



An Extended Guide · No. 1558

Wind, Weather, and Staying Anchored

How an array is built to
take what Ohio throws at it

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! Read this first — two honest truths about ground-mount solar

Two honest truths before we start, because they surprise a lot of good folks. First, a ground-mounted solar array is a professional job. It takes a licensed installer, real foundation work in your yard, building and electrical permits, and your utility's approval to connect (that approval is called interconnection). This guide is here to help you understand, plan for, and evaluate a ground mount; it is not a do-it-yourself project, and I never want you digging footings, wiring an array, or opening an electrical panel. Second, a plain grid-tied solar system — roof or ground, without a battery — shuts itself off during a power outage, even in bright sunshine. That is a required safety feature, so the system cannot put electricity onto the lines while the crews are repairing them. If keeping the lights on during an outage matters to you, you will need a battery, and we will talk about that plainly. A ground array is engineered to stand up to the wind and snow your particular site sees — that's a job for a professional and an engineer, and it's a big part of why this is never a do-it-yourself build.

Built to take what Ohio throws at it

It's a fair question: that array is standing right out in the open, so how does it take the wind, the snow, and the odd wild Ohio storm? The short answer is that it's engineered to — and understanding how puts most of the worry to rest.

I'm Bill, and I run Bill's Home Tech here in Portage County, Ohio. For 30-plus years I've helped folks feel confident about the gear around their homes, in plain words. The structural side of solar can sound intimidating, but the core idea is reassuringly simple, and I'll keep it that way.

Here's the thing to hold onto: a proper ground array isn't just planted in the yard and hoped for. It's designed by professionals to handle the specific wind and snow loads your site can expect, and it's permitted and inspected to prove it. My job here is to help you understand that — not to hand you numbers, because the numbers belong to the engineer.

★ Worried your array won't stand up to a storm?

It's a sensible thing to ask about, and the answer is more comforting than you'd think. Tell me your concern and I'll explain it plainly. Call or text me at (330) 200-8042.

The whole idea in under a minute

If you read nothing else, read this. Here's how a ground array stays put through weather, in a handful of plain points.

- ❑ A ground array is engineered to your site's wind and snow loads — by design.
- ❑ An engineer and the building department set those loads, not guesswork.
- ❑ The footings and frame are sized and anchored to hold it all down.
- ❑ Open, exposed sites see more wind; the design accounts for that.
- ❑ Panels are generally tough and hail-rated, but nothing is storm-proof.
- ❑ Keeping the hardware tight over the years is part of ordinary upkeep.
- ❑ For severe weather, homeowner's insurance matters — and repairs are a pro's job.

✓ Trust the engineering, then maintain it

The reassurance here comes in two parts: a properly engineered array is built to take your local weather, and keeping an eye on the hardware over time keeps it that way. Design plus upkeep — that's the whole story.

Engineered to your local loads

The single most reassuring fact about a ground array is that it's not guessed at — it's engineered to stand up to what your site can throw at it.

Every proper ground mount is designed to handle the wind and snow 'loads' expected where you live. That means a professional works out how hard the wind can push and lift, and how much snow can pile on, and then sizes the footings, the frame, and the anchoring to take it with a margin of safety built in. It's the same kind of thinking that goes into any sound structure.

This is exactly why a ground array is a professional, permitted job — and never a do-it-yourself one. Getting the structure right takes real engineering judgment about your soil, your exposure, and your climate. You don't need to do that math; you need an installer and, where required, an engineer who do.

✓ Designed, not guessed

The peace of mind is in the word 'engineered.' Your array isn't standing on hope — it's sized by people whose job is to make sure it holds, and checked by an inspector before it's signed off.

What 'loads' actually means

'Load' is just the engineer's plain word for a force pushing on the structure. Two matter most for a ground array, and neither is mysterious.

Wind load is the force of the wind — and it works two ways. Wind pushes sideways against the panels, and because the panels sit at a tilt like a big flat sail, wind can also get under them and try to lift the whole array up. The design has to resist both the push and the lift.

