



DISCLAIMER:

READ BEFORE YOU BEGIN! THESE PLANS ARE INTENDED AS A GUIDE ONLY! READ THESE INSTRUCTIONS COMPLETELY THROUGH ONCE AND UNDERSTAND WHAT IS REQUIRED.

We will not be held responsible for any accidents or injuries anyone may sustain. Builder assumes all risks associated with construction work!

We assume some builder competency in the use of tools, safety and equipment.

If you are unsure of any procedures, please contact a professional. The methods in this plan assume a minimum amount of power tools. Also, if you know of alternate methods of construction, feel free to use them!

Using other tools to speed the work process is just fine.

Work safely and wear proper safety equipment such as gloves, ear protection and eye protection.

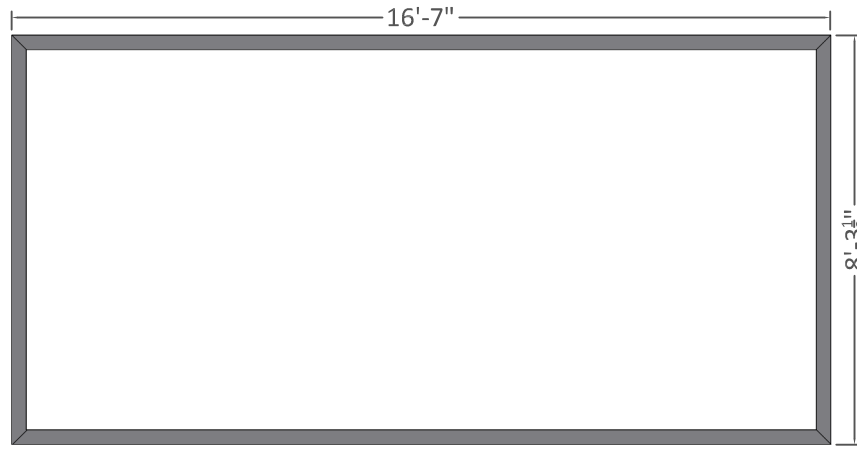


MATERIALS

Description	Dimensions	Quantity
Base		
4x4 post	4x4x10'	6
2x4 plank	2x4x10'	4
2x4 plank	2x4x8'	11
Metal Angle Bracket	By Builder	10
Plywood	4x8x $\frac{3}{4}$ "	3
Walls		
4x4 post	4x4x8'	2
2x4 plank	2x4x10'	3
2x4 plank	2x4x8'	16
2x6 plank	2x6x8'	2
Metal Angle Bracket	By Builder	22
Roofing		
2x4 plank	2x4x10'	4
2x6 plank	2x6x10'	11
Plywood	4x8x $\frac{3}{4}$ "	11
Nesting Box		
2x4 plank	2x4x10'	15
2x6 plank	2x6x10'	2
Plywood	4x8x $\frac{3}{4}$ "	4
Chicken Run		
4x4 post	4x4x6'	7
2x4 plank	2x4x8'	14
2x4 plank	2x4x10'	4
2x6 plank	2x6x10'	11
Plywood	4x8x $\frac{3}{4}$ "	3
Miscellaneous:		By Builder
Roofing, trim, sealant, hinges, latches, etc.		



To begin, cut 4x4 planks as dimensioned below. Mitering the ends is NOT required, but we recommend it for a professional-looking finish! If your local timber retailer does not carry 18' 4x4 post, you will have to splice the ends together.



Before we continue on:

We highly recommend using angle brackets to hold the loads this coop can generate. You should NEVER toe-nail a screw or nail unless we specifically say it is OK otherwise. This structure uses heavy 4x4 post in combination with 2x4 and 2x6 planks. It is designed to be very solid and structural integrity comes with a price.

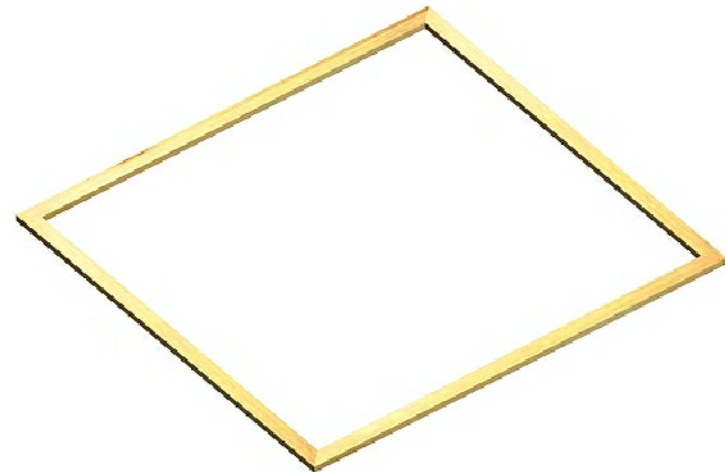
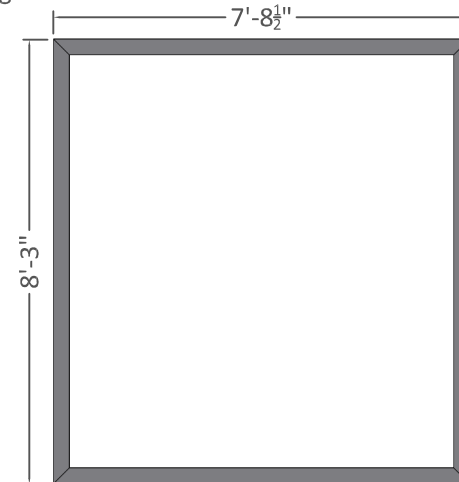
We highly recommend using, at least, heavy-duty angle brackets such as the one shown at right. Your specific angle bracket will vary depending upon manufacturer. Talk to your local hardware dealer to find the best bracket to fit your needs and budget.



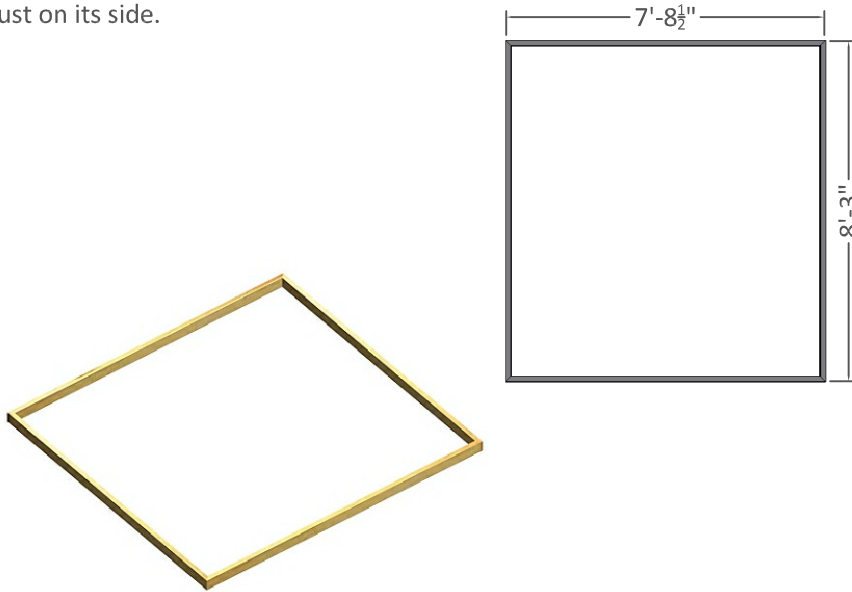
In this plan set, we will begin with the coop as it is the most complex structure. We will follow up with detailing the run and other accessories. For your convenience, we have included GENERIC details on cutting rafter seats, using speed-squares and carpenter squares a.k.a. rafter squares. We also recommend the builder purchase doors and windows for a professional finish. We have included some GENERIC instructions on building a basic door and window, but we highly recommend purchasing your own so you can measure and dimension your rough openings to fit.

With that said, let's move on:

To begin with the coop, you will want to construct the floor of the coop and "set it into place. We begin with the floor of the coop. Cut and assemble a bottom plate as shown in the diagram below. Mitering the ends is not required, but will offer a greater surface area to attach to when placed on top of angle brackets later!

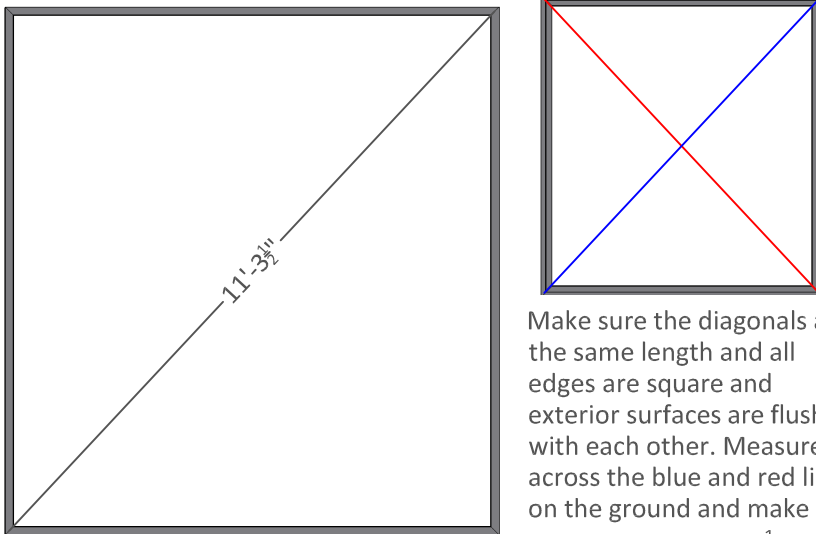


Now you need to add a floor rim joist. Same dimensions at the base plate, just on its side.



