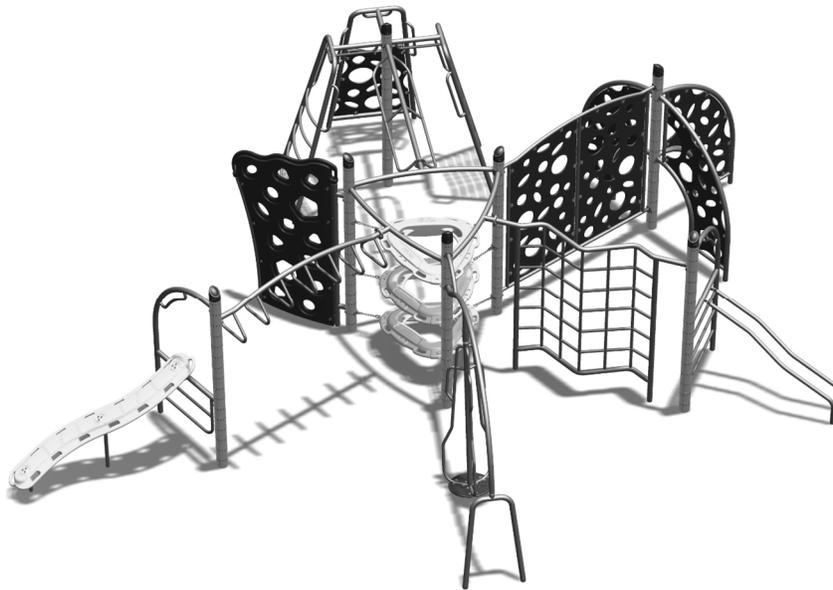


PLAYCRAFT SYSTEMS  
REVOLUTION SYSTEM

PROJECT NAME:

**IMPORTANT! THIS MANUAL CONTAINS:**

- Construction Views
- General Installation Guidelines
- Maintenance & Safety Information



INSTALLATION MANUAL TABLE OF CONTENTS	SECTION
Installation Instructions Included	RV – 01
Construction Drawings	RV – 02
General Installation Guidelines	RV – 03
Site Safety Recommendations	RV – 04
Concrete Footings	RV – 05
General Safety & Warning Labels	RV – 06
General Maintenance	R5 – 07

**WARNING:** Read all instructions thoroughly before installation. Improperly assembled playground equipment can present a serious safety hazard. Appropriate impact attenuating safety surfacing material is required under and around all play structures and must be maintained.

If you have any questions during assembly, please contact your Playcraft Representative or:

**PlayCraft Systems**

123 North Valley Drive, Grants Pass, OR 97526  
Phone: 800-333-8519 Fax: 541-955-6130



www.playcraftsystems.com

For Customer Service Call  
800.333.8519 (U.S.A.) or  
541.955.9199 (International)

7/2/2018



**PLEASE NOTE:** The pages enclosed in this section are the construction drawings for the specific job listed.



**WARNING:** Read all instructions thoroughly before installation. Improperly assembled playground equipment can present a serious safety hazard. Appropriate impact attenuating safety surfacing material is required under and around all play structures and must be maintained.

