

# BLAZING COMET MODULAR SWING SET



## **IMPORTANT SAFETY INFORMATION**

### **GENERAL ASSEMBLY:**

1. This swingset should be built on level ground, not less than 6 feet from any structure or obstruction, such as a fence, garage, house, overhanging branches, laundry lines, or electrical wires.
2. Do not build this swingset over concrete, asphalt, packed earth, or any other hard surface. A fall onto a hard surface can result in serious injury to the equipment user.
3. In order to prevent serious injury, children must not use the equipment until properly assembled per these instructions.
4. The maximum fall height for this product is 8 feet. Please refer to the Consumer Product Safety Commission's information sheet on playground surfacing material in these instructions. This information will help you determine the proper amount of surfacing material required to make your play area safe.

### **OPERATING SAFETY PRECAUTIONS:**

Observing the following statements and warnings reduces the likelihood of serious or fatal injury:

1. This equipment is designed for children ages 2-12, with a single occupant weighing no more than 125 lbs.
2. Children playing on this equipment should have on-site adult supervision at all times.

Adults should carefully instruct and teach children the following important safety rules before allowing them to play on equipment:

3. Do not to walk close to, in front of, behind, or between moving items.
4. Do not twist swing chains or ropes or loop them over the swing beam since this may reduce the strength of the chain or rope.

5. Avoid swinging empty seats.
6. Sit in the center of the swings with your full weight on the seats.
7. Do not use the equipment in any manner other than the intended.
8. Never get off the equipment while it is in motion.
9. Adults should dress children appropriately and avoid ponchos, scarfs, and other loose-fitting clothing that is potentially hazardous while using equipment.
10. Do not climb on or use the equipment when it is wet.
11. Do not attach items to the playground equipment that are not specifically designed for use with the equipment, such as, but not limited to, jump ropes, clothelines, pet leashes, cables, and chain as they may cause a strangulation.

### Parent Woodworking Safety

Working with powertools and heavy lumber can be dangerous activities. You should take every precaution, including following all tool manufacturers guidelines and using the “Tools and Techniques” section of this manual for tips. Always wear safety goggles when drilling, powersawing, or routing wood. It is also a good idea to wear gloves to prevent splinters in your hand. As with any project, good judgement and a healthy respect for all powertools required for this project would reduce your risk of injury

### NOTICE

The information in these plans is presented in good faith; however, results can vary depending on user's level of skill. Furthermore, instructions are meant to be safe, and all safety instructions, including those given by tool manufacturers, should be followed.

## Consumer Product Safety Commission Playground Surfacing Recommendations

Each year, about 200,000 children are treated in U.S. hospital emergency rooms for playground equipment-related injuries - an estimated 148,000 of these injuries involve public playground equipment and an estimated 51,000 involve home playground equipment. Also, about 15 children die each year as a result of playground equipment-related incidents. Most of the injuries are the result of falls. These are primarily falls to the ground below the equipment, but falls from one piece of equipment to another are also reported. Most of the deaths are due to strangulations, though some are due to falls.

1. Protective Surfacing - Since almost 60% of all injuries are caused by falls to the ground, protective surfacing under and around all playground equipment can reduce the risk of serious head injury.

Falls on asphalt and concrete can result in serious head injury and death. Do not place playground equipment over these surfaces. Also grass and turf lose their ability to absorb shock through wear and environmental conditions. Always use protective surfacing.

Certain loose-fill surfacing materials are acceptable, such as the types and depths shown in the table.

Certain manufactured synthetic surfaces also are acceptable; however, test data on shock absorbing performance should be requested from the manufacturer.

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 Fall Height In Feet From Which A  
 Life Threatening Head Injury  
 Would NOT be Expected  
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Type of Material	6 "Depth	9 " Depth	12" Depth
<b>Double Shredded Bark Mulch</b>	<b>6</b>	<b>10</b>	<b>11</b>
<b>Wood Chips</b>	<b>7</b>	<b>10</b>	<b>11</b>
<b>Fine Sand</b>	<b>5</b>	<b>5</b>	<b>9</b>
<b>Fine Gravel</b>	<b>6</b>	<b>7</b>	<b>10</b>

## INTRODUCTION

Thanks for purchasing our Blazing Comet swingset kit! Your kids will love the finished product, and we hope that you will enjoy the process of Building-Your-Own. We have planned this project so that most people with basic carpentry skills should have little difficulty.

Chapter 1 of this manual provides all of the background information that you will need to complete this project, including swingset site preparation, how to purchase lumber, and tools and techniques. Chapter 2 consists of the step-by-step building instructions for completing the swingset. Chapter 3 is a short chapter on maintaining and finishing your swingset. Chapter 4 contains the plans for the monkey bar add-on. Chapters 5 and 6 contain the plans for the rock wall and tire swing add-ons.

Where do you start? Your first step should be to briefly read through Chapter 1 to understand the fundamentals of the project. Once you have done this, use Tables 1A and 1B to purchase your lumber and any tools that you do not have access to. Support with these plans can be obtained by using the following contact info:

When you have finished building your swingset, please keep this instruction booklet for future reference.

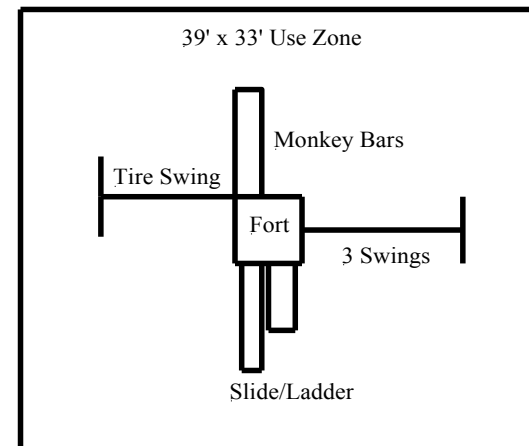
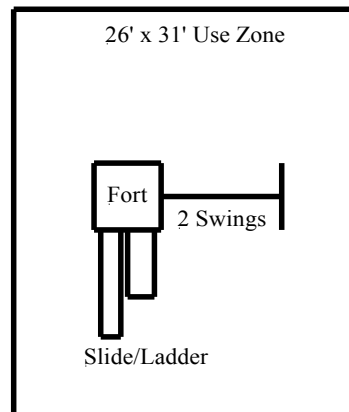
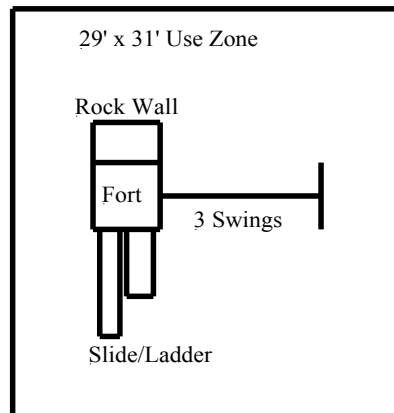
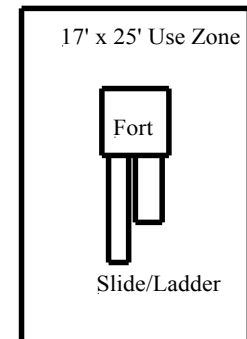
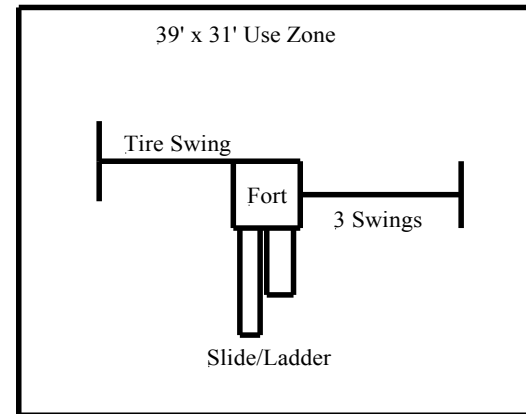
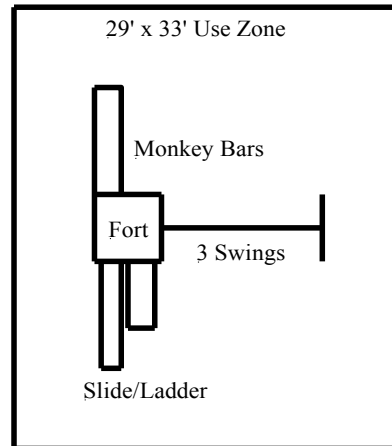
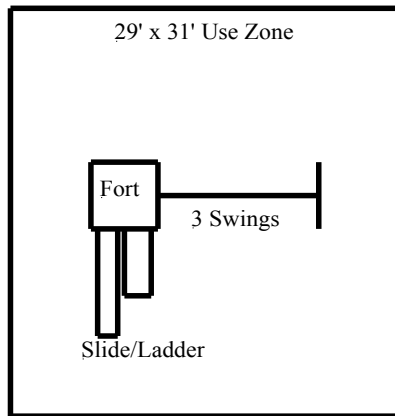
## CHAPTER 1: GETTING READY

### **A. Site Layout and Preparation**

It is important to take the time to find the perfect place for your new swingset. See Diagram 1A for a detailed footprints and required use zones for the different configurations.

In general, you should try to find a relatively level area for the set. The area that the fort sits on must be completely level, even if that means doing a little digging or building up. You can use a string level (see Part C of this chapter) to determine if a large area is level or not.

# Diagram 1A. TYPICAL SITE LAYOUTS



You should also consider the shading pattern of the area. It is not ideal to have a play area that is in the sun continuously. A little bit of shade can make playing on those hot summer days much more enjoyable.

Finally, if you live in a neighborhood with a homeowner's association (H.O.A.), you should check ahead of time to find out if there are any rules regarding building a structure in your yard.

## **B. Purchasing Lumber**

### WOOD TYPES

Pressure-treated southern yellow pine is one of the strongest, hardest, most decay resistant woods available. It is also very cost effective. Cedar and Redwood are the other two common types of wood used in swingsets. Neither are as strong as Pine. Some of our customers have used pine for the structural members of the swingset (4x4 and 4x6) and used redwood or cedar for the nonstructural members. Check with your local lumberyard to find out if a suitable alternative is available.

Pressure treated wood has been chemically treated to protect it from rotting, termites, and other forms of decay. When working with pressure treated lumber (as well as many other types of lumber), it is recommended that you observe the following precautions:

1. When sawing and machining treated wood, wear a dust mask. Whenever possible, these operations should be performed outdoors to avoid indoor accumulations of airborne sawdust from treated wood.
2. When power-sawing and machining, wear goggles to protect eyes from flying particles.
3. After working with the wood, and before eating, drinking, and use of tobacco products, wash exposed areas thoroughly.
4. If preservatives or sawdust accumulate on clothes, launder before reuse. Wash work clothes separately from other household clothing.
5. You can dispose of treated wood with ordinary trash collection; however, you should not burn the wood.

## DIMENSIONS AND GRADING

Did you know that if you buy a 4"x4"x8' post at your local lumber or hardware supply store, the actual dimensions of that lumber will be about 3.5"x3.5"x8.2"? The dimension quoted by the lumber or hardware store is always the nominal dimension. This is the dimension that is cut from the tree. However, after being cut, the lumber is surfaced to make it smooth and flat and also dried, with the final result being a reduction in the lumber dimensions. The following table illustrates nominal vs. actual dimensions for some of the size lumber you will be using for this project.

NOMINAL DIMENSION	ACTUAL DIMENSION
4x6	3 ½ x 5 ½
4x4	3 ½ x 3 ½
2x6	1 ½ x 5 ½
2x4	1 ½ x 3 ½
5/4x6	1 x 5 ½

All lumber is graded and stamped based on several physical characteristics of the lumber itself. Imperfections such as knots, bowing, twisting, and splitting all reduce the grade of lumber. The higher the grade numbers, the worse the lumber quality. For example, a Grade 2 lumber has more defects than a Grade 1 lumber.

Even within the same lumber grade, there can be variation in the quality of the lumber. This is why it is very important for you to visually inspect the lumber before you purchase it to make sure that you are getting the best pieces available.

## MAKING YOUR PURCHASE

Taking the time to purchase quality lumber will pay off later when you are assembling the swingset and fort. For your convenience, there is a lumber material sheet (Table 1A) that you can use in purchasing your lumber. You can choose a lumberyard, a local hardware store, or a national chain hardware warehouse to provide your lumber. If you choose to have a lumberyard deliver to you, make sure that you understand their return policy for lumber. If you choose a local lumber supply store, you may want to call ahead just to make sure that they have all of the sizes that you will need. You should reserve about one to two hours for shopping for your lumber.

<b>TABLE 1A. Blazing Comet Wood Material List</b>						
	Fort	Rock Wall	Tire Swing	Monkey Bars	2 Swing Beam	3 Swing Beam
<u>Size</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>	<u>Qty</u>
4x6x12	0	0	0	0	0	1
4x6x10	0	0	1	0	1	0
4x4x8	4	0	2	3	2	2
4x4x10	4	0	0	2	0	0
4x4x12	1	1	0	0	0	0
2x4x8	3	0	0	2	0	0
2x4x10	4	0	0	1	0	0
2x4x12	1	0	0	1	0	0
2x6x8	1	0	1	0	1	1
2x6x10	6	6	0	0	0	0
5/4x6x10	10	-1	0	0	0	0

\* Substitute 2x6 if 5/4x6 not available

Note: Sandbox requires about (10) fifty pound bags of sand.

#### **TABLE 1B. TOOLS REQUIRED TO COMPLETE THE PROJECT**

##### **Required:**

Circular Saw w/ all-purpose blade (carbide tipped preferred)  
 Electric Drill (cordless preferred)  
 1-1/8", 7/16", 9/16", 7/8" diameter spade drill bit  
 5/64", 3/32", 7/64", 5/32", 1/4" diameter twist drill bit (all come in standard set)  
 Combination Square, Large Level  
 Tape Measure (at least 12' long)  
 Extension cord (12' if you have a cordless drill, 50-100' otherwise)  
 (2) Saw horses  
 Socket wrench w/ 9/16" and 3/4" socket, 9/16" wrench  
 Hammer, Pencil  
 Safety Glasses, Work Gloves, Dust Mask

##### **Recommended:**

Router w/ 3/8"-1/2" radius roundover bit  
 Framing square  
 String Level, String, Sandpaper

##### **PARTS LIST**

(3) Swings w/ coated chains  
 (1) Green Triangle Brace  
 (2) Green A-frame brackets  
 Bolts in Table 1C  
 (6) Swing Hangers w/ quick links  
 (1) 87"x49" Tarp w/ (6) screw studs  
 Optional Add-On parts (listed at the end of this manual)

<b>TABLE 1C. Blazing Comet Bolt Reference List</b>		
<b>Type</b>	<b>Where Used</b>	<b>Quantity</b>
<b>Lag Screws:</b>		
3/8" x 4"	Sandbox Sides	16
	Lower Wall Sides	12
	Upper Wall Sides	8
	Ladder Fastener	2
	Swing Leg Brace	4
	Roof Post to Mid Platform	4
	Side Guard	2
	Corner Braces	6
	Extra	3
<b>Total:</b>		<b>57</b>
<b>Carriage:</b>		
3/8" x 5.5"	Bolt on Swing Beam	5
3/8" x 6.5"	Bolt on Swing Beam Supp	4
3/8" x 7"	Buttresses	8
3/8" x 7"	Bolt on Roof Post	2
1/2" x 10"	Center Bolt on Swing Beam	1
<b>Washers:</b>		
3/8" Flat	For all lag and carriage	73
	Extra	7
<b>Total:</b>		<b>80</b>
3/8" Lock	For all lag and carriage	73
	Extra	7
<b>Total:</b>		<b>80</b>
<b>Nuts:</b>		
3/8" Hex	For all carriage bolts	19
	Extra	3
<b>Total:</b>		<b>22</b>
<b>Decking Screws:</b>		
8x2-1/2"	Floor	62
	Side Walls	72
	Ladder	40
	Tarp Boards	12
	Beam Support	10
	Corner Braces	12
	A-frame Brackets	20
	Extra	12
<b>Total:</b>		<b>240</b>
<b>Swing Hangers:</b>		
(12) 3/8x4-1/2" lag screws, (12) 3/8" lock and (12) 3/8" flat washers and (6) quick links		

It is also helpful to take someone with you to purchase the lumber. Some of the larger pieces can be heavy and hard to get off the shelf by yourself. Make sure that you inspect every piece for knots, straightness (look down the edge of the wood from one end to the other), or other defects. Purchase the best grade of wood that you can afford or that is available, especially for the fort walls and fort floor.

