

Universal Design: Integrating the Principles into Camp Activities



Prepared by Architecture & Access

for Sport and Recreation Victoria (Camps) and for the Victorian YMCA



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Sport and Recreation Victoria and the Victorian YMCA have made this report available to increase awareness of the applicability of the principles of Universal Design into the residential camping community.

Universal Design: Integrating the Principles into Camp Activities

Introduction

Sport and Recreation Victoria (SRV) are a division of the Department of Transport, Planning and Local Infrastructure, formerly known as the Department of Planning and Community Development. The division attempts to provide greater access to and opportunities for participation by all Victorians in sport and recreation, with a focus on improving the quality of existing facilities (2011, State Government Victoria).

In 2011, physical access audits were completed by architecture & access (formerly Davis Langdon) at five SRV camp sites across Victoria, with the aim of identifying non-conformances specifically regarding the access provisions for people with disabilities within the built environment. From these audits, recommendations for modifications to the internal and external built environment have been made based on the requirements of the Disability Discrimination Act (1992), associated Australian Standards and the principles of Universal Design (UD).

According to the National Construction Code 2012 (NCC), the short-term residential nature of a camp would be classified as a 1b class of building, whereby access is required “to and within not less than of each type of room or space for use in common by the residents”. The aforementioned physical access audits were able to identify access issues to these common areas. However, an interpretation of “providing access within” common spaces would include providing access within the activities completed in them.

Further to the above NCC interpretation, SRV understands that it is of the utmost importance, that a person can do more within the camp environment than just move around it. The activities and camp program are a significant part of the camp experience and should be designed for participation by people of all abilities.

There is no legislation within Australia to guide the design of sporting or leisure activities that enable participation by people with varied abilities. Additionally, often ‘accessible features’ that meet prescribed codes and legislation for use by people with disabilities is achieved by the provision of distinctive features for “special” user groups, often having the potential to segregate people with disabilities from other users (Story, 1998, pp4). Architecture & access has been commissioned to conduct a literature review to investigate examples where UD has been applied in camp activities and overall programs, in order to make evidence-based recommendations regarding recreational activities and overall camp programs within the SRV camps to ensure participation by all by eliminating segregation as much as possible in the process.

This paper will outline the importance of UD, and ways in which environments, activities and programs within SRV camps can be used and experienced by people of all ages and abilities.

Method

Initially, a review of the SRV camps was conducted in order to understand the purpose of their camps and what is trying to be achieved. Subsequently, research was conducted into known benefits of camp activities and what is important within the camp experience for an individual to gain the most out of their involvement.

A search was then conducted of activities currently provided within camps and similar facilities that were considered to be Universal in their design. These activities were then independently reviewed against the principles of UD in order to determine what could be considered to be appropriate to be implemented into SRV camps.

Literature was located using a search of Ebscohost, CINAHL, Pubmed and Psycinfo

using the key words 'Recreation', 'Universal Design', 'Inclusive', 'Activities', 'Camps', 'Programs', 'Physical', 'Children', 'Disabilities', 'Adaptable', 'Sport', 'Accessible'. Literature was also identified through the bibliographies of selected articles.

While the validity of journal articles is considered to be high, there has been limited research conducted on the topic. In order to look closer into the activities within camps, resources were identified through websites and textbooks for camps and recreation. These secondary sources consisted of anecdotal evidence and presented practical applications in place within existing camps and were considered relevant and valuable to this review.

Findings

The Role of a Camp and Activities

In order to understand the importance of incorporating a UD focus to the design of camp activities and programs, the reasons that a person attends a camp should be recognised.

Camps have been shown to assist in the development of self-identity, self-worth, self-esteem, social, leadership and communication skills as well as independence in a challenging and active environment (ACA, 2012, NSW Government, 2012). This can all be achieved through active participation in a wide range of activities and experiences. Activities are designed to be fun and engaging to individuals, as well as having an element that pushes individual limits. These benefits of attending a camp can however be lost if a person is unable to participate in these activities.

We currently live in a diverse community. Advances in technology and medicine have meant that people are living longer, surviving accidents and illnesses that were once fatal. Additionally, 18.5% of people living in Australia in 2009 had a disability of some kind (ABS, 2012). Unfortunately, camp activities are often not designed in order to accommodate such diversity. Activities can often be designed in a way that excludes particular user groups;

either by being completely inaccessible, or segregating. It is essential these activities be designed in a way that ensures that users are able to participate equally to gain the full camp experience, regardless of age or ability. Furthermore, it is the full program (schedule of activities throughout the camp) that also needs to be recognised as important. It is essential that the program is designed in a way that acknowledges different user groups and elements such as fatigue.

Within camps, whether for children or adults, there is generally an emphasis on outdoor activities and other programs that have a hands-on and interactive nature. It has been found that there is a risk of children with disabilities having limited participation in recreational activities, such as those that may be undertaken in camps. Heah et al (2007) found that as little as 26.5% of children with disabilities were able to participate in physical recreation programs run within their community, something that Sanford et al (1998) argues is due to the design of the built environment and the activities undertaken within it (Sanford et al, 1998, pp150).

Noting the above, it must also be emphasised that although it is beneficial for all people to participate in the full range of activities within a specific camp program, there should still be an element of challenge for each person. As discussed previously, camps are generally a forum for pushing individual limits, so to build independence and confidence. It is as of equal importance that the activities are experienced equivalently by all, inclusive of the risks and challenges that push each person to their individual limits. This is supported by Block (2000, cited in Ohtake, 2004), who suggests 'standards' to guide team sport development that ensures appropriate involvement of students with disabilities specific to team sports. The first of these is that the design is challenging, so that it promotes "the maximum use of physical, cognitive, and social skills" of all people as too much or too little assistance reduces the ability for individuals to practice and develop skills.

In order to create an increase in the level of participation by all people in indoor and

outdoor camp activities, we must ensure that the design of the activities and their surrounding environment is inclusive. Individuals have the right to use their environment just as others may use it and therefore it is imperative that these activities are made available and used in the same manner by all participants. By creating activities in this way, it will reduce the segregation, discrimination and exclusion of any individual of any age or ability. Activities therefore need to be organised and managed with a UD focus.

Universal Design

Sanford (1998) defines UD as being an approach to creating everyday products and environments that are useable by all people to the greatest extent possible, regardless of age or ability. This type of design is a fundamental shift in thinking about accessibility. UD steers away from the idea that barriers need to be removed or that people require extra help or skills to navigate their environment; Story (1998) states that UD involves “the design of products and environments that can be used and experienced by people of all ages and abilities, to the greatest extent possible, without adaptation” (pp4), suggesting that it is thought of as a way of meeting the environmental needs of all users.

Often, when considering what is an inclusive environment, or one that is accessible, we can become narrow-minded. When discussing the accessibility of a building or its relevant elements, it is generally a measurement of the “fulfilment of legislative requirements” (NC State University, 1997, pp1). In short, a building or a site that is compliant with relevant standards that would deem it “accessible” is not necessarily indicative of its functionality for a wide range of users. UD is an approach which enables use by the maximum number of users. Beyond that of “accessibility” UD is a sophisticated approach, whereby people of all abilities are catered for.

It is important to note that UD is there to assist everyone, not just those who have a disability. The benefit of this design style is that it is inclusive and it makes it possible to cater for

the young and the elderly, people with varying abilities or a person pushing a pram or even a trolley.

When providing UD within camps, it is of the upmost importance that an individual is not segregated or excluded. When considering that exclusion can actually occur when providing ‘specialised accessible’ features, we must consider the seven principles of UD first and foremost to ensure that all people can use and experience the activity or program equally.

Seven principles of UD exist that can be used as guidelines to measure the extent to which a program, building, or product will be able to be used by the maximum range of people.

