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## ABSTRACT

This publication presents principles of universal playgrounds, designed to maximize accessibility for all children, with and without disabilities. First, the rationale for the universal playground is given including the importance of play and the value of integration. Next current guidelines for playground design are discussed including safety, accessibility, developmental issues, social/emotional development, intellectual development, sensory development, perceptual-motor development, physical development, and age factors. Playground adaptations to improve accessibility are considered for site development, parking and curbs, walkways, and surface treatments. Playground layout is then considered in some detail including standards for equipment clearance, traffic patterns, practical aesthetics, maintenance, and possible equipment. A table lists 36 equipment items, their goals and benefits, description, and possible modifications. Source information (addresses and telephone numbers) for 56 manufacturers and distributors of playground equipment are provided, as are 16 sources of playground surface materials. Sample layouts, a planning survey form, a universal playground action plan checklist, and a list of 10 additional resources complete the publication. (DB)

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# PAM REPEATER



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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

You have in your hands a REPEATER which is representative of the careful and caring work of Sister Kathryn Mularkey, F.S.E., who has been a PAM staff member for nearly seven years. Sister Kathryn has just been awarded a Master of Arts degree in Rehabilitation Counseling from Michigan State University, and she is leaving us to accept a position with Hope Network in Grand Rapids. We all wish her well in her new position.

This publication, as with so many in the past, has been made available to you through an IDEA State Initiated Grant for the PAM Assistance Centre awarded by the Michigan State Board of Education. (The opinions expressed herein do not necessarily reflect the position or policy of the Michigan State Board of Education or the U.S. Department of Education, and no endorsement is inferred.) The document is in the public domain and may be copied for further distribution when proper credit is given. For further information or inquiries about this project contact the Michigan Department of Education, P O Box 30008, Lansing, MI 48909.



The universal playground concept was designed by the Canadian Ministry of Education. The playground adaptations which are highlighted in this PAM REPEATER are documented in **The Universal Playground: A Planning Guide**, Ministry of Education, Special Education Branch, 620 Superior Street, Victoria, British Columbia, CANADA V8V 2M4.

The listings of playground equipment and surface material manufacturers and distributors are not meant to be all inclusive listings, but merely to give ideas from companies that the staff of the PAM Assistance Centre are currently aware of.

## *Significance for Playground Design*

The activities which occur during free play on the playground form a valuable part of any child's developmental program. Children with special needs may benefit to a greater degree from such activities, since their disabilities may have kept them from developing the social and physical skills often learned in informal play environments. These skills are important because they influence the extent to which children will be integrated socially and vocationally.

The need to develop the social skills required to live cooperatively with one's peers is a two way street. It is important for all students to develop a positive awareness of the differences within the school population and the ability to accept these differences with respect and understanding. In free play, children are exposed to an element of give and take which helps define acceptable behavior. Physical activities stimulated by playground equipment improve balance, eye-hand coordination and gross motor skills, all of which need to be encouraged in all children.

A playground must be accessible to all children in order to facilitate these changes.

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Arselia Ensign, Editor

## **Rationale**

### **Philosophical Considerations**

#### **• Importance of Play**

Play is an essential activity for all children. It is one way children explore their world. It provides an avenue for children to exercise imaginative and creative thinking in a safe, secure setting. When play takes place in a group situation it helps children validate their thinking with that of other children. Through such play activities children develop social maturity. They learn how to cooperate with others, what makes others happy or unhappy and what they must do to obtain the cooperation of others. In play activities, children can learn from their discoveries with minimum risk.

By watching other children, children with special needs determine what activities are possible and might lead to greater enjoyment of the play experience. Children are encouraged to try new activities, and to gain favorable attention by duplicating the activities of others, or exceeding them if possible. By engaging in such interaction, children gain strength, enhance fine and gross motor development, develop coordination and balance, build social relationships, and lay the foundation for a positive self image.

Even solitary play provides an opportunity for children to practice newly learned skills in non-threatening situations. Many authorities feel that good motor, perceptual and social development are critical for learning basic academic skills. The activities which take place on the playground are therefore very important. It is necessary then, that the playground environment should be designed to maximize its potential as a learning aid.

The requirements of children with special needs are as great as those of other children in this respect. Children who are born with, or acquire, disabilities face challenges beyond those of most children. If the playground experience is beneficial for most children, it may also be assumed that it is of equal value to children with special needs. For this to be realized, children with special needs must have equal access to those facilities which promote developmental growth.

#### **• Value of Integration**

The universal playground, designed for the full spectrum of developmental abilities, benefits all children and works to the advantage of children with special needs. By most incidence studies, children with special needs represent approximately ten percent of the total school-aged population, and this percentage carries into the total community. This means that individuals with disabilities will always be a significant minority in society. Therefore, society needs to develop the skills and attitudes which enable the minority to make their maximum contribution. The informal environment of the school playground is an excellent place to begin.

Once the playground has been designed to include the entire school population, a number of secondary benefits emerge. In many locations, the school playground is viewed as a community resource. After school, and on weekends it is utilized by a variety of individuals who might not have been anticipated during the initial planning. Parents and grandparents may bring preschool children to the playground for enjoyment and exercise. Day-school supervisors may bring after-school groups to channel their energy before their parents collect them. Even during school hours, teachers who are older or have disabilities find the universal playgrounds designed for all children more accessible and easier to supervise, especially if they want to assist children with special needs.

### **Current Guidelines**

#### **• Safety**

Existing guidelines focus primarily on the layout and engineering of playground equipment to maximize the safety of all children involved in play activities. Generally, no unique safety considerations are needed in the playground design for children with special needs that are not also desirable for able bodied children. Safety features for children with special needs take other forms. Teachers or therapists may equip certain children with safety helmets, or put seat belts on children who use wheelchairs. Textured walkways, sound generators on moving equipment, warning colors on railings and walls, and appropriate safety signs are particularly appropriate for students with special needs but also useful for able bodied children. Completely risk-free playgrounds do not exist, but careful planning and attention to details will avoid most predictable hazards.

#### **• Accessibility**

The Americans with Disabilities Act of 1990 (ADA) prohibits discrimination on the basis of disability in employment, public services, transportation, public accommodations - including many services operated by private entities, - and telecommunications. Title III of the legislation includes within the definition of public accommodation: "a park, zoo, amusement park, or other place of recreation"; a school, including nursery schools; a day care center; and a gymnasium, health spa, or "other places of exercise or recreation."

Specific Federal requirements for accessibility to playgrounds by the disabled are expected to be published.

The Department of Parks and Recreation in the State of California has advised that after January 1, 1991, regulations requiring that all types of play activity in new and redone play areas must be accessible to the disabled. Other states may similarly issue accessibility requirements. Playground designers, installers and operators are reminded that they should determine what Federal and State requirements for accessibility are in effect. These requirements could necessitate changes to existing playgrounds as well as when new playgrounds are planned or existing playgrounds refurbished.

## **Developmental Issues**

Growth and development of all children are measured across several dimensions. Children may vary greatly along one or more of these dimensions. For example, children who fall at the low end of the scale for physical size may be at the top of the scale for intellectual development, or children with advanced motor skills may have poor social development. Children with special needs are perhaps the most obvious example of variation because they encounter unusual challenges along one or more dimensions. Ideally, the playground environment will enable all children to use their strong areas to compensate for areas requiring further development. The well-designed universal playground provides experiences to challenge all skill areas, and to accommodate all developmental stages.

### **• Social/Emotional Development**

Many children with special needs require more support in the areas of social/emotional development than do other children. Children with a physical, or a sensory disability may have had limited opportunities to interact with other children, or may have been treated differently by the children they did encounter. Emotional immaturity is more commonly found in children with special needs particularly, until they acquire the experience required to develop acceptable social behavior. Children with severe social or emotional problems may lack internal controls, or may be too internalized, to be readily accepted by other children. Children with limited intellectual development often respond socially and emotionally like younger children. The universal playground environment should have areas that encourage social interaction and be easily supervised.

