



inclusive play  
**design guide**

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 inclusive play  
**design guide**

## CONTENTS

<b>Foreword .....</b>	<b>4</b>
<b>■ Design Guide FAQs.....</b>	<b>5</b>
<b>■ Playground Standards.....</b>	<b>9</b>
<b>■ Planning &amp; Preparation .....</b>	<b>13</b>
<b>■ Layout.....</b>	<b>19</b>
<b>■ Access.....</b>	<b>29</b>
<b>■ Play Richness .....</b>	<b>37</b>
<b>■ Selecting Equipment .....</b>	<b>53</b>
<b>■ Support Features.....</b>	<b>61</b>
<b>Glossary .....</b>	<b>68</b>
<b>Playground Surfacing.....</b>	<b>75</b>
<b>Collaborators .....</b>	<b>79</b>
<b>Resources .....</b>	<b>82</b>

## FOREWORD

This Inclusive Play Design Guide (Design Guide) has been developed by a group of recreation, playground, and child development experts as an educational resource to guide the creation of great outdoor play environments for everyone.

According to Article 31 of the United Nations Convention on the Rights of a Child, every child has a right to engage in play. It is a vital part of children's development and a key factor in how they come to understand the world around them. Unfortunately, many children, (and their families, friends, and caretakers) are unable to benefit from play or engage in recreational activity due to the limiting nature of most parks and playgrounds across the country.

As a landscape architect, parks industry professional, or community advocate, you might envision planning a destination that unites and brings joy to people from all walks of life. The first step towards doing that is re-defining the term "inclusive play" and understanding the difference between "inclusive" and "accessible." Established Americans with Disabilities Act (ADA) guidelines demand that all playgrounds be accessible. However, accessible playground designs can, by definition, be limiting. Accessible playgrounds tend to make provisions for those with physical disabilities to get into the playground, but don't focus on other facets of development, impairment, and inclusion with others. An inclusive playground, on the other hand, addresses the needs of all people, including those with developmental disabilities such as autism, and individuals with intellectual, cognitive, sensory, physical, and other disabilities. They focus on changing the environment (rather than the person) while maximizing usability, for everyone, providing variety in challenges for personalized developmental growth.

Inclusive playgrounds can aid in increasing people's acceptance by mitigating biases and stereotypes about those with disabilities and generating ongoing goodwill. People of all abilities can become more confident, build essential skills, meet new people, and learn tolerance and acceptance of others at a young age when at inclusive playgrounds.

To design an outdoor play environment that enriches your community, it is necessary to go beyond the guidelines of accessibility and consider new and innovative ideas. The goal of this guide is to provide basic concepts of inclusive play that will help you generate new ideas. The authors of this document, the Inclusive Play Design Guide Work Group, hope that these ideas will inspire you to build environments that allow better access to play, which in turn will enrich our society.



# DESIGN GUIDE FAQS

## DESIGN GUIDE FAQs

### WHAT IS AN INCLUSIVE PLAYGROUND?

An inclusive playground addresses the needs of all people, including those with developmental disabilities such as autism spectrum disorder and individuals with intellectual, cognitive, sensory, physical and other disabilities, and the support group around them. A well-designed inclusive playground does not detract from, but actually enhances, play value for typically developing children and empowers all people to challenge themselves and develop at an appropriate individual pace.

### WHAT IS THE PURPOSE OF THE DESIGN GUIDE?

To offer inspiration and guidance to support the design of an inclusive, universally designed, outdoor playground.

### WHO IS THE DESIGN GUIDE FOR?

Landscape architects, park and recreation staff, municipal employees, parent/teacher groups, community groups, parents, educators—anyone whose goal is to create a play space in their community for people of all ages, cultures, and abilities.

### HOW TO USE THE DESIGN GUIDE

The Design Guide includes best practices for the planning and development of outdoor inclusive play.

Each of the chapters is divided into several categories. Each category outlines “intents” and “strategies”.

- **Intents = Goals**
- **Strategies = Implementation tactics**

The Intents create a composite picture of an inclusive play space. The identified strategies are suggestions on how to meet each intent.

### THE DESIGN GUIDE IS NOT A RULEBOOK

As a decision maker or designer of a playground, you may choose to emphasize one Intent over another, or create a strategy of your own to achieve an intent not mentioned here. Make these decisions consciously, with an understanding of the tradeoffs and consequences.

### HOW WAS THE DESIGN GUIDE DEVELOPED?

The Design Guide was developed through a consensus-based process led by a group of industry professionals. This diverse group of individuals represents a cross-section of child development, inclusive advocacy, landscape architecture, and playground industry expertise. In addition, the majority of the work groups are parents of children with disabilities. *(See page 79 for further descriptions of the collaborators on this guide.)*

### WHY IS THIS DESIGN GUIDE NECESSARY?

Sometimes during the design process, the very purpose for creating play spaces gets lost in the details of Americans with Disabilities Act regulations, safety standards, equipment selections, and budget restrictions. Far too often, attempts to plan for children with mobility impairments overshadow the necessity of a comprehensive approach that includes social and emotional inclusion, sensory integration, graduating levels of physical and mental challenges, cognitive simplicity, and opportunities for discovery and exploration. Comprehensive inclusive play spaces are only effective when created with an activity-based approach founded on evidence-based research and design.

Regardless of the best intentions, interesting products placed together on the playground do not make it inclusive. Designers must be mindful of the impact individual decisions have on the entire experience. Seemingly small things such as directional signage, the location of sound-making devices, the location and structure of seating, and perimeter fencing, can significantly influence the user experience at a play space.

This Design Guide inspires and educates people on their journeys to inclusive play, enabling individual decisions to be made with an understanding of how those decisions affect everyone.

### WHAT IS UNIVERSAL DESIGN?

Universal Design is a paradigm that emphasizes the notion that if the variability of all users is recognized in the design process, the results become truly universal. The paradigm embodies the configuration of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation (Center on Universal Design, 1997). The intent of UD is to simplify life for everyone by making products, communications, and the built environment usable by as many people as possible at little or no extra cost. People are living longer as a result of medical advances and healthier lifestyles, including people with disabilities. The ability to live independently and with greater safety and ease of existence can be influenced by how we create environments.

## THE SEVEN UNIVERSAL DESIGN PRINCIPLES

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**Principle 1:** Equitable Use. The design is useful and marketable to people with diverse abilities.

**Principle 2:** Flexibility in Use. The design accommodates a wide range of individual preferences and abilities.

**Principle 3:** Simple and Intuitive Use. Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

**Principle 4:** Perceptible Information. The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

**Principle 5:** Tolerance for Error. The design minimizes hazards and the adverse consequences of accidental or unintended actions.

**Principle 6:** Low Physical Effort. The design can be used efficiently, comfortably, and with a minimum of fatigue.

**Principle 7:** Size and Space for Approach and Use. Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

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Universal Design Guidelines 2.0, Center on UD, 1997.



# PLAYGROUND STANDARDS

*“If I have seen further it is by standing  
on the shoulders of giants.”*

**– Isaac Newton**

The Design Guide is meant to add to the knowledge created by advancements in the outdoor play industry. The goal of this section is to raise awareness of these developments and standards.

This Design Guide is designed to be used in conjunction with guidelines and laws that exist to advance inclusion and safety in the playground. Any recommendations made in this guide do not supersede the requirements listed below. Check with local officials prior to designing the playground to ensure the playground design complies with all regulations.

## UNITED STATES GUIDELINES AND LAWS

### AMERICANS WITH DISABILITIES ACT (ADA)

[www.access-board.gov](http://www.access-board.gov)

ADA is a wide-ranging US civil rights law that prohibits discrimination based on disability. Disability is defined by the ADA as “a physical or mental impairment that substantially limits a major life activity.”

**Section 240 of the 2010 Standards** – discusses modifications to existing play components and playgrounds. Provides information on the minimum number and types of play components required.

**Section 1008** – addresses the requirements for accessible ground surfaces inducing accessible routes and turning space.

### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

[www.astm.org/Standards/F1487.htm](http://www.astm.org/Standards/F1487.htm)

[www.astm.org/Standards/F1292.htm](http://www.astm.org/Standards/F1292.htm)

ASTM International, formerly known as the American Society for Testing and Materials (ASTM), is a globally recognized leader in the development and delivery of international voluntary consensus standards.

The standards that must be followed for playgrounds are: ASTM F1487-17 - Standard Consumer Safety Performance Specification for Playground Equipment for Public use, as well as ASTM F1292-17 - Standard Specification for Impact Attenuation of Surface Materials within the Use Zone of the Playground Equipment.

*Other valuable standards to be aware of are:*

**ASTM F2049-11** Standard Safety Performance Specification for Fences/Barriers for Public, Commercial, and Multi-Family Residential Use Outdoor Play Areas

**ASTM F2223-15** Standard Guide for ASTM Standards on Playground Surfacing

**ASTM F3101-15** Standard Specification for Unsupervised Public Use Outdoor Fitness Equipment

### THE U.S. CONSUMER PRODUCT SAFETY COMMISSION (CPSC)

[www.cpsc.gov/s3fs-public/325.pdf](http://www.cpsc.gov/s3fs-public/325.pdf)

The CPSC is charged with protecting the public from unreasonable risks of injury or death from thousands of types of consumer products under the agency’s jurisdiction. They publish the “Public Playground Safety Handbook” Publication #325 - November 2010.

Because many factors affect playground safety, the CPSC staff believes that guidelines, rather than a mandatory rule, are appropriate. The guidelines are not being issued as the sole method to minimize injuries associated with playground equipment, but as one resource to consider.

The Commission believes that the recommendations in Public Playground Safety Handbook together with the technical information in the ASTM standards will contribute to greater playground safety.

Assistance is available from the National Parks and Recreation Association ([www.nrpa.org](http://www.nrpa.org)). They have a registry of local Certified Playground PSIs.

**Some communities mandate compliance with CPSC.**

## CANADA STANDARDS

### CANADIAN STANDARDS ASSOCIATION (CSA)

[www.csa.ca](http://www.csa.ca)

Fifth edition of CSA Z614-14 Children’s Play spaces and Equipment is the current Canadian playground safety standard. The Canadian Standards Association (CSA) has developed the only nationally recognized standard on children’s play spaces and equipment. The CSA Standard provides detailed information about materials, installation, strength of the equipment, surfacing, inspection, maintenance, performance requirements, and access to the playground, play space layout, and specifications for each type of equipment.

The standards are voluntary and are not law. The standards apply to public playgrounds, such as those on school grounds, in parks, or at child care centers or motels. The standards do not apply to private, residential (home) playgrounds or indoor facilities. There is no national enforcement body for playground safety; however, some jurisdictions in Canada have passed regulations requiring public playground operators to ensure that their playgrounds meet the CSA Standard. For example, in some provinces, playgrounds at childcare centers may be required to meet the standard in order for the center to obtain an operating license. The standards are not retroactive and only apply to play spaces and equipment installed after the date the Standard was published. The CSA does not certify playgrounds or specific pieces of play equipment.

In May 2007 the Canadian Standards Association (CSA) released an updated version of its CAN/CSA-Z614 Children’s Play spaces and Equipment Standard. The Standard contained a new landmark accessibility guideline called **Annex H: Children’s play spaces and equipment that are accessible to persons with disabilities**. As a follow-up to the release of Annex H, an interagency coalition created both FAQ sheet and a Guidebook resource to help interpret the guideline.

## EUROPEAN UNION STANDARDS

### EUROPEAN TECHNICAL STANDARDS

[www.en-standard.eu/sets-of-en-standards/](http://www.en-standard.eu/sets-of-en-standards/)

Safety standards related to public playground environments, playground equipment and surfacing standards:

**EN 1176-1:** Part 1: General safety requirements and test methods,

**EN 1176-2:** Part 2: Additional specific safety requirements and test methods for swings

**EN 1176-3:** Part 3: Additional specific safety requirements and test methods for slides

**EN 1176-4, EN 1176-5, EN 1176-6, EN 1176-7, EN 1176-10, EN 1176-11, EN 1177**

## AUSTRALIAN STANDARDS

### STANDARDS AUSTRALIA

Listed below are the current Australian Standards for Playgrounds and Playground Equipment. Australian Standards are copyrighted and can be purchased from SAI Global.

#### Australian Standard AS 4685 Playground equipment and surfacing

- Part 0 – Development, installation, inspection, maintenance and operation
- Part 1 – General safety requirements & test methods
- Part 2 – Additional specific safety requirements & test methods for swings
- Part 3 – Additional specific safety requirements & test methods for slides
- Part 4 – Additional specific safety requirements & test methods for runways
- Part 5 – Additional specific requirements & test methods for carousels
- Part 6 – Additional specific requirements & test methods for rocking equipment
- Part 11 – Additional specific safety requirements & test methods for spatial networks

#### Australian Standard AS 4422: Playground surfacing - Specifications, requirements and test method

#### Australian Standard AS 1428: Design for access and mobility

#### Australian and New Zealand Standard AS/NZS ISO 31000: Risk management - Principles and guidelines

## SINGAPORE

### SINGAPORE PLAYGROUND STANDARDS

#### SS 457: 2017 Specifications for Playground Equipment for Public Use

Provides safety and performance standards for various types of public playground equipment. Its purpose is to reduce life-threatening and debilitating injuries. Does not include home playground equipment, toys, amusement rides, sports equipment, fitness equipment intended for users over the age of 12, public use play equipment for children 6 to 24 months, and soft contained play equipment

#### SS 495: 2001 Impact attenuation of surface systems under and around playground equipment

Specifies requirements for surfacing to be used in children's playgrounds and specific requirements for areas where impact attenuation is necessary. Standards suggest the factors to be considered when selecting playground surfacing and gives a method of testing by which the impact attenuation can be determined. This test gives a critical fall height for surfacing that represents the upper limit of its effectiveness in reducing head injury when using playground equipment conforming to specific provisions are included for performance requirements for impact absorbing playground surfacing and the relevant methods of test. The following are covered:

- (a) the ability of the surface to resist abrasive wear,
- (b) the slip resistance of the material;
- (c) the ability of the material to resist indentation by point loading and to recover from sustained loading;
- (d) the response of the material to a particular source of ignition.

**Check with local officials prior to designing the playground to ensure the playground design complies with all regulations.**



# PLANNING & PREPARATION

*“My name is **Michael Verseman**. I am a landscape architect at Land Design, Inc. in Billings, MT. Our landscape architecture firm collaborated with an accessibility consultant for an Accessible Playground and Miracle Field in Billings. Our accessibility consultant's perspective was invaluable in providing overarching design principles and critical feedback throughout the Master Planning process. The insights gained from our discussions with the consultant and the local special needs community opened our eyes to the challenges faced by families living with disabilities. We learned how we can remove barriers for families with disabilities using our local parks and playgrounds. This approach relates to a spectrum of disabilities and how we can best serve the specific physical needs of each individual to provide them with a fun space. It is far more holistic than simply checking off ADA compliance boxes! **This was the first accessible park that I have been a part of professionally, and I can say it was both eye-opening and life-changing. The principles I learned while being a part of this unique project have gone with me to other areas of my practice and continually play a role when I consider design solutions.**”*



# PLANNING & PREPARATION (PP)

**DEFINITION:**

This section contains ideas for the community-based work of planning and building an inclusive playground.

**INTENT:**

To provide resources to assist a group in planning an inclusive playground.

Building an inclusive playground can be a daunting undertaking; it is much more than selecting equipment. There is fundraising, community organizing, selecting the best location, working with community groups and government agencies, designing the playground and its environment, and marketing. Get as much help as possible.

PLANNING & PREPARATION		
PLANNING & PREPARATION CONTENTS		PAGE
PP-1	Planning Committee.....	15
PP-2	Gathering Information .....	16
PP-3	Expert Help.....	16

## PP-1 | PLANNING COMMITTEE

**INTENT**

A planning committee increases the likelihood of success by distributing responsibilities, increases the diversity of ideas, and increases the chances of buy-in by user groups, financial supporters, and the surrounding community.