Snow load is simpler: it's the weight of snow piling up and pressing down on the panels and frame. In our climate that can add up, so the frame and footings are sized to carry it. Put the two together — wind trying to shove and lift, snow bearing down — and you have the main forces the structure is built to shrug off.

✓ Push, lift, and weight

That's really all 'loads' come down to: wind pushing sideways, wind trying to lift the array like a sail, and snow pressing down. A good design handles all three at once, so you never have to think about them.

Who sets the numbers — and why it isn't me

You'll notice I'm not quoting you any figures for wind speed or snow weight. That's deliberate, and it's the honest way to do it.

The actual load figures come from established engineering standards — the one engineers design to is called ASCE — and from your local building code, which reflects the weather where you live. Your installer and, where it's called for, a licensed engineer apply those standards to your specific site to size everything properly.

So if anyone quotes you a snappy number for how much wind or snow 'any' array can take, be a little skeptical — the real answer always depends on your site and comes from the engineering, not from a brochure or a chat with me. I'll teach you the ideas; the numbers rightly belong to the professionals and the code.

✓ General ideas from me, real numbers from the engineer

My job is to make sure you understand what's being designed and why. The specific loads, sizes, and depths come from your engineer and your building department, sized to your site and our Ohio code. That's exactly as it should be.

Open, exposed sites see more wind

Not every yard sees the same wind, and where your array stands changes what it has to withstand. It's common sense, and the design reflects it.

An array out in the open — the middle of a field, the top of a rise, a spot with nothing upwind for a long way — catches more wind than one tucked among trees and buildings. That's why 'exposure' is one of the things an installer weighs when planning: a more exposed site simply gets a design built for stronger wind.

This is mostly a rural consideration, where open acreage means open exposure. It doesn't mean an exposed spot is a bad spot — often it's the sunniest one — it just means the structure is engineered accordingly. The wind is accounted for; you don't lose the good sun over it.

✓ Exposure shapes the design, not your choice of spot

A windy, open site can still be the right site — the engineering just rises to meet it. Pick the spot with the best sun and let the design handle the wind; that's the professional's job, not a compromise you have to make.

The footings do the holding down

All that wind and snow ends up in one place: the foundation. It's the footings that ultimately keep the array anchored to the earth.

Whatever the wind tries to push or lift, and whatever the snow presses down, the loads travel through the frame and into the footings — the posts, piers, or ballast that tie the array to the ground. Sizing those footings to hold against lift and stay put in your soil is central to the whole design, which is why the foundation gets such careful attention.

I won't get into the how and how-deep here, because our foundations guide covers the different footing types and what decides them — soil, frost, water table, and more. For our purposes, just know that staying anchored in a storm comes down to footings a professional has sized for the job.

✓ It all lands on the foundation

Wind and snow are really tests of the footings. Get those right — sized and anchored by a pro for your soil and exposure — and the array stays put. Our foundations guide walks through how that choice is made.

Keeping the hardware tight over the years

A well-built array holds up for decades, but weather and time work on any structure. A little attention keeps it as sound as the day it went in.

Years of wind, temperature swings, and the occasional storm can, over a long time, work at bolts and connections — the same way anything outdoors settles and loosens a touch with age. It's slow and it's normal, and it's why an occasional look at the hardware is part of sensible ownership.

The good news is that a ground array is easy to check — it's right there at eye level. A periodic once-over for anything loose, leaning, or rusting catches these things early, while they're a simple fix. Our maintenance guide lays out that routine; here, just know that staying anchored is partly about upkeep, not only the original build.

✓ Design gets it standing; upkeep keeps it there

The engineering makes the array strong from day one. An occasional check of the hardware — easy on a reachable ground mount — is what keeps it strong for the long haul. Our maintenance guide has the simple routine.

Two kinds of homes, two sets of needs

Wind and weather look different on open country acreage than on a sheltered town lot, and the design and the worries shift to match.

If you live in town or the suburbs

In town or the suburbs, houses, fences, and trees break the wind, so an array is often more sheltered — but tighter surroundings bring a different risk in a big storm: flying debris.