### **• Intellectual Development**

Most children with special needs have normal intellectual development; however, it may be more difficult for some with pronounced physical, sensory, motor or emotional challenges to demonstrate this. Play areas which encourage intellectual exchanges can help facilitate integration among all children. Children with delayed intellectual development require experiences to enhance social, emotional and motor development. The universal playground needs to have a broad range of equipment and activities which appeal to all children, regardless of intellectual development.

### **• Sensory Development**

Although many children have visual irregularities, or transient hearing difficulties, the actual prevalence of severe vision or hearing disabilities is very low. Children with severe visual impairments become more dependent on other senses, especially hearing and touch. Playground design and equipment incorporating texture, manipulative devices, bright colors, and sound are particularly helpful for children with low vision. In recent years, an increasing percentage of children with severe visual impairments have multiple handicapping conditions. This may require creativity in terms of including them in group play activities.

Children with hearing impairments also vary considerably in the degree of hearing loss represented. Most who are hard of hearing have usable residual hearing which may be enhanced by a hearing aid. Many children with hearing impairments have excellent motor skills and are capable of utilizing almost any piece of playground equipment. Children with profound hearing impairments encounter their greatest difficulties in the area of communication. The inability to understand the speech of other children and difficulty in making themselves understood, may create frustration, hamper social development and delay integration. For these children, informal activities on the playground can be very valuable.

### **• Perceptual-Motor Development**

Some children with otherwise normal development in most other areas, encounter unusual difficulties with gross and fine motor coordination. Still others who appear to have normal hearing and vision, have trouble perceiving shapes, form, depth, movement or a variety of cognitive concepts. Frequently, this can result in learning disorders, although children may have average or above average intellectual ability. Many authorities attribute such difficulties to impaired or delayed neurological development. Whatever the cause, students with perceptual-motor delays may lack coordination, or have a tendency to be accident prone. Supervisory personnel may need to be more attentive to such children. In general, however, playground experiences are positive for these children and offer an opportunity to improve their coordination skills. Not all children identified as learning disabled exhibit poor coordination; some perform well in athletic activities and should certainly be encouraged.

### **• Physical Development**

Children come in all shapes and sizes, and with varying degrees of strength. Children with special physical needs represent a small segment of the physical growth and development curve. Whether the physical impairment is the result of genetic defects, trauma, or disease, it presents an added challenge to children within the school setting. A major concern is with mobility for children who may require a wheelchair, braces, a prosthesis or some other adaptation to enable them to participate in all possible educational experiences. Because many children with physical disabilities move more slowly and require more space, there may be concern that they could interfere with the free passage of other children, create hazards, or monopolize the utilization of certain pieces of playground equipment. In designing the universal playground, multiple access and egress points, and additional space are needed to minimize potential problems.

## • Age Factors

In recent years there has been a trend toward establishing separate playground facilities for pre-school and school-age children. In situations where dual playground facilities exist, the more challenging playground should also be supplied with a wide variety of equipment that might appeal to all ages. The basis for this is contained in the variations noted in the developmental scales. Since many children develop socially, emotionally, intellectually and motorically at varying rates, the universal playground needs to have a broader range of play experiences available to accommodate everyone.

Where a single playground is being developed, activity areas for younger and smaller children should be kept well away from the activity areas used by older, more active students. There should be at least one observation point on the universal playground that has a clear view of the entire playground to facilitate adult supervision. Placement of any new equipment or rearrangement of existing facilities should be done with this in mind.

## **Playground Adaptations**

### **Site Development**

The first major problem for children with significant mobility limitations may be gaining access to the playground site. When a playground is originally being designed, it should be placed in the most accessible location. Ideally, the universal playground should be located close to an accessible school entrance. It should also be near a parking area available to the general public, if the playground is to be used as a community facility.

### • Parking and Curbs

In many instances, there is an existing playground environment which is being redesigned to include all children. In these circumstances it is important to ensure that access and egress to the facility are adapted for children with mobility impairments. Parking areas should have spaces designated for the handicapped which are at least 12 feet wide and marked with an accessibility symbol. Curb ramps, if necessary, should be placed where a wheelchair can reach the walkways without having to pass behind parked cars. Ramped curbs at street corners should have a change in surface texture as a warning to children with visual impairments.

### • Walkways

Walkways should be at least 5 feet wide to enable two people in wheelchairs to pass in opposite directions. The gradient should not be greater than 5 per cent (7 inches) rise in 12 feet; and the slope perpendicular to the axis of travel should be no more than 1/2 inch in 4 feet. The surfaces should be smooth, without humps, wide seams, or grates with wide slots that might catch chair wheels or crutch tips. Surface treatments should be firm and provide good traction. Appropriate materials include timber, rubber, concrete, or asphalt which will not soften in hot weather. Loose gravel, bark, or

cobblestones should be avoided. Where slopes or raised surfaces are unavoidable, handrails should be provided on at least one side. A variety of different surface textures, and a 6 foot border of crushed rock, will assist children with visual impairments maintain their orientation. Vegetation which extends into pathways should be removed and plants which drop seeds, or are toxic or thorny, should be eliminated.

### • Surface Treatments

Over the years, playground designers have relied on three recommended protective surface materials: sand, pea gravel and wood/bark chips. All of these have advantages. The sand used is coarse, washed and does not pack. It absorbs impacts, drains well, is durable and responds well to sun and rain. Sand is also an attractive ground cover and its initial cost is low. Pea gravel is composed of small, round, smooth stones and has most of the same advantages as sand. It does not cling to clothing, get in children's eyes, or blow in a wind. However, it can be thrown much greater distances. Both materials can conceal sharp or dangerous items. Sand is more likely to be used as a cat litter box, and its effectiveness is reduced if wet, frozen, or mixed with soil.

Wood or bark chips make an attractive cover, are resilient, drain fairly well and are relatively inexpensive. Children are less apt to play with this material, and because of its acidic content, it is less likely to harbor insects or promote fungus growth. Wood and bark chips compact when wet, frozen, or pulverized. Through repeated play action, and their natural biodegradable nature, chips tend to decompose and become powdered and an irritant to some children. Wood chips, like the other two materials, can conceal sharp or dangerous items.

Unfortunately the above materials are unsuitable for children with significant mobility problems. Because of the depth of the material needed to absorb impacts, and its soft consistency, children using wheelchairs, crutches or long-leg braces, cannot maneuver easily over it. Another option is manufactured surfaces. These are available from a number of vendors. These surfaces are usually made from rubber, PVC plastics, or a combination of the two, and can be obtained in a variety of colors and thicknesses. These surface materials are soft and elastic to absorb shock, but firm enough to support wheelchairs, crutches and other mobility devices. They are tough, durable, slip resistant and water permeable. In some instances, grass can be planted and will grow up through the surface. The major disadvantage of these surfaces is the cost of labor and materials. A considerable amount of labor for ground preparation is needed before laying the material, to assure smoothness and proper drainage, and the material itself is comparatively expensive. Some of this can be recovered over time through ease of maintenance.

## **Playground Layout**

### **• Clearance**

The arrangement of playground equipment determines the efficiency and utility of the play environment. For safety reasons, active play areas should be separated from walkways. Fixed items should have 10 feet of clearance space around them, and any moving equipment should have 17 feet of clearance. The clearance allocations for one item should not overlap those of another. Swing areas should have a clearance of 12.5 feet beyond the swing extension, and in all directions of the swing arc. Hand rails are often advised for placement around the clearance areas of moving playground equipment, and these are particularly helpful for children with low vision.

Children who use wheelchairs have restricted mobility, and limited reach. The following demonstrates the difference in the range of motion between an average size child (child 6-9 years old, 4 feet in height) standing as opposed to seated in a wheelchair.

