



Playground Equipment Guidelines for Installation and Use

(**Any** plans for Playground changes or new installations must be submitted to the Department of Operations for review)

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S.A.F.E. Playgrounds

Every year over 200,000 children are injured on U.S. Playgrounds seriously enough to require a trip to the emergency room. In order to reduce that number, the National Program for Playground Safety used S.A.F.E. as an acronym for the four things that it identifies as essential to playground safety. Following their suggestions will not only result in fewer serious accidents but will also greatly reduce the district's liability should legal actions result from a playground accident.

S- Supervision Trained playground supervisors are essential to making the playground environment a safe one. Supervisors should work alone and should be constantly on the move. They should make sure that students follow playground rules and use equipment properly.

A-Age appropriate The playground equipment should be designed for the age of the children who will use it. In elementary schools this means 5-12 years. Pre-schools would be 2-5 years.

F-Falls to surface The surfacing material should be adequate to insure that falls from the maximum height of the equipment will not cause life threatening head trauma. This means that no equipment should have a designated play surface greater than ten feet in height, and the surface around the equipment should meet the standards of the U.S. Consumer Product Safety Commission as set forth in the "Handbook for Public Playground Safety".

This standard is 12 inches of uncompressed wood chips, engineered wood fibers, pea gravel, or other acceptable surfacing.

E-Equipment Maintenance All equipment should be regularly inspected and repaired according to manufacturer's specifications. Lack of equipment maintenance is listed as the primary cause of injury in 60% of all injuries that result in litigation. Also, no alterations should be made to the equipment. If a piece of equipment is changed from the manufacturer's specifications, the manufacturer's legal liability is eliminated. A checklist should be used in inspection and records of inspections and repairs maintained.

DCSD Playground Equipment Specifications

Playgrounds are a fundamental part of the school experience. These specifications were developed to help insure that the playground experience will be a safe one. Three things directly affect the safety of children at playgrounds.

1. **The equipment itself** – Does it meet all regulations? Has it been modified since the installation?
2. **The maintenance of the playground** – Both the apparatus and the ground cover need to be checked and maintained daily.
3. **The supervision of children at play** – Without proper supervision, playgrounds will become a much more dangerous environment.

This document will deal only with specifications to insure that the equipment and ground cover are adequate to provide a safe playground experience. **The individual buildings are responsible for the daily maintenance and supervision of the playground.**

It is strongly recommended that any building planning to purchase new playground apparatus contact the National Program for Playground Safety at the University of Northern Iowa. (800) 554-PLAY, or <http://www.playgroundsafety.org/>. They will be happy to provide a wealth of information on planning a safe playground. Any questions on playground equipment should be referred to Dan Burlingame at 563-336-7400 or burlingamed@davenportschools.org

Playground apparatus for elementary schools will be permitted under the following guidelines:

1. The apparatus must comply with all applicable Consumer Product Safety Commission (CPSC) and American Society for Testing and Materials (ASTM) regulations as set forth in the CPSC Handbook for Public Playground Safety.
2. Prior to purchase, plans for new playground equipment showing apparatus, location and configurations should be sent to the Department of Operations for district approval.
3. All new playground equipment should comply with current 2000 ADA regulations on accessibility for children with disabilities.
4. The apparatus should be educational in nature-applicable to use in physical education classes.
5. Sufficient area must be available for the proper and safe utilization of the apparatus without interfering with the regular physical education/playground program.
6. If lumber is used, it must be treated to decrease deterioration from weather and insects.

