GETTING THE BALANCE RIGHT

Risk management for play

A Guide to the Assessment of Risks and Benefits in Play Provision and Australian Standard 4685:2014

FREEDOM IS ESSENTIAL

Play is both the initiation into, and the embodiment of, the idea and practice of **freedom.** The idea of it constitutes a sort of itch, a hankering after that quality the value of which evidence can neither confirm nor deny. So here's to freedom, that renegade fragrance, and the whiff of it we call play

Bernard Spiegal, 2013

Thus, work, learning, and citizenship in the 21st century demand that we all know how to think—to reason, analyse, weigh evidence, problem solve. These are no longer skills that only the elites in a society must master; they are **essential** survival skills for all of us.

Tony Wagner, 2010

FORWARD

Children and young people's access to free space for play is rapidly shrinking. Never is this more obvious than in urban areas in Australia where most of us live. For many children and young people designed environments such as public parks, school grounds or early childhood play areas are their main opportunities for outdoor play. This means increased responsibility for you, the play provider to provide high-quality, well-maintained play opportunities and play environments that reflect the needs of the children and young people and their families in your community.

So what is your role in this? Play providers tend to come from a diverse range of backgrounds, with wide and varied interests and expertise in play and play environments. Whether you are in local government or early childhood, or part of a school community our responsibility to provide high-quality, well-maintained play opportunities and environments remains the same. So how are we best to approach this somewhat daunting task?

This guide encourages you to take an objective, balanced approach to play provision and risk management and as such is presented in two complementary parts; Part A. Risk/Benefit Assessment and Part B. Australian Standard AS: 4685-2014 Ready Reference. The purpose of presenting these two parts together is to give you confidence in using a truly 'best practice' approach to the design and management of your play environments. An approach that not only demonstrates an effective knowledge of the standards, but also asks the right questions about what makes a play environment great, in terms of play value.

Risk/Benefit Assessment simply put, is the practice of 'weighing up' the benefits and hazards associated with risky outdoor play. This part of the guide will give you a cultural history of risk management and how it has affected us as a society and examine some of the subjective language we use around the terms risk and safety. Looking at risk in play, this guide discusses the critical skills young people learn when engaged in an environment that allows them the freedom and opportunity to 'practise life'. Finally this section discusses the tools and application of Risk/Benefit Assessment, through questions and 'real world', local case studies.

The introduction to the second part of this guide points out that Standards are by nature technical documents and seeking black and white answers or solutions from them is difficult for even the most experienced in this area. This part aims to re-organise the information presented in AS: 4685-2014 and present it in a coherent structured, logical sequence with clear diagrams to assist. Disseminating the key elements across the standard, this part acts as a ready reference for play providers and rather than replacing the need to use or rely on Australian Standard documents, complements them, and will be sufficient for most people with an interest in the design of play equipment.

This guide asks as many questions as it answers, its aim is to get you thinking about what you do and how you do it. Ultimately by presenting these two parts together, we hope to deconstruct the singular reliance on standards or regulations for decision-making related to play environments. Public safety is an important issue, but not the only issue at stake here and we hope that by reading this guide, you will become better acquainted with what makes a high-quality, well-maintained play environment and more confident to provide better play opportunities for children and young people and their families in your community into the future.

Play Australia would like to sincerely thank all the members who contributed to producing this Guide and in particular Liz Cummins and Andrew Reedy for their significant work. The input of many organisations and individuals has ensured this is truly reflective of contemporary industry best practice.

Cormac McCarthy & Barbara Champion,
Play Australia, September 2015

ABOUT THE GUIDE AUTHORS

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Elizabeth Cummins is a qualified landscape architect (Bachelor of Design 1st Class Hons, RMIT 2001) and educator (Diploma of Teaching Early Childhood, Monash University 1989.

Beginning her professional life as an Early Childhood Teacher in the early 1990's, Elizabeth has worked as both a pre-school and primary educator in Australia, the UK and Japan.

After qualifying as a landscape architect, Elizabeth worked professionally with Jeavons Landscape Architects for almost 6 years, amongst Other Melbourne practices and has lectured and tutored in Design Theory & Landscape Architectural History at RMIT University, Melbourne.

From 2008-2010 Elizabeth joined the Open Space Planning Team at the City of Darebin, She has also more recently worked with the Urban Design Team at the City of Moonee Valley in 2014/15. She has written playspace strategies for both councils.

In 2011 Elizabeth branched out to take her own creative project direction, Bricolage Design. Bricolage specialises in design and strategic planning, particularly for children's environments in regional Victoria and Melbourne.

Elizabeth is also a founding coordinator of the Creative Cubby Project, a regional initiative to encourage creative play for children by building temporary cubby houses using cardboard boxes and recycled materials.

In 2014 Elizabeth was commissioned to co-author and edit a book titled 'How to Grow a Playspace' for Routledge, Taylor & Francis Publishers in London, UK, alongside some of the leading international academics, designers and educators in play. This will be published in early 2017.

Elizabeth is a passionate advocate for quality playspaces and the right of children to be independently mobile and able to freely and actively explore and engage in their local neighbourhoods.

She is a member of Play Australia and blogs regularly on play projects for children. www.bricolagedesign.com.au

Andrew Reedy

Andrew Reedy is the Director of Play Check, providing safety advice, auditing and training to the playground industry. Having been involved in the playground industry since 1994, he brings a wealth of experience in playground safety and design.

Prior to establishing Play Check, Andrew was involved in the playground manufacturing industry where he was General Manager of Forpark Australia. During that time he was heavily involved in the design, development and manufacture of playground equipment.

Since 2002 Andrew has represented the Australian Industry Group on the Standards Australia playground committee. During that time he has been involved in drafting the 2004 and 2014 versions of the AS 4685 series. In 2014 he chaired the technical sub-committee tasked with drafting a revision of the Standard AS/NZS 4486:1997 (dealing with the development, installation, inspection, maintenance and operation of playground equipment) which has an anticipated publication in late 2015.

Andrew is the father of 6 children, so has had plenty of experience observing and engaging with children at play close up. He also has a very realistic view about the need for a balance between risk and safety in the provision of play and the need to provide challenging opportunities that allow children to develop as they explore their play environments.

PART ONE:

A Guide to the Assessment of Risks & Benefits in Play Provision

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INTRODUCTION

Risk is a word we hear often, particularly in relation to children and young people. We are all too familiar with its negative connotations (i.e. the hazardous scenario with an adverse outcome that 'could have been avoided' portrayed by the media), but do we really understand what is meant by this contentious term 'risk'? How, when examined more objectively it represents flip sides of the one coin. A situation neither good nor bad, just unknown and sometimes unpredictable.

This guide seeks to clarify some of the discussion surrounding this terminology particularly as it relates to play, playgrounds and play equipment and discuss the concept of risk benefit as it applies to the management of play provision. For the benefit of this guide the term playground/playspace will be used in reference to all purpose-built settings for play. The term youth activity space is used when specific spaces target 12–18 year olds. The term children will be used to describe 0–18 year olds and the term play provider for anyone responsible for the management of playgrounds and youth activity spaces.

> Outdoor play provides open-ended, dynamic, varied opportunities, which are unpredictable and at times risky. However, the risks and the challenges of being outdoors provide rich opportunities for learning, problem solving and developing social competence.
>
> **Greenfield,** 2004

Who this guide is for?

This guide is written for those responsible for providing and managing play provision for children and young people, namely:

- Local Government Officers, Managers and Councils
- School Teachers, Principals and Boards of Management
- Educators, Children's Centre Owners and Management
- Developers and Land Managers
- Landscape Architects and Playground Designers
- Playground Safety Auditors
- Playground Industry Professionals (Manufacturers, Suppliers & Installers)
- Advocacy Organisations and Not For Profits providing services for children

About this guide

This guide is not about giving play providers additional layers of process regulation or paperwork in the already onerous management of playgrounds. Rather it seeks to encourage play providers to think differently and more broadly about what they do, whom they do it for, and why? This guide aims to support play providers, give them advice on technical back up and policy with an end aim of creating better playgrounds for children in the future. It is understood that there is already commendable work being undertaken in the sector in this area (refer Case Studies Section) and it is hoped that this guide will only further support and assist this work.

This guide should act as a catalyst for change in organisations and foster a greater understanding of the important role of playgrounds and the development of environments where young people have the freedom to explore and the inclination to experience quality, creative and valuable play into the future.

> One of the merits of risk-benefit assessment is that it provides a framework for bringing to bear the common sense, knowledge and experience that providers have acquired from a variety of sources alongside expert advice and guidance
>
> **Ball, Gill & Spiegal,** 2007

Background & Context

All children and young people need to be able to play, explore and challenge themselves. Not only is this a basic right, it is also needed for effective physical, social and emotional development into adulthood.

> Article 31 (Leisure, play and culture): Children have the right to relax and play, and to join in a wide range of cultural, artistic and other recreational activities.
>
> **United Nations Convention on the Rights of the Child,** 1989

The Role of Playgrounds

The function of playgrounds is to support and provide broad and varied opportunities for outdoor play. The reason for providing for play is that it benefits young people physically, socially, emotionally and intellectually. Opportunities for play may come in the form of a natural setting, fixed structures, appropriated furniture, objects, purpose designed play equipment or a combination of any of these elements.

Conventionally play has occurred in appropriated spaces (such as farmland, backyards, empty housing lots, creeks, bushland or streets), but since the 1950's the availability and access of places to play in Australia (particularly in cities) has progressively become more restricted to purpose-provided spaces such as parks and reserves managed by local government authorities (LGAs), as well as in educational settings such as schools and early childhood centres.

> The outdoors, whether it be the natural environment or playgrounds specifically designed for children, is the ideal context to encourage children to be themselves, to explore, to experiment, to move and make the most of the opportunities offered in a less-restricted manner.
>
> **Zeece and Graul,** 1993

The last 20 years have seen contemporary issues shape young people's access to places to play even further. Over two-thirds of Australia's population now live in major cities (66% or 15 million people – ABS, 2012). Population growth and high-density living are increasing, as are societal concerns about traffic accidents and personal safety (such as 'stranger danger'). These issues, coupled with an increasing trend towards more leisure time spent indoors (such as on screen based activities) have seen a marked reduction in access to outdoor activity and time spent outdoors by children.

Playgrounds in the public realm, schools and early childhood settings are the last remaining where children can play outdoors. As purpose-provided settings, these playgrounds have been subject to changes and trends in design over the years, and as intensively managed places, they are now particularly subject to changes in thinking on what risk is and how it is managed in the public realm. From a freely-chosen act of personal responsibility risk taking has been taken out of the hands of the participant and delegated to risk management by others (namely adults).

The Management Context

Managing risk in public spaces is essentially a value-based activity

Ball, Gill & Spiegal 2008

Managing risk is a value-based activity where the perceived risk and its need for management is assumed and any action determined by the role and responsibility of who is managing the risk. Standard LGA risk management practice is based on the principle of minimising loss and maximising outcome, but the fundamental question is who's losses and who's outcomes are we actually referring to?

The difficulty faced is that managing risk in this context more often than not only represents one particular 'world view' and therefore decision-making is never a balanced act. Decision-making maximising one individual's outcome, may therefore consciously or even unconsciously constitute a loss for another. A good example of this would be the removal of an older item of play equipment due to its non-compliance with standards. In this situation, the auditor has satisfactorily identified and initiated action on an item seen as posing an 'unsafe' risk to the community, thus also satisfying the 'duty of care' to community safety perceived by council's risk managers. The local community they are serving to protect is however distraught by the loss of the much-loved item from their playground. The needs of children are particularly vulnerable in this context, if they are not represented effectively.

Figure 1 discusses the four voices (or contrasting world views) of the management context related to play provision and the values held by these voices. The categories are not mutually exclusive, as it is possible that the media (for example) may also speak on behalf of any of the other voices should the occasion require. No one voice is 'right' in the absolute sense either, because each argument has its own merit. Merely it demonstrates that these voices are alive and each voice needs to be heard in this context for balanced decisions to be made.

Figure 1: The four rationalities or 'voices' according to cultural theory (Schwarz & Thompson 1990)

Clarifying the Terminology

The use of legal or business specific terminology around risk has been influential in changing, public perception and in tum the design and management of contemporary playgrounds. The following italicised examples demonstrate how value-based judgements (discussed in previous section) combined with emotive language can be influential in discussion surrounding risk.

> Unfortunately the term risk-taking is usually interpreted with negative connotations, with risk and hazard often being seen as synonymous
>
> **Lupton and Tulloch, 2002**

Safe/Safety

Of all the terms discussed in this guide, this is the most ambiguous, as it can have different meaning for different people. For example a 'safe environment' to one person could mean that there is no risk of potential harm (an impossible scenario). To another it means that it complies with industry standards, and to a third that exposure to risk is reduced to an arbitrary level. This guide therefore seeks to avoid the use of this term and recommends that others do the same when forming policy regarding risk and play.

i.e. My backyard is the safest place to ride a bike, free from the danger of traffic.

Hazard/Danger

The terms 'hazard' or 'danger' are sometimes used to imply that an element or situation's source is not acceptable and should be mitigated. Like risk, not all hazards or danger are entirely harmful and in fact if you examine the world more closely you discover that there are in fact 'hazards' or 'dangers' everywhere. The critical factor here is the probability and severity of harm caused by the hazard or danger. Many perceived hazards or dangers (like risk) have important learning value and it would be impractical and undesirable, if not impossible to eliminate 'all' of them from the world. Consideration therefore needs to be given of the degree to which hazards and dangers are deemed acceptable or not and then how un-acceptable hazards or dangers are modified or removed.

i.e. Riding a bicycle has become a major hazard because of the danger of increased, fast moving traffic on the road.

Harm

The term 'harm' is conventionally used to imply an adverse outcome received from exposure to an unacceptable hazard. Many people would agree that severe or fatal outcomes from play should always be avoided, however it is questionable as to whether bumps, bruises and even the occasional non-life-threatening bone break are not just part of the learning or mastery process, an expected part of everyday life for some children and young people.

i.e. Falling off his bicycle caused the victim harm by breaking his arm.

Risk

The term 'risk' applies to any situation where the outcome is unknown. It is often used to imply a negative situation or outcome. but when applied to the play behaviour of children, or to the design of playgrounds, there are positive implications to risky situations and risk-taking behaviour. These positive implications will be examined in the following chapter.

This guide seeks to explore these situations in play, teasing out the difference between 'good' risk and 'bad' risk and providing assessment support. Understanding the practical difference in playground design between 'bad' risks that contribute nothing to play (such as entrapments, crush points, broken items, structural failure and sharp protrusions) versus height, challenging movement, balance, and agility is most important. Sound judgement needs to be exercised by the play provider, particularly where children (because of age etc.) are unable to assess particular risks for themselves.

i.e. Learning to ride a bicycle on the road you run the risk of danger by exposing yourself to traffic.

Challenge

The one term that perhaps best describes a 'balanced view' when considering children's play is the term 'challenge'. This term acknowledges the fact that the task or activity is difficult and might have a degree of danger associated with it, and the outcome cannot be guaranteed as either positive or negative. The ultimate goal however is the satisfaction of mastering the challenge, even if that means trying and failing several times. Challenge teaches a fundamental life lesson that it is beneficial for our self-confidence and resilience as humans to make independent judgements, try hard and 'learn from our mistakes'.

i.e. 'After many attempts, learning to ride a bicycle on the road was an important challenge I met. A highly valuable skill that I mastered that gave me the confidence to make good judgements about traffic and be more independent'

> Children are more likely to develop responsible attitudes toward risk if they have experience dealing with risky situations. If adults deny children the opportunities for worthwhile, positive risks, they also prevent children from developing the decision-making skills necessary to make accurate risk judgements. Children need to learn to take calculated risks
>
> **Barker, 2004**

The Role of Standards and Regulation

Playground design is generally guided in Australia by the Australian Standards for Playgrounds and Play Equipment. Outdoor play areas in early childhood centres and schools are controlled by their own additional regulations and these vary from state to state. Standards are a set of agreed guidelines that represent 'best practice' regarding the design, planning, installation, construction and maintenance of play equipment in playgrounds. These standards are produced by a process, which is intended to represent the interests of a very wide group of community representatives and stakeholders.

> Standards do not have the status of law, however when adopted by councils or other government authorities, they assume the status of regulations and usually form the basis of Council's risk management operations.
>
> **Sport and Recreation Victoria, 2007**

Australian Standards for Playgrounds aim to not make them 'risk-free'; rather they are designed to reduce the likelihood and severity of injury in these settings.

In 2014, a new suite of Australian Standard for playgrounds was introduced AS 4685 – 2014 (Parts 1-6 and 11). Specific details of the new Standard is discussed in greater detail in the second part of this guide.

Injury Claims

There is public perception that playgrounds are the cause of a substantial number of children's injuries and indeed hospital records do indicate a large number of emergency cases admitted as a result of play, remaining consistent from year to year. This would indicate (as discussed in the previous section), that injury is an inevitable part of learning and mastering new skills in childhood. To gain some perspective here the question that really needs to be asked is about the severity of these injuries and how do they compare to injuries from other common childhood activities such as organised sport or playing at home?

Litigation from injury is of most concern to play providers in this context, as legal action surrounding injury involving a playground can be costly and damaging to reputation. Contrary to popular perception records show that legal claims from injury are relatively low. The injury statistics in the table on the right demonstrates the small number of legal claims made over a seven-year period in Victoria and Tasmania from playground injuries in local government public playgrounds. It would be interesting to speculate if some of these claims would have been contested had policy regarding risk/benefit been in place.

> Playground risk is extremely small in terms of fatalities, and in terms of lesser injuries far lower than for most traditional sports which children are encouraged to engage in, and in any case about the same as the risk encountered at home
>
> **Ball, 2002**

Victorian and Tasmanian claims 2007–2014

Nature of Injury	Claims
Unspecified Injury	9
Fracture	8
Sprain or Strain	3
Burns	2
Head Injury	2
Open Wound	1
Bruise Contusion	1
Total claims	**26**

Table 1: Total number of claims (of a serious nature) reported by LGA's in Victoria and Tasmania in the most recent seven year period from 2007–2014.

The Value of Risk in Play

Having examined some of the value-based judgements about risk, we now turn our attention to the benefits of risk taking and how to identify opportunities for risk in play.

Risk and Engagement = Curiosity

One of the most important benefits of 'risk' is its appeal in encouraging children to spend time outdoors. Developing the curiosity to try new experiences, make independent judgements, learn and master new skills is invaluable for a child's confidence and development. Psychologically, 'risk' of the unknown and the opportunity to test and explore an environment independent of adults more fully encourages children's participation. As an example, activities such as rock climbing are high in terms of exposure to risk, however the activity's benefits include physical exercise, balance, strength and agility training, confidence and judgement.

> … the openness and space afforded by outdoor environments can provide a relatively unrestricted and spontaneous context for facilitating peer interactions
>
> **Frost, Shin and Jacobs, 1998**

Risk and Physical Activity = Health & Well-Being

Physical activity is invaluable for confidence building and development, good health and wellbeing. With declining outdoor activity and increasing national health concerns for children including obesity and other related medical conditions, the opportunity to be 'more active' is imperative. More 'risky' environments generally encourage a wider range of exposure to physical challenges as the young person pushes themselves beyond their mastered skills and experience. As a result high impact activity, increased upper body strength, agility and balance all improve a child's weight, stamina, strength and concentration. Forming better habits in childhood leads to better health outcomes as adults.

> Children appear acutely aware of their own skill level and competence, and the aim of this type of play was to test their own limits and display their physical skills
>
> **Stephenson, 1998**

Risk and Judgement = Leadership

Self-esteem (self-value) and confidence are very much linked to children's abilities to make their own independent judgements about their environment and new situations. These are the beginnings of leadership, highly valued by the adult world. Leadership can best be developed in flexible, challenging environments where children are given the freedom to practise communication skills, make their own decisions, and work together with their peers to problem solve. Successful adult leaders make a difference because they have the awareness to recognise new opportunities when they arise and the courage to take them. They are also astute at seeing strengths in themselves and others and playing to those strengths. Foremost they understand limits and boundaries, learning through practise to make good judgements when faced with risky situation.

> The inability to fully participate in such activities can lead to lower self-esteem, a tendency to have fewer friends, and health problems later in life as a result of physical inactivity
>
> **Hands and Martin, 2003**

Risk and Mastering of Skills = Confidence and Resilience

The freedom to experience and explore is essential for young people to develop critical life skills. Young people gain satisfaction from learning to deal with new challenges and situations. Mastering a new skill or taking on a challenge in play will sometimes be an end in itself and other times an opportunity to go somewhere or find something or someone. Creating flexible, diverse and challenging environments in playgrounds provides many different alternatives and opportunities for testing and mastering these skills. However for these opportunities to be fully valuable we must also give children the freedom to explore. Failure will often be part of this process and result in disappointment, frustration, and embarrassment or possibly minor injury. This teaches young people resilience, the knowledge that in life we aren't always successful at everything the first time around and sometimes we need to try again when we fail and work to achieve success.

> The development of a risk-taking disposition in some contexts is viewed as a positive attribute associated with persistence in the face of difficulty and uncertainty. This persistence has been described as engaging with uncertainty, being prepared to be wrong, risking making a mistake – going on to learn
>
> **Carr, 1997**

Risk and Creativity = Innovation

Creativity is intrinsically linked to having the confidence to 'try things out' and the resilience to 'try again' and 'think differently' if something fails. Creativity is fostered at an early age in flexible, challenging play environments where solutions need to be found to master a new skill or work together to build something or develop a new game to play. Building on experiences and information gathered young people begin with small tasks that require independent problem solving moving on to larger more complex problems as they mature. If young people are unable to develop the capacity for innovation either because of a lack of exposure to risky environments or a lack of adult-free autonomy, they are more likely to form rigid behavioural patterns and find many unexpected life challenges as adults difficult to navigate.

> They gain mastery and a sense of accomplishment, thus further encouraging them to face new challenges. Furthermore, risk-taking has been found to be positively related to self-confidence and creative ability
>
> **Goodyear-Smith and Laidlaw, 1999**

This section has talked about the many benefits children can gain from risk taking behaviour. This all sounds good in theory, but in the complex reality accountability in the management of risk not so straight forward. So how do we begin to assess 'good' risk from 'bad' risk effectively and bring this into our everyday practice of designing and managing playgrounds? It requires good strategic planning with a strong commitment to the value of children's play and collaborating with colleagues across your organisation. This will provide the basis for a robust process and assist your organisation in communicating this philosophy to your community.

> When the distance between all the rungs in a climbing net or a ladder is exactly the same, the child has no need to concentrate on where he puts his feet. Standardisation is dangerous because play becomes simplified and the child does not have to worry about his movements. This lesson cannot be carried over to all the knobbly and asymmetrical forms with which one is confronted throughout life
>
> **Nebelong, 2002**

THE RISK/BENEFIT ASSESSMENT PROCESS

The previous chapter introduces the idea that there are benefits to children participating in certain risky activity or play. Risk management in the provision of play should involve the balancing of risks and benefits in a strategic manner. As the role of play is to fundamentally benefit children the starting point for the management of risk should take into consideration the benefits provided by the play provision offered. This section looks at the approach of Risk/Benefit Assessment and how it can support your existing risk management policy and practice to truly maximise outcomes for all.

As safe as necessary, not as safe as possible

Ball, Gill & Speigal, 2008

Risk/Benefit Assessment versus Traditional Risk Assessment

Traditional forms of risk assessment began to develop in industrialised countries in the late 19th century following on from severe fatalities in workplace incidents. In recent years, risk assessment has pervaded many different areas of public life from financial investment, to events and playgrounds. As a result a culture of risk aversion has also developed alongside it. Risk assessment is usually the initial stage of the entire risk management process, but can also cyclical, to assess and inform changes.

As with the term 'risk' there is no universally agreed definition on risk assessment, however it is understood by this guide to mean the systematic use of indicators to identify hazards and estimate the identified risk. We are familiar with the matrix that ranks the risk as low to high vs. its likelihood of occurring using a colour-coded chart.

As discussed in the following section Risk/Benefit Assessment seeks to bring a sense of balance to the discussion where not only are the 'risks' identified, but the 'benefits' of risk are also explored, by using a series of questions as prompts. Both traditional risk assessment and Risk/Benefit Assessment are key in identifying risks and planning a strategy to do something about them. The difference with Risk/Benefit Assessment however, is that the act of risk management may also support risks as well as mitigate hazards.

Developing Effective Play Policy

Before putting Risk/Benefit Assessment into practice it is important to develop an effective Play Policy Framework that will provide an overall 'vision' on play provision that sets out the benefits of play to children, the community and the organisation in question. This particularly pertains to local government where there are many stakeholders and the values and benefits of its play provision need to be clearly developed, articulated and supported across the organisation for a balanced approach to risk management to be achieved.

The framework within this strategic document should be clear and concise and address as a minimum (but not limited to) the following specifics:

- Values – A vision on the importance of play & play provision for the community
- The role of play and significant types of playground settings and the benefits and risks of particular settings
- An explicit rationale for providing a balanced approach to risk in play provision
- Context for Risk/Benefit Assessment being a tool for decision making in play provision
- Process for decision making in play provision
- Policy for planning, siting and designing playgrounds, including universal access provision
- Design elements and associated amenity for playgrounds
- Policy on playground specific design issues
- Action plan / budget for capital works

For examples of Play Policy please refer to Appendix 2 of this document.

Risk/Benefit Assessment as part of Risk Management for Playgrounds

Where to start?

Risk/Benefit Assessment is the opportunity to take a step back to consider the positives (benefits), or negatives (harmful hazards) of any given playground before making fundamental decisions. Incorporated into the existing process for play provision it uses a series of questions as prompts, at different stages including; design, construction / installation and maintenance of the playground to ensure that the play provision is not disadvantaged by singular or limited judgements on risk. Risk/Benefit Assessment is not about saying that all risk is ok or about increasing bureaucracy, it is about a balanced and informed decision-making process.