The best place to purchase the lumber for this kit that we have found is a hardware superstore such as Home Depot or Lowes. These stores are located in almost every state and usually carry all of the sizes required.

Plan on letting the lumber dry for about 2 to 3 days BEFORE you start working with it. Pressure treated lumber can be wet coming out the store, which can make it very difficult to work with. Wet lumber will dull your tools and will also make it difficult to drill straight holes in thick pieces.

### **C. Tools and Techniques**

Table 1B contains a complete listing of tools needed for this project.

#### **TECHNIQUES**

##### *Measuring*

The two main tools that you will be using here are your tape measure and your combination square. For most measurements, you will be using the tape measure to mark the correct distance along the length of the lumber and the combination square to mark the correct distance along the width.

You can also use the combination square to mark perpendicular (90 degree) and 45 degree angle cut lines across a board. To mark a perpendicular cut line, push the square edge flush with the edge of the wood and use the ruler as a guide to draw a straight line on the wood. To mark a 45 degree cut line (you will need to do this for the corner braces later), push the angled side of the combination square flush against the wood and mark along the ruler.

##### *Cross Cutting:*

Cross cutting refers to cutting a piece of lumber across its width to make it shorter. After you have used your tape measure and combination square to make a cutline, you are ready to start cutting with your circular saw. Make sure that you position yourself so that you are cutting on the “waste” side of

the guideline -- ie the side that you are cutting off. This prevents you from cutting a board too short.

Occasionally, you will need to crosscut boards that are too short to fit on the sawhorses (the step supports for this project are an example). The best way to accomplish this would be to place a longer board across the sawhorses and then clamp the short board to be cut on top of the longer board, with the end to be cut hanging off of the long board. This should allow you to make the cut safely.

Circular saws are notorious for “kickback” and binding. This can be dangerous, so it is very important to hold the saw with both handgrips whenever possible. You should also try to position yourself outside the area of potential kickback. If the saw binds near the end of your cut, try the following: 1. Let the saw stop and back it out of the wood 2. Turn the board over and finish the cut from the other direction.

### Rip Cutting

Rip cutting refers to cutting a piece of lumber down its length to make it narrower. Make your cutline by using your combination square to mark the required width in a couple of places along the length of the board. Then use a long ruler to draw a cutline through the marks. Some circular saws come with a rip guide that can be adjusted to required ripping width.

It is difficult to rip boards using a sawhorse. Instead, try placing the board to be ripped on top of some 4x4s placed on the ground. Secure the board that is to be ripped to the 4x4s, and use the circular saw to cut along your guideline.

### Drilling

The two types of holes that you will be drilling are through-holes and countersunk holes. The first type of hole is relatively straightforward. You want to make sure that your drill is at a 90-degree angle to the wood so that your hole will be straight. This is especially important when drilling thru holes into the posts. To make this task easier, you may want to try drilling the hole  $\frac{1}{2}$  through the post on one side and then turning the post over and drilling the other  $\frac{1}{2}$  through from that side. In either case, make sure that you hold the drill straight up and down to ensure a straight hole.

Countersunk holes are really two holes in one. The purpose of countersunk holes is to “bury” bolt ends inside the wood. You will be using the 1-1/8” spade bit to drill the countersink portion. You can either eyeball the countersink depth, or you can place a piece of tape on the drill bit at the required depth. This will serve as a visual cue for you to stop drilling at that point. Once you have drilled the countersink portion of the hole, the remaining thru portion is drilled exactly like the holes described above.

### *Rounding Wood Corners Using A Router*

We would highly recommend rounding the edges of all of your posts and 2’ x boards (you do not really need to route the decking and wall boards, although it will make them look better). This makes the swingset look much more professional and also gets rid of sharp edges. You will use a router with a 3/8"-1/2" radius roundover bit to do this. Routing sprays a lot of wood chips, so you may want to consider wearing a long sleeve shirt. Routing is very straightforward and simply involves positioning the router so that the guideface is level on the wood and then pushing the router with both hands along the wood edges. It is more important to round the sides of the wood than it is to round the ends.

### *Framing/Squaring*

Framing, or squaring, is the process of making sure connecting boards are level and square. A large carpenter’s framing square is the tool of choice for this task. As long as you cut and drill everything exactly according to the diagrams in these plans, squareness should not be an issue. However, you should check squareness periodically during the assembly process to double-check your drilling and cutting accuracy.

Squareness can be checked by placing one edge of your framing square flat against the first piece of wood and then pressing the other edge of the square against the second piece of wood. If you cannot press the both edges flat against the two pieces of wood, then they are not square relative to each other. You will have to adjust the two pieces until there are no gaps between the framing square and the wood.

### *Leveling*

You should use the string level to check levelness of your planned swingset site. Place the string level on the string using the hooks on top of the level. While holding the string taut between two points, you can determine if the points are level with each other. By adjusting one end of the string up or

down and measuring the difference, you can determine the exact slope. If your fort site is unlevel, you can then add dirt or shovel away dirt. If your swingset A-frame site is unlevel, you can either add or shovel away dirt, or you may want to think about making one leg of the set longer than the other one. Another option is to bolt a “foot” on the leg that is at a lower elevation.

## CHAPTER 2. STEP-BY-STEP BUILDING INSTRUCTIONS

### STEP 1. ROUND WOOD CORNERS

Rounding the wood edges will enhance the look of your swingset tremendously and will also eliminate sharp corners. You should go ahead and use your router to round all of the SIDES of the wood that you purchased. Do not route the ENDS until the wood is cut to length.

### STEP 2. CUT WOOD TO SIZE AND LABEL

Remember the saying “measure twice and cut once.” Use Table 2A to cut the wood to size. Note that the wood you purchase will not be exactly the length it is advertised. For instance, if you buy a 4x4x10’ post, it will most likely be slightly longer than 10’. Therefore, in order to make this into (2) 4x4x5’ posts, you cannot simply cut the 4x4x10’ post in half.

Labeling will help you remember which piece is which later when you start assembling the swingset. Label each piece with your marking pencil. Draw the label on one end of the piece so that it will not be in the way of drilling operations later.

### STEP 3. DRILL AND FINISH LABELING WOOD (DIAGRAMS 2-16)

Note: As a consistent convention in these diagrams, it is assumed that you are FACING the front of the fort/swingset. When the plans refer to “Left”, and “Right”, they are referencing your left and right if you are facing the swingset.

REFER TO **Diagram 1B** FOR VISUAL DESCRIPTION OF THESE FORT ELEMENTS.

#### ■ *Drill Fort Posts (Diagrams 2-5)*

These diagrams are probably the most critical in the whole project, so first take a few minutes to study them to make sure that you understand them. Also, take extra care in measuring and drilling in the following operations.

The posts are designated as follows: #1 is the front left post, #2 the front right, #3 the back left, and #4 the back right (again assuming that you are FACING the fort/swingset). The first step is to label each face of each post with your pencil. The labeling corresponds with the appropriate side of the fort – ie the Front face of the post is on the Front of the fort, the Right face is on the Right side of the fort, and so on. It does not matter which side you choose to designate as the front side – just pick a face and put a small (F) near the bottom of the post. On that same (F) face, label the top (T) and the bottom (Bot). Next, while looking down at the front face and facing the top of the post, label the side on your left with an (L) and the side on your right with a (R). Finally, label the side opposite the front (F) side as (B) for back. See Diagram 2 for a pictorial view of this.

Follow Diagrams 2-5 to measure and drill the holes in the fort posts. **You may want to consider drilling halfway through the one face and then turning the post over and marking and drilling halfway through to complete the hole.**

■ *Drill Roof Posts (Diagrams 6-7)*

■ *Drill Buttresses (Diagram 8)*

Inside face refers to the side of the buttress facing inside the fort, and likewise for the outside face. Be sure to note that these holes are COUNTERSUNK, and follow the diagram for drilling guidelines.

■ *Drill Sandbox Sides (Diagram 9)*

Because the holes in these pieces are not along the centerline of the board, you will need to label the Top and Bottom of each board. Drill according to diagram.

■ *Drill Supports (Diagram 10-12)*

Label Top and Bottom of each support. Drill according to diagram.

■ *Drill Swing Beam Support (Diagram 13)*

The first step is to place the two 2"x6"x5' pieces together (6" sides facing each other – wood clamps may be necessary). Then, mark and drive decking screw according to the diagram. Fasten five screws from one piece of the support, and five screws from the other side of the assembly. This construction ensures that the two pieces are adequately held together.

Next label the Top and Bottom of the support. The Outer face refers to the side that will be facing towards the outside of the fort. Drill the Outer face and Bottom face according to diagram. Note, the middle hole in the bottom face uses a 9/16" drill bit to accommodate the 1/2" bolt in that location.

■ *Drill Side Guard (Diagram 14)*

■ *Drill/Mark Ladder Sides (Diagram 15)*

First, drill the hole that will be used to bolt the ladder sides to the fort posts. Once this is done, mark the ladder sides with your pencil as shown. These marks will be used to position the step supports. Also, label the Top and Bottom of the sides.

■ *Drill/Cut Corner Braces (Diagram 16)*

Drill corner braces as shown. You can use the combination square to mark the 45-degree angle. Because the braces are short, you may have to use the technique described in the cross cutting section description in Chapter 1.

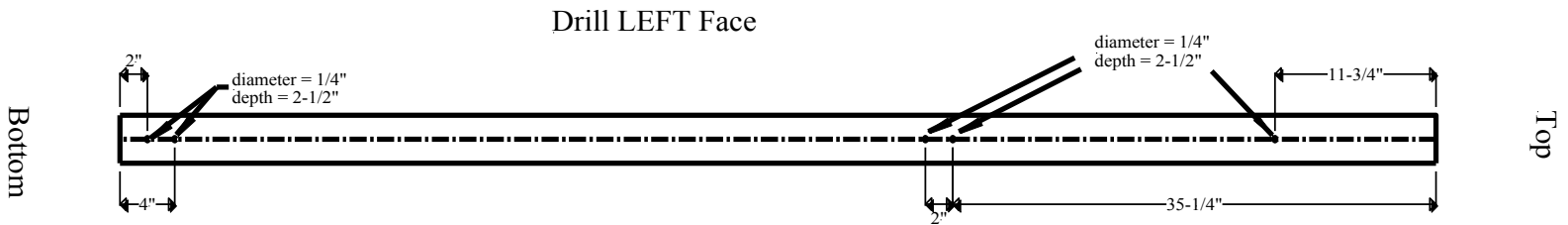
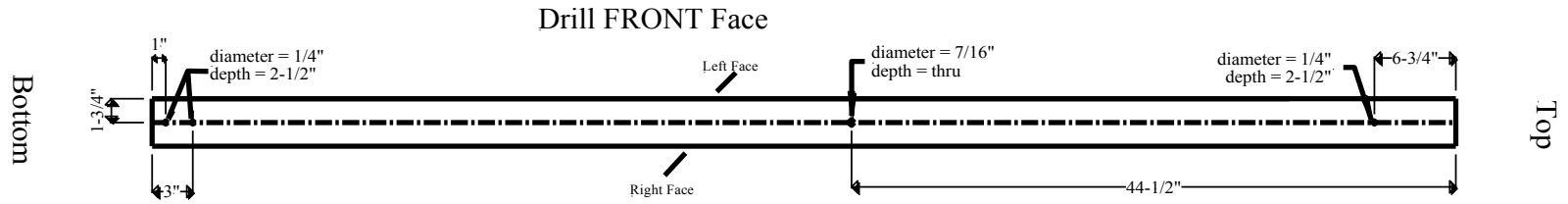
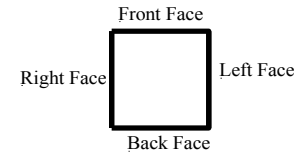
<b>TABLE 2A. CUT WOOD TO LENGTH FOR BLAZING COMET FORT</b>					
<u>Description</u>	<u>Size as</u>	<u>Qty</u>	<u>Cut to</u>	<u>Cut to</u>	<u>Label</u>
	<u>Purchased</u>	<u>Purchased</u>	<u>Size</u>	<u>Qty</u>	<u>Abbrev.</u>
Fort Posts	4x4x8'	4	Trim length to exactly 8'	4	#1, #2, #3, #4
Floor Buttresses	4x4x10'	2	4x4x5'	4	LFB, RFB, FFB, BFB
Roof Posts	4x4x12'	1	4x4x6'	2	FRP, BRP
Ladder Sides	2x4x8'	2	2x4x6'-6"	2	LLS, RLS
Front Upper Wall Support	2x4x8'	1	2x4x5'	1	FUWS
Upper Wall Supports	2x4x10'	1	2x4x5'	2	LUWS, BUWS
Roof Boards	2x4x10'	2	2x4x5'	3	(3)RB
Side Guard			2x4x5'	1	SG
Mid Platform Supports	2x4x10'	1	2x4x5'	2	LMPS, RMPS
Corner Braces	2x4x12'	1	2x4x2'	6	CB
Swing Beam Support	2x6x10'	1	2x6x5'	2	(2)SBS
Sand Box Sides	2x6x10'	2	2x6x5'	4	LSBS, RSBS, FSBS, BSBS
Lower Wall Supports	2x6x10'	2	2x6x5'	3	LLWS, RLWS, BLWS
Ladder Steps	2x6x10'	1	2x6x21-5/8"	5	No Label
Body Floor	5/4x6x10'	5	5/4x6x59-3/4"	9	No Label
			5/4"x6x28-3/4" (used for sides)	2	No Label
Sides	5/4x6x10'	4	5/4x6x28-3/4"	16	No Label
End Floor*	5/4x6x10'	1	5/4x3.5x24-1/4" (rip to 3 1/2" width)	4	No Label
Step Supports**	use leftover from End Floor		5/4x2x3-1/4"	10	No Label
* See Techniques Section for Instructions on Rip Sawing					
** Step Supports are made from trimmed pieces of End Floor, See Techniques Section for cross cutting short wood					
Note: Label each piece according to the table above (the end of the piece is the best place for the label).					

<b>TABLE 2B. CUT WOOD TO LENGTH FOR SWING FRAME (Optional - Depends on Configuration)</b>					
<u>Description</u>	<u>Size as</u>	<u>Qty</u>	<u>Cut to</u>	<u>Cut to</u>	<u>Label</u>
	<u>Purchased</u>	<u>Purchased</u>	<u>Size</u>	<u>Qty</u>	<u>Abbrev.</u>
Swing Beam (3 Swings)*	4x6x12'	1	Do not cut	1	SB
Swing Beam (2 Swings)*	4x6x10'	1	4x6x9'	1	SB
Swing Legs	4x4x8'	2	Do not cut	2	SL
Swing Leg Brace	2x6x8'	1	2x6x6'	1	SLB

