

## Playground Information to Use with the Environment Rating Scales

*Based on information from the U.S. Consumer Product Safety Commission (CPSC), Handbook for Public Playground Safety, Pub. No. 325 and information from the American Society for Testing and Materials Standards (ASTM), Standard Consumer Safety Performance Specification for Public Use Playground Equipment for Children 6 Months through 23 Months, F 2373-05. These guidelines are a basic overview of areas to review when scoring playground and safety items in the ECERS-R, ITERS-R, FDCRS, FCCERS-R, or SACERS. This list is not to be used as a comprehensive guide for playground assessment.*

**Age appropriate equipment** provides children with opportunities to safely practice gross motor skills without putting them at risk for unnecessary injury. Slides up to 4 feet in height should have an exit height of 11 inches or less. Slides over 4 feet in height should have an exit height of at least 7 inches but no more than 15 inches. The exit region of slides should be essentially horizontal and have a minimum length of 11 inches. Single axis swings should have a pivot point of 8 feet or less. There should be no more than two swings located within a single swing bay, and the distance between swings at rest within a single bay should be at least 24 inches and the distance between a swing at rest and its support structure should be at least 30 inches. The seat of swings for preschool-age children should rest at least 12 inches from the ground, the seat of swings for school-age children should rest at least 16 inches from the ground, and the seat of tot swings should rest at least 24 inches from the ground. Tot swings are defined as swings with enclosed seats, generally appropriate for children under 4 years of age. The following equipment is not recommended for preschool-age children: arch climbers, freestanding climbing equipment with flexible components, fulcrum seesaws, log rolls, track rides, spiral slides with more than one 360° turn, overhead rings, parallel bars, and vertical sliding poles.

**Catch Points and Protruding Hardware** – There should be no dangerous pieces of hardware, such as protruding bolt ends and narrow gaps in metal connections or open "S" hooks at the top and bottom of swings. Exposed hardware can cut children, puncture skin, or catch clothing drawstrings, which could strangle a child. The top of fences less than 4 feet in height also should be checked for protrusions.

**Entrapment** – Children can get trapped and strangle in openings where they can fit their bodies but not their heads through the space. Therefore openings in guardrails, spaces between platforms, between ladder rungs, and uprights in protective barriers, should measure less than 3.5 inches or more than 9 inches. However, if the ground is the bottom edge of a space between 3.5 inches and 9 inches, it is not considered an entrapment hazard because the child will not be in danger of choking.

**Pinch, Crush, Shearing, and Sharp Hazards** – Equipment should not have sharp points or edges that could cut skin. Moving pieces of equipment, such as suspension bridges, track rides, merry-go-rounds, or seesaws, should not have accessible moving parts that might crush or pinch a child's finger or other body part.

**Protective Barriers** – A protective barrier is an enclosing device around an elevated platform that is intended to prevent both inadvertent falls from the platform and deliberate attempts to pass through the barrier. In other words, children should not be able to jump over it or move through it. For preschoolers, full protective barriers are preferred because they provide more protection from falls. Protective barriers are required for platforms that are over 30 inches above the ground. The top surface of the barrier should be at least 29 inches above the platform. No child should be able to climb over, under or through the barrier. For equipment used *only* by school-aged children, including 5-year-olds, any platform more than 48 inches above the ground requires protective barriers. The top surface of the protective barrier must be at least 38 inches high.

**Guardrails** – A guardrail is an enclosing device around an elevated platform that is intended to prevent inadvertent falls from the platform. A child might be able to climb over, under or through the guardrail. For preschoolers through 4 years of age, guardrails prevent falls from elevated platforms that are higher than 20 inches, and up to 30 inches, above the ground. For preschoolers through 4 years of age, the top surface of the guardrails should be at least 29 inches above the platform, and the lower edge should be no more than 23 inches above the platform. For equipment used *only* by school-aged children, including 5-year-olds, any platform more than 30 inches above the ground (but not over 48 inches above the ground) will need guardrails at least 38 inches above the platform, with the lower edge no more than 28 inches above the platform. When mixed age groups of preschool- and school-aged children use the same equipment (e.g., 4- and 5-year-olds) the most stringent requirements are applied to ensure safety for all. For example, platforms used by the group will require protective barriers, rather than guardrails if they reach the height listed for preschoolers. Guardrails and barriers must be of the height required for school-aged children, which is higher than required for preschoolers. Platforms that are layered on equipment, (e.g., one platform leading up to another in a step-like manner), so that it would be impossible for preschoolers to fall more than 20 inches from one level to another (or school-aged children to fall 30 inches to another platform) do not require barriers or guardrails if they would interfere with the intended use of the equipment (e.g., stepping up to the