The following questions may be a good starting point for any project:

- **What are the risks in this situation?**
- **Which risks are harmful hazards and why?**
- **Which risks have positive benefits for children and their families and why?**
- **What are the different views on these risks?**
- **What are the options for managing these risks?**
- **What are the pros and cons and costs of each option?**

More specific questions related to each stage of a playground's lifecycle (including Strategic Planning, Design, Construction / Installation, Maintenance, Auditing and Early Childhood Centres can be found in Appendix 1 of this document.

Stages of the Risk/Benefit Assessment Process

Both traditional Risk Assessment and Risk/Benefit Assessment are characterised by a series of stages of analysis, discussion and decision-making, followed by monitoring. Documentation is paramount in supporting decisions made and records should always be kept. The process and 'voices' may vary from organisation to organisation, however these key stages should always be followed.

Traditional Risk Assessment Stages:

Review 'bad risks' → Rate Risks by 1. Potential 2. Severity → Mitigate or Remove Risks → Monitor/Audit

Risk Benefit/Assessment Stages:

Review Risk → Analyse as to whether 'good' or 'bad' risk

Bring different representatives (voices) together → Bring different representatives (voices) together

Analyse as to whether 'good' or 'bad' risk →
- Develop strategy for dealing with 'bad' risk → Remove risk
- Potential mitigation needed for 'good' risk → Modify risk & monitor/audit
- Identify 'good' risk and proceed → Continue & monitor/audit

THE APPLICATION OF RISK/BENEFIT ASSESSMENT

You should now have your play policy in place and understand the key stages of assessment you need to consider. Your next step is to develop a process that works effectively for your organisation and the key stakeholders involved.

This process will need to include a range of 'voices' (refer page 9). Think about who in your team or organisation represents these voices and should be included in decision-making.

This process may also need to work across the many different types of playgrounds you might manage, which may include a range of elements within the setting, from manufactured equipment to natural elements and surfaces such as rocks, water and grass or art elements.

The following case studies represent a variety of different settings, processes and outcomes that demonstrate the effective use of Risk/Benefit Assessment in real-life applications such as:

- Natural Elements, Landscaping Features & Ground-Surfacing
- Custom Designed Play Elements
- Youth Spaces
- Early Childhood Outdoor Play Activities
- Art / Sculptural Elements

Most children naturally regulate their exposure to the good risks offered in play provision, such as the risk of falling from height. Deciding how high to climb, how far to jump and whether or not to succumb to the peer pressure to do either, are all valuable experiences in learning how to handle uncertainty and danger

Ball, Gill & Spiegel, 2007

CASE STUDIES

ROCK/SLIDE EMBANKMENT

Return To Royal Park Project

Four years in the making, this exciting new park with its focus on nature-based play reconnects the former site of the old Royal Children's Hospital in Melbourne with the extensive parkland of Royal Park. Drawing on its indigenous roots and a framework encompassing the Seven Wurundjeri Seasons, children are invited to explore, engage and most importantly challenge themselves in the environment. Our focus in this case study is the rock embankment, which provides opportunities for climbing with graduated challenges to reach accessible, junior and senior slides.

Location
Royal Park, Parkville, Melbourne, Victoria

Context
Urban (Local Government)

Site Type
Site Restoration – Parkland

Client
City of Melbourne & Victorian Department of Health

Design Team
City of Melbourne
Design Branch
Skye Haldane
Principal Landscape Architect
Jeff Nelson
Senior Landscape Architect
Cathy Kiss
Senior Open Space Planner
Urban Landscapes Branch

Playground Auditor:
Paul Grover Play DMC

Date Opened
March 2015

ROCK/SLIDE EMBANKMENT

Play Element for Discussion:

Rock embankment with 3 slides (one junior, one senior and one accessible)

Overall Philosophy on Risky and Challenging Play:

Four years in the making, the City of Melbourne commenced the development of this project by going out with a 'blank sheet of paper' to call upon ideas and vision from the community for this new piece of Royal Park. The feedback from the community informed the design brief calling for a parkland including a nature-based playground for children, young people and indeed all members of the community.

This project promotes exploration for children, young people and their families to do more than just climb or slide, but experience by learning new skills and challenging existing skills. It reflects Council's recognition that outdoor unstructured play is essential to healthy childhood development and children are more physically active when they are outside.

Children's access to nature is becoming more limited. This is particularly the case in urban and high density areas. Natural and wild spaces are frequently built over or controlled and children's independent access to these spaces has also changed in recent years. For many children, their access to nature is entirely dependent on adults making it happen.

We build custodians of the future for our parks and natural areas though children having wonderful experiences with nature in their childhood.

Benefits Identified:

Royal Park is the largest park in the City of Melbourne and has an Australian native landscape character. This project was called "Return to Royal Park", to reflect both the return of parkland to Royal Park, and to invite the community to come into the park and explore. Providing a new gateway to the park and responding to the landscape character of Royal Park were key elements of the design.

The project site had substantial level changes offering the opportunity to create distinctive features in the parkland. Pathways were designed to enable a gradual ascent through the park, and a large rock escarpment was created to form the frame for a playground. Integrating the new parkland into Royal Park invites children of all ages to experience the natural world in an urban environment. People are encouraged to come to the park, to play and then explore further into Royal Park. The topography also offers extraordinary views, both across the city and back into the park.

One key feature of the playspace is a large rock embankment that also supports three slides, one junior, one senior and one with disability access. The embankment in itself is a challenging course for climbing, enabling children to climb up (to view out or slide down) in a multitude of ways, some easy, some more difficult to cater for different ages and these graduated challenges support a progressive development of skills. Those using the rock embankment need to think and negotiate their course over the rocks, navigating to their particular skill level.

Risks (Actual or Perceived) Identified:

The rock embankment is a good example of the application of a risk benefit approach. The feature is an embankment of natural stone with steep sections and irregular steps that can be negotiated in a multitude of ways. It creates a framework for the play space, a setting for nature, and a series of graduated challenges to explore and extend skills.

It is recognised that it is important for children to build skills in moving through uneven and varied environments. These skills are important to extend, both for negotiating more formalised urban settings, and for exploring less structured or non-structured nature settings.

The risk benefit approach recognised that this setting will provide an important environment for play and development. How did we make it happen? How did we minimize hazards while allowing risk and challenge? Careful consideration guided the process, with good design, advice from our risk management officers early in the concept development to have confidence in the process we followed, and advice from specialist risk managers through the design and construction process as outlined following.

ROCK/SLIDE EMBANKMENT

Risk/Benefit Assessment Approach:

During the design, documentation and construction process, Council's in-house design team worked extensively with Playground Auditor, Paul Grover to guide the development of the rock embankment in relation to Australian Standard AS:4685 (2014). Due to the natural variations in the dimensions of the rocks, the documentation comprised both a suite of parameters for the rock placement as well as detailed documentation for the critical areas (particularly around the slides) where specific levels were required. To ensure that the design intent would be achieved with the required parameters, the embankment was modelled and documented to provide a guide for the contractor to work to. The overall gradient on the embankment was a key consideration as were the relationship of the upper edges. These were raised to prevent direct access across the embankment. Rocks have been documented and arranged so the height between rocks was no greater than 600mm and that the arrangement of the rocks was such so as to avoid spaces causing finger, foot or hand entrapments. The auditor was regularly onsite during the construction phase of the project with both landscape architect and contractor as the rocks have been lifted and embedded in place to ensure that the construction is compliant and that any design issues that arose were resolved in an effective manner and without too much restriction on the desired outcome for the project. The design team was on site for the initial sections of the rock placement in order to guide the interpretation of the documents and ensure that the contractor was clear on what was required. A prototype section was completed and assessed by Paul Grover to resolve preliminary issues before work proceeded with the rest of the embankment. Rock selection was also a key consideration. Larger rocks could be used at the base of the slope where the softfall below allowed for more height, and the placement of the embankment rocks was informed by the ability for one rock to interface snugly with those adjacent.

The prototype section enabled the contractor to identify the proportion of different rock types and sizes that were required to meet the project objectives, and adjust his orders accordingly.

Spaces for planting amongst the embankment provided flexibility for working with varied shapes of rock. The planting also defines paths of travel through the embankment and create some broader landings.

The complexity of this element was reinforced during the tender phase to ensure that the contractor allowed adequate time and resources to work through any issues as they arose. Contractors were encouraged to bring their specialist operators to be part of tender interviews, which enabled us to make an assessment of their ability to successfully deliver this item. The rock type was selected prior to tendering following a range of quarry visits to understand available rock sizes and types. The embankment design was thoroughly documented with particular rock sizes in mind following selection and measurement from the supplier.

Team Involved:

There have been a large number of stakeholders and advisors involved in this project from the outset, including advice from health and play professionals during the design phase and an invaluable contribution to the project's framework by Royal Park rangers and local Wurrundjeri elders. Ongoing collaborative discussion between parks staff, council's in-house design team, the contractor, the rock supplier and the playground auditor has guided the design, construction and set in place the maintenance process. Council's risk management team have also been involved, assisting with risk assessment and management through the design phase, to ensure responsibilities were well understood and interpreted.

Key to the design was the extensive community engagement, in particular the children's engagement for the project at the concept and design development stages.

Expertise Sought or Precedents Used:

A large number of leading professionals in children's health, education and play were involved in initial design workshops for the project. A workshop was held to detail the design brief for the play space, with a particular focus on developmental stages of children through different age groups and identifying the types of experiences or settings which would support those developmental steps. The workshop also identified key needs within the broader community as well as more specific needs for visitors and patients at the hospital.

Much research was undertaken around the 'Layers of Discovery' which provide the framework for the project and guide the design of the landscape and playful elements; the seven Wurundjeri seasons. Some of the precedents examined during the development of the project include Kings Park 'Naturescape', the Ian Potter 'Children's Garden' at Melbourne's Royal Botanic Gardens, 'Growing Wild' at Melbourne Zoo and Wombat Bend playspace in the City of Manningham. The design and parks team met with Royal Botanic Gardens staff and Manningham parks staff to discuss maintenance and management experience with the 'Children's Garden' and Wombat Bend. Examples of challenging and playful elements were drawn from projects such as Pirrama Park in Sydney and the Three Mills Playspace in London.

Final Outcomes:

The project was opened in March 2015 and the community are clearly enjoying the space. Time and use will unveil the projects full success, but as a leading Council project, "Return to Royal Park" is sure to inspire and engage, and most of all challenge conventions of the possibilities of playspaces, in particular the rock embankment and its multitude of opportunities for play.

PARKOUR TRAINING AREA

Croydon Park X and Y Space

The Parkour Training Area at the Croydon X & Y Space is constructed from 37 tree trunks (reclaimed from another Council civil project), concrete culverts and metal pipes. Parkour is a discipline with its origins in France that encompasses moving through an environment as efficiently as possible, challenging both physical and mental skills. Complementing an existing skate facility and playspace this unique space pushes the boundaries of balance and strength and enables young people to gradually challenge their judgements on risk.

Location:
Croydon Park, Croydon, Melbourne, Victoria

Context:
Suburban (Local Government)

Site Type:
Regional Recreation Reserve

Client:
Maroondah City Council

Funded By:
Maroondah City Council, Sport & Recreation Victoria & Rotary Club of Croydon

Council Team:
Cormac McCarthy
Project Manager
Vicki Miller
Risk Management
John Thomas
Risk Management
Don Di Giandomenico
Parks & Playground Maintenance
Mick Henry
Parks & Playground Maintenance

Design Team:
Playce & Edge Environmental Design
Aaron Wallis
Principle – Playce
Anna Sonnet
Landscape Architect – Playce
David Abbott
Landscape Architect

Parkour Advisor:
Tony Machejefski
Australian Parkour Association

Playground Auditor:
Paul Grover, Play DMC

Date Opened:
July 2014

PARKOUR TRAINING AREA

Play Element or Activity for Discussion:
Parkour Training Area

Overall Philosophy on Risky and Challenging Play:
Maroondah Council wanted to provide a complementary space and activity to the existing 'Y' Youth Space that would appeal not only to older children but also to adults. Parkour is a growing movement in outdoor recreation that challenges both physical and mental capacities, requiring balance, strength and determination to overcome barriers like walls, gaps and narrow ledges.

Benefits Identified:
The Parkour Training Area provides for graduated levels of challenge and risk, through different heights and variety that is excitingly scary. This is a good alternative activity to skate, BMX and scooter activities often seen as the only type of activity for young people. This particular Parkour Training Area also provides a buffer space between the existing skatepark and playspace, providing a unique opportunity not catered for locally. It is expected that as a relatively new form of activity for young people and adults, it should attract new participants to the park. On a sustainable front, the project was constructed from recycled timber from another Council project and is expected to be easier to maintain without moving parts.

Risks (Actual or Perceived) Identified:
Identified risks included injuries from falling from structures (from up to 3m) and falling onto other obstacles. There was also the possibility that participants may inappropriately use the activity causing injury to themselves and poor public perception of the space. The use of timbers, while sustainable, posed a number of issues as well, including potential damage from vandalism or fire and the weathering and degradation of the timbers possibly also causing injury and almost certainly posing a costly replacement program for the timbers in the long term.

Risk/Benefit Assessment Approach:
Considerations were given to the widening of spaces and the lowering of heights to satisfy the Playground Auditor and somewhat comply with Australian Standards AS: 4685 (Parts 1-6 and 11). In the circumstance of widening spaces consideration had to be given to increasing risk by making it more difficult to jump between elements and in the circumstance of lowering heights as to whether the activity would become 'too easy'. Undersurfacing was discussed and debated as to whether soft-fall or impact-absorbing rubber-wetpour were more appropriate surfaces, as the rubber was identified as being a better take off surface, however not so successful in terms of injury prevention. In terms of longevity of the design consideration was given to the use of manufactured steel components over timber, with steel proving to have great durability, than the timber although perceived as less attractive. In the end a compromise of materials was reached to achieve a balance between aesthetics, cost and maintenance.

Team Involved:
The team involved in the design and decision-making for this project were both internal and external to council. The internal team included council officers in Leisure, Risk Management and Parks & Playground Maintenance. The external team was made up of design consultants Playce (who specialise in youth and children's spaces) and Edge Environmental Design, Playground Auditor Paul Grover from Play DMC and Tony Machejefski of the Australia Parkour Association.

PARKOUR TRAINING AREA

Expertise Sought or Precedents Used:

Advice was sought from leading professionals in the fields of landscape architecture, play and Parkour. Videos and articles on Parkour were also viewed by Council and the design team and Council spoke at length to other Parkour equipment designers to get a clear sense of both the activity and the elements / materials and dimensions needed to make the activity effective. To ensure that participant's safety was also front and centre in project dialogue, the design team liaised with playground auditor Paul Grover from Play DMC to provide advice on best practice, as items did not necessarily fall under the scope of Australian Standards AS: 4685 (Parts 1-6 and 11). It is important to note that both Council's Risk Managers and Park Maintenance staff also contributed to the conversation throughout, ensuring that an optimum outcome was reached regarding assured ongoing maintenance for the Parkour Training Area and that Council's 'duty of care' obligations to the public were met.

Final Outcomes:

The final design was based very closely on that submitted by the Parkour Association and Playce with minor modifications to surrounding garden beds to increase fall zones to the outside. Some of the spacing of lower elements decreased to make it easier for beginners and smaller children to use. Signage (as agreed by Council's risk managers) were installed at all entry points giving information and warn about potential hazards from use.

Site location was key to the success of the project, with the site sitting between the new children's playground and the existing skate facility, providing a complementary activity, which would also appeal to another type of participant. The project was low impact in terms of the existing environment and was integrated into the existing site with connecting path access.

Maroondah City Council has been widely praised for this unique and challenging facility and it is proving to be a very popular destination for families, teens and adults to both use and spectate. Runner-up in the Victorian Government Sport and Recreation Awards for Innovative Facility Design, it often attracts comments about its design.

As one young adult put it after summoning up the courage to make a giant leap onto the highest bar "That was the most scariest thing I have ever done".

BUSH KINDER PROGRAM

Westgarth Kindergarten

Located in Melbourne's Northern Suburbs Westgarth Bush Kinder is a 3 hour weekly program for 3-5 year olds at the Darebin Parklands that further enriches their regular pre-school program. Children are invited to connect with the natural environment and explore the world around them by following their own interests and curiosity. The program also encourages children to practice and develop physical skills without using specific equipment, which includes climbing trees.

Location:
Darebin Parklands,
Fairfield, Melbourne, Victoria

Context:
Urban (Pre-School Program)

Site Type:
Urban Bush Parkland

Client:
Westgarth Kindergarten,
Northcote, Victoria

Facilitating Team:
Doug Fargher
Centre Director

Joey Boothby
Parent & Committee Representative

Peter Whiltshire
Darebin Parklands Ranger

Program Commenced
May 2011

BUSH KINDER PROGRAM

Play Element or Activity for Discussion:
Tree Climbing

Overall Philosophy on Risky and Challenging Play:
The Westgarth Bush Kinder Team believe that risk is a part of everyday life and children need to experience and learn about risk to help them negotiate life in general. Kindergarten they feel, is about introducing children to and developing important skills and learning to identify, develop confidence in trying something new and challenging. Learning to mitigate against dangerous risk is critical to learn at this influential age.

Benefits Identified:
Tree climbing is something that happens instinctively for many children in a natural environment.

Climbing trees promotes physical strength and balance and trees provide a platform for imaginative play. Learning to climb trees enables children to develop independent decision-making skills and build confidence. Children being in and amongst trees, encourages a greater awareness of the bush environment, including the important role trees play in supporting wildlife habitat. Trees offer a wide range of climbing options allowing children to climb at their own level of proficiency. Tree climbing often requires assistance and encouragement from friends building valuable social skills. The opportunity for children to get up high and view their world from a 'different perspective' is also important.

Risks (Actual or Perceived) Identified:
Some of the risks the team assessed were injuries such as falls causing broken bones and eye damage from being poked by branches. They also recognised that this might lead to possible litigation from parents for injuries and that these unlikely events could result in negative publicity. Another risk identified was that the trees might be damaged resulting in environmental degradation, thus raising concerns with the Park Rangers and Darebin Council who manage the Darebin Parklands.

Risk/Benefit Assessment Approach Taken:
Through the Bush Kinder program children learn (with the guidance of educators and rangers) the skill of making independent judgements about risk. When climbing trees, children are taught valuable tools for assessment such as appropriate widths of branches as well as sounds and signs to look for when climbing, such as cracking. Parents of children participating in the program are also provided with information about the benefits of the activities and what to expect.

Before the program commenced a thorough risk assessment process was carried out by the parent committee, educators, park rangers and Darebin City Council to understand and mitigate potential accidents or other hazards. Parents of children participating in the program were also encouraged to participate. A State Government matrix model was used and the overall risk consequence was deemed to be 'moderate' and likelihood 'unlikely'. Controls that had been proposed to mitigate risk such as adequate supervision, skill development and environment assessment, were all deemed to be 'satisfactory'.

Team Involved:
The Risk/Benefit Assessment process was initially undertaken by the Kindergarten Parent Committee and Educators in consultation with Park Rangers and Darebin Council which included adapting a State Government Risk Assessment Process. Parents were encouraged to participate as well.

Expertise Sought or Precedents Used:
The educators and parent committee undertook significant benchmarking and research to understand the factual basis for any risk identified. Additional advice was also sought through overseas models (such as Forest Kindergartens in Sweden), as well as Dr Sue Elliot (Early Childhood Academic with specific knowledge in this area), a parent who was a Risk Manager in Local Government and the Darebin Parklands Rangers and the insurers for Westgarth Kindergarten.

Final Outcomes:

Overall risks for the Bush Kinder program were determined to be relatively minor (particularly related to tree-climbing) and comparable (if not lower) than the risk of climbing static play equipment. It was also determined that tree-climbing has natural safety measures that reduce the likelihood of injury. These measures include the natural structure of trees with multiple branches that allow for any potential falls from higher up to be broken, signs and sounds (such as cracking) that determine the potential strength of a branch and different branches at different heights enabling children the opportunity climb at their own skill level with plenty of challenges on offer.

The Westgarth Bush Kinder has found that the benefits of tree climbing such as the development of children's confidence, independent decision making and an enhanced connection with the environment far outweigh any risks. The popularity and public interest in the program is testament to that. Educators have observed that as children climbed more, so too did their confidence in themselves to negotiate challenges in other areas.

LOG CLIMBING STRUCTURE

Theatre Gardens Playspace

This project was the replacement of an existing equipment based playground with a more natural play environment at Subiaco, a western suburb of Perth.

Natural elements such as rocks and logs, used for climbing, often don't fit within the parameters of general standards compliance. In this case study we examine issues arising from the design of a log climbing structure and a log seating surround allowing underneath access to this structure.

A desire to deliver on key community considerations such as accessibility drove council to take a risk/benefit approach to the design of a particular log climbing structure in this playspace.

Location:
Subiaco, Perth, Western Australia

Context:
Suburban (Local Government)

Site Type:
Regional Recreation Reserve

Client:
Subiaco City Council

Design Team:
Nature Play Solutions
Chris Lawrence
Landscape Architect

Playspace Auditor:
Andrew Reedy, Play Check

Date Opened
August 2014

LOG CLIMBING STRUCTURE

Play Element or Activity for Discussion:
Logs and Granitic Gravel Path Below Raised Log Climbing Structure

Overall Philosophy on Risky and Challenging Play:
Subiaco City Council developed a Playspace Strategy in consultation with the local community in 2013. Redesign of the playspace was informed by this document, as were particular community aspirations around accessibility and inclusion. Council identifies in this document 4 key objectives and 6 principles underpinning future playspace design in the city; 1/ Promoting Fun & Purposeful Play (Creating 'bespoke' playspaces congruent with local environments and communities), 2/ Supporting Health & Development Through Play for All Ages (Allowing for beneficial risk), 3/ Maximising Parkland Function to Support Play (Incorporating natural features in playspaces), 4/ Promoting Community Connection (Encouraging community consultation and ownership).

Principal 6: 'Allowing for beneficial risk' states that optimal play environments include some scope for considered risk-taking and challenge. This is to address growing community concerns about the impact of risk-adversity and anxiousness applied to parenting and childhood. Though well intentioned, council recognises that risk-adversity can bring with it unintended consequences for children's social, emotional and physical development that have lasting repercussions for the type of adults they become. Council also recognises that playspace planning and design must consider hazards, however the goal is not to eliminate risk, but to weigh up the risks and benefits. As well as adopting this principle within its play strategy, council also plays an important role in helping to reshape community understanding of the importance of challenge, adventure and beneficial risk in childhood.

Benefits Identified:
Three particular benefits were identified; 1/ Increased social inclusion for children, 2/ Provision of a social space for the community, and 3/ Aesthetic benefits. While the climbing structure is not fully accessible, the ability for a person in a wheelchair to access the 'heart' of the climbing structure and remain in close proximity to other users increases the inclusiveness of the play element. The logs also serve an important role of providing casual seating and a social space for all users of the playspace. The retention of the logs and compacted gravel path are more in keeping with the aesthetics of the overall playspace, firmly centered on natural elements.

Risks (Actual or Perceived) Identified:
As a standard part of the construction process, a preliminary safety / compliance audit was undertaken by Andrew Reedy of Play Check of the playspace. The audit identified that although a timber safety barrier was in place to prevent falls from the raised platform, there was potential for unintended access to the outside of the climbing structure and should that occur, there was potential for an injury to occur should a child fall onto a log located below the platform.

Risk/Benefit Assessment Approach:
The difficulty with strictly adhering to the safety audit recommendations and standards would have been that the logs underneath the structure would have had to be removed and additional impact attenuating surfacing provided for the area below the barrier of the climbing structure. Council therefore undertook a process to consider the risks and benefits of the situation and this began with a review of the preliminary safety audit and an on-site consultation meeting. As council had a clear view (supported by a council endorsed Playspace Strategy) of the need to provide quality play opportunities and as a result reached agreement with both Landscape Architect and Playground Auditor to mitigate the identified risk by cutting the external timbers on a 45 degree angle to significantly reduce the climb-ability of the outside of the platform and also the relocation of 'some' logs from underneath the structure.

LOG CLIMBING STRUCTURE

Team Involved:
Council Representatives, Playground Auditor, Andrew Reedy from Play Check and Landscape Architect, Chris Lawrence from Nature Play Solutions met together and discussed the issues and agreed on mitigation to the structure.

Expertise Sought or Precedents Used:
Expertise on adherence to playground standards was sought from Andrew Reedy of Play Check who after being involved in the risk/benefit analysis and mitigation recommendations with council and the designer completed a final inspection report on the playspace that noted that the item was 'non-compliant' within the parameters of the Australian Standards, however indicated that the mitigation measures had reduced the risk to low and as a result recommended no further action.

Final Outcomes:
After the opening of the playspace, the project has proven to be an overwhelming success, with the community particularly responsive to the quality and range of play opportunities within a great natural setting.

HAY BALE JUMP

Loch Pre-School

Loch Pre-School is located east of Melbourne in South Gippsland's dairy farming country. Deb O'Halloran has been director of the centre since the early 1980's and has brought to the program experiences of her own childhood to inspire this truly unique playspace.

On first glance the playspace looks unplanned and haphazard, a cacophony of slopes, child made structures, sand pits, trees and shrubs with ropes and ladders, fort, fire-pit, chickens and ducks. New families to the centre are given a tour by the educators to explain how the space is used and the value of more 'risky play' to the program. This case study examines the introduction of a temporary 'hay bale jump' to the playspace

Location:
Loch Pre-School,
South Gippsland, Victoria

Context:
Regional (Pre-School Program)

Site Type:
Centre Outdoor Play Area

Client:
Loch Pre-School,
South Gippsland, Victoria

Facilitating Team:
Deb O'Halloran
Centre Director

Kerry Rogers
Early Childhood Educator & Consultant

Sandra Morton-Pedersen

Project Date:
2014

HAY BALE JUMP

Play Element or Activity for Discussion:
Hay Bale Jump

Overall Philosophy on Risky and Challenging Play:
The Director's own childhood experiences in regional Victoria have had a significant impact on the centre's overall philosophy on outdoor play. Inheriting the large outdoor space at the centre, she set about working on it in sections, letting it evolve with the input of families and the community. Families were able to see the value as each project was completed and now the entire community just understands 'that this is what happens at this kindergarten'. Incorporating features such as tree swings, a mud brick cubby, fire pit and cubbies/ spaces made of re-cycled structures, the educators haven't had too much issue introducing more risky elements to the playspace, as families know that they are an important part of the program and the way the educator's teach children to assess and negotiate risk.

