BILL'S HOME TECH

Home & Small Business Tech Solutions

An Extended Guide · No. 1526

Can Your Roof Carry Solar?

Weight, structure, and why it gets checked

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! Read this first — this is professional, on-the-roof work

Putting solar on a roof is expert, permitted work — not a weekend project. It means drilling into your roof and sealing every hole against water for decades, or setting heavy ballast your roof has to carry, all while working at a height where a fall can be deadly and around wiring that is live whenever the sun is up. This guide is here to help you understand and judge that work — so you can hire the right people and ask good questions — not to walk you up a ladder to do it yourself. For any roof-mounted system, use a licensed, insured, properly credentialed solar installer, make sure the required permit and inspection actually happen, and protect your roof's warranty before the first hole is drilled. And please don't climb up to inspect or adjust anything yourself — the roof is their job, not yours. Checking whether your roof's structure can carry the added weight of panels and racking is part of that same professional evaluation — never something to climb up and judge yourself.

Can your roof actually carry this? A fair question

Solar panels and their racking add real, lasting weight to a roof. Before anything gets installed, it's worth asking honestly: can your roof carry it?

I'm Bill, and I run Bill's Home Tech here in Portage County, Ohio. This isn't a guide meant to scare you off solar — most ordinary roofs handle it just fine. It's a guide about making sure someone qualified actually checks, instead of everyone simply assuming.

We touched on structural load briefly in our overview guide on how racking works. Here we slow down and look at what 'carrying the weight' really means, what a good installer actually checks, and why the permit process cares.

As with everything in this series, understanding this is your job. Checking it, and doing anything about it, is a licensed professional's job.

★ Curious, not worried, is the right frame

Most homes carry solar without any trouble. This guide is here so you understand what gets checked and why — not to make you anxious about your roof. Questions any time — (330) 200-8042.

The whole guide, on one page

If you remember only these points, you'll understand what a structural check is really about, and why it matters.

- ❑ Panels and racking add real, lasting weight to a roof — what's called dead load.
- ❑ That weight is spread across many attachment points, which helps — but spread out still isn't free.
- ❑ Whether your roof can carry it depends on the rafters or trusses underneath: their size, spacing, and condition.
- ❑ Each attachment concentrates its own small share of the load right at that one point — called a point load.
- ❑ A good installer looks in the attic or arranges a structural review, rather than assuming.
- ❑ The permit process often calls for proof the structure is sound — sometimes a written engineer's letter.
- ❑ Most ordinary roofs handle solar just fine. The point of this guide is that a qualified person actually checks.

> **✔ Read it in any order**
> Curious about one part more than another — rafters, the permit, rural buildings? Skip straight to it. You won't miss anything you need.

What 'dead load' actually means

You'll hear the term dead load in this conversation. It sounds technical, but the idea is simple.

Dead load just means weight that's permanently there, day and night, season after season — as opposed to something like snow, which comes and goes, or wind, which pushes and pulls rather than sits. Panels and racking are dead load: once installed, that weight is simply part of your roof from then on.

Snow and wind matter too, and they're engineered for separately — our snow-and-wind guide covers that side of the picture. This guide focuses on the steady, ever-present weight of the array itself.

> ✔ **One more term, then we're done with jargon**
> Dead load, point load, rafters, trusses — four plain-English ideas cover almost this whole topic. We'll walk through each one.

Spread out, but not 'free'

Racking is designed to spread its weight across many attachment points rather than piling it all in one spot. That genuinely helps — but it doesn't make the weight disappear.

Think of snowshoes: spreading your weight over a larger area keeps you from sinking into deep snow the way you would standing on one boot heel. The snow still has to hold your full weight either way — spreading it out just makes that job far more manageable.

A roof works the same way. Many attachment points sharing the load is much better than one heavy point — but the total weight of the array is still real, still permanent, and still something the roof's structure has to be able to carry.

> **★ Why this deserves a real check**
> "Spread out" is a genuine engineering advantage, not a reason to skip verifying your structure. That's exactly what a good installer does next.

What's under your shingles: rafters and trusses

The weight of an array ultimately rests on the wooden bones of your roof — and those bones have names worth knowing.

Rafters are individual angled beams, often cut and set in place on site, running from the ridge down to the walls. Trusses are factory-built triangular frames, engineered as a complete unit and set in place together. Many homes use one or the other; either can be a perfectly sound roof structure.