**STRATEGIES**

Consider including these people on the planning committee:

- People with disabilities as well as parents of children with disabilities
- Accessibility expert
- People from the neighborhood
- Site professionals such as landscape architects
- Local government officials
- Playground professionals
- The owner of the land
- Parents of typically developing children
- Personnel and parents from local schools (serving children with and without special needs)
- Non-profit organizations that work with children and adults who have disabilities
- People who will be responsible for maintenance once the playground is open
- Friends of Parks groups and programs
- Local service groups (Rotary, Lions, Kiwanis, etc.)
- Representatives of county ID/DD committees
- Members of Wounded Warriors (US)
- Representatives of first language groups (AUS) and/or other cultural groups
- Experts in financial management, fundraising and construction
- Other stakeholders—whose agreement is desired or needed

Between the parents, accessibility experts, school personnel, and nonprofit workers, try to diversify the collective expertise in at least the following disabilities: visual impairment, hearing impairment, autism/SPD, mobility impairment, and cognitive disabilities.

## PP-2 | GATHERING INFORMATION

### INTENT

Gather as much knowledge as possible from people who have built an inclusive playground and and/or who have expertise in disabilities.

### STRATEGIES

There are many non-profit organizations that work with communities in a variety of ways, from providing resources and expertise in developing a playground project to working with you from the beginning of the project to the end. See the resource section of the Design Guide for a list.

There are websites that provide detailed information about developing playground projects. KaBOOM! has a comprehensive toolkit for developing a community-build playground. See the resource section of the guide for more ideas.

Talk to a local playground equipment manufacturer representative for a list of resources available.

Visit as many playgrounds as you can. Speak with the committee who led those efforts and get their input on lessons learned and what efforts yielded the best results. Visit [accessibleplayground.net](http://accessibleplayground.net) for a directory of inclusive and accessible playgrounds near you.

Social media is also an amazing tool that can be used to connect with a network of individuals who have collaborated on similar projects.

## PP-3 | EXPERT HELP

### INTENT

People with no previous experience can achieve wonderful things. However, the selective use of experts can smooth the path, reduce the project timeline, reduce stress, increase project quality, and reduce on-site problems. For medium to large projects, the following professional specialties will add value. For small to medium projects, playground sales reps that have been trained in inclusive play can work with you on your design.

### STRATEGIES

Hire a landscape architect. They understand the site's complexities and the relationship between site restraints, design, construction, maintenance, regulations, and the cost of outdoor play spaces. A landscape architect can help you generate creative ideas with a technical understanding. A landscape architect can serve as project managers, coordinate meetings, involve the appropriate stakeholders, understand most government regulation processes, and even supervise construction activities. A landscape architect can offer guidance and support in a variety of ways throughout the life of your project. American Society of Landscape Architects (US) [www.asla.org](http://www.asla.org)

Hire an expert in the design of play environments for children with disabilities. Such a person is going to have knowledge about many different types of disabilities and how playgrounds can be designed to enrich play for many different children. This expert will most likely be well versed in accessibility standards and laws and know the latest developments in playground design. (See resources section for direction.)

Municipality staff can help navigate the permitting process, community engagement, long-term maintenance issues, and recreational programming.

## WORKSHEET #1 Check the items below that apply to your project.

Review to determine the missing voices and opinions. Then figure out how to include those voices: invite them to join the planning committee, provide personal invitations to community meetings, and have one-on-one meetings to discuss the concept and design. There are many different ways to gather input and ensure that many people feel they have a stake in your project.

### WHO IS ON YOUR TEAM? ARE YOU INCLUDING ENOUGH VOICES?

	NAME(S)
Landscape architect	
Inclusion expert	
Accessibility or ADA expert	
Owner of property	
Parents of children on the autism spectrum	
Parents raising children with cerebral palsy, spina bifida, or another disability that affects mobility	
Neighbors	
Adult with disability	
Special education teacher	
Physical therapist	
Occupational therapist	
Government officials	
Parks and Recreation representative	
Parks maintenance supervisor	
Parent raising a typically-developing child	
Children	
Teenagers	
Politicians	
Expert, whether parent or educator, in visual impairment	
Expert, whether parent or educator, in hearing impairment	
Expert, whether parent or educator, in cognitive disabilities	
Potential funders	
Other stakeholders	



# LAYOUT

Yvonne's daughter DeeDee has autism. Like many children with autism, DeeDee elopes, or runs away, from certain situations.

**Yvonne:** *I don't feel safe going somewhere unless there's only one way in and out. I also have a 3-year-old and I have to watch them both, so unless there's a fence, I can't take them by myself. Even when there's another adult, I feel more comfortable if there's a fence. It isn't that I'm not watching her; she's right there and then she's gone. We drive 25 miles or so to go to a playground that's fenced even though there's a playground minutes from where we live.*



# LAYOUT (LA)

**DEFINITION:**

The placement and relationship of events & activities on the playground and the surrounding environment to maximize inclusion.

**INTENT:**

Provide people of all abilities inclusive access and the opportunity to move to and throughout the play space safely, predictably and independently.

LAYOUT		
LAYOUT CONTENTS		PAGE
LA-1	General Layout .....	21
LA-2	Entry way and Orientation .....	22
LA-3	Wayfinding .....	22
LA-4	Perimeter Containment .....	23
LA-5	Orientation Path .....	25
LA-6	Zones .....	26
LA-7	Color as a Safety and Wayfinding Tool.....	26
LA-8	Gathering Spaces .....	26
LA-9	Line of Sight .....	27
LA-10	Landscaping .....	28

## LA-1 | GENERAL LAYOUT

**INTENT**

Design the experience to maximize everyone’s enjoyment of the facility, to ensure safety and independent use, to encourage play between people of different abilities, ages, cultures, and genders, and to minimize unpredictability.

**STRATEGIES**

- Choose the unitary surfacing that best meets the needs of playground users. **(See AC-1)**
- Create an entry experience for the play space. **(See LA-2)** Place the entry way so users and caregivers can move directly onto the orientation path.
- Develop a wayfinding system to help people easily navigate the play space. **(See LA-3)**
- Install perimeter containment. **(See LA-4)**
- Arrange play events/activities as a series of zones around the path. **(See LA-6)**
- Place equipment so that it can be reached by children with different reach ranges. **(See AC-2)**
- Intersperse gathering spaces and quiet areas with play activities. **(See LA-8 And PR-15)**
- If using a play system that is relatively opaque, place it in the back or corner of the play space. This minimizes the amount of the play space where a child cannot be seen. **(See LA-9)**
- Create an orientation path. **(See LA-5)**
- Provide extra open space throughout the playground. Some children require more room to maneuver around play events. For instance, children who are using a mobility device need extra space to make turns easily and wheel themselves into proper position to transfer onto a play event. The extra space will also accommodate adults who may be assisting a child. Children who are visually impaired need extra space to play independently without risk of entering a fall zone. The extra space also supports children with poor balance, tactile sensitivity, or who have trouble understanding where their bodies are in space.
- Hire a landscape architect to help meet these intents. **(See PP-3)**

## LA-2 | ENTRY WAY & ORIENTATION

### INTENT

Allow people to orient themselves to the playground without being immediately thrust into the activities and stimuli. This will be particularly important for a child or caregiver on the autism spectrum.

The area at the entrance of the playground should be designed to familiarize individuals with the layout, features, and activities before they arrive in the play space. This will minimize surprises for some individuals, surprises lead to crises.

### STRATEGIES

The foyer of a home or office is a space that allows people to acclimate to the environment before they are engaged in the activities on the premises. This entry portal in a playground is a good place to welcome people, thank sponsors, set expectations, and point out emergency procedures.

- Maintain a low level of visual and auditory stimuli.
- The soothing and orientation effects of landscaping can be used here to good effect.
- Keep a clear line of sight from the entryway to the play space and parking lot so a caregiver can quickly identify where a child goes, if they do not stop in the entryway.
- A map of the playground that shows its major features and pathways.
- Seating is appreciated in this area.

## LA-3 | WAYFINDING

### INTENT

Allow each person to maneuver through the play space regardless of their motor, cognitive or sensory abilities.

Create consistent multi-sensory signals and cues in the play space and surrounding environment. This will help children with differing cognitive and sensory systems to be guided through the play space by sight, sound, touch, and body spatial awareness.

According the IDEA Center at the University of Buffalo, USA, “Wayfinding is the organization and communication of our dynamic relationship to space and the environment. Successful design to promote wayfinding allows people to:

- (1) determine their locations within a setting,
- (2) determine their destinations, and
- (3) develop plans that will take them from their locations to their destination.

The design of wayfinding systems should include:

- (1) Identifying and marking spaces,
- (2) Grouping spaces (LA-6 zones), and
- (3) Linking and organizing spaces through both architectural and graphic means.

### STRATEGIES

- Provide an accessible tactile map of the area. A tactile map is a 3D, raised schematic map. Tactile maps are widely used as a wayfinding mechanism for people with visual impairments, but they can also be helpful for people who do not know how to read or are non-English speakers. The tactile map helps children and their parents or caregivers discuss places to visit and activities to try and ways to approach these features. Maps also help children and their caregivers anticipate problem areas and enable them to strategize alternative routes through the playground.

**(See resources for additional information.)**

- Use signage to direct people to specific resources in the play space, such as water fountains or restrooms. Use large letters with contrasting colors as well as pictures or universal (non-reader) symbols on the signage. The signage can also contain raised letters or braille to assist people with visual impairments. **(See SU-8 Signage Visibility for more information)**
- Create a hierarchy of paths using surfacing materials to direct someone around a space. Consider changing materials, colors or textures on paths that are consistent across the site to communicate consistency of purpose.
- Use consistent surfacing colors to depict quiet or busy areas or designate one color around the equipment to show where the equipment use zones are and another color throughout the rest of the playground.
- Use safe and non-toxic landscaping features such as shrubs, ornamental grasses, and rock that provide texture, smell, and color unique to each area of the playground to guide users around the play space, allowing for sensory interaction and opportunities for self-directed exploration.
- Use identifiable landmarks in each space
- Use auditory orientation cues to help children and caregivers with visual disabilities. If the playground is large, consider creating a signature sound for each zone of the play space.
- Mow pathways across lawns to direct children around an otherwise featureless area of grass.
- Place tactile indicators at entries to help children find where they would like to play.
- Place audible communication for children who are hard of hearing in quieter places on the playground.



## LA-4 | PERIMETER CONTAINMENT

### INTENT

Allow children to play freely without risk of running into nearby dangers, such as traffic. This becomes particularly important for children with autism spectrum disorders (ASD), who have a tendency to elope. Fences have a calming effect for children with ASD, as large spaces often make them run. All children learn to understand boundaries.

### STRATEGIES

#### Perimeter

- Create a perimeter boundary around the entire play space with only one or two entrances. Create a perimeter using walls, fences, landscaping, or topography. Do not use water as part of the perimeter (although water is encouraged in the play area).

- Provide double-width gates for maintenance access. **FYI: the CPSC handbook discourages gates. Check with local officials for regulations in your community.**
- Avoid horizontal components that can be climbed on or create entrapment spaces.
- Use materials and colors that can be seen in poor light and by people with visual impairments. Cables or wires are poor choices.
- Provide seating near fence openings to make supervision easier for adults. **(See SU-1)**
- Make the fence a playful feature of the space.
- Have a few clearly identifiable fence openings. The location and direction of the orientation path will help identify these openings. The caregiver can go to those points and watch for their child, knowing they are somewhere in the play space.
- Prioritize fences and planting choices which allow for surveillance across the playground.
- Fences can also be an opportunity for sponsor/donor recognition.
- Add a self-closing gate.

#### Gates

- Some inclusive playgrounds have gates at all entryways to ensure completion of the perimeter.
- Choose gates that are difficult to open by a child but can be operated by an adult using a mobility device. This ensures that a child cannot leave without adult help. **FYI: the US CPSC handbook discourages gates.** Check with local officials for regulations in your community.



Photo credit: Jacksons Fencing [www.jacksons-security.co.uk](http://www.jacksons-security.co.uk)

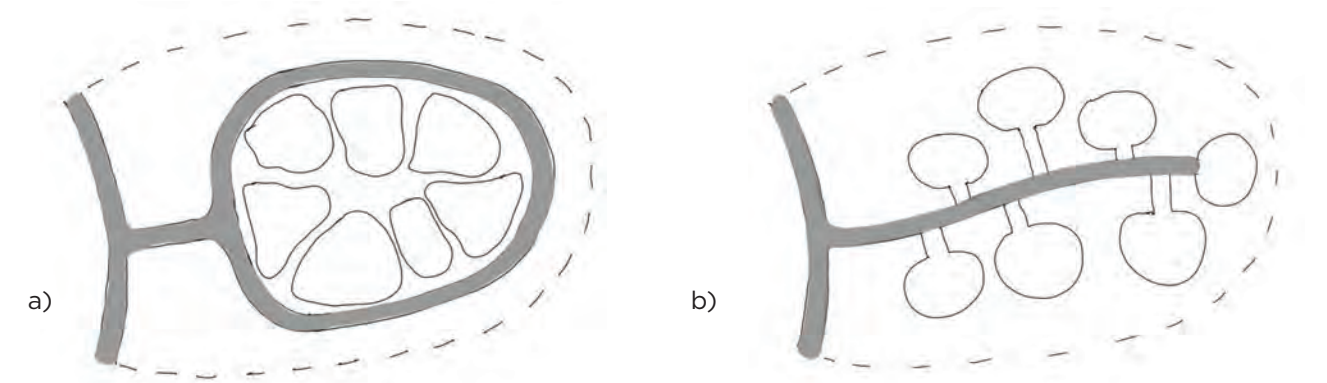
## LA-5 | ORIENTATION PATH

### INTENT

Allow users to observe play experiences before engaging with them, and to assess the amount of physical and social contact they can expect. Provide direction to users through the play space. Children who have an autism spectrum disorder (ASD) or those with a sensory processing disorder (SPD) may benefit from a spatial arrangement that allows them to move to a safe zone—the orientation path—if their anxiety rises. They will still be able see the activity, which may increase their confidence to re-enter the play area or choose a quiet area.

### STRATEGIES

- As a significant component of the wayfinding scheme, an orientation path surrounding the play area, allows users to survey the different activities without engaging in them and to decide whether to participate or not.
- The path should be a firm, accessible, even, and predictable surface comprised of materials such as asphalt, concrete, or pavers. Playground surfacing material such as Poured-in-place could also be used to create the path.
- Place the path in one of two ways:
  - a. Surrounding the play equipment.
  - b. As a central spine from which the zones **(LA-6)** originate.



- Make the path wide enough (72" minimum is recommended) so that two people using mobility devices can easily pass one another.
- The path should be free of barriers and offer a clear line of sight. Benches should not encroach on the path. Set seating back far enough to prevent the feet and personal items of those sitting from blocking the path.
- The construction of the path should be consistent (colors, textures, and cues). Predictability is key.
- Do not place any play activities or artwork on the orientation path.
- Delineate where the path ends and the play area begins by providing a visual or tactile cue (e.g. place a bright yellow strip at the edges or change the texture at the edges of the path.)

## LA-6 | ZONES

### INTENT

Divide the larger playground into areas that allow for delineation of activities. Example: separate vigorous play from quiet play zones.

Many of the goals discussed in Play Richness are best achieved through clearly identifiable play zones.

### STRATEGIES

- Locate distinct play zones directly off the orientation path.
- The zones can be defined by a path, surfacing, seating, landscaping, or the equipment itself. Landscaping can include boulders, level changes, low walls (sitting height), plantings, grassy areas etc.
- Determine the number of zones and their relative size by dividing the desired activities and equipment into the categories discussed in Play Richness.
- Consider levels of sensory input when determining zones.

**Note:** Do not mix play activities in a zone.

## LA-7 | COLOR AS A SAFETY AND WAYFINDING TOOL

### INTENT

Color can be an important tool for wayfinding and safety since color contrasts guide usability by making elements easier to identify.

