Disclaimer: Read this BEFORE beginning any construction!

These plans are intended for use as a guide only! Adjustments may be needed as circumstances require. Dimensions may be altered at the builder's requirements. Be sure if any alterations occur, that the measurements are adjusted accordingly! If you (the builder) are ever at doubt as to how to construct any structure in these plans, consult a professional. Always use safety equipment when needed and follow manufacturer recommendations for tools, mechanical parts and any components you are not familiar with.

This structure is able to be wired for electricity. Please consult a professional and your local power company before installing any dedicated lines.

This structure is able to be fully completed inside. These plans do NOT include instructions on interior finishing and any such construction practices will be solely at the discretion of the builder. Materials such as insulation, gypsum board and interior furnishing such as counters, tables, etc are not included in these plans.

Builder assumes all risks associated with construction! Always use safe construction practices, i.e. sturdy scaffolding when working at heights, safety equipment such as gloves and safety glasses. Make sure all tools are in proper working condition and do NOT use any tools with damaged or frayed cords or broken components.

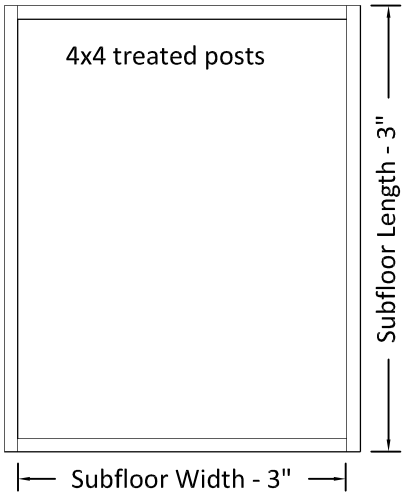
These plans are intended as a guide only! 3-Dimensional Concepts will not accept responsibility for any measurements misrepresented in these plans and field measurements should always be taken, never assumed. The rule-of-thumb, “measure twice, cut once”, always applies. Accuracy of such measurements are determined by many factors, not limited to, builder competency and experience, tool repair, and tool type. However, should mistakes be found in these plans, we would very much appreciate hearing about them so they may be corrected. Please forward any questions, comments or concerns to jeff@3dimconcepts.com. Once you have read through this disclaimer, it is time to start building. Good luck, and work safe!

The first thing anyone will ever need before building a playhouse is a solid foundation. The foundation will help lift the playhouse off of the ground, prevent water intrusion, and give the playhouse a nice aesthetic look.

It is up to the builder as to what type of foundation to lay down, but we will offer several varieties that will work nicely.

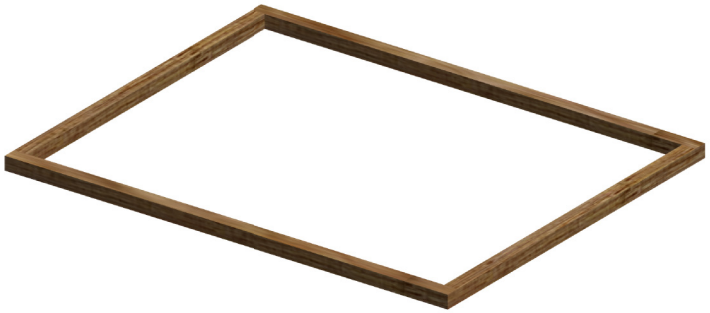
The first is by far the simplest foundation. It is simply a couple of 4x4 treated posts that will "sit" under the flooring of the playhouse.

The pros and cons of this type of construction are listed below the diagram. Also, we subtract 3" from the measurement because we are assuming you are using 2x" " material dimensions may need to be altered for larger materials.



A/1 Wooden Foundation Detail
Scale: NTS

Pros: This type of construction makes the playhouse mobile. If you intend on being able to drag it around, I would suggest some heavy-duty lock casters.
Easy to assemble. Simply follow the diagram above for the length of your cuts and assemble with 5" lag screws. Countersink the heads of the lag screws (we recommend at least $\frac{3}{8}$"Ø lag screws) so the heads will not impede the placement of the base planks.
Cons: Wooden. Even with the best maintenance, wood sitting directly on the ground is going to go bad eventually. You will need to put a coat of water-proofer around the base at least once a year.
Stability. We recommend anchoring the playhouse to a finite position, especially if you live in a high-wind area where the wind may be able to blow the structure over. Plus, a concrete foundation will give you a flat, smooth surface to work upon.

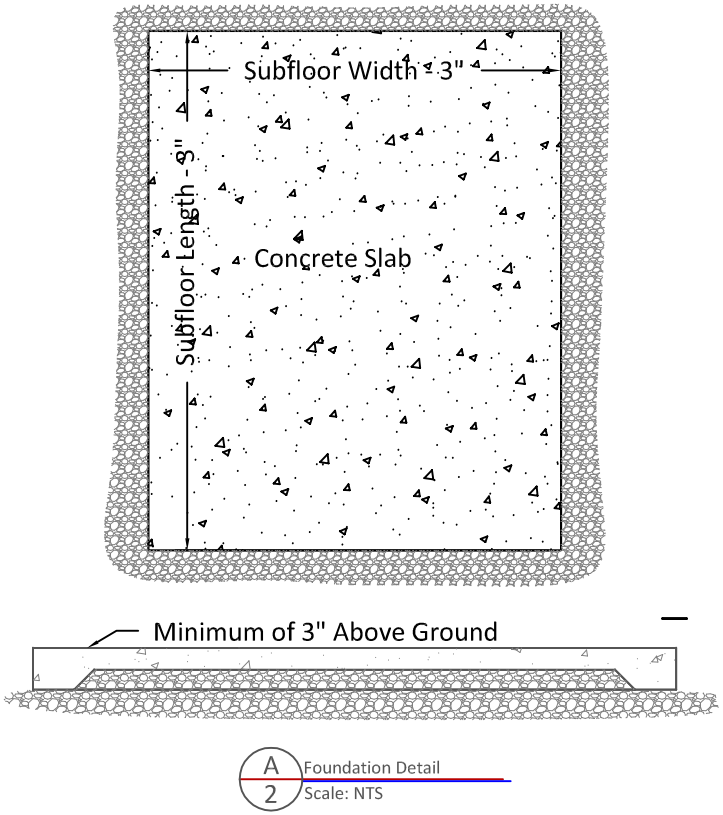


B/1 Wooden Foundation
Scale: NTS

The second type of foundation is the concrete foundation. These foundations generally take more time to complete, but they offer many advantages over a wooden foundation.

1. They are solid in the ground
2. They offer a flat. level work area
3. They do not require maintenance

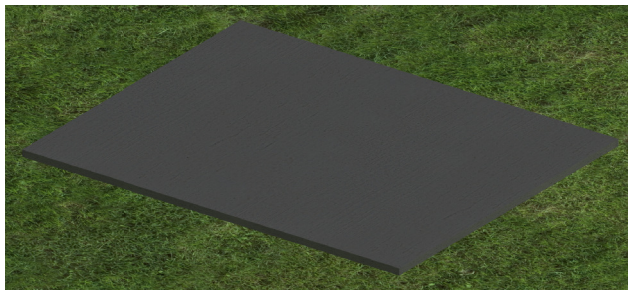
The easiest type of foundation we would recommend is the slab foundation. This type of foundation offers good water drainage and will last longer than the playhouse itself.



The easiest way to pour a concrete slab is to dig a trench the width of the shovel blade and about 2" deep.
1) Start by laying out where you want the playhouse to go.
2) Build a FRAME out of 2x6 based on the internal dimensions above. Remember, they are INTERNAL dimensions, not external. If you want external dimensions, add 3" to the overall length and width of the concrete slab and those will be the external dimensions with the concrete PLUS the 2x6 frame.
3) Pour some (preferably washed) $\frac{3}{4}$-1" peat gravel into the trench (to aid in water drainage).
4) Place the concrete frame in the trench and tap or add gravel where necessary to get the frame level. Make sure you level the length, width, and diagonally across the corners of the frame!
5) Once the concrete frame is level, continue to pour only about 1" of peat gravel into the frame and smooth out with a shovel or rake. Make sure you have at least 3" of frame above ground level!
6) Pour quick drying concrete into the concrete frame and use a board or concrete level to smooth the top. Don't forget to tamp the concrete to ensure there aren't any air pockets! Fill the frame level with the top and let dry.

7) When you are done and the concrete is dry, take the concrete form apart and fill in any remaining gaps in the trench with topsoil and grass. Tamp around the concrete slab to get a good seal.

The finished slab should look something like the diagram below.
Hint: You can also follow the same instructions or use this slab for a shed, a gazebo, almost any small structure!

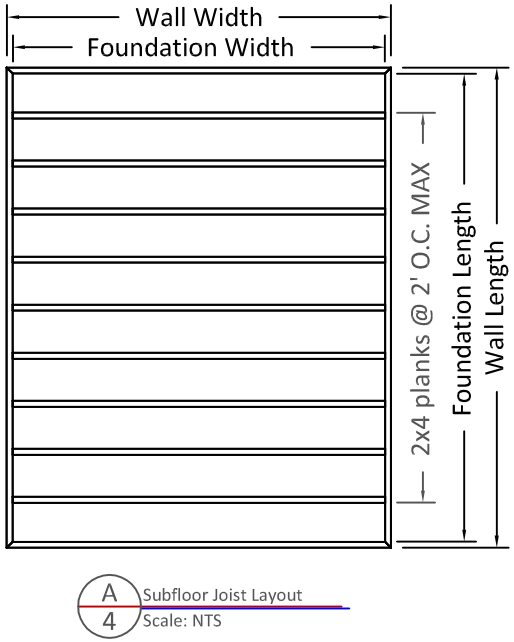


A
3
Concrete Slab Foundation
Scale: NTS

Congratulations! You now have a solid, long-lasting foundation to use for the playhouse!

Before beginning any construction, please ensure you have all the necessary safety equipment you will need. Always read and understand what the instructions are telling you to do BEFORE attempting any cutting. Make sure all measurements are precise (within $\frac{1}{16}$"), and any miter angles match the opposing angle shown.

1) To begin, you will need two longer (10-16') and two (8-12') 2x6 planks (see Materials) and nine (8-12') 2x4 planks. Measure and cut the planks to the dimensions as shown below. Remember: Always check the actual length of boards. Some lumber manufacturers cut boards to length, some cut their boards a little longer!



A/4 Subfloor Joist Layout
Scale: NTS

You should recognize the internal dimensions as the same as the concrete slab you just poured or the wooden foundation constructed.

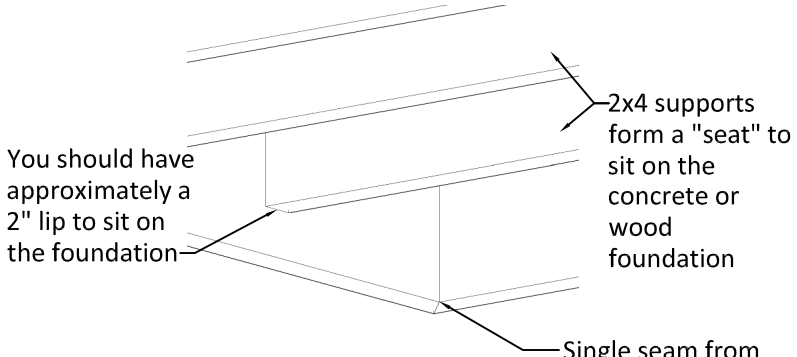
Hint: For aesthetic reasons, we recommend mitering 2x6 rim plank ends at 45°, it will create a nice, single seam. This is, however, NOT necessary!

2) Construct the rim of the flooring with 2x6s and the internal supports with 2x4s. Make sure the 2x4s are flush with the bottom of the 2x6 frame! Assemble with nails or screws.

Hint: These plans are designed to be very solid and structurally sound. however, should budgetary constraints exist, the floor supports may be reduced to 16" (24" MAX) O.C. (On Center). We recommend 12" centers, especially if you have a wooden foundation. 16" centers will work just fine if you have a concrete foundation

3) Once the frame is complete and the 2x4s are flush with the bottom of the 2x6 rim, flip the entire floor over and you should be able to "sit" the flooring on top of the concrete (or wood) foundation with a nice lip holding it tightly.

4) Use a rubber mallet or dead-blow hammer to tap the frame tightly onto the foundation.



A/5 Joist Detail
Scale: NTS

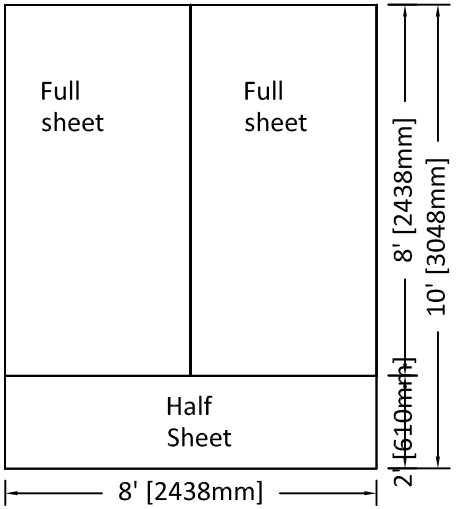
B/5 Sub-floor on Concrete
Scale: NTS

Materials

Description:	Qty:
2x6x10' planks	2
2x6x8' planks	2
2x4x8' planks	9

For the flooring, we would recommend you spend a little extra and purchase some nice $\frac{3}{4}$" cedar or oak plywood, or if you are planning on using carpet, $\frac{3}{4}$" pine plywood will do just fine. Either way, we recommend using moisture barrier on the floor before laying the plywood flooring to prevent moisture from rotting the sheeting out from the bottom. Oak and Cedar have a much higher moisture tolerance than pine. We are assuming the playhouse is NOT going to be carpeted and will therefore continue as though hardwood flooring will be used. The principle is the same either way.

1) To begin, since the sub-floor should be 8'x10', you should be able to place two full 4'x8' plywood sheets right on top of the sub-floor and tack in place. Make absolutely sure the corners are flush and square or you will risk having to either rip one of the plywood sheets or pull up the flooring and try again!



A/6 Floor Sheathing
Scale: NTS

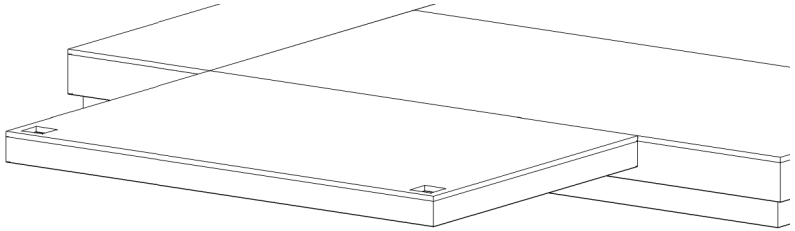
As shown from the diagram above, you will have to rip one sheet of plywood down the center. The easiest way to do this is to measure out 2' down the length of the plywood sheet and use either a table or circular saw to rip the sheet to it's proper dimensions. Hint: This goes WAY smoother with a snap line (aka. chalk line).