#### **Seated in a wheelchair**

|                       |           |
|-----------------------|-----------|
| Easy side reach       | 12 inches |
| Easy forward reach    | 16 inches |
| Maximum forward reach | 27 inches |
| High reach (forward)  | 40 inches |
| High reach (side)     | 50 inches |
| Full reach (down)     | 20 inches |

#### **Standing**

|                      |           |
|----------------------|-----------|
| Side reach           | 20 inches |
| Forward reach        | 18 inches |
| High reach (forward) | 57 inches |
| High reach (side)    | 57 inches |
| Low reach (side)     | 20 inches |

When installing items of equipment or activity areas, placement can be made within the range of motion for all children whether they are in a wheelchair or standing. Where this is not feasible, two similar items should be provided at differing heights or distances.

To accommodate wheelchairs, a surface area of at least a 60 inch diameter circle is needed for a wheelchair to make a 360 degree turn.

### **• Traffic Patterns**

For the universal playground environment to accommodate the maximum number of children, equipment should be placed so that children do not become grid-locked in moving from one interest area to another. Where children with mobility challenges will be included, the time devoted to planning functional traffic patterns will be well spent.

Swings, merry-go-rounds, and other moving items should be located around the perimeter or at the corners of the play area. This helps prevent children from running into the path of these items, and separates the areas of greatest physical activity. By placing fixed pieces of equipment toward the center, it is possible to connect some of them with either bridges or tunnels so that some children can go over or under others when moving from one place to another.

Wherever possible, there should be two or more methods of access or egress for each piece of fixed equipment. A ramp or a slope with a handrail should be available for children with mobility disabilities, while other children use ladders or stairs.

### **• Practical Aesthetics**

Ideally, the play environment should be pleasing to the eye as well as entertaining in function. The judicious use of trees and other plantings heightens the enjoyment of the play area for children and adults. By placing metal equipment in shaded areas, and orienting it to the north, heat build-up on items such as slides or teeter-totters can be reduced.

The use of different paint colors to delineate activity areas adds visual interest and assists children with visual impairments to maintain orientation in the play area. The use of colored surface treatments also complements the decor. Some integrated play facilities have introduced sound elements, especially with moving equipment, to serve safety and orientation functions.

Attractive rest and observation points provide space where children can relax and watch activities in the play area. These points also help playground supervisors and parents to supervise children. Benches and space for a wheelchair to make a 360 degree turn are required in these areas.

Variations in the play area's topography reduce visual monotony. Care must be taken to assure low areas are well drained. Where water stands, and the ground becomes soft, potential hazards are created for children who might stray off the firmer walkways.

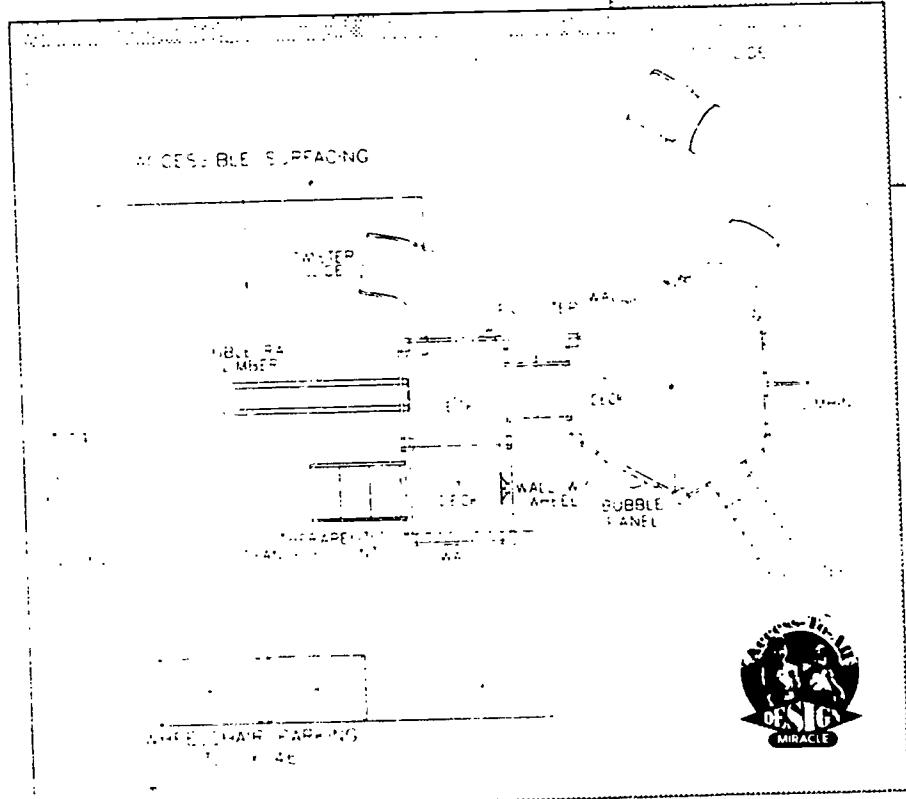
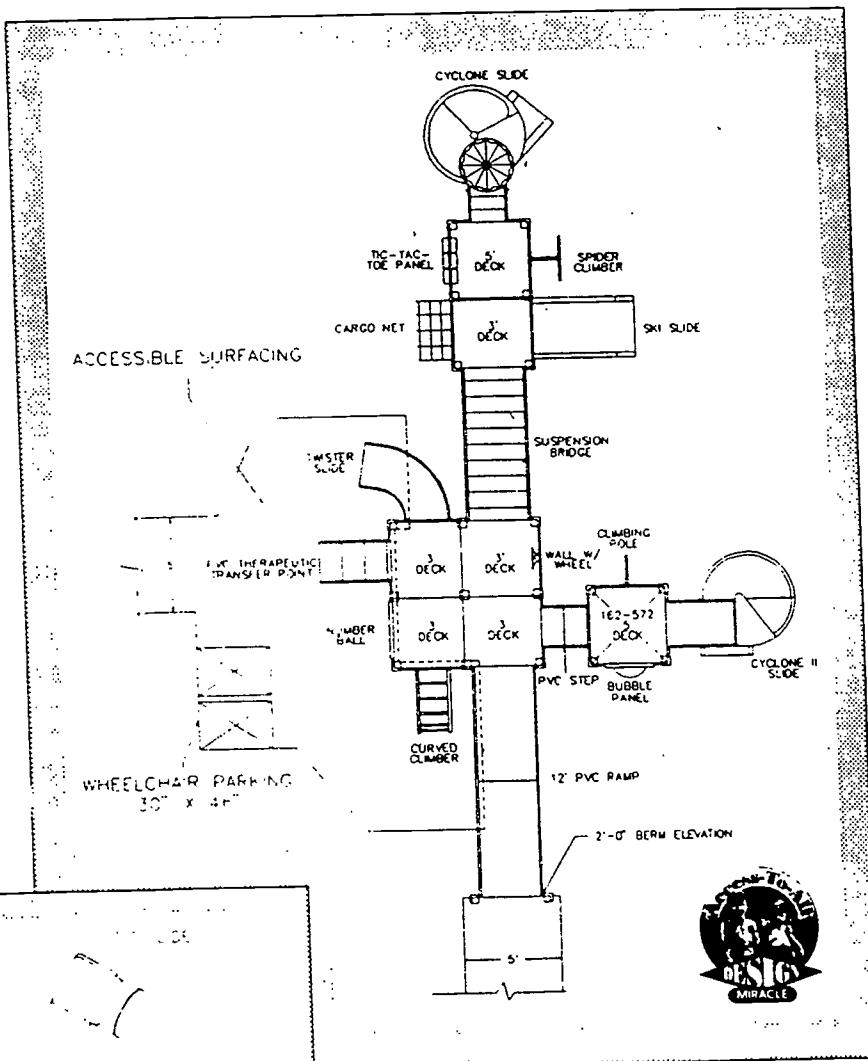
### **• Maintenance**

Another factor to be considered when planning the layout of the play area is the ease of maintenance. Ready access for mowing machines, and other maintenance vehicles is essential. Adult maintenance personnel must be able to access all parts of the play area to keep it clean and to check all the equipment for potential safety hazards.

