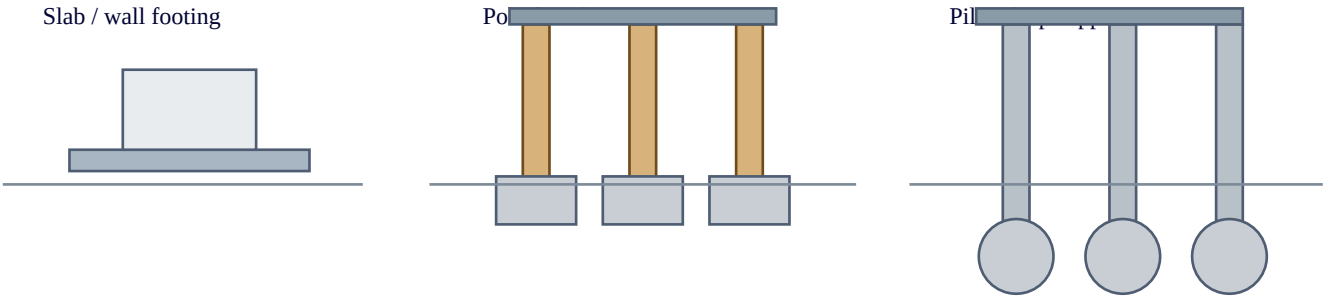
Foundation + Floor Framing Reference Pack

A simplified printable guide built from your source pages. It is meant to help a DIYer or apprentice orient themselves before working, sketching, or talking to a code official, engineer, or experienced builder.

Important use note

This pack is educational, not a stamped plan. Local code, soil, snow, wind, seismic, load path, species/grade, and span tables still control final decisions.

Common foundation paths



What this pack covers

- Foundation paths: shallow support, pole foundations, and pile-style deep support.
- Floor framing basics: joists, beams, ledgers, openings, partitions, subfloor, and service holes.
- Quick jobsite reminders and plain-English rules distilled from the source pages.

Suggested use: print double-sided, keep it in a binder, and mark your own local span tables and footing notes in the margins.

Roadmap

This version focuses on the material actually shown in your 10 pages: foundations and floor framing. It stops right before a full wall-framing volume.

Section	Focus
1	How to read the pack
2	Foundation decision path
3	Pole foundations - where they fit
4	Pole embedment and connections
5	Pile foundations - what they are
6	Floor framing overview
7	Joist span and bearing basics
8	Platform framing at the sill
9	Beams, ledgers, and hangers
10	Partitions carried by the floor
11	Openings and floor projections
12	Subfloor and underlayment
13	Quick field checklist
14	Common mistakes to avoid

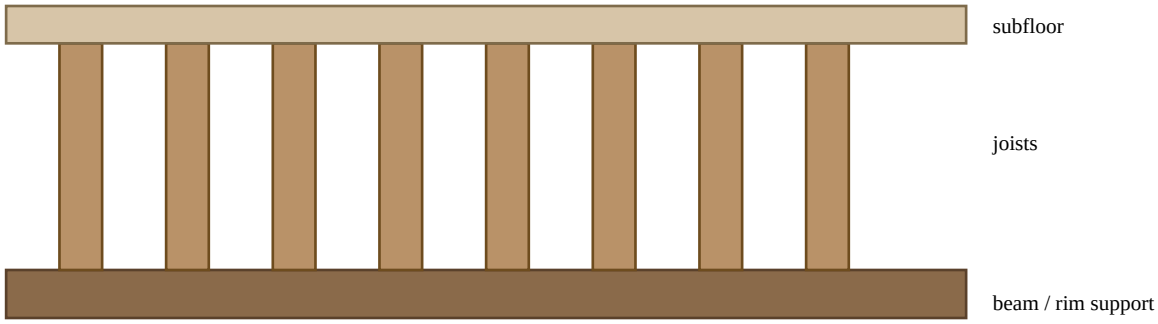
Field note

If this becomes a product later, split it into a series: Volume 1 Foundations, Volume 2 Floor Framing, Volume 3 Wall Framing, Volume 4 Roof Framing. That is cleaner and easier to sell than one giant generic booklet.

