STANDARDS Australia

AS 1851—2005

(Incorporating Amendment Nos 1 and 2)

Maintenance of Fire Protection Systems and Equipment

Australian STANDARD

AS

This Australian Standard® was prepared by Committee FP-001, Maintenance of Fire Protection Systems and Equipment. It was approved on behalf of the Council of Standards Australia on 29 June 2005.
This Standard was published on 5 September 2005.

The following are represented on Committee FP-001:

- Australian Institute of Refrigeration, Air-conditioning and Heating
- Australasian Fire Authorities Council
- Communications, Electrical and Plumbing Union
- Department of Defence
- Department of Human Services
- Fire Protection Association of Australia
- Engineers Australia
- National Association of Testing Authorities, Australia
- National Electrical & Communications Association
- Property Council of Australia
- Representatives from Standards Australia Technical Committees—
  FP-002—Fire detection and alarms
  FP-003—Fire extinguishers
  FP-004—Automatic fire sprinkler systems
  FP-007—Fire hose reels
  FP-008—Fire pumpsets
  FP-009—Fire hydrants
  FP-011—Special fire hazards
  FP-017—Emergency management procedures
  FP-019—Passive fire systems
  ME-062—Ventilation and Airconditioning

This Standard was issued in draft form for comment as DR 04463.

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.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting www.standards.org.au

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

AS 1851—2005
(Incorporating Amendment Nos 1 and 2)

Australian Standard®

Maintenance of fire protection systems and equipment

Originated as AS CA16—1939 (7th Ed FOC Rules), AS CA18—1941, AS CA 15—1961, AS 1851—1976, AS 1851.1—1981, AS 1851.4—1980, AS 1851.6—1983, AS 1851.7—1984, AS 1851.8—1987, AS 1851.9—1988, AS 1851.10—1989, AS 1851.11—1991, AS 1851.12—1995, AS/NZS 1851.13:1995, AS 1851.14—1996, AS 1851.15—1997 and AS/NZS 1851.16:1997.

Previous editions: AS 1851.1—1995, AS 1851.2—1995, AS 1851.3—1997, AS 1851.4—1992, AS 1851.5—1981, AS 1851.6—1997, AS 1851.7—1984, AS 1851.8—1987, AS 1851.9—1997, AS 1851.10—1989, AS 1851.11—1991, AS 1851.12—1995, AS/NZS 1851.13:1995, AS 1851.14—1996, AS 1851.15—1997 and AS/NZS 1851.16:1997.

AS 1851.1—1995, AS 1851.2—1995, AS 1851.3—1997, AS 1851.4—1992, AS 1851.5—1981, AS 1851.6—1997, AS 1851.7—1984, AS 1851.8—1987, AS 1851.9—1997, AS 1851.10—1989, AS 1851.11—1991, AS 1851.12—1995, AS/NZS 1851.13:1995, AS 1851.14—1996, AS 1851.15—1997 and AS/NZS 1851.16:1997 revised, amalgamated and redesignated as AS 1851—2005.
Reissued incorporating Amendment No. 1 (July 2006).
Reissued incorporating Amendment No. 2 (May 2008).
Consult the Standards Australia online system for details of the complete history.

Published by Standards Australia, GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 6822 9

PREFACE

This Standard was prepared by the Standards Australia Committee FP-001, Maintenance of Fire Protection Systems and Equipment, to supersede the following.