next level).

**Tripping Hazards** – There should be no exposed concrete footings, abrupt changes in surface elevations, tree roots, tree stumps, or rocks, which can trip children or adults.

**Protective Surfacing** – Protective surfacing is intended to cushion falls and prevent serious injuries from any equipment used indoors and outdoors. The amount of a consistent type of surfacing required is based on the critical height or fall height of the equipment, which is the height of the highest designated play surface on the equipment. Equipment having a fall height of 18 inches or less is not required to have protective surfacing; however, no equipment should be placed over concrete, asphalt, stone, ceramic tile, or similar hard surfaces. The surfaces under and around play equipment should be soft enough to cushion falls, which are the most frequent causes of injuries on playgrounds. Common indoor surfaces (such as rugs, tumbling mats, or carpet) and common outdoor surfaces (such as grass or dirt) are not adequate cushioning for gross motor equipment with a fall height greater than 18 inches even when the equipment is not anchored. For specifics on depth of material, see the chart below. When the surfacing in much used areas becomes displaced (e.g., under swings, slides) it should be raked back or replaced to maintain correct depth.

**Fall Zones** – A fall zone is the area around and under gross motor climbing, sliding or swinging equipment where protective surfacing is required to prevent injury from falls. The fall zone should be cleared of items that children may fall onto or run into. Resilient surfacing shall extend beyond the external limits of stationary equipment for a minimum of 6 feet. Protective surfacing in front of the exit of a slide should extend 4 feet plus the height of the slide. However, this distance should always be a minimum of 6 feet and does not need to be greater than 14 feet. Swings shall have resilient surfacing that extends 2 times the length of the pivot point to the surface below. The surfacing shall be to the front and rear of the swing. Tot swings shall have resilient surfacing that extends 2 times the length of the pivot point to the bottom of the swing seat, both in the front and rear of the swing. Tire swings shall have resilient surfacing that extends a distance of 6 feet plus the measurement from the pivot point to the swing seat and 6 feet to the side of the support structure.

**Equipment Spacing** – Spacing must allow children to circulate around or fall from play structures without striking another structure, and permit adults to have easy access to the children who are using the equipment. Play structures that are positioned adjacent to one another, with play surfaces on either play structure exceeding a height of 30 inches above the protective surface, should be spaced at least 9 feet apart to allow children space to circulate around or fall without striking another structure. If the adjacent play surfaces of *each* structure are no more than 30 inches above the protective surface, the equipment may be located a minimum of 6 feet apart. Moving pieces of equipment should be located in an area away from other play structures so children have adequate room to pass from one play area to another without being struck by a moving swing or by another child exiting from a slide.

**Critical Heights of Playground Equipment for Various Types and Depths of Resilient Surfaces**

*Based on Information from the U.S. CONSUMER PRODUCT SAFETY COMMISSION (CPSC Publication No. 325), Handbook for Public Playground Safety. When no requirement is provided for a specific height of equipment, we have used the requirement for the next higher height, so requirements are conservative, erring on the side of safety.*

