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AN EDUCATIONAL GUIDE FOR HOMEOWNERS

The Homeowner's Survival Guide to Construction Projects

How to keep the design decisions on your project in your hands.

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Written for owners planning a remodel, an addition, or a new home.

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01 Why this guide exists

Most homeowners worry about the wrong things going into a project. They worry about paint colors, fixture finishes, and which contractor's crew seems friendliest at the kitchen table. Those things matter. They are almost never where a project goes wrong.

Projects go wrong in the gap between what you pictured and what actually got written down. A drawing set that leaves a question open does not make the question disappear. It moves the answer to the job site, where it gets settled quickly, by whoever is holding a tape measure that morning, in whatever way keeps the work moving. You pay for that answer twice. Once in money, and again in a result you did not choose.

That gap is widest on the projects homeowners take on most often: a kitchen opened up to the living room, a primary suite added off the back, a garage turned into a studio, an older house brought up to current code. Every one of those involves dozens of decisions about structure, clearances, finishes, and how new work meets old. Each decision gets made by someone. The only real question is whether it gets made on paper, by you and your designer, with time to think, or on site, under schedule pressure.

This guide is about closing that gap before the first permit is pulled. You will not need a construction background to use it. You will need about half an hour, and a willingness to ask for documents most homeowners never know to ask for.

Everything in it rests on one sequence. Each step is cheaper than fixing its absence in the step after it.

1	2	3	4	5
Measure	Design	Permit	Bid	Build

02 The one idea that protects you: a drawing decides, or it defers

Here is the single most useful thing to understand about construction documents. Every line, dimension, and note does one of two things. It decides something, or it defers the decision to someone else.

A note that says "30-inch base cabinet, full-extension soft-close drawers, slab front" decides. A note that says "cabinets per allowance, style TBD" defers. A wall drawn with a real dimension to the window center decides. A wall drawn with "verify in field" defers. Both kinds of notes look equally official on a printed sheet. They are not equal. One is a finished decision you are paying a professional to make. The other is a decision still waiting to be made, usually on site, by someone who has to keep the work moving.

Some deferral is reasonable. No one can predict what a wall hides until it is opened, and a good set will say how to handle a few genuine unknowns. The problem is the set that defers everything. When the

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drawings are thin, the contractor is not being difficult by asking questions. They are doing the design work the drawings skipped, on the fly, and you are being billed for the building of decisions nobody recorded.

Watch for this family of phrases. Each one is a decision left open:

`as required` `contractor to verify` `per field conditions` `or equal` `by others` `TBD` `to match existing`

A few of these scattered through a large set is normal. A set built mostly out of them is not a design. It is a list of decisions you will be asked to make later, one at a time, under time pressure, with money already spent and the crew waiting.

> **THE PRINCIPLE**
>
> A complete drawing answers the question before the contractor has to ask it. If your plans are full of "verify in field," you have not bought a design. You have bought the right to keep designing during construction, at construction prices.

03 What a complete set of drawings actually contains

A real construction document set is more than a floor plan. The floor plan is the part homeowners recognize, and it is usually the only part they are shown. The sheets that protect you are the ones behind it.

Here is what a complete residential set generally includes, and what each part is actually for.

Floor plans. The view from above. Where walls, doors, and fixtures sit, with dimensions that let a builder lay out the work without guessing.

Elevations. The flat views of each face of the building or a room. They settle heights, window placement, and how the outside will actually look.

Sections. A vertical cut through the building. This is where ceiling heights, floor build-ups, roof slopes, and how one floor stacks on another get resolved.

Details. Close-up drawings of the spots that decide quality and weather-tightness: how a window is flashed, how a stair is framed, how a counter meets a wall. These are where stock, copy-pasted drawings fail, because your house is not the generic house the detail was drawn for.

Schedules. Tables that pin down every door, window, and finish by number, size, and type, so nothing is ordered by guess.

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Structural drawings. Beams, posts, footings, and connections for the loads your project actually carries, designed by an engineer or drawn to the code's prescriptive provisions, as the building department requires. Needed whenever you remove a load-bearing wall, add a floor, or build new.

Mechanical, electrical, and plumbing. Where the equipment, outlets, fixtures, and runs go, with enough specificity to install and inspect. A few symbols floating on a plan is not this.

Specifications. The written half of the documents. They state materials, products, and standards of work that the drawings show but cannot fully describe.