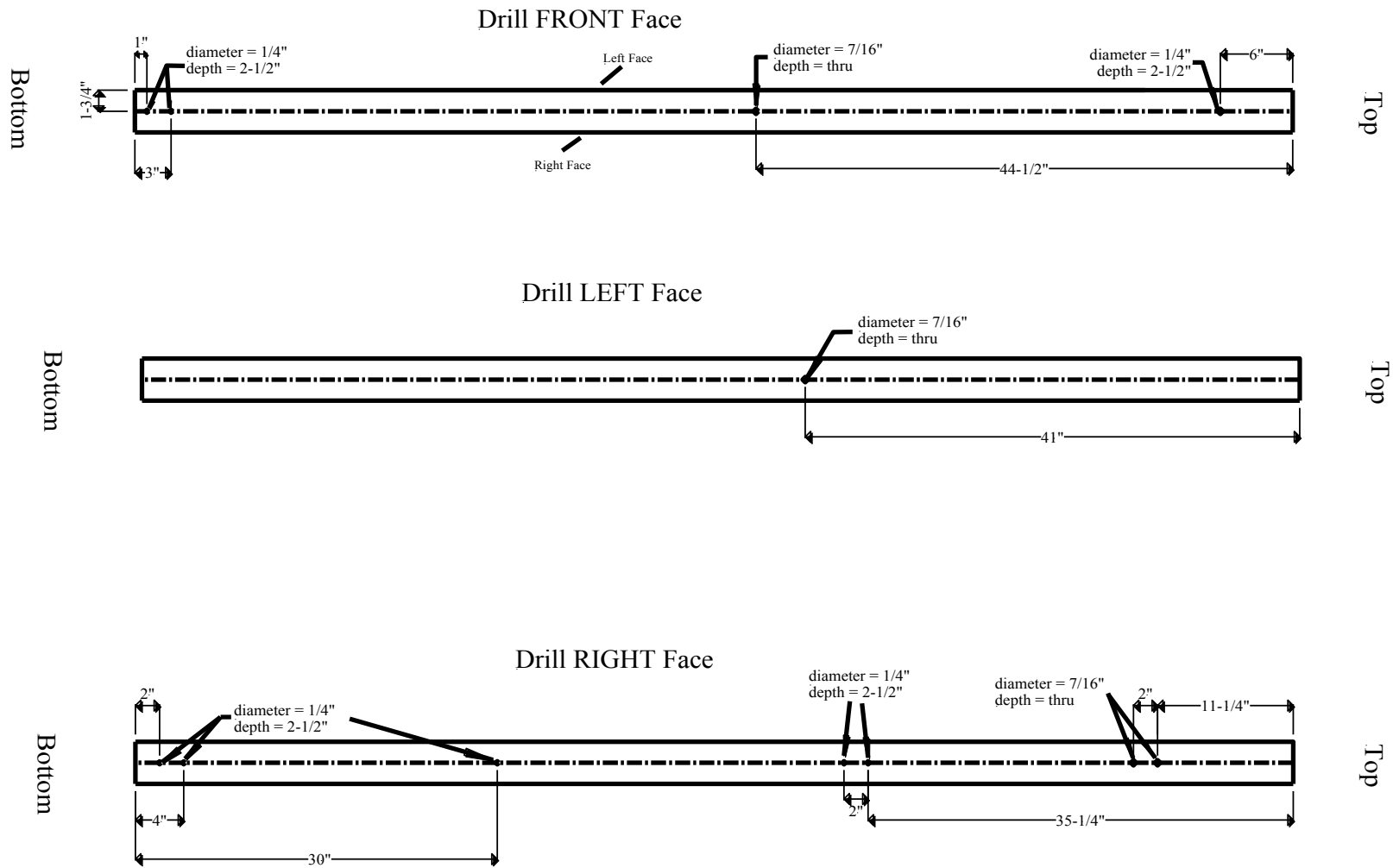
\* Choose EITHER (3) swing beam or (2) swing beam

# Diagram 2. DRILL FORT POST #1 (4"x4"x8')

Top End View of Post

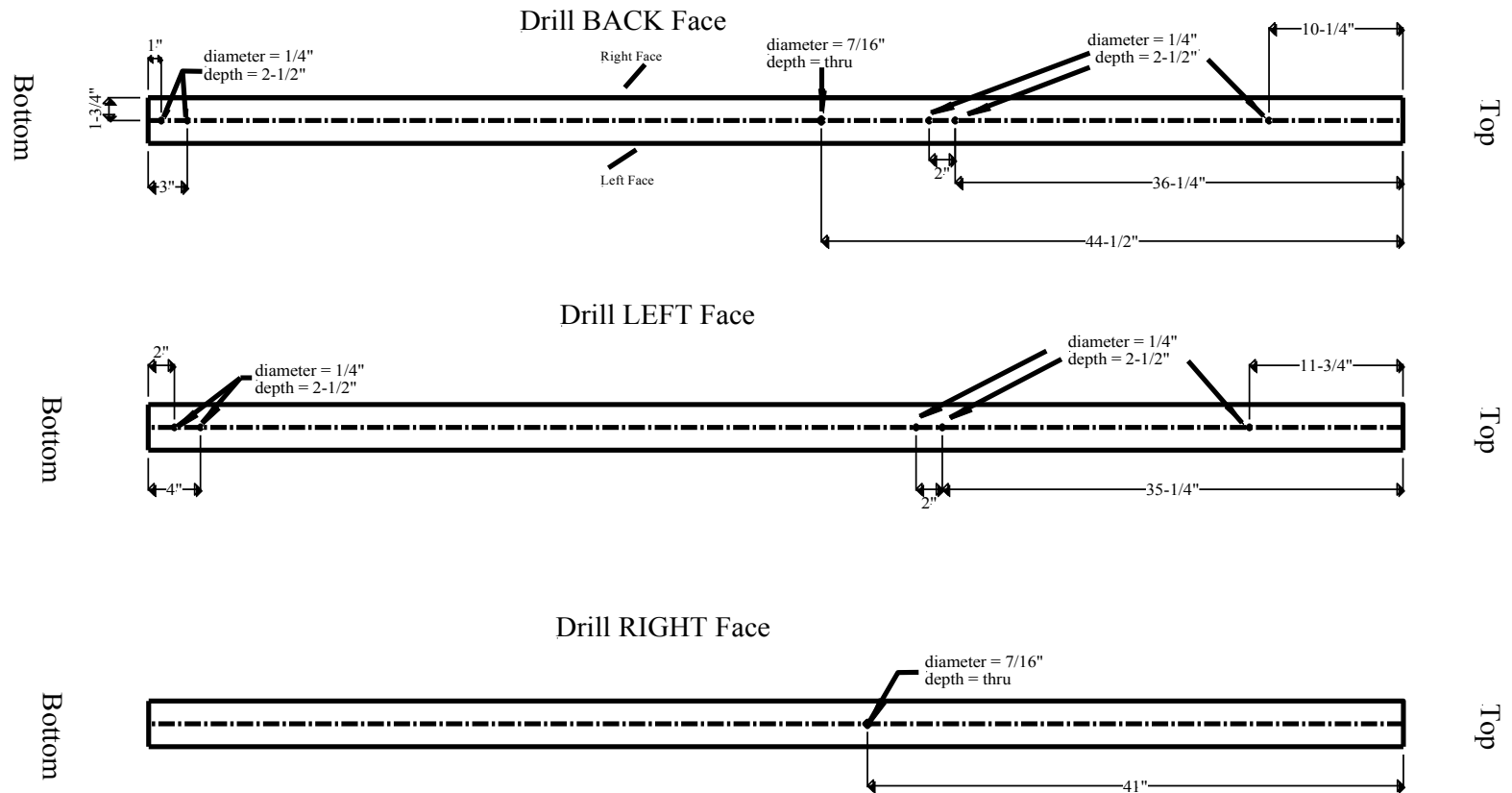


### Diagram 3. DRILL FORT POST #2 (4"x4"x8')



# Diagram 4. DRILL FORT POST #3 (4"x4"x8')

NOTE: Left and Right Faces still assume you are facing the FRONT of the fort, so they are reversed from Fort Posts 1 and 2.



# Diagram 5. DRILL FORT POST #4 (4"x4"x8')

NOTE: Left and Right Faces still assume you are facing the FRONT of the fort, so they are reversed from Fort Posts 1 and 2.

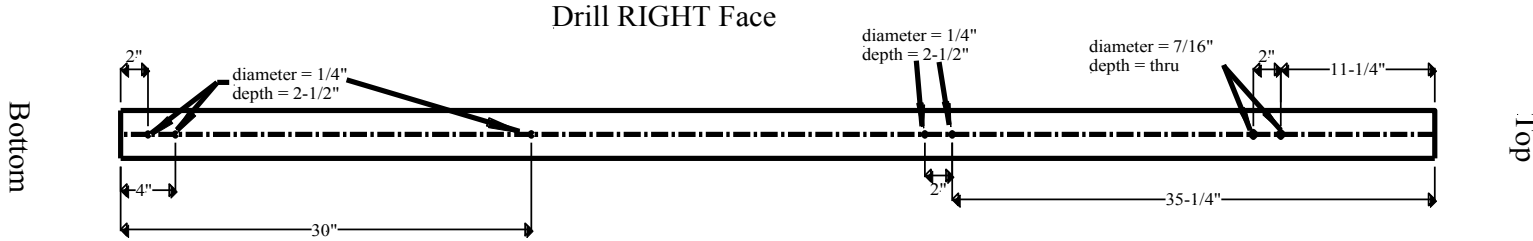
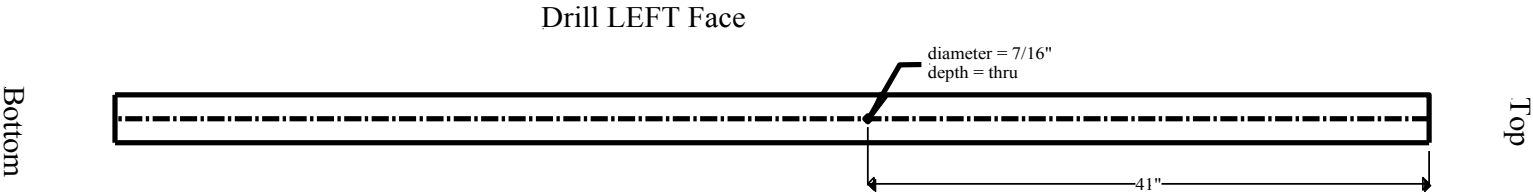
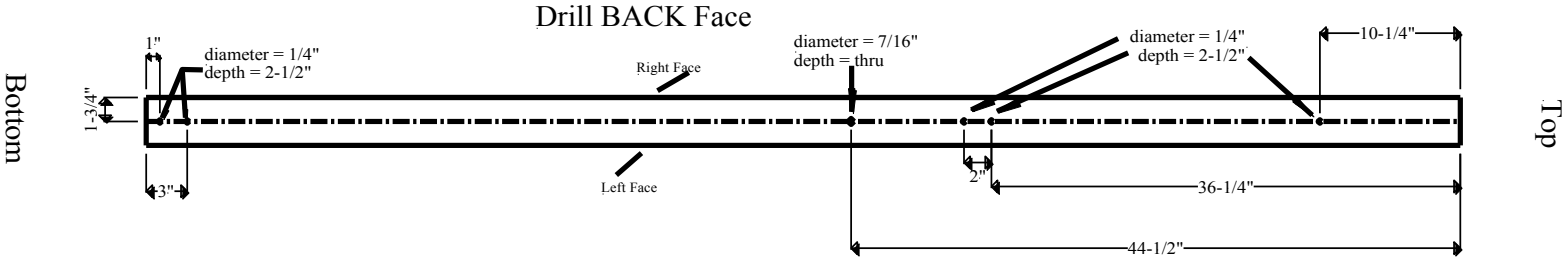


Diagram 6. DRILL FRONT ROOF POST -- FRP (4"x4"x6')

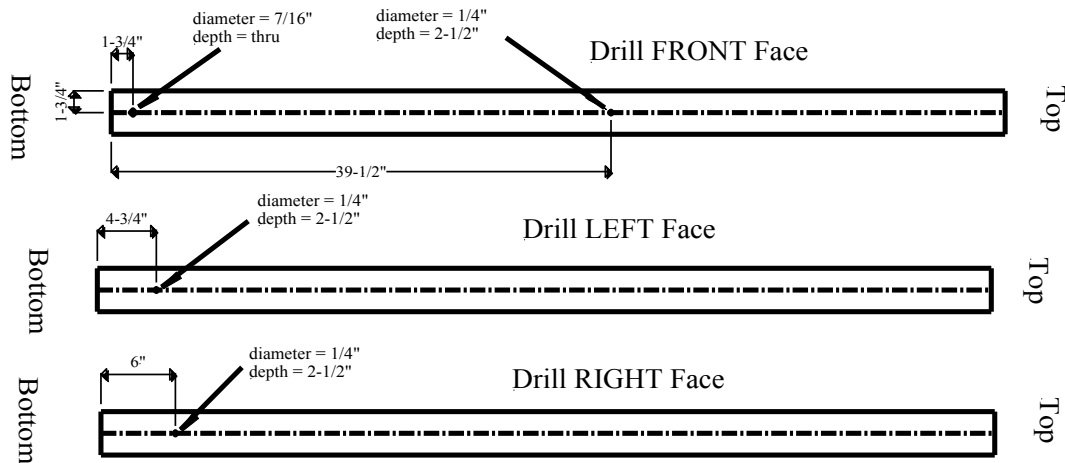
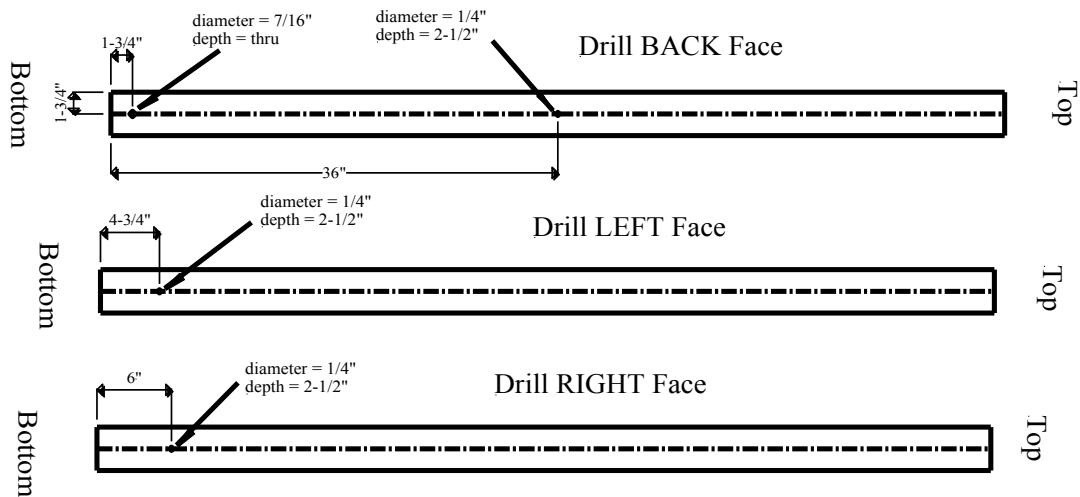
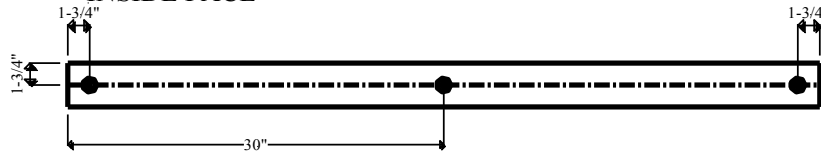


Diagram 7. DRILL BACK ROOF POST -- BRP (4"x4"x6')



## Diagram 8. DRILL BUTTRESSES

Drill FRONT and BACK Buttress -- FFB and BFB (4"x4"x5')  
INSIDE FACE



Drill RIGHT and LEFT Buttress (4"x4"x5')  
INSIDE Face



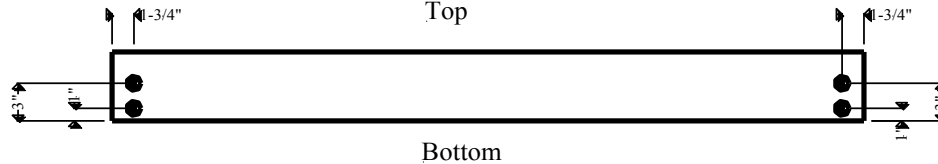
\*\* All INSIDE Face holes identical

Countersink diameter = 1-1/8"  
depth = 3/4"

Bolt hole diameter = 7/16"  
depth = thru

## Diagram 9. DRILL SAND BOX SIDES (2"x6"x5')

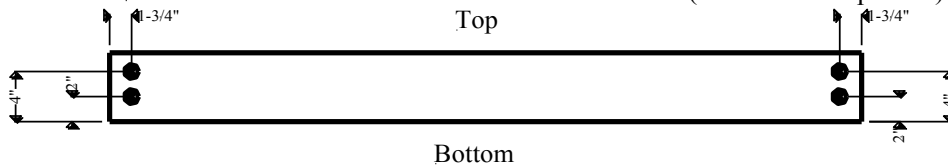
Drill FRONT and BACK SIDES -- FSBS and BSBS (identical hole pattern)  
Top



Countersink diameter = 1-1/8"  
depth = 1/2"

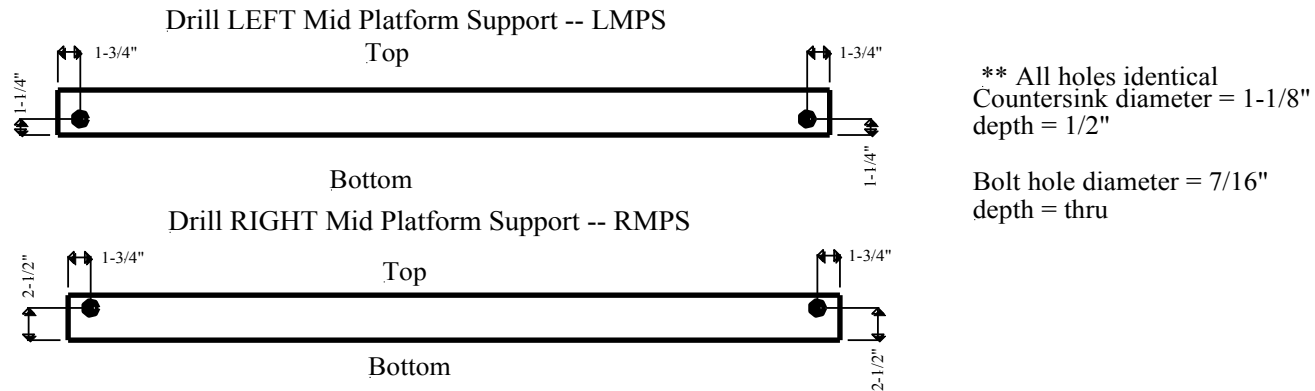
Bolt hole diameter = 7/16"  
depth = thru

