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## Outdoor Play: Designing, Building, and Remodeling Playgrounds for Young Children

*By Francis Wardle, Ph.D.*

Play is recognized by early childhood educators as the foundation activity for almost all future learning (Johnson, Christie & Yawley, 1987; Wardle, 1987a). Furthermore, early childhood educators recognize the critical value of outdoor play for all of our young children. Outdoor play provides the opportunity for more and different kinds of play than occur indoors: bikes and trikes, running and climbing, use of space, interaction with the environment, and experimenting with one's physical abilities. Added to our fundamental knowledge regarding the importance of outdoor play is a contemporary realization that the modern experiences of many of our children require us to place special attention on our outdoor playgrounds (Greenman, 1993; Rivkin, 1995; Wardle, 1995). Computers, TV watching, hectic parent lives, small living spaces (with smaller backyards), and unsafe neighborhoods require child care programs to look seriously at their outdoor playgrounds.

Anyone who has designed or built a playground knows it is a confusing, daunting task. Should we buy from playground catalogs or build our own equipment? What about liability? What materials should we use: wood, metal, fiberglass, recycled plastic, laminated plywood, or polyethylene? Are there federal standards we must follow? What about handicapped requirements and licensing regulations? And what fall zone materials should we use?

Before any of these issues are addressed, the playground designer must ask, "What should an outdoor playground include?" The best outdoor playground is a safe replica of the natural, outdoor environment many of us enjoyed growing up—a variety of textures and materials, gardens, streams, loose parts, places to get away from the crowd, and things to create (Greenman, 1993; Wardle, 1995).

A good playground needs to provide all children who use it with opportunities for a variety of play: physical, social, constructive, dramatic, and games with rules (Wardle, 1996). This can be done in a variety of ways, but needs to include climbing structures, opportunity for wheeled toys, moveable parts, sandboxes, dramatic play structures, and grass areas for games.

Playgrounds need to replicate nature (Greenman, 1993; Rivkin, 1995; Wardle, 1995). They also need to allow children to experiment, risk, and control the environment. Finally, playgrounds need to be responsive to each child. Thus playgrounds often appear somewhat messy and disorganized to the adult (Moore, 1986; Wardle, 1990).

Another helpful strategy is to ask how the playground can be used both to extend the indoor environment and to provide opportunities that cannot be provided indoors. Extension activities include sand and water equipment, painting sidewalks and fences, using chalk to draw murals, and creating a woodworking area. Examples of opportunities that cannot be provided indoors include swinging and climbing; trike, bike, and wagon paths; and running and games areas. An example of duplicated—thus inappropriate—activities are all the learning panels (e.g., alphabet, tic-tac-toe, words) found on commercial playgrounds (Wardle, 1994). All of these activities can be more effectively, and more inexpensively, provided in the classroom. Plus they confuse the notion of learning that occurs throughout the playground.

### General Guidelines

All playground designs will differ, depending on space availability, geographic location, age of children, financial resources, and type of program (e.g., a part-day program's needs are different from a full-day

program's). With this in mind, the following general points should be considered when choosing equipment and designing a playground.

**Surfaces.** Try to provide at least three surfaces: fall zone, hard top (for balls, bikes, and trikes), and grass.

**Areas.** Provide an area for gross motor play-climbing equipment, an area for dramatic play, an area for games with rules (e.g., large grass area and concrete area for basketball), and an area for wagons, bikes, and trikes-usually trails and pathways.

**Sand.** Sand is one of the best play materials available. If you do not use sand as a fall zone material, provide large sandboxes for your children to play in.

**Garden.** A garden is a fantastic way for children to learn about basic scientific facts of seasons, growth, sun and water, and where vegetables come from.

