



INTRODUCTION TO THE MAINTENANCE OF PLAYGROUNDS

We have known for a long time how important it is to provide playgrounds for children. Socrates (400 BC) was quoted as saying that children need to have the opportunity to play in order to become effective adults. We also know that playgrounds are vital to children's physical, emotional, social, and psychological growth as well. Therefore, if we tore out these structures because we feel they are too much of a liability risk, the children would find something to play on that is much worse. At least these are structures that we can have a level of control over. Basically, there is a duty to provide play equipment.

STATISTICS

Depending upon which statistics you look at, in America there are 150,000 to over 200,000 children admitted to hospitals every year! We tend to see only numbers, but these are real kids. What goes unnoticed is the realisation that this amount accounts only for the injuries severe enough to warrant a hospital visit, and not all of the others that are not reported!

Key Points

- ◆ Develop an inventory of Play areas & play equipment – Type and condition
- ◆ Check equipment for standard compliance
- ◆ Carry out regular inspections
- ◆ Provide Routine & Fault maintenance
- ◆ Provide adequate supervision
- ◆ Document Actions & Reasons

OBJECTIVES OF PROVIDERS

Provision of playgrounds.

These are the principles that form the basic standards for community playground provision and for the risk-management auditing of playgrounds.

Ethical practice:

Behaviour in accordance with the rules or standards for right and proper conduct or practice and especially the rules and standards of a profession

Duty-of-care:

That as far as is reasonably practicable - that users of playgrounds are safe from injury through the provision of hazard-free play equipment and from other risks to health through the quality of play environments

Best-practice:

The best quality that is reasonably achievable relative to those standards endorsed by the provider for playground provision, implemented through a published code-of-practice and applied to design, materials, manufacture, installation and maintenance.

Entrapment – Users:

Entrapment points and functions on play equipment are chiefly the result of unprofessional design or poor-quality workmanship in manufacture, installation or maintenance. Playground providers and those engaged in the development, production and supply of play equipment, share the responsibility of identifying the potential activities of users and of taking appropriate action to eliminate all physical entrapments and hazards.

Occupational Health & Safety.

Council employees are required in the course of their maintenance duties to physically check the quality of structures through the procedures adopted. Due diligence must therefore be displayed by those responsible for specifying the work procedure and by those engaged in the work procedures specified.

When the maintenance work procedures are specified, it is recommended that advice be taken to ensure that the conditions are appropriate for all parties.

Planning for maintenance

Make sure that resources are allocated at the beginning of the project for all maintenance requirements.

What is Maintenance?

Maintenance is a range of activities and tasks, which will vary from playground to playground, depending upon material used, type of equipment, type of planting, climate, vandalism etc.

All playgrounds need regular, key maintenance activities such as mowing, litter and debris removal, raking loose undersurfacing , raking sand pits and continually checking that nothing is broken missing or loose.

On top of this specific equipment may require special attention from time to time. Monthly, quarterly or annually depending on the apparatus. The regular routine and corrective maintenance that is implemented every time a playground is visited and inspected cannot be emphasised enough. This maintenance ensures that your organisation, or its customers, can consistently provide playground equipment and its environment in the condition it was intended for. Even more importantly, for the users who ultimately the equipment was intended for.

Who is Responsible for Maintenance?

One person must have the overall responsibility for the maintenance of a playground, for defining audit & maintenance procedures, initiating hazard inspections, ordering maintenance and ensuring that the work has been properly carried out.

Although the standards and guidelines change (for good reasons), the hazard(s) may have been present at the time of installation. The fault could have been due to the manufacturer, installer, owner, accidental or natural causes. The point is, be open-minded when assessing hazards and not place the blame too quickly.

Why is maintenance necessary?

Maintenance is a sensible way of protecting your investment and playgrounds should not differ in this way from any other capital investment.

Obviously lack of or improper maintenance can lead directly to an injury. The fact that most of the victims are children, who cannot detect risk of injuries, places maintenance on a high priority in playground safety.

Maybe the best way to explain the importance of maintenance is to highlight what may happen if maintenance was not carried out. Lack of maintenance will result in premature wear, reduced life expectancy, and possible failure.

WHAT TO DO ABOUT YOUR HAZARDS

Try to absorb as much of your consultant's advice into your final decisions. Your options are to fix the hazard, discard the piece (or whole unit), replace the part(s), or defer the problems until later. First let's look at the latter.

