

Reinforcing façades

When developing its MB Skyline Type-R sliding window system Aluprof encountered challenges with structural stability, thermal performance, and aesthetics, leading it to explore alternative materials to solve these issues, Ed Humpries writes

To solve the problem Aluprof partnered with composites manufacturer Exel Composites to combine aluminum structures with glass fiber-reinforced polymer profiles (GFRP), maximizing performance without compromising on design.

Modern façade and sliding systems take a minimalist approach, consisting mostly of glass with limited visible frames. Traditional materials are pushed to their limit in high-end window systems, struggling to maintain performance under thermal pressure and extreme weight. The MB Skyline Type-R is a panoramic sliding system used in modern buildings to create large glass openings, creating a natural transition between indoor and outdoor spaces.

When developing MB Skyline Type-R, Aluprof needed to maintain structural integrity to support panel weights of up to 1,200 kg and heights up to four meters. Aluminum alone could not meet performance demands, with limitations in thermal performance and stability at large scales. Traditional solutions would have introduced additional complexity, with potential impacts on system performance and manufacturing efficiency.

To overcome these challenges, Exel Composites introduced GFRP profiles to complement the aluminum system. The profiles enhance thermal insulation (0.3–0.5 W/m²K), reducing heat loss at critical junctions. When bonded with the glass, the system acts as a single structure, ensuring structural stability even under extreme loads. Composite materials require no additional surface treatments to achieve corrosion resistance, limiting any



impact to system performance and simplifying production.

“The partnership with Exel led to a huge success with the Skyline Type-R product,” says Michal Marcinowski, sales and business development leader at Aluprof. “Exel was instrumental from the moment of its involvement, assisting with material selection and system design. Its consultancy allowed us to meet structural, thermal, and aesthetic requirements.”

The success of the Skyline product has led Aluprof to consider integrating composite profiles into other product lines, including windows, doors, and façades. The company has expanded its capabilities through the partnership, reaching new high-end markets and developing in-house expertise in composite materials.

Composite profiles are solving architectural challenges by ensuring high strength-to-weight ratios across building systems, while staying lightweight and ensuring durability in harsh environments. □

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