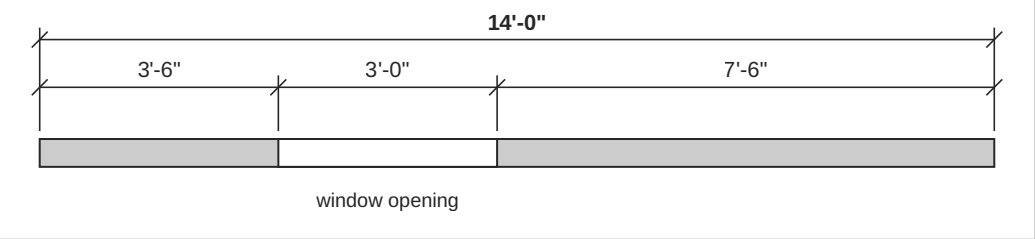
Not every project needs every sheet. A bathroom refresh does not need structural drawings; a second-story addition needs all of them. The point is not the page count. It is that the decisions your project contains are written down somewhere a builder and an inspector can both read.

04 How to read a drawing set like an owner

You do not need to read drawings like a professional to spot a thin set. You need a handful of checks that anyone can run in fifteen minutes at the kitchen table.

Do the dimensions add up?

Pick a wall and follow its dimension string from one end of the room to the other. The small numbers should sum to the overall number printed across the whole wall. If they do not, or if whole walls have no dimensions at all, the builder will be making up the difference on site. That is your money filling the gap.



A dimension string. The three small dimensions (3'-6" + 3'-0" + 7'-6") add up to the overall 14'-0". If they did not, someone on site would decide where the window goes.

Is every door and window tagged and scheduled?

Each opening should carry a tag, a small number or letter, that points to a row in the door or window schedule listing its size and type. Openings with no tags get ordered by someone's best guess, and the wrong-size unit shows up after the rough opening is already framed.

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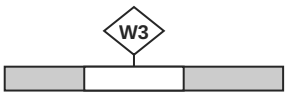


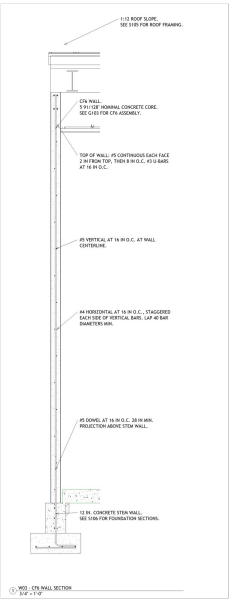
plan: tag W3 on the opening

WINDOW SCHEDULE			
TAG	**SIZE**	**TYPE**	**HEAD HEIGHT**
W3	3'-0" x 4'-0"	Casement	6'-8"
W4	2'-6" x 4'-0"	Fixed	6'-8"

A door or window tag. W3 on the plan points to one row in the schedule, which fixes its size, type and height. An untagged opening gets ordered by guess.

Are the details specific to your house?

Look at the detail drawings. Do they reference your actual conditions, your wall thickness, your existing foundation, your roof pitch? Or are they generic clip-art details that could belong to any house in the country? Generic details are the clearest sign that the hard thinking was skipped and pushed downstream to the crew.



A project-specific detail: a wall section drawn for one building's own wall system, footing to roof. A generic detail would show a typical wall, not this one.

Do the sheets talk to each other?

A good set cross-references itself. A note on the plan points to a detail on another sheet; a section calls out the schedule. When sheets ignore each other, it usually means they were drawn in isolation and never reconciled, and the contradictions surface during construction.

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> **WATCH FOR THIS**
>
> If the mechanical, electrical, and plumbing work shows up as a scattering of symbols with no equipment sizes, no fixture specs, and no layout, treat it as not designed. MEP shown this way is the most common place a budget gets blown, because every undrawn run becomes a field decision and a change order.

05 Permits and code are on your side

Homeowners often see permits as red tape that adds cost and delay. It is worth flipping that view. The permit and inspection process is one of the few points where someone with authority checks the work on your behalf, at no added cost beyond the permit fee, and you did not have to know what to look for.

Residential work in most Arizona jurisdictions is reviewed against the International Residential Code, with the International Building Code applying to larger or commercial work, the energy code governing insulation and equipment efficiency, and the National Electrical Code covering wiring. When you pull a permit, a plan reviewer reads your drawings against those codes before a shovel moves. Then an inspector visits at set stages, typically footings, foundation, framing, the rough-in of plumbing and electrical and mechanical, insulation, and a final, and signs off only when the work passes.

