



Controller guidance for guarding and fencing requirements of juvenile fairground rides

Practical advice for controllers for the adoption of a common sense approach to the selection of control measures to support the safe guarding of juvenile fairground rides.



Introduction

This guidance suggests ways to help manage risks to people including young children from juvenile fairground rides. It outlines what controllers should consider when undertaking risk assessments and deciding what they need to do to guard their juvenile fairground rides. It is essential that controllers do a full risk assessment that takes into account all of the issues specific to that ride (e.g. size, speed, dangerous parts and trained operator numbers) and its operating conditions (e.g. space, layout, ground conditions and public numbers), and put in place control measures including fencing where this is necessary.

Hazards present on the ride must be identified and eliminated, or if that's not possible, the risks controlled, and fencing will often be the most suitable way to do this. Controllers must be able to justify why they have used measures less effective than fencing to control risks on the ride if asked.

This guidance does not cover every risk that may be present on juvenile fairground rides, but it does cover the most common hazards and situations that can be dangerous.

This document:

- *aims to provide practical guidance on the effective guarding of juvenile fairground rides.*
- *aims to provide simple and common sense guidance against which operators can conduct their own risk assessments and assist with decisions about the control measures they wish to adopt.*
- *should not be regarded as fully comprehensive as other methods of guarding may be applicable to particular rides and situations. Neither the Amusement Device Safety Council nor its Members accept responsibility for any acts or omissions arising from the use of this Guidance.*

Context

Juvenile fairground rides draw in children with their flashing lights, theming, bright colours and music. Controllers recognise this and spend a great deal of time and effort making their rides more attractive to children to increase the number of paying customers at fairs. However, there are inherent dangers associated with juvenile fairground rides that controllers must give due consideration.

Many juvenile fairground rides present a foreseeable risk of serious injury by entanglement, shearing, crushing or impact where there is access to the moving ride or its parts.

It is foreseeable that people in close proximity to a juvenile fairground ride can inadvertently come into contact with a moving ride or its parts as they may be distracted or unaware of the hazards and the consequences of their actions.

Controllers of juvenile fairground rides can help reduce the risk of serious injury by accepting that people at leisure on fairgrounds may not be fully aware of their circumstances. Consequently they should think about what they can do to safely manage their ride and keep them from danger. In most instances the use of perimeter fences would prevent inadvertent access and prevent people coming into close proximity with the ride.

What controllers need to do

Health and safety law says you must put in place arrangements to control health and safety risks. Others have responsibilities and duties, such as parents, organisers and inspection bodies. Although other people can assist controllers in making the environment safe, controllers cannot rid themselves of their legal duties under health and safety law.

Controllers must consider all hazards and how people may be harmed and put into place measures that will maintain a high level of safety on and around their rides. This must be managed by undertaking a suitable risk assessment and implementing and enforcing the necessary control measures during the risk assessment process and operation.

What controllers need to know

All rides require:

- *measures to manage safe access/egress onto the ride;*
- *measures to keep people away from dangerous parts.*

If it is foreseeable that a part of a ride could cause injury, it can be considered a dangerous part.

Managing safe access

Controllers need to define boundaries physically, where necessary by suitable fencing. Determining the boundary is an important part of managing public risk. Controllers will need to plan what form the boundary will take, and where required;

- *provide safe, effective fencing*
- *regularly inspect and maintain the fencing*
- *ensure any fencing provided does not in itself introduce a hazard*
- *check the fencing is installed correctly and suitable during each set-up e.g. due to changes in layout, ground conditions etc. and that it remains in that condition throughout its use.*

Common hazards on juvenile fairground rides

Many hazards have the potential to injure people, particularly children (because children are often unaware of the hazards and the consequences of their actions). Controllers need to consider what hazards exist on their ride and how they will manage them. A moving ride or its parts can cause injuries in many ways, for example:

- *Sharp edges which can cause cuts and severing injuries and rough surfaces which can cause abrasions.*
- *Entanglement or crushing by multiple parts moving together or moving past one another which can cause shearing.*
- *Being struck and injured by reachable moving parts of the ride or passengers.*
- *Being struck and injured by moving parts of the ride or passengers swinging outside of the ride footprint if in close proximity to the ride*
- *Injuries can also occur due to gaps or openings that will allow access to dangerous parts of the ride when it is operating or to unguarded danger areas underneath or behind machines*

Principles of safe guarding

Once hazards are identified, controllers must find ways to eliminate those hazards or control the risks. Controllers should consider the following risk reduction measures which may need to be used in combination.