Whichever your home has, these are the structural members a good installer — or an engineer, for a closer look — actually examines before trusting the roof with solar.

> **✔ You don't need to identify which you have**
> That's exactly the kind of thing your installer sorts out during their evaluation. Knowing the words just helps you follow along.

Why size, spacing, and condition all matter

Not every roof's framing is the same, even within the same neighborhood — and those differences are exactly what a structural check is looking for.

Larger beams, set closer together, generally carry more than smaller beams spaced further apart. That's true before solar ever enters the picture — it's simply how roofs are built to carry their own weight, plus snow, plus everything else already up there.

Condition matters just as much as size. Old water damage, past insect damage, or framing that's been altered over the years — for an added room, a skylight, a chimney — can all change what a particular roof can carry, even if it looks fine from the outside.

> **! Looks fine and is fine aren't the same thing**
> A roof can look perfectly ordinary from the ground while its framing tells a different story up close. That's precisely why this gets checked rather than eyeballed.

Point loads: where the weight really lands

Snow settles evenly across a whole roof. An array's weight doesn't — it lands in specific spots, at each attachment.

Each attachment carries its own small share of the total weight, concentrated right at that one point — what's called a point load. Multiply that by every attachment across the array, and you can see why it matters that each individual point lands on solid, adequate structure, not just anywhere convenient on the roof deck.

This is part of why attachment layout — covered in our guide on rails, clamps, and attachments — and structural evaluation go hand in hand. One decides where the points are; the other confirms each point can actually take it.

> **✔ A simple way to picture it**
> A dozen people spread evenly across a floor is very different from a dozen people standing on twelve exact spots — even if the total weight is the same. Point loads are about those specific spots.

How a good installer actually checks

This is the heart of the whole guide: a qualified person looks, rather than assumes.

Often that starts with a look in the attic, where the rafters or trusses are visible — checking their size, their spacing, and obvious signs of wear or past damage. For a more complex roof, an older home, or anything unusual, that look may lead to a full structural review by an engineer.

Either way, the goal is the same: confirm the specific roof, as it actually exists today, can carry the added weight — not assume it can because most roofs like it usually do.

> **! Not a homeowner's assessment to make**
> Judging whether framing is adequate takes training most of us simply don't have. This is squarely an installer's or engineer's job — your role is to ask that it happens.

The permit's role: sometimes an engineer's letter

The permit process isn't just paperwork for its own sake — it's often where the structural question gets an independent second look.

Depending on your home and your local building department, the permit process can call for a structural review or a written engineer's letter confirming the roof can carry the added load. That's a second, independent set of eyes beyond your installer's own judgment.

Our permits guide covers the broader approval process — building and electrical permits, inspections, and utility sign-off. The structural piece is simply one part of that same safety net.

> **! A missing structural check is a red flag**
> If an installer seems eager to skip a structural review that your local building department would normally expect, treat that as a warning sign, not a shortcut worth taking.

Two kinds of homes, two sets of needs

The structural question is universal, but what actually gets checked — and how confident you can be going in — often differs by the kind of building.

If you live in town or the suburbs

In town and the suburbs, most homes share fairly standardized framing — rafters or trusses built to a common code, often well-documented if the home is newer.

- A standard residential roof, especially a newer one, is often a straightforward structural check for an experienced installer.
- Older homes still deserve a real look — age alone can mean past repairs, additions, or wear worth understanding.
- A finished attic can make a visual check harder; ask how your installer handles that if it applies to you.
- Even a standard roof gets checked, not assumed — that's the whole point of this guide.

If you are out in the country on a well

Out in the country, solar often means weighing more than the house roof — barns, shops, and pole buildings, whose framing can look very different from a typical house.

- Pole barns and post-frame buildings are often built with large posts and girts rather than a house's standard rafters or trusses — their framing needs its own honest look.
- Older farm buildings may have been altered, added onto, or repaired over the years in ways that change what they can carry.
- A big, sturdy-looking barn roof is not proof by itself — verifying the actual structure still matters, every time.
- If a well pump or outbuildings depend on power staying on, that's one more reason to get the structural question right from the start — see our whole-home-solar guide.

> **★ Barn, shop, or house roof — let's think it through**
> Rural buildings vary more than most people expect. Tell me what you're considering and I'll help you ask the right questions before you commit. Call (330) 200-8042.