These principles are as follows:

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 in Use – Use of the design is easy to understand, regardless of the user’s experience, knowledge, language skills, or current concentration levels.
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 minimises 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 a user’s body size, posture, or mobility.

(NC State University, 1997)

It is evident that the above principles are intended to assist in catering for a variety of people. The idea is that elements are designed in a way that makes them consistent in their usability by all people to ensure no

discrimination occurs. Similarly, it can be seen that these principles exist to make the environment easier for everyone to navigate, whether it be from a strength or fatigue perspective or due to a variance in size between people. All people benefit from this type of design, but how can it be transferred into activities and outdoor participation?

Universal Design Guidelines

First we must consider how one gets to the specific activity, then once there what can be done to ensure that all people can participate equally? The seven principles of UD have a number of underlying guidelines that can assist in the design direction. The below tables detail the guidelines and offer suggestions based on each that are commonly used within outdoor recreation to ensure maximum participation by all.

Equitable Use

Provide the same means of use for all users; identical wherever possible, equivalent where not
Avoid segregating or stigmatising any users
Provisions for privacy, security and safety should be equally available to all users
Make the design appealing to all users

These guidelines focus on the principle that all individuals should be able to use the environment in the same manner as their peers. Within outdoor recreation, we could consider such things as ensuring that the path to the activity is one that can be used by all, and is wide enough to accommodate a number of people walking alongside each other, whether they are using a mobility aid, or carrying equipment. It is also important to ensure that the paths are traversable by the maximum amount of people, by being a flat firm surface. Essentially, it is of the utmost importance to ensure that all people can arrive in the same way, not provide stairs for one group and ramps for another for example (Story, 1998).

Additionally, the activity itself should adhere to these guidelines. For example, a ropes course or challenge course can be developed using all ramps and no stairs; colour contrasting

between elements; supporting harnesses for flying foxes or even the use of giant swings. All of these elements would be used in the same manner by all people. What is also noteworthy is that when elements are designed to be equitable in use, segregation is non-existent.

Flexibility in Use

Provide choice in method of use
Accommodate right- or left-handed access or use
Facilitate the users accuracy and precision
Provide adaptability to the user's pace

Flexibility in use guidelines focus on the ability for the activity to be used in a variety of ways by way of choice by the user in a way that does not provide one 'specialised' way of doing things for one person and another way specifically for another. Design that is based around this guideline means that decision in regards to the way in which the activity is to be undertaken can be made by the user rather than dictated by the design.

An example of flexibility in use within outdoor camp activities could be providing seating in archery stations so that people can choose to sit or stand. Stations would not have barriers in the front so that people of all statures can use the space. Additionally, arrows could be provided in a loose canister so that it can be moved to accommodate a left or right handed individual. Flexibility is also achieved as the time taken to complete this activity is entirely dictated by the pace of the user.

The benefit of providing flexibility in use is that there is a power of choice and an individualised take on each task for each person, no one 'specialised' adaptation for a specific user group, which as discussed, can lead to segregation.

Program development should also have an element of flexibility whereby activities are interchangeable within a program. The program may need to be adjusted if group members are fatigued, or may not have the capacities to complete the planned task. It is important that a range of activities are on offer, as although the best attempt may be made, it is not possible to accommodate all user

groups with every activity within the camps. Have a number of activities planned that can be completed depending on the preferences and capacities of the group members.

Simple and Intuitive Use

Eliminate unnecessary complexity
Be consistent with user expectations and intuition
Accommodate a wide range of literacy and language skills
Arrange information consistent with its importance
Provide effective prompting and feedback during and after task completion

It is essential to provide activities that require little explanation and that can be understood and undertaken by people with varying cognitive abilities. Bush walks and camp fires are activities that fit within these guidelines.

In addition, where possible provide pictorial instructions that are easy to follow or give demonstrations on how to perform a task, or the rules of a game.

Perceptible Information

Use different modes for presentation of essential information
Provide adequate contrast between essential information and its surroundings
Maximise legibility of essential information
Make it easy to give directions or instructions
Provide compatibility with a variety of techniques or devices used by people with sensory limitations

This principle is surrounded by the idea that information should be provided in a variety of ways in order to accommodate individuals with differing sensory abilities. It is recommended that information is provided using a multitude of methods. For example, when indicating for someone to 'GO', hold up a bright green card that says 'GO' in a contrasting colour, as well as verbally telling the individual to 'GO'. These types of techniques could be used with any individual and be transferred to a number of outdoor activities. It is also important to note that providing perceptible information is not

limited to being used for individuals with vision or hearing impairments.

Tolerance for Error

Arrange elements to minimise hazards and errors
Provide warnings of hazards and errors
Provide fail safe features
Discourage unconscious action in tasks that require vigilance

The health and safety of individuals should always be considered when designing activities whether they are conducted in or outdoors. Minimising and managing significant risks is essential within a public place, as people should be able to navigate without risking physical danger. With regards to activities that could be implemented in tasks, we could consider archery, and the potential for a person to unconsciously go to retrieve their equipment while others are not finished shooting. Obviously, this action poses a risk. When working within these guidelines, recommendations could be made in a number of ways, provide a number of visual and verbal cues that would indicate when it is appropriate to 'GO' and when they must 'STOP'.

It is important however, that an element of challenge is still maintained when dealing with hazards. For example risks could also be managed through the provision of safety equipment. For example harnesses for a ropes course and barriers that would prevent a person from falling to the ground. Additionally, it is imperative that staff members be trained to supervise and provide information on the correct way of completing tasks and the maintenance or identification of faulty equipment.

As mentioned previously, health and safety must be included when introducing any new activity or program. An essential aspect to note within this guideline is that health and safety - like the other principles - is relevant to all individuals, not just those with disabilities. This said, management plans for emergency procedures and the like will need to be coordinated to have specific procedures for assisting a person with a disability, and when

considering the general health and safety of the site again, considerations will need to be made that acknowledge the use of the site by people with disabilities, for example, the provision of visual alarms.

Low Physical Effort

Allow user to maintain a neutral body position

Use reasonable operating forces

Minimise repetitive actions

Minimise sustained physical effort

Physical strength and endurance varies from person to person, between male and female, the young and the elderly, and basically just between individuals in general. For this reason, it is necessary to ensure that minimal operating forces are provided where possible to ensure the operation of equipment or engagement in activities is available to the maximum range of users.

Where possible, it is essential to ensure that a person may maintain a neutral body position, for example, being seated in a harness for flying fox or giant swing. This should be done to ensure that a person is not sustained in a position that poses any undue strain on their body. Additionally, physical effort should be reduced where possible, and substituted for where not. Ensure that activities are within a reasonable distance from primary camp areas, so that the distance required to travel is not excessive. A strategy for archery could be to provide a back-drop or barrier, to ensure that equipment retrieval distance is minimal for the person.

There are common camp tasks that do required physical effort, as that is the way in which they are designed, for example bush walking. The amount of physical effort can be reduced however, by providing trails of varying length and also providing rest points at areas where there may be wildlife or attractive scenery. This beauty of this type of UD is that it is not an obvious 'accessible' feature. Chairs can be provided for everyone to rest during a potentially arduous task, whereby the chair is disguised as a lookout area rather than a designated resting spot.

This principle can be used to look at the camp program as well as singular activities. Jason and Brown (2013) conducted a study into the relationship between time and fatigue intensity of individuals with Chronic Fatigue Syndrome using activity logs. It was identified that two out of three groups found that fatigue intensity increased as the day wore on. Morris (et al, 2001) also found that self-reported fatigue increased in the afternoon in patients with Multiple Sclerosis (MS), while a number of business publications also referring to the 'afternoon slump', whereby workers are observed to have decreased energy in the afternoons. It is important that low physical effort is considered especially in the afternoon, when individuals are likely to be tired and potentially less likely to be able to be attentive to instructions due to mental and physical fatigue.