1. How to read this pack

Every page in the source material mixed code-style notes, construction details, and rough rules of thumb. This pack separates them into three buckets: concept, practical reminder, and caution.

Basic floor framing stack



Read these first

- Treat every diagram as a concept sketch, not a permit drawing.
- Dimensions in your project depend on local tables, loads, and details.
- When a member carries real load, preserve a clean load path all the way to the foundation.
- If you are unsure whether a wall is bearing, assume it might be until proven otherwise.

Use the pack like this

- First: identify the system - slab, pole, piles, or framed floor over supports.
- Second: locate supports, spans, and where the load turns.
- Third: mark any openings, partitions, plumbing routes, and panel joints.
- Fourth: verify the actual sizes with span tables and local code.

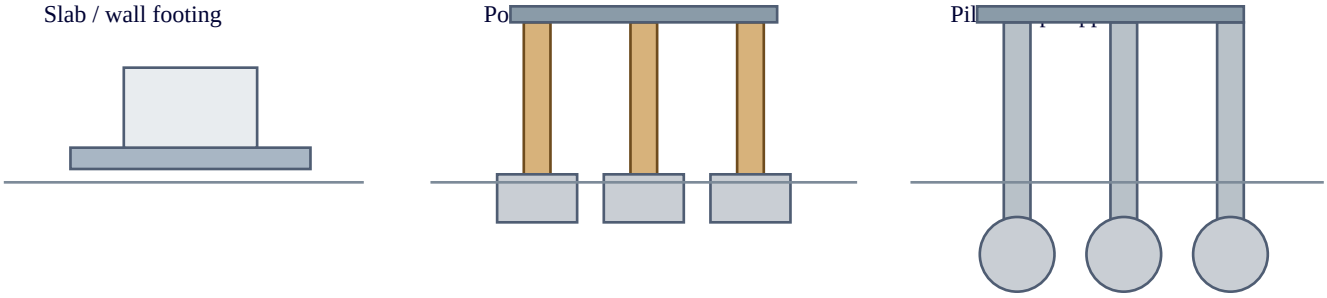
Field note

A good cheat sheet cuts confusion. It does not replace engineering where engineering is required.

2. Foundation decision path

Your source pages show three broad ways of getting load into the ground: conventional shallow support, posts embedded in the ground, and deeper pile-type systems. Pick the path that matches the site and structure, then detail it properly.

Common foundation paths



Shallow support usually fits when

- You have reasonably predictable soil near grade.
- The building uses walls or a beam-and-wall system to carry floor loads.
- Excavation, formwork, and concrete access are practical.
- You want a conventional framed floor or slab with wall framing above.

Deep or embedded support becomes attractive when

- The site is sloped, difficult to excavate, or better suited to posts.
- You are building a lighter structure such as a pole building or raised platform.
- Poor near-surface soil means deeper support is smarter than wider shallow footings.
- Restricted access calls for small equipment or drilled systems.

