BRITISH STANDARD

BS 5516-1:2004

Patent glazing and sloping glazing for buildings —

Part 1: Code of practice for design and installation of sloping and vertical patent glazing

ICS 81.040.20; 91.060.50

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee B/520, Glass and glazing in building, to Subcommittee B/520/5, Patent glazing and non-vertical glazing, upon which the following bodies were represented:

Association of Building Engineers
Consumer Policy Committee of BSI
Council for Aluminium in Building
Flat Glass Manufacturers' Association
Glass and Glazing Federation
Institution of Structural Engineers
Office of the Deputy Prime Minister – represented by BRE
Co-opted members

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Contents

Foreword

This part of BS 5516 has been prepared by Technical Committee B/520. This part of BS 5516, together with BS 5516-2:2004, supersedes BS 5516:1991, which is withdrawn. It revises all or part of Clauses **1** to **3**, **5** to **9**, **10.3** to **10.5**, **10.6.2**, **10.6.3**, **10.8**, **11** to **14**, **19**, **20.1**, **20.3**, **20.4**, **21** to **24**, **25.1**, **25.2**, **25.4**, **25.6**, **25.8**, **25.9**, **26** to **29** and Annex A to Annex F and Annex J to Annex K of BS 5516:1991.

BS 5516:1991 has been revised and restructured to simplify its use and will be published in three parts covering the following areas:

— *Part 1: Code of practice for design and installation of sloping and vertical patent glazing*;

— *Part 2: Code of practice for sloping glazing;*

— *Part 3: Special applications.*

Requirements for standards of workmanship for glazing have been published separately as BS 8000-7 and, therefore, this subject is not dealt with in this standard.

Since the correct selection of materials to be used in glazing for buildings depends on many factors, attention is drawn to the recommendations in the other parts of this standard.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 63 and a back cover.

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Introduction

Patent glazing is the term applied to a self-draining and ventilated system of dry glazing that does not rely entirely for its watertightness upon external glazing seals. It consists essentially of a series of longitudinal glazing bars, i.e. patent glazing bars, and an infilling of glass or other suitable infill material. Patent glazing bars are attached to and supported by structural members, either directly or indirectly.

Patent glazing systems are described by the number of edges by which the infilling is supported. They are generally unsealed, at the interface with the building substrate relying on flashings and/or formed weatherings for weathertightness. They differ from sloping curtain wall systems which form sealed airtight constructions. Curtain wall systems designed for vertical application might not be suitable for sloping application, unless they incorporate a sloping application drainage facility or are face sealed to exclude water from the glazing rebates.

a) *Two-edge systems* are those in which the infilling is fully supported by patent glazing bars on two opposite longitudinal edges only. Horizontal flashings or other weatherings are normally provided at the top and bottom edges of single tier glazing and at junctions of glazing of more then one tier.

b) *Four-edge systems* are those in which the infilling is fully supported by patent glazing bars on two opposite longitudinal edges and additionally on the other two edges by transom members.

1 Scope

This British Standard gives recommendations for the design, manufacture, installation and maintenance of sloping and vertical patent glazing systems attached to and supported by structural members of adequate strength, stiffness and stability. All recommendations apply to flat, including faceted, patent glazing and infilling. They may also apply to curved patent glazing and infilling except for the structural design where specialist advice is needed.

The patent glazing systems included in this standard comprise glazing bars of aluminium or steel, which can be clad totally or partially clad with lead or PVC-U, for two-edge support and four-edge support systems for single and double glazing or other infill. A range of transparent and opaque infillings of glass, plastics glazing sheet materials and other infill materials are included; specific information on plastics glazing sheet materials is given in BS 5516-2:2004, Annex A.

This standard covers the use of patent glazing in permanent buildings and structures, including conservatories but excludes greenhouses. Clauses that are relevant also apply to the use of patent glazing inside buildings.

This standard does not include recommendations for the design of the supporting structure to which the patent glazing is attached.

Requirements for standards of workmanship for glazing have been published separately as BS 8000-7 and, therefore, this subject is not within the scope of this standard.

Since the correct selection of materials to be used in glazing for buildings depends on many factors, attention is drawn to the recommendations in the other parts of this standard.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the reference cited applies. For undated references, the latest edition of the referenced document (including any amendments).

BS 476-20, *Fire tests on building materials and structures — Part 20: Method for determination of the fire resistance of elements of construction (general principles).*

BS 476-22, *Fire tests on building materials and structures — Part 22: Methods for determination of the fire resistance of non-loadbearing elements of construction.*

BS 1449-1, *Steel plate, sheet and strip — Part 1: Carbon and carbon-manganese plate, sheet and strip.*

BS 1473, *Specification for wrought aluminium and aluminium alloys for general engineering purposes — Rivet, bolt and screw stock.*

BS 3382, *Specification for electroplated coatings on threaded components.*

BS 3987, *Specification for anodic oxidation coatings on wrought aluminium for external architectural applications.*

