



BS 5516 : 1977

UDC 69.024.97

Code of practice for
Patent glazing

(formerly CP 145 : Part 1)

Code de bonne pratique relatif au vitrage sans mastic

Richtlinie für Beglasung ohne Kitt



BS 5516 : 1977

Contents

	Page		Page
Foreword	1	Appendices	
Code drafting committee	1	A. Loads due to weights of bars and glass	15
Code	Back cover	B. Wind loading	15
Section one. General		C. Snow loading	17
1. Scope	2	D. Bar sections and spacings: conventional patent glazing	17
2. References	2	E. Bar sections and spacings: four-edge supported systems	18
3. Definitions and notation	2	F. Tables and figures for calculations, and typical calculation sheets	19
4. Exchange of information	3	G. <u>Safety of vertical patent glazing</u>	40
5. Time schedule	4	Tables	
6. Work off site	4	1. Transmission of light and solar radiant heat by various glasses in vertical glazing	10
Section two. Materials and components		2. Thermal transmittances (<i>U</i> values) of glazing	10
7. Types of patent glazing bar	4	3. Structural tolerances	13
8. Materials for glazing bars and components	4	4. Loads on patent glazing due to weights of bars and glass	15
9. Glass	5	5. Combined pressure coefficients for roofs (C_p), assuming a dominant opening	16
10. Other infill materials	6	6. Combined pressure coefficients for roofs (C_p)	16
Section three. Design		7. Design wind pressures (Pa)	17
11. Functions of a patent glazing bar	6	8. Design snow loads perpendicular to the glazing	17
12. Functions of a transom bar	6	9. Ground roughness and height above ground factor s_2 to be applied to basic 3 s wind speeds taken at 10 m above ground in open country (class A gust duration)	20
13. Strength and stiffness	7	10. Working pressures for glass (single glazing, aluminium bars)	20
14. Weathertightness	9	11. Working pressures for glass (single glazing, steel bars)	21
15. Durability	9	12. Working pressures for glass (double glazing, aluminium bars)	21
16. Transmission of light	9	13. Working pressures for glass (double glazing, steel bars)	22
17. Heat loss and condensation	10	14. Multipliers for deriving working loads for bars from working pressures for glass (single glazing, aluminium bars)	26
18. Solar heat	10	15. Multipliers for deriving working loads for bars from working pressures for glass (single glazing, steel bars)	26
19. Ventilation	11	16. Multipliers for deriving working loads for bars from working pressures for glass (double glazing, aluminium bars)	27
20. Fire protection	12	17. Multipliers for deriving working loads for bars from working pressures for glass (double glazing, steel bars)	27
21. Maximum size of glass	12	18. Nominal thickness and maximum area of glass not complying with BS 6206 when used in risk areas with 'four edge' patent glazing	42
22. Walkways	12	19. Nominal thickness and maximum unsupported span of glass not complying with BS 6206 when used in risk areas with 'conventional' patent glazing	42
Section four. Work on site			
23. Storage	13		
24. Preparation for glazing	13		
25. Fixing flashings	14		
26. Fixing and glazing	14		
Section five. Inspection			
27. General	14		
Section six. Maintenance			
28. Cleaning	14		
29. Other maintenance	14		
30. Access for maintenance	14		

Licensed copy: Techstreet Content, ISO Exchange - Michigan, Version correct as of 15/12/2020. Licensed copy: Techstreet Content, ISO Exchange - Michigan, Version correct as of 15/12/2020.

Figures	Page	Page	
1. Definition of areas H and L for monopitch roofs	16	9. Basic Z_b values for steel bars supporting glass on two edges (conventional patent glazing)	31
2. Distribution of basic wind speed over the United Kingdom	19	10. Basic I_b values for aluminium bars supporting glass on four edges	32
3. Permissible unsupported span of glass between glazing bars for two-edge supported glass (conventional patent glazing)	23	11. Basic Z_b values for aluminium bars supporting glass on four edges	33
4. Permissible area of pane for four-edge supported glass	24	12. Basic I_b values for steel bars supporting glass on four edges	34
5. Aspect ratio factors for four-edge supported systems	25	13. Basic Z_b values for steel bars supporting glass on four edges	35
6. Basic I_b values for aluminium bars supporting glass on two edges (conventional patent glazing)	28	14. Patent glazing calculation sheet (1). Four-edge supported systems	36
7. Basic Z_b values for aluminium bars supporting glass on two edges (conventional patent glazing)	29	15. Patent glazing calculation sheet (2). Four-edge supported systems	37
8. Basic I_b values for steel bars supporting glass on two edges (conventional patent glazing)	30	16. Patent glazing calculation sheet. Two-edge supported systems (conventional patent glazing)	38
		17. Examples of forms of construction for roof walkways	39
		18. Glass wholly or partially within 800 mm of floor (excluding doors and side panels)	43
		19. Side panel and door side panel in patent glazing	43

This Code of practice represents a standard of good practice and therefore takes the form of recommendations. Compliance with it does not confer immunity from relevant statutory and legal requirements.

