

AS/NZS 3809:1998

Australian/New Zealand Standard®

Safes and strongrooms

AS/NZS 3809:1998

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee MS/58, Prefabricated Safes and Strongrooms. It was approved on behalf of the Council of Standards Australia on 21 November 1997 and on behalf of the Council of Standards New Zealand on 9 February 1998. It was published on 5 March 1998.

The following interests are represented on Committee MS/58:

Auckland Manufacturers Association
Australia Post
Australian Bankers Association
Australian Security Industry Association
Credit Union Services Corporation, Australia
Insurance Council of Australia
Master Locksmiths Association of Australia
Metal Trades Industry Association of Australia
New Zealand Bankers Association
New Zealand Security Industry Association
Police Department, N.S.W.
Security Hardware & Construction Working Committee (Commonwealth)
Victorian Security Institute

Review of Standards. To keep abreast of progress in industry, Joint Australian/New Zealand Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Joint Standards and related publications will be found in the Standards Australia and Standards New Zealand Catalogue of Publications; this information is supplemented each month by the magazines 'The Australian Standard' and 'Standards New Zealand', which subscribing members receive, and which give details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Joint Standards, addressed to the head office of either Standards Australia or Standards New Zealand, are welcomed. Notification of any inaccuracy or ambiguity found in a Joint Australian/New Zealand Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This Standard was issued in draft form for comment as DR 95065.

AS/NZS 3809:1998

Australian/New Zealand Standard[®]

Safes and strongrooms

First published as AS/NZS 3809:1998.

PUBLISHED JOINTLY BY:

STANDARDS AUSTRALIA
1 The Crescent,
Homebush NSW 2140 Australia

STANDARDS NEW ZEALAND
Level 10, Radio New Zealand House,
155 The Terrace,
Wellington 6001 New Zealand

ISBN 0 7337 1717 9

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee MS/58, Prefabricated Safes and Strongrooms. It was developed to address the classification and performance testing of secure storage units.

This Standard is based on the Draft European Standard prEN 1143-1, *Secure Storage Units—Requirements, classification and methods of test for resistance to burglary*, Part 1: *Safes, strongroom doors and strongrooms*.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

© Copyright — STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Users of Standards are reminded that copyright subsists in all Standards Australia and Standards New Zealand publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia or Standards New Zealand may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia or Standards New Zealand. Permission may be conditional on an appropriate royalty payment. Australian requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia. New Zealand requests should be directed to Standards New Zealand.

Up to 10 percent of the technical content pages of a Standard may be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia or Standards New Zealand.

Inclusion of copyright material in computer software programs is also permitted without royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia or Standards New Zealand at any time.

CONTENTS

	<i>Page</i>
FOREWORD	4
1 SCOPE	6
2 APPLICATION	6
3 REFERENCED DOCUMENTS	6
4 DEFINITIONS	7
5 CLASSIFICATION	8
6 REQUIREMENTS FOR SECURE STORAGE UNITS	9
7 SPECIFIC REQUIREMENTS	9
8 TEST EQUIPMENT	11
9 LOCKS	19
10 TECHNICAL DOCUMENTATION	20
11 TEST SPECIMEN	22
12 MARKING	22
APPENDICES	
A WORKED EXAMPLES FOR DETERMINING THE RESISTANCE VALUE FOR A SECURE STORAGE UNIT	23
B WORKED EXAMPLES FOR DETERMINING TIME FOR A PHYSICAL ATTACK TEST ONCE THE ATTACK TOOLS ARE SPECIFIED	25
C MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS STANDARD	27

FOREWORD

This Standard sets out the requirements for the classification and performance testing of secure storage units to intrusion resistance and removal. These requirements are based on the need to ascertain the degree of resistance to differing forms of attack. They are subject to revision as new forms of attack are devised or further experience and investigation may show that it is necessary or desirable.

This Standard is supported by a number of test methods. Included is a physical attack test which is used to determine the resistance values of the secure storage unit. The values can also be used to assist in determining the extent or requirements of other security features of the premises with the proviso that, depending on the expertise of the intruder, the conditions at the place of the crime and the availability of tools, considerably longer time values are likely to occur in real intrusion attacks.

Some of the tests required by this Standard are inherently hazardous and adequate safeguards for personnel and property should be employed in conducting such tests.