7. All posts must be anchored in concrete and the top of this concrete must be six (6) inches below ground level. This prevents erosion of dirt from around posts, thereby exposing the concrete.
8. All pins, bolts, screws used in construction must be recessed or flush to prevent a student from getting caught on a protruding object.
9. Ground cover 12" deep needs to be provided at the time of installation. It needs to be maintained at that depth. Ground cover consisting of wood chips should not be of a type that it will injure children falling on the surface. An engineered Wood Fiber surfacing material is much more desirable than mulch, sand or pea gravel. The surface should be free of debris and standing water.
10. All retaining poles or beams for ground cover must be anchored to the ground so they cannot be moved. The anchor pins must be recessed into the retaining device to prevent injury.
11. Use zones for all apparatus must be in compliance with the CPSC Handbook for Public Playground Safety, section 5 standards.
12. All holes drilled in lumber or in pipes must be plugged or capped.
13. The average incline of a slide surface should not exceed 30 degrees.
14. Metal slides should face north on school grounds to prevent extreme heating by the sun.
15. The exit surface at the bottom of the slide for slides over 48" high should be at least 16" long and parallel to the ground.
16. The height of the exit section of a slide over four feet in height shall be no less than nine (9) inches above the finished ground surface.
17. The steps and rungs on slides and other equipment should be evenly spaced at least seven (7) inches and not more than eleven (11) inches between top surface of each step or rung.
18. Steps or rungs must be at least 15: wide and horizontal to within two degrees, and either corrugated, grooved, or covered with a slip resistant finish.
19. Rungs can be used on an ascending slope of between 75 and 90 degrees.
20. Steps can be used on an ascending slope of between 50 and 75 degrees, and stair treads must be at least three(3) inches deep and of non-slip material.
21. Stairways can be used on an ascending slope of less than 35 degrees.
22. If the climbing apparatus or slide is over 30" high and has a platform of any size, you must have a 38" high protective barrier.
23. The rungs or hand holds should not exceed 1-5/8" in diameter. This is a dimension that an average youngster can grip easily and securely
24. If equipment has a triangular framework, such as a situation where bracing is used, the smallest angle cannot be less than 55 degrees if the legs of the angle are less than seven (7) inches.

25. Location of proposed playgrounds should be evaluated as to effects on snow removal, mowing, garbage removal and other maintenance functions.
26. Copies of all warranties, parts lists and supplier information should be sent to the Department of Operations for maintenance purposes. These documents should be filed at the building, too.

Playground Apparatus from the National Safety Council

425 N Michigan Ave

Chicago, IL 60611

Safety Education Data Sheet #69

The Question of Apparatus

- School Authorities do not all agree on the most desirable types of playground Apparatus. Such a decision has frequently been motivated in the interest of safety; but a large majority of the nation's school districts, school personnel feel that playground apparatus can be used safely. They maintain that carefully selected apparatus is used under adequate supervision, can contribute to children's motor development, can aid in developing skills, and can provide a safe and effective outlet for play interests.
- The safety of playground equipment rests on several factors, which will be discussed below: The selection of particular types of apparatus, the way it is placed on the playground, the care with which it is maintained, and the way in which youngsters use it.

Selection

- Playground apparatus must be selected in terms of the youngsters who are to use it. The most important single criteria is age level of the group which will use the apparatus. It is a factor not only in determining probable interest youngsters will have in a given type of apparatus, but also in determining the comparative safety with which they must use it.
- Other criteria are the use which might be made of the apparatus in the educational program and in view of the limited interest span of children, the number of ways in which a given piece of apparatus can be used safely.
- In addition to standard types of apparatus, equipment specifically designed to stimulate and enhance creative play is becoming increasingly popular. Low jumping platforms and form-free plastic devices are examples of this new type of apparatus.

Location

- The location of playground apparatus is a vital determination of the safety with which the apparatus will be used. It is important that sufficient space to insure safety be left between units and that careful planning precedes the apparatus are control of traffic and accessibility.
- The apparatus for young children should be separate form that used by older children. In fact it is felt increasingly that the entire area used by the younger children should be

fenced off from the section of the playground used by the intermediate and upper elementary grade students. If the playground is divided into two areas, it is important to see that neither group has need to cross the area intended for the other. Within the area for one age group, children should not have to cross game courts for free play areas in order to reach the apparatus area.