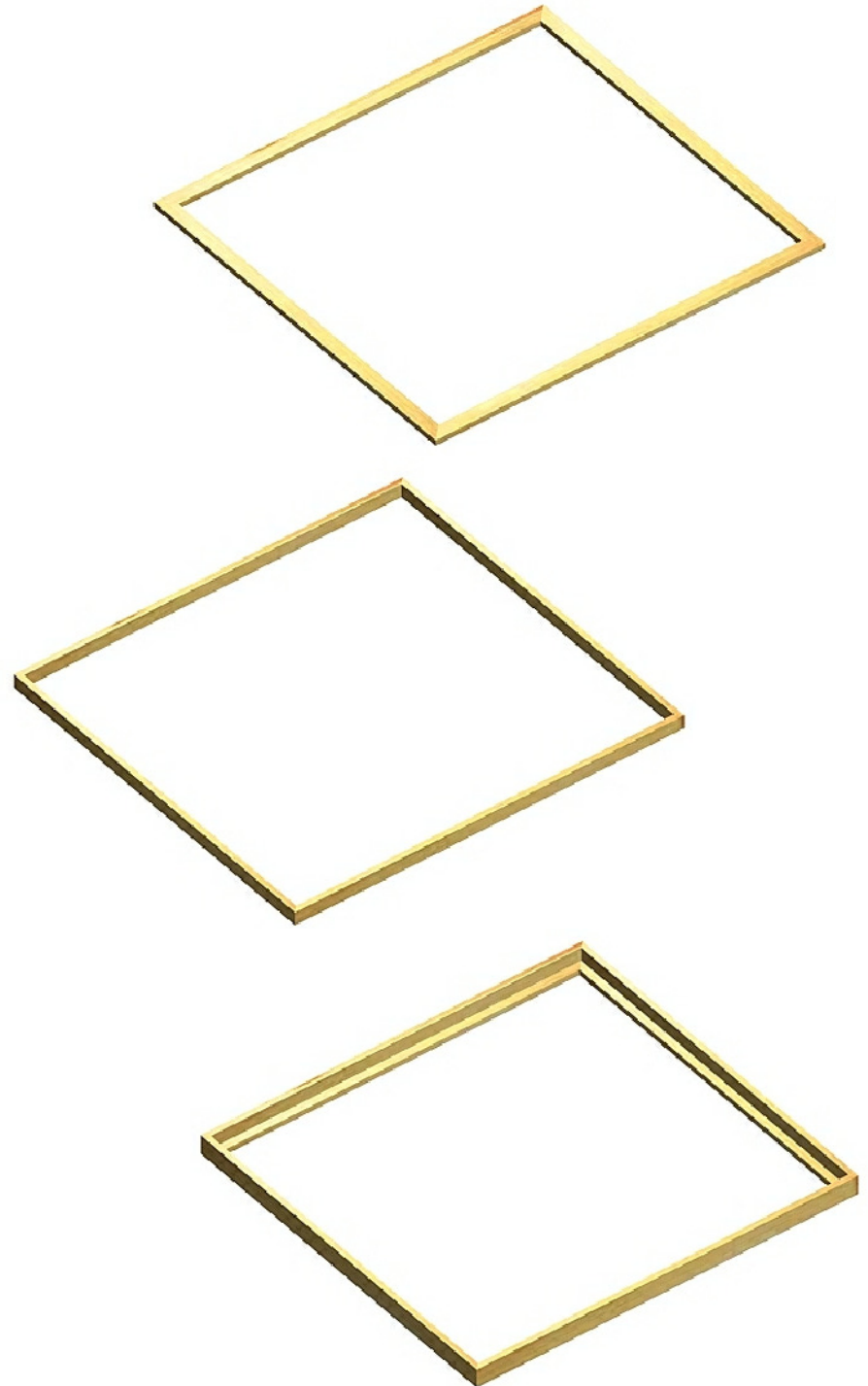
Now attach the rim joist to the base plate. It maybe easier to flip the base plate on top of the rim joist. It is absolutely CRITICAL to make sure you are square and the edges are flush. In construction, one of the easiest ways to ensure square with a large area is through the use of diagonals.

Measure and cut two pieces of string at the dimensions shown below. Criss-cross them from the diagonal corners of the structure and when the corners are the same length, the structure is square. This can be verified with a carpenter square.

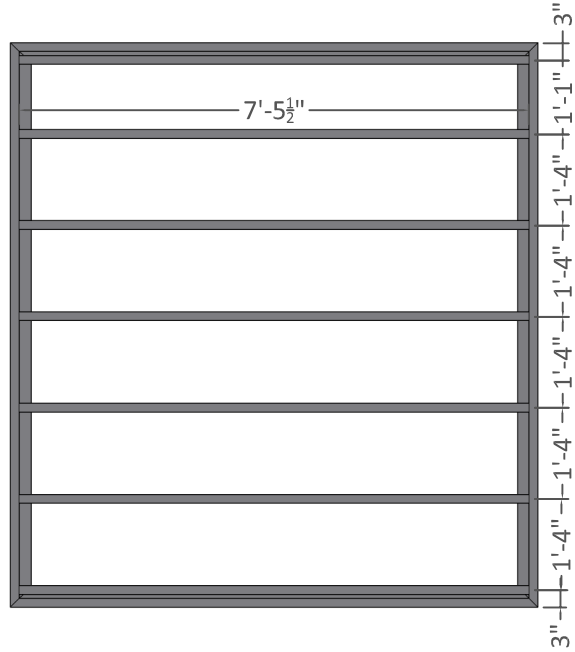


Make sure the diagonals are the same length and all edges are square and exterior surfaces are flush with each other. Measure across the blue and red lines on the ground and make sure they are within $\frac{1}{8}$ ".

To this point, you should have structures that look like the diagrams below.



Now for the floor joists themselves. If budgetary constraints exist, you may widen the joist spacing to 2' on center (O.C.). We are going to stick with 16" as it is a construction standard.



Feel free to use a pneumatic nailer to put the joists in place if you have one. If not, screws or nails will work just fine for now.

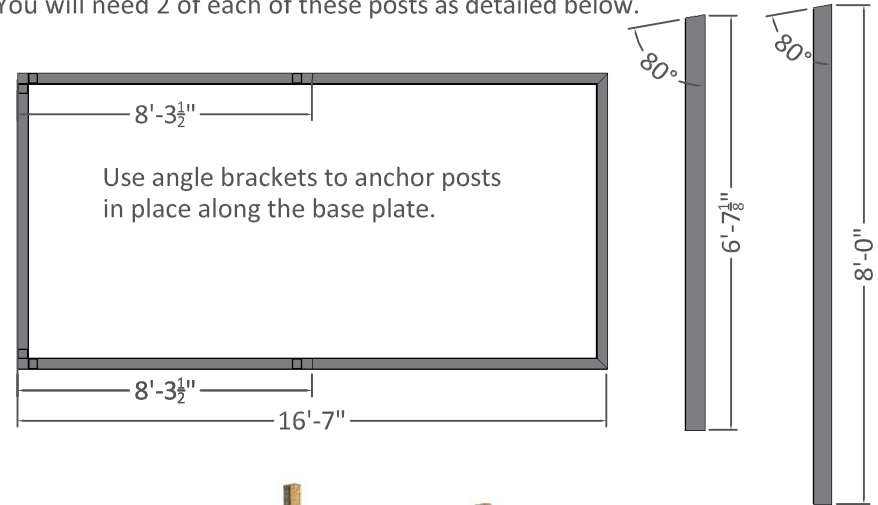


We are going to take a step back now and get the 4x4 support posts for the coop in place and constructed. You will want to put the coop floor structure in place before it becomes too heavy to lift without much assistance. We highly recommend using at least 1 or 2 assistants to put the floor structure in place as it sits currently. If you add the 3/4" plywood flooring, it will be that much heavier.

So, you should already have the 4x4 base plate in place.



Place 4x4 post in the locations on the 4x4 base plate as shown below. You will need 2 of each of these posts as detailed below.



Once you have the posts in place, measure up the sides of the posts as shown below. Make sure to mark the placement of your angle brackets at even levels! You MAY adjust the height to fit your particular needs!



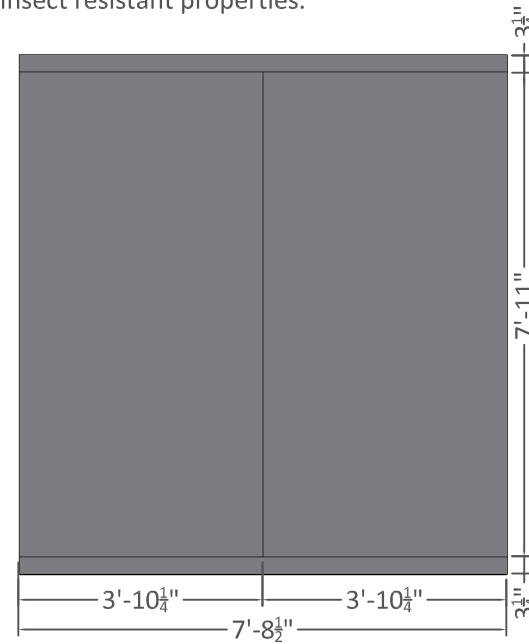
Now it is time to place the flooring you have constructed this far in place. Make sure the edges are squared up and the flooring sits level.



Make sure you use heavy duty angle brackets to hold the load of the coop. Also use high-strength screws. Your local hardware supplier should be able to set you up with everything you need.