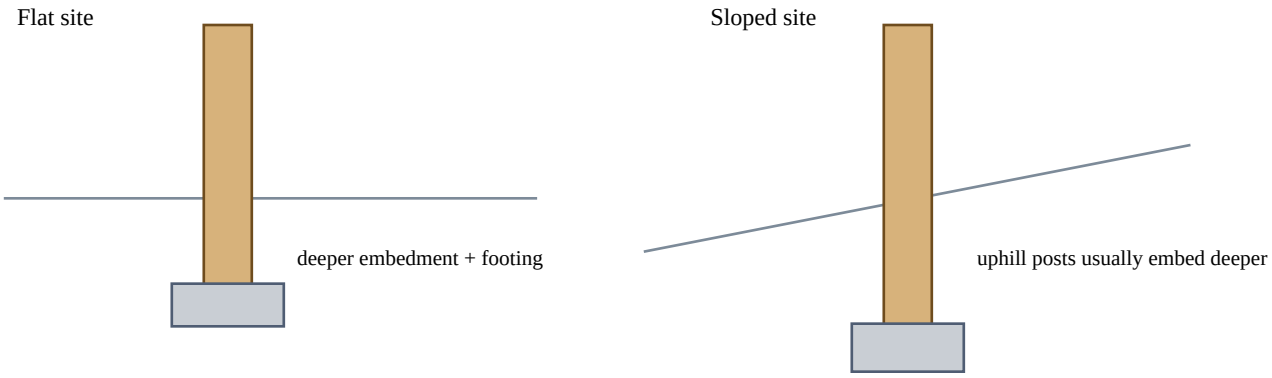
Field note

The wrong foundation choice creates expensive fixes later. Soil and site conditions should drive the decision early.

3. Pole foundations - where they fit

The pole-foundations pages highlight raised wood structures supported by treated posts. The posts, beams, and floor framing all work as one system, so spacing, embedment, and bracing have to be thought through together.

Pole embedment basics



Strengths of pole foundations

- Good fit for sloped or uneven sites.
- Can reduce excavation compared with full perimeter walls.
- Useful for decks, cabins, sheds, shops, and other raised structures.
- The frame can be elevated above splash, snow, and wet ground when detailed well.

Watch-outs

- Post spacing changes beam size and joist design.
- Embedment depth must resist uplift, overturning, and lateral movement.
- Connections at beams and posts are critical; weak hardware ruins a good concept.
- Durability matters: use treated wood and protect cut ends and vulnerable connections.

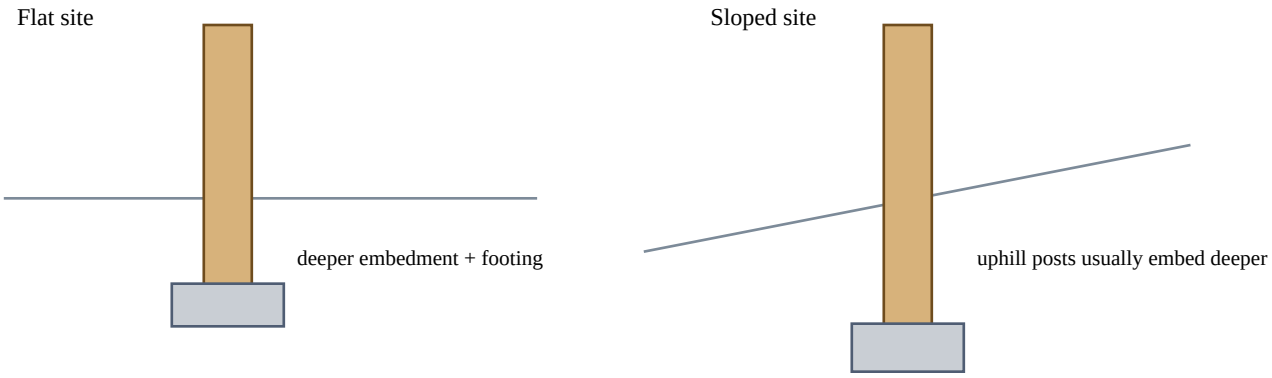
Field note

A pole foundation is not just 'posts in holes.' It is a complete lateral and vertical support system.

4. Pole embedment and connections

Your source pages repeatedly stress embedment length, footing shape, and beam-to-post connection details. Those details govern stiffness, uplift resistance, and long-term survival in the ground.

Pole embedment basics



Embedment reminders

- Depth depends on frost, slope, soil, loads, and lateral demand.
- A footing pad or enlarged base can spread bearing and resist sinking.
- Backfill must be appropriate for the design - not random loose spoil.
- Steeper sites often demand deeper or more carefully engineered uphill support.

