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 equipement such as gloves, ear protection and eye protection.

MATERIALS

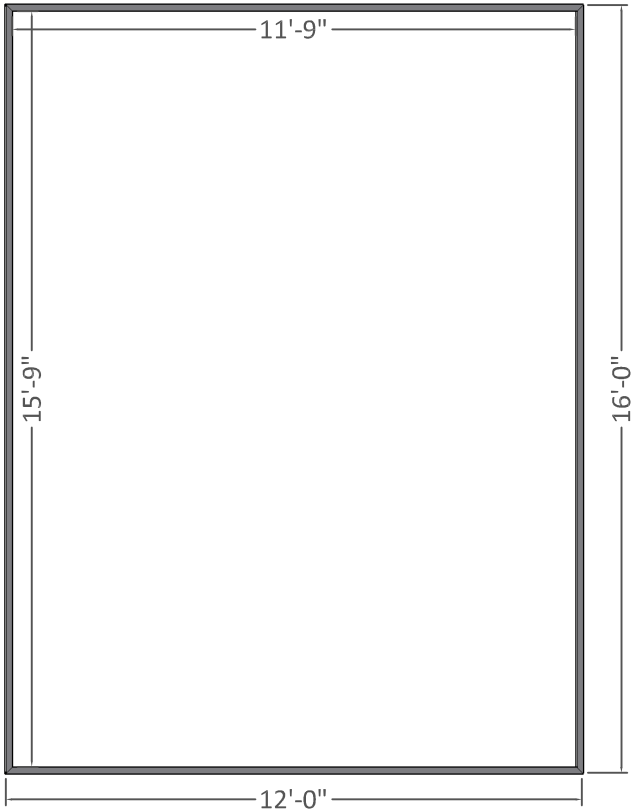
Description	Dimensions	Quantity
Front Wall		
2x4 Planks	2x4x8'	20
2x4 Top Plate	2x4x12'	1
2x4 Top Tie Plate	2x4x10'	2
Sheathing	4'x8'x$\frac{3}{8}$"min.	3
Door & Window Hardware		1 Each
Rear Wall		
2x4 plank	2x4x8'	14
2x4 plank	2x4x12'	2
Sheathing	4'x8'x$\frac{3}{8}$"min.	3
Door Hardware		1
Plain Side Wall		
2x4 plank	2x4x8'	13
2x4 plank	2x4x16'	3
Sheathing	4x8x$\frac{3}{8}$" min.	4
4-Windowed Side Wall		
2x4 plank	2x4x8'	31
2x4 plank	2x4x16'	3
Sheathing	4x8'x$\frac{3}{8}$" min.	4
Window Hardware	By Builder	4
2x2 post	2x4x4'	1
Handle	By Builder	1-2
Scrap Plywood Panel	≈2x2'x$\frac{1}{4}$" min	1
Roofing		
2x6 (min) pr. treat. plank	2x6x12'	11
Joist Hangers	By Builder	22

MATERIALS

Description	Dimensions	Quantity
Roofing Continued - Trusses		
2x4 plank	2x4x8'	13
2x6 plank	2x6x8'	26
Rafter Plate	By Builder	234
Roof Sheathing	4'x8'x$\frac{3}{4}$"min.	11
Roofing	By Builder	
Chicken Run		
2x4 plank	2x4x8'	34
2x4 plank	2x4x16'	6
2x4 plank	2x4x10'	6
2x6 joist	2x6x10'	3
Joist hangers	By Builder	6
Chicken Wire	By Builder	
Hinges	By Builder	
Handle/Latch	By Builder	
Flooring (Recommended but Optional)		
2x4 plank	2x4x12'	6
2x4 plank	2x4x16'	2
2x4 plank	2x4x8'	20
Plywood flooring	4'x8'x$\frac{3}{4}$"	6
Miscellaneous		
Fasteners (nails, screws)	By Builder	
Epoxy (or equal) Sealant	By Builder	
Roll or Batt Insulation	By Builder	

To begin with, start by finding a level plot of ground to put the base on. The ground should be solid and rocky with decent drainage. You may want to clear grass and shrubbery from the inside area of the foundation.

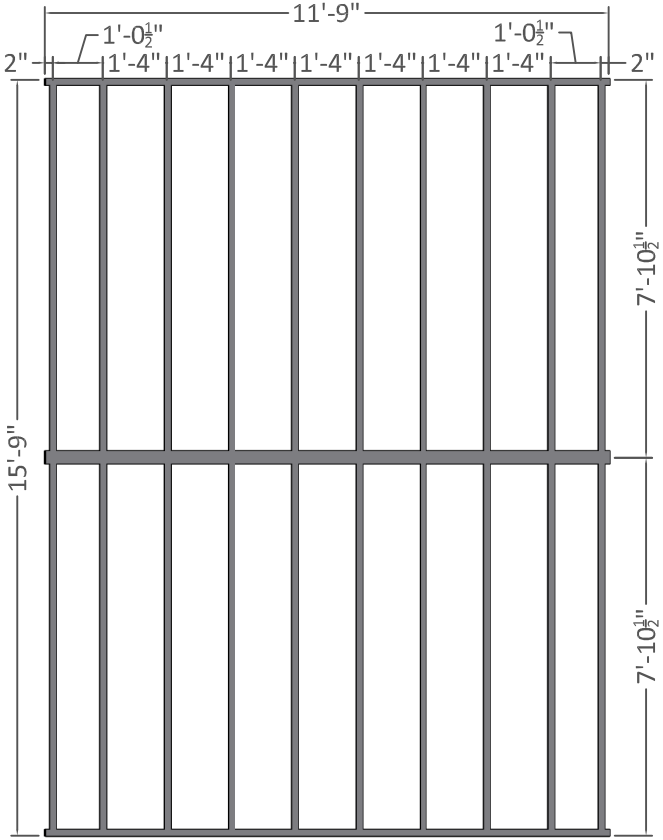
Now to begin, start by constructing the foundation rim joist out of 2x4 planks as shown below.



Notes:

Construct the joists.

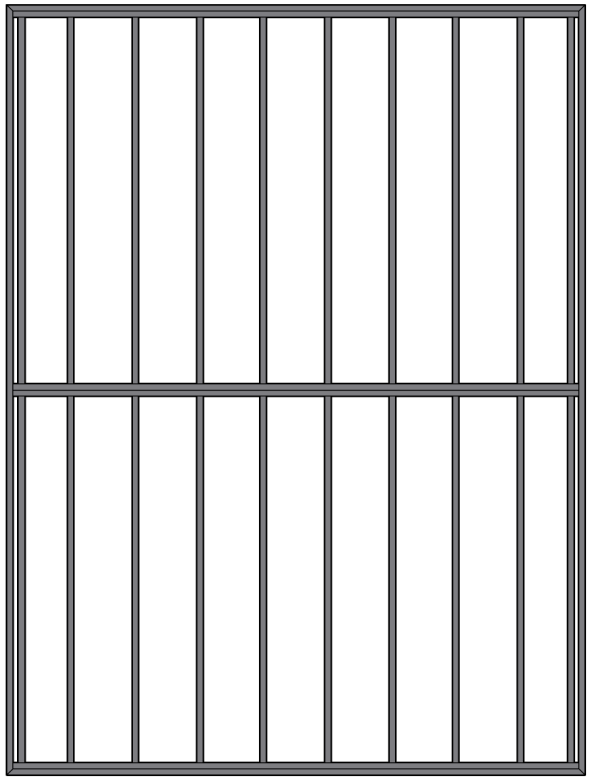
Now, there are actually different ways to do this. The important thing is to make sure the flooring will have something to nail to. As you can see below, we have already taken one construction method into account. Follow the diagram and you shouldn't have many problems.



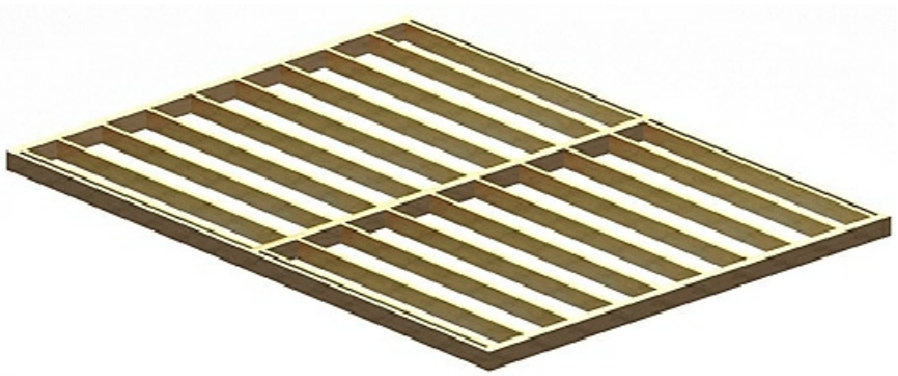
Again, this is NOT the only method to choose! You may choose an alternate method if you have construction experience. We chose this method because it offers extra support for the exterior walls and a nice "backbone" down the middle with which to attach the flooring.

Also, notice you can build this layout in two equal, but separate, sections. Work carefully and thoroughly and make sure pieces are laid out properly before connecting. Make sure of your measurements! If cut properly, it will be a snug fit, but the pieces should fit inside the rim joist with little effort.

It will probably be easiest to loosen the screws in the rim joist and shimmy it into place over the joists.



The rim joist can be mitered on the ends to give the corners a professional look. If you are at all uncomfortable cutting miters, feel free to skip the miter and just connect the ends with screws. We do recommend at least $2\frac{1}{2}$" #15 Torx head screws or larger. A pneumatic nailer (or equivalent) MAY be used, just know that nails have a tendency to work themselves loose and may need occasional maintenance.