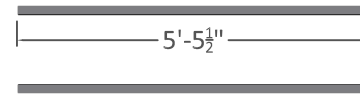
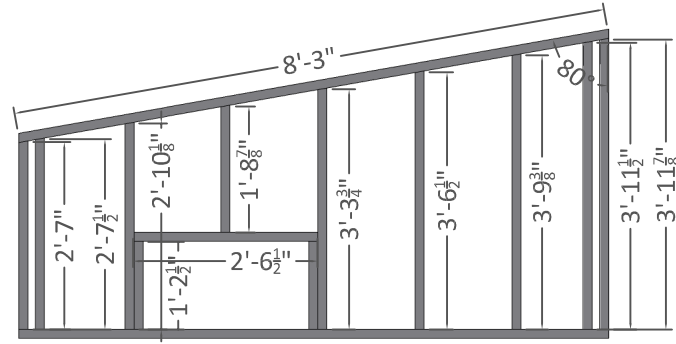
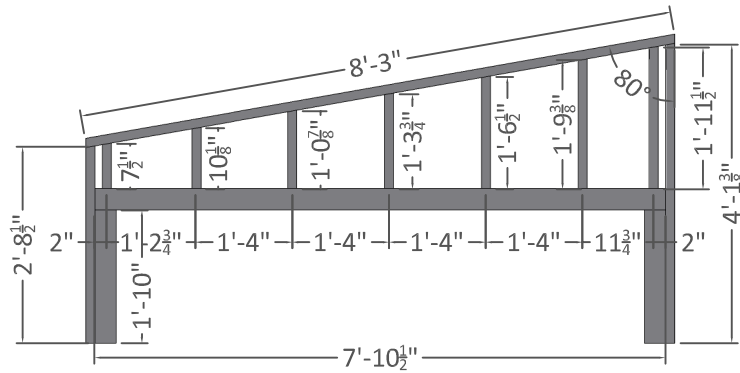
Once you have the flooring nice and sturdy, you can go ahead and cut and put down flooring. We recommend using at least $\frac{3}{4}$ " cedar or oak plywood for their water and insect resistant properties.



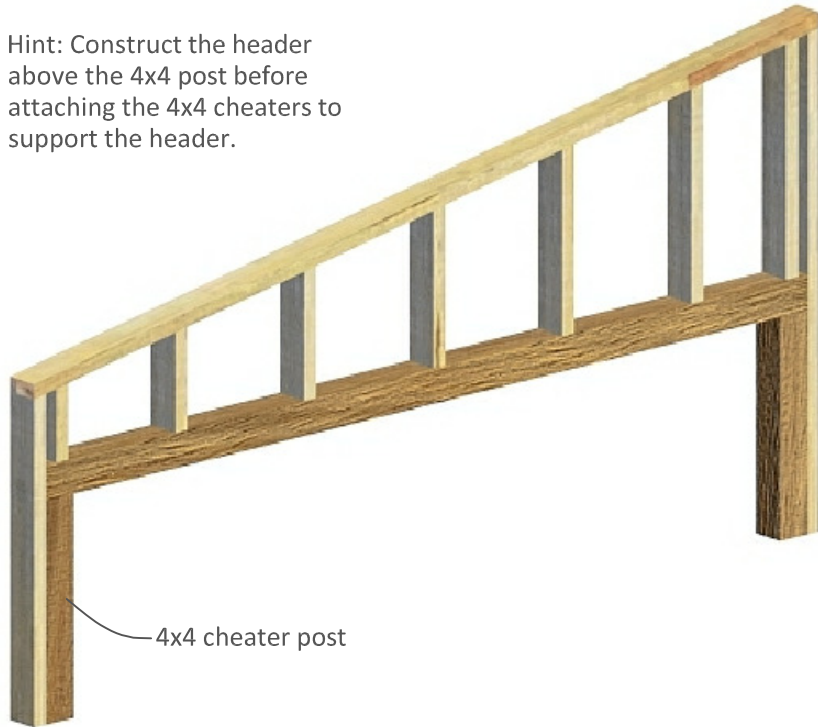
Notes:

For the sake of ease, we are going to start with the interior and exterior sides walls. The exterior side wall is constructed as shown below. Be sure to use the 4x4 post across the top to support the weight of the wall above the access.

For the interior side wall, follow the diagram below. Don't forget the chicken access!



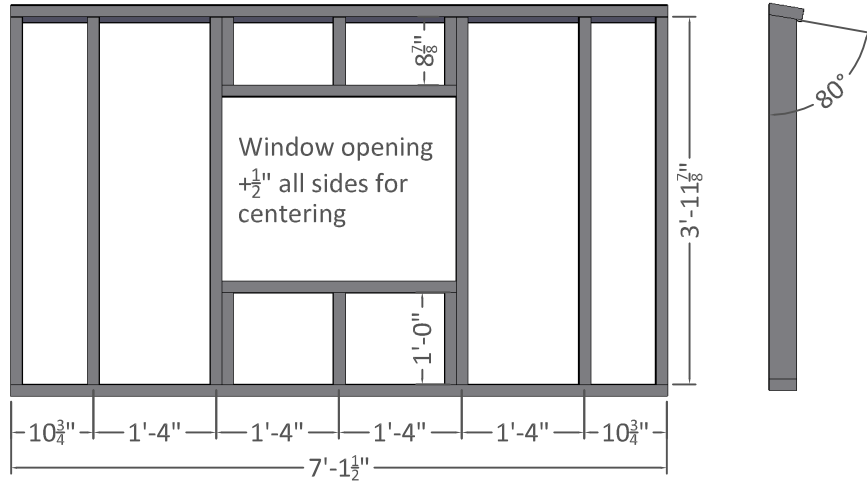
Hint: Construct the header above the 4x4 post before attaching the 4x4 cheaters to support the header.



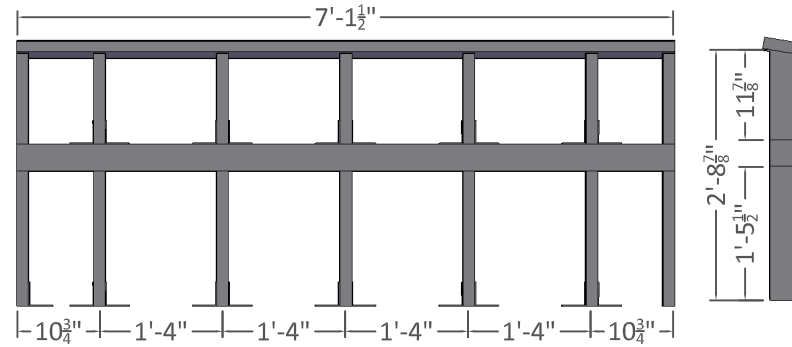
For the chicken access, use a router or table saw with a dado blade to create a couple of door slides. Make sure the dado is at least $\frac{1}{16}$ " deeper than the access panel is thick so the chicken access will open easily.

Notes:

To start on the front wall, you will need to construct a structure as shown below. Remember to take into account the width and height of the window. Add $\frac{1}{2}$ " on all sides of the window to allow for centering and squaring.



For the rear wall, just like the exterior side wall, you will want to use a 4x4 post to support the weight of the roof and header above. We recommend using angle brackets to support the timbers of the header vertically. We don't use a base plate for ease of cleaning.



Notes:

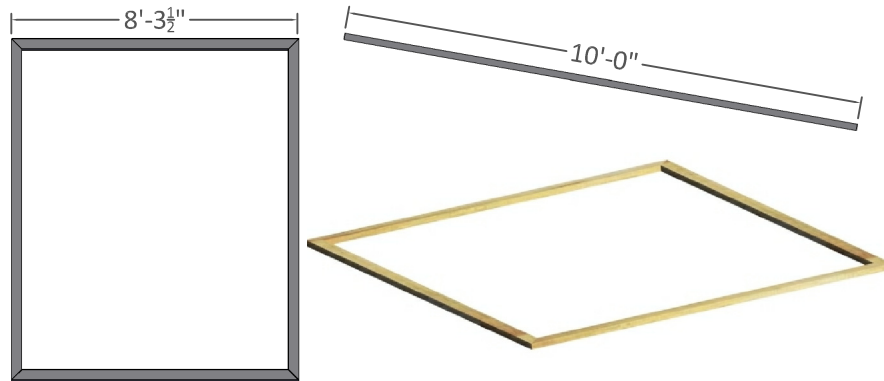
So far, we would recommend constructing the walls starting with the exterior side walls and build the front and rear walls inside the side walls.

Simply follow the diagrams below for the recommended construction procedure. If you require a roost, slap a couple of 2x4s across the span between the coop access and the interior side wall. Make sure they are positioned toward the higher side of the roof.

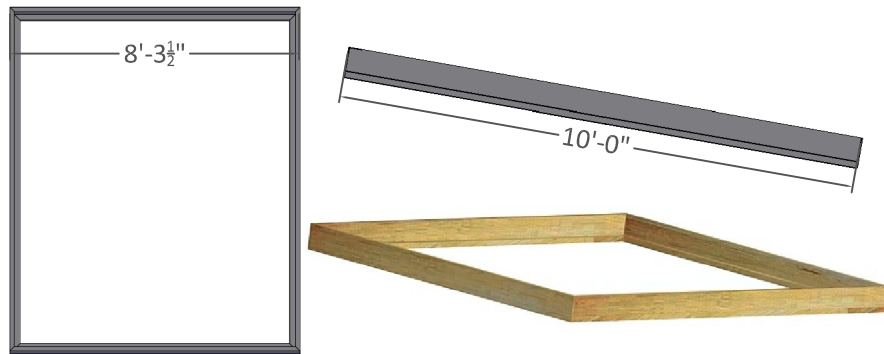


For the roof, construction is much like the flooring. You will need to construct a base plate, rim joist and roof joists.

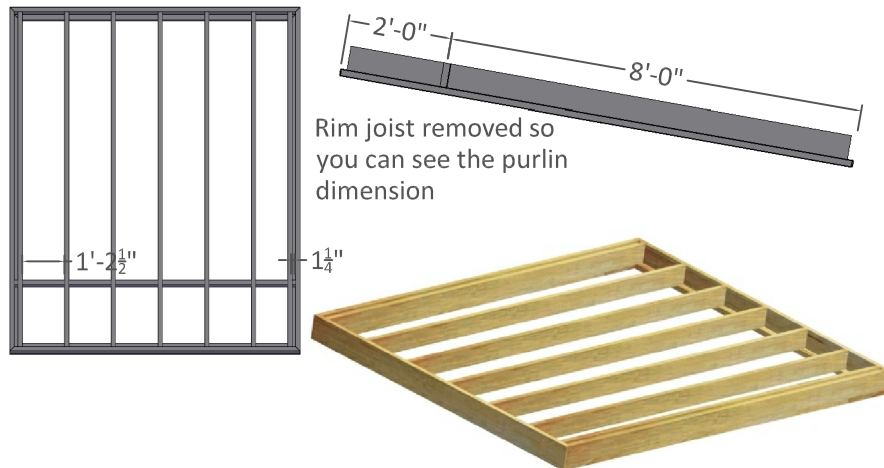
For the base plate, follow the diagram as shown below.



