



Accessibility and Usability of Play Spaces

Play is essential to children's mastery of physical, social, and risk management skills, and the physical environment has the potential to either reinforce or hinder acquisition of these skills.¹ Play spaces can support the development of children's gross motor skills, social interactions, and creative thought, while children's engagement with challenging playground and/or physical structures can increase children's activity levels.² Furthermore, sandboxes can motivate children to gather and interact in small groups,³ and environmental variables (i.e., natural/synthetic structures, surfaces, or loose parts), semi-private spaces (e.g. areas in which children feel they are hidden), and connective equipment (e.g. bridges or tunnels) can promote creativity.⁴ Research suggests, however, that some features of a playspace can marginalize those who are less physically able,¹ and it is common for children with varying physical abilities to find that they are unable to access or use the majority of play equipment and its features. This challenge can exclude disabled children from playing with their typically developing peers.^{5,6}

When adapted or specialized equipment is made available, it is often limited in quantity and engaged with alone, thereby highlighting the functional limitations of that child and further segregating them from their peers.^{5,7,8} These factors can reduce physically challenged children's opportunities for play, and drive them towards sedentary activities such as screen time (e.g., watching television and using the computer) or in more structured games.^{6,8} Unstructured play is significant for physically challenged children's healthy development, as engagement in it allows them to challenge themselves, make friends, create positive perceptions of their disability, and recognize their capabilities.⁵ One study of children's access to nature-based play in summer camps found that those children with disabilities who engaged in challenging nature-based play perceived their bodies more positively, became more self-directed, and took greater initiative.⁸

Accessibility and Usability

Accessible design is the concept of developing equipment and built environments that comply with standards by which they can be objectively assessed.^{9,10} It focuses on the functional limitations of individuals with disabilities, and attempts to meet their environmental and communication needs by achieving certain standards of usability.¹¹ This often results in the incorporation of adapted or specialized elements.

Usability is defined as the ability to navigate and interact with an environment on comparable terms with others. *Universal design* is the concept of creating products and built environments that are accessible and usable by the greatest number of people.¹² It follows 7 principles (Table 1) that acknowledge the spectrum and dynamism of human abilities.¹² Through universal design's appropriate application, objects and spaces can be used by individuals regardless of their age, agility, and/or physical or sensory abilities.¹³ Unlike accessibility, universal design takes into account individual evaluation and subjective expression on the ability to use and move within and around a space.¹²

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Table 1—Principles of universal design.¹²

	Principle	Explanation
1	Equitable Use	The design is useful and marketable to people with diverse abilities.
2	Flexibility in Use	The design accommodates a wide range of individual preferences and abilities.
3	Simple and Intuitive	Use of design is easy to understand regardless of the user’s experience, knowledge, language skills, or education level.
4	Perceptible Information	The design communicates necessary information effectively to the user regardless of ambient conditions or the user’s sensory abilities.
5	Tolerance for Error	The design minimizes hazards and the adverse consequences of accidental or unintended actions.
6	Low Physical Effort	The design can be used efficiently and comfortably and with a minimum of fatigue.
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.

Canadian Accessibility Acts, Legislation and Standards

In 2010, Canada ratified the United Nations’ Convention on the Rights of Persons with Disabilities (CRPD), which resulted in implementation of minimum accessibility standards and guidelines.¹⁴ Three provinces have enacted comprehensive accessibility laws: Ontario (*Accessibility for Ontarians with Disabilities Act, 2005*); Manitoba (*Accessibility for Manitobans Act, 2013*); and Nova Scotia (*Accessibility Act, 2017*).

Accessibility for Ontarians with Disabilities Act (AODA)

Ontario has the most comprehensive accessibility law in Canada.¹⁵ It was modeled after the *Americans with Disabilities Act*, and has the goal of making the province fully accessible by 2025. In 2012, Part IV.1—*Design of Public Spaces Standards (Accessibility Standards for the Built Environment)* was introduced to the AODA, which outlines the application, consultation and design requirements for ‘outdoor playspaces’. In 2016, compliance with this standard was required for the public sector and ‘large’ private organizations (50+ employees) that are undertaking substantial renovations or construction of a new playspace. Organizations are required to incorporate:

- Accessible features (e.g. sensory or active play components);
- Ground surfaces that are firm, stable, and absorb impact for injury prevention; and
- Ground surfaces with enough space or sufficient clearance so that individuals (particularly children and caregivers) can move through, in, and around the area.

The standards are broadly written and allow for flexibility to implement elements that meet the needs of the community—including mandatory consultation with the public, persons with disabilities, and (where established) municipal Accessibility Advisory Committees.¹⁴

Annex H: Children’s Playspaces and Equipment that are Accessible to Persons with Disabilities

Outside of Ontario there are few laws requiring that playspaces be accessible. Recommendations, however, have been made by the Canadian Standards Association (CSA) to assist provinces and their municipalities in meeting the needs of children with disabilities. In 2007, CSA released an updated version of the *Children’s Playspaces and Equipment Standard (CAN/CSA-Z614)* which contain accessibility guidelines titled, *Annex H: Children’s playspaces and equipment that are accessible to persons with disabilities*. This Annex proposes minimum accessibility guidelines for newly constructed and redeveloped playspaces. Its application can increase the physical access of playspaces, foster a sense of usability, and increase opportunities for diverse types of play.¹⁶ Detailed specifications for playspace elements (i.e. play components, accessible routes, transfer systems, and ground surfaces) are provided, and certain specifications are considered for the different developmental stages of children with disabilities.¹⁶ Compliance with Standard CAN/CSA-Z614 is not required by law, except in Ontario and Quebec, and the adoption of Annex H is optional.

Summary

Design elements that may lead to positive outcomes for typically developing children may not be suitable for children with disabilities, or may negatively influence their play experiences. Thus, it is important to design inclusive environments that foster the benefits of play for children of *all* abilities. While this concept is widely recognized, legislation often employs a single solution—the removal of physical barriers. This is not enough to foster optimal development for children with disabilities. The removal of barriers should be accompanied by the introduction of elements that initiate diverse types of play and social interactions,⁵ and the removal of elements that draw unnecessary attention to impairment.⁸

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