Adelson (2012) provides general planning strategies to assist individuals with MS manage fatigue over the course of the day. These strategies were not found to be specific to this user group, and can be used during the planning of programs to manage the fatigue levels of the group to ensure maximum participation throughout the activities of the day. The idea is to plan the day so that fatigue does not necessarily occur in the afternoons. Pacing is a technique that can be used to reduce the onset of fatigue; it is achieved by taking regular breaks, alternating between high energy and low energy tasks, rather than running a number of high intensity tasks for a group in the morning and having people collapse in the afternoon.

Size and Space for Approach and Use

Provide a clear line of site to important elements for any seated or standing user

Make reach to all components comfortable to any seated or standing user

Accommodate variations in hand and grip size

Provide adequate space for the use of assistive devices or personal assistance

The final UD guideline is one that focuses on the physical size of the environment for the participation in that activity. In general, size and space needs to be provided to the

maximum capacity available. Not only does this mean the physical magnitude of a design element, but also relates to the line of site available with relation to the activity, for example providing a lower barrier on a pier when fishing to ensure that a person can view what they are doing.

Comfort is also a factor within this principle. Adjustable and moveable elements are always favourable to those that remain stationary, for example, providing fishing tackle on an adjustable stand and position next to the person at a height that is within easy reach for them. The size of actual equipment items is also required to be considered. A variety of sized paddles should be provided for canoeing or a variety of glove sizes for gardening, to ensure the majority of people are catered for.

Recommendations

Appendix A - Camp Activity Recommendations explores the strategies discussed thus far in further detail. The activities discussed in this Appendix reveal specific adaptation that can be made to the physical components of the activity, such as equipment.

Facilities within the SRV camps include fields and courts to be used for team sports. While it is possible for these areas to be made accessible, the traditional rules and methods followed within these team sports are often not designed to accommodate people of varied abilities.

It was found that often UD principles are applied from a management perspective such as during team sports. Creative methods are used by coaches or directors that allow the maximum amount of users to participate in the team activity.

Conclusion

People who attend camps have different needs and preferences, some of which may be facilitated by the general design of camp activities more so than others. This can create a social injustice as some individuals may not be getting equal opportunities to participate in these activities. It is necessary to break down these barriers, by designing camp activities

universally to make them useable for everybody.

It was found that often, the environment and design of activities are the main barriers to participation by children with disabilities. If changes are not made within camp settings, and if the design of certain camp elements continue to force reduced participation levels by children with disabilities, negative feelings of frustration or exclusion could be affiliated with camps and the overall camp experience for some users. When considering the reasons to attend a camp, it emphasises how important it is to ensure that activities are designed for all people. Camps will not have the same benefit for certain individuals if they are unable to participate in the activities that are developed to encourage the development of an array of skills such as leadership and increased independence as well as a fun and active experience for all individuals.

Activities must not merely be designed to be inclusive, however. It was found that activities within camps need to be designed with an element of risk and challenge that pushes each individual to their limits, no matter what those limits are. This guideline is based on what was found to be a distinguishing feature of a camp and the activities that are conducted within it.

Strategies have been identified within the literature and assimilated with UD principles that can be used within SRV camps to increase participation for all, while still having an element of challenge and stimulation. These strategies have been explored in Appendices A and B and involve such things as activity or equipment modification, changes to the rules of a game or providing flexibility within the activity so that it is adaptable for all people, yet used in ways that is similar enough for each individual user to reduce segregation.

It should be noted that there will be some instances where specific needs cannot be catered in a universal way, and as a result, individualised actions will need to occur. The idea of UD is to limit these instances where possible. By keeping the principles and guidelines discussed in mind, and designing

environments and activities accordingly, each person is allowed the best possible opportunity to participate, to their full potential rather than be limited by their environment.

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Appendices

Appendix A – Camp Activity Recommendations

Appendix B – Some Useful Best Practice Guidelines in an Australian Context

Appendix A

CAMP ACTIVITY RECOMMENDATIONS

The following activities have been identified as those commonly used within camps across Australia.

- Archery
- Bowling
- Bushwalks/Nature Hikes
- Campfires
- Canoes
- Fishing
- Gardening
- Horse Riding
- Ropes Courses
- Swimming
- Orienteering

Recommendations have been made within each activity to outline ways in which they could be made to be inclusive to the maximum number of people possible, regardless of ability.

A portion of these recommendations have been found within the literature to be used within various American camps, where activities and elements are required to be inclusive in order to be recognised by the American Camps Association. Recommendations have also been made based on the UD principles discussed previously.

Activities have also been considered using the Inclusion spectrum (Australian Sports Commission, 2005). This model looks a number of ways that activities can be performed in order to maximise participation for individual with disabilities. The categories are discussed in Table 2.1.

Table 2.1 The Inclusion Spectrum	
Activity Type	Description
Open	Activity that an entire group can do with little or no modification.
Modified	Entire group performs the same activity with adaptations to challenge and support all abilities.
Parallel	Participants are grouped according to ability and participate in the same activity but at different levels.
Disability Sport Activity	Non-disabled people take part in specific disability sport activities.
Separate	Individual groups participate separately.

Universal design principles are consistent with the 'Open Activity' portion of the spectrum. It is clear from previous discussion that Parallel and Separate are not preferred from a UD perspective. Where possible, recommendations have been designed to ensure that all activities are 'Open' – that is, everyone doing it the same way - however it is necessary at times to adopt 'Modified' activity theory, whereby individual needs may require equipment or rule modification. The idea of UD is to limit these instances where possible.

Activities will need to be considered within the context of the user group. The following activities have been designed to involve the maximum amount of people possible through the recommendations; however there will be activities that are unable to be adapted to the level required at times. In this case, it is crucial that the programme is adapted to include activities that can be completed by the specific users.

Archery

Archery is an activity that can be completed indoors or outdoors, and is a challenging, enjoyable task that can be completed in a social environment. This activity is easily adapted for a range of users however these adaptations can be used by all and do not segregate users with specialised methods or equipment.

Recommendation

Universal Design Principles

Provide 'open' shooting stations that can be used from seated and standing positions.

This will accommodate individuals in wheelchairs or who have lower limb impairments or injuries. This also accommodates people who may have a sore back or be fatigued and wish to sit down whilst completing the activity. The benefit of an 'open' station means there are no barriers to the line of site if seated.



- Equitable in Use
- Flexibility in Use
- Low Physical Effort
- Size and Space for Approach and Use

Images

<http://www.bicesterarchers.co.uk/junior-archery>

<http://lincolnshiresports.com/news/2012/12/10-2-million-legacy-investment-to-deliver-more-sport-for-disabled-people/>

Provide large circulation spaces upon approach to, and within shooting stations.

Stations will be equipped to accommodate wheelchairs and mobility aids, or allow an instructor to stand alongside to provide assistance to novice archers.

- Equitable in Use
- Flexibility in Use
- Size and Space for Approach and Use

High contrast strips or 'feet' that indicate where a person should position themselves in order to shoot.

Assists novice archers in correct positioning; allows individuals with visual impairments to position themselves more independently.

- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Perceptible Information

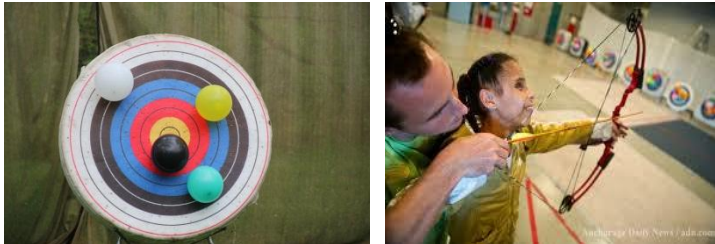
Sound source positioned at or behind target.

