

BS 6229:2025



BSI Standards Publication

Flat roofs with continuously supported flexible waterproof coverings – Code of practice

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Summary of pages

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Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 December 2025. It was prepared by Technical Committee B/546, *Flexible sheets for waterproofing and water vapour control*. A list of organizations represented on this committee can be obtained on request to the committee manager.

Supersession

This British Standard supersedes [BS 6229:2018](#), which is withdrawn.

Relationship with other publications

This British Standard is intended to be read in conjunction with [BS 5250](#), [BS 8000-4](#) and [BS 8233](#).

Information about this document

This is a full revision of the document, and introduces the following principal changes:

- roof falls to achieve drainage;
- thermal performance of inverted warm roof systems; and
- fire performance, including fire classification of roof system.

Product certification. Users of this British Standard are advised that when selecting materials to consider the desirability of third-party certification of product conformity to this British Standard.

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As a code of practice, this British Standard takes the form of recommendations and guidance. It is not to be quoted as if it were a specification. Users are expected to ensure that claims of compliance are not misleading.

Users may substitute any of the recommendations in this British Standard with practices of equivalent or better outcome. Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Copyright is claimed on the data in [Table A.2](#). Copyright holders are Met Office (2019): Met Office MIDAS Open: UK Land Surface Stations Data (1853-current). Centre for Environmental Data Analysis, Cited December 2025. <http://catalogue.ceda.ac.uk/uuid/dbd451271eb04662beade68da43546e1>

Presentational conventions

The provisions of this document are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the *Shorter Oxford English Dictionary* is used (e.g. “organization” rather than “organisation”).

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1 Scope

This British Standard gives recommendations for the design, construction, care and maintenance of roofs with a flat or curved surface, at a pitch not greater than 10° to the horizontal, with a continuously supported flexible waterproof covering. The supporting structure of such roofs is either dense and heavy (such as a concrete slab), or consists of framing members supporting a lightweight deck of metal or of timber-based material.

NOTE Provided that the design conditions are similar, many of the recommendations contained in this code of practice apply to roofs at pitches greater than 10° and to those designed with multi-functional finishes.

This British Standard is intended for use by surveyors, architects, system designers, principal contractors, contractors and clients.

This British Standard does not apply to cold stores where the roof is directly over the conditioned space and high temperature enclosures.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits the application, of this document¹⁾. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Standards publications

[BS 5250](#), *Management of moisture in buildings – Code of practice*

[BS 6925](#), *Specification for mastic asphalt for building and civil engineering (limestone aggregate)*

[BS 8103-3](#), *Structural design of low-rise buildings – Part 3: Code of practice for timber floors and roofs for housing*

[BS 8204-1](#), *Screeds, bases and in situ floorings – Part 1: Concrete bases and cementitious levelling screeds to receive floorings – Code of practice*

[BS 8204-2](#), *Screeds, bases and in situ floorings – Part 2: Concrete wearing surfaces – Code of practice*

[BS 8217](#), *Reinforced bitumen membranes for roofing – Code of practice*

[BS 8218](#), *Code of practice for mastic asphalt roofing*

[BS 8220-1](#), *Guide for security of buildings against crime – Part 1: Dwellings*

[BS 8220-2](#), *Guide for security of buildings against crime – Part 2: Offices and shops*

[BS 8220-3](#), *Guide for security of buildings against crime – Part 3: Storage, industrial and distribution premises*

[BS 8233](#), *Guidance on sound insulation and noise reduction for buildings*

[BS 8747](#), *Reinforced bitumen membranes (RBMs) for roofing – Guide to selection and specification*

[BS EN 300](#), *Oriented strand boards (OSB) – Definitions, classification and specifications*

[BS EN 507](#), *Roofing and cladding products from metal sheet – Specification for fully supported products of aluminium sheet*

[BS EN 636](#), *Plywood – Specifications*

¹⁾ Documents that are referred to solely in an informative manner are listed in the Bibliography.