You should now have a nice platform with which to begin constructing the walls! Make sure the sheets are nice and level and the edges are square and flush. This will help around the time you begin the exterior sheeting.

Now we are going to begin working on the deck before we get too far ahead of ourselves. The deck will be a 6'x4' covered deck once you are done with the playhouse.

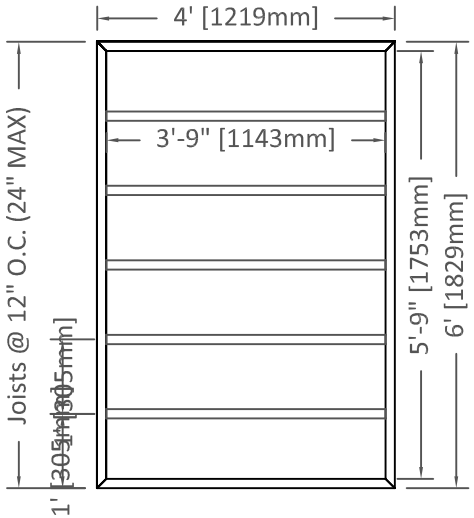
As with most actual houses, the deck will be a free standing deck just attached to the playhouse with nails.

We are going to make the deck a flush with the flooring so there is a smooth transition and nothing to step over.

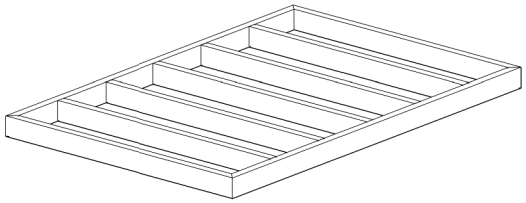


We are going to outline the steps for creating a 4'x6' deck on the front of the playhouse. For these plans, this deck is necessary to support the dormer that will cover the deck.

2) Begin by laying the deck as shown below with 2x4 planks. If you wish to use 2x6 planks, that will be fine, but the span is not wide enough to merit the use of 2x6 planks. Miter the ends as shown for a single seam finish.



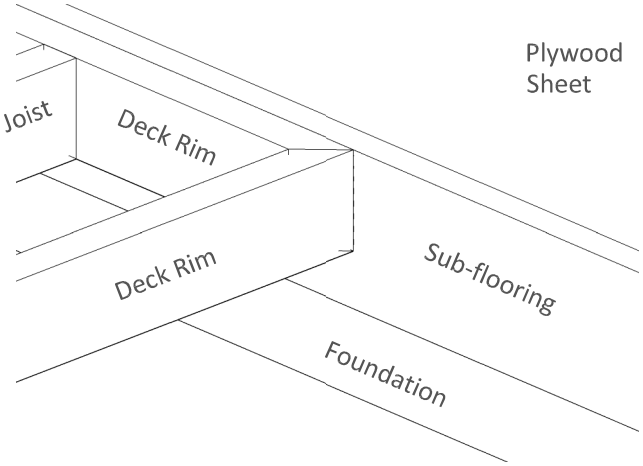
B/7 Deck Joist Detail
Scale: NTS



Materials

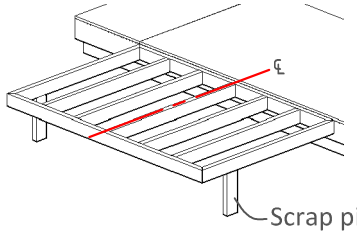
Description:	Qty:
4'x8' Plywood sheeting	3
2x4x6'	2
2x4x4'	7

1) Mark the centerline of the deck planks and the centerline of the platform sheeting. Match both of the centerlines to center the deck on the bottom of the platform sheeting.



A/8 Deck Sub-floor Detail
Scale: NTS

Hint: Notice the deck is flush with the bottom of the plywood sheeting. This is to make a nice, smooth surface to build on. You won't have to worry about stepping over the framework for the door or the front wall.



B/8 Deck Frame Layout Detail
Scale: NTS

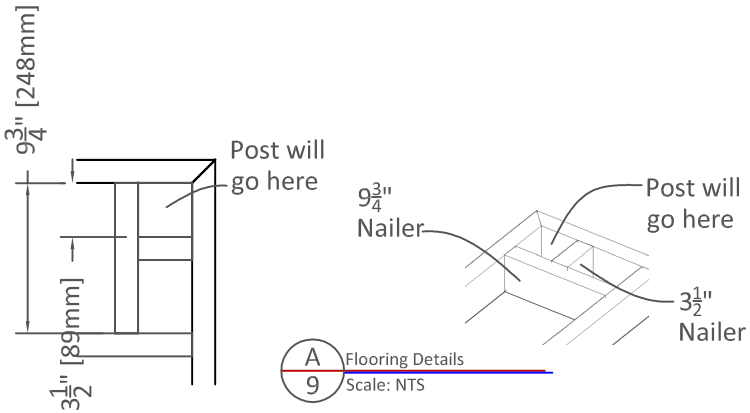
2) Use scrap pieces to support the open end of the deck. We will replace them with actual posts, so only tack the ends for support.

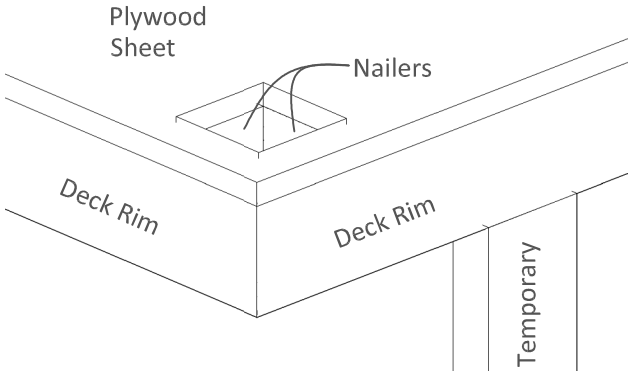
3) With assistance attach the deck rim to the platform sub-flooring. If you leveled correctly, you should be able to use the bottom of the platform sheeting as a guide to ensure the rim is level with the sheeting.

Hint: Notice the scraps are a little offset from the edge, this is so you are free to align the posts in the next step without having to remove the temporary supports.

C/8 Complete Frame Detail
Scale: NTS

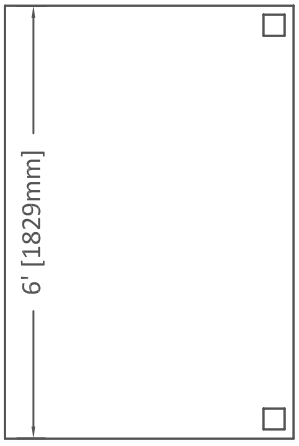
4) You will want to add some nailers to the inside edges of the post. These are easy to construct, simply follow the diagram below.

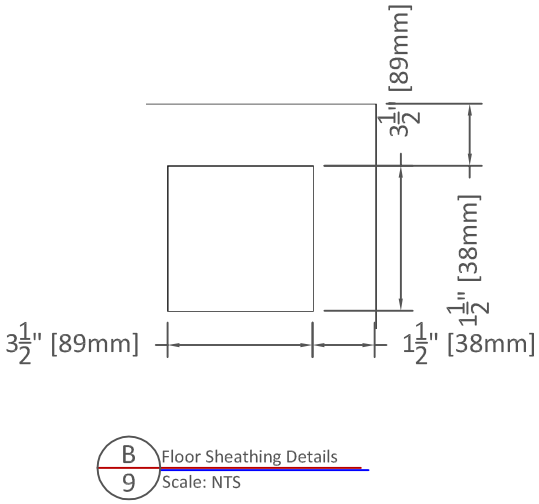


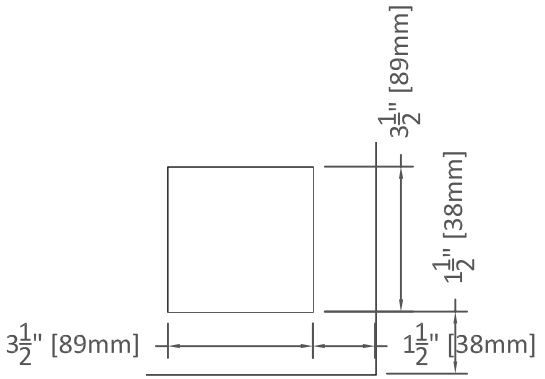


5) The last thing you will want to do before you put the posts in place is cut and place the decking sheeting (unless you feel you want to lift the sheeting 10' and slide it down the posts).

Cut a sheet of ¾" cedar or oak plywood (yes, it should be cedar or oak as it will be open to the elements) as shown below.



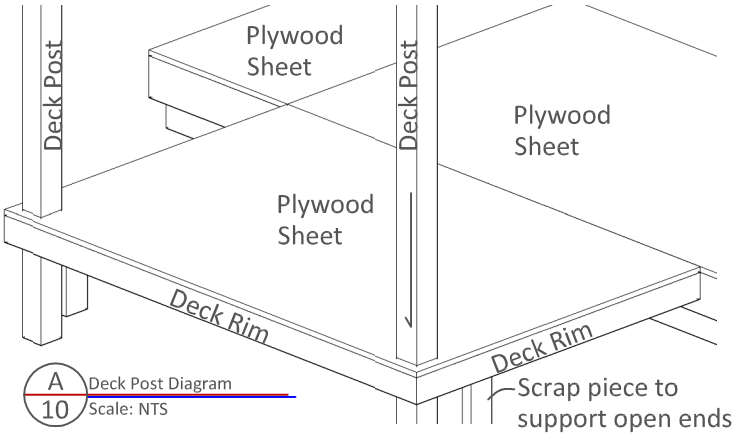




Materials

Description:	Qty:
4'x8'x¾" Cedar or Oak Plywood	1
2x4x1' Nailers	4

6) Alright, time to see if this works. You should be able to slide a 4x4 post right down into the holes in the decking. Leave the scrap pieces attached to take the weight of the deck for now.



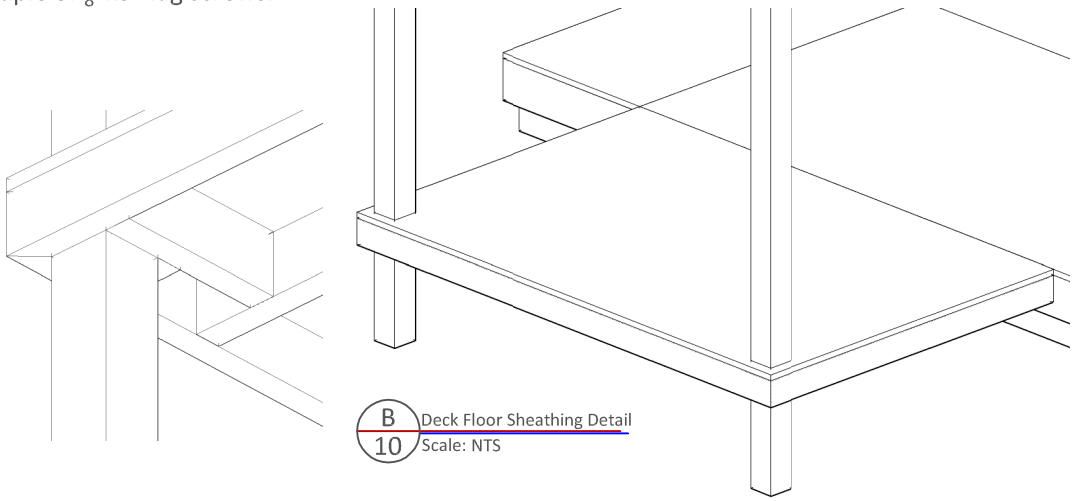
A/10 Deck Post Diagram
Scale: NTS

Hint: You may also dig a post hole and place the post into the hole to solidify the placement of the deck.

1. Dig your post hole directly under the corner of the deck rim. Make the hole at least 12" deep. We are using a 10' post to accommodate any variation in height anyway.
2. Once you have the hole dug, have an assistant hold the post right in the corner of the deck rim while you tamp the post into place.
3. Fill any gap around the post and use a tamping bar to solidify post in place.
4. Follow step 4) to continue.

7) Once you have the post anchored where you want it, with assistance, have your helper shimmy the deck up and down slightly until the deck is level on both sides and diagonally on the deck.

8) Once the deck is level, quickly nail or screw the rim to the post. If you wish, it is a good idea to go under the deck and attach the post, through the nailers, with a couple of $\frac{3}{8}$"x3" lag screws.



B/10 Deck Floor Sheathing Detail
Scale: NTS

Up to this point you should have a structure similar to the image below.

A
11
Completed Decking
Scale: NTS

Materials

Description:	Qty:
4x4x10' posts	2

Ok, you have the deck completed and you have a nice, strong foundation for the playhouse. On the next page, we will start detailing the wall structures.

Now, we are getting to the wall structures. Some things to remember:

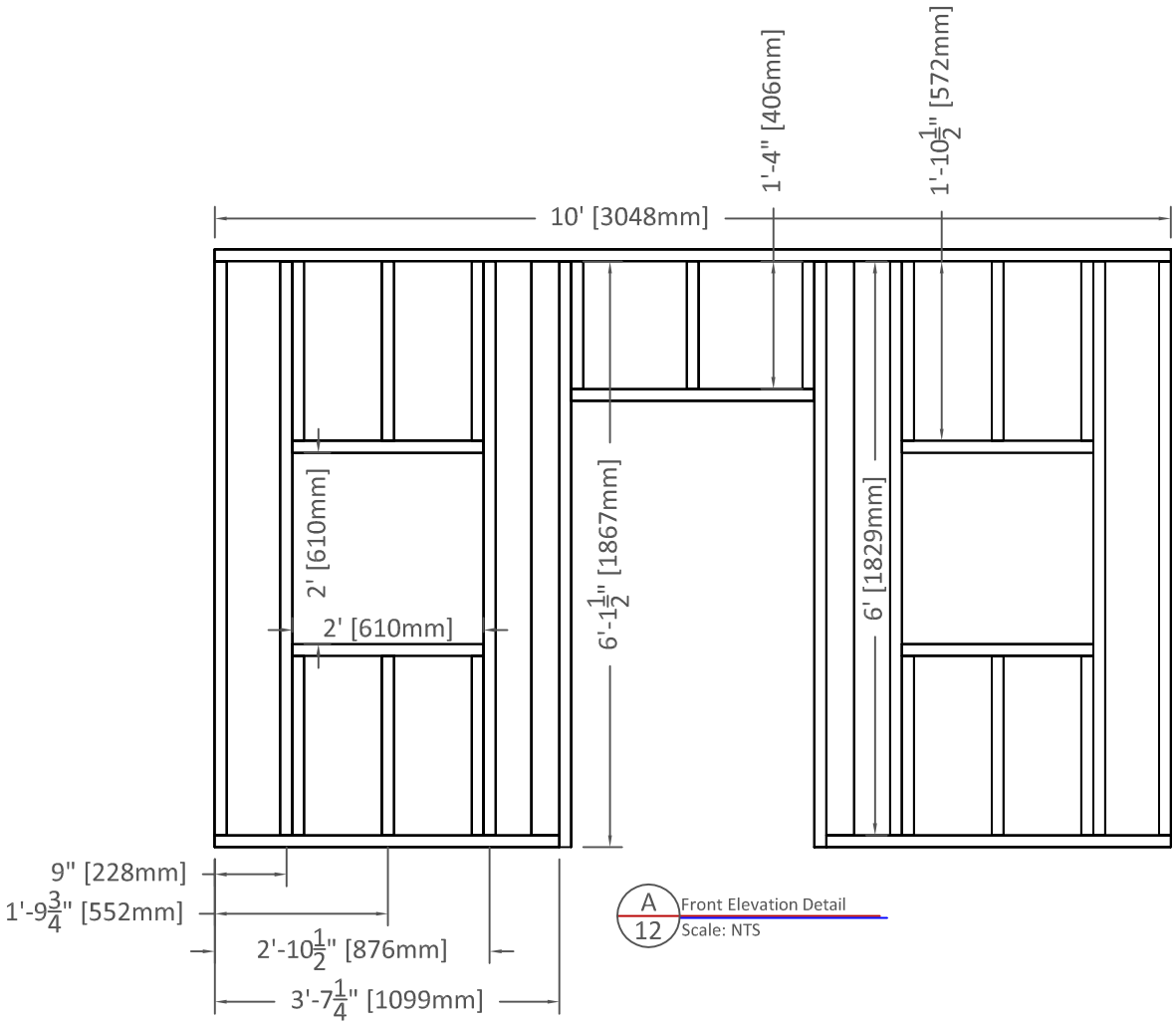
1) Always measure openings and cuts carefully!