Construct a 2x6 rim joist around the rim plate.



Fill in the roof joists @ 16 inch centers. Give yourself some purlins at 8' to nail to.



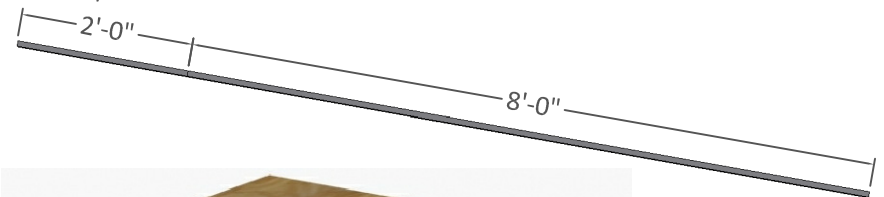
Rim joist removed so you can see the purlin dimension

Before adding the sub-roofing, you will want to place the structure in place on the coop. With ASSISTANCE, center the sub-roof as best you can and attach to the coop with screws. We recommend using angle brackets to attach the sub-roof to the coop walls and support posts.

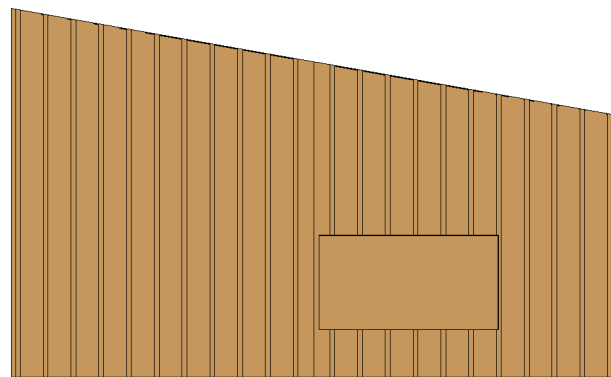
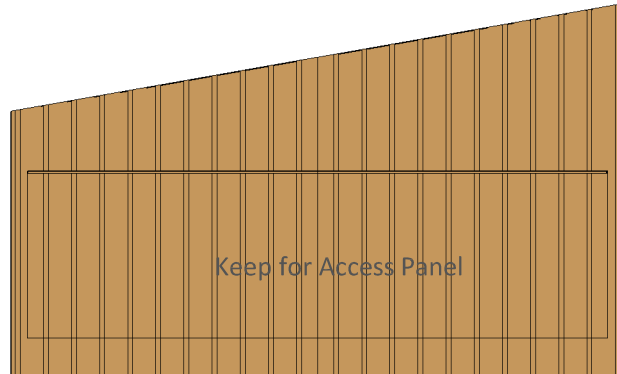
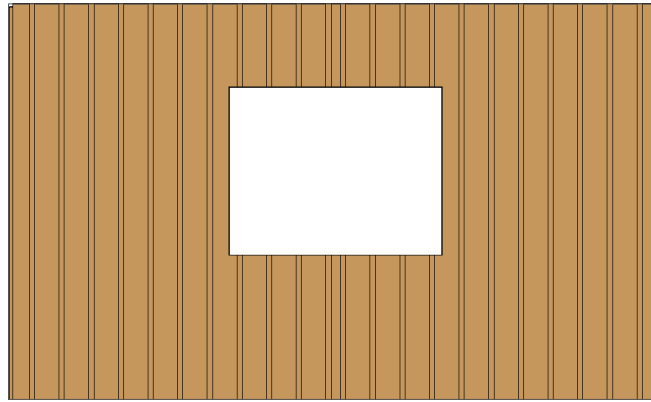


Before adding the roof sheathing, we are going to remind you to please be careful! Falls from even a short height can cause serious injury so be sure to wear all applicable safety gear! Use assistance when applicable and take all safety precautions!

If you centered your purlins correctly, the roof sheathing should align right over the purlins.



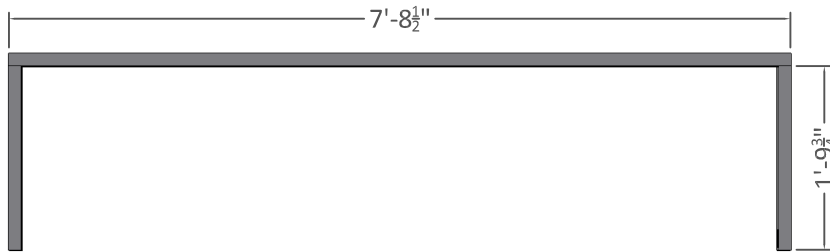
Once the roof is in place, you can get to sheathing the exterior. We don't dimension sheathing because there are too many variables to take into account such as builder expertise, tool condition, window and access sizes, etc. We will, however, give you a diagram to follow as your sheathing should look something like the drawings below. If you are careful with your dimensioning, the sheathing should fit inside the 4x4 support posts.



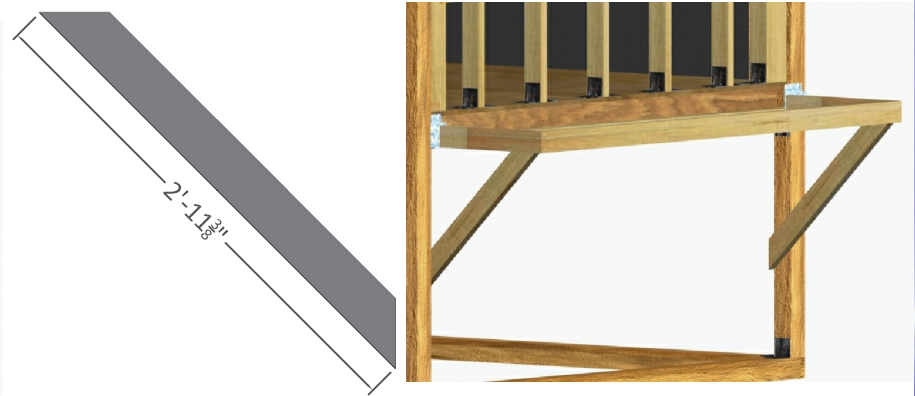
At the moment, you should have a structure that looks something like the diagram below.



Now, it is time to look at constructing the nesting box. For the nesting box you will need to construct a support frame. We recommend using a couple of metal joist hangers to support the nesting box base frame.



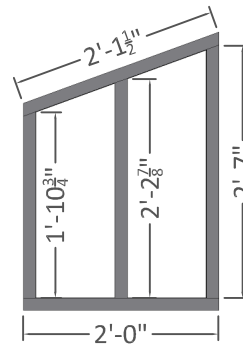
Attach some kneebraces to the flooring to the base frame.



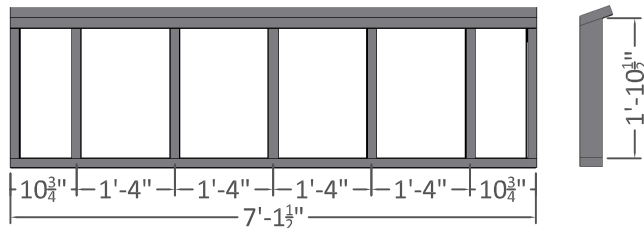
Once the braces are in place, go ahead and attach the flooring. Again, we recommend $\frac{3}{4}''$ cedar or oak plywood for its water and insect resistance properties.



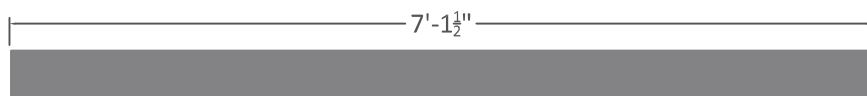
Construct the side walls of the nesting box as shown below.



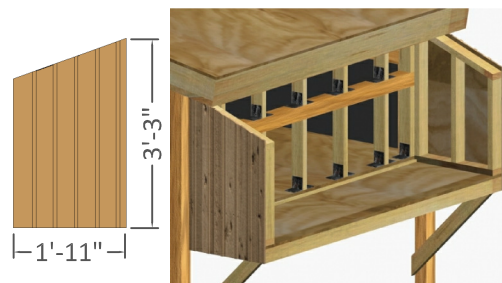
For the access to the nesting box, construct the access frame as shown below. We use 2x4 for the frame and a 2x6 top plate.



You will need to attach a nailer towards the top for the roof sheathing

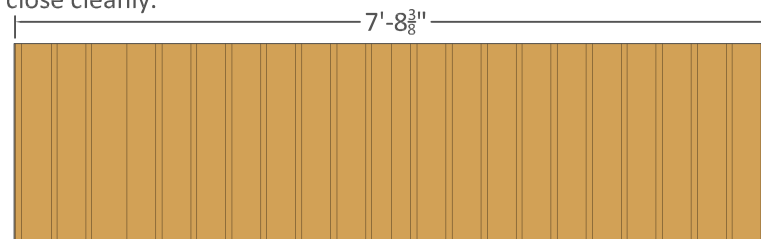


This rear wall will be able to be opened, so do NOT attach this frame to the nesting box floor! Follow the diagram below for sheathing in the side walls.

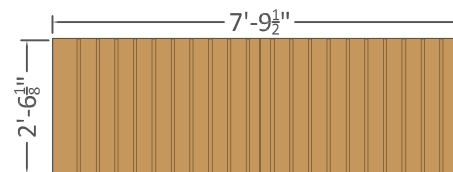


You will notice the sheathing will overlap the side frame. Align the bottom edge of the sheathing with the bottom of the base frame. Your sheathing should overlap by the thickness of the roof sheathing.

