

SUN BURST **SWINGSET KIT**



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. This swingset should be securely anchored to the ground using the anchors provided in this kit. The anchors should be placed below the level of the playing surface to prevent tripping or injury resulting from a fall.
4. In order to prevent serious injury, children must not use the equipment until properly assembled per these instructions.
5. 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 (3) 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.

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.

Fall Height In Feet From Which A
Life Threatening Head Injury
Would NOT be Expected

Type of Material	6 "Depth	9 " Depth	12" Depth
Double Shredded Bark Mulch	6	10	11
Wood Chips	7	10	11
Fine Sand	5	5	9
Fine Gravel	6	7	10

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.

INTRODUCTION

Thanks for purchasing our Sun Burst 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. We have also taken extra effort to make sure our instructions are easy-to-follow, so don't worry.

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. We have included detailed written instructions to accompany the full-page diagrams for the project. Chapter 3 is a short chapter on maintaining and finishing your swingset.

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 Table 1A and 1C to purchase your lumber and any tools that you do not have access to. After you have purchased your lumber, plan on about 4-5 hours to build your swingset.

Good luck and let us know if you have any problems!

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. For the Sun Burst design, you will need to have a space that is 24'Wx20'D. This includes the extra 6' safety zone that the Consumer Product Safety Commission recommends. See Diagram 1 for a detailed footprint.

In general, you should try to find a relatively level area for the set. You can use a string level (see Part C of this chapter) to determine if a large area is level or not.

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. Many H.O.A.'s will require that you submit a site plan as well as an idea of what the set will look like. By checking out the H.O.A. requirements ahead of time, you could save yourself some headache later.

B. Purchasing Lumber

PRESSURE TREATED WOOD

We recommend using ACQ pressure treated lumber for this project. It is strong, hard, economical, and decay resistant. There are other choices such as cedar or redwood that may be more readily available in your local region. These other choices may not be as strong as pine, so check with your local lumberyard for suitability.

Pressure treated wood has been chemically treated to protect it from rotting, termites, and other forms of decay. Manufacturers treat the lumber by using a pressurized injection method that forces a mixture of water and chemicals into the wood. The most common form of chemical treatment is CCA, or Chromated Copper Arsenate. We do not recommend using CCA treated lumber for our playground equipment projects. There is an alternative treatment called ACQ (Alkaline Copper Quat) that is becoming more available. Experts believe that this treatment is more environmentally friendly and safer than CCA treated lumber. Check your local lumberyard for availability.

Because CCA contains Chromium and Arsenic, there has been some concern in using this wood in playground structures. 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.

If you want to find out more information about pressure treated wood, there are several sources available on the web.

- www.awpi.org (American Wood Preservers Institute)
- www.southernpine.com/treated.htm (Southern Pine Council)

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"? This illustrates the difference between nominal and actual dimensions in the lumber industry, and although this is an industry standard, it can cause confusion to consumers. 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

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. 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 30 minutes for shopping for your lumber. During your trip to the hardware store, you can also buy any tools that you may not have access to. Take inventory of your current tools and compare it to the requirement list (Table 1C) before you go to buy your lumber so that you can buy everything at once.

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. As far as grade is concerned, make sure that you get #2 or better.

One of the most convenient places 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. The main problem with these stores is that many are not carrying the ACQ treated lumber yet; although most should have it available by the Fall of 2003. One of the advantages of going to these superstores is that some will cut lumber to length for a small charge (first two cuts are free, \$0.25 for additional cuts). We recommend that you use this service for cutting your posts (4x4) to length. It can be difficult to cut these with a circular saw, and it will only take a few minutes to have the staff cut them for you with their professional equipment. Many Home Depot stores also rent trucks right from the store premises for about \$20 so that you can haul the lumber home if you do not have access to a pickup truck. Call your local hardware superstore to make sure that they provide these services in your area.

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. Go ahead and plan that two to three days into your project schedule because it will be well worth it in the long run. You can use the time to find and prepare your swingset site (Section A of this Chapter).

C. Tools and Techniques

TOOLS

Table 1C contains a complete listing of all of the tools that are required to complete this project. You should be familiar with most of the tools on this list. Below are some notes about some of the tools:

1. Spade drill bits (or wood boring) are used for drilling long or wide holes. If you do not have these, you should be able to find them at most hardware stores.
2. There are some excellent plastic folding sawhorses out on the market now. These can be folded and stored after use, unlike wooden sawhorses. They sell for around \$30.
3. Unless you have a cordless drill (highly recommended), you will need a long extension cord to reach the swingset site.

