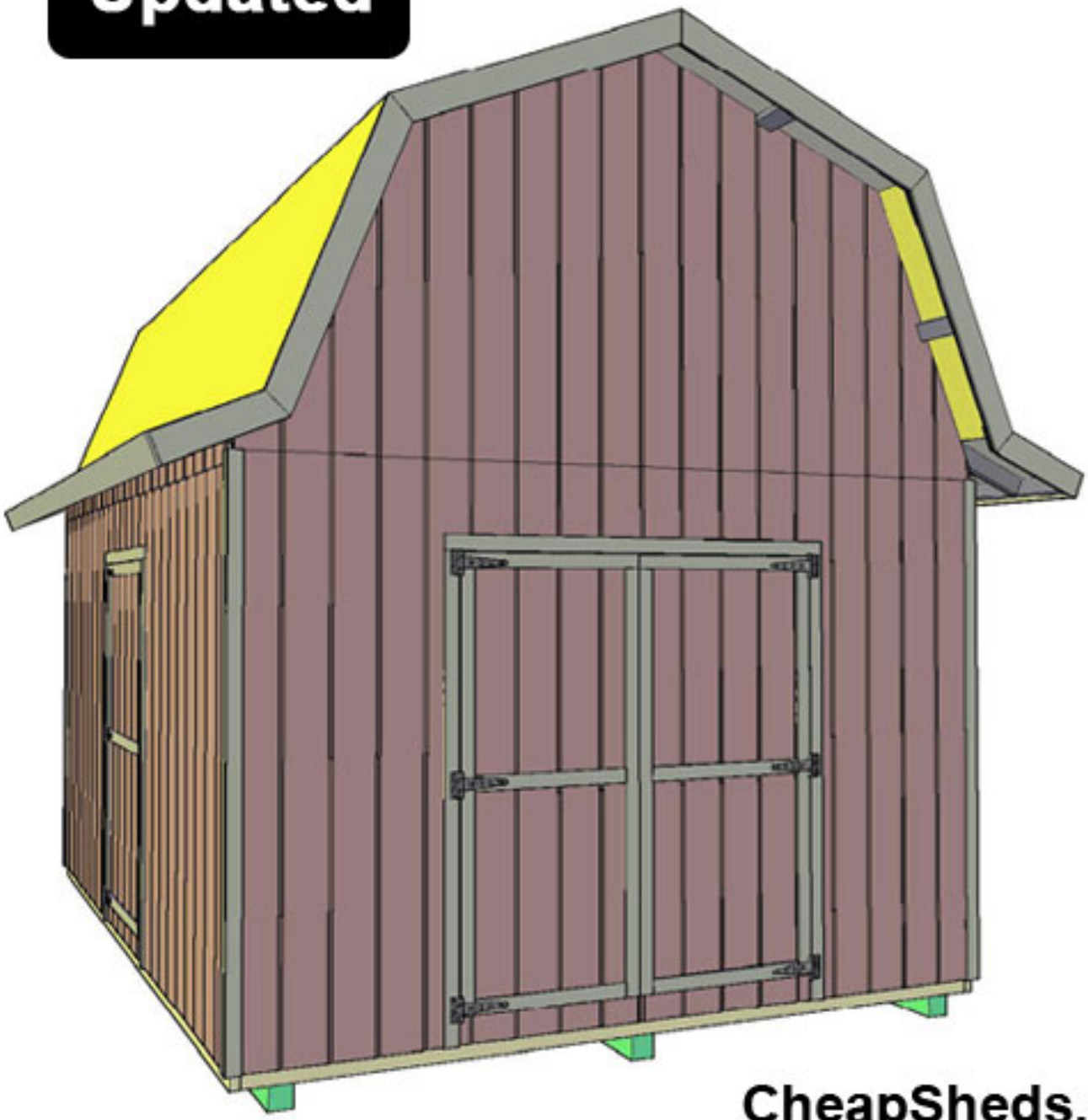
Tall Barn Style Shed Plans

31 Sizes From 8x4 through 16x32

Updated



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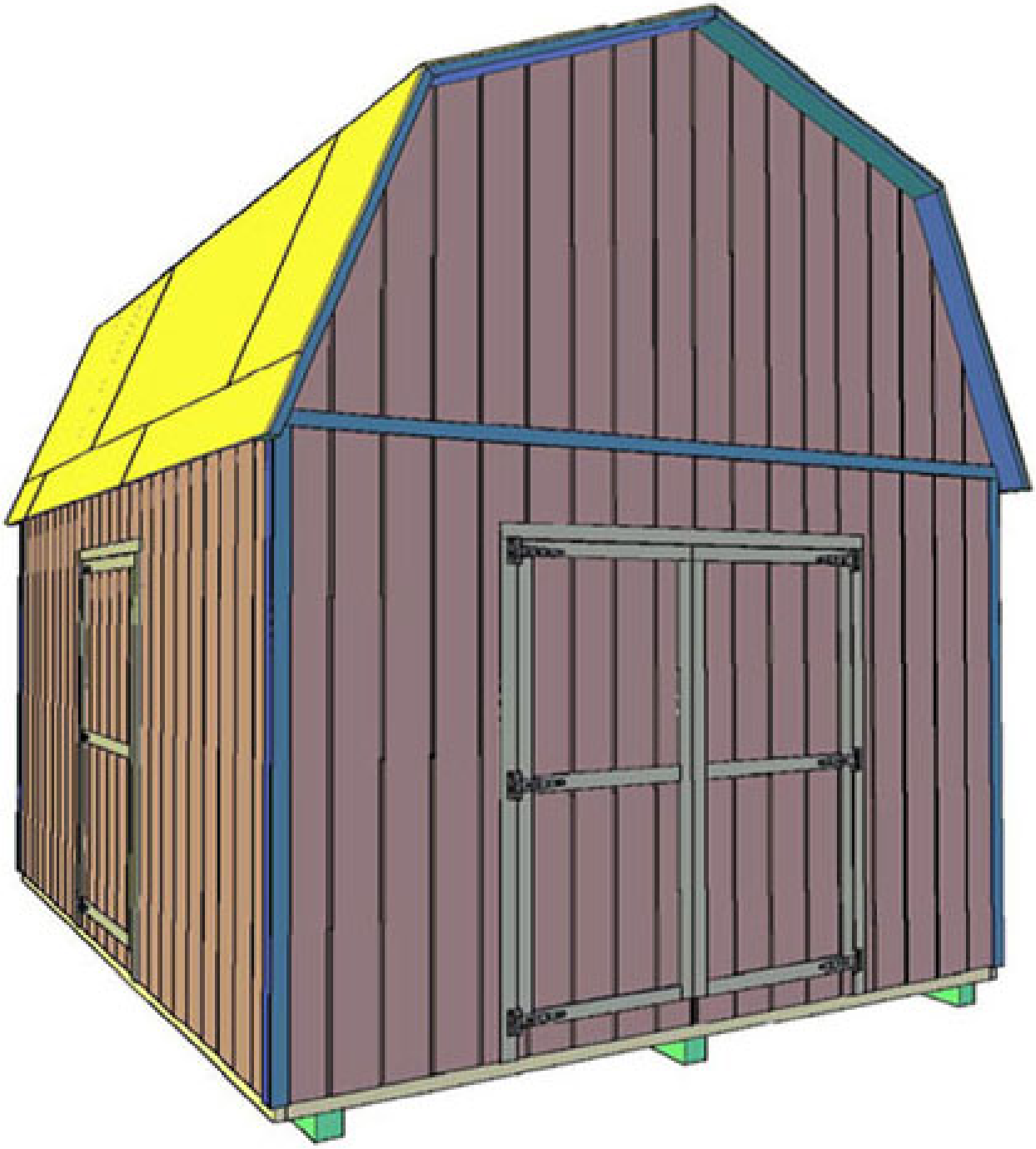
Cover image shows a shed built with optional 12 inch overhang

This image shows a shed built with no overhang



Update: June 26, 2017

Download an individual materials and cut list for each of the 31 sizes

I have posted individual materials & cut lists and cost estimate worksheets for each of the 31 shed sizes online. Click on this link to go to the page on my website where they are all posted.

- **http://www.cheapsheds.com/materials-list/**

The materials notes referenced in the individual worksheets are the same as in Table 1 Notes. The only difference is that I have broken the master list in Table 1 down into these 31 individual sizes. This will make it easier to understand where each piece of wood is used.

The rest of the plans remain unchanged.

Phil the shed man

General notes

Print these plans

It will be much easier to understand these plans if you print them out and staple them together in separate 3 sections.

1. **Staple these instructions into one section**
2. **Staple the tables into another section**
3. **And staple the figures into a third section.**

This way when the instructions reference a table or diagram or figure you can look at them side by side for maximum clarity.

These plans are for building a barn style gambrel roof shed in 31 sizes from 8x4 to 16x32 and use a 12x16 shed as an example and are designed with:

- 12/16 inch centers for the floor joists
- 16 inch centers for the the wall studs
- 24 inch centers for the roof trusses for up to 12 wide sheds, 16 Inch centers for 14 and 16 wide sheds and a rafter tie every 48 inches (Not necessary if you build a loft).

Optional loft

A loft will add considerable storage space for very little cost. You can build a loft the entire length of the shed leaving just enough room for an entrance. Or you can build an outside entrance for maximum loft space. Materials for a loft are not included in the materials calculations.

Optional overhang

You can build the roof with 12 inches of overhang on all 4 sides.

The difference is the overhang rafters on the end of the trusses, flying rafters and flying trusses. Materials for the overhang are not included in the materials calculations.

Optional Crows Beak

This crows beak is purely decorative but looks good if you have the extra time and energy to frame it in.

Print these plans

It will be much easier to follow these plans if you print them out and staple them in 2 sections. Staple the first half (these instructions) in one section and the second half (the tables and figures) in another section.

This way when the instructions reference a table or figure you can look at both of them side by side for maximum clarity.

Links

I have included links to my website for videos, assorted information articles and to my newsletter sign up page. You will need internet access to reach these links.

Screws

I recommend using screws instead of nails to assemble the framing because they have better holding power than nails. They also have better pulling power. A screw can pull a twisted board into place better than a nail can.

Pilot Holes

I also I recommend drilling 1/8 inch pilot holes regardless of whether you use screws or nails. This will prevent the ends of your boards from splitting as well as make them easier to assemble. In addition your screw or nail will not go astray because of the grain of the wood, nor will you have difficulties with knots.

This will add a little time to the project but it will make construction much easier. If you have a nail gun then by all means use it. Just be careful to not split the ends of the wood.

Disclaimer

- Building permits might be necessary to build a shed in your area so check with your local building department before you get started. For more information read this article about shed building legal issues on my website.
- These construction techniques might not meet the building codes in your area as they vary around the country.
- There are no gurantees about the structural integrity of this shed.
- I/we are not responsible for the safety of anyone building a shed based on these plans. You the plans buyer assume all risks and responsibilities associated with building this shed and hold harmless CheapSheds.com and anyone associated with the design and promotion of these plans.

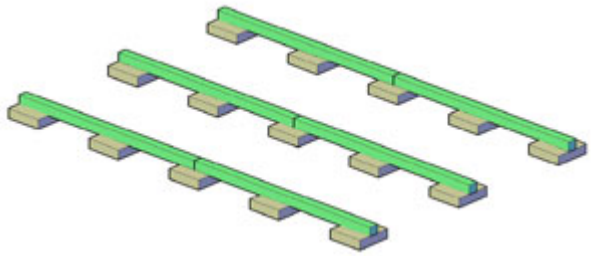
Now lets get started...

Step 1: Foundation

The options for shed of foundations are:

- Concrete slab
- Pressure treated skid foundation resting on earth, gravel or concrete blocks
- Anchored with tie downs or concrete piers

Please note: If you want to build your shed on a concrete slab then jump ahead now and review Step 2a: Build on a concrete slab.



A basic skid foundation consists of pressure treated 4x4 skids laid parallel on the ground, usually on concrete blocks.

This is a lot cheaper than a concrete slab and has the added benefit of keeping your shed portable should you ever want to move it in the future.

Pressure treated means that the skids are rated for long term ground contact and are resistant to water rot and termite damage.

Pressure treated wood is usually some shade of green as a result of it's chemical treatment and is labeled with a tag to identify it as being pressure treated.

Select a location with adequate drainage then clear and level the building area.

You can lay the skids directly on the ground, on concrete blocks, or on a bed of gravel.

See Figure 1.1, Skid spacing

The skid spacing will differ depending on the width of the shed you're building. Put the outside skids about 8 inches inside from the floors edge and one in the center of the shed.

If your site is fairly level you can lay the skids directly on the ground.

See Figure 1.2, Level the skids

If your site is not level then place concrete blocks under each skid every 4 feet or less and build the low points up with more blocks and wedges until the skids are approximately level.

Dig the ground out to provide a stable base for the blocks or skids where necessary.

Don't worry about getting the skids perfectly level at this point because you'll make the final level when the floor frame is complete.

Drainage

If drainage is a problem you can dig a trench under each skid about 12 inches wide and 12 inches longer than the length of your shed, fill it with gravel and place your skids on top.

Anchor the foundation

If you expect to have a problem with your shed moving from frost heave, water or wind, or if it's required by building codes in your area you can tie it down.

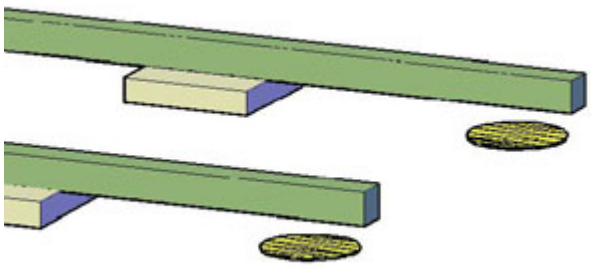
Your options include home made or commercial made tie downs and wood posts with concrete peirs.

Wood And Concrete Pier Foundation

The location, number, size and depth of the piers might be dictated by building codes. It will also be a function of the weather in your area. You might need to dig down below the frost line to get the best results.

In the absence of building codes and with moderate weather you should have a pier at each corner, about 12 inches in diameter and going down 24 to 36 inches into the ground. In addition you will need a concrete block support every 4 feet or less in between the piers.

Locate and dig holes

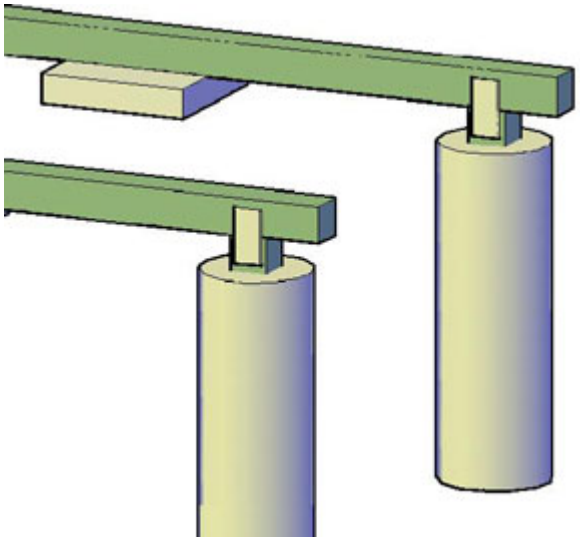


Lay your skids out, level and square them as above. But don't put a support block at the end of the skids where you will place the piers. Mark the ground where you will dig your holes about 6 to 8 inches from the end of the skids.

Move the skids out of the way, dig your holes and put the skids back in place. Measure from the bottom of the skid to the bottom of each hole and cut a pressure treated 4×4 pier 4 inches less than this measurement.

This will allow enough room for concrete to flow under the bottom end of the pier to prevent wood to earth contact. Just an extra precaution.

Install piers

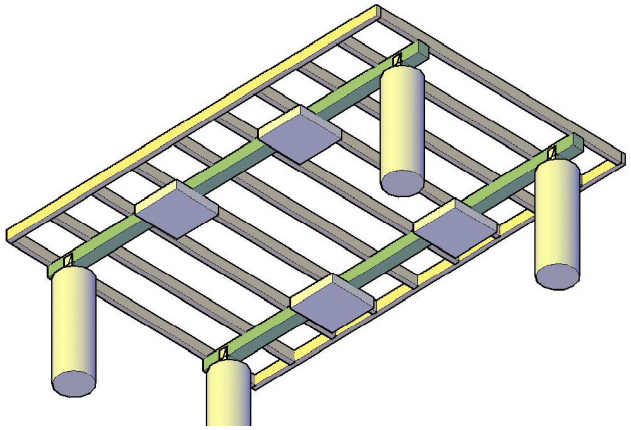


Place the 4×4 piers into their holes and secure them to the skids. You can use a metal mending plate on each side, or a metal strap going over the top of the skid attached to either side of the 4×4 pier.

Or you can use a specializes metal Simpson tie if they are avaliable in your local store.

With the 4×4 piers hanging down in the empty holes, re square and re level the skids. When they are correctly positioned then fill the holes with concrete up to ground level and let them dry for a day or two.

Finished Foundation



Now you have a solid foundation to build your floor on.

Before you sheet your floor you can add some metal straps or H25’s to tie the skids to the floor joists for extra security.

Foundation for floor-less shed

You don't necessarly need a floor in your shed as long as you have a suitable foundation. Here are 2 foundation options if you want to build without a floor.

- Pressure treated wood frame with post and concrete piers
- Concrete stem wall

It's important that you build the foundation tall enough to keep the siding away from the ground where moisture and termites will damage your shed. I recommend at least 4 inches of distance between the ground and any untreated wood. Like the bottom edge of the siding.

One way to accomplish this is by increasing the stud length. This will reduce the

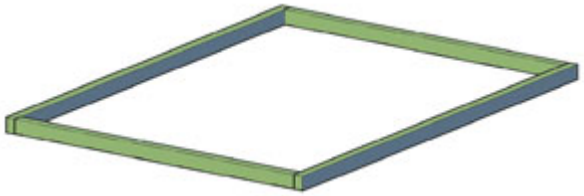
lower siding overhang and make your walls taller. I recommend a minimum of 1 inch lower siding overhang to prevent water from seeping under the bottom plate.

This means your foundation needs to be at least 5 inches above ground level.

How deep you go will depend on building codes, frost level and if you will have animals trying to dig under your foundation to get in or to escape.

Pressure treated wood frame with post and concrete piers

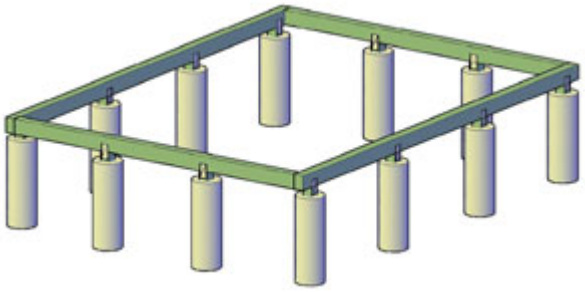
Layout perimeter



Lay out pressure treated 4x6's to make a wooden perimeter frame the same size as the shed. Turn them so they are 6" tall. Pull a tape measure diagonally across to make sure the frame is square.

This is an example of a foundation frame for a 12x16 shed.

Install post and piers

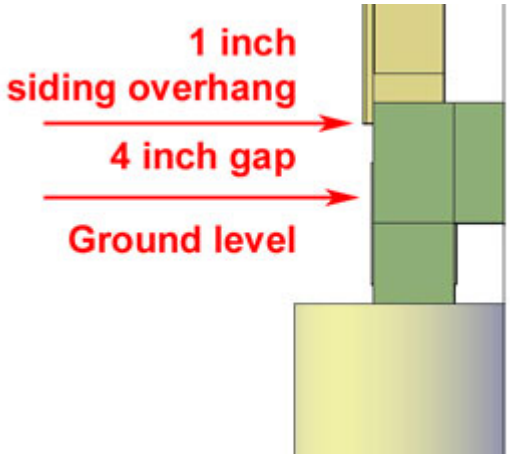


Mark where you want your post and piers to be. Remove the pressure treated wood perimeter frame and install the piers every 4 to 6 ft, as described previously.

And make sure it's level and square then secure the wood perimeter frame to the uprights with galvanized metal straps.

Don't worry about tying the individual perimeter pieces together because once you tie the shed in, that will tie all the foundation pieces together.

Attach shed



Attach the shed walls to this perimeter frame with 3 inch nails or screws through the bottom plate and galvanized 8d nails every 8 inches through the siding overhang.

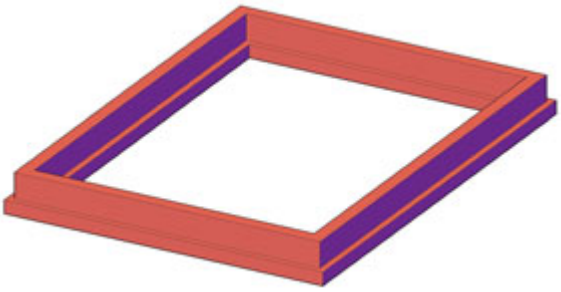
This graphic shows a 5 1/2 inch tall frame with 1 inch siding overhang and 4 inch gap from ground level.

Got animals?

As an option you can install more pressure treated wood below ground level to keep animals from digging under the walls.

Concrete stem wall

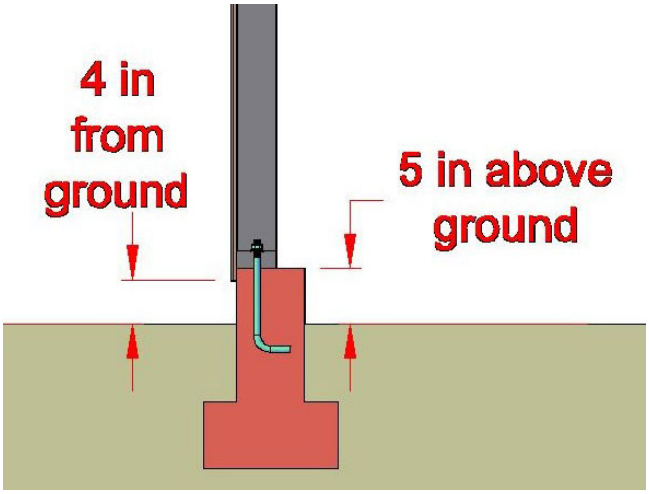
Another option is to build a concrete stem wall.



This can be a footer with a concrete block stem wall or a mono pour with the footer and stem wall made at the same time.

Build the outside of the stem wall the same size as your shed.

Attach with j-bolts



Attach the shed walls to the stem wall with j-bolts embedded in the concrete 12 inches off each corner then 48 inches on center.

The top of the stem wall should be 5 inches above ground level minimum, which makes a 4 inch gap from the ground to the bottom of the siding when using a 1 inch siding overhang..

Links to relevant posts and videos on CheapSheds.com

- General foundation video
- Why you might need to tie your shed down
- Cheap home made shed tiedowns
- Frost heave and your shed foundation

Step 2: Floor, wood

If you live in an exceptionally wet area or have a major termite problem you might want to use pressure treated wood for the entire floor including the skids, the floor joists and the plywood sheeting. This will add to the initial cost of your shed but it might also save you money in the long run because a floor built with pressure treated lumber will last longer in these situations.

See Table 3

Get the number of floor joists you'll need from Table 3, depending on if you choose to build with 12 inch centers or 16 inch centers. Materials list is calculated with 12 inch centers.

See Table 2

Get the measurements for the band boards (Dimension "B") and floor joists (Dimension "C") from Table 2 and cut to length.

See Figure 2.1, Assemble the frame

Lay the joists on top of the pressure treated skids and space them about 12/16 inches apart.

Attach the band boards to the joists with three 3 inch screws or 16d nails at each joist.

See Figure 2.2, Splice rim joists for large shed floor

If you're building a large shed and can't get lumber long enough for the rim joists you will have to splice them.

Place the ends of the rim joists together and lay the splice over the joint. Layout the floor 12 inches on center and extend the marks onto the splice.

Assemble the floor starting with the 8ft splice. Cut the joists you install here 3 inches shorter than Dimension "C".

When this splice section is assembled then attatch the rim joists making sure to line up the layout marks and secure the 2 rim joists to this splice with 16d nails or 3 inch screws every 12 inches staggered along the top and bottom edges.

Attach the rest of the joists as normal.

This 8ft splice will make the shed floor as strong or stronger than an unspliced rim joist.

Square

Check the square by pulling a tape measure and comparing diagonal

measurements across the floor.

Slid a skid back or forth until the measurements are equal.

Attach the skids

Position each skid and drill pilot holes and toe nail both sides of each floor joist to the skids with 3” screws or 16d nails.

Except the front and rear joist.

Leave these two free so you can manipulate them to match the outside edge of the plywood sheeting as you nail it on.

Level

Now that the floor frame is finished and you will not be knocking it around any more it's time to level it. Level across the front, middle and back and along both sides with a builders level.

Add or remove a little dirt or gravel under the skids until the floor is level. If necessary place concrete blocks every 36-48 inches under each skid. Add blocks or wedges between the blocks and skids until the floor is level in all directions.

Recheck the square by comparing the diagonal measurements again.

Any extra effort you spend carefully level the floor now will pay off when you later when start sheeting the roof.

If the floor is not level the roof sheeting will not fit properly and you will have to re-level at that time.

See Figure 2.3

Now you will have a complete floor frame that looks like Figure 2.3.

Tie downs

If you want to attach tie downs to the floor of your shed, do it now.

Attach them to the floor joists rather than the skids for an extra measure of security.

Nail the sheeting

Lay your best sheet of plywood along the front of the floor frame.

Square it up to the front edge and corners and nail along the front edge.

Check the edges for square along the side and nail every 8 inches with 8d nails.

Repeat with the second and third sheet, putting the worst sheet at the back of the floor.

Extra blocking on 10 & 12 wide floors

If you're using regular CDX plywood as opposed to tongue and groove you should provide some extra support where the full pieces of plywood meet the cut pieces on 10 and 12 wide floors.

To make these blocks cut 12 inches off the ends of some of the 2x4's that you will be using for studs. You will need one less than the number of floor joists you have. These blocks will fit loosely, but that's ok.

Attach them to the underside of the plywood joint with three or four 2 inch screws. Leave about half of the block exposed.

After you nail the smaller pieces of plywood in place then put screws on the other side of the joint to match.

Nail the center

Snap a chalk line across the floor every 12/16 inches using the screw heads on the band boards as a guide.

Nail the center of your sheeting along the chalk lines every 8 inches.

Toe nail

Toe nail the front and rear joists to the skids.

You have finished the floor.

Links to relevant posts and videos on CheapSheds.com

- Build a floor video

Step 2a: Floor, concrete

At first glance you might think a concrete slab would be the ultimate floor and foundation system for a shed.