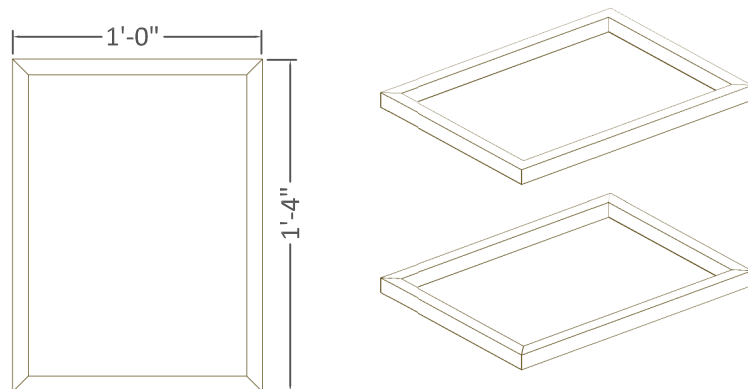
Go ahead and slide the nesting box top up the frame. We recommend ripping the roof sheathing flush with the nesting box frame so the rear access will close cleanly.



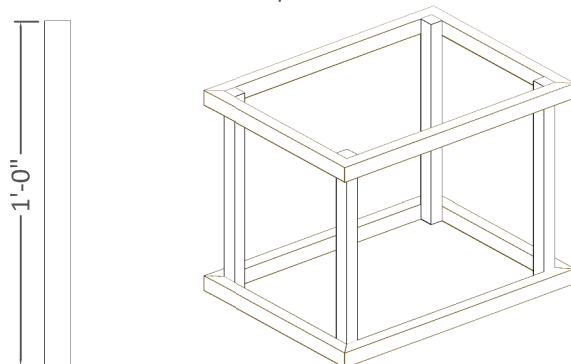
Put the rear access frame in place and TACK it in place with screws so you can easily access the screws to remove them! Align the nesting box rear access sheathing with the bottom of the base support. Attach the sheathing to the frame and attach the panel to the base support with hinges.



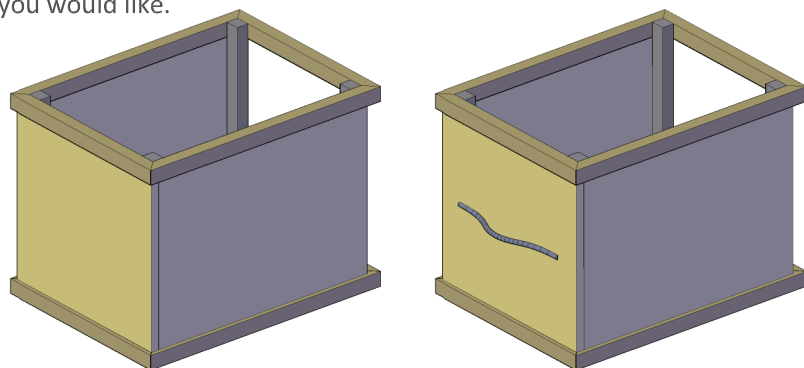
For the nesting box, start with ripping a 2x4x8' plank down the center. You need to make two frames as shown below.



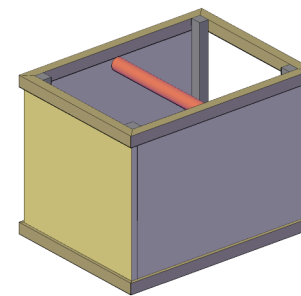
Either purchase some 1x2 post or rip another 2x4x8' plank down the center. Cut as shown and attach to the frame pieces on the inside corners.



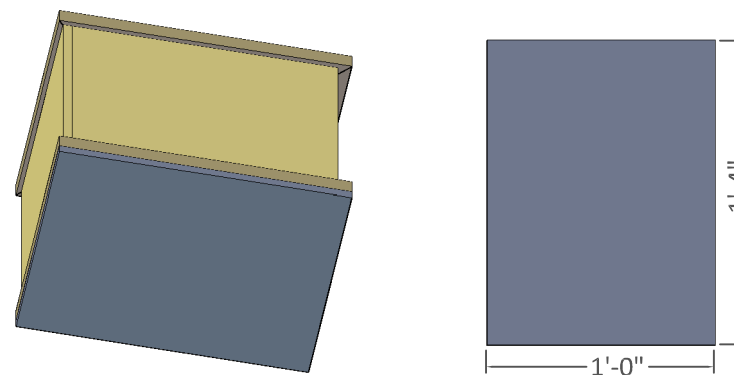
Rip pieces of plywood sheet to wrap around three sides. Be sure to measure and layout the cuts to make and be sure they fit flush. Start with the longest sides, cut a rear piece to cover both ends. Attach a handle if you would like.



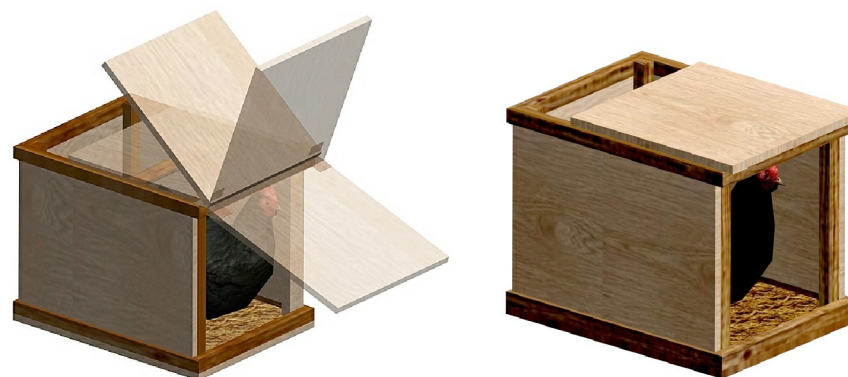
Cut a dowel to just fit snugly inside the nesting box. Use a rubber mallet or dead-blow hammer to tap the dowel in place just below the top rim of the nesting box. Attach the dowel to plywood with screws through the exterior face of the plywood.



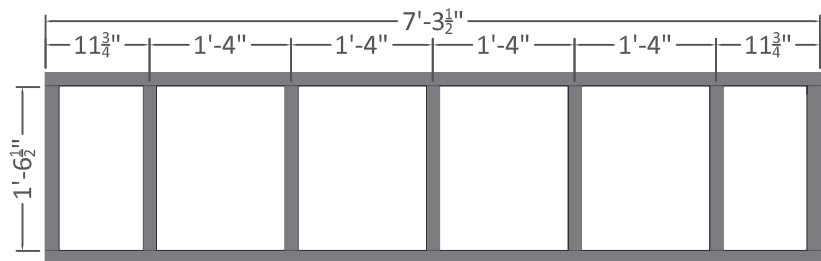
Tip the nesting box on its top and cut a piece of plywood to fit the bottom. Attach to the frame with screws. Make sure the bottom is cut to fit (even slightly smaller) so the nesting box will fit in the spaces on the completed coop.



Use a hinge to attach the front piece of plywood to the top, front edge. You will want to attach the hinge to the plywood before attaching the hinge to the nesting box frame. This way you can ensure the nesting box opens and closes properly. Use a hook and eye-pin to lock the nesting box closed.



Now, to complete the coop you will need to build an access panel that will open and close. For these instructions, follow the diagram as shown below and you should have no problems constructing the coop access frame.



Measure and cut the paneling as shown in the diagram below. Attach the access with hinges. Make sure to leave at least $\frac{1}{2}$ " for swing. Seal off the panel with weather-stripping.

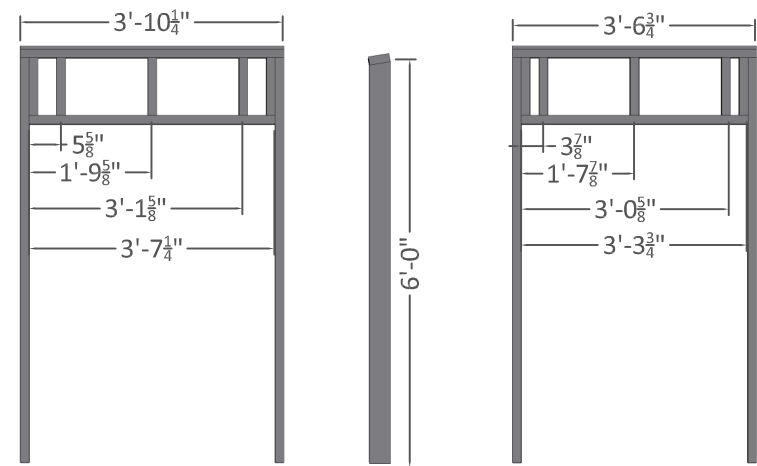
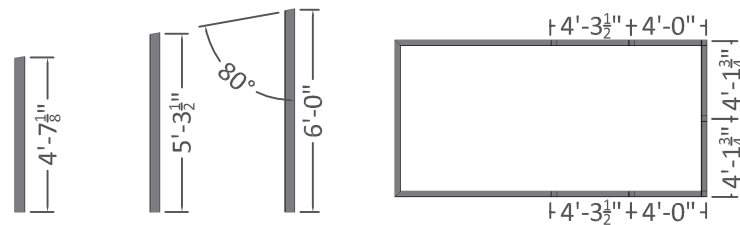


We do not detail roof trim, roofing or coop trim. With everything you have so far constructed, the finishing details should be a snap. Just remember to measure carefully and make sure to layout your cuts!