Honest signs of a roof under stress

You'll never be the one to check your roof's structure — but there are a few ground-level and inside-the-house signs worth knowing.

- **A sagging roofline or dipping ridge.** Visible from the ground or across the street, worth a professional look regardless of solar.
- **Bowed or sagging rafters.** Something a professional notices during an attic evaluation, not something to go looking for yourself.
- **Doors or windows that stick.** Can be a sign of broader structural settling worth mentioning to any pro who visits.
- **New cracks in ceilings or interior trim.** Worth pointing out to your installer or a structural professional.

> **! Notice, don't investigate**
> If any of this sounds like your home, mention it to your installer and let a qualified professional take the closer look. Never climb up or into tight spaces to check it yourself.

The reassuring part: most roofs are just fine

After all this talk of checks and reviews, here's the part worth sitting with: most ordinary roofs carry solar just fine.

Homes are generally built with a reasonable margin in their structure, and racking is specifically designed to spread its weight sensibly. For the great majority of roofs, a structural check simply confirms what was already true — the roof is ready.

The point of this whole guide was never to worry you. It's that a qualified person actually looks and confirms it, rather than everyone — installer included — simply assuming a roof is fine because most roofs are.

> **★ A fair, honest look — not a scare**
> If a structural review does turn up a concern, that's useful information, not a disaster — it just means a conversation about next steps. Happy to talk through what that could look like. (330) 200-8042.

How structure and roof age go together

A structural check and a conversation about your roof's age tend to happen at the same time, for good reason.

An older roof is more likely to carry some wear — past leaks, sun exposure, freeze-thaw cycles — that can affect its structure as well as its surface. Our roof-age guide covers the broader question of whether to re-roof before going solar.

The two questions — "is the surface near the end of its life" and "is the structure sound underneath" — are related but not identical. A good installer, or an engineer if needed, can speak to both.

> **✔ Worth asking together**
> If your roof is getting older, ask your installer to address both the surface and the structure in the same conversation. It saves you from two separate worries.

Structure, snow, and wind: one engineered picture

Dead load is only part of the structural story. Snow pressing down and wind pushing and pulling are engineered for alongside it, not separately.

Ohio roofs are built and, for solar, engineered to handle local snow and wind on top of everything else already resting on them. Our snow-and-wind guide covers that engineering in more depth.

The structural review a good installer arranges is looking at the whole picture — the steady weight of the array, plus what snow and wind will ask of the roof in a given season — not just one piece of it.

> **! All engineered together, never guessed**
> Weight, snow, and wind are not separate guesses stacked on top of each other — they're accounted for together by the people qualified to do that math.

How structure shapes the attachment layout

A structural review doesn't just produce a yes-or-no answer — it often shapes exactly how the array gets attached.

If a roof's framing can comfortably carry the load, a fairly standard attachment layout may be all that's needed. If a review raises questions, the answer might be more attachment points, different spacing, or reinforcement in specific areas — solutions an engineer or installer can propose.

This is the connection between the structural side of things and the hardware side covered in our rails-and-clamps guide: the structure informs the layout, not the other way around.

> **✔ A good sign to look for**
> An installer who can explain how their attachment plan reflects what they found in your structure is showing you real, careful work.

Why this isn't a homeowner's assessment to make

It's worth saying plainly: judging your own roof's structure is not a reasonable do-it-yourself project, however handy you are.

- **The training.** Recognizing adequate versus inadequate framing takes real construction or engineering knowledge.
- **The access.** A proper look often means the attic, crawl spaces, or areas that aren't safe or practical for an untrained visit.
- **The judgment call.** Deciding whether a concern needs an engineer, reinforcement, or nothing at all takes experience.
- **The paperwork.** Permits and, where required, an engineer's letter need to come from qualified, licensed sources.

> **★ Where I fit in**
> I don't evaluate roof structure myself — that's licensed installer or engineer territory. I help you understand the process and ask the right questions. Call or text (330) 200-8042.

Questions worth asking about structure

You don't need engineering answers — you need to hear that the question was actually asked and answered.

Q: How will you check whether my roof can carry this?
Listen for an attic look, a structural review, or both — not an assumption based on how the roof appears from outside.

Q: What happens if my roof needs reinforcement?
A good installer explains the options plainly, rather than glossing over a concern to keep the sale moving.

Q: Will you provide a structural review or engineer's letter if the permit requires one?
Yes should be the answer, handled as a normal part of the process, not an unusual request.