- [BS EN 1313-1](#), *Round and sawn timber – Permitted deviations and preferred sizes – Part 1: Softwood sawn timber*
- [BS EN 1313-2](#), *Round and sawn timber – Permitted deviations and preferred sizes – Part 2: Hardwood sawn timber*
- [BS EN 1991-1-1](#), *Eurocode 1 – Actions on structures – Part 1-1: Specific weight of materials, self-weight of construction works and imposed loads for buildings*
- [BS EN 1991-1-3](#), *Eurocode 1 – Actions on structures – Part 1-3: Snow loads*
- [BS EN 1991-1-4](#), *Eurocode 1 – Actions on structures – Part 1-4: General actions – Wind actions*
- [BS EN 1992-1-1](#), *Eurocode 2 – Design of concrete structures – Part 1-1: General rules and rules for buildings, bridges and civil engineering structures*
- [BS EN 1993-1-1](#), *Eurocode 3 – Design of steel structures – Part 1-1: General rules and rules for buildings*
- [BS EN 1994-1-1](#), *Eurocode 4 – Design of composite steel and concrete structures – Part 1-1: General rules and rules for buildings*
- [BS EN 1995-1-1](#), *Eurocode 5 – Design of timber structures – Part 1-1: General – Common rules and rules for buildings*
- [BS EN 1999-1-1](#), *Eurocode 9 – Design of aluminium structures – Part 1-1: General rules*
- [BS EN 1999-1-4](#), *Eurocode 9 – Design of aluminium structures – Part 1-4: Cold-formed structural sheeting*
- [BS EN 10346](#), *Continuously hot-dip coated steel flat products for cold forming – Technical delivery conditions*
- [BS EN 12056-3](#), *Gravity drainage systems inside buildings – Part 3: Roof drainage, layout and calculation*
- [BS EN 12620](#), *Aggregates for concrete*
- [BS EN 13055](#), *Lightweight aggregates*
- [BS EN 13108-6](#), *Bituminous mixtures – Part 6: Material specifications – Mastic asphalt*
- [BS EN 13162](#), *Thermal insulation products for buildings – Factory made mineral wool (MW) products – Specification*
- [BS EN 13163](#), *Thermal insulation products for buildings – Factory made expanded polystyrene (EPS) products – Specification*
- [BS EN 13164](#), *Thermal insulation products for buildings – Factory made extruded polystyrene foam (XPS) products – Specification*
- [BS EN 13165](#), *Thermal insulation products for buildings – Factory made rigid polyurethane foam (PU) products – Specification*
- [BS EN 13166](#), *Thermal insulation products for buildings – Factory made phenolic foam (PF) products – Specification*
- [BS EN 13167](#), *Thermal insulation products for buildings – Factory made cellular glass (CG) products – Specification*
- [BS EN 13169](#), *Thermal insulation products for buildings – Factory made expanded perlite board (EPB) products – Specification*
- [BS EN 13170](#), *Thermal insulation products for buildings – Factory made products of expanded cork (ICB) – Specification*

- [BS EN 13707](#), *Flexible sheets for waterproofing – Reinforced bitumen sheets for roof waterproofing – Definitions and characteristics*
- [BS EN 13859-1](#), *Flexible sheets for waterproofing – Definitions and characteristics of underlays – Part 1: Underlays for discontinuous roofing*
- [BS EN 13956](#), *Flexible sheets for waterproofing – Plastic and rubber sheets for roof waterproofing – Definitions and characteristics*
- [BS EN 13970](#), *Flexible sheets for waterproofing – Bitumen water vapour control layers – Definitions and characteristics*
- [BS EN 13984](#), *Flexible sheets for waterproofing – Plastic and rubber vapour control layers – Definitions and characteristics*
- [BS EN 13986](#), *Wood-based panels for use in construction – Characteristics, evaluation of conformity and marking*
- [BS EN 16002](#), *Flexible sheets for waterproofing – Determination of the resistance to wind load of mechanically fastened flexible sheets for roof waterproofing*
- [BS EN ISO 6946](#), *Building components and building elements – Thermal resistance and thermal transmittance – Calculation methods*
- [BS EN ISO 10211](#), *Thermal bridges in building construction – Heat flows and surface temperatures – Detailed calculations*
- [BS EN ISO 13788](#), *Hygrothermal performance of building components and building elements – Internal surface temperature to avoid critical surface humidity and interstitial condensation – Calculation methods*
- [DD CEN/TS 1099](#), *Plywood – Biological durability – Guidance for the assessment of plywood for use in different use classes*
- [DD ENV 1992-1-1](#), *Eurocode 2 – Design of concrete structures – Part 1-1: General rules for buildings – (together with United Kingdom National Application Document)*
- [NA to BS EN 1991-1-1](#), *UK National Annex to Eurocode 1: Actions on structures – Part 1-1: General actions – Densities, self-weight, imposed loads for buildings*
- [NA to BS EN 1991-1-3](#), *UK National Annex to Eurocode 1: Actions on structures – Part 1-3: General actions – Snow loads*
- [NA to BS EN 1992-1-1](#), *UK National Annex to Eurocode 2: Design of concrete structures – Part 1-1: General rules and rules for buildings*
- [NA to BS EN 1993-1-1](#), *UK National Annex to Eurocode 3: Design of steel structures – Part 1-1: General rules and rules for buildings*
- [NA to BS EN 1994-1-1](#), *UK National Annex to Eurocode 4: Design of composite steel and concrete structures – Part 1-1: General rules and rules for buildings*
- [NA to BS EN 1995-1-1](#), *UK National Annex to Eurocode 5: Design of timber structures – Part 1-1: General – Common rules and rules for buildings*
- [NA to BS EN 1999-1-1](#), *UK National Annex to Eurocode 9 – Design of aluminium structures – Part 1-1: General rules*