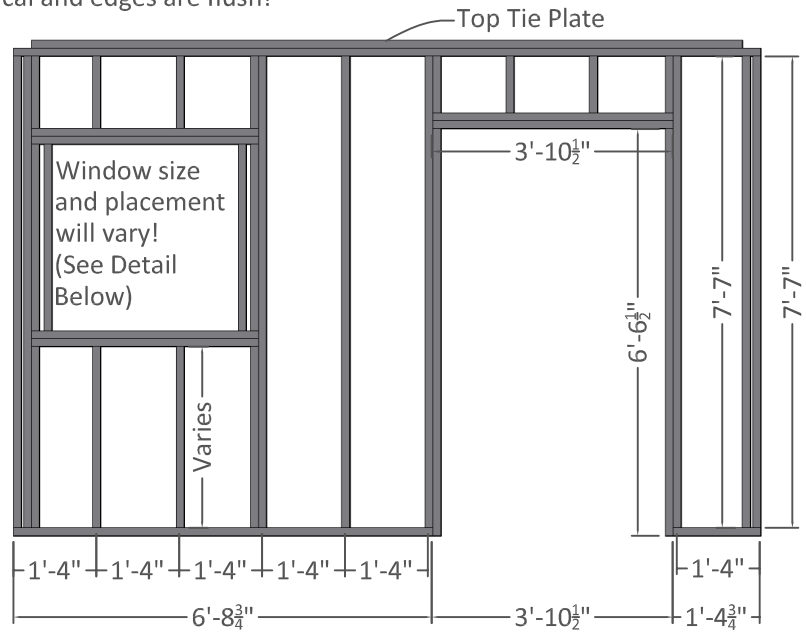


Make sure the base is square before laying the first piece of plywood. Once you have the first piece aligned properly, the rest will assist you in squaring up the foundation as you go along. Place 6 sheets of $\frac{3}{4}$" (minimum) plywood down for the flooring. DO NOT USE OSB (Oriented-strand board) FOR FLOORING! The adhesive has a tendency to rot under moist conditions and you could risk a weak floor!

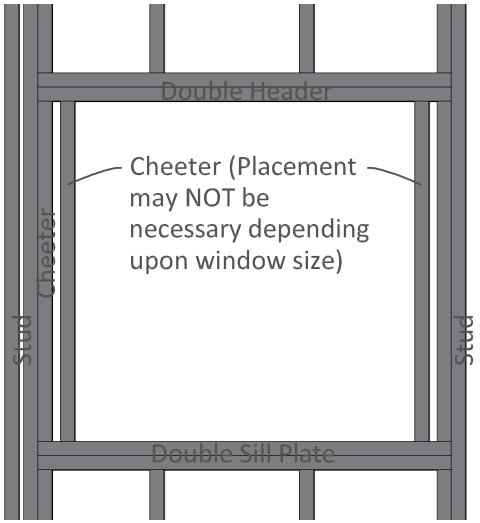
And just like that, you are done with the flooring!

Notes:

For this wall, follow the diagrams as shown below. Ensure the studs are vertical and edges are flush!



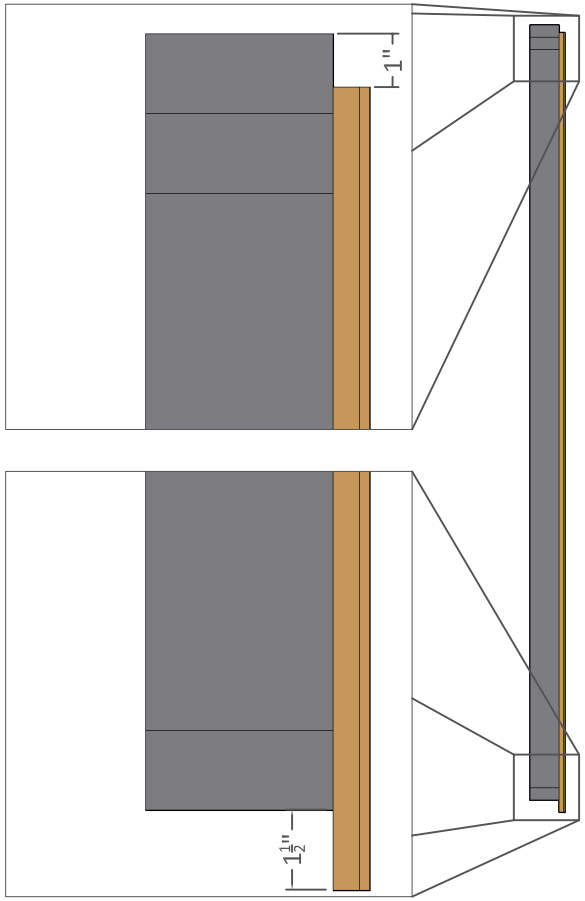
Note: For the Top Tie Plate (shown) you MAY elect to not position in place at this time. The tie plate does exactly what it sounds like. The side wall top tie plates will tie the top of the structure together. IF you do opt to position it right now, make sure it is centered properly or your structure may not be square!



Note: Header and Sill plate supports centered @ 16" (1'-4") (typical).

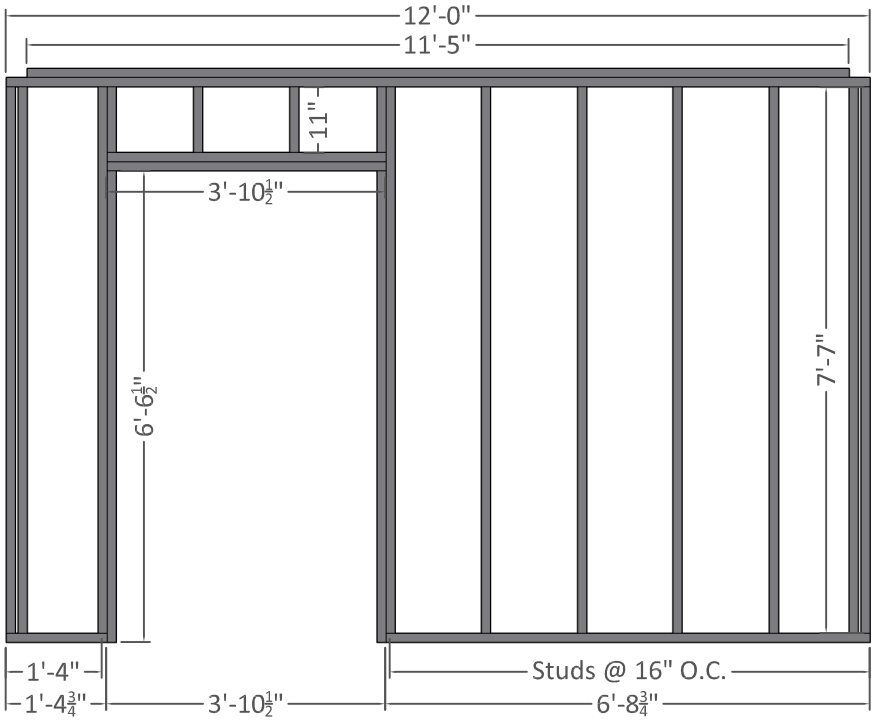
Notes:

For the sheathing, you can go ahead and put the sheathing in place. Make sure the sheathing both overlaps the flooring and there is some space to attach the roof sheathing. Follow the diagrams below and you shouldn't have any problems.



You DO NOT have to attach the door at this point. For instructional purposed ONLY!

For the front wall, follow the diagram as shown.

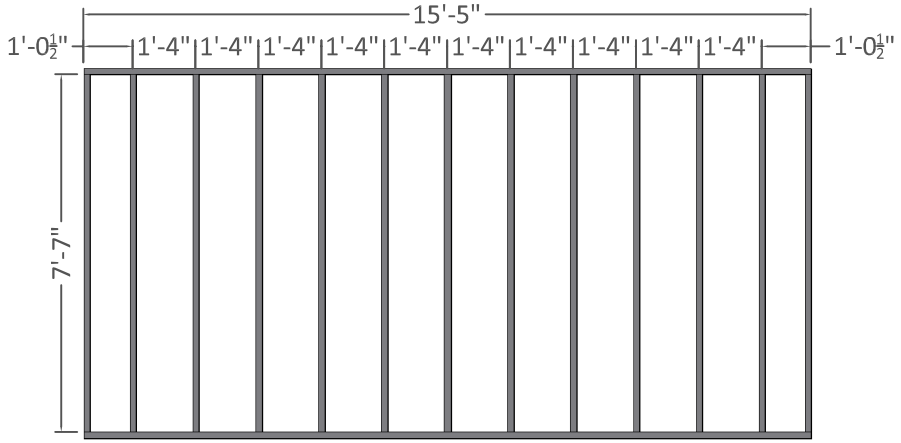


Notice the double header over the door and the cheaters on either side of the door frame. Do not skip these, they are essential to the overall integrity of the door frame.

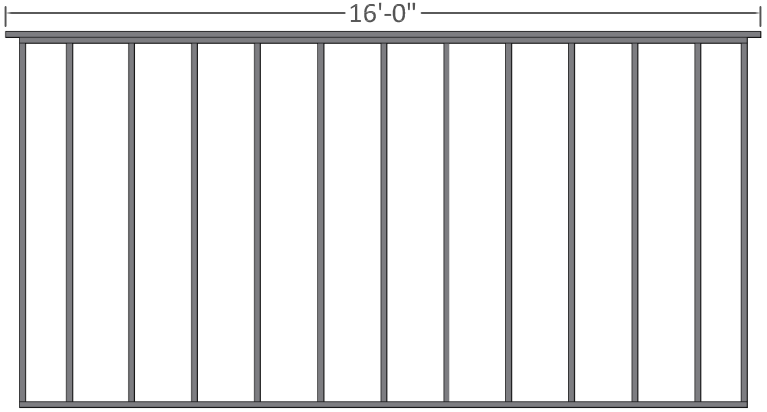
You may, however, wait with the top tie plate. It will be necessary to tie the top together, but is not necessary right at the moment. You may opt to add it now for easier construction.