- Within the apparatus area, which should be concentrated in one well-defined part of the playground, “traffic” lines should be indicated on the playground surface to show the danger zones around each piece of apparatus.
- No child can be safe on a piece of apparatus from which a screw is missing, or under which there is glass or other dangerous debris. Because of the hard and intense use to which playground apparatus is subjected, the entire area must be checked carefully and consistently. Pupil patrols and other youngsters can give valuable assistance in maintenance once they understand the importance reporting broken or malfunctioning equipment, and keeping the playground surface clear of debris.
- In addition to the checking of the grounds, regular daily inspections of each piece of apparatus by the playground director are absolutely essential. Repairs must be reported and made promptly, and no apparatus in need of maintenance care should be used until the necessary repairs have been made.
- The daily inspection should include a search for loose fastenings, worn and broken parts, inspections and lubrication (if needed) of moving parts and ball-bearing connections, a check and refilling of landing pits, and a check of wear around the supports. Care should be taken to be sure concrete foundations are covered by several inches of sand.

Use

- One of the most important requirements in the safe use of playground apparatus is the restriction of activity to the general purpose for which a piece of apparatus was designed. Many playground accidents result from misuse of the apparatus, attempts to perform unsuitable stunts and carry out games on climbing structures and swings, and from general rough-housing.
- To avoid such mishaps, adequate supervision of the apparatus area is necessary at all times when children are using the equipment. Many schools have found that pupil patrols, serving under the guidance of the playground director, can play a major role in the type of supervision.
- Supervision alone is not sufficient to insure safety. Children must be taught general safe practices for the playground and the apparatus area, as well as specific precautions particular type. In addition these general practices should be followed throughout the apparatus areas:
 - No Rough-housing
 - No games such as tag, king of the mountain, etc. to be played on or around apparatus.
 - No throwing of debris on the playground or on the apparatus.
 - No removal of sand, tanbark or other material which has been placed as a landing surface under the apparatus.
 - No apparatus should be used when wet or ice coated.
 - No apparatus should be used unless a supervisor is present.

- Children should use only the apparatus designed for their own age group.
- Children must learn to take turns in using the various units of the apparatus.
- Children should not enter the danger zones of the apparatus when others are using it.
- Only those using or waiting to use the apparatus should be within the apparatus area.

Climbing Structures

- Both primary and intermediate grade students have an interest in climbing and there are several types of apparatus suitable for children of various age levels. For young children, a simple structure of interconnected bars should be provided. Many feel that the area under the structure should be surfaced with a soft resilient material.
- Daily maintenance of climbing structures should include checking of all connections to make certain that bars will not turn; and keeping the surfacing materials under the apparatus level and at least 6" deep. Particular care must be taken to see that all climbing structures (including bars, rings, and horizontal ladders) are absolutely dry before children are allowed on them.
- The simple climbing structure of interconnected bars should be available only to kindergarten and primary grade children. The children should learn the proper grip with the thumb encircling the bar in opposition to the fingers. They should be taught to hold on with both hands except while moving to a new position. Overcrowding should not be permitted.
- Horizontal ladders and bars can also be used safely by primary grade children provided the height of the apparatus is suitable to children of this age group. Many playgrounds provide this equipment at several different heights. No child should use a horizontal ladder or bar which he is unable to reach by himself; if he must stand on a box to reach it, or to be lifted he is too small for the apparatus.
- For safe use of horizontal bars and ladders, children must:
 - Know how to grip the bar.
 - Start at the same end of the apparatus and move in the same direction.
 - Keep a safe distance behind the person ahead and watch for swinging feet.
 - Refrain from any kind of speed contests on the apparatus or from trying to cover large distances in a single move.
 - Know how to drop, landing on their feet with knees slightly bent.
- Climbing ropes and poles are sometimes used by upper elementary grade children, but many physical education specialists recommend their use only by youngsters of high school age and above.

Playground Safety Checklist

Proper Protective Surfacing

The CPSC has estimated that about 200,000 emergency room visits for playground equipment related injuries are the result of falls to the ground surface. This represents about 44% of all playground injuries and is the most serious with potential to be fatal when the injury is to the head. The surface under and around the play equipment should be soft enough to cushion a fall. Improper surfacing material under and around play equipment is the leading cause of surfacing material under and around play equipment is the leading cause of playground related injuries. Many surfacing options are available; hardwood fiber/mulch, sand and pea gravel must be maintained at a depth of 12", be free of debris and standing water, and not be allowed to become compacted; synthetic and rubber tiles or mats with appropriate cushioning material area also acceptable.