Other publications

- [N1] BUILDING RESEARCH ESTABLISHMENT (BRE). *Conventions for U value calculations*. BR 443. Watford: BRE, 2019.
- [N2] BRITISH BOARD OF AGRÉMENT (BBA). *Inverted roofs – Drainage and U value calculations*. Information No 4. Watford: BBA, 2020.
- [N3] EUROPEAN ORGANISATION FOR TECHNICAL ASSESSMENT (EOTA). *Inverted roof insulation kits – Part 1: General*. ETAG 031-1. Brussels: EOTA, 2010.
- [N4] DEPARTMENT FOR EDUCATION (DfE). *Acoustic design of schools: Performance standards*. Building Bulletin 93 (BB93). London: DfE, 2015.
- [N5] CONSTRUCTION INDUSTRY RESEARCH AND INFORMATION ASSOCIATION (CIRIA). *Sound control for homes*. Report 127. London: CIRIA, 1993.
- [N6] NATIONAL FEDERATION OF ROOFING CONTRACTORS (NFRC). *Guidance for the safe installation of torch-on reinforced bitumen membranes and use of gas torches in the workplace*. Safe2Torch. London: NFRC, 2024.
- [N7] BUILDING RESEARCH ESTABLISHMENT (BRE). *Wind scour of ballast on roofs*. BRE Digest 311. Watford: BRE, 1986.
- [N8] MASTIC ASPHALT COUNCIL (MAC). *Mastic asphalt – Roofing technical guide*. Shoreham by Sea, Sussex: MAC, 2021.
- [N9] SINGLE PLY ROOFING ASSOCIATION (SPRA). *Single ply: Design guide*. London: SPRA, 2016.
- [N10] LIQUID ROOFING AND WATERPROOFING ASSOCIATION (LRWA). *Code of practice for the specification and use of liquid applied waterproofing systems for roofs, balconies and walkways*. London: LRWA, 2018.
- [N11] EUROPEAN ORGANISATION FOR TECHNICAL ASSESSMENT (EOTA). *Liquid applied roof waterproofing kits: Parts 1 – 8*. ETAG 005. Brussels: EOTA, 2004.
- [N12] EUROPEAN ORGANISATION FOR TECHNICAL ASSESSMENT (EOTA). *Vacuum insulation panels (VIP) with factory applied protection layers*. EAD 040011-00-1201. Brussels: EOTA, 2017.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in [BS 6100-6](#) and the following apply.

3.1 balcony

accessible external amenity platform above ground level exterior to and with direct access from a building

NOTE 1 A balcony is formed above an external space that is not a habitable room. See [3.23](#) for the definition of terrace.

NOTE 2 A balcony is not regarded or designed as storage space.

NOTE 3 For the purposes of fire, a balcony is not a roof.

