

## INSTALLATION MANUAL FOR ALUMINUM CONSTRUCTIONS

Aluminium profiles, details, filling elements, glass, windows, and doors can be transported using any means of transportation, provided they are protected from dirt, dust, and the possibility of damage during transport.

### Installation guidelines on the construction site

Modern aluminium windows and doors retain their excellent operational properties if properly installed in the building walls. The design of the connection between the window or door and the building is the responsibility of the designer and depends on individual project solutions. The connection should ensure tightness, thermal insulation, and proper load transfer to the load-bearing structure. The following activities affect the correct installation of the product:

#### 1. Preparation of the opening in the building wall

The opening in the wall where the window or door is to be installed should have dimensions significantly larger than the external dimensions of the frame. The size of the gaps between the aluminium frame and the wall depends on the length of the profiles, their colour, and the method of filling the gaps. The opening angles should be 90°, and the diagonals should not differ by more than 1 cm, which can be easily checked using a tape measure or string. If the corners of the opening do not form a right angle, it can lead to deformation of the frame's geometry, affecting the functionality of the entire product. All internal surfaces of the opening should be as smooth as possible and free of defects. The bottom surface of the opening should be horizontal, uniform, even, and constructed from a material layer on which the product can be stably supported.

#### 2. Positioning the frame in the wall

Place the window or door on a load-bearing threshold that ensures continuous load transfer, thermal insulation, and level retention (maximum inclination is 0.5 mm/1 m length of the threshold). The position of the window or door relative to the wall should ensure that the 10°C isotherm passes through this structure. Only then can we prevent the condensation of water vapor on the inner surface of the product under normal usage conditions. In a multilayered wall insulated with mineral wool or polystyrene, this isotherm is located within the insulation material, so the installation should be made at its depth. In the case of externally insulated walls, it is recommended to install aluminium structures close to the outer insulation layer. The gap between the frame and the wall on both sides should be equal and allow for the free compensation of the thermal expansion of the product.

#### 3. Fixing the product in the wall

It is recommended to fix windows and doors using steel anchors or plugs and stainless steel or galvanized screws and using supporting blocks. The fastening must ensure the transfer of external loads to the building structure, while the functionality of doors and windows must be maintained (smooth door and window operation when opening and closing). At least 2 fixing points should be used on each side of the structure. When selecting fasteners, take into account the manufacturer's recommendations found in their catalogue.

#### 4. Adjustment of fittings

After installing the wings, adjust their position relative to the frame and adjacent wings using fittings adjustment (hinges, espagnolettes), then adjust the fittings themselves (strikes, bolts). The wings should be levelled, and the gaps between the profiles of adjacent wings should be uniform.

#### 5. Product insulation

Insulating the space between the frame and the wall aims to protect against water ingress, both from the external side and water vapor from the internal side, and provides thermal and acoustic insulation. To achieve this, mineral wool, mounting foam, polyethylene rolls, silicone compounds, expansion tapes, vapor-permeable and vapor-sealing films are most commonly used. The insulation layer around the frame should be uniform, without gaps, and of the same thickness. On the external side, vapor-permeable insulation should be applied, paying particular attention along the lower frame and corners. Ensure excellent insulation to prevent the penetration of vapor on the inner side of the installation gap. If window recesses are plastered after installing

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the aluminium construction, doors or windows should be protected to prevent the plaster from contacting the product surface.

## 6. Maintenance

Anodized or painted aluminium profiles should be cleaned with a soft cloth using mild detergents. Do not use strongly alkaline or acidic solutions, as they can damage the anodic or painted coatings. Cleaning agents with a pH below 5 or above 8 should not be used. During cleaning, the temperature of the coatings and water should not exceed 25°C. After each cleaning, the surface must be immediately rinsed with clean cold water. Regular cleaning prevents the formation of stubborn, difficult-to-remove stains. Maintenance of fittings should be carried out according to the recommendations of their manufacturers.

### ATTENTION!

Lime, cement, alkaline substances, and cleaning agents (such as bleach, abrasive pastes) have a particularly harmful effect on aluminium profiles, especially on protective decorative surfaces. Therefore, finishing "wet" work should be minimized. If mortar comes into contact with the aluminium surface, it should be immediately removed before it hardens. Failure to rinse may result in permanent discoloration and surface damage. In places where the aluminium surface comes into contact with other metals or their alloys, electrochemical oxidation of aluminium occurs. This corrosion occurs particularly quickly in conditions of high humidity. Therefore, aluminium should always be separated from other metals with an insulating layer.

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