But a slab has two main drawbacks you should consider before you make a final decision.

- The cost: A concrete slab could easily cost 3 to 10 times the amount of a wood floor. Depending on if you do it yourself or hire someone.
- Your shed is no longer portable.

No Longer Portable

Not being portable is important for 2 reasons.

- You can't move your shed if you need to.
- And permanent structures are often treated differently by the law.

Permanent structures often need building permits regardless of the size. This means you will need to build it to code and have it inspected, both which will cost you additional time and money. And perhaps even more important it will forever be taxed as part of your property tax bill.

But on the plus side is you will have a floor that can carry any kind of weight, will never rot, and your shed will be resistant to almost any source of movement be it water, wind or frost heave.

Physical Dimensions

Build your slab the size of the shed floor as per Table 2. In other words if you are building a 12x16 shed then build a 12x16 slab. This way the siding will be able to hang over the side of the slab an inch to prevent water from seeping under the bottom plate and into your shed.

If you want to put an apron in front make sure it slopes away from the shed or is a little lower than the floor.

The top surface of your slab should be about 5 inches off the ground. This will allow your siding to overhang about 1 inch, then provide a 4 inch gap between the ground and the untreated wood siding.

This 4 inch gap is your best defense against termites and moisture getting to the shed. And often times this is in the building code.

Make your slab 4 inch thick and it will hold all the weight you can put on it. Any thicker is a waste of concrete and money.

Ramp

If you want a ramp it's best to pour it the same time as the rest of the slab.

You can frame it in and make it part of the slab.

This way you will never have to worry about a wood ramp rotting and having to be replaced.

Anchors

You can install "J" bolts in the concrete when it's wet or you can install expandable head anchor bolts after the walls are in place. If you are building to code check which option they recommend or allow.

Put an bolt 12 inches in from each side of both corners, then a bolt every 48 inches. And put a bolt near the edge of each side of the door.

Expandable Bolts

To install expandable bolts put your 4 walls in place first.

Then use a hammer drill and masonry bit the diameter of your bolts. Drill a hole through the bottom plate and into the slab sufficient for your bolts.

Put the nut and washer on the bolt and drive it into the hole, then tighten it up with a wrench. This will expand the bottom of the bolt and turn it into a solid anchor.

Weather Proof

Use pressure treated 2×4's for the bottom plates and put a foam seal between it and the slab.

If you're using "J" bolts in the slab then put the foam on the bolts before you raise the walls.

If you're using expandable bolts then staple the foam to the bottom plate before you raise the wall. This will keep it from moving around.

Step 3: Trusses

Build the trusses now because the empty floor will be part of your temporary truss jig. Plus the floor makes a nice clean workspace to cut and organize the pieces on.

Truss spacing

- Sheds up to and including 12 ft wide can be built with trusses 24 inch O.C.
- 14 and 16 ft wide sheds need trusses 16 inch O.C. and a 2x4 rafter tie at the base of every third truss (48 inches) for strength. If you build a loft then the rafter ties are not necessary.

Optional overhang or crows beak

If you want to build with the optional overhang or add a crows beak then make sure to read steps 3a and 3b before you get started. Neither of these 2 are included in the materials list.

Calculate number of pieces to cut

See table 3 for the truss count. Take the number under the column of the center spacing (16 O.C. or 24 O.C.) you want to use. The materials list is base on building with 24 inch centers for 8, 10 and 12 wide sheds, and 16 inch centers for 14 and 16 wide sheds.

The truss count number less 1 times 6 (count-1x6=total) is the number of osb web pieces you'll need to cut.

Take the same truss count number times 4 for the number of 2x4 truss pieces you'll need to cut.

Cut osb web pieces

Rip some osb into strips 12in wide and 8ft long. Cut these strips into pieces 6in long. You'll need enough of these 6x12 pieces to build the number of osb web pieces you calculated above. Leave them square at this time.

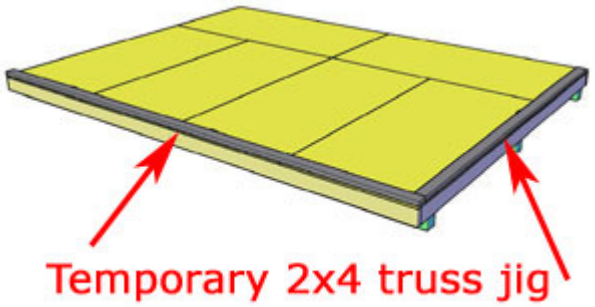
Cut truss individual pieces

See Figure 3.1 and Table 2 to get dimensions "G" and "H".

All the truss pieces are identical. Cut the necessary number of pieces with 22 1/2 degree angles on each end and a length of "H" along the long side.

For 8 and 10ft wide sheds you can use 2x4x92 5/8 precuts. For 12 ft wide sheds use full 8 ft lumber.

Temporary truss jig



Build a temporary truss jig by screwing 2 long 2x4's to adjacent edges of the floor at 90 degrees to each other.

Align them to the edges of the floor and attach with 3 to 4 screws along their length. This way the floor acts as a giant builders square.

Cut 3 stops

Cut 3 osb pieces about 1 1/2in x 3in to use as stops.

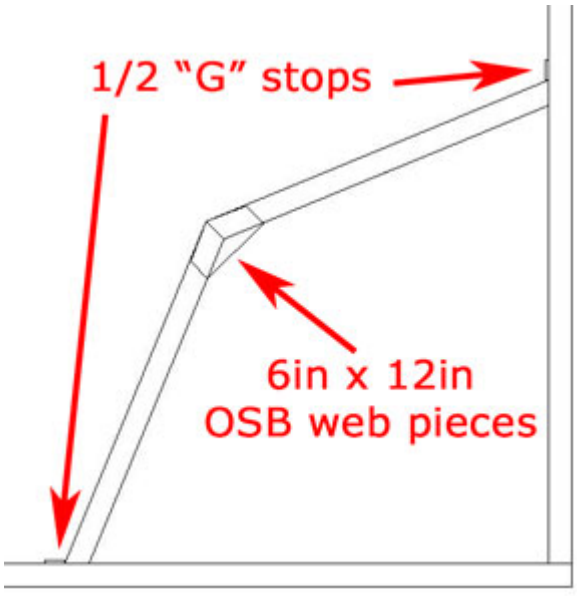
See Figure 3.2, Truss jig and attach stops

From the inside corner of the jig measure up a distance of 1/2 "G" and place a mark on the inside face of the 2x4. Attach the first stop here with two) 2 inch deck screws.

Attach the second stop the same 1/2 "G" distance along the bottom of the jig.

Attach the third stop at distance "G" from the inside corner.

Mark and cut osb web pieces



Place 2 truss pieces between the 1/2 "G" stops. Put the ends firmly into the stops and bring the top ends together.

Place a 6x12 piece of osb under the joint where ends meet. Make sure it's symmetrical.

Mark along the top of both truss pieces with a pencil then remove the osb piece. Cut along these lines and use this piece as a template to mark and cut the rest of the osb web pieces.

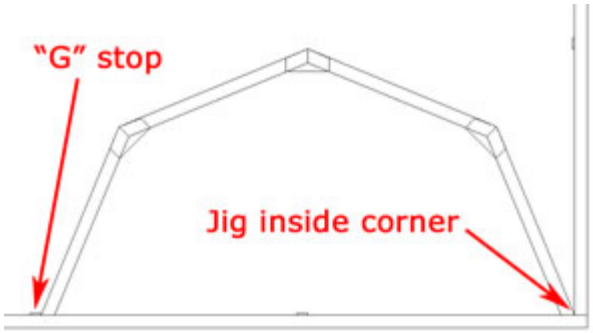
Assemble half trusses

Build all the half truss assemblies by placing truss pieces in the jig and attaching the osb web with 6 to 8 (1 3/4 inch) nails or screws into each side. You can use glue or construction adhesive for extra strength.

Do this to the first side only this point.

Before you remove the first truss place a pencil mark on the floor at the outside edge of the joint. If all further trusses match up to this mark then you know the trusses will the same. If they don't line up then you might have a problem and need to redo something.

Combine half trusses



Place 2 half trusses between the "G" stop and the inside corner and bring the ends together.

Attach an osb web piece at the joint.

Mark the outside of this joint on the floor to use as a check for the rest of the trusses.

Attach osb web pieces on other side

Gently lift this truss at the center joint and pull it across the floor slightly beyond the upper 1/2 "G" stop. Raise the truss up on its ends and flip it over to the other side. Place a temporary osb spacer under each end to keep it level then attach an osb web piece to each of the 3 joints.

Except the last 2 trusses

Do this for all except the last 2 trusses. Leave the osb webbing off the back side of the last 2 because these will be the gambrel end trusses that you will nail the siding to.

See Figure 3.3, Frame the gambrel 2 end trusses

Remove the 1/2 "G" stop on the bottom of the jig. Cut a 2x4 for the truss base to fit between truss ends at the bottom and attach it with a 3x6 piece of osb on each end. Measure and mark it for 16 or 24 inch centers from the outside corner the truss.

Measure and cut the upright studs to fit.

Attach them with 3x6 inch pieces of osb webbing at each end to keep them in place. This webbing is not for strength but simply to keep the uprights in place

until you can nail the siding on.

This is the time if you want to frame for a window or door in either of these ends. Feel free to adjust the upright spacing as necessary, as long as you have a stud where the siding breaks so you can nail it together at that seam.

See Figure 8.2, Sheet the gambrel end

Carefully flip the complete truss assembly over so that the osb webbing side is touching the floor.

Lay the first piece of siding on the truss assembly and allow 2 inches of overhang below the bottom of the truss base. Nail in place with galvanized 1 ½ inch nails. Any longer and the nails will go through the truss and into the spacers or even into the floor below. Nail the rest of the siding in place.

See Figure 8.2 to understand how the truss will sit on the top plate and how the siding will overhang to cover the joint and make it water tight.

Trim the top edge of the siding with a router or skill saw to match the truss.

Links to relevant posts and videos on CheapSheds.com

- How To Build Barn Style Shed Roof Trusses Video

Step 3a: Adding Overhang To The Trusses

You still have a few more steps if you want to build your shed with overhang.

See Figure 3.5, Truss comparison

Take a look at the finished tusses so you will know what they will look like and see where all the pieces go.

Make 2 more trusses

You will need 2 more trusses with OSB webbing on one side only.

See Figure 3.4, Overhang details

Determine how much overhang you want. A 45 degree angle on the end of the overhang piece will give the overhang the same pitch as the upper gambrel pitch.

A length of 11 inches from the short side of the angle will give you approximately 12 inches of total overhang, including the truss end board. If you want more or less overhang you can make that adjustment now.

Cut overhang pieces and OSB webbing

Cut 2 overhang pieces for each truss, and 4 OSB webbing for each truss (less one). These are 3/1/2 inches wide by about 12 inches long.

Attach overhang pieces

Attach the overhang pieces to both ends of each already completed truss with OSB webbing on each side. Line up the bottom corner of the overhang piece with the outside corner of the truss.

Except the gambrel end trusses and flying trusses. Attach with OSB webbing on one side only.

Gambrel end truss OSB

For the gambrel end trusses you will need to make a single piece of OSB webbing to tie the base 2x4 and the overhang to the truss because there will not be room for 2 separate pieces.

See Figure 3.4, Trim flying trusses

Take a router with a follow bit or a jig saw and remove the excess webbing below the 2x4.

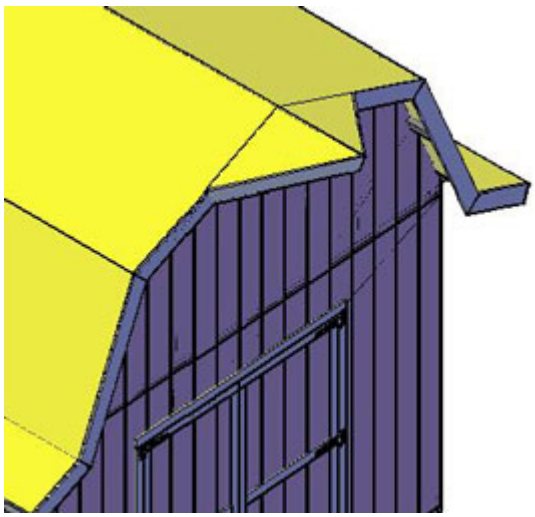
Trim the bottom of the truss where it meets the overhang piece.

See figure 8.1, Cut for flying rafters

These flying rafters will give strength to the gambrel end overhang. They should be about in the middle of each truss segment.
Use a 2x4 scrap and mark on either side for the width. Mark the front or back down 1 1/2 inches for depth.

Set the depth of your skill saw at 1 1/2 inches and make several cuts to remove as much wood as possible. Then use a chisel to finish the cut so the 2x4 lays in properly.

Step 3b: Adding A Crows Beak



A crows beak is a nice decorative touch for your roof line.

In the old days on working barns it was used to attach a pulley to lift hay into the loft area.

But in this case it's purely aesthetic.

Pre-build on the ground

It's easier to work out the dimensions and angles on the ground than when you're hanging over the edge of the roof 12 to 16 ft in the air, or working off a wobbly ladder. Pre-build it on the ground and install it just before you sheet the roof

Hopefully you have access to a compound miter saw for this part because I don't know if you can build it without one.

½ Trusses

Build three ½ trusses with OSB on 1 side only. You will use these later in the actual trusses so they will not go to waste.

See Figures 3.6, 3.7 & 3.8,

Cut for the flying rafters in the center truss which represents the gambrel end truss. If you're building a small crows beak with overhang of 18 inches or less you will not need any additional flying rafters.

If you're building with overhang greater than 18 inches I would suggest an additional flying rafter for each side of the crows beak.

Temporary mock up

Stand the ½ trusses upright and assemble them with 3 inch screws to their proper spacing. This means you will need to determine your gambrel end roof overhang measurement now.

Install OSB

Cut 2 pieces of OSB to the final dimensions of your crows beak and attach with screws on each side of the truss peak. Flip this assembly over so you have access to the bottom.

Cut 2x4 angles

This part is largely trial and error and where a compound miter saw comes in handy. Take a scrap of 2x4 and hold it in place along the angled edge of the OSB to determine the angle where it meets the flying truss. Cut this angle till you get a good fit.

Use a different 2x4 scrap and do the same to get your compound angles. Keep experimenting till you get a good fit when you hold the 2 pieces in place. It doesn't have to be perfect because it will be high overhead and covered with trim.

When you get both angles worked out individually then cut the compound angle on a long 2x4 and keep trimming the flying truss angle end till both pieces fit close enough. Attach them together and to the flying trusses with long screws and the OSB with shorter screws.

Additional flying rafters

If you're building with an overhang greater than 18 inches then you need flying rafters for the crows beak.

Remove the OSB from one side and cut the compound end angle, then cut the overall length to fit. Screw it in place and replace the OSB. Remove the OSB from the other side and cut the second flying rafter.

Trim

Now that your crows beak is fully assembled you can cut the trim to fit. Also cut the trim for the end of the flying truss where it meets the crows beak. Cut the final length when you install it later.

Disassemble

Disassemble the crows beak and use the truss components to build the actual gambrel end and flying trusses.

Put the truss half in place at the top of the truss jig and position the lower pieces into the jig. When everything is in place check that the test mark at the top of the truss lines up. If so then you can finishing building the truss as normal.

Just before you sheet the roof you can reassemble this pre-built crows beak in it's final position.

Step 4: Build The Walls

You need to decide what stud length you want to use. This will determine the wall height (inside headroom), the bottom siding overhang and the overall shed height.

See Figure 4.1

Wall height = stud length + 4 ½ inches (2 top plates and 1 bottom plate at 1.5 inches each).

Wall height (headroom)	Stud length	Bottom siding overhang
(Optimal, 2x6 floor) 90	85 1/2	6
(Optimal 2x4 floor) 92	87 1/2	4
(Maximum) 95	90 1/2	1

Overall shed height

If the overall height of your shed is an issue then this is the time to deal with it. The overall height will be the floor height + the wall height + ½ the width (the gambrel roof height).

You have three options for your wall height.

- Optimal height with maximum floor strength and minimum maintenance with wood floor
- Maximum wall height
- Looks/proportion

Optimal height on wood floor

Optimal stud length for maximum strength and minimum maintenance on a wood floor using 2x6's is 85 1/2 inches. If you are using 2x4's in the floor of an 8 ft wide shed the stud length will be 87 1/2 inches which will leave a 4 inch bottom siding overhang.

This will yield a wall height of 90 inches (92 inches with 2x4 floor joists) and create a bottom siding overhang of 6 inches (4 inches with 2x4 floor joists) which will completely cover the floor joists (less ¼ inch) which means no unpainted real wood will be exposed to the weather.

In addition this will allow you to thoroughly nail the siding into the floor rim joists which will contribute significantly to the overall strength of the shed. With 1 inch of bottom siding overhang you will not be able to nail directly into the floor so the only thing holding the floor to the walls is the nails through the bottom plate. And this is no where near as strong as nailing through the siding into the floor.

This is important if you put a lot of weight on the floor. This will allow the floor to transfer the weight to the wall and then back to the rest of the floor. Otherwise the floor runs the risk of pulling away from the walls if there is concentrated weight in one spot. For example if you are parking a car or a tractor in the shed.

This is also important if you anticipate ever moving the shed. You want the entire shed tied together so it will spread the load and stress when you jack it up at either end for the move.

Maximum height or concrete slab

For maximum height or if you are building on a concrete slab your stud length will be 90 1/2 inches. This will give a wall height (headroom) of 95 inches.

This stud length allows the siding to overhang 1 inch below the bottom plate. This will let the water run down the side of the floor and not up under the bottom plate into the floor of the shed.

Potential maintenance problem

If you are building on a wood floor with the maximum height stud length of 90 1/2 inches this will expose 5 ¼ inches of floor joist to the weather which will present a maintenance problem in the future.

Because real wood does not hold paint as well as the composite siding it will weather faster and need repainting sooner than the siding.

This also will not allow you to nail through the siding into the floor rim joists and create a strong connection between the floor and walls.

Looks/proportion

The narrower the shed the taller it will look. An 8ft wide shed will look quite different than a 12 ft wide shed with the same wall height.

If you are building an 8 or 10 wide shed I recommend drawing it out on a sheet of paper to see what proportion looks good. Then adjust your stud height accordingly. The stud height is the wall height minus 4 ½ inches (2 top plates and 1 bottom plate at 1 ½ inches each).

Doors and windows

This step deals with overall framing of the walls. Skip ahead and review steps 5a, 5b and or 5c for instructions on framing doors and windows into the walls.

- Step 5a, frame for pre-hung doors and windows
- Step 5b, frame a single shed door into the wall
- Step 5c, frame a double shed door into the wall

You can build as many doors any where on the shed you want. Multiple doors make the shed more useful in many cases. Building your own door is relatively cheap so don't hesitate to build another one if needed.

You can even frame a future door or window into the wall and not cut it out until later. It's easier to frame something extra now and not use it than to retro fit later. Just toe nail some extra studs into the opening where they fall on 16 inch centers so you will have a stud to nail the siding into. Later if you want to use the frame then remove the studs and cut out the door or window.

If you are building a future shed door also install the trim now, or at least the inside trim because it will be next to impossible to locate your cut lines in the future. Just paint the trim the base color and it will not be as noticeable.

Building sequence

Build the walls directly on the empty floor.

You'll probably want to build the end walls first. Build the first one, raise it up and attach it to the floor and brace it if necessary. Then build the second one and move it aside so you can use the floor to build the longer and heavier side walls in place. Here I'm assuming the gambrel end walls are the smaller and therefore lighter walls.

If you are building a door in the end wall and if space and logistics permit, build the heavier door end first so you can raise it up and attach it to the floor. That will leave the lighter end wall as the one you will be lifting and moving around.

Door in a gambrel end wall, see Step 5

If you are going to put a door in one of the gambrel end walls then proceed to Step 5 for instructions.

See figures 4.2 & 4.3, frame the first gambrel end wall

Measure and cut the bottom plate and lower top plate to Dimension "A", Table 2.

Layout at 16 inch O.C., locate any windows or doors you want to install and drill two 1/8 inch pilot holes for each stud.

Attach each stud to the top and bottom plates with two 3 inch screws or 16d nails in each end.

Cut the upper top plate to Dimension “E”. Then center and attach it to the lower top plate with 16d nails or 3 inch screws every 16 inches.

This upper top plate will be 3 ½ inches shorter on either end than the lower top plate. This is where the side wall upper top plate will overlap this wall when they are raised and joined together.

Position the framed wall about 3 inches from the edge of the floor where it will

ultimately be attached.

Square the wall by pulling a tape measure diagonally from corner to corner.

Sheet the first end wall

Make sure the siding is square to the frame and the top edge of the siding even with the top edge of the upper top plate.

Attach all sheets with a few nails at the top and bottom plates, squaring them to the frame as you go.

Snap a chalk line along the center of the top and bottom plates to identify those nail lines.

Then nail with 8d galvanized nails every 8 inches.

Trim the ¾ inch lip from one edge as necessary.

Paint Now?

You might want to paint the walls and trim as you finish them so you can work on them laying horizontally. They will be much easier to paint this way.

If so paint each wall and gambrel end as you finish them.

They will take awhile to dry before you can move them so this might be a good way to schedule an intermission from building.

Raise and attach the first end wall

Lift the first end wall up and into place and center it from side to side. Make sure it's tight up against the floor rim joist and nail it through the siding into the floor every 4 to 8 inches with galvanized nails.

Then nail through the bottom plate into the floor between each stud with 16d nails.

Attach a 2x4 brace from the back of the wall to the ground or from the side of the wall to the edge of the floor.

Second end gambrel wall

Frame and sheet the second end wall and set it off the floor.

Attach handles

Attach scrap pieces of 2x4's to the wall about knee high with 3 inch screws to make the wall easier to move.

This way you can stand the wall up vertically and have more control when you are ready to move it back into place.

Door in a sidewall, see Step 5

If you are going to put a door in one of the side walls then proceed to Step 5 for instructions.

Frame the first sidewall, See Table 2 and Figure 4.2 & 4.4

The side walls use the same stud length as the end walls but the top and bottom plates and the first stud spacing are different, as per Figure 4.2 and 4.4.

Measure and cut the bottom plate and lower top plate to Dimension "D", Table 2.

Note how the side walls sit inside the end walls and the side wall bottom plates and lower top plates (Dimension "D") are 7 inches shorter than the overall shed length (Dimension "B").

Also notice that for the side walls, the 16 inch O.C. stud spacing is measured from the corner of the shed and not from the end of the bottom plate. This means the side wall end studs will be 3 ½ inches closer (12 1/2 inch O.C.) to the next stud than the rest of the studs.

Measure and mark at 16 inch O.C., locate any windows or doors you want to install and drill two 1/8 inch pilot holes for each stud.

Build this wall about 12 inches from the attached end wall so you have a little room to walk and work around it.

Attach each stud to the top and bottom plates with two 3 inch screws or 16d nails in each end.

Cut the upper top plate to Dimension “B”. Then center and attach it to the lower top plate with 16d nails or 3 inch screws every 16 inches.

This upper top plate will extend 3 ½ inches beyond the lower top plate on either end and overlap the end wall lower top plate when they are raised and joined together.

Position the framed wall about 3 inches from the edge of the floor where it will ultimately be attached.

Square the wall by pulling a tape measure diagonally from corner to corner.

Sheet wall

Make sure the siding is square to the frame and the top of the siding to the top of the upper top plate.

There will be 3 1/2 inches overhang at each outside end.

Attach all sheets with a few nails at the top and bottom plates, squaring them to the frame as you go.

Snap a chalk line along the center of the top and bottom plates to identify those nail lines, and snap another line across the bottom where you will trim it for the proper bottom overhang.

Then nail with 8d galvanized nails every 8 inches.

Trim the ¾ inch lip from one edge as necessary.

Raise the first side wall or leave it in place?

If you are building an 8 wide shed build the blank side wall first then build the second (door wall?) on top of it. The reason for this is that an 8 wide floor will not allow you enough room to maneuver around if you have already raised a wall.

If you are building a 10 or 12 wide then you can raise and attach the first side wall now.

Raise and attach the first side wall

Lift the first side wall up and slide it into place. Make sure it's tight up against the end wall and the floor then nail through the siding into the corner stud of the end wall.

Nail through the siding into the floor every 4 to 8 inches with galvanized nails.

Then nail the end wall corner studs together on the inside with 16d nails or screws every 16 inches.

Nail the bottom plate into the floor between each stud with 16d nails.

Attach a 2x4 brace from the back of the wall to the ground or from the side of the wall to the edge of the floor.

Build and raise the second sidewall

Attach the final wall

Raise and attach the final wall. If you're building a shed door then you will have to cut the shed door open before you can enter and finish the inside nailing.

Step 5a: Frame for prehung doors and windows

Prehung doors and windows have a specified rough opening size. These are the measurements you will build your frame to.

See Figure 5a

All other dimensions are dependent on the rough opening size.

As a general rule for aesthetic purposes the top of the windows should be at the same height as the top of the doors (dimension "a"). But feel free to set the height at what ever works best for your situation.

Building sequence

Frame the door and windows, nail the siding on, then cut the opening out. For doors you will also have to cut the bottom plate out. But not until the wall is nailed in place.

Prehung doors

The sandwiched door header ("d") is 3 inches longer than the rough opening width ("b").

The jack stud ("e") is 1 1/2 inches shorter than the rough opening height ("c").

Note the cripple studs above the door fall on the 16 inch centers so you have something to nail the siding to. Cut them to fit.

Prehung windows

The sandwiched window header ("h") is 3 inches longer than the rough opening width ("f").

("g") is the rough opening height.

Note the cripple studs above and the short studs below the window fall on the 16 inch centers so you have something to nail the siding to. Cut both of these to fit.

Step 5b: Frame a single shed door into the wall

Building your own door saves time and money because it uses the materials that are cut out of the rough opening that would otherwise be thrown away.

It consists of an outer frame which is built in the wall, and an inner frame which is the actual door. These two are framed and sheeted simultaneously.

Later in Step 5d you'll cut the door out.

You can put a door in either the end wall or in a sidewall, or one in each wall, or 2 doors in a wall. These doors are cheap to build and multiple doors are great in many situations.

Inner Door Frame Layout

You can place the door anywhere on the wall you like.

The difference in the inner door frame layout reflects where the studs fall on their 16 inch centers. You always need a stud in the inner door frame where the siding comes together to give you something to nail into.

Where the inner door frame studs fall depends on where the door is located in reference to the end of the wall.

The best time to determine the inner door frame layout is when you do the rough assembly with the inner door frame pieces to check for fit. Pull a tape measure and calculate where the siding will come together and that's where you need an upright.