That sequence protects you in ways that are easy to miss. Permitted, inspected work is far easier to sell or refinance later, because the records exist. Unpermitted work is the opposite. It can stall a sale, fail an appraisal, void parts of your insurance after a loss, and leave you personally responsible for tearing out and redoing work that was never approved. A contractor who suggests skipping the permit to save time is offering to move the risk onto you.

Check the license before you sign

In Arizona, contractors are licensed by the Registrar of Contractors. You can look up any contractor's license, its status, and its complaint history at the Registrar's website before you hire. It takes two minutes and tells you whether the business you are about to trust with six figures is in good standing.

Two Arizona rules are worth knowing. First, work where the total price of labor and materials is under $1,000 can legally be done by an unlicensed handyman, but only if the work is minor and does not require a building permit. The moment a permit is needed, that exemption no longer applies, and splitting a larger job into sub-$1,000 pieces to dodge the rule is itself prohibited. Second, Arizona maintains a Residential Contractors' Recovery Fund. If a licensed residential contractor does substandard work or abandons your job, you may be able to recover actual damages, up to $30,000 per claimant, per residence, as of this guide's publication, after going through the Registrar's complaint process. That protection exists only when you hired a licensed contractor in the first place, which is the practical reason the license check matters.

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IF YOU LIVE IN COCHISE COUNTY

Bisbee Historic District. Before you change a building's exterior or build new in the district, the property owner must obtain Design Review Board approval, and the city does not issue a building permit until that approval is in hand. Board approval is not a building permit; you need both. Build design review into your schedule from the start.

Rural owner-builder permits. In eligible rural areas, Cochise County offers a Rural Residential Owner-Builder option. Option 2 has no plan review and no building inspections. It does not exempt the work from the building code; it removes the independent check this section describes. Hope CGI does not work on Option 2 projects for that reason.

06 For remodels and additions, the existing building decides

New construction starts from a clean site. A remodel or addition starts from a building that is already there, and that building has the final say. Many remodel surprises trace back to one root cause: the existing conditions were never measured accurately before the design was drawn.

When a designer works from rough hand measurements or an old set of plans that no longer match reality, the new design is built on a guess. The walls are not where the drawing says. The floors are not level. The rooms are not square. When that surfaces after demolition, the design is already committed and the crew is on site. The fix becomes a change order.

The way to avoid this is to capture the existing building precisely before any design begins. Accurate as-built documentation, whether by careful manual survey or by laser measurement, gives the designer a true record of the building as it stands, so the new work is drawn against the house that actually exists rather than the house everyone assumed. A survey or scan records visible surfaces. What is inside walls or below grade is confirmed only when it is opened, and a good set says how to handle it when it is.

There is a second layer specific to existing buildings. Alterations are governed by the International Existing Building Code, which sorts work into levels based on how much you are changing. A light refresh, a more substantial reconfiguration, and a major change that affects the structure each trigger different requirements. Crossing into a higher level can require upgrades you did not plan for, such as bringing part of the building up to current standards. A designer who understands these triggers will tell you where your scope sits before you commit, not after the inspector raises it.

THE PRINCIPLE

On a remodel, measure before you design. Every dimension you nail down on paper is one the crew will not have to resolve, and bill you for, on site.

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07 Hiring: who designs, who builds, and why the order matters

You decide. A designer documents. A contractor builds. These are different jobs, and the trouble starts when the roles blur, usually because the homeowner hired the builder first and asked them to figure out the design as they go.

When a contractor designs on the fly, three things happen. The decisions tend toward what keeps the work moving, which is not always what serves your house best. There is no independent set of drawings to hold the work against, so neither you nor the contractor can show that it was done right. And you cannot get comparable bids, because there is nothing fixed to bid on. Every contractor is pricing a different imagined project.

The order that protects you is design first, then bid, then build. With a complete set of drawings in hand, you can send the same documents to several contractors and get bids that describe the same work, line for line. You can compare them directly. And the contractor you choose is installing your decisions rather than inventing them, which is exactly where you want a builder's skill aimed.

Your options for a designer

- **An Arizona-registered design professional.** Required for buildings outside the limits Arizona sets for nonregistrants (A.R.S. § 32-144), and an option for any home.
- **A building designer or consultancy.** Arizona allows a designer who is not registered to prepare drawings for a single-family home and certain small buildings. Ask to see a complete set they have drawn.
- **A drafting service.** Draws what you or your contractor tell it to. The design decisions stay with you, so arrive with them made.
- **A design-build contractor.** One contract covers design and construction, which keeps communication simple. Ask for a complete set before the construction price is final, so you have documents to hold the work against.

Whichever you choose, the test is the same: does the set decide, or does it defer?

