

1677-1986 Refrigerating systems A4 21pp E
Provides a basis for uniform requirements for the design, construction and installation of refrigerating systems. It does not apply to the use of water or air as a refrigerant, to household refrigerators or to room airconditioners, nor to other small refrigerating equipment, including water coolers, containing not more than 2.5 kg of refrigerant. Sections deal with classification of buildings, of refrigerating systems and of refrigerants; installation requirements; design and construction of equipment; erection tests and general instructions. Appendices provide supporting information.
Committee ME/6 Supersedes AS 1677-1981: Draft for comment DR 84117. Publication date 1986-03-03: ISBN 0 7262 4047 8

84117

AS 1677 — 1981
UDC 621.56

1677-1986

Australian Standard 1677-1981

SAA REFRIGERATION CODE

STANDARDS ASSOCIATION
OF AUSTRALIA
11 MAY 1981
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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:

Australasian Steamship Owners Federation
Australian Institute of Refrigeration Air Conditioning and Heating
(Incorporated)
Australian Retailers Association
Commercial Refrigeration Manufacturers Association of Australia
Confederation of Australian Industry
Department of Housing and Construction
Department of Industrial Affairs and Employment, S.A.
Department of Industrial Relations, N.S.W.
Department of Labour and Industry, Tasmania.
Department of Labour and Industry, W.A.
Department of Labour Relations, Qld
Electricity Supply Association of Australia
Metal Trades Industry Association of Australia
Railways of Australia Committee
State Electricity Commission of Victoria

This standard, prepared by Committee ME/6, Refrigeration, was approved on behalf of the Council of the Standards Association of Australia on 22 December 1980, and was published on 1 May 1981.

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AUSTRALIAN STANDARD

REFRIGERATING SYSTEMS

known as the

SAA REFRIGERATION CODE

AS 1677—1981

First published (as AS CB3)	1933
Revised	1939
AS 1677 first published	1974
Second edition	1981

**PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.**

ISBN 0 7262 2172 4

P R E F A C E

This edition of this standard was prepared by the Association's Committee on Refrigeration. It incorporates the published amendments to the previous edition, but apart from changes intended to clarify the scope and other clauses in Section 1, and the updating of referenced standards, is technically unchanged from that edition.

The major purpose of Amendment 1 to the 1974 edition was to modify the requirements for small components subject to vapour pressure. The standard had been relatively conservative in comparison with those of other countries, and had subjected these small components to full-scale pressure vessel requirements, requiring *inter alia* pressure-relief facilities, certified steels, minimum material thicknesses and the like. The amendment provided a relaxed design rule for certain components that were below a specified size or capacity limit. The amendment also rationalized and simplified certain overlapping sections of the standard, and incorporated rules for calculating discharge capacities for safety valves, particularly to cope with fires outside the equipment. The general effect was to bring the Australian standard into closer alignment with related British, U.S., and ISO standards.

Amendment 2 to the 1974 edition clarified those requirements which dealt with the safety of persons inside coldrooms and safe operating procedures around coldrooms generally. That amendment comprised a clarification of the original intentions rather than a technical change.

Although ISO/R 1662, Refrigerating Plants — Safety Requirements, is under revision, and further developments are expected to the design requirements for small pressure vessels, it was decided to publish this edition because of difficulties in predicting when finality would be reached in those two areas.

This standard requires reference to the following Australian standards:

- AS 1135 SAA Non-ferrous Pressure Piping Code
- AS 1210 SAA Unfired Pressure Vessel Code
- AS 1271 Valves, Water Gauges and Other Fittings for Boilers and Unfired Pressure Vessels
- AS 1345 Rules for the Identification of Piping, Conduits and Ducts
- AS 1349 Bourdon Tube Pressure and Vacuum Gauges
- AS 1358 Bursting Discs
- AS 1571 Seamless Copper Tubes for Use in Refrigeration
- AS 1680 Code of Practice for Interior Lighting and the Visual Environment
- AS 1715 Code of Practice for Respiratory Protection
- AS 1716 Respiratory Protective Devices
- AS 1751 Copper Brazed Steel Tubing
- AS 1905 SAA Fire Door Code
- AS 2030 SAA Gas Cylinders Code
- AS 2106 Methods for the Determination of the Flashpoint of Flammable Liquids (Closed Cup)
- AS 3000 SAA Wiring Rules
- AS CB18 SAA Pressure Piping Code Part I—Ferrous Piping
- AS C98 Flameproof Enclosure of Electrical Equipment for Explosive Atmospheres
- AS D26 Tube Fittings with Dryseal American Standard Taper Pipe and Unified Threads for Automotive and Industrial Use
- BS 3463 Observation and Gauge Glasses for Pressure Vessels

