

Ladder access balcony - Specification guide

1. Materials

Only materials that are not subject to corrosion can be used, including extruded profiles and plates of high resistance aluminum alloy, anodized 10 micron, natural mat finishing, and fasteners of stainless steel, A2-70 DaN/mm².

No protective treatment, painting or maintenance is required, except when exposed to aggressive environments.

Welding is not allowed. Only the corners of landing frames, that are cut at a 45° angle, can be reinforced by welding.

Besides for fasteners, steel is excluded, except in cases of extreme span, in which case an adequate isolation between steel and aluminum shall be applied, to prevent any electrolytic coupling.

The access balcony can be factory painted in any RAL color by polyester powder coating.

2. Composition

The balcony is partly pre-assembled in the factory, using bolts and rivets. Final assembly is executed on the construction site. The balcony is fixed to the wall using bolts and aluminum alloy profiles.

2.1. Landings

The frames of the landings are composed of hollow profiles of 208mm x 30mm x 2mm (8.2" x 1.2" x 0.1") with double chambers. Joists of at least 60mm x 20mm x 2mm (2.4" x 0.8" x 0.1"), spaced at no more than 30cm, are fixed in this frame. These joists support a deck made of aluminum alloy tread plates that are perforated to drain rain water. The tread plates are riveted to the joists. The allowed tread plates are either 5 bar pattern plates with thickness 2.5mm to 4mm (0.1" to 0.2") or plates with perforations (9mm and 14mm (0.4" and 0.6")) with standing edge and thickness 3mm (0.1").

2.2. Guardrail

The guardrails are linked. They are made of a handrail of at least 50mm (2") wide with rounded edges and a radius of at least 1.5mm (0.06"). They are mounted onto hollow pickets of 60mm x 25mm x 3mm (2.4" x 1" x 0.1") with rounded edges. The pickets are fixed in the landing frames at least every 74cm (2' 5").

In between these pickets is constructed one of the following:

- A guardrail with three round tubes of 18mm x 2mm (0.7" x 0.1"), set parallel to handrail and running through pickets
- A guardrail with square tubes of 25mm x 25mm x 1.5mm (1" x 1" x 0.059") with rounded edges, set parallel to pickets and spaced at 11cm (4"); these tubes are fixed into the handrail at the top and in a square tube of 30mm x 30mm x 2mm (1.2" x 1.2" x 0.1") at the bottom; pickets run through this tube;
- A custom-made guardrail according to agreed specifications.

The height of the guardrail is at least 1m (3' 0") on the landings.

The handrails are at least 40mm (1.6") cleared from all obstacles.

2.3. Supporting structure

The supporting structure of a balcony consists of columns or wall bracings. The columns or bracings are made of U-shaped or L-shaped channels of appropriate sizes, with rounded edges. They provide the required mechanical resistance. The columns are constructed on an adequate foundation. The wall bracings are fixed to the wall by anchor bolts of adequate sizes and numbers.

3. Mechanical properties

The balcony can support a uniformly distributed load of 500 Kg/m² (1100 lb) on the landing as well as a point load of 200Kg (440 lb) applied anywhere on landing deck (standards NBN 1-50 and NFP 06-001).

The guardrails withstand a horizontally applied uniform load of 100 Kg/m (220 lb) without permanent deformation (standards NBN 03-103, NFP 06-001 and NFP 01-012).

The manufacturer will share calculations of stability, deformations, and stresses on request.