Connection reminders

- Beams can sit on top of posts or connect with engineered hardware.
- Bolted or strapped connections usually outperform makeshift toe-nailed connections.
- Limit eccentricity: the cleaner the load path, the better the connection behaves.
- Bracing and diaphragm action matter if the structure must resist wind or seismic force.

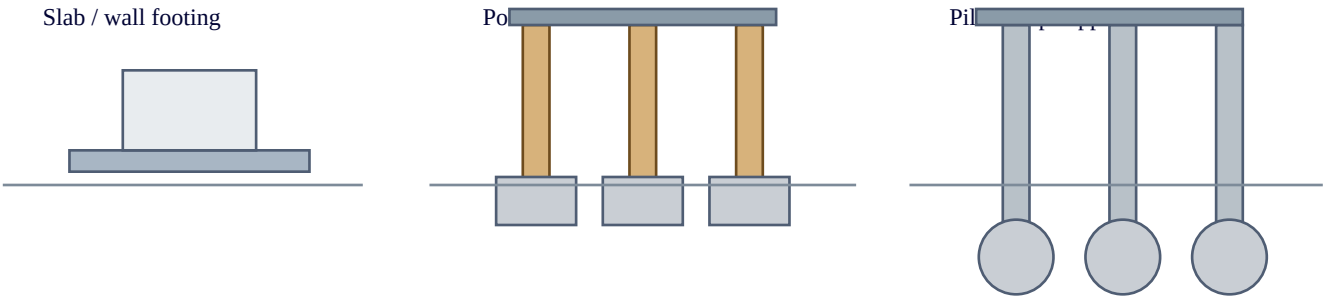
Field note

If the connection detail feels improvised, it probably is. Foundation connections deserve deliberate hardware and layout.

5. Pile foundations - plain-English overview

The pile-foundations page is really a taxonomy page. Its job is to show that deep support can be timber, steel, concrete, cased, uncased, or micro-sized systems depending on access and required capacity.

Common foundation paths



What piles do

- Transfer load deeper when near-surface soil is weak or movement-prone.
- Work by end bearing, skin friction, or a mix of both.
- Allow support in sites where shallow systems become too risky or too large.
- Can be engineered for difficult access or retrofit conditions.

Types shown in the source material

- Timber piles: driven wood members, often for friction support.
- Steel or pipe piles: durable deep elements that can be driven or filled.
- Cast-in-place / cased systems: concrete formed in the ground.
- Micropiles: small-diameter drilled systems useful where access is tight.

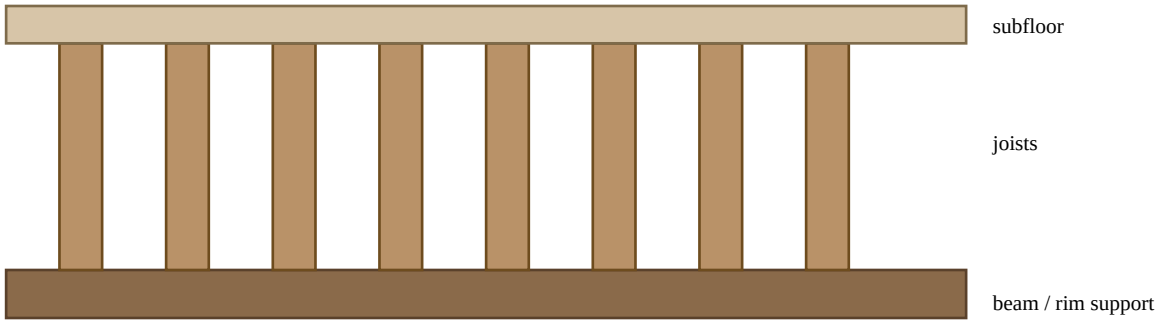
Field note

This section is orientation only. Pile design is a specialist topic and should be engineered.