2) Give yourself a small amount of rough opening space if you intend on purchasing windows and doors. We would recommend purchasing windows and doors prior to building wall structures so you may measure accurate rough openings. This set of plans will assist you in building some general doors and windows, but you may feel free to purchase doors or windows at your discretion. PLANS MAY NEED TO BE ALTERED!

3) These plans are to be intended as a guide ONLY! Should you choose to alter these plans at any time, remember to adjust measurements accordingly!

Now, time to start on the walls.

1) Start by cutting the entrance wall as shown below. Cut lengths carefully and make sure edges are flush and corners are square.



2) Assemble the entrance wall on the ground. Be careful when following the detail, there are many studs and it is easy to become confused. Refer to the full-color diagram below if you are having problems keeping the components in order.

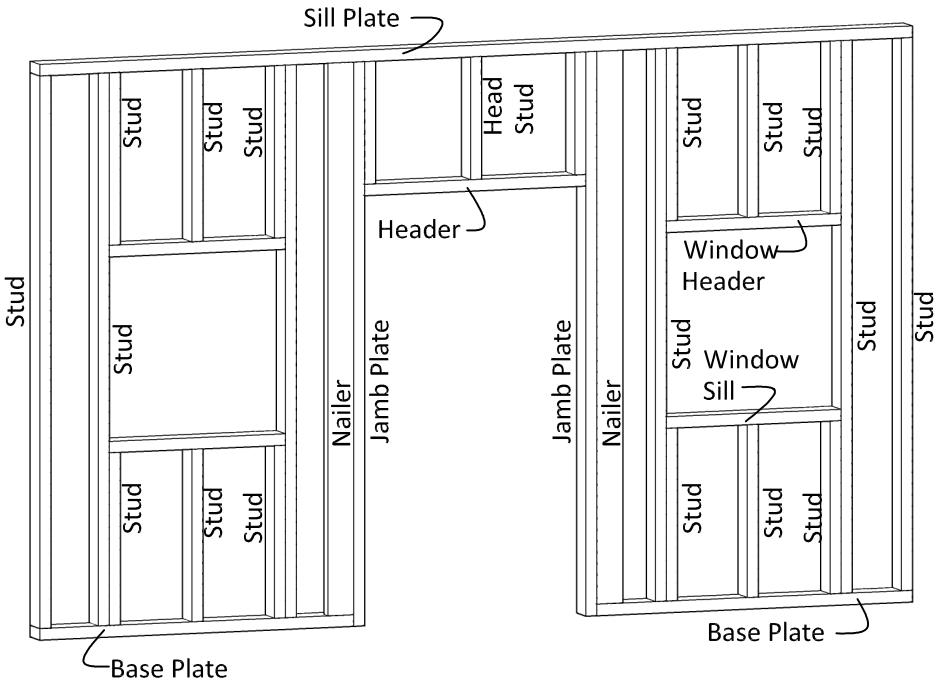
3) Start with the main outside frame. Assemble the base plate, sill plate, jamb plates and exterior studs.

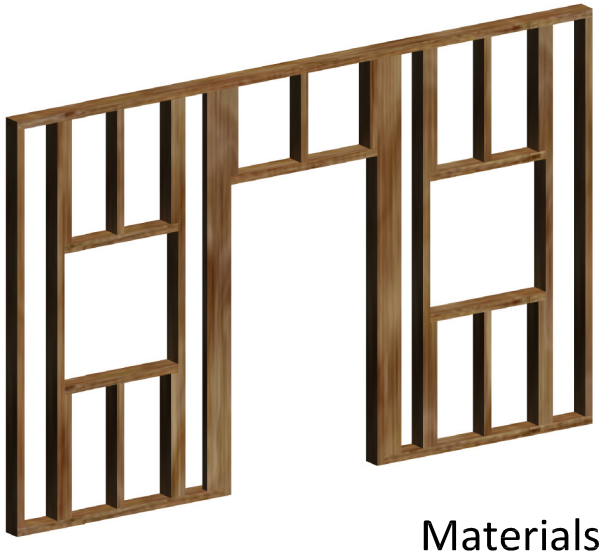
4) Assemble one window structure at a time. Use a speed square and level to ensure timbers are straight vertically and horizontally. Repeat for the other side.

5) Layout the location of the window assemblies with a pencil and insert into the assembled exterior frame.

6) Assemble the door header assembly and locate in the main door location. These dimensions may change depending on if you decide to purchase or build the door! Measure carefully!

7) There is a 6' vertical nailer on either side of the door frame. You will need these if you follow these directions and make your own door. If you purchased a door to install, you may neglect to install these nailers.



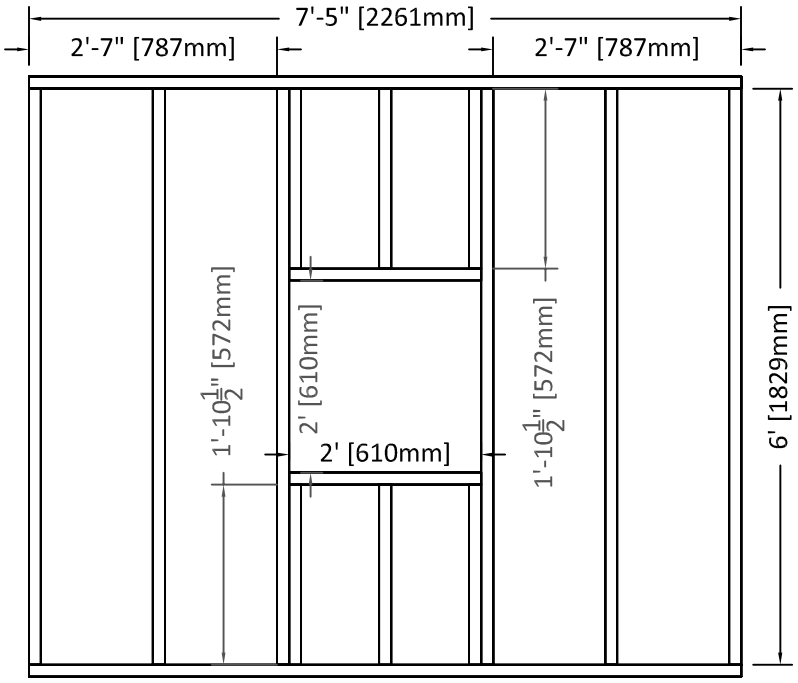


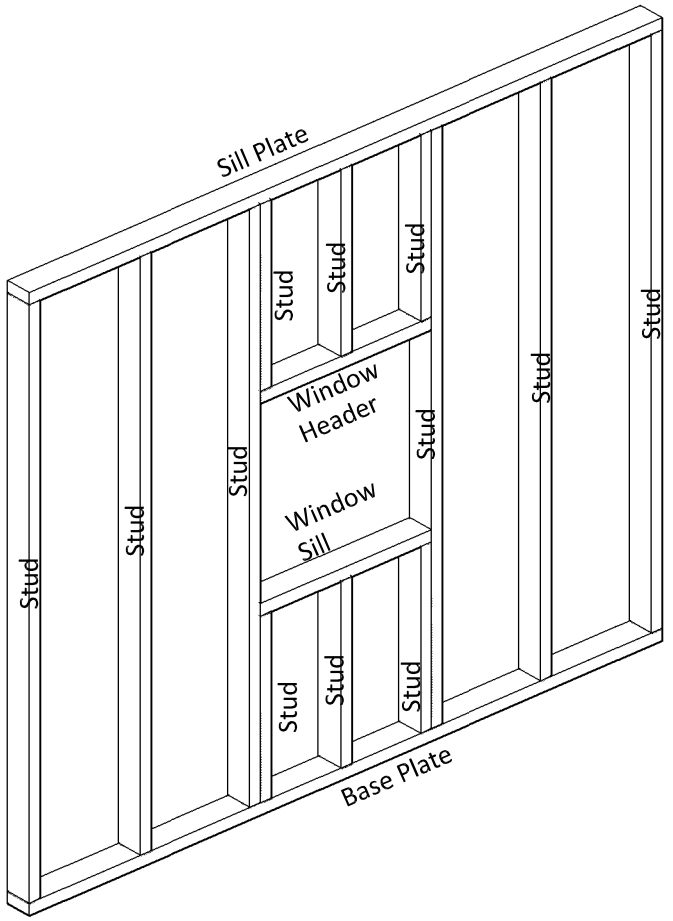
A 13 Front Wall Diagram
Scale: NTS

Materials

Description:	Qty:
2x4x6' Stud	6
2x4x6'-1½"	2
2x4x2'6½" Header	2
2x4x1'4" Header Support	3
2x4x2' Window Sill & Header	4
2x4x1'10½" Window Stud	12
2x4x3'7½" Base Plate	2
2x4x10' Sill Plate	1
2x4x6' Nailer (optional)	2

1) For the side walls, the biggest thing is to center the window assembly properly. As with the front wall, follow the diagram below and layout the wall on the ground before assembling.





As you can see, the side walls are not as complex as the front wall. But you will need two of these side walls.

2) Once the walls are assembled, have an assistant help you put them in place on the platform. They should butt against the front wall.

3) Use a level to ensure the walls are straight vertically and attach to the flooring with nails or screws.

4) Assemble the side walls on the ground. Be careful when following the detail, there are many studs and it is easy to become confused. Refer to the full-color diagram below if you are having problems keeping the components in order.

5) Start with the main outside frame. Assemble the base plate, sill plate, and exterior studs.

6) Assemble the window structure. Use a speed square and level to ensure timbers are straight vertically and horizontally.

7) Layout the location of the window assemblies with a pencil and insert into the assembled exterior frame.

8) Attach the remaining studs as shown.

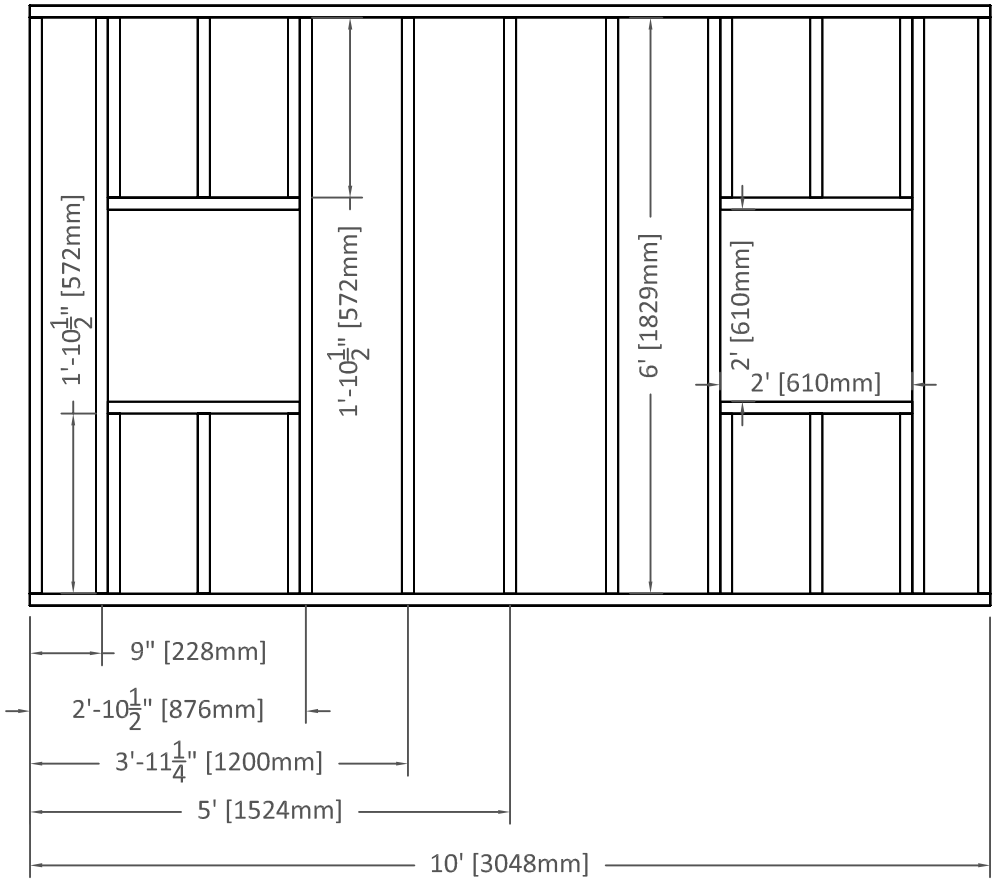
9) Repeat steps 1-9 for remaining side wall.