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. Let's say that you need to mark the centerpoint of a hole that is 32" from the end of a board and 1-1/2" from the side. First, you would use the tape measure to mark off the 32" along the side of the board. Next, you would loosen the adjustment screw on the combination square and adjust the ruler to the 1-1/2". Finally, you would retighten the adjustment screw, push the combination square against the side of the wood, and make your mark..

You can also use the combination square to mark perpendicular (90 degree) 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.

Cross Cutting:

Cross cutting refers to cutting a piece of lumber across its width to make it shorter. Sawhorses will be required for this operation. Adjust the spacing between sawhorses until the wood that you are cutting is stable. 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.

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.

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 swing beam. To make this task easier, you may want to try drilling all the way through the beam with a long, smaller bit, and then drilling 1/2 of the larger hole from each side of the beam. In either case, make sure that you hold the drill straight up and down to ensure a straight hole.

If you are having a hard time penetrating the wood, you should pull the drill bit out and clean the wood shavings off in order to maximize cutting effectiveness. You can also try to move the drill bit in and out of the hole as you drill.

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 swingset wood. 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 it the guideface is level on the wood and then pushing the router with both hands along the wood edges.

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 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 (OPTIONAL)

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. It is better to do this before you cut the wood to length because you will eliminate the changeover time of placing multiple short pieces of wood on the sawhorses instead of just routing one long piece. Do not route the ENDS until the wood is cut to length.

STEP 2. CUT WOOD TO SIZE

Use Table 1A to cut wood to correct size. Remember, it is always good to measure twice and cut once.

STEP 3. ASSEMBLE A-FRAMES

■ *Install A-frame Braces (Diagram 2)*

Lay the two 4x4x9' on the ground at an angle to each other. Position the two 4x4s so that the edges of the A-frame brackets line up with the edges of the 4x4s. Make sure the horizontal lips of the a-frame brackets are positioned to accept the 4x6 swing beam properly. Do this by using a leftover piece of the 4x4 leg to simulate the swing beam. Attach one A-frame bracket to the outside of the legs and one to the inside using (8) 8x2-1/2" decking screws per bracket. Repeat this step for the other A-frame assembly.

■ *Drill Swing Leg Braces (Diagram 2)*

Start with each 2x6x6 and mark the holes and draw the angled cutlines as shown for each swing leg brace. Cut along angled cut lines with circular saw and drill holes as directed.

Position each leg brace so that it lines up with the edges of the swing legs. Mark the hole locations on the legs with a pencil and predrill 1/4" diameter holes in those locations. Attach the brace to each A-frame assembly using (4) 3/8x3-1/2" lag screws and washers.

STEP 4. DRILL SWING BEAM /INSTALL HANGERS (Diagram 3)

If you are using standard swing hangers, then drill the swing beam holes as shown. Push the swing hangers through the underside of the swing beam (use a hammer if necessary). Place a washer and locknut on the other end and tighten. See Diagram 4 for installation of swing hangers.

If you are using the ductile iron wood beam hangers, then using the dimensions as a guide for the wood beam hanger placement. Predrill 1/4" pilot holes for each hanger and install using 3/8"x4-1/2" lag screws and washers.

STEP 5. ASSEMBLE SWING BEAM (Swing-N-Slide Bracket Diagram)

This step will take at least 3 people to complete. Position the A-frame assemblies 12 feet apart. While holding each A-frame assembly upright, lift the swing beam up and place on top of the a-frame assembly. Use (2) additional 2-1/2" decking screws per A-frame bracket to attach the a-frame assembly to the swing beam. Predrill a 3/16" dia pilot hole into the swing beam using the hole in the horizontal lip of the a-frame bracket as a guide. Install (1) 5/16" x 3-1/2" lag screw with washers into the pilot hole. Repeat the process for the other A-frame assembly. Attach each truss bracket to the swing beam as shown in the Swing-N-Slide diagram using (4) 5/16"x4-1/2" carriage bolts / washers and 2-1/2" decking screws. Predrill the through holes with a 3/8" drill bit.

STEP 6. INSTALL SWING ACCESSORIES/ANCHORS (**Diagram 4**)

Place the quicklinks on each swing. Slip the ends of the swingchains into the quicklinks. Adjust height if necessary.

Install one anchor to each leg by wrapping the thin metal piece through the eye of the anchor and then looping it back onto itself. Install the anchor into the ground so that the eye is almost below ground level. Attach the sheet metal piece to the leg using the provided lag screw.

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-based, 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 every month 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.

Remove all swings/trapeze when the temperature reaches below freezing. This will help to prolong the life of the components.

