

LSC

RESOURCE GUIDE

Child Care Center Playgrounds





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“Rather than beginning with catalogs and decisions about equipment and surfaces, start with what it is that children should be able to do outside, if only we could make it happen. Then decide how best to accomplish this.”

*Quoted from “Are We Losing Ground?” by Jim Greenman”
as printed in Child Care Information Exchange; March, 2003*

INTRODUCTION

Active outdoor play is an important part of a child's day, so planning outdoor space and memorable outdoor activities are essential components of developmentally appropriate care. Vigorous physical play offers children a chance to spend time together in ways that are quite different from their play indoors. It offers children an opportunity to test their physical skills and abilities. It builds strength and coordination, and stimulates the imagination as children engage in fantasy play or interact with natural materials and the scents, sounds and textures of the outdoors.

The change of pace is important as well. Outdoor voices and laughter can be more exuberant; play can be louder and sillier; and children are encouraged to run, climb and jump instead of discouraged from doing so. The change of scenery can be equally valuable. Outdoors there are opportunities to mess about and explore materials in new ways. Exposure to sunshine, shade and the elements helps children learn more about their world.

The health benefits of time spent outside are also indisputable. Access to fresh air and sunlight helps mitigate the spread of infections and spending time outside positively benefits mental health. Plan your space well and reap the many rewards.

REGULATIONS AND GUIDELINES

First and foremost in considering your playground, make sure that you become familiar with which regulations govern playground design and use. Ideally your playground project should be pursued in conjunction with a design professional who is familiar with child care design, safety standards and local regulatory codes. If you choose to not work with a professional it will be your responsibility to obtain copies of all applicable codes and regulations, speak with relevant officials and ensure all necessary standards are met. For more information on selecting a professional to help you with your project, please refer to the Fast Facts Tip Sheet on Selecting a Design Professional located at the back of this guide.

In addition to understanding state child care licensing regulations for outdoor playgrounds, you must also become familiar with any state or local fire or building codes that relate to how you design and equip your playground space. Also, if you are aspiring to achieve accreditation for your center through the National Association for the Education of Young Children (NAEYC) make sure that you understand the guidelines set out in those standards for children's outdoor play areas.

At the end of this guide you will find a list of national organizations with guidelines governing the development of children's playgrounds and playground safety. Please note in particular the U.S. Consumer Product Safety Commission's **Handbook for Public Safety**. It is also important to become familiar with the new rules regarding play areas for special needs children developed by the Americans with Disabilities Act.

Across the country, there is growing concern about childhood obesity. By the time American children enter public school, 15% of them are classified as obese. Since many patterns of activity are established in early childhood, child care programs play a critical role in establishing active habits and offering age-appropriate physical challenges that support healthy growth and development.



CHILDRENS GROSS MOTOR DEVELOPMENT

Too often, the model for an early childhood playground is a scaled-down version of an exciting playground for school-aged children. Preschoolers are not just smaller than older children – their physical skills, spatial orientation, judgment, and how they interact with their surroundings are all significantly different. The layout of a play area – including sight lines, interest areas

and equipment choices – should be based on the ages and stages of the children who will use it, and always include appropriate safeguards.

A summary of milestones in children’s gross motor development is below, along with playground equipment ideas for each stage. While each child develops in an individual way, these guidelines can help in assessing the suitability of outdoor equipment and activities for children of different ages.

AGE	DEVELOPMENTAL MILESTONES	RECOMMENDED EQUIPMENT
Infants	<ul style="list-style-type: none"> Develop on individual timetables Push and pull up Sit without support Crawl Cruise or walk using objects or adults for support Begin to stand and walk alone 	<ul style="list-style-type: none"> Soft surfaces Shade Tactile materials Water and sand Objects to crawl through Places to sit with adults Wind chimes and other sensory materials Safe plants to smell and touch Toys to push and pull Sturdy equipment to pull up on
Toddlers	<ul style="list-style-type: none"> Become increasingly mobile Push and pull toys while walking Learn to climb stairs Begin to use riding toys (with feet on ground) Run short distances Squat and balance on feet while playing Kick and throw balls Jump in place 	<ul style="list-style-type: none"> Climbing structures Slides Water and sand play equipment Places to crawl through, over, under Riding toys Sensory materials to engage sight, sound, touch, taste Structures (like playhouses) for make-believe Shady places to sit Loose parts for creative and imaginative play Places to run, throw balls, play

AGE	DEVELOPMENTAL MILESTONES	RECOMMENDED EQUIPMENT
Preschool	<ul style="list-style-type: none"> ▪ Highest activity level of any age in the human life span ▪ Increasingly more adventuresome ▪ Run back and forth ▪ Throw and catch balls ▪ Pedal a tricycle ▪ Somersault ▪ Climb stairs ▪ Push and pull larger toys like a wagon ▪ Enjoy showing off climbing prowess ▪ Hop and jump increasingly well 	<ul style="list-style-type: none"> ▪ Structures for climbing and sliding ▪ Riding toys and paths to ride on ▪ Balance beams ▪ Playhouses ▪ Water and sand play equipment ▪ Loose parts for pretending, creating, building ▪ Talk tubes ▪ Telescopes ▪ Places to run, jump, play ball ▪ Materials to enhance all senses (wind chimes for sound, flowers for smell) ▪ Shade to sit, eat, read, relax ▪ Places to paint, draw and create
Pre-K	<ul style="list-style-type: none"> ▪ Physically competent ▪ Climb well, enjoy trying to go higher and higher ▪ Enjoy challenges ▪ Roll balls ▪ Skip on alternating feet ▪ Able to begin riding two-wheel bike 	<ul style="list-style-type: none"> ▪ Climbing and sliding structures that provide challenge for increasing skills ▪ Bikes and paths to ride on and explore ▪ Water and sand play equipment ▪ Art studios ▪ Structures for imaginative play ▪ Loose parts to enhance play ▪ Natural features to experience seasons ▪ Places to run, play ball, play games

ORGANIZING THE SPACE

If you think about the outdoor play space as an extension of the indoor learning environment, it is natural to consider different **zones and activity areas** as you plan the space.

1. Plan separate zones for quiet activities and active play; large group as well as individual or small group play; and play equipment. Make sure that activities that are adjacent to each other are compatible – keeping in mind that the most active zones should be grouped together and away from the quiet zones. If your center is part of a housing complex, school, retail center or office building, you might also consider locating the most active (and often noisiest) play zones at some distance from your neighbors’ windows.

To plan out your zones and to help determine where to locate equipment and other structures, consider the following:

- **Environmental features:** *Note the overall shape of the space and its topography, and in particular any existing natural features like trees, shrubs, rocks, or sloping areas you may want to incorporate into your plans – like putting a seating area around the base of a tree or building a slide into a small hill. Also, there may be some interesting views or landmarks you want to highlight through the placement of equipment or location of activities.*
- **Sun patterns:** *Don’t forget to look at sunlight and shade patterns at different times of the day and year to help figure out where you may need to place a shade structure or where it might be best to plant a garden.*
- **Safety hazards:** *Make sure you are aware of any potential safety hazards such as the presence of underground or overhead utilities or wiring, or sharp or protruding edges on the building.*

- **Points of Access:** Note the location of doors to the outdoor area from the classrooms and/or other entry points onto the playground, and determine emergency access and egress routes or delivery routes if supplies are moved through the play area. Keep in mind how these access points can interfere with the flow of playground activities or present a security issue.

2. In order to maximize children’s play experience and ensure their safety around play structures, be sure to **plan for appropriate circulation routes or pathways around the play space.** Avoid laying out long straight paths in favor of shorter more carefully planned paths of varying widths. These pathways should provide a clear route around the play area, ensuring that children do not interfere with each other’s play or encroach on the safety zones around large equipment.

3. **Plan for seating for children and adults** in various areas outdoors. Use benches, tree stumps, picnic tables or other types of seating. Provide old quilts or blankets for picnics and story time. Provide children with several places to sit and watch the action.

4. **Plan for convenient storage of outdoor toys and equipment.** Storage should be secure and weatherproof, and organized for different types of equipment. Depending on what types of equipment and materials your center needs to store, several smaller point-of-use storage units may work better than a single large storage shed that becomes a jumble of sand toys, swing parts, vehicles and other toys.

One goal for the play area is to provide a range of interesting materials for children’s use. These materials – often called “loose parts” (see box on “What Are Loose Parts?”) – require accessible storage near the areas where children will use them.

Gardening catalogs, garden centers and “big box” hardware stores may be better sources of affordable and adaptable outdoor storage than early childhood or playground catalogs. Depending on aesthetic and budget considerations, you can



find bins of all sizes, storage benches, standing racks with canvas pockets, and storage sheds of plastic, metal or wood. If purchasing wooden storage units, be sure that they are made of cedar or another weather-resistant wood. A particular challenge can be tricycles and other riding toys, which may be best stored in their own “garage,” since they are bulky, heavy and cumbersome.

5. **Plan for inclusion for a broad range of disabilities,** including visual, hearing, developmental, social-emotional as well as physical. Manufacturers are able to adapt the design of play equipment to meet accessibility guidelines, so with careful planning you can design a play space that supports children of all abilities. The slope of paths and ramps require attention and each activity should be evaluated to see how it could be adapted to be barrier-free.

6. **Plan for safety and supervision.** Use the resources of the National Program for Playground Safety and the US Consumer Product Safety Commission, listed under Resources. An understanding of children’s developmental milestones for different age groups will guide your planning and help you to avoid creating hazardous conditions by expecting children to use equipment that is too large or complex for their abilities.

WHAT ARE LOOSE PARTS?

Loose parts are materials that can be added and rotated daily, weekly or monthly to enhance children's outdoor play. The term describes any assortment of found objects, toys and natural materials that children can move and manipulate during their play. The display and storage of loose parts around the play area is key to stimulating creative play. Teachers should regularly assess the materials for sharp edges or hazards and replenish as materials get used up or worn out. Examples of loose parts include:

Sand toys (buckets, shovels, sifters, garden tools, plastic figures)

Natural materials such as small pieces of wood, pinecones, seashells, smooth stones, and seed pods

Imaginative props such as costume jewelry, artificial flowers, rubber snakes and bugs, pieces of fabric, dishes, cups and utensils, wood scraps and duct tape

Spray bottles, hoses, sprinkler, large bubble wands

Milk crates and plastic bins

Child-size wheelbarrows

Magnifying glasses

Hoops, balls, traffic cones

Art supplies including paper, chalk, and paint

At the same time, remember that children will use play equipment and materials in unexpected ways, so make sure there are good sight lines from all locations in the playground. In general, when planning your playground design make sure that the equipment and other activities that are selected are consistent with the supervision you are able to provide. For example, if two adults will be on the playground with 20 children, it probably does not make sense to offer equipment or activities which will require one adult to be continuously stationed next to a single piece of equipment or with one specific activity.

7. Provide developmentally appropriate challenges.

While safety must always be a key consideration in planning a child care playground, make sure that it doesn't override the need to provide appropriately challenging experiences for young children.

Preschool children, in particular, are becoming physically competent and seek out opportunities to show off skills such as their new climbing prowess. Make certain the equipment and activities you provide will give them appropriate opportunities to challenge their skill level; otherwise, they are likely to seek out inappropriate ways to do so.

8. Plan for access to drinking water, hand-washing and children's toilets.

If you are designing a new space, consider including an outdoor bathroom. The cost is minimal if factored in to new construction, and it will be well worth it to eliminate extra trips in and out of the building with small groups of children for bathroom time. If it is not feasible to include an outdoor bathroom in your plans, consider placement of the indoor bathrooms and sinks in relationship to the outdoors in an effort to minimize the duration of trips in and out of the building. Finally, if your space does not allow for either of these possibilities, at least be sure to bring drinking water out to the playground and to have either a bucket or hose for children to rinse off dirty hands.