Provides an alternative sensory means of finding the target for people with vision impairments.

- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Perceptible Information

Balloons on target for auditory feedback.

Balloons acts as instant auditory feedback, as well as an interactive target for individuals to attempt to hit. This type of design is appealing to multiple users, not just those with low vision. Balloons could also be filled with paint to provide visual feedback.



- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Perceptible Information

Images

<http://www.girlscoutspirit.com/2012/05/archery-is-awesome.html>

<http://www.adn.com/2012/07/11/2538934/northern-archers-hosts-blind-athletes.html>

Provide 'paintball archery' on a white target. Bows would be equipped with a foam ball or cork attached to the end. This will be dipped in paint and fired to hit a white backdrop.

The benefit of this style of archery is that it gives high contrast visual feedback to the user, as well as having a high tolerance for error, should a person go to retrieve their equipment at an unsafe time. This style of archery also has the potential to be managed so that the only requirement is to hit a white wall or replaceable paper, so that it accommodates a person's level of accuracy and precision without comparing one person's abilities to others.

- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Low Physical Effort
- Perceptible Information
- Size and Space for Approach and Use

Brightly coloured target that has a border that contrasts with the surrounds.

Enhances the visual abilities of people with vision impairment and also can be used to distinguish the amount of points a person may receive.



- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Perceptible Information

Images

<http://www.flickr.com/photos/njtechteacher/7564364494/>

Backdrop that has high contrast to the target.

Back drop reduces the retrieval distance required to travel if a person were to miss the target. The high contrast backdrop also allows individuals with vision impairment to better visualise their target.



- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Low Physical Effort
- Perceptible Information

Images

<http://shanebrown2011.wordpress.com/2012/09/10/01-09-2012-london-2012-paralympic-archery-trip/>



Accessible paths of travel to retrieval area that have a non-slip, flat, solid finish.

Allows all people to travel confidently in order to retrieve their respective equipment independently.

- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Low Physical Effort
- Perceptible Information
- Size and Space for Approach and Use

Bush Walks/Nature Hikes

Camps are often considered synonymous with rich natural outdoor environments that encourage exploration and education, resultantly, nature walks are a common activity within camps that people of all abilities participate. Research conducted by Davis (2004) has also revealed that nature walks have a number of health benefits for children and adults, including psychological and social benefits.

Recommendation	Universal Design Principles
<p>Provide wide trails as per best practice guidelines with concrete, timber, asphalt or natural soils with soil stabilisers</p> <p><i>To ensure that all people can travel along the same path together</i></p> 	<ul style="list-style-type: none"> • Equitable in Use • Simple and Intuitive Use • Size and Space for Approach and Use <p>Images http://simplysteamboat.com/blog/the-best-hiking-trails-in-the-heart-of-steamboat-springs/ http://www.nps.gov/efmo/planyourvisit/accessibility.htm</p>
<p>Provide sensory cues on the ground (colour/textured floor) for way-finding</p> <p><i>To ensure that all people can find their way along the path, as there is a clear distinction between path and nature</i></p> 	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Perceptible Information <p>Images http://www.everytrail.com/guide/fifield-cahill-ridge-trail-exploration/map</p>
<p>Provide high contrast sensory cues on the ground to indicate where there is something to focus on</p> <p><i>Allows all individuals to focus on interesting areas (sights and sounds) along the walk.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Perceptible Information

Provide resting spots at 'interesting' locations

Allows people time to rest while everyone observes scenery or sounds.





- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Low Physical Effort
- Perceptible Information
- Size and Space for Approach and Use

Images

www.flickr.com/photos/67222842@N00/5708414225/

Campfires

As with bush walking, participating in a campfire is to be enjoyed in the vast natural surrounds that many camps offer. Sitting around a camp fire provides a social environment for individuals to share stories and interact with one another.

Recommendation	Universal Design Principles
<p>Provide firm, stable and wide paths of travel on all sites <i>To ensure that all people can travel along the same path together</i></p> 	<ul style="list-style-type: none"> • Equitable in Use • Simple and Intuitive Use • Size and Space for Approach and Use <p>Images http://www.fs.fed.us/wildflowers/regions/pacificnorthwest/EightDollar/index.shtml</p>
<p>Provide circles around fire that have spaces alongside seating. <i>This allows wheelchair users or prams to be within the circle.</i></p> 	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Size and Space for Approach and Use <p>Images http://www.fs.fed.us/wildflowers/regions/pacificnorthwest/EightDollar/index.shtml</p>
<p>Incorporate a variety of seating, so that individuals are seated on and have the opportunity to be seated on a number of different chairs or surfaces. <i>By providing a variety of seating, every individual is sitting on something different, which reduces the feel that some individuals may be in 'specialised' equipment for a lack of trunk control for example.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use
<p>Provide centrally located unisex sanitary facilities that are functional in use for all people, and can accommodate a carer. This facility to be used by all people. <i>Generally when gender facilities are provided, a number of people can be within the facility at any one time. This excludes individuals who cannot enter gender facilities due to the fact that they may require accessible features.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Low Physical Effort • Size and Space for Approach and Use

Canoes/Kayaks

Canoeing or kayaking are low impact activities that can be enjoyed by a wide range of users, whether the person is paddling themselves or enjoying the scenery and being on the water. The important thing to note about this activity is that the idea is already universal. All people are seated similarly and floating along the same way, having the same experiences while being supported by the buoyancy of the vessel.

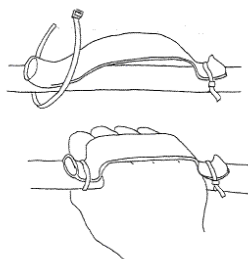
Recommendation	Universal Design Principles
Provide wide paths of travel to the launch site <i>This is so that people can hand-wheel or carry boats on a wheeled trolley to the launch, pulling the boat next to them if they are in a wheelchair.</i>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Low Physical Effort • Size and Space for Approach and Use
Wide, firm paths and level or soft gradient to the water's edge and into water. <i>To ensure that all people can travel along the same path together</i>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use
Rack to stabilize boat at a transferable height. <i>Rack assists all people transferring into a canoe, which due to the conditions can be unstable to enter and can often result in people falling into the water.</i>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use <p>Images http://www.knightboatdocks.com/products/docks/EZ-launch/ </p>
Roller system for boat movement <i>Roller system will allow individuals to move their own boat into the water.</i>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Low Physical Effort • Size and Space for Approach and Use
Transfer assistance in place such as slide boards or mats (portable hoists) <i>A transfer system can be used by all individuals, not just those with mobility impairments. This type of transfer into a boat will reduce the falls risk associated with entering a canoe or kayak as a person can position their body weight over the centre of the boat for a balanced entrance and exit. Include portable hoists for individuals who require increased levels of assistance with transfers.</i>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use <p>Images http://www.knightboatdocks.com/products/docks/EZ-launch/ </p>





Provide straps with Velcro or cable ties on paddles

This can allow varying gripping abilities to be catered for as well assist people who may have slippery hands or find it difficult to grip from sunscreen application for example.



- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Low Physical Effort
- Size and Space for Approach and Use

Images

<http://www.adaptivepaddling.org/adaptations.htm>


Provide paddles that distinctly indicate where a hand should be placed by way of grooves or a high contrast visual indication

This will assist novice canoers and individuals with vision impairment understand appropriate hand placement on the paddle.

- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Low Physical Effort
- Perceptible Information
- Size and Space for Approach and Use

Fishing

A desirable feature of fishing is that it is generally challenging for people of all abilities, as it is unknown by most when the fish are going to bite, in fact a study by Freudenberg (2010) indicated that the social involvement of fishing was more important to a group of 48 fisherman than having a fresh supply of fish. Often, the activity of fishing results in no fish at all, however the challenge, preparation and the social aspects are all necessary and enjoyable parts of the task overall. Again, fishing is nature-based, encouraging the exploration of the natural environments surrounding a camp.

Recommendation	Universal Design Principles
<p>Provide lowered railing around the pier</p> <p><i>This allow people to see over the railing at what they are doing</i></p> 	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Size and Space for Approach and Use <p>Images http://oregonstateparks.wordpress.com/2010/06/09/new-pier-fish-cleaning-station-amphitheater-big-dougs-kiosk-at-prineville-reservoir-state-park/ http://www.indiana.edu/~nca/monographs/13questions.shtml</p>
<p>Provide benches and spaces alongside benches</p> <p><i>To give people the choice of sitting or standing when fishing.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use
<p>Provide adjustable tackle box stands</p> <p><i>Allow tackle to be accessed easily by individuals of varied stature and those who are seated.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Low Physical Effort • Size and Space for Approach and Use
<p>A variety of fishing opportunities to be provided (pier, firm surfaces, shore).</p> <p><i>Ensure that paths of travel to fishing areas are level and firm and that the fishing area itself is equipped with a solid surface for people to sit or stand.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Low Physical Effort • Perceptible Information

Offer opportunities to fish at a trout farm <i>The benefit of a trout farm is that everybody is likely to catch something regardless of ability.</i>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Low Physical Effort
Provide holders for fishing rods <i>To reduce the amount of sustained effort required by an individual.</i>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Low Physical Effort • Size and Space for Approach and Use
Straps to be provided for gripping onto fishing rod <i>This can allow people with varying gripping abilities to be catered for.</i>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use

Gardening

Gardening is an activity that can be undertaken during the 'down-time' of a camp programme for fatigue management and when concentration levels may be low. When designed appropriately, people of all abilities can be involved in gardening. Additionally, there are so many jobs that can be undertaken when growing or using food or plants, individual strengths can be highlighted with the allocation of an appropriate role within the team.

Recommendation	Universal Design Principles
<p>Provide raised garden beds</p> <p><i>This is beneficial as it reduces the need for people to bend or kneel when gardening.</i></p> <div data-bbox="189 636 466 840" data-label="Image"> </div> <div data-bbox="478 636 753 840" data-label="Image"> </div>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use <p>Images</p> <p>http://www.tavoncenter.org/Home.aspx</p>
<p>Thick-handled and long-handled gardening tools</p> <p><i>To assist individuals with impaired grip or hand dexterity or impaired reaching capacities. Any individual has the ability to use these tools.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use
<p>Wide pathways throughout gardens</p> <p><i>This allows multiple people to be working within the same space and enables wheelchair users to comfortably pass.</i></p> <div data-bbox="189 1332 507 1512" data-label="Image"> </div>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Low Physical Effort • Size and Space for Approach and Use <p>Images</p> <p>http://www.videojug.com/film/an-introduction-to-gardens-for-the-physically-impaired</p>
<p>Paths to surround the perimeter of raised garden beds</p> <p><i>To allow people to access each side of the garden, rather than reach across.</i></p> <div data-bbox="189 1751 483 1971" data-label="Image"> </div>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Perceptible Information • Size and Space for Approach and Use

Allocate responsibilities amongst a team

A number of activities are available when using a garden:

- Watering
- Digging
- Pruning
- Weeding
- Flower picking/arranging
- Craft activities
- Harvesting and preparing fruits and vegetables
- Cooking

- Equitable in Use
- Flexibility in Use

Allocating responsibilities ensures that all people are participating equally in an area of strength. For example a person with limited hand dexterity may not be able to plant seeds; however with the use of large tools, they will be able to prepare the soil.

Chicken Coop

Issues

- Tending to the chickens will involve feeding them which can involve getting inside the coop and throwing food onto the ground. Currently the area allocated for the door will be too narrow and not be on a level landing.
- The natural topography around the proposed chicken coop is sloping (refer Photos 1 & 2).
- Egg collection is also another task in caring for the chickens. The design of the laying boxes was considered on site.



Photo 1



Photo 2

Actions

- The path up to the gate is sloping up hill. There is a natural levelling off of the terrain at an area within the existing structure closer to the laying boxes. It was discussed on site that this is where the proposed gate should be located, as it will be easier to achieve a level landing and the appropriate clear width of the gate.

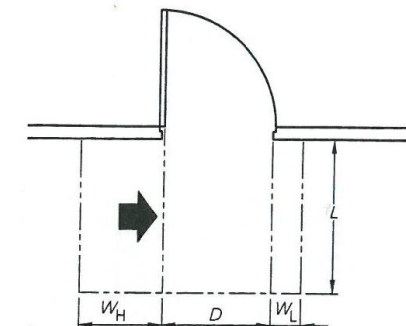
The path must not have a gradient greater than 1:10, be longer than 1900mm and a level landing must be provided at the gate, refer below.

- The gate to the coop will be required to have a clear opening width of 850mm (920mm leaf) (refer Appendix).
- The gate will need a level landing on both sides, this is dependant on the direction of approach, refer figures below (Figure 1).

AS 1428.1: 2009 Figure 31 (Part 1) Figure 1

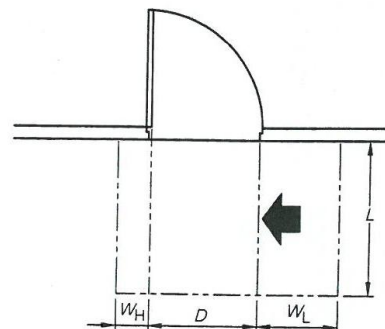
AS 1428.1—2009

58



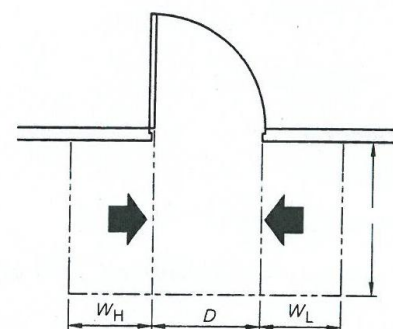
Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1220	560	340
900	1185	510	340
950	1160	460	340
1000	1140	410	340

(a) Hinge-side approach,
door opens away from user



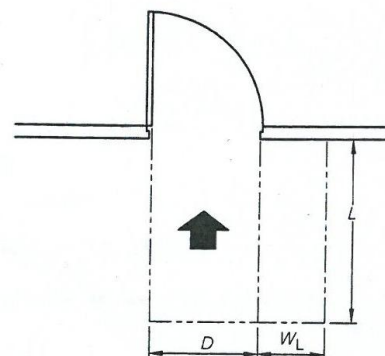
Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1240	240	660
900	1210	190	660
950	1175	140	660
1000	1155	90	660

(b) Latch-side approach,
door opens away from user



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1240	560	660
900	1210	510	660
950	1175	460	660
1000	1155	410	660

(c) Either side approach,
door opens away from user



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1450	0	510
900	1450	0	510
950	1450	0	510
1000	1450	0	510

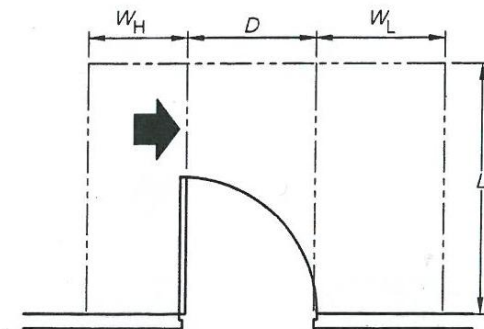
(d) Front approach,
door opens away from user