## Possible Equipment

Despite efforts to make universal playgrounds accessible to children with special needs, not all children will be able to use all equipment. Attempting to make every part of the universal play environment accessible to all children may reduce the challenge for some others, particularly those with superior physical skills. With adaptations, however, more of the playground can be used by children with special needs without reducing its value for others.

Several pieces of equipment are beneficial to all children. Some can be constructed by school personnel or volunteers, while others are available from vendors. Which pieces of equipment to install first is a decision that usually becomes apparent after a survey is made of the potential users of the playground. By prejudging the equipment some children can utilize, there is a danger of denying them the opportunity to challenge their abilities.



The following are descriptions of equipment items which are particularly suitable for all students. For convenience, these items are grouped according to the developmental area most likely to be challenged by the equipment. Many of the equipment items, however, will enhance several developmental areas.

# Developmental Goals and Equipment Modifications

## A. Social and Emotional Development

| EQUIPMENT            | GOALS AND BENEFITS*   | DESCRIPTION   | MODIFICATIONS   |
|----------------------|---|---|---|
| Work and Play Tables | Promotes quiet, cooperative activities alone or in small groups.  | Tables may be plain or have inlaid design. Tables should have sturdy benches, preferably with back-rests.   | <ul style="list-style-type: none"> <li>Space for a wheelchair.</li> <li>Textured surface design.</li> </ul>   |
| Sand Table           | Promotes quiet, cooperative play alone or in small groups. Encourages imagination, creative activities. | A sandbox mounted on a table.   | <ul style="list-style-type: none"> <li>Space for a wheelchair.</li> <li>Indentations around table to enable students with poor balance to stand.</li> </ul>   |
| Sand Crane           | Promotes cooperation and social interaction.  | A pulley system with a rubber scoop attached to a chain or cable. Requires 2 children to operate, one to fill the scoop and one to operate the pulley.  | <ul style="list-style-type: none"> <li>Appropriate surface for a wheelchair.</li> <li>Sound generated by pulley for student with visual impairment.</li> </ul>  |
| Play Counter         | Encourages imaginative play with other children.  | A counter top usually mounted under a platform which provides shelter.  | <ul style="list-style-type: none"> <li>Appropriate surface and space for a wheelchair.</li> </ul>   |
| Play Hut             | Encourages imaginative play. May also be used as a non-punitive time-out area.                          | Sheltered area with some privacy but open enough to easily supervise.   | <ul style="list-style-type: none"> <li>Large enough to accommodate a wheelchair and 2 or 3 other children.</li> </ul>   |
| Steering Wheel       | Encourages imaginative play either alone or with other children.  | Steering wheel mounted on a post or beam.   | <ul style="list-style-type: none"> <li>Mount at different heights so that one is accessible to students in wheelchairs.</li> <li>Add a horn so that students with visual impairments can locate.</li> </ul>   |
| Sympathetic Swing    | Promotes integration, cooperative interaction.  | Geared to a neighborhood swing, it is propelled when the child's able bodied companion swings.  | <ul style="list-style-type: none"> <li>A sound producing device enabling (a) students with visual impairments to locate and determine if in use, and (b) students with developmental delays to learn cause and effect.</li> </ul>                       |
| Wheelchair Ramps     | Encourages socialization.   | Should be long enough to provide 1:12 grade and be 5 feet wide with handrails at two heights. Should be built to enable access to playground equipment. May also provide a play area for all. | As in description.  |
| Tunnel               | Encourages socialization.   | Tunnel.   | <ul style="list-style-type: none"> <li>Ramped access.</li> <li>Textured areas to provide tactile orientation cues to students with visual impairments.</li> <li>Large enough to enable either an adult or 2 children to go through together.</li> </ul> |
| Wide Slide           | Encourages socialization.   | Double the usual width, enabling two children or one child with one adult to slide down side-by-side.   | <ul style="list-style-type: none"> <li>Multiple access options including ramp for wheelchair.</li> </ul>  |

\* These goals and benefits may also promote an awareness of social responsibility by encouraging cooperative play among all children.

## B. Perceptual Motor Development

| EQUIPMENT            | GOALS AND BENEFITS                       | DESCRIPTION  | MODIFICATIONS  |
|----------------------|--|--|--|
| Tire Swing           | Improves balance and coordination.       | Swing with a tire for a seat suspended from a single point. Can seat one or more children.                     | •None required.  |
| Spring Teeter-totter | Improves balance and coordination.       | Comes in models for two, three, four, or even more children. Safer than the traditional fulcrum teeter-totter. | •Provide a non-slip surface at center to enable child to lie there without slipping around.                |
| Spring Rides         | Improves balance and coordination.       | Mounted on sturdy coil springs, topped by colorful stylized animal forms.                                      | •Provide sound producing device to serve as auditory cue.<br>•Back supports on animals seats.              |
| Standard Swing       | Improves balance and coordination.       | Two point suspended swing with soft seat or supportive harness seat.   | •Provide sound producing device to serve as cue for locating and determining when in use.                  |
| Log/Tire Roll        | Improves balance and gross motor skills. | Mounted on an axle. Child stands on device while it rolls beneath his feet. Handholds are provided.            | •Provide sound producing device to ensure auditory cue for locating and knowing when in use.               |
| Balance Beams        | Improves balance and gross motor skills. | Installed a short distance above ground.   | •Provide non-slip surface.   |
| Gadget Panel         | Improves fine motor skills.              | A panel on which various devices such as faucets, knobs, latches, dials and switches have been mounted.        | •Provide gadgets at different levels.<br>•Ensure wheelchair access.<br>•Provide tactile and auditory cues. |
| Wide Slide           | Improves perceptual/motor skills.        | Double the usual width permitting 2 children or an adult and one child to slide together.                      | •Install on embankment to reduce risk of injury in case of falls.  |

## **Playground Equipment Manufacturers & Distributors**

Achievement Products, Inc.  
P O Box 547  
Mineola, New York 11501  
516-757-8899

All-American Recreation, Inc  
P O Box 8191  
Tampa, Florida 33674  
800-346-0085

Allstate Sales & Rentals  
2109 Bloomfield Woods Court  
West Bloomfield, Michigan 48033  
313-DETROIT

American Playtime Systems, Inc.  
230 Route 109  
Farmingdale, New York 11735-1503  
800-231-PLAY  
516-454-7858

American Swing Products  
1320 Fayette Street  
El Cajon, California 92020  
800-433-2573

Belson Manufacturing Company, Inc.  
111 North River Drive  
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North Aurora, Illinois 60542  
800-323-5664

Big Toys  
2601 South Wood Street  
Tacoma, Washington 98409-4793  
800-426-9788

Burke Company, Inc.  
P O Box 549  
660 Van Dyne Road  
Fond du Lac, Wisconsin 54936-0549  
414-921-9220

Childcraft Educational Corporation  
20 Kilmer Road  
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Edison, New Jersey 08818-3081  
800-631-5652

Children's Factory  
505 North Kirkwood Road  
St. Louis, Missouri 63122  
314-821-1441

Clayton Company  
P O Box 740007  
Louisville, Kentucky 40201-7407  
800-626-2177

Columbia Cascade Company  
1975 S.W. Fifth Avenue  
Portland, Oregon 97201-5293  
503-223-1157

Community Playthings  
Route 213  
Rifton, New York 12471  
914-658-3141

Creative Playgrounds, Ltd.  
P O Box 10  
McFarland, Wisconsin 53558  
608-838-3326  
800-338-0522

Creative Systems of California  
11285 Sunrise Gold Circle # C  
Rancho Cordova, California 95742  
916-638-5375