NOTES:

TABLE 1A. CUT WOOD TO LENGTH FOR SUN BURST SWINGSET				
<u>Description</u>	<u>Size as Purchased</u>	<u>Qty Purchased</u>	<u>Cut to Size</u>	<u>Cut to Qty</u>
Swing Beam	4x6x12'	1	Do not trim	1
Swing Legs**	4x4x10'	4	4x4x9'	4
Swing Leg Brace	2x6x12'	1	2x6x6'	2

** Note: You can use untrimmed 4x4x8' and have a 7-2" high beam instead of 8' high)

TABLE 1B. SUN BURST Bolt Reference List		
<u>Type</u>	<u>Where Used</u>	<u>Quantity</u>
Lag Screws:		
5/16" x 3-1/2"	A-frame braces	4
3/8" x 3-1/2"	Swing Leg Braces	8
Carriage Bolts:		
5/16"x4-1/2"	Truss Brackets	12
Washers:		
3/8" Flat	All Bolts	10
3/8" Lock Washers	All Bolts	10
5/16" Hex Nuts	Truss Brackets	12
5/16" Flat		17
5/16" Lock		17
Decking Screws:		
8x2-1/2"	A-frame Braces	32
	Truss Brackets	16
	Extra	7
Total:		55
Swing Hangers:		
6" Shaft Length *	Swings/Trapeze	6
Quick Links		
	Swings/Trapeze	6
Anchors		
	Swing Legs	4

* If using optional wood beam hangers, then add (12) 3/8x4-1/2" Lag Screws and (12) 3/8" lock washers and (12) 3/8 flat washers

TABLE 1C. 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" diameter spade drill bit, 1/4", 3/16" diameter twist drill bit
 Combination Square, Tape Measure (at least 12' long)
 Extension cord (12' if you have a cordless drill, 50-100' otherwise)
 Socket wrench w/ 9/16" socket, 9/16" hand wrench
 Hammer, Pencil, (2) Saw horses, Safety Glasses, Work Gloves, Dust Mask

