

# Better multilayer performance

Boards and panels manufactured from wood-plastic composites using conventional techniques have been at a disadvantage in terms of performance compared to 100% wood materials – until now.

Advances made by Conenor have given WPC new muscle.



Conenor's new technology for producing flat multilayer panels features a cast die design, together with a twin-rotor Conex® Wood Extruder CWE 500-2.



The WPC materials produced using the process offer good strength and superior moisture absorption performance.

Conventional compression techniques, combined with relatively low wood content, have a history of resulting in WPC panels that offer inferior performance in terms of rigidity and thermal stability compared to materials such as plywood and oriented strand board (OSB). Conenor decided that something could be done about this, using its industry-leading extrusion know-how.

By combining multiple material layers, a high wood content of up to 70%, a long fibre aspect ratio and fibre cross-orientation, and efficient component mixing, Conenor has been able to avoid inducing excess shear heat, and also offer superior moisture absorption performance.

Working with Maillefer Extrusion, Conenor has developed a new cast die process, featuring a twin-rotor Conex® Wood Extruder CWE 500-2, for producing high-quality, flat multilayer WPC panels, initially at widths of 600 mm.

This CWE process is ideal, for example, for reducing the weight of WPC panels, and can be used to produce both hollow boards with fingered dies or foam-core sandwich structures.

Conenor's preferred solution is a foam-core sandwich structure (EWPC, expanded WPC) comprising a core manufactured from a 50/50 wood-plastic mix, for example, at densities as low as 0.5 g/cm<sup>3</sup>, and a solid surface incorporating a wood content of more than 70%.

Seamlessly coating the sides of the panels with the same moisture-resistant WPC material as the top and bottom provides an excellent all-round moisture barrier.

## Thinking outside the box

Conenor and Maillefer Extrusion operate a dedicated Conex® Skill Center in Greater Helsinki for developing and commercialising the technology.

The Skill Center focuses on helping customers in product development work and material trials, in cooperation with raw material suppliers and/or research institutes where appropriate. Particular attention is given to the potential for using by-products and waste streams, where this can be done at minimal cost without the need for major capital investments.

One example of a material that can be used in this way is the plastic- and aluminium-coated fibre material found in beverage cartons, which can be used as such to manufacture moisture-resistant board, panels, and profiles for the construction industry.

Dust and residue generated in manufacturing MDF can also be used to produce WPC materials.

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