

Safety Audits and Maintenance Inspections

Playground design has improved markedly since 1981, when the U.S. Consumer Product Safety Commission's *Handbook on Public Playground Safety* was first published. Today, any equipment that meets the standards set by the CPSC and the American Society for Testing and Materials (ASTM) is likely to be safer than the play equipment we grew up with. And high-quality equipment that exceeds CPSC and ASTM minimums can dramatically lower the risk of accidents and injuries on a typical playground.

Unfortunately, much of today's existing play equipment was designed before federal and industry guidelines were written. What's more, those guidelines have evolved over the years. The most recent edition of the *CPSC Handbook* incorporates the concept of age appropriate play, which was non-existent in the original 1981 edition, and the 1998 ASTM standard has changed from earlier versions, as well.

Finally, even the best-designed playground can present hazards if equipment is incorrectly installed, broken, physically worn, damaged by vandals or weakened by the ravages of time. This is why a safety audit and regularly scheduled maintenance inspections are a necessary part of every playground's safety program.

Definition of terms

The terms "safety audit" and "maintenance inspection" refer to two very different things.

- A playground safety audit is a one-time process that focuses on compliance with the current standard of care.

- Maintenance inspections are conducted at regular intervals and focus on immediate hazards caused by aging or damaged equipment—e.g., worn swing hangers or missing fasteners.



"A good preventative maintenance program can dramatically lower the risk of accidents and injuries."

It's important to understand not only the difference between these types of inspections, but the importance of both in minimizing accident risk and liability exposure.

To put it another way, a well-designed playground could pass a safety audit with flying colors, yet fail in a periodic maintenance inspection. Similarly, an impeccably maintained playground could fail a safety audit because of inherent design flaws.

Safety audits

Unless your playground contains only brand-new equipment that was purchased from a knowledgeable manufacturer and installed by a manufacturer's certified installer, your playground is due for a safety audit.

Purpose of the audit

The purpose of the safety audit is to identify non-conforming products and designs, installation problems and environmental conditions that could pose long-term hazards to children. Current CPSC guidelines and ASTM standards are the prevailing standard of care.

Some of the items covered in a safety audit include:

- *Entrapment violations.* The inspector uses head, torso and neck probes to assess the entrapment risk.

- *Protrusions.* Protrusion gauges are used to determine whether protrusions are within acceptable limits.

- *Layout.* Does the equipment promote traffic conflicts? Are fall zones too small? Are there potential hazards from adjacent roads, bicycle paths, water or sports fields?

- *Surface hazards.* Is the protective surface appropriate for the height of the equipment used?



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During a safety audit, hazards are categorized by their potential for causing severe injury. The resulting report will help you determine which hazards require immediate corrective action, which should be next on the list, and which are minor enough to allow corrective action as time and money permit.

How common are safety audits?

According to a recent survey conducted among parks and schools for Landscape Structures, safety audits of playgrounds have yet to receive the attention they deserve. Consider:

- More than 37% of school officials admitted they'd never done a safety audit, even though nearly 40% of school play equipment was over 7 years old.
- 30% of park agencies had never performed a safety audit, despite the fact that 46% of their equipment was more than 10 years old.

The survey also made it obvious that many playgrounds were unlikely to be brought up to current safety standards without an audit, since only a small percentage of equipment was scheduled for replacement in the next few years.

Who should conduct a safety audit?

Ideally, a playground safety audit should be conducted by a Certified Playground Safety Inspector—meaning a person who has passed the National Playground Safety Institute's written examination.

Applicants for NPSI certification must attend a two-day seminar that involves classroom lectures, discussions, and hands-on examples of playground safety problems.

During the seminar, attendees receive a book titled *Play it Safe, an Anthology of Playground Safety*. The anthology, published by the National Recreation and Park Association, contains articles that range from "Playground Safety Inspections—Protrusions and Entrapments" to "Risk Reduction and Control Techniques."

The seminar concludes with an exam on regulations, safety guidelines, and auditing procedures. Since the NPSI began certifying inspectors in 1991, several thousand applicants have

become Certified Playground Safety Inspectors. (Quite a few are employees or sales representatives of Landscape Structures who use the NPSI training in their design and installation work.)

Doing it yourself

The NPSI program is still fairly new, and many local agencies (possibly including yours) haven't yet had the time or money to send any of their staff members to the Institute. Because of this, Landscape Structures offers several items to help in conducting a reliable safety audit:

- *A Safety Inspection Kit*. This new product includes a canvas carrying case, head, torso and neck probes, machine-tooled protrusion gauges and printed instructions. Order item 114837 from our Park and Playground Equipment Catalog.

- *A Safety Inspection Panel*. This instructional panel helps demonstrate to your staff the probes and protrusion gauges

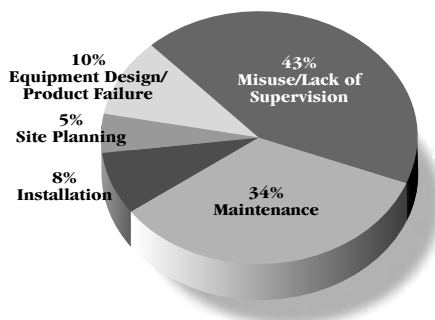
that are used to identify hazards on playgrounds. Order item 116102. An instructional video is also included.

- "Safety Plus Workshops". Educational seminars for customer groups around the country.

- Copies of the CPSC *Handbook for Public Playground Safety* and ASTM Standard F1487, *Standard Consumer Safety Performance Specification for Playground Equipment for Public Use*.