6. Floor framing overview

The wood-joist floor system is the main bridge between foundation and walls above. The joists carry the subfloor, live loads, partitions, and service routes, then pass that weight into beams, walls, or hangers.

Basic floor framing stack



Main pieces

- Joists span between supports.
- Rim joists or end members tie the ends together.
- Subfloor panels lock the top into a working diaphragm.
- Beams, walls, ledgers, and hangers provide the actual support points.

System goals

- Adequate strength so the floor can carry the expected load.
- Adequate stiffness so the floor does not feel weak or bouncy.
- A clean layout for openings, partitions, plumbing, and mechanical runs.
- Solid bearing and good fastening so members act together.

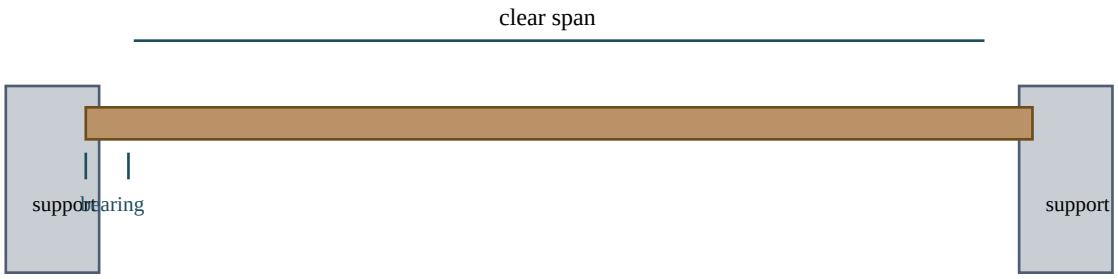
Field note

A floor can be strong enough on paper and still feel bad in real life if stiffness is ignored.

7. Joist span and bearing basics

One of your source pages boiled joists down to span, member size, spacing, bearing length, and stiffness. That is exactly the right mental model.

Span and bearing concept



What controls joist span

- Applied load: heavier use or more dead load shortens allowed span.
- Species and grade: stronger lumber can span farther.
- Member size: deeper members usually span farther.
- Spacing: closer spacing reduces the load on each joist.

Quick practical reminders

- Support length matters; joists need solid bearing at each end.
- As a rough memory trick, deeper joists usually improve floor feel more than packing shallow joists tighter.
- The midspan deflection limit often controls comfort before ultimate strength does.
- Check real span tables before choosing 2x8, 2x10, 2x12, or engineered joists.

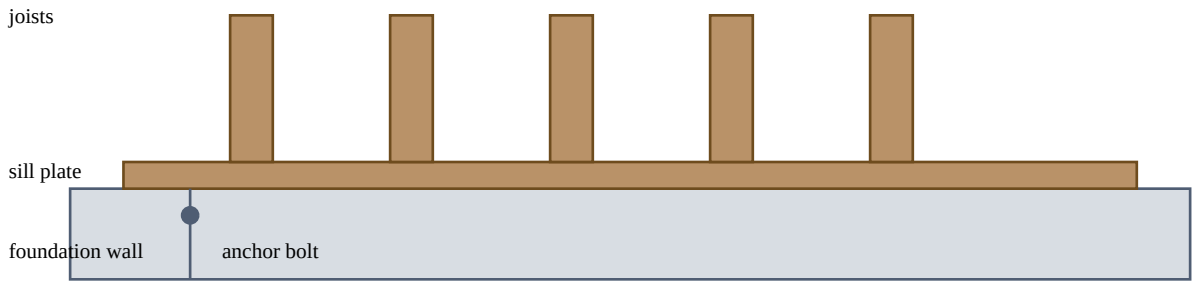
Field note

Never design a floor by a rough rule alone. Use the rule to estimate, then confirm with tables.