[SOURCE: [BS 8579:2020](#), [3.2](#), modified – cross reference to “3.9” in Note 1 amended to “3.23”]

3.2 breather membrane

continuous layer of highly vapour permeable, but air impermeable, material to permit the movement of water vapour in cold roof constructions

NOTE 1 A breather membrane’s water vapour resistance is between 0.6 MN s/g and 0.25 MN s/g.

NOTE 2 The level of vapour permeability required is defined in [BS 5250](#).

3.3 Boards

3.3.1 cover board

board installed directly above the thermal insulation in a warm, flat roof construction

NOTE The primary functions of a cover board are to aid the:

- flat roof's external fire performance;
- thermal insulation's compressive strength and behaviour under point load; and
- waterproof covering's resistance to impact and static loading.

3.3.2 recovery board

board installed directly over existing insulation and waterproof layer(s)

NOTE The primary functions of a recovery board are to aid the:

- attachment of the underlying roof and provide a flat surface to receive the new waterproof covering;
- flat roof's external fire performance; and
- waterproof covering's resistance to impact and static loading.

3.3.3 roof board

board installed directly external to the supporting structure in a warm, inverted, cold or uninsulated, flat roof construction

NOTE 1 The primary functions of a roof board are to:

- aid fire resistance by preventing the conduction of heat from an internal fire; and
- provide continuous support to the air and vapour control layer (AVCL) or waterproof layer on a profiled metal deck.

NOTE 2 In a cold or uninsulated flat roof construction, a roof board can perform one or more of the primary functions of a cover board by aiding the roof's external fire performance and the waterproof layer(s) resistance to impact and static loading.

3.4 competent person

person with the skills, knowledge, experience and appropriate behaviours to achieve a defined outcome

[SOURCE: [BS 9991:2024](#), 3.4]

3.5 Condensation

3.5.1 condensation

conversion of water vapour to liquid water

3.5.2 condensate

liquid water produced by condensation

3.5.3 harmful condensation

interstitial or surface condensation likely to cause damage to the building fabric, to degrade its thermal performance and/or to support mould

3.5.4 interstitial condensation

condensation which occurs within or between layers of a roof system

3.5.5 surface condensation

condensation which occurs on surfaces visible within the building

3.6 dew point

temperature at which air becomes saturated with water vapour and condensation occurs

3.7 drip

projecting profile at the base of a vertical, horizontal or sloping surface that prevents water from tracking onto the wall, fascia or soffit below

[SOURCE: BS 8579:2020, 3.4]

3.8 emergency overflow

independent secondary conveyance for the discharge of water where the primary outlet has become blocked, that is designed to take the full capacity of the primary outlet

NOTE An emergency overflow may take the form of an open edge overflow, parapet overflow or an outlet overflow in the plan area of the roof, with a raised weir outlet

3.9 Fall(s)

3.9.1 fall

angle/gradient/slope of a flat roof measured from the horizontal

NOTE For steeper falls, it is often expressed in degrees (for example, 10°); for shallower falls, it is expressed as a ratio of “rise” to “run”, where “run” is the horizontal distance and “rise” is the vertical distance (for example, 1:80)

3.9.2 zero fall(s)

minimum finished fall(s) of between 0° and 1:80 after accounting for construction tolerances and deflection and with no back fall(s)

NOTE See 3.9.4 for a definition of back falls.

3.9.3 absolute zero fall

finished fall of 0° after accounting for construction tolerances and deflection and with no back fall(s)

NOTE 1 Absolute zero fall is used for blue roofs.

NOTE 2 See 3.9.4 for a definition of back falls.

3.9.4 back fall(s)

fall(s) that cause(s) rainwater not to drain in the intended direction towards the means of draining the roof

NOTE Back fall(s) might result in ponding.

3.10 firrings

battens intended to provide drainage falls to a deck or ventilation of a roof void

3.11 Flat roof

3.11.1 flat roof

roof with a finished fall of no more than 10° to the horizontal

3.11.2 blue roof

flat roof designed to attenuate the rate at which rainwater is drained and allowed to enter the drainage system, typically installed beneath a green or protected roof, where it might have an absolute zero fall with no back falls

NOTE See 3.9.3 for a definition of absolute zero fall.