1. Control risks at source

If possible remove the hazard, or otherwise introduce control measures such as covering dangerous mechanical and electrical parts with fixed guards or replacing parts for less hazardous alternatives. This may reduce the need for fencing.

2. Fencing

Where access to the moving ride or its parts presents a significant risk a fence is likely to be the most effective option. If a fence is used it should:

- *Be high enough and far enough away to prevent contact with the source of danger. A height of 1100mm is recommended in relevant standards. Consideration will need to be given to areas where parts of the ride swing outside the footprint as they must be guarded with a fence positioned far enough away to prevent contact with any moving part of the ride or passengers during the running of the ride (unless the moving parts are at least 2.7m above the ground).*
- *have vertical rails that are no greater than 100mm apart, or a mesh size no greater than 30mm.*
- *not contain a gap greater than 100mm between the ground and the bottom rail.*

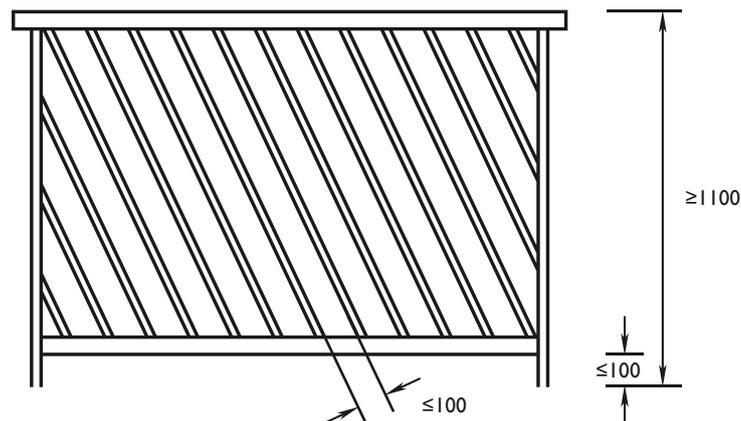


FIGURE 1 - Fence with vertical rails

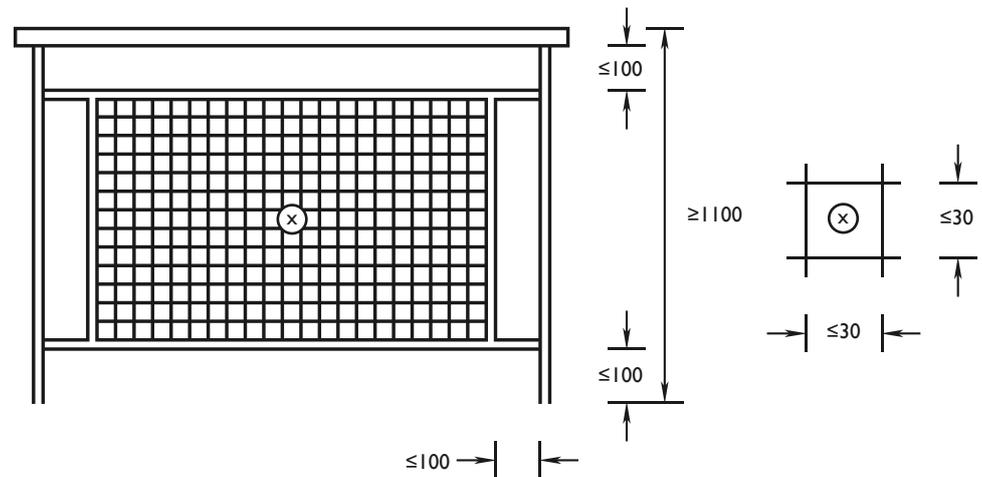


FIGURE 2 - Fence with mesh

- *be far away enough from the ride to prevent riders from contacting any part of it*
- *contain the minimum number of gaps in size and number which should be effectively supervised or closed off with barriers or gates when the ride is running.*
- *be suitable in all circumstances. Ground conditions can change at different fairs and alternative/ additional fencing may be required to safely operate the ride and keep children from danger.*

The reliance on a platform or steps, or less rigid barriers such as ropes and chains is unlikely to meet the guarding requirements for the majority of juvenile fairground rides.

3. Safe systems of work

In some circumstances, effective supervision by an operator may be an acceptable alternative to fencing but only following an adequate risk assessment which fully justifies the decision and should only be used where safer methods such as fencing cannot be used.

The following section contains some suggested measures but these may not be suitable or sufficient in all cases. At particularly busy or difficult to manage fairs it may be necessary to put extra measures in place over and above what is suggested below.