Safety Fall Zone

A safety fall or use zone is the area under and around the playground equipment where a child might fall. This safety zone should be covered with protective surfacing material, extending a minimum of 6' in all directions from the edge of the stationary equipment, and a minimum of 6' from the slide exit area for slides 4' or less in height. For higher slides, take the entrance height of the slide and add 4' to determine the safety zone.

Protrusion and Entanglement Hazards

A protrusion is a piece of hardware or component that might be capable of impaling or cutting a child should they fall against the hazard. Some protrusions are also capable of catching strings or items of clothing which might be worn around a child's neck. This type of entanglement is especially hazardous as it may result in strangulation. Examples of such hazards: Bolt ends that extend more than two threads beyond the face of the open "S" type hooks. Rungs that protrude outward from a support structure may penetrate an eye socket. Special attention should be paid to the area at the top of slides and sliding devices. Ropes should be firmly anchored at both ends and not be capable of forming a loop or noose.

Head Entrapments

Enclosed openings on playground equipment must be checked for head entrapment hazards as children often enter openings feet first and attempt to slide through the opening. If the opening is not large enough, it may allow the body to pass through and entrap the head. Generally, there should be no openings on playground equipment that measures between 3-1/2" and 9". Special attention should be paid to openings at the top of a slide, openings between platforms and openings on climbers where the distance between rungs might be less than 9".

Improper Spacing of Equipment

Insufficient spacing between pieces of play equipment can cause overcrowding of a play area, which may create several hazards. Safety fall zones for equipment that is higher than 24" above the ground cannot overlap. Therefore, there should be a minimum of 12" between two play structures. This provides room for children to circulate and prevents the possibility of a child

falling off one structure and striking another. Swings and other pieces of moving equipment should be located in an area away from other structures.

Trip Hazards

Trip hazards are created by play structure components or items on the playground. These include: exposed concrete footings, abrupt changes in surface elevations, containment borders, tree roots, stumps and rocks

Lack of Supervision

The amount of supervision on a playground directly relates to the overall safety of the environment. A play area should be designed so that it is easy for a parent or caregiver to observe the children at play. Young children are constantly challenging their own abilities, very often unable to recognize potential hazards. It is estimated that over 40% of all playground injuries are directly related to lack of supervision in some way.

Age appropriate Activities

Children's development needs vary greatly from age 2 to age 12. In an effort to provide a challenging and safe play environment for all ages, it is important to make sure that the equipment in the playground is appropriate for the ages of the intended users. Areas for preschool children should be separate from areas intended for school age children.

Lack of Maintenance

In order for playgrounds to remain in "safe" condition, a program of systematic, preventative maintenance must be present. There should be no missing, broken, or worn-out components; all hardware should be secure. The wood, metal, or plastic should not show signs of fatigue or deterioration. All parts should be stable with no apparent signs of loosening. The surfacing material must also be maintained. Check for signs of vandalism.

Pinch, Crush, Shearing and Sharp Edge Hazards

Components in the play environment should be routinely inspected to make sure there are no sharp edges or points that could cut skin. Moving components such as suspension bridges, track rides, merry-go-rounds, seesaws and swings should be checked to make sure that there are no moving parts or the mechanisms that might crush or pinch a child's finger.

Platforms With No Guardrail

Elevated surfaces such as platforms, ramps, and bridges should have guardrails that would prevent accidental falls. Preschool age children are more at risk from falls; equipment intended for this age group should have guardrails on elevated surfaces higher than 20". Equipment intended for school-age children should have guardrails on elevated surfaces higher than 30".

Equipment Not Recommended for Public Playgrounds

Accidents associated with the following types of equipment have resulted in the Consumer Product safety Commission recommending that they not be used on public playgrounds:

- Heavy swings such as animal figure swings and multiple occupancy type swings.