3.11.3 exposed roof

flat roof whose weathered surface is the waterproof layer with a minimum finished fall, after accounting for construction tolerances and deflection, of 1:80 with no back falls

3.11.4 green and/or protected roof

flat roof on which vegetation and/or a habitat for wildlife is established and/or is protected by ballast or paving

NOTE 1 A green or protected roof can be installed over warm, inverted, cold, and uninsulated flat roof constructions.

NOTE 2 A green or protected roof might have zero falls with no back falls.

NOTE 3 See 3.9.2 for a definition of zero falls.

3.12 Gutter

3.12.1 gutter

channel for collecting and draining rainwater from a roof

[SOURCE: BS ISO 6707-1:2020, 3.3.4.39]

3.12.2 external gutter

gutter placed on the external edge of the roof eaves

3.12.3 internal gutter

gutter formed within the flat roof system

3.13 lap

overlapping edges of roofing membranes which join together or connect to adjacent material

NOTE The lap could be a side or end lap.

3.14 Layers

3.14.1 air and vapour control layer (AVCL)

continuous layer of low permeability material to control the movement of air and water vapour

3.14.2 waterproof layer(s)

layer(s) of impermeable flexible membrane applied either as a factory-manufactured sheet or site-applied in liquid form

3.14.3 water flow reducing layer (WFRL)

robust vapour permeable layer to restrict the flow of water through the insulation layer(s) in an inverted warm roof system

NOTE It also prevents fines from being washed below the insulation, which can damage the waterproofing system or block the roof drainage system.

3.15 multi-functional finishes

uppermost surface of a flat roof (including a terrace or podium) serving multiple purposes beyond a primary waterproofing function, incorporating elements for accessibility, biodiversity, attenuation, recreation, sustainability, energy generation, environmental improvement, climate resilience and/or aesthetic enhancement

3.16 outlet

primary conveyance for transferring water from a roof to piped drainage

NOTE An outlet might be vertical or horizontal draining.

[SOURCE: BS 8579:2020, 3.3.9, modified – cross reference removed from the definition and “may” changed to “might” in the Note.]

3.17 overflow

independent secondary conveyance for the discharge of water where the primary outlet has become blocked, that is not designed to take the full capacity of the primary outlet

NOTE An overflow could also be a visible means to warn of drainage problems/blockage, sometimes called a tell-tale or warning pipe. An overflow might take the form of an edge overflow or an outlet overflow.

[SOURCE: BS 8579:2020, 3.3.11, modified – “independent” added to secondary conveyance, “an outlet” changed to “the primary outlet”, and “that is not designed to take the full capacity of the primary outlet” added and “may” changed to “might” in the Note.]

3.18 podium structure

structural slab, either below ground level, at ground level, or supported on columns over a heated, partially heated, or unheated space, which provides an external amenity space incorporating hard and/or soft landscaping

NOTE 1 Podium structures are not specified attachments.

NOTE 2 Podiums usually cover large areas and might also serve as a platform for additional buildings.

3.19 ponding

standing water not able to drain from a flat roof because of poor design, poor workmanship, insufficient roof falls, support structure deflection and/or construction tolerance(s)

3.20 root resistant material

membrane that permanently protects the roof’s waterproof covering by preventing plant roots or rhizomes from growing into or through it

3.21 Support(ing) structure

3.21.1 support structure

layer of material supported by beams, trusses and/or load-bearing walls to provide structural support to the flat roof system

NOTE 1 Additional layers might be added depending upon the type of flat roof system (e.g. optional surface protection, growing media on green roofs, attenuated rainwater on blue roofs, free-standing roof-mounted plant, photovoltaic arrays and other dead and live loads).

NOTE 2 The support(ing) structure might also resist wind uplift acting on the waterproof layer and other layers depending upon their method(s) of attachment.

3.21.2 roof deck

support structure of profiled metal or timber-based material

3.21.3 roof slab

support structure of in-situ or pre-cast concrete

3.22 tapered insulation

insulation of varying thickness forming a slope to create or augment drainage falls

3.23 terrace

external accessible surface above an internal space above ground level exterior to, and with direct access from, a building to occupants for purposes other than exclusively maintenance

NOTE 1 A terrace is a roof for the purposes of fire and waterproofing. Additionally, for fire purposes, a terrace can also perform the function of a floor.

NOTE 2 Certain spaces might incorporate features of both a balcony and terrace.