Principles of safe guarding on juvenile fairground rides

Ride: Toyset

Risk of injury by: Passengers climbing on/off the moving platform

Suggested guarding:

This ride is typically slow moving and consists of a round rotating platform without protruding parts and all moving parts are in the centre of the device. There is a small risk of injury associated with children climbing on/off the moving platform and therefore a safe system of work should be followed which ensures a trained operator can effectively monitor all passengers, bystanders and passers-by and respond to any hazardous situation before any harm is caused, e.g. stopping the ride.

Ride: Juvenile Teacups

Risk of injury by: Passengers climbing on/off the moving platform

Suggested guarding:

This ride is typically slow moving and consists of a round rotating platform without protruding parts with all moving parts in the centre of the device. The passenger units maybe stationary or moving. There is a small risk of injury associated with children climbing on/off the moving platform and therefore a safe system of work should be followed which ensures a trained operator can effectively monitor all passengers, bystanders and passers-by and respond to any hazardous situation before any harm is caused, e.g. stopping the ride.

Ride: Convoy/Formula Ride

Risk of injury by: Struck by moving parts of the ride

Suggested guarding:

The smallest types of this ride typically consist of a platform with slow moving passenger units travelling around a ground level track. A safe system of work should be followed which ensures a trained operator can effectively monitor all passengers, bystanders and passers-by and respond to any hazardous situation before any harm is caused, e.g. stopping the ride. On larger models where it is not possible to effectively monitor all passengers, bystanders and passers-by, a suitable fence should surround the perimeter unless other control measures, justified by the risk assessment are in place. The fence should be positioned at a suitable horizontal clearance to prevent contact with any moving part of the ride or passengers during the running of the ride. Access and egress opening should be kept to the minimum in size and number and should be effectively supervised or closed-off with barriers or gates when the ride is running.

Ride: Winnard Train (track bound – steel wheels)**Risk of injury by:** Struck by moving parts of the ride;

Entangled/crushed between the train and track;

Contact with shear point where wheels move over track

Suggested guarding:

This is a track-guided device. A suitable fence should surround the perimeter of the ride unless other control measures, justified by the risk assessment are in place. Controllers may be able to combat some risks at source and some rides have been provided with a rubber strip attached to the underside of the chassis which prevents access to the shear trap danger areas. Consideration may also be given to a fixed barrier covering the gap between the front and rear of the train, and the provision of a rubber flexi guard between each carriage. If a fence is not to be used (because the shearing hazard, and the possibility of persons entering the area between the front and rear of the train, have been controlled by other means), controllers should ensure that a safe system of work is followed which ensures a trained operator can effectively monitor all passengers, bystanders and passers-by and respond to any hazardous situation before any harm is caused, e.g. stopping the ride.

Ride: Express Train (flat bed – nylon/rubber wheels)**Risk of injury by:** Struck by moving parts of the ride;

Contact with crush point where wheels move over platform.

Suggested guarding:

This ride consists of a solid platform underneath moving passenger units. A suitable fence should surround the perimeter of the ride unless other control measures, justified by the risk assessment are in place. If a fence is not to be used (because the crushing hazard, and the possibility of persons entering the area between the front and rear of the train, have been controlled by other means) controllers should ensure a safe system of work is followed which ensures a trained operator can effectively monitor all passengers, bystanders and passers-by and respond to any hazardous situation before any harm is caused, e.g. stopping the ride.

Ride: Juvenile Ski-jump**Risk of injury by:** Struck by moving parts of the ride;

Contact with crush point where wheels move over platform.

Suggested guarding:

This ride consists of a solid platform underneath moving passenger units. A suitable fence should surround the perimeter of the ride unless other control measures, justified by the risk assessment are in place. If a fence is not to be used (because the crushing risk and the risk of being struck have been controlled by other means) controllers should ensure a safe system of work is followed which ensures a trained operator can effectively monitor all passengers, bystanders and passers-by and respond to any hazardous situation before any harm is caused, e.g. stopping the ride.

Ride: Mini Waltzers**Risk of injury by:** Struck by moving parts of the ride**Suggested guarding:**

There are several types of this ride. Where there is a risk of injury from being struck by moving parts of the ride a suitable fence should surround its perimeter unless other control measures, justified by the risk assessment are in place. In some cases the platform or any barrier attached to it may provide adequate protection from people being struck when the ride is running. In all cases a safe system of work should be followed which ensures a trained operator can effectively monitor all passengers, bystanders and passers-by and respond to any hazardous situation before any harm is caused, e.g. stopping the ride.