Drill LEFT and RIGHT Sides -- LSBS and RSBS (Identical hole pattern)  
Top

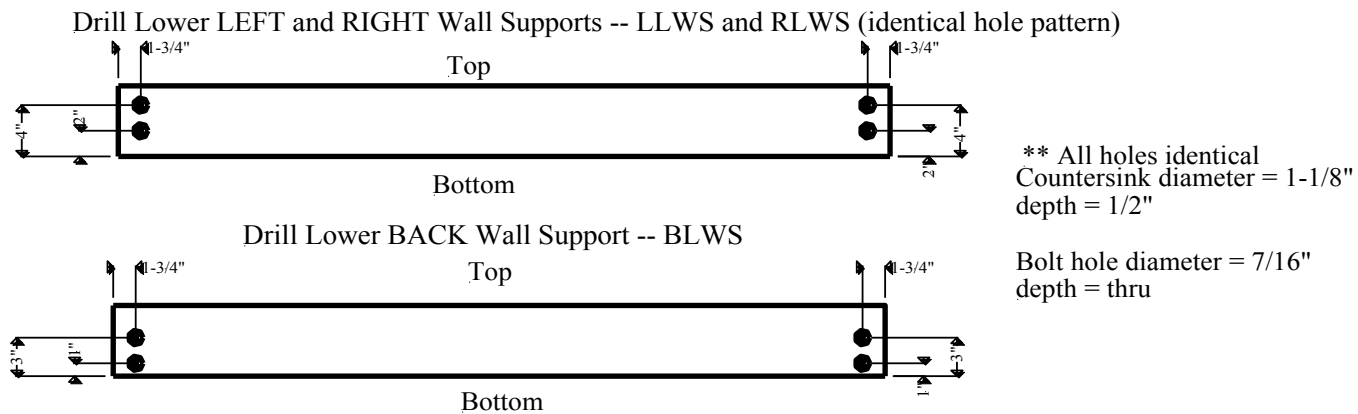


\*\* All holes identical

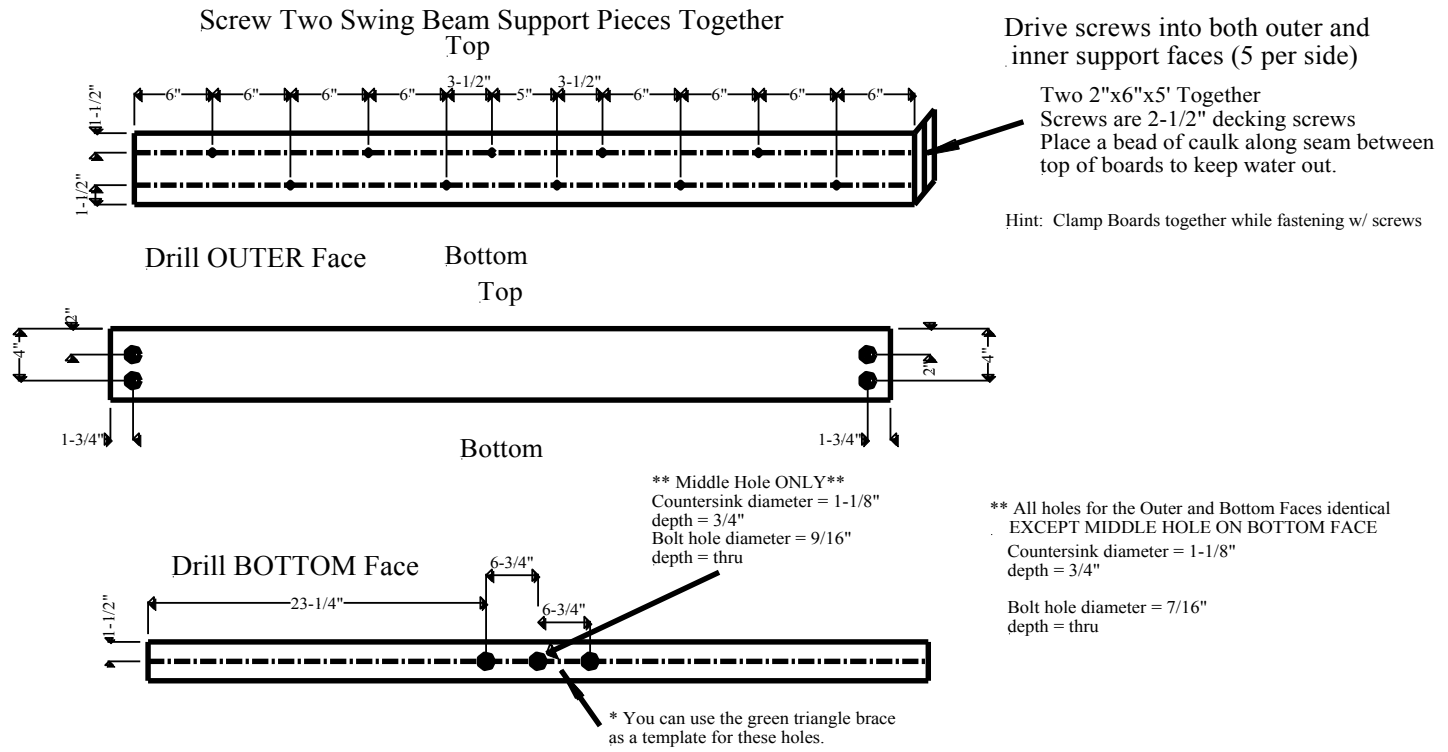
## Diagram 10. DRILL MID PLATFORM SUPPORTS (2"x4"x5')



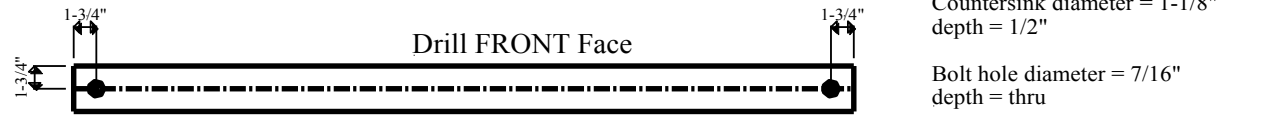
## Diagram 11. DRILL LOWER WALL SUPPORTS (2"x6"x5')



### Diagram 13. DRILL SWING BEAM SUPPORT -- SBS (2"x6"x5')

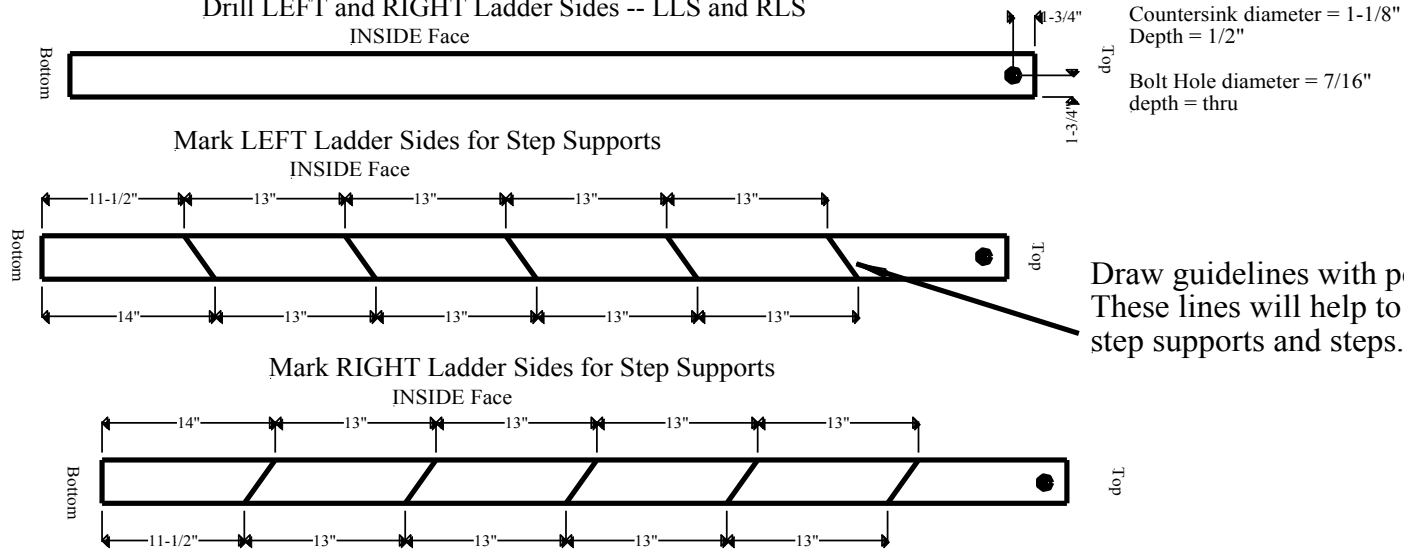


### Diagram 14. DRILL SIDE GUARD (2"x4"x5')



## Diagram 15. DRILL AND MARK LADDER SIDES (2"x4"x6'-6")

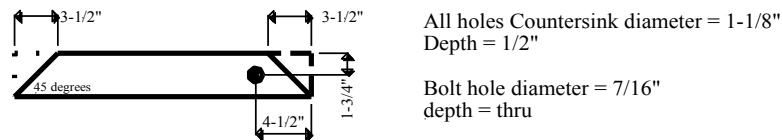
Drill LEFT and RIGHT Ladder Sides -- LLS and RLS



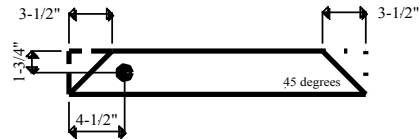
## Diagram 16. DRILL AND CUT CORNER BRACES -- CB (2"x4"x2')

\* There are a total of six corner braces

Drill/Cut LEFT BACK, RIGHT FRONT, and FRONT LEFT Corner Braces



Drill/Cut LEFT FRONT, RIGHT BACK, and FRONT RIGHT Corner Braces



#### STEP 4. ASSEMBLE FORT BASE AND FLOOR (Diagrams 17-20)

##### ■ *General Notes about Bolt Installation:*

1. All nuts, lock washers, and flat washers that are included in the kit are the same size and will fit any bolt included in the kit.
2. All bolts are 3/8" diameter except the main swing beam bolt which is 1/2" diameter. There are several lengths of bolts included in the kit. They are designated by their shank length – ie the length from the head to the end of the bolt. Check the bolt reference list included in Table 1C and sort the bolts accordingly before beginning assembly.
3. Carriage Bolts - Carriage bolts do not have pointed ends like lag screws. The threaded end of the carriage bolts should be in the countersink portion of connecting piece. A flat washer, then lock washer, followed by a hex nut should be placed on the end of the bolt. The nut should be tightened using your 9/16" socket wrench.
4. Lag Screws – Lag screws have pointy ends. Lag screws should be tightened with a flat washer and lock washer next to the head. The head will always be placed into the countersink in the wood.

NOTE: In the assembly diagrams, a circle with an X in it represents a bolt head. This means the bolt is going into the plane of the paper. An open circle means the bolt is coming out of the plane of the paper.

##### ■ *Assemble Sandbox Sides and Buttresses (Diagram 17)*

Attach the Front Buttress to Fort Posts 1 and 2 as shown. The outer face of the Buttress attaches to the back face of the posts using 7" Carriage bolts. The Sandbox Side inner face attaches to the Fort Post front faces (countersink facing out) using 4" lag screws. Assemble the Back similarly.

##### ■ *Assemble Sandbox Sides and Buttresses (Diagram 18)*

You will need some help with this step. Move the two sections assembled previously to the fort site. Make sure that the fort site is level and all grass/weeds are removed if you plan on filling the sandbox area with sand. Hold the two sections upright about 5' apart and bolt the remaining two sandbox sides on. This helps to make sure the posts are square. Next, bolt the two remaining buttresses on. Do a final check with your framing square to make sure that everything is square.

##### ■ *Assemble Roof Posts and Mid Platform Supports (Diagram 19)*

Bolt Front and Back Roof Posts onto respective Buttress using 7" carriage bolts. Use your framing square to make sure that the post is straight up and

down before completely tightening the bolts. Next bolt the mid platform supports (countersink facing out) to the roof posts using 4" lag screws.

■ *Assemble Fort Floor Decking (Diagram 20)*

Use 2-1/2" decking screws to fasten floor boards to Buttresses and Mid Platform Supports. Make sure that the ends of the boards do not extend beyond the fort post outer faces because you will need to attach the side wall supports across this plane later. The floor boards are purposely cut slightly short to reduce the possibility of interference with the side wall supports.

STEP 5. ASSEMBLE FORT WALLS, ROOF (Diagrams 21-24)

■ *Assemble Side Wall Supports and Side Guard (Diagram 21)*

■ *Assemble Fort Walls (Diagram 22)*

Fasten the Fort Wall boards to the inside of the Side Wall Supports using 2-1/2" decking screws. Note that the bottom of the Wall boards rest slightly above the floor boards and the tops should not extend above the Upper Side Wall Supports.

■ *Assemble Roof Boards and Roof Tarp (Diagram 23)*

Place the Roof Boards flat on the tops of the Fort Posts. Use the 2-1/2" decking screws (2 per post in the pattern shown) to fasten the boards to the posts. Pre-drill the snap holes for the left side of the tarp as shown on the **underside** of the roof boards with a 5/64" drill bit. Screw the snaps into the pre-drilled holes with a phillips screwdriver and attach the left side of the tarp. Next, stretch the roof tarp tight and mark the position of the screw snaps for the other side. See Diagram 24 for a Front View of Tarp and how it fits over roof boards.

■ *Assemble Front Upper Wall Support (Diagram 24)*

STEP 6. ASSEMBLE CORNER BRACES , LADDER (Diagrams 25-27)

■ *Assemble Corner Braces (Diagram 25)*

Bolt the Corner Braces onto the Side Buttresses. Place the angled side of the corner brace flush against the Fort Post. Make sure to pre-drill the decking screw holes to prevent splitting. Fasten with (2) 2-1/2" decking screws.

■ *Assemble Ladder Step Supports (Diagram 26)*

Align top of Step Supports with guidelines on Ladder Sides. While holding step support, pre-drill screw holes into step supports with 7/64" drill bit to

avoid splitting wood. You do not need to predrill all the way into ladder sides. Tighten one decking screw so that it is started into the ladder side. Tighten the other decking screw all the way down, and then go back and finish tightening the first screw.

■ *Assemble Ladder (Diagram 27)*

Lean Ladder Sides against Fort floor (Diagram 28) and line up the ends of the ladder sides with the inside faces of the fort posts. Place all of the Ladder Steps onto the Ladder Step Supports and push the Ladder Sides together as tightly as possible against the ladder steps. "Eyeball" decking screw position so that it hits the middle of the Ladder Step when tightened. There is no need to predrill these holes. Fasten all steps with 2 decking screws per step per side.

**STEP 7. INSTALL SLIDE, LADDER (Diagram 28)**

Position ladder so that the tops of the ladder sides do not extend beyond the inside faces of the fort posts. Using a pencil, mark position of holes on fort posts for lag screws. Remove ladder and use 1/4" drill bit to drill a 2-1/2" pilot hole for the lag screws. Replace ladder and fasten with 4" lag screws.

Install the slide using small decking screws that do not protrude through the fort floor.

**A. Build SwingFrame (Optional – 2 swing or 3 Swing)**

**STEP 1. ROUND WOOD CORNERS**

See instructions under Section B of this Chapter.

**STEP 2. CUT WOOD TO SIZE AND LABEL**

Use Table 2B to cut wood to correct size. Again, remember, measure twice and cut once.