Activity:
The children were at one stage exploring their interest in jumping off platforms of different heights. As a result the children attempted to try and jump from an A-Frame into one of the sandpit areas, with many of them jumping at one time. The staff observed and documented this interest. Discussions with children who were observed in this play were developed. Was this a safe area to develop a jumping platform? If not, were there alternative places to create the same experience? Further exploration occurred with staff and children regarding other areas in the playground that offered platforms for children to obtain the height they needed to create something to jump off. After much discussion with the children, a parent related their own personal experience of children climbing and jumping off hay bales available at their farm. This was proposed to the children and the hay bale was offered and transported into place. The children then set about organising and negotiating this new item of equipment. The hay bale was lifted over the fence with a tractor. Children and staff looked for areas where it could be placed. i.e. a position that allowed space for the children to jump from. It was rolled into position and children problem solved as to how they would get on top of the hay bale? How they would wait in line? What would be on the ground as they jumped? Would they need a line? etc.

This was not a planned activity as such. It was an experience that was developed and one that reflects the way staff work with the children.

Benefits Identified:
This fun, child-initiated experience promotes the opportunity for children to test skills and develop confidence, learning how to negotiate a more challenging activity and as a result learn to assess risks independently and take turns.

Risks (Actual or Perceived) Identified:
The risks associated with this activity particularly surrounded the need to use the equipment individually rather than in large numbers. At the outset the children in their excitement were clambering to use the A-Frame all at once exposing the children to the risk of falling off unnecessarily. Another risk that was identified was the likelihood of children jumping on top of other children playing in the sandpit area. Either of these issues may cause injury to either themselves or others.

Risk/Benefit Assessment Approach Taken:
The outdoor play area in a Pre-School Centre is slightly different to that of a standard outdoor playground, as it is usually of a more flexible, rather than fixed nature. In this case the educators and children upon discovering the possible hazards associated with jumping from an A-Frame into a sandpit looked for alternative locations for this activity. An offer came forward from one family for the pre-school to have a hay bale installed in the playspace for this purpose. Some open area was found and the hay bale delivered. The children then set about organising the activity to work, dragging in gym mats to land on and a ladder to climb up and branches laid along in a line to help the children wait in a single file as to avoid accidents from too many climbing at once.

HAY BALE JUMP

Team Involved:
The Educators worked closely with the children to discuss safety issues and manage the associated risks. An educator was present at all times during these experiences, helping to identify risks and to manage the way in which the children engaged in the experience as a group.

Expertise Sought or Precedents Used:
No formal precedents were used however the Educators guided the children's conversation and encouraged them to problem-solve as a group to consider alternative options and locations for this activity. As the children moved from the original A-Frame activity to the Hay Bale activity they transferred and applied their learnt behaviour around considering their own well-being and that of others, by passing this information on to one another.

Final Outcomes:
The activity was a huge success and much enjoyed by the children. This experience extended over a number of days from the small group who developed the play experience to other children in the group. The children's responses evolved over time with their ability to identify the risk and developing strategies to manage the risk. They gained highly developed skills in managing this type of play and the Educators photographed this journey to share with their families.

TURTLE CARAPACE SCULPTURE

Ripponlea Gardens

Originally exhibited in 2010 at Sydney's 'Sculpture By the Sea' at Bondi Beach, Artist Benjamin Gilbert's 'Turtle Carapace' has now found a permanent home amongst the leafy gardens of historic Ripponlea in Melbourne's southern suburbs. A sculpture intended for play, in particular as a non-architectural cubby house and slide, the 'Turtle Carapace' has undergone some minor modifications for inclusion in its new location.

Location:
Ripponlea, Melbourne, Victoria

Context:
Suburban

Site Type:
Heritage Public Gardens

Client:
National Trust of Victoria

Design Team:
Agency of Sculpture

Benjamin Gilbert
Artist

Playground Auditor:
Paul Grover Play DMC

Date Opened
September 2014

(Originally exhibited at 'Sculpture By The Sea', Bondi Beach, Sydney in 2010)

TURTLE CARAPACE SCULPTURE

Play Element or Activity for Discussion:
Public Artwork / Sculpture – Turtle Shell (intended for permanent play use)

Benefits Identified:
Opportunities for play for children of all ages in a non-prescriptive, open-ended way in and around a sculptural form to inspire the imagination. The sculpture also serves to extend play into the surrounding landscape and gives children an opportunity to interact with the sculpture through the open hole (carapace) in the turtle shell.

Risks (Actual or Perceived) Identified:
The dimensions of the hole were such that small children could possibly fall through with a 1.25m drop to the solid chest plate (plastron) made of mild steel plating underneath. While it would be difficult to fall freely head first through the hole, the drop onto a solid base caused the sculpture to be non-conforming in regards to the height difference between solid platforms being great than 1000mm with no impact attenuating surface. Meaning that injuries could occur

Risk/Benefit Assessment Approach:
Prior to permanent installation, the artist sought advice from Playground Auditor, Paul Grover as to the items suitability for play use in the gardens at Ripponlea. Designed for installation on the beach at Bondi, the fall from the hole had been cushioned by beach sand below, which was not going to be the case at Ripponlea. An assessment report prepared by Paul Grover concluded its non-conformity with Australian Standard AS:4685 and recommended the following 'While it would be difficult to fall freely through the hole head first and the top is not a platform (hence it could be argued that Clause 2.2.8.2 of AS:4865 may not apply, the risk could be minimised by lowering the hole or not having the solid chest plate below the hole (eg. Have only the outside of the chest plate such that there is playground undersurfacing below the hole).' It was therefore agreed between artist, auditor and client that the sculpture would be modified to accommodate these recommendations by cutting a hole and filling with playground undersurfacing as it was not possible to lower the height of the hole.

Team Involved:
Artist, Benjamin Gilbert from the Agency of Sculpture and Paul Grover, Playground Auditor from Play DMC worked together in collaboration with the staff from the National Trust at Ripplonlea.

Expertise Sought or Precedents Used:
Paul Grover was engaged to give advice and recommendations on modifications to the sculpture to ensure 'best practice' and conformation to Australia Standards AS:4685.

Final Outcomes:
The 'Turtle Carapace' was adapted to conform with AS:4685, by cutting a 1.2m diametre hole into the base and filling it with a suitable depth of impact-absorbing sandpit sand. The sculpture is now fixed permanently into its location at Ripponlea and continues to engage and excite children to climb and play in and around it, as it had done at Bondi Beach several years before.

CHALKBOARD MAZE

Edinburgh Gardens Playspace

In 2008 the Edinburgh Gardens playground turned 30 years old and was needing some love. It was fully fenced, with one seat, an overflowing bin and no shade. Dan Nunan from Pollen Studio, with Yarra City Council set about redesigning the playspace to maximise it's potential landscape and area, catering for both loud, adventurous play and quite, contemplation. Central to the design is a series of upright coloured panels arranged asymmetrically so as to allow for movement through them. The unique Chalkboard Maze has since become an iconic part of this much-loved playspace.

Location:
North Fitzroy, Melbourne, Victoria

Context:
Inner Suburban (Local Government)

Site Type:
City-Wide Heritage Recreation Reserve

Client:
Yarra City Council
Open Space Management Team:
Mark Dornau
Justin Hanrahan
Jason Hocking

Design Team:
Dan Nunan, Pollen Studio
Landscape Architect
Simon Ellis
Landscape Architect

Playground Auditor:
Paul Grover, Play DMC

Accessiblity Consultant:
Dale Shepherd, Access Solutions

Structural Engineer:
Clive Steel Partners

Date Opened:
July 2010

CHALKBOARD MAZE

Play Element or Activity for Discussion:
Chalk Board Maze

Overall Philosophy on Risky and Challenging Play:
Council didn't have an existing Playspace Strategy or policy regarding risky or challenging play to guide this process from the outset, so the designers worked closely with council to identify community need coupled with current thinking on play at the time, including nature play. One overwhelming desire for both council and the community was to create a space for 'inclusive play' that could accommodate children of all ages and abilities, even a space that parents and grandparents could enjoy too! The Chalkboard Maze forms part of this venture out from the confines of structured equipment, to provide a more open-ended, flexible play experience where the environment can be adapted in different ways.

Benefits Identified:
The development of the Chalkboard Maze Area of the playspace was an idea that stemmed from wanting to give kids the opportunity to be creative and leave their own mark on the playspace. The space was designed to function not only as a series of chalkboards for drawing on, but also as fixtures to 'slow' the pace of movement around them and create further opportunities for other games like 'Hide and Seek' allowing children the opportunity to play unobserved. The area gives children (and carers) the opportunity to express themselves, work and play together and learn. The chalkboards are also highly usable by children and carers of all abilities.

Risks (Actual or Perceived) Identified:
Concerns about children hiding and surveillance were identified as being a risk to the safety of children using the space. Maintenance was also flagged as a potential issue with chalkboards in a public space seen as 'asking' for graffiti, as well as additional maintenance requirements with replenishing chalk and keeping everything functioning during the inclement winter months.

Risk/Benefit Assessment Approach:
The concerns regarding both surveillance and maintenance were front and centre in the debate surrounding the design, construction and ongoing maintenance of the playspace. Considerations were made by the designers to ensure that the height, offset nature and distance between each chalkboard allowed for easy viewing by an adult in and around, while at the same time giving younger children a sense of privacy in their play. Issues around the ongoing maintenance of the chalkboards was taken on board by council staff and a regular routine set in place, to remove graffiti when it occurs, repaint the boards when needed and top up chalk regularly to make sure that the chalkboards can always be used.

Team Involved:
This project came together as the result of a number of key players, both internal and external to council including Landscape Architects, Parks Maintenance and Open Space Planning Staff. Advice on disability access was sought from Dale Shepherd, an Access Consultant and Playground Auditor, Paul Grover who all contributed their knowledge and expertise. The Yarra City Council's Parks & Gardens Team provided planting advice on species suitable to the locality.

Expertise Sought or Precedents Used:
As well as input from Dale Shepherd on Disability Access and Paul Grover on safety compliance, Designer Dan Nunan attended a playground design training course through PRAV (Playgrounds and Recreation Association Victoria) during work on this project. References such as PRAV's 'The Good Playspace Guide' (2008) and Sue Elliot's 'The Outdoor Playspace Naturally' (2008) were resourced and the designers visited sites such as Wombat Bend and Hays Paddock in Melbourne for inspiration.

Final Outcomes:
The Chalkboard Maze idea is a pretty simple one, so modification to the original design was minimal, however the discovery of different coloured chalkboard paints allowed the designers to present something a little more engaging than just a black maze. The success has been mainly in the positive feedback from the many families using the playspace in North Fitzroy's most popular park. Although it hasn't won design awards the locals seem to think it a winner!

ROCK BOULDERS AS PLAY ELEMENTS

Zina Grove Playspace

Yarra Ranges Council in Melbourne's outer-east created a distinctive new playspace with multiple constructed boulder outcroppings for climbing, complimenting play activities provided by more traditional playground equipment. Boulders enable children to experiment with climbing and balancing skills by offering opportunities to negotiate challenging, uneven and angled surfaces. Clusters of boulders also provide opportunities for imaginative play. This case study examines how boulders have been effectively incorporated into a playspace.

Location:
Mooroolbark, Melbourne, Victoria

Context:
Suburban (Local Government)

Site Type:
Public Reserve

Client:
Yarra Ranges Council

Design Team:
Shire of Yarra Ranges
Rob Hamilton
Landscape Architect

Playground Auditor:
Ray Hutchison & Associates

Date Opened:
September 2013

CHALKBOARD MAZE

Play Element or Activity for Discussion:
Rock boulders as play elements

Overall Philosophy on Risky and Challenging Play:
Many experts in child development have called for children to be offered more opportunities to interact with nature. Local councils have a 'duty of care' to mitigate hazards and adhere to best practice standards when developing playspaces, therefore an approach that assesses both risks and benefits in this situation is appropriate. Playspaces that offer insufficient age-appropriate challenges can quickly become boring, resulting in children to seeking challenges in riskier environments elsewhere.

Benefits Identified:
Boulders are valuable, in particular, because of their uneven and angled surfaces. This unevenness provides an opportunity for children to develop sophisticated balance skills not possible with most manufactured equipment. Boulders also expose children to materials that are often missing from urban environments. Many families actively seek out natural play experiences for their children.

Risks (Actual or Perceived) Identified:
There is potential for children to collide with, or fall onto, boulders causing injury, which may in turn lead to complaints about the playspace and poor perception of council's management of risk.

Risk/Benefit Assessment Approach:
An important function of quality playground is providing opportunities for children to take managed risks so that they can challenge and improve their abilities and practice important life skills. There are potential hazards associated with both standard play equipment and more landscaped experiences that cannot be completely eliminated without also undermining the value of those experiences.

Playspaces are designed to cater for children 2 – 12 years old, however not all activities will be suitable for all age groups. Activities intended to be interesting and challenging for 12 year olds may not be suitable for all two year olds. Parents and carers are expected to actively supervise their children in and around playspaces to ensure that children do not take risks inappropriate to their age or ability. Arguably, rocks may be safer than manufactured equipment because their unevenness and unpredictability encourages activity that is more thoughtful, deliberate and cautious.

Several different options for risk management of boulders were considered and adopted, including boulders being treated as any other item of playground equipment. All potential falls of greater than 600mm are surrounded by impact absorbing under surfacing, all sharp edges buffed off and boulders are placed to minimise entrapment risks. All boulders within the playspace are included in council's annual independent playground safety audit.

Team Involved:
Council Officers and Landscape Architect

Expertise Sought or Precedents Used:
Precedents observed in regards to risk/benefit analysis for this project included similar playspaces recently built in the municipality and other projects of a similar nature.

Final Outcomes:
In order to maximise developmental opportunities and to provide an exciting and attractive environment boulders were used extensively in and around the playspace, consistent with the risk management principles discussed above. The new Zina Grove Reserve playspace has become one of the most popular playspaces in the area.

GLOSSARY

Australian Standards for Playgrounds – Refers to several standards relating to the design, installation and maintenance of play equipment and its settings. *More specifically AS/NZS 4422: Playground Surfacing – Specifications, Requirements and Test Methods; AS 4685: 2014 Play Equipment and AS/NZS 4486.1: Playgrounds & Play Equipment: Part 1. Development, Installation, Inspection, Maintenance and Operations.*

Australian Standards for Access & Disability – Refers to the 2009 standard relating to accessible building design including ramps, kerbs, handrails etc.. *More specifically to AS 1428: Design for Access & Mobility*

Challenge – Refers to noun 3. something that makes demands upon one's abilities, endurance, etc. *(Macquarie Dictionary 2014)*

Children – For the purposes of this guide the term young people is defined as meaning from age 0 – 18 years of age.

DDA – Refers to the Federal Disability Discrimination Act 1992 that provides protection for everyone in Australia against discrimination based on disability. It encourages everyone to be involved in implementing the Act and to share in the overall benefits to the community and the economy that flow from participation by the widest range of people.

Educational Setting – Refers to any institution or program offering an educational program in Australia. More specifically schools, early childhood centres, and also community centres etc.

Harm – Refers to noun 1. injury; damage; hurt *(Macquarie Dictionary 2014)*

Hazard – Refers to noun 2. the cause of such a risk; a potential source of harm, injury, difficulty, etc. *(Macquarie Dictionary 2014)*

IPA – Refers to the International Play Association.

LGA – Refers to a Local Government Authority or Council in Australia. Council frequently provide and manage playgrounds in the public realm.

New Australian Standard – Refers to the adoption of the new AS 4685: 2014 in March 2014, replacing the existing AS 4685: Parts 1-5 and Part 11.

Play Australia – Refers to the national association for play in Australia launched in 2011, formerly the Playgrounds and Recreation Association of Victoria.

Play England – Refers to the national association for play in England formed in 2006 with assistance from National Childrens Bureau and Big Lottery Fund to lobby government, train and provide resources on play in England. Also associated with Play Scotland, Play Wales and PlayBoard Northern Ireland. Other affiliated groups include the Play Safety Forum and the Free Time Consortium.

Playground Industry – Refers generally to designers, manufacturers and importers of play equipment and under-surfacing in Australia, and also including safety auditors, installers, advocacy groups and affiliated associations.

Play Provider – Refers to any organisation owning, providing and managing playgrounds i.e. Local Government Authority or Early Childhood Centre Operators, Schools, Community Centres and other such organisations.

Playground – Refers to an open space area provided for play, which may include play equipment, impact absorbing undersurfacing and ancillary items such as edging, incorporated natural elements (such as rocks), fencing, furniture, artwork and the surrounding landscape, trees and grassed areas etc.

Public Realm – Refers to playgrounds provided in public spaces. Generally refers to playgrounds in parks and reserves.

Risk – Refers to noun 1. exposure to the chance of injury or loss; a hazard or dangerous chance *(Macquarie Dictionary 2014)*

Risk Aversion – Refers to the practice of exposure to situations where an adverse outcome is possible.

Risk/Benefit – Refers to the possibility that exposure to a risky environment and risky activity, could have beneficial outcomes (such as skill development).

Risk/Benefit Assessment – Refers to the practice of weighing up when assessing the benefits versus the risks of a playground or play environment.

Safety – Refers to noun 1. the state of being safe; freedom from injury or danger *(Macquarie Dictionary 2014)*

Youth Activity Space – For the purposes of this guide this refers to outdoor environments designed specifically for young people from 12-18 years and may include skate parks, youth spaces, informal sport settings (i.e. half basketball courts or rebound walls) and adventure play opportunities.

APPENDICES

1. Guided questions to use during each stage of playground planning
2. City of Whittlesea 'Playground Planning Framework 2013-2016' (Section 8.1)
3. City of Geelong 'Play Strategy 2012-2021' – Part 2 (Pages 23-28)
4. City of Whitehorse 'Play Space Strategy 2011' (Section 2, Page 12 & 13)

Appendix 1

GUIDED QUESTIONS TO USE DURING EACH STAGE OF PLAYGROUND PLANNING

Risk/Benefit Assessment does not just occur at one stage in a given playground's lifetime, it's a dynamic process that should be considered and reconsidered regularly. A robust and clear play policy and process is even more critical given that Risk/Benefit Assessment is more than likely to be handled by different individuals within an organisation at the different stages outlined below and consistency of approach throughout is imperative.

Questions to be considered during strategic planning

With your Play Policy developed, you are now looking at planning a program for your upcoming capital budgets or perhaps you've received additional capital funding for a new project. Key questions to be asked at this stage in the Risk/Benefit Assessment process should be:

- What are our criteria for determining capital work on playgrounds?
- What is the need for our community?
- Are we managing our assets equitably?
- Who is responsible for managing a playground during its lifespan? What are their accountabilities?
- Is the play provision offered varied? What are the gaps and how can these be addressed?
- What do our annual external audits tell us about maintenance and replacement work that needs to be undertaken to manage our playgrounds effectively? Are there gaps? How can these gaps be best managed?
- Are we meeting our Risk Management requirements? Are there gaps? Why? How can these gaps be best managed or do they need to be managed?
- What role does the Play Policy have in all of this?

Questions to be considered when designing a playground

So your capital budget is now secured and your program is in place, lets take a closer look at your approach, how are you going to make this project happen? Considerations need to be given as to whether the design of this project will be tendered out to an external designer or landscape architect, managed 'in-house' or tendered out to a play equipment manufacturer, or a combination of some or all of these. Either way management decisions need to be made along the way and key questions to be asked at this stage in the risk benefit process are:

- What is the size, scope and nature of the proposed playground?
- Have the local community been consulted or given information about the project?
- Can we manage this in-house or do we need to engage an external consultant to undertake design work on this project (either designer or play equipment manufacturer)? What are the pros and cons in terms of outcome?
- Is the external consultant familiar with our Play Policy? Does our Play Policy inform the proposed playground design?
- What assets already exist (play equipment elements, natural features, furniture or art elements)?
- What is the age and current condition of the existing assets?
- How does our community, in particular the children or young people using it, value these existing assets?
- Should the existing assets be retained and protected or removed? Why?
- Does the proposed playground meet the needs (play-value, graduated challenge) of the age groups using them?
- Is the proposed playground sited appropriately?
- Does the proposed playground offer a degree of universal access?
- What perceptions of risk might be associated with either the proposed playground or current setting? How are these perceptions to be managed?
- Are there obvious or discreet hazards? Why? How are these to be managed?
- Does the proposed playground meet current Australian Standards?

Appendix 1

Questions to be considered during construction or installation.

Your design is now signed off and you're ready to progress to the construction or installation stage of the project. Keeping in mind that a third party contractor usually undertakes construction or installation, key questions to be asked at this stage of the Risk/Benefit Assessment process are:

- Who is installing and are they familiar with our Play Policy?
- Is there someone as a point of contact should further decisions need to be made during construction / installation?
- Are there existing assets (play equipment elements, natural features, furniture or art elements) that need to be retained and protected during the construction period? Why?
- Are there existing assets that need to be removed? Why?
- Have standards been applied to any designs produced for construction?
- Has adequate information been provided for installation or construction, i.e. technical details and specifications? Has the playground been installed or constructed according to this information?
- Is the playground to be audited after construction for defects and hazards and compliance with standards?
- Who has the final sign-off after construction? What is the process?
- Who is responsible for the playground after construction and has there been a handover?

Ongoing questions to be considered regarding maintenance

The community is now enjoying all the benefits of their new or renewed playground and you are now visiting regularly for maintenance checks. This is perhaps one of the most difficult stages as those responsible for ongoing maintenance often inherit the decisions made by others before them, such as designers or developers. As any given playground can have a lifespan of 10-15 years (generally) before replacement or renewal different questions may occur at different times in the Risk/Benefit Assessment process below:

- How regularly are playgrounds maintained and by whom?
- What does regular maintenance involve?
- What informs regular maintenance tasks? (observation, reporting from the community, external audits, other advice, or all of these?)
- Is graffiti removal and cleaning part of the maintenance visits? If no, who manages this and how often? Or does this need to be introduced?
- Is there a hierarchy of importance with maintenance tasks? How is this informed?
- Does our maintenance team have others for reference when making decisions? Who are these others? Is there a balance in the decision making process?
- Is our decision making process informed by our Play Policy?

Questions to be considered regarding asset management and routine auditing

Running in parallel with the maintenance of any given playground is regular independent auditing mostly for advice and compliance with Australian Standards and any other regulations required. This is usually required for insurance purposes of the playground asset by organisations. Audits may occur bi-annually or annually and are often utilised as a program of works for maintenance. Keeping in mind that this is yet another instance of third-party involvement in the Risk/Benefit Assessment process key questions to ask at this stage are:

- Why are we auditing our playgrounds?
- How frequently do we need to audit our playgrounds?
- Who is going to audit our playgrounds and what expertise should they have?
- Is the auditor familiar with our Play Policy?
- What do want our auditors to cover in their audits?
- How is this information best presented to us in terms of usefulness?
- What additional information and advice is brought to bear when decisions are made about maintenance and renewal of playgrounds, aside from the independent audit?

Appendix 1

Questions to be considered for staff managing playgrounds in programmed early childhood settings

The national Quality Improvement and Accreditation System (QIAS) (National Childcare Accreditation Council, 2005) asserts that staff 'should have the skills to assess risk potential, based on their knowledge of each child', allowing them to intervene to prevent harm when necessary while also fostering 'each child's developing independence and competence by supporting the child in some activities that the child perceives as risk taking'. Questions that might be asked by staff and managers in this type of setting may be as follows:

- How is my program providing challenge?
- Are there opportunities for independent exploration for our students?
- Is the environment flexible enough to provide graduated or changing challenge to students?
- Do staff know how to support students appropriately (in terms of adult intervention) in risk taking activities so as to develop judgement and confidence in their own learning

Appendix 2

CITY OF WHITTLESEA PLAYGROUND PLANNING FRAMEWORK 2013-2016 (Section 8.1)

8. Planning framework

In creating a planning framework to deliver on the principles discussed in the previous chapter, it is important to foreground the requirement that within each neighbourhood, children and young people have access to a range of play opportunities.

8.1 Planning for outdoor play and risk

Planning for a variety of levels of playspace complexity and embellishment is important to ensure a breadth of play opportunities is available to the community. Of equal importance however, is the amount of natural outdoor space available, and the opportunities for exploring risks in a natural setting.

There is clearly a need to redress the current downturn in natural outdoor play which can result in negative health outcomes. Council can most effectively do this by planning for the retention, creation or development of outdoor natural playspace and wild space.

Existing natural settings, or settings within established and new suburbs that could be rehabilitated to appear 'wild', should be integrated into the overall play landscape. When developing precinct structure plans, natural features and connecting landforms can be identified as wild space for outdoor play and can provide connectivity and add play value to the range of playspaces in the whole precinct. Because integrating wild space into overall landscape and urban design is a creative and somewhat opportunistic process, there can be no prescriptive provision standards.

The potential for wild space should be considered as a component of the play landscape when preparing any type of master plan. Within the established areas, some open spaces or local parks could be appropriate for rehabilitation as wild space when routine maintenance or upgrade is scheduled. Assessment of a site's suitability as wild space could be based upon a number of factors. These might include the existing site context, linkage to other open spaces, ability to perform as a wild space, extensive conversations with the local users of the park, and overall community benefit. That is: can local community groups or local schools (through curriculum) benefit from its location?

8.2 Planning for variety and equity

Not every playspace is of a sufficient size to meet a complete range of needs for all children and young people. A variety of facilities across the municipality is required to cater to different age groups and provide for different types of play and community use.

