

Australian Standard[®]

**The use of mechanical
ventilation and air-conditioning
in buildings**

**Part 2: Mechanical ventilation for
acceptable indoor-air quality**

This Australian standard was prepared by Committee ME/62, Mechanical Ventilation and Air Conditioning. It was approved on behalf of the Council of Standards Australia on 3 October 1990 and published on 4 March 1991.

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Association of Consulting Engineers, Australia
Australian Assembly of Fire Authorities
Australian Institute of Health Surveyors
Australian Institute of Refrigeration Air Conditioning and Heating
Australian Uniform Building Regulations Coordinating Council
Building Owners and Managers Association of Australia
Confederation of Australian Industry
Council of Air Conditioning and Mechanical Contractors Associations of Australia
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PREFACE

This Standard was prepared by the Standards Australia Committee on Mechanical Ventilation and Air-conditioning to supersede AS 1668 – 1980, *SAA Mechanical Ventilation and Air-conditioning Code, Part 2: Ventilation requirements*.

The main technical changes are as follows:

- (a) Outdoor airflow rates are increased for most enclosures.
- (b) Reduction in outdoor airflow rates is permitted where the return air is treated for particulate and gaseous contaminants.
- (c) Ventilation system 'Lead-time' and 'Lag-time' concepts are introduced.
- (d) New equations are used for calculation of total airflow rates in carpark.
- (e) Supply ventilation is permitted for carparks.
- (f) Alternative carpark ventilation system controlled by atmospheric contaminant concentration monitoring is described.

Editorially, consideration has been given to the incorporation of the Standard in building regulation.

In the preparation of this Standard, consideration was given to the relevant Standards published by the American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE), for contribution to Appendices G and J, and the American Conference of Governmental Industrial Hygienists, and acknowledgement is made of the assistance received therefrom.

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STANDARDS AUSTRALIA

Australian Standard

The use of mechanical ventilation and air-conditioning in buildings

Part 2: Mechanical ventilation for acceptable indoor-air quality

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard sets out requirements for air-handling systems which ventilate enclosures by mechanical means, where such systems are required by a Regulatory Authority. It sets minimum requirements for preventing an excess accumulation of airborne contaminants, or objectionable odours. These minima are based on needs for body odour control, food odour control, air contaminant control, or carbon dioxide concentrations or a combination of any or all of these factors, depending on the particular situation. It does not prescribe other requirements associated with comfort, such as temperature, humidity, air movement or noise.

This Standard also includes requirements for natural ventilation of carparks. Road tunnels are outside the scope of this Standard.

NOTES:

- 1 Fire-safety aspects related to air-handling systems are covered in AS 1668.1.
- 2 It is recommended that air-handling systems be designed, constructed and installed so that their use does not give rise to a nuisance arising from noise or vibration. For guidance on noise and vibration control see AS 1055 and AS 2107.

1.2 APPLICATION

1.2.1 Mechanical systems Where mechanical air-handling systems are required by a Regulatory Authority, they shall be selected in accordance with Figure 1.1 and as follows:

- (a) *For occupancies requiring supply ventilation* – the air-handling system shall supply outdoor air in accordance with Section 2.
- (b) *For enclosures requiring general exhaust ventilation* – the air-handling system shall extract air in accordance with Section 3, as appropriate.
- (c) *For processes or enclosures requiring local exhaust* – the air-handling system shall collect the effluents and extract air in accordance with Section 3, as appropriate.
- (d) *For enclosures accommodating automotive vehicles with internal combustion engines* – the air-handling systems shall ventilate the enclosure and dispose of the extracted air in accordance with Section 4.

1.2.2 Natural systems of carparks Where a natural ventilation system is used, it shall ventilate the enclosure in accordance with Clause 4.4.1(c).

1.3 REFERENCED DOCUMENTS The documents below are referred to in this Standard.

AS

1055	Acoustics—Description and measurement of environment noise
1132	Methods of test for air filters for use in air-conditioning and general ventilation
1132.5	Part 5: Determination of arrestance efficiency, average arrestance efficiency, dust-holding capacity, and dust-holding capacity per unit of effective face area for test dusts Nos 1, 2 and 3
1200	SAA Boiler Code
1324	Air filters for use in air-conditioning and general ventilation
1402	Electrical equipment for explosive atmospheres – Protection by ventilation – Type of protection v
1500	Methods for fire tests on building materials and structures
1530.1	Part 1: Combustibility test for materials
1668	SAA Mechanical Ventilation and Air-conditioning Code
1668.1	Part 1: Fire precautions in buildings with air-handling systems
1677	Refrigerating systems
1735	Lifts, escalators, and moving walks
2107	Acoustics—Recommended design sound levels and reverberation times for building interiors
2676	Installation and maintenance of batteries in buildings