Q: I have a pole barn or post-frame building — does that change the check?
It should. That framing is different from a house roof and deserves its own honest evaluation.

> **★ Bring the answers to me**
> If anything about the structural conversation leaves you unsure, that's a good reason to call before signing anything. (330) 200-8042.

Permits, inspections, and the paper trail

The structural side of your project leaves a paper trail — and that paper trail is exactly what protects you later.

Depending on your project, expect some combination of a building permit, a structural review or engineer's letter, and a final inspection. Together, they're independent confirmation that the structural question wasn't just taken on faith.

Keep this paperwork with your other home records. It matters for insurance, for any future roof work, and if you ever sell the home.

> **! No structural paperwork is worth noticing**
> If an installer can't produce documentation of a structural check when one was expected, that's worth a direct question before you move forward.

Barns, shops, and pole buildings: their own honest look

Rural roofs deserve a section of their own here, because their framing can differ a great deal from a typical house.

Pole barns and post-frame buildings are commonly built around large posts and horizontal girts rather than the closely spaced rafters or trusses of a house roof. That's not a flaw — these buildings can absolutely be excellent, unshaded hosts for solar — but the framing style, spacing, and condition need their own verification rather than being assumed to match house-roof norms.

Age and history matter here too. A shop or barn added onto or repaired over the years may carry structural quirks a newer, more standardized house roof wouldn't. A good installer treats each outbuilding as its own honest evaluation.

> **★ Don't assume a barn roof is simple**
> Big and sturdy-looking is a good start, not a substitute for a real check. If you're weighing a barn or pole building for solar, I'm glad to help you think through the right questions. (330) 200-8042.

Common Questions

The questions about roofs and structural load I hear most often, answered plainly.

Q: Will solar definitely require reinforcing my roof?
No — most ordinary roofs handle it fine. But only an actual check tells you for certain, not a guess either way.

Q: What if my attic is finished and I can't see the rafters or trusses?
A professional has other ways to evaluate structure, including a formal structural review. Mention it up front.

Q: Does a newer roof surface mean the structure is automatically fine?
Not necessarily. A new roof covering doesn't always mean the structure underneath was recently reinforced or reviewed.

Q: Is a sturdy-looking pole barn automatically strong enough for solar?
Looks aren't proof. Pole and post-frame buildings still need their framing verified before being trusted with panels.

Q: Who arranges an engineer's letter if one is needed?
Usually your installer coordinates it as part of the project — ask early, and get any cost questions answered with an itemized quote.

> **★ Still have a question I didn't cover?**
> That's what I'm here for. Call or text me at (330) 200-8042 — there's no such thing as a silly question about your own home.

Bringing it all together

Panels and racking add real, lasting weight — and now you know what actually gets checked before that weight goes up.

The load is spread across many attachment points, which helps, but doesn't make it free. What's underneath — rafters or trusses, their size, spacing, and condition — decides what a roof can carry. A good installer checks the attic or arranges a structural review, and the permit process often backs that up with an engineer's letter.

Most of all, remember the reassuring part: most ordinary roofs are just fine. This guide was never about worry — it was about making sure a qualified person actually checks, rather than everyone simply assuming.

> **★ Let's talk through your roof, honestly**
> Whether you're just curious or already collecting quotes, I'm glad to be your patient, plain-spoken second opinion. Call or text (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 understanding whether your roof can carry solar 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 climb on roofs or do the licensed solar, roofing, or electrical work myself — for that I'll help you line up a trustworthy, properly credentialed local pro.

