REVISED PLAYGROUND EQUIPMENT STANDARDS FOR AUSTRALIA
Changes to AS 4685 Parts 1-6
(Adoption of EN 1176 Parts 1-6)

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Jeavons
LANDSCAPE ARCHITECTS

play
Australia
promoting the value of play
Intro and Background

- WTO and Trade Barriers
- Limitations imposed by SA
- ZZ Appendixes

Thanks to Andrew Reedy from Forpark Australia
Committee comprises a range of representatives from stakeholders including:
- manufacturers (Australian)
- importers and suppliers
- inspectors and testers
- engineer
- peak bodies such as Play Australia, AILA
- early childhood and schools
- epidemiologist/safety organisations (SA Health and Kidsafe)
- academics
- No PLA or local govt. rep

Limitations on opportunities for change

Public Comment- approx. 9 weeks from 7 Aug
Structure of AS 4685-Playground Equipment

Part 1: General safety requirements and test methods

- Part 2: Additional specific safety requirements and test methods for swings
- Part 3: Additional specific safety requirements and test methods for slides
- Part 4: Additional specific safety requirements and test methods for cableways
- Part 5: Additional specific safety requirements and test methods for carousels
- Part 6: Additional specific safety requirements and test methods for rocking equipment
- Part 11: Additional specific safety requirements and test methods for spatial network

- AS/NZS 4486.1 Playground and playground equipment; Part 1 Development, installation, inspection, maintenance and operation. Will become: Part 0 Guidance on Installation, Inspection, Maintenance and Operation
Part 1: General Safety Requirements and Test Methods

- **Scope and General**
  - Includes definitions

- **Safety Requirements**
  - Materials
  - Structural
  - Design
  - Protection against falling
  - Finish
  - Entrapment
  - Protection against injuries during movement and falling
  - Spaces and areas
  - Fall heights
  - Access
  - Other

- **Marking**

- **Appendices**
  - Calculations and testing (loads & structural integrity)
  - Test methods for entrapment
  - (Spiral/helical stairs)
Fundamentals – the short version

- Doesn’t include every single clause
- Highlights the more significant changes
- Has been heavily paraphrased by MJ
- Not in the same order as in the documents

- Full details available for those who want them
New Definitions

- **Supervised Early Childhood Services (SECS)**
  - EN did not have this special category that AS always had
  - Has been slightly modified for consistency with new National Framework for Children’s Services Centres
  - A defined play area used by an education and care service, for children under school age, which is supervised by educators.

- **Easily accessible**
  Requiring only basic skills to access the equipment, allowing users to move freely and quickly onto/within the equipment
  - ladders, unless the first rung is greater than 400mm from the ground surface.
  - stairs and ramps.
  - tiered platforms with a height difference less than 600mm.

- **Steep play element**
  Access/egress play element of a gradient greater than 45 degrees from the horizontal
## New Free heights of fall

<table>
<thead>
<tr>
<th>Situation</th>
<th>Public</th>
<th>Supervised Early Childhood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall maximum</td>
<td>3000mm</td>
<td>1800mm</td>
</tr>
<tr>
<td>Upper body equipment</td>
<td>2200mm</td>
<td>1800mm</td>
</tr>
<tr>
<td><em>Steep play elements provided on easily accessible parts of equipment</em></td>
<td>2000mm</td>
<td>1800 mm</td>
</tr>
</tbody>
</table>
Guardrails, Barriers and Surfaces

- For platforms less than 600mm fall height
  - no barrier or guardrail required
  - no tested, impact attenuating surface required unless there is forced movement
Supervised Early Childhood Centres

<table>
<thead>
<tr>
<th>Fall height</th>
<th>Impact Surface</th>
<th>Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 to 1800mm</td>
<td>Required</td>
<td>Required (Dimensions at least 700mm ht)</td>
</tr>
</tbody>
</table>
Guardrails, Barriers and Surfaces, cont.

Equipment easily accessible to all ages

<table>
<thead>
<tr>
<th>Fall Height</th>
<th>Impact Attenuating Surface</th>
<th>Guardrail</th>
<th>Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 to 3000mm</td>
<td>Required</td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td>Stair to 1200mm</td>
<td>Required</td>
<td>Acceptable</td>
<td></td>
</tr>
</tbody>
</table>
Guardrails, Barriers and Surfaces, cont.

Equipment easily accessible to all ages, cont.

Full barrier required above 600mm fall height
Steep *and* easily accessible equipment

<table>
<thead>
<tr>
<th>Fall height</th>
<th>Impact Attenuating Surface</th>
<th>Guardrail</th>
<th>Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 to 2000mm</td>
<td>Required</td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td>Max 2000mm allowed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Steep and easily accessible equipment

Max height 2000mm
Guardrails, Barriers and Surfaces, cont.

