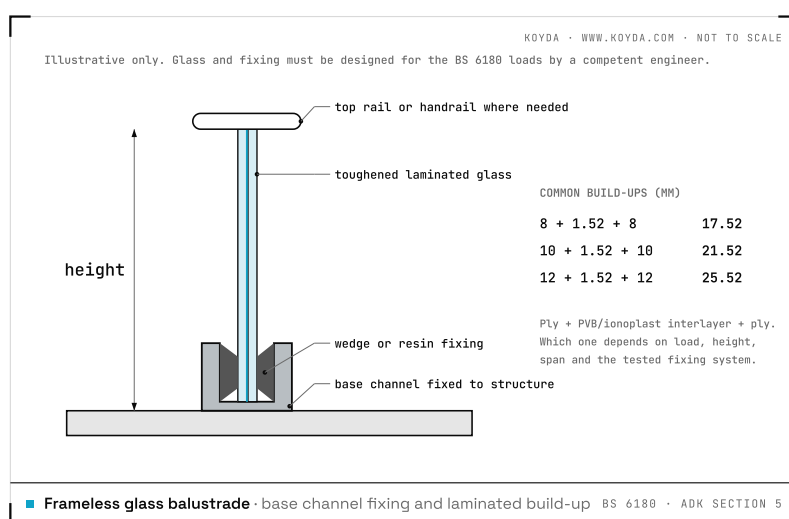


TECHNICAL GUIDE · QUICK REFERENCE

Glass Balustrade Thickness and Fixing

Frameless glass balustrades commonly use toughened laminated glass of 21.52mm (two 10mm plies and a 1.52mm interlayer) for loads such as 0.74 kN/m, and 25.52mm (two 12mm plies) for higher loads such as 1.5 kN/m. The right thickness depends on the BS 6180 load, height, panel width and the tested fixing system, so it must be confirmed by structural calculation.

BUILD-UP (MM)	TOTAL (MM)	TYPICAL USE	SOURCE
8 + 1.52 + 8	17.52	Infill panels in framed or post-and-rail systems	Manufacturer data
10 + 1.52 + 10	21.52	Frameless, e.g. 0.74 kN/m residential loads	Manufacturer data
12 + 1.52 + 12	25.52	Frameless, higher loads e.g. 1.5 kN/m	Manufacturer data
Interlayer	PVB or ionoplast	Ionoplast is stiffer and stronger after breakage	Manufacturer data



Fixing systems

- Base channel: glass clamped in a continuous aluminium or steel channel with wedges or resin. Common for frameless glass.
- Spigots: individual clamps at intervals. Usually needs a top rail or capping to link panels.
- Bolt-through or standoff fixings: glass drilled and bolted to the edge. BS 6180 Annex B covers bolt fixing of glass.
- Framed and post-and-rail: posts and rails carry the line load; glass is the infill.

What decides the thickness

- The BS 6180 occupancy load (line load, infill load and point load).
- The barrier height and the width of each panel.
- Whether there is a handrail or top rail linking the panels.
- The tested capacity of the fixing system, and the structure it is fixed into.
- Wind load for external and high-level barriers.

Structural calculations

Thickness tables published by manufacturers apply only to their own tested systems. For each project, a competent engineer should confirm the glass, fixing and supporting structure for the actual loads. See also glass balustrade specification and balustrade heights and loads.

Common questions

How thick should a glass balustrade be?

For frameless glass in homes and similar loads (0.74 kN/m), 21.52mm toughened laminated glass is common. For public areas and 1.5 kN/m, 25.52mm is common. The actual thickness must come from calculations or test data for the specific fixing system, height and panel width.

Does a glass balustrade need a handrail?

Approved Document K says free-standing glass without an independently supported handrail should be toughened laminated, so the barrier stays in place if one ply breaks. Some designs add a top rail or handrail to link panels. Stairs also need a handrail for people to hold.

What loads must a glass balustrade take?

BS 6180 Table 2 sets a line load at the top, a distributed load on the infill and a point load, by occupancy. For example 0.74 kN/m, 1.0 kN/m² and 0.5 kN for many residential balconies, and 1.5 kN/m, 1.5 kN/m² and 1.5 kN in many public areas.

Sources

1. BS 6180:2011 barriers in and about buildings: code of practice, Table 2 loads, clause 8 glass, Annex B bolt fixing (BSI)
2. Approved Document K: protection from falling, collision and impact (2013 edition, GOV.UK) · <https://www.gov.uk/government/publications/protection-from-falling-collision-and-impact-approved-document-k>
3. Balcony Systems: glass balustrade technical specification (example manufacturer build-ups and BS 6180 loads) · <https://www.balconette.co.uk/glass-balustrade/technical-specification>
4. White Metal: Defender BS 6180 load table (example of tested glass and fixing capacities) · <https://www.whitemetal.co.uk/wp-content/uploads/BS6180-Defender-Load-Table-Full.pdf>

Full guide: www.koyda.com/guides/glass-balustrade-thickness-and-fixing/

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