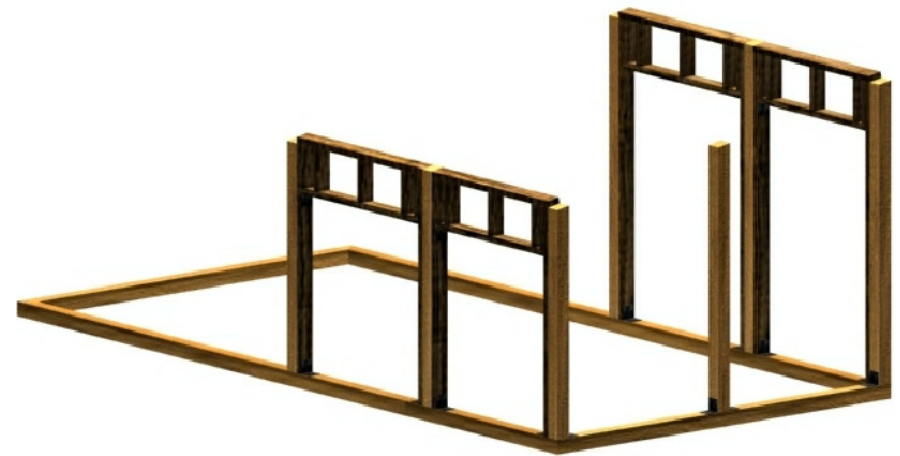
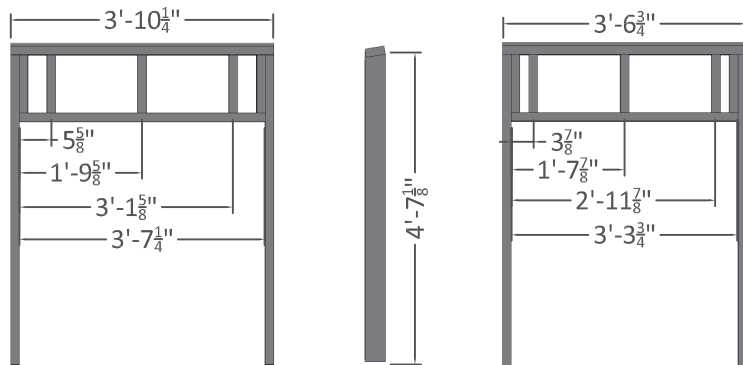
For the windows, we highly recommend installing a purchased window with a screen so you can allow your chickens ventilation on hot days. We have included some BASIC instructions on constructing a sliding window should you choose to build your own. We don't recommend cutting glass unless you know what you are doing. Either way, wear proper safety equipment and work safely.



For the run, begin by cutting 4x4 run supports as shown below. Always verify dimensions before setting posts in place!

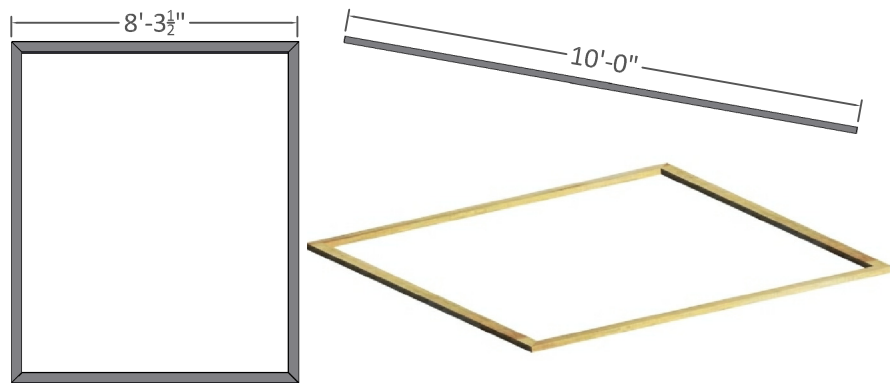


Now, you are going to want to frame in the posts, so they are good and solid before continuing onto the roof frame. Follow the diagrams below as an example of what you should expect.

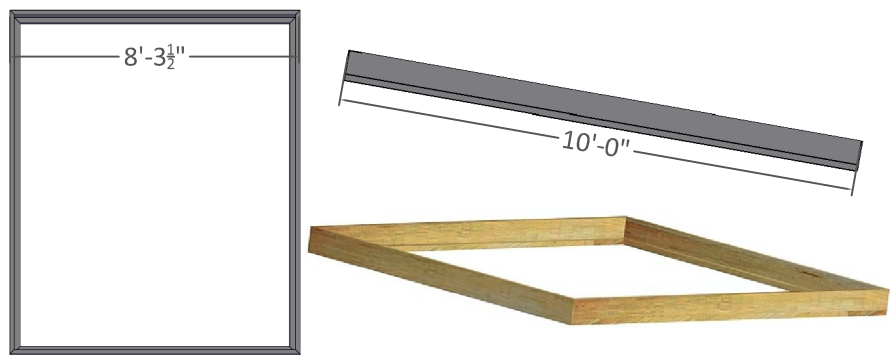


For the roof, construction is much like the flooring. You will need to construct a base plate, rim joist and roof joists.

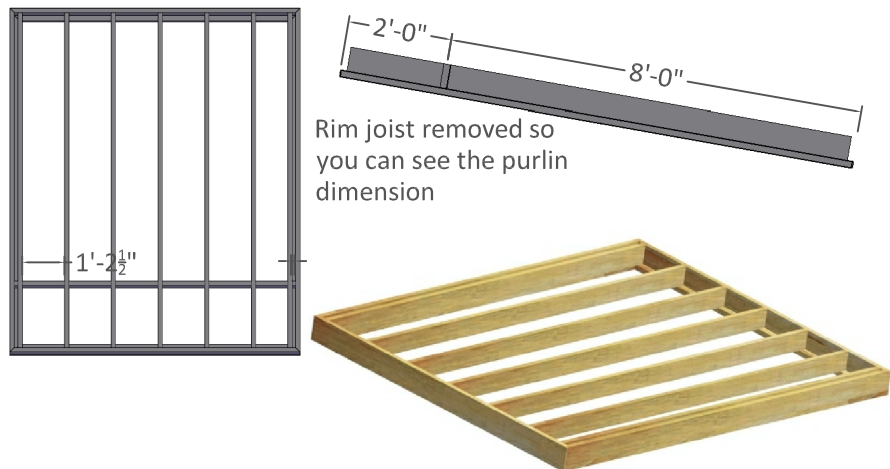
For the base plate, follow the diagram as shown below.



Construct a 2x6 rim joist around the rim plate.



Fill in the roof joists @ 16 inch centers. Give yourself some purlins at 8' to nail to.

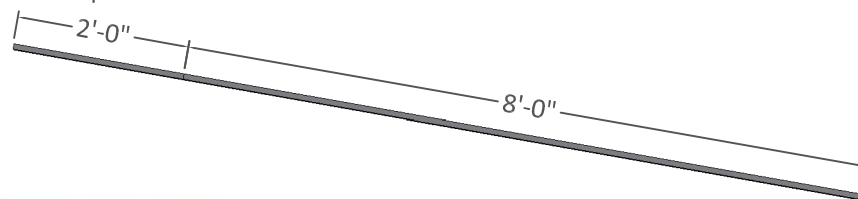


Before adding the sub-roofing, you will want to place the structure in place on the coop. With ASSISTANCE, center the sub-roof as best you can and attach to the coop with screws. We recommend using angle brackets to attach the sub-roof to the coop walls and support posts.



Before adding the roof sheathing, we are going to remind you to please be careful! Falls from even a short height can cause serious injury so be sure to wear all applicable safety gear! Use assistance when applicable and take all safety precautions!

If you centered your purlins correctly, the roof sheathing should align right over the purlins.



To this point, you should have most of your chicken run completed. All the coop is completed and you just have to finish the roofing, chicken wire, run door and trim. We leave these up to you.



Just construct a ramp of some form for the chickens to access the coop and you are good to go!

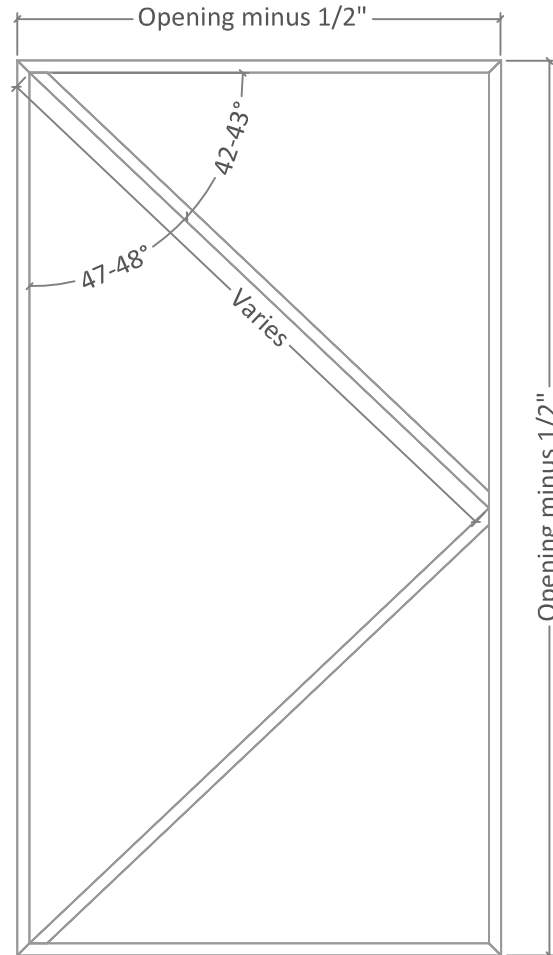




For the door, construction is relatively simple. If you want to install a latch, that is up to you. We do not show the details because there are special tools involved, most of which the normal person does not have. However, if you DO happen to come across such tools, you will be able to add a doorknob and catch should you desire.

As with the window, this is a very simple door and you do NOT have to construct the door in this way. If you prefer to purchase a door, make sure the rough opening size is adequate. The frame rough opening in this instance can be anything. Just tweak the dimensions to match your rough opening. **Be sure you subtract $\frac{1}{2}$ " from the rough opening to allow for swing!**

1) To begin, we are using $1\frac{1}{4}$ " planks and $\frac{1}{2}$ " plywood sheeting. Cut the frame pieces as shown below. You DO NOT have to miter the corners, we just recommend it for aesthetic purposes.



We will show the door in this example with a pattern cut out of the front and back sheeting, but this is not required. It is purely for looks and does not affect the integrity of the door at all.