**STEP 3. DRILL WOOD AND FINISH LABELING (Diagrams 29-30)**

■ *Drill Swing Beam (Diagram 29)*

Use the dimensions to position the ductile iron hangers on the swing beam. Mark hole locations and drill 1/4" pilot holes in the beam. Measure and drill holes for beam attachment through Top Face of Swing Beam. Note, the 9/16" hole in the Top Face for the 1/2" bolt.

■ *Cut and Drill Swing Legs and Leg Braces (Diagram 30)*

#### STEP 4. ASSEMBLE SWING LEGS (**Diagram 30**)

You may need some assistance with this step and Step 5. Go ahead and bring the swinglegs and braces to the swingset site. Assemble the a-frame brackets onto each side of the swing legs according to Diagram 30. The lip of the a-frame brackets should be level with each other and should extend slightly above the “V” formed by the two swing legs. Cut the swing brace and attach to the swing legs.

#### STEP 5. ASSEMBLE SWING BEAM (**Diagram 30**)

NOTE: The swing beam is very heavy and hard to handle. You will need the help of at least one other person for this step. First, attach the triangle plate with 5 ½” carriage bolts through the outer holes and into the swing beam support. Next, raise the swing leg assembly (make sure it is in the right position on the site). Place the swing beam on the support and leg assembly (note, this can be tricky). Next, place the 10” carriage bolt through the Swing Beam hole and triangle bracket. Place a 5 ½” carriage bolt through the underside of center hole in the triangle bracket and through the underside of the beam. Attach the a-frame brackets to the swing beam with (4) 8x2-1/2” decking screws and (2) 3/8”x5-1/2” carriage bolts/washers/nuts.

#### STEP 6. INSTALL SWING ACCESSORIES

Attach hangers to swing beam with 4-1/2" lag screws. Place the spring clips on each swing hanger. Slip the ends of the swingchains into the springclips. Adjust height if necessary.

Diagram 17. ASSEMBLE SANDBOX SIDES AND BUTTRESSES (A)

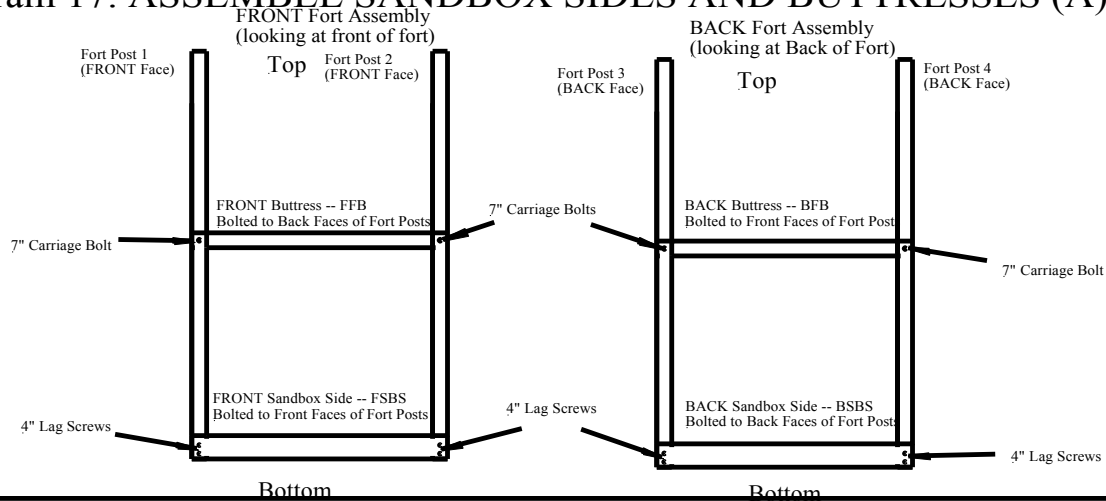
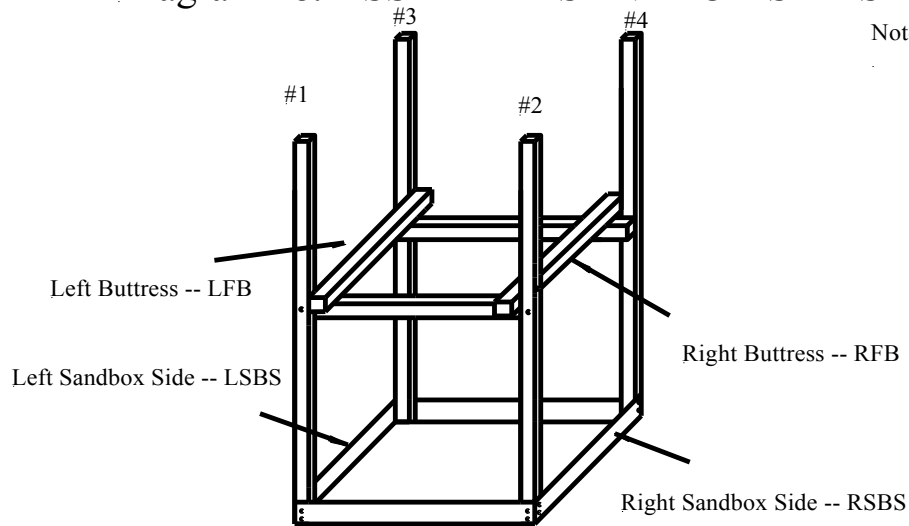


Diagram 18. ASSEMBLE SANDBOX SIDES AND BUTTRESSES (B)



Notes: A. Bolt on Left and Right Sandbox Sides FIRST  
 B. Use same bolts in same places as Diagram 17

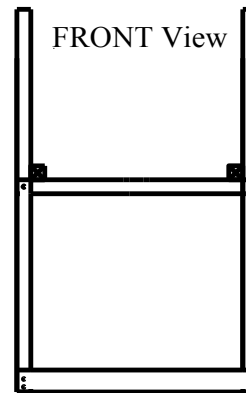
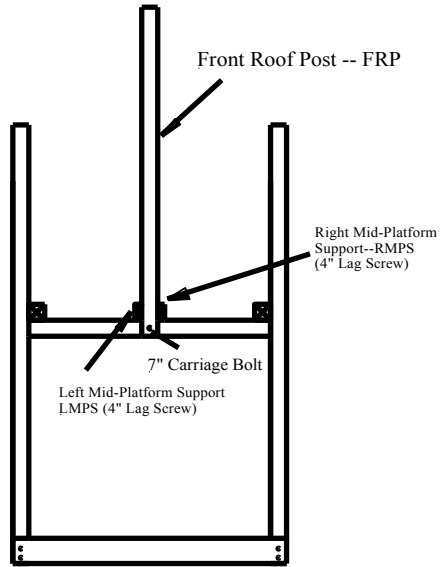


Diagram 19. ASSEMBLE MID PLATFORM SUPPORTS and ROOF POSTS

Front View (Back View is identical)



Top View (looking down on Floor Supports and Buttresses)

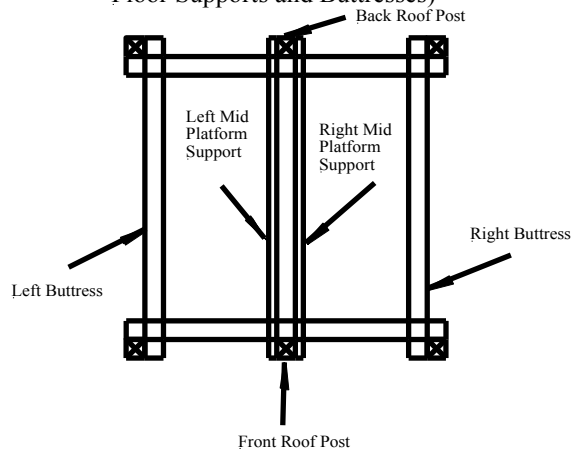
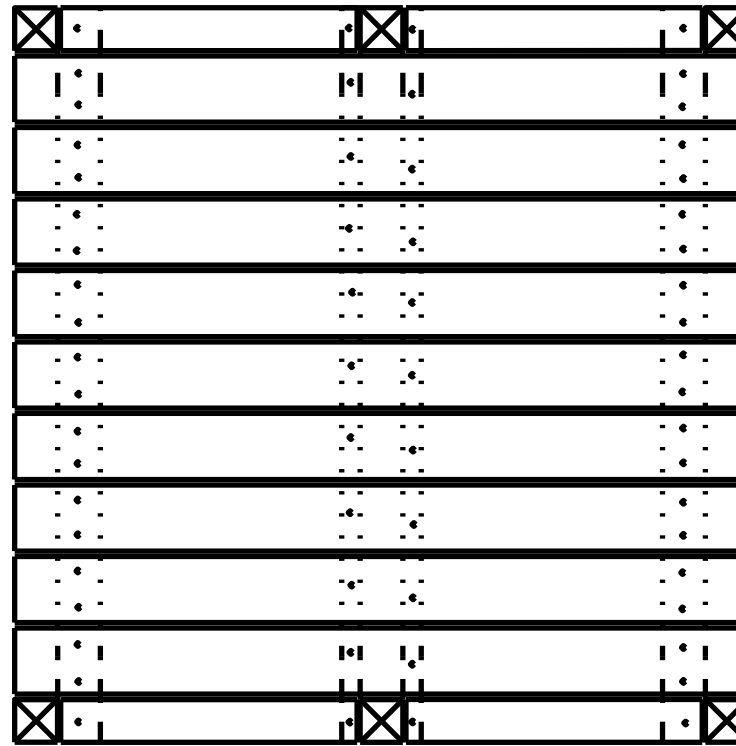


Diagram 20. ASSEMBLE FORT FLOOR DECKING (Top View)

End Decking Boards (5/4"x3-1/2"x24-1/4")

Boards spacing should be about 1/3"



Body Decking Boards (5/4"x6"x59-3/4") Qty = 9

End Decking Boards (5/4"x3-1/2"x24-1/4")

Use 2-1/2\" Decking Screws for hole pattern shown

Diagram 21. ASSEMBLE WALL SUPPORTS, SIDE GUARD

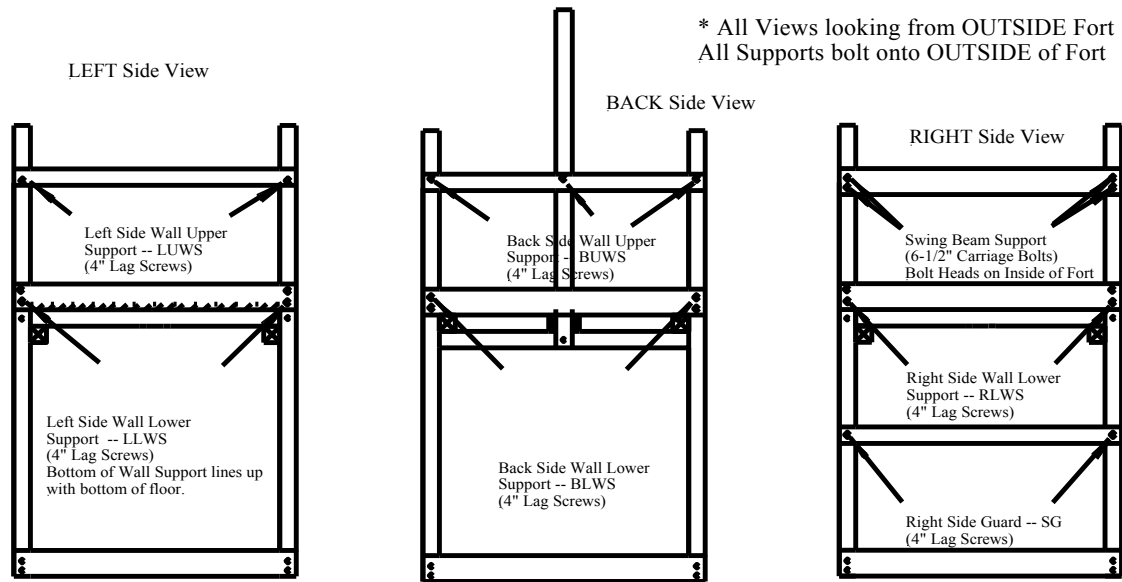


Diagram 22. ASSEMBLE FORT WALLS

Use 2-1/2" Decking Screws for Patterns Shown  
\* Be careful not to overdrill screws--overdrilling will make the screw point stick out of the wall support

\*\*Fasten Wall Boards on INSIDE of Fort\*\*  
\* All Views looking from INSIDE Fort

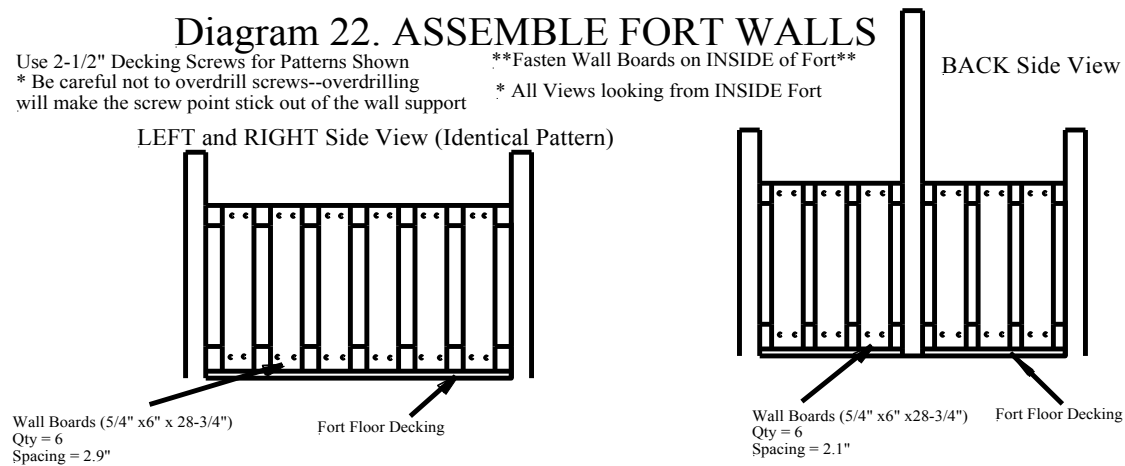


Diagram 23. ASSEMBLE ROOF BOARDS and ROOF TARP

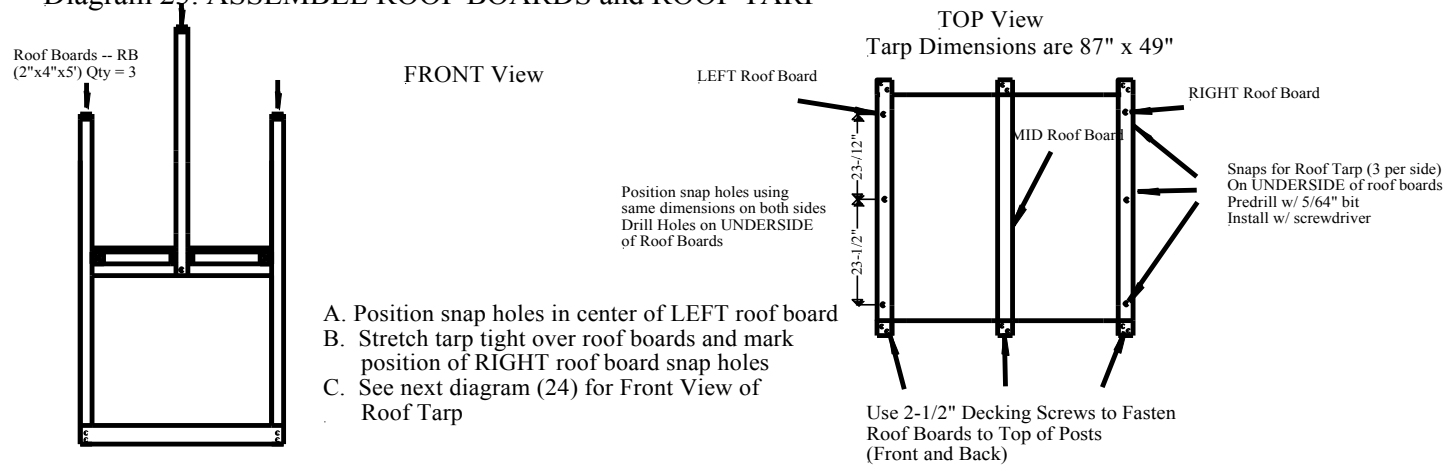
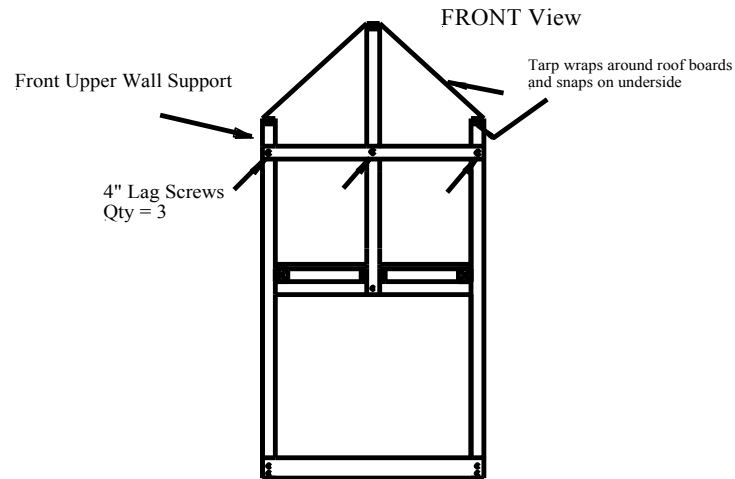