A/15 Side Wall Diagram
Scale: NTS

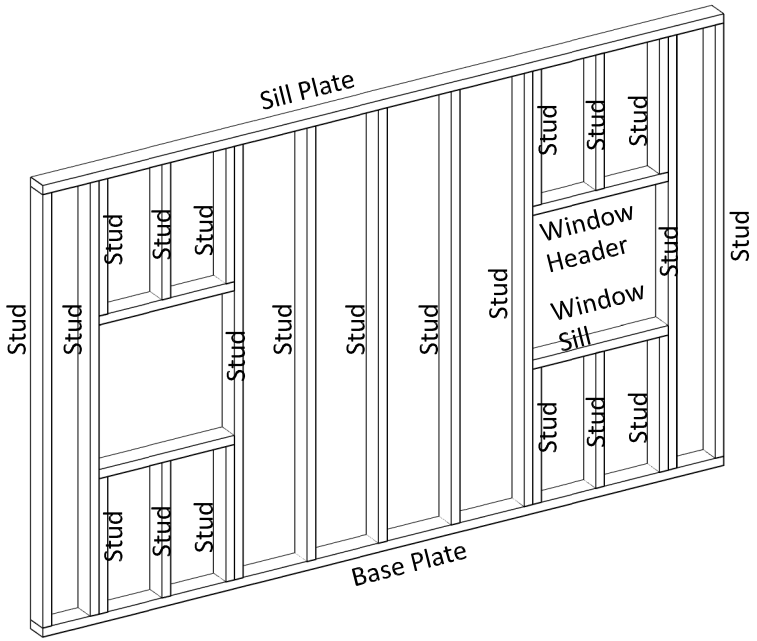
Materials

Description:	Qty:
2x4x6' Stud	12
2x4x7'5" Plate	4
2x4x2' Window Sill & Header	4
2x4x1'10½" Window Stud	12

1) Start by cutting the rear wall timbers as shown below. Cut lengths carefully and make sure edges are flush and corners are square.



A/16 Rear Wall Elevation
Scale: NTS



4) Assemble the rear wall on the ground. Be careful when following the detail, there are many studs and it is easy to become confused. Refer to the full-color diagram below if you are having problems keeping the components in order.

5) Start with the main outside frame. Assemble the base plate, sill plate, and exterior studs.

6) Assemble the window structures. Use a speed square and level to ensure timbers are straight vertically and horizontally.

7) Layout the location of the window assemblies with a pencil and insert into the assembled exterior frame.

8) Attach the remaining studs as shown.

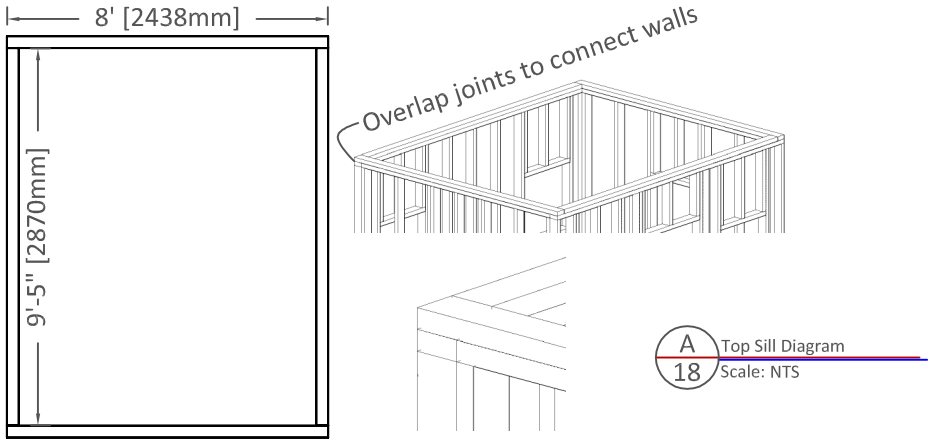
A/17 Rear Wall Diagram
Scale: NTS

Materials

Description:	Qty:
2x4x6' Stud	9
2x4x10' Plate	2
2x4x2' Window Sill & Header	4
2x4x1'10½" Window Stud	12

Before we go on to the roofing, you will want to add a top sill plate to the very top of the walls just to hold them together and to support the weight of the rafters.

1) Simply cut boards as shown below and overlap the joints of the walls. Attach the walls by nailing down through the top sill plate.



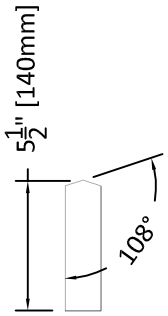
A/18 Top Sill Diagram
Scale: NTS

Roofing can be the most complicated part of any construction project, especially when you throw in a dormer as with these plans. If you have the experience and prefer a different method of construction, you do not have to follow these plans exactly. Just remember to alter measurements if you should alter the plans at all.

Rafters are the part of the roof that support the loads the roof will take (i.e. snow, rain, roof sheeting). It is important that you check the planks to be used for any cracks that may reduce the load the roof will be able to support. Even though these are small spans, we still want to construct them as though it is a full scale house for safety reasons.

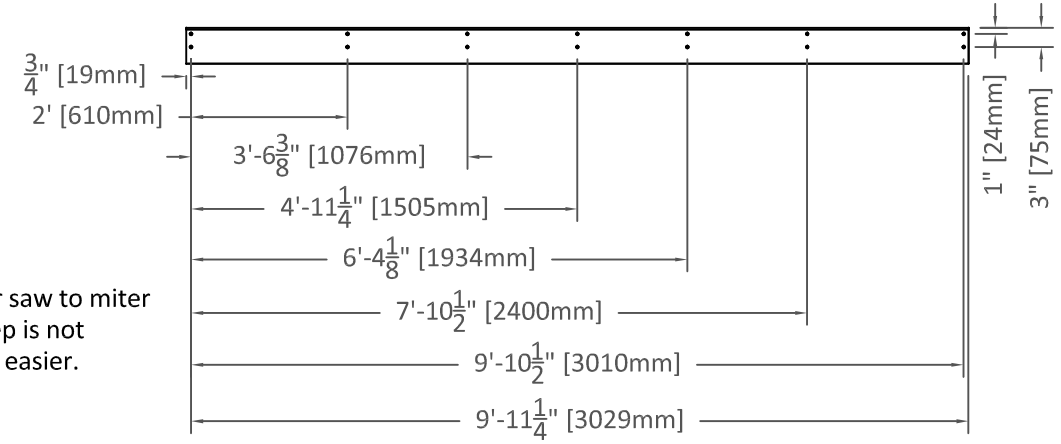
Also, connections are at the discretion of the builder. You may opt to use rafter hangers should you choose. *You do NOT have to follow the method shown here.* It is a structurally sound method and possibly the best method for the free standing rafter configuration we will be showing. Should you decide to purchase pre-fabricated rafters, feel free to do so.

1) OK, we will start with the girder. The girder is the main plank that runs across the longest span of the roof. In this case, it is the plank that runs the length of the roof and attaches the rafters. Layout and drill $\frac{3}{8}$"Ø holes in the locations shown.



B/18 Girder Details
Scale: NTS

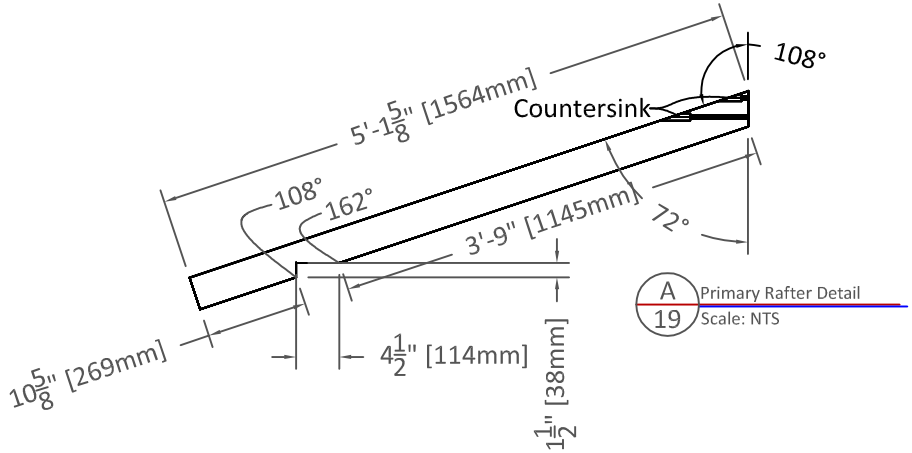
If you have the skill, use a table or circular saw to miter the crown of the girder as shown. This step is not necessary but will make the roof sheeting easier.



You will notice these holes will correspond with the center of the rafters to be connected. The idea is to bolt the rafters and the girder together to essentially make them all "one piece".

We will start with the first rafter and the rest are essentially the same idea. Layout all cuts and holes with pencil first. Make sure cuts and lengths are precise. Use a table saw or circular saw, or even a miter saw will work with the angles. Wear safety equipment and be careful when using power tools.

2) Layout a single plank and cut as shown below. Layout the rafter on the ground and check to make sure the holes will line up.
HINT: A good way to line up the holes is to hold the rafter, (after it has been cut) against the girder, insert a $\frac{3}{8}$"Ø bolt into the hole on the girder, give it a good "smack" with a hammer and it will leave a nice indent exactly where you need to drill the $\frac{3}{8}$" shaft.



3) Repeat the process for the opposing rafter.
Hint, Lay the first rafter over the next, and use the first rafter as a guide. Make sure the first rafter looks good, the holes align. Be careful and layout all cuts.

4) Once you have the rafters cut out, and the $\frac{3}{8}$"Ø holes cut, align them against the girder and make sure you can see through the holes in both rafters and the girder. Take a $\frac{3}{4}$" spade drill and, using the $\frac{3}{8}$"Ø holes as a guide, drill approximately $\frac{1}{2}$-1" into each rafter hole. Be sure to leave plenty of wood.

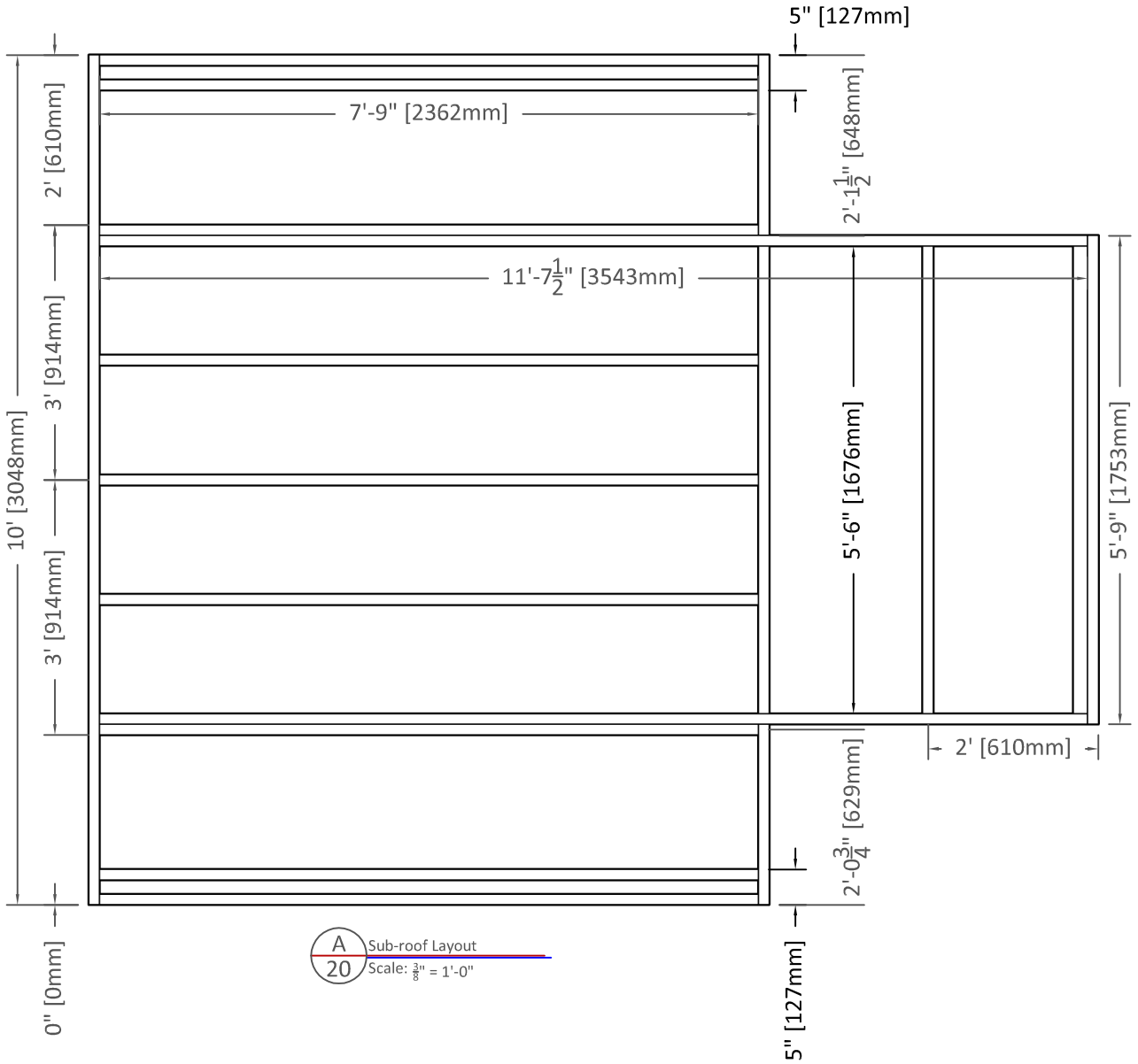
The objective is to just make the hole big enough to sink a $\frac{3}{8}$Øx15" bolt into the bottom holes ($\frac{3}{8}$Øx4" bolt into the top holes) over the bolt head, washers and nut so they do not impede the roof sheeting.

Materials

Description:	Qty:
2x6x10' Girder	1
2x4x6' Rafter	2
$\frac{3}{8}$Øx15" Bolt with Nut and washers	1
$\frac{3}{8}$Øx4" Bolt with Nut and washers	1

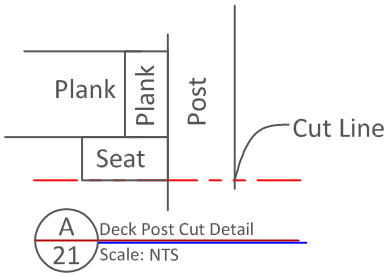
Before we get too far ahead of ourselves, you will want to complete the sub-roofing. This is the layout of the planks that you will be able to nail roofing to and offer a seat for the rafters to sit upon.

5) Layout the sub-roofing as shown below. It is this point that you will need assistance to layout the correct height of the deck posts as the sub-roofing will be supported in the front by the posts. Hint: Assemble in sections. Complete the center first, then get the sides and finish off the rear with the plank across the back.

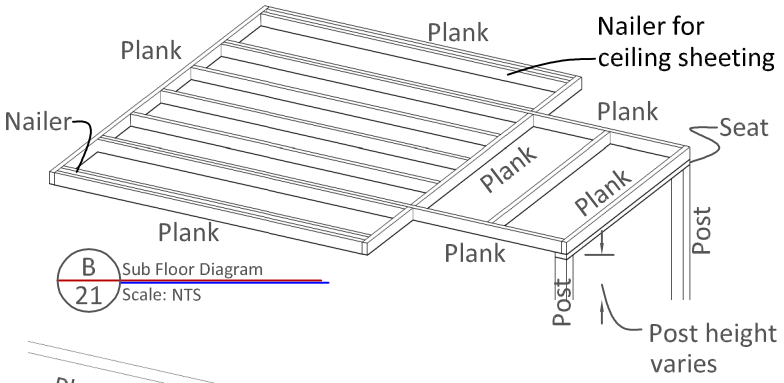


6) To find where to cut the deck posts, after you have the sub-roofing constructed, have an assistant help you lift the sub-roof onto the top sill. Square up and level the corners the best you can while your assistant holds the front of the sub-roofing against the posts.

