

Playground Equipment Modification Guidelines



Introduction

The following guidelines are general in nature and cover some key Standards issues that commonly present when replacing older playground equipment components. These points do not cover all aspects of Standards requirements but detail some of the issues commonly encountered. These observations draw on the requirements of the current playground Standards:

- AS 4685 – 2014 (parts 1-6) – Playground equipment – General safety requirements and test methods + Additional specific requirements for swings; slides; runways; carousels; rocking equipment
- AS 4685 – 2012 (part 11) – Playground equipment – Additional specific safety requirements and test methods for spatial networks
- AS 4685.0:2017 – Playground equipment and surfacing – Development, installation, inspection, maintenance and operation
- AS 4422:2016 – Playground surfacing – Specifications, requirements and test method

In 2004 the playground Standards were updated, resulting in significant changes to many of the specifications in the Standards. (The subsequent Standards update in 2014 did not contain many significant dimensional changes.) Equipment installed prior to 2004 will generally include components that fail to comply with current Standards. Some of these non-compliances are deemed to carry insufficient risk to warrant the expense of replacing particular items simply on the basis of non-compliance.

As playground equipment ages there is often a need to replace items on the basis of significant corrosion or wear and tear. At such times it is important to ensure that the replacement items are fabricated/installed to current Standards.

The mechanism for dealing with equipment that was compliant with Standards at the time of installation, but containing elements non-compliant with current Standards, is to assess issues on the basis of risk and address as deemed necessary. When a replacement item is fitted to an existing playground it is technically viewed as a new item and is therefore required to comply with current Standards.

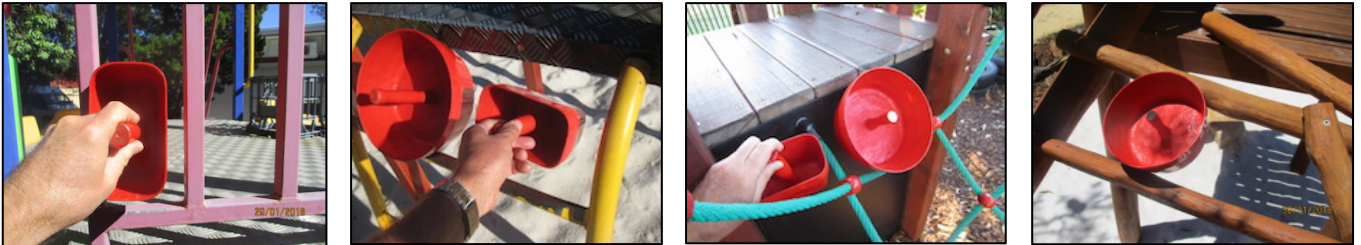
The following examples detail some of the common dimensional issues that should be taken into account when replacing or re-installing items of equipment.

Bound Openings (Potential Head Entrapment)

Bound openings, either vertical or horizontal, (e.g. in barriers/panels, flexible nets, ladders, climbing frames, etc.) need to meet the following size requirements in order to prevent possible head entrapment.

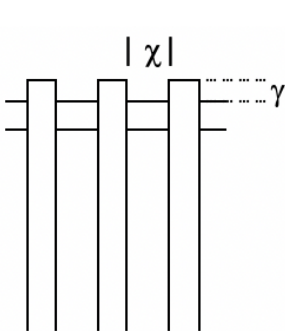
If the lower edge of the opening is greater than 600mm above ground level, any openings that allow the passage of the small torso probe (89mm x 157mm) or the small head probe (130mm diameter), but do not allow passage of the large head probe (230mm in diameter) are unacceptable. In brief, avoid any bound openings between 89mm and 230mm in any one direction.

Examples of unacceptable openings



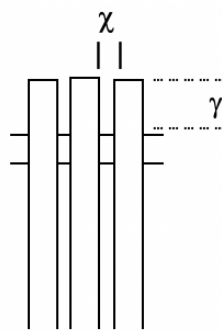
Un-bound Openings (Potential Head Entrapment)

Unbound openings (e.g. gaps between the tops of adjacent vertical boards on barriers, or between the side of a slide and adjacent structure), and V-shaped openings that converge in a downward direction, that are more than 600mm above the ground and greater than 45mm in depth should comply with one of the following:

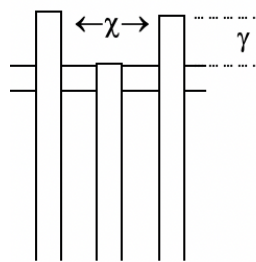


If γ is less than 45mm, then χ has no restriction.

Note: χ must be less than 89mm below the top rail to satisfy the requirements for bound openings.

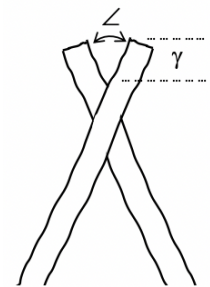


If γ is greater than 45mm, then χ must be less than 45mm.



or
If γ is greater than 45mm, and less than 265mm, then χ must be greater than 155mm.

or
If γ is greater than 265mm, then χ must be greater than 230mm.



\angle must be greater than 60°.

or

If \angle is less than 60°, then γ must be less than 45mm.

Examples of unacceptable openings



- Notes:**
- When replacing a slide or a slide entry panel with items of slightly differing dimensions, unacceptable openings are sometimes created.
 - When eliminating a head/neck entrapment around a slide, care should be taken to ensure a clothing entrapment hazard (see next page) is not created.

Gaps & Openings around Slides (Potential Clothing Entrapment)

Openings or gaps immediately around slides or other items involving forced movement (e.g. sliding swinging or rocking) that allow access to a cord of 3.5mm thickness but do not allow passage of a 25mm diameter toggle on the end of the cord have the potential to create clothing entrapment whilst a child is in motion. This test only applies where forced movement exists.

Problematic openings commonly occur between the starting section of the slide and the platform, or between the top edge of the slide and the adjacent panel or upright.

Examples of unacceptable openings

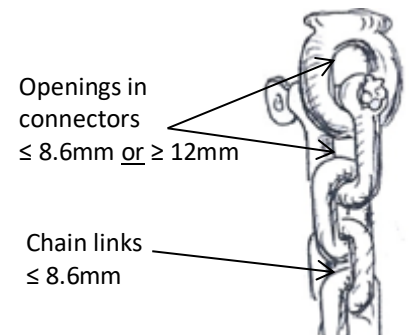


Note: Where the gap exists between the slide and the platform, or in some cases of narrow openings between the slide and adjacent panel or uprights, the gaps can sometimes be satisfactorily filled with silicone or similar.

Chains (Potential Finger Entrapment)

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.

Note: The use of 6mm short-link chain is best in order to meet this requirement. (8mm short-link chain is sometimes compliant initially, but with a little wear over time can permit passage of the 8.6mm probe.)



Allowable openings in chains & connectors

Example of unacceptable openings

