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Eco-Design Guidance for Circular PVC Window Systems - Executive Summary

This guidance supports the implementation of the **Ecodesign for Sustainable Products Regulation (ESPR)** by providing practical recommendations for applying eco-design principles to PVC window systems throughout their life cycle. It complements existing legislation and standards by promoting a common understanding of best practices across the European PVC window industry.

The guidance recognises that PVC window systems already contribute significantly to the circular economy through their **long service life, durability and well-established collection and mechanical recycling systems**. Eco-design should therefore build on these strengths by balancing product longevity, resource efficiency, repairability, recyclability and the responsible use of secondary materials. Circularity depends not only on product design but also on efficient collection, dismantling and recycling once products reach the end of their service life.

The ESPR establishes the regulatory framework for future eco-design requirements, while related legislation, including the **Construction Products Regulation (CPR), Waste Framework Directive, Waste Shipment Regulation and REACH**, governs product performance, recycling and the safe use of recycled materials. Existing circular systems should be strengthened rather than replaced, recognising that the availability of recycled material depends on the quantity of products reaching end of life.

The guidance identifies several key eco-design principles. Products should be designed for **durability**, ensuring long-term structural, thermal and mechanical performance while facilitating maintenance, repair and refurbishment where technically feasible. Design should also support efficient disassembly, minimise unnecessary material use and manufacturing waste, improve recyclability and facilitate future circular business models, including refurbishment, component replacement and closed-loop recycling.

Efficient circular material flows require improved **material identification, traceability and compatibility** with existing recycling technologies. Product design should facilitate dismantling and the recovery of high-quality secondary materials while supporting Europe's established collection and mechanical recycling infrastructure. The guidance also highlights the importance of managing legacy additives in accordance with REACH and improving transparency throughout the value chain.

The responsible integration of **secondary materials** should maintain product performance, durability and regulatory compliance. Manufacturers are encouraged to optimise the use of recycled materials, implement robust quality assurance and improve traceability, while recognising that eco-design alone cannot increase the availability of post-consumer recycled material.

Successful implementation requires eco-design to be integrated from the earliest stages of product development and throughout manufacturing, installation, maintenance, refurbishment and end-of-life management. Manufacturers should continuously improve material efficiency, reduce waste, enhance recyclability and cooperate with recyclers and other stakeholders to strengthen existing circular systems.

Finally, the guidance emphasises that achieving a circular economy requires **collaboration across the entire value chain**, including manufacturers, recyclers, suppliers, the construction sector, policymakers, standardisation bodies and research organisations. A balanced, evidence-based regulatory framework that supports durable products, efficient recycling infrastructure, innovation and markets for secondary raw materials is essential to maintaining the competitiveness and sustainability of the European PVC window industry.