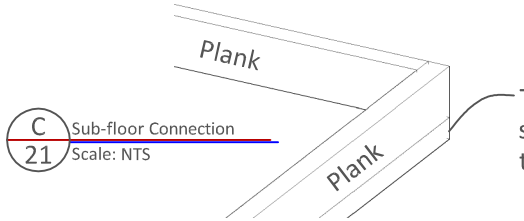
7) Use a pencil to mark where the sub-roof connects with the posts. Make sure you use a level to ensure the sub-roof is level. See diagram below.



A 21 Deck Post Cut Detail
Scale: NTS



B 21 Sub Floor Diagram
Scale: NTS



C 21 Sub-floor Connection
Scale: NTS

The sub-roof will sit on a seat spanning the distance between the posts

8) Once you get the post cut, have your assistant help you align the sub-roof on the walls and posts. Attach with nails or screws to the structure. You should now have something like the diagram below.

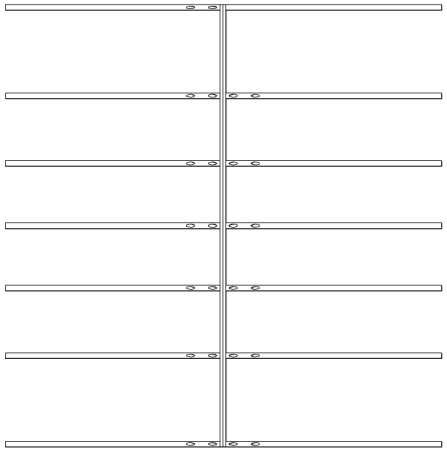
Now that the sub-roof is on, you can focus on getting on the roof.

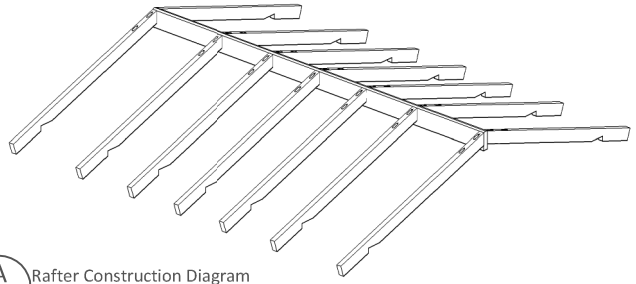
Materials

Description:	Qty:
2x4x7'9" Plank	9
2x4x11'7½" Plank	2
2x4x5'9" Plank	4
2x4x2'1½" Plank	2
2x4x10' Rear Plank	1

D 21 Structure Diagram
Scale: NTS

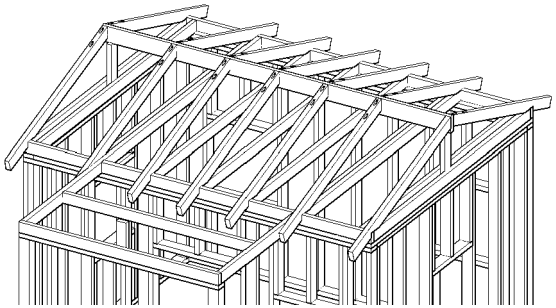
1) Now that you have the sub-roof on and you have a guide to build the rafters, construct and assemble the main portion of the roof. Do not worry right now about cutting rafters differently, just get the main rafters together and we will work on the dormer soon.





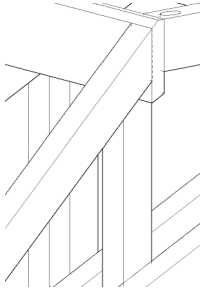
A/22 Rafter Construction Diagram
Scale: NTS

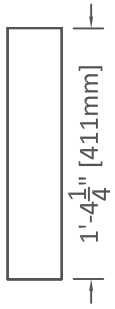
2) Now, with assistance, put the rafters up on the roof. Go rafter by rafter and ensure the seats are snug against the sub-roof exterior. Align the spacing and make sure the rafters are square with the sub-roof. The roof should eventually self-square as you go along. Just make sure all the seats are snugly in place and corners are square. The rafters should align directly above the sub-roofing underneath.



B/22 Roofing Diagram
Scale: NTS

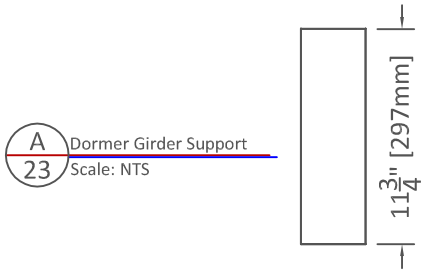
If properly constructed, the rafters should feel very solid. If they give too much toward the center, go ahead and cut a 2x4 piece as detailed below and put it under each the girder on each sub-floor piece for extra support.

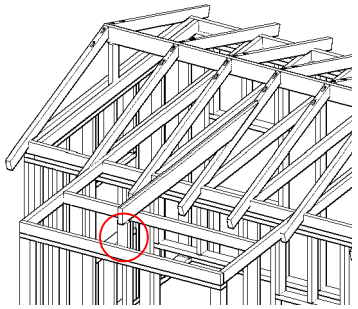




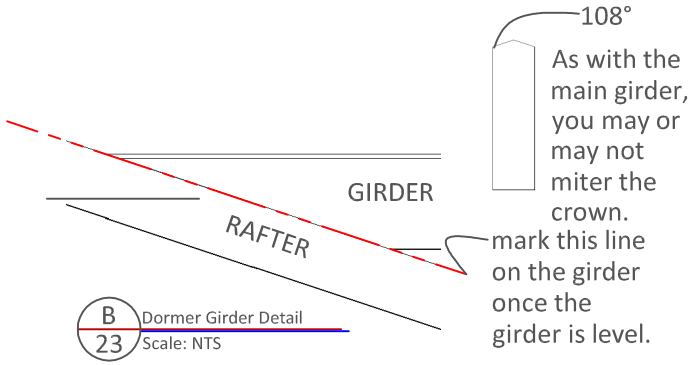
C/22 Girder Support Detail
Scale: NTS

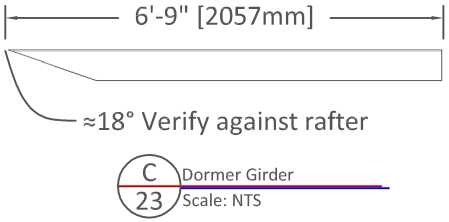
For the dormer, start by cutting a plank to the dimensions shown below. This is going to be a dormer girder support. You will want it to support the dormer girder while you take measurements.



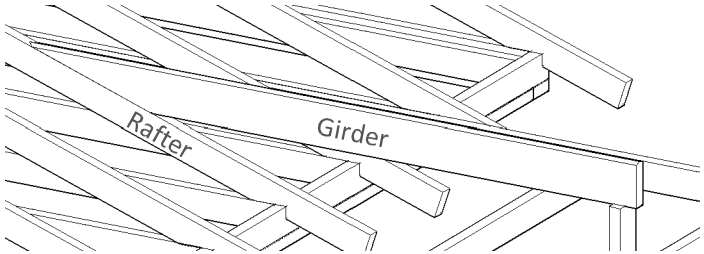


3) For the girder, cut a 2x6 plank as shown below. Ideally, you should have an assistant hold one end of the girder on the support you cut above. While your helper holds the end, get on a ladder and hold the other end beside the center rafter. Use a level and move your end up and down until the girder is horizontal. Mark on the girder, the line it makes with the rafter. See the detail below for an example.





4) Align the cut girder on the center rafter. You can screw or nail the end of the girder into the rafter. For the deck end, just toe-nail the nails or screws to anchor the girder in place. Or just use a rafter hanger.

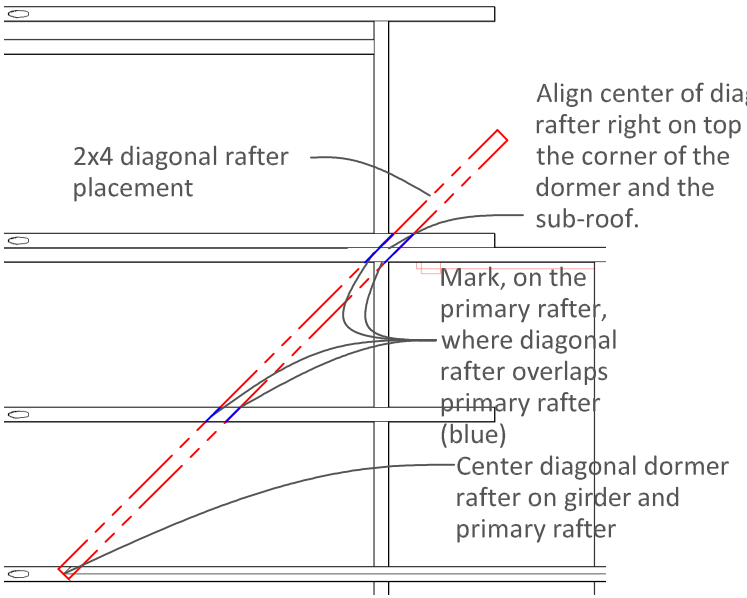


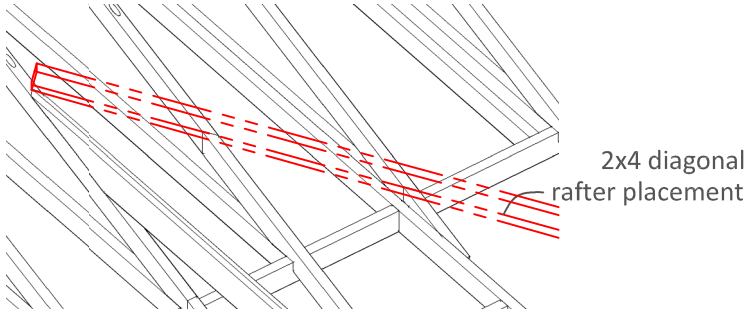
Materials

Description:	Qty:
2x4x6' Rafter	12
2x6x6'9" Girder	1

1) For the dormer, it can be relatively easy with preparation and planning. To start, you will need to align a 2x4 rafter centered on the rafter (where the girder and rafter meet) and align it diagonally so it is centered in the corner where the dormer and the sub-floor structures meet.

2) Mark on the RAFTERS below the 2x4 where the dormer rafter will intersect. See the diagrams below.

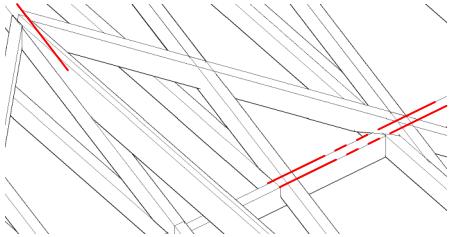




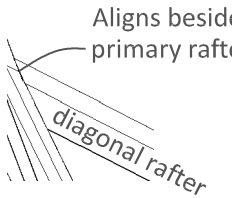
A/24 Hip Rafter Diagram
Scale: NTS

3) While you have the dormer rafter up there, go ahead and lay out where it will cross the sill plate and the support rafter. On the diagram below, the diagonal rafter will sit something as shown. The red shows where you need to mark to be able to make the correct cut cut so the diagonal rafter will sit.

B/24 Hip Rafter Cut Diagram
Scale: NTS

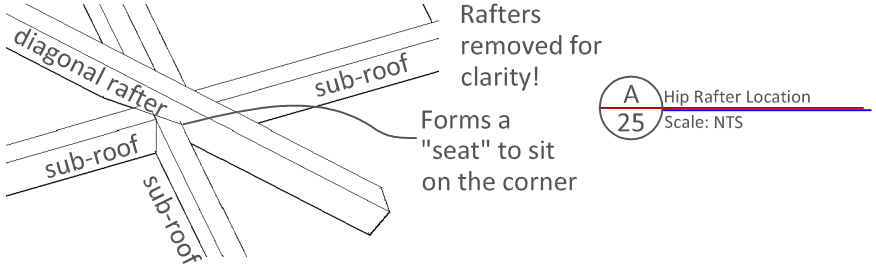


4) Cut the rafter where marked for the top. It should align right inside the primary rafter (as shown below).



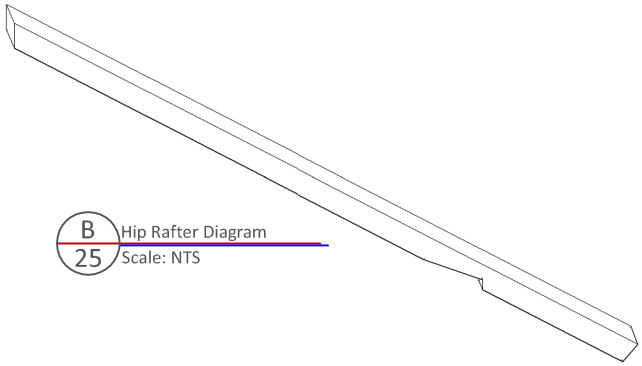
C/24 Hip Rafter Diagram
Scale: NTS

5) The bottom edge should be cut so it forms a "seat". Just like on the primary rafters (see diagram below).



A/25 Hip Rafter Location
Scale: NTS

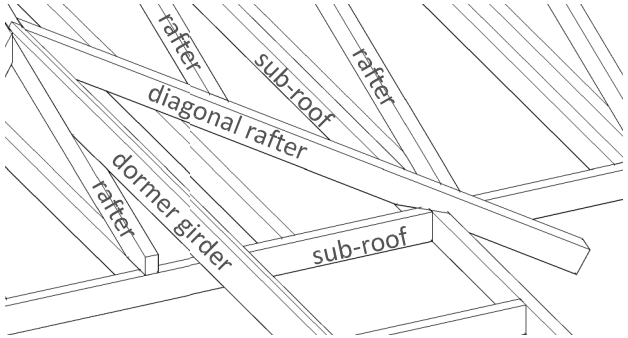
6) The rafter should look something like the diagram. You will need two of these. Simply follow the same steps for the opposite side.



B/25 Hip Rafter Diagram
Scale: NTS

7) Remember marking the primary rafters? You need to cut those rafters at the marks. BE CAREFUL! Have an assistant hold the rafters away from where you are cutting. They should hold themselves if properly assembled, but SAFETY FIRST!

8) Completing one side at a time, once you have the primary rafters cut where they intersect the diagonal rafter, you SHOULD be able to slide the diagonal rafter in the space. To make the process easier, simply get rid of the bottom piece of the primary rafter.