This Standard is the first attempt to rationalize the Australian and New Zealand security industries by providing a classification system for secure storage units, 14 resistance grades are specified in the Standard, Grades 0—XIII for strongrooms and Grades 0—X for safes, and they would be loosely based on the following:

		Grading	Resistance grades	Typical applications
Strong Rooms	Safes	Extra high security (Strongrooms only)	XI, XII, XIII	High volume financial institutions, safe deposit, mercantile properties
		High security	VII, VIII, IX, X	Major jewellers, major retailers, financial institutions, banks, clubs, TAB, casinos
		Medium security	V, VI	Large retail, department stores post offices, hotels
		Commercial security	III, IV	Large factories, medium retail, real estate agents
		Basic security	0, I, II	Homes, small business, offices

NOTE: The typical applications are indicative only and should not be used solely for determining the resistance grade required. Many other factors such as location, other security devices, security response times and insurance company policy need to be fully considered when determining the resistance grade of secure storage units for a particular application of level of risk.

The Standard calls for a number of tests to be performed on the secure storage unit. The primary test is a physical attack test where the unit is subjected to physical attack by not more than two people at any one time using a choice of tools and method of attack which are most likely to yield the lowest resistance value.

The resistance value is a numerical value calculated in accordance with the following equation:

$$\text{Resistance value} = \left(\frac{\text{Highest tool coefficient used}}{\text{Net working time}} \right) + \text{Total of all tool basic values used}$$

The tool coefficient relates to the physical effects of using the tools, the amount of heat, smoke, noise and flame associated with using those tools. The tool coefficient is concerned with the logistics of mounting an attack.

The net working time is the time during which an attack is actively in progress. It does not include test preparation time, safety precautions and delays.

The basic value represents problems in obtaining, transporting, using and operating the relevant tool at the site in question and the necessary knowledge and experience for its efficient use.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Safes and strongrooms**

1 SCOPE This Standard specifies performance requirements and procedures for testing secure storage units of the type intended for use in commercial, industrial, mercantile, financial and insurance institutions, and the like, and that are relied upon to protect the contents from intrusion and forced removal. The secure storage units include free-standing safes, built-in safes (floor and wall), strongroom doors and strongrooms (with or without a door). This Standard excludes electronic packages (other than electronic locks) and other devices that may be attached to the secure storage unit or vault.

These requirements are intended to establish the resistance to forced removal and intrusion resistant rating of secure storage units according to attack by prescribed tools. This Standard does not cover tests for fire resistance.

NOTES:

- 1 Examples of how to determine resistance values are given in Appendix A.
- 2 Information on how to determine time from a resistance value once the attack tools are known are given in Appendix B.
- 3 Alternative methods for determining compliance with this Standard are given in Appendix C.

2 APPLICATION This Standard is intended for use when verifying or determining the resistance grade of a secure storage unit. The resistance grade can also be used to assist in determining the extent or requirements of other security features of the premises with the proviso that, depending upon the criminal, the conditions at the place of the crime and the availability of tools, considerably longer times are likely to occur in real burglary attacks than in a test.

3 REFERENCED DOCUMENTS**AS**

- | | |
|------|--|
| 1199 | Sampling procedures and tables for inspection by attributes |
| 1399 | Guide to AS 1199—Sampling procedures and tables for inspection by attributes |

AS/NZS

- | | |
|------------|--|
| 3810 | Safes and strongrooms—Methods of test |
| 3810.0 | Part 0: Introduction and list of methods |
| 3810.1 | Method 1: Test for physical attack |
| 3810.2 | Method 2: Test for anchoring strength |
| 3810.3 | Method 3: Test for explosive resistance |
| ISO 9000 | Quality management and quality assurance standards |
| ISO 9000.1 | Part 1: Guidelines for selection and use |
| ISO 9004 | Quality management and quality system elements |
| ISO 9004.1 | Part 1: Guidelines |

SAA/SANZ

HB18 Guidelines for third-party certification and accreditation

HB18.44 Guide 44—General rules for ISO or IEC international third-party certification schemes for products

4 DEFINITIONS For the purpose of this Standard the following definitions apply:

4.1 Basic value—a number allocated to a specific tool and expressed in resistance units (4.11).

NOTE: The basic value represents problems in obtaining, transporting, using and operating the relevant tool at the site in question and the necessary knowledge and experience for its efficient use.

4.2 Boltwork—the mechanism by which a closed door is secured such that until it is retracted or withdrawn the door cannot be opened.

