



**CITY OF NEWTON
PARKS AND RECREATION DEPARTMENT**

**SAFETY POLICY
FOR PLAYGROUND APPARATUS
AND
DEVELOPMENT AND DESIGN
REQUIREMENTS FOR PLAYGROUND APPARATUS**



INTRODUCTION

Playground safety has become an increasingly important topic among parks and recreation professionals, school personnel, day care providers and the population at large. The City of Newton, through its Parks and Recreation Department, has a long history of playground development and improvement. Consistent with the City's commitment to create and maintain recreational resources, Newton is just as dedicated to playground safety.

In the spring of 2000 the first City Playground Safety Committee was formed to facilitate safety development and improvement of school and municipal play areas and play apparatus. The Committee is comprised of representatives from the Parks and Recreation Department, School Department, Health Department and Law Department. The initial mission of the committee was to develop a plan to comply with all current Consumer Product Safety Commission (CPSC) and the American Society for Testing Materials (ASTM) playground safety guidelines and suggested standards.

In August of 2000 members of the Parks and Recreation Program and Maintenance staff attended the National Recreation and Parks Association's Playground Safety Institute. Certification by the Institute now enables Parks and Recreation staff to inspect and audit play equipment in the City of Newton, make recommendations for repairs, removal, development and installation of play apparatus.

The Certified Playground Safety Inspector (CPSI) is trained in the current guidelines and standards detailed in the CPSC *Handbook for Public Playground Safety*, the ASTM Publication F1487-98 *Standard Consumer Safety Performance Specification for Playground Equipment for Public Use* and ASTM F1292 *Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment*". The CPSI is also trained in current Americans with Disabilities Act *Accessibility Guidelines*.

The Parks and Recreation Department has completed a city-wide inventory of playground equipment of all sites, and has begun the process of creating a computerized inventory data

base program. When completed, this database will offer the Department a means of tracking development, improvement, repairs, and accidents as well as routine maintenance.

In 2001, the City of Newton Parks and Recreation Department was the lead Department for a playground safety audit of all municipal and school playground structures, play apparatus and composite structures. This audit, performed by an independent consultant, The Safety Guy, prepared a comprehensive report on each of the 42 identified playground sites in the City. The final report (a) itemized the specific pieces of equipment at each site, (b) their condition, safety, compliance with CPSC, ASTM and ADA Guidelines and Standards, and (c) prioritized necessary repairs, removals, and renovations.

The ultimate goal and objective of this program has been, and will continue to be, to have all the playgrounds in Newton in compliance with the suggested safety guidelines and to create educationally and environmentally sound places for children and adults!

**Fran L. Towle, Commissioner
Newton Parks and Recreation Department**

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City of Newton

Public Playground Apparatus Safety Policy

September 2003

In the continuing effort by the City of Newton to provide quality, well-maintained, clean, and safe parks and facilities for the public, the Parks and Recreation Department has developed the following standard operating procedures to protect and preserve its public playground facilities and its users. This policy may only be accomplished through a commitment to a public playground safety policy that assures that every reasonable attempt will be made to eliminate playground hazards while not totally eliminating the element of risk which is an essential part of any successful child's play and learning environment.

To guarantee the continued success of this program, all City of Newton departments and staff will adhere to the following guidelines:

- . All playground sites will be subject to this playground safety policy.
- . Any equipment deemed "priority one" unsafe (equipment that can cause death or severe disability to its user), that cannot be repaired to comply with the manufacture's standards will be removed.
- . All equipment shall be installed according to manufacturer specifications. A representative of the said manufacturer must sign off, a verification sheet of approval that installation was performed to manufacturer's standards.
- . The City of Newton shall provide reasonable resources to ensure prudent and timely inspections and repairs as determined necessary by the playground safety policy.
- . All play equipment shall be inspected, repaired, and maintained by City of Newton Parks and Recreation Department employees.
- . All playground equipment purchasers, installers, inspectors, and maintenance employees performing repairs shall be trained in accordance with the City of Newton Parks and Recreation Department public playground safety training policy in order to maintain the playground equipment in substantial compliance with the current standard of care. Training is provided by the current CPSI.
- . All equipment shall be purchased from an International Playground Equipment Association (IPEMA)* certified playground equipment manufacturer with adequate product liability insurance.