### STRATEGIES

- Use high contrast colors between the equipment and orientation path.
- Modular systems: Height changes can be difficult to see; accentuate them by using a different deck color at each height change.
- Surfacing: Use two different colors of surfacing material; one color within the fall zones and one color outside the fall zone. This will help a child to determine where the risk may be greatest. Use light colors, as dark colors on the ground surface may be seen as holes in the ground.
- Include the intention of the color scheme in wayfinding tools. Never use color as the only wayfinding tool.
- To help people who have trouble distinguishing between colors (10% of males are color blind), choose colors that are light-dark opposites.
- Consider associating specific colors for specific uses (ex. red for moving elements, blue for water sources.)

## LA-8 | GATHERING SPACES

### INTENT

Construct gathering spaces to encourage people to use the playground as a meeting point. This builds community spirit, social confidence, legitimizes adults in the playground, improves supervision of children in the play space, and reinforces the role of the playground as a community resource.

Using the play space as a community resource increases support for the facility, which increases the potential for fundraising and resistance to budget cuts that may target resources not seen as widely endorsed.

Using the playground as a meeting space also increases the chances that people of different abilities will be engaged by others, increasing acceptance.

### STRATEGIES

- Incorporate zero-step entry gazebos and pavilions in places where parents can see their children while socializing with their peers.
- Use seating, grouping of play items (e.g. play boulders), or other landscaping techniques to create gathering places throughout the play space.
- Shade gathering places to increase the chances of extended use in hot weather.
- Incorporate site amenities such as seating, water fountains, and trash cans to increase the likelihood of people gathering. **(See Support Features section.)**
- Consider a variety of scales for larger and smaller group gatherings.
- Consider location of surrounding activities and locate in areas away from high noise levels or activity. **(See Support Features section.)**

## LA-9 | LINE OF SIGHT

### INTENT

Maximize parental supervision of children using the playground. This is particularly important when children who have a tendency to become over-stimulated run from the source of the stimulation, possibly away from the caregiver. It is also important when a caregiver is responsible for multiple children.

A caregiver should be able to stand at almost all points on the playground orientation path and see their child. If there are many play zones within the playground, the line of sight should cross each play zone, allowing a caregiver to easily locate their child within the zone.

### STRATEGIES

- Maximize the use of equipment that one can see through and minimize the use of large equipment that blocks visibility.
- Place modular systems toward the rear of the play space.
- Line of sight is significantly improved if the space is broken into zones that can be supervised individually.
- Place seating at multiple points around the area and at each entrance and exit. It is important to provide seating at a variety of distances from the activity areas. Some children will require more assistance in the play areas than others. Thus, it is important to provide some seating closer to the play area so the caregivers can relax while the children are able to play, but be immediately available when necessary.
- Emphasize freestanding independent items over consolidated modular structures. These do not guarantee visibility but are usually less opaque than a modular structure.
- Lay out events to maximize visibility across structures and spaces.

- Enable the caregiver to view the play area exit and entrance, or, in larger playgrounds, at least the section in which they are playing.
- Avoid using high walls or dense, tall planting to delineate the zones.
- Through the use of scale, create spaces that allow children to feel like they are hidden and independent while still allowing for adequate observation.

## LA-10 | LANDSCAPING

### INTENT

Use plantings to soften the look of the playground, help define zones where play equipment is located, and create shade.

### STRATEGIES

- Select a landscape architect with experience in inclusive play environments to develop a complete design for the play space.
- Try to envision what the play space will look like when the plantings are put in the ground and ten years afterward. At any time in this growth cycle, the landscaping should not block routes or impede persons with disabilities.
- Make sure landscaping materials do not include poisonous materials that children could ingest or come in contact with. While the landscaping plan should include a variety of textures, do not use any material that has thorns, is sharp, sticky, or have other textures that might hurt someone running into it. Avoid plants that pose a choking hazard (e.g. berries, nuts). Avoid plants on the high allergy scale. **(See PR-14 for information on interacting with natural features.)**



Photo credit: Fiona Robbe Landscape Architecture <https://www.architectsofarcadia.com.au/>



# ACCESS

Laurie and Leah were involved in building an inclusive playground in Westerville, OH. Leah has Spina Bifida and uses a wheelchair.

**Laurie:** *For someone who uses a wheelchair or walker, the poured rubber surfacing makes it very easy to get around the playground. It is truly the only surfacing that's accessible. Mulch [Engineered Wood Fiber] is listed as ADA accessible, but it's not practical or functional. It's like quicksand for someone in a wheelchair.*

**Leah:** *It's really hard work to push my wheelchair through mulch. My wheels get stuck and I can't go anywhere.*



# ACCESS (AC)

**DEFINITION:**

The design of the play space and surrounding environment as it relates to the users and caregivers getting into, around, and out of the play area.

**INTENT:**

Provide people of all abilities access and equitable opportunity to move throughout the play space safely and independently.

ACCESS		
ACCESS CONTENTS		PAGE
AC-1	Unitary Surfacing .....	31
AC-2	Reach Ranges.....	31
AC-3	Width .....	32
AC-4	Flush Transitions (Surfacing).....	33

## AC-1 | UNITARY SURFACING

**INTENT**

Impact attenuation surface is the safety surfacing surrounding playground equipment. Although the ADA allows loose fill such as engineered wood fiber or rubber pieces, to be used in an ADA compliant playground, from an inclusivity perspective, loose fill has disadvantages.

- (1) It is almost always difficult to move a mobility device across this type of material.
- (2) When not maintained it can eliminate smooth transition from one type of surfacing to another.

Some children have a tendency to put loose materials in their mouths. It is best to use unitary surfacing in inclusive playgrounds.

**STRATEGIES**

For the purpose of this guide, poured-in-place rubber, rubber tiles, playground turf, and some other hybrid surfacing materials are considered unitary surfacing.

- Visit playgrounds in the area with different surfaces. Ask the playground owners how the surfacing has worked and how much maintenance is required.
- Meet with multiple vendors of different type of surfacing. Ask about warranties and expected life of the surfacing. Who does the installation, whether they are certified by the manufacturer, and how much experience they have with a particular product under consideration.
- Require the surfacing supplier to provide test data for unitary surfacing.
- Require the installer to conduct impact attenuation tests after the material has been installed to ensure that it delivers the required performance for the adjacent equipment.
- Check that the surfacing is IPEMA (International Playground Equipment Manufacturers Association) certified by visiting [www.ipema.org](http://www.ipema.org)
- Plan for shade as these surfaces can get hot in some geographic locations.
- Avoid black when possible to limit heat absorption.
- Plan for long-term maintenance as this material is not maintenance free.
- Remember that diversity in surfacing can also be beneficial to the play value.

See playground surfacing FAQ on page 75 of this guide.

## AC-2 | REACH RANGES

**INTENT**

Interacting with play events and landscaping is critical to a child’s engagement. Research has demonstrated that it is not enough for a child to see events—they must also be able to touch them in order to be engaged. All children should be provided the opportunity to interact at their pace, with play events, wayfinding signage, and tactile features with their hands.

Since most children need to touch the object they are interacting with, a child’s functional ability will be more of a determinant than their age with regard to what they can touch and manipulate in the play environment. It is important to place objects in the reach ranges of all children, not just the typically developing child.

### STRATEGIES

- Place play panels, landscaping, telescopes, water tables, sand tables, tactile signs, drinking fountains, etc. at varying heights to accommodate children at different sitting and standing heights.
- Include multiple pieces of the same equipment at different heights; for example, put two telescopes at different heights on a deck. Lower monkey bars to provide proprioceptive input.
- Ensure that a child who is using a wheelchair can access the play events and signs by rolling under them, as reaching forward is more enjoyable and doable than reaching to the side to play.

These reach recommendations were developed using The Gross Motor Function Classification System (GMFCS), which is used to generate standards for accessibility measurements.

#### ASSUMPTIONS AND APPROPRIATE REACH RANGES

	6 YR OLD	10 YR OLD
Upper reach range	38.3"	43.5"
Lower reach range	19.4"	21.1"



### AC-3 | WIDTH AND SLOPE OF ACCESSIBLE ROUTES

#### INTENT

Build accessible routes throughout the play space. Ensure that people using mobility devices strollers, and/or children who do not like to be touched have enough room to pass each other while using the play space. The playground can also help children grow beyond their limitations, so a mixture of passage widths within the play space will provide choice and play richness.

#### STRATEGIES

- Consider the play environment as a small city. Which routes need to be arteries that connect one side of the city to another? Which ones have less priority? Which areas are the equivalent of sleepy, quiet neighborhoods where a highway would destroy the intent?
- Entry and exit onto all accessible routes must be a minimum of 60" (US ADA law). A 72" width allows two wheelchairs to pass each other and we recommend that where possible.
- The available room around play components should allow a person in a wheelchair and their ambulatory companion to play adjacent to one another.
- Provide elevation change, but when possible design all walkways to be less than a 5% grade so there will be no "ramps." This provides the most navigable walkway possible but with the excitement of being in an elevated position.

**Note:** Review the ADA sections that discuss accessible routes: **Chapter 4 - Outside the play space, Chapter 10 Section 1008.2 – Within the play space.**

### AC-4 | FLUSH TRANSITIONS (SURFACING)

#### INTENT

Allow people who use mobility devices to move freely and safely by providing flush transitions to all areas of the play space and surrounding area.

#### STRATEGIES

- Transitions must be flush between all route surfaces and play surface access points. ADA requires no more than ¼" difference in height between adjacent surfaces.
- Play surface connections must have tight seams throughout the play space. There should be no barriers or trip hazards between sections of play space that would impede a user of a mobility device.
- To ensure this occurs:
  - Perform an accurate topographic survey prior to design.
  - Include these surfacing requirements in the bid/contract documents.
  - Hold the contractor accountable by monitoring execution.
  - Transitions between surfaces often indicate the end of one contractor's work and the beginning of the work of another. The quality of the communication between contractors will be a major determinant in the quality of the surface transition.



## WORKSHEET #2

### ADA CHECKLIST

**Definition of terms used in this checklist:**

**Individual play event:** One piece of equipment (slide, climbing structure, steering wheel, etc.)

**Transfer Station:** Part of a composite structure where an individual can get out of his/her mobility device and onto the playground equipment.

**Ramp:** Part of a composite structure where an individual can access equipment by moving up an inclined slope without leaving their mobility device.

**Accessible route:** Continuous unobstructed path connecting all accessible elements and spaces. Exterior accessible routes may include parking access aisles, curb ramps, crosswalks at vehicular ways, walks, ramps, and lifts.

Check the items below that apply to your project.

I. ROUTES	
The play area has an accessible route that enables a child to move from the building, parking lot, or area outside of designated play environment to the edge of equipment area. The route is at least 36 inches wide, and the maximum slope is 1:12 (US).	
The play area has an accessible route that enables a child to move from the edge of the play area to the equipment. In the US the accessible route must be at least 60 inches wide, with a maximum running slope of 1:16, a maximum cross slope of 1:48, and a minimum of 80 inches overhead clearance.	
Within the play area, the safety surfacing complies with ASTM F 1292-99 or -04 Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment when located within the use zone for proper impact attenuation.	
All accessible routes within the play area have clear floor or ground spaces at play components that are required to be accessible, and turning spaces must comply with ASTM 1951-99 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.	
The accessible routes are free of protrusions, debris, toys, and other impediments.	

## II. ACCESS TO GROUND LEVEL EQUIPMENT

Are there ground level structures in the play area (e.g. playhouses, swings, play panels, etc.)? If 'no' move to next section.

YES NO

If yes, how many elevated individual play events are present? \_\_\_\_\_

There is one type of ground level play event on an accessible path.	
Play tables are at least 24 inches high, a minimum depth of at least 17 inches, and a minimum width of at least 30 inches. The maximum top of a playing surface shall not exceed 31 inches.	
Accessible manipulative and interactive sensory and communicative components are at reach-range heights between 18 and 44 inches for the 5- to 12-year-old user group and between 20 and 36 inches for the 2- to 5-year-old user group. (See Reach Ranges AC-2 for more explanation)	
Ground-level upper-body equipment (e.g. monkey bars) intended for use by a person using a mobility device must be less than 48 inches above protective surfacing.	

## III. ACCESS TO ELEVATED EQUIPMENT

Are there elevated play components? (If no, checklist is complete.)

YES NO

If yes, how many elevated individual play events are present? \_\_\_\_\_

There is a transfer system or ramp for elevated structures with less than 20 individual play events or there is a ramp for elevated structures with more than 20 individual play events.	
There is an accessible pathway to the transfer station/ramp.	
The equipment meets the elevated to group equipment ratio.	

NUMBER OF ELEVATED PLAY EVENTS PROVIDED	NUMBER OF GROUND LEVEL COMPONENTS REQUIRED ON ACCESSIBLE ROUTE	NUMBER OF DIFFERENT TYPES OF GROUND LEVEL COMPONENTS REQUIRED ON ACCESSIBLE ROUTE
2-4	1	1
5-7	2	2
8-10	3	3
11-13	4	3
14-16	5	3
17-19	6	3
20-22	7	4
23-25	8	4
More than 25	8 plus 1 for each additional 3 over 25, or fraction thereof	5

Source: U.S. Department of Justice's ADA Standards for Accessible Design, 2010



# PLAY RICHNESS

“My name is **Carol Tabas**. I have a 34-year-old son who uses a wheelchair. When he was young there was very little for him to do at a playground. He would have loved to play on a piece of equipment, like an accessible glider. Even as an adult he would probably love to try it and experience the movement. At this point, it's too difficult to transfer him to other types of swings to experience motion. *With this type of glider, I can roll him right on. Let's allow the next generation of kids be able to play together, no matter their differences.*”



# PLAY RICHNESS (PR)

## DEFINITION:

The quantity, quality, diversity, and inter-relationships of play events on the playground.

## INTENT:

Provide a rich, inclusive play space where children of all abilities can grow and learn through physical, sensory, and social experiences.

We divide Play Richness into three categories: Physical, Sensory, and Social/Cognitive Play.

When selecting play equipment and activities, include strategies from each of the three play categories. Each type of play is crucial to a child’s development. Having a mixture of categories will help create an exciting, more inclusive playground. Use caution when designing play elements so that one type of play is not the focus.

## SELECTING EXPERIENCES:

**Physical:** Choose which physical play experiences you want on the playground. For example: rocking and sliding. Choose 2-3 pieces of equipment/activities within each play experience. **Note:** At the end of this section is a list of how to think about different challenge levels.

**Sensory:** Choose a wide variety and depth of sensory experiences. Sensory systems include: tactile, auditory, visual, smell, taste, vestibular and proprioceptive. There is also new discussion about an eighth sensory system. Interoceptive System deals with the sensations of the internal organs. Interoceptive is not covered in the 2019 version of the Inclusive Play Design Guide. The vestibular and proprioceptive sensory systems are covered in the physical play section. There are definitions of all of the sensory systems in the glossary.

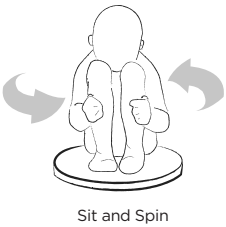
**Social and Cognitive:** The cognitive forms of play in this guide are based on cognitive stages developed by Jean Piaget, a developmental psychologist. The forms of social play are derived from Mildred Parten’s theories and classifications of play. Social play is critical to the success of a playground. For some children, socialization comes easily; for others, especially some children with disabilities, it does not. Therefore, it is crucial to design spaces with specific activities and equipment that encourage children to play with one another.