AS 1851 Maintenance of fire protection equipment

AS 1851.1—1995	Part 1:	Portable fire extinguishers and fire blankets
AS 1851.2—1995	Part 2:	Fire hose reels
AS 1851.3—1997	Part 3:	Automatic fire sprinkler systems
AS 1851.4—1992	Part 4:	Fire hydrant installations
AS 1851.5—1981	Part 5:	Automatic smoke/heat venting systems
AS 1851.6—1997	Part 6:	Management procedures for maintaining the fire and smoke control features of air-handling systems
AS 1851.7—1984	Part 7:	Fire-resistant doorsets
AS 1851.8—1987	Part 8:	Automatic fire detection and alarm systems
AS 1851.9—1997	Part 9:	Delivery lay flat fire hose
AS 1851.10—1989	Part 10:	Emergency warning and intercommunication systems
AS 1851.11—1991	Part 11:	Halon 1301 total flooding systems
AS 1851.12—1995	Part 12:	Gaseous fire extinguishing systems
AS/NZS 1851.13—1995	Part 13:	Wheeled fire extinguishers
AS 1851.14—1996	Part 14:	Pumpset systems
AS 1851.15—1997	Part 15:	Local fire alarm systems
AS/NZS 1851.16—1997	Part 16:	Pyrogen fire extinguishing aerosol systems

This Standard incorporates Amendment No. 1 (July 2006) and Amendment No. 2 (May 2008). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

This edition of AS 1851 incorporates a considerable amount of new material for the maintenance of fire protection systems and equipment. In the light of user experience, it may be necessary to amend the Standard. The committee responsible for AS 1851—2005 will address user comment as and when received.

A feature of this edition is a uniform structure for maintenance requirements. Section 1 sets out general requirements applying to all systems and equipment. The other Sections contain the additional requirements specific to particular fire protection systems or equipment.

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

Notes in this Standard are advisory only.

This Standard incorporates a Commentary on some clauses. The Commentary directly follows the relevant clause, is designated by ‘C’ preceding the clause number and is printed in italics in a panel. The Commentary is for information only and does not need to be followed for compliance with the Standard.

The following list of AS 1851 superseded parts shows the corresponding applicable sections in this revised Standard as a source of reference.

Superseded AS 1851 Parts			AS 1851—2005	
Standard No.	**Date published**	**Short title**	**Group**	**Section**
AS 1851.1	1995	Extinguishers and blankets	First aid	15 and 16
AS 1851.2	1995	Hose reels	First aid	14
AS 1851.3	1997	Sprinklers	Water-based	2
AS 1851.4	1992	Hydrants	Water-based	4
AS 1851.5	1981	Smoke/heat venting	HVAC	18
AS 1851.6	1997	Fire and smoke management	HVAC	18
AS 1851.7	1984	Fire doorsets	Passive	17
AS 1851.8	1987	Detection alarms warning	Detection	6
AS 1851.9	1997	Lay flat hose	Water-based	5
AS 1851.10	1989	EWIS	Detection	9 and 10
AS 1851.11	1991	Halon 1301	Special hazards	Obsolete
AS 1851.12	1995	Gaseous	Special hazards	11
AS/NZS 1851.13	1995	Wheeled extinguishers	First aid	15
AS 1851.14	1996	Pumpsets	Water-based	3
A2 AS 1851.15	1997	Local alarms	Detection	7 or 6
AS/NZS 1851.16	1997	Pyrogen aerosols	Special Hazard	12
—	—	Fire monitoring systems (new)	Detection	8
—	—	Smoke alarms (new)	Detection	7
—	—	Water mist (new)	Special Hazard	13
—	—	Evacuation (new)	EVAC	19

CONTENTS

Page

Page

Page

Page

APPENDICES

FOREWORD

The criteria adopted for revising this Standard include reliability, integrity, functionality and performance of fire protection systems and equipment. Consideration has also been given to the interfaces between equipment for fire detection and firefighting.

The Standard contains requirements formulated as a means of satisfying Occupational Health and Safety (OH&S) regulations and the maintenance provisions of the Building Code of Australia (BCA). It may also form the basis for performance-based solutions. The combination of inspection, test, preventive maintenance and survey may demonstrate compliance with the maintenance requirements of the Building Code of Australia.

Training of personnel to the appropriate levels for the carrying out of inspection, test, preventive maintenance and survey of fire protection systems has not been directly addressed in this Standard; however, it is recognized that effective maintenance programs depend on suitably trained personnel.