LEGEND:

- D = Clear opening of width of doorway
- L = Length
- W_H = Width—hinge side
- W_L = Width—latch side
- = Direction of approach
- = Circulation space

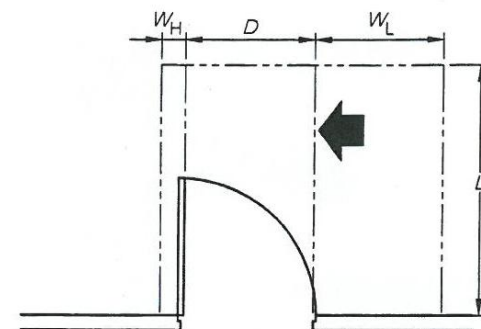
DIMENSIONS IN MILLIMETRES

FIGURE 31 (in part) CIRCULATION SPACES AT DOORWAYS WITH SWINGING DOORS



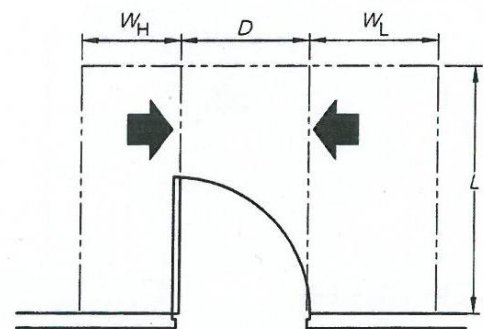
Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	660	900
900	1670	610	900
950	1670	560	900
1000	1670	510	900

(e) Hinge-side approach,
door opens towards user



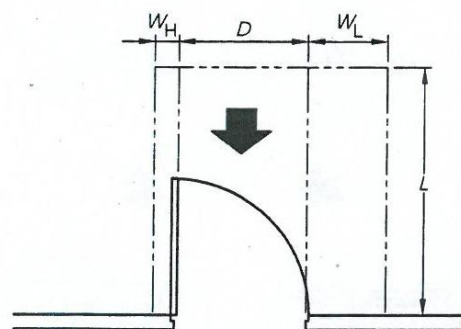
Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	110	900
900	1670	110	900
950	1670	110	900
1000	1670	110	900

(f) Latch-side approach,
door opens towards user



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	660	900
900	1670	610	900
950	1670	560	900
1000	1670	510	900

(g) Either side approach,
door opens towards user



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1450	110	530
900	1450	110	530
950	1450	110	530
1000	1450	110	530

(h) Front approach,
door opens towards user

LEGEND:

- D = Clear opening of width of doorway
- L = Length
- W_H = Width—hinge side
- W_L = Width—latch side
- = Direction of approach
- = Circulation space

DIMENSIONS IN MILLIMETRES

FIGURE 31 (in part) CIRCULATION SPACES AT DOORWAYS WITH SWINGING DOORS

- Inside the chicken coop the circulation space of 2040mm X 1540mm is required to ensure that a person in a wheelchair can complete a 180 degree turn.
- The latch/lock on the gate will need to be openable with one hand and be easy to manipulate for someone with limited dexterity. It is recommended that when selected the proposed latch/lock is provided for review.
- The laying boxes will accessed be from the main path, to achieve this the earth in front of the proposed chicken coop will need to be removed to provide an extension of the existing path of travel in front of the proposed laying boxes.
- The path at the laying boxes must therefore be level (gradient and crossfall not exceeding 1:40). The path should be 1800mm wide.
- Access into the laying boxes will be via doors that flip downwards. The doors should not be too wide so as people in a wheelchair can pull up close to the boxes and not be required to move to their wheelchair to open them. The doors must be light weight and be openable with one hand.

Pizza Oven and Outdoor Kitchen Area

Issues

- The path of travel from the chicken coop to the vegetable beds and proposed outdoor kitchen area is not accessible. It has an excessive crossfall and an open drain running across it (refer Photo 4).
- The proposed outdoor kitchen area has an excessive gradient (refer Photo 3).
- There is no designated accessible path of travel from the existing nearby hall to the kitchen garden.



Photo 3



Photo 4

Actions

- Cut in a level path (1:40 gradient and 1:40 crossfall) across the existing driveway with a width of 1800mm (refer Appendix). The edges must be graduated so as there are no drop-offs. It is recommended that the path is of a different colour or surface material so that it is distinguishable as the main path of travel from the chicken coop to the outdoor kitchen. It was discussed on site that the path will be straight across the road forming a straight path from the chicken coop to the area of the outdoor kitchen.
- An accessible path of travel is to be provided from the existing nearby hall to the proposed outdoor kitchen garden. The path should have a minimum width of 1800mm and have a crossfall not greater than 1:40.
- The surface of the proposed paths must be stabilised so that it is a firm surface and will not wear or deteriorate in poor weather or with use.
- It is recommended that the food preparation area has a level surface (gradient and crossfall not exceeding 1:40), with paths of travel of a minimum of 1000mm around furniture.
- The proposed table should have a height between the range of 830mm – 870mm, where a single table is proposed (refer parameters below) and a variety of seating including some with armrests and backrests should be considered. Some of the seating should be within areas that will shaded to provide sun protection and respite from the heat.
 - Where a single table is provided, ensure a height of no less than 850mm +/- 20mm with the provision of knee clearance of not less than 820mm. Supports must be provided at least 630mm ± 10mm back from the edge of the table (AS 1428.2: 1992 Clause 24.1.1).



- Where more than one table is provided, an even proportion of tables must be provided per the following (AS 1428.2: 1992 Clause 24.1.2):
 - At a height of 850mm \pm 20mm with the provision of knee clearance of no less than 820mm \pm 20mm for a minimum depth of 630mm \pm 10mm.
 - At a height of 750mm \pm 20mm with the provision of knee clearance of no less than 730mm \pm 20mm for a minimum depth of 630mm \pm 10mm.
- A minimum width of 800mm must be provided between supports or other fixtures beneath the table (AS 1428.2: 1992 Clause 24.1.3).
- Unobstructed circulation space must be provided in front of the table of 1550mm by 2040mm, with maximum grade of 1:40 (AS 1428.2: 1992 Clause 24.1.5; AS 1428.2: 200X DRAFT Figure 4.1).

Other Considerations for Universal Design

- To ensure that this activity is available to the widest range of camp participants it is recommended that feedback is sought early from camp participants about this proposal.
- Equitable use: All people should be able to access the chicken coop and collect eggs in the same manner.
- Flexibility in use: Provision of a range of seating some with armrests and backrests will allow people to choose the seating appropriate for them.
- Simple and intuitive use: The latch on the gate of the chicken coop must be simple and intuitive to use.
- Perceptible information: The use of a different material for the path of travel from the chicken coop to the vegetable beds will clearly identify this as the designated path of travel.
- Tolerance for error: Paths of travel are 1800mm to accommodate wheelchair users that may have difficulty travelling in a straight line.
- Low physical effort: Paths of travel are firm, level with no steps, lips or drop offs. Gate handle is easy to manipulate and maybe manipulated using closed fist or elbow.
- Size and space for approach and use: Paths of travel to be 1800mm wide and circulation spaces to be provided to the gate of the chicken coop.