## RV - 03.1 PLEASE READ THE FOLLOWING VERY CAREFULLY BEFORE INSTALLATION

1	<b>IMPORTANT:</b> Due to the wide variety, modularity and flexibility of our products, we found it necessary to publish these general installation guidelines. These guidelines are intended for use by experienced playground equipment installers and/or general contractors skilled in assembly and installation of playground equipment. As with any project, general construction knowledge and professional judgment may be required. If any questions or concerns arise during the installation or maintenance of your equipment, please contact the factory and ask to speak to a customer service representative at <b>1-800-333-8519</b> .
2	As an installer of Playcraft Playground Equipment you are responsible for understanding the recommendations for surfacing and providing an appropriate impact attenuating safety surfacing material. The owner of the playground equipment is responsible for maintaining an appropriate level of impact attenuating safety surfacing material under and around all playground equipment.
3	<b>ATTENTION INSTALLER:</b> Upon completion of project, ensure that a copy of the Playground Equipment Manual and Maintenance Kit with all of its contents has been given to the owner of this playground equipment as a product and safety reference and as guidelines for preventative maintenance. <b>Please make it clear to the owner that the Playground Equipment Manual and Maintenance Kit are to be kept on hand at the playground site at all times.</b>
4	Read all instructions thoroughly before installation. Improperly assembled playground equipment can present a serious safety hazard. An appropriate impact attenuating safety surfacing material is required under and around all play structures and must be maintained.
5	In addition to the guidelines found in this manual, all equipment purchases shall include a minimum of (1) Top View drawing and (1) Perspective View drawing specific to each piece of equipment. These views are enclosed in Section RV-02 marked "Construction Drawings".

## RV - 03.2 RECOMMENDED TOOLS:

### You may need the following tools for installation:

Adjustable End Wrenches	Hacksaw	Metal File	Shovel / Spade
Carpenter's Level	Hammer	Post Hole Digger	Tape Measure
Combination Wrenches	Hex Wrenches	Ratchet Set	Wheelbarrow
Drill & Bits	Impact Driver	Rubber Mallet	
Electric Extension Cord	Liquid Thread Lock (LOCTITE®)	Safety Glasses	

## RV - 03.3 TIGHTENING TORQUE FOR HARDWARE (SCREWS, BOLTS AND NUTS)

Tighten all screws, bolts, and nuts snugly. After fasteners are snugly tightened, turn nuts and screws an additional one-half turn. **IMPORTANT:** Set screws should be turned an additional full turn after snug tightening. Once equipment or components are fully assembled, with hardware tightened/torqued, any excess threads (more than two) extending past the nut should be cut off and filed smooth. **Use liquid thread lock (such as LOCTITE® Threadlocker) with all threaded hardware.**

**IMPORTANT:** Liquid thread lock (prior to curing) helps to eliminate the common problem of "thread seizure" in stainless steel hardware by serving as a lubricant during assembly.

## RV - 03.4 GENERAL INSTALLATION GUIDELINES

1	Before you begin, read completely through all instructions carefully.
2	Identify all structural components included with your order. Check parts against your packing slip located in the front pocket of the Installation Manual.
3	Refer to Section RV - 04 for safe playground layout as well as the top view(s) and/or site plan included with your purchase for accurate information on equipment layout. Confirm that the equipment you purchased and its use zones will fit in your site. Site layout is a critical part of overall installation. A clear level site is required for proper installation.
4	While referring to the footing diagram in Section RV - 05 and top view(s) provided, identify each post location and excavate each hole; one at a time as assembly progresses. <u>When referring to the footing specifications included with these instructions, adjustments must be made to compensate for depth/thickness requirements of the selected impact attenuating safety surfacing material (i.e. wood chips vs. rubber matting).</u>
<b>IMPORTANT:</b> If soil conditions are loose or unstable, larger diameter footings are required. Inquire with local contractors for appropriate recommendations.	