Notes:

For the side wall, follow the details shown below.



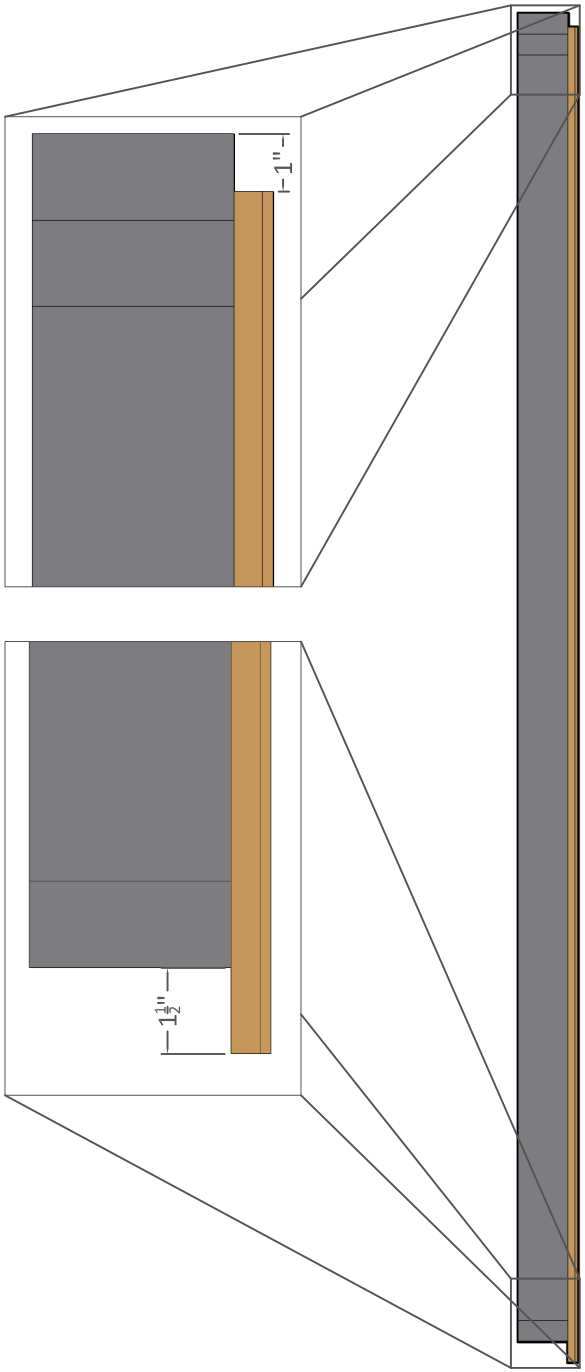
Construct the frame on the ground. Make sure the studs are vertical



For the top tie plate, you DO NOT need to place right now. Just know that you will have to use it to tie the top of the completed wall structure together.

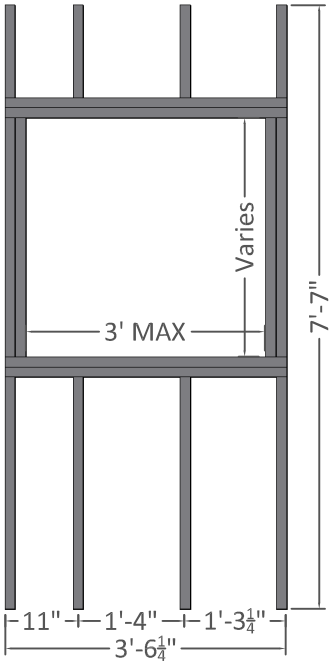
You MAY opt to place now, but make absolutely sure the plate is centered or you risk the walls being askew...We recommend placing the tie plate in place once you have the rest of the wall structures in place.

For the sheathing, make sure that the sheathing overlaps the base plate and flooring. Also ensure there is some top plate to attach the roof sheathing to...



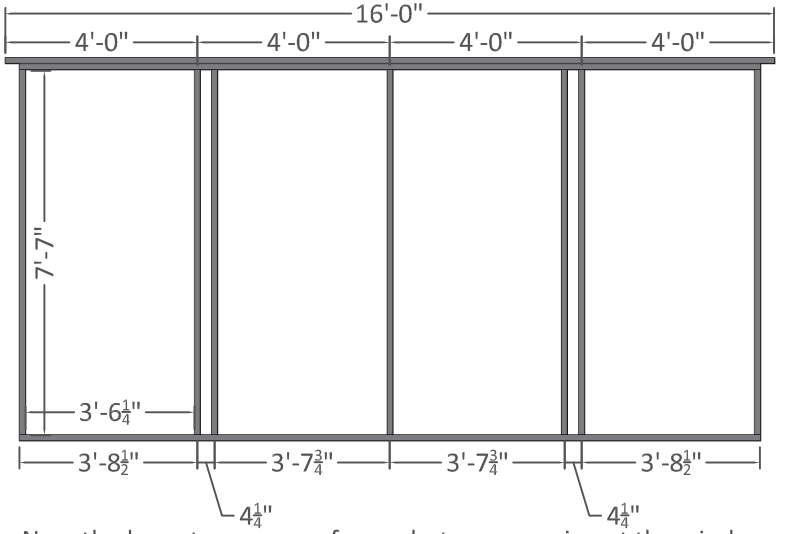
Notes:

For the side wall, there are many windows. So start with the window frames as shown below.



Window size may vary. These plans are drawn with the intent of fitting 4 windows in the space provided. This means, the widow height MAY vary, but the window width MUST be no larger than 36"!

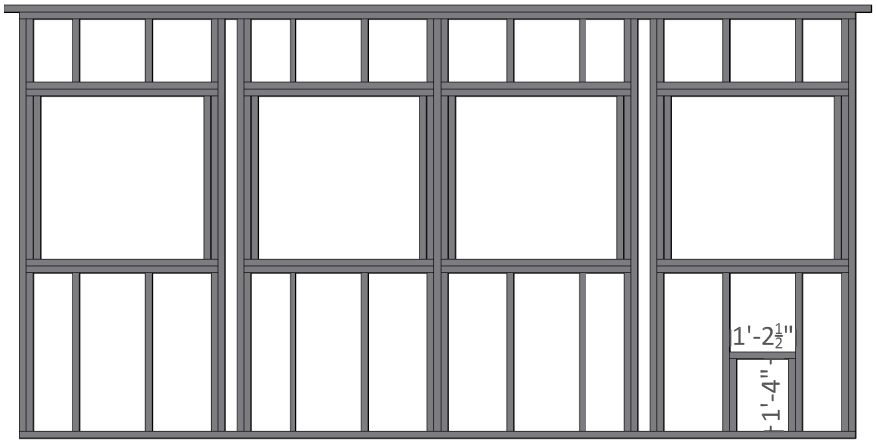
Once you have the window assemblies in place they should fit into the frame as shown.



Note: Now the layout may seem funny, but once you insert the window framing into the openings, the sheathing should lay across the wall frames when in place.

Now, once you have the framing in place, you will want to make an opening for your chickens so they can access the coop without you having to open and close the door all the time.

Generally, a 12x12" opening is sufficient for most breeds but larger breeds may need bigger access openings.



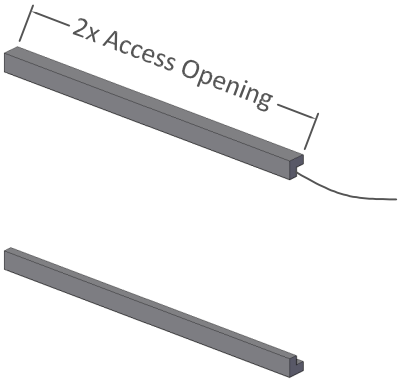
No need for fancy opening holes or anything, just add the small framing shown. Just fit it between the window sill studs.

Notes:

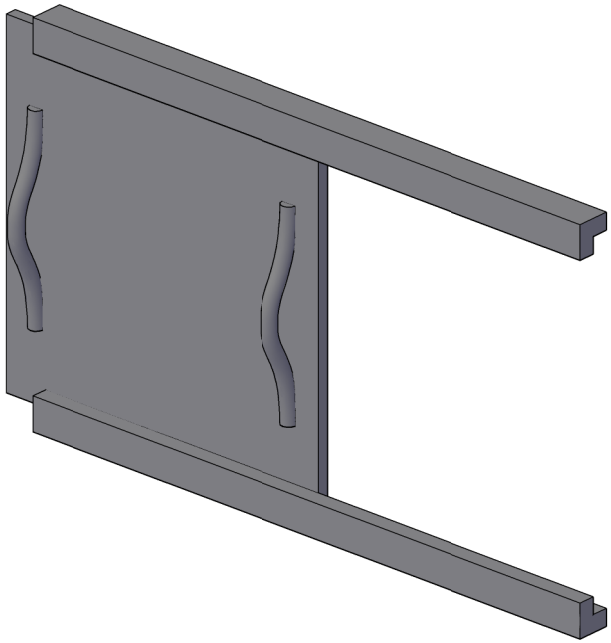
Now, just to install slides and a door. This is a very basic method and is used commonly. You will need either a router with a guide (or a router table) or a table saw with a dado blade.

Simply rip a dado in a 2x2 post roughtly $\frac{1}{16}$" - $\frac{1}{8}$" larger than the door panel material.

Cut the slides to length and attach in place as shown below. That's it!



