

NCRLAP's Requirements for Gross Motor Space and Equipment

(This replaces "Playground Information to Use with the Environment Rating Scales")



Revised: October 2007

This is a summary of scoring criteria used by NCRLAP assessors during Environment Rating Scale assessments for items that relate to gross motor space and equipment. These standards apply to all gross motor equipment and materials—regardless of whether it is anchored or non-anchored, handmade or manufactured for commercial use. Furthermore, the gross motor space and equipment standards do not differ across indoor or outdoor locations.

A variety of safety references and standards were considered when developing the NCRLAP gross motor requirements; these resources are listed on page 3. Importantly, there are times when the NCRLAP requirements and the scoring criteria applied when using the Environment Rating Scales are more stringent than those required by DCD rules. This is because standards of quality associated with “better” and “best” practices are often harder to achieve than those practices associated with “minimal” or “basic” care. Finally, this document is not intended to be a comprehensive guide and NCRLAP assessors are instructed to rely on the CPSC or ASTM documents identified on page 3 should questions arise that are not adequately covered by this document.

Safety requirements in this document apply to children from birth through 12 years of age. Certain safety areas included on page 3 have specific measurements for children ages 6-23 months and those requirements should be used when more than half of the group being observed is under 2 years of age. If 50% of the group is comprised of children who are 2 years old or older then requirements for children ages 2-12 years should be used.

Protective surfacing is intended to cushion falls and prevent serious injuries from any equipment used indoors and outdoors. The depth 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 critical 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. 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 height greater than 18 inches even when the equipment is not anchored.

Requirements For Protective Surfacing

	Critical/fall height more than 18 inches to under 6 feet	Critical/fall height 6 feet to under 7 feet	Critical/fall height 7 to 10 feet
Surface Type	Wood mulch, wood chips, double shredded bark mulch, pea gravel	Depth of 6 inches required	Depth of 6 inches required
	Fine and coarse sand	Depth of 6 inches required	Depth of 12 inches required
	Manufactured (tiles, poured-in-place, shredded tires, etc.)	Must meet ASTM 1292 standard (documentation required)	

Fall or Use Zone is the area around and under gross motor climbing, sliding, upper body, or swinging equipment where protective surfacing is required to prevent injury from falls. The fall or use zone should be cleared of items that children may fall onto or run into. Requirements for adequate fall or use zones described in the table below are applied only to equipment with a fall height more than 18 inches unless other obvious safety concerns related to where children could fall are noted. However, equipment spacing and placement is an important safety consideration for all gross motor equipment and no equipment should be placed so that children fall onto or run into any hard objects when using the equipment regardless of height.

Requirements for Fall or Use Zones for children ages 2-12 years

Equipment Type	Climbing, sliding, and upper body equipment	Must extend a minimum of 6 feet in all directions. Assessors should measure depth of protective surfacing in any area of the use zone surrounding the equipment.
	Single axis swings (to-fro):	Front and rear: 2 times the length of pivot point to ground – this area may not overlap with the use zone of another structure. Support structure: 6 feet to side
	Tot swings:	Front and rear: 2 times the length of pivot point to swing seat – this area may not overlap with the use zone of another structure. Support structure: 6 feet to side
	Tire swings (multi-axis):	Distance around: length of pivot point to the top of the tire plus 6 feet in all directions – this area may not overlap with the use zone of another structure. Support structure: 6 feet to side

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. Equipment with moving parts such as swings or merry-go rounds must be located in an area away from other play structures (out of traffic flow) so children have adequate room to pass from one play area to another without being struck. Use zones for moving pieces of equipment may not overlap. Slides should be located so that the exit region is in an area away from other play structures so children can safely exit the slide without interfering with traffic flow; use zones may not overlap in a slide exit region. If two or more play structures are play functionally linked (e.g., a train climber designed to have a separate engine and cars placed close together), separate use zones for the individual pieces of equipment are not required; instead consider the equipment as one complete structure.

NCRLAP requires the following for play structures used by children ages 2-12:

- Play structures with a fall height of 30 inches or less above the play surface must be spaced at least 6 feet apart
- Play structures must be spaced at least 9 feet apart when one of the structures has a fall height of over 30 inches
- Two play structures, each with a fall height over 30 inches, must be spaced at least 12 feet apart

Age appropriate equipment provides children with opportunities to safely practice gross motor skills without putting them at risk for unnecessary injury. There is not a maximum height requirement for equipment used by preschool and school-age children because even equipment that is very high can be designed to prevent falls. However, with all gross motor equipment assessors should watch carefully to determine whether or not the equipment is easy and safe for children to use based on their ages and abilities.