Diagram 24. ASSEMBLE FRONT UPPER WALL SUPPORT



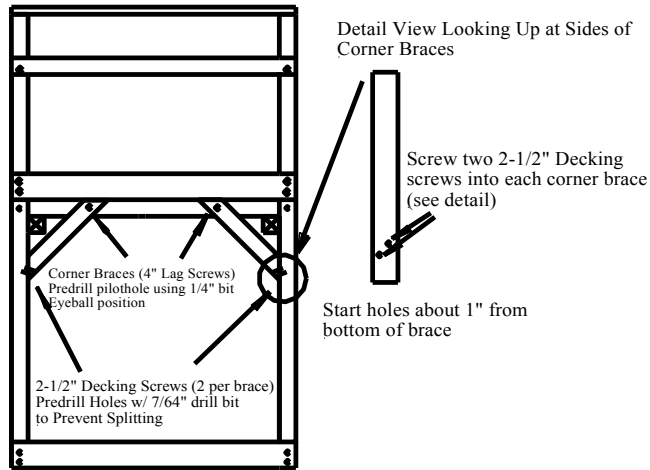
**Diagram 25. ASSEMBLE CORNER BRACES**

(2 braces per side on Front, Left, and Right Sides of Fort)

LEFT Side View

\* View looking from OUTSIDE Fort

\* Front and Right Side Views Identical



**Diagram 26. ASSEMBLE LADDER STEP SUPPORTS**

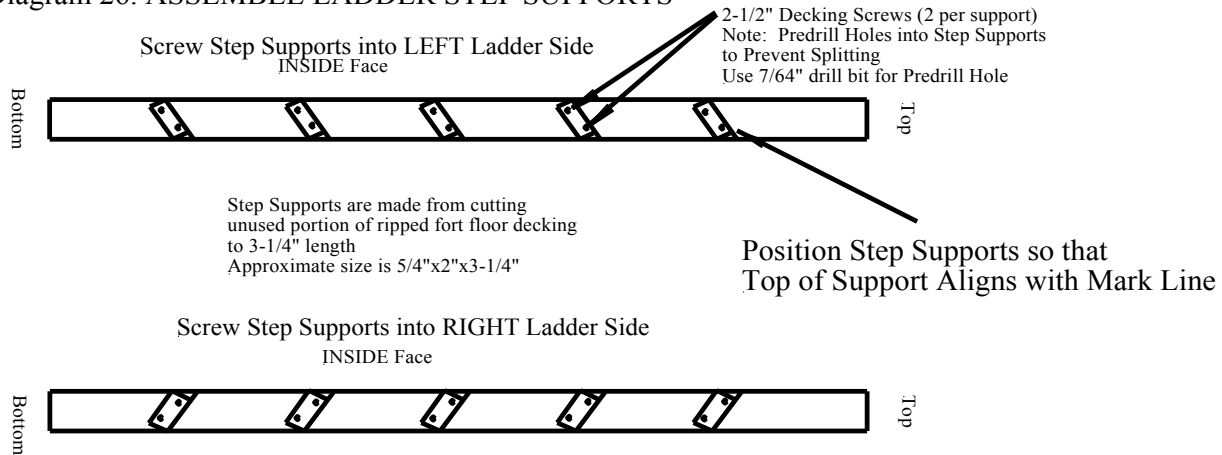


Diagram 27. ASSEMBLE LADDER

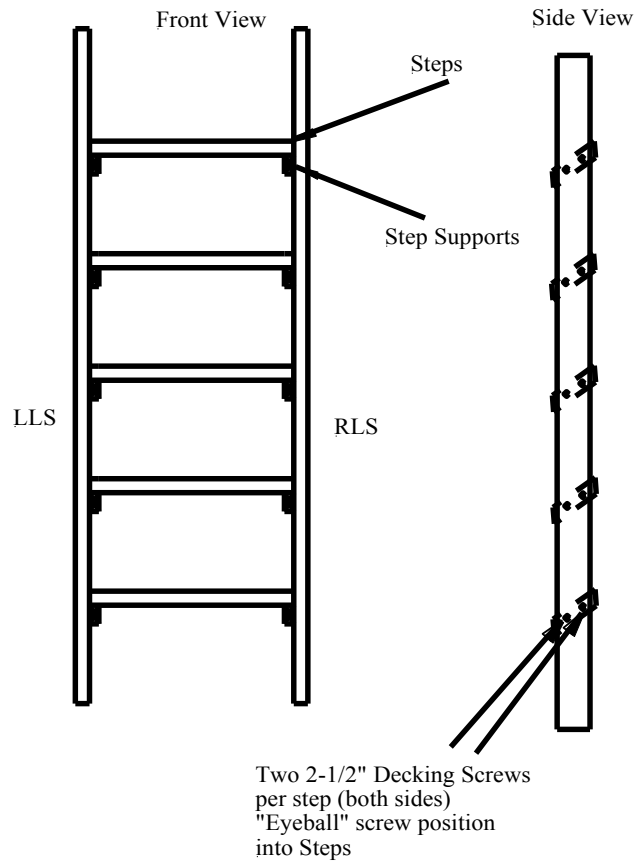
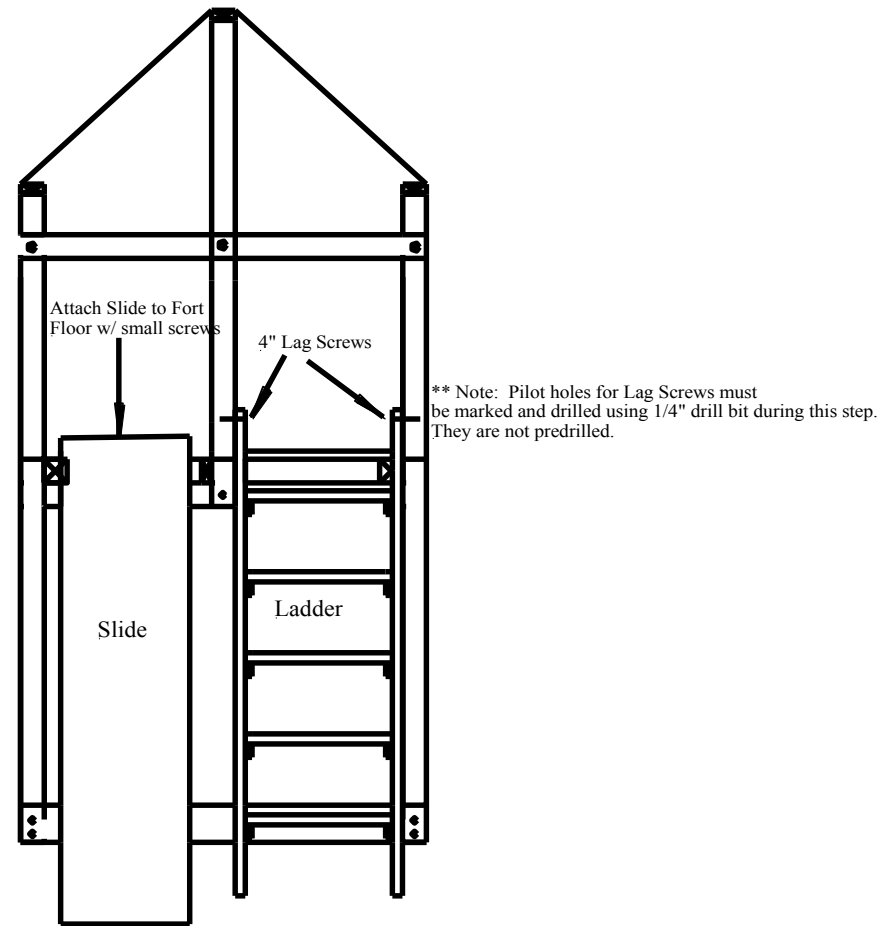


Diagram 28. INSTALL FORT ACCESSORIES



## Diagram 29. DRILL SWING BEAM -- SB (4"x6"x12')

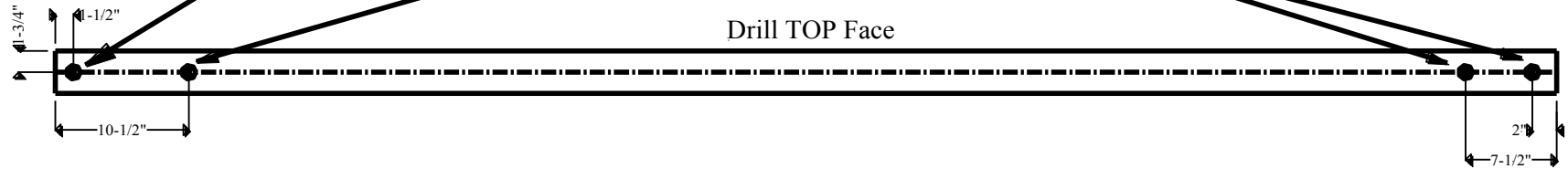
NOTE: Use the measurements below to position the wood beam hangers and drill 1/4" pilot holes for the lag bolts.

Drill BOTTOM Face



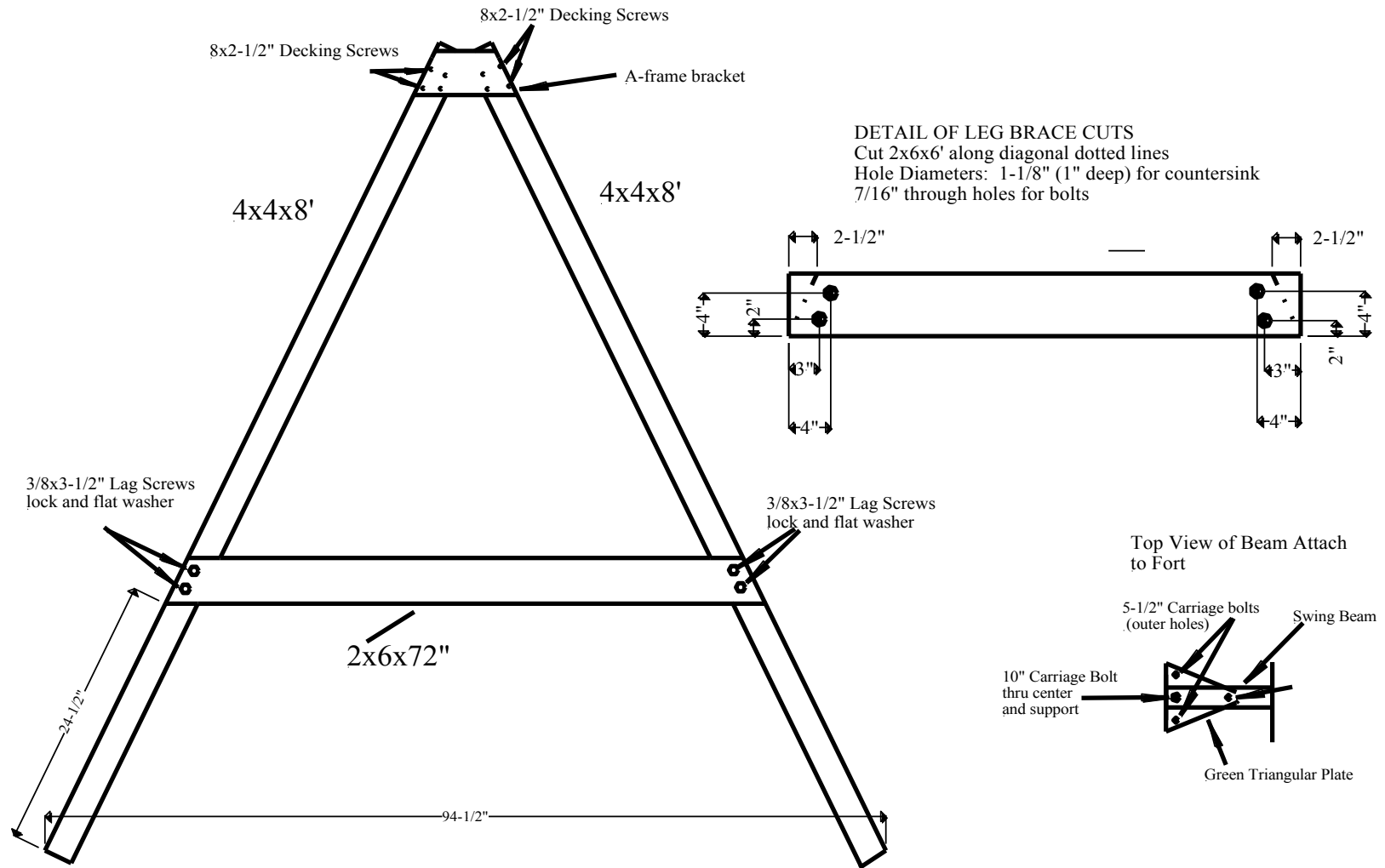
Countersink diameter = 1-1/8"  
depth = 1"  
Bolt hole diameter = 9/16"  
depth = thru

Countersink diameter = 1-1/8"  
depth = 3/4"  
Bolt hole diameter = 7/16"  
depth = thru



Drill TOP Face

# Diagram 30. ASSEMBLE SWING LEGS/SWING BEAM



## CHAPTER 3. Maintaining Your Set

### A. Finishing

Pressure treating wood does not protect it from moisture and the sun's UV rays. This means that you will need to apply a combination stain/water repellent that contains U.V. blockers to your swingset. You should apply the first coat a few weeks after you have completed the project and reapply every few years thereafter for optimum durability.

The first step is to prepare the surface of your swingset by spraying it down with a hard stream of water from your garden hose to remove any debris and dirt. If you are very overdue on your finish job and the swingset is filthy, you should clean the surface with a deck cleaning solution.

An oil or acrylic based semi-transparent stain with water repellent and U.V. blockers is your best choice for finishing your swingset. These stains are commonly sold as "deck and siding stains". You will need one gallon to apply one coat to your swingset. Read the manufacturer's instructions to determine how to apply the stain and how often to reapply. We recommend that you use a 1-1/2 to 2" brush, as opposed to a roller or sprayer, to finish your set. **If you have already installed your swingset accessories, remove them to prevent them from getting splattered with paint.** It will probably take two people about 3-4 hours to apply one coat to the swingset.

### B. Maintenance

You should inspect your swingset about twice monthly during the usage season. This should involve tightening nuts, inspecting ropes and chains, and looking for splinters. The wood on your swingset will probably shrink the most during the first month, so do not be surprised if the nuts are especially loose for the first inspection.

In harsh cold climates, the swings and ropes should be taken inside when the temperature is below freezing for an extended period of time.

## **Chapter 4. MONKEY BAR ADD-ON**

**CAUTION:** Monkey bars are not suited for all children because of strength and agility requirements. As with all playground equipment, proper adult supervision is required. Recommended for ages 5-12. Children should NEVER play on top of the monkey bar assembly.

### Required materials

- Monkey Bars (7 bars)
- Wood from Table 1
- (16) 3/8x2" galvanized lag screws
- (18) 3/8x4" galvanized lag screws
- (5) 3/8x7" galvanized carriage bolts
- (39) 3/8" flat washers, (39) lock washers and (5) 3/8" hex nuts

### NOTES:

**Diagram 1** Remove the (3) wall boards and then cut the upper wall support (2x4x5) to 31-3/4" length and cut the lower wall support (2x6x5) to 31-3/4" length as illustrated in Diagram 1. Redrill the holes in the cut end of the board in the identical configuration as the original boards.

**Diagram4.** You will need to modify the existing Fort Post #3 (Back Left) by drilling a 7/16" diameter thru hole in the post at the location shown.