|                         | Wood Chips                                      | Double Shredded Bark | Uniform Wood Chips | Fine Sand | Coarse Sand | Fine Gravel |
|-------------------------|---|----------------------|--------------------|-----------|-------------|-------------|
| <b>Equipment Height</b> | **Uncompressed Depths of Materials In Fall Zone |                      |                    |           |             |             |
| Five feet or less       | 6 inches  | 6 inches             | 6 inches           | 6 inches  | 6 inches    | 6 inches    |
| Six feet                | 6 inches  | 6 inches             | 6 inches           | 12 inches | 12 inches   | 6 inches    |
| Seven feet              | 6 inches  | 9 inches             | 9 inches           | 12 inches | 12 inches   | 9 inches    |
| Eight feet              | 9 inches  | 9 inches             | 12 inches          | 12 inches | 12 inches   | 12 inches   |
| Nine Feet               | 9 inches  | 9 inches             | 12 inches          | 12 inches | N/A         | 12 inches   |
| Ten Feet                | 9 inches  | 9 inches             | 12 inches          | N/A       | N/A         | 12 inches   |

For poured or installed foam or rubber surfaces, the materials must meet the ASTM F1292 requirements. Verify through a written statement from the manufacturer.

## **Supplemental Information for Children Ages 6-23 months:**

**Age appropriate equipment** provides children with opportunities to safely practice gross motor skills without putting them at risk for unnecessary injury. Climbing and sliding equipment used by children under the age of 2 should be no more than 32 inches high. Slides should have an exit height of 6 inches or less, and the length of the exit region should be at least 7 inches but not more than 10 inches. Single axis swings intended for use without adult assistance should have a pivot point no greater than 47 inches. The seat of these swings should rest at least 6 inches but not more than 8 inches from the ground. Single axis swings intended for use with adult assistance (tot swings) should have a pivot point no greater than 95 inches. The seat of tot swings should rest at least 24 inches from the ground. There should be no more than two swings located within a single swing bay, and the distance between swings at rest within a single bay or the distance between a swing at rest and its support structure should be at least 20 inches. The following equipment is not appropriate for children under 24 months: arch climbers, freestanding climbing equipment with flexible components, fulcrum seesaws, log rolls, track rides, horizontal ladders, merry-go-rounds, rotating tire swings, overhead rings, parallel bars, and vertical sliding poles.

**Fall Zones** – A fall zone is the area around and under gross motor climbing, sliding, or swinging equipment where protective surfacing is required to prevent injury from falls. The fall zone should be cleared of items that children may fall onto or run into. Requirements for adequate fall zones described in the table below are applied to appropriate infant-toddler equipment. For higher equipment, apply requirements for older children.

| <b>Equipment Type</b>  | <b>Requirements for Fall Zones for children ages 6-23 months</b>   |
|--|--|
| Climbing and sliding equipment with fall height more than 18 inches and up to 32 inches: | Must extend a minimum of 3 feet in all directions in areas where a fall zone is required. Depth of cushioning should be measured in the following areas: access points, slide exits, and all parts of the equipment that are not bordered by a barrier that is at least 24 inches in height, or a wall (within 3 inches of the structure). |
| Single axis swings (to-fro) with a pivot point of 47 inches or less:                     | Front and rear: 2 times the length of pivot point to ground- this area may not overlap with the fall zone of another structure. Support structure: 3 feet of clear space to side.  |
| Tot swings with a pivot point of 95 inches or less:                                      | Front and rear: 2 times the length of pivot point to swing seat- this area may not overlap with the fall zone of another structure. Support structure: 3 feet of clear space to side.  |
| Tire swings (multi-axis):  | Rotating or multi-axis tire swings are not recommended for children 6 through 23 months, however, there are tire swings that are made specifically for this age group that do not rotate. If these are observed, apply fall zone requirements for single axis swings.  |

**Equipment Spacing and Placement** must allow children to circulate around or fall from play structures without striking another structure, and permit adults to have easy access to the children who are using the equipment. At least 3 feet of clear space is required around any piece of equipment with a fall height of more than 18 inches. Therefore, play structures used by children ages 6-23 months must be spaced at least 3 feet apart.

**Protective Barriers** prevent inadvertent falls from elevated platforms and intentional attempts by children to climb or pass through the barrier. For infants/ toddlers less than 2 years of age, protective barriers are required for platforms over 18 inches tall and the barriers must be at least 24 inches tall.