8. Platform framing at the sill

The platform-framing source page shows the first framed floor sitting on a sill plate over the foundation. That joint is deceptively important because it must anchor the structure, separate wood from concrete moisture, and provide a level seat for the floor system.

Foundation to floor connection



At the foundation line	At the joist line
• Use a sill gasket or similar separation layer where required by the local practice.	• Joists can sit on or connect to a rim/header assembly depending on the system.
• Anchor the sill plate to the foundation with the correct spacing and edge clearances.	• Blocking and hangers may be needed at concentrated loads or projections.
• Keep wood from direct long-term moisture exposure.	• Coordinate the floor framing so wall sheathing and load transfer stay clean.
• Start straight and level here; errors multiply upward.	• Treat the perimeter as a major structural line, not leftover framing.

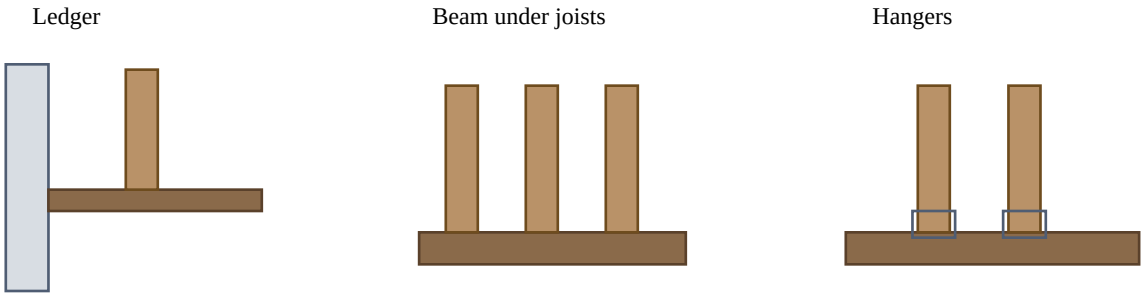
Field note

A sloppy sill line creates crooked walls, poor bearing, and annoying fix-ups later.

9. Beams, ledgers, and hangers

The source pages show joists supported in several common ways: bearing on a beam, hanging from a ledger or beam side, or meeting a support with hardware. Each method can work when the load path and connection are respected.

Typical joist support options



Support methods shown

- Joists can bear on top of a beam when the layout permits it.
- A ledger can support joists when it is truly designed and fastened for that role.
- Metal hangers transfer load where direct bearing is not available.
- Scabs, straps, and blocking may help align shrinkage or stabilize the assembly in some details.

What to check every time

- Does the joist have full, solid support or just a token contact point?
- Is the hardware sized for the member and nailed/screwed correctly?
- Are you preserving enough bearing where the member lands?
- Have you avoided field improvisations that are not backed by design?

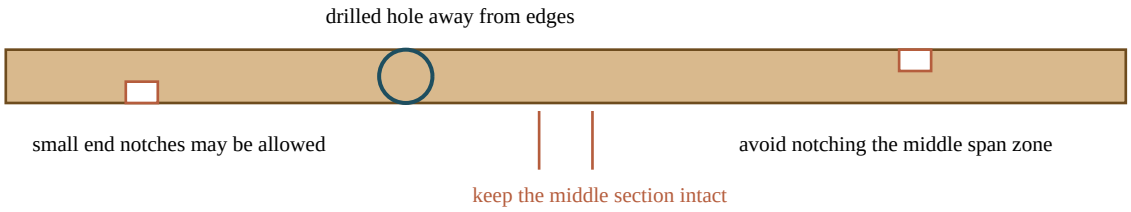
Field note

The hardware is part of the structure. A hanger only works when the right fasteners and installation are used.

10. Holes, notches, and service routes

The joist-detail page also reminds you that floors are not only structure - they also carry plumbing, wiring, and mechanical lines. The trick is letting services pass without destroying the joist.