It is common local government practice to adopt a hierarchy framework to ensure that a wide range of functions and variety of play opportunities is provided. While there is no industry-wide agreed hierarchy or provision standard there are common levels of provision – usually local, neighbourhood, district and regional.

This is similar in practice to planning for open space where the classification uses similar nomenclature – local, neighbourhood, and regional (amongst others). While it is clear that public playspaces are located in public open space, playspaces are one of a range of functions of open space.

Planning for open space has previously been considered synonymous with planning for playspaces. The similar terminology can be confusing. For example, a local level playspace could be provided in regional open space, conversely a regional playspace could be provided in district open space.

Confusion can be avoided if planners have a clear understanding of the differences and refer to the appropriate facility according to its purpose and description.

The City of Whittlesea will use a hierarchy framework for planning and providing playspaces, based on the following factors:

- Contemporary practice
- Community demand and trends
- Evidence
- Financial feasibility.

The hierarchy and description of function for public playspaces within the City of Whittlesea is provided below to assist growth area planning and the replacement and development of playspaces in established areas.

Appendix 3

CITY OF GEELONG PLAY STRATEGY

2012-2021 – Part 2 (Pages 23–28)

27. Interaction with nature.
28. Promotion of dramatic play.
29. Employment of play workers in some parks in the UK.
30. Fixed outdoor fitness equipment in parks or along linear trails which can be used by all age groups.
31. Less informal play occurring in residential streets.
32. Greater number of people accessing play spaces by car.
33. An increase in the number of indoor play spaces where participants pay to play and parents can sit, watch and buy a coffee.
34. Increasing number of children 0-5 attending early childhood centres and taking part in educational and recreational programs with a strong emphasis on play.
35. Increasing focus on risk avoidance due to fear of injuries to children and fear of litigation.

1.8 Risk-benefit Assessment

1.8.1 Why Risk is Important

Risk taking is an important part of growing up. It allows children to learn how to deal with different situations; to learn about success and failure; to judge speeds and distances; to understand limitations of materials; to become more confident; to become more resilient; and to challenge themselves both physically and mentally. Unfortunately the litigious society in which we live and the trend towards avoidance of all risks in daily life have had a major impact on children's exposure to places where they can explore their boundaries and their capabilities.

Many play spaces have been designed to avoid risks at all costs. Whilst it is extremely important to provide a place where young people are protected from avoidable harm and to ensure that all aspects of the play space meet Australian Standards in terms of safety, too often the challenge, fun and adventure has been removed from play spaces. So what we are left with is a series of bland boring play spaces that offer very little interest or play value to our children.

1.8.2 Balancing Risk and Benefits of Risk

The traditional way of viewing risks is to develop a table which identifies the likelihood of an incident occurring versus the consequence of that incident.

LIKELIHOOD	Minor	Moderate	Major
Very likely	Yellow	Red	Red
Likely	Green	Yellow	Red
Unlikely	Green	Green	Yellow

CONSEQUENCE

Incidents that are unlikely to occur and are likely to have minor consequences are generally rated as 'green', indicating that they can be managed reasonably well without any major interventions. In a play space, this may include a child tripping over on soft fall and grazing his or her knee. Incidents that are likely to occur and have moderate consequences are rated 'yellow' and require some form of intervention to reduce the likelihood of the incident occurring and the likelihood of

injury. In a play space such an incident may include repositioning a swing so that it is not in the path of play to protect any child who may run into the path of a person on a swing. Incidents which are likely or very likely to occur and major consequences are labelled 'red' and must be addressed as a matter of priority. In a play space this may include inadequate under surfacing or excessive free fall heights, both of which may result in serious injuries to children if they are to fall.

> "Children and young people need to encounter some real risks if they are to respond positively to challenging situations and learn how to deal with uncertainty. This cannot be achieved by limiting them to supposedly safe environments. Therefore, providers of play opportunities have no choice but to offer situations in which children and young people can experience real, not make-believe hazards"
>
> Play England.

What is needed, however, is a balance between acceptable risk and the benefits that such risks may provide to the development and well-being of young people. Play England[5] recommends that risk-benefit assessments should be documented in a style similar to the following:

Hypothetical Risk-benefit Assessment: Should Tree-climbing in the City's Parks be Allowed or Prohibited?

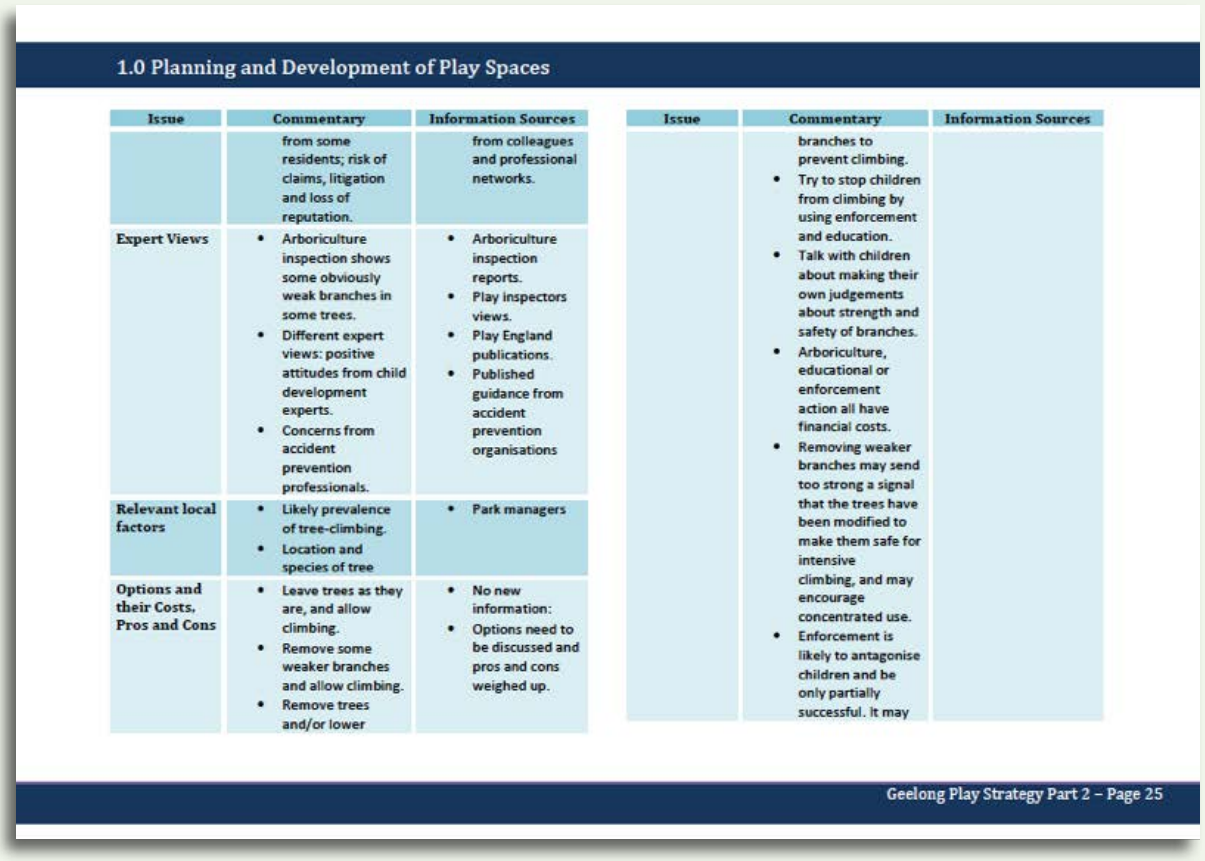
Issue	Commentary	Information Sources
Benefits	• The pleasure it gives children and young people. • Benefits to health, confidence and well-being. • Benefits of regular contact with nature in promoting environmental awareness.	• Forestry Commission Growing Adventure report (Gill, 2006). • Play England publications on the benefits of play. • Everyday experience and observation
Risks	• Risk of minor injuries and long bone fractures. • Lesser risk of more serious injuries. • Risk of damage to trees. • Risk of complaints	• National accident data. • Local knowledge about injuries and complaint levels. • Information about claims

[5] Play England *Managing Risk in Play Provision: Implementation Guide Page*

Appendix 3

CITY OF GEELONG PLAY STRATEGY

2012-2021 – Part 2 (Pages 23–28)

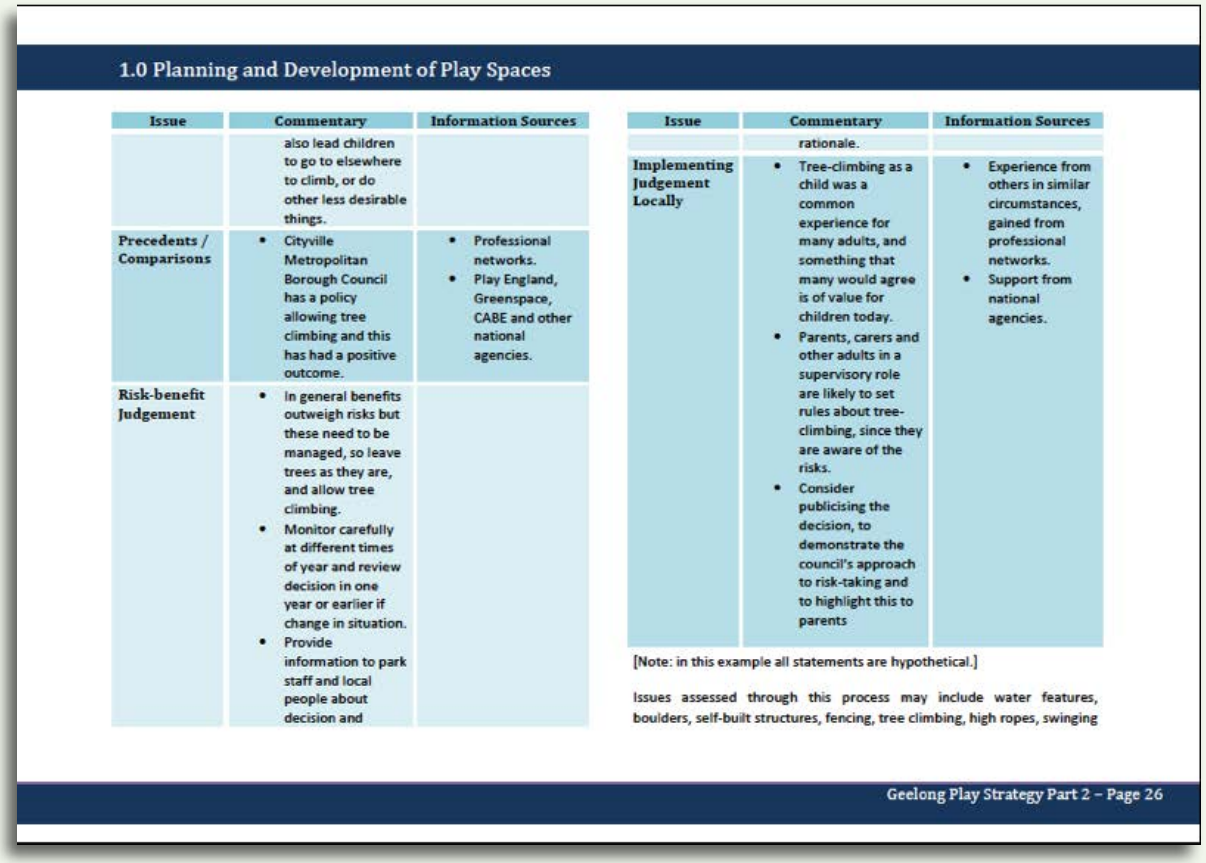


1.0 Planning and Development of Play Spaces

Issue	Commentary	Information Sources
	from some residents; risk of claims, litigation and loss of reputation.	from colleagues and professional networks.
Expert Views	• Arboriculture inspection shows some obviously weak branches in some trees. • Different expert views: positive attitudes from child development experts. • Concerns from accident prevention professionals.	• Arboriculture inspection reports. • Play inspectors views. • Play England publications. • Published guidance from accident prevention organisations
Relevant local factors	• Likely prevalence of tree-climbing. • Location and species of tree	• Park managers
Options and their Costs, Pros and Cons	• Leave trees as they are, and allow climbing. • Remove some weaker branches and allow climbing. • Remove trees and/or lower	• No new information: • Options need to be discussed and pros and cons weighed up.

Issue	Commentary	Information Sources
	branches to prevent climbing. • Try to stop children from climbing by using enforcement and education. • Talk with children about making their own judgements about strength and safety of branches. • Arboriculture, educational or enforcement action all have financial costs. • Removing weaker branches may send too strong a signal that the trees have been modified to make them safe for intensive climbing, and may encourage concentrated use. • Enforcement is likely to antagonise children and be only partially successful. It may	

Geelong Play Strategy Part 2 – Page 25



1.0 Planning and Development of Play Spaces

Issue	Commentary	Information Sources
	also lead children to go to elsewhere to climb, or do other less desirable things.	
Precedents / Comparisons	• Cityville Metropolitan Borough Council has a policy allowing tree climbing and this has had a positive outcome.	• Professional networks. • Play England, Greenspace, CABE and other national agencies.
Risk-benefit Judgement	• In general benefits outweigh risks but these need to be managed, so leave trees as they are, and allow tree climbing. • Monitor carefully at different times of year and review decision in one year or earlier if change in situation. • Provide information to park staff and local people about decision and	

Issue	Commentary	Information Sources
	rationale.	
Implementing Judgement Locally	• Tree-climbing as a child was a common experience for many adults, and something that many would agree is of value for children today. • Parents, carers and other adults in a supervisory role are likely to set rules about tree-climbing, since they are aware of the risks. • Consider publicising the decision, to demonstrate the council's approach to risk-taking and to highlight this to parents	• Experience from others in similar circumstances, gained from professional networks. • Support from national agencies.

[Note: in this example all statements are hypothetical.]

Issues assessed through this process may include water features, boulders, self-built structures, fencing, tree climbing, high ropes, swinging

Geelong Play Strategy Part 2 – Page 26

Appendix 3

CITY OF GEELONG PLAY STRATEGY

2012-2021 – Part 2 (Pages 23–28)

Approximately 17% of the children who presented to the emergency department were admitted to hospital, with the most frequent injuries generally occurring on the upper extremity of the body as fractures (47%), sprains / strains (20%) and open wounds (10%). The majority of accidents occurred from falls from heights over one metre (55%) and falls from less than one metre (26%). Although the gender distribution of injuries is equal between males and females, children between five and nine years of age were most likely to present to emergency departments for treatment (58%). Equipment with the highest number of injuries recorded were monkey bars, trampolines and slides.

Figure 10: Child exploring risk at Sparrow Park

Statistics from Play England[8] show similar accident data for the UK. It also shows that:

> per hour of participation, "accident rates for sports such as rugby and football (soccer) are at least 10 times as high, and even racket (sic) sports like tennis and badminton have accident rates several times as high as for playing in play provision."

Whilst it is difficult to obtain similar statistics for Australia, a study undertaken by Monash University Accident Research Centre (MUARC) (2002) showed that people who take part in Australian Rules Football, bicycle riding, basketball and soccer are more likely to present to emergency departments with an injury than a child who has fallen from play equipment. In fact, based on the research conducted by MUARC information, an Australian Rules Footballer is almost four times more likely to present to an emergency department with an injury than someone who is injured whilst playing on play equipment.

[8] Play England (March 2009) *Policy Briefing 6: Managing Risk in Play Provision: A Briefing for Risk Managers*

bridges, flying foxes, etc. Relevant Australian Standards for playgrounds will also need to be considered in the development of this risk-benefit assessment.

It will be crucial to engage Councillors, all relevant Council staff, Council's insurers and the broader community in the development of the risk-benefit assessment for new equipment / objects which are considered more challenging and may not necessarily come with Australian Standard approval. The continuing education of parents and carers is a key component of this 'shift' to a risk-benefit approach. The document will need to be made accessible to all of those who need it. Further, it will be necessary to continue to monitor, review and update the assessment on a regular basis.

Recommendation:

To develop a risk-benefit assessment approach to play spaces which incorporate 'more challenging equipment / objects' whereby Council officers and Council insurer's work together to identify both the risks and the benefits of risks in play spaces with a view to providing more challenging play spaces which still meet Australian Standards for safety.

1.8.3 Playground Equipment Accident Statistics

Play spaces are relatively safe places compared with activities such as football. However, minor accidents are inevitable. Monash University Accident Research Centre[6] recorded approximately 4,000 presentations to the emergency department of Victorian hospitals annually between 2006 and 2009 for children sustaining an injury at home (36%), in schools / day care centres / public administration areas (32%) or in places for recreation (19%) from playground equipment and trampolines. As a comparison, the number of people presenting to the 38 Victorian public hospitals in 2007/08 was 1,350,046[7].

> Accidents from playground equipment and trampolines equates to only 0.3% of all emergency department presentations in Victoria.

[6] Monash University Accident Research (April 2010) *Playground Equipment and Trampoline Injury in Children (0-14 years):* http://www.monash.edu.au/muarc/VISU/reports/playground.html

[7] Victorian Government and Commonwealth Government, *National Partnership Agreement on Hospital and Health Workforce Reform:* http://www.federalfinancialrelations.gov.au/content/national_partnership_agreements/HE003/implementation_plans/VIC%20-%20TPOPH.pdf

Appendix 4

CITY OF WHITEHORSE PLAY SPACE STRATEGY 2011 (Section 2, Page 12 & 13)

2.3 Universal Design

The *Whitehorse Play Space Strategy 2011* recommends the application of 'universal design' principles when planning new play spaces or upgrading existing ones. Applying universal design principles will optimise the use of the play spaces and surrounding amenities by all ages and abilities.

Optimising access for all ages and abilities will be a core part of the planning and design process. The type and level of access to 'small local', 'local', 'neighbourhood', and 'municipal' level play spaces will be in line with guidelines established in the *Whitehorse Play Space Strategy 2011*. This is consistent with the *Whitehorse Open Space Strategy 2007* planning framework for all open space, including sporting grounds, trails, and nature reserves.

The following are examples of universal design considerations the *Whitehorse Play Space Strategy 2011* will address in the planning and design of play spaces:

1. The right of all people, regardless of age or ability, to access play spaces and associated amenities such as toilets, seats and tables, and pathways in line with the requirements of the federal *Disability Discrimination Act (1992)*.
2. Transport – opportunities to provide play spaces in easy reach by different modes of transport
3. Families, friends or carers of children of different ages – consideration of the mix of play spaces and amenities for different age groups.
4. Car parking – size and layout that allows easy access to cars for parents and carers with children and prams, people with mobility aids, or people with picnic equipment.
5. Safe road crossings – consideration of the barriers that busy roads without safe crossing points may present.
6. Play equipment that optimises opportunities for children of different ages and abilities and carers to play together.
7. Pathways and trails – consideration of trail and pathway upgrades needed to provide safe and easy access for people with different abilities, or using different modes of transport.
8. Directional and distance signage – consideration of signage requirements that will provide confidence to children and carers accessing play spaces along trails.
9. Areas of economic hardship – consideration of additional opportunities that may be required in or closer to these areas.

2.4 Challenge and Risk Taking

'While safety issues need to be addressed, avoiding all risk is not the solution, as doing so limits children's participation in worthwhile experiences that promote their optimal health and development.

On the contrary, failure to provide children with stimulating and challenging experiences through which they can engage in positive risk-taking exposes them to different risks that compromise their health and development.'

Reference: Outdoor play: 'Does avoiding the risks reduce the benefits?', H.Little/S.Wyver.

Challenge and risk taking are an important part of children's play and their physical, intellectual, and emotional development.

There is growing concern among child education and growth and development specialists that adults are removing all opportunities for children to engage in challenging, adventurous and positive risk-taking play.

'Risk-taking is an essential feature of play provision and of all environments in which children legitimately spend time playing.'

Reference: European Standards for fixed play equipment, BS EN 1176-1 Playground equipment and surfacing, Part 1.

Effective play space planning should incorporate age appropriate opportunities for children to explore and master their abilities and extend their limits. This can be achieved in outdoor play environments where the risks of serious injury are minimised, but not to the point where creativity, challenge, and excitement are lost.

A number of factors have contributed to minimising risk-taking play opportunities in public environments. Key among these is the fear public authorities have of litigation and a lack of understanding by adults, including parents, of the importance of exposing children to risk-taking activities.

As a result, there are fewer opportunities for children to develop resilience that comes with physical and boisterous play; to make decisions about taking risk; and to experience the emotions that come with confronting challenge.

If too much challenge and adventure is removed from the public play space there will be a greater tendency for some children to seek adventure in potentially unsafe environments.

A lack of exposure to risk-taking environments has the potential to significantly impact on children's decision making later in life. For example, in terms of the ease with which they engage in different types of physical activity; their willingness to try different or challenging activities; and confidence in dealing with risk situations.

References: Outdoor play: 'Does avoiding the risks reduce the benefits?', H.Little/S.Wyver; Good play space design: I can play too, PRAV (now Play Australia) / DPCD.

Play England recommends play space providers apply (safety) standards within the context of their local play policy, and in consideration of the needs of local children. It discourages a total dependence on industry guidelines or standards when making decisions about inclusions and exclusions in adventure and challenging play spaces.

Play England recommends breaking down the task of managing risk into four steps – three of which are relevant to the management of public play spaces:

- Develop a **policy framework**. This will provide the context in which any risk evaluation is conducted. A play policy that supports risk-taking elements and outcomes in play spaces will result in different play environments to those that are underpinned by a more conservative approach to play space design.
- Undertake a **risk-benefit assessment**. This should bring together an analysis of both risks and benefits for a play space or feature, and should provide a reasonable and transparent means of describing decision-making and judgments. 'This process should not be about creating a risk-free society, but about ensuring that reasonable precautions are taken to avoid injury.'
- Perform **technical assessments**. This is the ongoing and routine monitoring of play spaces for soundness, wear and tear, maintenance requirements, and cleanliness. Technical assessments should be informed by the play policy and the risk-benefit assessment.

Reference: Play England: Making space for play.

Whitehorse City Council undertakes three independent safety audits on play spaces each year in addition to regular maintenance inspections.

The UK-based organisation Children's Play Advisory Service (CPAS) suggests there is a fundamental misunderstanding of parents when they say they want 'a safe place' where their children can play. Detailed research undertaken by CPAS shows that most parents are referring to 'social safety' rather than 'physical safety' in relation to the playground. That is, they want playgrounds to be places where children can see and be seen. Their consultation revealed that it is likely to be less than five per cent of parents who see playgrounds as unsafe. In fact most parents, as with most children, reported playgrounds as being boring and not exciting or adventurous enough.

Reference: Children's Play Advisory Service (CPAS) consultation with LGAs in the UK, Urban Myths About Children's Playgrounds, Feb. 2011 Edition.

2.5 Planning for the Whole Park

The *Whitehorse Play Space Strategy 2011* recognises the need to ensure the planning and design of play spaces takes into account surrounding parkland. This will ensure play spaces are more easily accessed; appropriately located in relation to other activities on the site; have easy access to ancillary facilities such as seating and at larger parks, toilets; and have the space around them to incorporate landscaping features and natural shade.

It will also ensure that play spaces are developed in consideration of local demographics, the demand for alternative uses for the parkland and the most appropriate type of play space for the reserve.

Whitehorse City Council has developed master plans to guide the development of some parks. Most of these include the provision of formal play spaces. If a master plan has not been developed then planning guidelines included in relevant planning documents, such as the *Whitehorse Open Space Strategy 2007*, will guide the planning and development of the park or reserve.

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PLAY AUSTRALIA AN OVERVIEW

Play Australia is a not for profit organisation that has been working in the interests of children's play since 1914. Some readers will be familiar with its previous name, The Playgrounds & Recreation Association of Victoria. The organisation has been steadily growing over many years and is now operating on a national scale and thus our commitment to growing the organisation to enable support for play across the country.

Play Australia wants to promote the value of play and inspire active healthy outdoor play opportunities whilst responding to changing needs within the many industry sectors involved in children's play.

There are a broad range of 'sectors' involved in the provision of outdoor playgrounds in Australia. These sectors include providers and managers of play environments – Local Government, schools, early childhood centres, and major parks agencies. It includes the providers and designers of these settings – play space designers, landscape architects, play equipment manufacturers, suppliers of ground surfacing and shade structures. It includes those involved in management of these areas such as risk assessors, auditors and maintenance staff. It includes those involved in research, health promotion and funding agencies.

People involved in promoting and providing play work in a variety of disciplines and Play Australia aims to provide support to all sectors throughout Australia committed to play.

PART TWO:

A Guide to Australian Standard 4865:2014

PART TWO:

A Guide to Australian Standard 4865:2014

INTRODUCTION

The standards are, by nature, a technical document and are not necessarily organised in a format or sequence that makes them easy to follow without significant cross referencing. Even those who spend much time working with these standards often find themselves searching the various parts of the standard for an obscure clause that impacts the way other clauses are interpreted in a particular application. The aim of this guide is to organise the information contained in AS 4685–2014 (parts 1-6 and 11) under logical and sequential headings. For example, when determining the Free Height of Fall for each item of equipment in a playground it is necessary to go through each of the individual parts of the document to find the height requirements for various types of equipment. This guide collates the Free Height of Fall requirements for all types of equipment under one heading for easy reference.

This document does not replace the need to use or rely on the actual Standard documents, which contain detail not included in this guide. In particular, designers and manufacturers of play equipment need to be aware of all aspects and detail covered in the Standard documents. This guide does however provide a ready reference for those responsible for inspecting and maintaining playground equipment, particularly those involved in routine visual inspections and operational inspections. Any opinions expressed in this document are those of the author and should not necessarily be construed to be those of Standards Australia.

Various aspects of the standard are still open to interpretation and it should be understood that standards serve as a guide. The standards play an important part in the risk assessment and management of play provision, however treating them as a single or absolute requirement can lead to disproportionate and expensive corrective responses to minor failures, which have minimal influence on safety.