Caution

Make sure the siding doesn't come together where you have a cut line. I.E. on a jack stud. Because there will be many nails in that joint and it will ruin your router bit. So make sure the siding joint falls on a king stud, a regular stud or an inner door upright.

If necessary you can start the wall with a partial piece of siding instead of a full 4ft piece of siding to change the location of the joint.

See Figure 5b.1, Door Width

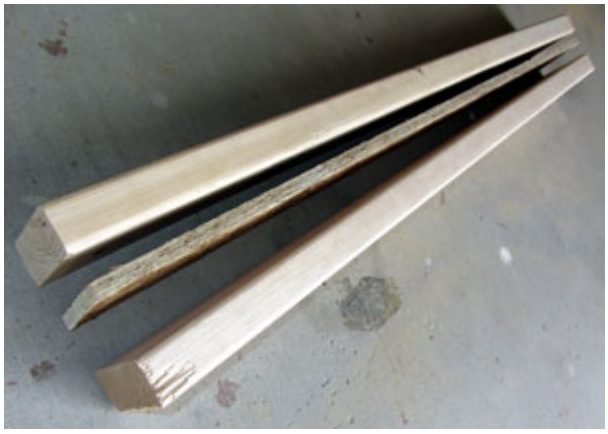
This example is for building a single door with an opening width of 43 1/2 inches and an opening height of 76 1/2 inches. To build a door wider or narrower or taller or shorter just add or subtract from these dimensions.

Adjust the the door header to your desired rough opening size and cut the inner door frame pieces and outside trim to fit.

Then calculate the inner door frame layout as per the section above.

Outer door frame

Cut the jack and king studs, spacers strips and header.



Build a sandwiched door header by nailing a piece of OSB between two 2x4s.

This extra half inch makes the total width to 3 ½ inches, the same as the height of a 2x4.

Attach the jack studs to the king studs then nail the header in place.

Nail this door frame to the top and bottom plates along with the rest of the wall studs.

Cut six) 3x3 spacers from the scraps of siding you trimmed from the gambrel ends.

Put the spacers loosely inside the outer frame, two into both top corners and one into each side at the bottom.

These are to keep the inner door frame in place until you get the siding nailed on.

See Figure 5b.2, Inner door frame

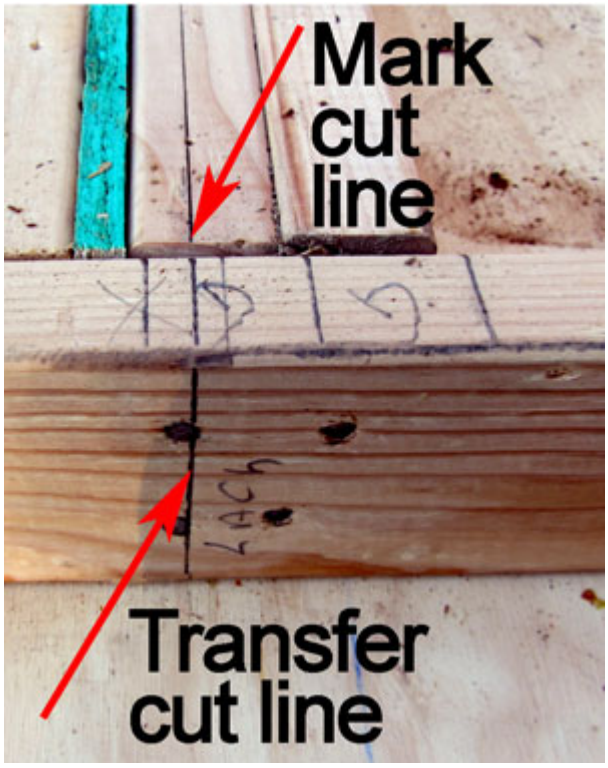
Measure and cut the cross pieces and uprights. Then lay the individual pieces in the frame to check the fit. Pull a tape and determine where you will need a vertical upright based on the 16 inch O.C. stud spacing and where the siding breaks.

Remove the pieces, lay them on the open floor, drill 1/8 inch pilot holes and assemble with screws. Verify that this assembly lays flat and is not warped in any direction.

See figure 5b.3, Complete door frame

Lay this completed inner door frame inside the outer door frame with the spacers at the top and sides to keep it in place. It should fit snug and not move around.

Mark vertical cut lines



Mark the jack stud at the top and bottom where you want your door opening to be. It should be 1/2 inch in from the inside edge of the jack stud.

Use a square and transfer these lines to the top and bottom plates so that you can see them when the siding is nailed on.

These marks will be used to locate the vertical cut lines after the siding is nailed on.

Lay the siding in place. Square it up to the stud and check for proper top alignment and bottom overhang.

See Figure 5b.4, Nailing sequence

Put a nail through the siding into the inner door frame bottom cross piece about 2 inches from the edge of the siding. But don't nail into the bottom plate because doing so will nail the door shut.

Put another nail in the center door cross piece and top door cross piece, and in the top plate.

Double check the bottom overhang at outside edge of the siding and put a nail at the outside edge into the top and bottom plates.

Mark the horizontal top cut line

Place a mark on the siding 1/2 inch above the bottom of the door header.

This mark must be visible when the next piece of siding is installed.

Lay the next piece of siding in place and put 4 nails in to match the nails in the first piece of siding. Then put a nail into the outside end of the siding into the top and bottom plates.

See Figure 5b.5, Chalk lines, cut lines

Snap a chalk line along the center of the top and bottom plates. These are nail lines.

Measure from the top of the siding to the mark you made ½ inch above the bottom of the door header and transfer this measurement to both ends of the wall and snap a chalk line. This is the horizontal cut line for the top of the door.

Measure from the top of the siding to the middle of the door center cross piece as evidenced by the nail heads. Transfer these measurements to both sides of the wall and snap a chalk line. This is a nail line.

Locate the vertical cut lines on the top and bottom plate that represent 1/2 inch measurement inside the jack stud. Use a square and transfer these marks to the siding.

Snap a chalk line on both of these marks. These are the two vertical cut lines.

Now you should have:

- Two vertical chalk lines
- Four horizontal chalk lines: center of top and bottom plates and center door cross pieces, and the top cut line

See Figure 5b.6, Inner door trim:

Measure and cut a piece of trim to fit between the two vertical cut lines at the top cut line. Place the top edge of this piece at the top cut line and nail it ¾ inch from its bottom edge and within two inches of each end.

Measure and cut two vertical pieces to run from the bottom of this piece to the bottom edge of the siding. Nail these ¾ inch from their inside edges from top to bottom to within two inches of the bottom plate chalk line.

Measure and cut the last two horizontal trim pieces.

Position the middle piece of trim so that it's centered on the chalk line and nail it down the middle.

Position the bottom piece of trim so the lower edge lies on the bottom plate chalk line and nail ¾ inches from its top edge.

See Figure 5b.7, Outer door trim:

Cut five spacers from scrap trim about 1 inch wide.

Lay two of these spacers along the top trim piece and the other three on the outside of the first vertical piece of trim.

Lay a piece of trim horizontal along the top two spacers and another piece vertical along the other three spacers and pull them tight into the spacers.

Measure and cut the vertical piece of trim so that it extends between the bottom of the siding to 7/16 inch above the top edge of the top horizontal door trim, as allowed by the spacer.

Nail this in place along the center of the trim.

Move the three spacers to the other vertical trim piece and measure, cut and install the same way.

Then measure, cut and install a horizontal piece across the top of the two vertical pieces you just installed.

Double check your spacing:

In Step 5d you will run a router inside this groove between the trim pieces and cut the door out.

So double check that this spacing is correct by removing the collar from the router and running it all the way through the gap between the inner and outer siding.

This will confirm the width is correct and the router will move properly.

Links to relevant posts and videos on CheapSheds.com

- How To Build A Shed Door Video

Step 5c: Frame a double shed door into the wall

This is an example of building a double door on an 8ft high 16 ft long sidewall.

Carefully study Step 5b because this section only deals with the difference between building a single door and a double door. It builds on the information in the previous step.

Header

Determine how wide and how tall you want your door opening to be and add 3 inches to get your header length.

For an end door you can use a sandwiched 2x4 header for maximum door height because the header will not be load bearing. But on a sidewall the header will be load bearing so I recommend using 2x6's.

See Figure 5c.1, Cripple studs

With an 8ft wall height you might not want to build a door with the maximum height. If you make the door shorter than maximum you will need to add some cripple studs between the header and top plate to transfer the load to the header and give you something to nail the siding into.

Door location

In this example I'm making a rough door opening of 67.5 inches using a 70.5 inch header. This way one of the king studs will fall on a 16 inch center.

But if you want the door wider or narrower just adjust your door header to the desired rough opening then add a stud or vertical door upright where a 16 inch center falls.

The 16 in marks on Figure 5c.1 represent where you need a stud or a door upright. The 48 in marks represent where the siding joins.

You don't want a cut line (jack stud) to fall where the siding joins because there will be many nails at this location which will ruin your router bit and the joint will have no strength.

The cure is to either move the door a few inches one way or another, or to begin the wall with a partial piece of siding which will change the siding joint locations by 16 inches or 32 inches.

See Figure 5c.2, Inner door frame

The vertical uprights will be the length of the jack stud less ½ inches (½ inch spacer above the upper cross piece). The horizontal cross pieces will be the rough opening width minus 1 ½ inches (3 spacers), then cut in half.

Temporary spacers

You will only need horizontal spacers at the top of the door under the header because you will be cutting the bottom plate out, which will give the bottom of the door clearance. So you can leave the bottom spacers out.

Put spacers between the vertical uprights and the jack studs, and between the 2 center center vertical uprights.

Active/passive door

One door will be the primary active door and the other door will be passive and fixed in place until you open it. Put the middle cutline on the passive door upright and add an extra upright beside it to give you something to nail the passive door trim into.

If you make your inner door frames the same size the trim will make the active door appear wider by about ½ inch because the cut line will be off center.

If you want to make the doors appear exactly the same you will need to make the active door frame ¼ inch more narrow and the passive door frame ¼ inch wider. But I never worry about this as no one ever notices the difference.

If you want to make the active door wide and the passive door narrow so that you will not have to open the passive door very often you can adjust the inner door frames to give any width combination you want.

See Figure 5c.3, Locate your cut lines

Before you put the siding on locate and record the 3 vertical cut line which will be ½ inch from the inside of the outer door frame, and the horizontal cut line ½ inch above the bottom of the door header.

Door trim

Attach the door trim on the active door first, then the passive door. Then do the outer door trim. Figure 5c.3 shows a the spacing of the trim in reference to the underlying door frame and Figure 5c.4 shows the finished trim.

Step 5d: Cut the doors out

Cut the door out where the hinges go first, attach the hinges then cut across the top, then up the center and open the doors.

Install 3 latches

Put two latch on the inside of the passive door. One at the top and one at the bottom to keep the passive door locked in place till you need it. Then put an outside latch on the active door as normal.

Step 6: Stand The Walls

Now its time to attach the four walls to the floor. If you painted the walls then you have already moved them off the floor and onto the ground.

If your side walls are still laying on the floor, then slide them about a foot from the back edge so you'll have sufficient room to work.

Back wall

Set the back end wall on the edge of the floor and center it from side to side.

When it's in the correct position attach it to the floor by nailing through the siding and into the floor frame about two inches above the bottom edge of the siding with 8d galvanized nails every 8 inches.

Cheating when necessary...

If a wall doesn't sit tight to the floor then put a car jack under the floor and raise it up to fit the wall. Nail that part of the wall in place then move the jack. Do this at any place where the floor doesn't meet the wall.

Add a brace:

Put a 16d nail in the center of the back of the wall and add a temporary 2x4 brace to the ground if necessary.

First sidewall:

Stand the first sidewall and slid it firmly into the bottom plate of the end wall.

Make sure the corner studs are tight together from top to bottom and nail through the sidewall siding into the end wall corner stud from top to the bottom.

Then nail across the floor about 2 inches from the bottom edge of the siding.

Second sidewall:

Raise the other sidewall and nail the corner joint and across the bottom of the siding into the floor frame.

Last end wall:

Move the last end wall into place and nail the corners then across the bottom.

Caution:

Which ever wall contains the door, don't nail across the bottom of the door because that will be nailing it shut.

Remove the carrying handles.

Now it’s starting to look like a shed...

Step 7: Open the shed door

After you have raised and attached the walls it's time to finish the door. This will allow also you access to the inside the shed for the next steps.

I recommend using 1/4 inch carriage bolts to mount the hinges and latch because they can not be backed out like screws can.

Plus they hold much firmer and will help reduce future door sagging problems.

Router bit

You'll need a straight 1/4 inch router bit

Router collar

You'll also need a router collar with an inside diameter slightly larger than the 1/4 inch router bit. It will consist of the collar and a threaded ring to hold it to the router base.

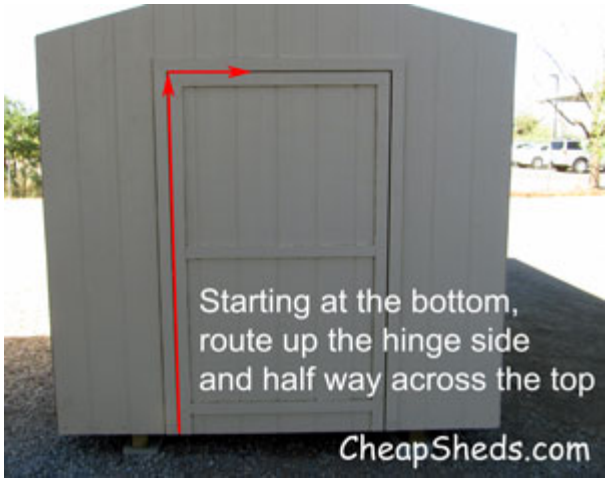
You can purchase them individually or in a set.

Adjust the cut depth

Adjust the cut depth of the bit to the thickness of the siding plus the thickness of the trim, plus about 1/8 inch extra.

If you are using typical 7/16 inch siding that will add up to 1 inch.

First router cut



The gap between the inner and outer door trim will guide the router collar as the bit cuts through the siding.

Start at the bottom of the side where you are putting the hinges and pull the router through the gap between the trim up to the top and about half way across the top of the door.

Make sure you cut well past where the hinge will be mounted so that it will not interfere with the base of the router when you start the second cut.

If you aren't cutting through the siding then set the cut depth a little deeper until you just graze the 2x4 frame below the siding.

If your cut depth is set a little too deep it will not hurt anything. You'll just have to work harder because you're cutting through more wood.

Mount the hinges

Locate where you want the hinges and drill ¼ inch holes for carriage bolts.

Use a long drill bit because you will have to go through 1 inch of trim and 3 ½ inches of wood.

Mount the hinges by driving 5 inch carriage bolts into the holes.

Place a second ladder inside the shed and climb inside. Install the washers and nuts, then remove the door spacers.

Second cut:

Finish cutting across the top of the door where you left off and cut down the latch side to the bottom edge.

Open the door

Open the door and inspect your work.

If you located your cut lines correctly you will have an even half inch reveal all around the door.

Mount the latch

Locate where you want the latch to go and drill ¼ inch holes and mount with carriage bolts.

Remove bottom plate

And finally, use a hand saw to cut the bottom plate out of the door opening between the door frames.

Links to relevant posts and videos on CheapSheds.com

- How To Open Your Shed Door Video

Step 8: Frame and sheet the roof

At this point you have 4 walls attached to the floor. Now it's time to put the roof structure on. This consists of 3 steps. 7 if you're building with overhang.

- Gambrel end trusses
- Regular trusses
- Truss end boards (with overhang)
- Flying rafters (with overhang)
- Flying trusses (with overhang)
- Eave boards (with overhang)
- Sheet the roof

Layout the top plates

You can either mark the top plates at 16/24 inch O.C. or use the wall studs below each truss as a reference for 16 inch O.C..

Attach a 2x4 brace

Attach a 2x4 near the center of each end wall that extends 3 or 4 feet above the top plate.

This will serve as a stop and a brace once the gambrel ends are raised into place.

Install a spacer made from 2 layers of OSB between the wall and the brace. This 1 inch gap will allow the gambrel end siding overhang to slide in where it will overlap the end wall siding at the top plate.

Attach the gambrel end trussess

This is a 3 person job because the ends are heavy and you will be working up on ladders.

Set a ladder at the outside of both corners of the end wall.

Carry a gambrel end in and set it on the top plate upside down and backwards near the end wall.

Raise it up horizontally and hold it in place with a 2x4 resting on the floor in the center of the base piece and one at the top center of the truss. Be careful to adequately support the center of the truss when it is horizontal because it's heavy and might break under it's own weight as it has little strength in the horizontal direction.

Get your helpers up on the ladders and use the 2x4 in the center of the top of the truss to raise it up vertical. Then the helpers on the ladders can move it in place to sit it on the end top plate.

The 2 inch siding overhang will slid in the gap between the wall and brace. This is why you need to space the braces 1 inch from the wall.

Secure the truss to the end wall with nails or screws. You might also want to secure it to the vertical brace with a temporary screw for larger and taller trusses.

Repeat this procedure for the other end wall.

Stack trusses

Since the trusses are taller than their O.C. spacing you need to stack some of them on one end of the shed. Otherwise you will not have the space to raise the last few.

Carry each truss in and sit it on the wall upside down near the end. Raise it upright and slide it to rest against the gambrel end truss and secure it in place with a strap.

Do this for at least half of the trusses, depending on the length, width and pitch you are building.

Skip ahead to Step 8a: Frame Roof With Overhang

If you are building your shed with overhang please skip ahead to Step 6a. Otherwise continue below to build without overhang.

Install trusses

Position the truss on the top plates at 16 or 24 inch centers and verify that the end of the truss base sits at the outside edge of the top plate. Not at the outside edge of the siding.

This is to make sure the walls have not spread to more or less than dimension "A". Then attach the truss with two 3 inch deck screws toe nailed into each top plate.

If you can't get the trusses in their proper position this might mean the walls are bowed or spread. You can correct this with a temporary 2x4 brace between the offending part of the wall and the floor.

Screw it into the floor and a near by wall stud if necessary.

Sheet the roof

Install the roof sheeting and nail in place with 8d nails every 8 inches. Stagger the joints for maximun strength.

Once the sheeting is in place snap chalk lines and nail the field every 8 inches.

If it doesn't fit...

If the roof sheeting doesn't fit square to the trusses then put a jack under a corner of the shed and raise it up till the roof sheeting comes in line with the truss. Then nail that piece down. Do the same with the rest of the pieces.

Experiment with jacking different corners or walls until you get the results you want.

After the roof is sheeted then go around and re level the floor if necessary.

If your shed is slightly out of square at the end of all of this, don't worry as it will not be enough to notice.

Step 8a: Frame Roof With Overhang

If you want to build with overhang you have a few more steps to do before you sheet the roof.

- Truss end boards
- Flying rafters
- Flying trusses
- Eave boards

String line

Attach a string line between one of the ends of both gambrel end truss and pull it tight.

This is a reference line to verify that each truss is properly centered before you permenantly secure it in place.

Install trusses with string line to verify their position

Position the truss on the top plates at 16 inch centers and verify that the end it is in line with the string line and that the end of the truss base sits at the outside edge of the top plate. Not at the outside edge of the siding.

This is to make sure the walls have not spread to more or less than dimension "A". Then attach the truss with two 3 inch deck screws toe nailed into each top plate.

If the siding is keeping the truss from sitting down on the top plate then move the truss to one side. Take a hammer and break the corner of the siding down until the truss sits tightly in place.

If you can't get all 3 points of the trusses in their proper position this might mean the walls are bowed or spread. You can correct this with a temporary 2x4 brace between the offending part of the wall and the floor.

Screw it into the floor and a near by wall stud if necessary.

See Figure 8.1, Roof framing details

Truss end boards

Determine how much overhang you want on the gambrel ends and cut the truss end board accordingly.

Attach them to the truss ends entended out beyond the gambrel ends. If you have to splice them, cut the matching ends at a 45 degree angle and splice them by nailing them into the end of a truss.

These boards will be the full dimension of the gambrel overhang.

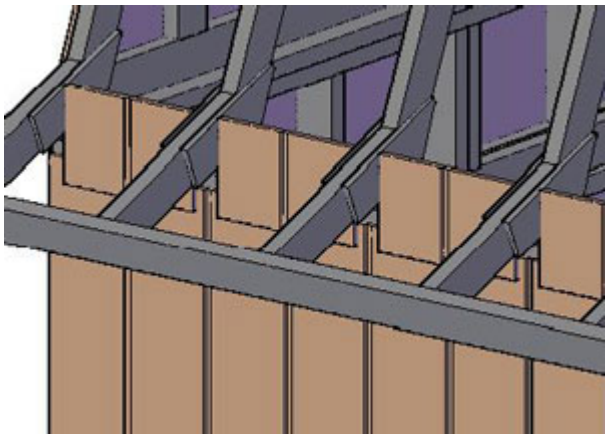
Flying rafters

Cut the flying rafters 1 1/2 inches less than the truss end board overhang to allow for the width of the flying truss and install them with nails or screws.

Flying trusses

Raise the flying trusses into place and attach them to the truss end boards and flying rafters.

Eave boards



Cut the eave boards from siding about 8 inches tall and fit them in between each truss and in line with the top of the trusses.

Attach with several galvanized nails into the top plates.

Ventilation

If you want to add some ventilation you can drill several 2 or 3 inch holes into each board and cover it with screen stapled in place. This will provide extra airflow if you later install a turbine vent.

Sheet the roof

Install the roof sheeting and nail in place with 8d nails every 8 inches. Stagger the joints for maximun strength.

Once the sheeting is in place snap chalk lines and nail the field every 8 inches.

Step 9: Install The Trim

See Table 2 Notes

See Table 2 Notes, item "H" for information about making your own trim.

Skip to Step 9a if you are building with overhang

Start installing the 2 1/2 inch wide trim at the peak of the gambrel end and work your way down. These end pieces will have the same 22 1/2 degree angle.

Line the top edge of the trim up with the top of the roof sheeting. Cut them to fit and nail them every 6 inches with 8d galvanized nails.

Install the corner trim and cut to match the joint with the gambrel end trim.

Step 9a: Install The Trim With Overhang

Facia trim

The facia trim should be about 5 inches wide.

Start installing at the peak of the gambrel end and work your way down. All the Gambrel end angles will be 22 1/2 degrees.

Line the top edge of the trim up with the top of the roof sheeting. It will extend about 1 inch below the underlying 2x4's.

Cut to fit and nail every 6 inches with 8d galvanized nails.

Corner trim

When you install the corner trim you will have to cut a notch where the top of the trim meets the eave boards.

Cut the top angle to meet the roof sheeting.

Fill any gaps in with caulk before you paint.

Step 10: Shingle the roof

Installing shingles on the roof of your shed might seem complicated but it's easy if you take it one step at a time.

This example uses a gable roof but the steps are the same.

Use 3/4 inch long galvanized roofing nails for all the roof work. Unless you're using a roofing stapler.

Eave drip edge

Install metal drip edge along both eave edges. I prefer using 3 inch “D” style. In this case I have already painted it to match my trim.

Felt paper

Roll out a layer or 15# of 30# felt paper to cover the entire roof.

Use just enough roofing nails to keep it in place.

End drip edge

Install the drip edge on the ends on top of the felt paper.

Starter row

Install a starter row of shingles.

These are shingles with the tabs cut off that you install and nail close to the edge.

The glue strip on this starter row will hold the tabs of the next row of shingles in place.

Alternate rows with half a tab removed

You want to stagger the joists between the shingles to prevent leaking and water damage.

Begin the starter row with a full shingle, then cut half a tab off every other row of shingles.

This way every joints where the shingles come together will be covered by a full tab above it.

Shingle spacing

Most shingle manufacturers specify 5 inches of exposure.

Put four roofing nails in each shingle about 5/8 inch above the tab cutout but below of the glue line.

I suggest adding another nail between each of these for a total of 7 holding each shingle.

Stack some supplies

Stack some shingles along the ridge line for convenience and install the shingles from the bottom eave up to the top.

Start the shingles from the front of the shed and work to the back because the starting edge will be neater and less ragged than the edge you cut to fit.

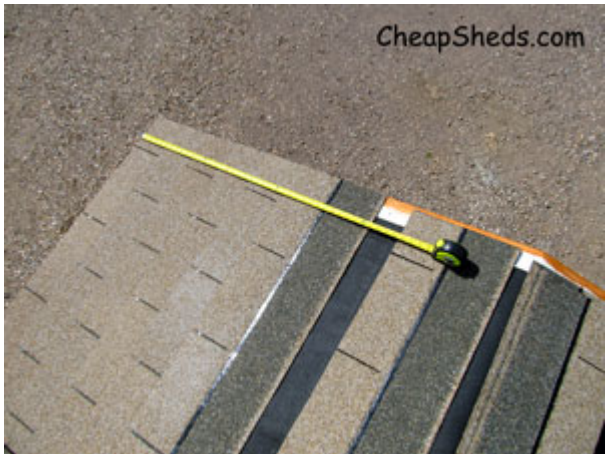
Work from the same end on both sides. This way you can use the cut offs from one side to finish the row on the other side.

Cutting surface

Use a utility knife, a straight edge and a cutting board to trim the shingles in each row to fit.

Use the cutoffs from the other side of the shed if they are long enough.

Keeping your rows straight

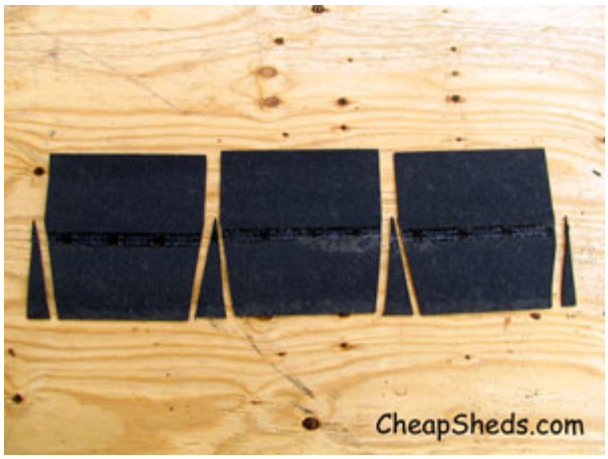


Measure each end of the row every few rows to make sure they aren't getting narrower or wider. If so, make it up on the next few rows.

Don't wait till you get all the way to the top to find that your rows are uneven. If you can't do it by eye then snap a chalk line.

You can also use the lines on the felt paper if you installed it square. But most likely you will need to snap a chalk line.

Cut ridge caps



Use your utility knife and straight edge to cut a stack of shingle tabs to nail along the ridge cap.

