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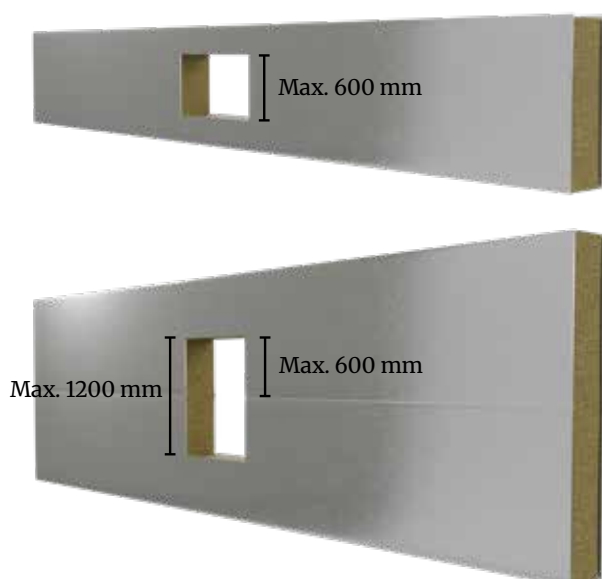


**Panel
openings**

Openings in sandwich panel walls and reinforcement methods

When planning openings in sandwich panel walls, several variables must be taken into account. These include the opening's geometry and size, its position on the facade, and the wind loads acting on the facade.

We present three different methods here; their areas of application and properties are described in more detail below. Methods 1 and 2 transfer the load to the adjacent sandwich panels. Areco's design department monitors these loads on a case-by-case basis.

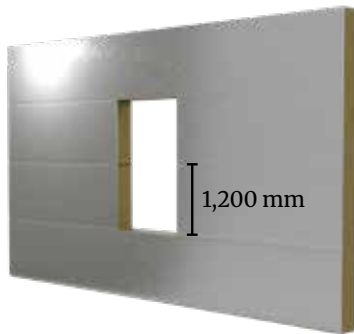


Method 1 No reinforcement

Without separate reinforcement, openings can be made in sandwich panels up to a maximum height of 50% of the panel's height (see figure 1). This allows openings without the need for reinforcement structures around them. However, additional loads transfer to the adjacent full panels, which may require a denser core material in these adjoining panels. Using this solution, the opening's maximum width is 2.5 times its height.

Method 2

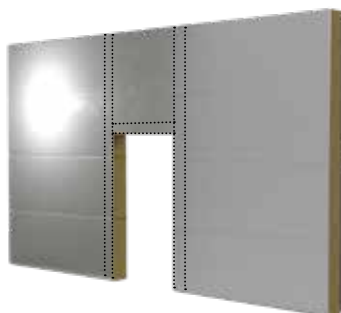
U-profile reinforcement



Method 2a

Windows with factory-fitted U-profile frames

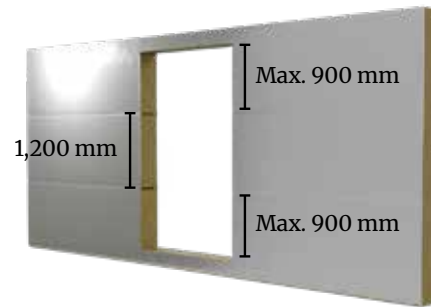
Use this method for openings up to two panels high, when using windows specifically designed for sandwich panels. These windows have integrated U-profiles that form a rigid frame. This design supports the window and prevents deformation between the sandwich panels and the window itself.



Method 3

Reinforcement with a steel frame

If the methods described above are not suitable for the project, use a steel frame to reinforce the openings. The steel frame supports the cut panels, so that no additional loads transfer to the adjoining sandwich panels.

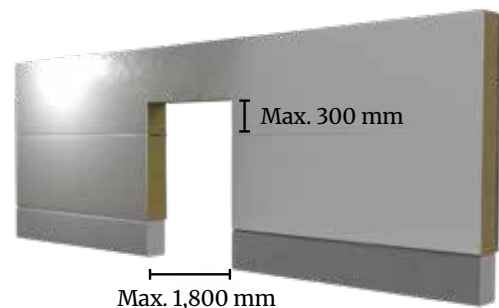


Method 2b

Openings reinforced with U-profiles supplied by Areco

If the window does not have a ready-made frame, reinforce the opening with U-profiles supplied by Areco. This solution requires Areco's structural calculations and data on the window's permitted deflection (usually $L/1000$) to ensure tightness.

The opening may cut through one full panel and 3/4 of the adjacent panel at most. The maximum width of the opening is usually 2–2.5 metres, depending on the capacity of the profile.



Doors and gates

Always reinforce doors and gates with a steel frame according to method 3. However, studies have shown one exception: if the wall's concrete plinth is high enough that the opening, measured from the plinth, cuts through only one full panel plus 300 mm of another panel, you can reinforce a pedestrian door with U-profiles supplied by Areco.

Areco Profiles is one of the leading manufacturers of steel sheet for construction.

We offer the construction industry a comprehensive range of facade and roof products with flexible delivery times and a wide choice of colours.

We have five factories in four countries.

Contact your local sales representative for more information.

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