The Public Playground Apparatus Policy program is subject to review and revision by the Parks and Recreation Commission. In addition, this Policy is expressly subject to the Newton Parks and Recreation Commission's Policy on Procedures for Alterations of Land for Private Organizations on Recreation Lands dated October 18, 1993, as amended from time to time.

***IPEMA Certification – Third party voluntary certification program of a manufacturer’s compliance with the current ASTM Standard.**

Development and Design Requirements for the Purchase and Construction of New and or Upgraded Playground Equipment

To further guarantee the success of the Public Playground Apparatus Safety Policy, the City of Newton presents the following requirements for the development, design, purchase and installation of new and or upgraded play apparatus.

1. The City of Newton does not install playground equipment. Community groups and schools may install playground equipment using one of the following methods:
 - A. Manufacturer's installation.
 - B. Community volunteers along with a certified representative on site during installation.In either situation parties must execute all necessary forms including but not limited to releases, indemnification and insurance required by the City.
2. A written request for new or upgraded playground equipment must be addressed to the Commissioner of Parks and Recreation.
3. Upon receipt of a request for new or upgraded play equipment at a site, the Parks and Recreation Commissioner will appoint a staff member to act as a liaison between the community/school group and the City of Newton.
4. The community/school group in conjunction with the City of Newton should undertake a needs and space assessment to ascertain the viability of new or upgraded equipment, and develop a timeline for design, development, purchase and installation.
5. A Planning Committee must be established and set goals and priorities beginning with:
 - Community needs and desires
 - Issues and concerns with existing facility and use
 - Consideration of renovating before new construction
6. When beginning the design process, the Committee should consider the following:
 - Site considerations such as location, noise, traffic, color of equipment, access, parking, impact on other uses and users of the park.
 - State of current equipment.
 - Land (natural elements, obvious hazards, water and sewer lines)
 - Availability of space for adequate use zones (a use zone or fall zone should extend a minimum of six feet in all directions from the perimeter of the equipment), as required by CPSC standards.
 - Active and passive areas
 - Visibility
 - Access for maintenance and emergency vehicles
7. The Committee should provide for all users by addressing ADA concerns to access the facility and activities once at the site. (see ADA standards, page 10 - 11)
8. In considering materials and specifications the following issues must be addressed:
 - Vandalism
 - Weather
 - Maintenance factors
 - Life span
 - CPSC & ASTM Standards

- **Surfacing**
- **Recommended vs. non-recommended equipment (see pages 4 - 7)**
- **Color of equipment**

9. A public meeting must be held to inform the community of the project plans prior to final approval by the Parks and Recreation Commission.

10. The Planning Committee must present the following plans to the Engineering Department, Conservation, Mayor's Committee for the Disabled or any other applicable City of Newton Department:

**Design and installation documents
Certified site survey**

11. Prior to finalizing plans the Planning Committee must obtain the approval of the Parks and Recreation Commission. The foregoing procedure is expressly subject to the Newton Parks and Recreation Commission's Policy on procedures for Alteration of Land for Private Organizations on Recreation Lands dated October 18, 1993, as amended from time to time.

12. Prior to the completion of the project it is required that the community/school group implement a segregated maintenance fund that maintains at least \$1,000.00 at all time, for future maintenance and upkeep of that particular play area.