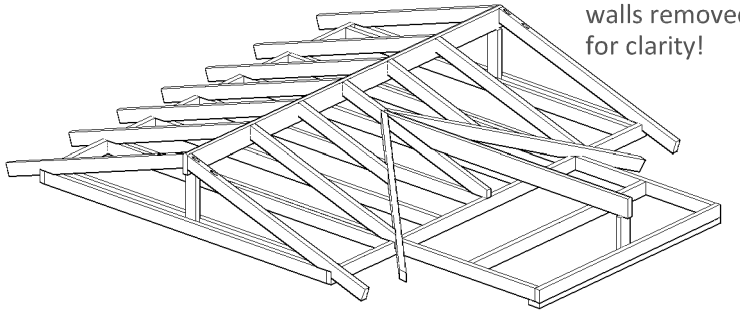


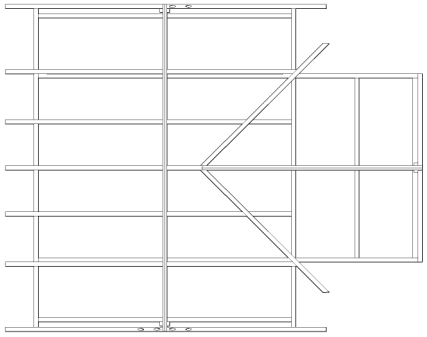
C/25 Hip Rafter Location
Scale: NTS

Materials

Description:	Qty:
2x4x6' Diagonal Rafter	2

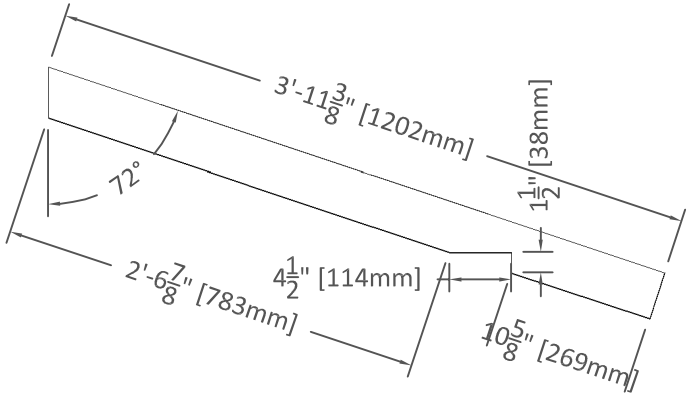
To this point, you should have a roof structure that looks similar to the diagram below.





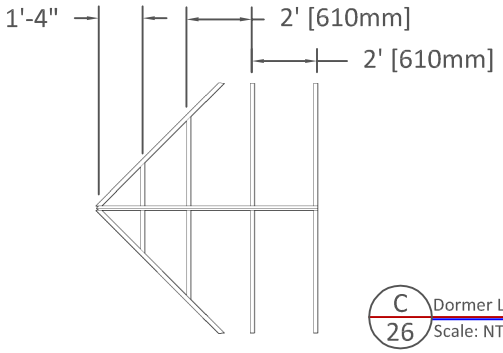
A/26 Dormer Layout
Scale: NTS

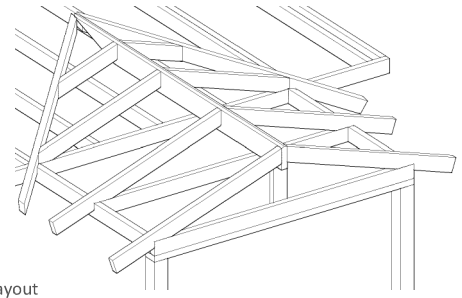
1) If you got the diagonal rafter completed the rest of the rafters should be a piece of cake! They are constructed very similar to the primary rafters. Refer to the details below.



B/26 Dormer Layout
Scale: NTS

2) You will need 4 of these rafters (2 per side). You will notice you are going to start running into the diagonal rafter. That's exactly what you want to do. Simply layout the dormer rafters similar to the technique used for the diagonal rafters. Have an assistant hold the dormer rafter in place on the dormer girder and mark where your cuts will need to be. Make sure the rafters align properly. Use a speed square to ensure they are square.



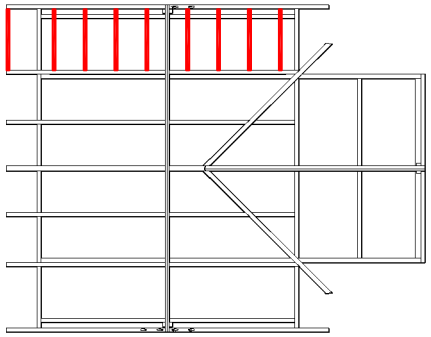


C/26 Dormer Layout
Scale: NTS

You are essentially done with the roof structure. If you wish, you may add purlins to the structure. Purlins are perpendicular planks that offer nailing space and keep the rafters straight.

The choice is yours. For a full scale house, we would describe how to install purlins and to cut the seats out of the rafters, but for the short spans for this playhouse, purlins are not necessary. The roof sheeting will take care of any wobble in the rafters and after you have the first sheet of roofing down, you should be able to get on the roof without incident

Here is a quick diagram to show how purlins work, but we will nto get into specifics, after what you have just completed, purlins are a cake-walk.



A 27 Dormer Purlin Layout
Scale: NTS

Normally, we would not recommend this method of spacing. Considering the roofing will be covered, it is perfectly acceptable. If you would like an even more detailed, stronger method for spacing using purlins, look in the appendix included with these plans.

Congratulations! The structural portion of the build is complete!

B 27 Structure Diagram
Scale: NTS

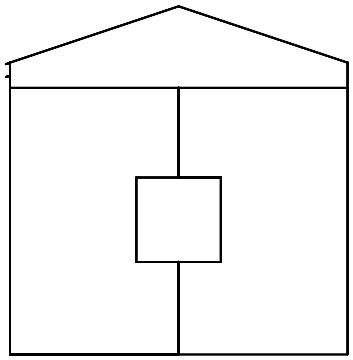
Materials

Description:	Qty:
2x4x6' Dormer Rafter	6

Sheeting is relatively simple and can be completed easily. The primary tools you will be using are a jig saw, table saw (if you have one) and a circular saw. We would recommend at least sheeting the exterior with pine plywood. You may add additional sheeting, which we will detail further in the appendix, but it will not be required.

1) OK, we recoomend you start with the side walls. The total length of the side walls is 8'-0" so you will need 2 sheets for the walls, and 1 sheet for the roof sheeting.

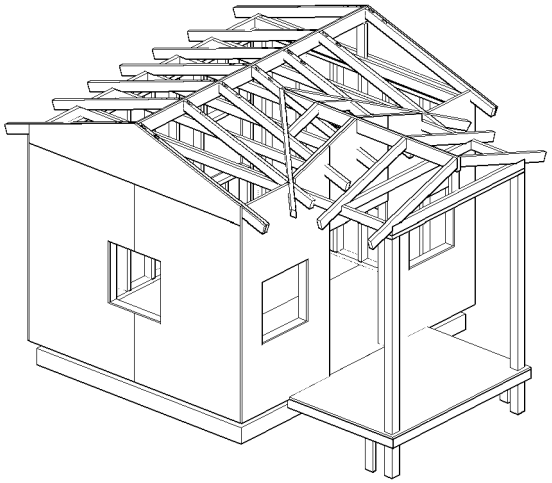
2) Cut sheeting as shown below. Always check your dimensions. We recommend having an assistant help you hold the roofing sheet up so you can tack the sheet to the rafters. Then take a pencil and layout the cut you need to make. Don't forget the filler piece!



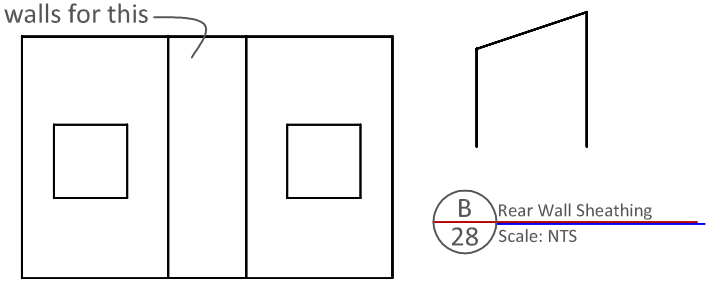
A 28 Side Wall Sheathing
Scale: NTS

Take your time and cut lines and angles carefully. We recommend tacking the sheeting up to the walls and laying out the window cut. Don't forget to drill yourself a pilot hole for the jigsaw. Drill it just inside the corner so you have a place to start.

3) We will continue with the rear sheeting. This is possibly the easiest sheeting you will do. We have included the miter angle should you wish to butt the lip of the sheeting up, under the rafters.



Use the rest of the roof sheeting from the side walls for this

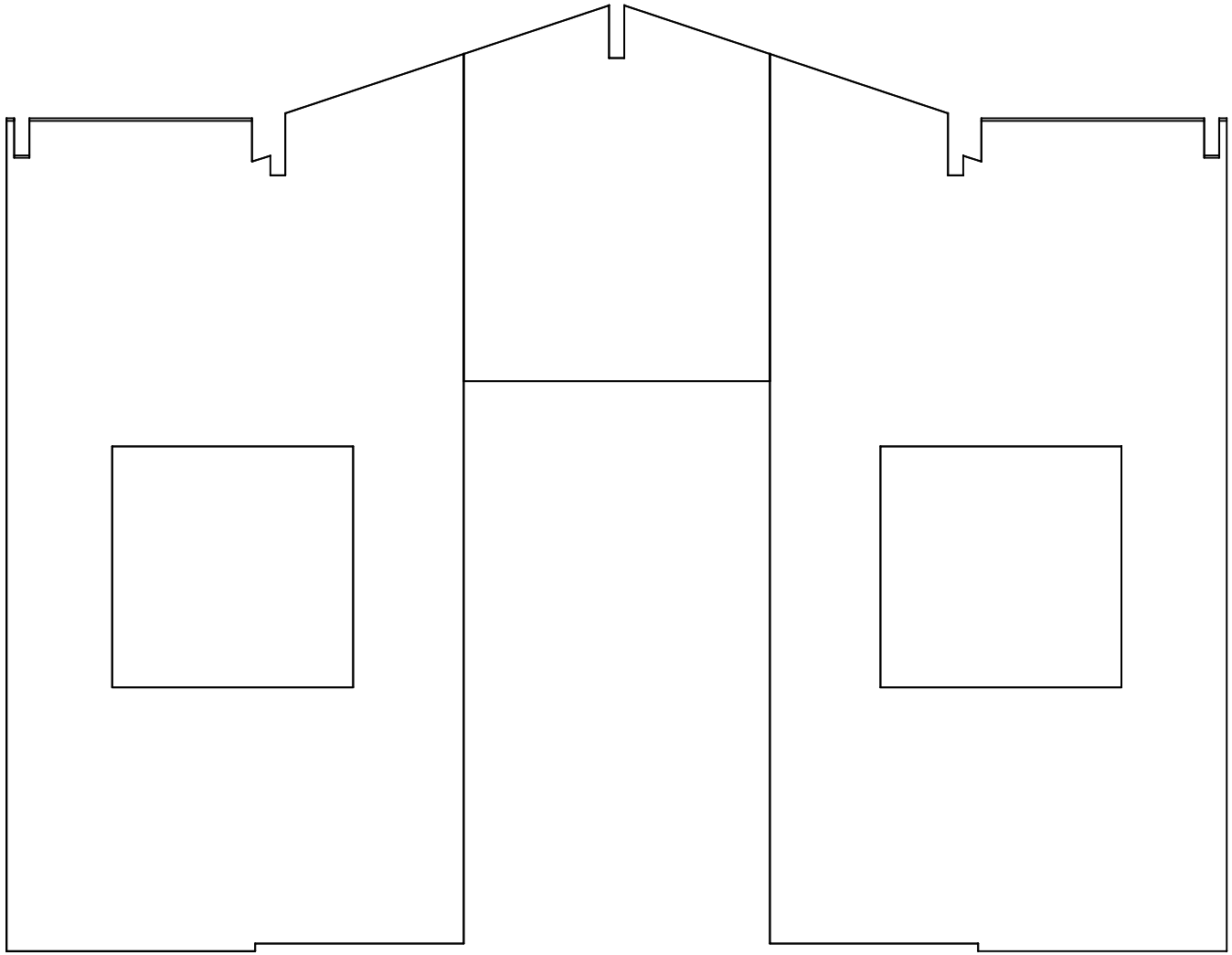


B 28 Rear Wall Sheathing
Scale: NTS

Materials

Description:	Qty:
4x8'x$\frac{3}{4}$" Plywood sheeting	13

4) The front wall is the more complicated sheeting of all the sheeting, mainly because you have to worry about the rafters at all angles. Just pay attention. Plan your cuts and follow the diagrams below.



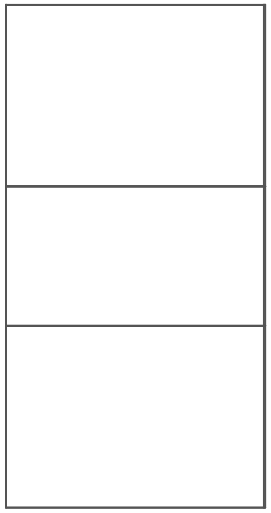
A
29
Front Wall Sheathing
Scale: NTS

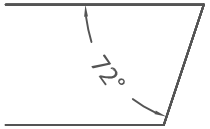
To this point, the playhouse is starting to look like a playhouse!

A/30 Structure Diagram
Scale: NTS

Now for the roof sheeting. We will first get the main portion and build the dormer sheeting to the main roof. Don't forget to put those filler pieces on the ends of the exterior rafters, you will need them to align the sheeting properly!

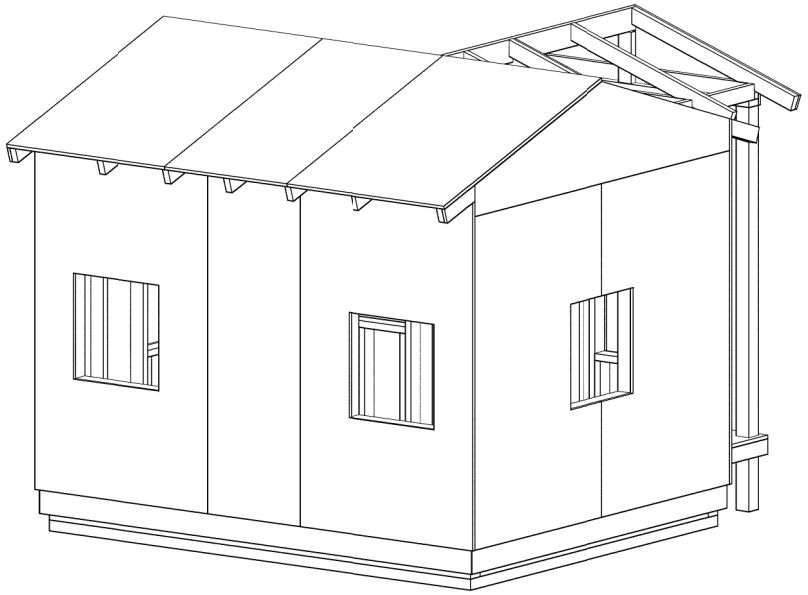
1) We will start with the rear of the playhouse, since it is easiest. Simply cut sheets of $\frac{3}{4}$" plywood (we would recommend cedar or oak for the roofing) as shown below.