Where cuts belong in a joist



Safe-thinking approach

- Keep holes away from the top and bottom edges where bending stresses peak.
- Favor round drilled holes over random chopped openings.
- Keep the middle portion of the span as intact as possible.
- If the opening you want looks large, stop and verify before cutting.

Bad habits to avoid

- Notching the middle third because it is convenient.
- Stacking multiple holes in the same critical area.
- Cutting first and asking the engineer later.
- Letting trades remove material without layout control.

Field note

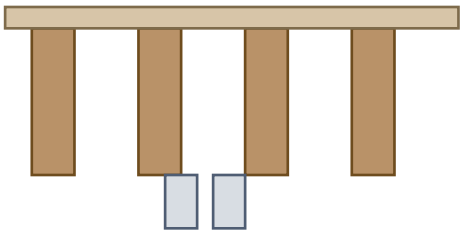
Most joist damage happens because service layout was treated as an afterthought.

11. Partitions carried by the floor

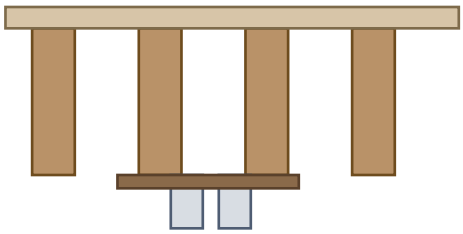
Your partition pages are useful because they distinguish between bearing and nonbearing walls, and between walls that run parallel or perpendicular to joists. That distinction changes whether extra support is required.

Partitions relative to joists

Nonbearing parallel



Bearing perpendicular



General logic

- A nonbearing partition usually adds less demand than a bearing wall.
- A partition running perpendicular to joists can distribute load across multiple joists.
- A partition running parallel may line up with only one or two joists, which can demand reinforcement.
- Bearing lines often need doubled members, blocking, headers, or a better support path below.

Practical jobsite check

- Ask whether the wall above carries roof, ceiling, beam, or floor load.
- Look below the floor to see whether there is matching support under that line.
- If the support path is missing, redesign before the wall goes in.
- Use blocking deliberately; do not assume a random scrap creates a bearing wall detail.

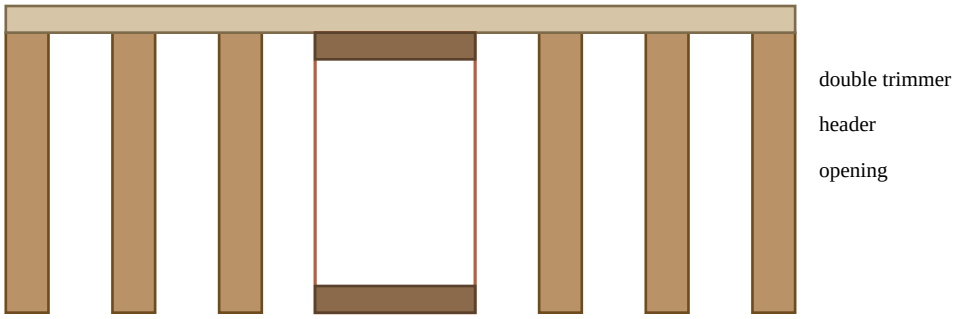
Field note

The expensive mistake is treating a bearing wall like a simple interior partition.

12. Openings and floor projections

The opening pages show how floor framing changes when you interrupt the regular joist pattern for stairs, chimneys, shafts, bays, or other features. Once a joist is cut, the load has to turn into headers and trimmers.

Framing an opening in a floor



Opening-framing principles

- Cut joists must be supported by a header at the opening edge.
- The header load then goes into trimmer joists at the sides.
- Longer headers or larger projections may require engineered members.
- Hangers, anchors, and blocking keep the altered frame tied together.

Projection reminders

- Cantilevered or projected floor areas demand careful support and detailing.
- Solid blocking may be used to create nailing surfaces or stiffen short overhang conditions.
- Keep exterior moisture detailing in mind when the floor crosses the wall line.
- Do not assume a decorative bump-out is structurally minor.