The back edge of each tab tapers in so that it will fit neatly under the tab on top of it.

Nail ridge cap

Nail the row of ridge cap tabs on and you are finished with the roof.

Links to relevant posts and videos on CheapSheds.com

- How To Shingle Your Shed Roof Video

Paint and maintenance

Congratulations! You've just built a storage shed and saved a ton of money at the same time.

Now you need to protect your investment for the long term.

Paint

The first thing you need to do is to paint your new shed. Paint serves 2 functions.

- The first is to make your shed look good.
- The second and most important is to protect your shed.

Paint is a barrier against the elements that keeps water and the sun from damaging the wood. It is a protective coating.

Caulking covers the large gaps that paint can’t cover. Then you paint the caulk to protect it too.

So give your new shed 2 coats of the best paint you can find. The better the paint the longer it will last which means time and money saved on repainting in the years ahead.

A good quality paint will last 5 to 10 years. Keep a close eye on it as it gets older and re caulk and re paint when necessary.

Termites

Whether done intentionally or accidentally, when termites find a path into the un treated wood of your shed they will make themselves at home and do damage to the wood long before you ever notice their presence.

Protect your shed from termites by keeping any dead plants away from your shed. Termites will eat the dead plants and find their way into the shed. Also avoid leaning untreated wood against the outside of your shed for the same reason.

If you decide you need a ramp then make it from pressure treated wood. It will not rot and is resistant to termites.

Loose fasteners

Your shed is put together with nails, screws and carriage bolts. But over time the wood these fasteners are installed into will relax and the fasteners will loosen up.

After your shed is 3 to 6 months old, walk around it with a hammer and inspect for nails heads that are popping up. This mostly happens in the floor. Just pound them back in. If it happens on the outside, re touch the paint around the area that the nail head broke through.

If the fasteners holding your door come lose, your door will start sagging. So be

pro active here and keep the screws or bolts tight so your door stays in proper align.

Roof

Replace any loose or missing shingles immediately. Check the inside of your shed regularly for stains that indicate water damage. If you find some stains inside your shed, that is a sign that your roof has a leak.

Once you have found the leak, how you repair it will depend on where it's located. Usually replacing any missing shingles and the proper application of a good quality caulk or roof coating will do the job.

Build A Loft

A loft doesn't cost much money but will add a lot of storage space to your shed. In fact you can almost double the effective floor space with a loft, minus a little room for access via a ladder.

I make the following recommendation for lumber in the floor of the loft..

- 2x4's are ok for 8 ft wide sheds
- 2x6's for 10 & 12 ft wide sheds
- 2x8's for 14 & 16 ft wide sheds

Divide the height

Decide on how you want to divide the height between the shed and the loft. With tall sidewalls you will have plenty of room.

But it will ultimately depend on how you will use them.

Loft floor

1/2 inch osb will be plenty strong for the floor but you can use 3/4 inch plywood if you need extra strength.

The wall studs will dictate the centers you use for the floor.

In this instance I nailed the 2x6's at the bottom of the top plates, then installed 3/4 inch plywood.

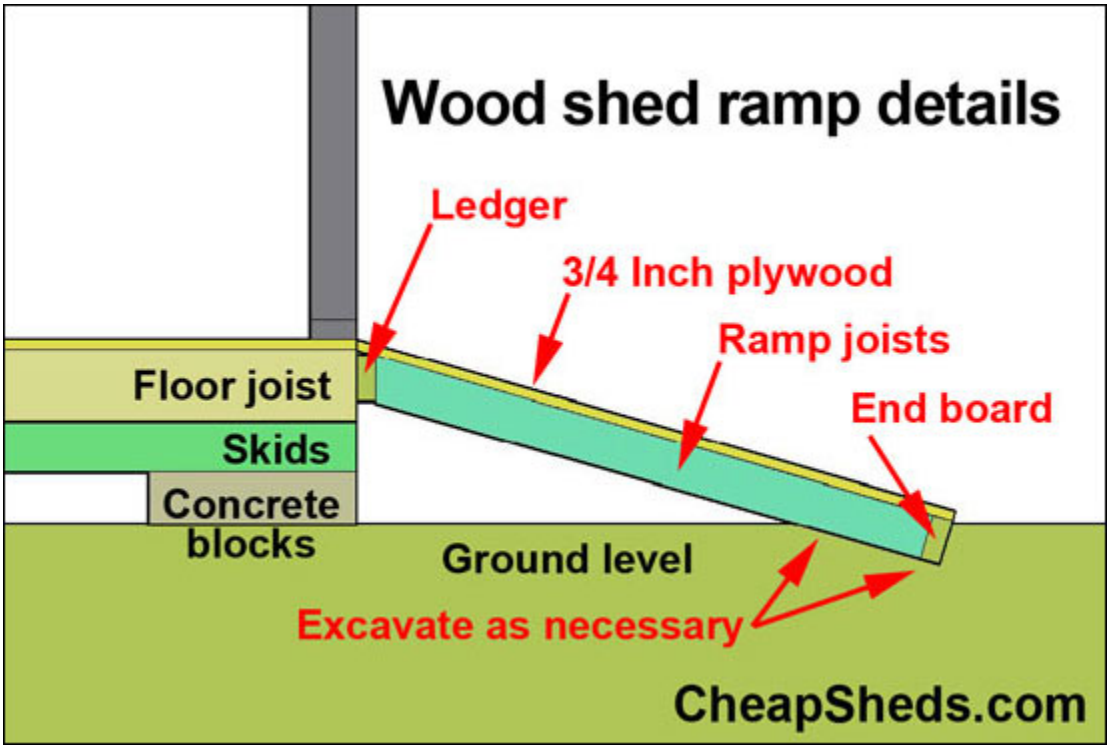
Build A Shed Ramp

A ramp makes it easy to get big things into and out of your shed, as well as wheeled items like a lawnmower or a hand cart.

Or even a motorcycle?

Plus it's safer because you are less likely to trip over the edge of the floor.

Ramps can be temporary or permanent. But permanent is more useful because it's always there when you need it.



This information is about building a permanent ramp 4ft long and the width of your door opening. If you need something longer you can change the dimensions accordingly.

Pressure treated wood

All wood should be pressure treated because it will be in contact with the ground. Pressure treated wood is chemically treated to be resistant to rotting and termites.

Materials list

A 4ft square ramp is very materials efficient. You will need

- 1) 4x4 sheet pressure treated 3/4 inch plywood
- 3) 2x4x8 pressure treated

If you want a larger ramp you will need...

- A ledger and an end board the width of the door
- Enough ramp joists @ 16 inch O.C.
- A sheet of plywood large enough to cover the ramp

You will also need a handful of 3 or 3 1/2 inch deck screws and some 2 inch deck screws. You want to use deck screws because they are coated to resist the elements.

Trim door, 2 options

You will need to trim the bottom of the door so it will close when the ramp is in place. You have 2 choices here. You can cut it...

- Flush with the floor
- 1/2 inch long which will give you a small reveal

A small reveal will let your door seal against the elements but will also make a small bump at the top of the ramp.

Ledger

Measure and cut a 2x4 ledger the width of the door. You don't need to make the ramp the full width of the door but that's usually best. Cut the end board the same length.

Temporarily attach this ledger with 2 screws about 1 1/4 inches below floor level, or the final level of the ramp in case you want a reveal.

First joist

Cut a single ramp joist about 45 inches long. This is longer than necessary as the final length will depend on the height of the ramp and will be determined by trial and error.

Hold the joist approximately in place and mark where it touches the ground. Dig out till the top edge is about flush with ground level.

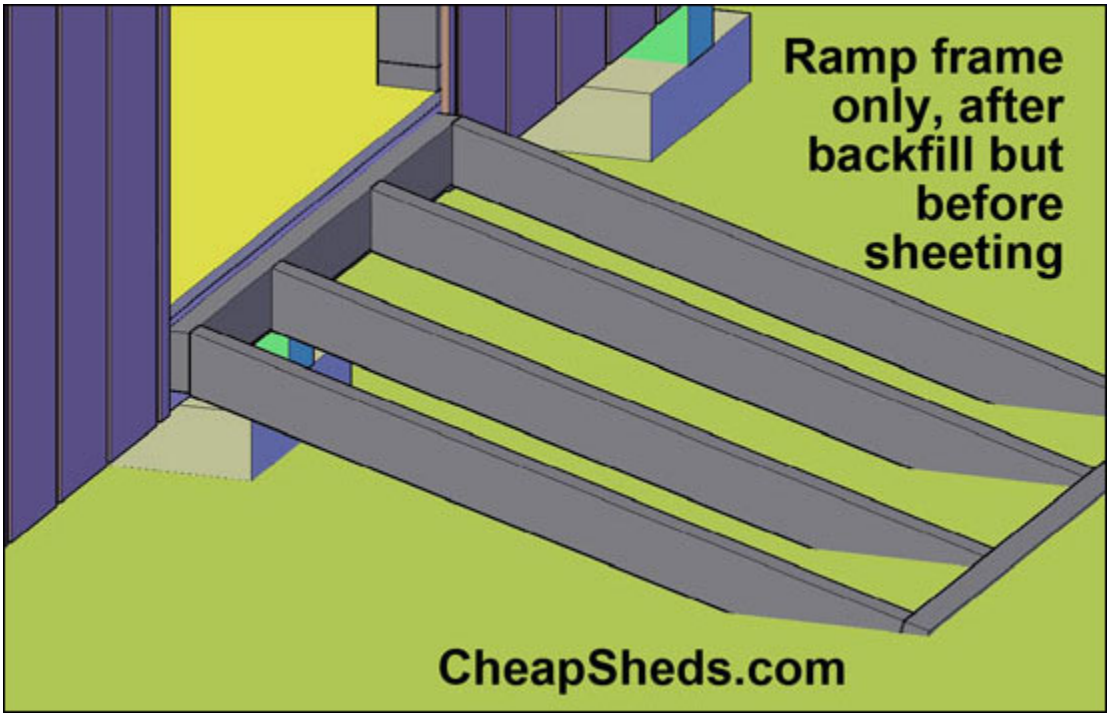
Joist angle

Hold the top end of the joist up to the outside edge of the ledger and mark the angle on the side of the joist. Cut this angle.

Joist length

Lay the plywood in place, top edge on the ledger and bottom edge on the ground. Hold the joist in place up to the bottom of the plywood and measure back 1 1/2 inches from the bottom edge of the plywood to allow for the end 2x4 and mark the joist length.

This is the final length. Cut the other (3) joists to match this angle and length.



Assemble frame

Remove the ledger and mark it so the 4 joists are spaced about evenly. Transfer these layout marks to the end board and also to the top and bottom edges of the plywood.

Assemble this frame with 2 long deck screws at the end of each joist.

Install frame

Excavate the lower end of the ramp so it rests about ground level.

Temporarily attach this frame with 2 screws and lay the plywood in place to check for proper height. Remove the plywood and permanently attach the ledger with a long screw on each side of the joists into the shed floor joist.

Back fill the lower end of the frame.

Install sheeting

Lay the sheeting in place and attach with deck screws every 6 to 8 inches.

Paint?

This ramp will be exposed to the weather for a long time so you might want to paint it to extend it's life and keep it looking fresh.

Alternatives

There are many ways to build a shed ramp.

One alternative is to skip the ledger and end board and attach the ramp joists directly to the floor joist with metal hangers. This will save you a little time and excavation effort.

The down side is that the top and bottom edge of the sheeting will not be fully supported. But it will still work just fine.

How To Contact Me:

- You can email me at phil438@cheapsheds.com

If you have any questions or feedback I will be more than happy to hear from you.

Thanks, Phil the shed man

Table 1: materials list and cost estimate worksheet 8x4-12x20

Notes	Size	Cost	8x4	8x6	8x8	8x10	8x12	8x14	8x16	10x8	10x10	10x12	10x14	10x16	10x18	10x20	12x8	12x10	12x12	12x14	12x16	12x18	12x20	Sub total
A	4x4x8 pt		0	1	3	0	0	4	6	3	0	0	4	6	1	0	3	0	0	4	6	1	0	
A	4x4x10 pt		0	0	0	3	0	0	0	0	3	0	0	0	0	6	0	3	0	0	0	0	6	
A	4x4x12 pt		1	1	0	0	3	2	0	0	0	3	2	0	4	0	0	0	3	2	0	4	0	
B	2x4xpc		41	49	51	53	57	63	67	51	53	57	63	67	73	77	43	43	45	49	51	55	57	
C	2x4x8		5	5	7	5	5	5	5	3	1	1	1	1	1	1	3	1	1	1	1	1	1	
C	2x4x10		0	0	0	6	0	0	0	8	14	8	8	8	8	8	10	18	14	16	18	20	22	
C	2x4x12		0	0	0	0	6	0	0	0	0	6	0	0	0	0	8	8	14	8	8	8	8	
C	2x4x14		0	0	0	0	0	6	0	0	0	0	6	0	0	0	0	0	0	6	0	0	0	
C	2x4x16		0	0	0	0	0	0	6	0	0	0	0	6	0	0	0	0	0	0	6	0	0	
C	2x4x18		0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6	0	
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C	2x6x8		6	7	11	11	13	15	17	2	0	0	0	0	0	0	2	0	0	0	0	0	0	
C	2x6x10		0	0	0	2	0	0	0	9	13	13	15	17	19	21	0	2	0	0	0	0	0	
C	2x6x12		0	1	0	0	2	0	0	0	0	2	0	0	0	0	9	11	15	15	17	19	21	
C	2x6x14		0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	
C	2x6x16		0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	2	0	0	
C	2x6x18		0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	
C	2x6x20		0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	
D	siding		10	11	12	13	14	15	16	14	15	16	17	18	19	20	16	17	18	19	20	21	22	
E	No groove		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
F	¾ CDX		1	2	2	3	3	4	4	3	4	4	5	5	6	7	3	4	5	6	6	7	8	
G	½ OSB		2	3	4	5	6	8	8	4	5	6	8	8	10	10	5	6	7	10	10	12	12	
H	10 ft drip edge		4	4	5	5	5	5	6	5	6	6	7	7	8	8	6	7	7	8	8	9	9	
I	Felt 15#		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
J	shingles		2	3	4	5	6	6	7	5	6	6	8	9	9	10	6	6	8	9	10	11	12	
K	hinges		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
L	latch		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
M	fasteners		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	05/20/17																					Total cost to build		

Table 1a: Materials list and cost estimate worksheet 14x16-16x32

Notes	Size	Cost	14x16	14x20	14x24	14x28	14x32	16x16	16x20	16x24	16x28	16x32	Sub total
A	4x4x8 pt		8	0	0	2	4	8	0	0	2	4	
A	4x4x10 pt		0	8	0	0	0	0	8	0	0	0	
A	4x4x12 pt		0	0	8	8	8	0	0	8	8	8	
B	2x4xpc		55	61	67	73	79	109	127	145	163	181	
C	2x4x8		1	1	1	1	1	1	1	1	1	1	
C	2x4x10		0	0	0	0	0	0	0	0	0	0	
C	2x4x12		26	32	50	44	50	0	0	12	0	0	
C	2x4x14		11	12	13	26	15	0	0	0	12	0	
C	2x4x16		6	0	0	0	12	17	12	13	14	27	
C	2x4x18		0	0	0	0	0	0	0	0	0	0	
C	2x4x20		0	6	0	0	0	0	6	0	0	0	
C	2x6x8		0	0	2	2	2	0	0	2	2	2	
C	2x6x10		0	0	0	0	0	0	0	0	0	0	
C	2x6x12		0	0	4	0	0	0	0	4	0	0	
C	2x6x14		17	21	25	33	33	0	0	0	4	0	
C	2x6x16		2	0	0	0	4	19	21	25	29	37	
C	2x6x18		0	0	0	0	0	0	0	0	0	0	
C	2x6x20		0	0	0	0	0	0	2	0	0	0	
D	siding		22	24	26	28	30	24	26	28	30	32	
E	No groove		2	2	2	2	2	2	2	2	2	2	
F	¾ CDX		8	10	12	14	16	8	10	12	14	16	
G	½ OSB		11	14	17	20	22	13	16	19	22	25	
H	10 ft drip edge		6	7	8	9	10	7	7	8	9	10	
I	Felt 15#		3	3	4	4	5	3	3	4	5	5	
J	shingles		11	14	17	20	22	13	16	19	22	25	
K	hinges		3	3	3	3	3	3	3	3	3	3	
L	latch		1	1	1	1	1	1	1	1	1	1	
M	fasteners		2	2	2	2	2	2	2	2	2	2	
	05/21/17												

Table 1 Notes:

A) PT means pressure treated lumber, which is designed for long term ground contact without rotting or being eaten by termites.

B) PC means pre cut 2x4x92 5/8 inch lumber. If your building supply store doesn't carry them then buy regular 2x4x96" lumber. I recommend using pre cuts because they are cheaper and often times better quality lumber.

C) If you can't buy the length you need then buy the next longer size and cut it. This is often the case as many stores don't carry 14 or 18 ft lengths.

D) Using 4x8 sheets of composite siding that comes with a factory primer will allow you to build this shed with the least cost and in the shortest amount of time. Composite siding holds paint better than real wood siding and speeds construction over using a plywood or OSB base and covering with strips of siding. It comes in various grades and thicknesses depending on your budget. The top of the line if you can afford it is called "Duratemp". It is 1/2 to 5/8 inch plywood covered with a veneer of composite hard board. This offers the best of both worlds, strength and durability. Also "Smart Panel" offers a 1/2 - 5/8 inch thick OSB siding with a veneer of composite hard board which might be more readily available. Regular composite siding will still give you a long service life as long as you keep it painted properly. Most of them are rated for 20 or 25 years. And it's a good choice for budget reasons. The only downside is that it's not available in high humidity areas like Florida and Hawaii.

E) These plans are based on ripping 7/16 inch x 4' x 8' sheets of no groove (groove less) composite siding into 2 1/2 inch x 8 foot strips. One sheet will give you more than enough to trim the door and corners for this 8x8 shed. You don’t absolutely need a table saw but it's the best way. You can do it with a circular saw but your cuts will not be so nice. No groove siding is siding without the normal grooves in it. You could use regular grooved siding but then you will have no control over where the grooves fall on your 2 1/2 inch strip. Or else you will have a lot of waste if you try to plan your cuts around the existing grooves in the normal siding. The no groove siding doesn't need to closely match the other siding. It just needs to match the texture so that it matches when painted. So if necessary you can buy one brand of grooved siding and another brand of no groove siding in the event you can't buy them both in the same brand. Or you can buy ready made trim boards but they are very expensive. As a last alternative you can use 1×3 pine boards for the trim. But I strongly recommend against this because real wood will take lots of extra prep time and effort and still will not give you as nice a finish product as composite hard board trim.

F) CDX is the cheapest and roughest grade of plywood with cracks and knots in the surface. You can use a better grade for a nicer floor finish. You can use either normal square edge plywood or the more expensive tongue and groove

especially designed for floors. If you want to save few dollars you can even use 1/2 inch OSB.

G) Organized Strand Board (OSB) for roof sheeting is less expensive than plywood. But you can use either.

H) Metal drip edge, "D" style, usually 10 ft lengths, galvanized or painted.

I) Felt paper, 15 or 30#.

J) Number of shingle "bundles." 3 bundles usually cover 100 sq.ft of roof, or 1 "square." Use 3 tab shingles for economy, or spend a little more and buy high quality architectural shingles for longer lifespan and lower long term maintenance.

K) Hinges, use large heavy duty strap hinges.

L) A typical gate latch will do in most cases.

M) Ask your building supply store for their estimate on the amount fasteners you'll need. Just buy more then you think you need because they're cheap and you can always use them on other projects. -3in deck screws for trusses and framing, -16d common nails for framing (if you don't use screws), -8d galvanized box nails for siding and trim, -8d sinkers nails for floor and roof sheeting (but you can use 8d galvanized nails), -5 1/2in x 1/4in carriage bolts, nuts, washers for the hinges and latch.

Table 1a: Notes

This does not include materials for overhang or a loft. Materials estimates for larger sheds is less accurate then the smaller sheds because usage depends on how you splice the wood for longer pieces like the floor band boards and plates. And it also depends on how carefully you use the scraps and cut offs for the trusses, floor, roof sheeting and shingles. Sheds 12 wide and under are calculated with trusses 24 inch on center. Larger sheds are calculated with trusses 16 inch O.C. and a 2x4 rafter tie at the base of every third truss (48) inches for strength. Unless you build a loft then the rafter ties are not necessary.

Table 2: Dimensions that vary with the length and width of the shed

Shed sizes 8x4 through 12x20

Size	A	B	C	D	E	F*	G=A	H
8x4	96″	48″	93″	41″	89"	85 1/2"	96"	36 3/4"
8x6	96″	72″	93″	65″	89"	85 1/2"	96"	36 3/4"
8x8	96″	96″	93″	89″	89"	85 1/2"	96"	36 3/4"
8x10	96″	120″	93″	113″	89"	85 1/2"	96"	36 3/4"
8x12	96″	144″	93″	137″	89"	85 1/2"	96"	36 3/4"
8x14	96″	168″	93″	161″	89"	85 1/2"	96"	36 3/4"
8x16	96″	192″	93″	185″	89"	85 1/2"	96"	36 3/4"
10x8	120″	96″	117″	89″	113"	85 1/2"	120"	46"
10x10	120″	120″	117″	113″	113"	85 1/2"	120"	46"
10x12	120″	144″	117″	137″	113"	85 1/2"	120"	46"
10x14	120″	168″	117″	161″	113"	85 1/2"	120"	46"
10x16	120″	192″	117″	185″	113"	85 1/2"	120"	46"
10x18	120″	216″	117″	209″	113"	85 1/2"	120"	46"
10x20	120″	240″	117″	233″	113"	85 1/2"	120"	46"
12x8	144″	96″	141″	89″	137"	85 1/2"	144"	55"
12x10	144″	120″	141″	113″	137"	85 1/2"	144"	55"
12x12	144″	144″	141″	137″	137"	85 1/2"	144"	55"
12x14	144″	168″	141″	161″	137"	85 1/2"	144"	55"
12x16	144″	192″	141″	185″	137"	85 1/2"	144"	55"
12x18	144″	216″	141″	209″	137"	85 1/2"	144"	55"
12x20	144″	240″	141″	233″	137"	85 1/2"	144"	55"

Table 2: Continued

Shed sizes 14x16 through 16x32

Size	A	B	C	D	E	F*	G=A	H
14x16	168"	192"	165"	185"	161"	85 1/2"	168"	65"
14x20	168"	240"	165"	233"	161"	85 1/2"	168"	65"
14x24	168"	288"	165"	281"	161"	85 1/2"	168"	65"
14x28	168"	336"	165"	329"	161"	85 1/2"	168"	65"
14x32	168"	384"	165"	377"	161"	85 1/2"	168"	65"
16x16	192"	192"	189"	185"	185"	85 1/2"	192"	73 1/2"
16x20	192"	240"	189"	233"	185"	85 1/2"	192"	73 1/2"
16x24	192"	288"	189"	281"	185"	85 1/2"	192"	73 1/2"
16x28	192"	336"	189"	329"	185"	85 1/2"	192"	73 1/2"
16x32	192"	384"	189"	377"	185"	85 1/2"	192"	73 1/2"

Table 2: Notes

"A" Overall width, end wall bottom plates and lower top plates
"B" Overall length, floor band boards, skids, side wall upper top plates
"C" Floor joists
"D" Side wall bottom plates and lower top plates ("B" – 7 inches)
"E" End wall upper top plates ("A" – 7 inches)
"F" * 85 1/2" stud length creates recommended 6 inch bottom siding overhang for maximum strength and minimum maintenance when building on a wood floor with 2x6 joists. (87 1/2 inch stud length leaves 4 inch bottom siding overhang for 2x4 floor joists.) 90 1/2 inch stud length creates 1 inch bottom siding overhang for maximum wall height or building on a concrete slab. See Step 4 for more information on the stud length decision.
"G" Truss width is the same as "A", overall shed width
"H" Truss sections on the long side, both ends at 22.5 degrees, see Figure 3.1

Table 3: Number of pieces for floor joists, wall studs and trusses

Dimension	12" O.C.	16" O.C.	24" O.C.
4	5	4	3
6	7	6	4
8	9	7	5
10	11	9	6
12	13	10	7
14	15	12	8
16	17	13	9
18	19	15	10
20	21	16	11
24	25	19	13
28	29	22	15
32	33	25	17

This table shows the number of floor joists, wall studs and trusses you will need based on length and center spacing.

For example...