CREATING A NATURAL PLAYSCAPE

In the early childhood field, there is growing interest in moving away from playgrounds that emphasize manufactured equipment and play structures to the exclusion of other activities.

Greater attention is being given to the use of landscaping and custom built structures to create a more unique and multi-purpose outdoor environment. Some of the interest is budget-driven because of the expense of manufactured equipment, safety surfacing and installation, but an equally compelling interest is philosophical.

Natural playscapes are designed to include varied activities that evoke the unstructured and creative experiences of outdoor play from an earlier time. These play areas are built on topography that may offer things such as small hills and mounds. They may include grass and sand, mud and water, trees, shrubs and gardens. Even in urban environments, you can find ways to bring in natural elements – perhaps by planting container gardens, developing raised bed plantings, varying surfaces and ground textures throughout the space, and incorporating sand, water and other tactile experiences into the outdoor area. Natural features can even be utilized for playground security. Instead of using very high fences to protect playgrounds, consider adding lower but deeper fencing, or planting child-friendly materials on the inside and thorny, dense plants on the exterior to provide a natural barrier. Natural playscapes offer children opportunities to explore and develop their own play world using natural surroundings and the loose parts that teachers organize and display around the play area. These spaces are designed to change and evolve with the seasons and with the interests of the children. Most do include manufactured play equipment, but it is incorporated

into a larger design and is not the only focus of the play space.

Developmentally appropriate manufactured play equipment can be a critical component of children's outdoor play spaces, but incorporating more natural elements can help stretch the budget and significantly enhance children's experiences.

While natural playscapes have endless advantages, it is important to note that they do require a substantial commitment to ongoing maintenance and upkeep.

ESTABLISHING OUTDOOR ACTIVITY AREAS

An outdoor play space should be divided into distinct activity areas, both to ensure safety and to provide suitable locations for different types of play. Provide both sunny and shaded places, and a covered area so that children can get outdoors on rainy days or in the heat of a summer day.

Spending time outside is vital for children's health and wellbeing. The majority of states that require outdoor play space mandate a minimum of 75 square feet per child playing outdoors at one time. But, experts agree, and learnings from the COVID-19 pandemic have shown, that whenever feasible more space is better and is well worth the extra investment and effort. The space should be surrounded by a non-climbable fence or other sort of barrier with a gate and locking system that keeps both child and evacuation safety in mind. More specifics on fencing can be found in the appendix of this Guide.

The ground surface in the play space should vary according to activity. For play structures, it's critical to plan and professionally install a safety surface designed for the height of the equipment (safety surfacing will be addressed in greater detail later in this guide). The leading cause of playground injury is falls, and every year children are killed or seriously injured in falls from play equipment. Other surfaces for play include sand, grass, dirt for gardening and digging and a surface for riding toys. Some programs in urban areas may choose artificial grass because it is easier to maintain than real grass, which gets worn out in high use areas and needs periodic re-seeding, mowing, and watering. If you are constructing a



Successful natural playscape projects can be complicated, but ultimately well worth it. While it may be tempting to simply secure volunteer labor and use ideas readily found online, ultimately, securing the services of a professional experienced in these types of projects will serve you well.

playground, get professional advice on drainage, try to shape the ground to create some higher areas, preserve or plant trees, and introduce natural elements like shrubs, large logs or boulders.

CLIMBING STRUCTURES



Children love to climb and if appropriate opportunities are not available, they will find other, potentially harrowing ways to test their developing abilities. Every climbing structure should offer two ways up and down and one way should offer steps with a handrail – since children’s ability to climb up develops before they can safely climb down. If you plan to include a piece of large play equipment, pay attention to the height of platforms, the ways children can get onto and off of the equipment, and to the various special features that make the equipment interesting.

Platform height is an essential factor in playground safety. Platform height is considered the highest point on a structure that a child will reasonably climb to and thus might fall from. Acceptable heights vary by age group, which is why it is essential to design varying spaces for different groups within your program and to stay current on the latest playground safety regulations. Equipment manufacturers will provide information on intended ages and other product specifications. Be sure to carefully consider this information before making any purchases.

- **Access to the structure:** *Steps, ramps or ladders that lead into or onto the structure should end at a platform that can contain more than one child. Structures for infants and toddlers should have ramps and low steps. While 3-year-olds can use steps and step ladders, 4- and 5-year-olds can use more complex climbing methods, such as netting or poles. For children 3 and younger, all access routes should include handrails.*

- **Level of challenge:** *When deciding on how challenging a large climbing structure should be, consider the ages of children using the structure, the availability of staff to provide hands-on spotting for children using the equipment, and common sense. For example, children in New England wear stiff winter boots outdoors as much as four to five months of the year and may find complicated play components hard to navigate without flexible sneakers. Some programs restrict the use of the most challenging components to 4- and 5-year-olds.*
- **Play value:** *Many structures offer an array of panels to attach or incorporate into the structure. In making decisions about whether or which panels to include, look for those that enhance the play value of the structure. Bubble windows, crawl through panels, steering wheels, and mirror panels will engage children and inspire imaginative play by offering a variety of activities and uses, and opportunities for children to interact with one another. Features such as smiley faces, dinosaur panels, alphabet cutouts, spinning tic-tac-toe games and other things which only have one use or purpose, may have limited lasting appeal.*

FALL ZONES AND SAFETY SURFACES



Children haven't yet learned the limits of their own physical abilities. They can't judge heights or distances with accuracy. Their heads are large and heavy in proportion to their bodies, so they fall. Therefore the area underneath and around outdoor play equipment – known as the “fall zone” – must have an appropriate cushioned surface to reduce injuries from falls.

The Safe Playground Handbook, available from the National Program for Playground Safety, provides guidelines on appropriate fall zones and options for safety surfaces. This handbook recommends a safety surface of a minimum of six feet extending in every direction around the equipment. Depending on the type and height of equipment, the fall zone may need to extend out even further.

The type of surfacing material you choose for the fall zone will depend on how you design your play area, the

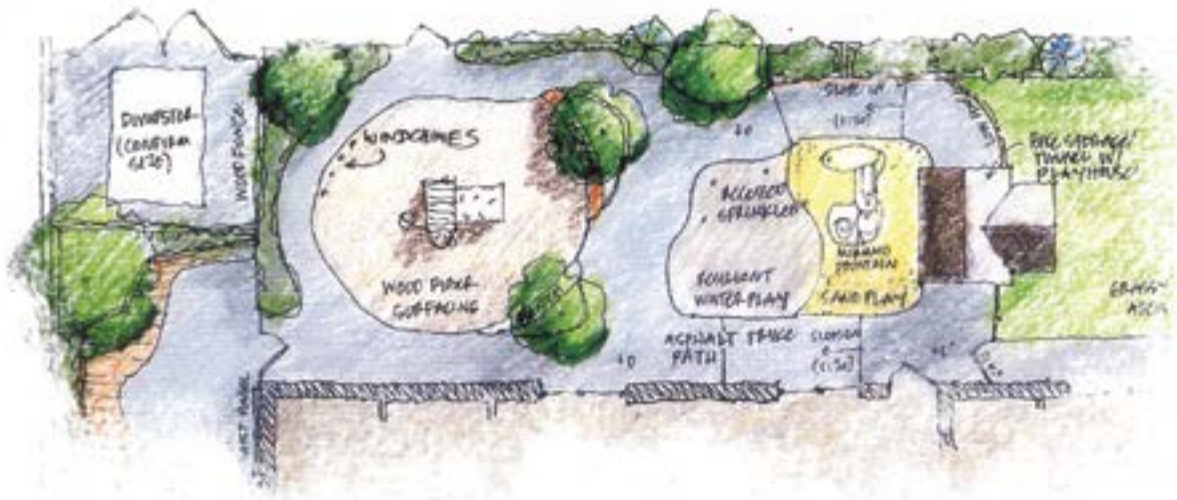
equipment you choose, and the age of the children using the structures. There is a variety of surfacing materials available, including both loose fill and unitary synthetic products. There is no one right answer as to which surfacing is best, however, there are some surfacing materials that should never be used for equipment fall zones: asphalt, concrete, dirt and artificial grass. The decision on which surfacing to use will depend on a number of specific factors, including cost, aesthetics, compliance with accessibility regulations, ongoing maintenance and replacement costs, installation requirements, flammability, needs of the children using the equipment, and other considerations specific to your site and playground plan.

SLIDES



A slide may be a component on a larger climbing structure or it may be a separate stand-alone piece of equipment. In more natural playscapes you may see slides actually built in to sloping hills. For infants and toddlers, slides should be quite low with a gradual slope. For preschoolers, the top of the slide should be no higher than six feet. All slides for all age groups will require a safety surface. Even if the slide is a freestanding piece of equipment, there should be a platform at the top of the ladder that gives a cautious child the chance to position himself on the slide and to work up the courage to slide down. Look for slides with high sides at the top that offer better protection at the critical transition point between climbing up and sliding. Consider also:

- *Flat steps or ladder rungs are safer for 3-year-olds than rounded rungs.*
- *Very high or long spiral slides are not appropriate for children under 5 years old.*
- *Slides with sides of 2 1/2 inches or higher and a flat bottom are best for preschoolers.*
- *Metal slides should be avoided since they can quickly heat up to a point that will burn an unsuspecting child on a warm, sunny day.*
- *Two parallel slides double the fun without greatly increasing cost and are often components on a climbing structure.*



SURFACING MATERIAL	PROS	CONS
ORGANIC LOOSE FILL <i>(wood chips, bark mulch, engineered wood fiber)</i>	<ul style="list-style-type: none"> ▪ Low cost ▪ Easy installation ▪ Good drainage 	<ul style="list-style-type: none"> ▪ Will compress and need to be monitored for correct depth ▪ Can be flammable ▪ Requires some type of barrier to contain the material ▪ Likely to end up spread around the playground ▪ Not all types meet ADA standards
SAND	<ul style="list-style-type: none"> ▪ Low cost ▪ Easy installation 	<ul style="list-style-type: none"> ▪ Attractive to bugs and animals ▪ Hard to keep contained within fall zone/ needs lots of sweeping and raking ▪ Slippery on surfaces outside of fall zone ▪ Not ADA approved
PEA STONE	<ul style="list-style-type: none"> ▪ Low cost 	<ul style="list-style-type: none"> ▪ Often thrown by children/can be dangerous ▪ Children may place small stones in ears, nose, etc. ▪ Requires ongoing maintenance ▪ Not ADA approved
SHREDDED RUBBER	<ul style="list-style-type: none"> ▪ Lower cost than other synthetic materials ▪ Easy installation 	<ul style="list-style-type: none"> ▪ Will compress and need to be monitored for correct depth ▪ Reports of black rubbing off on children's clothes, hands, etc. ▪ Not all types meet ADA standards ▪ May become very hot
SYNTHETIC UNITARY <i>(rubber mats or tiles, pour-in-place surfaces)</i>	<ul style="list-style-type: none"> ▪ ADA approved ▪ Provides permanent surfacing solution ▪ Very low maintenance ▪ High level of safety 	<ul style="list-style-type: none"> ▪ High cost ▪ More complex installation



SWINGS



Swinging is a favorite activity for young children. If you choose to use swings on the playground they should not be incorporated into a climbing structure – instead they should be positioned on the periphery of the space with clear boundaries that alert children that they have entered the swing zone. Those boundaries may be plantings, a level change, or a low barrier. At a minimum, swings should be nine feet from any other equipment. Limit the number of swings to two or three and space them at least 1 ½ feet apart. In an early childhood playground, swings should be made of canvas or soft rubber and for safety purposes, the standard S-hooks should be replaced with another fastener at the point where the chain meets the seat. Infants should have bucket style seats that fully encircle their bodies; toddlers should use a swing with back support and a safety belt. Other swing options, especially for limited space or budgets, might be tire swings on a swivel fastener, or plastic and rubber bouncing swings. Most swings require professional installation and all require a safety surface over a large area. Even a very small swing zone will require approximately 20 x 30 feet. Given the significant amount of space required for swings, potential safety risks, and intense supervision required, many centers are now choosing not to use them.

