

DIN 18008-4:2024-12 (E)

Glass in building - Design and construction rules - Part 4: Additional requirements for barrier glazing

Contents		Page
Foreword		5
1	Scope	6
2	Normative references	8
3	Terms and definitions, symbols and units	8
3.1	Terms and definitions	8
3.2	Symbols and units	9
3.2.1	Latin capital letters	9
3.2.2	Latin small letters	9
3.2.3	Greek small letters	9
4	Construction products	10
5	Application conditions	10
5.1	Verification of edge protection	10
5.2	Effectiveness of edge protection strips	10
5.3	Category B glazing	11
6	Effects of actions and verification	11
6.1	General	11
6.2	Ultimate limit state for static actions	13
6.2.1	General	13
6.2.2	Persistent/transient design situation (GZT-P)	13
6.2.3	Accidental design situation (GZT-A)	14
6.3	Ultimate limit state for impacts	14
6.3.1	General	14
6.3.2	Verification of edge protection fulfilled	15
6.3.3	Verification of edge protection not fulfilled	15
Annex A (normative) Verification of the impact resistance of glazing through building component tests		16
A.1	Pendulum impact test	16
A.2	Penetration test	20
A.3	Test report	21
Annex B (normative) Constructions with experimentally verified impact resistance		22
B.1	Linearly supported glazing units of Categories A and C	22
B.2	Point-fixed glazing units of Categories A and C	24
B.3	Linearly supported glazing Category B	26
Annex C (normative) Verification of impact resistance of glass structures by calculation		28
C.1	Calculation principles	28
C.1.1	General	28
C.1.2	Design conditions	28
C.1.3	Exposure to stress	28
C.1.4	Resistance	28

C.1.5	Verification of impact resistance of insulating glass units	29
C.1.6	Verification of impact resistance of laminated safety glass	29
C.1.7	Overlaying of impact loads with other actions	29
C.2	Simplified verification procedure	29
C.2.1	Calculation principles	29
C.2.2	Exposure to stress	30
C.2.3	Verification	30
C.3	Verification by means of fully dynamic transient simulation of impact event	32
C.3.1	General	32
C.3.2	Verification	32
C.3.3	Proof	36
Annex D (normative) Verification of impact resistance of supporting structures		37
D.1	Linear support structures	37
D.1.1	Screwed fastenings	37
D.1.2	Other types of fastening	37
D.2	Point-fixed support structures	37
Annex E (normative) Verification of edge protection by component testing		38
E.1	General	38
E.2	Test procedure	38
E.3	Test report	38
Annex F (normative) Effective edge protection, verified by testing		42
Bibliography		43
Figures		
Figure 1	-- Examples for Categories A, B and C	7
Figure 2	-- Verification for Category A	11
Figure 3	-- Verification for Category B	12
Figure 4	-- Verification for Category C	13
Figure A.1	-- Diagram of pendulum impact apparatus	16
Figure A.2	-- Detail of impact body	17
Figure A.3	-- Examples of impact surfaces	19
Figure A.4	-- Testing apparatus for penetration test	21
Figure B.1	-- Permissible deviations from the rectangular shape illustrated by the example of a glazing unit supported on two sides	22
Figure B.2	-- Dimensions and configuration of point-fixed glazing	25
Figure B.3	-- Permissible deviations from rectangular shape	27
Figure B.4	-- Schematic diagram of Category B glass parapet	27
Figure C.1	-- Impact transmission coefficient for glass sheets linearly supported on two sides depending on the equivalent stiffness $k_{Glasplatte}$	31
Figure C.2	-- Acceleration sequence of the pendulum body in the case of impact against a rigid wall	32

Figure C.3 -- Acceleration sequence of the pendulum body in the case of impact in the centre of a glass sheet supported on four sides with the dimensions 876 mm × 1 938 mm, glass thickness $t = 8$ mm	33
Figure C.4 -- Main stress sequence in the centre of a glass sheet on the side less likely to receive impact in the case of mid-sheet impact against a glass sheet supported on four sides with the dimensions 876 mm × 1 938 mm, glass thickness $t = 8$ mm	34
Figure C.5 -- Acceleration sequence of the pendulum body in the case of mid-sheet impact against a glass sheet supported on two sides with the dimensions 700 mm × 1 000 mm, glass thickness $t = 8$ mm, span 1 000 mm	35
Figure C.6 -- Main stress sequence in the centre of a glass sheet in the case of mid-sheet impact against a glass sheet supported on two sides with the dimensions 700 mm × 1 000 mm, glass thickness $t = 8$ mm, span 1 000 mm	36
Figure E.1 -- Location of impact points for a hard impact, illustrated by the example of a horizontal glass edge	39
Figure E.2 -- Location of impact points for a hard impact, illustrated by the example of a vertical glass edge	40
Figure E.3 -- Definition of surface of the edge and corner of the edge	41
Figure F.1 -- Edge protection	42
Tables	
Table A.1 -- Pendulum drop heights h for the categories for various scenarios	18
Table B.1 -- Linearly supported glazing units with verified impact resistance	23
Table B.2 -- Point-fixed glazing units with verified impact resistance	25
Table C.1 -- Modification factors k_{mod} for impact stress with light impact	29