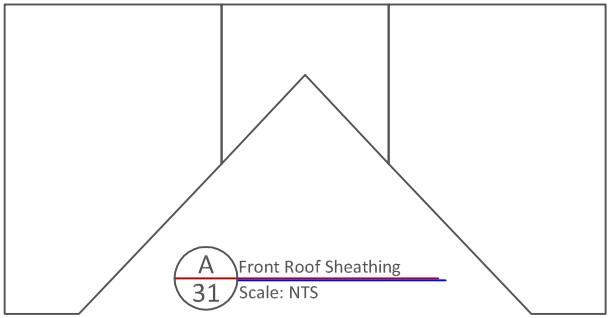


You do NOT have to miter the ends, but it offers a cleaner connection at the crown. This applies to ALL roof sheeting!

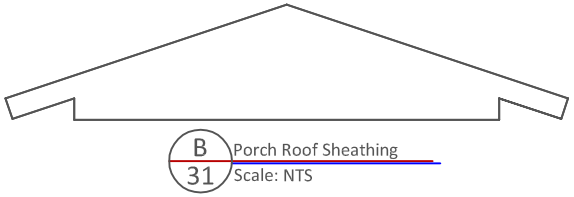
A/30 Roof Sheathing Diagram
Scale: NTS



2) Front roof sheeting is much the same as the rear, you just need to account for the dormer.

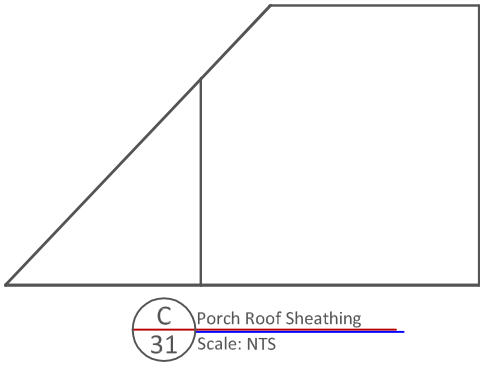


3) The dormer sheeting isn't too bad either. Make sure you seal the seam with the front roof sheeting! You will want to cut out the very front cover and attach first!



Materials

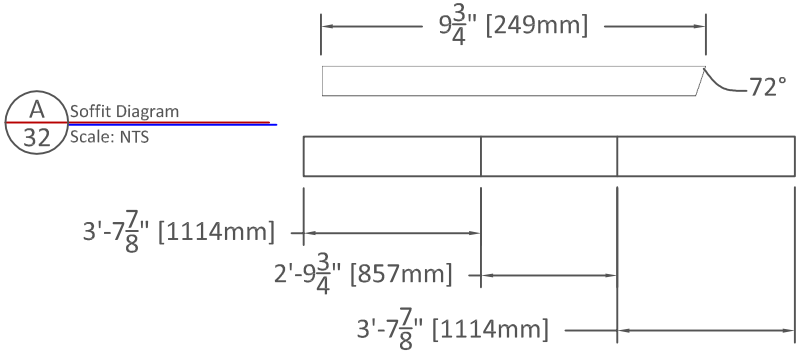
Description:	Qty:
4x8'x¾" Plywood Sheet	9

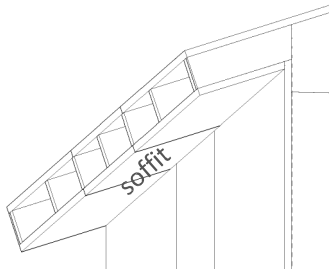


After the windows and doors are on, you will probably notice the playhouse is still missing something. You can see all the connections and the rear roof is still open.

Trim work is basically "hiding all the long connections and covering them with solid piece of wood or trim board. In this instance we will use 1x8 board.

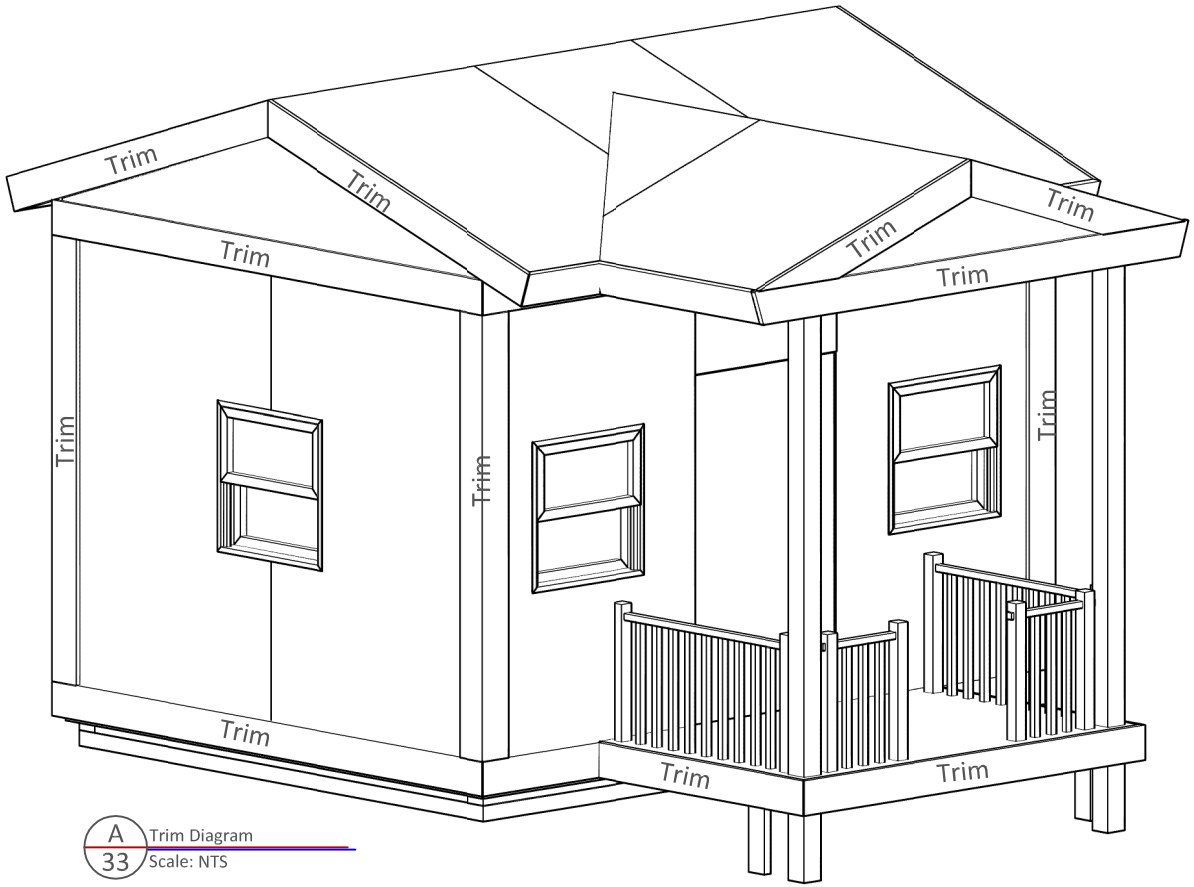
1) First thing first, we need to add a soffit to enclose the rear rafters. Simply cut a soffit out of $\frac{3}{4}$" plywood sheet (you may have some scrap you can use) as detailed below. I would use pieces from the roofing.





Now it's a matter of covering the main connections with trim to really make the playhouse look nice. BEFORE ADDING TRIM, MAKE SURE YOU SEAL ANY CONNECTIONS, ADD VENEERS (IF ANY), AND ADD ROOFING! TRYING TO ADD THESE AROUND TRIM IS DIFFICULT!

For trim, we find it is easiest to locate and number the components. We generally try to shy away from definite trim sizes and lengths as building methods vary slightly and you need to measure as precisely as possible on trim-work. All angles are similar to anything done earlier so there should NOT be any surprises.



Congratulations! You constructed an entire playhouse by yourself! Interior sheeting is probably the easiest thing you will have to finish.

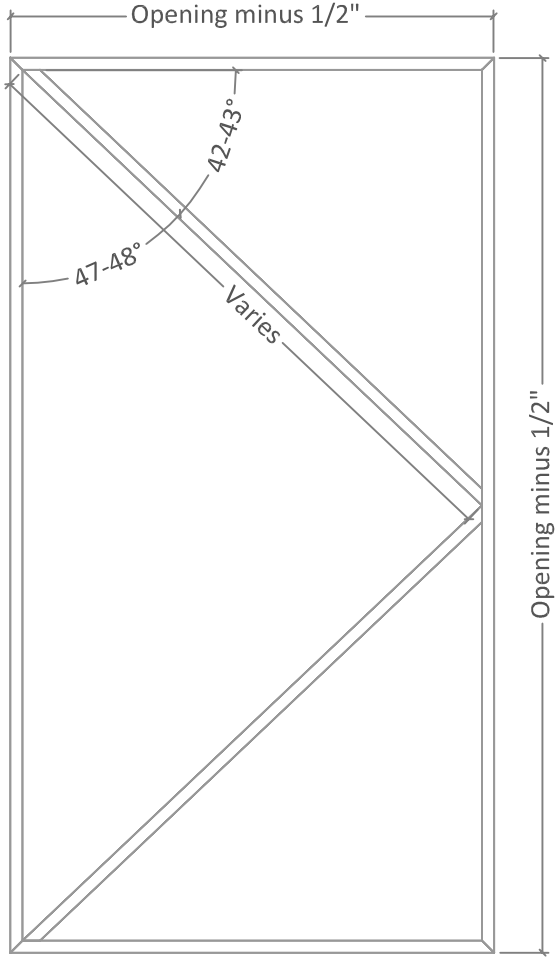
If you live in a cold or hot climate, you may want to add insulation before you enclose the walls with gypsum board.

Make this playhouse your own. Paint, veneers, curtains and interior furniture and accessories are at the discretion of the builder.

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 is 2'-6 $\frac{1}{2}$"x56", minus $\frac{1}{2}$" for swing on both the sides and the top and bottom, that leaves a door size of 2'-6"x55 $\frac{1}{2}$".

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.



A/A1 Rear Sheathing Diagram
Scale: NTS

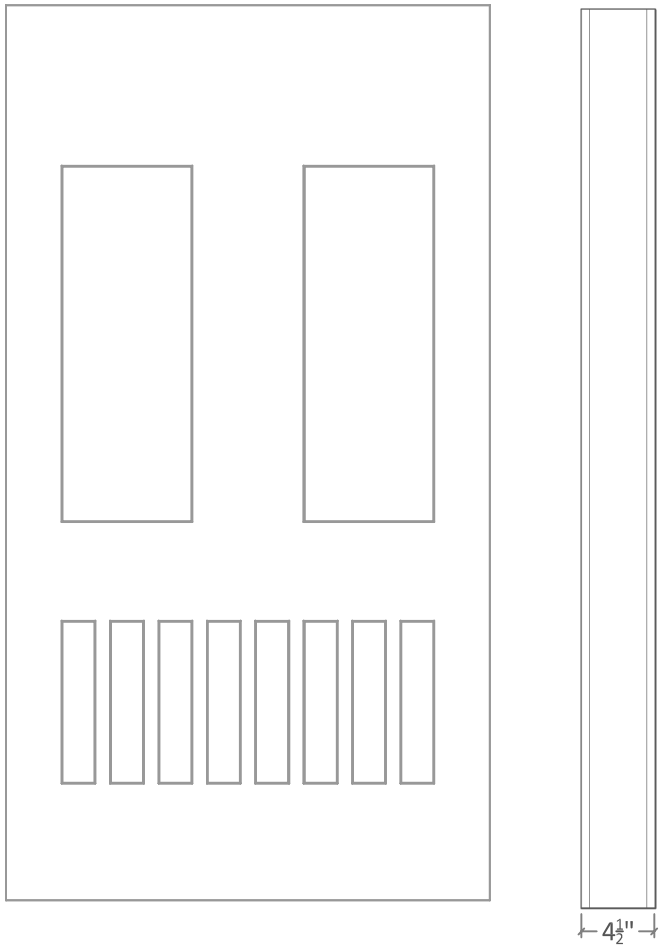
We will show the door in this example with a pattern cut out of the front and back sheeting, but this is not required. It is purely for looks and does not affect the integrity of the door at all.

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



B
A1
Rear Sheathing Diagram
Scale: NTS

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.

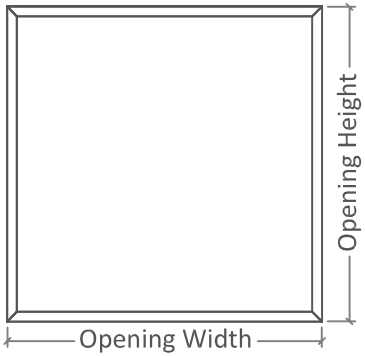
3) Insulate the door with either blow foam or regular R-13 roll insulation will work.

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

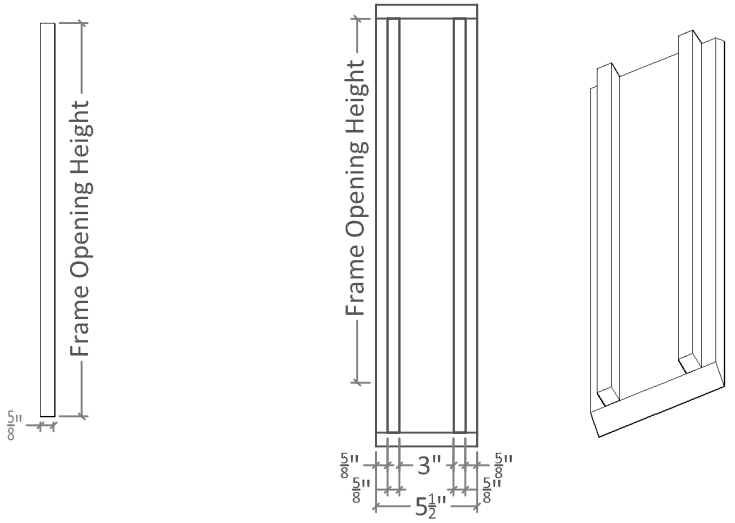
5) A single slide bolt works wonders on the outside and inside to lock the door shut. If you don't want your kids to be able to lock the door, only install the slide bolt on the outside! The slide bolt also offers a grip to pull the door open.

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!