RIDING TOYS



Provide several wheeled vehicles for each age group. Ideal riding toys for toddlers are small and

foot-propelled with a wooden seat for the child to straddle, four wheels and a simple steering mechanism. For preschool children, it makes sense to invest in high quality steel tricycles and other vehicles. Look for wheels without spokes or fenders, solid rubber tires, and ones that have replacement parts available, since these vehicles will cost between \$125 and \$300 apiece. Protect them from weather and maintain them and they will last for many years. The best-known manufacturers are Angeles, whose products are sold in many early childhood catalogs, and Community Playthings, which has its own catalog. Several catalogs also sell riding toys from a Danish company called Winther that makes some interesting new vehicles, and offers adaptive accessories to make their riding toys accessible for children with disabilities.

Purchase vehicles that require different skill levels so that children can find one to suit their abilities. Facilitate cooperative play with vehicles that carry more than one child. Require the use of bike helmets and provide a clearly delineated, though not straight, path for riding toys, away from quieter activities.

A great multi-use option for riding toys and storage is a storage shed which opens on both sides allowing children to ride through it as a tunnel when not in use for storing the riding vehicles, as pictured on the opposite page.

BALANCING



Balancing apparatus require safe surfacing and good supervision but are very popular with children and help develop important skills. Balance beams can be purchased through catalogs but can also easily be built on site with landscape timbers, bricks, small boulders or lumber rounds (see illustration page 2).

DRAMATIC PLAY



A wooden playhouse open on one end can turn into a store, fort, rocket ship or other location for pretend play, but can also be a stage for outdoor performances. Some manufacturers offer playhouses made to look like log cabins, barns, castles or cottages. Resist them and buy or build a sturdy, simple structure that allows children to develop changing identities for the structure. They will create a much richer fantasy using their own imaginations and loose parts from the play

area. Putting the structure near the sand and water play area will further enhance the range of activities that children devise. An old rowboat or canoe set in sand, outdoor furniture, wooden boxes, milk crates, and boards will help extend the play.

ART



Outdoor art can offer great opportunities for children to engage in very messy activities that might not be ideal indoors. An area set aside for art is best located near running water, allowing for easy clean-up of the area. Offer art on both horizontal and vertical surfaces – a picnic table covered in plastic is a great space for drawing and creating, chalk on concrete or brick walls will wash away with the rain, painting with water on buildings will allow imaginations to run wild, and outdoor easels, either self standing or mounted on fences or walls, provide opportunities for many types of creative art (see illustration page 4). Outdoor art can also incorporate mud, leaves, sticks, and found objects as well as traditional paints, crayons and markers.



GAMES



Provide an area for running and circle games, games involving throwing or hitting balls, and games with rules. It should be well away from swings and the landing zone for the slide.

GARDENING AND NATURE



The garden area can be as simple as a few large pots filled with soil or a garden plot laid out in the yard. Raised beds generally ensure better and safer soil quality. Gardens need a convenient source of water and sunlight five or six hours per day. If no area has that amount of sunlight, large lightweight plastic pots on movable wooden pot caddies can be moved mid-day to get more sunlight. Place bird feeders, a birdhouse and wind chimes nearby. If you garden in pots, plastic shovels, hand rakes and scoops will be adequate tools, but if you have a garden plot, look for good quality children's garden tools, which can be purchased at specialty toy stores or on the Internet as well as at some local garden centers.

SAND AND WATER



Outdoor sand and water play can be much more elaborate and engaging than indoor play. The areas should be located close to each other because the introduction of water allows children to work with both wet and dry sand. It is important to note that sand as a safety surface underneath play equipment cannot double as the sand play area. The sand play area should have a cover to keep the sand clean from animal waste. Include lots of interesting toys for children to use in conjunction with sand play. Think beyond the traditional pails and shovels to incorporate items that will allow children's imaginations to come into play, such as funnels and sifters, tubes, dump trucks, toy people and animals, etc.

Water play is a source of fascination for children of every age. It's soothing and fun, and a well-designed water play area engages them for long periods. Offer opportunities to control the flow of water with locks, faucets, and valves, to use soft and harder spray, to





direct a flow of water through a water wheel or a series of pipes or tubes. Offer objects to float, and others to measure and pour. If you have enough room, a spray fountain or built in sprinklers for cooling off in summer may be preferable to use of wading pools which raise health concerns because of standing water and require intense daily cleaning.

If you have limited space for sand and water play, you may decide to use a standing sand and water center. Some are quite elaborate and offer chutes, funnels and many more features than indoor sand or water tables. Many of the more elaborate standing water tables require permanent installation, but portable tables are available as well.

SPECIAL CONSIDERATIONS FOR INFANTS & TODDLERS

Infants and toddlers should have their own self-contained outdoor play area, protected from older children and designed with challenges and comfort tailored to their needs.

Their play areas should include:

- *Places for eating or just relaxing outdoors in the shade*
- *Convenient access to diapering area and hand-washing areas*
- *Safe spots for crawling, such as grass, a unitary safety surface or vinyl or wood composite decking, such as Trex*
- *Sturdy ledges or railings at a height of 14-16 inches for babies pulling up to stand*
- *A non-metal slide with a gentle slope accessed by a low climbing ramp with steps and a handrail*
- *Bucket swings at a safe distance from other play*
- *Short tunnels and peek-a-boo places*
- *Seating at various levels*
- *Rocking toys that children can sit inside*
- *Pushing or riding wheeled toys*
- *Safe water and sand play with simple props*

CONSIDERATIONS IN SELECTING EQUIPMENT

Few early childhood professionals have an opportunity to plan more than one new outdoor play area in their career. In most cases, they maintain, upgrade, and gradually shape an existing outdoor environment to make it consistent with their values and the range of experiences they want to offer the children in their program. However, when offered the chance to modify or replace a playground, there are some important guidelines.

GET PROFESSIONAL ADVICE

If done well, your playground will be a major investment. You will be well served by expert help from a professional architect or designer with experience in planning children's playgrounds. Ideally this should not be an individual with other motivations, such as an interest in selling you their equipment and products.

HEALTH AND SAFETY

Collect information on all of the relevant regulations and safeguards, including:

- A.** State licensing regulations.
- B.** The US Consumer Product Safety Commission (CPSC), which sets national standards for play equipment.

- C.** The American Society for Testing and Materials (ASTM), which sets voluntary compliance standards for play equipment and safety surfaces.
- D.** The International Play Equipment Manufacturers Association (IPEMA), which certifies compliance with ASTM regulations.

All of these organizations are listed in the Appendix.

Use the resources of the National Program for Playground Safety (NPPS), a non-profit organization at the University of Northern Iowa. NPPS publishes the *Safe Playground Handbook* and maintains a website that can be found at www.playgroundsafety.org.

General health and safety guidelines include the following:

- A.** Install equipment with appropriate safety surfacing underneath and sufficient clearance around and between pieces.
- B.** Plan for the ages and development of the children in the program.
- C.** Never assume children will use the equipment as intended, so close supervision is a key element in safety.
- D.** Plan regular safety audits by staff or parents to help identify hazards and prevent injuries. The *Safe Playground Handbook* provides a checklist that can guide the process.
- E.** Plan for regular upkeep. Outdoor space and equipment is exposed to weather, animals and insects, wear and tear, and in some cases, vandalism. To maintain a safe environment, invest in maintenance of the entire area.

AESTHETICS

Many pieces of playground equipment are offered in the boldest colors of the rainbow. Colors that might work in limited amounts indoors can prove overwhelming to children outdoors. Try to limit the number of colors and to use color to enhance the harmony and natural feeling of the play space. Choose equipment in subdued colors or soften strong colors by combining them with the colors of nature – greenery, sand, soil, stone and wood. To the extent possible, focus on creating a natural and inviting playscape.

CHOICE OF MATERIALS

Playground equipment is generally available in plastic, wood and metal (aluminum or steel). In many cases, the choice of materials is driven by cost, aesthetics, and durability. Regardless of your choice of materials, be sure the equipment meets both CPSC and ASTM standards. When equipment meets those standards it will be indicated in the product description. Other important considerations are the types of warranties provided and the particular needs of the environment in your area (weather, risk of vandalism, etc.).


MATERIALS USED IN MANUFACTURED PLAY EQUIPMENT

MATERIAL	DESCRIPTION/IMPORTANT CONSIDERATIONS	PROS AND CONS	COST TO EQUIP PLAYGROUND ¹
LIGHT-WEIGHT MOLDED PLASTIC	This type of play equipment is typically available at local discount retailers. It generally consists of things such as small playhouses, very small climbers/slides, little cars, molded animals, etc. The pieces are usually single level and snap together. Its intended use is residential, not commercial.	<ul style="list-style-type: none"> ▪ Inexpensive ▪ Readily available <ul style="list-style-type: none"> ▪ Not intended for use in child care playgrounds ▪ Does not have structural integrity/durability required for child care use ▪ Does not meet CPSC and ASTM standards for child care playgrounds 	\$1,000 - \$10,000
HEAVIER RECYCLED PLASTIC OR VINYL-SAWDUST COMPOSITE	These are often manufactured to look like wood structures. The higher quality structures from this material come in natural earth tones, have 25+ year warranties, and are designed for a higher level, more commercial use.	<ul style="list-style-type: none"> ▪ Relatively inexpensive compared to wood/metal counterparts ▪ Resists splintering/splitting ▪ Does not attract insects or pests ▪ Good color options ▪ Can add parts and configure to site specifications ▪ High quality options have good structural integrity <ul style="list-style-type: none"> ▪ May not be as durable long-term as wood or metal counterparts ▪ May be affected by extreme heat or cold ▪ Lower quality options may lack structural integrity of wood/metal counterparts 	\$15,000 - \$40,000

MATERIALS USED IN MANUFACTURED PLAY EQUIPMENT

MATERIAL	DESCRIPTION/IMPORTANT CONSIDERATIONS	PROS AND CONS	COST TO EQUIP PLAYGROUND ¹
WOOD	Wooden structures offer the most natural appearance in an outdoor space, even with the addition of metal or plastic components. If you are interested in wooden equipment, check with the manufacturer regarding the availability of naturally decay-resistant wood, the type of preservative used in their pressure-treated lumber, and warranties. Some vendors offer structures made of redwood, a naturally decay-resistant wood that is slightly more expensive.	<ul style="list-style-type: none"> ▪ Less expensive than metal ▪ Natural look and feel ▪ Many good options available for commercial child care playground use 	\$20,000 - \$75,000+
METAL	Metal is by far the most durable and vandal-resistant material for playground equipment. In most early childhood uses, the metal is powder-coated with a colored vinyl product that makes it rust-resistant and more child-friendly. Many of the play components are also made of plastic, so attention to creating a unified color scheme can make the difference between beauty and chaos. One reason why municipal playground equipment is so often made of metal is that it can last two or three times longer than other materials. The higher cost reflects the difference. If using metal, make sure that the surfaces are treated (such as with heavy vinyl) and that it is either painted or galvanized to resist rust or corrosion.	<ul style="list-style-type: none"> ▪ Very durable ▪ Vandal resistant ▪ Weather resistant ▪ High level of structural integrity 	\$30,000 - \$90,000+

¹ *The actual cost will depend on the amount of equipment purchased and the age of the children using it. These costs are for equipment only and do not include costs of surfacing, materials, site work, etc.*

 As of 2004, wood treated with the most common preservative, Chromated Copper Arsenate (CCA), can no longer be used in constructing playground equipment. Because of concerns about the health effects of long term exposure to CCA, the Environmental Protection Agency (EPA) worked with the lumber industry to reach a voluntary agreement to cease use of CCA preservatives. Since most unpainted wooden playground equipment used CCA, this has had an impact on the industry.