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
REFRIGERATING SYSTEMS

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard sets out requirements for the design, construction, installation, testing and operation of refrigerating systems. It does not apply to—

- (a) household refrigerators covered by AS 1430;
- (b) refrigerated room air-conditioners covered by AS 1861;
- (c) other small refrigerating equipment containing 1 kg or less of refrigerant; and
- (d) the use of water or air as a refrigerant.

1.2 NEW DESIGNS AND INNOVATIONS. Any novel materials, designs, methods of assembly, procedures, etc, which do not comply with a specific requirement of this standard, or are not mentioned in it, but which give equivalent results to those specified, are not necessarily prohibited. The responsible committee (ME/6, Refrigeration) can act in an advisory capacity concerning equivalent suitability, but specific approval remains the prerogative of the Statutory Authority.

1.3 INTERPRETATIONS. Questions concerning the meaning, application or effect of any part of this standard, may be referred to SAA Committee ME/6 for explanation. The authority of the committee is limited to matters of interpretation and it will not adjudicate in disputes.

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

1.4.1 Absorber (adsorber)—that part of the low pressure side of an absorption system used for absorbing (adsorbing) vapour refrigerant.

Absorption system. See Clause 1.4.42.1.

1.4.2 Approved — approved by the Statutory Authority having jurisdiction.

1.4.3 Brazed joint — a gas-tight joint, obtained by the joining of metal parts with alloys which melt at temperatures higher than 500°C but less than the melting temperatures of the joined parts.

1.4.4 Brine — a liquid, used for the transmission of heat without a change in its state, having no flashpoint or a flashpoint above 65°C determined by closed cup Pensky-Martens apparatus in accordance with AS 2106.

1.4.5 Bursting disc (rupture disc) — a relief device that will rupture at a predetermined pressure.

1.4.6 Coil — a system element constructed from pipe or tubing.

1.4.7 Companion or block valves — pairs of mating stop valves valving off sections of systems and arranged so that these sections may be joined before opening these valves or separated after closing them.

1.4.8 Compressor — a specific machine, with or without accessories, for compressing a given refrigerant vapour.

1.4.9 Compressor unit — a condensing unit less the condenser and liquid receiver.

1.4.10 Condenser — a vessel or arrangement of pipe or tubing in which vapourized refrigerant is liquefied by the removal of heat.

1.4.11 Condensing unit — a specific refrigerating machine combination for a given refrigerant, consisting of one or more power driven compressors, condensers, liquid receivers (when required).

1.4.12 Cylinder — a cylinder for the transportation of refrigerant as prescribed in AS 2030.

1.4.13 Department store — the entire space occupied by one tenant or more than one tenant in an individual store where persons commonly assemble for the purpose of retail trade. (See Clause 2.1.3.)

1.4.14 Design pressure — the pressure used to determine the minimum parameters of the various refrigerating components in accordance with this standard.

Direct system. See Clause 3.2.

Double indirect vented open-spray system. See Clause 3.3.5.

Double (or secondary) refrigerant system. See Clause 3.4.

1.4.15 Duct — a tube or conduit used for conveying or encasing purposes.

1.4.15.1 Air duct — a tube or conduit used for conveying air, but not including the air passages of self-contained units.

1.4.15.2 Pipe duct — a tube or conduit used for encasing pipe.

1.4.15.3 Wire duct — a tube or conduit used for encasing either moving or stationary wire or rope.

1.4.16 Entrance — an area immediately adjacent to the door through which people enter a building.