## RV - 03.4 GENERAL INSTALLATION GUIDELINES (CONTINUED)

5	To ensure proper alignment of system equipment, it is the manufacturer's recommendation that concrete be poured after assembly.
6	While referring to the following installation instructions, erect the equipment (main structure first) and plumb and level as you proceed.
7	Do not fully tighten hardware until assembly is complete.
8	Once assembly is complete, with the equipment plumb and level, tighten the hardware and pour the concrete. All concrete must cure for at least 72 hours prior to being disturbed.
9	Affix Surfacing Level, Warning and Designed for Ages (age appropriate) labels to equipment. Labels should be placed in a conspicuous area such as by the main equipment access point. For replacement or additional warning labels, please contact customer service at 1-800-333-8519. <b>(Refer to Sections RV – 06.2 &amp; 06.3 for label type and correct placement)</b>
10	<b>WARNING:</b> Never install play equipment over concrete, asphalt, or bare ground. Always use a resilient impact attenuating safety surfacing material. Loose-fill safety surfacing material should not be installed over concrete or asphalt.
11	<p>Do not let children play on or near play equipment until assembly and installation is complete and an impact attenuating safety surfacing material is installed.</p> <p>The impact attenuation of the protective surfacing under and around playground equipment should be rated to have a critical height value of at least the height of the highest accessible part of the equipment. To determine the highest accessible part of equipment, refer to the current publication of the CPSC, "Public Playground Safety Handbook", Publication 325 at <a href="http://www.cpsc.gov">www.cpsc.gov</a>. The critical height for surfacing is to be rated in accordance with ASTM F 1292, "Specification for Impact Attenuation of Surfacing Material Within the Use Zone of Playground Equipment". The CPSC "Public Playground Safety Handbook" also provides a table of critical heights for selected loose fill materials. Contact the manufacturer of unitary surfacing materials (rubber matting) for the critical height ratings of their products.</p> <p>The entire area under and around all playground equipment must be covered with an impact attenuating safety surfacing material. Refer to the current publication of the CPSC, "Public Playground Safety Handbook" for recommendations on the type and depth of the impact attenuating safety surfacing material.</p> <p><b>For a copy of the current publication of the CPSC "Public Playground Safety Handbook"</b>  <b>Write To:</b>          U.S. Consumer Product Safety Commission      <b>Call Toll Free:</b> 1-800-638-2772          Office of Information and Public Affairs      <b>Visit the C.P.S.C. web site:</b> <a href="http://www.cpsc.gov">www.cpsc.gov</a>          Washington, D.C. 20207</p>
12	Good drainage around structural supports is important (i.e. under swings and at the end of slides) because they tend to become the lowest points and need the most active drainage. Inquire with local contractors for appropriate recommendations.
13	Many surfacing materials can become compacted due to weather and use, which reduces their impact attenuation. It is strongly recommended that the surfacing be checked weekly and material added or replaced as necessary.

## RV - 03.5 SAFETY DURING INSTALLATION

1	After doing a layout of <b>all</b> footings and <b>before</b> digging footing holes, be sure to inquire about underground utilities that may exist. Call 811, a federally-mandated national "Call Before You Dig" phone number.
2	Do not leave the job site unattended without making sure that all fastening hardware on all main structures and components have been tightened. We also suggest roping off construction areas and covering all holes that do not have a piece of equipment in them with plywood or other suitable material. <b>Ready or not, children will use unattended equipment.</b>
3	Due to the weight involved with the structure you have purchased, it is advisable that a party of four to six persons of average build assemble the structure.



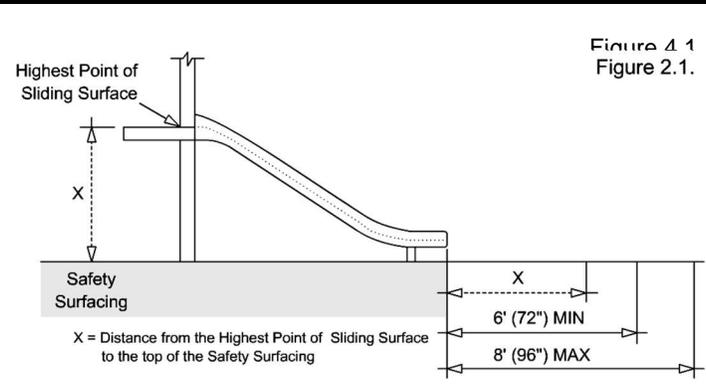
General safety recommendations applicable to the installation and maintenance of play equipment supplied by Playcraft Systems.

## RV - 04.1 USE ZONES

Use zones are the areas under and surrounding each piece of play equipment that must be covered by an appropriate impact attenuating safety surfacing material as described above.

The specific size of these use zones depends on the type of play equipment as follows:

### RV - 04.1.1 SLIDES



The minimum lower exit end use zone for slide exits is determined as follows:

X = The distance from Highest Point of the slide surface to the Safety Surfacing.