- Floor: 16 ft long with joists 16" O.C., then you will need 13 floor joists
- Floor: 16 ft long with joists 12" O.C., then you will need 17 floor joists
- Wall: 12 ft with studs 16" O.C., then you will need 10 studs for that wall
- Wall: 16 ft with studs 16" O.C., then you will need 13 studs for that wall
- Trusses: 16 ft shed with trusses 24" O.C., then you will need 9 trusses
- Trusses: 16 ft shed with trusses 16" O.C., then you will need 13 trusses

Table 4: Nailing schedule

Framing, 2x6	16d (common) nail or 3in screw	3 per joint
Framing, 2x4	16d (common) nail or 3in screw	2 per joint
Sheeting, floor & roof	8d (sinker) nail	@ 8in O.C.
Siding	8d galvanized (box) nail	@ 8in O.C.
Trim	8d galvanized (box) nail	@ 6in O.C.
Shingles	3/4in galvanized roofing nail	7 per shingle

Figure 1.1, Skid spacing

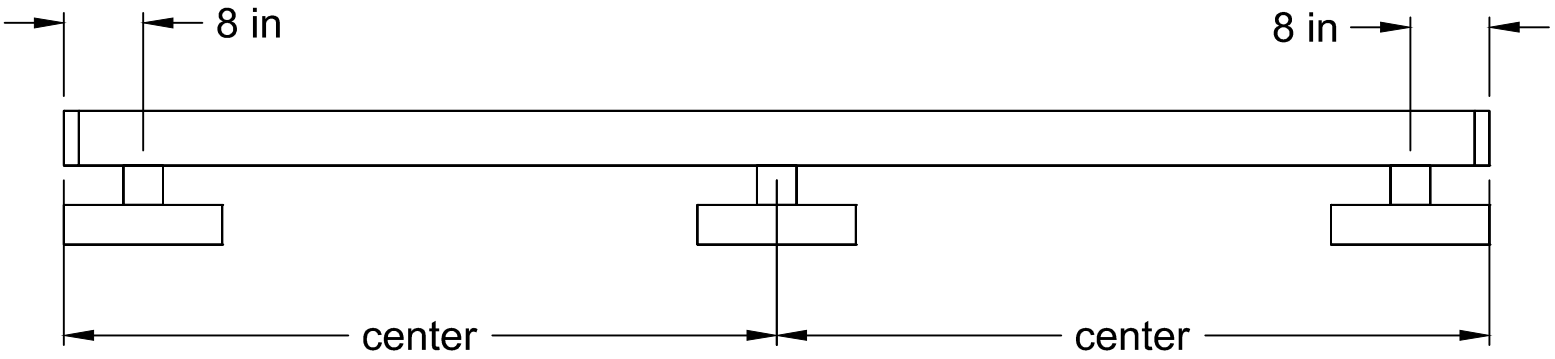


Figure 1.2, Concrete block spacing

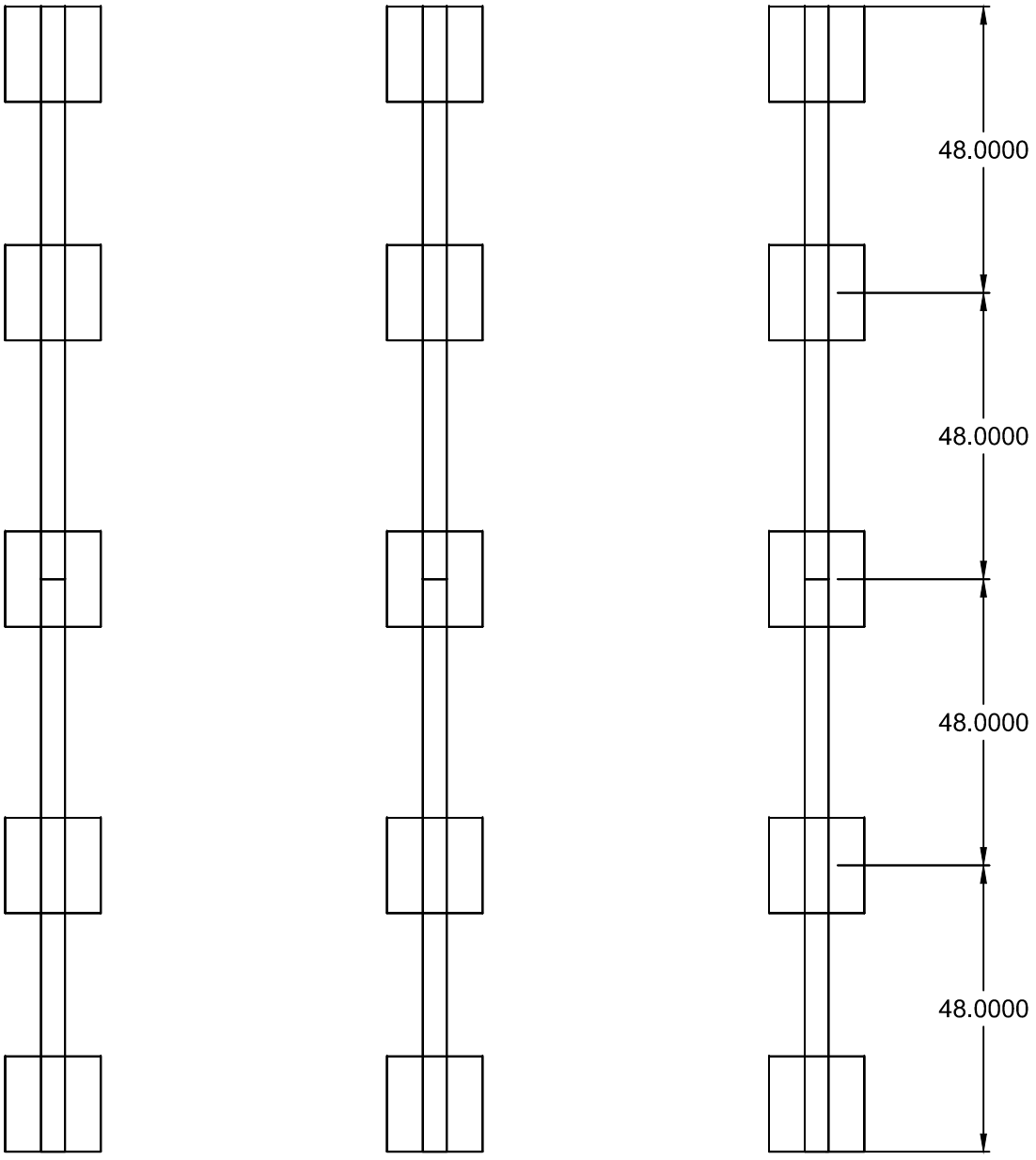


Figure 2.1, Floor dimensions

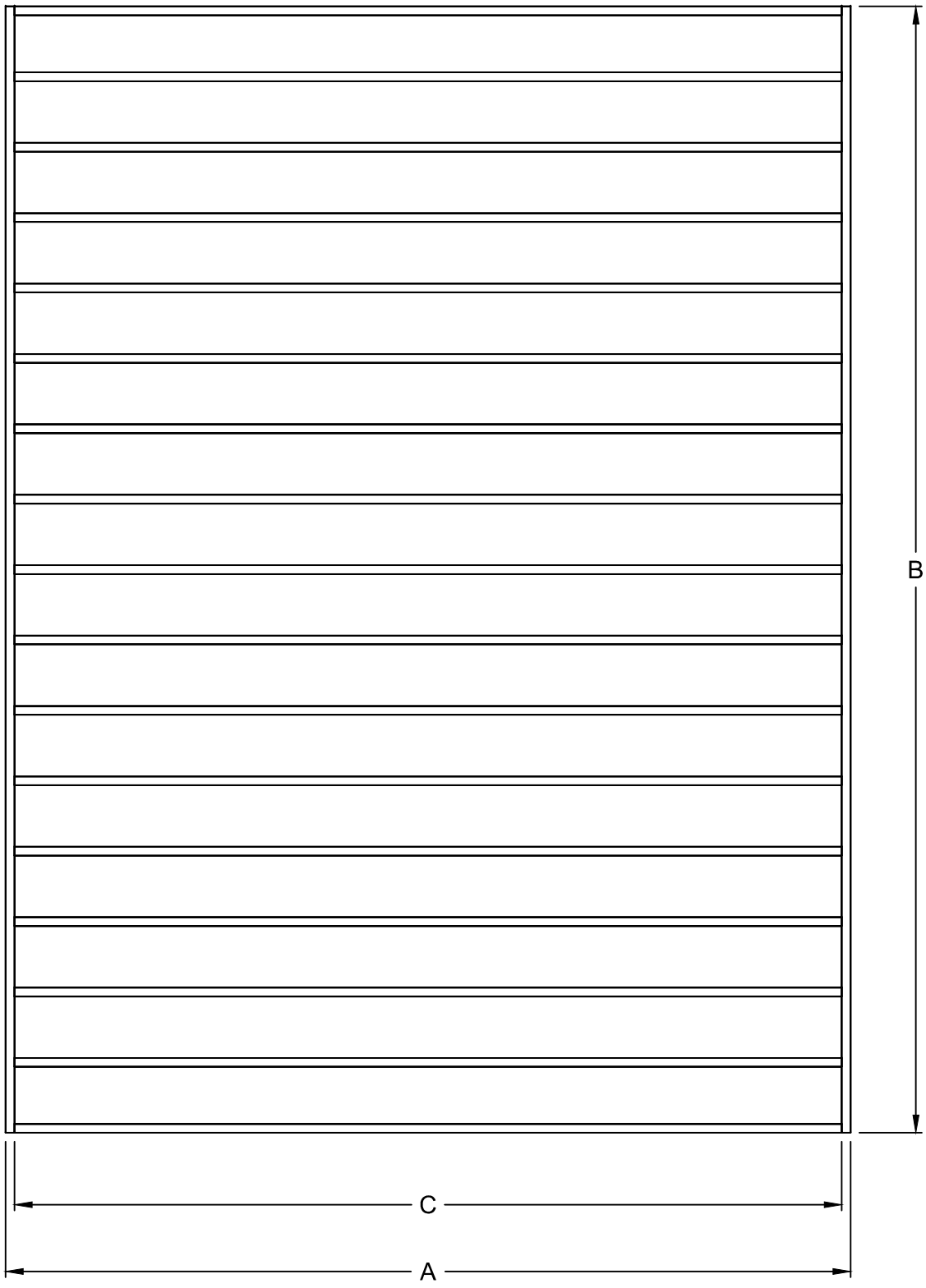


Figure 2.2, Rim joist splice

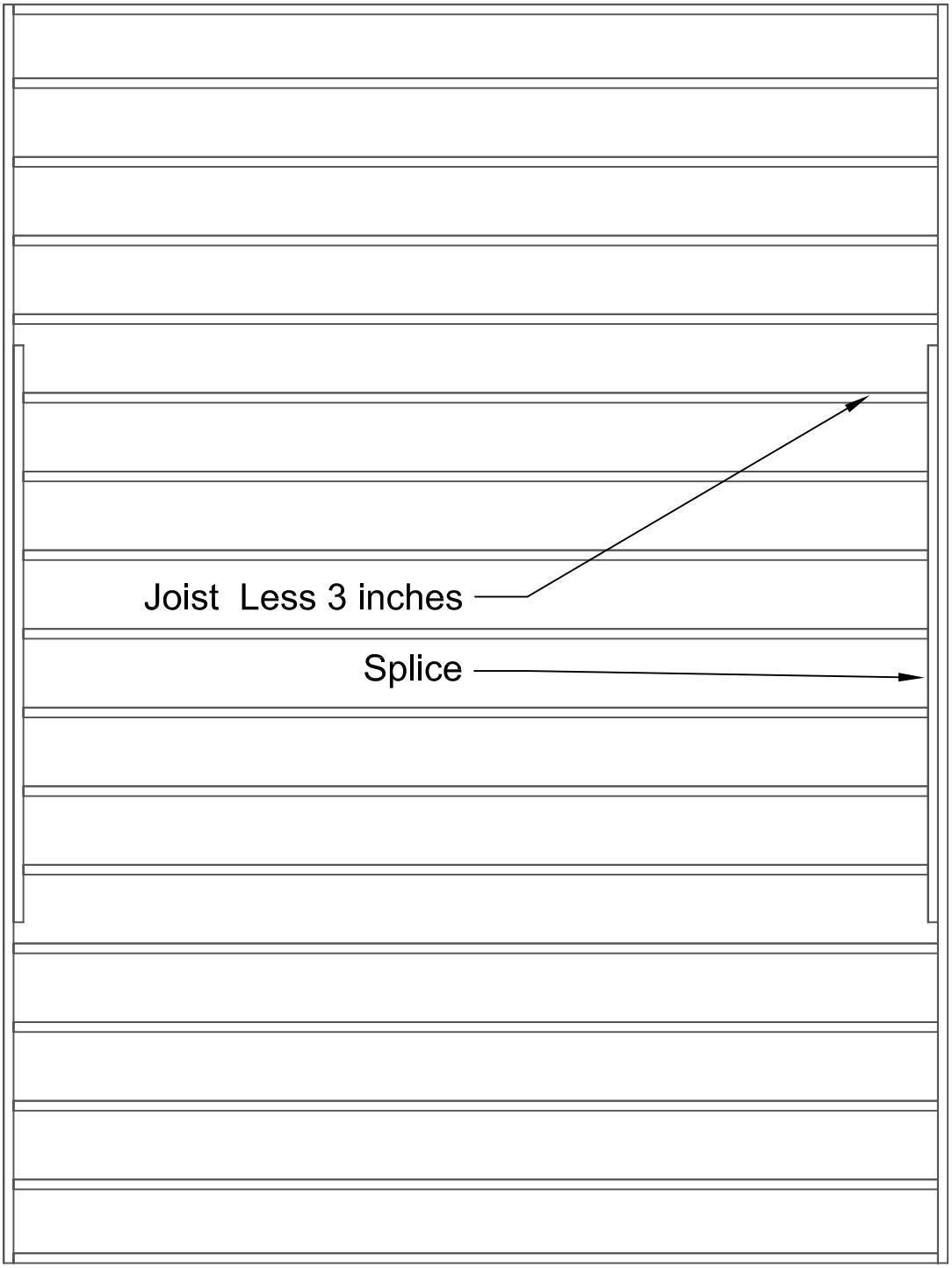


Figure 2.3, Floor frame complete

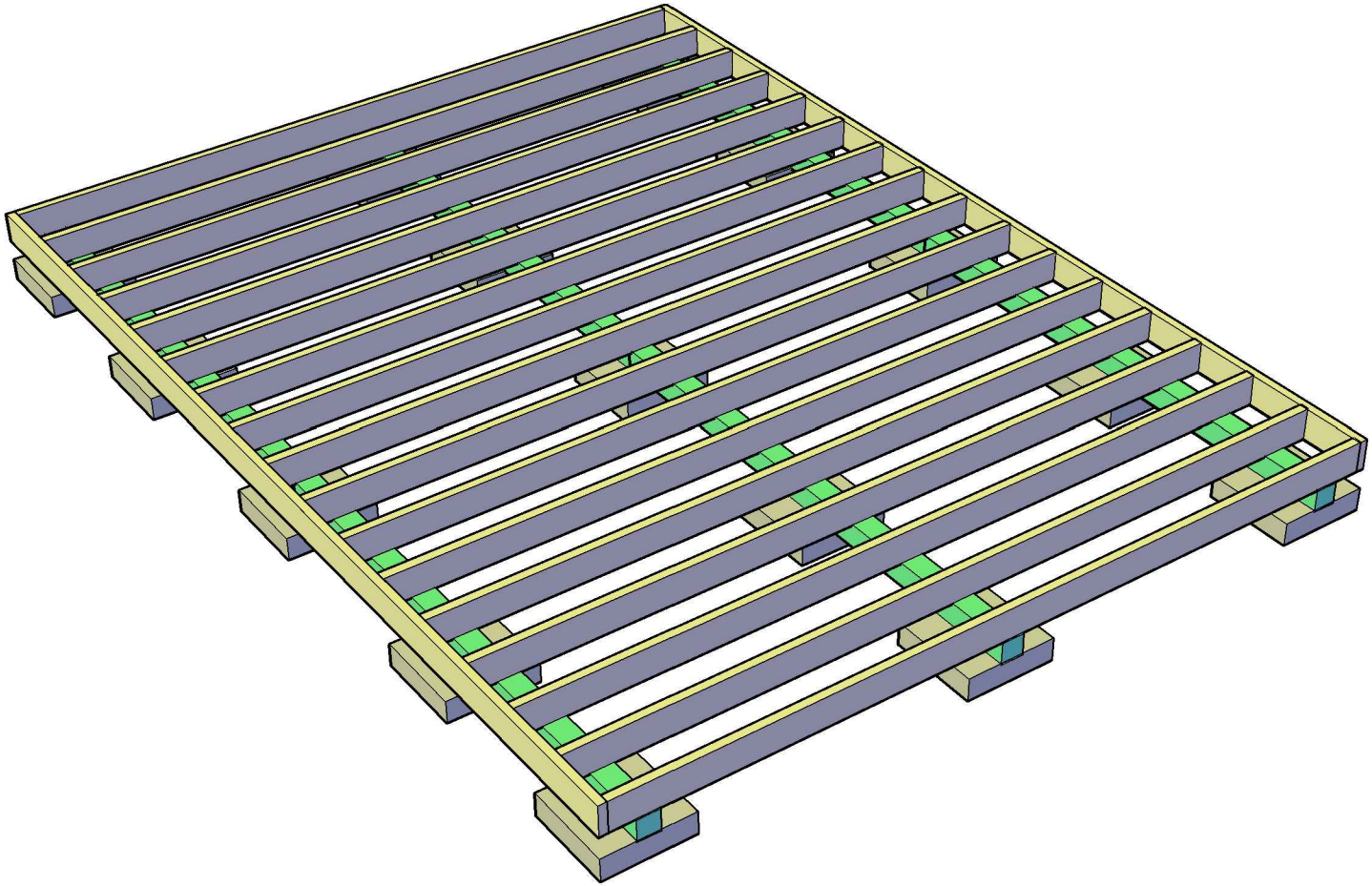


Figure 3.1, Truss dimensions

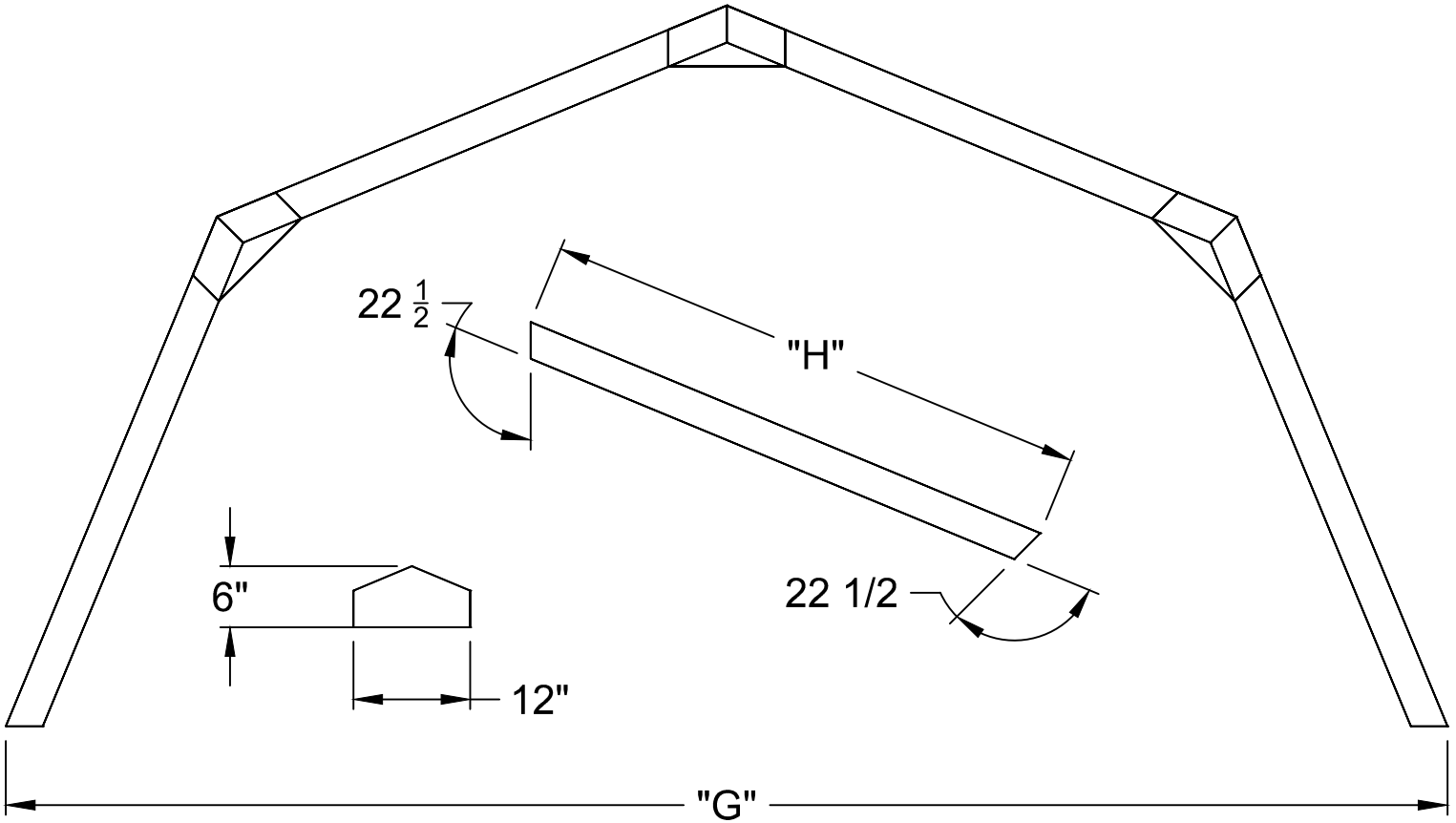


Figure 3.2, Truss jig

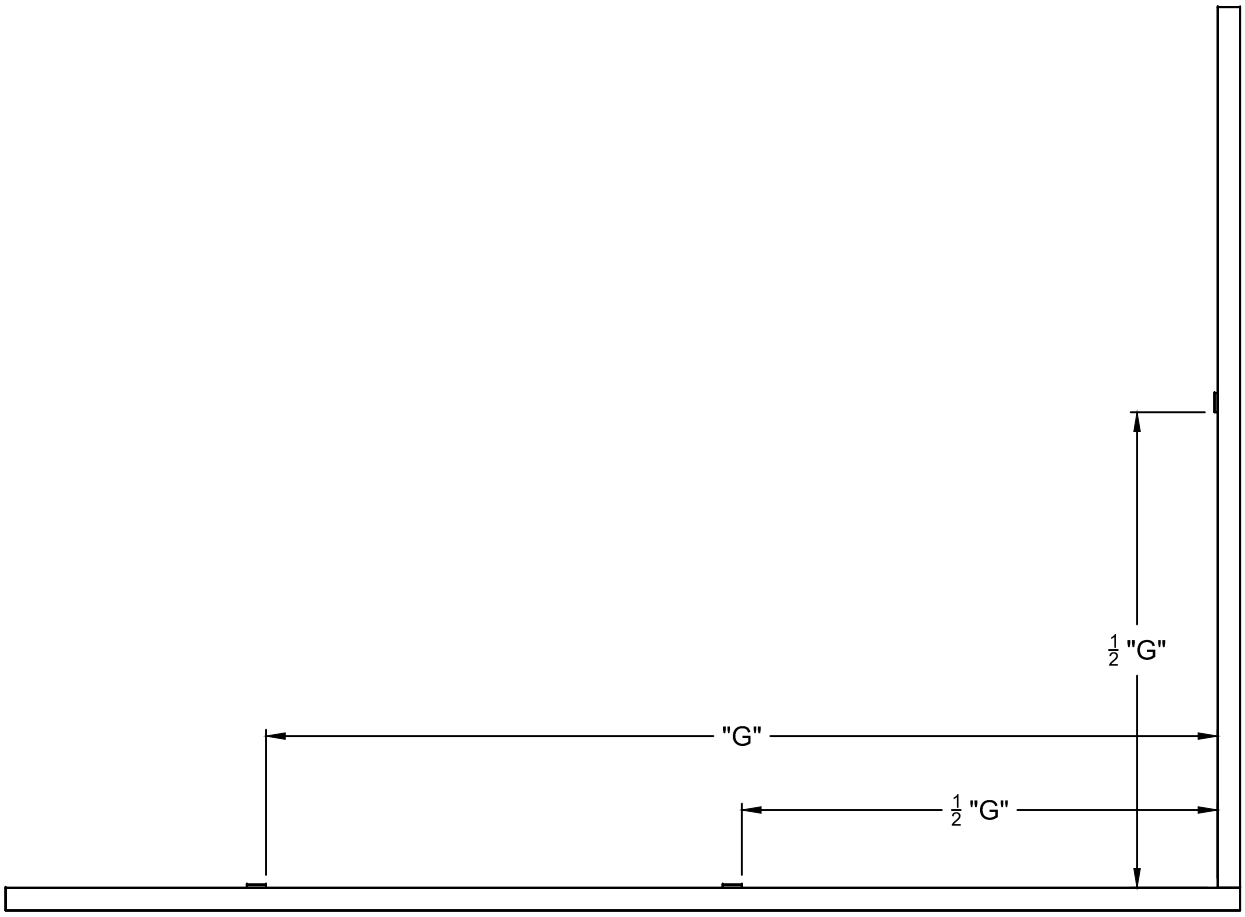


Figure 3.3, Gambrel end framing

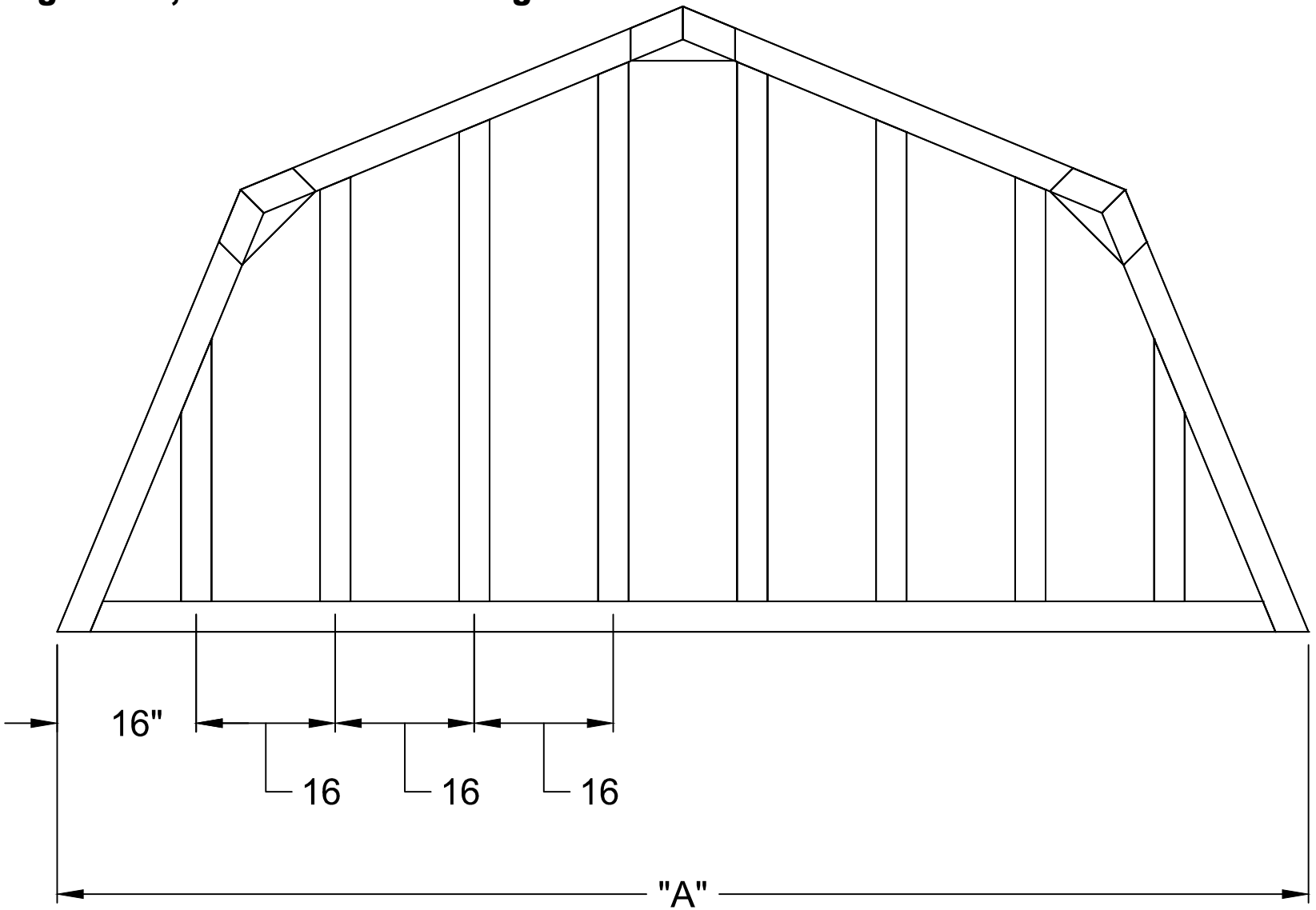


Figure 3.4, Overhang details

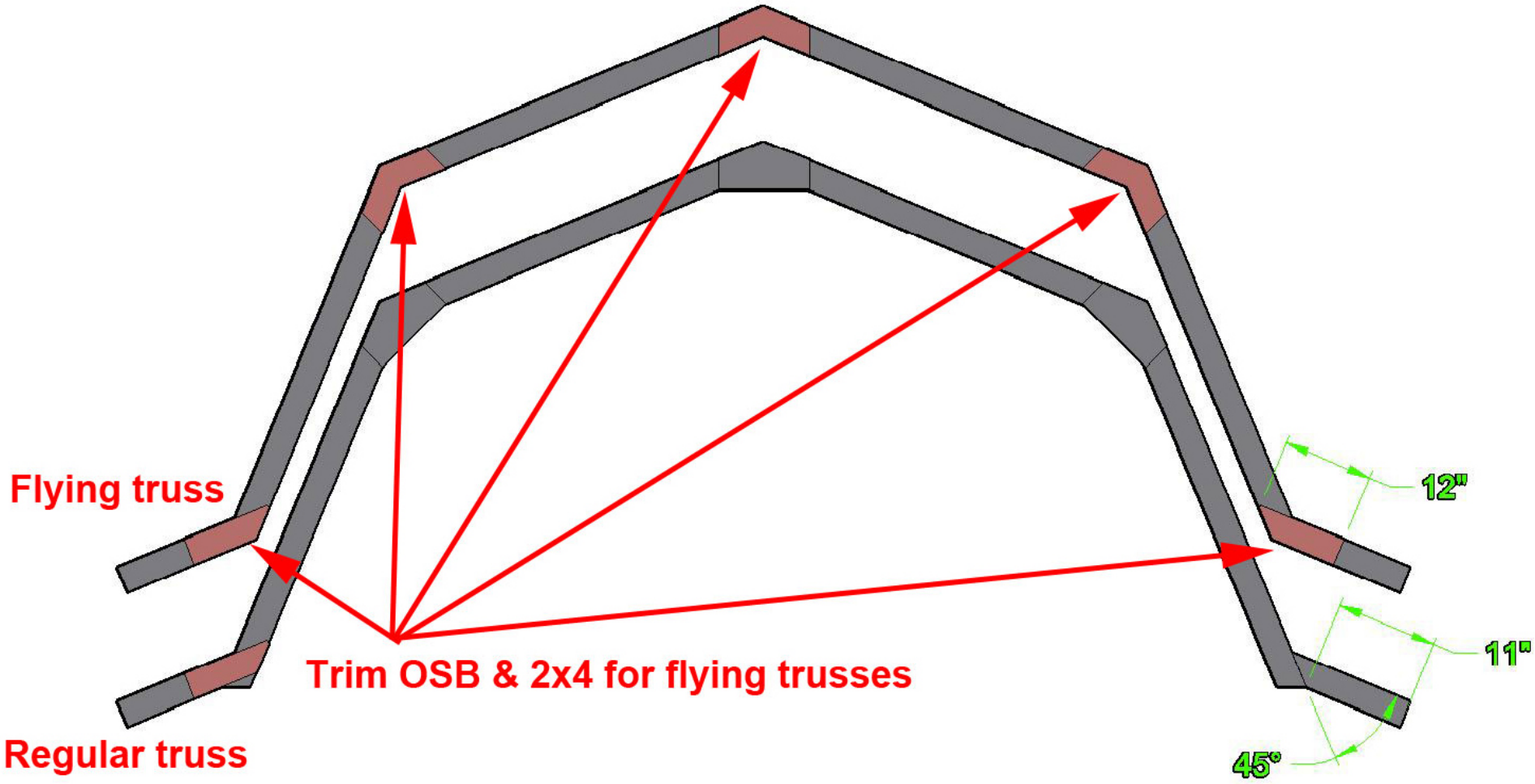
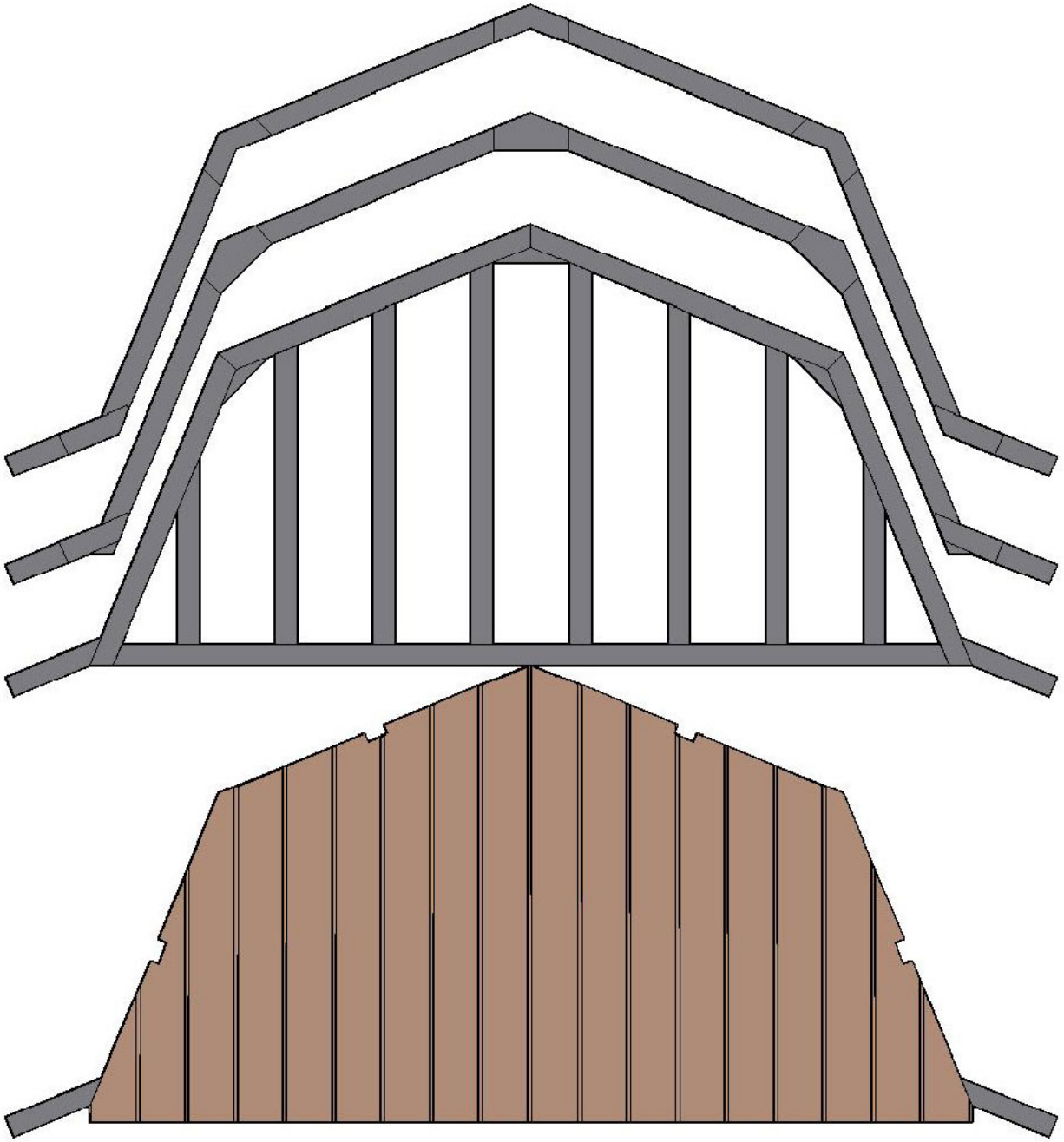