Horse Riding

As well as being a fun, interactive and often, an uncommon activity for a multitude of people; horse riding has been found to have many social, psychological and physiological benefits for individuals with varied abilities

Recommendation	Universal Design Principles
<p>Trained staff members required to be present at all times where groups are around animals.</p> <p><i>As animals are unpredictable, it is imperative that trained staff members are present at all times to manage behaviours of groups and the animals.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error
<p>Horse feeding sessions are recommended for a low-intensity activity around horses.</p> <p><i>Can break up the day to assist with fatigue management, as well as provide an activity where everyone can participate in the same way when specialised equipment may not be available for transfers onto a horse.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Perceptible Information • Size and Space for Approach and Use
<p>Provide a wheelchair accessible horse carriage, with a platform lift or ramped entrance.</p> <p><i>Provides a place for wheelchair users to sit while still gaining the experience of being pulled by a horse. Also provides a means of involvement for individuals who may be hesitant to be positioned on the back of a horse.</i></p> 	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use <p>Image</p> <p>http://borpblog.wordpress.com/2011/09/06/accessible-carriage-ride/</p>
<p>Body support hoist recommended for transfer of wheelchair users onto horse back.</p> <p><i>This type of hoist supports the body, while allowing a person's legs to be positioned either side of the hoist.</i></p> 	<ul style="list-style-type: none"> • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use <p>Image</p> <p>http://www.handimove.com/pages/us/professional/surehands-solutions/recreational.php</p>

High platform recommended alongside horses.

Allows people to be at the same level as the horse, rather than it standing over a person for feeding or grooming. From this position, trained carers can use manual handling techniques to transfer the person onto horse back.



- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Perceptible Information

Image

<http://www.flickr.com/photos/campascca/3658333348/>

Ropes/Challenge Courses

A ropes/challenge course provides a new or rare experience for almost all individuals. The idea of a ropes course is that each person generally has the ability to elect what their limits are and also have the choice to push beyond these through a variety of the elements. It is therefore crucial that ropes courses are designed to provide opportunities for similar experiences for all people, ensuring that individuals are able to challenge themselves by accessing and tackling any element of their choosing.

Recommendation

Provide necessary safety features such as spotters and trained staff, appropriate seating and high-backed harnesses.

Trained staff are employed to 'spot' and assist all individuals. Safety harnesses must be supplied to all people. A minimum requirement for these harnesses is that they can support an individual with a lack of trunk control.

Universal Design Principles

- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Low Physical Effort
- Perceptible Information
- Size and Space for Approach and Use

Harnesses can also be used as slings for transfers.

Where a person requires transferring from a seat into the harness, the harness can be adapted to be used in the same way as a sling hoist may be used. Clips should be provided to detach from specific mechanisms, so that the sling may slip underneath an individual while seated. Harnesses are not restricted to being used just for people within wheelchairs. A harness is a necessary safety element within a ropes course and must be used for all people.

- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Low Physical Effort
- Size and Space for Approach and Use

Images

<http://mistymountain.com/p/5200-ARC.htm>



Mazes with wide chutes and wall/floor contrast

A maze is a challenge element that can be used by all individuals. Often a maze is completed within groups or pairs for way finding assistance, therefore the wide chutes allow for many people to walk together or pass each other. Wall and floor contrast provides assistance for a person with low vision to direct their way through the chutes and can be aesthetically pleasing.

- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Low Physical Effort
- Size and Space for Approach and Use

Giant Swings with high-backed and secure harness

A giant swing is recommended as all individuals use them in the same way, harnesses allow people to remain secure, and as this safety equipment must be used anyway no individual is requiring 'specialised' equipment.



- Equitable in Use
- Flexibility in Use
- Tolerance for Error
- Low Physical Effort
- Size and Space for Approach and Use

Images

<http://www.tidbinbilla.com.au/birrigai/education/programs/teambuildingactivities/>

Flying Fox or Zipline with high-backed and secure harness

A flying fox is recommended as all individuals use them in the same way, harnesses allow people to remain secure, and as this safety equipment must be used anyway no individual is requiring 'specialised' equipment.



- Equitable in Use
- Flexibility in Use
- Tolerance for Error
- Low Physical Effort
- Size and Space for Approach and Use

Provide team challenge activities where there are multiple roles

This will allow all people to work within a team to reach a certain goal. This may require multiple roles within the team, where some participants to provide assistance from the ground where the obstacle is inaccessible to them.

- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Low Physical Effort
- Perceptible Information
- Size and Space for Approach and Use

Sailing

The Access Dinghy Foundation (2010) completed extensive research around the potential relationship between sailing and Universal Design and despite the complexities and demands of the activity; sailing can be adapted to ensure that all individuals can participate. Additional and modified equipment are recommended with this activity; however it is essential to note that this equipment has been designed to be used by all.

Recommendation

Universal Design Principles

Wide, firm paths and level or soft gradient to the water's edge and into water.

To ensure that all people can travel along the same path together

- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Low Physical Effort
- Size and Space for Approach and Use

Servo Assist Access Dinghy Equipment recommended.

Allows for manual and powered operation of a sailboat by way of a 4-way joystick or paddle switch. This system is beginner friendly, and can suit left-and right-handed users. This element can be used for single seated sail boats only for independent sailing.



- Equitable in Use
- Flexibility in Use
- Simple and Intuitive Use
- Tolerance for Error
- Low Physical Effort
- Size and Space for Approach and Use

Image:

<http://www.accessdinghy.org/equipment/boats/servoassist.htm>

Hoist systems recommended for transfer into the boat.

This additional equipment will allow for individuals with mobility impairments to transfer into their sail boat. Recommend that this equipment is always close to hand to ensure that it is readily available for all individuals to use, if required.

- Low Physical Effort
- Size and Space for Approach and Use



Image:

<http://www.accesssailing.com/default.asp?Page=20100&MenuID=Equipment%2F13169%2F0>



Swimming

The buoyancy and freedom of movement afforded by water has been shown to have positive effects on independence and self-esteem in individuals who may experience difficulties when ambulating on land.

Recommendation	Universal Design Principles
<p>Provide wide paths of travel, firm and level or soft gradients to the water's edge and into water</p> <p><i>To ensure that all people can travel along the same path together</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use
<p>Provide high-contrast matting for the path of travel to the beach</p> <p><i>This allows a traversable path of travel to be provided along sand eliminating the requirement for transfer to a beach wheelchair or travel over sand. Directional matting also directs individuals to the area. High contrast matting will also assist individuals with vision impairment direct themselves to the water.</i></p> 	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Low Physical Effort • Perceptible Information • Size and Space for Approach and Use <p>Image</p> <p>http://hiltonheadislander.blogspot.com.au/2011/05/hilton-head-islands-beach-matting-helps.html</p>
<p>Provide pools with a sloped or ramped entrance, with an aquatic wheelchair available</p> <p><i>Entrance in this form is a more inclusive form of entering pools than a hoist.</i></p> 	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use <p>Image</p> <p>http://www.homeaway.com/vacation-rental/reviews/page:2/p153578vb</p>
<p>Provide shaded areas around pools and beaches.</p> <p><i>Provides an option for people to sit and watch in a shaded area should they not wish to be in the water. Shade on beach can be provided at the end of the matting area, before the water's edge. This will allow people who are in and out of the water to interact and look out for each other in an area protected by the sun.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Low Physical Effort • Size and Space for Approach and Use

Transfer systems to be in place at the water's edge.

To allow campers to reach the ground for play or transfer into the water.

- Simple and Intuitive Use
- Tolerance for Error
- Low Physical Effort
- Size and Space for Approach and Use

Trail Orienteering

Trail orienteering was designed specifically with maximal participation in mind. Traditionally, orienteering is a foot race between teams, gathering items and returning quicker than the opponent. The pace of trail orienteering is up to the participants. All 'control points' are located along an accessible path of travel so that they can be seen easily, however there is still an aspect of challenge in finding these points and accurately identifying them in a team environment.