A playground defined

A playground is defined as an area designed for children's play, including the site, natural features, built landscape, and any manufactured equipment and surfacing.

For the purpose of the playground standards, it does not include domestic playgrounds, nor sites and equipment intended for use in formal sport.

It does not include fitness equipment unless these items are integrated into the playground along with other play equipment.

Natural elements in a playground

In many instances natural, non-manufactured items are incorporated into the playground, including items such as logs, boulders, plant materials, surfaces, changes of level and other landscape elements.

Where such natural elements are used a risk assessment should be undertaken to determine the applicability of various requirements of the standard to such items.

For example, it may not be practical or desirable to place barriers or handrails on a log or boulder, however adequate under-surfacing should still be provided in the impact area corresponding to the free height of fall. The falling space should be free of obstacles that could cause injury. Hazardous situations that may cause entrapment should be avoided. Consideration should be given to the ease of access to higher areas.

Where the contents of the Standards do not apply directly to natural elements and a risk benefit assessment is applied, it should take into account the basic principles of injury prevention that underlie the AS 4685 suite of Standards.

Equipment not meeting current standards

Inspectors with the skills and competencies to conduct such inspections should carry out regular risk assessments. When assessing old equipment that may not comply with all of the requirements of the current standards the following steps should be taken:

1. Assess areas of non-compliance.
2. Determine level of risk of non-compliant items (risk/benefit assessment).
3. Determine whether there is a need for replacement or upgrade based on the risk/benefit assessment or whether equipment is acceptable.
4. If replacement is required, determine a time frame based on the level of risk.

Inspection regimes

The following types and frequency of playground inspection are recommended in the Standards.

Playgrounds (excluding under-surfacing)

- Comprehensive post-installation inspection. This may not be required on every installation. Simple items, e.g. swings, and other basic equipment may be easily assessed for compliance by the operator and will not require independent assessment.
- Comprehensive annual inspection. Annually.
- Operational inspection.
  Generally quarterly, but may vary depending on local circumstances.
- Routine visual inspection.
  Frequency to be determined depending on local circumstances.

Playground under-surfacing

- Post-installation inspection of unitary (rubber) surfacing in accordance with the requirements of AS 4422.
- Unitary (rubber) surfacing should be tested at least every 3 years.
- Loose-fill surfaces need not be impact attenuation tested on a regular basis providing:
  1. the generic product typically complies with the requirements of AS 4422 when tested; and
  2. that the material is maintained at a minimum depth of 200 mm (or greater where free heights of fall require a greater material depth).

Competence of persons performing inspections

The person performing each of the inspections should have acquired through training qualifications or experience or a combination of these, the knowledge and skills enabling them to perform inspections at the various levels.

Routine Visual Inspections

This type of inspection is intended to identify obvious hazards that can result from wear and tear, vandalism or weather conditions. Any potentially hazardous situations shall be reported immediately and/or rectified.

Routine visual inspections should include:

- Checking for and removal of debris in the playground that may be hazardous, such as broken glass or needles.
- Checking that loose-fill surfacing levels are maintained at a depth of 300 mm.
- Checking for damage to unitary surfacing.
- Checking for equipment that is broken or missing as a result of use or vandalism.
- Checking for graffiti.
- Checking the condition of ancillary items, such as barbecues, tables rubbish bins, etc.
- Checking for dead overhanging branches that may potentially fall onto the playground.

Operational Inspections

Operational inspections should include:

- All issues listed in Routine Visual Inspections.
- Checking for excessive wear of moving parts (including chain links).
- Ensuring that bolts and fasteners are secure.
- Checking for any protrusions and sharp edges.
- Checking the structural integrity and/or stability of all playground equipment including ancillary items. Equipment that relies on a single anchor or attachment point should be carefully inspected.
- Checking for excessive corrosion, particularly within structural members.
- Checking wire ropes for fraying.
- Check seat/ground clearance cableway.
- Check impact and attenuating edges of swing seats, pommels and other moving equipment that can impact users.
- Check clearances beneath carousels and ensure that the underside is clear of protrusions and sharp edges.
- Checking foundations for exposed concrete, rot and corrosion.

Comprehensive Annual Inspections

A comprehensive inspection is intended to establish the overall level of safety of the equipment, foundations and playground surfaces.

Examples of factors that should be included in a checklist when conducting comprehensive inspections are as follows:

- Is the surfacing adequate and in good condition?
- Is the equipment in good repair (i.e. free from excessive rust, cracked welds, splintering timber, etc.)?
- Are all footings adequately covered?
- Is the equipment free of protrusions or sharp edges?
- Is the impact area adequate for the free height of fall?
- Is the falling space free of obstacles that could cause injury?
- Is the free space adequate for forced movement items?
- Are barriers, guardrails and handrails appropriate and at correct heights?
- Is the equipment free of entrapment hazards?
- Are all moving parts in good condition and free of excessive wear?

Categories of playground equipment

There are some variations in the requirements of the standard based on the type of intended use of various types of equipment. These types of use are separated into the following categories:

Equipment easily accessible to all ages

- Defined as requiring only basic skills to access the equipment, allowing users to move freely and quickly onto and within the equipment.

Equipment not easily accessible

- Provides a greater degree of challenge in accessing the equipment.
- Generally limits the ability to move freely and quickly within the equipment, making it more likely that the user will be using some form of hand support thus reducing the likelihood of a fall.
- In such settings a lower level of protection against falling applies.

Supervised early childhood services (SECS)

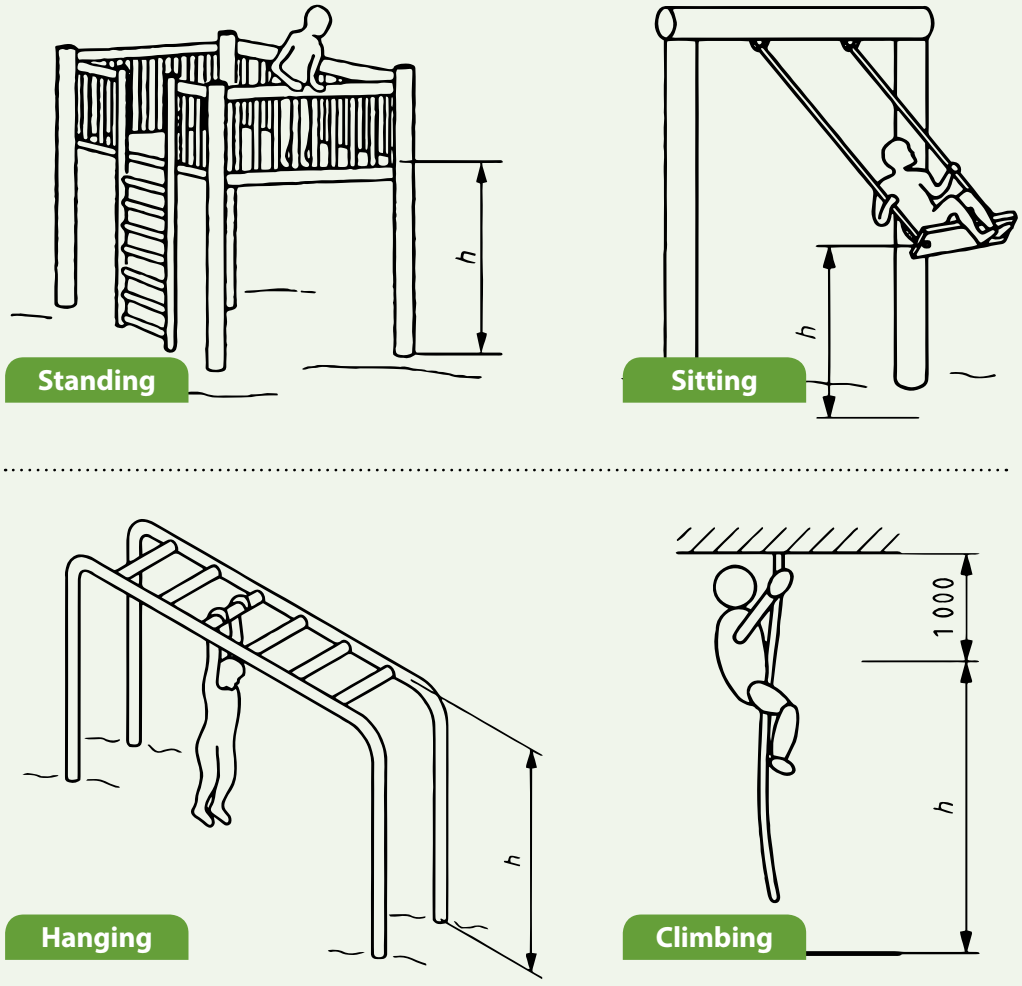
- A play area used by an education and care service for children under school age, which is supervised by educators.
- Has lower free height of fall limits as well as some variations in the provisions for protection against falling.

FREE HEIGHT OF FALL

The free height of fall (FHOF) of any component of playground equipment is defined as the greatest vertical distance from the point of clearly intended body support to the impact area below.

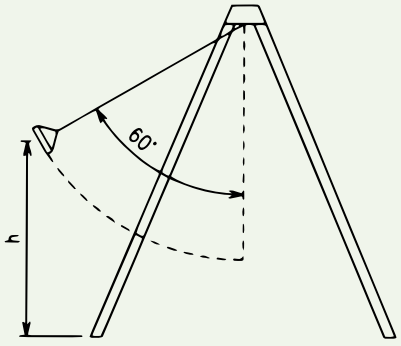
The point of intended body support is also deemed to include those surfaces to which access is encouraged. For example, some features may provide hand and foot holds for climbing which, taking into account arm or leg reach distance, make it easy to climb from the intended point of support to a higher point on the equipment. These examples should not be construed to mean that everywhere to which access may be gained should be deemed as accessible. Consideration should be given to the ease of access and whether or not the configuration actually encourages access to a higher point on the equipment.

The following thre pages shows examples of FHOF. Figure 1 illustrates the general means of measuring the FHOF and Figure 2 details specific methods by equipment type. Table 1 provides a guide of maximum FHOF by equipment type.

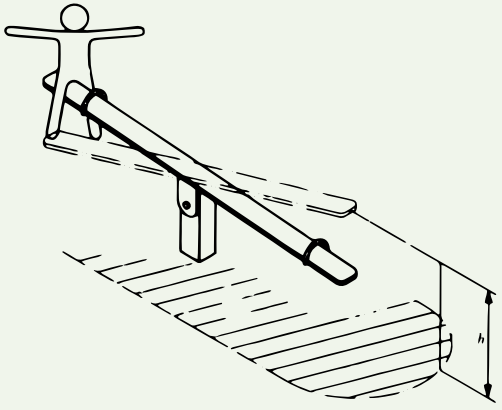


▲ **Figure 1:** General means of determining FHOF

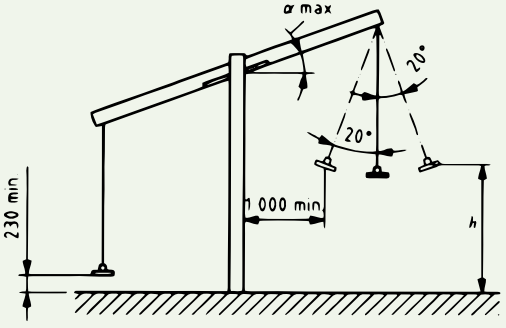
FREE HEIGHT OF FALL



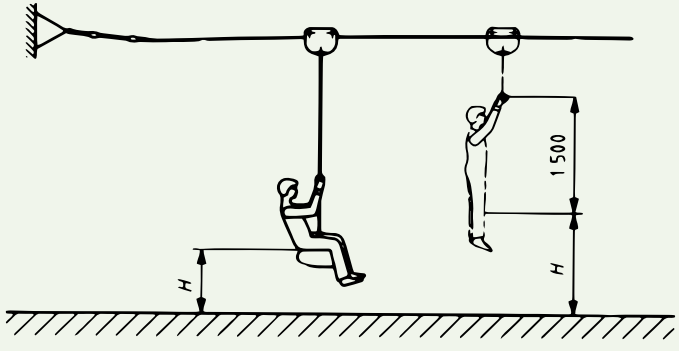
Swings



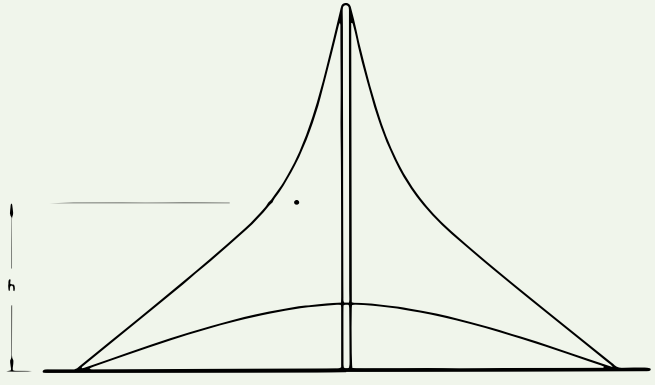
Rocking Equipment – General



Rocking Equipment – Overhead



Cableways



Spatial Networks

▲ **Figure 2:** Specific means of determining FHOF

FREE HEIGHT OF FALL

Note: the following definitions are applicable to the types of use in Table 1 shown here:

Hanging – When full body support is provided by the hands only and the whole body can be lifted up to the hand support.

Climbing – When body support is a combination of feet/legs and hands, e.g. climbing ropes or sliding poles.

Steep play elements – Access/egress equipment of a gradient greater than 45o from the horizontal.

Easily accessible – requiring only basic skills to access the equipment, allowing users to move freely and quickly onto and within the equipment. Some examples of means of easy access onto the equipment are ladders (unless the first rung is greater than 400mm from the ground surface), stairs and ramps. Tiered platforms with a height difference of less than 600mm are also considered to be a means of easy access.

Table 1: Maximum allowable free height of fall (FHOF) limits

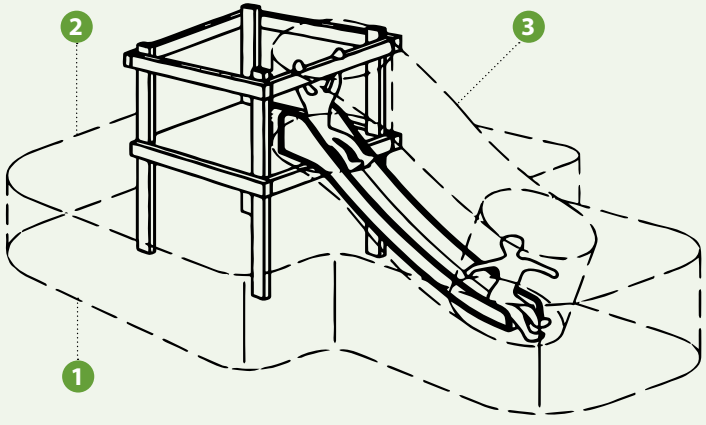
EQUIPMENT TYPE	TYPE OF USE	MEASURED FROM	MAXIMUM FHOF
Equipment easily accessible to all ages	Standing	Foot support to surface below	3m
	Sitting	Seat to surface below	3m
	Hanging	Hand support to surface below	2.2m
	Climbing	Maximum hand support minus 1m to the surface below	Max foot support 3m Max hand support 4m
	Steep play elements	Platform to the surface below	2m
Equipment not easily accessible	Standing	Foot support to surface below	3m
	Sitting	Seat to surface below	3m
	Hanging	Hand support to surface below	2.2m
	Climbing	Maximum hand support minus 1m to the surface below	Max foot support 3m Max hand support 4m
	Steep play elements	Platform to the surface below	3m
Supervised early childhood services (SECS)	Standing	Foot support to surface below	1.8m
	Sitting	Seat to surface below	1.8m
	Hanging	Hand support to surface below	1.8m
	Climbing	Maximum hand support minus 1m to the surface below	Max foot support 1.8m Max hand support 2.8m
Swings	Sitting	Middle of seat to surface below when raised at 60° to vertical	3.0m
Cableways	Sitting	Seat to surface below (unloaded)	2.0m
	Hanging	Grip position minus 1.5m to surface below (unloaded)	1.5m
Carousels (except overhead hanging types)	Standing / Sitting	Foot support / seat to surface below	1.0m
Carousels (overhead hanging types)	Hanging	Grip position minus 1.5m to surface below	1.0m
Rocking Equipment (axial seesaw)	Sitting	Seat to surface below (at extreme positions)	1.5m
Rocking Equipment (single point seesaw/rocking)	Sitting	Seat to surface below (at extreme positions)	1.0m
Rocking Equipment (multi point seesaw/rocking)	Sitting	Seat to surface below (at extreme positions)	1.0m
Rocking Equipment (rocking seesaw)	Sitting	Seat to surface below (at extreme positions)	1.0m
Rocking Equipment (sweeping seesaw – multi-directional)	Sitting	Seat to surface below (at extreme positions)	2.0m
Rocking Equipment (overhead single axis seesaw)	Sitting	Seat to surface below (at extreme positions)	2.0m
Spatial Networks	Climbing	Point below which there is no mesh network to surface below	3.0m

IMPACT AREA, FALLING SPACE AND FREE SPACE

The requirements for falling space and the impact area around the playground equipment are intended to offer some protection to users during the initial impact of a potential fall.

In addition to the requirements for "falling space", some additional provisions are made for "free space" around certain types of dynamic movement.

The various elements involved in dealing with the minimum space around playground equipment are shown in Figure 3.



1 Impact area
2 Falling space
3 Free space

▲ **Figure 3:** Example of falling space and impact area

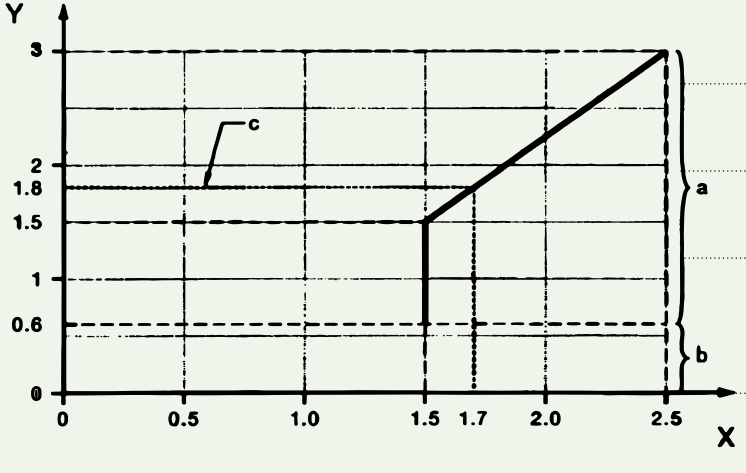
Impact area

The impact area is the area that can be hit by a user falling from the playground equipment. The dimensions of the impact area are shown in Figure 4 and Tables 2 and 3.

In certain cases, as outlined in Table 3 (page 64–68), the possible movement of a particular type of equipment and the user may require that the impact area be extended to provide adequate protection against falling injuries.

The impact area increases for free heights of fall above 1.5m in accordance with the dimensions shown in Figure 4. This requirement may be increased in certain cases of forced movement, or decreased if the equipment is fully enclosed or installed on or against a wall.

For fall heights of less than 600mm on non-moving equipment the impact area may be reduced below 1500mm in some instances to allow for such elements as stepping stones.



Y free height of fall (FHOF)
X minimum dimension of impact area
a impact attenuating surface required
b no impact attenuating surface required unless forced movement
c maximum FHOF and fall zone for SECS

▲ **Figure 4:** Extent of the impact area

Impact area

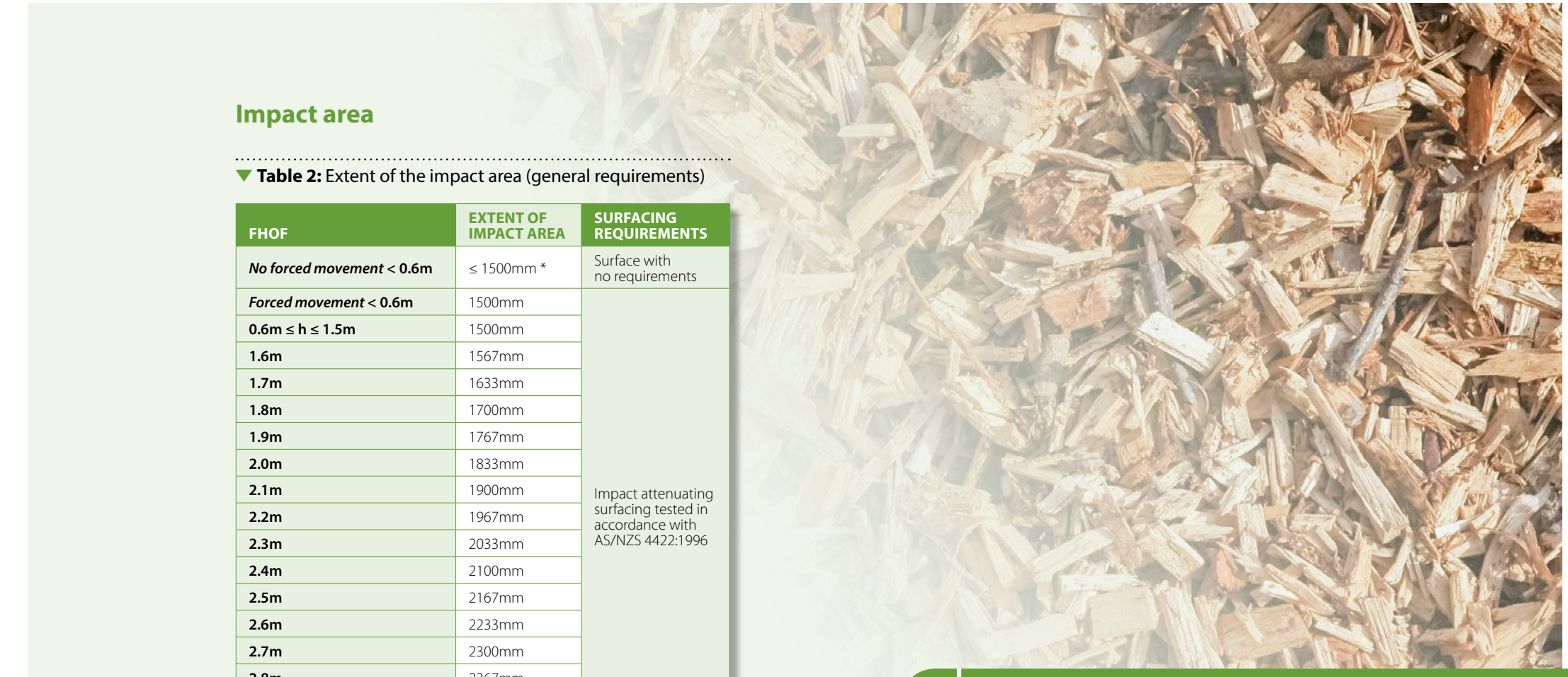
Table 2: Extent of the impact area (general requirements)

FHOF	EXTENT OF IMPACT AREA	SURFACING REQUIREMENTS
***No forced movement* < 0.6m**	≤ 1500mm *	Surface with no requirements
***Forced movement* < 0.6m**	1500mm	Impact attenuating surfacing tested in accordance with AS/NZS 4422:1996
0.6m ≤ h ≤ 1.5m	1500mm	
1.6m	1567mm	
1.7m	1633mm	
1.8m	1700mm	
1.9m	1767mm	
2.0m	1833mm	
2.1m	1900mm	
2.2m	1967mm	
2.3m	2033mm	
2.4m	2100mm	
2.5m	2167mm	
2.6m	2233mm	
2.7m	2300mm	
2.8m	2367mm	
2.9m	2433mm	
3.0m	2500mm	

If Y > 1.5m, then X = 2/3Y + 0.5m

This table provides dimensions for heights in increments of 100mm

** Note: Non-moving equipment with a FHOF of less than 600mm can have the extent of the impact area reduced below 1500mm in some instances to allow for play elements such as stepping stones.*



The following 5 pages feature Table 3: Extent of the impact area (specific requirements based on movement), focussing on equipment type and their relative diagrams.

Impact area

▼ **Table 3:** Extent of the impact area (specific requirements based on movement)

SWINGS

LENGTH

The minimum length of the impact area (L) is equal to A + B or A + C, where:

A = the horizontal distance when the seat has travelled through an arc of 60°, which can be calculated as the length of the suspension member (h) x 0.867.

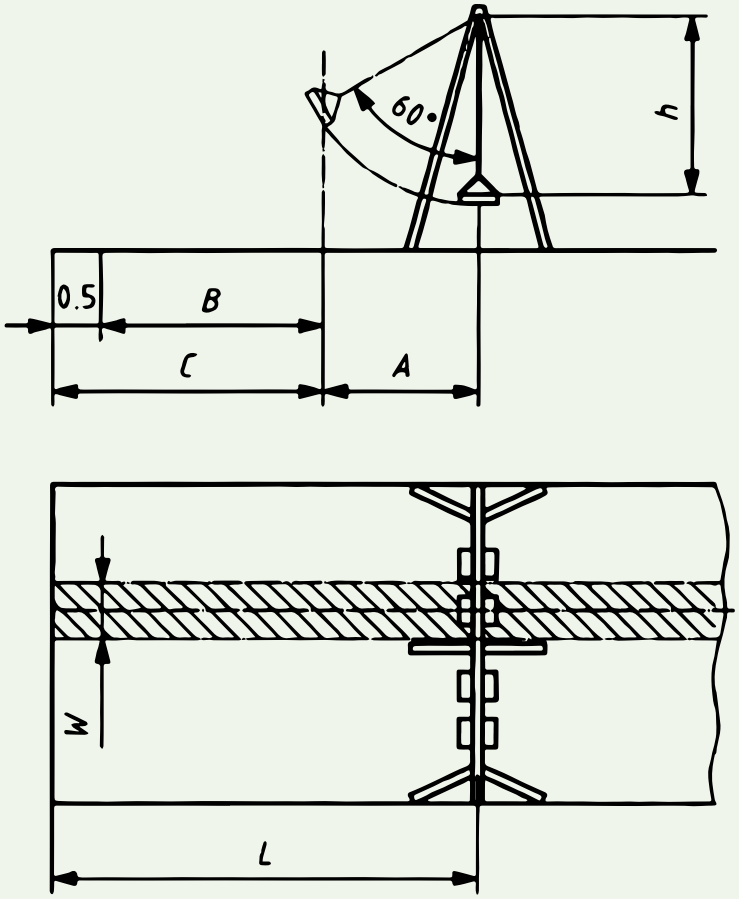
B = 1.75m, where the surface is level with the surrounding surface (normally synthetic), or in all cases in SECS settings. In this instance there should be an additional area extending 0.5m that is free from obstacles.