[SOURCE: BS 8579:2020, 3.9]

3.24 thermal bridge

part of a roof with thermal resistance significantly lower than that of the surrounding construction

NOTE A thermal bridge is often referred to as a cold bridge.

3.25 upstand

vertical abutment onto which the waterproofing layer(s) is dressed in order to create a waterproof barrier against ingress

NOTE A vertical abutment might be insulated.

3.26 water check

obstruction interrupting roof falls and restricting the drainage of rainwater, resulting in ponding water if not properly accommodated by adjusting falls

NOTE Lap build ups in the waterproof layer, delaying drainage and resulting in temporary non-detrimental water pooling are not water checks.

4 Design

4.1 General design considerations

COMMENTARY ON 4.1

The roof of any building is required to separate a controlled internal environment from the external climate: therefore, it contains layers to control the movement of rainwater, heat, fire, air, vapour and sound. A roof might also be required to provide a certain level of security.

Depending upon the type of building, the degree of security required and the loads to be supported, the basic structure of a flat roof might either be a heavy reinforced concrete slab or a relatively lightweight deck on supporting beams.

Lightweight decks of plywood or profiled metal, which can be readily cut or prised open, offer a lesser barrier than a concrete slab to attempted illegal entry; such roof systems might not be suitable, without further measures, on buildings which require a high standard of security (e.g. prisons).

The slab or deck should provide continuous support to a waterproof layer either directly or via a layer of roof board or thermal insulation.

NOTE 1 The slab or deck might incorporate an AVCL, ceiling, screed, mounting posts, rooflights, vents and attachments such as handrails, gantry rails, fall arrest posts and lightning conductors.

The waterproof layer should remain imperforate, and the thermal insulation should provide not less than the degree of thermal resistance appropriate for the building use, while the AVCL regulates the movement of air and the transport of water vapour.

NOTE 2 For information regarding the degree of thermal insulation resistance relevant to the building use, attention is drawn to:

- *Approved Document C [1], and the equivalent documents for use in Wales [2], Scotland [3] and Northern Ireland [4]; and*
- *Approved Document L [5], and the equivalent documents for use in Wales [6], Scotland [7] and Northern Ireland [8].*

The design of a flat roof should take full account of factors likely to have an adverse effect on its performance during its design life.

NOTE 3 Further guidance is provided in BS 7543.

During design, assessment of the compatibility of materials should be performed in accordance with [Clause 5](#) and manufacturer guidelines, especially those used for critical interfaces.

When membrane systems of different types are brought together, including where adhesive bonding is required, the materials supplied by all parties should be checked for compatibility, including by testing the adhesive bond strength, to prevent early degradation of materials and performance of the bonded joint.

NOTE 4 Of primary concern is the risk of physical damage to the waterproof layer and of damaging condensation within or between the layers of construction, including at perimeters and detail penetrations.

NOTE 5 Physical damage can be caused by environmental factors, fire, traffic on the roof, movement of the building structure and by differential movements between layers resulting from variations in temperature or moisture content.

NOTE 6 Harmful condensation might form on, or between, layers of roof construction as a result of air-borne moisture or water vapour movement through the layers meeting a surface at or below dew point (see [3.6](#)).

NOTE 7 Waterproofing is not a structural element. During the design process, there is a need to assess if it is suitable to build walls directly off the waterproofing system. Further information is given in the LRWA Guidance Note no. 16 [9].

4.2 Types of flat roof system

COMMENTARY ON 4.2

Flat roof constructions are defined according to the location of the principal thermal insulation and its consequent effect upon the temperature of the roof slab or roof deck.