**Diagram 5.** Two people are needed for this step. You will first need to measure out 92-1/2" from fort post #3 and use a shovel or post hole diggers (recommended) to dig a hole exactly 20" deep. It is very important that the back of the hole be lined up with the back of the fort post. Next, you will need to dig the hole for the second vertical support post 31-3/4" to the side from the first one.

**STEP 10.** Assemble Ladder Steps /Install Monkey Bars (Diagram 8)  
Place the monkey bars on the horizontal support posts approximately 12" apart. Use the holes in the monkey bars to mark hole positions in the horizontal support posts. Pre-drill with 1/4" diameter bit and use 2" lag screws and washers to attach. Note that monkey bars may not initially lie flat on the support posts, but they will flatten out as you tighten them down with the lag screws.

Table 1. Monkey Bar Add-On Wood Cut List

<u>Description</u>	<u>Size as Purchased</u>	<u>Qty Purchased</u>	<u>Cut to Size</u>	<u>Cut to Qty</u>	<u>Label Abbrev.</u>
Fort Step Support	4x4x8'	1	4x4x53-1/4"	1	FSS
Horizontal Bar Supports	4x4x8'	2	Trim to exactly 8'	2	HBS
Vertical Support Posts	4x4x10'	2	4x4x8'-10 3/4"	2	VSP
Ladder Steps	2x4x8'	2	2x4x31-3/4"	6	LS
Horizontal Brace	2x4x10'	1	2x4x102"	1	HB
Diagonal Braces	2x4x12'	1	2x4x66"	2	DB

Diagram 1. Modify Existing Fort Structure

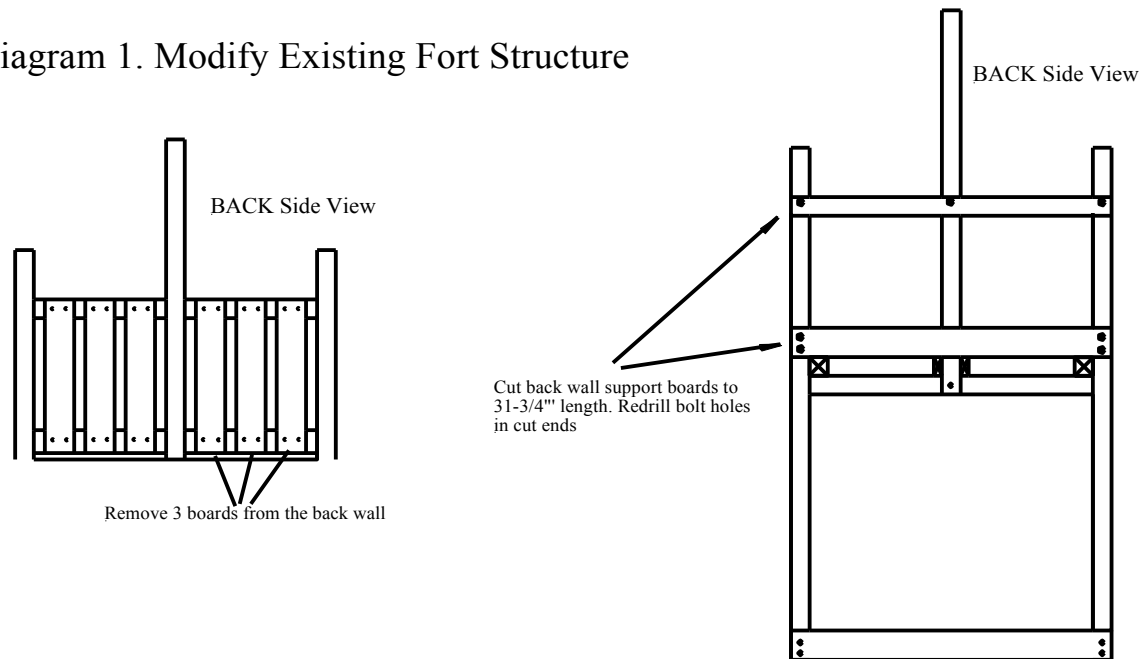


Diagram 2A. DRILL VERTICAL SUPPORT POSTS (4"x4"x8'-10 3/4")

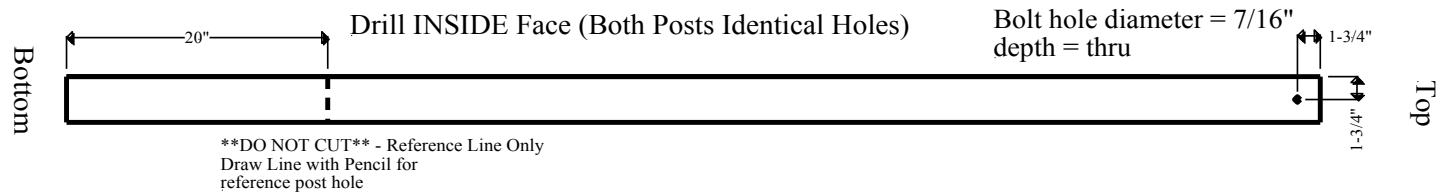


Diagram 2B. DRILL HORIZONTAL SUPPORT POSTS #1 (4"x4"x8')

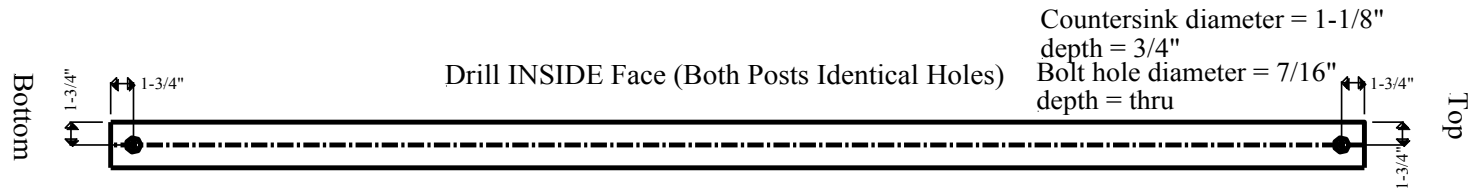


Diagram 3A. DRILL FORT SUPPORT POST (4x4x53-1/4")

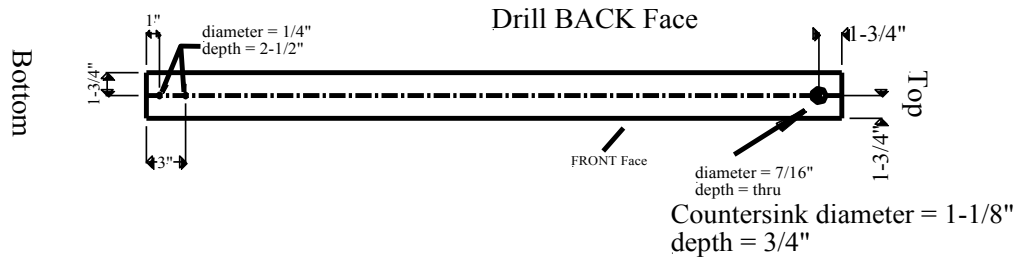
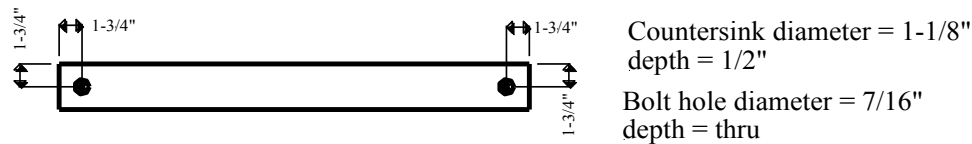
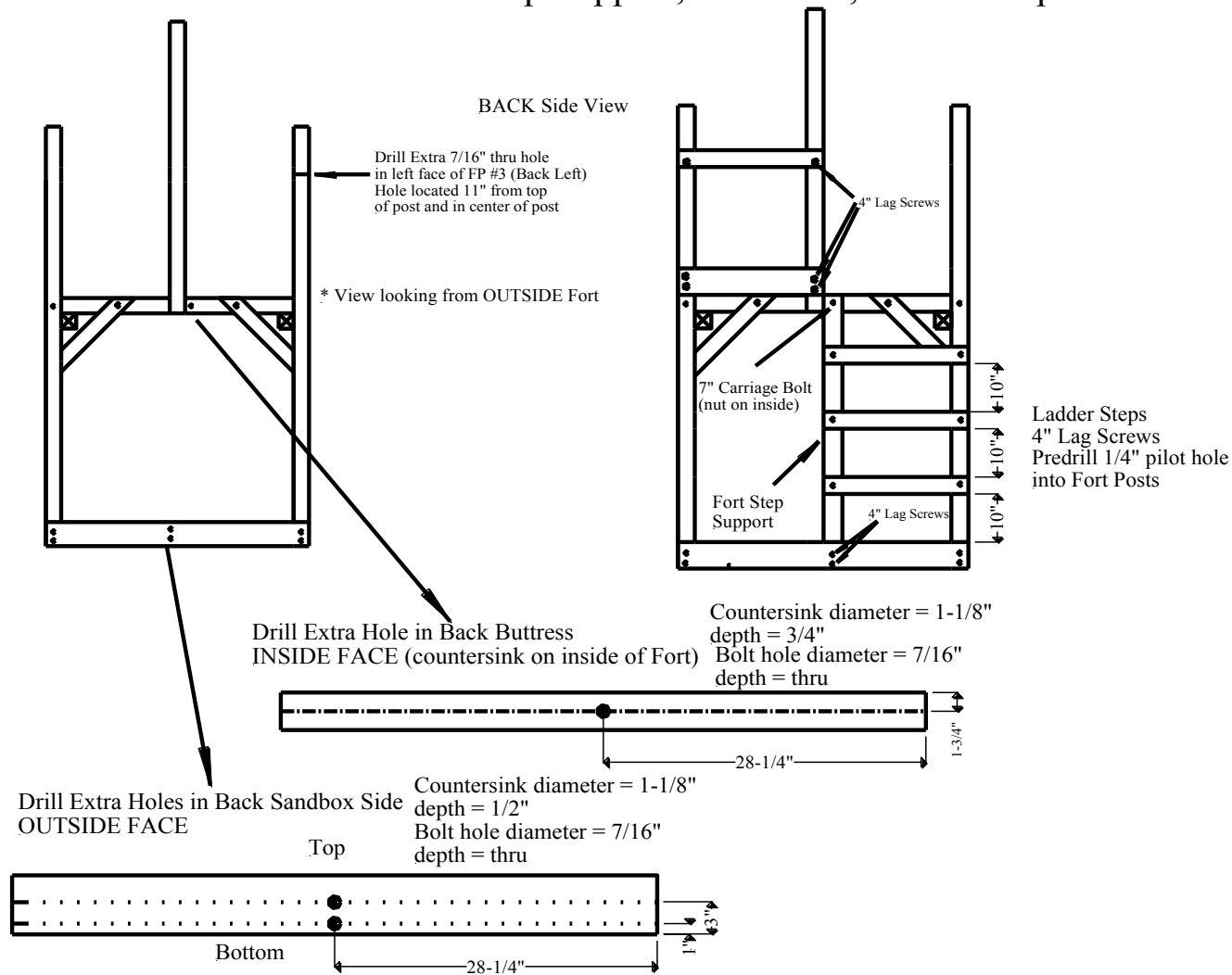


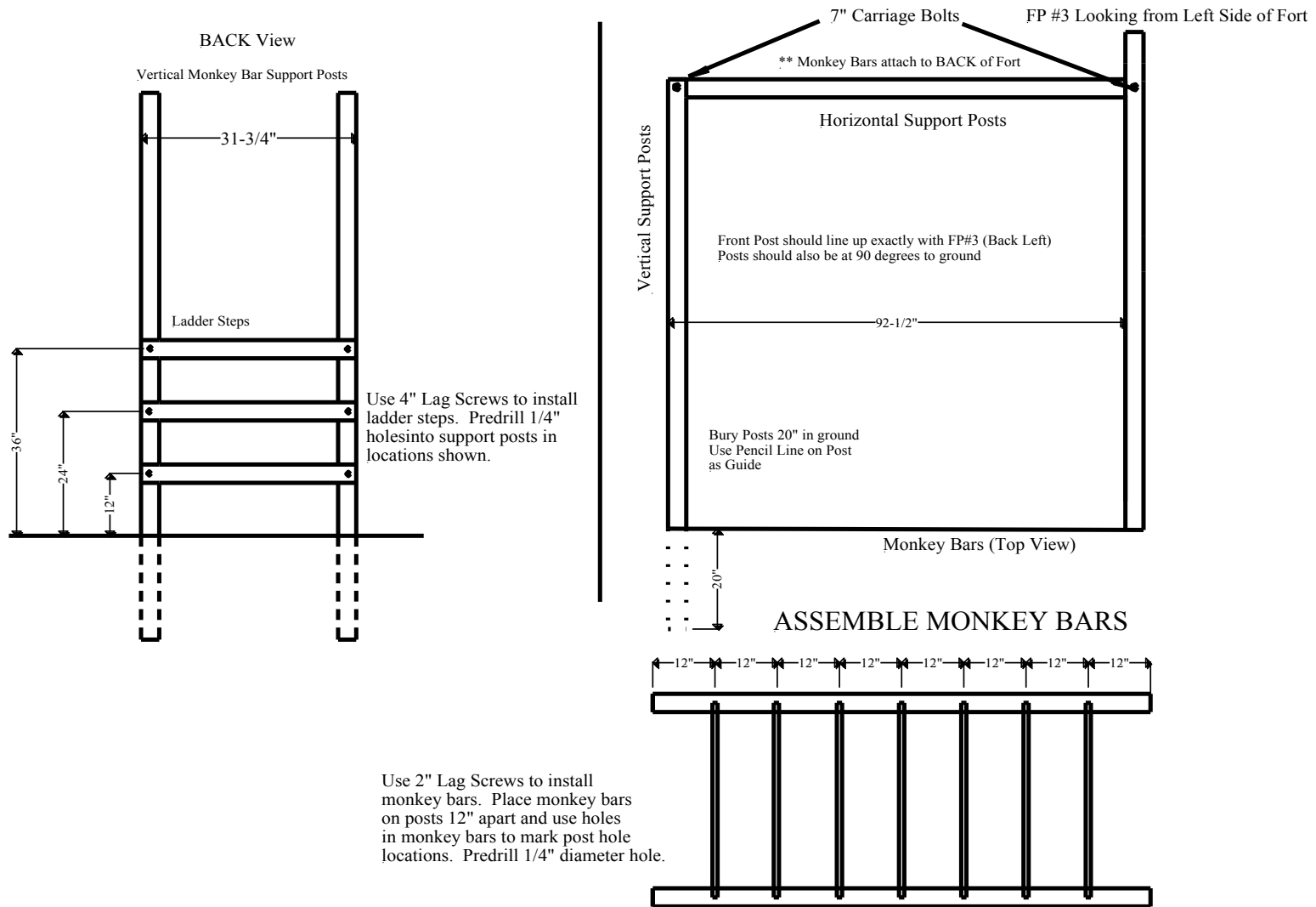
Diagram 3B. DRILL LADDER STEPS (2x4x31-3/4", and 2x4x28-1/4")



### Diagram 4. Drill Extra Holes in Back Buttress, Sandbox Side, FP#3 Assemble Fort Step Support, Side Wall, Ladder Steps

