AS 4254.1—2012

Australian Standard®

Ductwork for air-handling systems in buildings

Part 1: Flexible duct

This Australian Standard® was prepared by Committee ME-062, Ventilation and Air Conditioning. It was approved on behalf of the Council of Standards Australia on 18 May 2012. This Standard was published on 8 June 2012.

The following are represented on Committee ME-062:

- Air Conditioning and Mechanical Contractors Association
- Australasian Fire and Emergency Service Authorities Council
- Australian Building Codes Board
- Australian Institute of Refrigeration Air Conditioning and Heating
- Chartered Institution of Building Services Engineers
- Consumer Electronics Suppliers Association
- Department of Health and Human Services, Tas.
- Engineers Australia
- Facility Management Association of Australia
- NSW Health Department
- Plastics and Chemicals Industries Association
- Plumbing Industry Commission

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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.

Australian Standard®

Ductwork for air-handling systems in buildings

Part 1: Flexible duct

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PREFACE

This Standard was prepared by the Australian members of Joint Standards Australia/Standards New Zealand Committee ME-062, Ventilation and Air Conditioning, to supersede, in part, AS 4254—2002, *Ductwork for air-handling systems in buildings*, due to industry recognized inefficiencies with the installation and quality of flexible duct used in Australia.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

Independent studies in both Australia and the USA have estimated thermal energy losses in the vicinity of 20% to 40% in flexible duct systems due to ineffective air and vapour sealing, poor installation practices and insulation being thermally deficient for the application into which it is installed.

The current NCC requires different thermal ratings for insulation used on flexible duct, depending on the climate zone and the application it is installed into. This, in conjunction with the increased energy efficiency requirements for new constructions along with rising costs of energy is driving the requirement for more efficient flexible duct systems.

This Standard is Part 1 of a series on ductwork for air-handling systems, as follows:

AS
4254 Ductwork for air-handling systems in buildings
4254.1 Part 1: Flexible duct
4254.2 Part 2: Rigid ductwork

The main changes from the 2002 edition of AS 4254 are summarized as follows:

(a) Definition for 'flexible duct system' has been added.

(b) Flexible Duct Compliance Report Summary (FDCRS) has been modified and has become mandatory. Copies of original NATA test reports referenced in the FDCRS shall be provided upon request.

(c) Requirements for flexible duct in wet areas, such as bathrooms, toilets and laundries, have been modified.

(d) Requirements for applying duct tape to provide total air and vapour seal have been modified.

(e) Requirements for validity period for test results have been added.

(f) Mandatory requirements for labelling of flexible duct have been added.

(g) Requirements for installation have been modified.

(h) Requirements for hanger support and load distribution systems have been modified.

(i) Layout has been restructured.

The term 'normative' has been used in this Standard to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of a Standard.

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STANDARDS AUSTRALIA

Australian Standard
Ductwork for air-handling systems in buildings

Part 1: Flexible duct

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for materials, construction and installation, including some aspects of performance, for flexible duct for air-handling systems in buildings and facilities. It covers—

(a) dimensional stability (deformation and deflection) under positive or negative pressure applications and static loads;

(b) leakage under positive or negative pressure;

(c) support; and

(d) fire hazard requirements.

This Standard does not cover the following:

(i) Noise generation and transmission.

(ii) Exposure to damage from—

  (A) transportation and handling;

  (B) weather and temperature extremes;

  (C) flexure cycle;

  (D) chemical corrosion; and

  (E) other in-service conditions specific to the installation.

(iii) Impact loading such as—

  (A) fire;

  (B) earthquake;

  (C) sudden stoppage of airflow; and

  (E) resistance to airflow.

1.2 OBJECTIVE

The objective of this Standard is to provide standardized requirements for the testing, manufacture and installation of flexible ducts and associated equipment. It is intended for use by specifiers, manufacturers, regulatory authorities and installers of air-handling systems for buildings.