Newton Parks and Recreation Playgrounds

Prohibited Equipment

Pre-School (ages 2 – 5)

1. Sliding poles
2. Free standing arch climbers
3. Flexible-grid climbing ladders (as sole access to structure)
4. Slides over 48”
5. Platforms over 48”
6. Log rolls
7. See-saws
8. Merry-go-rounds
9. Tack rides

Rationale:

While there may be nothing inherently wrong with the aforementioned equipment. “...the hazard is created by the inability of the younger child to cope with play structures meant for older youngsters.” (Wallach, F., “Playground Hazard Identification” pp. 83 – 92. Play It Safe, an Anthology of Playground Safety)

The CPSC and the ASTM have, more recently, addressed play equipment for 2 – 5 year olds. Both agencies have identified some equipment that is hazardous to this group and have recommended curtailing and/or eliminating their use.

- Sliding Poles and freestanding arch climbers are not recommended because children of these ages may not have the upper body development to safely use them.
- CPSC recommends that flexible-grid climbers (chain ladders, etc) not be the sole means of access to equipment for 2 – 5 years olds.
- Additionally, seesaws are not recommended because younger children usually do not have the skills required to effectively use fulcrum seesaws. Therefore they are not recommended unless they are equipped with a spring centering device to prevent abrupt contact with the ground.
- Merry-go-rounds may present a physical hazard to preschool age children who have little control over such equipment once they are in motion.
- ASTM does not recommend log rollers for children ages 2 – 5 due to issues of physical coordination.
- ASTM does not recommend track rides for children under 5
- The height of platforms and slides over 48” high is somewhat arbitrary. The CPSC and ASTM recommend guardrail and protective barrier specifications dependent upon the height of a slide or platform. Platform height and slide height reductions can decrease the seriousness of injuries, as most playground injuries are caused by falls. Additionally, lower heights of equipment allow for less depth of surfacing materials.

B. All Ages

1. **Wooden Composite Structures**
2. **Wooden swing sets**
3. **Wooden climbing apparatus**
4. **Tire swings**
5. **See-saws**
6. **Merry-go-rounds**
7. **Multiple occupancy swings***
8. **Trampolines***
9. **Animal swings with heavy metal frames***
10. **Freely suspended swinging ropes***
11. **Wooden clatter-bridges**
12. **Track Rides**
13. **Jungle Gyms**
14. **Swinging Exercise Rings and Trapeze bars**
15. **Home playground equipment**
16. **Slides over 8' high**
17. **Platforms over 8' high**
18. **Swings over 8'high**
19. **No vibrant colors – use standard tan and green**

As with the equipment for children ages 2 – 5, there may be nothing inherently wrong with some equipment on the “guideline” list. Still, history and experience with accidents, maintenance needs and requests for removals, points the way in some instances.

Most equipment has the potential to be misused. When this occurs the Parks and Recreation Department receives requests for equipment to be removed and replaced. Even if this equipment meets standards and guidelines, the misuse causes problems. For example:

- **Wooden Composite Structures and Wooden Climbing Apparatus** while attractive and certainly appealing to the community have limited life span. Most are guaranteed for approximately 10 years. The nature of wood indicates that there can be some disintegration of the product. The concerns raised to the Parks and Recreation Department began with splinters and cracking and often worsened over the life of the equipment. All wooden equipment requires a level of routine maintenance that is often simply not available. In Newton this is not because of a lack of interest but rather a function of the number of structures.
- **The Town of Needham** does not allow community or school playgrounds to be constructed of wood unless they are coated with plastic. This is limiting in that very few companies other than Kompan produce coated wooden structures. Wayland in response to the Leathers Playground debate does not even consider requests involving wooden equipment. Our Maintenance Division indicated the amount of time to maintain wooden equipment is a nightmare.