An explanation of how this Standard is intended to be implemented is given in Section 1 detailing a four-stage approach of inspection, test, preventive maintenance and survey, coupled with records to be kept and reports to be made and culminating in the issue of a final condition report.

Scope and frequency provisions have been revised and, wherever practicable, specific test results are required to be recorded. The former ‘tick-the-box’ approach has been abandoned in favour of specific ‘yes/no’ and quantitative answers throughout.

The revised inspection, test, preventive maintenance and survey regimes in this Standard address the functional aspects of installed fire protection systems and equipment on a periodic basis, with the objective that systems and equipment operate effectively at all times. The regimes aim to ensure that fire protection systems and equipment are in working order throughout the year or period of interest; not only at the time of annual inspection and test. A significant objective of this Standard is to provide reliability of fire protection systems and equipment, linking design, installation, commissioning and maintenance.

Continuous correct functioning is a basic criterion, and a new annual survey requirement also assures that system performance capability (efficacy) is not degraded by building or occupancy changes, which could otherwise adversely affect the capability of the system to perform as originally intended.

AS 1851 includes a requirement to annually test all aspects of system interconnection; for example, detection and alarm systems with atrium smoke exhaust plant, alarm systems with stairwell pressurization, automatic fire sprinkler systems with HVAC fire mode operation and warning facilities. This will require adequate documentation of interconnections between the various systems as required in the design, installation and commissioning standards.

This Standard complements AS 4655, *Fire safety audits*. AS 4655 provides a methodology for examining, where appropriate, by a process of audit, fire safety measures in order to satisfy appropriate, benchmarks, such as Standards, legislation, contractual arrangements, regulation and insurance requirements. This Standard provides a set of requirements to increase the probability that fire protection systems and equipment will function as intended by the respective design, installation and commissioning Standards, thus achieving reliability.

Maintenance is concerned with the principle that a system will continue to perform to a design Standard on a pre-determined and regular basis. The audit function is a broader process undertaken by people skilled in conducting audits. An audit can be undertaken to provide different levels of confidence that compliance with benchmarks have, or have not, been met from a basic desktop audit of records or systems design, through to full verification of fire safety. An audit can confirm the currency or indicate omissions in the maintenance process. If the audit process reveals a requirement for further examination, any subsequent inspection, test and survey should follow this Standard.

STANDARDS AUSTRALIA

Australian Standard
Maintenance of fire protection systems and equipment

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out requirements for the inspection, test, preventive maintenance and survey (ITM&S) of fire protection systems and equipment.

NOTE: This Standard may be used as the basis for performance-based solutions.

1.2 OBJECTIVE

The objective of this Standard is to maximize the reliability of fire protection systems and equipment such that the systems and equipment meet the requirements of the relevant design, installation and commissioning Standards and are likely to continue to do so until the next scheduled activity.

1.3 APPLICATION

This Standard is intended to provide a systematic and uniform basis for building owners and managers, regulators, contractors, insurers and others to implement and administer inspection, test, preventive maintenance and survey programs applicable to fire protection systems and equipment.

1.4 REFERENCED DOCUMENTS

The documents referenced in this Standard are listed in Appendix A.

1.5 DEFINITIONS

For the purpose of this Standard the definitions below apply.

1.5.1 Aggressive environment

Harsh operating conditions that impose additional stress on fire protection systems and equipment.

1.5.2 Competent person

A Person who has acquired through training, qualification, experience, or a combination of these, the knowledge and skill enabling him/her to correctly perform the required task, and who is registered or licensed by a recognized body acknowledging the training, qualification, experience or skills.

1.5.3 Critical defect

A2 A defect that renders a system inoperative.

1.5.4 Heating, ventilation and airconditioning (HVAC)

Air-handling plant in buildings, used in either, or both, general and fire mode.

1.5.5 Inspection

Visual examination of the components of fire protection systems or equipment to establish correct settings, physical condition or fitness for purpose.