- Surrounding houses and trees usually mean a more sheltered, calmer wind.
- The bigger storm risk in close quarters is windborne debris striking panels.
- The design still accounts for your local wind — shelter is a bonus, not a substitute.
- Keep nearby loose items, umbrellas, and light furniture secured before a storm.

If you are out in the country on a well

Out in the country, open exposure means stronger, steadier wind and few windbreaks — so exposure is the headline, and the engineering is built around it.

- Open, exposed sites catch more wind — the design is sized for exactly that.
- Fewer windbreaks means the footings and frame do more of the work.
- Wide, flat land can also bring the severe weather we all keep an eye on.
- A pole or well-anchored mount and good footings matter more in the open.

★ Exposed acreage or a snug lot, it's engineered to suit

Wherever your array stands, a good installer designs it for the wind and weather that spot actually sees. Tell me about your site and I'll help you understand it. Call (330) 200-8042.

Panels are tough — and hail-rated

It's natural to picture a hailstorm and wince for the glass. In fact, solar panels are built sturdier than most folks expect.

Quality panels are made to take the knocks of real weather, including hail, and reputable ones are tested and rated for hail impact as part of meeting recognized standards. The glass is tempered and tougher than ordinary window glass, so a typical hailstorm passes over a good array without harm far more often than not.

That said, nothing outdoors is truly indestructible, and an exceptional storm can damage even sturdy things — roofs, cars, and panels alike. The point isn't that panels can never be harmed; it's that they're genuinely tough, and freak damage is the exception, which is squarely what insurance is for.

✓ Sturdier than they look

Panel glass is tempered and hail-rated, so it shrugs off ordinary storms far better than folks fear. Reserve your worry for the rare, exceptional weather — and that's what your homeowner's insurance is there to cover.

Severe weather and the honest reality

Let's be straight about the big storms. An array is engineered for your normal weather extremes — but a tornado or a once-in-a-generation storm is a different matter, and honesty serves you best here.

Ordinary strong winds and heavy snows: the design handles those, by intent. A direct hit from a tornado or a truly violent storm, though, is the kind of force that tears roofs off houses and flips vehicles — and no reasonable engineering makes anything in its path bulletproof. Pretending otherwise wouldn't be fair to you.

So the honest picture is this: your array is well-built for the weather it can normally expect, and for the rare catastrophic event, you lean on insurance rather than engineering. That's not a weakness peculiar to solar — it's the same deal as the rest of your home.

! In severe weather, protect people first

When a serious storm threatens, your only job is to get yourself and your family somewhere safe — never go out to check on, cover, or fuss with the array. It's insured; you're not replaceable. Look after the panels only once the danger has fully passed.

Why homeowner's insurance matters

Because engineering handles the normal and insurance handles the rare, it's worth a word on getting the insurance side squared away.

A ground array is a real, valuable structure on your property, so you want it properly covered against the storms, hail, and mishaps that engineering isn't meant to rule out entirely. The sensible move is to talk to your insurer when you add solar — ask how a ground-mounted system is covered, whether it changes your policy, and what you'd do to make a claim.

I can't tell you the specifics of your coverage — that genuinely depends on your policy and your insurer, so that's a conversation to have directly with them. But raising it up front, rather than after a storm, is one of those simple, grown-up steps that saves a great deal of worry later.

✓ Have the insurance chat up front

When you go solar, call your insurer and make sure your new array is properly covered before any weather tests it. It's a five-minute conversation that turns a rare storm from a catastrophe into a claim.

After a big storm: look, don't touch

Once the weather's passed and it's genuinely safe to go out, a careful look-over is smart. Just keep it to your eyes, not your hands.

From a safe distance, you can check whether anything looks obviously amiss — a panel cracked or shifted, the frame leaning, hardware pulled loose, or wiring hanging where it shouldn't. Noticing trouble early is genuinely useful, and it's something any homeowner can do.

But looking is where your part ends. If you spot damage, especially anything electrical or a downed wire, keep well clear of it and call a professional — your installer or a licensed electrician. Storm-damaged electrical gear can be live and dangerous even when it looks dead. Our common-problems guide covers what's worth noticing and reporting.