PHYSICAL		
PHYSICAL CONTENTS		PAGE
PR-1	Spinning .....	39
PR-2	Sliding .....	39
PR-3	Rocking .....	40
PR-4	Swinging .....	40
PR-5	Climbing, Crawling & Strengthening .....	40
PR-6	Balancing .....	41
PR-7	Jumping and Bouncing .....	41
PR-8	Walking, Running and Rolling .....	42
PR-9	Movement from a Wheeled Mobility Device .....	42

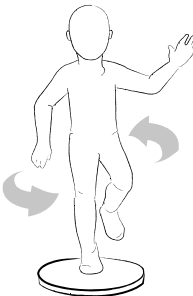
## PR-1 | SPINNING

### INTENT

Address the vestibular system by providing activities that rotate the user’s body. When children spin, different parts of the brain are stimulated simultaneously. This builds new, more advanced pathways throughout the brain that improve learning potential, spatial awareness, rhythm, and more. Spinning activities develop the brain in such a way that pre-reading concepts are advanced while improving balance, muscle control, and gross motor skills.



Sit and Spin



Stand and Spin



Lay and Spin

### STRATEGIES

- Choose pieces of equipment that allow children to sit and spin, stand and spin, and lie and spin. This could mean three different pieces, or one piece could provide the ability to play in different positions. For example: a child could sit, stand, or lie on a group spinner.
- Provide challenge by choosing spinning equipment with and without hand holds. (See challenge level explanations for further ideas.)
- Choose spinning equipment where a child can support themselves with multiple touch points.
- Provide a choice of equipment – an individual spinner has a purpose in a playground as well as a group spinner.
- Provide graduating levels of difficulty

(See glossary for an explanation of multiple touch points)

## PR-2 | SLIDING

### INTENT

Offer the experience of a ‘modified fall’ through space and the thrill of perceived risk while alerting the vestibular system and sense of balance.

### STRATEGIES

- Provide slides at a variety of heights. For example: 4’, 8’, and 12’.
- Include at least one slide that allows two people to be side by side.
- Provide a wide slide so a caregiver can support a child going down the slide. This should not be so wide that a caregiver can’t reach the side of the slide for balance.
- Choose different types of slides: roller, tube, textured, curved, straight, hill, spiral, etc.
- Have at least one slide that does not create static electricity (i.e. a slide made out of stainless steel or aluminum) for people with a cochlear implant.
- Provide a place for a person with a mobility device to sit while their chair is being retrieved. (See SE-3)
- The tallest slide should be accessible via a ramp or an accessible path\*. (See SE-1)



*\*This has been debated as best practice in Australia since very young children can access slides and other activities they are not ready for.*

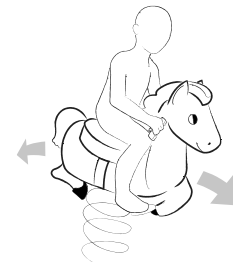
## PR-3 | ROCKING

### INTENT

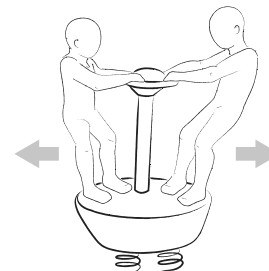
Activate or calm the vestibular system by moving the body in a rocking motion.

### STRATEGIES

- Include at least one piece of equipment that provides a to-and-fro motion, and another one that provides side to side motion.
- Include multiple pieces of rocking equipment to support children in a variety of positions: sitting, standing, and lying.
- Include at least one rocking piece of equipment intended for individual play and another intended for multiple children.
- Include postural support through a backrest, footrests, and hand support on the rockers.
- Include rockers with a longer, deeper seat to allow a child to sit in front of an adult.
- Provide adult-sized seats on a few pieces of equipment to allow older children and adults to use them.



Rocking Front-to-Back



Rocking Side-to-Side

## PR-4 | SWINGING

### INTENT

Address the vestibular system by providing various swinging events.

### STRATEGIES

- Provide an adapted swing with harness and other types of adaptive swings.
- Consider a variety of swings and swing sizes – e.g. a belt swing, group swing, basket swing, or intergenerational swing.
- Include a swing which provides a full body experience and physical support when a child lies on it—e.g. a bird nest swing.
- Swings that allow the child to participate while in a wheelchair are also options. These swings may need to be locked or within a separate fenced area. Check with local officials and the manufacturer for requirements and recommendations.
- Consider to-fro swings as well as 360 degree movement.

## PR-5 | CLIMBING, CRAWLING & STRENGTHENING

### INTENT

- Address the proprioceptive system by providing activities that allow for the contraction and stretching of muscles as well as bending, straightening, pulling, and compression of the body's joints.
- Improve motor skills such as power balance, coordination, strength, and dexterity.

### STRATEGIES

#### Climbing

Provide at least two challenge levels for climbing. If climbing activities are selected, a Level I event must be included to challenge the users who have limited strength.

#### Crawling

Provide at least two activities that allow a child to attempt different challenge levels. (See explanation of challenge levels at end of section.)

#### Arm Strengthening

Provide at least two challenge levels of overhead events or other arm and trunk strengthening equipment. If an overhead event is used on the playground, a Level I event should be included.

## PR-6 | BALANCING

### INTENT

Provide a wide variety of activities that increase standing and sitting balance and build core body strength.

### STRATEGIES

- Provide one balancing activity where a child can use one hand to support them and another balancing activity where the child can use both hands.
- Provide at least one balancing activity for sitting and standing. One piece of equipment could meet both criteria. For example, a stool can be sat or stood on.
- Provide a piece of balancing equipment that is static and another one that is dynamic.
- Incorporate challenge by choosing balancing activities of varying widths. Add further challenge by providing some standing balancing activities that are straight, and others that are curved. (See challenge level explanation for further ideas.)
- Provide a balancing activity at ground level and one balancing activity that is elevated and reached by an accessible route.
- Ground level activities could be lines or patterns in the surfacing to walk along.



## PR-7 | JUMPING AND BOUNCING

### INTENT

Address the vestibular and proprioceptive systems with jumping, bouncing and stretching activity.

### STRATEGIES

Provide at least one jumping, bouncing, or stretching activity to be used while sitting and another activity while standing. This could be the same piece of equipment. Find ways to encourage both compression and stretching of the joints.



## PR-8 | WALKING, RUNNING AND ROLLING

### INTENT

Provide opportunities to move through space using their typical mode of mobility to build endurance, increase muscle tone, and enhance dynamic balance.

### STRATEGIES

- Include space and equipment for games (basketball, tether-ball, tag, etc.)
- Include a bike trail that can be accessed from the perimeter path.
- Create a track using a design embedded in the surfacing.
- Include a maze or running obstacle course. Make the route wide enough for a wheelchair to easily maneuver through the space.
- Build a path that rises and falls to allow runners and those using mobility devices to build strength with the resistance of their own body weight.
- Hillsides built of resilient surfacing are good options for rolling.



## PR-9 | MOVEMENT EXPERIENCED FROM A MOBILITY DEVICE

### INTENT

Enable individuals using mobility devices to experience motion that addresses the vestibular system while remaining seated.

### STRATEGIES

Provide a piece of equipment that moves the child and their wheelchair. The equipment might be a social experience that allows more than one person to play on it at a time, such as a glider, merry-go-round, or a carousel designed for chairs.



SENSORY		
SENSORY CONTENTS		PAGE
PR-10 Tactile .....		43
PR-11 Auditory .....		43
PR-12 Visual .....		44
PR-13 Smell and Taste.....		44
PR-14 Interaction with Natural Features .....		45
PR-15 Cozy Places.....		45

## PR-10 | TACTILE

### INTENT

Provide activities in the play space that address the sense of touch.

### STRATEGIES

- Provide each of the following textural experiences.
  1. Smooth — the material is free from projections or unevenness of surface. Example: metal pole or slide, mirrors, marbles.
  2. Soft — the material yields readily to touch or pressure. Example: grass, rubber components of rope climbers.
  3. Hard — the material is solid and firm, unyielding to pressure, and impenetrable. Example: rocks, plastic play equipment.
  4. Rough — the material is coarse with projections, irregularities, or breaks. Example: boulders or rocks, rope.
  5. Grainy — the material has a granular texture. Example: sand, dirt, rocks, boulders (natural or concrete.)
  6. Uneven — bumpy, not level or flat. Example: slide with built-in bumps, plastic decoration that sticks out from the base of a piece of equipment.
- Provide one opportunity for an entire body sensory experience. Example: roll down a hill, put sand all over themselves, roller slide, water play where the entire body gets wet. Provide one opportunity for play with loose and/or liquid materials. Example: sand, dirt, water, gravel, rice.
- Create pathways that undulate and/or have texture built in.
- Provide diverse grasping opportunities to encourage palm contact for children who are sensitive to new textures.
- One way to provide these types of experiences is to include sensory walls

## PR-11 | AUDITORY

### INTENT

Include events in the play space that address the auditory system.

### STRATEGIES

- Provide pieces of equipment that create sound opportunities to communicate from a distance.
- Vary ways to generate pleasant sound.
- Choose events where the child creates a sound by activating a piece of equipment. Example: Pushing a button and sound occurs.
- Child creates a sound, then hears the sound repeat.
- Choose equipment that generates a sound. Example: A sound is created when walking across or entering an area.
- Place sound, echoes/acoustics, and activities with interactive sound and movement at the end of a ramp or other pathway to provide multi-sensory interest and reward for effort.



- Tuned sounds are preferred, as opposed to noise.
- Story telling or sound amplifying elements are also good options for youth and teenagers.
- Some jurisdictions have sound ordinances to be aware of and may not allow sound-creating equipment.
- Avoidance or mitigation of exterior white noise is important for many children with sensory processing disorder (humming from electrical equipment, highway traffic noise, irrigation pump equipment etc.)

**Note:** Group sound activities together and locate them so that families have clear choices – interact or avoid as needed.

## PR-12 | VISUAL

### INTENT

Include events in the play space that address sight and the visual sensory process.

Visual processing refers to a group of skills used for interpreting visual information. Here are a few things the visual system deals with:

- Seeing something and remembering what was seen.  
The sense of sight involves the brain and visual recognition.
- Writing information accurately.
- Moving the eyes in a specific direction with or without distraction; tracking things with the eyes.
- Strengthening of the eye muscles.
- Focusing on an object.
- Seeing the differences between objects that are similar but not identical.



### STRATEGIES

Most of the strategies that help children improve their visual sensory systems have been addressed in other areas of the Play Richness section: swinging, spinning, balancing, and using complex textures that resemble nature, such as artificial grass, trees and rocks.

- If play panels are used in the play space, choose ones that will address the visual system.  
Example: tracing or tracking, looking at a picture and then recalling what it is, games that involve matching, seek and find games etc.
- Shade can be used to create visually interesting patterns.
- Playful murals and pots can create visual interest.
- Sensory walls provide visual input

**NOTE:** A developmental optometrist or occupational therapist can help recommend appropriate activities that enrich the visual system.

## PR-13 | SMELL AND TASTE

### INTENT

Include events in the play space that address smell and taste.

### STRATEGIES

Taste and smell is achievable through landscape features such as sensory gardens. Include herbs flowers and non-toxic plants that can be tasted and smelled.

## PR-14 | INTERACTION WITH NATURAL FEATURES

### INTENT

Enable children to experience nature for its wide-ranging benefits, including enriching cognitive and creative skills. Natural features include trees, shrubs, grasses, bark, soil, sand, water, and rocks.

### STRATEGIES

- Include thoughtfully placed landscaping throughout the play space. **Refer to LA-10.**
- Add a sensory garden.
- Install raised planters and wide paths through the plantings.
- Add items found in a nature playground such as logs, rocks, water, hills, etc.
- Include a range of planting types to encourage play, such as tree climbing, weaving through dense planting, and hiding in bushy cubbies.
- Plant specific items that encourage visitation of birds, mammals, and insects.
- Include diverse vegetation throughout the play space instead of in a separate sensory area.
- Include pollinator plants that attract insects that collect pollen and insects and birds that drink nectar. Place these plants near quiet seating areas and places where children and their caregivers can gather to watch the natural processes in a more intimate setting. Do not plant these in active play areas where people and insects will contact each other.
- Include a selection of plants that create loose parts such as acorns, seed pods, bark, fallen twigs, leaves, flowers, seeds and pine cones to encourage explorative play.



Photo credit: Learning Landscapes  
learninglandscapesdesign.com

## PR-15 | COZY PLACES

### INTENT

Provide a place on the playground where a child can retreat to and relax when experiencing sensory or cognitive overload.

### STRATEGIES

Provide locations within the play space where a child can go and feel alone. The place should feel enclosed but allow the caregiver to see the child. Example: an area under the play structure, a playhouse, or a tunnel with a window. The space should be away from loud or visually cumbersome sensory input. The spaces should be in scale with children, comfortable, with a clear view of the play environment to allow the child to re-engage when ready. Engravings and tactile experiences within the space are often used by children to help in the self-regulation process. Quiet spots should also be considered for adults who may need to escape the active environment to regain composure.



## SOCIAL

SOCIAL CONTENTS .....	PAGE
PR-16 Social Interaction .....	46
PR-17 Social Forms of Play .....	46
PR-18 Cooperative Play .....	47
PR-19 Symbolic Play .....	47
PR-20 Loose Parts .....	48
PR-21 Game Play .....	48
PR-22 Functional Play .....	49

### PR-16 | SOCIAL INTERACTION

#### INTENT

Encourage social interaction and eye contact between children while on the playground.

#### STRATEGIES

- Include features, equipment, or space that encourage interaction with others while playing.

Examples:

- Games: basketball hoops, seesaws, hopscotch, electronic multi-player games.
- Seating: groupings of seats in close proximity.
- Sensory Play: water features, sand play, nature play.
- Group equipment: swings, spinners, climbing structures.



### PR-17 | SOCIAL FORMS OF PLAY

#### INTENT

Provide a variety of types of social play to meet children where they are developmentally.

#### STRATEGIES

- In addition to Cooperative Play, there are five other types of social play: Unoccupied, Onlooker, Solitary, Parallel, and Associative. (See Glossary for definitions.)
- Choose equipment and placement to create spaces for each of these types of play. Below is a list of play types and how they might be accommodated on the playground:
  1. Unoccupied Play — when the child is not playing, just observing. A child may be standing in one spot or performing random movements. Example: Places where a parent can lay a baby or toddler down safely.
  2. Onlooker Play — when the child watches others at play but does not participate. The child may engage in forms of social interaction, such as conversation about the play, without actually joining in the activity. This helps younger children learn from their peers. Example: Extra space near play equipment where a child may stand and watch the play.

3. Solitary Play — when the child is alone and maintains focus on an activity. Such a child is uninterested in or is unaware of what others are doing. More common in younger children (age 2–3) as opposed to older ones: Examples: Slides, play panels, climbers.
4. Parallel Play — when children play next to each other because they are in the same area, but are occupied by their own activities. They play side by side, watch, and listen to each other. At this age they are interested in the same toys and both see the toys as belonging to them. Examples: Double Slides, climbers, swing set.
5. Associative Play — when children play independently but do the same thing as other children. For example, if one child puts on a dress-up outfit, another child will put one on also. The children will begin to interact through talking, borrowing, and taking turns with toys, but each child acts alone. Examples: Sand area, loose parts area, pretend play areas.

### PR-18 | COOPERATIVE PLAY

#### INTENT

Ensure that children learn how to play with each other. Cooperative play happens when children have the skills to interact for the purpose of play. Speaking and listening skills are developed, enabling children to communicate with each other. Children can share ideas and tell each other what to do. Communicating about play is the critical skill of cooperative play.



#### STRATEGIES

- Provide a piece of equipment that requires two or more people to operate. Example: seesaw.
- Include pulleys and scoops that rely on someone being at ground level and someone above; ensure the pulleys and conveyor belts are reachable as described in **(AC-2)**.

### PR-19 | SYMBOLIC PLAY

#### INTENT

Symbolic play is using objects, actions, or ideas to represent other objects, actions, or ideas as play. Symbolic play enables children to strengthen their cognitive, social-emotional, motor, and language-literacy skills.

- Create play themes and act them out through roles that are spontaneous, child-initiated, and open-ended.
- Expand a child's awareness of self in relation to others and their social environment by providing dramatic play opportunities.