**Advantages and Disadvantages of Using Various Playground Materials**

<u>MATERIALS</u>	<u>ADVANTAGES</u>	<u>DISADVANTAGES</u>
Wood (CCA* Pine/Redwood) *CCA is a pressurized treated process.	<ul style="list-style-type: none"> <li>• Easy to use. Well suited to volunteers constructing playground.</li> <li>• Looks natural.</li> <li>• Easy to repair.</li> <li>• Easy to attach elements to it (e.g., slides, handles, climbers).</li> <li>• Inexpensive.</li> <li>• Can be creative and design what you need.</li> </ul>	<ul style="list-style-type: none"> <li>• Splinters, cracks, and splits.</li> <li>• Can burn.</li> <li>• Soon looks weathered.</li> <li>• Lots of maintenance.</li> <li>• Does not last as long as other materials.</li> <li>• Does not look as upscale or classy.</li> <li>• Some feel the CCA process is hazardous for children.</li> </ul>
Laminated Plywood (painted commercially)	<ul style="list-style-type: none"> <li>• Very colorful.</li> <li>• Allows for designs with lots of flat surfaces.</li> <li>• Easier to use for infant/toddler pieces.</li> <li>• Can be repaired.</li> <li>• A natural material that lasts.</li> </ul>	<ul style="list-style-type: none"> <li>• Can chip and deteriorate quicker than plastic and metal.</li> <li>• Restricted to flat designs.</li> <li>• Expensive.</li> <li>• Not appropriate if you don't want bright colors.</li> </ul>
Polyethylene	<ul style="list-style-type: none"> <li>• Does not get hot.</li> <li>• Has no splinters.</li> <li>• Initially bright and attractive.</li> <li>• Shapes that are safe (e.g., a curved slide).</li> <li>• Not structurally strong but usually used with metal.</li> <li>• Smooth and friendly to hold.</li> <li>• Lasts a long time.</li> </ul>	<ul style="list-style-type: none"> <li>• Colors fade over time.</li> <li>• Overuse makes the playground look like a new car salesroom.</li> <li>• Expensive.</li> <li>• Limited number of uses and possibilities</li> </ul>
Steel or Aluminum (coated, painted, or untreated)	<ul style="list-style-type: none"> <li>• Strong.</li> <li>• Lasts a long time.</li> <li>• A large choice of paint colors.</li> <li>• Unitized to provide a variety of options.</li> <li>• Resists vandalism.</li> <li>• Good for structural strength.</li> </ul>	<ul style="list-style-type: none"> <li>• Slides can be very hot and should not be used; posts/railings also get hot.</li> <li>• Hurts to fall against</li> <li>• Almost impossible to repair.</li> <li>• Cannot add to as you wish.</li> <li>• Expensive.</li> </ul>
Fabrics	<ul style="list-style-type: none"> <li>• Lightweight for roofs and canopies.</li> <li>• Easy to replace.</li> <li>• Shade is becoming a more critical issue on playgrounds.</li> </ul>	<ul style="list-style-type: none"> <li>• Soon fades and gets dirty.</li> <li>• Tears easily.</li> <li>• Flies in the wind.</li> <li>• Tends to look shabby.</li> <li>• No structural strength.</li> </ul>
"Recycled" Plastics	<ul style="list-style-type: none"> <li>• Looks like wood.</li> <li>• Has some similar</li> </ul>	<ul style="list-style-type: none"> <li>• Has no structural integrity.</li> </ul>

<ul style="list-style-type: none"> <li>• Can be cut and drilled. No splinters.</li> <li>• Doesn't rot, rust, or split.</li> <li>• Is made from recycled materials.</li> <li>• Can be cut and drilled. No splinters.</li> </ul>	<ul style="list-style-type: none"> <li>• Cannot be recycled into other plastics.</li> <li>• Doesn't hold nails, screws, and lug bolts as well as wood does.</li> </ul>
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NOTE: Most playgrounds use a combination of several different materials.

### Playground Regulations

When designing a new playground, or remodeling an old one, some regulations need to be addressed.

**Local Licensing Requirements.** Each local child care licensing jurisdiction (usually the state) has its own set of regulations. This is also true for playgrounds. Further, each licensing representative interprets standards differently. While many states are now using the U.S. Consumer Product Safety Commission (CPSC) guidelines (1991) as their foundation, there are local variations. When contemplating designing or remodeling your playground, contact your licensing representative and determine issues of concern. Also ask at what points in the development your licensing representative wants to inspect progress (e.g., view the drawing, just at the end, or steps along the way).