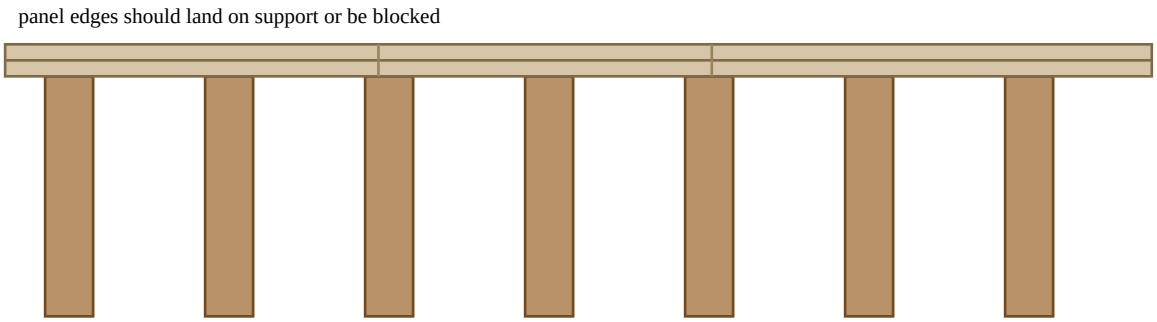
Field note

Every opening is a small load-redirect problem. Frame it like a system, not like a gap.

13. Subfloor and underlayment

The subfloor page explains the top skin of the floor. Panels do more than give you something to walk on - they tie joists together, distribute load, and improve stiffness when installed properly.

Subfloor over joists



Subfloor reminders

- Panel thickness and span rating must match joist spacing.
- Panel edges should land on support or approved blocking.
- Fastening schedule matters; loose nailing leads to squeaks and weak feel.
- Glue-and-fasten systems can improve stiffness and reduce movement when done correctly.

Underlayment reminders

- Underlayment mainly prepares a smooth surface for finish flooring.
- It does not automatically replace structural subfloor requirements.
- Moisture conditions matter; choose materials suited to the application.
- Think about panel direction, joint offset, and edge support before laying sheets.

Field note

A good floor finish cannot rescue a bad subfloor layout underneath it.

14. Quick field checklist

Use this before you lock in a framing layout or before a major cut day.

Check	Why it matters
Support locations confirmed	Tells you where loads actually land.
Real spans measured	Prevents sizing by guess.
Bearing lengths verified	Avoids weak end support.
Bearing vs nonbearing walls identified	Changes reinforcement needs.
Openings mapped before joists are cut	Protects the load path.
Services coordinated	Reduces dangerous drilling/notching.
Subfloor panel layout planned	Prevents unsupported joints and squeaks.
Hardware list ready	Prevents jobsite improvisation.
Local code / table check completed	Confirms the final buildable numbers.

Jobsite rhythm

Best workflow: lay out the frame on paper first, then on the deck or beams, then cut. Framing gets expensive when the thinking happens after the saw is running.

15. Common mistakes to avoid

These are the failure patterns hiding behind the source pages.

Mistake	What it turns into
Picking member sizes from memory only	Bouncy or underbuilt floor.
Weak sill or beam connection details	Poor load transfer and movement.
Treating all interior walls as equal	Unexpected overload on a few joists.
Cutting for plumbing without layout	Damaged joists and callbacks.
Ignoring panel edge support	Soft spots, squeaks, joint problems.
Improvised hanger or ledger fastening	Connection failure risk.
Using foundation type by habit, not site	Settlement, uplift, or water problems.
Forgetting moisture and durability	Rot, corrosion, and shortened service life.

Next expansion idea

This pack already has product potential. The next strong move is to make a matching wall-framing volume with the same visual system so the set feels complete.

End of volume 1.

Built from your source pages and rewritten as an original plain-English reference. Keep notes in the margins and customize it for your local practice.