Before you attach the panel to the door frame, you will want to check the swing in the doorway. We have allowed for $\frac{1}{2}$ " swing, but depending on construction methods and accuracy, swing may be affected by as much as 1".

Please ensure the frame will swing in the opening without getting stuck or caught. You should allow more swing once you add the door panels so check after each step to ensure swing is not impeded.



Materials

Description:	Qty:
1x4x6' Planks	5
4x8'x $\frac{1}{2}$ " Plywood Sheet	2
Hinges	3

2 Attach the front panel to the door frame, and **MAKE SURE THE CORNERS ARE SQUARE** and edges are flush. You may even want to sand the corners of the inside swing so they are rounded a little bit.

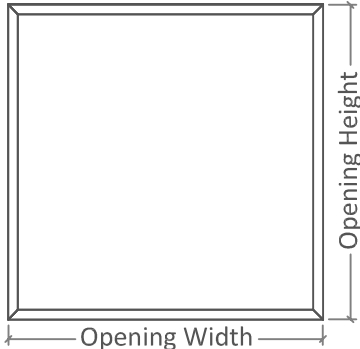
3) Insulate the door with either blow foam or regular R-13 roll insulation will work.

4) Enclose the door with the second panel. You may want to round the edges on this side also.

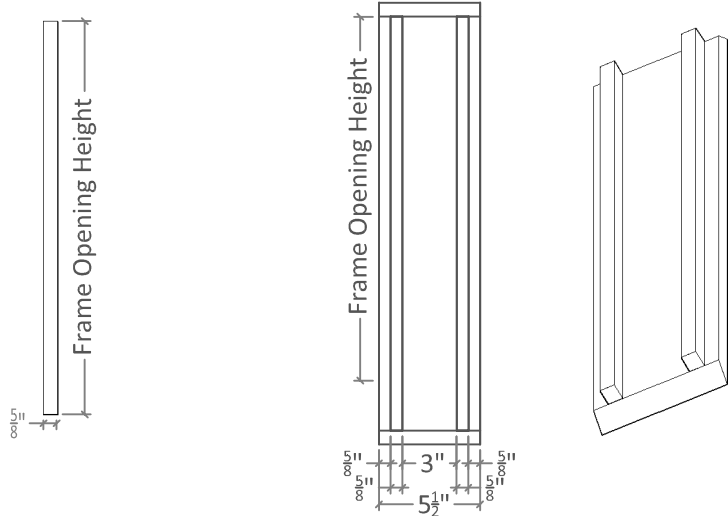
5) A single slide bolt works wonders on the outside and inside to lock the door shut. **If you don't want your kids to be able to lock the door, only install the slide bolt on the outside!** The slide bolt also offers a grip to pull the door open.

Windows are complicated to design and when at all possible, should be purchased. These details are for a very simple sliding window. You will need, and know how to use, a miter saw, a router (preferably with a guide) or table saw with an adjustable gouging blade (or blade kit, and a square (speed square, carpenter square, either works).

1) Cut and miter 1x6 planks as shown below. DO NOT ASSEMBLE YET!

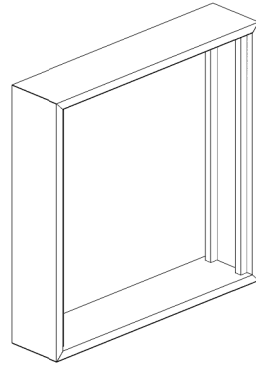


2) Rip a 1x4x8' into strips $\frac{5}{8}$ " thick. These will serve many purposes in the future but for now, we just want four of them to match the opening, so either rip and cut one piece or rip an entire board into $\frac{5}{8}$ " strips and place the pieces to the side for later.



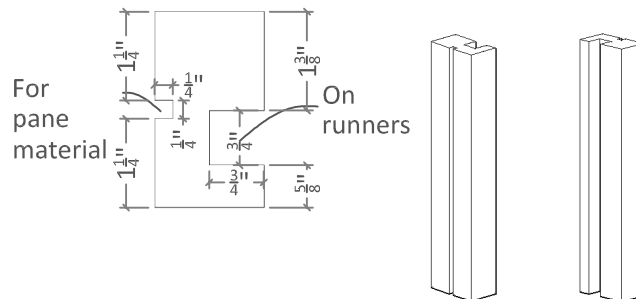
3) Using 1" screws and a level, screw two runners onto one of the exterior frame pieces. Repeat for the second side (see above).

4) Check to make sure the runners will fit inside the frame when assembled. Make any adjustments if necessary. DO NOT ASSEMBLE!

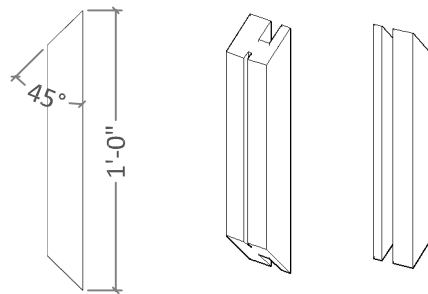


5) Rip a 8'-2x6 down the center lengthwise.

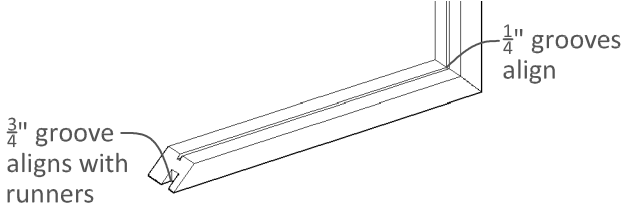
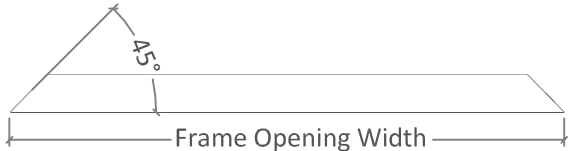
6) Use a router to gouge a $\frac{3}{4}'' \times \frac{3}{4}''$ groove down the center of one side. Flip the board over and gouge a $\frac{1}{4}'' \times \frac{1}{4}''$ groove down the center of the other side (see detail)



7) Miter the ends. Make sure the narrow ($\frac{1}{4}''$) groove is facing inwards! The wide ($\frac{3}{4}''$) grooves go out toward the runners, the inside grooves will hold a pane of window material.



8) Rip a 2x6 lengthwise down the middle and miter ends as shown below. Run a $\frac{1}{4} \times \frac{1}{4}$ " groove down the middle, just as with the 2x6 above. Hold them together and MAKE SURE THE GROOVES ALIGN PROPERLY! You will need to gouge a $\frac{3}{4} \times \frac{3}{4}$ " groove out of the ends.



Materials

Description:	Qty:
2x6x6' Planks	24
1x6x8' Planks	6
1x4x8' Planks	6

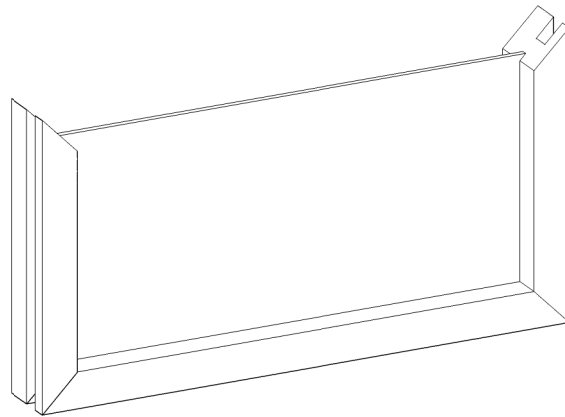
9) Lastly, before construction, you will need to determine what type of pane material you want to use. For a playhouse, we would recommend against using glass and go with clear acrylic or polyvinyl pane.

IF YOU DECIDE TO USE GLASS, WE HIGHLY RECOMMEND PURCHASING $\frac{1}{4}$ " THICK PROFESSIONALLY CUT PANES. YOU WILL NEED 2 PER WINDOW. ON THIS SET THAT EQUALS 12 PANES OF GLASS TOTAL.

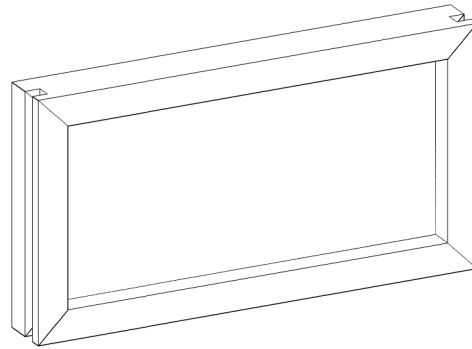
SHOULD YOU DECIDE TO CUT YOUR OWN GLASS, YOU DO SO AT YOUR RISK! USE ALL SAFETY PROCEDURES AND EQUIPMENT WHEN HANDLING GLASS!



10) Assemble the window frame around the pane. Run a bead of epoxy or polyethylene (or equivalent) seal down the frame pieces as you assemble the window to get a good, weather-tight, bond. You could increase rotting and mildew growth if you choose not to.

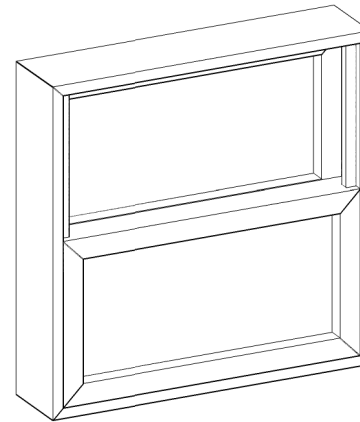
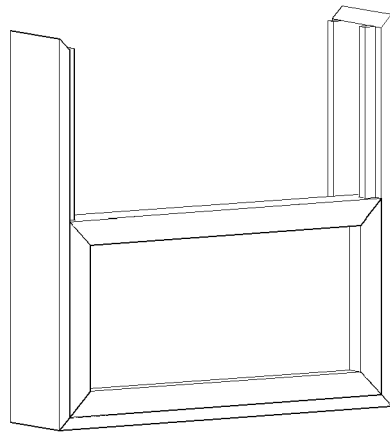


11) Cap off the window with the top piece and connect all pieces with 1" small radius ($\frac{1}{4}$ " or smaller) screws. Be sure you don't screw down into the window pane!