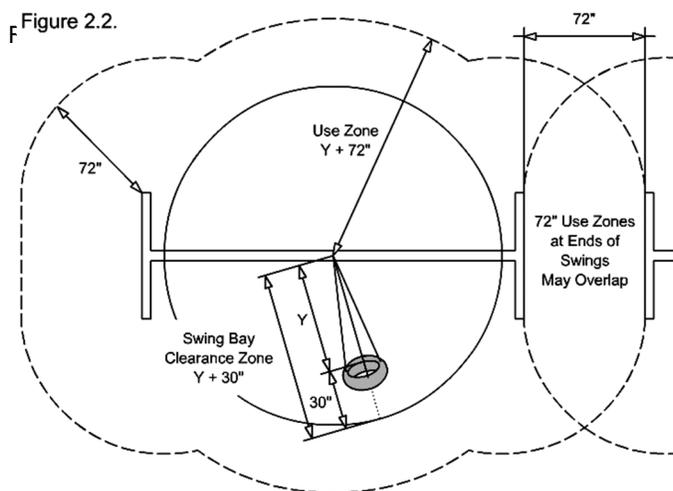
If X is less than 72 in. then the exit use zone for that slide shall be a minimum of 72 in. otherwise the minimum exit use zone shall be the distance X, not exceeding the maximum of 96 in. (Refer to Figure 4.1 at left)

**IMPORTANT:** No other play structure use zone shall overlap the lower exit end use zone of a slide. (Refer to the ASTM F 1487, Section 9.6)

### RV - 04.1.2 BELT SWINGS (To-Fro Swings)

The use zone must extend at least twice the distance from the pivot point to the safety surfacing material. The use zone must also extend for a minimum of 72 in. out from each end of the swing frame legs. No other play structure use zone shall overlap the front to rear swing use zone. (Refer to the ASTM F 1487, Section 9.4) **Please refer to the ASTM guidelines for additional information on swings.**

### RV - 04.1.3 TIRE SWINGS (Rotating Swings)



The minimum use zone for rotating swings is determined as follows:

Y = The vertical distance from the top of the Sitting Surface to the Pivot Point.

The minimum use zone of a rotating swing (Ex. a Tire Swing) is determined by taking the distance Y and adding to it 72 in. in all directions. The use zone must also extend for a minimum of 72 in. out of each end from the swing frame legs. The 72 in. use zones at the ends of all swings may overlap. (Refer to Figure 4.2 at left)

**IMPORTANT:** No other play structure use zone shall overlap the swing bay clearance zone. The rotating swing requires a 108 in. use zone between the rotating swing support structure and all non-swing play structures. (Refer to the ASTM F 1487, Section 9.4.2)

### RV - 04.1.4 ALL OTHER PLAY EQUIPMENT

Stationary and rotating play equipment use zones must extend at least 72 in. in all directions from the equipment's perimeter. Rocking/Springing equipment intended for standing use zones must extend at least 84 in. in all directions from the equipment's perimeter with no other use zones overlapping it.

## RV - 04.2 SURFACES

All play equipment must be installed over an appropriate impact attenuating safety surfacing material. It is the responsibility of the playground designer, installer, and operator to ensure that the size, type, and depth of impact attenuating safety surfacing material used complies with the CPSC Handbook. This impact attenuating safety surfacing material must cover the entire use zone area to a depth appropriate for the height of play equipment. See the use zones section for specific dimensions for specific types of play equipment. Please refer to the CPSC "Public Playground Safety Handbook", Publication 325 at [www.cpsc.gov](http://www.cpsc.gov) for more detailed information regarding these issues.