LIST OF PLAYGROUND EQUIPMENT CATALOGS

CATALOG	PHONE	WEBSITE
BCI BURKE COMPANY	800-356-2070	www.bciburke.com
COMMUNITY PLAYTHINGS	800-777-4244	www.communityplaythings.com
PLAYGROUND ENTERTAINMENT	800-667-0097	www.playgroundentertainment.com
KAPLAN EARLY LEARNING	800-334-2014	www.kaplanco.com
KOMPAN	800-426-9788	www.kompan.com
LANDSCAPE STRUCTURES	888-4FUNLSI	www.playlsi.com
PLAY WITH A PURPOSE	855-858-5501	www.pwap.com
ECOPLAY STRUCTURES	877-378-7529	www.ecoplaystructures.com
UNITY SURFACING	877-41-UNITY	www.surfacingystems.com
ZEAGER BROS.	800-346-8524	www.zaeger.com

SCALE

The most important aspects of scale are whether the equipment fits the play area with adequate clearance for safety, and whether each piece is the correct size for the children who will use it. Manufacturers often specify a wide age range of 2 to 5 years, or in some cases, 3 to 8 years to indicate the appropriate user group for a structure. In addition to looking at their age guidelines, consider children's body sizes and development as critical criteria in determining whether a piece of equipment is of the appropriate scale for the children who will be using it on your playground.

PLAY VALUE

Play value is much more than the number of components on the structure. Look for equipment that stimulates more than one type of play. Opportunities to climb, jump, balance and slide, and test one's skills are key to large muscle play. Dramatic play will be enhanced with a sense of enclosure, and props like steering wheels, windows and ledges. Social and emotional development are supported if a child can gain positive recognition for his accomplishments on the structure, so check on whether children can both "see and be seen" from high points on the structure. Assess whether the structure will grow with your children by offering more than one level of challenge, particularly if it serves children of different ages and abilities.

MANAGING THE COST OF THE PROJECT

The costs of developing an outdoor play area include planning and design services, demolition and site preparation if needed, the equipment, appropriate safety surfacing and landscaping materials, and the labor charges for construction and installation. Even for a small project, these costs quickly add up to tens of thousands of dollars. So, how can you proceed if you have limited resources?

1. Consider phased development of your play area.

Work with a landscape architect or design team who can put together a complete design, help you identify equipment and other site amenities, provide cost estimates and a plan for developing the play area in phases. Choices of landscaping and natural materials can be adjusted as the plan is implemented, but choose an equipment vendor carefully so that even if equipment is purchased over two or three years, there is a unified look and feel to the finished play area.

2. Go the “landscaping route” and commit to developing a natural playscape with an emphasis

on sand, water, trees, plants, and the experiences a child can have exploring the sounds, smells and feel of nature during unstructured outdoor play. If your plan calls for planting trees or shrubs, shop at the end of the season when large plants are frequently discounted by 50%. Plant herbs – most are easy to grow, offer interesting colors, textures, scents and tastes and they are child-

safe. Make bird houses with the children and put up birdfeeders. Carefully select small pieces of play equipment that fit the space and incorporate them into the landscape rather than letting them dominate the play area. Provide and display loose parts throughout the play area to enhance and extend the play.

A good resource on natural playscapes is Planet Earth Playscapes in Spencer, New York. They have a great website, <https://earthplay.net/about-planet-earth-playscapes/> with photos and plans for playscapes, lists of child-safe plants, and many resources. They can be reached by telephone at 607-589-7887.

3. **Look into volunteer opportunities.** The use of volunteer labor can reduce the cost of your playground by as much as 40%. This process requires considerable planning, and also requires that at least some of the volunteers have skills in things such as carpentry and landscaping. It is also extremely important for an individual or organization to take a leadership role in organizing and overseeing the project.

4. **Seek out opportunities for donated or reduced cost materials.** Before paying full price, make sure to contact local nurseries and landscape professionals to see if they might be willing to donate any materials or services. Check with local lumber dealers and surfacing vendors to see what assistance they might be able to offer. Make sure to check with center parents and staff to see what connections they might have. If you are purchasing manufactured equipment, don't forget to ask about sales, potential discounts or free shipping or installation options. There are also some free and reduced cost trees and plants available. Two websites that provide information on this are:

www.nwf.org

www.arboday.org

RESOURCES

Books:

American Academy of Pediatrics and American Public Health Association. *Caring for Our Children: National Health and Safety Performance Standards*. Fourth Edition. National Resource Center for Health and Safety in Child Care. Aurora, CO: American Public Health Association Press, 2019. <https://nrckids.org/files/CFOC4%20pdf-%20FINAL.pdf>

Carter, Margie and Deb Curtis. *Designs for Living and Learning*. St. Paul: Redleaf Press, 2003.

Daly, Lisa, and Miriam Beloglovsky. *Loose Parts: Inspiring Play in Young Children*. Vol. 1. Redleaf Press, 2014.

Daly, Lisa, and Miriam Beloglovsky. *Loose Parts 2: Inspiring Play with Infants and Toddlers*. Redleaf Press, 2016.

Dodge, Diane Trister and Laura J. Colker. *The Creative Curriculum for Early Childhood*, Third Edition. Washington, DC: Teaching Strategies, 1999

Greenman, Jim. *Caring Spaces, Learning Places: Children's Environments That Work*. Redmond, WA: Exchange Press, Inc., 1988.

Hudson, Susan and Donna Thompson. *The Safe Playground Handbook*. Cedar Falls, Iowa: The National Program for Playground Safety, University of Iowa, 1998.

Louv, Richard. *Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder*. Algonquin Books, 2008.

Olds, Anita Rui. *Child Care Design Guide*. New York: McGraw-Hill, 2001.

Regulations:

U.S. Consumer Product Safety Commission. *Public Playground Safety Handbook*. No. 325. DIANE Publishing, 2008. <https://www.cpsc.gov/s3fs-public/325.pdf>

Websites:

Fox, Heather, "Learning without Limits—Nature's Loose Parts," Nature Explore, 2017, accessed February 26, 2021, <https://natureexplore.org/learning-without-limits-natures-loose-parts/>

"Play & Playground Magazine." Playground Professionals, 2021, accessed February 26, 2021, <https://www.playgroundprofessionals.com/>

ORGANIZATIONS

American Society for Testing and Materials (ASTM)

100 Bar Harbor Drive
West Conshohocken, PA 19428-2959
Phone 610-832-9585
www.astm.org

International Play Equipment Manufacturing Association (IPEMA)

207 Forest Hills Drive
Harrisburg, PA 17112
Phone 717-238-1744
www.IPEMA.org

US Consumer Product Safety Commission (CPSC)

4330 East West Highway
Bethesda, MD 20814
Phone 800-638-2772
www.cpsc.gov

US Department of Justice

Americans with Disabilities Act (ADA)

Final rules regarding outdoor play areas:
www.ada.gov

American Academy of Pediatrics

www.aap.org

National Program for Playground Safety National Action Plan for the Prevention of Playground Injuries

www.uni.edu/playground

National Association for the Education of Young Children (NAEYC)

www.naeyc.org

BEYOND THE GUIDE

Fast Facts Quick Reference Sheets

The following materials are designed to augment the content of the Playground Guide and are meant to be used for a quick reference on specific topics. These Fast Facts Reference Sheets can be shared with other professionals working on your project and team members supporting the initiative.



SELECTING AND INSTALLING SAFETY SURFACING

PURPOSE & APPLICABILITY

This Fast Facts guidance sheet is intended to provide a basic overview of playground safety surfacing requirements, typical playground surfacing options, pros and cons of various surfacing types, as well as information on the procurement of playground surfacing, and how to go about hiring qualified installers. Guidelines for safety surfacing apply to all **schools, child care centers, licensed family child care homes, early learning facilities**, and public parks. It does not apply to single family residential use play areas. These guidelines only apply to outdoor play areas, not indoor gyms or soft contained play structures.

GOVERNING DOCUMENTS RELATING TO SAFETY SURFACING FOR PUBLIC PLAY AREAS

Various documents developed by the American Society for Testing and Materials including ASTM F1487, ASTM F2223, ASTM F1951, and ASTM F1292 are considered the governing requirements for safety surfacing around play structures. In addition, The Consumer Product Safety Commission (CPSC) Guidebook for Public Playground Safety also provides guidance and information on standards. Local licensing regulations incorporate safety surfacing requirements, and quality rating systems typically incorporate requirements referenced in the Early Childhood Environmental Rating System (ECERS), which is based on ASTM and CPSC standards for surfacing in play areas.

ARE PUBLISHED REQUIREMENTS AND GUIDELINES THE LAW FOR CHILD CARE AND EARLY LEARNING CENTERS?

Rhode Island law currently requires that **public schools** meet CPSC guidelines for safety and State funded Pre-K classrooms fall under these requirements. In addition, Rhode Island Child Care Licensing Regulations include requirements for safety surfacing that are based on CPSC and ASTM standards. Rhode island's Quality Rating System, BrightStars, as well as the RI Department of Education Comprehensive Early Childhood Education Standards utilize the Environmental Rating Scales (ERS) as part of their systems. ERS relies on CPSC and ASTM standards in its

framework for playground safety. In addition, **there is significant case law where ASTM and CPSC published requirements and guidelines have been use to prove owner/ operator negligence in court cases involving injuries in the playground.** The insurance industry is especially concerned with playground safety and often provides incentives for performing audits and meeting safety guidelines.

WHY ARE SURFACING GUIDELINES AND STANDARDS IMPORTANT?

Falls to the playground surface are the number one cause of injuries and the number two cause of death in playground related incidents. **Severe injuries and death are typically associated with the inadequate provision of proper safety surfacing around play structures.** While play areas inherently incur some type of risk, it is the playground owner's/ operator's responsibility to ensure that every effort is made to mitigate risk and reduce injury based on published guidelines. CPSC and ASTM guidelines and standards have been developed over the course of two decades based on critical injury statistics and ongoing testing. Ensuring that these nationally proven guidelines and standards are adhered to in your center or school is essential to protecting children from serious injury in the playground space.

WHAT IS CONSIDERED SAFETY SURFACING?

Safety Surfacing (otherwise known as Impact Attenuating Surfacing) includes a variety of materials

that soften the impact from a fall. Safety surfacing falls into one of two categories; loose fill or unitary products. Typical loose fill selections include, but are not limited to: wood mulch (landscape mulch), engineered wood fiber (EWF) (play mulch), sand, pea stone, and recycled rubber mulch. Examples of unitary products include: poured in place (PIP) rubber, rubber tile, and synthetic turf.

Materials that are **NOT** considered safety surfacing include grass, concrete, asphalt, or other non-impact attenuating surfacing. These surfaces may be utilized in areas where a fall from an elevated height would not typically occur, such as around a play house, picnic table, or in open play areas where children might engage in activities that do not pose a risk of falling from an elevated height such as playing games, riding tricycles, etc.