Engan-Tooley & Associates  
P O Box 4194  
East Lansing, Michigan 48826  
800-722-8546

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Beaufort, South Carolina 29901-1348  
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Boulder, Colorado 80306  
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HAGS Play  
Swedes Systems  
2180 Stratingham Drive  
Dublin, Ohio 43017  
614-889-9026

Michigan Playground and Recreation Equipment, Inc.  
2313 Beechwood  
Royal Oak, Michigan 48073  
313-588-8450

Iron Mountain Forge  
P O Box 897  
One Iron Mountain Drive  
Farmington, Missouri 63640-0897  
800-325-8828

Michigan Products Inc.  
1200 Keystone Avenue  
P O Box 24155  
Lansing, Michigan 48909-4155  
800-444-1773

Jack Golden & Associates  
16475 Stricker  
East Detroit, Michigan 48021  
313-772-4117

Miracle Recreation Equipment Company  
P O Box 420  
Monett, Missouri 65708  
800-523-4202  
417-235-6917

Jayfro Corporation  
976 Hartford  
Waterford, Connecticut 06385  
800-243-0533

New England Camp & Recreation Supply Company  
P O Box 7106  
Dallas, Texas 75209  
800-343-0210

Jennings  
2764 Armstrong Drive  
Lake Orion, Michigan 48035  
800-632-4153

Olympic Recreation  
5811 East Dunes Highway  
Gary, Indiana 46403  
800-255-0153  
219-938-3331

Kee Industrial Products, Inc.  
P O Box 207  
Buffalo, New York 14225  
800-851-5181

PCA Industries  
5642 Natural Bridge  
St. Louis, Missouri 63120  
800-727-8180  
314-359-4140

Kidsports Fun & Fitness Center  
3026 Penn Avenue  
West Lawn, Pennsylvania 19609  
215-678-1630

Playmate  
Delmer F. Harris Company, Inc.  
P O Box 278  
Concordia, Kansas 66901  
901-243-3321

Kompan, Inc.  
80 King Spring Foad  
P O Box 3536  
Windsor Locks, Connecticut 0696  
800-553-2446

Playworld Systems  
P O Box 505  
315 Cherry Street  
New Berlin, Pennsylvania 17855  
800-233-8404

Kraftsman Playground & Park Equipment  
A Division of Playkraft, Inc.  
12310 Old Foltin Road  
Houston, Texas 77086-3514  
713-447-7484  
800-451-4869

Quality Industries, Inc.  
Curtis Marketing Corporation  
Hillsdale Industrial Park  
P O Box 765  
Hillsdale, Michigan 49242-0765  
517-439-1591  
800-766-9458  
(made from recycled milk jugs)

Rainbow Play Systems, Inc.  
5980 Rainbow Parkway  
Prior Lake, Minnesota 55372  
612-447-2553

Recreation Technology, Inc.  
P O Box 1048  
Dunkirk, Maryland 20754-1048  
301-855-5348

Seavey Corporation  
563 Collage Avenue  
Holland, Michigan 49423  
800-444-4954

Snitz Manufacturing Company  
2096 South Church Street  
East Troy, Wisconsin 53120  
800-642-3991

Sportime  
Select Service & Supply Company, Inc.  
2905-E Amwiler Road  
Atlanta, Georgia 30360  
800-444-5700

Sutcliffe Leisure Inc.  
3111 Broadway 4B  
New York, New York 10027  
212-865-1626

TotTime  
P O Box 121  
Fort Payne, Alabama 35967  
205-845-5610

Ultra Play Systems, Inc.  
724 W. Eighth Street  
Anderson, Indiana 46016  
800-45-ULTRA

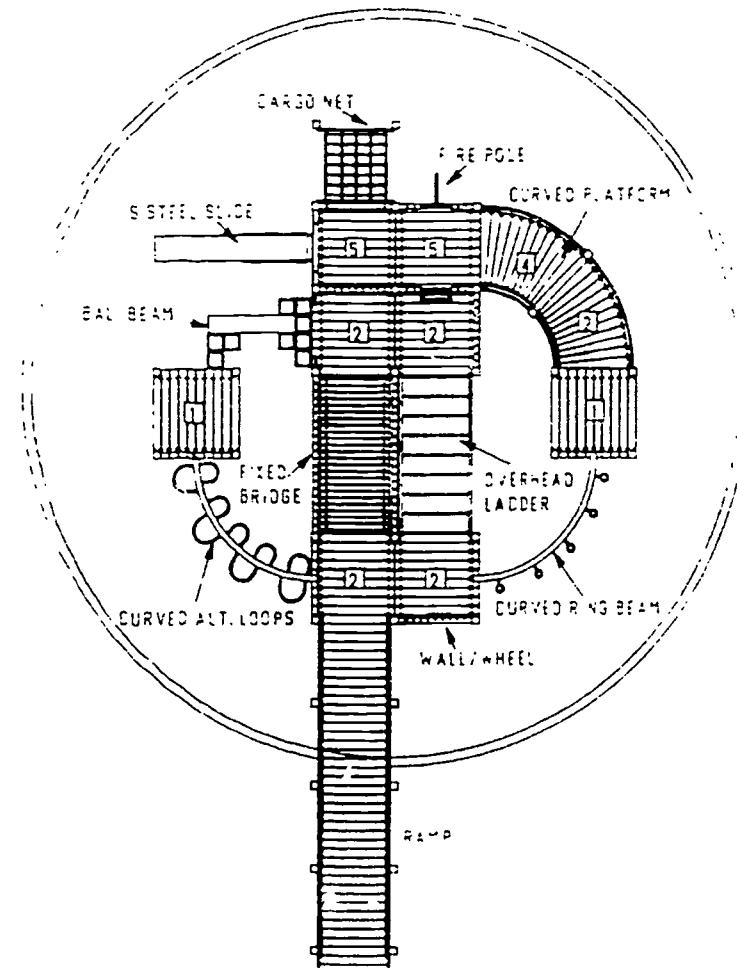
Victor Stanley, Inc.  
Brick House Road  
Dunkirk, Maryland 20754  
301-855-8300

Wabash Valley Midwest  
P O Box 5  
State Road 15 North  
Silver Lake, Indiana 46982  
219-352-2168

Wapello Fabricators Company, Inc.  
210 North 2nd Street  
Wapello, Iowa 52653  
319-523-8371

Wausau Tile  
P O Box 1520  
Wausau, Wisconsin 54402-1520  
215-359-3121

Wooden Environments, Inc.  
1890 Evergreen Avenue  
Speonk, Long Island, New York 11972-0915  
516-325-1020  
800-662-0922



## **Playground Surface Materials**

### **GREENPARK**

Breakfall Inc.  
759 North Milwaukee Street  
Milwaukee, Wisconsin 53202  
414-273-7828

### **PLAYGUARD**

#### **SUPERTOP**

Carlisle Tire & Rubber Company  
P O Box 99  
1415 Ritner Highway  
Carlisle, Pennsylvania 17013  
717-249-1000  
800-827-1001

### **RUFFHOUSE**

Connor • AGA, Inc  
251 Industrial Park Road  
Amasa, Michigan 49903  
906-822-7311  
800-833-7144

### **FIBAR**

The Fibar System  
823 West Street  
Harrison, New York 10528  
1-800-FIBAR-A1

### **DINOFLX SAFETY TILES**

Kiefer Specialty Flooring, Inc  
4211 Highway 173  
Zion, Illinois 60099-4093  
800-322-5448

### **TUFFTURF**

Landscape Structures Inc  
Route 3  
601 7th Street South  
Delano, Minnesota 55328  
612-972-3391

### **SAFETY DECK**

Mat Factory Inc.  
1378 East Edinger Avenue  
Santa Ana, California 92705  
714-547-7623

### **E-Z FALL**

Mitchell Rubber Products, Inc.  
491 Wilson Way  
City of Industry, California 91744  
800-453-7526