Foreword

This British Standard is a revision of CP 145 : Part 1 : 1969 which is therefore withdrawn. In accordance with BSI policy, by which all new and revised codes of practice are to be published with BS numbers, this revision has been numbered BS 5516.

In this revision it has been found necessary to include design recommendations both for two-edge supported systems and for other systems now popular in which glass is supported on all four edges.

It should be noted that, in introducing four-edge supported systems into this code, care has been taken to align deflection limitations with those recommended in other codes covering windows. In considering two-edge supported systems, primarily used in roof glazing, the more conventional approach to span-squared relationships has been maintained.

The opportunity has also been taken to provide a graphically based presentation of design data based on the use of the working pressure concept for combining the various loads to which patent glazing is subjected. Appendix F gives a method for determining design requirements and includes worked examples.

BS 5516 : 1977

British Standard Code of practice for Patent glazing

Section one. General

1. Scope

This code deals with patent glazing, sloping and vertical, single and double. Recommendations are given for glazing bars, ancillary components and types of glass most commonly used. Information is also provided on such matters as fire resistance, thermal insulation and the use of special glasses.

Conventionally, patent glazing incorporates support for the glass by the bars along two edges only; but, with the increasing use of patent glazing used vertically in sidewall applications, systems have been introduced using four-edge support and four-edge restraint against positive and negative pressures. Within this code these two systems (two-edge and four-edge) are described as 'conventional' and 'four-edge' respectively.

Forces and pressures are given in metric units. The SI unit of force, the newton (symbol N), has been used. It is that force which, when applied to a body having a mass of one kilogram, gives it an acceleration of one metre per second squared. Further information on SI units is given in BS 3763 and in PD 5686.

2. References

The titles of the standards publications referred to in this code are listed on the inside back cover.

3. Definitions and notation

For the purposes of this code the following definitions apply.

3.1 aluminium wings. Preformed aluminium alloy strips fitted to the sides of the load-bearing element of a glazing bar and bearing on the glass.

NOTE. Aluminium wings are designed to form a barrier to penetration by water and to restrain the glass from moving away from the bar under suction forces.

3.2 bead or glazing bead. A strip of metal, wood or other suitable material attached to the rebate to retain the glass.

3.3 came. A light bar of suitable material used to weather a horizontal butt joint between two panes of glass held vertically in the same plane by glazing bars.

NOTE. A came is usually similar in section to the letter 'h'.

3.4 capping. A preformed metal or plastics strip fitted over the load-bearing element along its length and having the same function as aluminium wings.

3.5 depth of glazing. The distance between the top and bottom extremities of the glazed area measured in the plane of the glass.

3.6 draught fillet. A strip to fill the space between the inside surface of the glass and any principal member.

3.7 flashing. A length of impervious material, usually metal, dressed or fitted in order to exclude water from the junction between patent glazing and adjacent material.

3.8 glazing bar. The member by which the glass is supported, retained and made weathertight, i.e. the load-bearing element, plus any associated capping, wing or fitting*.

3.9 head. A horizontal member often used at the top of a tier or series of tiers of patent glazing.

3.10 lead wing. A projecting lead fin forming an integral part of a glazing bar, dressed down to the glass to form a barrier against penetration by water.

3.11 pane. A piece of glass, cut to size and shape ready for glazing (often called a square).

3.12 pitch. The angle of inclination of glazing bars to the horizontal.

3.13 shoe. A fitting securing the lower end of a glazing bar to a structural member.

NOTE. At the lower end of a bar such a fitting may also act as a stop for the glass.

3.14 sill. A horizontal member often used at the bottom of a tier or series of tiers of patent glazing.

3.15 span. The distance between the centres of upper and lower fixing holes of the glazing bar, measured in the plane of the patent glazing.

3.16 stop. A fitting attached to, or integral with, the lower end of a load-bearing element of a glazing bar to prevent the glass from sliding.

3.17 storm clip. A fitting external to the load-bearing element of a glazing bar to restrain the glass against suction forces.

3.18 transom. A horizontal patent glazing member.

3.19 water channel. A drainage channel within the section profile of the glazing bar, the purpose of which is to discharge water to the transom or to the exterior of the glazing.

3.20 door side panel. A fixed pane or panes of glass which could be mistaken for a door, adjacent to a door glazed into a patent glazing system.

*Also referred to as a mullion when positioned between head and sill.