Make sure the dado is at least 1/16-1/8" larger than the paneling you intend to use

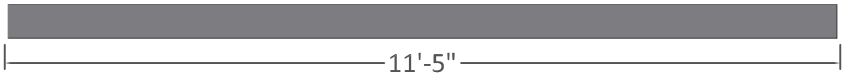


Notes:

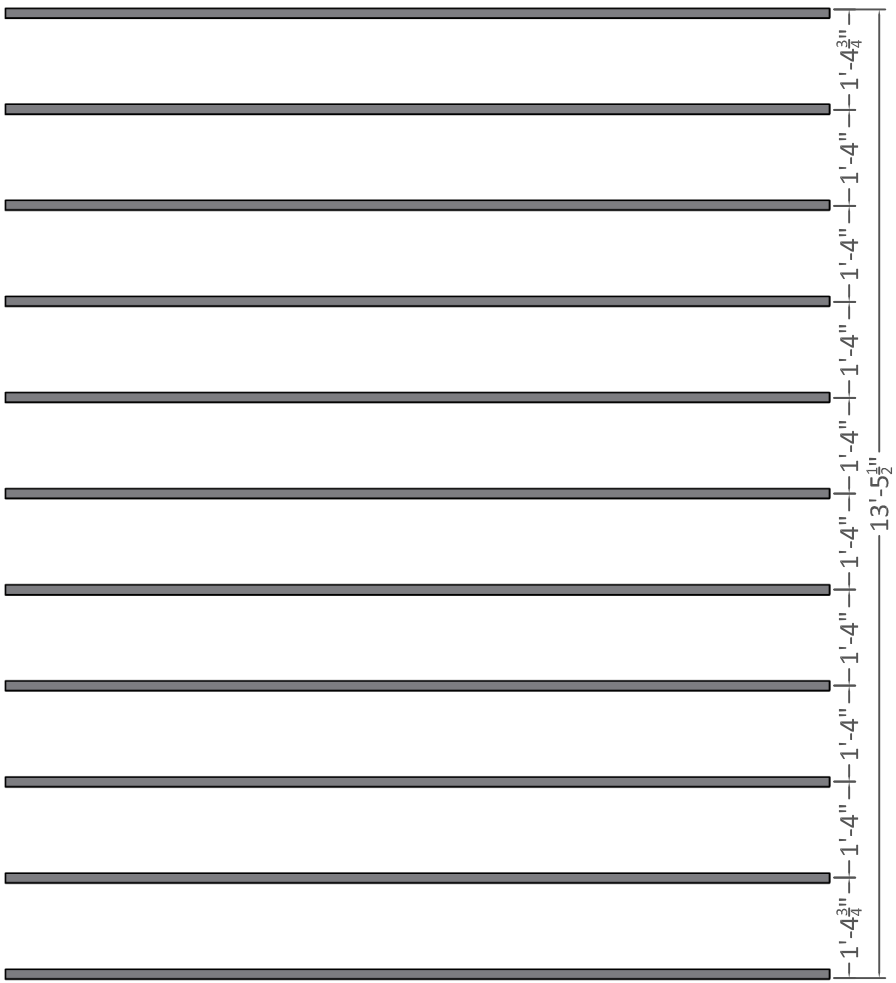
Now that you have all of the frames assembled, if you haven't done so already, go ahead and anchor them into place on the flooring.

....And sheath around the outside if you haven't already done so...

For the flat rafter, it's simple. Just cut a 2x6 (minimum) as shown below.



For a 12x16 shed, layout the joists as shown below. You should be able to use joist hangers on the frame. Make sure the joists are flush with the top plate.



Make sure the joists are a minimum of 2x6 pressure treated joists for the 12' span. Always cross the shortest span possible! If unsure about constructing roof components, HIRE A PROFESSIONAL! Also, you may want to check your local building requirements for snow load information for your particular area.

Notes:

Up to this point, the structure should look something like the diagram below...

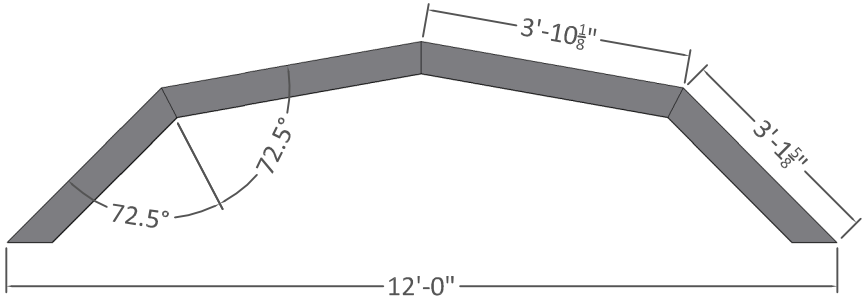
Continue to the next page to begin construction on the trusses.

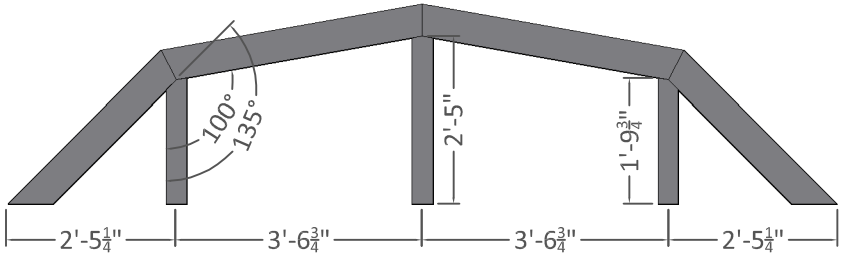
IMPORTANT: IF YOU ARE AT ALL UNCOMFORTABLE WORKING WITH ROOFING ELEMENTS, CONSULT A PROFESSIONAL! ALSO, STRUCTURAL MEMBERS MAY NEED TO BE ADJUSTED ACCORDING TO YOUR LOCAL SNOW LOADS PER YEAR! IF YOU HAVE ANY DOUBTS, CONSULT A PROFESSIONAL ON BUILDING PER YOUR LOCAL CONSTRUCTION CODES!

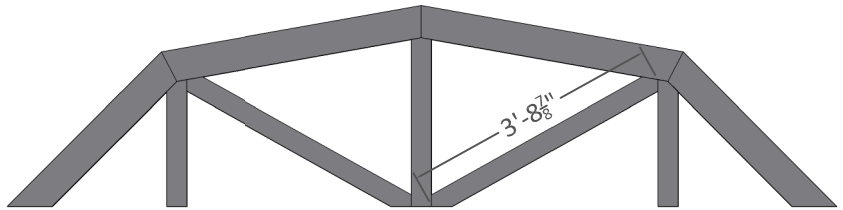
Notes:

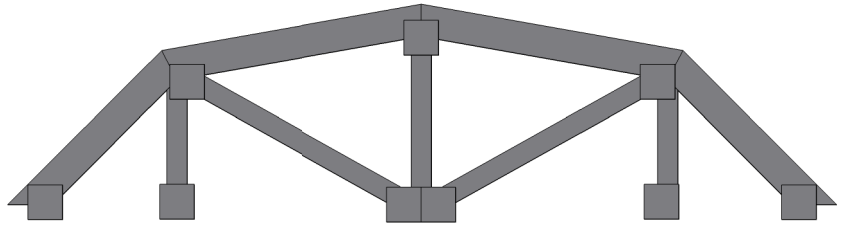
Before you begin with the truss, if you have any doubts at all about constructing roof components, or are uncomfortable working at heights HIRE A PROFESSIONAL! Construct the trusses on the ground and use great care when placing them in position. Make sure to use all applicable safety equipment. Use proper construction techniques and use assistance to place the trusses in position on the roof joists.

To construct the truss, follow the diagrams below. Construct a single truss and test it in place on the roof joist before continuing onto the rest. Ensure the king post and queen posts are vertical with a level before attaching to the roof joists with rafter plates.







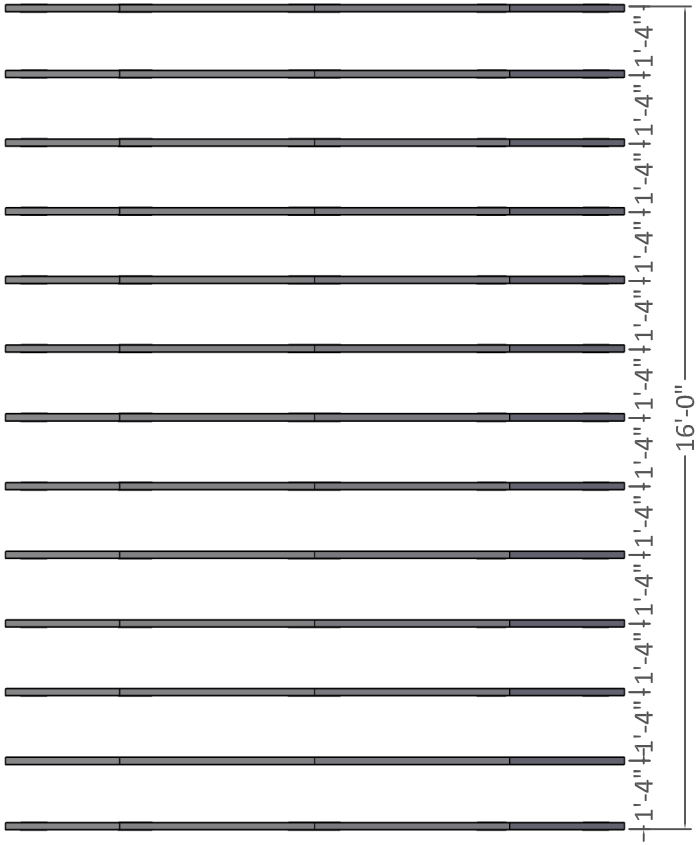


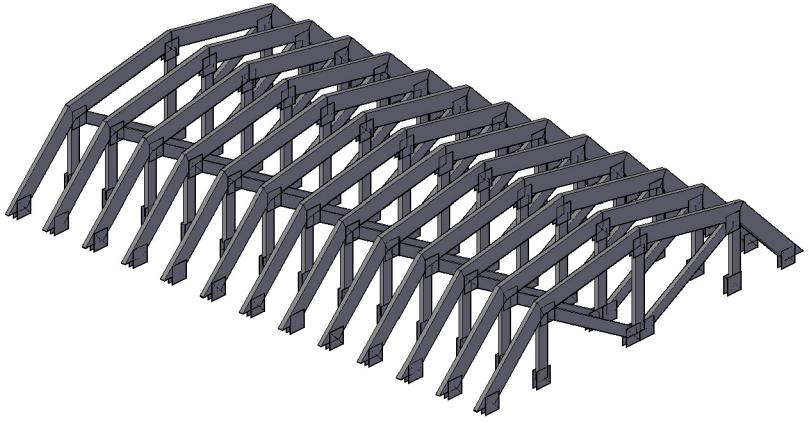
Once the completed truss looks something like the diagram below, you are ready to put it in place. DO NOT ATTACH THE BOTTOM PLATES UNTIL IN PLACE ON THE JOISTS BELOW!