4.3 Complete access—hole of sufficient size for passage through the wall or door of a rigid test block (as specified in Clause 8.4) to the interior of the sample unit; alternatively—

- (a) the removal of a door; or
- (b) the opening of a door to a clear width of 300 mm over at least 80% of the inside height.

4.4 Lock—device able to recognize a coded input and which performs a blocking function on the boltwork or the door.

4.5 Locking mechanism—the totality of locks and boltwork.

4.6 Net working time—the time during an attack that is actively in progress on the sample unit, but excluding the time required for test preparation, safety precautions and delays.

4.7 Non-destructive attack—method or process which leads to complete or partial access without causing a permanent deterioration of the secure storage unit and carried out without knowing the locking code.

4.8 Partial access—hole of sufficient size for passage of a rigid test block (as specified in Clause 8.4) to the interior of the sample unit.

4.9 Relocking device—system comprising blocking and detention elements which will prevent the boltwork from being retracted or withdrawn if an attack is detected. It can be part of the locking mechanism (e.g. active live relocker) or an independent unit (e.g. passive relocker). There are three types of relocking devices as follows:

- (a) *Passive relocker*—a device which is activated when the primary detention point(s) is removed in an attack. (e.g. A plunger which blocks the movement of the boltwork and is activated by the dislodging or destruction of the lock; a fusible plug or link which melts under the heat of thermal attack releasing a plunger to block the movement of the boltwork.)
- (b) *Live (active) relocker*—a secondary locking unit which is activated by the operation of the lock or movement of the boltwork, into the thrown position, which blocks the bolt work independently of the lock. The destruction or dislodging of the lock will not release the secondary (live) locking unit.
- (c) *Deadlocking relocker*—a relocking device, which may be passive or live and which incorporates a pin, plunger or similar device to prevent it being easily retracted or withdrawn after activation.

4.10 Resistance grade—the classification which is characterized by minimum resistance values for complete and partial access and general and performance requirements as specified in Clauses 6 and 7.

4.11 Resistance unit (RU)—burglary resistance which results from one minute's use of a tool carrying the coefficient of 1 and the basic value 0.

4.12 Resistance value—numerical value in resistance units, calculated for each test by multiplying the net working time by the tool coefficient of the highest category of tool used and adding to this the sum of basic values for the tools used.

4.13 Safe—see secure storage unit.

4.14 Sample unit—unit which fulfils the requirements for being tested and on which tests or additional tests can be performed.

4.15 Secure storage unit—system of physical security elements used to store documents, cash and valuables and accessed through opening(s) fitted with one or more locks, including:

- (a) *Free-standing safe*—designed to protect money and valuables against intrusion, usually found in banks, automatic teller machines, commercial, industrial mercantile properties and domestic dwellings.
- (b) *Built-in safe*—intrusion protection is due to its being at least partly encased (usually with concrete) during installation such as underfloor or wall safes.
- (c) *Strongroom*—secure storage unit whose walls, ceiling and base may be constructed from prefabricated panels or cast in-situ.
- (d) *Strongroom door*—door complete with frame, giving access to a strongroom and secured by locks and boltwork.

4.16 Strongroom—see secure storage unit (4.15).

4.17 Technical documentation—all design documents, material specifications, testing certificates and other technical information supplied for the type test.

4.18 Test sample—the totality of the sample units, component parts and sections of secure storage units made available for testing by the applicant.

4.19 To bolt—to throw the boltwork or the bolt of the lock (if there is no boltwork) to a position where it fixes the door in closed position.

4.20 To close—to shut the secure storage unit so that bolting becomes possible.

4.21 To lock—to block thrown boltwork by action of a lock.

4.22 Tool coefficient value—a number expressed in resistance units per minute allocated to a group of tools.

NOTE: The tool coefficient represents factors such as noise, smoke, fumes and other effects, which increase the likelihood of a burglary attack being detected.

4.23 Type test—the totality of the tests necessary for classifying secure storage units.

4.24 Vaults—see secure storage unit (4.15).

5 CLASSIFICATION Secure storage units shall be classified to a resistance grade according to the durability and level of security they provide. Safes shall be classified to a resistance grade in accordance with Table 1. Strongroom doors and strongrooms (with or without door) shall be classified to a resistance grade in accordance with Table 2.

Secure storage units may also be classified as explosive resistant (EX). For 'EX' designation the requirements of Clause 7.4 shall be met. The 'EX' designation is optional.