Guardrails and Protective Barriers prevent inadvertent falls from elevated platforms. Protective barriers also prevent intentional attempts by children to climb or pass through the barrier.

	Preschool children	School age children
Guardrail	Required for platforms over 20 inches tall and less than 30 inches tall. The top surface of the guardrail should be at least 29 inches high and lower edge of guardrail no more than 23 inches above platform.	Required for platforms over 30 inches tall and less than 48 inches tall. The top surface of the guardrail should be at least 38 inches high and lower edge of guardrail no more than 28 inches above the platform.
Barrier	Required for platforms over 30 inches tall and the barrier must be at least 29 inches high.	Required for platforms over 48 inches tall and the barrier must be at least 38 inches high

Protrusion and Entanglement Hazards create the potential for impact accidents (impaling/cutting) or for strangulation (catching strings or clothing). Open S-hooks, protruding bolt ends, other exposed hardware, and narrow gaps in metal are the most common hazards of this type noted on playgrounds. S-hooks are considered closed when each opening is less than the thickness of a dime. NCRLAP requires that no protrusion or entanglement hazards exist either indoors or outdoors on equipment or any non-gross motor equipment such as fences, dramatic play equipment, or a/c units.

Fencing around the outdoor area(s) most commonly used for gross motor play is required for all ages. Fence height must be at least 4 feet to keep children inside of the area and prevent animals or strangers from entering the area.

Tripping Hazards create unnecessary falls. Common tripping hazards include exposed footings, unmarked and abrupt changes in surface elevations, containment borders that are not obvious or well-maintained, or roots, rocks, and/or other items when in traffic flow areas or pathways. The identification and severity of tripping hazards are determined based on the ages and abilities of the children in the group being observed. NCRLAP requires that gross motor spaces be clear of identified tripping hazards in traffic flow areas for the specific age group observed.

Supplemental Safety Information for Children Ages 6-23 months

(Use with “NCRLAP’s Requirements for Gross Motor Space and Equipment, Revised”)



Generally, the safety requirements contained in the document titled NCRLAP’s Requirements for Gross Motor Space and Equipment apply to children of all ages in group care. However, certain safety areas have specific measurements for children ages 6-23 months and those requirements should be used when more than half of the group being observed is under 2 years of age, in addition to other safety requirements described in NCRLAP’s Requirements for Gross Motor Space and Equipment. If 50% of the group is comprised of children who are 2 years old or older then requirements for children ages 2-12 years should be used. The differences in safety requirements for younger children may be attributed to the developmental characteristics of younger children.

Age appropriate equipment provides children with opportunities to safely practice gross motor skills without putting them at risk for unnecessary injury. Generally equipment used by children under the age of 2 should not be more than 32 inches high. However, with all gross motor equipment assessors should watch carefully to determine whether or not the equipment is easy and safe for children to use based on their ages and abilities.

Fall or Use Zone is the area around and under gross motor climbing, sliding, upper body, or swinging equipment where protective surfacing is required to prevent injury from falls. The fall or use zone should be cleared of items that children may fall onto or run into. Requirements for adequate fall or use zones described in the table below are only applied to any equipment with a fall height more than 18 inches unless other obvious safety concerns related to where children could fall are noted. However, equipment spacing and placement is an important safety consideration for all gross motor equipment and no equipment should be placed so that children fall onto or run into any hard objects when using the equipment regardless of height.

Requirements for Fall or Use Zones for children ages 6-23 months

Equipment Type	Climbing, sliding, and upper body equipment	Must extend a minimum of 3 feet in all directions in areas where a use zone is required. Assessors should measure depth of cushioning in the following areas: access points, slide exits, and on any side of a piece of equipment that does not have a protective barrier or a wall within 3 inches of that side.
	Single axis swings (to-fro):	Front and rear: 2 times the length of pivot point to ground – this area may not overlap with the use zone of another structure. Support structure: 3 feet of clear space to side
	Tot swings:	Front and rear: 2 times the length of pivot point to swing seat – this area may not overlap with the use 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 use 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. Additional requirements for equipment with moving parts, slides, or equipment that is play functionally linked described on page 2 also apply.

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 a protective barrier or adequate protective surfacing is required for platforms over 18 inches tall to 32 inches tall. Protective barriers must be at least 24 inches tall.

Additional resources to consider for gross motor space and equipment safety information:

- ASTM 2373 – Specification for Play Equipment for Children 6 months through 23 months
- ASTM 1487 – Specification for play equipment for children 2-12 years
- CPSC Document No. 325 Handbook for Public Playground Safety
- The Dirty Dozen Checklist published by the National Recreation and Park Association (NRPA) and the National Playground Safety Institute (NPSI)
- NC Division of Child Development Child Care Handbook