Recommendation	Universal Design Principles
<p>Trail orienteering is recommended as it involves reading of a map, with no point to point racing with designated route choice.</p> <p><i>Ground control points are shown on the map and are then to be identified at ground level. A single control points will be placed at the designated spot shown on the map, and the team will need to select and mark on a multiple choice sheet which one corresponds to the item found.</i></p> 	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Perceptible Information <p>Image</p> <p>http://predazzo.sportabili.org/dettaglio.aspx?L=it&ID=ELE0000521</p>
<p>Accessible paths of travel along the route area that have a wide, non-slip, flat, solid finish.</p> <p><i>To ensure that all people within a team can travel along the same path together</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Size and Space for Approach and Use
<p>Maps to be designed to have large print and high contrasting colours.</p> <p><i>Clearly defined paths on a map will allow for people with visual impairments and cognitive difficulties assist to navigate.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Perceptible Information
<p>Locate items to be found close to the path of travel. Items to be large and achieve high contrast to the surrounding surface.</p> <p><i>To ensure that items can be identified easily by all people and can be easily identified on the multiple choice sheet.</i></p> 	<ul style="list-style-type: none"> • Equitable in Use • Flexibility in Use • Simple and Intuitive Use • Tolerance for Error • Perceptible Information <p>Image</p> <p>http://www.dapaw2012.com/?lang=en&page=courses</p>
<p>Staff members to accompany orienteering groups along the route to provide input upon request as to the direction of travel.</p> <p><i>Ensures that individuals will not become lost during the activity.</i></p>	<ul style="list-style-type: none"> • Equitable in Use • Simple and Intuitive Use • Tolerance for Error • Perceptible Information

Appendix B

SOME USEFUL BEST PRACTICE GUIDELINES IN AN AUSTRALIAN CONTEXT

Element	Best Practice
Paths of Travel	<ul style="list-style-type: none">• Provide a continuous accessible path of travel to each of the activity areas within a camp.• Provide 1800mm minimum width on paths.• Soft surfaces, such as gravel, crushed rock or sand, must be appropriately stabilised, in order to maintain stability of the path for wheelchair users• Irregular path surfaces, such as cobblestones, gravel and wood discs should be avoided. Variable surfaces are difficult for wheelchair users to traverse, and gaps can trap canes, crutches and heels• Trees and shrubs, garden seating and display boards should be located a minimum of 600mm from the edge of the path of travel and highlighted in a contrasting colour or designated by a kerb• All accessible paths of travel must be defined for people with vision impairments. This may include the use of borders, planter boxes or garden edging with appropriate texture and colour contrast or implementing a path of travel with an appropriate texture and colour contrast• Where there is a drop-off or hazard adjacent to the path of travel (walkway) which may place people at risk of injury, a suitable barrier must be provided.• Paths of travel to be of a level 1:40 gradient.
Entrances	<ul style="list-style-type: none">• All entries to any activity areas to be accessible for people. Including:<ul style="list-style-type: none">○ Visual indication;○ Level gradient;○ No threshold lip;○ Clear opening width of 850mm minimum.
Seating	<ul style="list-style-type: none">• Rest seating should be provided at each activity site.• Accommodates individuals who are fatigued, parents/guardians/friends or carers are also able to sit and observe.
Sanitary Facilities	<ul style="list-style-type: none">• It is best practice to provide accessible sanitary facilities within close proximity to activity locations on the site.

General Recommendations:

External Paths of Travel

- Ensure all main paths of travel have a clear width of not less than 1500mm to allow a wheelchair and ambulant person to pass (1800mm preferred to allow two wheelchairs to pass). Ensure a clear width on secondary paths of travel of not less than 1200mm (AS 1428.2:1992 Clause 6.4).

- For paths of travel less than 1800mm in width, passing areas of a width of 1800mm must be provided for a length of 2000mm every 9 metres (DRAFT Access Code for Buildings:2009 Clause D3.3 (d)(i)).

- Redevelop the paths to ensure the camber or crossfall does not exceed 1:40, or 1:33 if the surface has a bituminous seal (AS 1428.1:2001 Clause 5.6; AS 1428.1:2009 Clause 10.1 (d)).

Path Surfaces

- Ensure all external path surfaces are constructed for all weather usage and possess a slip resistant finish, in accordance with standards outlined in HB 197. For example: concrete with abrasive or texture finish, concrete with exposed aggregate or bituminous finish (AS 1428.1:2001 Clause 12 – Notes 1 & 2, AS 1428.1:2009 Clause 701).
- Provide a chemical stabiliser to all soft surfaces, such as gravel, crushed rock or sand, in order to maintain stability of the path for wheelchair users (DDA).
- Provide a smooth transition between abutting surfaces. Path surfaces with vertical differences greater than 3mm, or 5mm for pavers with bevelled or rounded edges are not considered to be traversable by wheelchair users (AS 1428.1:2001 Clause 5.1.2, AS 1428.1:2009 Clause 7.2).
- Redevelop the pathways to ensure gaps in path surfaces do not exceed 5mm in width, such as raked joint pavers and cobblestones (AS 1428.1:2001 Clause 12).
- Ensure drain and grate covers have perforations are no greater than:
 - i) 13mm in diameter for circular openings;
 - ii) 8mm in width for slotted perforations with no limit on length; and
 - iii) 150mm in length, where slotted perforations are between 8mm and 13mm in width.

Ensure elongated perforations are placed on a 90o angle to the direction of travel (AS 1428.1:2009 Clause 7.5).

- Provide a minimum vertical clearance on paths of travel of 2000mm (AS 1428.1:2001 Clause 5.1.1 (b), AS 1428.1:2009 Clause 6.2).
- Ensure trees and shrubs, garden seating and display boards are located a minimum of 600mm from the edge of the path of travel and highlighted in a contrasting colour or designated by a kerb (AS 1428.2:1992 Clause 27.1(a); DDA).
- All accessible paths of travel must be defined for people with vision impairments. This may include the use of borders, planter boxes or garden edging with appropriate texture and colour contrast or implementing a path of travel with an appropriate texture and colour contrast.
- Where there is a drop-off or hazard adjacent to the path of travel (walkway) which may place people at risk of injury, a suitable barrier must be provided (DDA).

Entry Doors/Gate

- Ensure doors provide a minimum clear opening width of 850mm (AS 1428.1: 2009 Clause 13.2; AS 1428.2:1992 Clause 11.5.1).
- Where a threshold ramp is required at a door, the ramp must be a maximum of 280mm in length with a gradient of not more than 1:8 (and catering for thresholds up to 35mm). The threshold ramp must begin within 20mm of the door leaf (AS 1428.1: 2009 Clause 10.5).

Circulation Space

- Provide appropriate circulation space at the door in accordance with the following AS 1428.2: 1992 Clause 11.5.2; AS 1428.1: 2009 Clause 13.3; AS 1428.2: 200X DRAFT Clause 14.3.1).

Door Hardware

- Replace door handles and related hardware ensuring the door may be unlocked and opened with one hand. Door handles must provide adequate grip for people with limited hand dexterity and shall not require tight grasping, pinching or twisting of the wrist. Door handles and related hardware to be located between 900mm and 1100mm (AS 1428.2: 1992 Clause 23.2; AS 1428.1: 2009 Clause 13.5.2 (a)).

- Replace door handles to provide D-shaped or lever handles on both sides of the door which meet the following:

- Lever handles with a clearance of between 35mm and 45mm between the rear face of the handle and the face of the door (AS 1428.1: 2009 Clause 13.5.2 (b)).
- D-type handles to be located no less than 60mm from the door jamb lining when in the open or closed position. Handles must provide minimum clearance of 35mm between the rear face of the handle and the face of the door (AS 1428.1: 2009 Clause 13.5.2 (c)).
- Door snibs and locks must be of a lever design with a minimum length of 45mm from the centre of the spindle (AS 1428.1: 2009 Clause 13.5.2 (d)).

FOR FURTHER INFORMATION

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