#### STRATEGIES

- Provide a play space that fosters dramatic play opportunities. The space should allow children to create dramatic play experiences through a mixture of abstract and realistic play events. Example: Themed structures, a stage, a playhouse made of natural materials.



- Utilize spaces under the equipment or somewhere on the play structure for dramatic and imaginary play. If it is on the structure, it must be on an accessible route. If the space is under the play structure, ensure there is enough room for a person using a wheelchair to enter.
- Provide a space where children can plan and create dramatic play.
- Provide opportunities to create individual and group dramatic play throughout the play space and assist them in understanding the world around them through play.
- Use dramatic play panels above and below play decks, and separate play structures that allow children to create and imaginative dramatic play experiences.
- Use representations of real world activities and experiences, both abstract and realistic, to create dramatic experiences that may be used by an individual or group of children.
- Create small, semi-private spaces that encourage dramatic play by an individual or group of children.
- Use equipment that allows children to experience movement or stillness during dramatic play.
- Include things that are easy to manipulate and do not require great physical strength or fine motor skills.
- When using wheels, spinning items, and steering wheels, ensure they have spokes or knobs to grasp, rather than a solid wheel, to help a child with limited mobility engage in the play.
- Provide loose parts such as props and costumes. **(See PR-20.)**

## PR-20 | LOOSE PARTS

### INTENT

Provide easily portable materials to help children manipulate and change their environments, and provide opportunities for social, imaginative, and creative experiences. Loose parts enable children to engage in Construction Play. Loose parts also allow children to adapt and manipulate their play environments and gain confidence and independence through individual or group play experiences.

### STRATEGIES

- Provide a storage bin filled with things like various sized building blocks and/or construction materials, sports supplies, dress-up clothes, etc.
- Include sand and water toys if there is an area for them.
- Natural items (e.g. twigs, stones, leaves, pine cones, shells.)
- When possible a docent or Play Worker can pick them up and store them each day or only put them out at certain times of the day)



Photo credit: Learning Landscapes  
learninglandscapesdesign.com

## PR-21 | GAME PLAY

### INTENT

Game play imposes rules that must be followed by players. It requires self-regulation by the children who play, so they can successfully follow the rules. Game rules are characterized by logic and order, and as children grow older they begin to develop strategy. Games with rules provide the basis for sports and recreational activities. They also enrich social and cognitive development.

### STRATEGIES

- Provide sports activities where children play alongside one another.
- Place basketball hoops and other games at varying heights.
- Provide games that don't involve running and accommodate players using wheelchairs, those who are otherwise physically and cognitively challenged, grandparents, and children at the same time.
- Use a blacktop area or a design in the Poured-in-Place surfacing to create four-square, hopscotch, or other playground games. There are stencils for such areas online.
- Include multiplayer electronic playground games.
- Interactive games such as life size game boards that require two or more players.
- Include electronic charging stations.



Photo credit: HAGS

## PR-22 | FUNCTIONAL PLAY

### INTENT

Any repetitive action that a child finds enjoyable is considered functional play. Throwing objects, opening and closing things, stacking blocks and knocking them over, and banging toys together are all examples of functional play. The repetitive nature of this play is how children make sense of their world. They learn about the properties of physical objects and cause and effect through functional play. These discoveries prepare them for learning more complex skills later on.

### STRATEGIES

- Have a wall where a child may push a button, open and close a door, and/or bang on things.
- Include sand play.
- Provide a simple multi-step physical play experience that may be repeated, such as climbing up a few stairs and then going down a slide.

These definitions of different play types are from Play and Playground Encyclopedia [www.pgpedia.com](http://www.pgpedia.com)



HOW WE THINK ABOUT CHALLENGE LEVELS	
SPINNING	LEVEL 1: Can sit or lie on it, provides almost complete support, easy to spin.
	LEVEL 2: Provides some support, has large area to place the body, easy to spin.
	LEVEL 3: No supports, requires motor planning skills to get the equipment to spin. May rock as well as spin in multiple directions
SWINGING	LEVEL 1: Sitting or lying on a swing with postural support.
	LEVEL 2: Sitting on a swing with no postural support.
	LEVEL 3: Standing on a swing or other swinging equipment that requires high level of motor planning skills or balancing skills.
CLIMBING	LEVEL 1: Low to ground, low slope, hand holds on each side, can put entire body on, obvious path.
	LEVEL 2: One means to support the body, multiple paths (but obvious), evenly spaced steps.
	LEVEL 3: High, vertical, complicated pathway, supports are minimal, is dynamic, requires great agility and advanced motor planning skills.
CRAWLING	LEVEL 1: A short tunnel on the ground. Little to no difference between the ground and the area where a child crawls.
	LEVEL 2: A longer tunnel or crawling area that is on the ground or elevated with accessible routes on either side.
	LEVEL 3: A tunnel or crawling area that changes elevations. May be created with ropes or other non-rigid materials.
STRENGTHENING	LEVEL 1: At ground level to be used by a person using a wheelchair. Grip locations placed no higher than 43.5”.
	LEVEL 2: Static overhead event, rungs close together, obvious path, simple to get on to the equipment.
	LEVEL 3: Challenging overhead event including some or all the following: high or long reaches, moving hand grips, higher levels of motor planning.

HOW WE THINK ABOUT CHALLENGE LEVELS	
BALANCING (STATIC)	LEVEL 1: Has 1-2 hand supports, postural support, and/or foot rests. Close to or at ground level.
	LEVEL 2: Straight, no decisions to make, one piece. Off the ground.
	LEVEL 3: No supports, higher levels of motor planning, child moves from piece to piece.
BALANCING (DYNAMIC)	LEVEL 1: Sitting, has 1-2 hand supports, postural support and/or foot rests.
	LEVEL 2: Some support, even pathway.
	LEVEL 3: No supports, requires advanced levels of motor planning to keep the piece moving.
WALKING, RUNNING AND ROLLING	LEVEL 1: Occurs on a flat, stable firm surface, such as ramps, sidewalks, or flat grassy areas.
	LEVEL 2: Occurs on a surface with texture or undulation. Requires more physical effort to move the body or mobility device.
	LEVEL 3: Occurs on an elevated surface, such as a bridge on a play structure that is not connected with a ramp.





# SELECTING EQUIPMENT

*“Elevated play must have a reward — an amazing view and/or several play activities for everyone. Elevated elements must not dominate an inclusive playground.”*

**Fiona Robbé**

*Fiona Robbé Landscape Architects*



SELECTING EQUIPMENT (SE)

**INTENT:**  
The goal of this section is to encourage mindful decisions when determining what types of equipment to purchase and where to place them. The planning committee should have in-depth conversations to address the issues raised in this section prior to purchasing any equipment. Equipment in this sense can mean standardized playground equipment or natural elements that are used as play activities.

SELECTING EQUIPMENT		
SELECTING EQUIPMENT CONTENTS.....		PAGE
SE-1	Elevated Play.....	55
SE-2	Grouping of Equipment.....	55
SE-3	Resting Point Near a Slide .....	55
SE-4	Color of Play equipment.....	56
SE-5	Rich Play Experiences at all Heights.....	56
SE-6	Multiple Levels of Challenge .....	56
SE-7	The Coolest Thing in the Playground .....	57
SE-8	Physical, Sensory and Social Play.....	57
SE-9	Providing Choices on the Playground.....	57
SE-10	Engaging People of All Ages and Sizes.....	58

SE-1 | ELEVATED PLAY

**INTENT**  
No discussion of inclusive playgrounds is complete without a discussion on elevated vs. ground level play. Many children like the experience of height; they like being above everyone else, because for them, it is exciting and gives a sense of achievement.

- STRATEGIES**
- There must be a reason to go up high. It could be an amazing view or unique play activity.
  - Include activities on the highest platform for a child to use if they cannot go down the slide.
  - These activities should have a high play value and should be enjoyed by children with and without disabilities. (e.g. periscopes, musical instruments.)
  - The topography of the land can be used to create a hill where children can look down on everyone playing.
  - The highest slide should be accessible via a ramp system or contoured path.

SE-2 | GROUPING OF EQUIPMENT

**INTENT**  
Invite engagement between children of diverse abilities. Encourage children of the same age, but differing abilities, to play in the same location by clustering similar types of equipment with a variety of challenge levels.

- STRATEGIES**
- As described in the Play Richness section, there should be two or more things that do the same activity but represent different challenge levels.
  - Connect similar play events or place play events adjacent to one another.
  - Play equipment challenges should be graduated to include people with the widest possible range of abilities.



SE-3 | RESTING POINT NEAR A SLIDE

**INTENT**  
Provide a resting point close to the slide exit to allow those who use mobility devices to rest while the device is being retrieved from the top of the slide.

- STRATEGIES**
- Place a seat with back support at the outside edge of the use zone for the slide. This keeps the child safe, preserves their dignity, and reduces the amount of distance they need to be carried.
  - Select a slide that has a landing designed for this purpose.

## SE-4 | COLOR OF PLAY EQUIPMENT

### INTENT

Color stimulates the human brain. Adults tend to assume that brighter colors suggest a playful atmosphere and the more the better. While that might be true for children and adults who process information in typical ways, it may not be true for people with sensory processing disorders, on the autism spectrum, or people with visual perception issues who experience sensory overload by color input.

Color can also be used as a wayfinding tool, providing contrast to children with low vision to help them determine where things are on the playground. **See LA-7.**

### STRATEGIES

- The predominant playground equipment color should be a muted tone, rather than a primary color. Consider colors such as brown, dark blue, grey, and shades of white.
- Accent pieces can be brighter colors.
- Shiny, reflective surfaces should be avoided as they can confuse people with vision impairments.
- Try to delineate decks and step risers and treads with alternating colors. People with low vision see yellow best.
- Hand grips should have a high contrast, such as yellow against a dark background.

**See LA-7 for specific ideas on contrasting colors.**

## SE-5 | RICH PLAY EXPERIENCES AT ALL HEIGHTS

### INTENT

Encourage the play experiences available for a user at each height to have depth and breadth when using a ramped structure.

### STRATEGIES

Include at each platform along the ramp circuit at least one activity for all children to do besides using the slide or going down a climber. Ensure that activities are placed at heights that accommodate different reach ranges (AC-2). At each platform along the ramp circuit there must be at least one activity for all children to do beside using the slide or going down a climber. Examples include periscopes, talk tubes, music or other auditory activity, pulley systems to send things up and down, activity panels that encourage more than one child to play with it at a time.

## SE-6 | MULTIPLE LEVELS OF CHALLENGE

### INTENT

Provide play activities with graduated levels of challenge to actively engage all ages and abilities.

### STRATEGIES

- For each type of physical play, choose multiple pieces with different degrees of difficulty. (See the Play Richness Worksheet for challenge levels.)
- Place equipment together as described in **SE-2.**
- For the easiest challenge, consider creating ground level patterns in surfacing as a play event to wheel or explore on foot. For the most difficult challenge, choose equipment that requires a high level of motor planning.

## SE-7 | THE COOLEST THING ON THE PLAYGROUND

### INTENT

Nothing excludes children more than having the special piece of equipment that everyone wants to play on be inaccessible to some. Ensure that the coolest play activity is usable by all.

### STRATEGIES

Examine the play activities chosen for the playground. Identify the one that will create the most excitement and ensure that it can be played on by the majority of people. For example:

- An exciting slide with ramps leading to it and the ability to easily transfer.
- A web net that is easy to use at ground level and more advanced as it goes up.
- A wheelchair accessible glider or whirl.

## SE-8 | PHYSICAL, SENSORY AND SOCIAL PLAY

### INTENT

Provide a rich, inclusive play space where children of all abilities can grow and learn through physical, sensory, cognitive, and social experiences. Each type of play is crucial to a child's development. Offering many types of play increases the probability of engaging all children in the ways they need.

### STRATEGY

Select at least one piece of play equipment from each of the three categories described in Play Richness. One piece of equipment might cross multiple categories. For example, an accessible glider provides a rocking experience and a movement experience from a wheelchair, both in the Physical Play category. It also requires cooperative play (social) to get it moving. Some manufacturers have built-in tactile or visual experiences (sensory) on their gliders. Such a piece of equipment offers activities from all three categories.

## SE-9 | PROVIDING CHOICES ON THE PLAYGROUND

### INTENT

Offer children many types of play. They learn different skills and nurture different sensory systems by playing on a variety of equipment. The major driver of play limitations are the decisions made by the designer of the environment. The abilities of children are widely diverse. Each play space should offer an equally wide set of experiences as the varied patrons that use it.

### STRATEGIES

- Include a variety of static and dynamic play experiences.
- Use auditing tools to categorize and determine the distribution of the equipment chosen so adjustments can be made if there are too many activities focused on one play type.
- When there is only one choice for a person in a wheelchair, such as an adapted swing seat, a child does not get to experience the full benefits of play. To rectify this include at least three experiences that a person using a wheelchair can participate in, whether in their chair or via a transfer. Examples: musical instruments, adapted swing seat, spinner that provides postural support, water and texture tables.

## SE-10 | ENGAGE PEOPLE OF ALL AGES AND SIZES

### INTENT

A playground is a community asset, and everyone who lives in the community should be able to enjoy it, regardless of age or body size. No one should be bored or excluded at a playground because they don't match the ergonomics or sizing of the equipment that is appropriate for their challenge level.

### STRATEGIES

- Include swing seats that can be used by people of different ages.
- If adult fitness equipment is available, include people who use wheelchairs.
- Include games that support people of varying sizes. For example: Basketball hoops at different heights, electronic playground games.
- Provide a walking, rolling, and biking path around the playground.
- Provide gathering spaces where different age groups might choose to congregate along an accessible route.
- Ensure there are multiple ranges of challenge (SE-6) so that everyone is challenged at their own level.
- Include schoolchildren and teens on the planning committee to get their input on what makes an exciting playground.
- Electronic charging stations, where social interaction can occur.



## WORKSHEET #3

**TIP:** Make a list of the equipment you are thinking about. Sort it into categories. This will make it easier to see if anything is missing. Categories could include:

- Easy, Medium, and Difficult physical play components (*Use the challenge level chart for assistance*)
- Physical, Sensory, Cognitive, and Social
- Ground based vs. Elevated

HERE ARE SOME QUESTIONS TO EXPLORE ABOUT THE LAYOUT YOU ARE THINKING OF. THERE IS NO RIGHT OR WRONG ANSWER. IN THE END, YOUR COMMUNITY NEEDS TO BE HAPPY WITH YOUR PLANS.

1. Can everyone get to the highest point on the playground?
2. Are there fun things to do for someone in a wheelchair on the way up besides climbers and slides?
3. How you grouped all the spinners together? All of the climbers together? All of the swings together?
4. Will the color of the playground equipment detract from the playground experience for some people?
5. Is there a place for a child to wait at the bottom of the slide for their wheelchair to be retrieved? Is there a fast and easy way for the wheelchair to get back to the user?
6. Are there things for children with different motor skill abilities to do? Is there a range of challenge?
7. Is there cooperative play on the playground? How about other social activities?
8. Is the Coollest Thing accessible to all?
9. Is there sensory play? (*tactile, auditory, visual, proprioceptive, vestibular*)

HERE ARE SOME QUESTIONS TO EXPLORE ABOUT THE LAYOUT YOU ARE THINKING OF. THERE IS NO RIGHT OR WRONG ANSWER. IN THE END, YOUR COMMUNITY NEEDS TO BE HAPPY WITH YOUR PLANS.

10. Are there three experiences that a person using a wheelchair can participate in, whether in their chair or via a simple transfer?