- Free swinging ropes that may fray or from a loop.
- Swinging exercise rings and trapeze bars are considered athletic equipment and not recommended for public playgrounds.
- Overhead hanging rings that have a short amount of chain and are intended for use as a ring trek (4-8 rings) are allowed on public playgrounds.

Additional Resource Materials:

National Playground Safety Institute (NSPI)

The National Playground Safety Institute (NSPI) is sponsored by the National Recreation and Park Association (NRPA). NSPI's mission is to promote children's rights to play in a safe environment and to nationally promote the importance of play in their development. The NSPI promotes the latest public playground industry standards and guidelines as the most desirable standard of care for public-use playgrounds. For a listing of playground related publications available through NRPA contact:

National Recreation and Park Association
 22377 Belmont Ridge Road
 Ashburn, VA 20148-4501
 (800) 626-6772

U.S. Consumer Product Safety Commission (CPSC)

For a copy of the Consumer Product Safety Commission's Handbook for Public Playground Safety contact:

U.S. Consumer Product Safety Commission
 4330 East West Highway
 Bethesda, MD 20814
 (800) 638-2772

American Society for Testing and Materials (ASTM)

The American Society for Testing and Materials (ASTM) developed a standard for the manufacturing of public playground equipment entitled "Standard Consumer Safety Performance Specifications for Playground Equipment for Public Use". For a copy of this standard contact the ASTM and ask for the F1487-17 Standard:

ASTM
 100 Barr Harbor Drive
 PO Box C700
 West Conshohocken, PA 19428-2959
 (610) 832-9500

2000 ADA Changes for Play Areas
Federal Register Part IV
Architectural and Transportation Barriers Compliance Board
36 CFR Parts 1191
Americans with Disabilities ACT ADA Accessibility Guidelines for Buildings and Facilities; Play Areas;
Final Rule

Accessible Route: A continuous unobstructed path connecting all accessible elements and spaces on a playground. Accessible routes provide children who use wheelchairs or other mobility devices the opportunity to access play components.

Elevated Play Components: A play component that is approached above or below grade and that is part of a composite play structure consisting of two or more play components attached or functionally linked to create an integrated unit providing more than one play activity.

Ground-Level Play Component: A play component that is approached and exited at the ground level.

Play Area: A portion of a site containing play components designed and constructed for children.

Play Component: An element intended to generate specific opportunities for play, socialization, or learning. Play components may be manufactured or natural, and may be stand alone or part of a composite play structure.

Use Zone: The ground level area beneath and immediately adjacent to play structure or equipment that is designated by ASTM F 1487 Standard Consumer Safety Performance Specification for Playground Equipment for Public Use for unrestricted circulation around the equipment and on whose surface it is predicted that a user would land when falling from or exiting the equipment.

- 50 of elevated components need to be ADA Accessible (8" increments or less)
- 20% or more play components on a play structure:
 - At least 25% of components must be accessible by ramp
 - At least 25% of components must be accessible by Transfer Module or other ramp
- The play area guidelines apply to play areas designed and constructed for children ages two and over. Where separate play areas are provided within a site for specified age groups, each play area must comply with the guidelines. If two play structures are grouped in one box – it is counted as one structure and must use above rules for accessibility (i.e. 1 unit for 2-5 yr olds with 12 elevated components + unit for 5-12 yr olds with 12 elevated components in one box = 1

unit with 24 elevated components and must have 25% of the elevated components accessible by ramp and 25% of the other elevated components accessible by transfer module or other ramp.