**U.S. CPSC & ASTM Guidelines.** The federal government has developed a document titled *A Handbook for Public Playground Safety, Vol. I* (CPSC, 1991). The American Society for Testing and Materials (ASTM) has created the *Standard Consumer Safety Performance Specifications for Playground Equipment for Public Use* (1993), which is a technical description of these guidelines. These guidelines define overall safety, including size of fall zones, entrapments, and materials to use. These are national guidelines—not laws or regulations. However, they are becoming universally considered as the standards for playground safety.

**Safety Guidelines.** U.S. CPSC and ASTM guidelines need to be studied carefully to learn specific safety guidelines. The general areas to consider include the following:

**Fall Zones.** According to CPSC (1991) the majority of severe playground accidents are caused by falling off equipment onto hard surfaces (e.g., packed dirt, concrete, asphalt). Acceptable fall zone materials include sand, pea gravel, wood chips, wood fiber, rubber mats/tiles, and continual poured rubber. Again, each state licensing authority has its own choice of appropriate materials. In general, fall zones extend six feet beyond the edge of the equipment (more for swings and high slides). The depth of fall zone material differs according to material used.

Most schools, parks and recreation departments, and large child care organizations have their own specific preferences. If you belong to one of these organizations, check with them regarding preferred material.

**Entrapments.** An entrapment is an area in the playground where a child could get his or her feet and body through, but not his or her head. This creates the potential for a child to have his or her head trapped and potentially severely injure his or her neck. Any area on the playground—between railings, monkey bars, steps and platforms, and areas in the rope or chain net—must be less than 3-1/2 inches or greater than nine inches. Railings &

**Handrails.** To prevent children from falling off steps, ladders, bridges, platforms, and slides, equipment must include railings and handrails. U.S. CPSC recommends railings on all surfaces 20 inches above the ground and protective barriers (i.e., solid panels or vertical railings) above 30 inches.

**Swings.** Many accidents occur around the swings, because of the speed at which they move. Because of their speed, specific safety guidelines have been created just for swings:

- Swings should not be attached to other pieces of playground equipment (e.g., platforms).
- No more than two swings should be in any bay.
- Swing seats should not be hard (i.e., wood, plastic, metal).
- On swivel (tire) swings there should be at least 30

inches between the tire—when fully extended—and the vertical post of the swing.

**Slides.** Specific safety guidelines for slides include:

- A hood or bar at the entrance to encourage children to sit;
- An entrance platform on independent slides;
- A maximum height of six feet;
- Sides of at least four inches; and
- An exit region that parallels the ground.
- Because metal slides can (and do) burn children, they should be discouraged. Wide slides are not good for children under age two.

**Protrusions.** Protrusions (e.g., bolts, bars, pieces of wood, nails) can cause two kinds of safety hazards. First, they can scratch a child, or children may run into them. Second, a protrusion may grab a piece of clothing and cause a child to fall off a slide or have part of his or her clothing tighten around his or her neck.

**Ropes, Strings, and Cables.** When a child runs to a friend across the playground, decides to use the swing that is empty, or runs back to his classroom, he does not see anything that might be in his way. If a cable or piece of string is in his way, the child will trip—or if the rope is at neck height, the child can be seriously injured. A playground should not have any ropes or cables at or below the head level of the tallest students. No cables should hold up trees or shade areas and no strings should be used to hang paintings while they dry. A loose rope that a child can grab has a potential for strangulation.

**Height.** Many playgrounds for young children (up to age six) are just too high. The higher a piece of equipment, the more a child can be hurt. In general, there is no need for any platform, bridge, or climber to exceed five feet. There is no need for slides to exceed six feet (Morrison & Fise, 1992). Clearly, children should play only on equipment designed specifically for their age.

#### **Infant/Toddler Playgrounds**

U.S. CPSC and ASTM guidelines cover playgrounds for children age two to 12. This means we have no national guidelines for playgrounds for children up to age two. Many of us work with children in this youngest age group. Added to this problem is that we don't know much about the outdoor play behaviors of children younger than two. What we do know suggests traditional outdoor equipment for preschool children is not suitable for toddlers (Steele & Nauman, 1987). Toddlers need ramps, short tunnels, small slides and enclosures, and low steps and beams (Morrison & Fise, 1992). Toddlers' favorite play activity, according to recent research (Winter, 1985), is the sandbox! Toddler equipment needs a fall zone when children are taken off the ground (e.g., slides). Equipment that doesn't elevate children does not need fall zones. Because young children are smaller than older children, the fall zone can be smaller than the six feet required for preschool equipment.