11. How will older children and adults play?

12. Is there a wayfinding system to support children on the autism spectrum?

13. Is there a quiet place for retreat?

14. What is the surfacing? Will it be easy for everyone to maneuver across?

15. Is there a fence around the playground?

16. Where will children engage in symbolic, imaginary, and dramatic play?



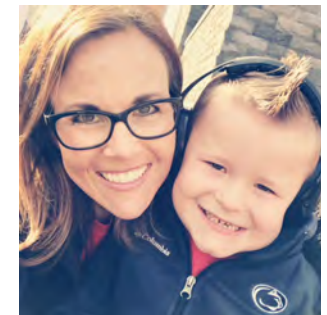
# SUPPORT FEATURES

“My name is **Christina Abernethy**. I am a wife and mom of 3. We have a daughter, Selena, who is 15 and twin boys, Ethan and Braidan, who are 7. Ethan has autism and sensory processing disorder and is developmentally delayed. While we’re in public, one of our biggest struggles is restrooms. They’re not accommodating for anyone larger than a toddler. Our son is too big for baby changing tables, so we’re left changing him outside in the grass or on a towel on public restroom floors. Yuck!

I believe that every public space, especially inclusive playgrounds, should have adult changing tables. We can’t come and play if we can’t use the restroom! If you need advice on how to design your restroom, selecting a table, or how to start advocating for adult changing tables, visit:

[changingspacescampaign.com](https://changingspacescampaign.com)

or [universalchangingplaces.com](https://universalchangingplaces.com)”



# SUPPORT FEATURES (SU)

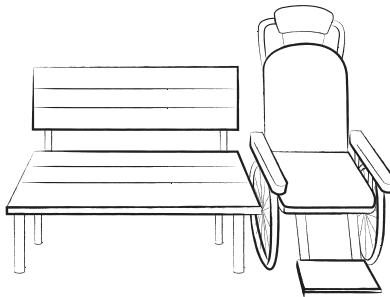
**DEFINITION:**  
This section discusses maximizing inclusion in the support systems and built environment surrounding the play space.

**INTENT:**  
Provide supportive infrastructure and amenities that are inclusive, safe, and easy to use. Design a playground with inclusive comfort facilities and a holistic inclusive environment.

ACCESS		
SUPPORT FEATURES CONTENTS		PAGE
SU-1	Seating.....	63
SU-2	Restrooms.....	63
SU-3	Drinking fountains.....	63
SU-4	Picnic tables.....	64
SU-5	Parking and other ways to arrive.....	64
SU-6	Shade.....	65
SU-7	Service animals.....	65
SU-8	Signage visibility.....	65
SU-9	Website and social media.....	66

## SU-1 | SEATING

- INTENT**  
Provide a variety of seats for caregivers and children of all abilities to rest in proximity to one another and the play space.
- STRATEGIES**
- Provide companion seating space next to a bench for a wheelchair to pull up to it.
  - Orient the seating for the best vantage points for caregivers to supervise children during play. Seating should be closer to the play areas where younger children will play and a little further back for older children.
  - Install seating in each play area.
  - Strategically place play equipment for caregivers to sit on.
  - Include benches with armrests, and some without, to allow someone in a wheelchair to transfer to them.
  - Locate seating so the user is protected from wind and provide comfort in all seasons on a universal route.
  - Use lightweight, movable furniture where local rules allow.
  - Ensure that seating and tables in each area accommodate a wide range of stature, mobility levels, cognitive and perceptual abilities.
  - Provide shade for seating areas.



## SU-2 | RESTROOMS

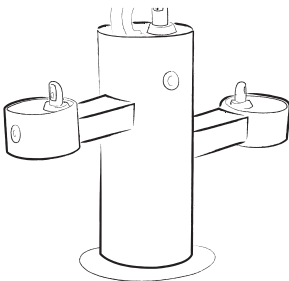
- INTENT**  
Provide toilet facilities for all members of a family.
- STRATEGIES**
- Build a permanently installed structure that is connected to local sewage, water, and electrical systems.
  - Comply with ADA regulations as a bare minimum.
  - Include a family restroom with an adult changing table.



Photo credit:  
Universal Changing Places

## SU-3 | DRINKING FOUNTAINS

- INTENT**  
Give everyone at the playground access to water.
- STRATEGIES**
- Include at least two different fountain heights.
  - Use water fountains that turn on when the unit senses someone within its perimeter.
  - Provide a facility for filling up personal water containers.
  - Provide drinking fountains that can be operated by a lever (easy for everyone).



## SU-4 | PICNIC TABLES

### INTENT

Let everyone feel included in activities. Too frequently, wheelchair spaces are in poor locations.

### STRATEGIES

- Position accessible picnic tables so that wheelchair spaces face different directions.
- Choose seating and tables that accommodate a wide range of stature, mobility levels, cognitive, and perceptual abilities.
- Include child-sized picnic tables with wheelchair seating.
- Allow space for more than one wheelchair. This offers a chance for multiple people who use wheelchairs to sit comfortably at the same table and gives a choice of where they may sit.
- Position wheelchair spaces for social interaction. A space in the middle of the table places a person who uses a wheelchair closer to friends and family, increasing social interaction. And, for a parent who uses a chair and has more than one child, a space in the middle of the table allows them to care for children by sitting between them.
- Allow for extra leg space and knee clearance, as all wheelchairs are not the same size. Enable a person to roll up to the table and put their legs underneath without getting hit by the table top.
- Provide shade for some tables.

## SU-5 | PARKING AND OTHER WAYS TO ARRIVE

### INTENT

Provide a safe parking lot and parking spaces for people who need their vehicles to be close to play events. Provide ways for people who do not have cars to get to the playground.

### STRATEGIES

- Exceed spacing between van parking by 20% more than local standards. Meet or exceed all other local standards regarding parking. Users of van parking often do not have enough space between vehicles, even though the space is compliant with the rules.
- Provide accessible parking spaces near the play area. This does not mean that the whole parking area needs to be located nearby. For site design or aesthetic reasons, accessible parking spaces may need to be closer to the play space than the rest of the parking.
- Install seating in designated loading and waiting areas.
- Isolate vehicular travel routes from pedestrian routes in the parking lot.
- For locations likely to be destination playgrounds, provide loading/unloading area for buses near the primary entrance or designated entrance for tour buses.
- Provide bicycle racks.
- Ensure the playground is on a bus route with a bus stop near the front entrance.
- Provide a shelter that accommodates at least one mobility device for those waiting for rides or the bus.

## SU-6 | SHADE

### INTENT

Provide spaces on the playground where a child is not in direct sunlight. Adults and children with sun allergies, photosensitivities, and those susceptible to sun poisoning are not able to go to playgrounds where shade is not provided.

### STRATEGIES

- Use established shade trees.
- Use a freestanding fabric shade structure.
- Utilize shade structures over the top of equipment.
- Shade some of the seating and gathering areas.
- Shade all metal play equipment and seating.

**NOTE:** the shade provided by a new tree will be very different than that provided by that same tree in 10+ years.



## SU-7 | SERVICE ANIMALS

### INTENT

Allow those who depend on service animals to use the play space.

### STRATEGIES

- Include signs that prohibit curbing service animals without disposing of waste. Provide for appropriate waste disposal.
- Include a designated area on-site provided for animal care, ensuring that it is on a universal route.
- Provide a water trough or basin for use by service animals, or a drinking fountain that has a service animal height feature.

## SU-8 | SIGNAGE VISIBILITY

### INTENT

Signage is an important part of the wayfinding system in your playground. Ensure that signs can be understood by those with visual impairments, those who cannot read, and others.

### STRATEGIES

- Wording, font, and coloring of signage should be consistent throughout the playground.
- Use an easy-to-read font.
- Keep the wording simple.
- Do not use all capital letters.
- Align wording to the left.
- Select a letter size to suit viewing distance. There are charts available online that specify these sizes.
- Use symbols or readily identifiable icons in place of text or to supplement text where possible.



- Use arrows to indicate direction.
- Ensure good contrast between the text and background sign.
- Do not make the sign reflective, as this makes it more difficult for people with visual impairments to see.
- Position tactile and Braille signs within reach range.

## SU-9 | WEBSITE AND SOCIAL MEDIA

### INTENT

For many people with disabilities, a lot of effort is required to leave the house. For a trip to be enjoyable, information needs to be available about site access, public transportation, space layout, activities, and facilities. Provide resources so parents can help their children understand the play space before leaving home. This makes it much easier for a child who has an autism spectrum disorder to go to a new place.

### STRATEGIES

Use a website and social media to help prepare a family to visit. At a minimum include:

- A brief description of the spaces and its major features
- Directions to reach the playground, including public transportation
- Whether the playground is fenced
- Whether the playground has accessible features such as restrooms and picnic tables

Offer orientation materials to prepare a child for their visit, such as a video, a virtual map, and a printable map.

Develop printable flashcards of the different areas so that a child can point to where they want to go. This will enable a parent or caregiver to create storyboards for a child to prepare them for their visit.



# LIVVI'S CAFE

## A winning enterprise.

*Livvi's Café hires and trains adults with disabilities to provide programming and food service at Livvi's Places, which are inclusive playgrounds in Australia. A portion of sales goes to supporting Touched by Olivia, the non-profit that builds Livvi's Places.*

### So who wins? Just about everyone!

- *Parents with children who have disabilities, who see disabled adults in active employment*
- *The people being trained and employed*
- *The children who come to story hour at Livvi's Place*
- *Anyone in Australia who plays at an inclusive playground that has been developed by Touched by Olivia*
- *...and the person who really wanted a cup of coffee.*



Photo credit: Touched by Olivia [www.touchedbyolivia.com.au](http://www.touchedbyolivia.com.au)

## GLOSSARY

**ACCESSIBLE ROUTE** is an ADA term referring to the route within the boundary of the site that provides access from public transportation, accessible parking, accessible passenger loading zones, and public streets or sidewalks to the play activity. The accessible route shall, to the maximum extent feasible, coincide with the route for the general public.

**AMERICANS WITH DISABILITIES ACT (ADA)** is a civil rights law that prohibits discrimination against individuals with disabilities in all areas of public life, including jobs, schools, transportation, and all public and private places that are open to the general public. The purpose of the law is to make sure that people with disabilities have the same rights and opportunities as everyone else.

**ASTM INTERNATIONAL** is the organization that develops voluntary consensus standards in public safety to create industry best practice standards for the public good. ASTM International was originally known as the American Society for Testing and Materials.

- ASTM-F1292 Standard Specification for Impact Attenuation of Surfacing Materials within the Use Zone of Playground Equipment. (See Playground Surfacing section for more information)
- ASTM-F1951-99 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment. (See Playground Surfacing section for more information)

**AUTISM** is part of a group of disorders known as autism spectrum disorders (ASD), a complex neurobiological disorder that typically lasts throughout a person's lifetime. The disorder is characterized by varying degrees of impairment in communication skills and social abilities, and also by repetitive behaviors. Symptoms range from mild to severe.

**BIRD NEST SWING OR BASKET SWING** is a type of swing that consists of a suspended shallow basket that usually swings in a back and forth motion. This type of swing is considered more inclusive since the user can lie, sit, or stand as their ability allows. It also invites more than one user, creating a social capability.

**BRACHIATION** is defined as movement accomplished by swinging the arms from one hold to another. This is also the term used to describe the skill developed by children on an overhead ladder or monkey bars.

**CEREBRAL PALSY (CP)** is a blanket term commonly described by loss or impairment of motor function. It is caused by brain damage that typically occurs before birth, during birth, or immediately after. CP affects body movement, muscle control, muscle coordination, muscle tone, reflex posture, and balance. It can also impact fine and gross motor skills.

**COCHLEAR IMPLANT** is a surgically implanted electronic device that provides a sense of sound to a person who is profoundly deaf or severely hard of hearing. Cochlear implants are sometimes referred to as a 'bionic' ear. A discharge of static electricity directly to the external speech processor can cause damage to the implant. It is recommended that children with cochlear implants do not go down plastic slides or jump on trampolines.

**COGNITIVE DISABILITIES** See intellectual disabilities.

**COMMUNITY BUILD** is when community volunteers install playground equipment.

**CRITICAL HEIGHT** is defined as "...the maximum fall height from which a life-threatening head injury would not be expected to occur." (See **Playground Surfacing for more information**).

**CROSS SLOPE** is the slope of the surface perpendicular to the direction of travel.

**DRAMATIC PLAY** is a form of symbolic play where a child pretends to take on a role of someone else, imitating actions and speech from earlier observed situations. Includes elements of reality and make-believe as children imitate real-life people and situations they have experienced.

**DOWN SYNDROME** occurs when some or all of a person's cells have an extra full or partial copy of chromosome 21. People with Down Syndrome have an increased risk for certain medical conditions such as congenital heart defects, respiratory and hearing problems, Alzheimer's disease, childhood leukemia, and thyroid conditions. All people with Down Syndrome experience cognitive delays, but the effect is usually mild to moderate and is not indicative of the many strengths and talents that each individual possesses.

**EMOTIONAL DEVELOPMENT** refers to the ability to recognize, express, and manage feelings at different stages of life and to have empathy for the feelings of others. Emotional development is largely affected by relationships with parents, siblings, and peers.

**FALL HEIGHT** is "...the vertical distance between a designated play surface and the playground surfacing beneath it." (See **Playground Surfacing** for more information).

**FLUSH TRANSITION** The relationship between two sections of flooring materials. "Flush" means there should be no height difference between the two sections. In reality, there will be a difference and it may be measurable. Acceptability can be defined by quantifying what this difference should not exceed. Smaller wheels on mobility devices will have more problems than larger wheels when moving across a non-flush transition.

**GROSS MOTOR FUNCTION CLASSIFICATION SYSTEM** is a five level classification system that describes the gross motor function of children and youth with

cerebral palsy on the basis of their self-initiated movement, with particular emphasis on sitting, walking, and wheeled mobility. Distinctions between levels are based on functional abilities, the need for assistive technology, including hand-held mobility devices (walkers, crutches, or canes) or wheeled mobility, and to a much lesser extent, quality of movement.

**HEAD INJURY CRITERIA (HIC)** is a measurement of the time duration of head deceleration during impact. The value of HIC with regard to the impact on a playground surface may not be more than 1000.

**HYPER-SENSITIVITY** refers to those who become uncomfortable when experiencing minor encounters with environmental stimuli. A person with hypersensitivity may smell scents others cannot detect, get distracted by common sounds, such as a humming refrigerator, or avoid using playground equipment in fear of different movements.

**HYPO-SENSITIVITY** occurs when a child is underwhelmed by the world around him or her and needs to seek out additional sensory information to feel content. Signs of this behavior could include a need to touch things excessively, always turning the volume very loud, or constantly putting objects in his or her mouth. Those who struggle with staying still for any extended period could be hyposensitive, trying to constantly seek movement to self-regulate.

**IMPACT ATTENUATION SURFACE** is one that absorbs the force of a falling body.

**INCLUSION** is the philosophy that embraces the idea that everyone has something of value to contribute and that everyone has the right to belong.

**INTELLECTUAL DISABILITY** is a term used when a person has certain limitations in mental functioning and skills such as communicating, taking care of him or herself, and social skills. These limitations cause a

child to learn and develop more slowly than a typically developing child. Children with intellectual disabilities (sometimes called cognitive disabilities) may take longer to learn to speak, walk, and take care of their personal needs. They are likely to have trouble learning in school. They will learn, but it will take them longer. There may be some things they cannot learn.

**LOCOMOTOR SKILL** refers to feet moving the body from one place to another. They are (roughly in order of how children learn them): walking, running, hopping, jumping, skipping, galloping, sliding (a sideways gallop), and leaping.

**MODULAR SYSTEM OR COMPOSITE STRUCTURE** consists of two or more play components/events attached or an integrated unit providing more than one play activity.

**MOBILITY DEVICES** is a mechanism such as a wheelchair, a transfer chair (also called a convertible or stretcher chair), a sling lift, a sit-to-stand lift, a hobcart, or calipers, designed to aid individuals with mobility impairments. They can be either powered or manually operated.

**MOTOR PLANNING**, or praxis, is the ability of the brain to conceive, organize, and carry out a sequence of unfamiliar actions. In the playground this includes walking, climbing, running, and/or any unfamiliar activities that do not have consistent, predictable steps to follow.