! Damaged wiring can still be live

After a storm, never touch cracked panels, bent frames, or — above all — any loose or downed wiring. Keep people and pets away and call a pro. What looks harmless can still carry a dangerous charge; the inspection and repair are always professional work.

Repairs are never a do-it-yourself job

It bears saying plainly, because the array is right there in the yard and looks approachable: fixing it is not a homeowner project.

A ground array is inviting to tinker with precisely because it's at arm's reach — no roof, no ladder. But that accessibility is a trap when it comes to repairs. The structure carries real loads and the wiring carries real electricity, and both were engineered and permitted for good reason. Retightening to a proper spec, replacing a part, or touching any wiring is skilled, licensed work.

If something needs fixing after weather — or ever — the right move is to call your installer or a licensed pro, not to reach for your own tools. You can absolutely be the eyes that spot the problem; you just shouldn't be the hands that fix it. That's not fussiness — it's what keeps you safe and your warranty intact.

! Be the eyes, not the hands

Never attempt your own structural or electrical repairs on an array, however reachable it looks. Spot it, note it, and call a licensed professional. Doing the fix yourself risks your safety, your system, and very likely your warranty.

What the design accounts for

A plain look at what goes into engineering an array for weather — and who's responsible for each piece.

Factor	What it is	Who sets it
Wind load	Push and lift	The engineer
Snow load	Weight pressing down	The building code
Exposure	How open the site is	The installer
Soil and frost	What's below ground	A soil test
Anchoring	Holding it all down	The footings

Notice that not one of these lands on you. Your part is to choose good professionals and understand what they're doing — the loads, sizes, and depths are theirs to determine, sized to your site and our local code.

What you can do, and what's a pro's job

The weather side of ownership has a clear division of labor. Here's where you're helpful and where you hand off.

Your part is watchful, not hands-on. You can keep an eye on the hardware for anything loose or leaning, glance the array over after a storm, secure loose items in the yard before bad weather, and keep up with your insurance. All of that is genuinely useful, and all of it is safe.

Everything structural or electrical — sizing, tightening to spec, replacing parts, any wiring, any repair — is a licensed professional's work, always. When your watching turns up something amiss, your job is to make the call, not the fix. That single habit keeps this whole subject safe and simple.

! Watch and report; leave the rest to a pro

Noticing and reporting: yours, and valuable. Structural and electrical repairs: a professional's, without exception. Keep that line bright and you get all the reassurance of an engineered array with none of the risk.

Signs something may have moved

You don't need to inspect like an engineer. Just know the handful of things worth noticing as you pass the array, especially after weather.

- A frame or post that looks like it's leaning or has shifted from square.
- Bolts, clamps, or brackets that look loose, backed out, or missing.
- A cracked, chipped, or visibly shifted panel after a hailstorm or high wind.
- Rust or corrosion creeping in at the hardware and connection points.
- Any wiring that's come loose, sagged, or is hanging where it shouldn't be.

✓ Notice it, note it, report it

Spotting any of these early is exactly the help a homeowner can give. Make a note, keep clear if it's electrical, and call your installer or a pro. You've done your part perfectly by catching it.

Trust the engineering, then maintain it

If there's a single takeaway from all this, it's a calm and two-sided one — and it's genuinely reassuring.

First, trust the engineering. A properly designed, permitted, and inspected array is built to take the wind and snow your site can normally expect, with a margin to spare. You don't have to understand the calculations to rely on them, any more than you calculate the beams in your own roof. That's what the professionals and the code are for.

Second, keep it up. An occasional look at the hardware, a check-over after a big storm, and a quick call to a pro when something seems off — that light, ongoing attention keeps a strong array strong for its long life. Design and upkeep together are what let you all but forget about the weather.

✓ Confidence, not worry

The right frame of mind is quiet confidence: your array is engineered for your weather, insured for the rare disaster, and easy to keep an eye on. That's a system you can live alongside without a second thought.