DEFERING the problems, due to lack of money, manpower, etc., is not an option if it is an urgent hazard. If, for some reason, you must defer these, I suggest that you either safely close the site down or remove the equipment until you can correct the problems. Deferring secondary or minimal hazards will depend upon their severity, complexity, etc. For example, if you have 200mm of mulch and need 250-300mm it's probably a minor hazard and can wait if it has to. Remember, the longer you wait the closer you get to injuries *and lawsuits!*

REPLACING with new equipment or surfacing, of course, is the most expensive solution. In some cases it's best to contact your equipment sales rep. and replace a pipe wall, slide, etc. But consider whether the new item will correct the problem, have the same problem, or present a different hazard! Will the new piece fit the same as the one it replaces (moulds and jigs change)? You may spend more time and money field rigging it than fixing it yourself in the beginning. New equipment could have more drawbacks than just initial cost. It is not always a guarantee that it will be safer than an old piece you replace it with, but then it may be your best option.

DISCARDING the problem equipment is always a last resort. You would be surprised at how simple and inexpensive most solutions really are. If you eliminated all of the playgrounds, you shirk the duty to provide recreation and play areas. Kids will suffer injuries from some activity like climbing trees, or other structures, even buildings, which you cannot have as much control over as manufactured equipment. You should keep the playgrounds and retain control by doing your best to comply with standards and guidelines by way of proper designs, maintenance, etc.

FIXING the hazard. My wife's school had equipment with a broken lower rung on an arch climber attached to a large structure.

The manufacturer said that if they did not buy a replacement arch and tried to weld on a new rung instead, the warranty would be void on the entire structure... slides and all. Obviously, this is not the policy of all manufacturers! The reality is that the warranty would not cover the new rung but should still remain in effect on the rest of the unit. The school is currently considering hiring a welding contractor to shift the liability. There is a zinc rod you can rub onto a hot weld that will "galvanise" it afterwards. Matching paint does wonders, too.

It would be ideal if you can co-ordinate things with the manufacturer's sales representative.

Maintenance Requirements

Funds should be available for proper maintenance

Maintenance requirements checklist to be provided to ensure manufacturers and safety standards are maintained.

A maintenance inspection schedule should be developed on a daily, weekly, monthly, and annual basis.

Maintenance should occur immediately upon notice of problems occurring.

Component replacement quality

Grounds maintenance - grass cutting, tree and shrub watering, garbage removal, cleaning and replacement of impact absorbing surface

Proper water drainage maintenance

Sources of Trouble

Four factors contribute to playground problems:

- ◆ the surfaces under the equipment;
- ◆ the design and arrangement of the equipment;
- ◆ how well the equipment is installed and maintained; and,
- ◆ how children use the equipment.

While play by young children should never be unsupervised, if playgrounds are well designed and maintained they can make the job of the adult much easier.

A look at where and how children get hurt at playgrounds suggests the most important areas for immediate improvement.

An American survey, conducted under the auspices of the Consumer Product Safety Commission, showed that in 1991, hospital treatment was required by more than 31,000 children under the age of 5 who were injured by swings, nearly 25,000 who were hurt on slides and nearly 13,500 who were injured on monkey bars. For children ages 5 to 15, injuries requiring hospital treatment that occurred on swings and monkey bars each exceeded 60,000, and on slides they exceeded 26,000.

The commission has found that in nearly 60% of cases children were hurt falling to the playground surface; 14% of the injuries were caused by falls that resulted in being struck by equipment; 18.5% were caused by impact with moving or stationary

equipment; and nearly 7% resulted from contact with sharp points or edges, pinch points or protrusions on the equipment.

"Because falls are the most common type of playground accident, there should be special attention to preventing falls and lessening their severity," the orthopaedics academy said. "Children fall because they slip, lose their grip or lose their balance while playing on monkey bars, swings, slides, merry-go-rounds and see-saws. Often they are hurt not only by the fall but by being struck by the equipment as they fall."

A Better Design

Surface.

For children, at least, falling is an inherent part of rough-and-tumble play. The harder the surface a child lands on, the more likely a severe injury. Surfaces should be soft; the orthopaedics academy recommends rubber mats or loose fill like wood mulch or chips, shredded tires, sand or fine gravel. Rubber mats at the bottom of slides and under swings and gymnastics bars are especially important. Not recommended for playground surfaces are soil or grass which can become compacted by wear and tear and weather and lose their shock absorbing ability.

Equipment.