### **SAFDEK**

No Fault Industries  
11325 Pennywood Drive  
Baton Rouge, Louisiana 70809  
800-232-7766

### **SECURITY BLANKET**

Playfield Industries Inc  
P O Box 1564  
Williamsville, New York 14231-1564  
1-800-263-5730

### **FALL SAVER**

PLAY SAFE  
PlaySafe Surfaces Inc  
240 West Bristol Lane  
Orange, California 92665  
714-974-6282  
800-875-5788

### **SAFE GUARD**

Safe Guard Surfacing Corporation  
493 North Country Road  
St. James, New York 11780  
516-862-1276

### **CUSHIONAIRE**

Surfacing Concepts Inc  
Tom Baines & Associates Inc  
25875 Jefferson  
St. Claire Shores, Michigan 48081  
313-468-9888

### **TIRE TURF**

Tire Turf Systems Inc.  
P O Box 186  
Harlan, Indiana 46743  
219-657-5129

### **SHOCK TURF**

Waste Reduction Systems  
114 North Warpole  
Upper Sandusky, Ohio 43351  
419-294-1356

### **WOODCARPET**

Zeager Brothers Inc  
4000 East Harrisburg Pike  
Middleton, Pennsylvania 17057

## **PAM Assistance Centre**

**601 West Maple Street**

**Lansing, Michigan 48906-5038**

**Telephone 1-800-274-7426**

**517-371-5897**

**Voice or TDD**

## C. Physical Development

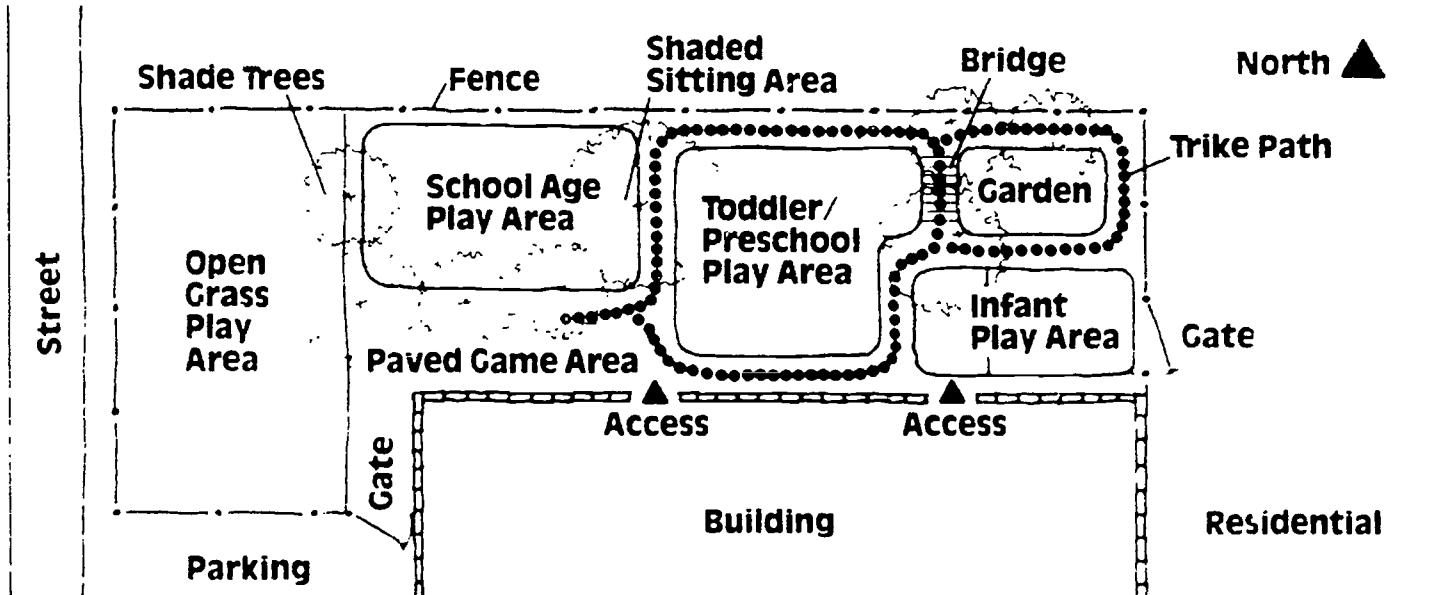
| EQUIPMENT                   | GOALS AND BENEFITS   | DESCRIPTION  | MODIFICATIONS   |
|-----------------------------|--|--|---|
| Hand-over hand Bars         | Improves upper body strength and coordination.               | Overhead bars at different heights.  | •Construct at different heights to enable access from wheelchairs.  |
| Chinning Bars               | Improves upper body strength.                                | Chinning bars at different heights.  | •Construct at different heights to enable access from wheelchairs.  |
| Parallel Bars               | Improves upper body strength and coordination, and balance.  | Can be either horizontal or inclined.  | •Construct at different levels and of different widths to enable access by more children.   |
| Adjustable Basketball Hoop  | Improves upper extremity strength and eye-hand coordination. | Basketball hoop adjustable to different heights.   | •Ensure wheelchair access.<br>•Add some sound producing device to serve as auditory cue.  |
| Cargo/Chain/Tire Nets       | Improves upper and lower extremity strength.                 | Can also serve as safety device below high towers.   | •Construct multiple means of access.  |
| Tube and Half tube Slides   | Improves upper and lower extremity strength.                 | Enables child to slide independently.  | •Construct multiple means of access.  |
| Stairs and Inclined Ladders | Improves upper and lower extremity strength.                 | Wide enough to permit children to pass going up, down or sideways. Can be negotiated using arms or legs. | •Ensure ramped access.  |
| Bridges                     | Improves balance and coordination.                           | May be tire bridges, clatter bridges or other modifications.   | •Accessible by wheelchair where appropriate.<br>•Provide handrails at different heights.<br>•Provide textured surfaces.<br>•Provide auditory cues for locating and knowing when in use. |

## D. Sensory Development

| EQUIPMENT         | GOALS AND BENEFITS*                 | DESCRIPTION   | MODIFICATIONS   |
|-------------------|-------------------------------------|---|---|
| Music Panel       | Stimulates auditory discrimination. | Incorporates a number of music producing devices that can be sounded with a stick or by hand. | <ul style="list-style-type: none"> <li>Devices should be at varying heights to ensure access.</li> <li>Ensure surrounding surface is wheelchair accessible.</li> </ul>  |
| Colored Panels    | Stimulates visual awareness.        | Different colored panels placed side by side or throughout the area.                          | <ul style="list-style-type: none"> <li>None required.</li> </ul>  |
| Bucket Table      | Stimulates tactile awareness.       | Table with water and a bucket or buckets.   | <ul style="list-style-type: none"> <li>Provide access for students in wheelchairs.</li> <li>Provide indentations around the table to help students with poor balance.</li> </ul>  |
| Sand Box or Table | Stimulates tactile awareness.       | Table or box with sand in it and ideally covered when not in use.                             | <ul style="list-style-type: none"> <li>Ensure wheelchair access.</li> <li>Provide indentation around table to help balance.</li> <li>If box, provide backed seating in corners for students with poor balance.</li> </ul> |

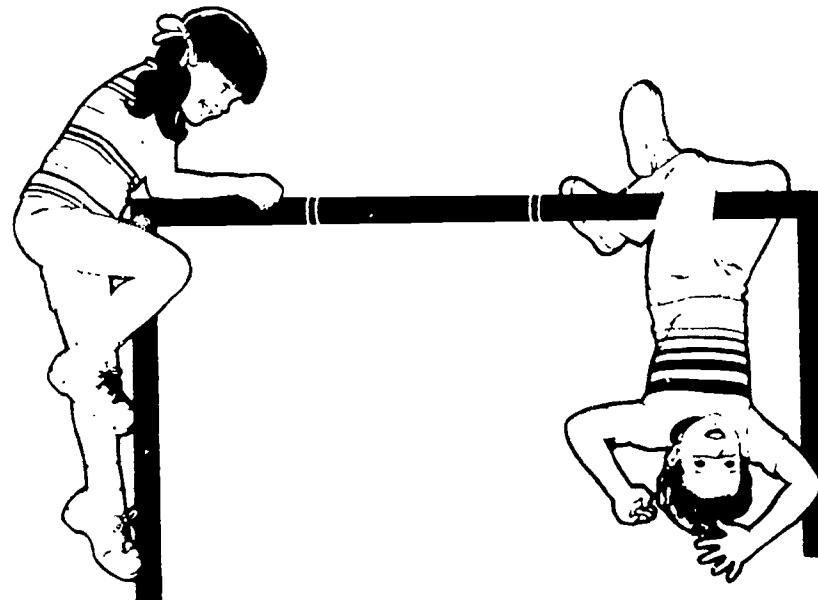
\* These goals and benefits may also provide artistic and aesthetic development by encouraging auditory, visual and tactile awareness.