In addition, there are commercially available publications and videos to help do-it-yourselfers. See the "For more information" listings on the back of this brochure.

PRIMARY CAUSES OF PLAYGROUND ACCIDENTS¹



¹Statistics compiled by Landscape Structures risk manager and claims investigators using ten years of accident report history.

Maintenance inspections

Over a ten-year period, Landscape Structures risk manager and claims investigators compiled statistics on the primary causes of playground injuries. They found that 34% of all injuries were caused by inadequate maintenance of play equipment.

Clearly, a willingness to spend time and money on maintenance is the first prerequisite for reducing injuries caused by worn, broken, corroded or vandalized equipment. But it's equally vital to develop formal inspection procedures to assure that problems needing repair aren't overlooked.

Factors that determine maintenance needs

There are many factors that contribute to the need for maintenance, such as:

■ *Physical wear.* Swing hangers, bearings and spring assemblies are prime examples of wear-prone parts that require maintenance at regular intervals. School-age children tend to be harder on equipment than preschoolers, and heavily used equipment (such as on school playgrounds or in heavily populated urban areas) receives more wear than equipment in quiet neighborhood parks.

■ *Environmental factors.* Wood may crack and rot over time. Uncoated steel rusts quickly, especially in humid climates or when exposed to salt air. Plastic may fade or deteriorate when continually exposed to the sun’s ultraviolet rays. Freeze/thaw cycles can lead to warping or cracking. Acid soil often corrodes equipment buried in the ground. The use of quality materials can slow the aging process, but nothing lasts forever.

■ *Vandalism and accidental damage.* Unscrewed fasteners, slashed swing seats, graffiti and nicks from maintenance workers’ shovels and rakes are examples of damages that can affect even the best-maintained equipment. Structural damage from settling or vibration can be less obvious but even more serious.

Designing an inspection program

Every maintenance inspection program is unique. In developing your own program, you need to consider:

■ *Maintenance instructions.* It is the manufacturer’s responsibility (per ASTM 1487) to provide clear, concise instructions for maintaining their equipment. The more detailed the instructions, the better. For example, an instruction for “swings” might include separate guidelines for the supporting framework, bolts or welds, swing hangers, chains,

S-hooks or U-bolts, seats and the shock-absorbing surface in the surrounding “safety zone.”

■ *Frequency of inspection.* Heavily used components, play activities with moving parts, and items with a known history of vandalism will require more frequent inspection than little-used or mechanically simple components.

■ *Preventive maintenance.* Scheduled bolt tightening, cleaning, lubrication and use of touch-up coatings can prevent safety hazards and reduce long-term maintenance costs.

■ *Documentation.* Accurate records make it easier to keep on top of maintenance needs. You’ll also minimize your liability exposure if you have an accurate “audit trail” of inspections and maintenance.

Working with manufacturers

Responsible equipment manufacturers will help you develop a maintenance program for their components and play events.

For example, every PlayBooster®, PlayVenture® or PlayShaper® system is delivered with a customized maintenance guide. Illustrated sheets provide step-by-step instructions on how to inspect each component. An accompanying “Guide to the Frequency of Inspections” helps customers weigh the various factors involved in devising a maintenance schedule.



Insist that your equipment manufacturer provide a step-by-step inspection guide and checklist for every component or play activity.

HAZARDS IDENTIFIED IN NATIONAL PLAYGROUND SURVEY¹

% of Playgrounds	Hazardous condition
92%	Inadequate protective surfacing <i>(Only 3% of playgrounds with loose-fill surfacing were maintained at an adequate depth, and 13% of the surveyed playgrounds were hard-surfaced.)</i>
76%	Poorly designed swings <i>(The number and spacing of swings affects risk—and in 26% of the surveyed playgrounds, seats were made of wood or other rigid material.)</i>
75%	Obstacles in “fall zones” <i>(The fall zone is the area in and around the play equipment where a child might fall.)</i>
57%	Equipment too high <i>(When decks and other equipment are high off the ground without adequate safety barriers, the potential for injury climbs dramatically.)</i>

¹ Survey of 443 playgrounds in 22 states, funded by the U.S. Public Interest Research Group and the Consumer Federation of America.

We're ready to help.

At Landscape Structures, we have a long history of involvement in playground safety issues. Our chairman, Steve King, heads an ASTM task group that sets voluntary standards for playground equipment. For help in designing a safer playground, or for free resource materials that can help in your planning, call your local Landscape Structures representative.

FOR MORE INFORMATION

These resources are available from your local Landscape Structures representative:

ASTM F1487, *Standard Consumer Safety Performance Specification for Playground Equipment for Public Use*, American Society for Testing and Materials.

Handbook for Public Playground Safety, U. S. Consumer Product Safety Commission.

Safety Test Panel and training video. (See page 2.)

Playguide Bulletin series on topics related to playground design and safety.

These materials from other sources are also helpful:

Inspecting Playgrounds for Hazards

VHS videocassette, 35 minutes

Information Exchange

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(916) 966-2375

Points About Playgrounds:

A Compilation of Significant Information

Compiled and edited by Monty L. Christianson

ISBN 0-929581-69-5

National Recreation & Park Association

2775 South Quincy Street, Suite 300

Arlington, VA 22206-2204

Safety Checklist:

The Site Inspection System for Play Equipment

ISBN 0-944661-02-5

MIG Communications

1802 Fifth Street

Berkeley, CA 94710

(510) 845-0953