Common misconceptions to set straight

A few wrong ideas float around about solar and weather. Let's put them right so you're not carrying worry you don't need.

- That an array is just planted in the yard — no, it's engineered and permitted.
- That wind or hail will easily wreck the panels — the glass is tough and hail-rated.
- That a windy, open spot is a bad spot — the design is simply sized for the wind.
- That you should rush out to protect the array in a storm — never; protect people.
- That you can retighten or repair it yourself — structural and electrical work is a pro's.

✓ The truth is more reassuring than the myths

Nearly every weather worry about solar shrinks once you know the array is engineered for your site and backed by insurance for the rest. Trade the myths for that, and the whole subject gets a lot calmer.

Questions worth asking up front

A few good questions tell you a lot about how seriously an installer takes the structural side. Bring these along.

Q: How will you engineer this array for our local wind and snow loads?

You want to hear that they design to the recognized standards and the local building code, and involve an engineer where it's called for — not that they use the same setup everywhere regardless of site.

Q: How exposed is my chosen spot, and how does that change the design?

A thoughtful installer will talk about your site's exposure and how a more open, windy spot gets a sturdier design. That shows they're sizing it for your yard, not off a template.

Q: What upkeep keeps it sound, and what's covered by warranty?

Ask what to watch for over the years, how the hardware is checked, and which parts and workmanship the warranties cover. Clear answers here are the sign of a careful, established outfit.

✓ Good answers here signal a good installer

How an installer talks about wind, snow, exposure, and engineering tells you a great deal. Specific, site-aware answers are a green flag; one-size -fits-all ones are worth a pause. Our choosing-an-installer guide goes further.

Common Questions

The questions I hear most about wind, weather, and whether an array will stay put.

Q: Will strong wind blow my ground array over?

A properly engineered array is designed and anchored to resist your site's expected winds, with a safety margin — both the sideways push and the lift that gets under the tilted panels. It's sized for the job by professionals, not left to chance.

Q: How much wind or snow can it actually take?

There's no honest one-size number — it depends on your site, and the figures come from the engineering standards and your local code, applied by your installer and engineer. Be a little wary of anyone who quotes you a snappy number off the top of their head.

Q: What about hail — won't it break the panels?

Quality panels are tempered and hail-rated, tested to take the knocks of real weather, so ordinary hailstorms usually pass without harm. Nothing outdoors is truly storm-proof, though, which is exactly what your homeowner's insurance is for.

Q: Something looks loose or damaged after a storm — can I fix it?

Please don't. Look it over from a safe distance, keep clear of any wiring, and call your installer or a licensed pro. Storm-damaged electrical gear can still be live, and structural repairs need to be done right — both are professional work, every time.

★ Uneasy about a storm coming through?

Wondering whether your array will stand up to the weather is a fair and common worry, and I'm glad to talk it through in plain terms. Call or text me at (330) 200-8042.

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 wind, weather, and keeping your array anchored 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 sell solar and I don't do the licensed electrical work or the install itself — I help you understand it all, ask the right questions, and line up a trustworthy local solar installer, so you never feel talked into anything.