All equipment should be firmly anchored with devices set below the surface to prevent tripping over them. Swing seats should be made of lightweight, impact absorbing materials like plastic or rubber and sized so that only one child at a time can sit on them. Bucket-type seats should be used for toddlers. The hangers at the top of the swing should be spaced slightly wider than the seat to reduce side-to-side motion.

Slides should not have more than a 30° incline and the platform should be as wide as the slide and connect directly to the slide. All elevated platforms should have guardrails.

Spaces between steps and rungs should be large enough to prevent a child's head from getting trapped.

Design.

The best playgrounds provide separate play areas for equipment for very young and older children. Sight lines should be clear to allow adequate supervision and to give small children an unobstructed view as they move from one area to another.

There should be enough space for children to enter and leave equipment without colliding with other children. The playground should be separated from street and roadways by fences, shrubs and other barriers.

Maintenance.

Ideally, when equipment is damaged, it should be repaired or replaced immediately. If this is not possible, it should be removed until it is serviced.

There should be no loose, damaged or missing supports, anchors or footings; no loose or missing nuts, bolts or protective caps; no broken or missing rails, steps, rungs or seats; no deformed hooks, shackles, rings or links; no bent, warped, rusted or broken parts; no sharp edges or points; no worn bearings, swing hangers or chains; no exposed mechanisms that could pinch or crush fingers; no splinters or deteriorated

wood; no cracks or holes in the surfacing material; no trash in the area; and no environmental hazards like roots, rocks or puddles.

In addition, all moving parts that require lubrication should be serviced regularly.

PLAYGROUND INVENTORY

Playground Inventory / Register

Item identification

Property Location

Asset data including:

Unit type and quantity.

Material quality

Supplier

Installation date & cost

Remaining life at date

Scheduled & actual maintenance costs

Whole-of-life maintenance cost

Proposed capital works cost

Approved capital works cost – keep regular updates of adjustment to CPI

Individual Items.

Full detail of individual assets including notes, photos & any graphics data

Assessed value

The default depreciation rate loaded can be either the AAS27 rate or an optional rate / the quality assessor can over-write the default rate according to the current condition of the asset & its anticipated life. The assessed value loaded auto-calculates current asset value.

Capital Works - Proposed

Current estimated job-cost is auto adjusted by the CPI rate loaded - the CPI rate can also be adjusted manually to provide cost estimates when works priorities are under review.

Maintenance

Registers maintenance costs - est. & actual for the current fin. year / whole of life cost.

Archived records

Items no longer forming part of the current inventory can be archived and re-installed in the inventory.

Works records

All works data related to jobs registered against an inventory item could be accessed.

Condition monitoring

The planned AAS27 5-year asset assessment schedules are simply identified.

Maintenance Cost Records

Estimated & actual maintenance costs of item for the financial year selected.

INSPECTION

Hazards To be checked

- ◆ Equipment & Fall Heights
- ◆ Surfaces under equipment
- ◆ Ergonomics
- ◆ Fall Zones
- ◆ Entrapments Hazards
- ◆ Overcrowding
- ◆ *Equipment Spacing*
- ◆ *Active /Passive Areas*
- ◆ Stability and Movement
- ◆ Pinch, Crush Points
- ◆ Sharp Edges and Corners
- ◆ Protrusions and *Projections*
- ◆ Trip Hazards
- ◆ Guardrails and Barriers
- ◆ Handgrips
- ◆ Missing or damaged parts
- ◆ Debris Removal
- ◆ Remove unsuitable Items
- ◆ Support Structure

Inspections

- ◆ Formal – Policy, Schedules & Checklists
- ◆ Informal- Listen to Reports being made (Maintenance)
- ◆ Routine prevention
- ◆ Fault Correction – Prompt Action
- ◆ Documenting Action
 - ◆ What

- ◆ Who
- ◆ When
- ◆ Why

Visual Inspections - Informal

Check for:

- ◆ Broken Items and Connections on Equipment
- ◆ Foreign Objects – Broken Glass
- ◆ Excess Movement of Structure
- ◆ Grass intrusion into soft fall material
- ◆ Trees/Branches & Shrubs damaged
- ◆ Soft fall containment or displacement
- ◆ Disruptive & unusual behaviour

The Real Deal?

How do our playgrounds really protect their users?