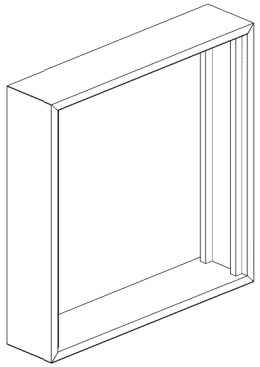


2) Rip a 1x4x8' into strips $\frac{5}{8}$" thick. These will serve many purposes in the future but for now, we just want four of them to match the opening, so either rip and cut one piece or rip an entire board into $\frac{5}{8}$" strips and place the pieces to the side for late.



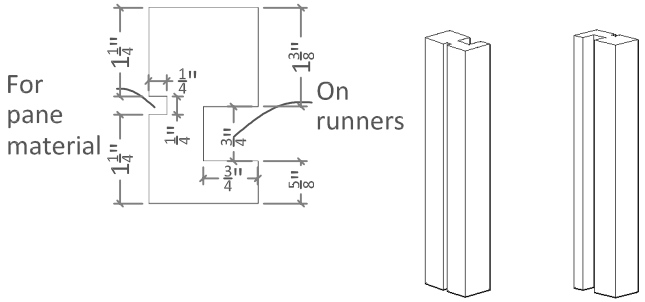
3) Using 1" screws and a level, screw two runners onto one of the exterior frame pieces. Repeat for the second side (see above).

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

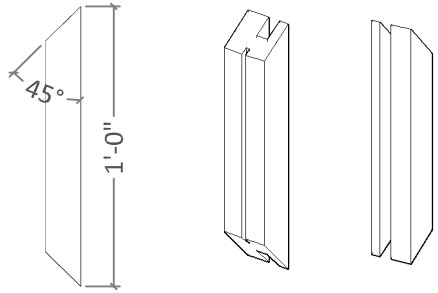


5) Rip a 8'-2x6 down the center lengthwise.

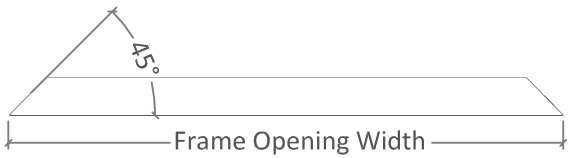
6) Use a router to gouge a $\frac{3}{4}$"x$\frac{3}{4}$" groove down the center of one side. Flip the board over and gouge a $\frac{1}{4}$x$\frac{1}{4}$" groove down the center of the other side (see detail)

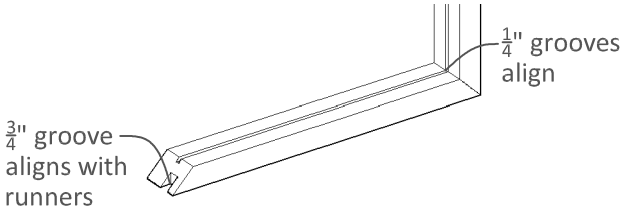


7) Miter the ends. Make sure the narrow ($\frac{1}{4}$x$\frac{1}{4}$") groove is facing inwards! The wide ($\frac{3}{4}$x$\frac{3}{4}$") grooves go out toward the runners, the inside grooves will hold a pane of window material.



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

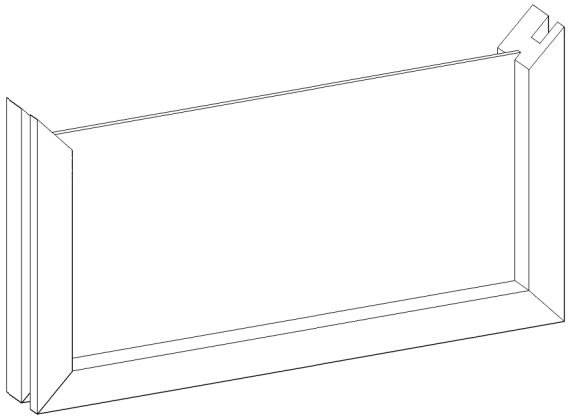
Description:	Qty:
2x6x6' Planks	24
1x6x8' Planks	6
1x4x8' Planks	6

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.

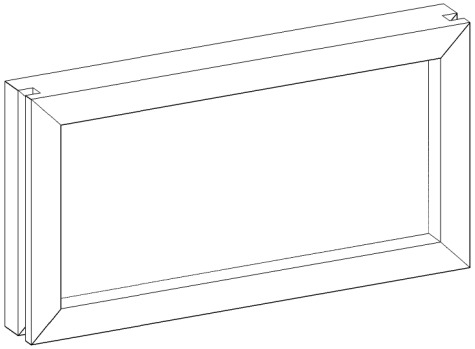
IF YOU DECIDE TO USE GLASS, WE HIGHLY RECOMMEND PURCHASING $\frac{1}{4}$" THICK PROFESSIONALLY CUT PANES. YOU WILL NEED 2 PER WINDOW. ON THIS SET THAT EQUALS 12 PANES OF GLASS TOTAL.

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.

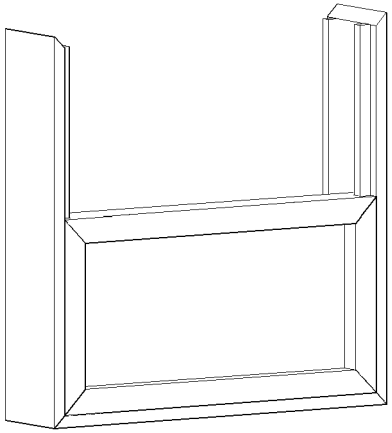


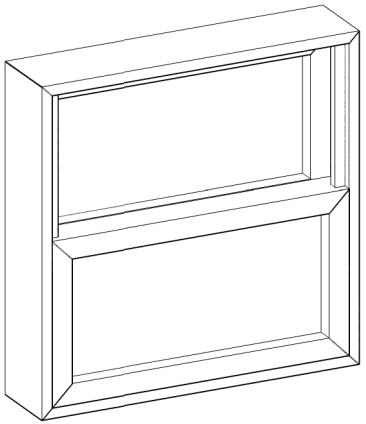
11) Cap off the window with the top piece and connect all pieces with 1" small radius ($\frac{1}{4}$" or smaller) screws. Be sure you don't screw down into the window pane!



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.

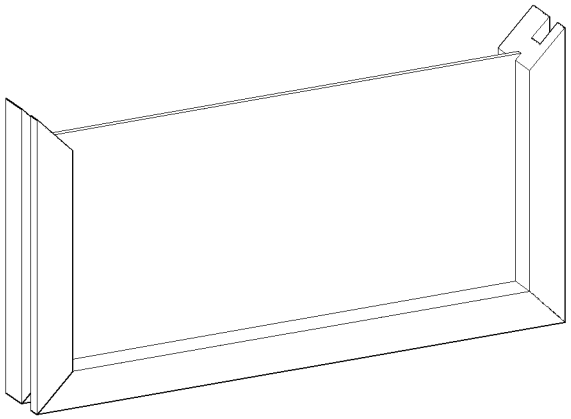
16) How the windows stay up or down is up to the user. We recommend getting a slide bolt and installing at least one on the movable assembly. Which assembly moves or stays stationary is up to the builder.

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.

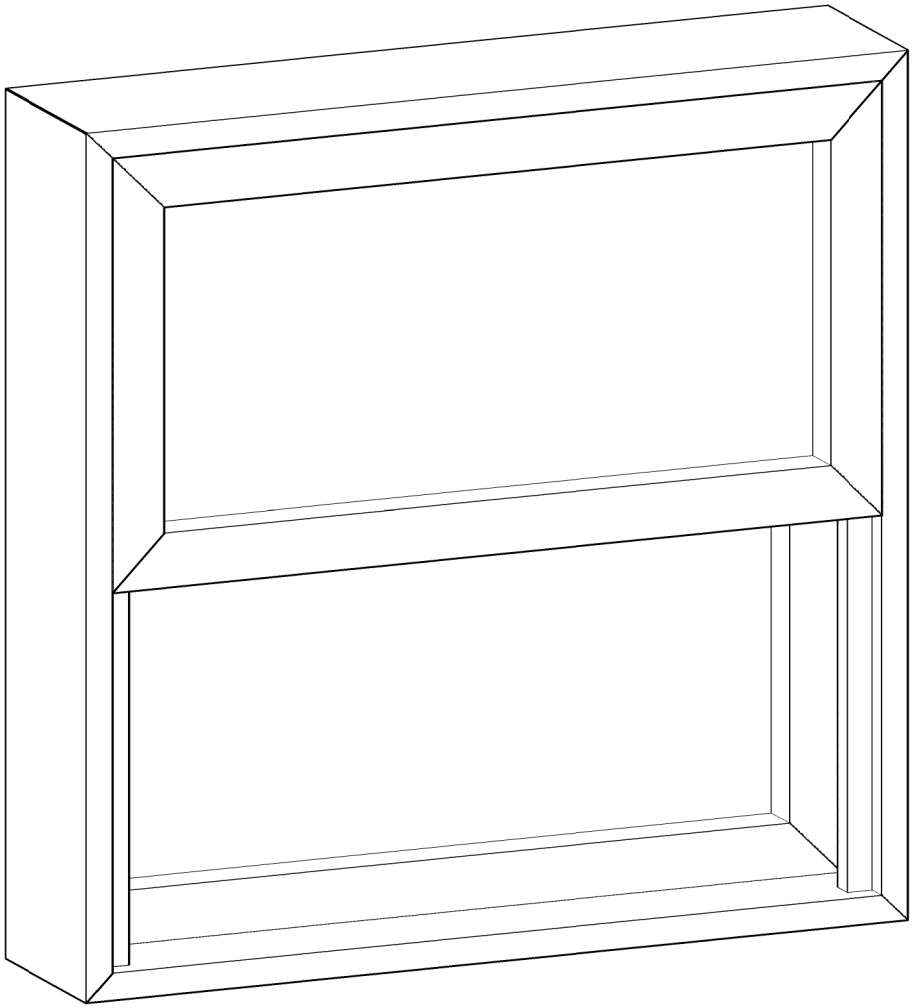
1) Drill a $\frac{1}{4}$" pin hole in the interior, left or right, side of the movable window assembly.

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.

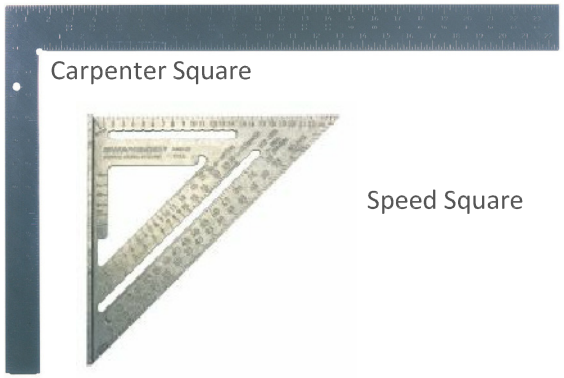
5) For the purpose of this article, the 5/12 roof pitch converts to 1.083 on the rafter conversion chart found on any framing square.Therefore, 11.5 x 1.083 = 12.4545 feet is what the rafter length will be.

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".

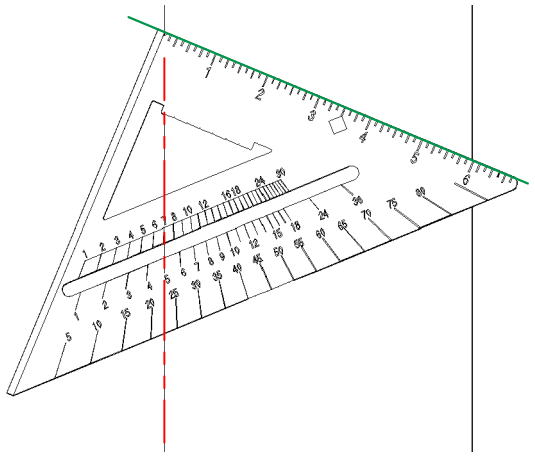
Roof Slope	Factor
Flat	1.0
1:12	1.003
2:12	1.014
3:12	1.031
4:12	1.054
5:12	1.083
6:12	1.118
7:12	1.158
8:12	1.202
9:12	1.250
10:12	1.302
11:12	1.357
12:12	1.414
13:12	1.474
14:12	1.537
15:12	1.601
16:12	1.667
17:12	1.734
18:12	1.803
19:12	1.873
20:12	1.943
21:12	2.015
22:12	2.088
23:12	2.162

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.

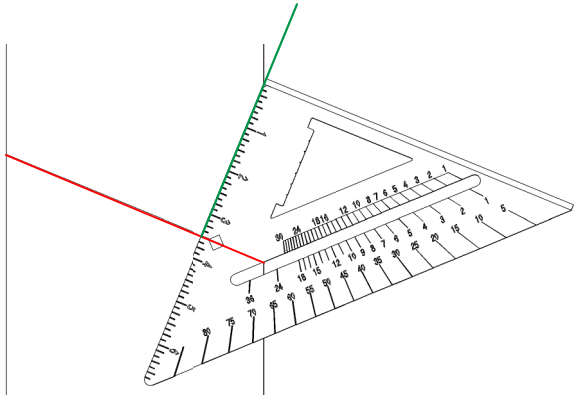


For the speed square, start by lining up your plumb cut by aligning the pivot point on the speed square with the desired pitch. This example is going to use a 5-12 slope but the principle is the same with any slope. See the diagram below.



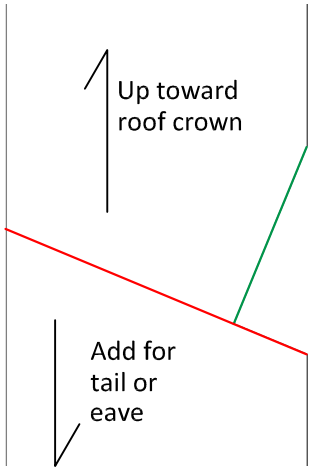
See how the red line lines up with the little notch in the back of the speed square and the number 5 in the "common". The common simply refers to a common rafter. Notice also, how the "HIP/VAL" lines up quite nicely with 7? For a $\frac{5}{12}$ slope, the corresponding hip/valley slope would be 7. Easy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



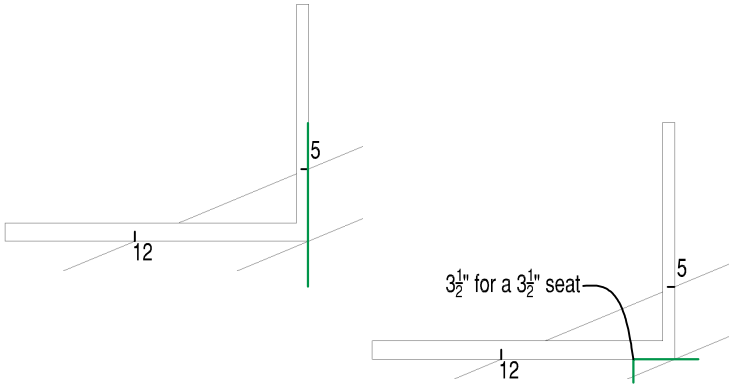
Align the diamond sight so the line cuts the sight down the center and your pivot point is flush against the outside edge of the rafter to be cut.

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.