

Aluminium Balustrade System

Compliance & Load Data Sheet — DIY self-install guarding for domestic use (posts, rail kits & gate)

This aluminium balustrade system is designed and tested in line with BS 6180:2011, the British Standard for barriers in and around buildings. It has been load-tested and certified for domestic (single-family dwelling) use — resisting a horizontal line load of 0.36 kN/m — and, when installed to the conditions in Section 4, provides a finished guarding height of 1100 mm with an infill that prevents a 100 mm sphere from passing through.

01 PRODUCT & MATERIAL SPECIFICATION

System type	Modular guarding — posts + horizontal rail kits with vertical pickets
Material / grade	Aluminium alloy 6005
Finish	Powder-coated matt black, RAL 9017 (durability-tested — see Section 6)
Post	75 × 75 mm square · 1140 mm to cap · base plate 120 mm square
Finished guarding height	1100 mm
Rail kit length	1829 mm (single supplied length)
Maximum post span	1829 mm centre-to-centre
Infill / picket spacing	Vertical pickets at 96.5 mm — 100 mm sphere cannot pass
Gate	1168 mm overall (≈ 1190 mm opening)
Fixings	Fixing bolts not supplied — substrate-appropriate fixings by installer (see Section 4)

02 APPLICABLE STANDARD & SCOPE

BS 6180:2011 — Barriers in and around buildings — Code of practice. Governs the design geometry and the horizontal imposed loads a barrier must resist.

- Horizontal design loads are those given in BS EN 1991-1-1 and its UK National Annex, applied by use class (see Section 3).
- Certified use: domestic / single-family dwellings — private houses, private balconies and domestic decking. Higher use classes (communal, commercial, crowd areas) are not covered by the current test.
- Not covered by this sheet: the adequacy of the supporting structure (deck, wall, slab) or the substrate fixings, which are the responsibility of the installer / building designer.

03 LOAD PERFORMANCE

BS 6180 / BS EN 1991-1-1 set a required horizontal line load applied at the top of the guarding, by use class. The class certified by test report AR210 is marked below.

USE CLASS (BS EN 1991-1-1)	REQUIRED LINE LOAD	STATUS
Single-family dwellings — private houses, balconies, domestic decking & stairs	0.36 kN/m	✓ Certified
Other residential / office / communal, not prone to overcrowding	0.74 kN/m	Not tested
Areas prone to overcrowding (assembly, retail)	1.5 kN/m	Not tested
Areas susceptible to large crowds	3.0 kN/m	Not tested

Infill was also tested: a 0.25 kN point load and a 0.5 kN/m² area load applied to the pickets — both passed (see Section 5). The certified performance is valid for the tested configuration and for the sold configuration within its stated limits (Section 4).

04 CONDITIONS OF COMPLIANCE (INSTALLATION)

- Maximum post span 1829 mm centre-to-centre — do not exceed. (The system was tested at a wider 2438 mm span, so the 1829 mm sold span is more conservative.)
- Posts fixed to a sound, load-capable substrate using fixings rated for the applied load and base material (timber, concrete, steel). Fixing bolts are not supplied.
- Finished guarding height maintained at 1100 mm above the finished floor / nosing line.
- Infill and picket spacing left unmodified so a 100 mm sphere cannot pass.
- Installed in accordance with the supplied installation instructions.
- Domestic use only — for communal, commercial or crowd areas, refer to a building designer; the current certification does not extend to those classes.

05 TEST & ENGINEERING EVIDENCE

Structural test report	AR21020190724 — “The Outdoor Look Aluminium Railing AR210” · Order 190613
Test date / report date	22 Jul 2019 / 24 Jul 2019
Reported / reviewed by	Hou Yongjian / Joanna Ren (manufacturer test report)
Tested configuration	Level railing 1067 mm H × 2438 mm W span · pickets 98 mm · post HPD1082 · bracket & screw 8-3/4
Horizontal line load — 0.36 kN/m	Applied 0.87 kN over 2.438 m; held >1 min, no obvious deformation — PASS
Infill point load — 0.25 kN	Held >1 min, no obvious deformation — PASS
Infill area load — 0.5 kN/m ²	Held >1 min, no obvious deformation — PASS
Overall conclusion	PASS
Current-product cross-check	Sold configuration (1829 mm span · 1100 mm H · 96.5 mm pickets) confirmed as covered — sold span is shorter, hence more conservative, than the 2438 mm tested span

06 FINISH DURABILITY, WARRANTY & SUITABILITY

- Powder-coat finish independently batch-tested — coating report by Delta Aluminum (Thailand), 22 Jun 2023: film thickness 60–120 µm, with cross-hatch adhesion, impact resistance, hardness, hydrochloric-acid resistance and boiling-water resistance all passing.
- 10-year warranty against material and finish defects (see full warranty terms).
- Suitable for domestic single-family use per the certification in Section 3, when installed to Section 4.
- Where a project's loading, structure or use falls outside the certified domestic configuration, the building designer should confirm suitability.

Important: this data sheet describes the aluminium guarding system only. Responsibility for the supporting structure, substrate fixings, and confirming the correct use class for a given project rests with the installer or building designer. Required loads are the values set by BS 6180:2011 / BS EN 1991-1-1; the system's certified performance (0.36 kN/m, domestic) is on the basis of manufacturer test report AR210 (2019) referenced in Section 5. Finish-durability results are from the Delta Aluminum coating test (2023).