Figure 3.5, Truss comparison



Flying truss

Regular truss

End truss framing

End truss after sheeting and cut for flying rafters with about 12 in overhang

Figure 3.6, Crows beak dimensions

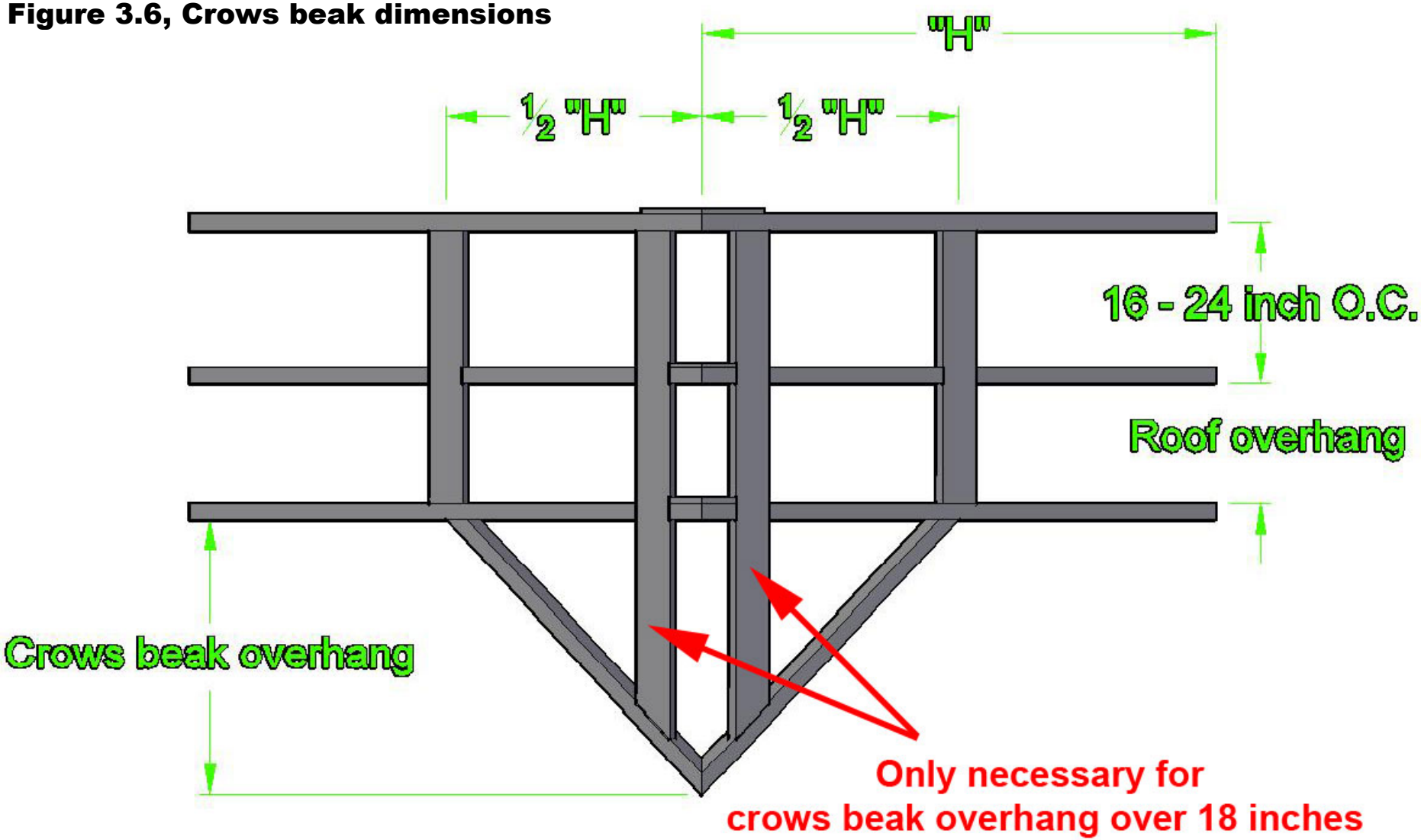


Figure 3.7, Crows beak framing detail

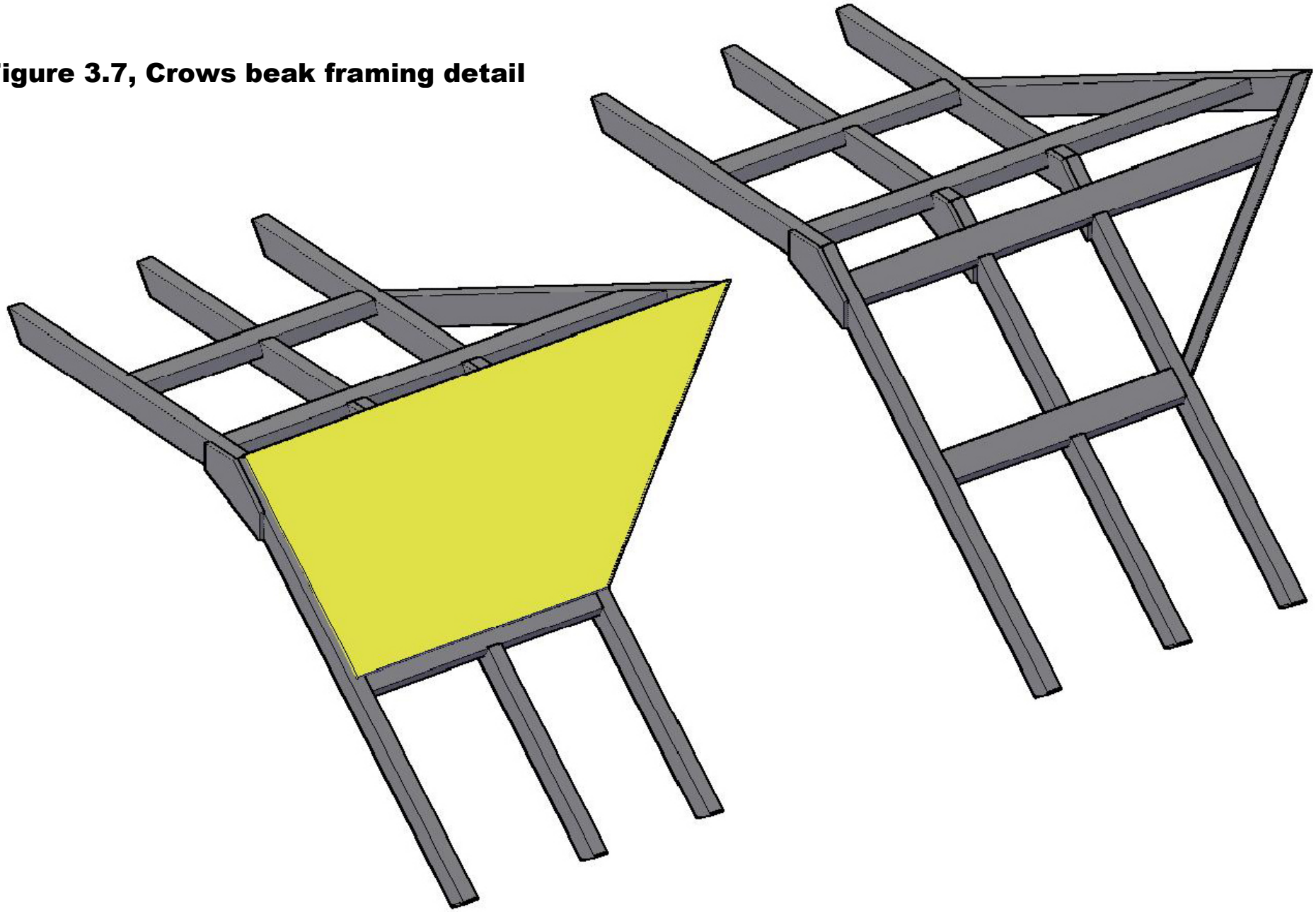


Figure 3.8, Crows beak sheeting detail

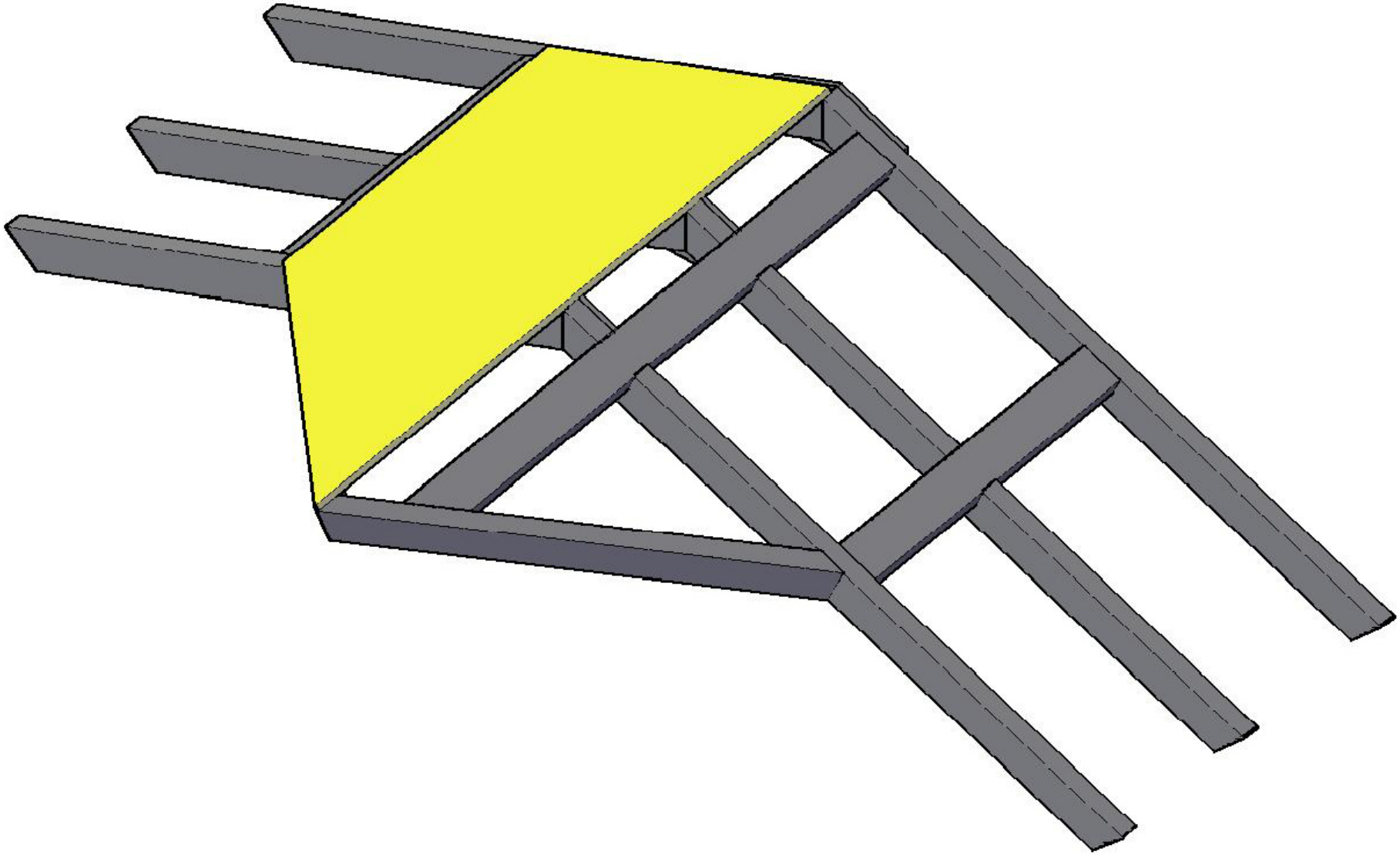


Figure 4.1, Overall dimensions

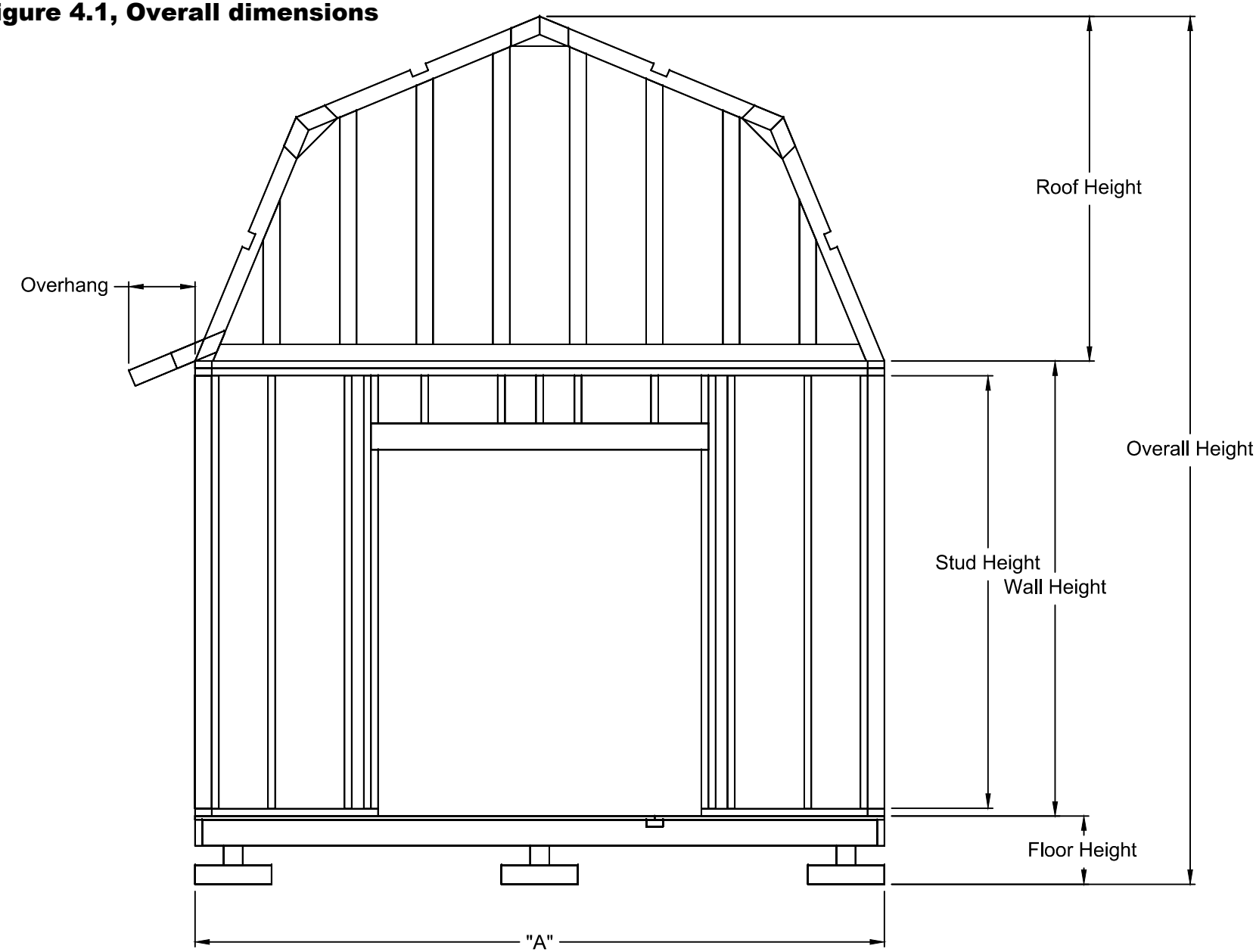


Figure 4.2, Wall layout

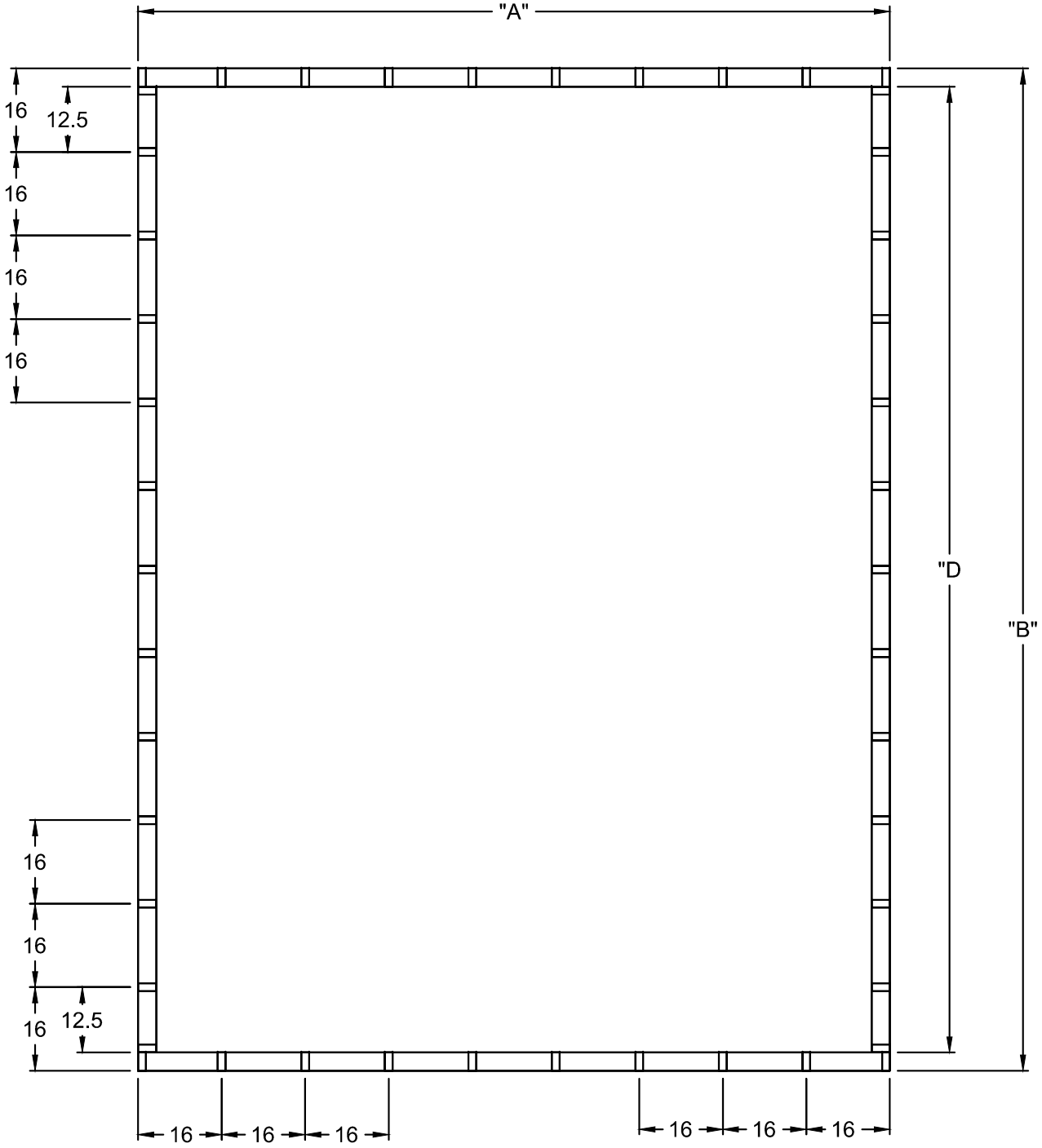


Figure 4.3, End wall framing