**MOTOR SKILLS** refer to the development of motor control, precision, and accuracy in the performance of both fundamental and more complex movements.

**MULTIPLE TOUCH POINTS** are the number of points at which a child makes contact with the play activity or ground surface. If a child is hopping on one leg, they have one touch point; while crawling, they have four.

**NATURE PLAY** is child-initiated, unstructured play in “wild” areas. Playing outdoors is a thing that characterizes childhood, giving children

the opportunity to explore, change, create, and learn about the world around them.

**OPEN-ENDED PLAY** allows children to express themselves in play freely and creatively, not bound by preset limitations. Playing with open-ended materials with multiple uses and limitless possibilities, such as molding clay or blocks, allows for imaginative play.

**OVERHEAD EVENT** An overhead event is one that the user hangs from, or moves themselves across, using their hands and upper body.

**PERCEPTUAL MOTOR SKILLS** The muscles cannot work in isolation. They are in constant contact with the brain and visual sensory system to ensure the action is doing what is required. Gross motor skills require controlled movement of most, if not all, of the body. Fine motor skills are the ability to manipulate small objects. Children develop most of their gross motor skills, such as moving arms and legs, before accomplishing fine motor skills like writing. Both are essential to the development of children.

**PERIMETER BOUNDARY** when used in connection with inclusive play, this is a fence or wall with a limited number of openings. This prevents a child who tends to run when overstimulated from being hurt by hazards near the playground.

**PLAY EVENT** An individual play event, such as slides and swings. If the structure is modular, it could have many play events.

**PROPRIOCEPTION** (See Sensory Systems)

**REACH RANGE** Reach is the distance that a person must extend his or her arm to use controls or objects. Reach depends on a number of factors, including the height of the person, the height of the object, the distance of the person from an object, and the position of the person in relation to an object.

**ROLLER SLIDE** Rollers form the bed of the slide.

**RUNNING SLOPE** The slope that is parallel to the direction of travel.

**SENSORY PROCESSING DISORDER (SPD)** SPD is a condition that exists when sensory signals don’t get organized into appropriate responses. A person with SPD finds it difficult to process information received through the senses, which makes performing everyday tasks challenging. Because of motor clumsiness, social anxiety, auditory and visual disturbances, and balance and performance problems, SPD can make simple “play” difficult.

**SENSORY SYSTEMS** These are part of the nervous system responsible for processing sensory information. A sensory system consists of sensory receptors, neural pathways, and parts of the brain involved in sensory perception. Current research discusses eight sensory systems (The eighth is the interoceptive system).

#### AUDITORY SENSORY SYSTEM

Hearing, or audition, is the ability to perceive sound by detecting vibrations, changes in the pressure of the surrounding medium through time, through an organ such as the ear. As with sight, auditory processing relies on how the brain interprets, recognizes and differentiates sound stimuli.

#### GUSTATORY SENSORY SYSTEM

refers to the capability to detect the taste of substances such as food, certain minerals, and poisons, etc. The sense of taste is often confused with the “sense” of flavor, which is a combination of taste and smell perception. Humans receive tastes through sensory organs called taste buds concentrated on the upper surface of the tongue. There are five basic tastes: sweet, bitter, sour, salty and umami.

#### INTEROCEPTIVE SENSORY SYSTEM

Interoceptors are internal sensors that provide a sense of what our internal organs are feeling. Hunger and thirst are examples of interoception. Interoception detects responses

that guide regulation, including hunger, heart rate, respiration and elimination. Interoceptive stimulation is detected through nerve endings lining the respiratory and digestive mucous membranes.

**OLFACTORY SENSORY SYSTEM** Smell or olfaction is our ability to detect scent. Our olfactory system begins in our nose which has hundreds of olfactory receptors.

**PROPRIOCEPTIVE SENSORY SYSTEM** Proprioception is the sense of the relative position of neighboring parts of the body and strength of effort being employed in movement. This sense is very important as it lets us know exactly where our body parts are, how we are positioned in space and to plan our movements. Examples of our proprioception in practice include being able to clap our hands together with our eyes closed, write with a pencil and apply with correct pressure, and navigate through a narrow space

**TACTILE SENSORY SYSTEM** Touch is a perception resulting from activation of neural receptors, generally in the skin including hair follicles and a variety of pressure receptors respond to variations in pressure (firm, brushing, sustained, etc.). The somato-sensory system is a diverse sensory system that is spread through all major parts of our body. The system works when activity in a sensory receptor is triggered by a specific stimulus (such as heat); this signal eventually passes to an area in the brain uniquely attributed to that area on the body and this allows the processed stimulus to be felt at the correct location.

#### VESTIBULAR SENSORY SYSTEM

explains the perception of our body in relation to gravity, movement and balance. The vestibular system measures acceleration, g-force, body movements and head position. The vestibular system is a unifying system. Examples of the vestibular system in practice include knowing that you are moving when

you are in an elevator, knowing whether you are lying down or sat up, and being able to walk along a balance beam.

**VISUAL SENSORY SYSTEM** Sight or vision is the capability of the eyes to focus and detect images of visible light and generate electrical nerve impulses for varying colors, hues, and brightness. Visual perception is how the brain processes these impulses recognizing, differentiating and interpreting visual stimuli through comparison with experiences made earlier in life.

**SHOCK ABSORBING** Refers to the properties of the protective surface that assist in preventing or minimizing injuries. Also referred to as “impact attenuating” as it relates to playground surfacing. The specification for impact attenuation is directed to the reduction of risk for head injuries.

**SOCIAL SKILLS** The skills we use to communicate and interact with each other, both verbally and non-verbally, through gestures, body language, and our personal appearance. Human beings are sociable creatures and we have developed many ways to communicate our messages, thoughts, and feelings with others.

**SPATIAL AWARENESS** A well thought-out awareness of things in the space around us. It also deals with the awareness of our body’s position in space. Without having spatial awareness, we would not be able to turn the page of a book or drink from a cup. Enhanced spatial awareness plays a crucial role in sports and games.

**SPINA BIFIDA** The most common birth defect that disables people for life, Spina Bifida happens when a baby is in the womb and the spinal column does not close completely. Every day, about eight babies are born in the United States with Spina Bifida or a similar birth defect of the brain and spine. Children and young adults with Spina Bifida can have mental and social problems, and problems with walking and getting around, latex allergy, obesity, learning

disabilities, and tendonitis.

**SPRING ROCKER** is a type of playground equipment that has a unit, often an animal, mounted on a spring. The rider sits on the unit and rocks it back and forth with the movement of their body.

**STAGES OF COGNITIVE PLAY** Jean Piaget includes play as an important element. It is the vehicle for the child to understand the world around her and an indicator of the child’s cognitive development.

**FUNCTIONAL PLAY** any repetitive action that a child finds enjoyable is considered functional play.

**SYMBOLIC PLAY** is children’s ability to use objects, actions, or ideas to represent other objects, actions, or ideas as play. A child may push a block around the floor as a car or put it to his ear as a cell phone.

**PRETEND PLAY** is a form of symbolic play where children use objects, actions, or ideas to represent other objects, actions, or ideas using their imaginations to assign roles to inanimate objects or people.

**GAMES WITH RULES** a level of play that imposes rules that must be followed by the players. It requires self-regulation by the children who play, so they can follow rules and curb their own personal needs. Games with rules are often characterized by logic and order, and as children grow older they can begin to develop strategy and planning in their game playing.

**STAGES OF SOCIAL PLAY** is a theory and classification of children’s participation in play developed by Mildred Parten Newhall in her 1929 dissertation. The stages of play are still widely used today.

**UNOCCUPIED PLAY** when the child is not playing, just observing. A child may be standing in one spot or performing random movements.

**SOLITARY PLAY** when the child is alone and maintains focus on an activity. Such a child is uninterested in or is unaware of what others are doing. More common in younger children (age 2–3) as opposed to older ones.

**ONLOOKER PLAY** when the child watches others at play but does not engage in it. The child may engage in forms of social interaction, such as conversation about the play, without actually joining in.

**PARALLEL PLAY** when children play next to each other simply because they are in the same area, but they are engaged in their own activities. They play side by side, watch, and listen to each other. At this stage they are interested in the same toys and both see the toys as belonging to them.

**ASSOCIATIVE PLAY** when children are still playing independently but often do the same thing as other children. For example, if one child puts on a dress-up outfit, another child will put one on also. The children begin to interact through talking, borrowing and taking turns with toys, but each child acts alone.

**COOPERATIVE PLAY** when children have acquired the skills to interact together for the purpose of play. Speaking and listening skills are more developed, so children can communicate with each other. Children can share ideas and tell each other what to do. Communication about play is the critical skill of cooperative play.

**TRANSFER SYSTEM** A way of accessing composite play structures from a wheelchair. Transfer systems generally include a transfer platform and a series of transfer steps. Children who use wheelchairs transfer from their wheelchair or mobility device onto the transfer platform, lift themselves up or down the transfer steps, and scoot along the decks or platforms to access elevated play components.

**UNITARY SURFACING** A manufactured material used for protective surfacing in the

use zone. May be rubber tiles, mats, turf, or a combination of energy absorbing materials that forms a unitary shock absorbing surface. Examples of unitary surfacing materials are Poured-in-place rubber, rubber tiles, and playground turf.

**UNIVERSAL DESIGN** (sometimes referred to as inclusive design) refers to broad-spectrum ideas meant to produce buildings, products, and environments that are inherently accessible to older people, people without disabilities, and people with disabilities.

**UPPER BODY STRENGTH** is the ability to exert a force against an object external to the body in one maximum effort of the upper body muscles. Upper body strength is important for the everyday demands that are placed on the arms, shoulders, and back.

**USE ZONE** is the surface under and around a piece of equipment onto which a child falling or exiting from the equipment would be expected to land. These areas are also designated for unrestricted circulation around the equipment.

**VESTIBULAR SYSTEM** (See Sensory System)

**VISUAL PERCEPTION** is the ability to interpret and understand information that comes through the eyes as a response to the light that shines in them. It is a dynamic process that identifies, organizes, interprets, and understands what is seen. It integrates sensory and motor information generated by the brain and body to derive meaning from it and direct movement.

**WAYFINDING** can be defined as spatial problem solving. It is knowing where you are in a building or an environment, knowing where your desired location is, and knowing how to get there from your present location.

*The editors of the Inclusive Play Design Guide would like to thank the Play and Playground Encyclopedia for their contribution to these definitions. <https://www.pgpedia.com/>*



# PLAYGROUND SURFACING

## FREQUENTLY ASKED QUESTIONS

### What is playground surfacing?

A playground's surface is the material beneath and around swings, slides, and other equipment. Playground surfacing fulfills many purposes:

- Child safety
- Wheelchair accessibility
- Aesthetics

### What types of surfacing are available?

There are two categories of surfacing material: unitary and loose.

**Unitary Surfacing Material** — A manufactured material used for protective surfacing in the use zone that may be made of rubber tiles, mats, turf, or a combination of energy-absorbing materials that form a shock absorbing surface. Examples include:

- Poured-in-place rubber
- Rubber Tiles
- Playground turf

**Loose-Fill Surfacing Material** — A material used for protective surfacing in the use zone that consists of loose particles. These surfaces can meet minimum ADA guidelines if they are installed properly. Ongoing maintenance, including raking and refilling, is required to maintain compliance.

Examples include:

- Engineered wood fiber
- Rubber mulch

### Why is surface selection important?

While many surfaces meet minimum United States ADA accessibility guidelines, not all surfaces meet the guidelines set forth in this Design Guide. Due to variations in the type, quality, and maintenance of loose-fill surfacing material, the Design Guide work group believe it is functionally non-compliant. In order to maintain a high level of accessibility, the work group feels that a unitary surface material should be selected as the preferred alternative. **(See AC-1)**

## What are the advantages and disadvantages of different types of surfacing?

	ADVANTAGES	DISADVANTAGES
<b>Engineered Wood Fiber</b>	<ul style="list-style-type: none"> <li>• Low initial cost</li> <li>• Wheelchair accessible (with proper installation and maintenance)</li> <li>• Fairly durable</li> <li>• Easy to obtain</li> <li>• Retards insect infestation and fungal growth</li> <li>• Free of bark and leaves</li> </ul>	<ul style="list-style-type: none"> <li>• Can conceal animal excrement or dangerous sharp items</li> <li>• Microbial growth when wet</li> <li>• High humidity and freezing temperatures can reduce its effectiveness</li> <li>• Decomposes and contracts over time.</li> <li>• Can easily be displaced to areas outside the playground</li> <li>• Requires regular replenishment</li> <li>• Requires ongoing maintenance and associated costs</li> <li>• Children pick it up to play with or mouth it</li> <li>• People who use wheelchairs or other types of ambulatory devices report that it is difficult to maneuver through the playground</li> </ul>
<b>Poured-in-Place</b>	<ul style="list-style-type: none"> <li>• Wheelchair accessible</li> <li>• Stays in place</li> <li>• Lower maintenance costs over long term</li> <li>• Graphics can be incorporated into the play surface, adding play value</li> </ul>	<ul style="list-style-type: none"> <li>• Requires professional installation</li> <li>• Wide variation in quality</li> <li>• Can become hard over time</li> <li>• Must be swept free of dirt and other debris that can collect and decrease shock absorption</li> <li>• May require annual deep cleaning to remove debris from air pockets to maintain shock absorption</li> <li>• Can get very hot in some areas of the country</li> </ul>
<b>Playground Tiles</b>	<ul style="list-style-type: none"> <li>• Wheelchair accessible</li> <li>• Stays in place</li> <li>• Easy to clean</li> <li>• Consistent impact-absorbing qualities</li> <li>• Manufactured in a quality-controlled environment</li> <li>• Lower maintenance costs over long term</li> <li>• Very durable</li> <li>• Tiles may be placed individually</li> </ul>	<ul style="list-style-type: none"> <li>• Requires professional installation</li> <li>• Quality varies by manufacturer</li> <li>• May separate or shift if not installed professionally</li> <li>• Can get very hot in some areas of the country</li> </ul>
<b>Playground Turf</b>	<ul style="list-style-type: none"> <li>• Wheelchair accessible</li> <li>• Stays in place</li> <li>• Consistent impact-absorbing qualities</li> <li>• Lower maintenance costs over long term</li> <li>• Looks like natural grass, which may increase play value</li> </ul>	<ul style="list-style-type: none"> <li>• Requires professional installation</li> <li>• Quality varies by manufacturer</li> <li>• If the playground is higher than 12', the turf may not meet standards.</li> <li>• It may be hot or create static. Ask the manufacturer what is done to mitigate against this.</li> </ul>

## PLAYGROUND TESTING AND TECHNICAL INFORMATION

**What is ASTM F1292?** It is the standard that provides a uniform means of quantifying the impact absorbing properties of playground surfaces and is appropriately used to compare the relative performance of different playground surfacing materials.

**How do I know if the product I am purchasing is ASTM F1292 compliant?** Every manufacturer should be able to provide a certified test report listing the ASTM F1292 results for their surfacing product. Also consider requiring the installer to conduct a post installation field test to determine if the installed surface installed meets the safety standards on day one. If not included in the work specifications, be sure your budget includes the cost of the testing.

**How are compliance tests conducted?** A metal instrument is dropped onto the surfacing sample, which sends key measurements to a computer upon impact. Two key impact absorbing properties are measured; HIC (head injury criteria) and GMAX. Both of these properties relate to the ability of the surfacing system to absorb impact or cushion falls. The standard allows for a maximum HIC reading of 1000 and a maximum GMAX reading of 200. For a surface to meet the standard, it must provide readings below these numbers at a pre-specified height. These values are the maximum threshold which must never be exceeded over the entire life cycle of the product.

**How do I make sure the product is compliant throughout the life of the product?** Look for the lowest possible HIC rating within your budget to ensure that the surface remains compliant for many years. Examine the warranty offered by the manufacturer to determine if it guarantees that the surfacing will be ASTM F1292 compliant the full length of the warranty.