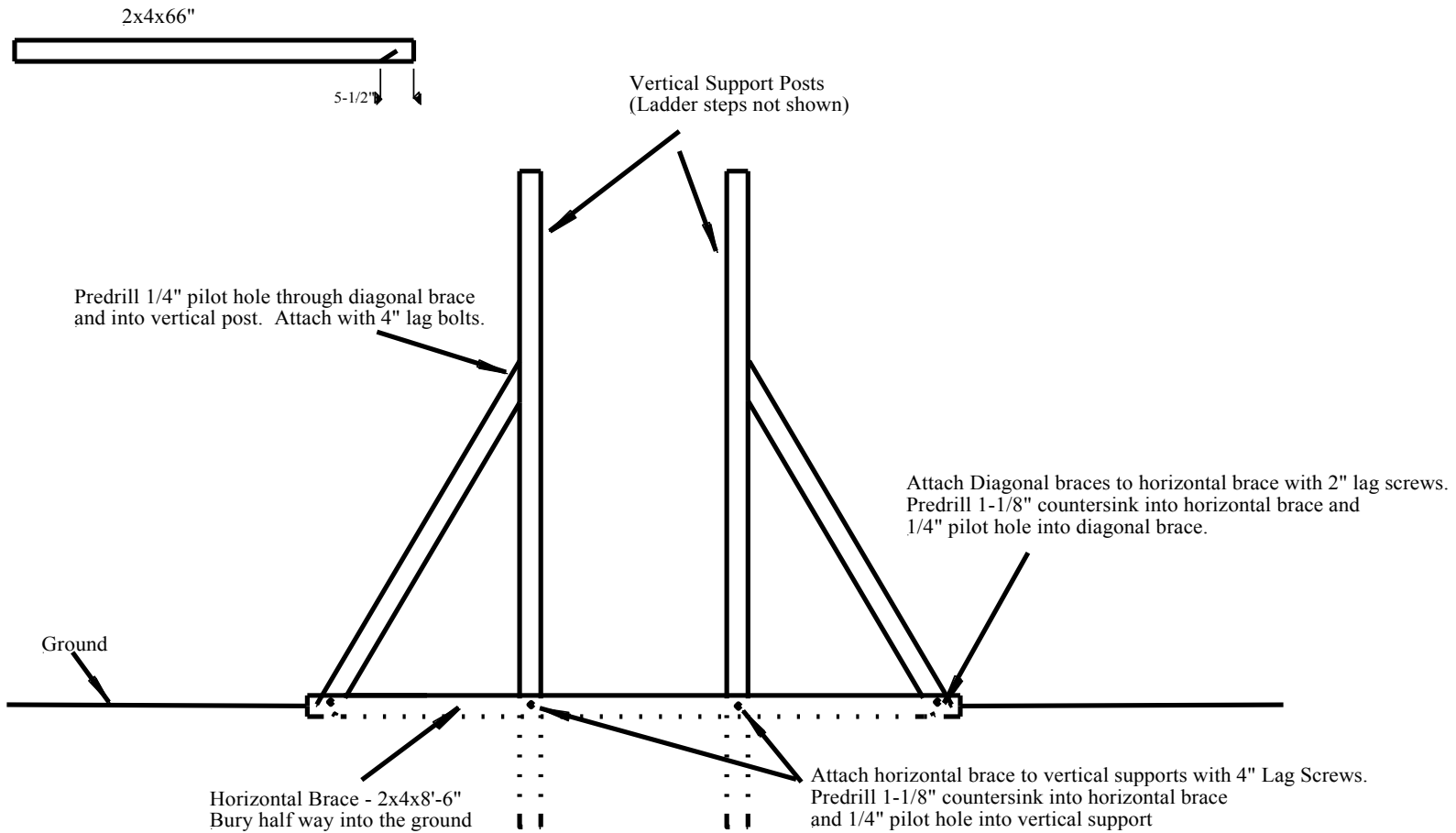


# Diagram 5. ASSEMBLE VERTICAL AND HORIZONTAL SUPPORT POSTS



## Diagram 6. ASSEMBLE DIAGONAL SUPPORT STRUCTURE

Diagonal Braces -- Cut along dotted line  
Left and Right Side Supports Identical



## **CHAPTER 5. ROCK WALL ADD-ON**

### Required materials

- Rock Wall Pieces and hardware (12 pieces w/ hardware)
- (1) 4x4x12' cut to (2) 4x4x6'
- (6) 2x6x10' cut to (12) 2x6x5'
- (48) 8x2-1/2" decking galvanized decking screws
- (2) 3/8x4" galvanized lag screws w/ washers

### **NOTES:**

The angle on the side supports assumes that your yard is level between the fort and where the rock wall will rest. If not, adjustments will need to be made to the angle to insure a flat fit against the fort posts.

Remove the lower wall support (2x6) and the fort wall boards from the upper wall support (2x4). Remove this entire assembly. Leave the top support board on.

You may want to attach about 1/2 of the wall boards and then prop up against the back side of the fort -- the wall will be very heavy when all of the boards are attached. **DO NOT ATTACH THE TOP BOARD YET.**

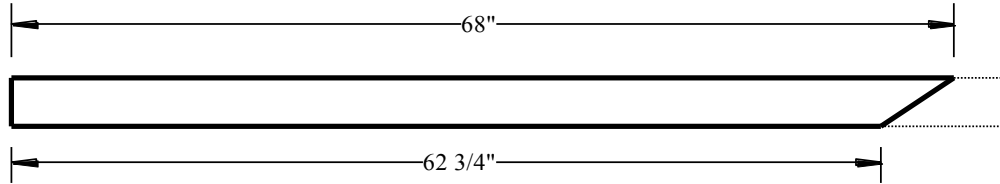
Lean the completed rock wall against the back fort posts. The top of the rock wall side supports should be about 2" above the fort floor height. Measure along the side support about 3-1/2" from the top, and use the 7/16" bit to drill through the wall support, but not into the fort posts. Use the 1/4" bit to drill a pilot hole into the fort posts for the lag screws. Finally, use the 1-1/8" bit to drill a countersink for the bolt head. Insert and tighten the lag screws. Attach the top wall board over the lag screw heads.

Replace the floor board that had been ripped to size when you built the fort floor for your swingset with a new floor board that fills the gap.

You should consider your children's age and ability when laying out the rock wall pieces (spacing and pattern). In general, you will want to alternate foot and hand holds that will allow your children to easily climb up the wall. When you have decided on a pattern, mark and drill the holes for the bolts using a 3/8" drill bit. Hammer the t-nuts into the hole exits, hammering the spikes of the t-nuts into the wood. Attach the rock wall pieces to the wall by screwing the bolts into the t-nuts.

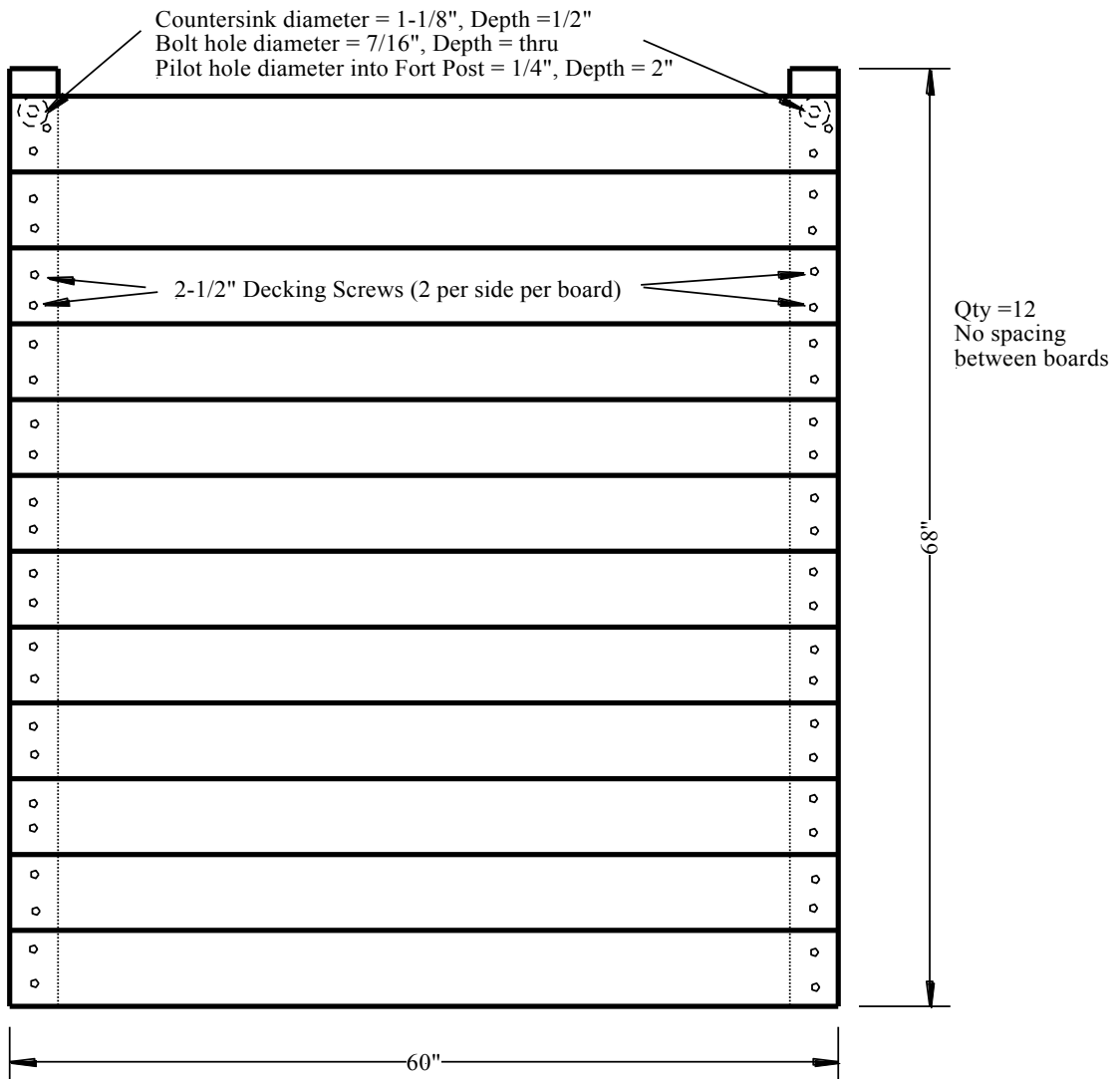
# Diagram 1. Rock Wall Construction

## 1A. Cut Side Support Posts (4x4x6')



## 1B. Attach Wall Boards (2x6x5')

\* Before attaching top board, attach side posts to fort w/ 3/8"x4" lag screws



## **CHAPTER 6. TIRE SWING ADD-ON**

\* CHILDREN SHOULD NEVER LEAN ALL THE WAY BACK WHILE SPINNING ON THE TIRE SWING. THIS COULD LEAD TO SERIOUS HEAD INJURIES FROM THE SUPPORTING POSTS.

### **Required materials – Supplied**

- (2) A-Frame Brackets
- Truss Bracket
- (1) Residential Tire Swivel
- (3) Quick Links
- (3) Chains with attached tire-eye bolts
- (4) 3/8"x7" Carriage Bolts
- (2) 3/8"x4" Lag Screws
- (22) 8x2-1/2" decking screws
- (4) 5/16"x2-1/2" Lag Screws
- (2) 5/16" x 3-1/2" Lag Screws
- (7) 3/8" Flat Washers
- (7) 3/8" Lock Washers
- (6) 5/16" Flat Washers
- (6) 5/16" Lock Washers
- (5) 3/8" Hex nuts
- (2) 1/2" Flat Washers

### **Required materials - NOT Supplied**

- (1) 4x6x10' – do not trim
- (2) 4x4x8' - cut each to 4x4x71"
- (1) 2x6x6' – cut to 2x6x45"

### **STEP 1. Assemble Tire Swing A-frame (Diagram 1)**

Lay the two 4x4x71" on the ground at an angle to each other. Position the two 4x4s inside one of the A-frame bracket provided, adjusting the angle between them to make sure that the edges of the bracket are fully contacting the edges of the 4x4s. Attach the bracket to the legs using (8) 8x2-1/2" decking screws in the smaller holes. Turn the assembly over and repeat for the other A-frame bracket.

Cut and drill the 2x6 as shown in Diagram 2. Place the 2x6 on the outside of the 4x4s until the edges line up. Mark hole locations on the 4x4s using the holes in the 2x6 as a guide. Drill 1/4" pilot holes in the 4x4s and use the (2) 3/8"x4" lag screws and washers to attach the 2x6 to the 4x4s.

**STEP 2. Drill Holes in Tire Swing Beam for Tire Swivel/Attach Swivel**

Drill holes in the swing beam and attach the swivel to the swing beam using the 3/8"x7" carriage bolts, with the head of the bolt and a 1/2" washer on the top of the swing beam (opposite the swivel), through the swivel flange, and followed by a 3/8" flat washer, a 3/8" lock washer, and a hex nut.

**STEP 3. Modify Fort for Tire Swing Beam**

Remove one of the wall boards of the fort so that you will have enough room to attach the tire swing beam to the fort post. Drill two 7/16" through holes (2-1/2" apart) in the center of the fort post, starting the first hole at 64-1/2" height from the bottom of the fort post. Drill the holes through the face that you will be attaching the tire swing beam.

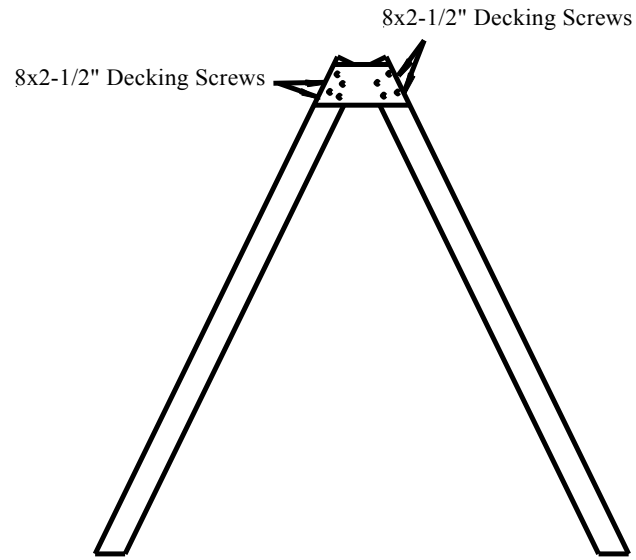
**STEP 4. Assemble Tire Swing Beam**

Have someone hold the swing beam against the fort post while you use the 3/8"x7" carriage bolts, washers, and nuts to attach it. Then, while the second person is still holding up the swing beam, move the tire swing a-frame into position under the swing beam. Attach the outside a-frame bracket to the swing beam with a 5/16" x 3-1/2" lag screw, washers, and two decking screws. Attach the inside a-frame bracket using the same procedure. Attach the truss bracket to one side of the assembly using the 5/16" x 2-1/2" lag screws and (4) decking screws. Replace the wall board that you removed earlier.

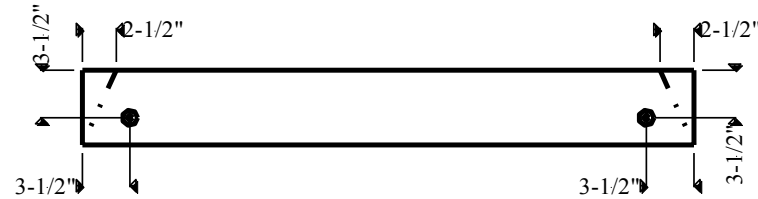
**STEP 5. Assemble Tire Swing**

Use the quick links to attach the tire swing chains to the swivel. Adjust the height of the tire swing as needed.

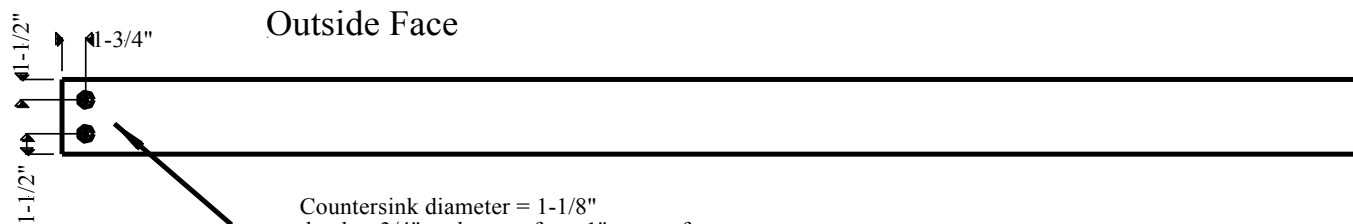
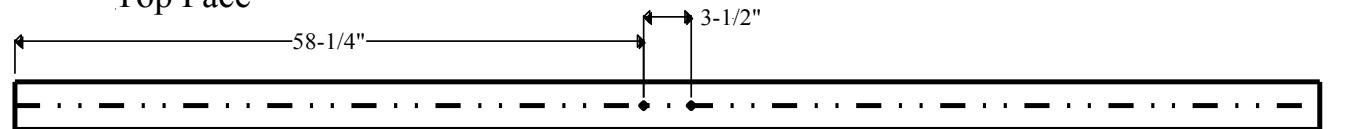
## Diagram 1. ASSEMBLE TIRE SWING A-FRAME



Cut 2x6x8' to 2x6x45". Cut along diagonal dotted lines  
 Hole Diameters: 1-1/8" (1" deep) for countersink  
 7/16" through holes for bolts



## Diagram 2. DRILL TIRE SWING BEAM



Countersink diameter = 1-1/8"  
 depth = 3/4" on bottom face, 1" on top face

Bolt hole diameter = 7/16"  
 depth = thru