C = 2.25m, where the surface is contained (normally loose fill).

WIDTH

The minimum width of the impact area (W) below each swing seat with a width of less than 500mm shall be 1.75m. If the seat is wider than 500mm the width of the impact area shall increase by the difference between the actual width and 500mm.

In the case of single point swings (which allow movement through more than one axis or plane) the extent of the impact area shall be circular with a radius calculated above as L.



▲ **Swing diagrams**

▼ **Table 3 (continued):** Extent of the impact area (specific requirements based on movement)

SLIDES

TO THE SIDES

The impact area to the sides of the slide shall correspond to the general FHOF requirements for the height of the slide at various points where the height of the sliding surface is 600mm or above. Where the sliding surface is below 600mm the impact area shall extend at least 1.0m to the sides of the run-out section.

FROM THE END

The impact area beyond the run-out section is dependent on the type of slide as follows:

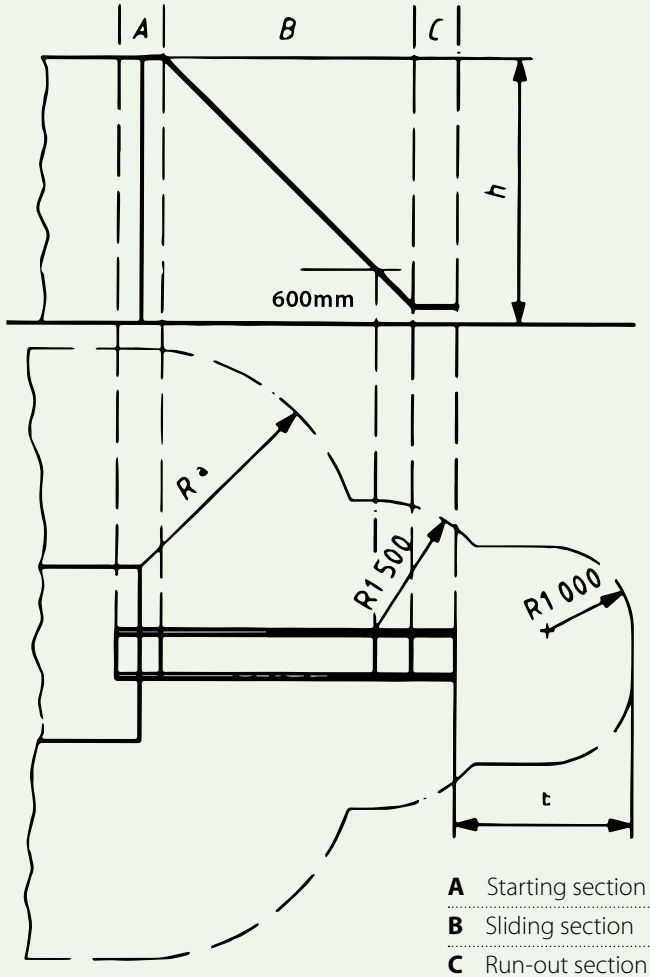
Type 1: Run-out section inclined to 10° maximum, with:

- sliding section less than 1500mm in length with a run-out section greater than 300mm.
- sliding section between 1500mm and 7500mm in length with a run-out section greater than 500mm.
- sliding section greater than 7500mm in length with a run-out section greater than 1500mm.

Impact area to extend 2.0m beyond the run-out section, with the end having a 1m radius in line with the outside edge of the slide.

Type 2: Run-out section inclined to 5° maximum, with a length 0.3 x the length of the sliding section.

Impact area to extend 1.0m beyond the run-out section, with a 1m radius from the outside edge of the slide.



A Starting section
B Sliding section
C Run-out section
Ra Depending on the FHOF
b Depending on the type of run-out section

▲ **Slide diagrams**

Impact area

▼ **Table 3 (continued):** Extent of the impact area (specific requirements based on movement)

CAROUSELS

STANDARD CAROUSELS

The impact area shall extend at least 2000mm to the side from the outside of the carousel.

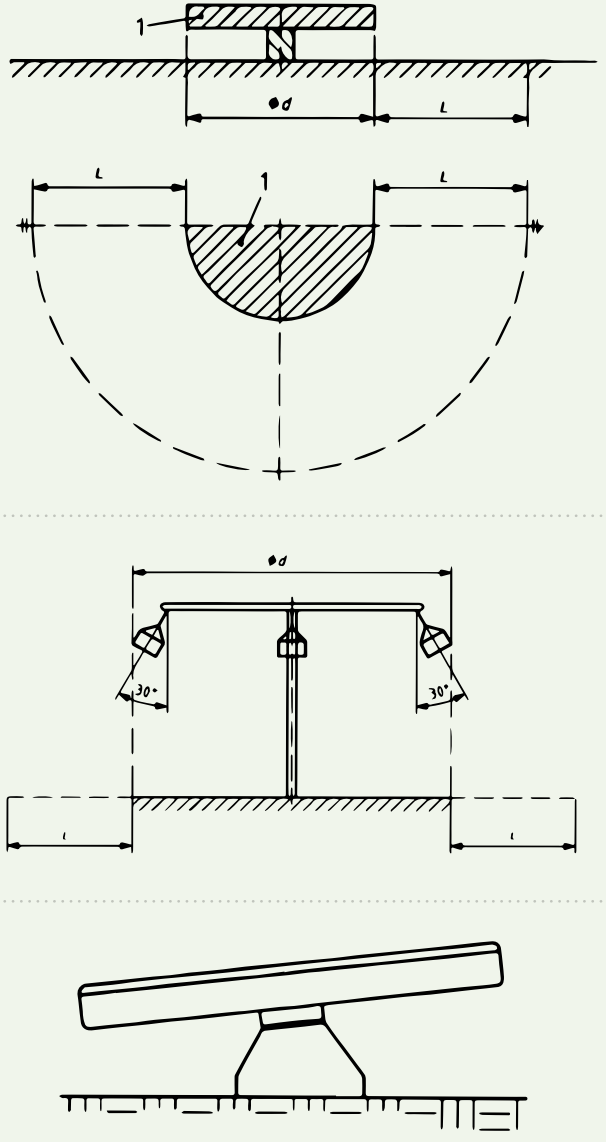
OVERHEAD WITH FLEXIBLE USER STATIONS
(Hanging grips)

The impact area shall be measured from the user stations (handles) when they are angled out by 30° from the vertical and shall extend at least 2000mm.

In addition, the area extending 1.0m beyond the impact area shall be free of obstacles.

GIANT REVOLVING DISK
(on an inclined axis with no clearly definable user stations, with no handles or handgrips)

The impact area shall extend at least 3000mm to the side from the outside of the carousel.



▲ **Carousel diagrams**

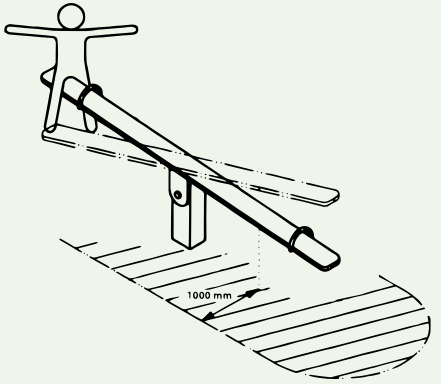
Impact area

▼ **Table 3 (continued):** Extent of the impact area (specific requirements based on movement)

ROCKING EQUIPMENT

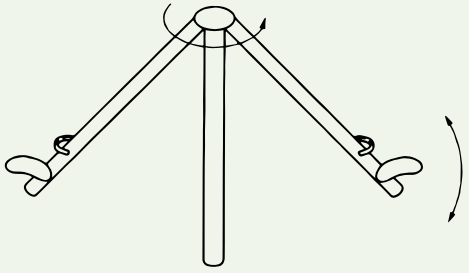
STANDARD ROCKING EQUIPMENT

The impact area shall extend at least 1000mm beyond the perimeter of the equipment when in its most extreme positions.



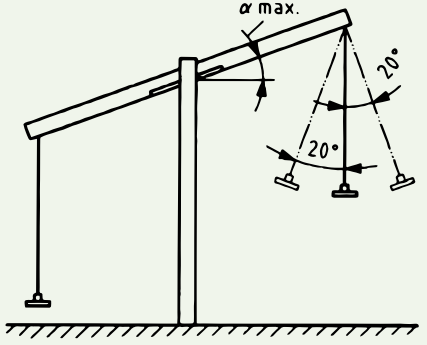
SWEEPING SEESAW
(in which both vertical and horizontal movement takes place, which may result in a sweeping motion.)

The general requirements for the extent of the impact area apply based on the height of the user stations when in their extreme position. The general requirements then apply for that height.



OVERHEAD SINGLE AXIS SEESAW
(with a single overhead rocking axis, where the user stations are flexibly suspended below and provide and additional limited singing motion.)

The general requirements for the extent of the impact area apply based on the height of the user stations when angled at 20° from the vertical. The general requirements then apply for that height.



▲ **Rocking equipment diagrams**

Impact area

▼ **Table 3 (continued):** Extent of the impact area (specific requirements based on movement)

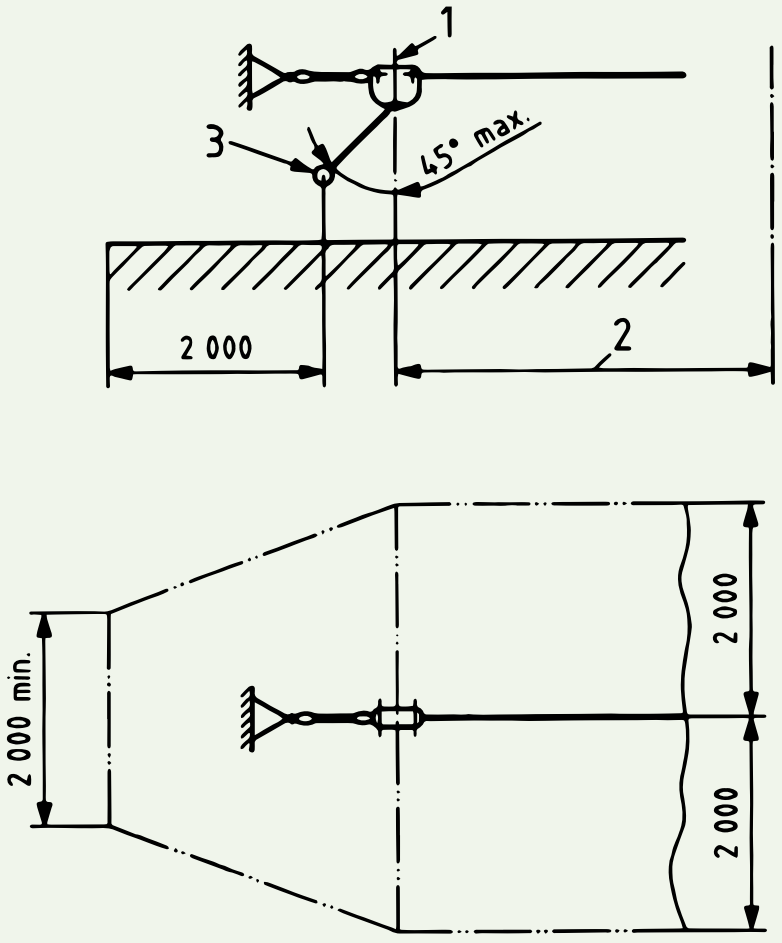
CABLEWAYS

TO THE SIDES

The impact area shall extend at least 2000mm to each side of the cableway.

FROM THE ENDS

The impact area shall extend at least 2000mm beyond the end of the handgrip or seat when swinging at an angle of 45° from the compressed end stop, with the width reducing to an overall width of 2000mm.



▲ **Cableways diagrams**

Falling space

Falling Space is the space in or around the equipment that can be passed through by a user falling from an elevated part of the equipment.

The falling space is a 3 dimensional area, commencing at the free height of fall and extending over the same horizontal dimensions that apply to the extent of the impact area (as indicated in Figures 4 & 5 and Tables 2 & 3) then extending vertically to the impact area below.

In most cases the falling spaces of different items of equipment may overlap, except in the case of equipment involving "forced movement" where overlapping should not occur.

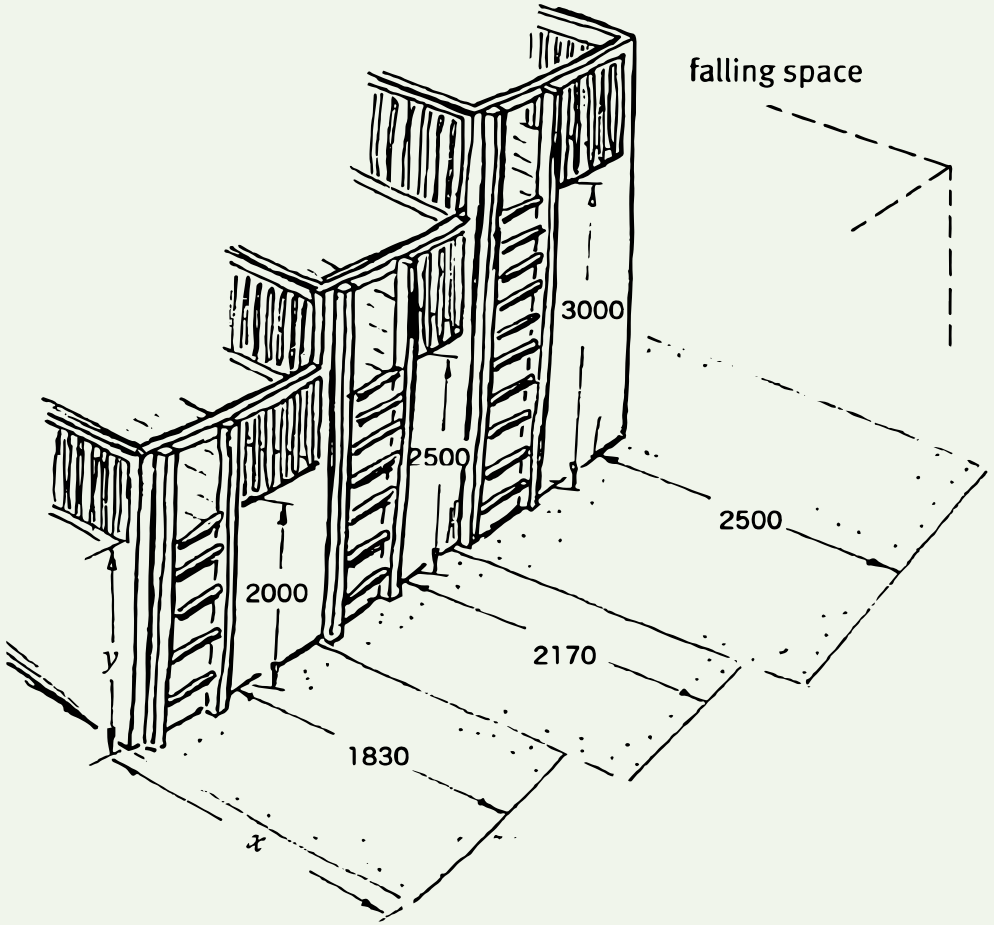
The falling space shall not contain any obstacles (i.e. hard or sharp objects) that a user can hit, causing injury, during a fall from an elevated position. Examples of such hazards include exposed foundations and posts not flush with adjacent parts.

The intention of this requirement is not to protect the user from minor knocks or bumps, that might lead to a bruise or strain, etc., as these types of injuries are possible in all situations.

The following parts of play structures may be in the falling space:

- Adjacent parts of play structures with a difference in free height of fall of less than 600mm;
- Parts of the equipment bearing or containing the user, or helping the user maintain balance;
- Parts of the equipment with an inclination of 60º or more from the horizontal. (In this case a falling user would only make a glancing contact with the equipment part.)

Adjacent platforms are permitted a free height of fall of up to 1m. Above this height the surface of the lower platform shall present the necessary impact attenuating properties.



▲ **Figure 5:** Extent of the falling

Free space

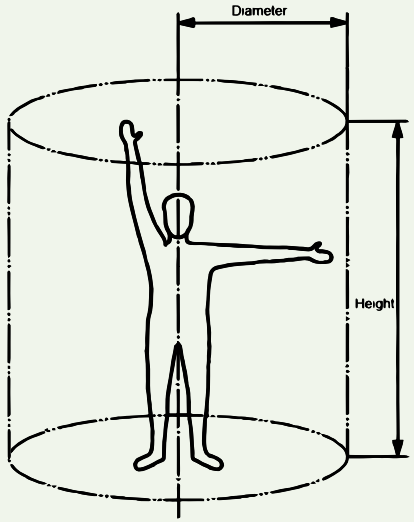
Free space is the space immediately around a user undergoing forced movement. Forced movement could be defined as movement where it may be difficult or impossible to stop part way through a typical arc of motion, such as due to gravity (e.g. slides, fireman's poles, cableways) or momentum (e.g. swings, carousels, spring rockers).

Free space is represented as a series of cylindrical spaces (see Figures 6 & 7) originating from and perpendicular to the surface bearing the user and along the path of movement. It does not include the three-dimensional area outside the imaginary cylinder in which the falling movement takes place.

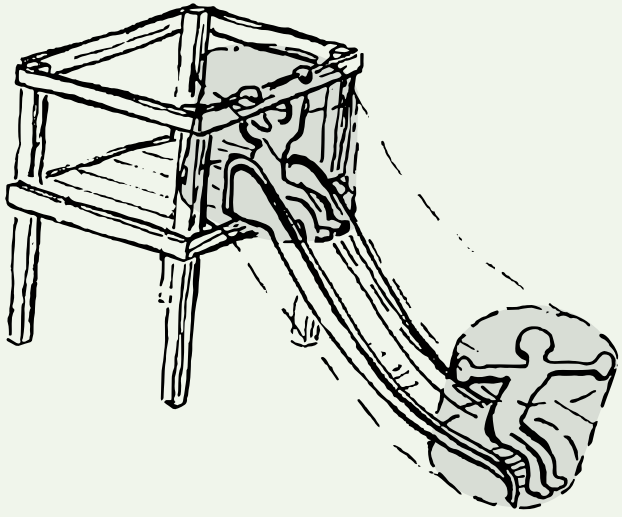
There shall be no overlapping of adjacent free spaces, or of free space and falling space, unless stated otherwise in a part of the standard. This requirement does not apply to the common space between pieces of equipment in a cluster. (A cluster is defined as two or more pieces of equipment designed to be installed in close proximity to each other to provide continuity in a sequence that is needed for the play activity, e.g. a trail of stepping stones.) The free space of multi-track slides may also overlap.

The free space of an item shall not contain any obstacles (e.g. tree branches) that interfere with the passage of, or are in the path of the user whilst undergoing forced movement, nor should it be intersected by main travelling routes through the playground, such as a pathway. Consideration should be given to the placement of surrounding items that may encourage a child to intersect the free space by running from one activity to another via the most direct route.

Parts of the equipment bearing or containing the user, or helping the user to keep balance (e.g. a platform providing access to a fireman's pole, and the supporting posts on a spiral slide) are permitted within the free space.



▲ **Figure 6:** Cylindrical space representing free space



▲ **Figure 7:** Example of free space on a slide

Free space

Table 4: Dimensions of the cylinder for the determination of free space

TYPE OF USE	RADIUS	HEIGHT
Standing	1000mm	1800mm
Sitting	1000mm	1500mm
Hanging	500mm	300mm above and 1800mm below the hanging grip position
Carousels *(additional requirements due to centrifugal force)*	2000mm to the side of the carousel and 3000mm in the case of giant revolving disks	At least 2000mm above the carousel

SURFACING REQUIREMENTS

Surfacing shall correspond to the critical fall height of the equipment. Critical fall height is defined as the maximum free height of fall for which a surface will provide an acceptable level of impact attenuation. It is generally equal to the free height of fall of the equipment, but may be greater in the case of equipment causing a forced movement of the body.

Fall heights below 600mm

There is no impact attenuating surface requirement for equipment with a free height of fall of less than 600mm unless forced movement exists, in which case the surfacing shall meet the requirements for the specified critical fall height for the particular type of force movement (see Table 5).

Fall heights above 600mm and where forced movement exists

For equipment with a free height of fall above 600mm the surfacing requirements shall meet the requirements of AS/NZS 4422:1996 (Playground surfacing – specifications, requirements and test method).

The minimum critical fall heights for various types of forced movement equipment where the free height of fall is less than 1m are shown in Table 5. In instances where the free height of fall of the equipment exceeds these minimum critical fall heights, the critical fall height shall be at least that required for the respective free height of fall.

▼ **Table 5:** Minimum critical fall height for forced movement equipment

TYPE OF EQUIPMENT	FREE HEIGHT OF FALL	CRITICAL FALL HEIGHT
Slides *(around the run-out section)*	h < 600mm	1000mm
Cableways	h < 1000mm	1250mm
Carousels	h < 1000mm	1500mm

PROTECTION AGAINST FALLING

When determining the level of protection against falling required for various items of playground equipment it is necessary to ascertain the intended type of use of the equipment. The level of protection required will vary between equipment that is accessible to all ages; equipment not easily accessible; and supervised early childhood services (SECS).

Types of protection

Protection against falling can be provided in the form of handrails, guardrails and barriers. Figure 8 and Table 6, on the following 2 pages, provide detail of the requirements for protection for each category of equipment at various heights.

Handrail

A handrail is defined as a rail intended to assist the user to keep balance. The height requirements for handrails are set out in Table 6. The use of more than one handrail is permissible provided they do not create any openings that may result in entrapment (as defined under "Protection against entrapment"). The cross section of any handrail must not exceed 60mm in width (grasp).

Handrails may be used on stairs and ramps leading to platforms up to 1.2m in height, and on rigid bridges up to 1.5m in height. Above this height barriers are required. Handrails may also be used on climbing items at heights above 1.2m.

Guardrail

A guardrail is defined as a rail intended to prevent the user from falling from the equipment. When used on a platform, guardrails shall completely surround the platform except for entry and exit openings necessary for other items of play equipment. The width of these entry or exit points shall have a maximum clear opening of 800mm, except in the case of stairs, ramps and bridges, where the width of the opening shall be no greater than the width of the adjoining element.

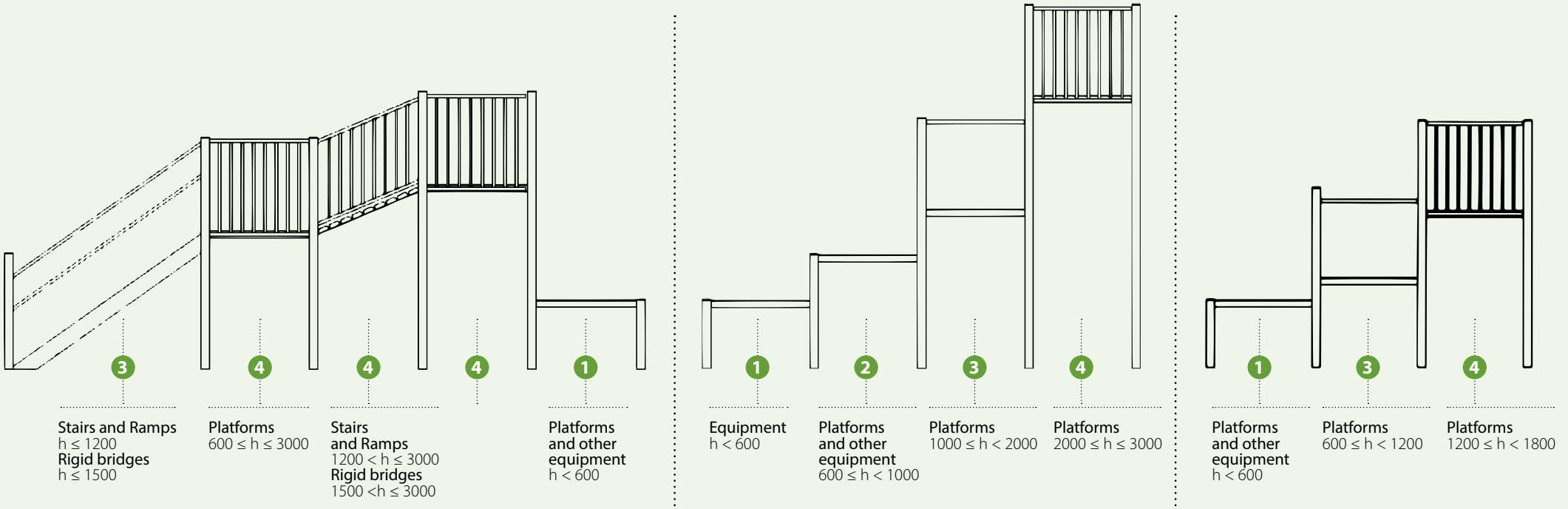
Barrier

A barrier is defined as a device intended to prevent the user from falling from the equipment and from passing beneath. Barriers can be used on platforms, stairs, ramps or rigid bridges.

When used on platforms, barriers shall completely surround the platform except for entry and exit openings necessary for other items of play equipment. The width of these entry or exit openings shall have a maximum clear opening of 800mm, except in the case of stairs, ramps, bridges, etc., where the width of the opening shall be no greater than the width of the adjoining element. Steep play elements on equipment that is "not easily accessible" may have an opening in the barrier of up to 1200mm provided a "barrier" extends across the top of the opening.