When you need an engineer

Some scope is beyond what any designer or contractor should decide alone. Removing a load-bearing wall, adding a floor, building on a difficult slope, or anything where the structure carries new or larger loads calls for a licensed structural or civil engineer. This is not a place to economize. An engineer's seal means a licensed professional has taken responsibility for the structural design, and it is often a requirement for your permit. A professional who tells you an engineer is needed is protecting you, not padding the project.

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QUESTIONS TO ASK A DESIGNER

1. Can I see a complete set you drew for a project like mine?
2. Will you measure the existing building before you design? How?
3. Which sheets will my set include, and will it have written specifications?
4. How many revisions and plan review responses does your fee cover?
5. Who coordinates the engineer, and who seals the structural sheets?

QUESTIONS TO ASK A CONTRACTOR

1. What is your Registrar of Contractors license number and classification?
2. Is your bid based on the complete drawing set, by date and revision?
3. How will you handle a change you want to make to the drawings?
4. What is the payment schedule, and what work does each payment cover?
5. Which items in your bid are allowances, and for how much?

08 The contract and the money

The strongest contract you can have is a complete set of drawings, because the contract is only as clear as the work it points to. Once the documents are solid, a few terms decide whether the money side stays under control.

Defined scope. The contract should reference the drawing set and specifications by date and revision. "Per plans dated June 1" is enforceable. "Remodel the kitchen" is not.

Fixed price versus cost-plus. A fixed price works when the design is complete, because the contractor can price real, finished decisions. Cost-plus, where you pay actual costs plus a fee, shifts the risk of unknowns onto you and is only as safe as the drawings are complete. Thin drawings push contractors toward cost-plus, which is another reason to finish the design first.

Payments and deposits. Tie payments to finished milestones. Deposits vary by contractor and are set in the contract. Arizona law requires a written contract over $1,000 (A.R.S. § 32-1158). Insist on one.

Allowances, written as numbers. When a selection is left open, such as tile or fixtures, the contract should carry a specific dollar allowance for it. A vague allowance is a deferral in disguise, and the true cost lands on you later.

Lien waivers. Before releasing each payment, ask for lien waivers from the contractor and any major suppliers, confirming they have been paid. Arizona also protects owner-occupants: under A.R.S. § 33-1002, a subcontractor or supplier with no written contract with you generally cannot place a lien on the home you live in. Ask an attorney whether your project qualifies.

Retainage. Holding back a small percentage of each payment until final completion and sign-off keeps both sides focused on closing out the final items and sign-offs.

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09 How change orders start, and how to keep them small

Ask anyone who has finished a project what blew the budget, and the answer is rarely the original price. It is the change orders. Understanding how they accumulate is the difference between a project that lands near its estimate and one that drifts well past it.

A change order is a written, priced modification to the agreed work. Some are unavoidable. You open a wall and find old plumbing that has to move; that is a real change. But many change orders are not surprises in the building. They are gaps in the drawings. When the documents do not answer a question, the contractor issues a request for information, you make a decision, and the resulting work gets priced as a change. The thinner the original set, the more of these you will sign, and each one is priced after you are committed, when you have the fewest options.

This is the throughline of the whole guide arriving at your bank account. Every "verify in field" and every "TBD" in the drawings is a change order waiting to be written. A complete set does not eliminate changes, but it shrinks them down to the genuine surprises, the ones no one could have drawn in advance.

Two habits keep change orders clear. Require that every change be in writing, with both its price and its effect on the schedule stated, before the work proceeds. And settle each change as it comes, rather than leaving it for the end, so the final bill stays close to what you agreed.

Changes can start on either side. When your contractor has a reason to depart from the drawings, such as a backordered product, a field condition, or a better method, the change should be proposed in writing and approved by you before it is built, after your designer has reviewed it. When it touches the structure, the engineer of record reviews it too. Good builders tend to welcome this, because it records who decided what and makes sure they are paid for real changes.

> **WATCH FOR THIS**
>
> When drawings are thin, each bidder fills the gaps with different assumptions, so the lowest number may simply be the one that assumed the least. Those gaps return as change orders. A fair comparison is only possible when every bid prices the same complete set of documents.

A complete set protects the builder as much as the owner. Every bidder prices the same house, questions are answered before the crew is waiting, and a real change is easy to show as a change.

10 Signs a drawing set leaves decisions open

Run this list against your project before construction starts. Any single item can be explained. Several together mean the design work is going to happen during the build, with you making decisions under pressure.

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The drawings are mostly floor plans, with few or no sections, details, or schedules.