**Equipment not easily accessible to all ages**

<table>
<thead>
<tr>
<th>Fall Height</th>
<th>Impact Attenuating Surface</th>
<th>Guardrail</th>
<th>Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 to 1000mm</td>
<td>Not required</td>
<td>Not required</td>
<td>Not required</td>
</tr>
<tr>
<td>1000 to 2000mm</td>
<td>Required ht 600 min, 850 max</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000 to 3000mm</td>
<td></td>
<td>Required</td>
<td></td>
</tr>
</tbody>
</table>
Equipment not easily accessible to all ages
Openings in barriers

- Remains at 800mm as per AS
- Some complexity in requirements,
  – i.e. whether a rail is required over openings
**Handrails**

- Required on all steps, stairs and ramps
- Above 1200mm height, barriers required
- Double or single now a matter of choice

<table>
<thead>
<tr>
<th>Height above foot position</th>
<th>Equipment in SECS</th>
<th>All Other Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single</strong></td>
<td>Between 450mm and 700mm</td>
<td>Between 600mm <em>(currently 800)</em> and 1000mm</td>
</tr>
<tr>
<td><strong>Double</strong></td>
<td>Lower rail not less than 400mm, Upper rail not more than 900mm</td>
<td>Lower rail not less than 400mm, Upper rail not more than 1000mm <em>(Same range as existing AS but worded differently)</em></td>
</tr>
</tbody>
</table>
Grip and Grasp

- **Grip**
  - 16-45mm φ
  - (same as AS)

- **Grasp**
  - not more than 60mm width (same as AS)
Access

- **AS:**
  - Had clause 2.2.9 which discussed choices in access type, and guided the angles of some forms of access.
  - Importantly *no access should be provided between 45 and 60 degrees.*
  - Stairways 15 to 45 but preferred 30 to 38 degrees
  - Ramps 0 to 15 but preferred less than 10 degrees.

- **New AS/EN:**
  - No requirement at all to provide access (e.g., to slides)
  - No guidance on angles
  - Confusion between stairs and step ladders
  - No rules on spacing dimensions of rungs on ladders
  - No rules on riser dimensions or widths of treads in steps and stairs
  - Weaker requirements for grasp not grip
Unintended Access

- No “unintended access” clause as such
- However:
  - 4.2.4.4 (barriers) details some the requirements
  - that address the issue, and
  - 4.2.8.1 (determination of free height of fall) provides examples of features that could encourage access to items not intended for play.
- AS had a rule (but clearly ineffective)
## Impact Area / Fall Zones

<table>
<thead>
<tr>
<th>Application</th>
<th>Free height of Fall (Y)</th>
<th>Min. dimension of impact area (Z)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>Under 600mm</td>
<td>Only required where there is forced movement</td>
</tr>
<tr>
<td>All</td>
<td>600 to 1500mm</td>
<td>1500mm</td>
</tr>
<tr>
<td>SECS</td>
<td>1500 to 1800mm</td>
<td>Sliding scale up to 1700mm (MJ calculations)</td>
</tr>
<tr>
<td>Non SECS</td>
<td>1500 to 3000mm</td>
<td>Sliding scale up to 2500mm</td>
</tr>
<tr>
<td>Forced movement</td>
<td>Apply rules for specific items</td>
<td></td>
</tr>
</tbody>
</table>

**EN different from AS:**

If $600 \leq y \leq 1500$ then $x = 1500mm$
If $y > 1500mm$ then $x = \frac{2}{3} y + 500mm$
Some miscellaneous differences:

- **General**
  - **Care should be taken locating dynamic equipment with significant motion, e.g. swings and certain types of rocking equipment…**

- **Free space**
  - **EN has superior diagrams**
  - **Fireman's poles that are accessed via a platform or other starting point shall have a clearance of at least 350 mm from the pole to the edge of the adjacent structure.**
Protection against injuries from the surface of the impact area

- If loose particulate material is used it shall be installed to a layer thickness of 100 mm more than that determined by testing (to EN 1177) to achieve the required critical fall height.
Protection against injuries in the falling space

- The falling space shall not contain any obstacles onto which a user could fall and cause injuries
- Examples provided
Finish of Equipment

- Same as AS except for:
  - Clause on timber and fibreglass being non-splintering
  - Corners, edges and projections with a radius less than 3 mm *may be in other accessible parts of the equipment only if they are not sharp*
  - AS does not allow a radius of curve less than 3mm
Head and Neck Entrapment

- Completely bound openings
  - A third probe (the “small head probe C”) has been added for testing completely bound openings.
  - This is circular 130mm ø
- Probes C or E shall not pass through any opening unless it also allows the passage of the large head probe D.
- AS currently only has 2 probes
  - 89mm x 157mm
  - 230mm circular ø
Finger Entrapment

- Applies to openings:
  - within the free space,
  - where the user is subjected to forced movement
  - which have a lower edge more than 1000 mm above the potential impact area
  - AS previously 1200mm
Other new clauses

- **Structural integrity**
  - When playground equipment *relies on one post* for its stability…
  - Clause contains rules for construction

- Equipment where the primary play function is *augmented by a secondary motion*, e.g. rocking and/or rotating, shall conform to the additional parts of EN 1176 relating to both play functions, as appropriate, unless the equipment is specifically covered in just one of the additional parts of EN 1176.
• **Heavy suspended beams**
• **Inspection and maintenance information**
  (refers also to separate Standard)
• **Requirement that surfacing shall be labeled** by the manufacturer or supplier or written information provided for its identification and performance.
Thanks for your attention

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