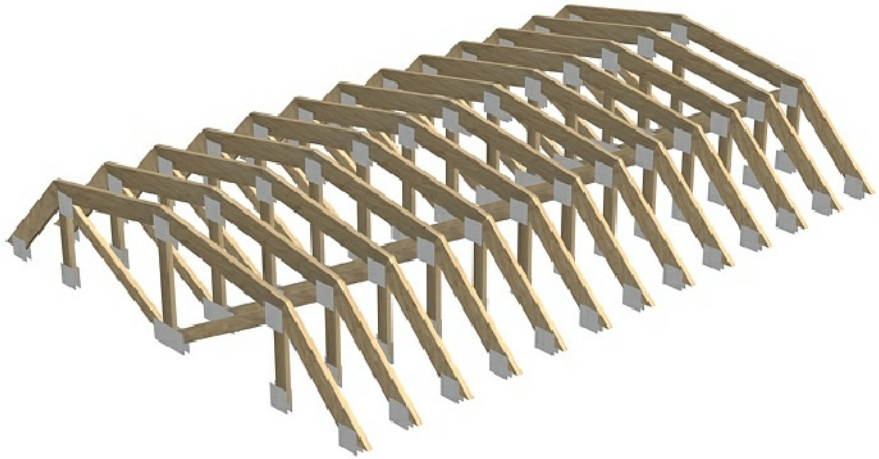
Notes:

Once you have the first truss in place and anchored to the joists below, use the joists as a "layout" for where the remaining trusses will go.

Follow the diagrams below:







Notes:

Use the sub-roof joists to locate the gambrel trusses directly above.

Attach the sheathing around the exterior of the roof trusses. Make sure you properly align the roof trusses beneath the sheathing!

Use the sheathing to anchor the trusses vertically. Have an assistant help you position the sub-roofing on the trusses. If you feel uncomfortable working at height or working on roof components, HIRE A PROFESSIONAL!

Attach the side sheathing and roofing to finish the roof.

Notes:

Congratulations! Seal the corners, install roofing, doors and windows and you are done with the coop structure!

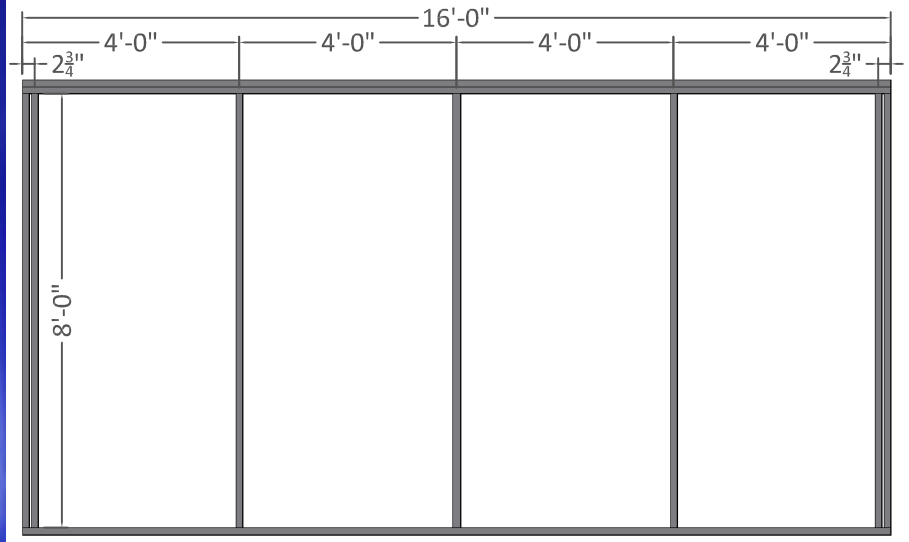
Starting on the next page, we have added a design for a roost, nesting boxes and a chicken run.

Notes:

To build the chicken run, it is much easier than the actual structure...

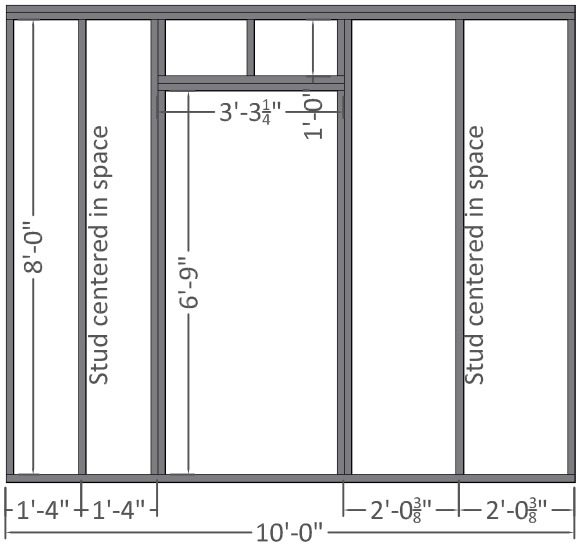
The chicken run is lighter, doesn't support as much weight as the coop and hence, the spacing may be wider than that of the coop.

Now, to begin the 16' wall follow the diagrams below.



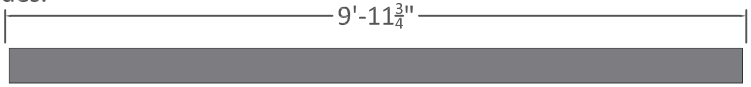
You will need to build 2 of these frames.

Once those are complete, set aside and work on the front and rear frames. Now, you may opt to install doors into both as shown or you can just build one with an access door and one with no access, choice is yours.



Now just nail or screw the frames together.

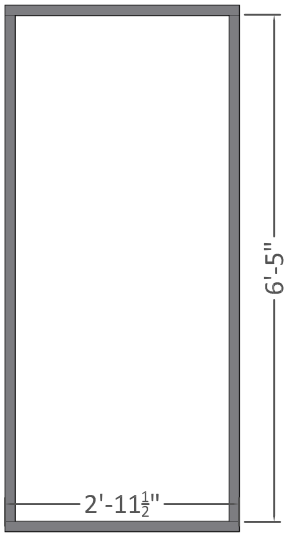
Cut three 2x6 joists as shown below. These will be placed across the 10' span perpendicular to the 16' walls. Use the studs of the long walls as guides.



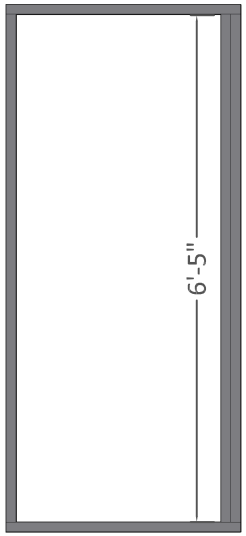
Now all there is to do is to put the frame in place against the coop and line what you can with chicken wire! Don't forget to leave your door opening so you can install the door (next page)!

Notes:

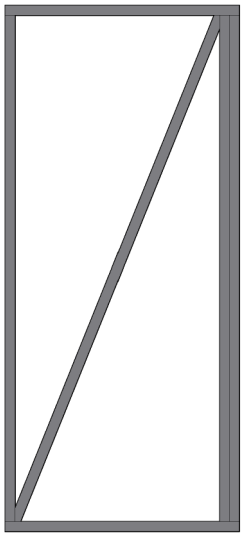
Making a run door is really quite simple. All you need is a frame:



Reinforcement for the hinge side to ensure the door does not bow and that the hinges will support the weight of the door.



And a diagonal support for rigidity!



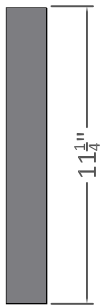
Hinges, a handle and chicken wire is all that is required!

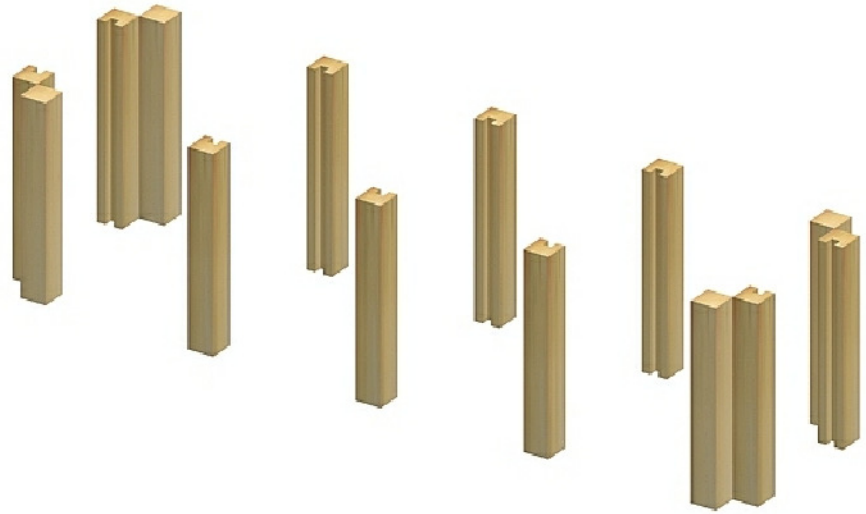
Notes:

Congratulations, once you install the door and make sure the swing works and the latches set, you are done with the chicken run!

