AS 4254.1:2021

Australian STANDARD®

STANDARDS Australia

Ductwork for air-handling systems in buildings

Part 1: Flexible duct

AS 4254.1:2021

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Air Conditioning & Mechanical Contractors Association
Australasian Fire and Emergency Service Authorities Council
Australian Building Codes Board
Australian Industry Group
Australian Institute of Refrigeration Air Conditioning and Heating
Chartered Institution of Building Services Engineers
Construction Information Systems Limited (NATSPEC)
Consumer Electronics Suppliers Association
Engineers Australia
Facility Management Association of Australia
Property Council of Australia

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Ductwork for air-handling systems in buildings

Part 1: Flexible duct

Originated as part of AS 4254—1995.
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Revised in part and redesignated as AS 4254.1—2012.
Second edition 2021.

Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee ME-062, Ventilation and Air Conditioning, to supersede AS 4254.1—2012, *Ductwork for air-handling systems in buildings, Part 1: Flexible duct.*

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

The objective of this document is to provide standardized requirements for the performance testing, manufacture and installation of flexible ducts in order to improve the thermal performance of flexible duct. It is intended for use by specifiers, manufacturers, regulatory authorities and installers of air-handling systems for buildings.

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

The National Construction Code (NCC) requires different thermal ratings for insulation used on flexible duct, depending on the climate zone and the application into which it is installed. 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.

A list of all parts in the AS 4254 series can be found in the Standards Australia online catalogue.

The major changes in this edition are as follows:

(a) Modification of requirements for hanger support and load distribution systems.

(b) Addition of Appendix B: Determination of thermal resistance of insulated flexible ducts

(c) Alignment of terminology with that of the NCC.

(d) Modification of requirements for applying duct tape to provide total air and vapour seal.

(e) Thermal testing of four different R-value flexible ducts have been added to the Flexible Duct Conformance Report Summary.

(f) Provision for sag in hanging of 120mm between supports.

The terms "normative" and "informative" are used in Standards to define the application of the appendices to which they apply. A "normative" appendix is an integral part of a Standard, whereas an "informative" appendix is only for information and guidance.

Contents

NOTES

Australian Standard®

Ductwork for air-handling systems in buildings

Part 1: Flexible duct

1 Scope

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

This document covers —

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

(b) leakage under positive or negative pressure;

(c) load support;

(d) fire hazard property requirements; and

(e) thermal resistance of insulated flexible ducts.

This document does not cover —

(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.

The sealing requirements in this document do not contain provisions for —

(a) resistance to chemical attack;

(b) dielectric isolation;

(c) containment of atomic radiation or service in other safety-related construction;

(d) electrical grounding;

(e) maintaining leakage integrity at pressures in excess of the duct classification outlined in this document;

(f) being buried underground;