To really put yourself in the shoes of even the most demanding user, run these tests over your playground equipment:

- ◆ If you can access a platform roof, can you also exit it given that you can't see a foot-hold
- ◆ try accessing / egressing platforms by walking / crawling / climbing on tunnel slides, hoop climbs, monkey bars and similar items
- ◆ Try sliding down deformed poles
- ◆ Experience the thrill of standing on and leaping from platform deck grab-bars where the manufacturer has fitted 2 of them at 90° on a single post at approx. 2.5m high
- ◆ Transfer from one platform deck to another via the top of a tunnel that's 2.5m above g/l
- ◆ Run into a swing that's attached to a platform structure
- ◆ Have a game of push-n-shove on a 1.5m or 2.0m high platform that doesn't have guard fences
- ◆ Stand on horizontal bars that form a platform guard fence - go for a big jump
- ◆ Stand on the softfall material in its normal form and drop unaided to your knees - oh dear!

Maintenance Issues

Items to be checked:

- ◆ Structures – Condition, footings & stability
- ◆ Surfaces- Cracking, splits, corrosion, splintering, wear, openings, gaps

- ◆ Connections – Loose, missing, protruding, wrong
- ◆ Moving / Mechanical parts – Lubrication, wear, action
- ◆ Ground Cover – Distribution, compaction, debris
- ◆ Components – Wear, missing, damaged loose
- ◆ Trees & Plants – Damaged, limbs, seeds, cracks
- ◆ Other – Drainage, amenities, paths, obstructions

How often should Playgrounds be inspected?

Inspections & Maintenance Timing

Suggested Maintenance Time Table			
Daily	Weekly	Monthly	Three Monthly
	Ground Surfacing	Static Equipment	Footings
Syringes	All Moving Parts	Metal Frames	Supports
Sandpits	Connections	Timber Structures	Cappings
	Ropes, Chains, Tyres	Slides	Replenishing
		Linking Items	Surface Treatment

Steps to Better Maintenance

- ◆ Consider when purchasing / constructing
- ◆ Know why maintenance is carried out
- ◆ Know the applicable standard(s)
- ◆ Regular and emergency maintenance facility
- ◆ Schedule work & inspections – Daily, Weekly, monthly etc
- ◆ Note special requirements -from manufacturer
- ◆ Obtain Manufactures instructions- including any diagrams or plans
- ◆ Use a checklist or a prompt
- ◆ Record findings, observations & actions
- ◆ Have appropriate spare parts available
- ◆ Isolate and remove unserviceable equipment

Tools

Camera

Dictaphone

Two Way Radio - Mobile Phone
Works Order Book or forms (Duplicate)
Ladders
Tool Sharpening Stone
Marking Pen/pencils
Extension cord
Hammers
Pinch bar
Rubber Mallet

Further issues to consider:

- ◆ Presentations
- ◆ Communication
- ◆ Relationships

User Group Safety/Maintenance Involvement ie Child Care Centres

- ◆ Users and supervisors should inspect site and components for hazardous conditions before use
- ◆ Users and supervisors should report all hazardous conditions to maintenance staff
- ◆ Users and supervisors should remove hazardous debris where possible
- ◆ Users and supervisors should attempt to maintain clean site
- ◆ Users groups and supervisors should be taught how to use play equipment safely.

PLAYGROUND SUCCESS/SAFETY EVALUATION

Playground Safety Evaluation

- ◆ All accidents, large or small should be reported
- ◆ All incidents, which were avoided because of proper design, should be noted
- ◆ If warranted, all repairs or alterations should be made immediately to avoid future accidents.

User Group Evaluation

- ◆ Upon the use of playground both user and supervisors should be questioned regarding success of playground
- ◆ If warranted, all repairs or alterations should be made immediately to avoid future accidents

Neighbourhood Evaluations

- ◆ Affect of playground on immediate neighbourhood and how to resolve potential or existing problems
- ◆ Affect of vandalism on play equipment and how to repair and prevent
- ◆ Playground user security: and protection and how to alleviate potential or existing problems.

Actions to Properly Maintain Playgrounds:

- ◆ Educate risk managers and insurance companies about the need for safe and sound maintenance practices and procedures.
- ◆ Disseminate information about maintenance policies and procedures.
- ◆ Participate in any national studies and/or working parties on maintenance procedures and practices.
- ◆ Identify and promote information on good maintenance practices and procedures.
- ◆ Support and promote internal workshops in the areas of maintenance and inspections of playgrounds.
- ◆ Investigate the relationship between usage of playgrounds and maintenance requirements.
- ◆ Provide generic record-keeping computer programs to assist in compiling adequate records for maintenance and inspection.
- ◆ Provide lists of components needed for comprehensive playground safety maintenance programs.