BS 4254, *Specification for two-part polysulphide-based sealants.*

BS 4842, *Specification for liquid organic coatings for application to aluminium alloy extrusions, sheet and preformed sections for external architectural purposes, and for the finish on aluminium alloy extrusions, sheet and preformed sections coated with liquid organic coatings.*

BS 4921, *Specification for sherardized coatings on iron or steel.*

BS 5215, *Specification for one-part gun grade polysulphide-based sealants.*

BS 5268, *Structural use of timber — Code of practice for permissible stress design, materials and workmanship.*

BS 5516-2:2004, *Patent glazing and sloping glazing for buildings — Part 2: Code of practice for design and installation of sloping and vertical patent glazing.*

BS 5889, *Specification for one-part gun grade silicone-based sealants.*

BS 5950, *Structural use of steelwork in building.*

BS 6180, *Barriers in and about buildings — Code of practice.*

BS 6262 (all parts), *Code of practice for glazing for buildings.*

BS 6270-3, *Code of practice for cleaning and surface repair of buildings — Part 3: Metals (cleaning only).*

BS 6338, *Specification for chromate conversion coatings on electroplated zinc and cadmium coatings.* (ISO 4520)

BS 6399-2:1997, *Loading for buildings — Part 2: Code of practice for wind loads.*

BS 6399-3, *Loading for buildings — Part 3: Code of practice for imposed roof loads.*

BS 6496, *Specification for powder organic coatings for application and stoving to aluminium alloy extrusions, sheet and preformed sections for external architectural purposes, and for the finish on aluminium alloy extrusions, sheet and preformed sections coated with powder organic coatings.*

BS 6497, *Specification for powder organic coatings for application and stoving to hot-dip galvanized hot-rolled steel sections and preformed steel sheet for windows and associated external architectural purposes, and for the finish on galvanized steel sections and preformed sheet coated with powder organic coatings.*

BS 7412, *Plastics windows made from unplasticized polyvinyl chloride (PVC-U) extruded hollow profiles — Specification.*

BS 8118-1:1991, *Structural use of aluminium — Structural use of aluminium — Part 1: Code of practice for design.*

BS EN 477, *Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors — Determination of the resistance to impact of main profiles by falling mass.*

BS EN 478, *Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors — Appearance after exposure at 150 °C — Test method.*

BS EN 479, *Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors — Determination of heat reversion.*

BS EN 485, *Aluminium and aluminium alloys — Sheet, strip and plate.*

BS EN 755, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles.*

BS EN 1363-1, *Fire resistance tests — Part 1: General requirements.*

BS EN 1364-1, *Fire resistance tests for non-loadbearing elements — Part 1: Walls.*

BS EN 1364-2, *Fire resistance tests for non-loadbearing elements — Part 2: Ceilings.*

BS EN 3506 (all parts), *Mechanical properties of corrosion resistant stainless steel fasteners.*

BS EN 10002-1, *Tensile testing of metallic materials — Part 1: Method of test at ambient temperature.*

BS EN 10143, *Continuously hot-dip metal coated steel sheet and strip — Tolerances on dimensions and shape.*

BS EN 12056-3, *Gravity drainage systems inside buildings — Part 3: Roof drainage, layout and calculation.*

BS EN 12588, *Lead and lead alloys — Rolled lead sheet for building purposes.*

BS EN 22063, *Metallic and other inorganic coatings — Thermal spraying — Zinc, aluminium and their alloys.*

BS EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods.*

3 Terms and definitions

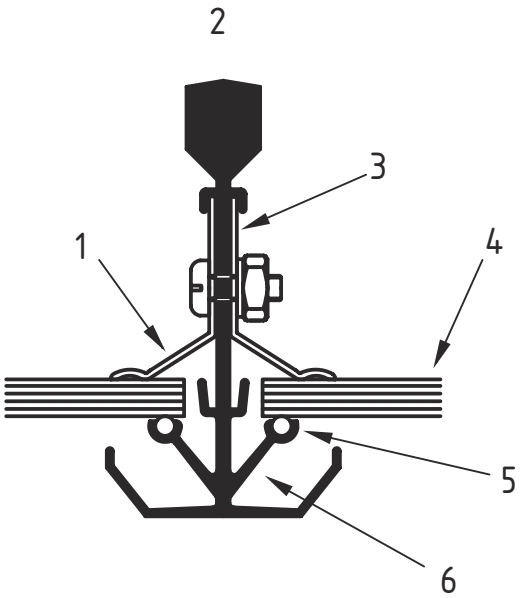
For the purposes of this British Standard, the following terms and definitions apply.

3.1
butt joint
joint between edges of adjacent panes of infilling, usually horizontal and weathered by a came or sealant

3.2
came
non-load-bearing member used to weather a horizontal butt joint in a two-edge system of patent glazing

3.3
cap
profile, fitted over a patent glazing bar or pressure plate, to retain infilling and impede direct water penetration

NOTE See Figure 1.



Key

1	Wing
2	Outside
3	Stalk
4	Glass or infill
5	Glazing seal
6	Drainage channel

a) Traditional bar

Figure 1 — Typical examples of patent glazing bars