Notes lean on deferral language like "verify in field," "as required," or "to match existing" throughout, rather than in a few genuine unknowns.

The details look generic, with nothing tied to your actual walls, foundation, or roof.

MEP is a handful of symbols with no equipment sizes, fixture specs, or layout.

You are asked to skip the permit to save time or money.

The contractor was hired before any design existed, and is working out the design as the work proceeds.

The bid references no document set, or each contractor's bid describes a noticeably different project.

Allowances are vague or missing dollar figures.

No written contract, or a deposit requested before one is signed.

The contractor's license cannot be confirmed, or its status is anything other than active and in good standing.

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11 Your pre-construction checklist

Work through these before signing a construction contract. Each box you can check is one fewer decision left to chance.

- [ ] I have a complete drawing set, not only floor plans, that matches the scope of my project.
- [ ] The existing building was accurately measured before the design was drawn (remodels and additions).
- [ ] I have checked that the dimensions on the plans add up.
- [ ] Every door and window is tagged and listed in a schedule.
- [ ] The details reference my actual conditions, not generic drawings.
- [ ] The mechanical, electrical, and plumbing work is drawn and specified, not only shown as symbols.
- [ ] Structural work is designed by an engineer, or drawn to the code's prescriptive provisions, as the building department requires.
- [ ] I have looked up the contractor's license status and complaint history.
- [ ] Each bid I am comparing prices the same complete document set.
- [ ] The contract references the drawings and specs by date and revision.
- [ ] Payments are tied to completed, visible milestones, and the deposit is stated in a written contract.
- [ ] Every allowance carries a specific dollar figure.
- [ ] We have agreed in writing that all changes will be priced before the work proceeds.
- [ ] The permit will be pulled, and the work will be inspected at each required stage.

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12 A short glossary

The terms you will hear most often, in plain language.

As-built
An accurate record of a building as it actually exists, used as the starting point for designing a remodel or addition.

Allowance
A dollar amount set aside in the contract for a selection not yet made, such as tile or fixtures. Should always be a specific number.

Change order
A written, priced modification to the agreed work. A common cause of going over budget.

Construction documents
The full set of drawings and specifications a contractor builds from and an inspector reviews. More than a floor plan.

Cost-plus
A contract where you pay actual costs plus a fee, rather than a fixed price. Shifts the risk of unknowns onto the owner.

Engineer of record
The licensed engineer who designs and seals a discipline of the drawings, such as the structure, and takes responsibility for it.

Lien waiver
A signed document confirming a contractor or supplier has been paid, protecting you from a lien on your home for unpaid work.

MEP
Mechanical, electrical, and plumbing: the heating and cooling, wiring, and water and drain systems.

Owner-occupant
Under Arizona lien law, an owner who held title before the work began and lives, or will live, in the home. Owner-occupants have added protection from liens.

Plan review
The building department's check of your drawings against the adopted codes before a permit is issued.

Prescriptive provisions
Code tables and rules that let common structural elements, such as standard headers and joists, be sized without an engineer's design.

RFI (request for information)
A formal question from the contractor when the drawings do not answer something. RFIs are a normal part of construction. A large number on a small project can signal a thin document set.

Retainage
A small percentage of each payment held back until the work is finished and signed off.

Schedule
Two meanings. A table listing doors, windows, or finishes by number and type; or the project's timeline. Context tells you which.

Scope
The defined extent of the work, ideally pinned to a dated drawing set rather than a sentence.

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13 What to do next

You do not need to act on everything in this guide at once. Five steps, in order, cover most of it.

1. **Write down what you want and what you can spend.** A short list of goals and an honest construction budget make every later conversation faster.
2. **If you are changing an existing building, have it measured first.** Design should start from the house as it stands.
3. **Interview designers with the questions in section 07.** Ask to see a complete set they have drawn.
4. **Bring the checklist in section 11 to every meeting.** Check boxes before you sign anything.
5. **Get bids only on a complete, dated set.** Then compare them line for line.

Questions about your project? Hope CGI, LLC · 520.236.1260 · bh@hopecgi.com · hopecgi.com
We reply within 1 business day.

About this guide

This guide was prepared by Hope CGI, LLC, a building and construction consultancy in Bisbee, Arizona (Construction Documents and LiDAR Imaging), as an educational resource for homeowners. It is general information, not legal advice or a substitute for a licensed design professional, engineer, attorney, or your local building department. Codes, license rules, and the figures cited here change over time, so confirm current requirements with the authority having jurisdiction before relying on them.

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