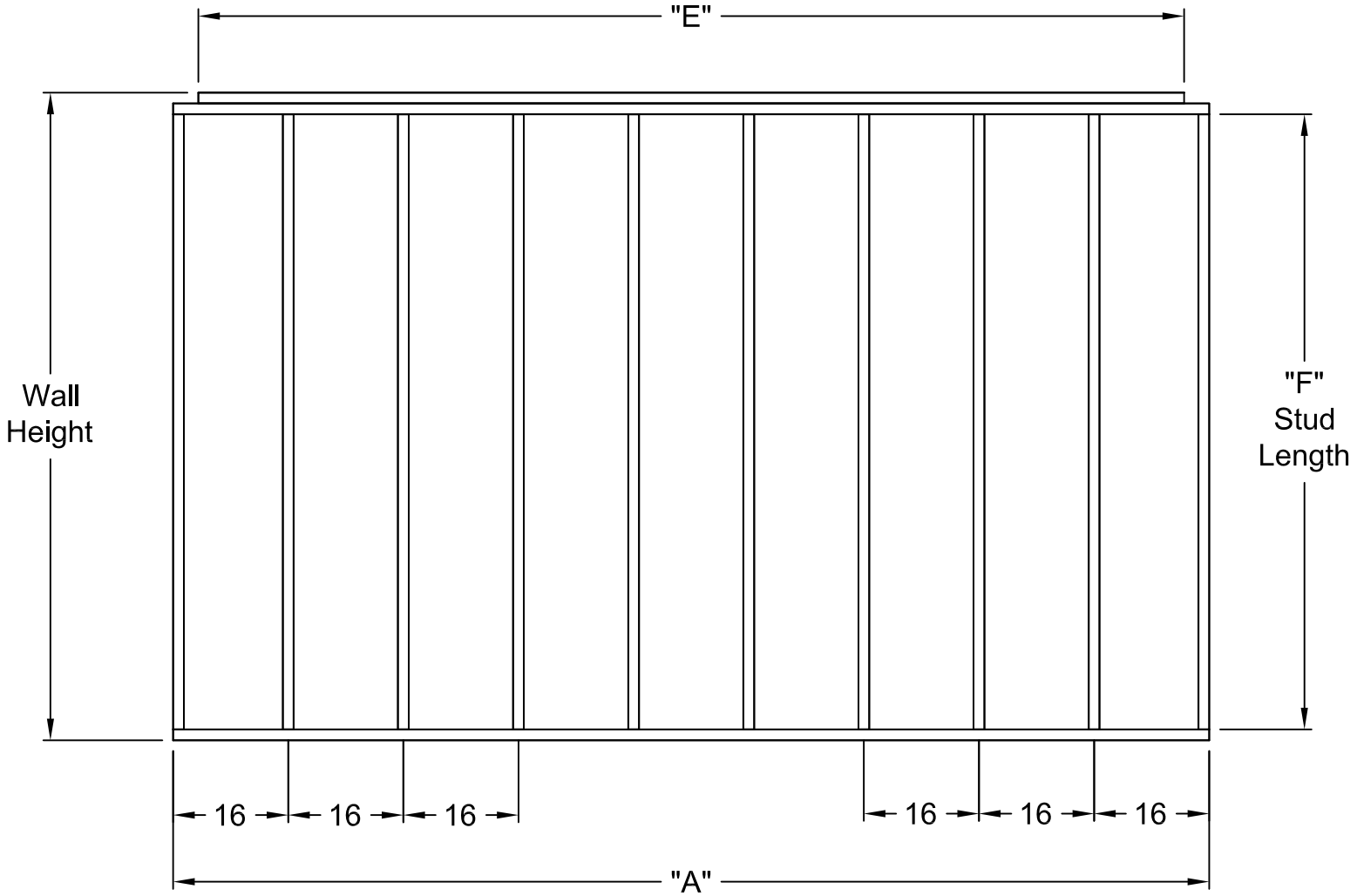
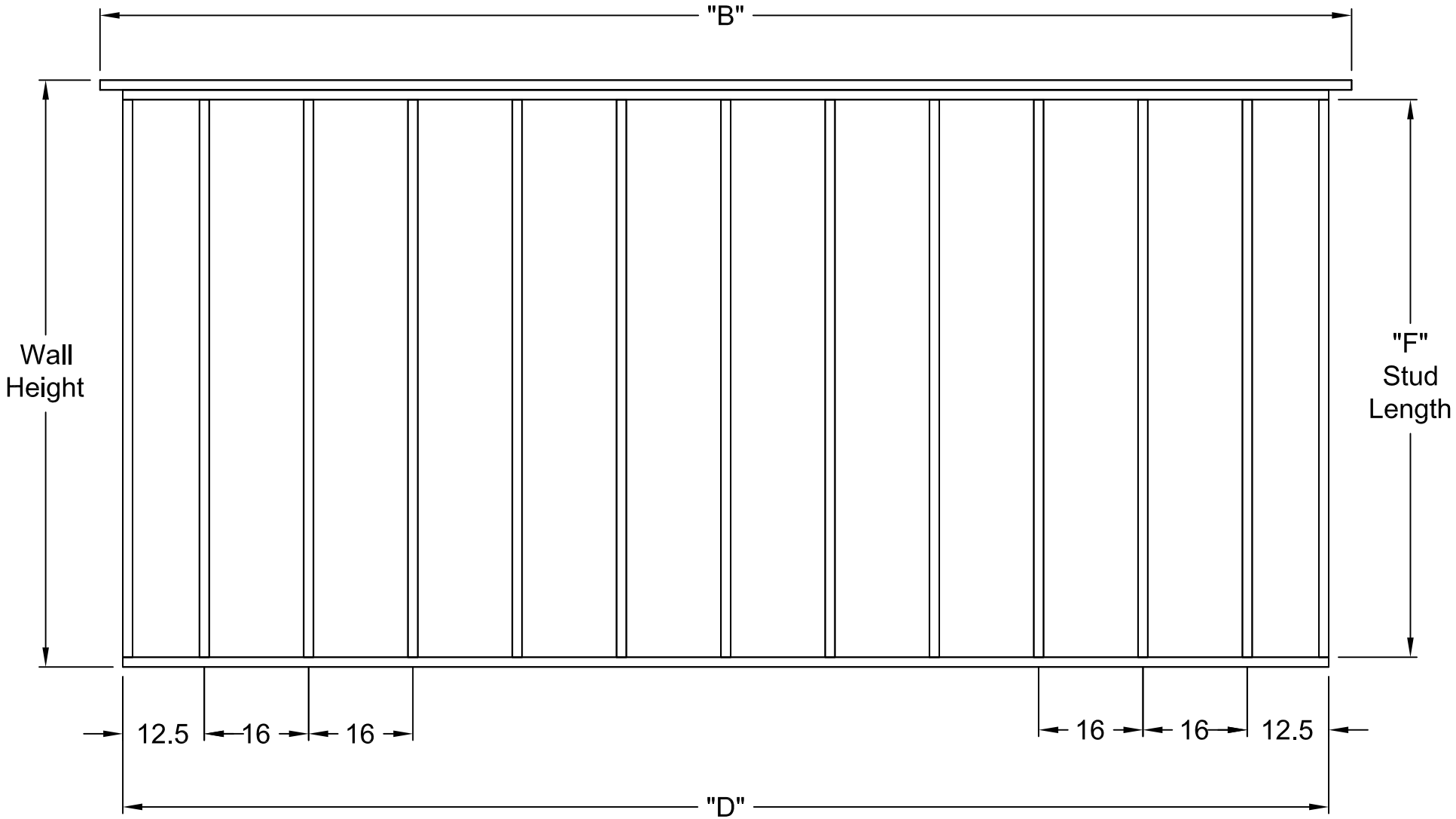
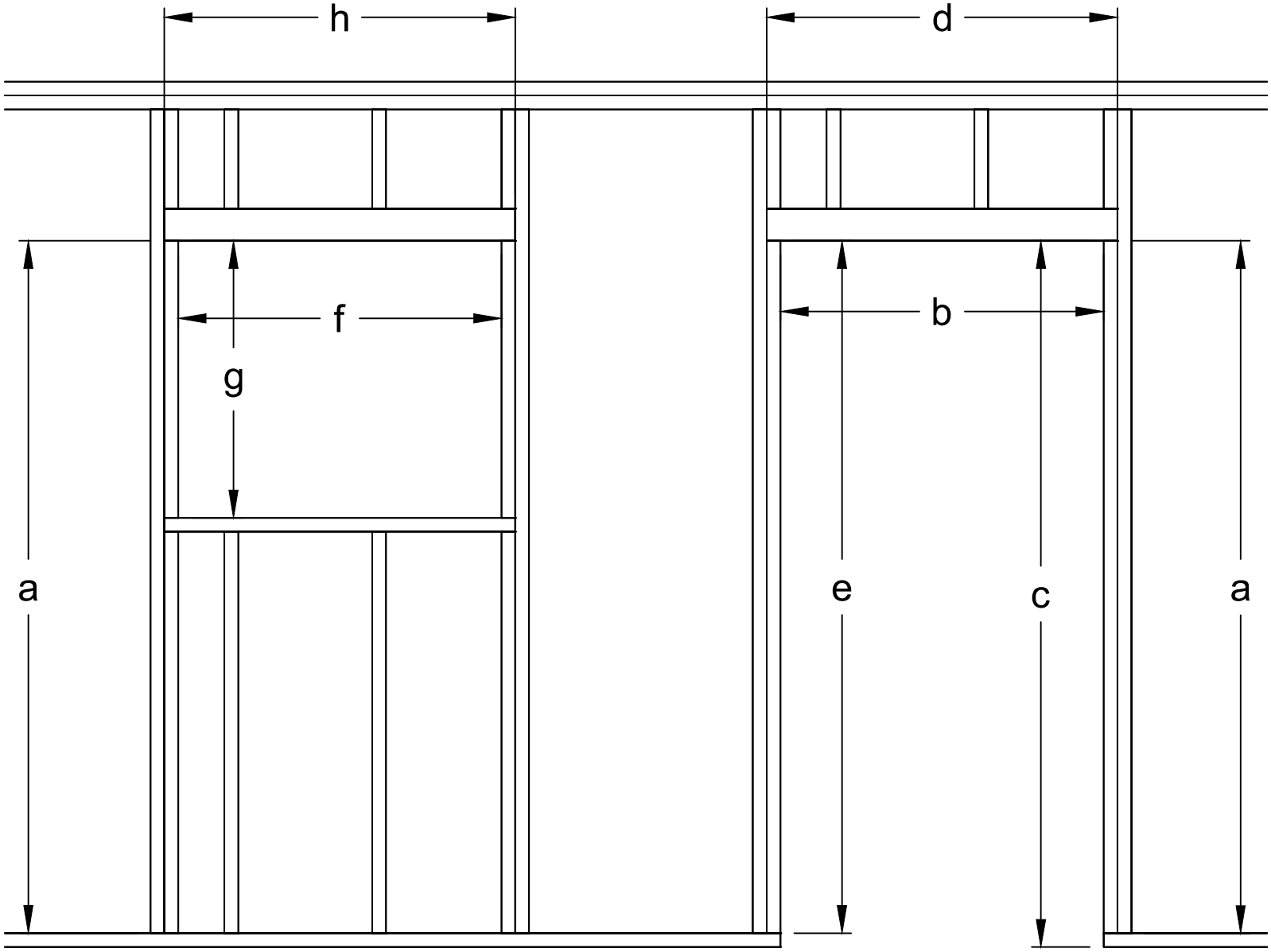


Figure 4.4, Side wall framing



5a, Frame for pre hung doors and windows



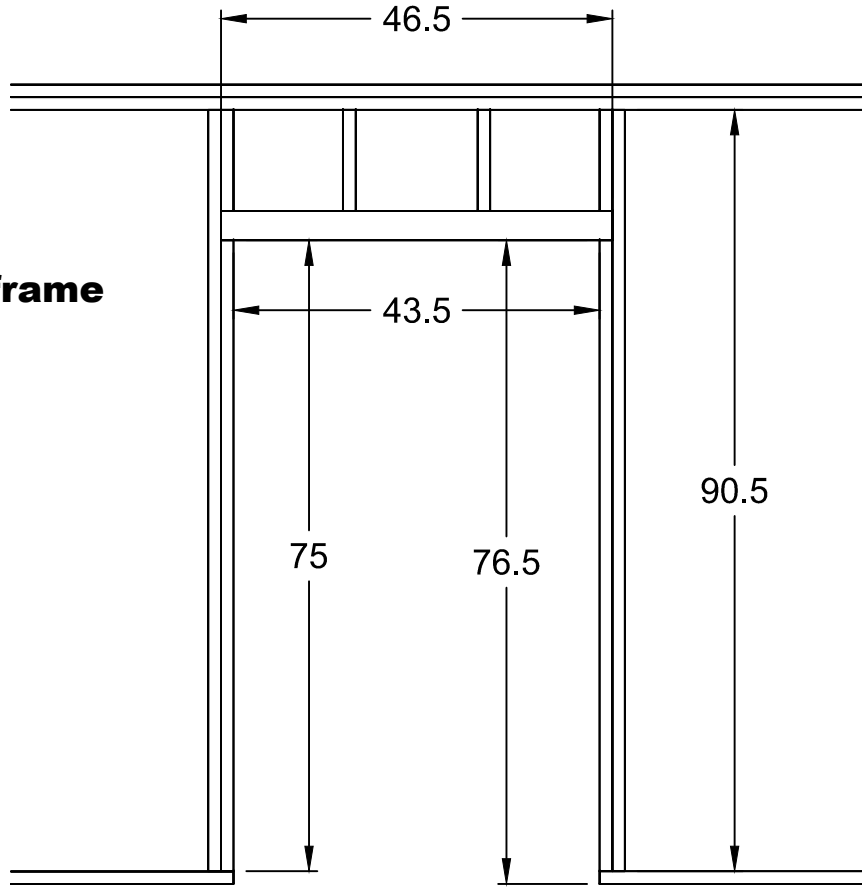


Figure 5b.1
Outer door frame

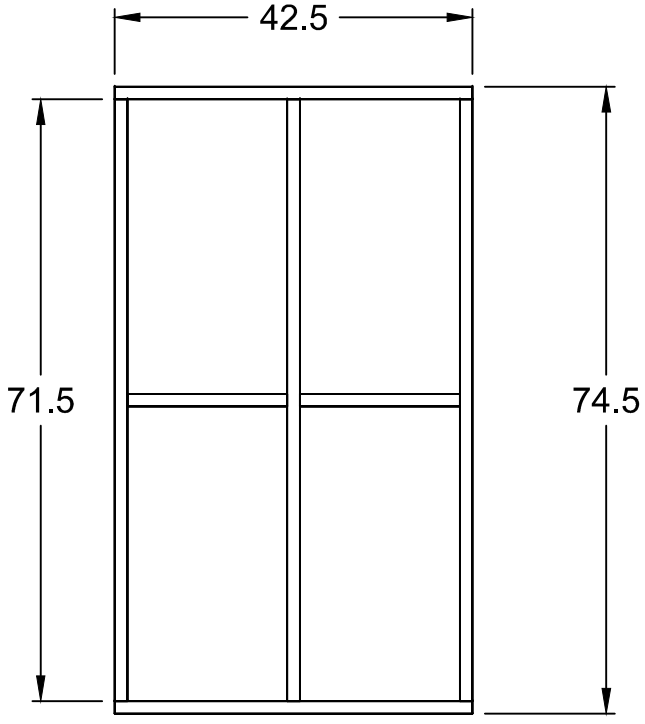
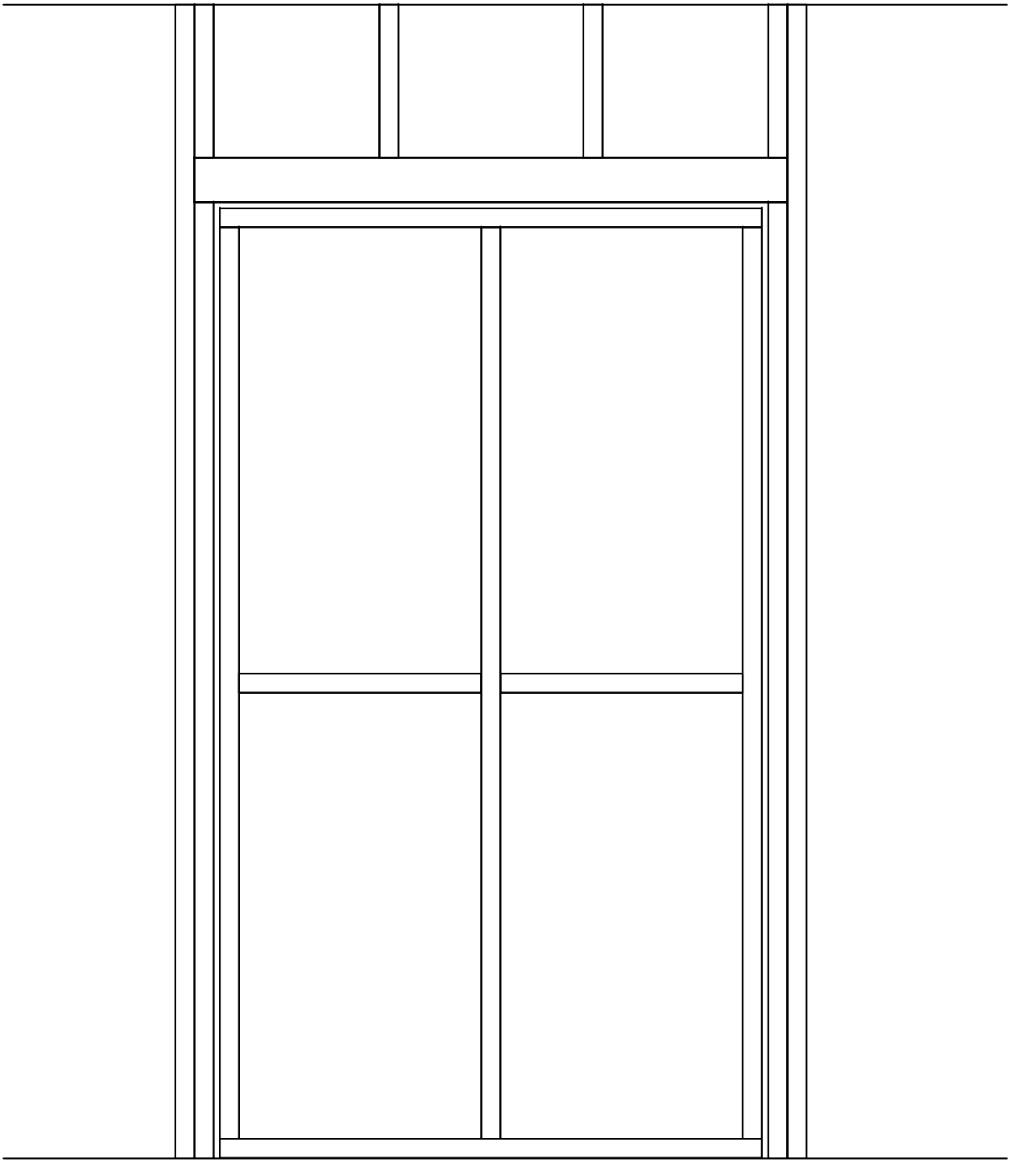


Figure 5b.2
Inner door frame

Figure 5b.3 Complete single door frame



5b.4 Nailing sequence

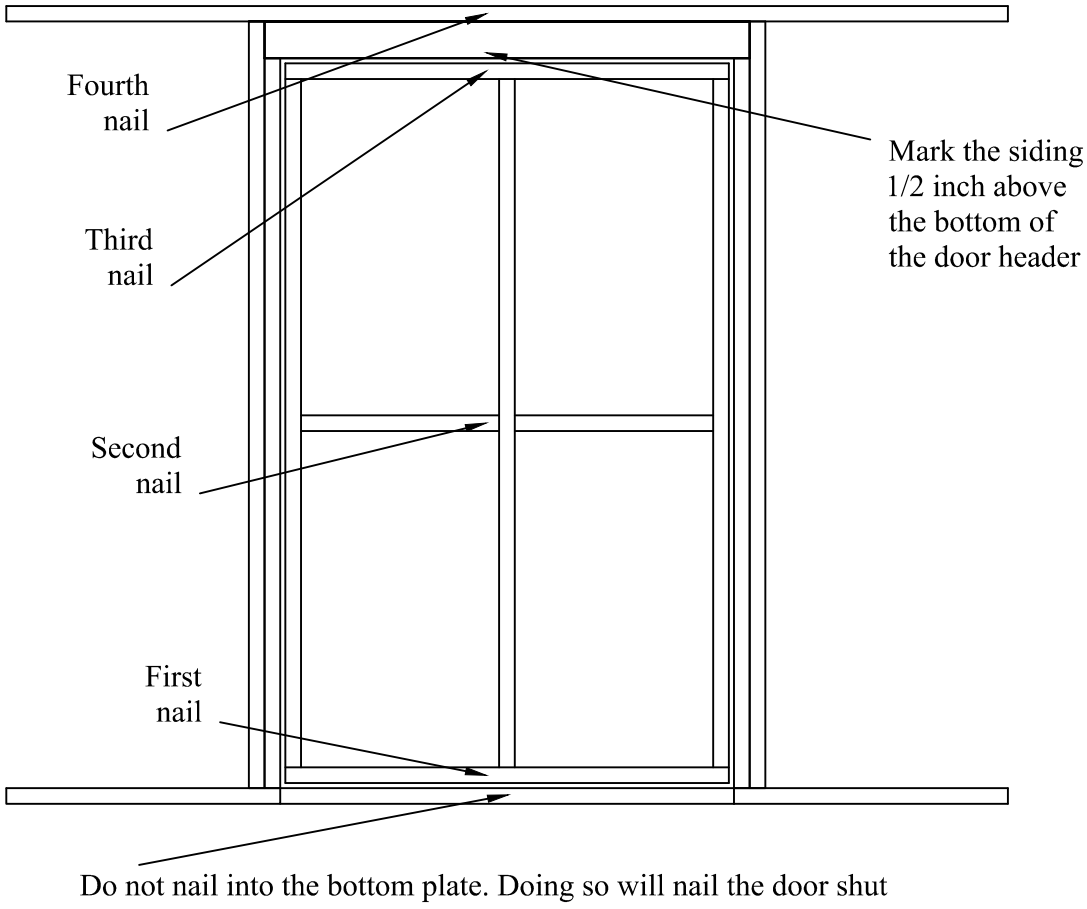
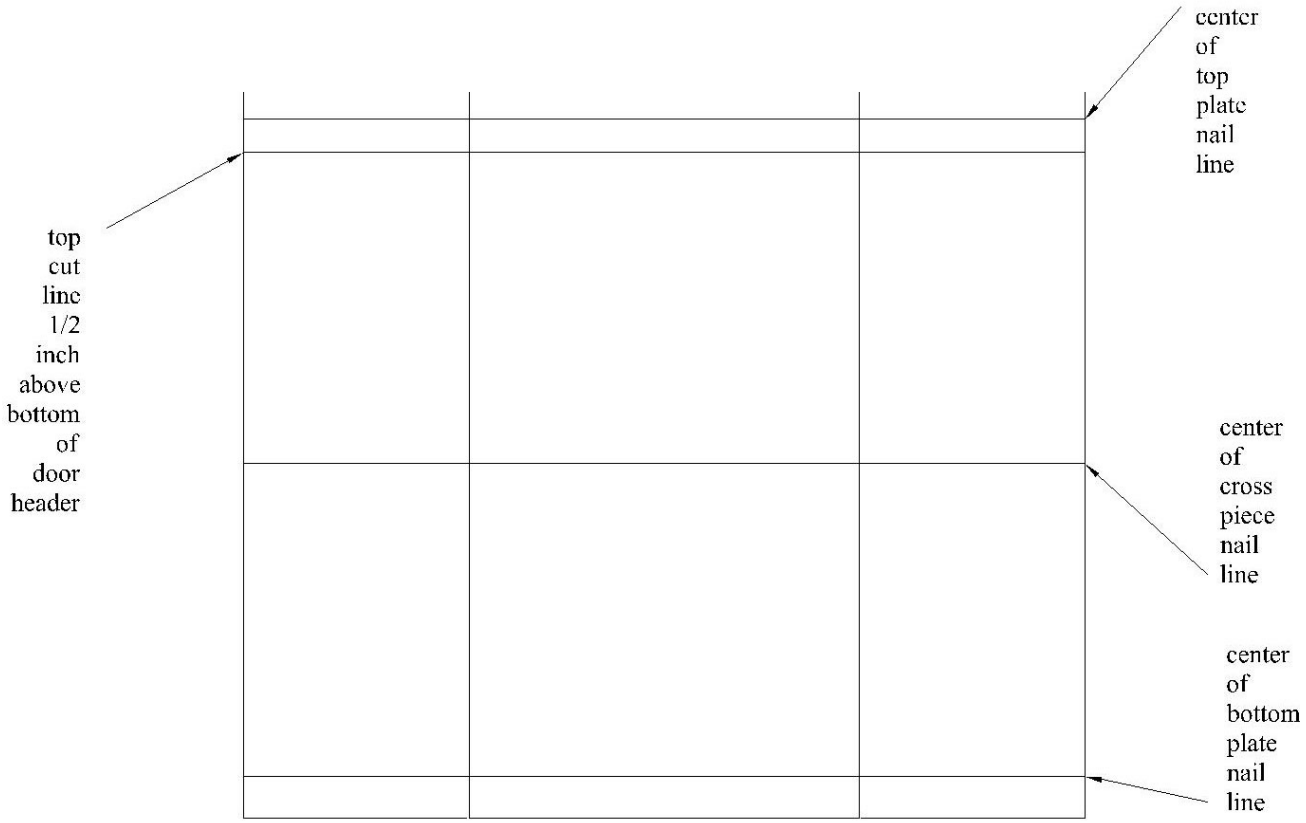
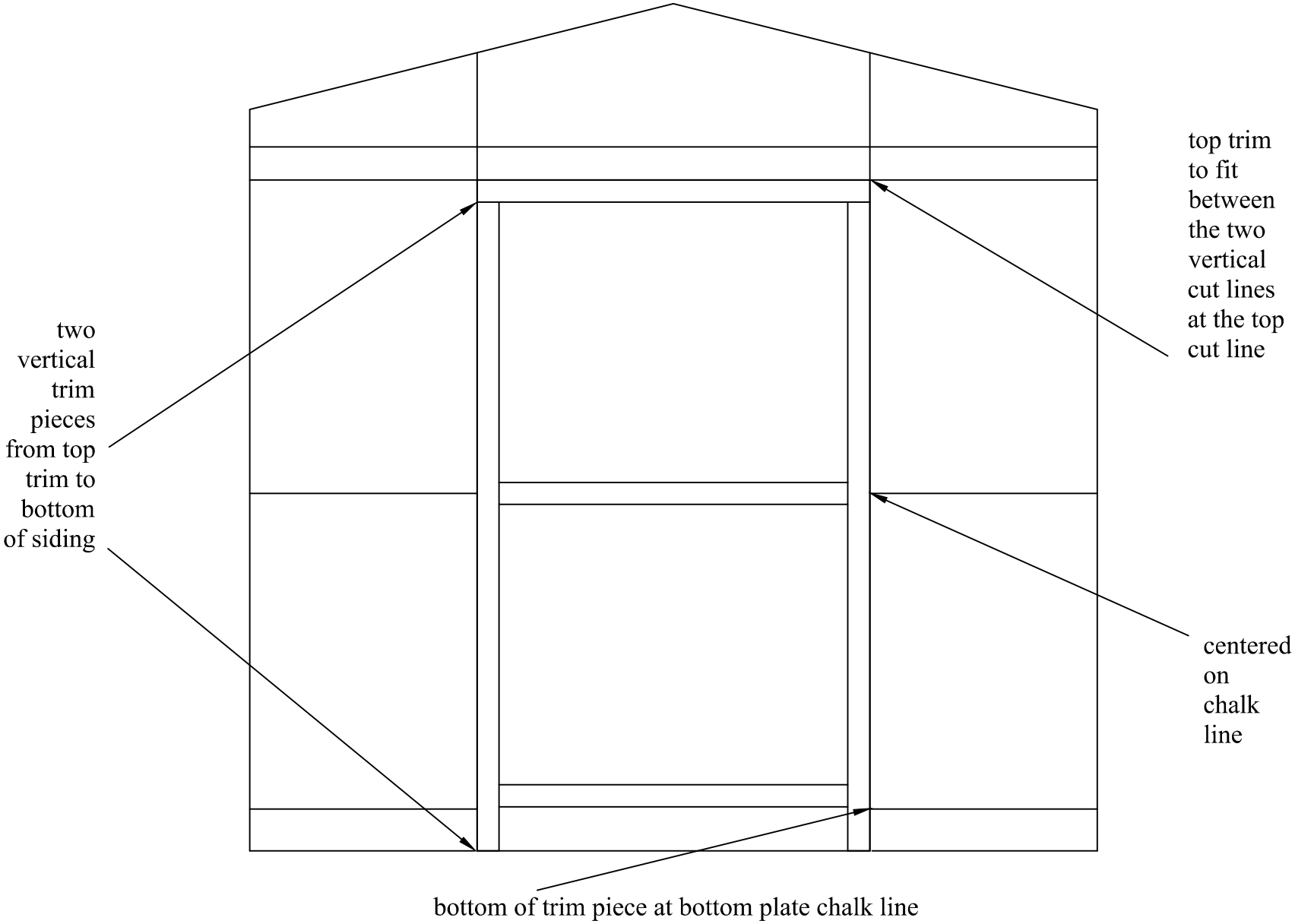