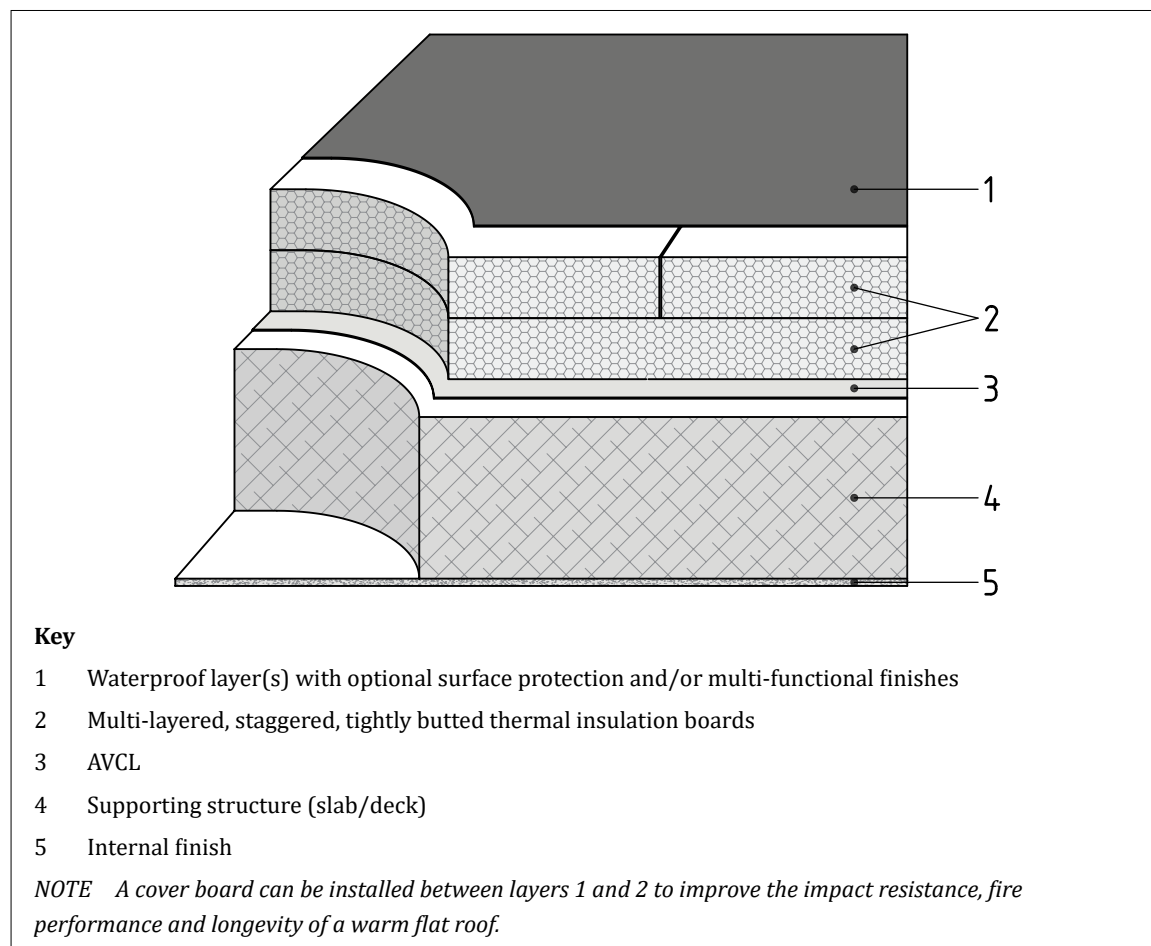
4.2.1 Warm roof system

COMMENTARY ON 4.2.1

In a warm roof system, the principal thermal insulation is placed above the slab/deck, resulting in the temperature of the slab/deck being close to that of the building interior (see [Figure 1](#)).

A warm roof system is suitable for most building types.

Figure 1 — Typical warm roof system



The thermal insulation should be in the form of tightly butted rigid boards able to sustain all intended loads over the working life of the roof system.

NOTE 1 The boards might be square-edged, ideally in multiple layers with staggered joints, or a single layer of boards with overlapping or interlocking edges in order to minimize thermal bridging.

To minimize the risk of interstitial condensation and prevent any annual accumulation, the design should include an AVCL with an appropriate vapour resistance and sealed laps (including to the abutments and penetrations) on the warm side of the thermal insulation such that it is able to control air and heat leakage from within the building (see [4.7.3](#)).

NOTE 2 If bonded to the slab/deck, this layer can also reduce the wind load on the roof coverings.

The uppermost waterproof layer should be resistant to (or protected against) UV degradation. The thermal insulation material should be assessed prior to specification for its ability to withstand expected permanent loads and temporary loads during and after construction. The warm roof system should be resistant to extremes of temperature and secured against wind uplift.

NOTE 3 In a mechanically fastened system, the use of thermally broken fasteners reduces the degree of thermal bridging.