<b>APPROPRIATE</b>	<p><b>Unitary Safety Surfacing:</b> Pour-In-Place Rubber or Rubber Tiling.</p> <p><b>Loose Fill Materials:</b> Bark nuggets, Wood Mulch, Wood Chips, Pea Gravel and Sand. For the Loose Fill Materials listed, Playcraft recommends a minimum uncompressed depth of 12 in. (9 in. compacted) for equipment with fall heights up to 72 in.</p>
<b>INAPPROPRIATE</b>	Turf, Undisturbed Natural Ground, Undisturbed Compacted Sand, Decomposed Granite, Asphalt, Concrete, or any other hard surfacing.

## RV – 04.3 IMPORTANT ITEMS

During the installation and maintenance process, ensure that:

1	<b>WARNING:</b> Contact burn injuries can occur when metal play surfaces are located in direct sun. To avoid the risk of such burn injuries the United States Consumer Product Safety Commission recommends in it's handbook for public playground safety that metal play surfaces such as stainless steel slides and bare or painted metal crawl tubes should be located and installed in shaded areas and out of direct sunlight. The proper location of metal play surfaces must be addressed during the play area planning process.
2	There are no exposed concrete footings to trip over or fall on. The top of all footings must be at or below the bottom of the layer of impact attenuating safety surfacing material.
3	All bolt threads protruding beyond the nut are cut and de-burred until end is smooth to the touch. Sharp edges and/or points of any kind must be eliminated. No more than two threads may be exposed beyond the end of the nut.
4	All bolts, screws, set screws, and/or other fasteners are securely tightened. Missing bolts, set screws or other fasteners must be replaced immediately.

