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Australian Standard 2352—1980

GLOSSARY OF TERMS FOR THERMAL INSULATION OF BUILDINGS

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:

Acceptable Standards of Construction Committee, N.S.W

Association of Consulting Engineers

Australian Cellulose Insulation Manufacturers Association

Australian Federation of Consumer Organizations

Australian Institute of Building

CSIRO, Division of Building Research

CSIRO, Division of Mechanical Engineering

Department of Housing and Construction

Experimental Building Station

Housing Commission of Victoria

Housing Department of Tasmania

Housing Industry Association of Australia

Interstate Standing Committee on Uniform Building Regulations

Master Builders Federation of Australia Incorporated

Fibreglass Manufacturers Association of Australia

Plastics Institute of Australia Incorporated

Royal Australian Institute of Architects

Thermal Insulation Contractors Association (New South Wales)

Thermal Insulation Institute of Australia

University of Melbourne

University of Sydney

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GLOSSARY OF TERMS FOR THERMAL INSULATION OF BUILDINGS

AS 2352—1980

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PREFACE

This standard was prepared by the Association's Committee on Thermal Insulation of Dwellings.

In the preparation of the standard, reference was made to the following standards and other documents:

AS 1852	International Electrotechnical Vocabulary
AS 1903	Reflective Foil Laminate
AS 1904	Code of Practice for Installation of Reflective Foil Laminate in Buildings
BS 874	Methods for Determining Thermal Insulation Properties with Definitions of Thermal Insulating Terms
BS 3533	Glossary of Terms Relating to Thermal Insulation
ASTM C168	Standard Definitions of Terms Relating to Thermal Insulating Materials

National Committee for Rationalized Building. A glossary of building and planning terms (AGPS 1978)

Work in hand in the International Organization for Standardization was also taken into account.

The standard does not seek to be an all-embracing treatment of the subject but rather covers the terminology which is currently used in Australia and which the committee considers should be standardized.

The standard also includes letter symbols for some terms where appropriate. Where the same symbol has been used for more than one term, this has been the result of following well accepted recommendations from other national standards. Where confusion may arise because of this usage, suitable subscripts have been added. In certain cases alternative terms in use are shown, but the preferred term is that given first.

The committee recognizes that confusion exists in Australia between the words 'absorptance' and 'absorptivity', 'emittance' and 'emissivity', 'reflectance' and 'reflectivity', but suggests that the differences are generally unimportant when considered in relation to thermal insulation. 'Absorption factor', 'emission factor' and 'reflection factor' have been adopted as the preferred terms.

Terms ending in 'ance' generally designate properties of a particular object and these may depend not only on the physical properties of the material but also on its size, shape and surface condition; e.g. the terms 'conductance' and 'resistance' apply to an object having a particular cross section and surface area through which heat flows. In practice, however, it is convenient to refer to unit area conductance and resistance where the unit area is considered to be representative of the whole area of cross section.

Terms ending in 'ivity' relate to the fundamental properties of materials independent of size, shape and surface condition; e.g. thermal conductivity, thermal diffusivity.

The word 'factor' is used for dimensionless coefficients where the property of a material or element is compared with that of a reference material or element. Thus the relationship between absorption factor (α), emission factor, (ϵ), reflection factor (ρ) and transmission factor (τ) is

$$\alpha + \rho + \tau = 1$$

where $\alpha = \epsilon$ for radiation of the same wavelength.

This standard may require reference to the following standards:

AS 1530	Methods for Fire Tests on Building Materials and Structures Part 1—Combustibility Test for Materials
AS 1903	Reflective Foil Laminate

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Term	Definition
absorptance	*See* absorption factor.
absorption factor (α)	The ratio of radiant flux absorbed by a surface to that incident on the surface. NOTES: 1. Absorption factor in general varies with the wavelength of the incident radiation. 2. For translucent and transparent materials such as glass the absorption factor will vary with the angle of incidence of the radiation flux and the thickness of the material. 3. For opaque materials the absorption factor is not a function of the thickness but it does depend on the surface condition of the material.
absorption factor, solar (α_s)	The ratio of solar radiant flux absorbed by a surface to that incident on the surface. NOTES: 1. For translucent and transparent materials the solar absorption factor depends on the nature of the surface, the angle of incidence of the solar radiation, and the thickness of the material. It is usually cited for normal incidence. 2. For opaque materials the solar absorption factor depends on the nature of the surface and the angle of incidence of the radiation.
absorption factor, spectral (α_λ)	The absorption factor at a given wavelength interval.
air film resistance	*See* surface resistance.
ambient temperature, effective	For elements surrounded by air or other fluid, a suitably weighted mean between the air or fluid temperature and the mean radiant temperature of the surroundings.
assembly	An aggregate of building components used together. NOTE: *See also* element.
batt	A non-rigid fibrous mat usually of rectangular cross section, the maximum dimension of which is 3 m.
blanket	A non-rigid fibrous mat usually of rectangular cross-section, the length of which is greater than 3 m. NOTE: Blankets are supplied either folded or rolled.
blowing blow-in blown	A method of placing loose fill thermal insulation by pneumatic means.
bulk thermal insulation	Material in the form of batts, blankets, slabs, loose fill, or foamed in-situ.
ceiling	The overhead internal lining of a room.
cellular plastics	Plastics, the density of which is reduced by the presence of numerous small cavities (cells), interconnecting or not, dispersed throughout the mass.
expanded plastics	
cellulosic fibre	Material of a fibrous nature made from wood, paper or vegetable fibres. NOTE: Cellulosic fibre is used either as loose fill or formed into slabs.
combustible	Capable of undergoing combustion. NOTE: Except where used as a descriptive term, 'combustible' generally applies to a statement of test criteria (see AS 1530, Part 1).
combustion	Reaction of a substance with oxygen causing release of heat generally accompanied by flaming and/or glowing and/or emission of smoke. NOTE: In most cases, the concentrations of oxygen to be considered do not exceed those normally found in air.
component	A building product manufactured as a distinct unit for a specified use and for which length, width and thickness dimensions can be specified. NOTES: 1. Examples of components are: batts, blankets, slabs, reflective foil laminate or installed loose fill. 2. *See also* assembly *and* element.
compressibility	The relationship between deformation and applied mechanical pressure (stress) on a thermal insulation material.
condensation	The process of forming a liquid from its vapour when the vapour temperature falls below its dew point temperature.
conduction (of heat)	The transfer of energy in a substance from particle to particle.
convection (of heat)	The transfer of heat by flow of a fluid due to density variations between zones of temperature difference. NOTE: Convection may be either natural or forced.