- **The American Society for Testing Materials (ASTM) and Consumer Product Safety Commission (CPSC) no longer recommends wooden swing seats or hard plastic seats. Newton has replaced all of the above with rubber belt seats. They are easier to maintain and less likely to be vandalized.**
- **Tire Swings – When first built and installed this equipment is extremely popular. However, within weeks of installation we begin to be deluged by calls from school principals and nurses. The nature of the equipment allows for multiple occupancy. In turn, this means that users are continually falling or being pushed off. The constant rotation of the swing has also consistently caused children to get physically ill. While the tire swings still in use meet code, we need to listen to the requests coming in to the office asking for removal.**
- **While merry-go-rounds and whirls are definitely not recommended for pre-school children without certain centering devices to prevent abrupt contact with the ground, they also present a hazard similar to that of the tire swing. Too many children on the equipment at one time, and the physical illness potential of the constant rapid rotation.**
- **Wooden-clatter bridges have caused serious maintenance concerns because of the expanding and contracting nature of wood. If wooden structures are allowed, then maintenance requests for repair of the clatter bridges should be considered. It is possible to have a wooden structure with a plastic or metal clatter bridge.**
- **Track Rides are noisy and it is recommended that the abutters to the playground or school site be made aware of the possible inclusion of the equipment. At many sites we have had continuous complaints about the noise this equipment causes. The wear and tear is constant and invisible to the average inspection.**
- **Jungle Gyms are allowed by code. However, they must allow for free fall, should the user slip. There are no old-fashioned jungle gyms left in the city. Although we rarely get requests for these freestanding pieces of equipment, height and surfacing should be a factor in determining acceptability.**
- **Multiple occupancy swings, Animal swings with heavy frames, freely suspended swinging ropes and swinging rings and trapeze bars are not recommended by CPSC Guidelines (9.2.5).**
- **Trampolines are not allowed under CPSC Guidelines.**
- **Home playground equipment on public sites is not allowed under CPSC Guidelines. (Only commercial playground equipment which meet the standards and guidelines for commercial public play equipment.)**
- **Slides and platforms over 8 feet high are again subjects of misuse. The height of a structure or individual piece of equipment is often the cause of an accident. There is nothing intrinsically wrong with higher equipment; however children play in ways we do not anticipate. They climb the outside of structures to get to decks; they climb up the slide from the bottom, etc. Lowering the height is a way of preventing an accident that should not occur under normal use. The higher the equipment the greater the depth of surfacing required to avoid injury. While efforts have**

been made to improve surfacing under equipment, it is not feasible for the surfacing materials to be kept at a uniform depth at all times. Lowering the height can prevent unforeseen and unanticipated accidents.

- Swings over 8 feet high are another issue. The new standards are specific for the size of a use zone in front of and behind a swing set. The use zone is 2 x the height of the swing set at the pivot point. Therefore a 12' set would require 24 feet in front of and behind the swing set. An 8-foot set would require 16 feet in front of and behind. The use zone to the sides is six feet regardless of height. Space is limited on most playgrounds. The height recommendation is one that addresses this. Additionally, it should be noted that no more than two swings are allowed per swing bay. This leads PTO's etc. to want to put in several swing sets to accommodate more children. The space required is large and usually not available.

In general, another concern is the selection of colors for playground equipment. Communities need to consider the neighbors in choosing colors. The maintenance Division recommends that playgrounds be green and beige. These colors fit nicely in a natural area, are not overwhelming to neighbors or users and allow for the Department to stock appropriate paints for touch up purposes.

Playground Safety

Surfacing Areas and Fall Heights

The greatest source of injuries on playground is falls to the ground surfacing (58%) and falls to other areas such as decks and platforms (17%)

The use zone is the area beneath or immediately adjacent to a play structure or equipment that is designed for unrestricted circulation around the equipment and on whose surface it is predicted that a user would land when falling from or exiting equipment.

The minimum use zone is 6 feet in all directions around a structure or piece of equipment.

There are four essential factors in determining User Zone Surfacing

1. Dimensions – minimum distance from the perimeter of equipment footprint
2. Depth of material
3. Overlapping of adjacent user zones
4. Critical height of playing surface - The critical height is the approximation of the maximum fall height from which a life threatening injury may not be expected to occur.