WHERE TO USE SAFETY SURFACING

Safety surfacing is required **within the "use zone" of equipment and elements intended for play that are elevated from the ground**. A use zone is defined as the area under and around a piece of play equipment onto which a child falling or exiting from the structure would be expected to land. This zone typically extends 72" (6') from the edge of the play structure or component¹. Safety surfacing needs to be under and around all climbers, component structures, stepping pods, balance beams, and similar elements that are elevated off the ground. The only exemptions to the safety surfacing requirements are for embankment slides, playhouses, play panels, water tables, and other equipment intended for play where the child's feet are in contact with the ground.



Note that according to national standards, safety surfacing **DOES NOT** need to be placed around the following:

- Picnic tables, trash receptacles, benches, or other site features not designated for play²
- Rocks, boulders, logs, or other natural items outside the play area and not intended for play as part of the space³
- Areas outside the 72" use zone from play elements or structures **except for slide exits** where the use zone may extend up to 96"¹

While safety surfacing is not required outside the use zones, some facilities elect to extend the safety surfacing to the play area perimeter for maintenance or uniformity purposes. However, keep in mind that it is best practice to incorporate a variety of different surface types to enhance the play experience. While surfacing types such as grass and hard pavement can have important uses for ground type play activities, they should not be used under and around pieces of elevated play equipment.

Footnotes:

1. Use zones can vary for different types of equipment. Please refer to CPSC and ASTM Guidelines and Standards for more information on specific use zone and setback requirements.
2. There is often debate about whether or not site furnishings should meet the same safety surfacing requirements as play structures if they are contained inside the play area or are located nearby. CPSC and ASTM do not apply to any element outside the designated play area. However, good judgment and design should be used when locating site furnishings to minimize hazards. Many hazards can be mitigated through proper site supervision, signage, and management of the play facility.
3. The recent resurgence of natural based play areas has led to many questions surrounding how standards apply to natural elements inside and outside the play zones that may or may not be intended for play. There are no specific standards that apply only to natural based playgrounds, and likewise no specific exemptions. In general, if a natural element in a play area is designed as part of the play experience (i.e. a boulder was placed specifically for climbing) then the same standards for surfacing and use zones would apply. If the natural element is intended for seating, a table, or other type of site furnishing, and is outside the normal play zone, then it would fall outside the requirements by definition. If you are uncertain about whether or not an element should have safety surfacing meeting the standards contact a qualified designer or Certified Playground Safety Inspector.

WHAT TO DO BEFORE SELECTING A SURFACE - PLAN BEFORE YOU ACT

A very common mistake is to select and install a new safety surface only to find out the equipment the surfacing has been installed under/around needs to be removed due to non-compliance issues or other factors. This can result in a wasted time, money, and resources. The first step in selecting a surface starts with a thorough evaluation of the playground as a whole. You may want to enlist the support of a qualified design professional or certified playground inspector to help you with this evaluation. In addition, you can contact LISC's Rhode Island Child Care and Early Learning Facilities Fund (www.riccelff.org) for a technical assistance visit to obtain a preliminary evaluation of your space.

When evaluating a given outdoor play space you should ask the following questions:

- How old is the play area and related play equipment? Is it due for replacement?
- Can you reasonably repair the equipment to get it to proper CPSC or ASTM compliance, or does it need to be replaced entirely?
- What is the long term plan for the play area? Are you going to replace the play area in the next 2 or 3 years?
- Can you install new play equipment to add to total play value in the near future if necessary?
- Do you anticipate changing the layout of the play area (i.e. expanding or reducing the size, moving equipment, etc.)?
- How can you mitigate the long term/ short term hazards in a reasonable way?

The key is to assess your specific needs and think through your plan of action to avoid common pitfalls. Keep in mind though that planning and inaction are not the same thing.

If safety surfacing is deficient or other hazards exist, it is the owner's/operator's responsibility to resolve these issues quickly. This may include implementing some short term options in tandem with long term plans.

SURFACING CONSIDERATIONS – GENERAL

While safety surfacing as a whole is fairly straight forward, selecting the right one for your needs can sometimes prove difficult. Factors such as durability, accessibility, long term maintenance, use area, and

budget all factor into the equation. When evaluating surfacing consider the following:

- What is the relative cost of options and which ones meet your budget range?
- What is the long term durability and maintenance associated with each product?
- Does a particular surfacing meet the critical fall height requirements for your equipment?
- What type(s) of surfacing will accommodate access to critical play zones for children with disabilities (ADA)?
- What type(s) of surfacing fit in with the context of the play area (e.g. natural vs. manufactured playground elements)?

There is no one right answer. However, some options are better than others depending on the characteristics you are seeking. The important thing to remember it to do your research.

SURFACING CONSIDERATIONS - COST

The number one factor that drives your surfacing selection may be cost. Unitary surfaces are very popular due to their long term durability and reduced maintenance, but the price of these materials is often prohibitive. When considering surfacing options, be honest about your budget and what you can spend both in the short and long term. In addition, think holistically about the playground design and how you may be able to shave costs through proper design. For instance you may consider:

- Clustering certain types of low play equipment in areas to reduce the safety surface depth or utilize a different surfacing altogether (i.e. grass in areas outside of equipment use zones).
- Mixing a variety of surfacing options based on the intended uses and play goals. You may consider poured in place rubber only under access ways and high use areas.
- Providing more ground based activities that provide challenge without the need for safety surfacing. Remember, safety surfacing applies only around elevated play equipment.
- Using grass, regular mulch, or pavement surfacing for open play areas. Safety surfacing is not needed in areas that do not have elevated play equipment. By minimizing the use of manufactured climbers and other elevated equipment you can significantly reduce safety surfacing needs.

Keep in mind that ultimately, the number one goal is safety regardless of which surfacing type you choose. The following chart identifies some key pros and cons of various surfacing types.

SURFACING MATERIAL	PROS	CONS
ORGANIC LOOSE FILL <i>(wood chips, bark mulch, engineered wood fiber)</i>	<ul style="list-style-type: none"> Low cost Easy installation Good drainage 	<ul style="list-style-type: none"> Will compress and need to be monitored for correct depth Can be flammable Requires some type of barrier to contain the material Likely to end up spread around the playground Not ADA approved
SAND	<ul style="list-style-type: none"> Low cost Easy installation 	<ul style="list-style-type: none"> Attractive to bugs and animals Hard to keep contained within fall zone/needs lots of sweeping and raking Slippery on surfaces outside of fall zone Not ADA approved
PEA STONE	<ul style="list-style-type: none"> Low cost 	<ul style="list-style-type: none"> Often thrown by children/can be dangerous Children may place small stones in ears, nose, etc. Requires ongoing maintenance Not ADA approved
SHREDDED RUBBER	<ul style="list-style-type: none"> ADA approved Lower cost than other synthetic materials Easy installation 	<ul style="list-style-type: none"> Will compress and need to be monitored for correct depth Reports of black rubbing off on children's clothes, hands, etc.
SYNTHETIC UNITARY <i>(rubber mats or tiles, pour-in-place surfaces)</i>	<ul style="list-style-type: none"> ADA approved Provides permanent surfacing solution Very low maintenance High level of safety 	<ul style="list-style-type: none"> High cost More complex installation

SURFACING CONSIDERATIONS - DETERMINING DEPTH OF SURFACING

It is important to note that the required depth of the safety surface will vary based on the type of surfacing you decide to use as well as the height of the play equipment. All loose fill surfacing types do not require the same depth in inches to be effective. Safety surfacing is tested from various heights to meet a standard called ASTM F1292. Materials are tested in a laboratory to meet a certain maximum G force requirement (GMAX). The GMAX for

safety surfacing is a maximum of 200g. Using this information, the lab tests various surfacing at different heights to get a critical height, or the height at which a life threatening injury would not be expected to occur. **This data is available through the manufacturers and distributors of safety surfacing.** However, you will need to tell your safety surfacing supplier the maximum fall height of your structure or equipment. Fall height is determined by measuring from the highest "designated play surface"¹ to the ground below the piece of equipment.

1. A designated play surface is defined as an area greater than 2" X 2" in size with an angle less than 30 degrees. This typically does not include the top of guard rails, barrier rails, or post tops typically found on newer type composite structures.

The designated play surface is typically:²

- The highest platform on a play structure (not the top of guardrails, barrier rails, or posts).
- The highest part of a climbing component and the surface below it.
- The distance between a platform and surface for platform accessed sliding poles.
- The distance between the transition platform and surface for slides.
- The distance between the pivot point and the surface beneath it for swings.

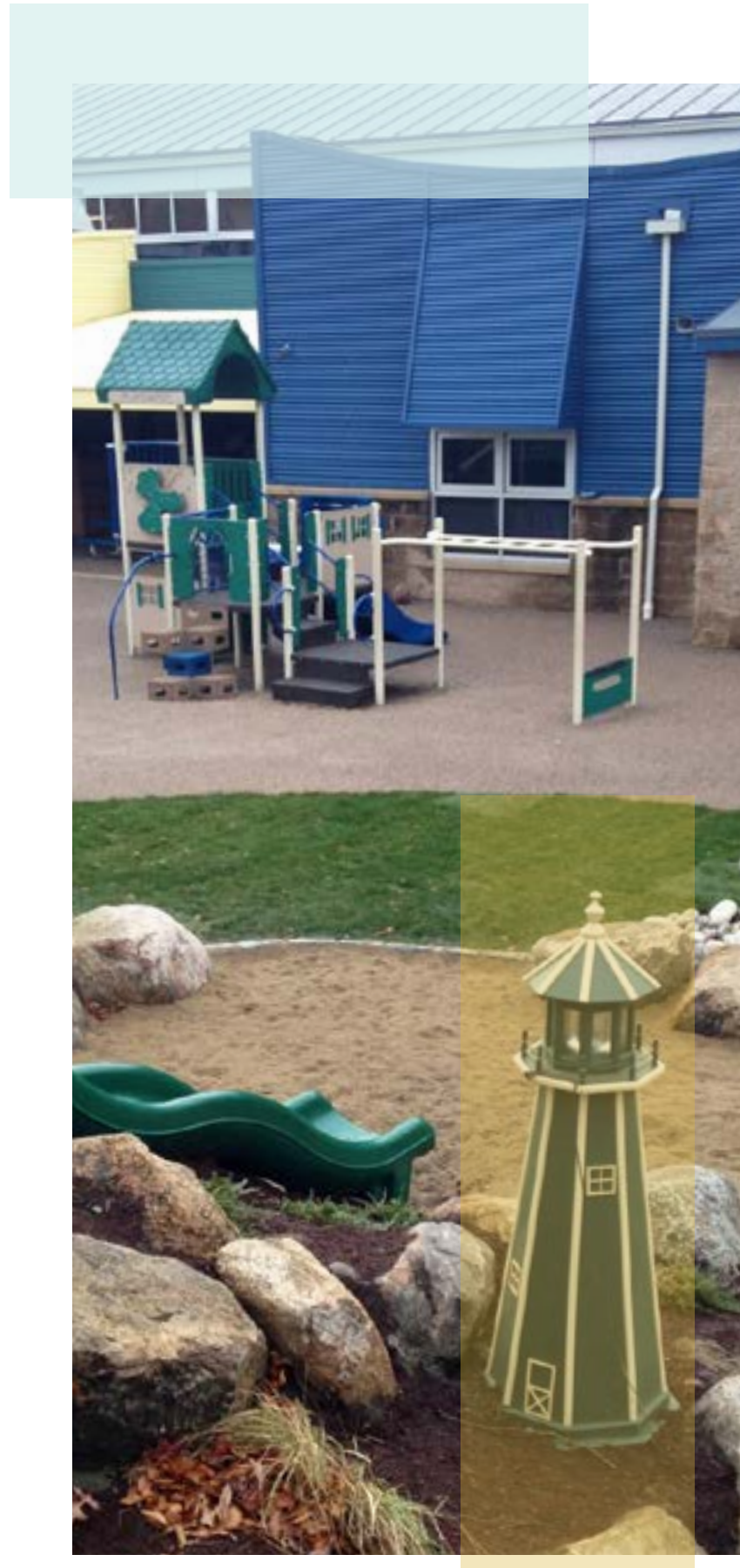
Determining the correct fall height of a play element is critical to installing the proper type and depth of safety surfacing. **If you are unsure how to determine the correct fall height or depth of surfacing we encourage you to consult with a qualified playground designer, playground equipment distributor, or other technical consultant.** A small investment in a technical consultation can save wasted time and money and more importantly can help significantly minimize the risk of serious injury on your playground.