#### **Criteria for Evaluating Playgrounds**

Richard Dattner's playground criteria (1974) provide a helpful guideline in determining what should be in a good playground.

**Array of Experience.** Does the playground provide a vast array of experiences for the children?

**Control of Experience.** Are there opportunities for the child to control experiences—build, roll, collect, spill, and dig?

**Graduated Challenge.** The playground must provide a range of old and new experiences, practice play, and new challenges.

**Choice.** Can children control the environment and select their level of risk?

**Fantasy.** Young children have an active imagination. This imagination needs to be encouraged by very general structures such as houses, forts, and tunnels.

**Separation from Adults.** A child needs to be allowed to make mistakes, stumble, fall, delight in freedom, and create his or her own laws of order. Rules and adult intervention should be minimized.

**Durability.** Will the playground withstand heavy use by normal children? Will it withstand the local weather conditions?

**Interest.** A playground must provide two kinds of interest: initial interest (i.e., attractive because of color and potential use) and prolonged interest (i.e., that which retains the child's interest) (Wardle, 1993).

**Adaptability.** The piece of equipment has more than one use so that it can be adapted and defined by children in a variety of ways.

**Encourage Large and Small Muscle Development and Eye-Hand Coordination.**

**Strengthen Social Relationships.** Does the playground encourage social play, dramatic play, and games with rules?

**Encourage Intellectual Development.** Does the playground encourage language development, class inclusion, labeling, abstract thinking, and acquisition of basic knowledge?

#### **Americans with Disabilities Act**

The intent of the Americans with Disabilities Act (ADA) is that children with physical disabilities have access to playgrounds and equipment. These children should have similar play opportunities to children without disabilities. ADA, however, does not require all activities to be accessible. Ways to make playgrounds accessible are to provide wide gates and pathways (44 inches), cuts in curbs/retainers (44 inches), and a fall zone that is appropriate for wheelchairs (you can also place mats over soft fall zones). Access to equipment can be achieved through transfer points, ramps, and placing as many activities as possible on the floor level (e.g., panels, dramatic play opportunities, steering wheels). Playground access for children with disabilities should not pose safety hazards for children without disabilities (Play Setting Subcommittee, n.d.).

One of the dilemmas with ADA requirements for playgrounds is that national standards are still in committee and won't be finalized until 1997 or 1998 (Landscape Structures, 1995). However, some states have established standards, and these must be followed.

Programs that receive city, county, state, or federal funds to build their playgrounds need to check with their funding sources regarding ADA requirements (Morrison & Fise, 1992).

#### **To Buy or to Build?**

Many programs need to determine whether they should build their own playground or buy out of a catalog. Factors that contribute to this decision include cost, liability, materials, expertise, finished product, and maintenance. It's almost always cheaper to build—especially if you have parents or others with the skills to do the building. Wood is the easiest material to use for building, but recycled plastics can also be used. Slides and other units can be purchased and attached to built structures. Many large playground companies use their liability coverage as a reason to purchase equipment from them. My advice is to check with your program's liability carrier to see what they recommend.

Homemade playgrounds tend to look homemade and require more maintenance than commercially built playgrounds. On the other hand, they tend to be less expensive, can be added onto as the play needs of children change, and often generate more pride and ownership in those who built them (Wardle, 1987b).

#### **Playground Equipment Materials**

We now have a variety of options for materials to build playgrounds: painted metal, plastics (polyethylene), recycled plastics, fiberglass, laminated plywood, and wood. Each material has advantages and disadvantages.

Recycled plastics are popular today, especially among those concerned with ecology. While part of these plastics are recycled from waste products, these playgrounds cannot themselves be recycled. Further, most recycled plastic does not have the structural strength of wood or metal.

#### **Shade**

As children spend more time outdoors and we gain knowledge of the dangers of skin cancer, shade on playgrounds becomes a critical issue (Rivkin, 1995). Traditionally, shade has been provided by trees but has been difficult to provide on new playgrounds, especially in western states. Independent shade structures, shade awnings attached to the building, and equipment that includes shade covers are all appropriate approaches to this issue.

