

# Australian Standard 2210—1980

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## SAFETY FOOTWEAR

[Title allocated by Defence Cataloguing Authority: **BOOTS AND SHOES**  
(Safety footwear fitted with protective steel toecaps) . . . NSC 8430, 8435]

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**STANDARDS ASSOCIATION OF AUSTRALIA**

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**THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:**

Association of Employers of Waterside Labour  
Bureau of Steel Manufacturers of Australia  
Confederation of Australian Industry  
Department of Defence  
Departments of Labour and Industry  
Department of Productivity  
Electricity Supply Association of Australia  
Footwear Manufacturers Federal Executive Council  
Health Commission of N.S.W.  
Melbourne and Metropolitan Board of Works  
Metal Trades Industry Association of Australia  
Metropolitan Water, Sewerage and Drainage Board, Sydney  
National Safety Council of Australia  
Railways of Australia Committee  
Royal Australian Chemical Institute  
Sydney Technical College

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This standard, prepared by Committee SF/3, Protective Occupational Footwear, was approved on behalf of the Council of the Standards Association of Australia on 12 February 1980 and was published on 1 May 1980.

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**AUSTRALIAN STANDARD**

# **SAFETY FOOTWEAR**

**AS 2210—1980**

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Revised .....	1968
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**AMENDMENT No 2**  
to  
**AS 2210—1980 (1983 Reprint only)**  
**SAFETY FOOTWEAR**

**CORRECTION**

*SUMMARY:* This amendment applies to the Preface and Table 2.5 of the 1983 reprint of AS 2210.

Published on 4 March 1985.

**Page 2. Preface.**

*Delete* paragraph 8—

NOTE: This paragraph was an explanatory paragraph incorporated by Amendment No 1 to the 1980 edition for an interim period of 12 months only. It was withdrawn in September 1981 and should not have appeared in the 1983 reprint.

AMDT  
No 2  
MARCH  
1985

**Page 8. Table 2.5.**

*Delete* existing Table 2.5 and the Note thereto and *substitute:*

AMDT  
No 2  
MARCH  
1985

**TABLE 2.5**  
**MINIMUM TOECAP CLEARANCES DURING**  
**IMPACT (IN FOOTWEAR)**

Insole lengths	millimetres	
	Minimum toecap clearances during impact	
	Men's	Women's
≤ 270	12.5	10.00
≤ 279	13.2	11.00
> 279	14.0	11.5

NOTE: This Amendment No 2 corrects an error in the 1983 reprint and restores the clearances to those published in AS 2210, 1980.

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## PREFACE

AMDT  
No 1  
JULY  
1980

This standard was prepared by the Association's Committee on Protective Occupational Footwear, under the supervision of the Safety Standards Board, to supersede AS 2210—1978.

Safety footwear as defined in this standard is confined to footwear incorporating a steel toecap.

This edition of the standard includes technical and editorial amendments which were identified as necessary during application of the 1978 edition. The technical amendments are largely confined to revised separation criteria for soles and heels of safety footwear and provision for Type 2 safety footwear for women.

Additional requirements have also been included in Appendix A detailing the application of impact testing to safety toecaps separate from footwear. Such testing, while not replacing the need to impact test assembled items of footwear, is of assistance to footwear manufacturers in establishing necessary quality control and inwards goods testing.

Matters under continuing revision by the committee include—

- (a) provision of a new method of impact testing,
- (b) minimum lengths of steel toecaps for women's safety footwear,
- (c) increased clearances for men's safety footwear (see below).

In the case of impact testing, the committee is aware of draft test proposals currently being studied overseas, e.g. BSI, SATRA, DIN. Changes which would be required by the implementing of these draft proposals would have very significant ramifications for both the type and the design of protective toecap used and for the replacement of test apparatus. The committee is aware of the significant costs/design changes which would be involved, and eventually resolved to retain the existing testing techniques until the overseas draft requirements have been developed further. In this regard, the International Organization for Standardization (ISO) committee has been encouraged to take the initiative in the development of an international standard. These developments will continue to be monitored by the committee, with a view to later amendment of the Australian standard.

The 'graded' system of toecap heights and lengths, especially those for women's safety footwear, is considered likely to facilitate a wider acceptance and usage of safety footwear. In the past, women, for reasons of fashion, have rejected traditional safety footwear as cumbersome and ugly. The committee hopes that women's footwear made to this standard will gain wide acceptance. Experience gained from such acceptance will be of great value when the standard is next revised.