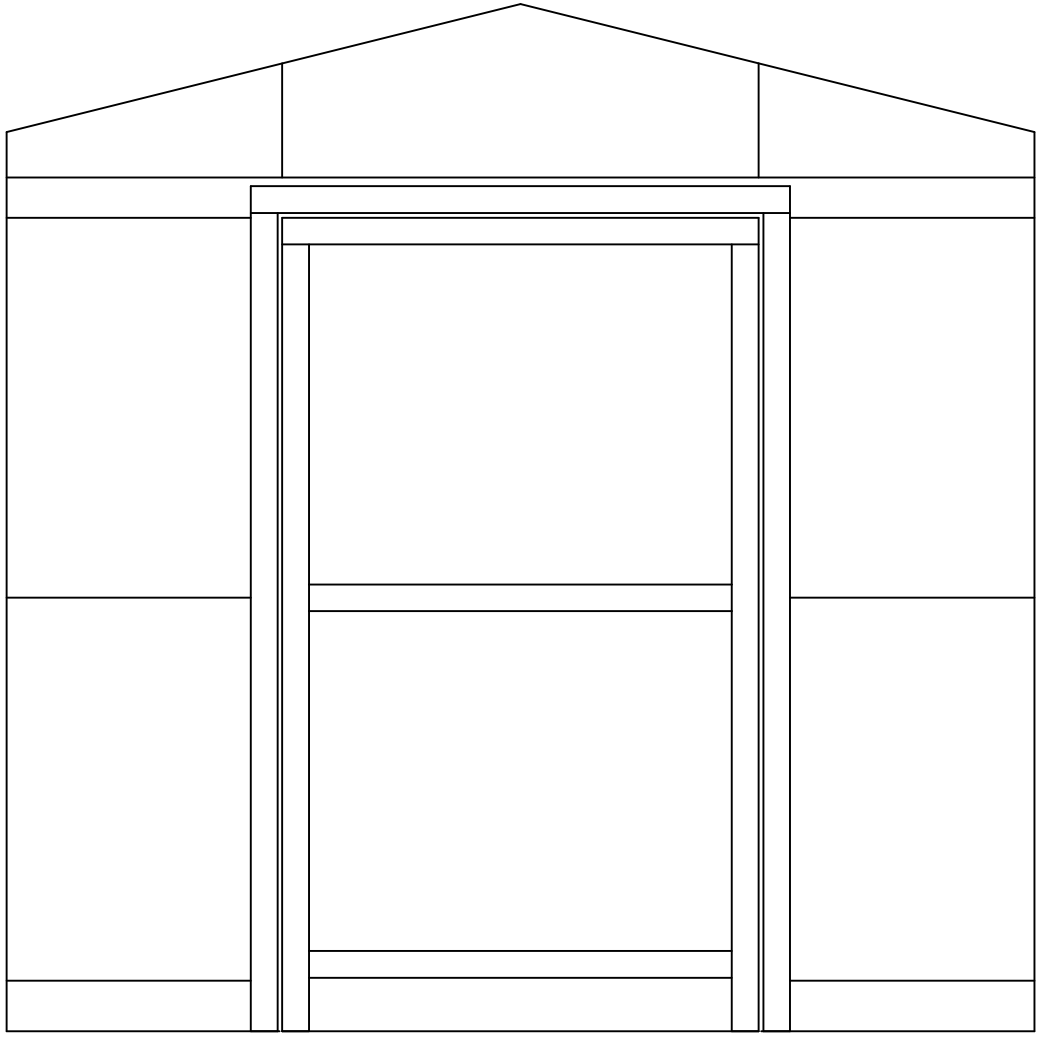
Figure 5b.5, Chalk lines, cut lines



5b.6, Inner door trim



5b.7, Complete door trim showing 7/16 inch gap between inner and outer trim



5c.1, Inner door uprights, siding breaks, and cripple stud spacing

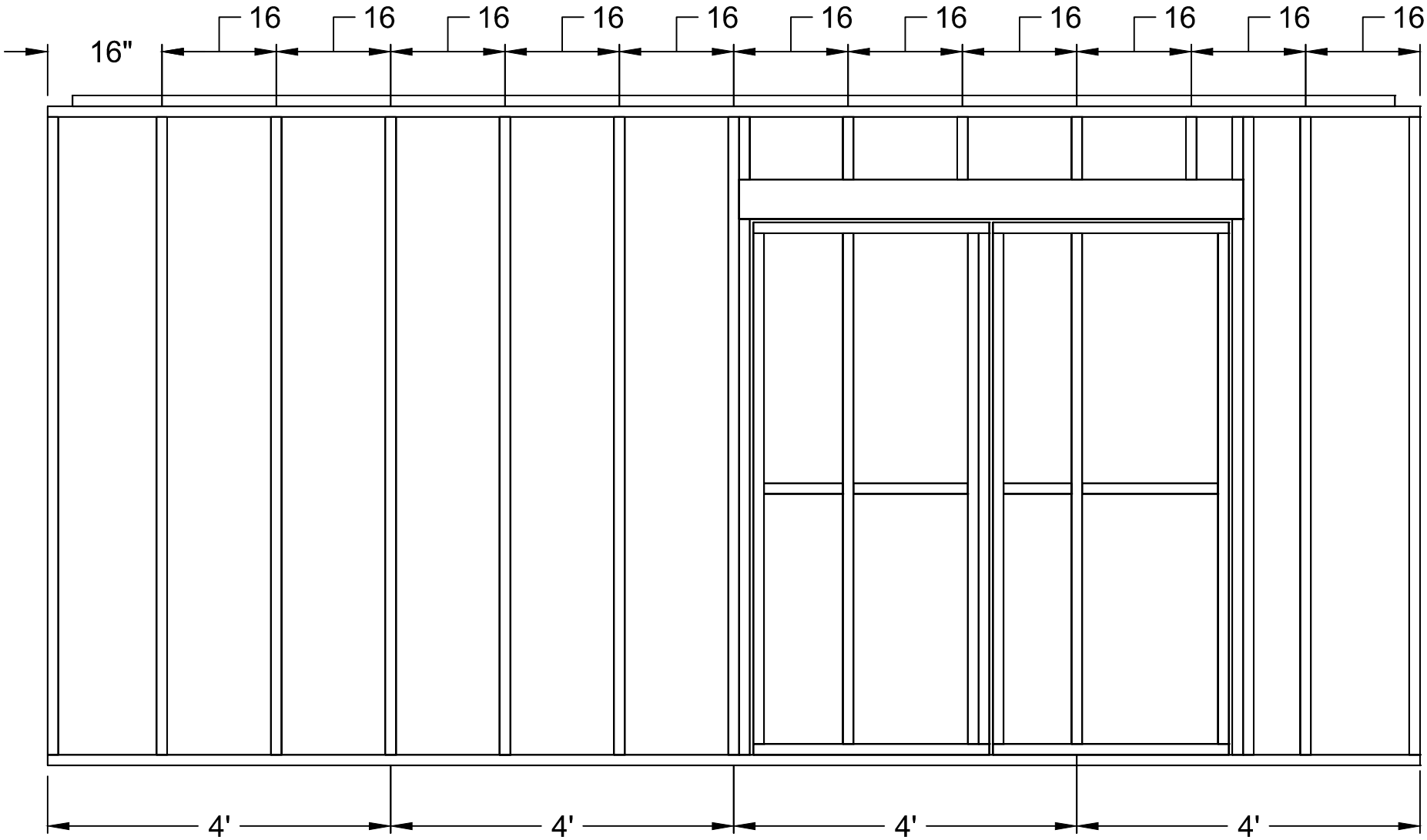
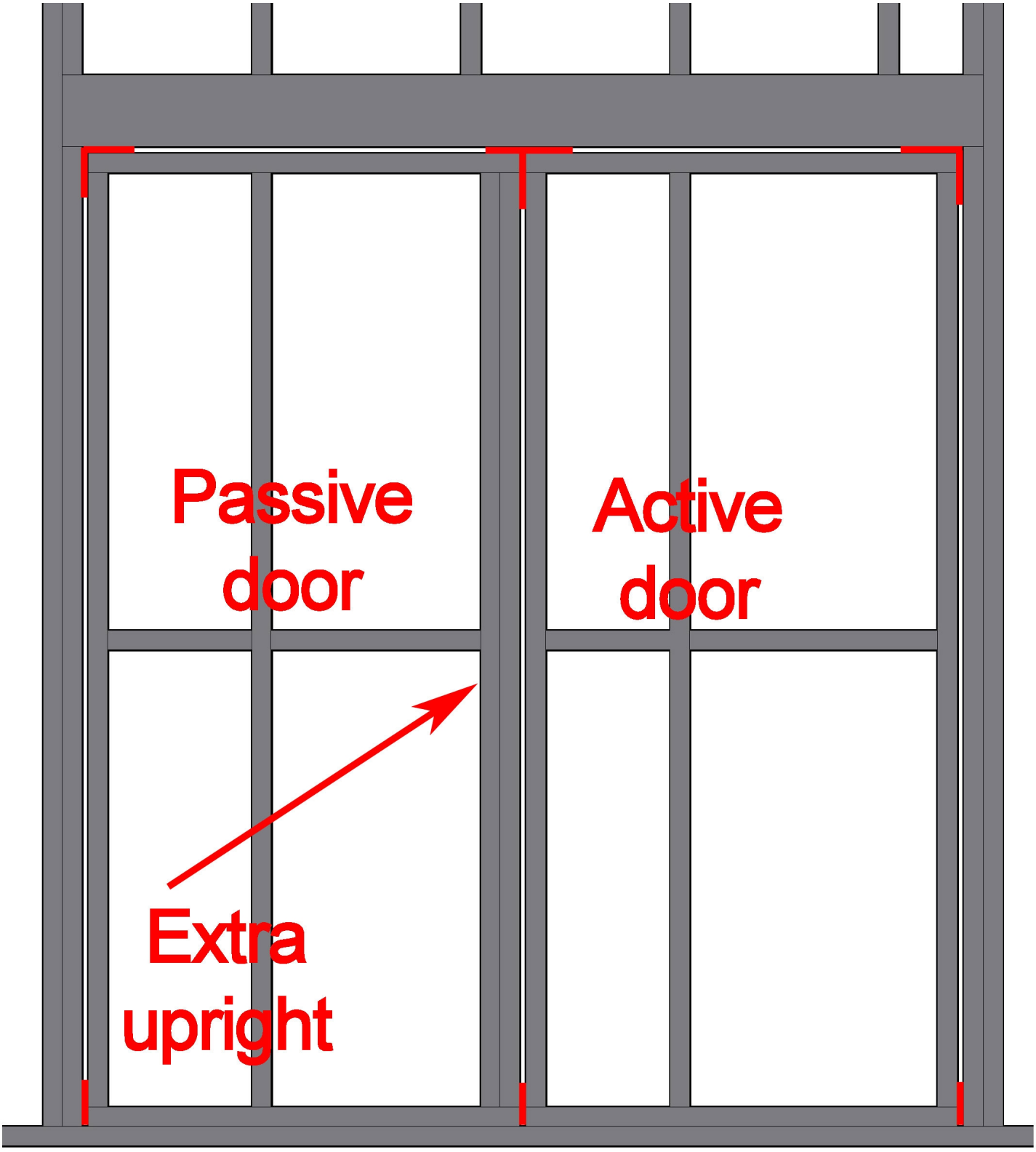
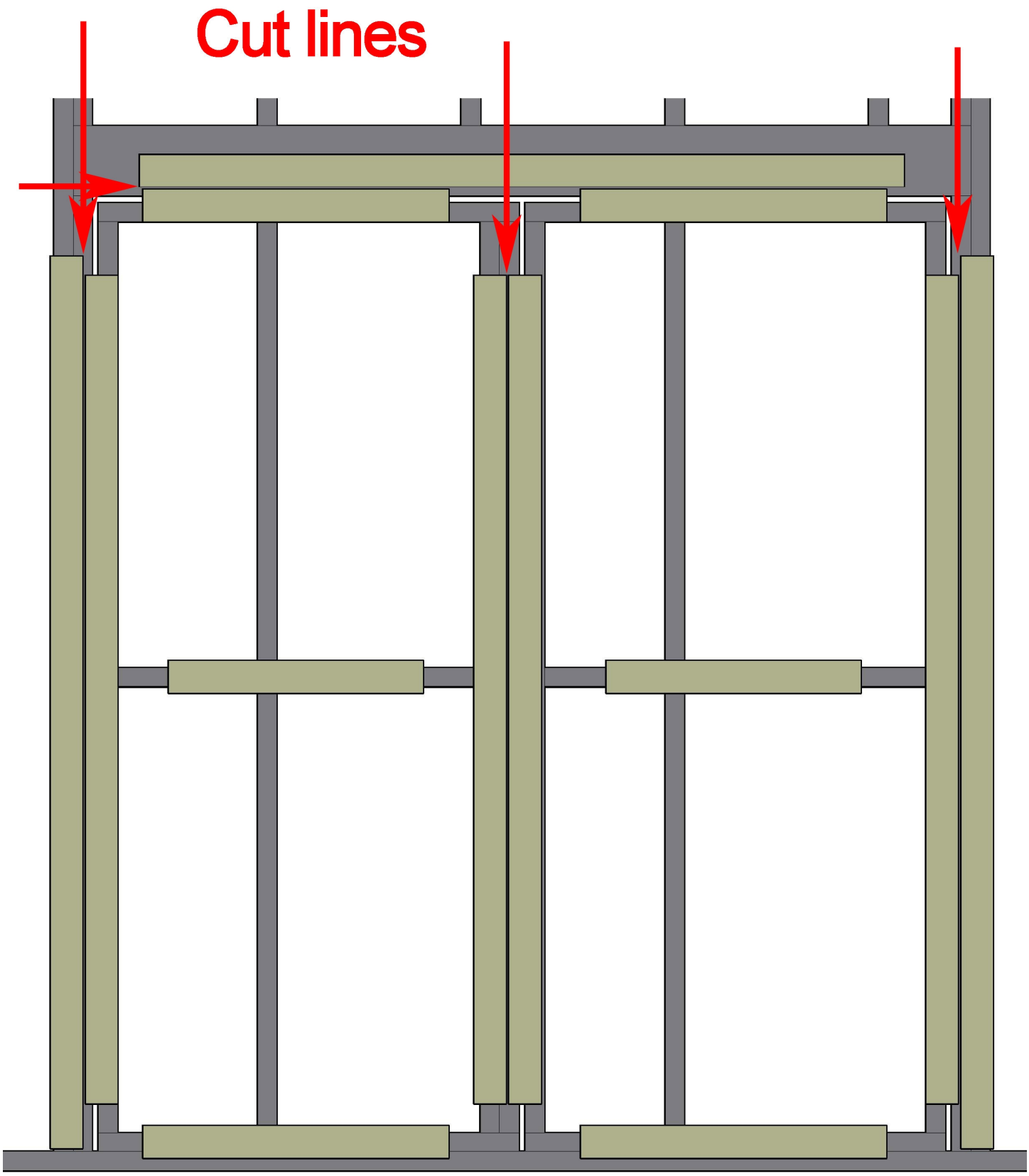


Figure 5c.2, Inner door spacers and uprights



5c.3, Door trim spacing and underlying cut lines



5c.4, Complete door trim

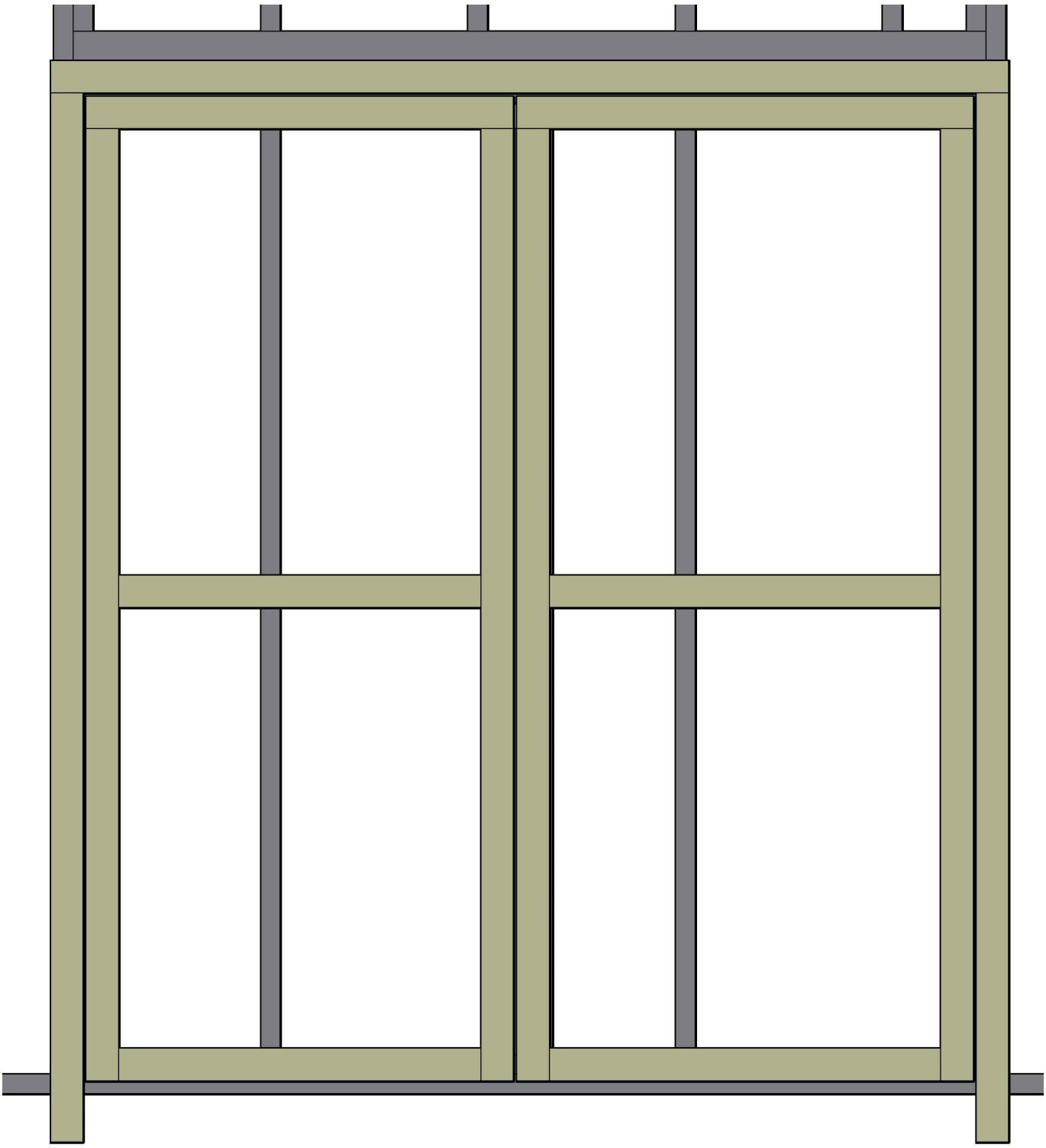


Figure 8.1, Roof framing details

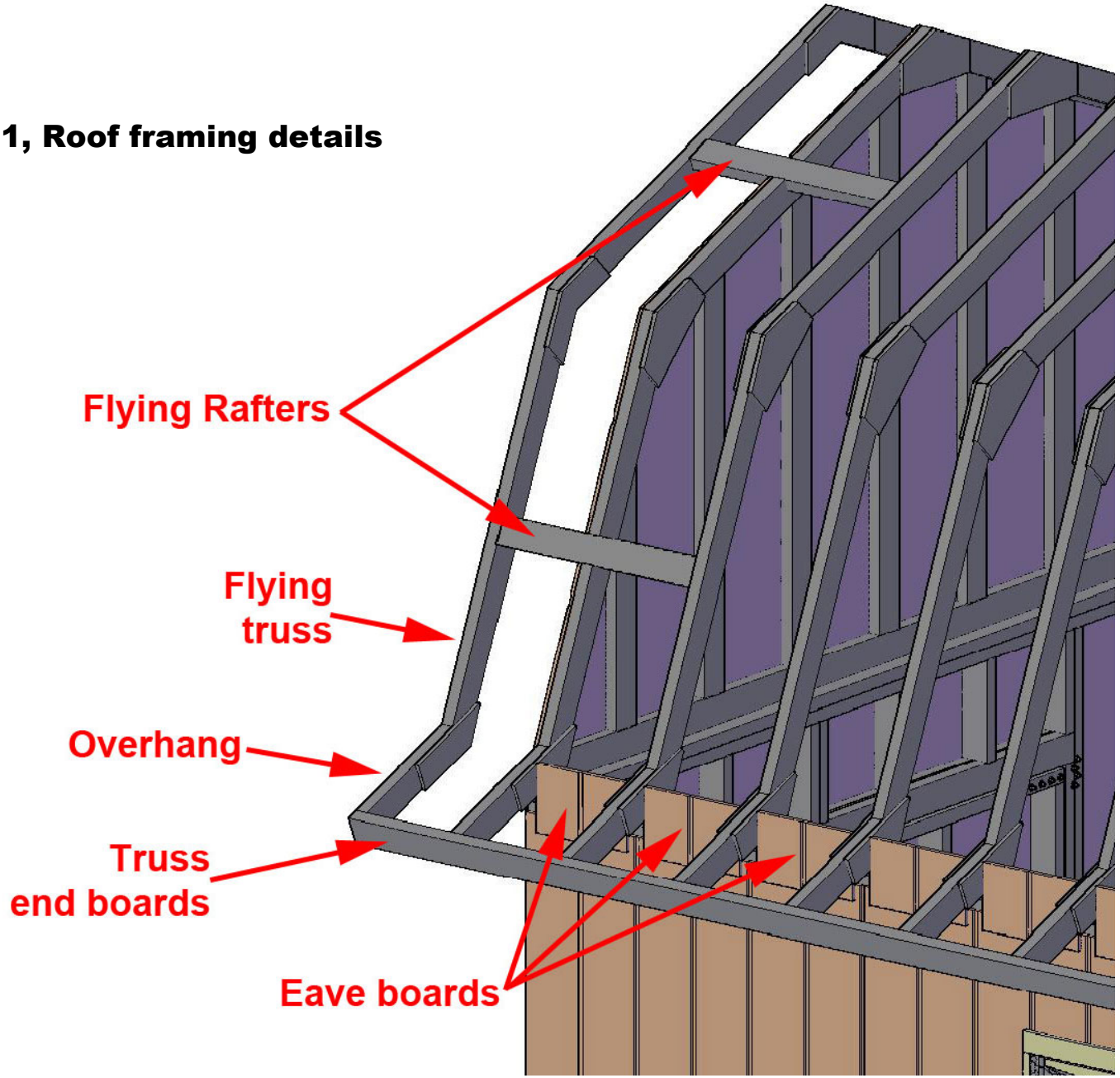


Figure 8.2, End wall & truss cross section showing truss offset