## A Typical Master Plan



## E. Intellectual Development

| EQUIPMENT                            | GOALS AND BENEFITS  | DESCRIPTION  | MODIFICATIONS   |
|--------------------------------------|---|--|---|
| Tunnel                               | Concepts of in, out, through and across.                      | Tunnel.  | <ul style="list-style-type: none"> <li>•Multiple means of access.</li> </ul>  |
| Bridges                              | Concepts of over, under, up, down, high and low.              | May be clatter bridges, tire bridges or other modifications.             | <ul style="list-style-type: none"> <li>•Accessible by wheelchair where appropriate.</li> <li>•Provide handrails at different heights.</li> <li>•Provide textured surfaces.</li> <li>•Provide auditory cues for locating and knowing when in use.</li> </ul> |
| Walls with colors and shapes on them | Concepts of shapes and colors.                                | Modular panels with different shapes cut out or with different colors.   | <ul style="list-style-type: none"> <li>•Ensure wheelchair accessibility.</li> </ul>   |
| Bucket Table                         | Concepts of conservation of material, volume and measurement. | Bucket table with water in it and a bucket or buckets.                   | <ul style="list-style-type: none"> <li>•Provide access for students in wheelchairs.</li> <li>•Provide indentations around table to help students with poor balance.</li> </ul>  |
| Relief Maps                          | Improve orientation and develop spatial concepts.             | Relief maps of playground.   | <ul style="list-style-type: none"> <li>•Ensure wheelchair accessibility.</li> </ul>   |
| Guide Rails                          | Improve orientation and develop spatial concepts.             | Guide rails around and at strategic locations throughout the playground. | <ul style="list-style-type: none"> <li>•Provide at different heights.</li> </ul>  |



# THE UNIVERSAL PLAYGROUND PLANNING SURVEY

Dear Friend:

The Planning Committee of the Universal Playground is interested in your ideas for creating the ideal play environment for all children in the community. We would greatly appreciate your assistance in responding to the following items. {Please check the appropriate box(es)}.

**1. Which one of the following categories best describe your position?**

REGULAR TEACHER       SPECIAL TEACHER       OTHER  
 STUDENT                 PARENT                  Please specify \_\_\_\_\_

**2. Which of the following categories best describes you or your student's special needs?**

SOCIAL/EMOTIONAL       PERCEPTUAL-MOTOR       OTHER  
 PHYSICAL                 INTELLECTUAL              Please specify \_\_\_\_\_

**3. What adaptations would be most useful?**

WIDE PARKING SPACE       CURB RAMPS  
 WIDE WALKWAYS             SMOOTH, NON-SKID WALKS  
 HANDRAILS ON WALKWAYS     TEXTURED RAMPS AND WALKS  
 RESILIENT IMPACT AREAS     HANDRAILS AROUND EQUIPMENT  
 RAMPS TO HIGH EQUIPMENT     COLORED AREA MARKERS  
 REST/OBSERVATION AREAS     SAFE TRAFFIC PATTERNS  
 OTHER Please Specify \_\_\_\_\_

**4. Which of the following pieces of equipment would the student(s) most enjoy?**

|   |   |  |
|---|---|--|
| <input type="checkbox"/> WORK/PLAY TABLES           | <input type="checkbox"/> SAND TABLE     | <input type="checkbox"/> SAND CRANE                  |
| <input type="checkbox"/> PLAY COUNTER               | <input type="checkbox"/> PLAY HUT       | <input type="checkbox"/> STEERING WHEEL              |
| <input type="checkbox"/> SYMPATHETIC SWING          | <input type="checkbox"/> CRAWL TUNNEL   | <input type="checkbox"/> PLAY TOWERS                 |
| <input type="checkbox"/> GEOMETRIC PANELS           | <input type="checkbox"/> BRIDGES        | <input type="checkbox"/> MUSICIAN'S PANEL            |
| <input type="checkbox"/> COLORED PANELS             | <input type="checkbox"/> SAND BOX       | <input type="checkbox"/> BUCKET/WATER TABLE          |
| <input type="checkbox"/> MERRY-GO-ROUND             | <input type="checkbox"/> TIRE SWING     | <input type="checkbox"/> RELIEF MAP OF PLAYGROUND    |
| <input type="checkbox"/> HAND-OVER-HAND BARS        | <input type="checkbox"/> BALANCE BEAM   | <input type="checkbox"/> CARGO NET SWING             |
| <input type="checkbox"/> SPRING TEEETER-TOTTER      | <input type="checkbox"/> WIDE SLIDE     | <input type="checkbox"/> STANDARD SOFT SEAT SWING    |
| <input type="checkbox"/> CARGO/CHAIN/TIRE NET       | <input type="checkbox"/> GADGET PANEL   | <input type="checkbox"/> ADJUSTABLE TETHERBALL       |
| <input type="checkbox"/> TUBE AND HALF-TUBE SLIDE   | <input type="checkbox"/> SPRING RIDE    | <input type="checkbox"/> MONKEY BARS                 |
| <input type="checkbox"/> CHINNING BAR               | <input type="checkbox"/> PARALLEL BARS  | <input type="checkbox"/> ADJUSTABLE BASKETBALL HOOP  |
| <input type="checkbox"/> TIRE CRAWL BRIDGE          | <input type="checkbox"/> FIREMAN'S POLE | <input type="checkbox"/> STAIRS AND INCLINED LADDERS |
| <input type="checkbox"/> OTHER Please specify _____ |   |  |