## Remodeling

Many older playgrounds do not meet U.S. CPSC and ASTM guidelines. This does not, however, necessarily mean you have to take out your entire playground. There are some simple, inexpensive things that can be done to remodel and fix problem areas.

**Swings.** If you have swings with more than two seats in a bay, remove the additional swings. Hard seats can easily be replaced. Swings attached to other equipment need to be repositioned—usually in a corner away from traffic.

**Slides.** Replace metal slides with a variety of plastic slides. If your original playground was purchased from a major playground company, contact that company to see if they can help with new slides.

**Entrapments.** Many entrapments on playgrounds can be eliminated by simply filling in gaps between 3-1/2 inches and nine inches with two by fours or one by twos. Similarly, railings can be made safer by attaching slats that are 3-1/2 inches or less apart.

**Fall Zones.** Many fall zones can be expanded by repositioning retainers and refilling with appropriate materials. One solution to prevent fall zone material from continually moving is to place rubber mats over fall zone materials at the bottom of slides and underneath swings.

## Conclusion

As home and neighborhood opportunities for outdoor play decrease, early childhood programs are trying to provide appropriate outdoor environments. Our young children need opportunities to experiment, risk, exercise, engage in social activities, and learn basic concepts about nature and the outdoors. Outdoor playgrounds need to be safe and durable and also need to approximate the fantasy, delight, and mystery of the outdoor environments many of us enjoyed growing up in a safer, slower time.

## References

- American Society for Testing and Materials. (1993). *Standard consumer safety performance specification for playground equipment for public use*. Philadelphia, PA: Author.
- Dattner, R. (1974). *Design for play*. Cambridge, MA: MIT Press.
- Greenman, J. (1993, May/June). It ain't easy being green. Beginnings workshop. *Child Care Information Exchange*. 91, 336-37.
- Johnson, J. E., Christie, J. F., & Yawley, T. D. (1987). *Play and early childhood development*. New York: HarperCollins.
- Landscape Structures, Inc. (1995). *Child's play*. 4 (3), 1.
- Moore, R. (1986). *Childhood's domain*. London: Croom Helm.
- Morrison, M., & Fise, M. E. (1992). Report and model law on public play equipment and areas. Washington, DC: Consumer Federation of America. Play Setting Subcommittee. (n.d.). Play setting, outreach policy in play area access ADMG and elements within play settings. Definitions. Play settings for new construction. Washington, DC: Author.
- Rivkin, M. S. (1995). *The great outdoors: Restoring children's right to play outside*. Washington, DC: NAEYC.
- Steele, C., & Nauman, M. (1985). Infant's play on outdoor play equipment. In J. L. Frost & S. Sunderlin (Eds.), *When children play* (pp. 121-128).
- Wheaton, MD: ACEI. U.S. Consumer Product Safety Commission. (1991). *Handbook for public safety*. Washington, DC: U.S. Government Printing Office.
- Wardle, F. (1987a, September). Getting back to the basics of children's play. *Child Care Information Exchange*. 57, 27-30.
- Wardle, F. (1987b). Outdoor play: One Head Start's solution. *Children Today*. 16 (2), 16-19, Washington, DC: U.S. Government Printing Office.
- Wardle, F. (1990). Are we taking play out of playgrounds? *Day Care & Early Education*. 18 (1), 30-34.
- Wardle, F. (1993, November/December). Criteria for selecting toys. *Child Care Information Exchange*. 94 (1), 43-44.
- Wardle, F. (1994). Viewpoint: Playgrounds. *Day Care & Early Education*. 22 (2), 39-40.
- Wardle, F. (1995, March). Alternatives-Bruderhof education: Outdoor schools. *Young Children*. 50(3), 68-73.

Wardle, F. (1996, June). Playground safety. Presentation at the University of Northern Colorado, Greeley, Colorado.

Winter, S. M. (1985). Toddler play behaviors and equipment choices in an outdoor playground. In J. L. Frost & S. Sunderlin (Eds.), *When children play*. (pp .129-138). Wheaton, MD: ACEI.

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