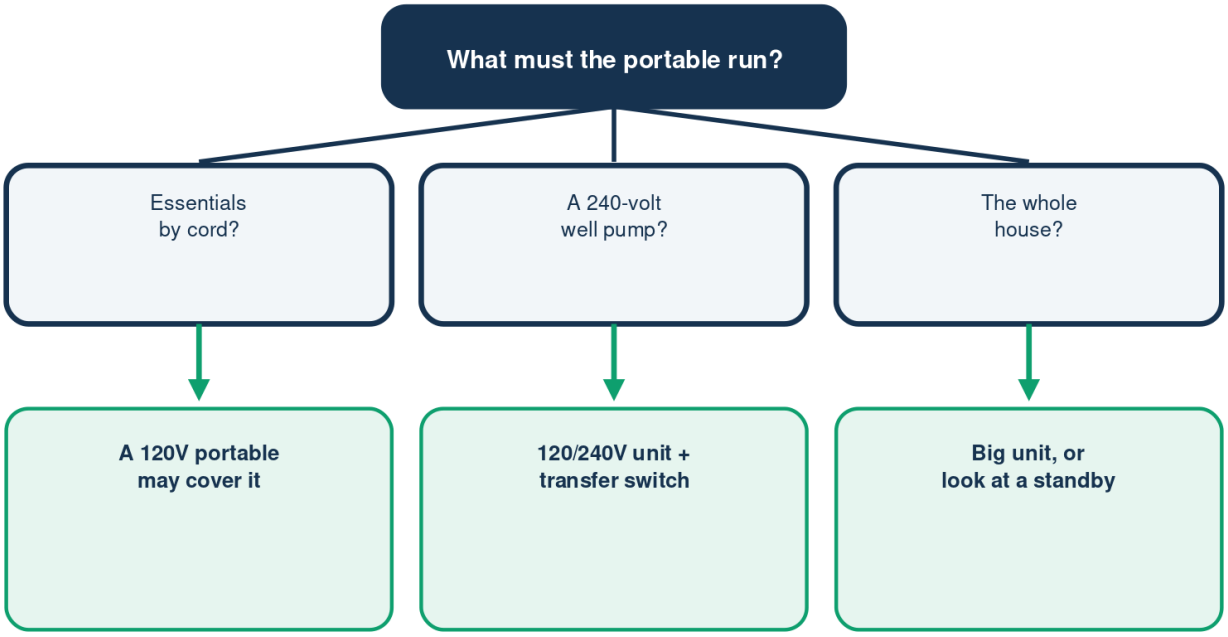
What each kind of portable can and can't do

	120V only	120/240V
Lights, fridge	Yes, by cord	Yes
Well pump (240V)	No	Yes, w/ headroom
Hardwired loads	No	Via transfer sw.
Best for	Town essentials	Rural, big lists

A 240-volt well pump needs a 120/240-volt unit with a 240-volt outlet.

What's on Your List?

Let your must-run list point to the size



Hardwired 240-volt loads need a licensed electrician for the transfer switch or interlock.

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

BILL'S HOME TECH

Home & Small Business Tech Solutions

Need a Real Person?

You do not have to remember all of it.
You just have to remember you can call.
Friendly, in-home tech help -- I come to you.

BILL'S PROMISE

If you are not 100% happy with a visit, I will make it right -- or refund it. No awkwardness, no fine print. That is how I would want to be treated.

(330) 200-8042 · BillsHomeTech.com

Bill@BillsHomeTech.com · Mon–Sat 9:00 AM – 7:30 PM

— Bill

Prefer help without a visit?

Bill can screen-share and fix many things remotely — a flat $49, free for Support Plan members.

BILL'S HOME TECH
Home & Small Business Tech Solutions

A Note From Bill

A quick note from Bill.

I write these guides to make home tech a little less frustrating, and I do my best to keep every step accurate and up to date. Still, every home, device, and setup is a bit different, so I can't promise a guide will match yours exactly or fix your particular problem. These guides are for general information only — they're not professional, legal, or financial advice, and they don't replace your device's own manual or the manufacturer's instructions. Please go slow, use your own good judgment, and use everything here at your own risk. If a step involves electrical wiring, a gas appliance, a water heater, plumbing, or climbing a ladder — or if anything just doesn't feel safe — please stop and call a licensed professional (or give me a call at 330-200-8042). Bill's Home Tech and Bill Davis can't be responsible for any damage, data loss, or injury that comes from using these guides. Thanks for reading, and stay safe out there.

— Bill

Book a visit —
billshometech.com/book

(330) 200-8042 · BillsHomeTech.com
Bill@BillsHomeTech.com · Mon–Sat 9:00 AM – 7:30 PM