The following table serves as an example of how surfacing depth requirements vary by type and are based on fall height:

TABLE 2. MINIMUM COMPRESSED LOOSE-FILL SURFACING DEPTHS

Inches of	(Loose-Fill Material) Protects to	Fall Height
6*	Shredded/recycled rubber	10
9	Sand	4
9	Pea Gravel	5
9	Wood mulch (non-CCA)	7
9	Wood chips	10

* Shredded/recycled rubber loose-fill surfacing does not compress in the same manner as other loose-fill materials. However, care should be taken to maintain a constant depth as displacement may still occur.



2. Please refer to ASTM F1487 or the CPSC Guidelines for Public Playground Safety Handbook for more information about calculating fall height for specific playground components.

PURCHASING AND INSTALLING SAFETY SURFACING

Safety surfacing varies widely from natural materials to manufactured products. As such, where you purchase the materials and who installs them also varies widely. The list below outlines the typical suppliers of each surface type and offers suggestions on the types of installers that should be used:

SURFACING TYPE	TYPICAL SOURCES/SUPPLIERS	TYPICAL INSTALLER
<p>Engineered Wood Fiber or Recycled Rubber Mulch (Play Mulch) <i>EWF is not regular landscape mulch. EWF is hardwood that is shredded to specific dimensions to meet a higher fall height as well as ADA requirements as outlined in ASTM F1951. Rubber mulch is made from recycled tires.</i></p>	<p>Typically purchased through a local playground equipment/surfacing distributor (see <i>Resource Sheet</i>). Must come with a certificate attesting to compliance with ASTM F1292 for fall height and ASTM F1951 for accessibility.</p>	<p>May be installed by a local landscape contractor or site work contractor. Distributors can often recommend an installer, or even have their own in house people to install the surfacing at an added cost.</p>
<p>Poured in Place Rubber <i>PIP rubber is typically a 2 part process that uses a shredded recycled rubber base with a virgin EPDM color topping. All rubber is glued together utilizing a urethane based epoxy. Installation takes special skill to mix and trowel and should only be performed by a manufacturer trained installer.</i></p>	<p>Typically purchased through a local playground equipment/surfacing distributor (see <i>Resource Sheet</i>). Must come with a certificate attesting to compliance with ASTM F1292 for fall height and ASTM F1951 for accessibility. It's critical you know your specific fall heights since even a small over calculation can cost a lot of extra money for the project.</p>	<p>This surfacing should not be installed by the facility owner, or a local general contractor. Most reputable distributors and their manufacturers require you to use a manufacturer trained installer due to the unique install requirements. Installing surfacing yourself may void the warranty.</p>
<p>Rubber Tiles <i>Tiles are comprised of the same components as PIP rubber, but are made to specific tolerances in a factory. As a result, they are typically more apt to meet specific fall heights and last longer. In addition, tiles are easier to install. However gaps sometimes become an issue.</i></p>	<p>Typically purchased through a local playground equipment/surfacing distributor (see <i>Resource Sheet</i>). Must come with a certificate attesting to compliance with ASTM F1292 for fall height and ASTM F1951 for accessibility. Tiles come in various fall height thicknesses, but are typically laid at a specific depth so there are not a lot of ways to shave cost.</p>	<p>This surfacing can be installed by the facility owner, or a local general contractor, but is not recommended. Most reputable distributors and their manufacturers require you to use their manufacturer trained installers due to the unique install requirements.</p>
<p>Synthetic Turf <i>Synthetic turf is relatively new to the play market. The impact attenuation comes from a pad typically installed under the turf carpet. Turf fibers are made of polyethylene and are filled with sand or special type of infill. The downfall of synthetic turf is that it must be cut and seamed a lot around play equipment, which can lead to tears and separation.</i></p>	<p>Typically purchased through a local playground equipment/surfacing distributor (see <i>Resource Sheet</i>). Must come with a certificate attesting to compliance with ASTM F1292 for fall height and ASTM F1951 for accessibility. The turf should be specifically labeled and marketed for playgrounds, not residential or athletic field markets.</p>	<p>Requires professional installation by a manufacturer trained crew. Most reputable distributors and their manufacturers require you to use their manufacturer trained installers due to the unique install requirements. Most companies offer a cost with the product installed. You are still responsible to prepare the base.</p>

SURFACING TYPE	TYPICAL SOURCES/SUPPLIERS	TYPICAL INSTALLER
<p>Sand and Pea Stone <i>Traditional sand and pea stone is often used in areas not required to have ADA compliance or are part of a naturalistic playground. Sand is also still used for many open play areas. You can find recommended depths for specific fall heights in the CPSC Handbook and online resources.</i></p>	<p>May be purchased through a local landscape supplier or installer. Ensure you do some research on the proper depth to meet a specific fall height. You should find documentation from certified testing labs that verify fall heights for your records. Typically the higher the equipment, the more sand or pea stone you will need.</p>	<p>May be installed by a local landscape contractor or site work contractor. Refer to the CPSC Handbook for installation recommendations. Typically requires a well drained base and a soil separator fabric. A firm edge is also typically required to prevent migration.</p>
<p>Landscape Mulch and Other Loose Fill Products <i>Landscape mulch such as pine bark or cedar may be used as a safety surface. However, long term maintenance and non-compliance with accessibility regulations usually lead owners/operators to avoid this surfacing. This is a good choice for incorporation into natural playgrounds.</i></p>	<p>May be purchased through a local landscape supplier or installer. Ensure you do some research on the proper depth to meet a specific fall height. You should find documentation from certified testing labs that verify fall heights for your records. Typically the higher the equipment, the more mulch you will need. Works well with natural playgrounds and planting beds.</p>	<p>May be installed by a local landscape contractor or site work contractor. Refer to the CPSC Handbook for installation recommendations. May require a soil separator fabric. Edging is not always required and can integrate well with common planting areas.</p>

It is important to note that most manufactured surfacing should be installed only by professionally trained staff, failure to do so could result in a poor installation or voiding of product warranties. Surfacing distributors will often have installers that they recommend or require. Refer to the Resources section for a list of local play equipment and surfacing distributors that serve the RI area.

When opting for loose fill materials you will also want to factor in the way you will “contain” these materials. For example, landscape timbers are often used to contain areas of landscape mulch and prevent it from spreading around to other spaces thus quickly reducing its overall depth. Be careful to not inadvertently create tripping hazards when doing this. Utilizing a qualified playground designer for your space will help you to ensure that all of these variables are considered.

SELECTING A SURFACING CONTRACTOR

If you are installing manufactured surfacing (i.e. PIP, tiles, etc.) it's often best to defer to the manufacturer or distributor trained installation crew. You will have the comfort of knowing the crews are familiar with the work, and manufacturers and distributors will stand by their installation contractor. If you decide to install a natural surfacing, or need to prepare the base for a

manufactured product installation, a local landscape or site work contractor may be used. However, you should:

- Seek out referrals from people you know who have had similar installations.
- Stick to specialized playground installers when possible. General contractors, landscapers, and other tradespeople are typically not as fluent in the many standards and products available in the industry.
- Do a little research into how long the company has been around, number of installations, and check out some of their recent installations.
- Check out the Rhode Island Contactor's Registration and Licensing Board website at <http://www.crb.ri.gov/>. Registration as a licensed contractor ensures that the installer has insurance and meets minimal standards, **but does not guarantee they are qualified or competent** so still do your research.
- Ask a local playground distributor, designer, or qualified playground professional, for a referral to a local contractor.

WHAT TO DO ONCE YOU LOCATE A CONTRACTOR

Once you locate one or more competent installers we recommend the following:

- **Provide the contractor with this document and ensure they understand all the specific key requirements prior to having them provide you with an estimate.**
- Review the project with them and lay out the perimeter of the play surfacing so you are both clear on the extents of the surfacing limits and finish details.
- Review any special preparation requirements such as the installation of edging, gravel, filter fabric, or pavement.
- Review all estimates and work descriptions carefully, ensuring that all key requirements will be met.
- Review installation procedures and ensure all materials meet the provided standards and are installed correctly.
- Consult with a qualified designer or certified playground inspector if you don't feel comfortable overseeing the project or inspecting the final product.
- **Do not pay your contractor until you, or your designer/technical advisor, has visually inspected the installation and verified that it meets all requirements.** Failure to inspect the final product could cost you more funds in the future to correct deficiencies.
- Obtain a copy of compliance with ASTM F1292 and ASTM 1951 for all manufactured surfacing for placement in your files.

ON-GOING MAINTENANCE

Keep in mind that loose-fill surfacing materials may have a lower initial cost to purchase and install, but, tend to have higher on-going maintenance needs. In high-use areas, loose materials may need to be raked daily or tilled (fluffed) periodically to loosen compaction and replace materials that have been pushed away. Loads of loose materials may need to be trucked in on an annual or semi-annual basis to keep the surface at an appropriate depth. Loose-fill materials should also

be regularly checked for protruding or sharp objects such as glass, can tops, sharp rocks and metal.

Unitary, synthetic materials such as poured in place and rubber mats also have maintenance needs. Repairs may be needed to gouges, burns and loose areas. Synthetic material may also need to be swept frequently to prevent sand, dirt, rocks or other loose materials from becoming a slipping hazard.

Finally, keep in mind that all surfacing material should provide good drainage. Drainage problems can create issues with any surfacing type. Loose fill materials, particularly mulch, may freeze in the winter months. This problem will be worse in areas where water pools and does not drain. If loose fill surfacing becomes frozen it is no longer usable as a safety surface. Elevated equipment above frozen loose fill surfacing should not be used until freezing resolves and the loose fill materials can be checked for appropriate depth.

RESOURCES

If you have difficulty understanding surfacing requirements, or you need further assistance, we highly recommend speaking with a professional designer specializing in playgrounds or a certified playground safety inspector. They can often provide an independent voice relating to a variety of play area related topics.

If you need more information about various manufactured surfacing options, or need assistance selecting the right option, you may want to contact a surfacing vendor/distributor directly. The following is a partial listing of play equipment and surfacing vendors serving Rhode Island. All of the vendors listed have local sales people dedicated to the RI market that can perform an on-site advisory visit.



DISTRIBUTOR/SUPPLIER	PHONE/WEBSITE/EMAIL	COMMENTS
O'Brien and Sons, Inc.	508-359-4200 www.obrienandsons.com mail@obrienandsons.com	Vendor for various play structures and surfacing including PIP, tiles, synthetic turf, and play mulch.
JP LaRue, Inc.	1-800-986-3716 www.jplarue.com info@jplarue.com	Vendor for various equipment and surfacing options. Includes tiles and play mulch.
MRC	1-800-922-0070 www.mrcrec.com mrc@gametime.com	Very large distributor focused on Playcore products including various safety surfacing options.
Ultiplay Parks and Playgrounds	1-508-634-1497 www.ultiplayus.com mparody@ultiplayus.com	Vendor for synthetic turf, PIP, play mulch and other types of surfacing.

Note that this list is not comprehensive and neither LISC nor the RICCELFf endorse or have qualified any of the identified suppliers. This list is being provided for the convenience of owner/operators in locating surfacing for their play facilities.