Notes:

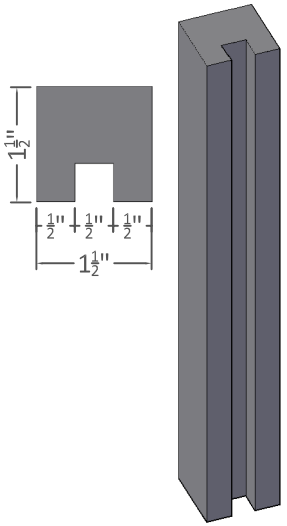
For the nesting box, begin by cutting 2x2 post as shown below. You will need 14 lengths the same dimensions.





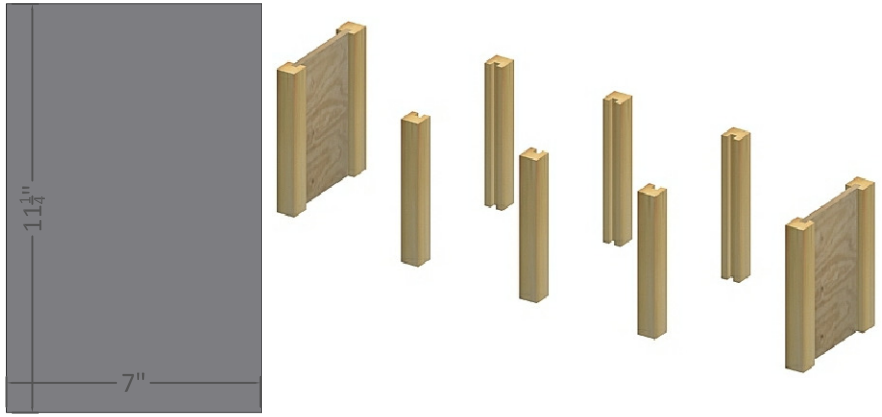
Using a router with a guide or a table saw and dado blade, rip a groove down the center of 10 of the legs.

Now, these dados (grooves) will be the same thickness as the plywood or OSB you intend to use as separators between the nesting boxes. We have used ½" as an example, but you MAY wish to go as thin as ¼" if you desire.

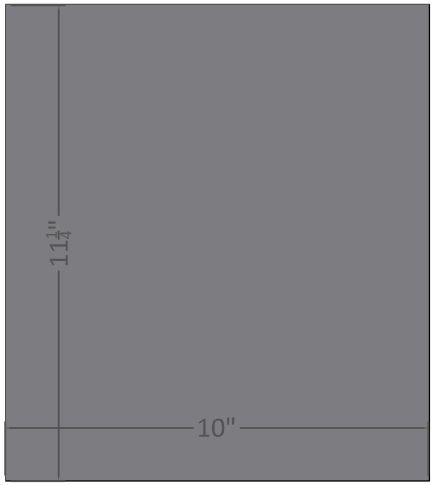


Notes:

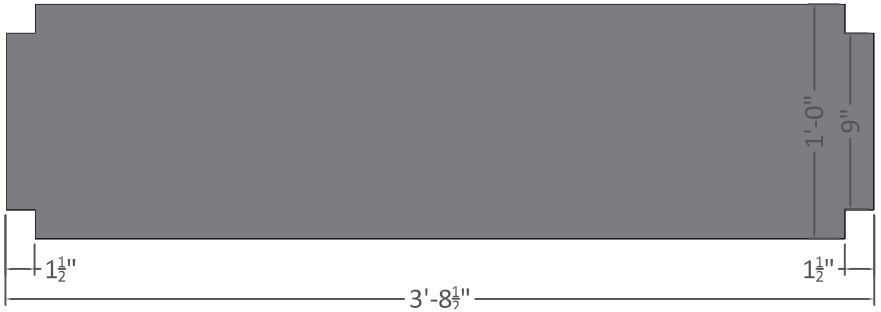
Once you have the grooves cut for the divider panels, follow the diagram below for assembly of the dividers. First the exterior panels:



For the divider panels:



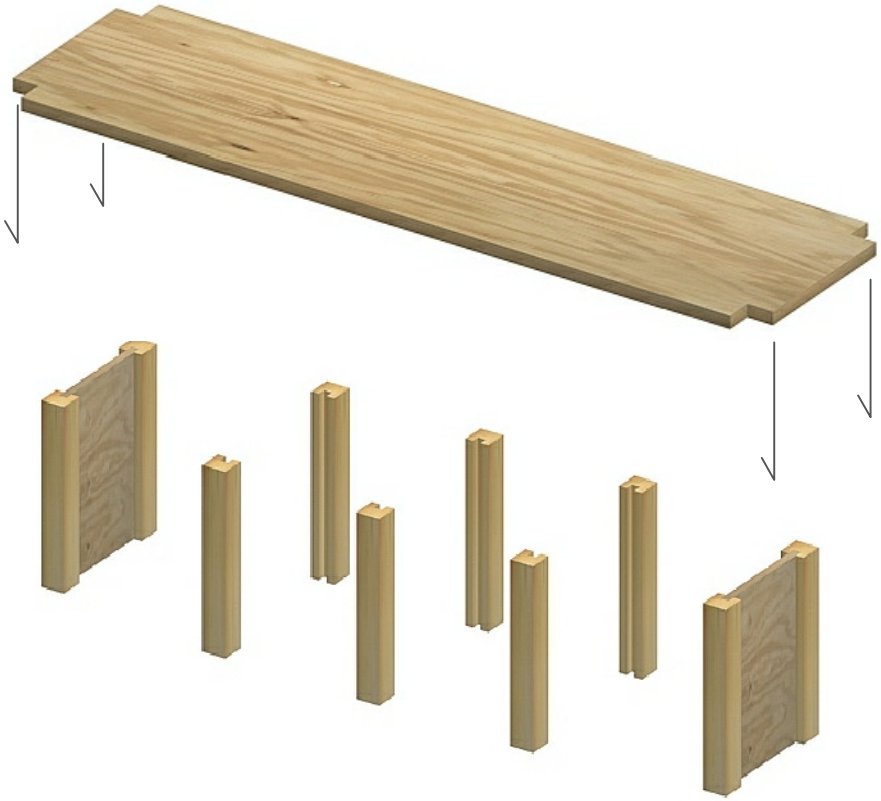
Once you have the dividers assembled, you will need to cut out the top panel as diagrammed below.



Notes:

Assemble the nesting box section as outlined in the diagrams below.

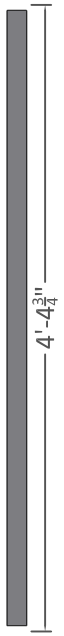
Make sure the legs are located as shown above. You should be able to put the dividers in place as shown. Use the smaller panels on the exterior sides.



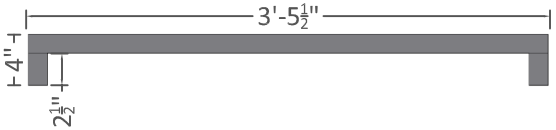
The completed section should look similar to the diagram below:

Notes:

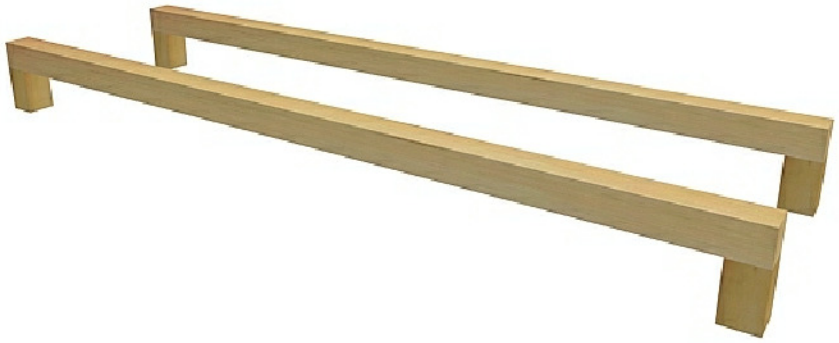
Once you have the nesting box section complete, you can cut the primary 2x2 roost legs as shown. You will need 4 of these.



After you have the uprights cut, put them aside and cut out the bottom legs. These are shorter and hold the nesting boxes off of the ground. It is a simple construction. Follow the diagrams below to assemble the base.



You will need 2 of these assemblies.



Next, cut the nesting box floor out of ¾" plywood sheet (we do recommend such a thick sheet because of the resistance it will have to rotting).

Cut and attach the longer feet.

Notes:

Go ahead and attach the uprights cut previously to the floor of the nesting box.

Insert the nesting box assembly constructed earlier onto the floor.