1. Stationary Equipment – 6-foot user zone in all directions. Depth of impact attenuating surfacing should be based upon the maximum height of the structure
2. Slides – minimum 6 feet to all sides and access. There should be a 6 feet minimum at the exit. True user zone is based on the height of the platform plus 4 feet measured from the exit or at the 5 degree gradient on the slide. Depth of surfacing is based upon the maximum height of the platform.
3. Swings – use zone is 6-foot minimum from sides of the supporting structure. Depth of surfacing is the height of the pivot point where the swing's suspended elements connect to the support structure.
 - a. To-Fro swings – 2 x height of pivot point to the top of the intended surfacing
 - b. Tire Swings – vertical distance from pivot point to top of seat, plus 6 feet
 - c. Tot swings – vertical distance from top of seating surface to pivot point X 2. Must be a minimum of 4 x vertical distance.
4. Moving equipment
 - a. Spring toys - minimum 6-foot user zone; depth is maximum height above ground of seat or play surface.
 - b. Stand-up platforms (bounce pads) – minimum use zone of 7 feet. Depth based on maximum height of platform
5. Composite Play Structures – 6-foot minimum around equipment, except for slides which must meet slide use zone standards at exit (height of platform plus 4 feet)
 - a. Elevated Platforms with guardrail – depth based on top of guardrail to surface.
 - b. Elevated Platform with barrier – depth of surface based on height from top of platform to surface.
6. See – Saws – minimum use zone 6 feet. Depth based on height attainable by any part of the see-saw

ADA REQUIREMENTS

HOW MANY PLAY COMPONENTS MUST BE ON AN ACCESSIBLE ROUTE?

Ground-Level Play Components

There are two requirements addressing how many ground-level play components must be on an accessible route:

- **One of Each Type**
- **Ground-Level Requirements based on the number of Elevated Play Components**

One of Each Type

At least one of each type of ground-level play component that is present in the play area must be on an accessible route.

To meet the requirement, for example, in the case of a play area including a composite play structure, two spring riders (LEFT) and a swing set (RIGHT), an accessible route must connect to at least one spring rider and one swing for one of each type of ground-level play experiences that is present in the play area.

Ground Level Requirements Based on Elevated Play Components the number and variety of ground-level play components required to be on an accessible route is also determined by the number of elevated components provided in the play area.

The intent of this requirement is to provide a variety of experiences for individuals who choose to remain with their mobility devices, or choose not to transfer to elevated play components.

If ramps provide access to at least 50 percent of the elevated play components - which must include at least three different play types - then additional ground-level components are not required.

An example: the composite structure of a play area has four elevated play components (bubble panel, slide, steering wheel, and tic-tac-toe panel). According to the table, a minimum of one ground level play component must be provided, and a minimum of one different type. The spring rider or swing can be used to meet the "one of each type" requirement and can also be used to meet the minimum number determined by the table.

The number of ground-level components determined by "one of each type" can also fulfill the minimum ground level requirement that is indicated by the elevated play components table.

ELEVATED PLAY COMPONENTS TABLE

Number of elevated Play components Provided	Minimum number of level play components required to be on an accessible route	ground- level play components required to be on accessible route	Minimum number of different types of ground- level play components
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 each additional 5 over 25 or fraction thereof)		

Elevated Play Components

At least 50 percent of the elevated play components must be on an accessible route. An "elevated play component" is a play component reached from above or below grade, and is part of a composite play structure.

Play areas with 20 or more elevated components (right) must use ramps to connect a minimum of 25 percent of those components. A transfer system or ramps may connect the other elevated play components required on an accessible route.

Play areas with less than 20 elevated play components (LEFT) may use a transfer system instead of ramps to connect at least 50 percent of the elevated components.

**Newton Parks and Recreation Department
Newton School Department**

Justification for recommended Seed Money Priority

March 2003

In order to best provide for the playground areas throughout the City of Newton, the Parks and Recreation Department and the School Department assessed the needs for new or upgraded equipment at each playground with the following criteria:

- 1. Order OF SEED MONIES already awarded**
- 2. Condition of the play equipment**
- 3. Other monies awarded to site (i.e. CDGB)**

Newton is blessed with a wonderful variety of play equipment throughout the City. When using seed money in cooperation with community and school groups, it is highly recommended that play equipment updates, in relation to safety, be considered first priority.