To locate a Certified Playground Safety Inspector in your area, visit the National Recreation and Parks Association CPSI registry, at https://www.nrpa.org/CPSI_registry/default.aspx

OTHER RESOURCES INCLUDE

- The RICCELFf technical advisory service for Rhode Island child care and early learning centers. This service includes a brief evaluation of play facilities, identification of major safety issues, advice on repairs/ renovations, and a discussion of goals and outcomes. To apply for a TA visit go to <https://riccelff.org/our-services/technical-assistance/>
- The CPSC Handbook for Public Playground Safety, Publication No. 325, available at <http://www.cpsc.gov/PageFiles/122149/325.pdf>. A great resource for surfacing information including typical fall heights for certain types of natural surfacing.
- Information regarding safety surfacing options as they relate to accessibility <http://www.access-board.gov/guidelines-and-standards/recreation-facilities/guides/surfacing-the-accessible-playground>
- RICCELFf online resources and fast fact sheets including how to select a contractor and design professionals. Go to <https://riccelff.org/resources/>

REFERENCED DOCUMENTS

ASTM F1487 - Standard Consumer Safety Performance Specification for Playground Equipment for Public Use

ASTM F1292 - Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment

ASTM F1951 - Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment

ASTM F2373 - Consumer Safety Performance Specification for Public Use Play Equipment for Children 6 Months through 23 Months

ECERS - Playground Information to Use with the Environmental Rating Scales

CPSC (Consumer Product Safety Commission) handbook for Public Playground Safety, Publication No. 325.

PLAYGROUND SAFETY INSPECTIONS

PURPOSE

This guidance is intended to help child care, early learning center, and public school administrators understand playground safety inspections including the differences between an inspection and audit and the purpose of each. It also provides clarifications on applicable standards, and describes how to select a qualified playground inspection consultant.

WHAT ARE THE NATIONAL PLAYGROUND SAFETY STANDARDS?

National standards and guidelines related to public playground safety were started in the 1980s due to the realization that many serious playground injuries were preventable through proper placement, fabrication, and upkeep of equipment. Today, the main standards and guidelines related to playground safety include the several documents developed by the American Society for Testing and Materials including: ASTM F1487, ASTM F2223, ASTM F1951, and ASTM F1292. In addition, The Consumer Product Safety Commission (CPSC) *Guide-book for Public Playground Safety* provides guidance and reference standards.

ARE PUBLISHED REQUIREMENTS AND GUIDELINES THE LAW FOR CHILD CARE CENTERS, PUBLIC SCHOOLS AND EARLY LEARNING CENTERS?

Rhode Island law currently only requires **public schools** meet CPSC guidelines for safety. However, state licensing, BrightStars and other regulatory and accreditation entities all utilize portions of CPSC and ASTM standards as part of their regulatory compliance and quality assessments. In addition, there is significant case law where ASTM and CPSC published requirements and guidelines have been used to prove owner/operator negligence in court cases involving injuries in the playground.

WHAT IS CONSIDERED A "PUBLIC PLAYGROUND?"

Guidelines for public playground safety apply to all **schools, child care centers (including family child**

care), early learning facilities, multi-family residential complexes, and public parks. It does not apply to single family residential use play areas. These guidelines only apply to outdoor play areas, not indoor gyms or soft contained play structures.

HOW ARE PLAYGROUND INSPECTORS TRAINED AND CERTIFIED?

The National Recreation and Park Association (NRPA) certifies playground inspectors through a three day training course that is offered on a rotating basis in various states. To learn more about certification go to www.nrpa.org/cpsi/.

HOW DO I OBTAIN A PLAYGROUND SAFETY AUDIT OR INSPECTION?

You should contact a certified playground safety inspector (CPSI) in your local area that provides private inspection and audit services. You can contact the Rhode Island Child Care & Early Learning Facilities Fund (RICCELFF) located at the Local Initiatives Support Corporation (LISC) at 401-331-0131 or riccelff@lisc.org for a listing of current Certified Playground Safety Inspectors providing private inspection services.

SELECTING A QUALIFIED PLAYGROUND INSPECTOR

Inspectors must be certified through the NRPA and be listed on the current certification register, which can be found at http://www.nrpa.org/CPSI_registry/default.aspx. In addition, inspectors should have a background in the playground industry and show demonstrated experience in the design, fabrication,

inspection, or maintenance of equipment. NRPA certification only covers the minimum requirements for inspecting playgrounds in accordance with ASTM and CPSC standards. However, an inspector with an in depth background in the park and playground industry will be able to provide a wealth of knowledge during the inspection process and bring a truly trained eye to the inspection process. Before you hire a CPSI, validate their credentials by interviewing them, asking for a resume, or requesting references from past clients that have had similar inspection work performed.

WHAT IS THE DIFFERENCE BETWEEN AN AUDIT AND INSPECTION AND WHICH SHOULD I CHOOSE?

There are different levels of inspections that can be provided by CPSIs depending on your situation.

PLAYGROUND AUDITS

A playground audit is a very in depth inspection whereby the CPSI must check each and every component of a play structure and play area to certify compliance, or non-compliance, with ASTM F1487 and CPSC guidelines. Audits are typically done immediately after a play area is installed. Audits are also done when a play area has never been inspected, when standards change, or if major repairs are performed. In an audit, a CPSI identifies any non-compliant issues and also ranks the issues based on a hazard priority level. An audit will vary substantially in price by site based on a variety of factors, including: size of playground, complexity of site, age of equipment and individual inspector rates, but typically will cost in the range of \$500.00 - \$1,500.00

PLAYGROUND INSPECTIONS

Playground inspections fall into three different categories, "regular," "low-frequency" and "high-frequency." Regular playground inspections are typically performed once a reasonable "standard of care" is met. This means that an audit has been performed, compliance achieved, and a safety program has been set up with the CPSI. "Low Frequency" inspections are performed by either trained in-house staff or a CPSI to perform a "hands on" analysis of equipment. This would typically include checking S-hooks on swings, bolts, attachment areas, etc. A qualified CPSI can help set up an inspection program for you and can provide

ongoing services if requested. Every site will have different frequency needs for inspection, but at least annually should be the minimum. A typical inspection will cost \$300.00 - \$600.00, again varying based on site requirements and individual inspector fees.

More frequent inspections are called "high-frequency" inspections. These are typically performed by in-house staff (weekly) and check for only major apparent safety issues and overall play area condition. You should maintain a playground inspection file on site that includes your initial audit, subsequent inspections, details of equipment and surfacing and documentation of in-house inspections and corrective measures.

If you have never had an inspection performed or do not have documentation that your equipment is certified as compliant, you will likely need an audit to start. Talk to a qualified CPSI who can guide you through the process of setting up a "standard of care" for your program.

RESOURCES

Please contact The RICCELFF / LISC at 401-331-0131 or riccelff@lisc.org for more information on obtaining the services of a Certified Playground Safety Inspector. In addition, you can find out more information about inspections at the following web sites:

- <http://www.cpsc.gov/PageFiles/122149/325.pdf> - The CPSC Handbook for Public Playground Safety, Publication No. 325. A great resource for playground safety information that is free to the public.
- <http://www.nrpa.org/CPSI/> - The National Park and Recreation CPSI website. You can learn more about certification and check out a listing of current CPSIs.
- <https://www.nrpa.org/our-work/playground-safety/> - A full listing of playground safety related resource links including ASTM standards, forms, and other related associations.
- <http://playgroundsafety.org/> - A user friendly information site on playground safety. This site is not affiliated with the NRPA. They offer their own special training that is not certified by the NRPA.

FENCING AND BARRIERS

PURPOSE & APPLICABILITY

These guidelines apply to all public, commercial, and multifamily residential use outdoor plays areas such as those located at **schools, child care centers, early learning facilities**, and public parks. It is not intended to apply to single family residential use play areas. There are many critical components to outdoor playspace safety. The information presented here is limited to details on fencing and exterior barriers, including information on fencing location, materials, and installation procedures. **It is highly recommended that you provide this guide to your fence installer and require them to review it prior to submitting any bids for work around a play area.**

GOVERNING DOCUMENTS RELATING TO FENCING STANDARDS FOR PUBLIC PLAY AREAS

The governing document (standards) related to fencing and barriers around play areas is **ASTM 2049 - The Standard Guide For Fences/ Barriers for Public, Commercial, and Multifamily Residential Use Outdoor Play Areas**. The Consumer Product Safety Commission (CPSC), regulatory agencies, Early Childhood Environmental Rating Scales, and other related entities typically defer to this standard for fencing and barriers as it relates to play areas. These are also the standards generally relied upon by the insurance industry.

WHY ARE THE STANDARDS IMPORTANT?

Fences and barriers are often used to safely contain playground users, prevent children from wandering into dangerous areas, provide separation between conflicting uses, and keep areas safe from vehicular intrusion. The improper selection, placement, or erection of fencing or barrier can actually create a safety hazard for children utilizing a play area and potentially reduce the effectiveness of their intended purpose. In addition, appropriate fence height is required by licensing authorities, and many current child care and early learning rating systems evaluate the proper use of barriers and fencing in and around play areas.

KEY RECOMMENDATIONS FOR FENCING (ASTM 2049 - 7.4)

When repairing, replacing, or installing a fence you, and your selected contractor or designer, should follow these key recommendations:

- All fences surrounding a playground must enclose the play space and measure a minimum of **48" high measured from the highest surrounding grade¹** (ASTM 2049 - 6.1.3).
- Fences may be constructed of chain link, wood, vinyl, steel, aluminum, or other durable materials.
- Solid barriers, such as masonry or stone walls, are acceptable as long as they do not contain protrusions, or indentations deeper than 0.375 inches (ASTM 2049 - 7.4.4).

Footnote:

1. *ASTM standards indicate measuring the fence height above grade on the side of the fence that faces away from the play area. However, this proves ineffective if the intent is to prevent passage from the interior of the play area. Thus the height should be measured from the highest surrounding grade to ensure this height is not reduced when dealing with upward slopes inside or outside the play area.*

- If the fence is composed of horizontal and vertical members (such as steel picket or wood picket fencing), horizontal members should be located on the non-play side of the fence if the tops of the horizontal members are less than 45 inches apart. In addition, vertical members should not exceed 1 3/4 inches apart (ASTM 2049 - 7.5.1).
- If the spacing between horizontal members is 45 inches or more, then the spacing between vertical pickets of a fence should not exceed 4" (ASTM 2049 - 7.5.1).
- All fencing should be set less than 4" from the ground surface to prevent toys or children from going under the fence (ASTM 2049 - 7.4.3).
- If utilizing chain link for fencing, mesh openings shall be a nominal 1 1/4 inches measured between parallel sides of the mesh and a maximum of 1 3/4 inches measured horizontally between the horizontal corners, unless privacy slats are used that are anchored at the top and bottom² (ASTM 2049 - 7.5.2).
- Fences should be located a minimum of 72 inches away from any permanent structures, equipment, or other objects that would aid in climbing the fence (ASTM 2049 - 8.2).
- If a lattice type fencing is used, the maximum opening created by diagonal members shall not be more than 1 3/4 inches (ASTM 2049 - 7.5.3.1).
- Diagonal bracing members on fencing is prohibited because it may create a "ladder affect" for climbing (ASTM 2049 - 7.5.3.1).
- **There shall be no parts of a fence or gate that is a protrusion hazard less than 54 inches above grade.** This includes bolts, ties, and other hardware typically oriented to the inside of the fence area. Protrusions on the inside of the play area should be able to pass all standard compound projection gauges used for the testing of playground equipment (ASTM 2049 - 7.7.1).
- If bolts and hardware on **existing fences** currently protrude into the playground, the hardware should be rotated to orient to the non-play side. Alternatively, exposed bolt ends may be cut flush with nuts, and ties bent in a manner that minimizes potential entanglement.³
- When feasible, it is highly recommended that chain link fabric be installed toward the inside of the play area so that all ties, rails and braces are oriented to the non-play side of the fencing.³
- When feasible, orient the smooth board side (non-brace side) of single face picket fencing to the interior of the play area to prevent climbing as well as protrusion and entanglement hazards.³
- Building walls may be used in lieu of fencing as part of the containment system (ASTM 2049 - 7.7.1).

