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.
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SAA REFRIGERATION CODE

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

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.

AUSTRALIAN STANDARD

REFRIGERATING SYSTEMS

known as the

SAA REFRIGERATION CODE

AS 1677–1981

First published (as AS CB3) 1933
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PREFACE

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 Lined 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 (absorber)—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.