AS/NZS ISO 9972:2015
ISO 9972:2015

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Australian/New Zealand Standard™

Thermal performance of buildings—Determination of air permeability of buildings—Fan pressurization method

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee BD-058, Thermal Insulation. It was approved on behalf of the Council of Standards Australia on 12 August 2015 and on behalf of the Council of Standards New Zealand on 13 August 2015.
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The following are represented on Committee BD-058:

Aluminium Foil Insulation Association
Australasian Fire and Emergency Service Authorities Council
Australian Building Codes Board
Australian Cellulose Insulation Manufacturers Association
Australian Professional Thermography Association
Building Research Association of New Zealand
Community Energy Network
Consumers Federation of Australia
Council of Textile and Fashion Industries of Australia
Curtin University of Technology
Electrical Regulatory Authorities Council
Energy Efficiency and Conservation Authority, New Zealand
Housing Industry Association
Insulation Australasia
Insulation Council of Australia and New Zealand
Master Builders Australia
New Zealand Metal Roofing Manufacturers
Plastics and Chemicals Industries Association
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD-058, Thermal Insulation.

The objective of this Standard is to provide measurement of the air permeability of buildings or parts of buildings in the field to validate the designed thermal performance. It specifies the use of mechanical pressurization or depressurization of a building or part of a building. It describes the measurement of the resulting air flow rates over a range of indoor-outdoor static pressure differences. This Standard also provides measurement of the air leakage of building envelopes of single-zone buildings.

This Standard is identical with, and has been reproduced from ISO 9972:2015, *Thermal performance of buildings—Determination of air permeability of buildings—Fan pressurization method*.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text 'this International Standard' should read 'this Australian/New Zealand Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

None of the normative references in the source document have been adopted as Australian or Australian/New Zealand Standards.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO will not be held responsible for identifying any or all such patent rights.

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

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INTRODUCTION

The fan-pressurization method is intended to characterize the air permeability of the building envelope or parts thereof. It can be used, for example,

a) to measure the air permeability of a building or part thereof for compliance with a design air-tightness specification,

b) to compare the relative air permeability of several similar buildings or parts of buildings, and

c) to determine the air-leakage reduction resulting from individual retrofit measures applied incrementally to an existing building or part of building.

The fan pressurization method does not measure the air infiltration rate of a building. The results of this method can be used to estimate the air infiltration rate and resulted heat load by means of calculation.

Other methods, like tracer gas, are applicable when it is desired to obtain a direct measurement of the air infiltration rate. A single tracer gas measurement, however, gives limited information on the performance of ventilation and infiltration of buildings.

The fan-pressurization method applies to measurements of air flow through the construction from outside to inside or vice versa. It does not apply to air flow measurements from outside through the construction and back to outside.

The proper use of this International Standard requires knowledge of the principles of air flow and pressure measurements. Ideal conditions for the test described in this International Standard are small temperature differences and low wind speeds. For tests conducted in the field, it needs to be recognized that field conditions can be less than ideal. Nevertheless, strong winds and large indoor-outdoor temperature differences are to be avoided.

NOTES

AUSTRALIAN/NEW ZEALAND STANDARD

Thermal performance of buildings—Determination of air permeability of buildings—Fan pressurization method

1 Scope

This International Standard is intended for the measurement of the air permeability of buildings or parts of buildings in the field. It specifies the use of mechanical pressurization or depressurization of a building or part of a building. It describes the measurement of the resulting air flow rates over a range of indoor-outdoor static pressure differences.

This International Standard is intended for the measurement of the air leakage of building envelopes of single-zone buildings. For the purpose of this International Standard, many multi-zone buildings can be treated as single-zone buildings by opening interior doors or by inducing equal pressures in adjacent zones.

International Standard does not address evaluation of air permeability of individual components.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7345, *Thermal insulation — Physical quantities and definitions*

3 Terms, definitions, and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7345 and the following apply.

3.1.1
air leakage rate
air flow rate across the building envelope

Note 1 to entry: This movement includes flow through joints, cracks, and porous surfaces, or a combination thereof, induced by the air-moving equipment used in this International Standard (see Clause 4).

3.1.2
building envelope
boundary or barrier separating the inside of the building or part of the building subject to the test from the outside environment or another building or another part of the building

3.1.3
air change rate
air leakage rate per internal volume across the building envelope

3.1.4
air permeability
air leakage rate per the envelope area across the building envelope