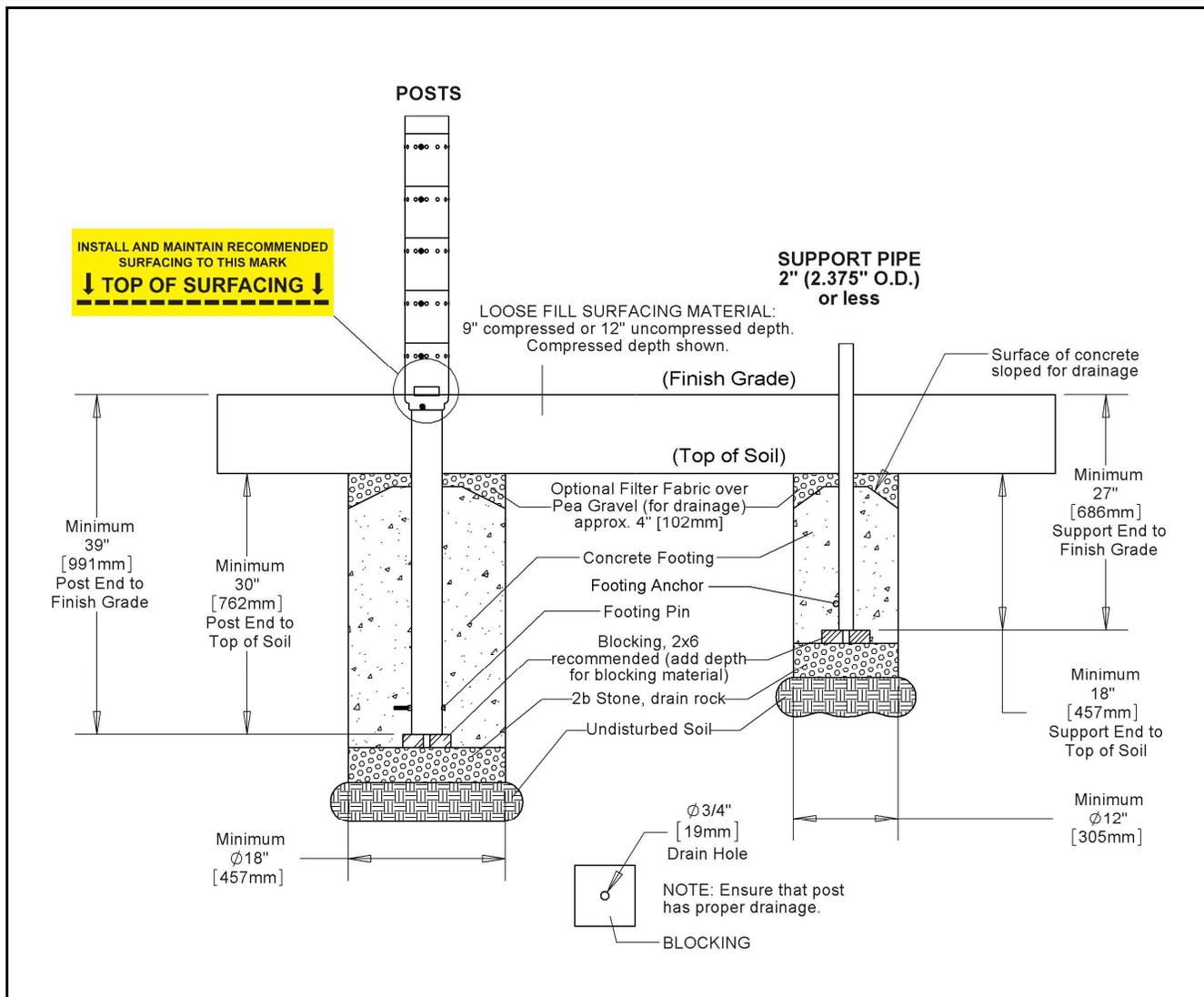
## RV – 04.4 PLAYGROUND LAYOUT EXAMPLE

**WARNING:** No other play structure use zone shall overlap the lower exit end use zone of a slide or the front to rear use zone of a swing.

In most instances, the use zone at the end of a swing can overlap with other play equipment use zones.

**Please refer to the ASTM guidelines for additional information.**

**IMPORTANT:** The footing depth for support posts and other equipment must be adjusted to compensate for the depth/thickness requirements of the selected impact attenuating safety surfacing. (i.e. wood chips vs. rubber matting).



### RV - 05.1 IMPORTANT ITEMS

1	Use more concrete as required for supporting activities with movement such as the Track Rides, Traverses, Chinning Bars and Swings.
2	See specific Swing Installation Instructions for swing post footings and ground cover requirements.
3	Larger footings (more concrete) may be required due to weather conditions and poor unstable, loose or granitic soil. Before changing footing dimensions we recommend that the footings be reviewed and approved by a registered engineer.
4	Base of all footings must be below the frost line. Determine depth of frost line for your area and adjust footing depth (not post and support depth) as required.

## RV - 05.1 IMPORTANT ITEMS (CONTINUED)

5	Playcraft Systems recommends a loose fill material such as engineered wood fiber (as described in the CPSC) be installed at a depth of no less than 12 in. to allow for natural shrinkage, and compression during use. A minimum 9 in. depth of compressed loose fill material described above is required for equipment with fall heights up to 6 ft. Comparison of impact attenuating safety surfacing material is available in the “Public Playground Safety Handbook”, Publication 325 published by CPSC. When choosing an appropriate impact attenuating safety surfacing material, check with material manufacturer for recommended depth/thickness.
6	Never install loose fill material over concrete or asphalt.
7	The depth of the post or support must be adjusted to compensate for the depth of impact attenuating safety surfacing material ranging from loose fill material to rubber matting.
8	This equipment is designed to be installed on a level site. Footings must be cast against undisturbed or compressed soil. Support posts and all attached decks and play components must be plumb and level.

**For more information, refer to the current publication of the USCPSC  
“Public Playground Safety Handbook”**

**For a copy, write to:**  
**U.S. Consumer Product Safety Commission**  
 Office of Information and Public Affairs  
 Washington, D.C. 20207  
 Or call  
**Toll-Free: 1-800-638-2772**  
**Website: www.cpsc.gov**

## RV - 05.2 INSTALLATION

Step 1	In order to properly install the support posts on your play structure, refer to the Site Safety Recommendations in section RV – 04 as well as the Top View and/or Site Plan drawings found in the Construction Drawings section RV - 02. Mark footing hole location(s) and dig hole(s) as determined. Compact base of footing hole(s) with drain rock as specified at proper depth.
Step 2	Position the support block at the base of the footing hole. Place the support post in the footing hole at the determined depth. The support block helps to stabilize the post during assembly and while the concrete cures, especially in soft soil conditions.
Step 3	Plumb and square all support posts. Block and brace as required to prepare for final assembly and pouring of concrete.
Step 4	Do not pour concrete until the structure is completely assembled, leveled and plumbed. Concrete must be allowed to cure completely before using the structure (at least 72 hours).