Based upon the above criteria, the following lists have been created setting out the recommended order of priority to begin FY04.

**Newton Parks and Recreation Department
Non School playground Areas
Recommended Order of Priority for Seed Money
Beginning FY04**

March 2003

- 1. Upper Falls**
- 2. Newton Centre**
- 3. Cabot Park**
- 4. Charlesbank**
- 5. Hunnewell**
- 6. Carr**
- 7. Newton Highlands**
- 8. Stein Circle Memorial-School**
- 9. West Newton Common**
- 10. Lower Falls**
- 11. Crescent Street**
- 12. Emerson**
- 13. Hyde**
- 14. Auburndale**
- 15. Torchia/Davis**
- 16. River Street**
- 17. Richardson**
- 18. Wellington**
- 19. Stearns**
- 20. Pellegrini**
- 21. Forte**
- 22. Burr Park**
- 23. Weeks**
- 24. Lincoln Warren**

The above priorities are subject to change due to unforeseen circumstances. For consideration seed monies will be divided in half, each fiscal year. Half going to a non-school playground and the other to a school attached playground.

**Newton School Department
Newton Parks and Recreation Department
School Playground Areas
Recommended Order of Priority for Seed Money
Beginning FY06**

March 2003

- 1. Bowen Elementary**
- 2. Lincoln Eliot Elementary**
- 3. Angier Elementary**
- 4. Franklin Elementary**
- 5. Burr Elementary**
- 6. Underwood Elementary**
- 7. Williams Elementary**
- 8. Mason Rice Elementary**
- 9. Ward Elementary**
- 10. Countryside Elementary**
- 11. Peirce Elementary**
- 12. Zervas Elementary**
- 13. Cabot Elementary**
- 14. Education Center**
- 15. Memorial Spaulding Elementary**
- 16. Horace Mann Elementary**

The above priorities are subject to change due to unforeseen circumstances. For consideration seed monies will be divided in half, each fiscal year. Half going to a school attached playground and the other to a non-school attached playground.

PLAYGROUND INSPECTION FORM

Site Name: _____
 Manager/Inspector Name: _____
 Repairer Name: _____

Date: _____
 Start/Finish Time: _____
 Date: _____ Start/Finish Time: _____

**Use the following Codes: 1 = Okay 2 = Needs Maintenance 3 = Request for Repair
 O = Maintenance Foreman Notified and work order written X = Corrective Action Completed**

General Inspection Items	Code	Inspection Comments	Repair Comments
Vandalism: Damage, Graffiti, Glass, trash, etc.			
Loose or missing hardware			
Chains (kinked, twisted, broken)			
Guardrails/handrails secure			
Swing Seats (cut, cracked, missing)			
Wood (rotten, cracked, missing)			
Remove foreign objects (ropes, chains, wood)			
Sweep walks, decks, platforms, steps			
Footers (concrete) exposed			
Standing water			
Objects in surfacing materials			
Rake level surfacing materials			
Sand wooden rails, posts, etc.			
Need Surfacing Materials For:			
Swings			
Decks			
Climbers			
Fire Poles			
Slides			
Other			
Other			
Other			

Maintenance Work Order

Repairer Name _____

Date of Work _____

Repairer Name _____

Date of Work _____

Repairer Name _____

Date of Work _____

MATERIALS/COSTS

Materials	Amount used	Cost per unit	Total Cost	Date Work Done
Wood Carpet				
S-Hooks				
Swing Hinge				
Bolts/Nails				
Chain				
Swing Seat				
Bucket Seat				
Graffiti Remover				
Other				
Other				
Other				
Other				
Other				
Other				

COMMENTS _____