The construction of the barrier should be such that there are no horizontal or near horizontal rails or bars, or any infilling, that can be used as steps by children attempting to climb. The design of the top of the barrier should not encourage children to stand or sit on them. Openings between the platform surface and the lower edge of the barrier, and between any infilling elements shall not allow the passage of the small testing probe C (see "Protection against entrapment"). The height of the top of the barrier shall be at least 700mm above the standing surface of the platform, stairs, ramp or rigid bridge.

PROTECTION AGAINST FALLING



▲ **Figure 8:** Protection against falling

Note

- Where guardrails are specified this is a minimum requirement and does not preclude the use of barriers.
- When installed on ramps or stairs, handrails, guardrails or barriers shall commence at the lowest position on the ramp or stairs.
- In the case of SECS settings, guardrails are acceptable between heights of 600mm and 1200mm. This is a lesser requirement than for equipment easily acceptable to all ages in general settings because of the increased level of supervision required in such settings.

1. No barriers or guardrails required and no surfacing requirements.
2. No barriers or guardrails required + tested impact attenuating surfacing.
3. Guardrails or handrails required + tested impact attenuating surfacing.
4. Barriers required + tested impact attenuating surfacing.

PROTECTION AGAINST FALLING

Table 6: Requirements for Protection

SETTING	TYPE OF EQUIPMENT	EQUIPMENT HEIGHT (H)	MINIMUM PROTECTION REQUIREMENTS	IMPACT ATTENUATING SURFACING
Equipment easily accessible to all ages	Platforms	h < 600mm	No barriers or guardrails required	Not required
		600mm ≤ h ≤ 3000mm	Barrier (minimum height above standing surface 700mm)	Required
	Stairs & Ramps	h ≤ 1200mm	Single handrail (between 600mm and 900mm above standing surface) or Two or more handrails, provided the top rail is between 600mm and 900mm and the spacing does not conflict with entrapment provisions	Required
		1200mm < h ≤ 3000mm	Barrier (minimum height above standing surface 700mm)	Required
	Rigid Bridges	h ≤ 1500mm (highest standing height)	Single handrail (between 600mm and 900mm above standing surface) or Two or more handrails, provided the top rail is between 600mm and 900mm and the spacing does not conflict with entrapment provisions	Required
		1500mm < h ≤ 3000mm (highest standing height)	Barrier (minimum height above standing surface 700mm)	Required
Equipment not easily accessible	Platforms	h < 600mm	No barriers or guardrails required	Not required
		600mm ≤ h < 1000mm	No barriers or guardrails required	Required
		1000mm ≤ h < 2000mm	Guardrail (between 650mm and 850mm above standing surface)	Required
		2000mm ≤ h ≤ 3000mm	Barrier (minimum height above standing surface 700mm)	Required
Supervised early childhood services (SECS)	Platforms	h < 600mm	No barriers or guardrails required	Not required
		600mm ≤ h < 1200mm	Guardrail (between 600mm and 700mm above standing surface)	Required
		1200mm ≤ h ≤ 1800mm	Barrier (minimum height above standing surface 700mm)	Required
	Stairs & Ramps	h ≤ 1200mm	Single handrail (between 450mm and 700mm above standing surface) or Two or more handrails, provided the top rail is between 600mm and 900mm and the spacing does not conflict with entrapment provisions	Required
		1200mm < h ≤ 1800mm	Barrier (minimum height above standing surface 700mm)	Required

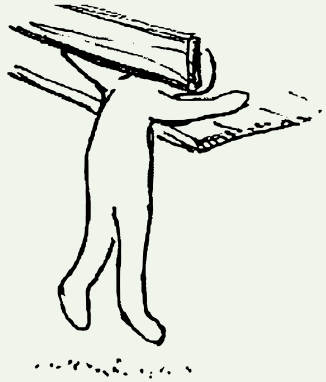
PROTECTION AGAINST ENTRAPMENT

Entrapment is defined as a hazard presented by the situation in which a body, or part of a body, or the clothing can become trapped. The standard only considers certain types of entrapment where the user is not able to free him/herself and injury is caused by the entrapment.

The various types of entrapment and their testing procedures are detailed in the following pages.

Head and neck entrapment – completely bound openings

These are openings though which a user can slide or squeeze, usually feet first and which will not allow the passage of the head (see Figure 9).



▲ **Figure 9:** Example of a bound opening that may cause head or neck entrapment

Bound openings with a lower edge more than 600mm above the ground shall be tested using the probes in Figure 10.

Any bound opening that allows the passage of probes C (torso) or E (small head), should also allow the passage of probe D (large head).

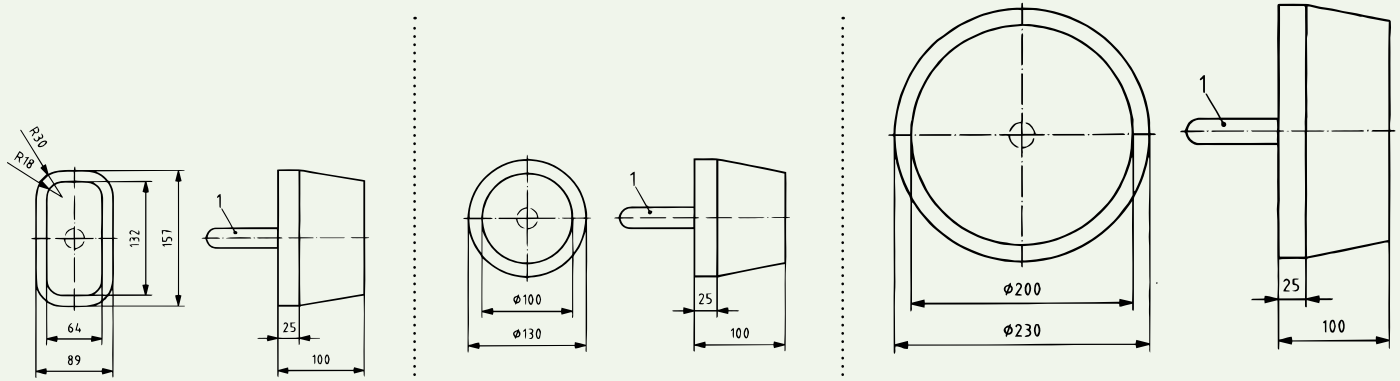
Test procedure

Apply each of the probes illustrated in Figure 10, with the axis of the probe perpendicular to the plane of the opening.

If the probes are not freely passing through the opening apply a force of 222(±5)N to the probe.

Note: The large head probe dimensions are based on those for an older child and, therefore, there will be a large tolerance if assessing for use by a young child.

Any openings that allow the passage of the Torso Probe or the Small Head Probe, but do not allow the passage of the Large Head Probe fail the test and are unacceptable.



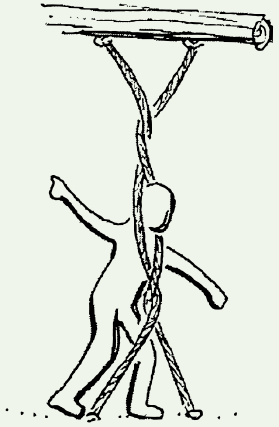
Torso Probe | Small Head Probe | Large Head Probe

▲ **Figure 10:** Probes for determination of head and neck entrapment in completely bound openings

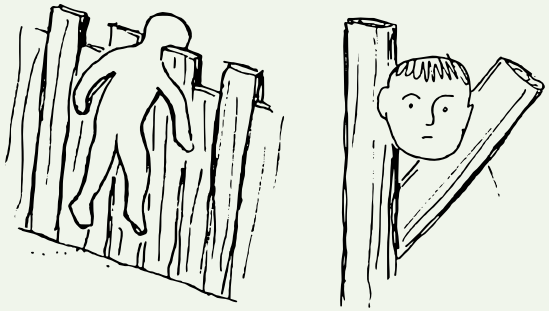
Head & neck entrapment – non-rigid or flexible openings

Non-rigid members, such as ropes, may create a hazard if they can overlap and if, by doing so, they create openings that do not conform to the requirements for completely bound openings.

Openings between flexible parts of suspended bridges and any rigid side members shall not be less than 230mm in diameter under the worst case of loading. Such openings should be tested both loaded and unloaded.



▲ **Figure 11:** Example of flexible members creating entrapment



▲ **Figure 12:** Examples of partially bound or V-shaped openings which may cause head or neck entrapment

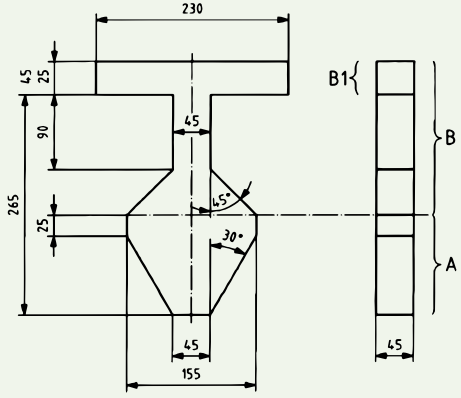
Head & neck entrapment – partially bound and V-shaped openings

These are openings into which a user can insert their neck and will potentially prevent the head from easily rotating out, causing strangulation.

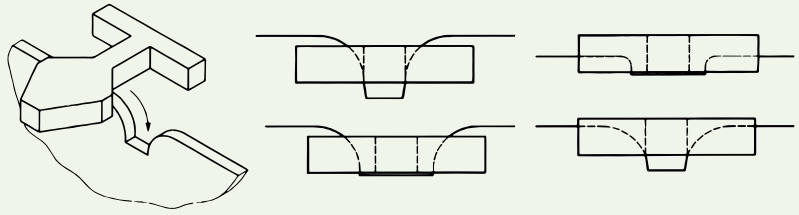
Partially bound or V-shaped openings more than 600mm above the ground should be tested using the probe in figure 13.

Test procedure

Firstly, determine whether an opening is deemed to be accessible or not by applying the 'B' portion of the probe (representing the neck) between and perpendicular to the boundaries of the opening. If the probe can be inserted to its full thickness it is deemed to be accessible and further testing is required to determine whether it poses a hazard. If the probe cannot be inserted to its full thickness the opening is deemed not accessible and no further testing is required. (See Figure 14.)



▲ **Figure 13:** Probe for assessment of head and neck entrapment in partially bound and V-shaped openings

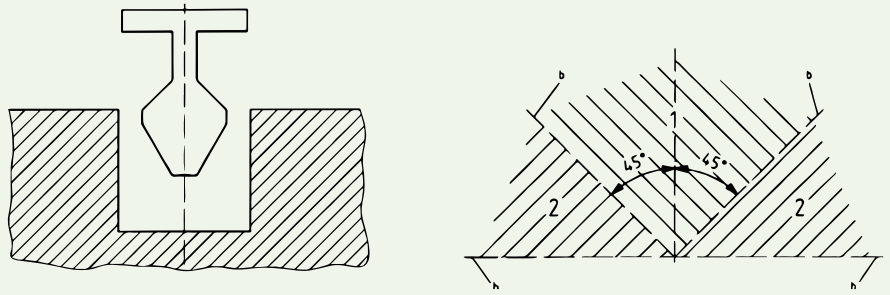


▲ **Figure 14:** Method for determining the accessibility of a partially bound or V-shaped opening

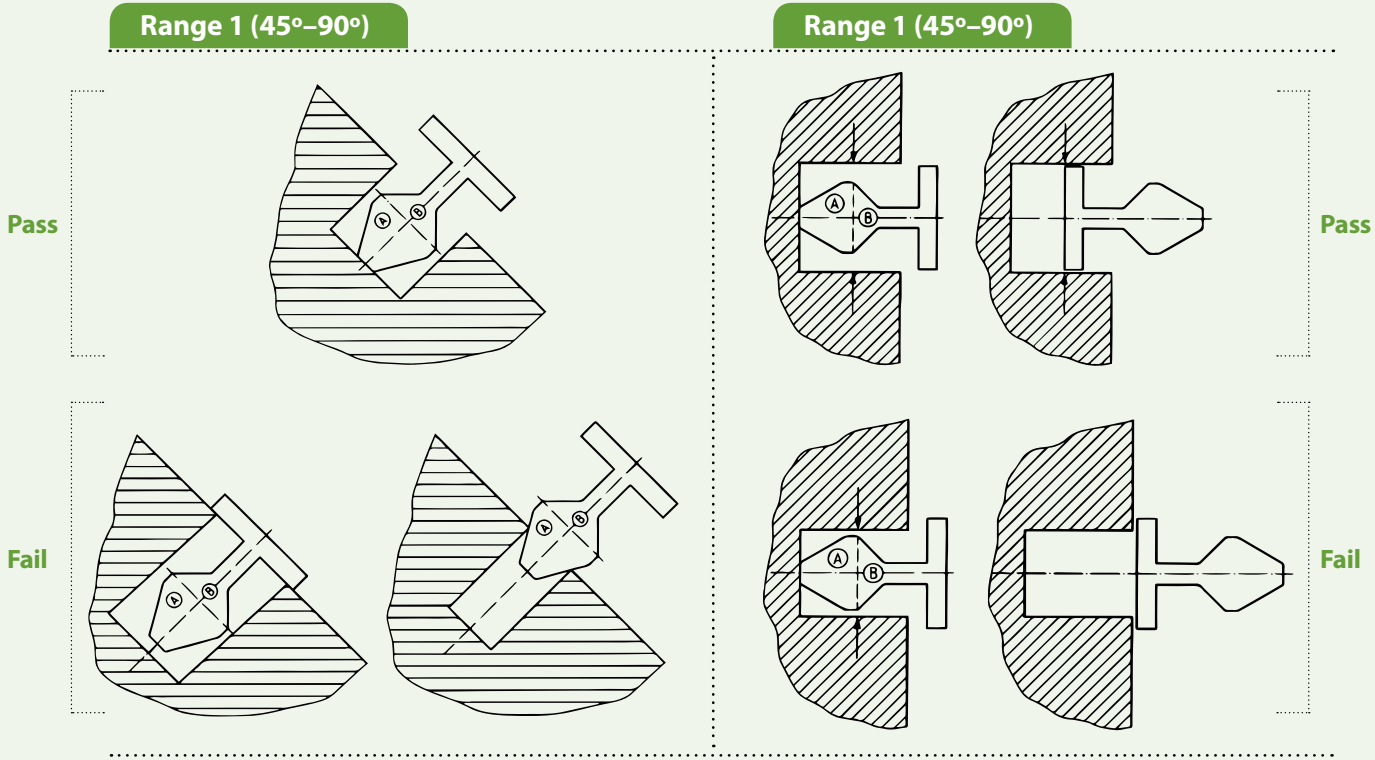
Head & neck entrapment – partially bound and V-shaped openings

Test procedure (continued)

If the opening is accessible, test further using portions 'A' and 'B1' of the probe (representing the head and shoulders). The testing procedure for accessible openings varies slightly depending on the angle of the opening. To determine the testing range of the opening the 'A' portion of the probe is inserted into the opening and the angle of its centre line determines the range (see Figure 15). Testing procedures for both ranges are shown in Figure 16.



▲ **Figure 15:** Determining Angle range for unbound openings



▲ **Figure 16:** Test method for unbound and V-shaped openings

Clothing entrapment

Hazardous situations where items of clothing can be caught while the user is undergoing forced movement (e.g. sliding) should be avoided.

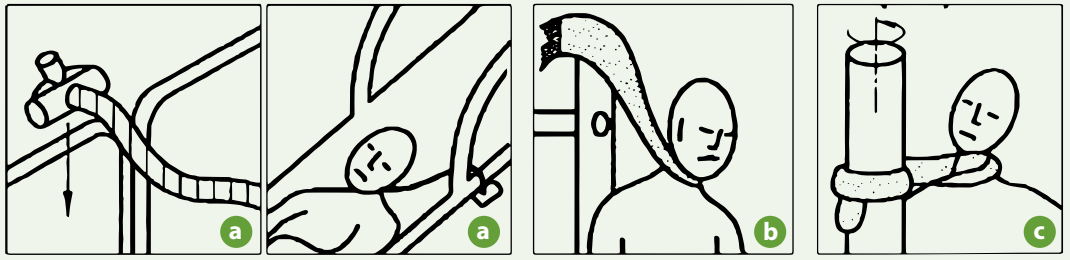
Possible situations in which clothing entrapment can be encountered (as shown to the right in Figure 17) are as follows:

- **a** Gaps or V-shaped openings in which a part of clothing can become trapped while or immediately before the user is undergoing forced movement (e.g. sliding);
- **b** Protrusions (e.g. sharp edges on which clothing could be caught); and
- **c** Spindles/rotating parts (such items should be free of any protrusions that could catch on clothing while in use).

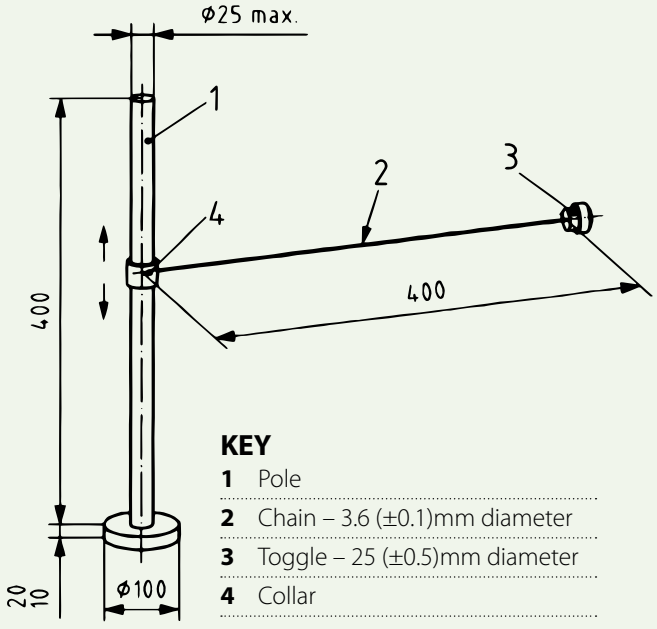
Test procedure

Gaps and V-shaped openings in the free space are tested using the toggle test device (see Figure 18).

This test is applied to the free space of slides, fireman's poles and roofs (which may provide a hazard if a user were to access and slide off whilst an item of clothing was trapped).



▲ **Figure 17:** Examples of situations which may create clothing entrapment hazards



▲ **Figure 18:** Test device – toggle test

Clothing entrapment

Test procedure *(continued)*

SLIDES

Position the test device perpendicularly in the starting section of the slide, 200mm from the transition point of the starting section, and in the centre of a narrow slide or 200mm from the edge of a wide slide (see Figure 19).

Moving the test device in the direction of forced movement, randomly place the toggle and chain under the action of its own weight to all positions within the range, without applying additional force or influence. (This is to replicate the natural motion of a clothing toggle.)

In the event that the test device is obstructed, apply a maximum force of 50N in the direction of the forced movement. If the toggle is released this position within the equipment passes the test.

FIREMAN'S POLES

Conduct the test using the testing device in two different positions:

(i) Position the complete device vertically at the edge of the platform at the point closest to the fireman's pole.

(ii) Detach the toggle, chain and collar from the device and position it so that it is at a point 1.8m above the surface of the adjacent platform, or the highest point on the pole if it extends less than 1.8m (see Figure 20).

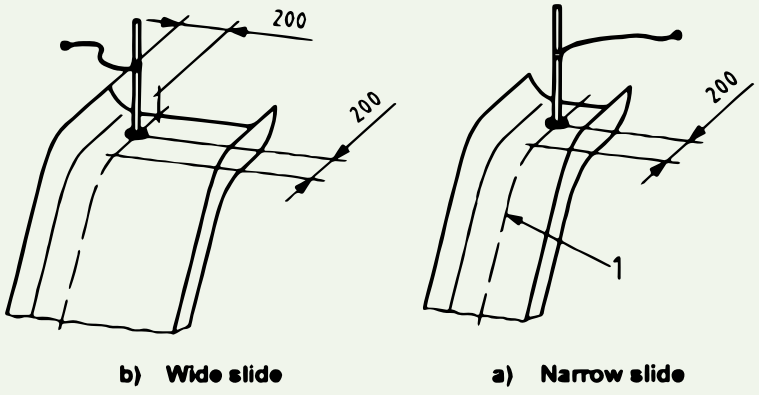
Randomly place the toggle and chain under the action of its own weight to all positions within the range, without applying additional force or influence. Apply this test down the length of the fireman's pole to a point 1.2m above ground level.

In the event that the test device is obstructed, apply a maximum force of 50N in the direction of the forced movement. If the toggle is released this position within the equipment passes the test.

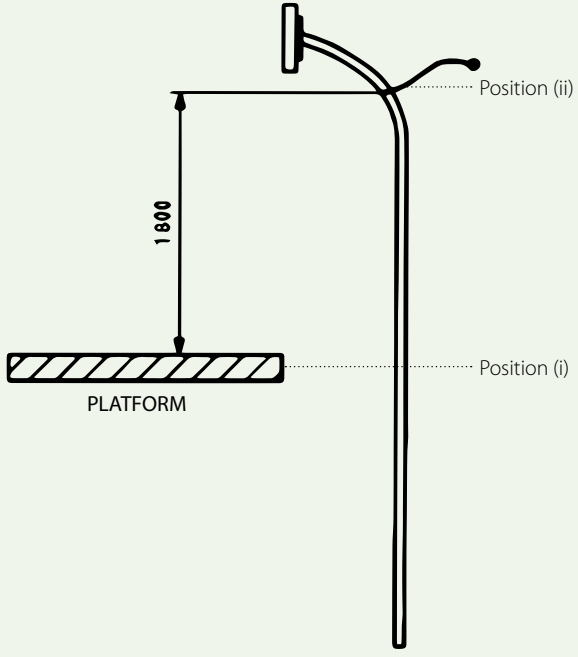
ROOFS

Detach the toggle, chain and collar from the device. Randomly place the toggle and chain under the action of its own weight to all positions at the apex or along the surface of the roof, without applying additional force or influence.

If the toggle or the chain resists removal, apply a maximum force of 50N in the direction of any potential sliding movement of the user. If the toggle is released this position within the equipment passes the test.



▲ **Figure 19:** Position of test device on slides

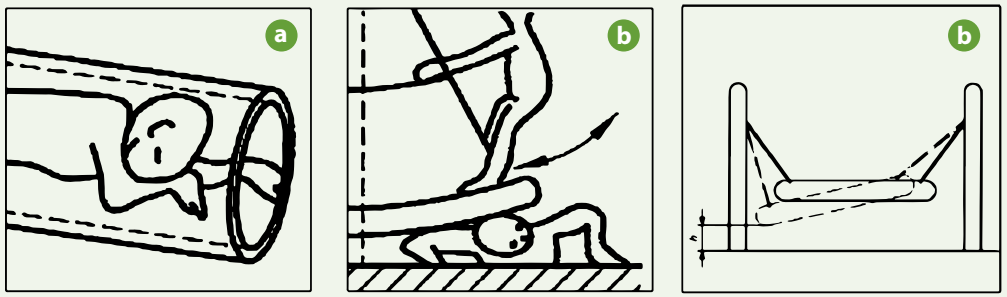


▲ **Figure 20:** Position of test device on fireman's poles

Entrapment of the whole body

Equipment shall be constructed in such a way that the following situations, which may cause entrapment of the whole body, are not created:

- **a** Tunnels into which children can crawl with their whole body (see requirements in Table 7).
- **b** Suspended parts which are heavy or have rigid suspension. Heavy suspended beams (weighing more than 25kg) should have a ground clearance of at least 400mm.



▲ **Figure 21:** Examples of situations that may trap the whole body

	OPEN ONE END	OPEN BOTH ENDS			
Inclination	≤ 5° (upwards from entry only)	≤ 15°			≤ 15° (should include steps or handles)
Maximum length	≤ 2000mm	≤ 1000mm	≤ 2000mm	NONE	NONE
Minimum internal dimension (at narrowest point)	≥ 750mm	≥ 400mm	≥ 500mm	≥ 750mm	≥ 750mm

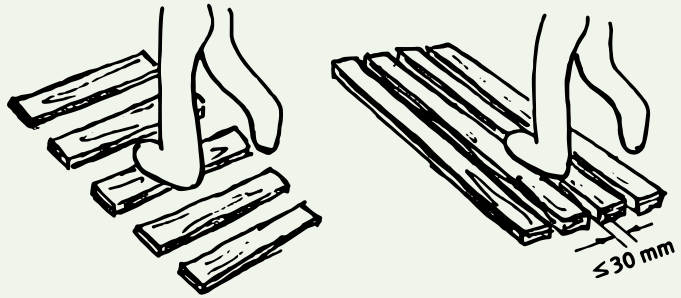
▲ **Table 7:** Requirements for tunnels

Foot or leg entrapment

The surfaces of equipment on which children can run or climb should be constructed in such a way that the foot or ankle cannot become trapped while in motion.

Gaps on surfaces intended for running or walking shall not contain gaps greater than 30mm when measured across the direction of travel. This requirement does not apply to surfaces inclined more than 45º.

Wider gaps across the path of travel are acceptable as long as they do not conflict with the requirements for head/neck entrapment.

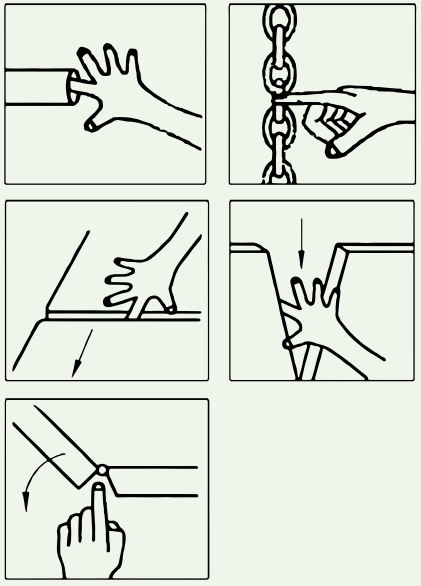


▲ **Figure 22:** Example of acceptable gaps to avoid foot or leg entrapment

Finger entrapment

The following situations that can create finger entrapment hazards:

- Gaps within the free space in which fingers can be trapped whilst the remainder of the body is moving or continues in forced movement (e.g. sliding or swinging).
- Openings or holes that have a lower edge more than 1000mm.
- Chains and chain connectors.
- Variable gaps whose dimensions change during use of the equipment (including boards on clatter-bridges and hinged gates).