- Swings are counted as one ground level activity, no matter what type of seat. Each seat is counted as one ground level activity, but the same type of ground level activity.
- Handicap Accessible vs. Handicap Useable
- Path to transfer module, accessibility cycle. Types of ground-level activities: (including, but not limited to): Rocking, swinging, climbing, sliding, passive activity panels

Single copies of the “Final Rule” may be obtained at no cost by calling the ADA Access Board’s automated publications order line (202) 272-5434, by pressing 2 on the telephone keypad, then 1, and requesting publication S-39 (Play Areas Final Rule). Persons using TTY should call (202) 272-5449. Please record name, address, telephone number and request publications S-39. This document is available in alternate formats upon request. Persons who want a copy in alternate format should specify the type of format (cassette tape, Braille, large print or ASCII disk). This document is also available on the Board’s internet site:

<https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/background/ada-accessibility-guidelines-for-play-areas?highlight=WyJzLTM5I10=>

Assessment of Elementary School Play Structures

Section 1: Location and accessibility of Equipment

_____ 1. Is the play equipment easily in view of nearby residents and/or passersby? (Such as houses across the street from playground; view needs to be only on one side)

Sections 2: Placement and Size of Equipment

_____ 2. Is there at least 10 feet of space between each piece of equipment and other structures, so as to avoid collision of moving children?

_____ 3. Is all equipment placed so as to avoid collision or interference with traffic patterns of children walking or on wheel toys or designed pathways?

_____ 4. Is smaller sized play equipment intended for your children present?

_____ 5. If so, is smaller equipment separated from larger equipment so as to discourage cross over use? (Separated by physical distance or a barrier such as a fence or hedge).

_____ 6. How many concrete footings or in ground support structures are exposed?

Section 3: Type and Number of Equipment

_____ 7. List the number of each type of equipment located on school playground:

_____ Flat Slides

_____ Fireman's Pole

_____ Suspended Bridge

_____ Monkey Bars

_____ Balance Beams

_____ Parallel Bars

_____ Geodesic Dome Climbers

_____ Overhead Ladders

_____ Equipment Separated

_____ Chinning Bars

_____ Other Equipment

_____ Equipment Interconnected

Note: Count play elements such as slides or climbers on interconnected equipment in the above categories and indicate the number of interconnected pieces of equipment.

Section 4: Sliding Equipment

_____ 8. Are parts of the equipment broken or not present?

_____ 9. Are there any sharp corners, edges or projections?

- _____ 10. Is the supporting structure firmly fixed in the ground?
- _____ 11. Is the slide wide enough to accommodate more than one child at the same time?
- _____ 12. Is the sliding surface stable, smooth, and with no protrusions throughout its length?
- _____ 13. Does the angle of the slide level off at the bottom to cause deceleration before the child reaches the end of the slide?
- _____ 14. Is the end of the slide at least 9" and no more than 15" above the ground level? (Answer yes or no and record height above the ground)
- _____ 15. How many feet high from the ground is the slide at its highest point? (Measured from the standing platform to ground)
- _____ 16. Is there a guardrail around the platform area?
- _____ 17. Which of the following surface material is found under the slide?
- ___ SAND ___ MULCH ___ PEA GRAVEL ___ OTHER

Section 5: Climbing Equipment

- _____ 18. Are all parts of the equipment securely fastened?
- _____ 19. Are structural supports firmly fixed into the ground?
- _____ 20. Are there any open holes which form finger traps at the end of tubes or pipes?
- _____ 21. What is the largest diameter of the hand holds needed for climbing?
- _____ 22. Are there any sharp corners, edges or projections?
- _____ 23. Is the distance between horizontal levels between 7-11 inches?
- _____ 24. Are there any V angles or openings less than 7 inches wide on any part of the equipment likely to cause limbs, feet, or clothing to be trapped?
- _____ 25. What is the maximum height from the ground that a child can climb on the tallest piece of equipment? (Include projections to platform upon which children can stand, in measure of total height)
- _____ 26. Which of the following surface materials is found under the climbing equipment?
- ___ SAND ___ MULCH ___ PEA GRAVEL ___ OTHER

Number of Elevated Play Components Provided	Minimum Number of Ground Level Play Components Required to be on Accessible Route	Minimum Number of Different Types of Ground Level Play Components Accessible Route
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1	Not Applicable	Not Applicable
2-4	1	1
5-7	2	2
8-10	3	3
11-13	4	3
14-16	5	3
17-19	6	3
20-22	7	4
23-25	8	4
More than 25	8 plus 1 for ea additional 3 over 25, or fraction thereof	5