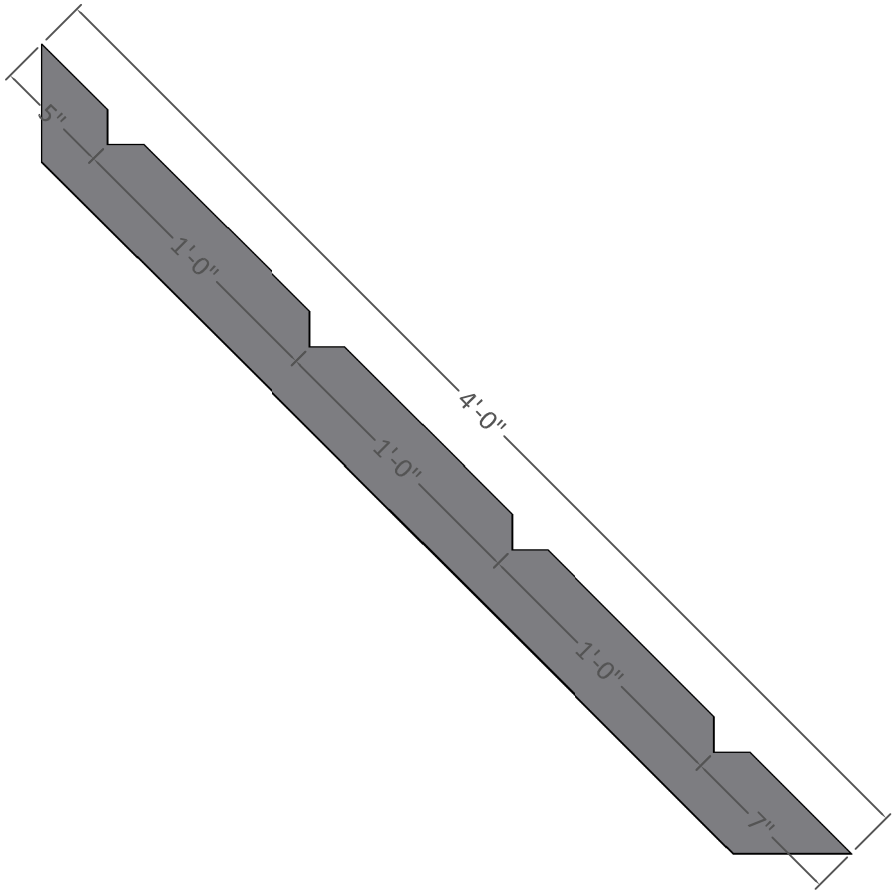
The completed assembly should look something like the diagram below.

Notes:

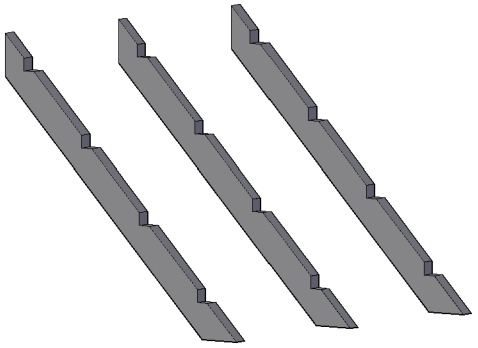
Complete more nesting box assemblies and layer them upon each other until you have the completed nesting box shown below.

Add strips of fascia to keep straw in the nesting boxes.

The roost is one of the easiest parts of a chicken coop to construct. The side framing is constructed just like the stringers on a set of stairs.



You will need 3 of these. One for both ends and the middle.



Measure the space to put the roost and use this measurement for the roosts themselves. Cut four (4) 2x2x8' to the size you just measured. You MAY need to construct the roost in place!

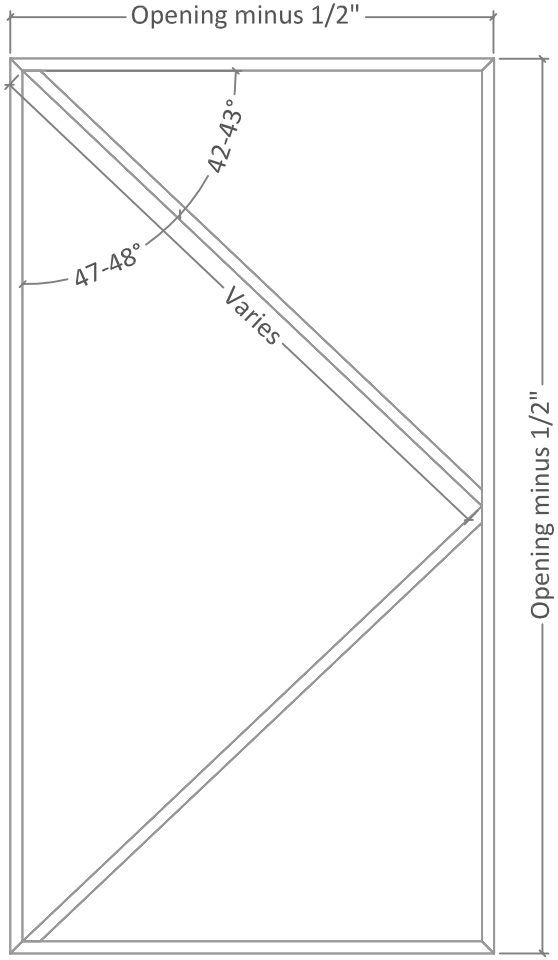
The measurement of the roost length is: _____

Attach the roosts to the frame as shown in the diagram below. That's it! The roost is ready to keep your chickens comfy and secure!

Notes:

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 1'4 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.

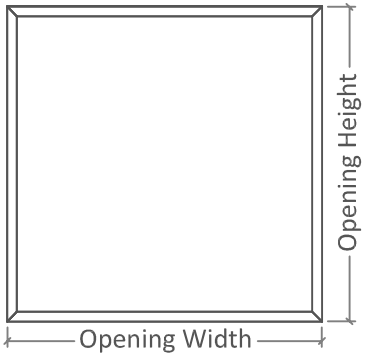
3) Insulate the door with either blow foam or regular R-13 roll insulation will work.

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

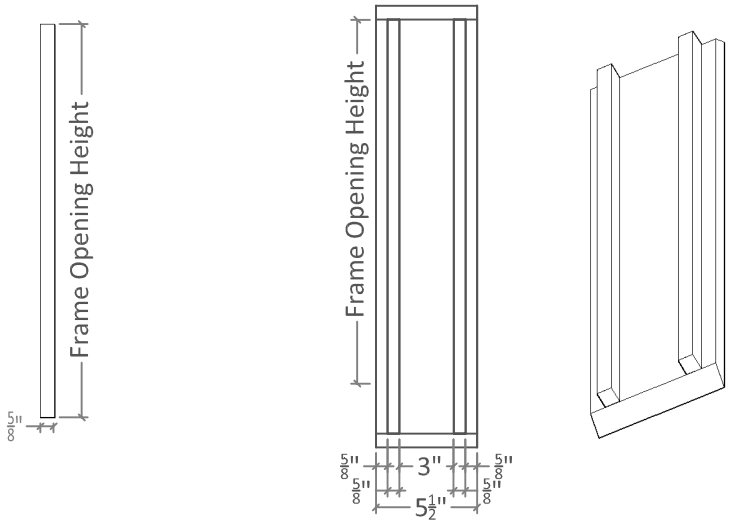
5) A single slide bolt works wonders on the outside and inside to lock the door shut. If you don't want your kids to be able to lock the door, only install the slide bolt on the outside! The slide bolt also offers a grip to pull the door open.

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!

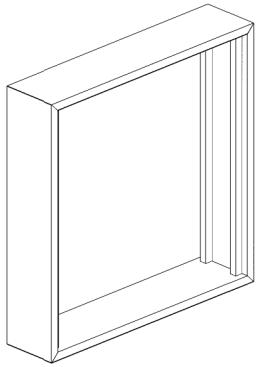


2) Rip a 1x4x8' into strips $\frac{5}{8}$" thick. These will serve many purposes in the future but for now, we just want four of them to match the opening, so either rip and cut one piece or rip an entire board into $\frac{5}{8}$" strips and place the pieces to the side for late.



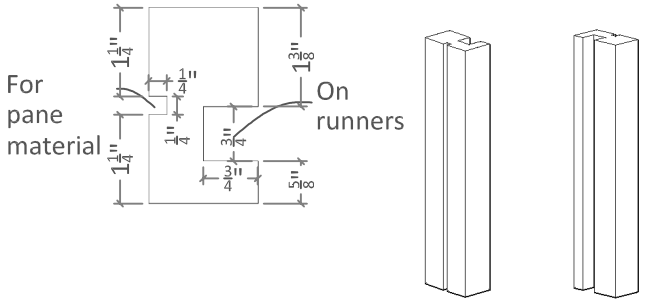
3) Using 1" screws and a level, screw two runners onto one of the exterior frame pieces. Repeat for the second side (see above).

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

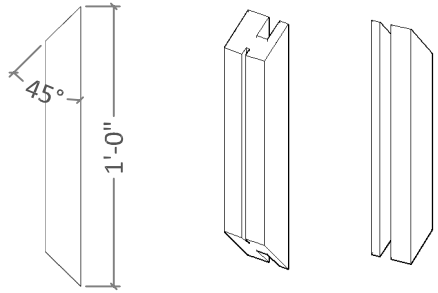


5) Rip a 8'-2x6 down the center lengthwise.

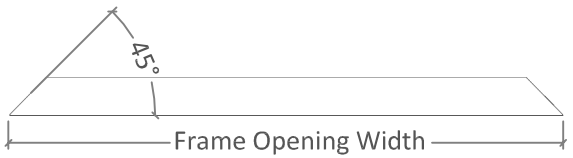
6) Use a router to gouge a $\frac{3}{4}$"x$\frac{3}{4}$" groove down the center of one side. Flip the board over and gouge a $\frac{1}{4}$x$\frac{1}{4}$" groove down the center of the other side (see detail)

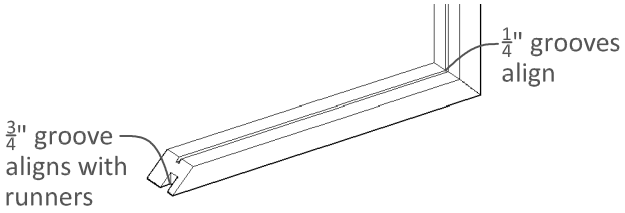


7) Miter the ends. Make sure the narrow ($\frac{1}{4}$x$\frac{1}{4}$") groove is facing inwards! The wide ($\frac{3}{4}$x$\frac{3}{4}$") grooves go out toward the runners, the inside grooves will hold a pane of window material.