Diagram 1. SUNBURST SWINGSET LAYOUT

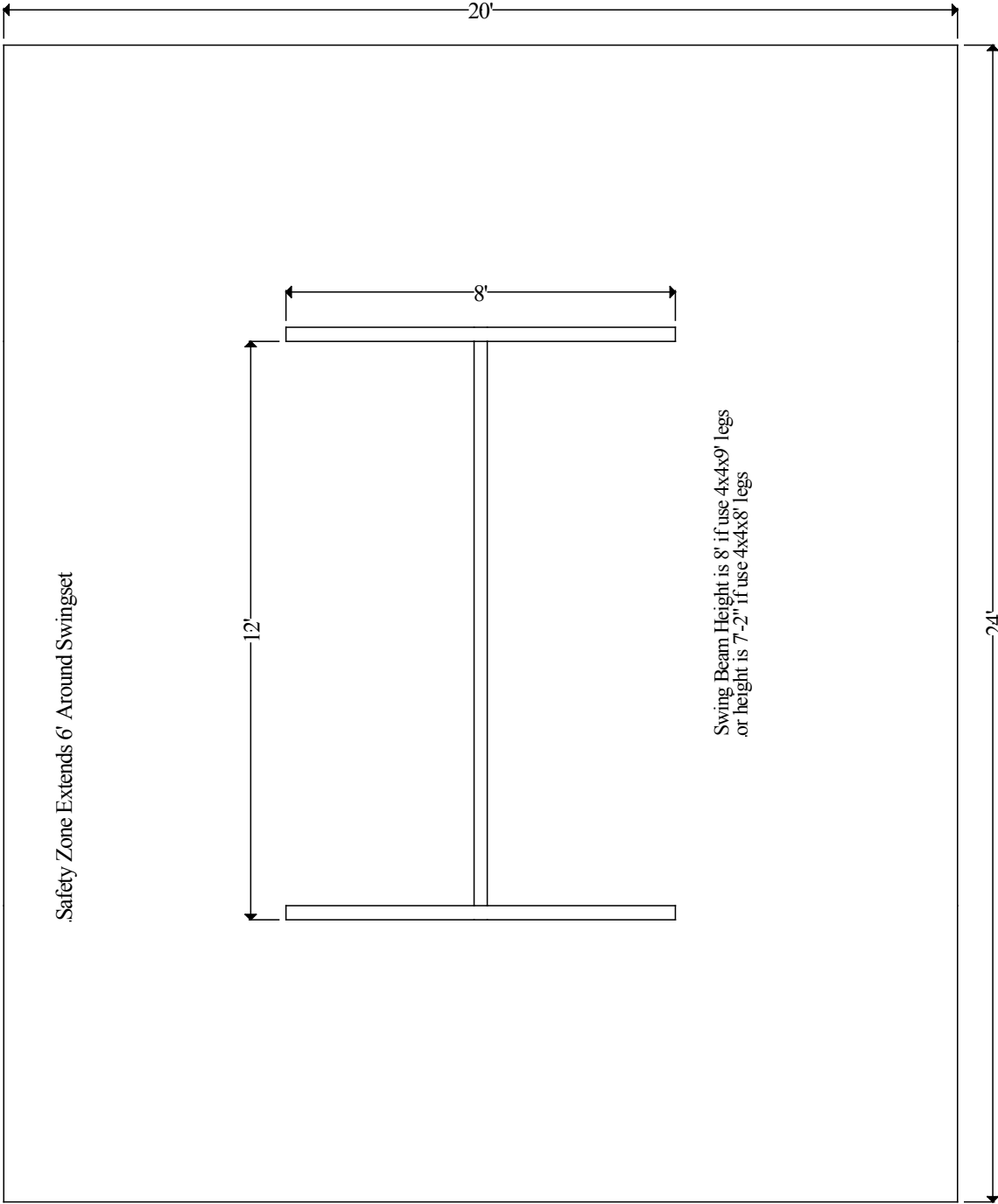
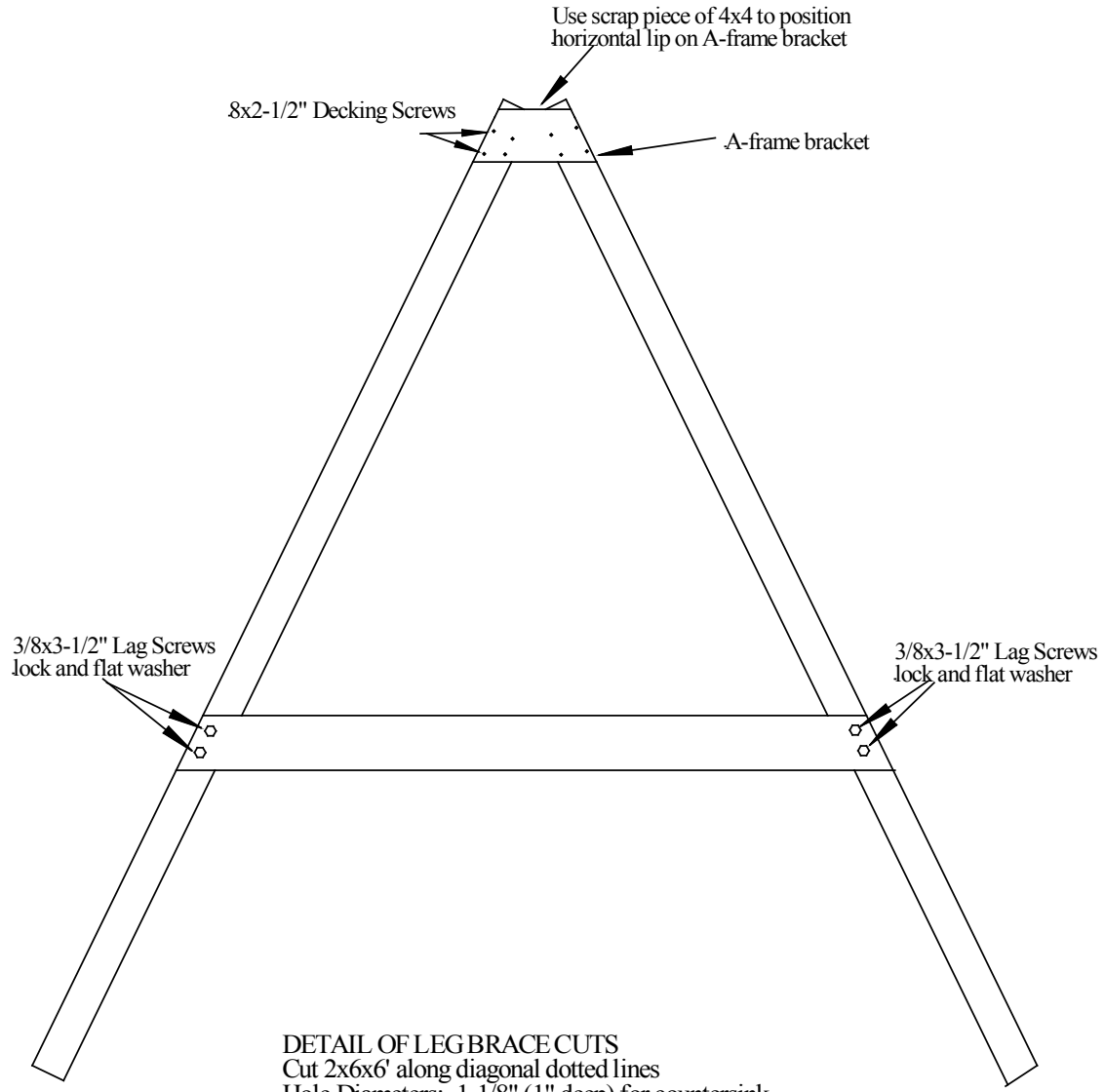