**5. Will student(s) be using the playground during out-of-school hours?**

YES       NO

**6. Comments or Suggestions**

## **THE UNIVERSAL PLAYGROUND ACTION PLAN CHECKLIST**

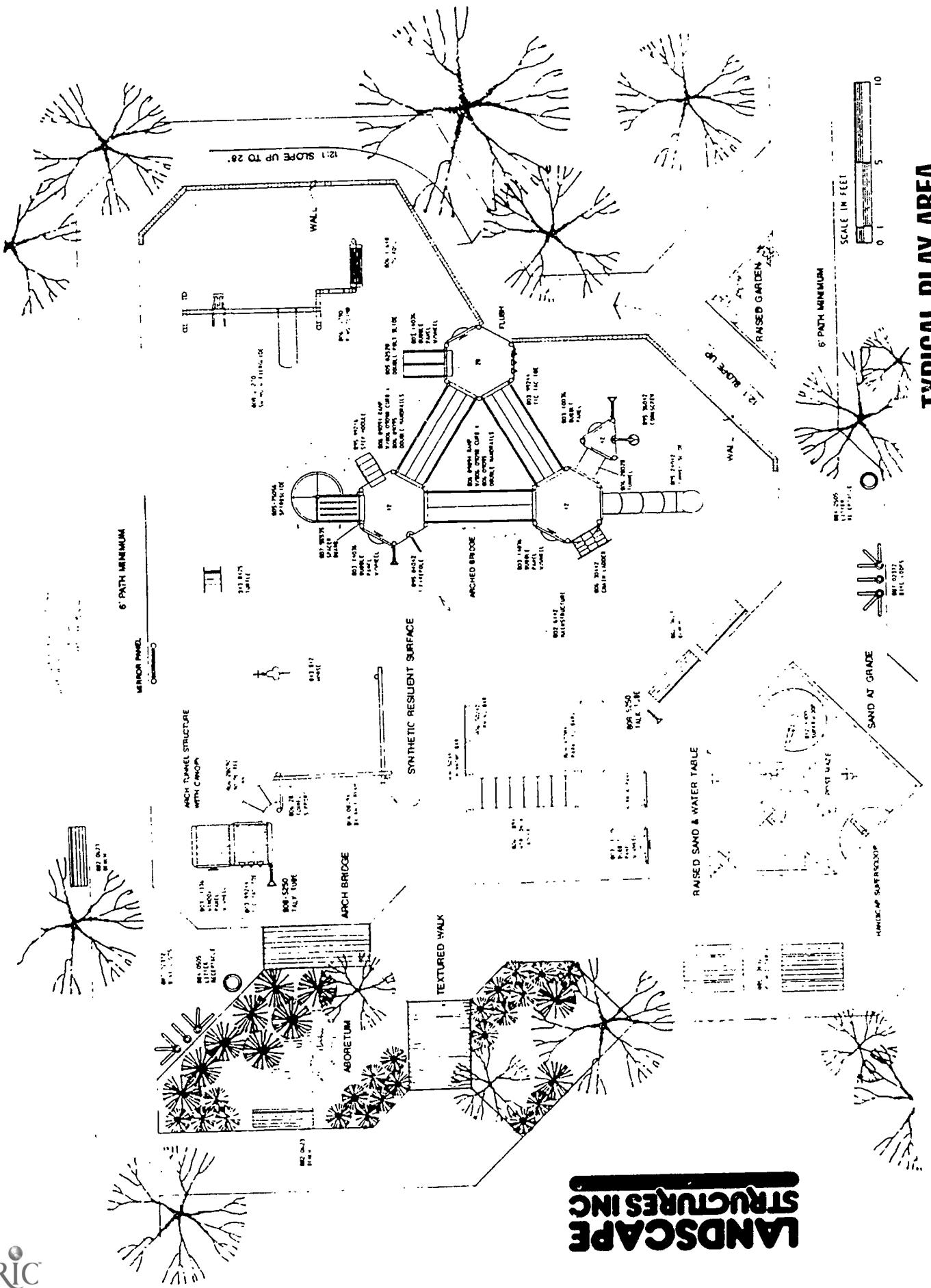
### • Planning Steps

|   | <b>YES</b> | <b>NO</b> |
|---|------------|-----------|
| 1. Has a commitment been made by the school district to develop a playground accessible to all children?                      | _____      | _____     |
| 2. Has a planning committee representative of school professionals, the community and the consumer population been appointed? | _____      | _____     |
| 3. Has the rationale for the project, with goals and objectives been formulated?  | _____      | _____     |
| 4. Have the problems and needs of the project been determined?  | _____      | _____     |
| 5. Has a work schedule with time lines leading to the completion of the project been developed?                               | _____      | _____     |
| 6. Has an inventory including reference materials, articles, catalogs, and guidelines been accumulated?                       | _____      | _____     |
| 7. Have all relevant government regulations and policies been reviewed?   | _____      | _____     |
| 8. Have the available levels of financial and personal resources been determined?   | _____      | _____     |
| 9. Has the decision been made whether or not a commercial contractor or an architect will be retained?                        | _____      | _____     |
| 10. Have hearings, and/or a survey of potential users of the facility been conducted?   | _____      | _____     |
| 11. Has a list been developed of desired elements in the final plan?  | _____      | _____     |
| 12. Have the alternatives to be included immediately been included?   | _____      | _____     |
| 13. Have the remaining alternatives included in the final plan been prioritized for future inclusion?                         | _____      | _____     |
| 14. Have potential sources of future funding been investigated?   | _____      | _____     |
| 15. Have working blueprints of the project been drawn up?   | _____      | _____     |
| 16. Have bids been let to contractors or construction begun by local personnel?   | _____      | _____     |
| 17. Has the project been publicized through various media sources and an opening day celebration planned?                     | _____      | _____     |
| 18. Has a final inspection for safety and workmanship been conducted and certification of approval granted?                   | _____      | _____     |

## THE UNIVERSAL PLAYGROUND ACCESSIBILITY CHECKLIST

**• Adaptation**

|  | <b>YES</b>               | <b>NO</b>                |
|--|--------------------------|--------------------------|
| 1. Is there a wide parking space with an access symbol on it near the playground area?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Can a person in a wheelchair reach the walkways without having to pass behind parked cars?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are there curb ramps to enable wheelchairs to reach the walkways?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are the walkways at least 5 feet wide?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Are the walkways smooth with appropriate surfaces and proper gradients?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Do walkways have handrails on at least one side?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Has vegetation overhanging the walkway been removed and any toxic or thorny plants eliminated?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Have firm, but resilient materials been used to enable children with mobility problems to reach the access and egress points for each activity? | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Are resilient materials provided at all places where potential impact may occur?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Are handrails or other barriers placed around all moving pieces of equipment?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Are there two or more methods to access or egress each piece of equipment?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Is a variety of color used to help orient children with visual impairments?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Are there rest areas provided out of the traffic pattern?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Are there appropriate (1:12 grade) ramps, at least 3 feet wide, to enable children with mobility impairments to reach all activity areas?      | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Has equipment been modified to enable access by children with special needs?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. Are the landings wide enough to enable wheelchairs to turn?  | <input type="checkbox"/> | <input type="checkbox"/> |



## TYPICAL PLAY AREA

This study clearly shows a protective effect can be obtained by adding a small amount of polyacrylate to the polymer melt.

EST COPY MAY 2011 A&E

## Resources

**A Model Playground for the Multiply Handicapped.** Office of Recreation and Park Resources, Department of Leisure Studies, Cooperative Extension Service, University of Illinois, Champaign, Illinois, September, 1982.

D'Aloisio, Sherri. **Community Effort Brings Children With Different Abilities Together.** O.T. Week. December 24, 1987.

**Design Guide for Accessible Outdoor Recreation.** Prepared by Interagency Guidelines Task Group for Accessible Outdoor Recreation, Washington, DC, September, 1990.

**Handbook for Public Playground Safety.** U.S. Consumer Product Safety Commission, Washington, DC, 1991.

**Inclusive Recreation: Planning Recreation Opportunities for People of All Abilities.** Michigan Department of Natural Resources, Recreation Division, Recreation Services Branch, February, 1992.

Lamport, Nancy. **A Magic Ground For Playing.** O.T. Week. November 2, 1989.

Stout, Janet. **Planning Playgrounds for Children With Disabilities.** The American Journal of Occupational Therapy. 42 (10)1988.

U.S. Department of Housing and Urban Development, Office of Policy Development and Research. **A Playground for All Children: Book-1 User Groups and Site Selection**, U.S. Government Printing Office, Washington, DC 20402, January, 1976.

U.S. Department of Housing and Urban Development, Office of Policy Development and Research. **A Playground for All Children: Book-2 Design Competition Program**. U.S. Government Printing Office, Washington, DC 20402, August, 1976.

U.S. Department of Housing and Urban Development, Office of Policy Development and Research. **A Playground for All Children: Book-3 Resource Book**, U.S. Government Printing Office, Washington, DC 20402, May, 1978.

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**Physically Impaired Association of Michigan**  
601 West Maple Street  
Lansing, Michigan 48906

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Acquisitions Specialist  
1920 Association DP  
Reston, VA 22091