8) Rip a 2x6 lengthwise down the middle and miter ends as shown below. Run a $\frac{1}{4}$"x$\frac{1}{4}$" 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 $\frac{3}{4}$x$\frac{3}{4}$" groove out of the ends.





Materials

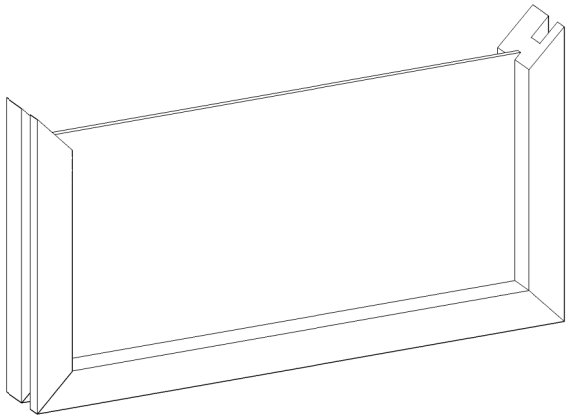
Description:	Qty:
2x6x6' Planks	24
1x6x8' Planks	6
1x4x8' Planks	6

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.

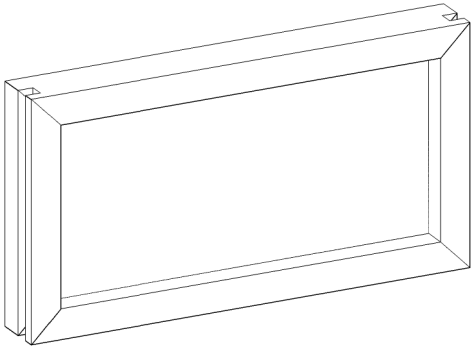
IF YOU DECIDE TO USE GLASS, WE HIGHLY RECOMMEND PURCHASING $\frac{1}{4}$" THICK PROFESSIONALLY CUT PANES. YOU WILL NEED 2 PER WINDOW. ON THIS SET THAT EQUALS 12 PANES OF GLASS TOTAL.

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.

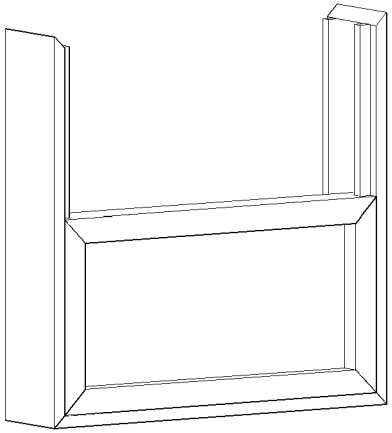


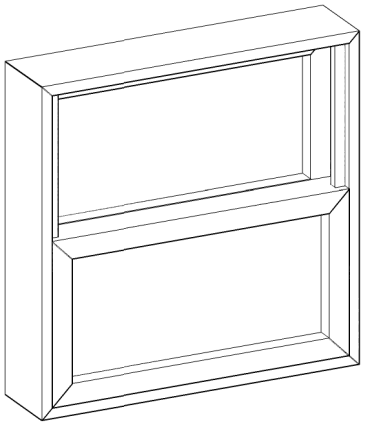
11) Cap off the window with the top piece and connect all pieces with 1" small radius ($\frac{1}{4}$" or smaller) screws. Be sure you don't screw down into the window pane!



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.

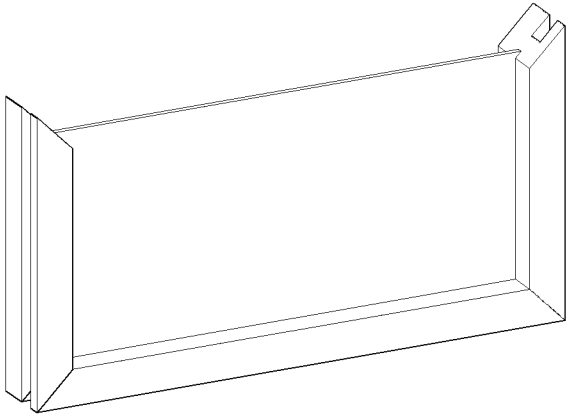
16) How the windows stay up or down is up to the user. We recommend getting a slide bolt and installing at least one on the movable assembly. Which assembly moves or stays stationary is up to the builder.

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.

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!

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.

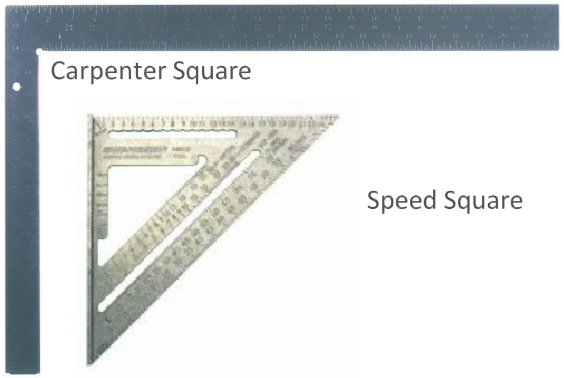
5) For the purpose of this article, the 5/12 roof pitch converts to 1.083 on the rafter conversion chart found on any framing square.Therefore, 11.5 x 1.083 = 12.4545 feet is what the rafter length will be.

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".

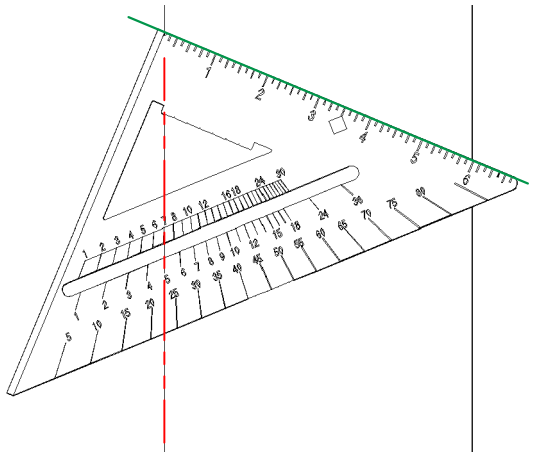
Roof Slope	Factor
Flat	1.0
1:12	1.003
2:12	1.014
3:12	1.031
4:12	1.054
5:12	1.083
6:12	1.118
7:12	1.158
8:12	1.202
9:12	1.250
10:12	1.302
11:12	1.357
12:12	1.414
13:12	1.474
14:12	1.537
15:12	1.601
16:12	1.667
17:12	1.734
18:12	1.803
19:12	1.873
20:12	1.943
21:12	2.015
22:12	2.088
23:12	2.162

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.

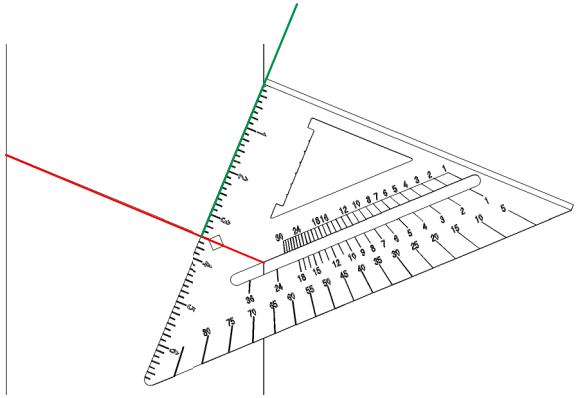


For the speed square, start by lining up your plumb cut by aligning the pivot point on the speed square with the desired pitch. This example is going to use a 5-12 slope but the principle is the same with any slope. See the diagram below.



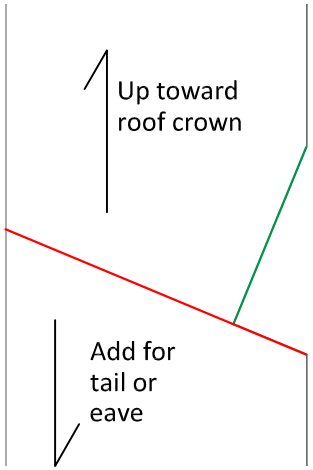
See how the red line lines up with the little notch in the back of the speed square and the number 5 in the "common". The common simply refers to a common rafter. Notice also, how the "HIP/VAL" lines up quite nicely with 7? For a $\frac{5}{12}$ slope, the corresponding hip/valley slope would be 7. Easy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



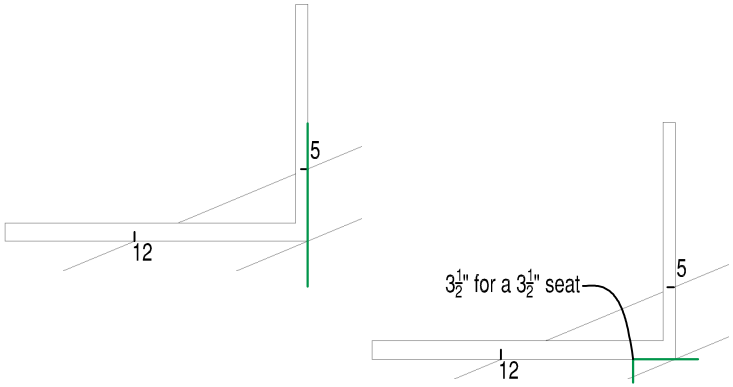
Align the diamond sight so the line cuts the sight down the center and your pivot point is flush against the outside edge of the rafter to be cut.

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.