

Playground Equipment Barrier Requirements when Impact Areas are insufficient

While the playground Standards require an impact-attenuated surface all around elevated parts of play equipment that are not fully enclosed, it is relatively common in Australia to encounter playgrounds that do not meet this requirement, generally at the request of the client or designer.

The following reasons are common grounds for these exceptions:

- Lack of available space, commonly encountered in Supervised Early Childhood Settings.
- A desire to include hard surfaces or elements immediately around the equipment (e.g. a bike path extending underneath the play equipment).
- A bridge connecting parts of a play structure, crossing a path on the ground.
- A desire to allow for greater visibility and a less enclosed feel compared to having something that fully covers a platform, bridge, or walkway. This is sometimes the case when the elevated parts exceed 3m in height.

Guidelines

It is the consensus view of the Play Australia Risk Assessors' Network that such deviations from the requirements of the Standards may be viewed as acceptable on the basis of a risk assessment. In such cases, where adjacent hard surfaces or objects exist within the falling space, the Network recommends the following design guidelines relating to the design of the barriers:

1. The barrier height should be:
 - at least 1.0m high Supervised Early Childhood Settings;
 - at least 1.2m high in all other settings;
 - at least 1.4m high if the platform or walkway exceeds 3m in height.
2. The barrier shall have no potential footholds that could encourage unintended climbing access on the inside of the barrier or on the outside in locations accessible from other parts of the equipment.
 - There shall be no ready footholds <850mm high above the platform, such as crossbars and handrails.
 - Battened barriers that are accessible externally (e.g. from climbing elements) should be of a design that prevents foothold from being readily gained on the outside of the deck.
 - Holes in perforated steel barriers shall be <8mm or between 25-40mm in diameter.
 - Wire mesh barriers shall have apertures <35mm in one dimension.
3. The top of the barrier shall not be able to be readily stood on or sat on. Options to achieve this include – narrow tops, battens that protrude above the top crossrail, or an angled top.

Rationale for these Guidelines

AS4685 states that a barrier is a “device intended to prevent the user from falling and from passing beneath”, which is also the reason for minimum 1m high barriers for raised floor levels in the National Construction Code (NCC). The NCC even specifically notes that “Children are at particular risk of falling off, over or through ineffectively designed or constructed barriers. Accordingly, the requirements of this Part (i.e. Part 11.3.3 Barriers to prevent falls) aim to ensure that a barrier reduces the likelihood of children being able to climb over a barrier or fall through a barrier”. The NCC requirements include a 1m minimum height with no horizontal elements within the barrier between 150-760mm above the floor (although the latter is only required for falls more than 4m!).

The pool fencing Standard, AS1926-2012, requires that pool fencing be at least 1.2m in height, deeming this to be an acceptable height to prevent children from climbing over.

This rationale also takes into account the ~1.04m Centre of Gravity height for a 97th percentile 18-year-old male.

The rationale behind a recommended minimum height of 1m in a Supervised Early Childhood setting takes into account the age and size of users and the levels of supervision.

AS4685.1 provides no quantitative attributes on what barrier height is enough such that an impact area / falling space is not required on the outside of a barrier, nor what constitutes unintended climbing access. The AS4685.0 Foreword indicates that “unintended access should be discouraged through the elimination of unnecessary handholds and footholds, the inclusion of physical barriers, and the use of dimensions and profiles that are intrinsically difficult for children to climb”; and AS4685.1 Cl.4.2.4.4 includes “there shall be no intermediate horizontal or near horizontal rails that can be used as steps by children attempting to climb. The design of the top of the barriers should not encourage children to stand or sit on them, nor should any infilling encourage climbing”, but with dimensions provided and use of “should” more often than “shall”. There is no specific measure in the Standards detailing what distance is deemed as being sufficient to that unintended access is not created. The earlier (2014) version of AS 4685.1 stated that “handrails, guardrails or grab handles should not provide a step less than 500mm that may provide easy access to unintended parts of the equipment”; however, this specific measure was dropped for the current Standard.

Note:

This document and the adoption of any recommendations listed is not a guarantee that an incident will not occur. Accidents can occur anywhere regardless of design, be it through misuse, skylarking, rough play, poor supervision, use by inappropriate age groups, misfortune, vandalism or poor maintenance, etc. Ultimately, it is the decision of the owner/operator as to what levels of risk they deem acceptable.

AS4685.0–2017, clause 8.2 states: “When assessing the risk associated with any particular playground, the operator(s) shall also take into account the context of the playground, its purpose and likely users, and the need for benefit assessment procedures instead of standard risk removal.”

Examples



1200mm high barrier with flat top with no impact area. In place for 20-30 years and checked by multiple auditors with no works undertaken, although wouldn't meet guidelines listed above.



1400mm high barriers in place for 9 years.



Recently opened playspace. Not sure of barrier heights as just something I've seen online but they look <1400mm high with concrete paths below. The blades on the platform barriers would discourage trying to climb over those.
<https://playandgo.com.au/mofflin-reserve-playground-elizabeth-vale/>



~1500mm high barriers used around a high deck as drawn in a current Product data sheet.