## RV - 06.1 CHILD SAFETY PRECAUTIONS - PLEASE READ CAREFULLY

1	On-site adult supervision recommended while children are at play.
2	Warn children not to climb or walk on top of playground equipment (framework) not intended for such use.
3	All play equipment should be used in the manner for which it was intended. Children should not swing empty seats or twist ropes and swing chains.
4	Children should be dressed appropriately. Helmets, drawstrings and accessories around the neck, must be removed to prevent strangulation or entanglement.
5	Children should be cautioned to avoid walking too close, between, or in front of moving items.
6	Only one child per swing should be allowed. Instruct children to sit in the center of the swings with their full weight on the seat.
7	Children being pushed on swing equipment should be closely supervised by an adult. It is important to note that an aggressive push could result in a child losing his/her balance.
8	Children should be instructed not to jump off swing equipment when in motion.
9	No more than 3 children should be riding on the tire swing at one time.
10	Children should not be pushed while on the tire swing.
11	Children should be advised to "wait their turn" on activities such as a slide; therefore each child is able to slide down and safely move to the side before another child begins their descent.
12	Children's personal toys (bikes, wagons, etc.) should be stored away from the play structure area.

## RV - 06.2 SAFTEY / WARNING LABEL ATTACHMENT

1	<p>Large structures may require two or more sets of Warning Labels. For additional Warning Labels, call (800) 333-8519.</p> <p>Standard set includes (1) Warning Label and (1) Designed for Ages (2-5, 5-12 or 2-12) age appropriate label.</p>	
2	Attach in a conspicuous location, such as near an entry.	
3	To apply, clean surface with alcohol, remove protective backing and apply to clean post.	

## RV - 06.3 SURFACING LEVEL LABEL ATTACHMENT

1	Some play equipment may require recommended surfacing level labels appropriately placed at the bottom of all posts. The correct placement of the labels is dependent on the requirements of the specific equipment design and resilient ground cover choice. Please consult with your Playcraft representative or call the factory at (800) 333-8519 for surfacing and label placement advice.	
2	To apply, clean surface with alcohol, remove protective backing and apply to clean post.	

↓ASTM LABELS↓

THIS EQUIPMENT HAS BEEN DESIGNED FOR USERS BETWEEN THE AGES OF  
**2 TO 5 YEARS OLD**  
ADULT SUPERVISION IS RECOMMENDED.



Manufactured by Krauss Craft, Inc.  
1-800-333-8519 • 541-955-9199  
www.playcraftsystems.com  
ASTM-F1487 KC-0020501A

THIS EQUIPMENT HAS BEEN DESIGNED FOR USERS BETWEEN THE AGES OF  
**5 TO 12 YEARS OLD**  
ADULT SUPERVISION IS RECOMMENDED.



Manufactured by Krauss Craft, Inc.  
1-800-333-8519 • 541-955-9199  
www.playcraftsystems.com  
ASTM-F1487 KC-0051201A

THIS EQUIPMENT HAS BEEN DESIGNED FOR USERS BETWEEN THE AGES OF  
**2 TO 12 YEARS OLD**  
ADULT SUPERVISION IS RECOMMENDED.



Manufactured by Krauss Craft, Inc.  
1-800-333-8519 • 541-955-9199  
www.playcraftsystems.com  
ASTM-F1487 KC-0021201A

↓CSA LABELS↓

THIS EQUIPMENT HAS BEEN DESIGNED FOR USERS BETWEEN THE AGES OF  
**18 MONTHS TO 5 YEARS OLD**  
ADULT SUPERVISION IS RECOMMENDED.