Ride: Juvenile Chair o plane**Risk of injury by:** Struck by moving parts of the ride and/or passengers outside of ride footprint**Suggested guarding:**

A suitable fence should surround the perimeter of the ride. The fence should be positioned at a suitable horizontal clearance to prevent contact with any moving part of the ride or passengers during the running of the ride. Access and egress opening should be kept to the minimum in size and number and should be effectively supervised or closed-off with barriers or gates when the ride is running.

Ride: Juvenile Jets**Risk of injury by:** Struck by moving parts of the ride**Suggested guarding:**

There are several types of this ride. Where there is a risk of injury from being struck by moving parts of the ride a suitable fence should surround its perimeter unless other control measures, justified by the risk assessment are in place. On smaller, slow-moving models the platform and fixed perimeter step(s) may provide adequate protection from people being struck when the ride is running. In all cases a safe system of work should be followed which ensures a trained operator can effectively monitor all passengers, bystanders and passers-by and respond to any hazardous situation before any harm is caused, e.g. stopping the ride.

Ride: Juvenile Paratrooper**Risk of injury by:** Struck by moving parts of the ride**Suggested guarding:**

A suitable fence should surround the perimeter of the ride. The fence should be positioned at a suitable horizontal clearance to prevent contact with any moving part of the ride or passengers during the running of the ride. Access and egress opening should be kept to the minimum in size and number and should be effectively supervised or closed-off with barriers or gates when the ride is running.

Ride: Dumbos**Risk of injury by:** Struck by moving parts of the ride**Suggested guarding:**

A suitable fence should surround the perimeter of the ride. The fence should be positioned at a suitable horizontal clearance to prevent contact with any moving part of the ride or passengers during the running of the ride. Access and egress openings should be kept to the minimum in size and number and should be effectively supervised or closed-off with barriers or gates when the ride is running.

Ride: Mini Wheels**Risk of injury by:** Struck by moving parts of the ride**Suggested guarding:**

There are several types of this ride. Where there is a risk of injury from being struck by moving parts of the ride a suitable fence should surround its perimeter unless other control measures, justified by the risk assessment are in place. In some cases the platform or any barrier attached to it may provide adequate protection from people being struck when the ride is running. In all cases a safe system of work should be followed which ensures a trained operator can effectively monitor all passengers, bystanders and passers-by and respond to any hazardous situation before any harm is caused, e.g. stopping the ride.

Ride: Swing Boats**Risk of injury by:** Struck by moving parts of the ride**Suggested guarding:**

A suitable fence should surround the perimeter of the ride. The fencing should be positioned at a suitable horizontal clearance from any moving part of the ride during the running of the ride to prevent contact with the source of danger. Access and egress openings should be kept to the minimum in size and number and should be effectively supervised or closed-off with barriers or gates when the ride is running. Inside the perimeter fence there should be sufficient room for safe access/ egress from individual swing boats while other boats are in motion. Consideration may be given to a barrier to delimit the access/egress route from the source of danger. A safe system of work should be followed which ensures a trained operator can effectively load/unload passengers and control safe passage from/to the ride.

Ride: Juvenile Apple Coaster**Risk of injury by:** Struck by moving parts of the ride;

Entangled/crushed between the train and track;

Suggested guarding:

This is a track-guided device. A suitable fence should surround the perimeter of the ride. The fence should be positioned at a suitable horizontal clearance from any moving part of the ride or passengers during the running of the ride to prevent contact with the source of danger. Access and egress should be controlled via gates which should be closed-off when the ride is running.

Further Reading

1. *HSG 175: Fairgrounds and amusement Parks – Guidance on safe practice (2007)*
- Health and Safety Executive
2. *BS ISO 17842-1:2015 Safety of amusement rides and amusement devices. Design and manufacture*
– British Standards Institute
3. *BS EN 13814:2004 Fairground and amusement park machinery and structures. Safety*
– British Standards Institute

ADIPS is managed by the Amusement Device Safety Council, which consists of delegated representatives from the following organisations:

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The Association of Independent Showmen
The British Amusement Catering Trades Association
The British Association of Leisure Parks, Piers and Attractions
The National Association for Leisure Industry Certification
The Showmen's Guild of Great Britain
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ADIPS Ltd

North East BIC | Enterprise Park East | Wearfield | Sunderland | SR5 2TA | UK

T: +44 (0)191 516 6381 | F: +44 (0)191 516 6382 | E: office@adips.co.uk

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