Footnotes:

2. The intent of the 1 1/4" maximum mesh size is to prevent children from obtaining a foothold and climbing over a chain link fence. This mesh size is common in residential pool applications. Many facilities currently have 2" mesh size because it is the most common and cost effective. If you are repairing a fence panel we recommend staying with the original mesh size. However, if you are replacing larger sections of fencing, renovating, or installing new play area, the 1 1/4" mesh should be utilized.
3. A high prevalence of potential impalement and entanglement hazards related to fencing that could pose a major safety risk have been observed on Rhode Island child care playgrounds. To reduce these hazards, we recommend addressing these issues whenever they are identified, or when repairing, replacing, or installing fencing. While every effort should be made to completely replace or reorient hardware, modifying hardware sometimes proves more cost effective for short term safety repairs.

KEY RECOMMENDATIONS FOR FENCE GATES (ASTM 2049 - 7.6)

When repairing, replacing, or installing fence gates you, **and your selected contractor or designer**, should follow these key recommendations:

- Double leaf gates may be provided for maintenance access, but should be locked when not in use (ASTM 2049 - 7.6.1). The gate fence requirement should meet the standards outlined above.
- Single leaf access gates shall open **outward** from the play area, shall be **self closing**, and shall have a **self latching device** (ASTM 2049 - 7.6.2).
- The release mechanism of the self latching gate shall be no less than 48 inches above the grade (ASTM 2049 - 7.6.2).
- Spacing between gates (double leaf) or posts (single leaf) should be less than 3 1/2 inches.¹

Footnote:

1. ASTM standards do not address the spacing between gates and posts. However, wide gaps in fence gates could allow passage of children or cause potential head entrapment hazards. For this reason, we recommend that the maximum opening be less than 3 1/2" which is the width of a standard torso probe used for testing entrapments on play structures.

KEY RECOMMENDATIONS FOR VEHICLE BARRIERS (ASTM 2049 - 7.6)

Barriers should be used when a play area is located within 30 feet of streets or parking lots to prevent vehicles from entering a space (ECERS). Barriers can either be contiguous (guardrails, wood rails, walls, jersey barriers) or discrete (concrete filled bollards, large boulders, trees, posts, etc.). All barriers should meet the following key recommendations:

- Contiguous barriers shall be a minimum of 31" high and discrete barriers should be a minimum of 4' high.¹
- Contiguous barriers shall be located no less than 2' from the perimeter fencing of the play area (ASTM 2049 - 7.1.4).
- Contiguous barriers shall be placed edge to edge, unless passage through is required, which shall be no more than 48" (ASTM 2049 - 7.1.5).
- Discrete barriers shall be placed a maximum of 42 inches apart (ASTM 2049 - 7.2.2).
- Solid walls meeting impact requirements may be used as a continuous barrier if the wall is a minimum of 4 feet in height. (ASTM 2049 - 7.8).²

Footnotes:

1. ASTM standards do not address the height of barrier rails. The recommended height of contiguous guardrails is based on US Department of Transportation recommendations related to standard highway "W" type guard rails for traffic areas. The 4' recommendation for discrete barriers allows vehicle operators the ability to view the barrier from the seated position in a typical car even in inclement conditions.
2. ASTM 2049 states "All barriers shall be able to withstand a one-time 10,000 lb (4535.9 kg) concentrated, point-load located 2 ft (0.61 m) above ground with permanent deformation less than 0.1 in. (2.54 mm) after a single load when tested in accordance with the U.S. Department of Transportation specifications (ASTM 2049- 7.1.1)." If this information is not available from the barrier manufacturer or installer, Owners/ Operators should consult with a qualified playground designer or use reasonable judgment when selecting barriers for a play area. Standard transportation guardrails, concrete filled steel bollards, large boulders greater than 8 Cubic feet, trees greater than 2" caliper, large concrete blocks, or other heavy mass components will typically be acceptable as vehicular barriers. You may also check with the Rhode Island Department of Transportation for other typical barrier examples acceptable for use along vehicular travel ways.

SELECTING A FENCE CONTRACTOR

Unfortunately, there is no special certification for fencing contractors who install fencing or barriers around play areas. However, when seeking out a qualified installer you should:

- Seek out referrals from people you know who have had similar installations performed around play areas, pools, or parking areas.
- Stick to specialized fence installers when possible. General contractors, landscapers, and other tradespeople are typically not as fluent in the many standards and products available in the industry.
- Do a little research into how long the company has been around, number of installations, and check out some of their recent installations.
- Check out the Rhode Island Contactor's Registration and Licensing Board website at <http://www.crb.ri.gov/>. Registration as a licensed contractor ensures that the installer has insurance and meets minimal standards, **but does not guarantee they are qualified or competent** so still do your research.
- Ask a local playground designer, or qualified playground professional, for a referral to a local contractor.

WHAT TO DO ONCE YOU LOCATE A CONTRACTOR

Once you locate one or more competent installers we recommend the following:

- **Provide the contractor with this document and ensure they understand all the specific key requirements prior to having them provide you with an estimate.**
- Review the project with them and lay out the perimeter of the fencing to ensure it does not pose any obstruction or clearance hazards with existing play equipment.
- Review all estimates and work descriptions carefully, ensuring that all key requirements outlined will be met.
- Review installation procedures and ensure all materials meet the provided standards and are installed correctly.

- Consult with a qualified designer or certified playground inspector if you are not sure about proper safety zones or other requirements involving fencing and barriers.
- **Do not pay your contractor until you, or your designer/technical advisor, has visually inspected the fence installation to ensure that it meets all aspects of these requirements.** Failure to inspect the final product could cost you more funds in the future to correct deficiencies.

OTHER RESOURCES

If you have difficulty understanding these requirements, or you need further assistance, we highly recommend speaking with a professional designer specializing in playgrounds or a certified playground safety inspector.

Please contact LISC at 401-331-0131 for more information on obtaining the services of a designer or technical specialist. LISC and the RICCELFF staff cannot recommend specific contractors to undertake your project. Our goal is to educate Owner/Operators, as well as contractors, so the installations are performed in accordance with current standards and regulations.

REFERENCED DOCUMENTS

ASTM 2049-11 - Standard Safety Performance Specification for Fences/Barriers for Public, Commercial, and Multi-Family Residential Use Outdoor Play Areas (revised 2011).

ECERS - Playground Information to Use with the Environmental Rating Scales

CPSC (Consumer Product Safety Commission) handbook for Public Playground Safety, Publication No. 325.



HOW TO FIND A PLAYGROUND DESIGNER

Outdoor playspaces may be designed by professionals with varied backgrounds, but, typically those professionals will have backgrounds and licensure as: landscape architects, landscape designers, architects, contractors, or playground equipment sales representatives. The individuals and firms that you may secure to work with you on the assessment, design, and development of your outdoor playspace will typically fall into one of the following categories:

- 1. Independent design professionals** who will work with you and your team to translate your vision for your outdoor space into a design that incorporates your programmatic goals and philosophies. This individual is most likely to be a landscape architect or architect and will most likely provide only design services, which may include cost estimating and construction oversight if that is included in the contract.
- 2. Independent design: build firms** who will work similarly to category #1, but will also carry out the actual work on your space once the design is developed and agreed upon.
- 3. Playground equipment sales representatives** whose primary objective is tied to the sale of their products. These individuals are often also design professionals and most are also certified playground inspectors. They will often do a “design” (layout) for you at no cost, but keep in mind that the design will be heavily focused towards laying out the items that they are working to eventually sell to you. This can be a very useful service but often has

a very different focus and outcome than a designer who is working for you with no ultimate sales goal. Here are some additional steps to take to find the right designer for your outdoor project:

- Ask other programs who have undertaken playground projects for their recommendations
- Contact the RICCELFF for a list of professionals who have submitted their qualifications and demonstrated some appropriate knowledge and expertise
- Check on all of the following:
 - Be sure they carry appropriate licensure and insurance.
 - Ask about projects they have done that are similar in size and scope to your project - check references!
 - Visit or ask to see photos of spaces they have designed to ensure that their vision for outdoor space matches your vision.
 - Ask if they or someone on their team is a Certified Playground Safety Inspector (CPSI) who can help you in assessing your current space and then incorporate any needed modifications in the overall planning.
 - Ask them about their philosophy in working with clients – how will they learn about your vision for your space?
 - Be sure that they understand the budget that you have for the project and that they are comfortable designing within any budgetary limitations.

Note that categories 1 & 2 may often sub-contract with individuals from category #3 for components of your outdoor playspace, but individuals and firms in those categories have an allegiance that is solely to you, their client.

In deciding which category of professional is best suited for your project, ask yourself, “What is my ultimate goal and vision for the space? Do I want a very traditional playground that incorporates basic gross motor structures and surfacing or do I hope to develop an outdoor playscape that incorporates a wide variety of elements and opportunities? How can I best achieve this vision?”

OUTDOOR ACTIVE FUN ON A BUDGET

TEN LOW-COST OR NO-COST IDEAS FOR OUTDOOR ACTIVE FUN

Here are a few ideas for outdoor fun on a budget:

1. **Sidewalk Chalk Art!** Draw on sidewalks, blacktop, and cement walls. Spray with water for a water color surprise.
2. **Get some Hula Hoops!** Great exercise and lots of fun - for extra fun and laughs make sure the teachers show the kids how to use them!
3. **Balls!** Bring out a basket of balls and practice throwing, catching, and kicking.
4. **Dance!** Bring music or instruments outside and dance. Dancing is fun for kids and adults of all ages.
5. **Go for a Rainbow Walk!** Take a walk around the area and find things that are all the colors of the rainbow.
6. **Water Works!** Bring out buckets of water to make mud pies and paint brushes to "paint" with water.
7. **Pretend to be an Animal!** Have the children run like a gorilla, hop like a bunny, slink like a cat, slither like a snake, etc.



8. **Cross the River!** Make "river rocks" from paper plates or pieces of paper and have the children try to "cross the river" only stepping on the "rocks".
9. **Run for Fun!** Running races and relay races are fun for everyone.
10. **Blow Bubbles Outside (and don't forget to chase & pop them)!** You can make your own bubble mixture - just mix together 1 cup of water, ¼ cup of Dawn & 2 Tbsp. Karo Syrup - for extra fun add a few drops of food coloring to the mixture!

And here's a Bonus Idea - **Add an Easy Water Feature!**

A *Sprinkler Hose* is a great, low-cost way to add water fun to your playground this summer. Sprinkler hoses, which can be found in any retail garden center, spray water throughout the length of the hose. For a different effect you can hang the hose in the air allowing the water to mist down!

Time to get outside and have some fun!



LISC

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Drawing on LISC's deep expertise about the unique challenges of developing child care and early learning facilities, and our array of relevant financing and technical assistance tools, we are focused on:

- Assembling flexible capital to address the most pressing market needs
- Delivering technical support to providers and developers to enhance project implementation and to explore innovative approaches and partnerships
- Producing training and resources that introduce innovation and best practice
- Building a platform of support for equitable child care and early learning facility access that engages providers, business leaders, advocates, developers, other CDFIs, funders and policymakers