Manufactured by Krauss Craft, Inc.  
1-800-333-8519 • 541-955-9199  
www.playcraftsystems.com  
CAN/CSA-Z614 KC-0020501C

THIS EQUIPMENT HAS BEEN DESIGNED FOR USERS BETWEEN THE AGES OF  
**5 YEARS TO 12 YEARS OLD**  
ADULT SUPERVISION IS RECOMMENDED.



Manufactured by Krauss Craft, Inc.  
1-800-333-8519 • 541-955-9199  
www.playcraftsystems.com  
CAN/CSA-Z614 KC-0051201C

THIS EQUIPMENT HAS BEEN DESIGNED FOR USERS BETWEEN THE AGES OF  
**18 MONTHS TO 12 YEARS OLD**  
ADULT SUPERVISION IS RECOMMENDED.



Manufactured by Krauss Craft, Inc.  
1-800-333-8519 • 541-955-9199  
www.playcraftsystems.com  
CAN/CSA-Z614 KC-0021201C

↓WARNING LABEL↓

**⚠ WARNING**

- ✓ Installation over a hard surface such as concrete, asphalt, or packed earth may result in serious injury or death from falls.
- ✓ Play surfaces and surfacing may become hot, supervisors should test for hot surfaces prior to allowing children to play.
- ✓ Helmets, drawstrings and accessories around the neck, must be removed to prevent strangulation or entanglement.



Manufactured by Krauss Craft, Inc.  
1-800-333-8519 • 541-955-9199  
www.playcraftsystems.com  
ASTM-F1487-11 KC-00010001

**RV - 06.4 PROPOSITION 65 LABEL ATTACHMENT**

1	Some equipment may or may not contain materials that require labeling under California Proposition 65. To eliminate confusion all California customers will receive the labels shown.
2	Attach in a conspicuous location, such as near an entry.
3	To apply, clean surface with alcohol, remove protective backing and apply to clean post.

**CALIFORNIA PROP 65  
WARNING:  
THIS PRODUCT CONTAINS  
A CHEMICAL KNOWN  
TO THE STATE OF  
CALIFORNIA TO CAUSE  
BIRTH DEFECTS OR  
OTHER REPRODUCTIVE  
HARM.**

**IMPORTANT:** To ensure the safest play area and equipment possible, periodic inspections should be performed and recorded on a daily, weekly and monthly basis. Some form of maintenance program should be established and strictly adhered to. A comprehensive list of maintenance steps, including a sample playground maintenance safety inspection form, can be found in the maintenance manual included with your equipment.

**RV – 07.1 YOUR GENERAL MAINTENANCE PROGRAM SHOULD INCLUDE AT MINIMUM, THE FOLLOWING:**

1	Appropriate impact attenuating safety surfacing material must be maintained under and around all playground equipment.
2	The equipment and play area must be kept clean and free of any miscellaneous debris or litter.
3	Moving parts such as ropes, chains, swing hangers, bridges, etc. must be inspected regularly to determine if excessive wear is occurring. Any parts showing excessive wear or damage must be replaced.
4	All bolts, hardware, collars, and fittings must be checked regularly and tightened if necessary.
5	Any broken or missing end caps on pipe must be replaced.
6	Check all Steel and Poly Surfaces and replace or repair as required.
7	Installed Revolution Mounting Sleeves may require simple routine buffing to maintain desired finish. The frequency of scheduled maintenance varies according to region, climate, and use.
8	Tire swing swivel must be greased at time of installation and on a regular basis. Each swivel is equipped with 1 or 2 grease fittings to allow lubrication with a standard grease gun.
9	Make sure warning labels are legible and in a conspicuous location.

**For further information or questions about maintenance or for replacement parts, please contact your Playcraft representative or Playcraft Systems customer service at 1-800-333-8519.**