12) Repeat for second window.

13) Once you have two window assemblies, two exterior frame pieces with runners on them, and two exterior frame pieces for the top and bottom, carefully assemble the exterior window frames AROUND the window assemblies.



14) Cap off the window assembly, Ensure the windows slide easily and there is about $\frac{1}{16}$ - $\frac{1}{8}$ " gap between the window assemblies so they will not impede each other's movement.

15) Place the window in the window frame. Screw the exterior frame to the opening provided. You may have to use a soft mallet or a dead-blow hammer to get the window centered in the opening.

16) How the windows stay up or down is up to the user. We recommend getting a slide bolt and installing at least one on the movable assembly. Which assembly moves or stays stationary is up to the builder.

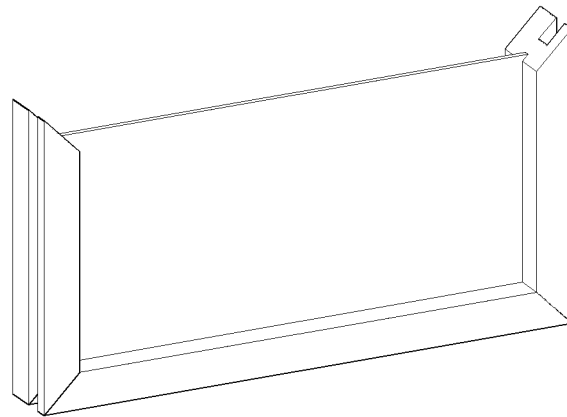
17) Lastly, before construction, you will need to determine what type of pane material you want to use. For a playhouse, we would recommend against using glass and go with clear acrylic or polyvinyl pane.

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18) Assemble the window frame around the pane. Run a bead of epoxy or polyethylene (or equivalent) seal down the frame pieces as you assemble the window to get a good, weather-tight, bond. You could increase rotting and mildew growth if you choose not to.



Additional Stuff for the Window Assemblies:

- 1) Use weather striping along the seam between the window assemblies to keep wind, and weather out as much as possible.
- 2) We recommend having one stationary, and one movable window. Most often, anchor the exterior window to the top of the assembly and let the interior window slide up and down.
 - 1) Drill a $\frac{1}{4}$ " pin hole in the interior, left or right, side of the movable window assembly.
 - 2) While the window is closed, drill into the runner about $\frac{1}{4}$ ".
 - 3) Keeping the drill bit inside the pin hole, pull the drill bit back out a little, raise the window and drill back in about $\frac{1}{4}$ " into the runner. We recommend about 3" increments.
 - 4) Repeat as necessary for how much you wish the window to open. Cut a length of $\frac{1}{4}$ " dowel (may need sanding to slide freely) to use as a pin.
 - 5) Add a slide pin to both the top and bottom of the movable window so the windows can be "locked" shut if you wish.



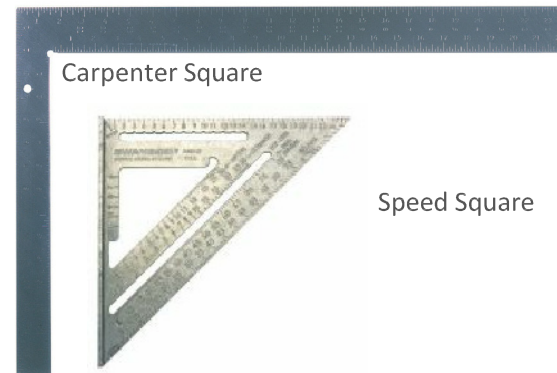
To determine the rafter lengths,

- 1) Divide the entire span by two (example: If the roof span is 20 feet, divided by 2 = 10 feet, 0 inches).
- 2) Now add the overhang (example: 18-inch overhang makes the length 11 feet 6 inches).
- 3) Now, convert the 6 inches of the 11 feet 6 inches into a fraction. It happens to be 0.5 (6 divided by 12). Thus 11 feet 6 inches is now 11.5
- 4) Suppose you desire an 5/12 roof pitch, or for every 12 inches horizontally, you get 5 inches up and 12 inches vertically. Convert that number by using the rafter conversion chart below or can be found on any framing square.
- 5) For the purpose of this article, the 5/12 roof pitch converts to 1.083 on the rafter conversion chart found on any framing square. Therefore, $11.5 \times 1.083 = 12.4545$ feet is what the rafter length will be.
- 6) Obviously, getting to the thousands of an inch is a feat in itself, so lets just round to the nearest $\frac{1}{8}$ " which is 12.5 feet or 12'-6".

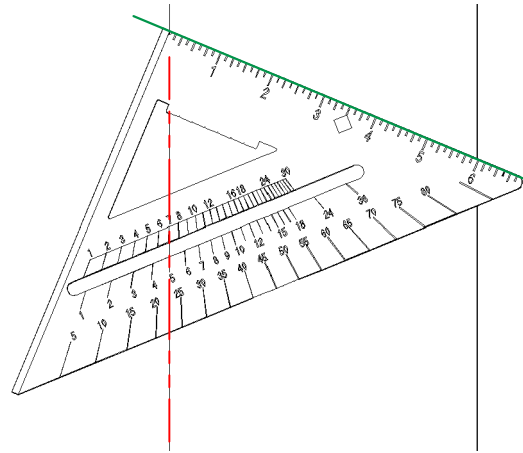
<u>Roof Slope</u>	<u>Factor</u>
Flat	1.0
1:12	1.003
2:12	1.014
3:12	1.031
4:12	1.054
5:12	1.083
6:12	1.118
7:12	1.158
8:12	1.202
9:12	1.250
10:12	1.302
11:12	1.357
12:12	1.414
13:12	1.474
14:12	1.537
15:12	1.601
16:12	1.667
17:12	1.734
18:12	1.803
19:12	1.873
20:12	1.943
21:12	2.015
22:12	2.088
23:12	2.162

If you feel at all uncomfortable constructing roof elements, consult a professional. Also, you will need to be comfortable with heights and please use all safety precautions when placing the rafters. Not every rafter will be directly above a solid surface and there will be open spans beneath them. We recommend use of a ladder and assistant(s) to help you get the rafters into position.

1) If you need to be introduced to the tools most professionals work with when cutting rafters. There are basically two tools used commonly, the speed-square and the carpenter square. Both are shown below.

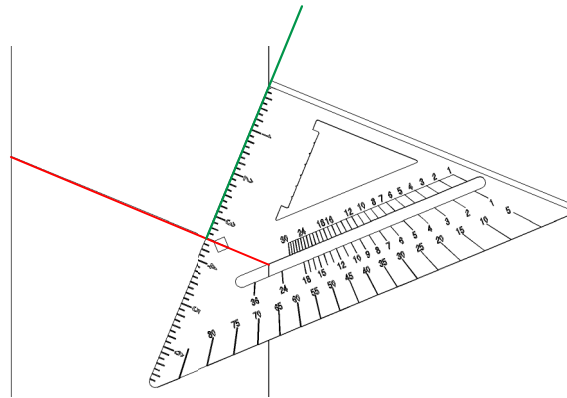


For the speed square, start by lining up your plumb cut by aligning the pivot point on the speed square with the desired pitch. This example is going to use a 5-12 slope but the principle is the same with any slope. See the diagram below.



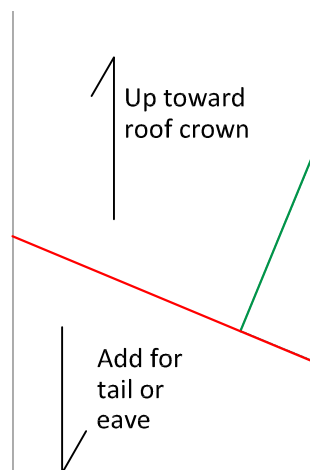
See how the red line lines up with the little notch in the back of the speed square and the number 5 in the "common". The common simply refers to a common rafter. Notice also, how the "HIP/VAL" lines up quite nicely with 7? For a $\frac{5}{12}$ slope, the corresponding hip/valley slope would be 7. Easy peasy.

2) Anyway, mark your line along the GREEN side with all the numbers. To make your seat cut, simply plumb the other side at the length you need and follow the diagram below for a nice $3\frac{1}{2}$ " seat cut.



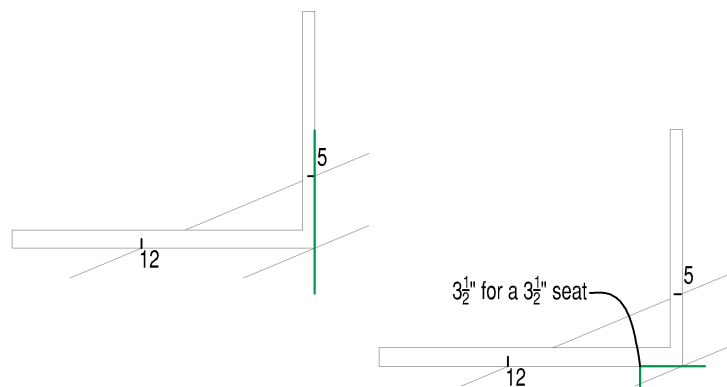
Align the diamond sight so the line cuts the sight down the center and your pivot point is flush against the outside edge of the rafter to be cut.

The RED line represents the mark you just made for plumb. Now again, mark along the green line for your seat cut. See the nice "L" shaped seat? Cut your seat out and it should look something like below.



The previous page contains instructions with a table which will help you measure the overall rafter length.

For a Framing (Rafter) Square it is basically the same principle. Align the 5 and the 12 as shown below. Mark the GREEN line shown in 1 for plumb.



To mark the seat measure the $3\frac{1}{2}$ " on the square and mark the plumb at the end as shown above in 2.