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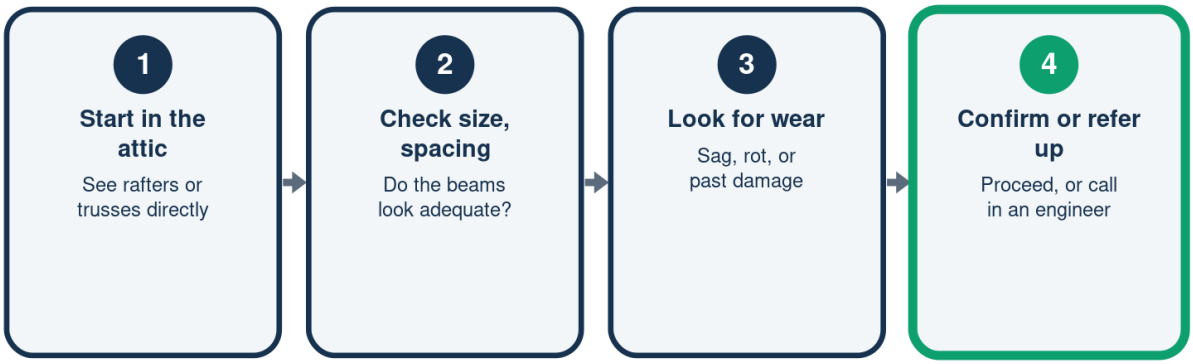
> Call or text me at (330) 200-8042, or visit BillsHomeTech.com. Serving Atwater and all of Portage County. 30+ years of patient, plain-English tech help — and if you're ever not 100% happy with a visit, I'll make it right or refund it. That's a promise. — Bill

How a Good Installer Checks Your Structure

Looking, not assuming, before trusting a roof with solar



A good installer checks -- your roof is never simply assumed to be ready.

Two Kinds of Roof Framing

What a structural check looks at

	Rafters	Trusses
Built how	Cut on site	Built in a factory
Shape	Straight beams	Triangle shapes
Spacing set by	Original builder	Engineered design
Checked by	Installer, engineer	Installer, engineer

Either way, size, spacing, and condition are what get evaluated.

Weight Spread Out, Still Real

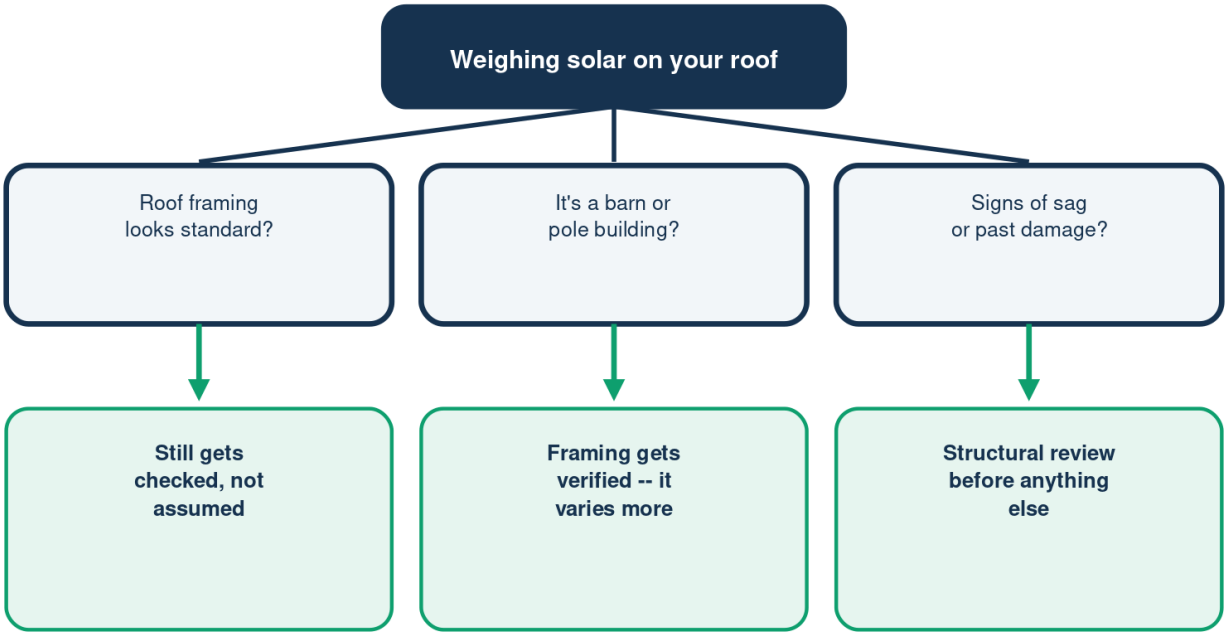
Why 'spread across many points' is not the same as 'free'

	All in one spot	Spread across many
What happens	Heavy local load	Shared, smaller loads
Roof's job	Handle one hot spot	Handle many small ones
Total weight	Same either way	Same either way
Best practice	Avoided by design	How racking works

Spread out is better -- but the structure underneath still has to be sound.

Does This Roof Need a Closer Look?

Three honest starting points



Most roofs check out fine -- the point is that someone qualified actually looks.

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

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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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