*In order to provide for the continued availability of licensed safety footwear, the clearances listed in this edition of AS 2210 for men's safety footwear (see Table 2.5) have been reduced by 4 percent for an interim period of 12 months from 1 August 1980. Manufacturers have given a firm commitment to review existing designs during this 12-month period and to provide for the increased clearances originally envisaged. The Association's Committee on Safety Footwear is unanimous in its support for these increased clearances and wishes to give notice of its firm intention to upgrade the clearances 12 months after publication of this amendment.*

Some purchasers may require evidence from manufacturers or suppliers that their product complies with the provisions of this standard. The 'AS' certification trademark of the Association (see Note to marking clause) on safety footwear is an independent assurance of such compliance.

This standard may require reference to the following standards:

- AS 1239 Schedule of Tool Steel Compositions
- AS 1683 Methods of Test for Rubber
  - Method 1683.11—Tension Testing of Vulcanized Rubber
- AS 1817 Method for Vickers Hardness Test
  - Part 1—Testing of Metals
- AS 2193 Methods for Calibration and Grading of Force-measuring Systems of Testing Machines
- BS 903 Methods of Testing Vulcanized Rubber
  - Part A19—Heat Resistance and Accelerated Air Ageing Tests
- BS 1407 High Carbon Bright Steel (Silver Steel)
- BS 2050 Electrical Resistance of Conducting and Antistatic Products Made from Flexible Polymeric Material
- BS 3424 Methods of Test for Coated Fabrics
- ASTM Recommended Practice for Rubber — Materials, Equipment and Procedures for Mixing Standard Compounds and Preparing Standard Vulcanized Sheets
- D3182

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## STANDARDS ASSOCIATION OF AUSTRALIA

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**Australian Standard  
for  
SAFETY FOOTWEAR**

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## SECTION 1. SCOPE AND GENERAL

**1.1 SCOPE.** This standard specifies requirements for safety footwear fitted with protective steel toe-caps for the protection of the wearer. It applies to heavy, medium and light duty safety footwear, constructed with uppers and soles of leather or equivalent synthetic material, and to waterproof safety footwear constructed of rubber or other polymeric materials.

This standard does not specify mandatory provisions of middle soles (for resistance to penetration of objects piercing the sole) or conductive soles, or specific levels of resistance to fuel. However, appropriate test methods are included in the appendices wherever such properties are specified by the purchaser and/or advertised by the manufacturer. (See Clauses 1.2 and 2.5.2.)

The standard does not specify requirements for the provision or testing of anti-slip characteristics.

NOTE: Overseas developments and research on anti-slip properties and testing are being continually monitored by the committee and the matter will be reviewed as soon as worthwhile developments are reported.

**1.2 APPLICATION.** Safety footwear shall comply with the general requirements of Section 2 of this standard and, in addition, with the specific requirements of the following Sections, as appropriate:

Section 3—Additional Requirements for Type 1 (Heavy Duty) Safety Footwear.

Section 4—Additional Requirements for Type 2 (Medium Duty) Safety Footwear.

Section 5—Additional Requirements for Type 3 (Light Duty—Women's) Safety Footwear.

Section 6—Additional Requirements for Type 4 (Waterproof) Safety Footwear.

Additional properties and characteristics of safety footwear specified by the purchaser and/or advertised by the manufacturer shall be assessed against the relevant Section and Appendix to this standard.

**1.3 CLASSIFICATION OF SAFETY FOOTWEAR.** Safety footwear with protective steel toe-caps shall be classified into four types as follows:

Type	Duty	Use
1	Heavy	Men's
2	Medium	Men's and Women's
3	Light	Women's
4	Waterproof	Men's and Women's

NOTE: Recommendations on safety footwear for particular types of work are given in Appendix K.

**1.4 DEFINITIONS.** For the purpose of this standard, the following definitions apply:

NOTE: Additional terminology and explanatory diagrams are given in Appendix L.

**1.4.1 Back (or quarter)** — the back quarter of an upper or back quarter of a lining combined with the upper.

**1.4.2 Calendered sheet** — plain rubber taken through a roller calender producing sheet approximately 0.5 mm to 1.25 mm thick.

**1.4.3 Grindery** — metal components used in footwear manufacture.

**1.4.4 Insole** — the bottom inside component of the boot adjacent to the bottom of the last.

**1.4.5 Lasted** — the upper material as secured to the insole and conformed to the shape of the last.

**1.4.6 Outsole** — the bottom outside component which provides walking surface in the forepart and the walking surface or the base for the heel at the rear.

**1.4.7 Safety footwear** — footwear which has an integral steel toecap.

**1.4.8 Sole** — usually refers to the outer sole or 'outsole'. Most footwear also has an inner sole or 'insole'. Some heavy types may also have a middle or 'throughsole'; if in the forepart only, this is referred to as a half-middle or 'slipsole'.

**1.4.9 Upper** — that part of the footwear covering the foot and leg which is above the outsole.

**1.4.10 Vamp** — the front area of the upper, forward of the instep.