★ Bill's Home Tech — real help, close to home

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Built for the Loads

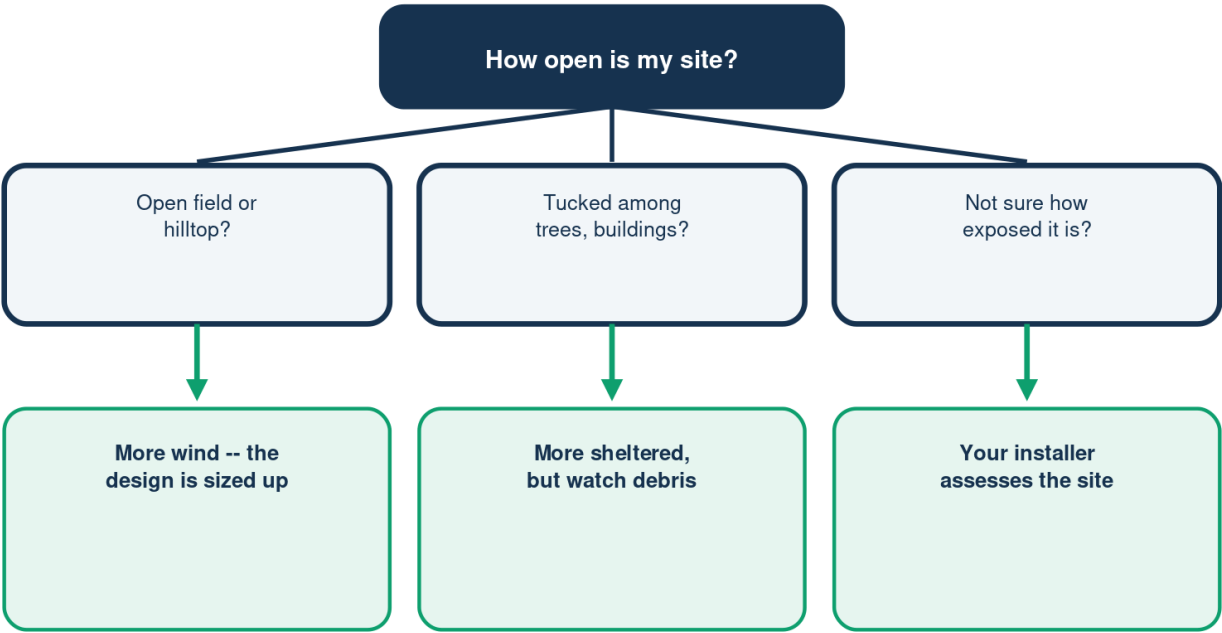
The forces on an array, and how the design meets each

	The force	How it's handled
Wind push	Sideways force	Braced frame
Wind lift	Tries to lift	Anchored down
Snow weight	Presses down	Sized to bear it
Hail	Ice impacts	Rated glass

No numbers here -- the engineer sizes it all to your site and code.

Is My Site Exposed?

Exposure shapes the design -- not whether the spot is good



No load numbers here -- the engineer sizes it to code for your site.

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

What the Design Accounts For

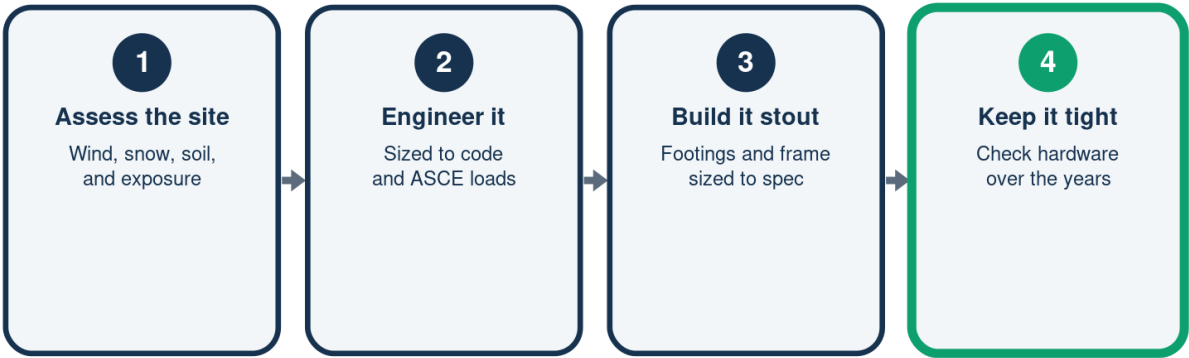
Every factor is a professional's to determine -- not yours

The factor		Who sets it
Wind load	Local exposure	The engineer
Snow load	Our winters	Building code
Soil and frost	What's below	A soil test
Anchoring	Hold it down	The installer

Your job is to choose good pros and understand what they're doing.

How Loads Are Handled

From a look at your site to a sturdy, lasting array



Design gets it standing; a little upkeep keeps it there for decades.



Need a Real Person?

You do not have to remember all of it.
You just have to remember you can call.
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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*



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