**What is ASTM F1951-99?** This specification establishes minimum characteristics for the factors that determine accessibility. This specification applies to all types of materials that can be used under and around playground equipment. Playground surfacing must meet both ASTM Standards.

**Does the accessibility surfacing need to be throughout the entire playground?** According to the Access Board, these are minimum standards and the entire play surface area is not required to be accessible. The only required accessible surface area includes the accessible route from the entry of the play area, at least one connection to each accessible play component (points of entry and egress), and any clear space requirements adjacent to accessible play components. Children tend to move spontaneously through play equipment, navigating their own preferred routes. Designing the entire use zone as a congruent accessible route is recommended to accommodate the free play behavior of all children in the space.

**Has there been research regarding the best surfacing for accessibility?** The National Accessibility Center completed research on playground surfacing in 2013.

The NAC concluded, "...there is no perfect playground surface. Even within 12 months of installation, each type of surface had some type of issue or series of issues that may affect the product's performance and contribute to the necessity and frequency of surface maintenance to assure accessibility and safety for use by children on a daily basis."

**Where can I get more information about Playground Surfacing?** 7 Things Every Playground Owner Should Know About the Accessibility of Their Playground Surfaces – A publication of the U.S. Access Board and the National Center on Accessibility. [www.access-board.gov](http://www.access-board.gov)

A Longitudinal Study of Playground Surfaces to Evaluate Accessibility, Final Report 2013.  
[www.scholarworks.iu.edu](http://www.scholarworks.iu.edu)

Choosing IPEMA Certified Playground Surfacing – Through research and collaboration with those in the playground industry, IPEMA published a surfacing guide to provide a complete source of regulations concerning proper installation and maintenance of all IPEMA certified playground surfaces. The guide provides an overview of different types of surfacing materials, and detailed information on the installation and maintenance of materials.

*“Music is magical! We have wonderful crowds dancing, singing, and playing together while attending the Magical Bridge Foundation Music Is Magic Summer Concert Series. The concerts celebrate community, friendships, and the joy of music for everyone! All concerts are free, family-friendly, welcoming to all, and cover every genre, including jazz, rock, folk rock, R&B, country blues, world music, and children’s and youth music. We invite musicians who are fun, engaging, and promote inclusivity (and kindness) in their music and work.”*



## COLLABORATORS

### ORIGINAL INCLUSIVE PLAY WORK GROUP MEMBERS



**JC Boushh (California)** is a play consultant, head playground designer for Design for Play, and a specialist in child development.



**Cindy Burkhour (Michigan)** is a Certified Therapeutic Recreation Specialist and Certified Park and Recreation Professional who has consulted around the country on a variety of recreation issues in the areas of inclusive recreation, universal design, and the ADA.



**Jim Dzatkowicz, (Ohio)** RLA, ASLA, has over two decades of experience as a landscape architect within the parks and recreation arena.



**Carrie Fannin (Washington)** is the Executive Director at Children’s Institute for Learning Differences (CHILD) located in Renton, Washington. In 2009 she founded Sensory Planet®, an online community for those whose lives are affected by Sensory Processing Disorder. Carrie has an adult daughter who was diagnosed with SPD at age 6.



**Blake Hobson (Ohio)** is the president of Midstates Recreation where he has been a playground consultant for over 25 years. More importantly, as a father, he has walked in the shoes of parents who have children with significant challenges.



**Christopher Joseph (Maryland)** is the Director of Physical Therapy at the Kennedy Krieger Institute. Chris has a background in motor learning and motor control in children and brings a unique perspective to the team regarding how children with disabilities move through space.



**Mara Kaplan (Pennsylvania)** is the driving force behind Let Kids Play, a consulting firm working to ensure that all children have excellent play opportunities. Mara has 25 years' experience as an educator and advocate for inclusive play, and she is the parent of a child with disabilities.

## REVIEWERS

Thanks to the following people who reviewed the Inclusive Play Design Guide in 2012 or 2018. A special thank you to those who contributed to both versions.

**Lynn A. Barnett**, Ph.D. is Associate Professor in the Department of Recreation, Sport, and Tourism at the University of Illinois in Urbana-Champaign. Professor Barnett-Morris' areas of research include theoretical formulation of children's play, intrinsic motivation and rewards, and the play of children with special needs.

**Norman K. Booth**, FASLA, is a registered landscape architect, photographer, outdoor enthusiast, and professor emeritus at The Ohio State University, where he taught landscape architectural design and site planning courses for 31 years at the undergraduate and graduate levels.

**Cathy DeLeon**, OTR/L, is the Director of Clinical Services at Developmental Therapy Services, a division of Children's Institute for Learning Differences.

**Teresa (Teri) B. Hendy**, CPSI, is the President and owner of Site Masters, a design and safety consulting firm. Teri brings extensive knowledge of the standards and guidelines that apply to the playground industry as she has actively worked with the ASTM subcommittees and the Consumer Product Safety Commission since 1987.

**Patty Hobson** has been a sales representative for Playworld and other outside recreation products for 17 years. Her passion and expertise are in designing play spaces for all ages and all abilities. She focuses on the abilities within the disabilities and considers social interaction to be one of the most important features integrated into a design.

**Rebecca Ho** is the Executive Officer for the Australian charity, Touched by Olivia Foundation, which has built over 25 inclusive playgrounds across Australia.

**Chad Kennedy's** interest in disability advocacy originates from his research/design work at the Center for Persons with Disabilities. He is a licensed landscape architect, certified playground safety inspector, and national advocate for equal play. He has also designed many socially inclusive and sensory integrated playgrounds in the Western U.S.

**Carol A. Krawczyk**, RLA, ASLA, MPsy, is a landscape architect and environmental psychologist who specializes in research-based design. Krawczyk's areas of design and research include children's play environments; and how the physical environment affects children who are on the Autism Spectrum.

**Laurie Renke** has been advocating for children and families whose lives have been touched by SPD for over a decade. She founded SPD Parent Connections, a grassroots effort offering parent support and education.

**Ben Richards** is an Australian playground designer who specializes in inclusive public playgrounds. His interest is in making public play more accessible to those with physical and neurological impairments.

**Fiona Robbé** is a registered Landscape Architect. Fiona has specialized in the design of outdoor children's environments for the past fifteen years. Fiona's commitment to the design of quality playgrounds includes advocacy for the rights of all ages and abilities to play outdoors safely, regularly, and imaginatively.

**Amy Wagenfeld**, PhD, OTR/L, SCEM, FAOTA is Associate Professor and Capstone Coordinator in the OTD program at Johnson & Wales University and Principal of design +cOnsulTation.. Her work focuses on collaborative design, programming, and research of outdoor environments that support physical and emotional development and learning in healthcare, community, senior living, military, correctional, children's and educational settings.



# RESOURCES

## ADA AND OTHER ACCESSIBILITY RESOURCES

**ADA Checklist for Readily Achievable Barrier Removal** - This checklist is based on the 2010 ADA Standards for Accessible Design. The specifications are in this checklist to help determine what may be readily achievable barrier removal for existing facilities. The checklist is a project of the Institute for Human Centered Design. [www.adachecklist.org](http://www.adachecklist.org)

**Americans with Disability Act** - Home for ADA information. [www.ada.gov](http://www.ada.gov)

**IPEMA'S Checklist for Access** - This checklist and visual helps owners of public play areas use the Department of Justice's 2010 Standards for Accessible Design. The checklist provides everything you need to know about access route dimensions, surfacing requirements, and play equipment ramps and transfer stations for playgrounds of all sizes.

**National Accessibility Center (NCA)** - The National Center on Accessibility promotes inclusion for people with disabilities in parks, recreation, and tourism. NCA investigates the critical issues facing recreation professionals as they work to make their programs and facilities fully inclusive. [www.ncaonline.org](http://www.ncaonline.org)

**TED and TEDx talks** - Many professionals are discussing the needs and hows of inclusive play on the TED and TEDx platforms. A simple search on inclusive play will reveal many experts that can be contacted. [www.ted.com/talks](http://www.ted.com/talks)

**United States Access Board** - A federal agency committed to accessible design. [www.access-board.gov](http://www.access-board.gov)

## HOW TO FIND A LANDSCAPE ARCHITECT

**American Society of Landscape Architects** - The American Society of Landscape Architects is the professional association for landscape architects in the United States, representing more than 15,000 members. Their website has a "find a firm" feature to help you begin your search. [www.asla.org](http://www.asla.org)

## PLAYGROUND RESOURCES

**Accessibleplayground.net** is the home for accessible playgrounds on the web. The site helps people find resources to design and build a playground that goes beyond ADA. [www.accessibleplayground.net](http://www.accessibleplayground.net)

**IPEMA** Provides 3rd party Product Certification services for U.S. and Canadian public play equipment and public play surfacing materials in the U.S. [www.ipema.org](http://www.ipema.org)

**Let Kids Play** was founded by Mara Kaplan and is a consulting firm that works with manufacturers, landscape architects, communities, non-profits, park districts, and parents on projects that ensure that all children have the best play opportunities regardless of ability. Let Kids Play can be the accessibility and inclusion expert that is needed on your team. [www.letkidsplay.com](http://www.letkidsplay.com)

**National Recreation and Parks Association (NRPA)** - NRPA is a non-profit organization dedicated to advancing park, recreation, and conservation efforts that enhance quality of life for all people. [www.nrpa.org](http://www.nrpa.org)

**Public Playground Safety Handbook** The handbook presents safety information for public playground equipment in the form of guidelines. The United States Consumer Product Safety Commission believes that the recommendations in this handbook, along with the technical information in the ASTM standards for public playgrounds, contribute to greater playground safety. [www.cpsc.gov/s3fs-public/325.pdf](http://www.cpsc.gov/s3fs-public/325.pdf)

**Voice of Play** - The "Voice of Play" website is IPEMA's effort to educate the public about the various benefits of play. The website provides resources on the benefits of play and playground safety. [www.voiceofplay.org](http://www.voiceofplay.org)

## NON-PROFITS THAT HELP BUILD PLAYGROUNDS

**Harper's Playgrounds** - based in Portland, OR has a model of radically inclusive through several levels of inviting: physically inviting, socially inviting, and emotionally inviting. [www.harpersplayground.org](http://www.harpersplayground.org)

**KaBOOM!** Is the longest-running non-profit that specializes in linking communities and corporations together to build safe and accessible playgrounds. [www.kaboom.org](http://www.kaboom.org)

**Magical Bridge Foundation** - The mission of Magical Bridge Foundation is to give everyone, regardless of ability or disability the love of play, and the joy of community. Magical Bridge Foundation is responding to the urgent need for innovative and inclusive playgrounds. They are using their years of research, fundraising expertise, development, design, and construction strategies to build Magical Bridge Playgrounds in the Bay Area and eventually around the country. [www.magicalbridge.org](http://www.magicalbridge.org)

**Touched by Olivia** - Since 2006, it has been the mission of the Touched by Olivia Foundation to help improve the health and happiness of Australian kids. One of their initiatives is to create a level playing field for children with special needs. They help design all-abilities playgrounds that enable visitors of all abilities and ages to play on the same equipment, ensuring integration of children and families with special needs. [www.touchedbyolivia.com.au](http://www.touchedbyolivia.com.au)

**Unlimited Play** helps plan, design, and build fully accessible playgrounds that allow all children - regardless of their abilities - to play together. [www.unlimitedplay.org](http://www.unlimitedplay.org)

## UNIVERSAL DESIGN RESOURCES

**Global Universal Design Commission** - a non-profit that promotes the understanding and use of Universal Design in the development of buildings, products, and environments to be useable by all people, to the greatest extent possible, without the need for adaptation, retrofitting, or specialized design. [www.globaluniversaldesign.com](http://www.globaluniversaldesign.com)

**IDEA Center at Buffalo University** - Dedicated to making environments and products more usable, safer, and healthier to meet the needs of an increasingly diverse population. [idea.ap.buffalo.edu](http://idea.ap.buffalo.edu)

**Institute for Human Centered Design** - An international non-governmental educational organization committed to advancing the role of design in expanding opportunity and enhancing experience for people of all ages and abilities through excellence in design. [www.humancentereddesign.org](http://www.humancentereddesign.org)

**UniversalDesign.com** – The leading resource for news and information on Universal Design. A rich website resource that includes pursuing education, finding organizations and consultants, locating events, and finding the most recent resources. [www.universaldesign.com](http://www.universaldesign.com)

### WAYFINDING RESOURCES

**Center for Inclusive Design and Environment Access**, University of Buffalo: The IDEA Center practices human centered design through research, development, service, dissemination, and educational activities. [www.idea.ap.buffalo.edu](http://www.idea.ap.buffalo.edu)

**Light House for the Blind and Visually Impaired**, based in San Francisco, promotes the independence and equality of people who are blind or have low vision. They pursue the development of new technology, encourage innovation, and amplify the voices of blind individuals around the world. This includes tactile maps and signage. [www.lighthouse-sf.org](http://www.lighthouse-sf.org)

### RESTROOM RESOURCES

**Changing Spaces & Places** – There are websites to get more information on adult changing tables and usable restrooms for people with disabilities.  
[www.changingspacescampaign.com](http://www.changingspacescampaign.com)  
[www.changing-places.org](http://www.changing-places.org)  
[www.universalchangingplaces.com](http://www.universalchangingplaces.com)

### DISABILITY RESOURCES

**Access for All: A Resource Manual for Meeting the Needs of One-Stop Customers with Disabilities** - This comprehensive manual helps One-Stop Systems meet the needs of individuals with disabilities. [www.communityinclusion.org/onestop/onestopmanual.html](http://www.communityinclusion.org/onestop/onestopmanual.html)

Recommended chapters:

Section 4: Disability Overview  
This section provides a basic overview of what the term “disability” means, provides specific guidelines concerning language and etiquette, and also discusses “Myths and Facts” about people with disabilities.

Section 5: Disability Fact Sheets  
Fact sheets on a wide variety of disabilities, to assist in understanding the implications of various conditions. The fact sheets cover cognitive disabilities, sensory disabilities, physical disabilities, and others.

**Designing by Disabilities** – Distributed by Playworld, this document matches intents from the Inclusive Play Design Guide with prevalent needs of children with the most common childhood disabilities. Ask your local sales representative for a copy.

The following chart directs you to websites and organizations to get more information about common childhood disabilities.

DISABILITY	TOP ADVOCACY AGENCIES
General Disabilities	The Center for Persons With Disabilities
Autism Spectrum Disorder	Autism Speaks Autism Society
Attention Deficit Disorder	CHADD—The National Resource on ADHD
Cerebral Palsy	United Cerebral Palsy
Down Syndrome	National Down Syndrome Association National Down Syndrome Congress
Epilepsy	Epilepsy Foundation
Intellectual Disability	The ARC
Learning Disabilities	Learning Disabilities Association of America National Center for Learning Disabilities International Dyslexia Association
Sensory Processing Disorders	Star Institute SPD Network
Speech and Language Disabilities	Childhood Apraxia of Speech Association American Speech-Language-Hearing Foundation Dystonia Medical Research Foundation
Spina Bifida	Spina Bifida Association
Rare Disorders	NORD is a patient advocacy organization dedicated to individuals with rare diseases and the organizations that serve them.

### ADDITIONAL RESOURCES

**Carol Torgan’s List of Greatest Play Resources** includes organizations, resources, guidelines and reports, current news stories, books, audio and video, e-newsletters, blogs, twitter hashtags, image and design collections, programs, locations, and events.  
[www.caroltorgan.com/100-top-play-resources](http://www.caroltorgan.com/100-top-play-resources)

**The Play & Playground Encyclopedia** - This encyclopedia offers valuable information about organizations, companies, and people who have contributed to the play and playground industries, and listings about issues regarding play, safety, and playground construction.  
[www.pgpedia.com](http://www.pgpedia.com)





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