

Playing It Safe With **PLAYGROUND SAFETY**

By Christopher H. Kittleson

Municipal park/recreation departments and school districts often fall short when it comes to playground safety because equipment is often not inspected. Regular and recurring inspections can identify hazards caused by lack of maintenance, vandalism, or normal wear and tear.

Once hazards are identified via inspection, the safety professional can coordinate with the appropriate organizational department to have the hazard mitigated.

As safety professionals, we agree that playground injuries are preventable as well as a priority for protecting children from injury and death. According to CDC (2012), each year hospital emergency rooms treat more than 200,000 children age 14 and younger for playground-related injuries including abrasions, contusions and fractures, as well as traumatic brain injuries such as concussions.

Between 2001 and 2008, Consumer Product Safety Commission (CPSC, 2009) investigated 40 deaths associated with playground equipment; the average age of those children was 6. The agency found that 27 (68%) died from strangulation and six (15%) died from falls to the playground surface. Strangulations involved head or neck entrapment, which can occur when a child is wearing a bicycle helmet on a playground. This increases the size of the child's head and can result in entrapment. Strangulation can also result from wearing loose clothing or clothing with drawstrings that can catch on equipment and become entangled. In addition, cords such as jump ropes, dog leashes or rope swing supports have the potential to cause strangulation if left attached or near playground equipment.

Many playground hazards relate to equipment, the environment and lack of supervision. National Playground Safety Institute (NPSI) has identified the most common playground hazards, referred to as the "dirty dozen" (NRPA, 2019):

- improper protective surfacing;
- inadequate use zone;
- protrusion and entanglement hazards;
- entrapment in openings;
- insufficient equipment spacing;
- trip hazards;
- lack of supervision;
- age-inappropriate activities;
- lack of maintenance;
- crush, shearing and sharp edge hazards;
- platforms with no guardrails;
- equipment not recommended for public playgrounds.

An understanding of playground safety requires a review and understanding of several basic concepts, such as surfacing, maintenance and inspection, environmental hazards, and accessibility requirements. These are detailed here.

Age Appropriateness

Playgrounds should be appropriate for the age-related abilities of children. More specifically, toddlers, preschool and school-age children differ in physical size, ability, intellect and social skills. Therefore, age-appropriate playground equipment/design should accommodate these differences relative to type, scale and layout of the equipment. For the purposes of playground safety, age groups are delineated as toddlers, which are children ages 6 months through 2 years old; preschool age, which are children 2 to 5 years old; and school age, which are children 5 to 12 years old.

Inappropriate Playground Equipment

Some equipment is not recommended for use on public playgrounds. This includes swinging gates; climbing ropes that are not secured on both ends; animal-figure swings; multiple occupancy swings; rope swings; and trampolines.

Surfacing

The surfacing under and around playground equipment can be a major factor that determines the severity of an injury caused by a fall. A fall onto a shock-absorbing surface is less likely to cause a serious injury than a fall onto a hard surface. Because head-impact injuries from a fall can be life threatening, the more shock-absorbing ability a surface has, the greater the likelihood of reducing a severe injury. Manufacturers and installers of playground protective surfacing should provide the critical height rating of the materials to help determine the required depth of protective material around each piece of playground equipment.

Examples of acceptable surfacing include engineered wood fiber, rubber mats, synthetic or rubber tires, unitary surface (poured rubber), sand or pea gravel, and wood chips. Unacceptable surfaces include blacktop, concrete, grass and packed earth.

Adult Supervision

Young children are constantly challenging their own abilities and may not recognize potential hazards that could lead to an injury. Adult supervision of children on playgrounds helps ensure the age-appropriate use of equipment and helps prevent injuries. If an injury does occur, the adult can ensure that first-aid or medical attention is provided immediately.

Proper Maintenance

To provide a safe playground, a systematic preventive maintenance schedule must be developed, implemented and enforced. Maintenance should address several concerns:

- There should be no missing, broken or worn-out components.
- All hardware should be secure.
- Wood, metal or plastic should show no signs of fatigue or deterioration.
- All parts should be stable with no apparent signs of loosening.
- Surfacing materials must be maintained.
- Check for signs of vandalism.

Regular Inspection

Providing and documenting regular playground inspections helps to keep playgrounds safe by identifying unsafe conditions caused by wear and tear, vandalism, breakage, storm damage and litter, as well as environmental concerns such as flooding and stinging insects. In addition, playground inspections are essential to maintain the standard of care to reduce the potential for liability.

Playground inspections should be completed by trained staff, tailored to the type of equipment and surfacing, designed to document both problem and corrective action, and documented with easy-to-use checklists and forms based on the manufacturer's recommendations, as well as the owner's policies and procedures. Inspection protocol can be characterized as either low frequency, which is preventive maintenance, such as monitoring the depth of wood mulch, or high frequency, which is routine maintenance, such as replacing worn S hooks on swings.

Environmental Hazards

Protecting the playground area from sunlight provides a dual benefit. Shading the playground from the sun provides a cooler play area, reducing the potential for heat-related illness. It also prevents playground equipment from reaching high temperatures, which could result in burns to the skin. Shading can be provided either by the natural landscape or by shades designed by manufacturers to assist in mitigating these sun-related hazards.

Older playgrounds may be painted with lead-based paints. These should be identified and a strategy should be developed to control lead exposure. Additional information can be obtained from the CPSC publication, "CPSC Staff Recommendations for Identifying and Controlling Lead Paint on Public Playground Equipment."

A significant amount of older playground equipment was constructed with pressure-treated wood that contains chemicals to reduce damage from insects and fungi. A chemical predominantly used in such applications was chromated copper arsenate (CCA), which contains arsenic. Also, CCA wood should not be used as playground mulch. CPSC (2019) provides additional information on CCA-treated wood in playground equipment.

Accessibility Requirements

The Americans with Disabilities Act (ADA) specifically states that "each service, program or activity conducted by a public entity, when viewed in its entirety, be readily accessible to and usable by individuals with disabilities." Architectural and Transportation Barriers Compliance Board (also known as the Access Board) developed play area guidelines that are supplementary to the ADA Accessibility Guidelines. Based on these guidelines, operators/owners are obligated to provide individuals with disabilities an equal opportunity to enjoy their respective play areas (U.S. Access Board, 2019). More specifically, ground surfaces along accessible routes, clear floor or ground and maneuvering spaces must comply with the American Society of Testing and Materials (ASTM) F1951, Standard Specification for Determination of Accessibility to Surface Systems under and around playground equipment (ASTM, 2014).

Public Playground Risk Management Program

Municipalities should consider formalizing playground safety through the development, implementation and enforcement of a comprehensive public



playground risk management program to help control exposures associated with public playgrounds. The program should address the following elements:

- playground safety policy;
- designation of a playground safety coordinator;
- documentation;
- safety audit;
- inspections and maintenance.

Playground Safety Resources

National Recreation and Park Association sponsors a program through NPSI that offers the Certified Playground Safety Inspector (CPSI) course. This is a 3-year certification that focuses on the CPSC and ASTM guidelines and standards. CPSC, ADA and ASTM are the primary reference resources for those seeking information or guidance on playgrounds or playground systems.

Conclusion

Safety professionals can directly or indirectly improve playground safety by having a better understanding of playground hazards and utilize the means and methods to protect children from injury while at play. This means taking an active role in reporting unsafe conditions at playgrounds as well as working within your organization to make the necessary program, policy and procedural changes to prevent playground incidents and injuries. Remember that our children are the future. Safe playgrounds are where imagination and spontaneity rule the moment and where play takes a major role in childhood development. **PSJ**

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