▲ **Figure 23:** Examples of situations that may cause finger entrapment

Test procedure

GAPS, OPENINGS AND HOLES

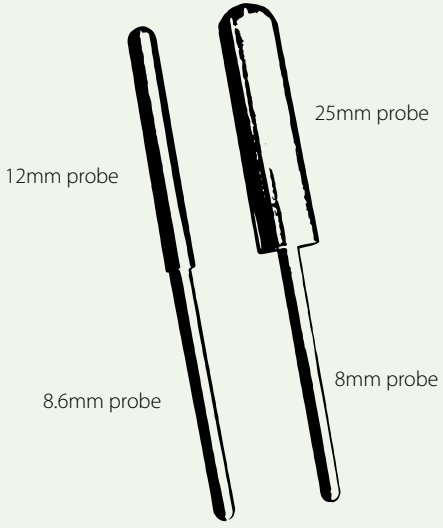
If the 8mm finger probe passes through the opening, the 25mm probe shall also pass though. If the 25mm rod does not pass through, the opening is a potential finger entrapment hazard.

CHAINS & CONNECTIONS

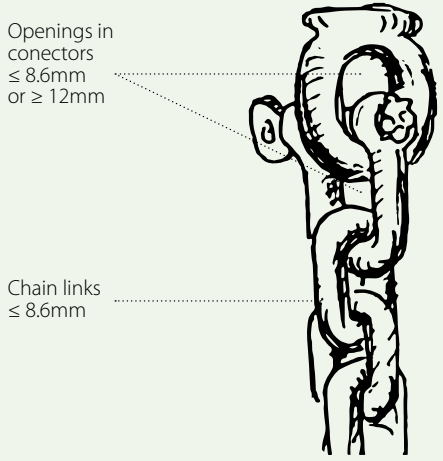
Chains shall have a maximum opening of 8.6mm in any one direction, except where connections are made, where the maximum opening must be less than 8.6mm or greater than 12mm.

VARIABLE GAPS

Gaps whose dimensions change during use of the equipment shall have a minimum dimension in any position of 12mm.



▲ **Figure 24:** Finger probes



▲ **Figure 25:** Allowable openings in chains & connectors

FINISH OF EQUIPMENT AND CONNECTIONS

Corners, edges and projecting parts within the space occupied by the user that protrude more than 8mm and which are not shielded by adjacent areas that are within 25mm from the end of the projecting part shall be rounded off. The minimum radius of the curve shall be 3mm.

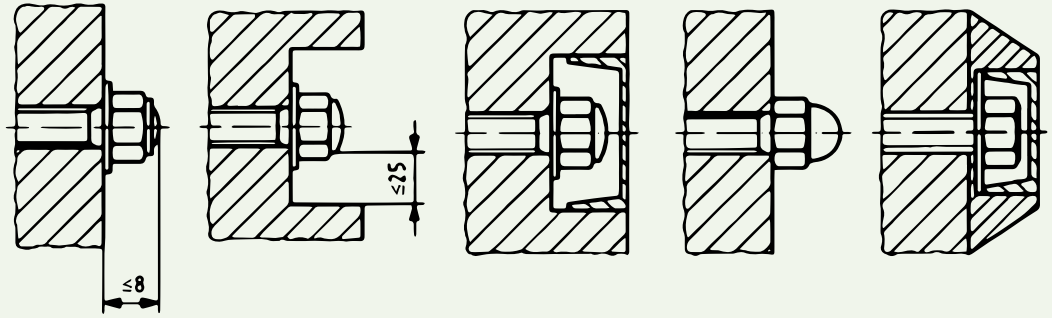
If these edges or projecting parts are not within the space occupied by the user, even if they are accessible, this 3mm radius is not necessary as long as the parts are not sharp.

Track rides are required to have a radius on the leading edge of the platforms that is no less than 25mm or have impact attenuating properties that do not introduce a trip hazard.

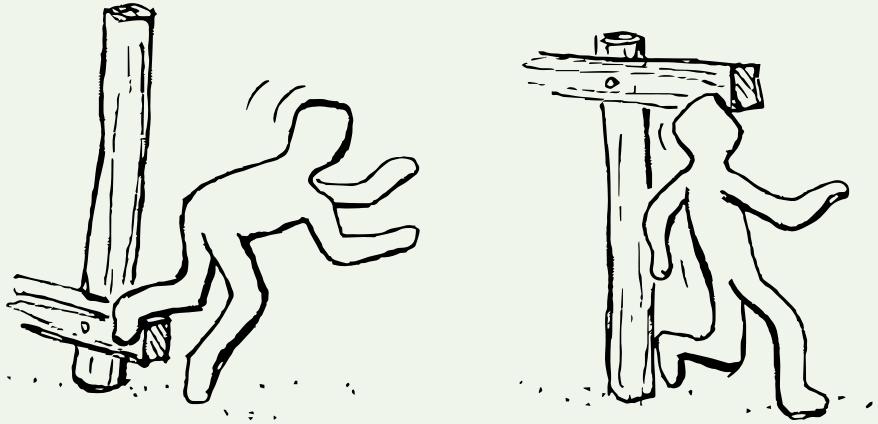
Timber equipment should be made of timber with a low susceptibility to splintering. Other materials (e.g. glass fibre) should be non-splintering. Rough surfaces should not present a risk of injury. There shall be no protruding nails, wire rope termination or pointed or sharp-edged components. Equipment shall be free from burs and welds ground smooth.

Protruding bolt threads within any accessible part of the equipment shall be permanently covered, e.g. dome headed nuts, or security caps. (Figure 26 shows examples of protection for nuts and bolts.)

Connections shall be secured so that they cannot come loose of their own accord, unless specifically designed to do so, and shall be safeguarded so that they cannot be undone without the use of tools.



▲ **Figure 26:** Examples of protection for nuts and bolts



▲ **Figure 27:** Examples of obstacles that could cause injury

PROTRUDING OBSTACLES

Obstacles that could cause injury if hit by a user should not be present in traffic areas on or around the equipment. (Figure 27 provides examples of such obstacles.)

MOVING PARTS

Chain Links

Chain links should be checked for wear on a regular basis. Before the wear reaches 40% of the diameter of the link the chain should be replaced.

Crushing And Shearing Points

There shall be no crushing points or shearing points between moving and/or stationary parts of the equipment. For the purposes of the standard the following definitions apply:

- Crushing point – a place where parts of the equipment can move against each other, or against a fixed area so that persons, or parts of their body, can be crushed.
- Shearing point – a place where part of the equipment can move past a fixed or other moving part, or past a fixed area so that persons, or parts of their body, can be cut.

Parts of the equipment from which a high impact force can emanate should have an attenuating construction.

Where moving parts could trap the user between the equipment and the surface below there shall be a ground clearance of at least 400mm. Exceptions to this requirement are as follows:

Spring Equipment

No ground clearance is required if there is a damping effect (such as a spring, where the force reduces at the outer range of movement), or if the motion of the structure is mainly in a horizontal direction. Where these effects do not apply rocking equipment shall have a minimum ground clearance of 230mm.

Swings

Standard swing seats shall have a minimum ground clearance at rest position of 350mm (except in SECS settings where the minimum shall be 300mm). The minimum ground clearance for horizontal tyre swing seats or basket swing seats shall be 400mm, and for vertical tyre seats 100mm (this is due to the fact that their construction is flexible and the tyre is made from impact attenuating material). These clearances are a minimum and may be greater having consideration to such things as the average age of intended users.

In the case of single point swings (see Figure 29), a minimum clearance of 400mm shall also apply to the supporting legs of the frame. The swing seat may come into contact with the main swing beam, in which case protective material may be fitted to protect the beam.

Cableways

For seating type cableways, the minimum clearance between the underside of the seat and the surface beneath shall be 400mm.

For hanging type cableways the minimum ground clearance from the lowest point on the grip when measured in an unloaded position shall be 1500mm at the starting point and 2000mm in the running position.

Carousels

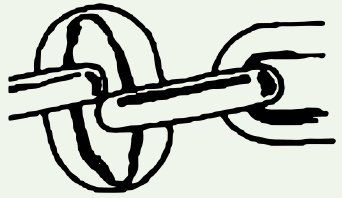
Carousels with a rotating platform which is not flush with the ground surface shall have a minimum ground clearance of 60mm.

Where the ground clearance is between 110mm and 400mm the carousel shall either:

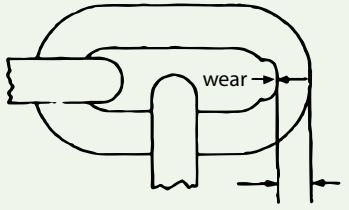
(i) be fitted with a skirt which terminates between 60mm and 110mm above the ground surface; or

(ii) have an underside of the carousel platform which is a continuous smooth surface, with a distance to ground which is either constant or decreases radially from the perimeter to the axis.

Where the ground clearance is greater than 400mm and a protective skirt is not fitted, the underside of the rotating platform shall be smooth.

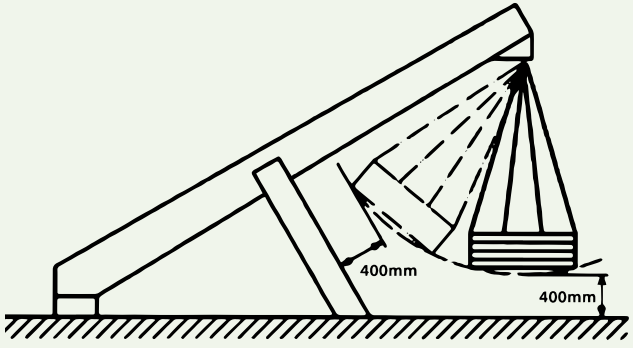


Example of dangerous wear



Wear must not exceed 40%

▲ **Figure 28:** Example of wear in chain links



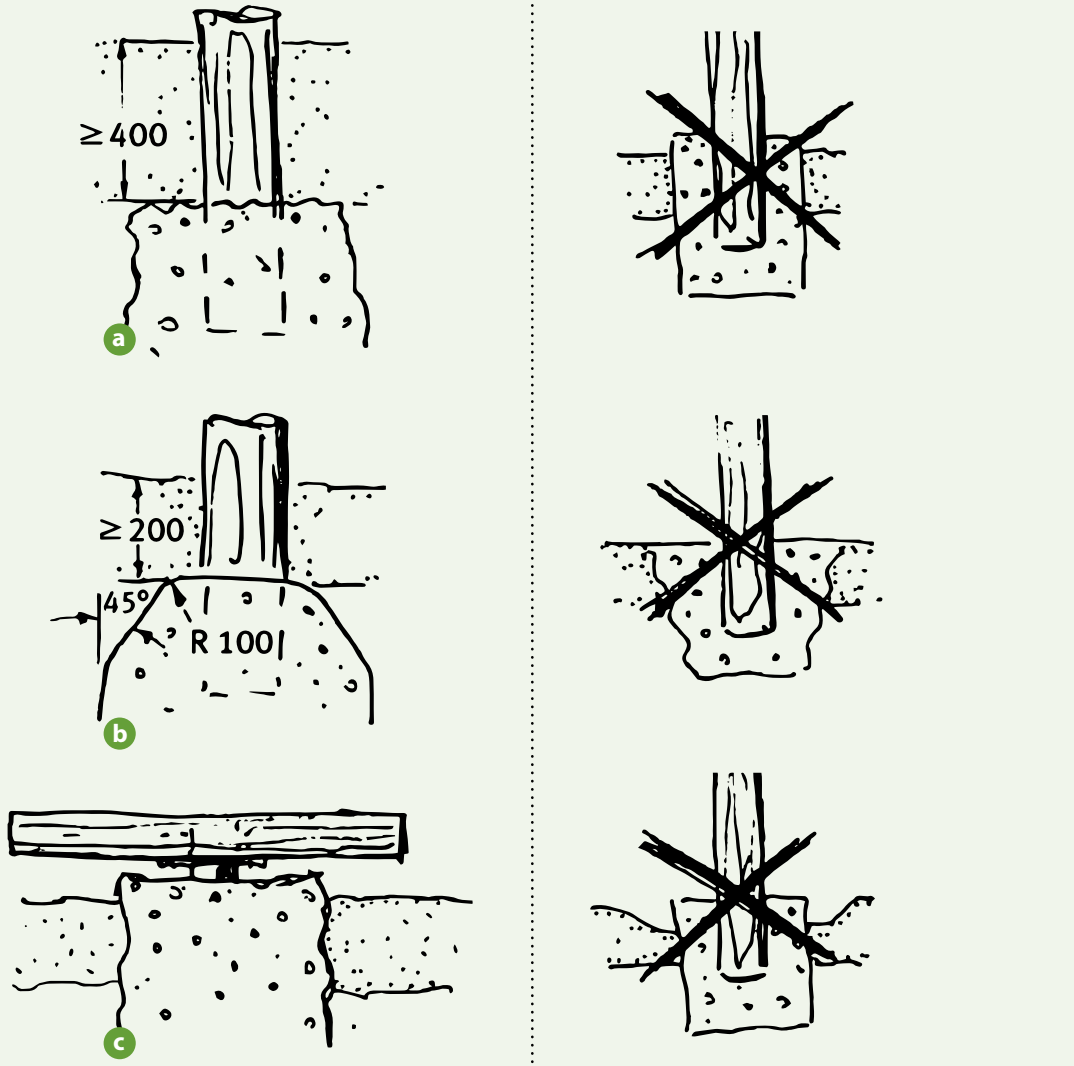
▲ **Figure 29:** Clearances for single-point swings

FOUNDATIONS

Foundations shall be designed in such a way that they do not present a hazard (i.e. tripping, impact). In loose fill surfaces the foundations shall be laid in accordance with the one of the following requirements (as illustrated in Figure 30):

- **a** footings and fixing elements are at least 400mm below the playing surface; or
- **b** the tops of the foundations must be at least 200mm below the surface if the top is rounded with a radius of 100mm and tapered; or
- **c** the footings are covered by items of equipment or equipment parts (e.g. the central foundation of a carousel).

Any parts that protrude from the foundations shall be at least 400mm below the playing surface unless they are effectively covered.



▲ **Figure 30:** Example of foundations

ADDITIONAL REQUIREMENTS FOR SWINGS

Minimum Space Between Swing Seats

The minimum horizontal dimension between the side of the swing seat (when in the rest position) and the adjacent structure is calculated as 20% of the length of the suspension member plus 200mm.

The minimum horizontal dimension between adjacent swing seats (when in the rest position) shall be 20% of the length of the suspension member plus 300mm.

Lateral Stability of Swing Seats

The distance between the suspension members of standard swings at the point of connection to the top bar shall be at least the width of the swing seat (or the distance between the support points on the swing) plus 5% of the length of the suspension member. (For Contact swings see below.)

Contact Swings

The minimum distance between the seat surface and the central axis of the swing shall be 400mm when the seat is extended at an angle of 90º (see Figure 34).

The distance between the suspension members of contact swings at the point of connection to the top bar shall be at least the width of the swing seat plus 30% of the length of the suspension member.

Seats shall be constructed to discourage jumping from them toward the central axis while swinging. This can be achieved by using a vertical tyre or a restraining bar.

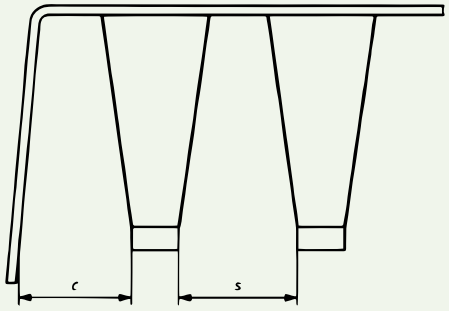
Universal Joints on Single-Point Swings

If a universal joint is used there shall be a secondary means of supporting the swing seat to prevent collapse if the primary joint between the cables or chains and the supporting structure collapse.

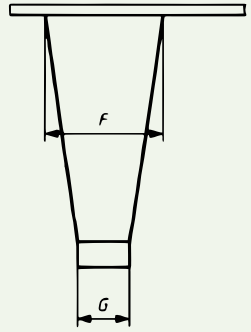
Framework

Swings with more than two seats shall be divided by construction parts into bays so that there are no more than two seats per bay. (This is to discourage children from crossing the path of swings in use.)

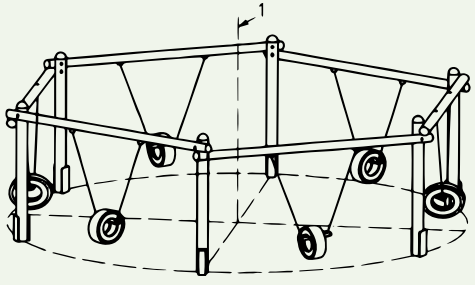
Swing frames or their top bar should only be attached to other equipment where specific measures have been taken to segregate them from other activities (e.g. barriers or enclosures).



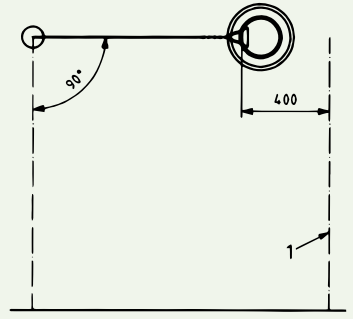
▲ **Figure 31:** Minimum space between swing seats and adjacent structure



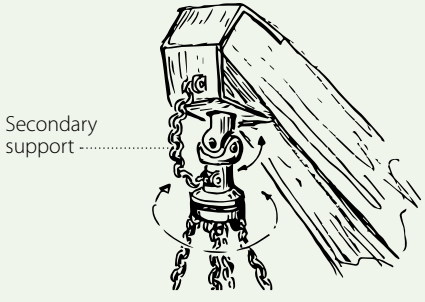
▲ **Figure 32:** Lateral stability of swing seats



▲ **Figure 33:** Example of a contact swing



▲ **Figure 34:** Minimum clearance of contact swing seats



▲ **Figure 35:** Secondary means of support on single point swings

KEY for figures 31, 32 and 34

C	distance between the seat and adjacent structure
S	distance between adjacent seats
F	distance between suspension members
G	distance between support points on the swing seat
1	central axis

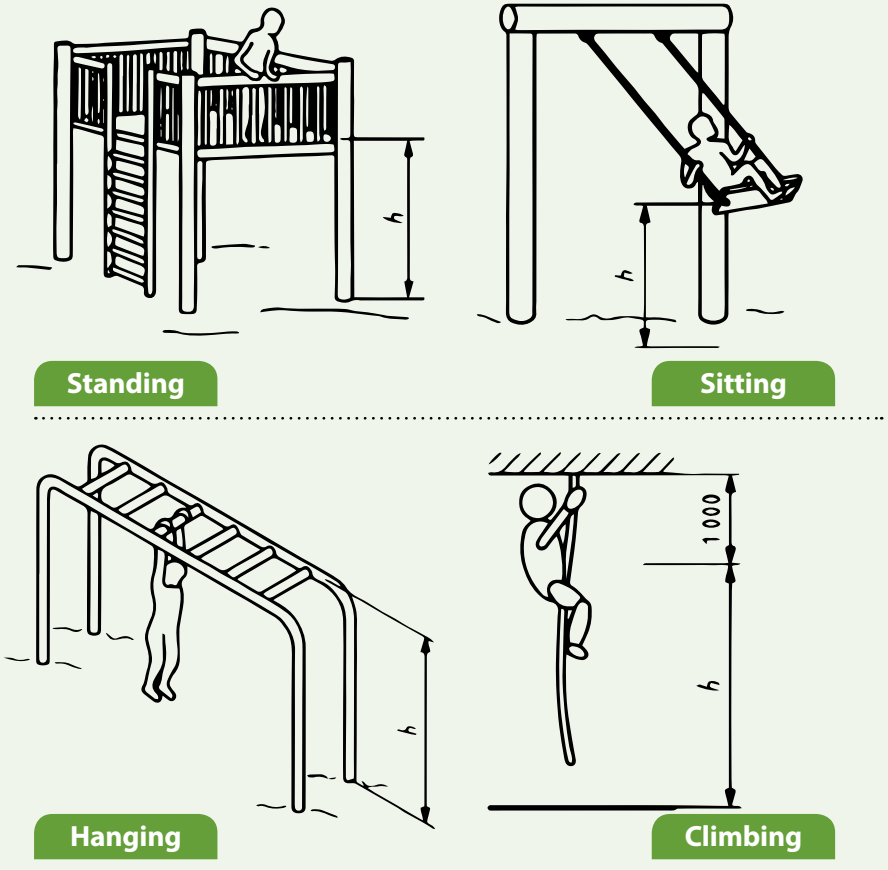
SUPERVISED EARLY CHILDHOOD SERVICES (SECS)

A play area in a SECS setting is defined as being used by an educational and care service, or children's services, for children under school age, which is supervised by educators (educators being early childhood practitioners who work directly with children in education and care services).

The following variations to the general requirements of the standard AS 4685–2014 apply in SECS settings. All other general requirements of the standard are applicable in SECS settings.

Free Height of Fall

The maximum allowable free height of fall limits found in Table 8, as determined in Figure 36 apply to SECS settings.



▲ **Figure 36:** General means of determining FHOF

▼ **Table 8:** Maximum allowable free height of fall (FHOF) limits

STANDING	Foot support to surface below	1.8m
SITTING	Seat to surface below	1.8m
HANGING	Hand support to surface below	1.8m
CLIMBING	Maximum hand support minus 1m to the surface below	Max foot support 1.8m • Max hand support 2.8m
MOVEABLE PLAY EQUIPMENT	Foot support to surface below	1.5m

SUPERVISED EARLY CHILDHOOD SERVICES (SECS)

Protection Against Falling

The minimum protection requirements (as defined on page 74 of this guide) and the impact attenuating surface requirements of Table 8 apply in SECS settings.

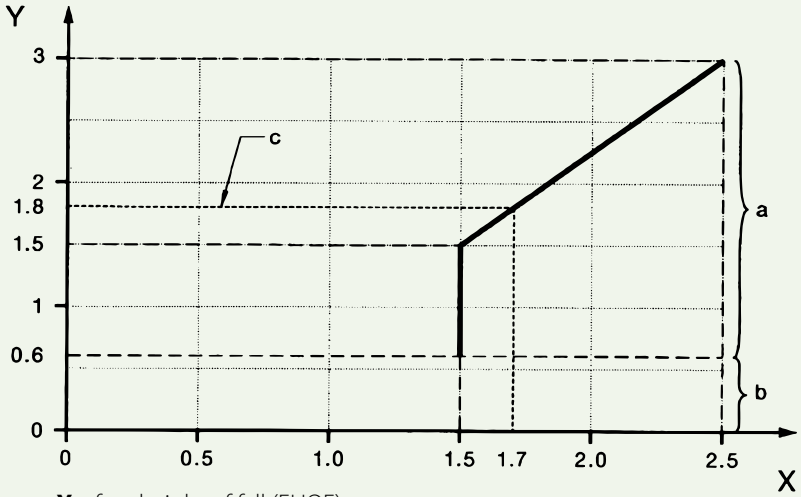
TYPE OF EQUIPMENT	EQUIPMENT HEIGHT (H)	MINIMUM PROTECTION REQUIREMENTS	IMPACT ATTENUATING SURFACING
Platforms	h < 600mm	No barriers or guardrails required	Not required
	600mm ≤ h ≤ 1800mm	Barrier (minimum height above standing surface 700mm)	Required
Stairs & Ramps	h ≤ 1200mm	Single handrail (between 450mm and 700mm above standing surface) **or** Double handrail (lower not less than 600mm, upper not more than 1000mm above standing surface)	Required
	1200mm < h ≤ 1800mm	Barrier (minimum height above standing surface 700mm)	Required
Rigid Bridges	h ≤ 1500mm	Single handrail (between 450mm and 700mm above standing surface) **or** Double handrail (lower not less than 600mm, upper not more than 1000mm above standing surface)	Required
	1500mm < h ≤ 1800mm	Barrier (minimum height above standing surface 700mm)	Required
Moveable play equipment	h < 600mm	No barriers or guardrails required	Not required
	600mm ≤ h ≤ 1500mm	No barriers or guardrails required	Required

▲ **Table 8:** Maximum allowable free height of fall (FHOF) limits

Extent of the Impact Area

The extent of the impact area shall increase for free heights of fall above 1.5m in accordance with the dimensions shown in Figure 37. The dotted line 'c' indicates the maximum free height of fall and the corresponding minimum dimension of the impact area for SECS settings.

In certain cases, as outlined in Table 3 on pages 64-68 of this guide, the possible movement of a particular type of equipment and the user may require that the impact area be extended to provide adequate protection against falling injuries.



Y free height of fall (FHOF)

X minimum dimension of impact area

a impact attenuating surface required

b no impact attenuating surface required unless forced movement

c maximum FHOF and fall zone for SECS

▲ **Figure 37:** Extent of the impact area

MOVEABLE PLAY EQUIPMENT

Moveable play equipment is defined as a range of purpose-made manufactured equipment used in supervised settings (e.g. SECS, schools, etc.) that is not permanently fixed in place and can be adjusted and moved by educators on a regular basis to vary play opportunities.

Educators should apply a risk assessment approach to the setting up of moveable play equipment suitable to the ages and development stages of the children utilising the equipment.

The free height of fall for moveable play equipment shall not exceed 1500mm.

A minimum impact area of 1500mm covered/filled with a complaint impact attenuating surface shall apply for moveable play equipment items that measure more than 600mm from ground level.

Moveable play equipment items do not require handrails, guardrails or barriers.