Diagram 2. ASSEMBLE SWING A-FRAME



DETAIL OF LEG BRACE CUTS
 Cut 2x6x6' along diagonal dotted lines
 Hole Diameters: 1-1/8" (1" deep) for countersink
 7/16" through holes for bolts

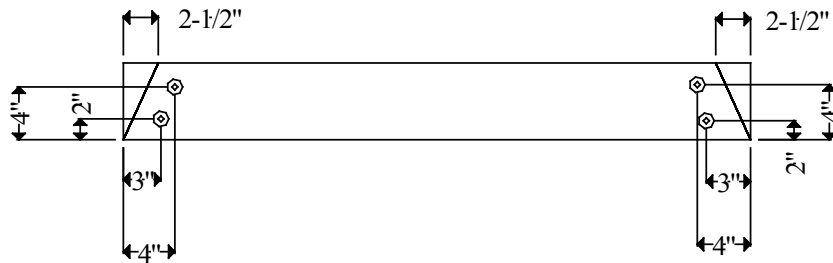
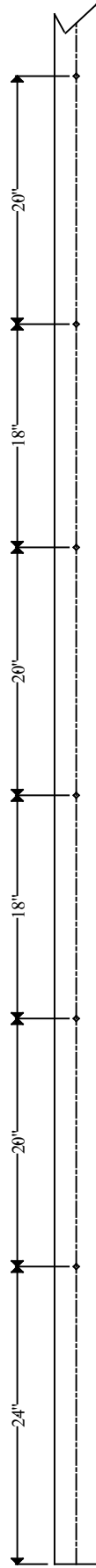


Diagram 3. DRILL SWING BEAM -- (4"x6"x12')

NOTE: If you installing upgraded WOOD BEAM HANGERS instead of the standard through hangers, you will NOT need to drill the 7/16" through holes shown in this first picture. Instead use the measurements below to position the wood beam hangers and drill 1/4" pilot holes for the lag bolts. Install with bolt/lock washer/flat washer.

All Bottom Face Holes Identical
Bolt hole diameter = 7/16"
depth = thru

Drill BOTTOM Face



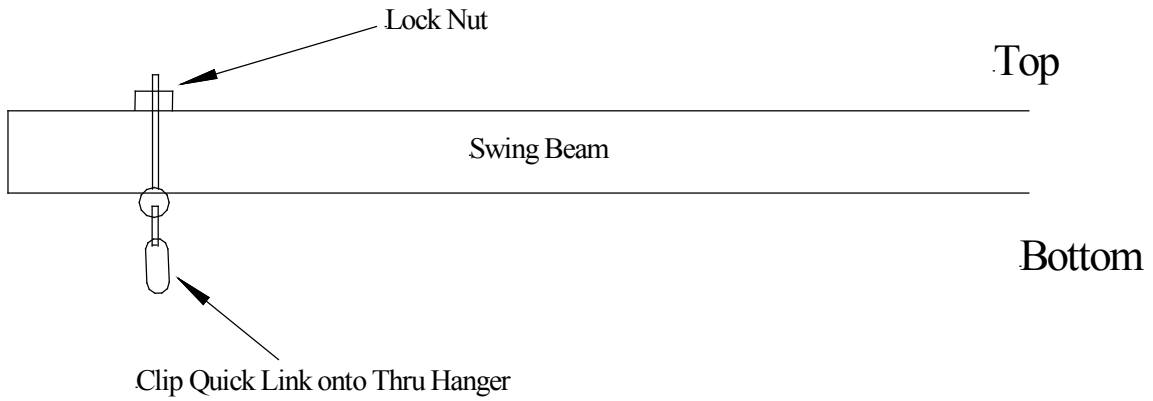
All Bottom Face Holes Identical
Bolt hole diameter = 7/16"
depth = thru

Drill BOTTOM Face



Diagram 4. INSTALL SWING ACCESSORIES

Install Thru Hangers and Quick Links (6 places) FRONT View



Install Swings and Trapeze (FRONT View)

