AS 4989:2015

Australian STANDARD

Trampolines for domestic use—Safety aspects

STANDARDS Australia

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- Australian Chamber of Commerce and Industry
- Australian Competition and Consumer Commission
- Australian Industry Group
- Australian Toy Association
- CHOICE
- Consumer Federation of Australia
- Department of Education and Communities NSW
- Engineers Australia
- Kidsafe
- Monash University
- National Retailers Association
- NSW Office of Fair Trading
- The Children's Hospital Westmead

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Australian Standard®

Trampolines for domestic use—Safety aspects

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PREFACE

This Standard was prepared by the Standards Australia Committee CS-100, Trampolines for Domestic Use, to supersede AS 4989—2006, *Trampolines—Safety aspects*.

In the preparation of this Standard cognizance was taken of ASTM F381-13, *Standard Safety Specification for Components, Assembly, Use, and Labelling of Consumer Trampolines*, ASTM F2225-09b, *Standard Safety Specification for Consumer Trampoline Enclosures*, and ASTM F2774-09, *Standard Practice for Manufacturing Quality Control of Consumer Trampoline Bed Material*.

This revision introduces requirements for enclosure systems, structural integrity, and entrapment and updates the existing requirements for impact attenuation and UV degradation.

Statements expressed in mandatory terms in notes to figures are deemed to be requirements of this Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendices to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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FOREWORD

A trampoline is a piece of recreational equipment used for fun, exercise and physical development by children and adults. Injuries associated with trampoline use are common and are increasing. For example, 1500 people are treated for trampoline-related injuries in hospitals each year in Victoria alone. Of particular concern is the increasing trend in injuries among children less than five years of age (approximately 10% per year) and in injuries associated with multiple users. Trampolining injuries can be severe, especially for children less than 14 years of age. Fractures are the most common trampoline-related injuries treated in the hospital system. While there have been no deaths in Australia, the more serious injuries include head and neck injuries; therefore, there is the potential for fatal injury to occur.

Similar issues have been noted in the United States, where the American Academy of Pediatrics has called for the restriction of trampoline use to supervised training programs.

A trampoline should encourage development of gross motor skills and provide a stimulating environment that presents trampoline users with manageable challenges, through which they can find and test their limits. In order to provide these challenges, a balance needs to be found between risk and safety.

This Standard was first published in 2003, and there is no evidence that rates of trampoline injury have declined since then, nor is there evidence that the specific requirements of the Standard (such as padding for the springs and frame) have had any substantial impact on the severity and frequency of injuries.

In industry safety, there is a recognized hierarchy of hazard control measures, based on the principle that hazards should be removed by ‘engineering out’ and that personal protective equipment is the last line of defence.

In drafting this Standard, Committee CS-100 (the Committee) was cognizant of finding a balance between the known hazards of trampoline use and the benefits to be obtained from their use. The Committee also recognized that they had a duty of care to protect children from hazards that may not be obvious to the child or carer. With these factors in mind, the Committee agreed that the standard should minimize the design and product-related hazards known to cause injury.

In Australia, UV degradation is a common problem for fabric components and while the Committee would have preferred that all components of a trampoline be tested to 840 h UV exposure, the added cost of the increased testing for the enclosure and padding systems would have created a cost-prohibitive product. To align the UV degradation testing of trampoline enclosures and padding systems with testing being conducted for the international market, the Committee set the minimum UV degradation test for trampoline enclosures and padding systems at 500 h. The ongoing performance of the enclosure and padding systems is integral to trampoline safety. The Committee agreed to monitor the UV performance of trampolines exposed to Australian climatic conditions and increase the minimum UV degradation test duration should 500 h prove to be inadequate. The minimum UV degradation test for the trampoline bed remains at 5000 h, which is consistent with testing for the North American market. The Committee also flagged that the UV test may need to be reviewed in the future.

The Committee would have preferred that openings in enclosure barriers be self-closing or of such a design that manual closing is not necessary, since falls from trampolines are the leading cause of injury. However, in recognition of the extent of change that would currently be required to meet such a requirement, this has instead been noted as a strong recommendation. The Committee may seek to require self-closing openings, or those that do not need manual closing, in the future.

The Committee also considered the inclusion of a padding attachment retention test as there was concern that current padding attachment systems did not adequately secure the padding for the expected life of the product; and if the padding moved, the user would be exposed to dangerous impacts on the rigid member. The Committee may add a padding attachment retention test in the future should there be evidence that manufacturers have failed to provide adequate padding retention.

Trampoline designers, manufacturers, distributors and retailers need to take every possible care to identify and minimize unacceptable trampoline risks and other hazards associated with domestic trampolines.

This Standard does not purport to address all of the hazards associated with trampolines. The Standard's existence alone will not necessarily prevent injuries. Like other physical activities, trampoline use involves the risk of injury, particularly if the equipment is used improperly.

Committee CS-100 concluded that the best way to reduce risk of injury to users was to specify minimum acceptable design standards and to include appropriate consumer information requirements.

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Australian Standard
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S E C T I O N 1 S C O P E A N D G E N E R A L

1.1 SCOPE

This Standard specifies minimum design requirements for trampolines for domestic use and provides test methods to ensure compliance. The Standard also contains requirements and recommendations for the marking of domestic trampolines and the provision of consumer information.

The requirements in this Standard do not apply to mini-trampolines (rebounders), in-ground trampolines, gymnastic trampolines, inflatable trampolines solely for water borne usage, trampolines intended for therapeutic purposes only and trampolines installed in trampoline parks.

1.2 OBJECTIVE

The objective of this Standard is to provide manufacturers and/or suppliers with minimum design requirements for trampolines to reduce the frequency and severity of injuries related to domestic trampoline use.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS/NZS ISO	
8124	Safety of toys
8124.1:2013	Part 1: Safety aspects related to mechanical and physical properties (ISO 8124.1:2012)
ASTM	
F2774-09	Standard Practice for Manufacturing Quality Control of Consumer Trampoline Bed Material
ISO	
4892	Plastics—Methods of exposure to laboratory light sources
4892-3:2013	Part 3: Fluorescent UV lamps
6487	Road vehicles—Measurement techniques in impact tests—Instrumentation
9227	Corrosion tests in artificial atmospheres—Salt spray tests
13934	Textiles—Tensile properties of fabrics
13934-1	Part 1: Determination of maximum force and elongation at maximum force using the strip method
13934-2	Part 2: Determination of maximum force using the grab method

