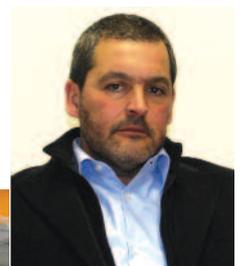


# The future of sandwich shells starts here

TecnoWall is an Italian company specializing in the production of sandwich panels for motorhomes. It has introduced innovative systems and technologies in a sector that is traditionally very conservative: from bi-component bonding to reinforced polyurethane strips for shell frames.



Yuri Pierini  
Sales Manager

Words Antonio Mazzucchelli

Even in a manufacturing sector that evolves slowly, such as for recreational vehicles, something is changing. There are actually quite a few transformations under way, and it would appear that the time has finally arrived for vehicle shells. The primary players in this process are not just the vehicle manufacturers, but also outside suppliers, those who specialize in a particular area of production. This is precisely the case of TecnoWall, who have made the production of shell panels their main line of business.

TecnoWall is based in Tuscany, where the majority of Italy's motorhome manufacturers are located, and over the course of its fifteen years in business, the company has consistently perfected its products, with new materials and assembly techniques. The recreational vehicle sector is certainly a priority for TecnoWall, in spite of the fact that the factory located in Poggibonsi also manufactures products for naval shipyards and transportation vehicles, in addition to components for pre-fabricated and mobile homes. "We began working with some historic Italian manufacturers such as Arca and Mirage," explains Yuri Pierini, owner and sales manager at TecnoWall, "and then expanded our customer portfolio, working with the likes of Sun Roller, SEA, Itineo, Eura-Mobil, Rimor and many others."



"I'm increasingly convinced that in light of the events of the past few years, it isn't convenient for a motorhome manufacturer to have an in-house production department for panels, because it means having to sustain very high fixed costs. A company's flexibility to market fluctuations are certainly also influenced by this area of production, and a specialized company such as TecnoWall manages to do more and better with less people. The reason is the know-how we've

acquired over fifteen years in the business, working for a global customer base, employing different types of technology and materials, and creating various types of panels for sectors with different concepts and philosophies." To this we can obviously add one of the elements typical of a small to mid-sized company: its production flexibility, a *modus operandi* that allows it to tackle demands from customers in short time spans, and with variations on traditional processing

## Company Profile

TecnoWall was founded in 2001 in Tavarnelle Val di Pesa, initially working with manufacturers such as Arca and Mirage, supplying sandwich panels for motorhome shells. In 2006, the production site was transferred to Poggibonsi, and in 2009 the production surface area was doubled. Today, the company employs about twenty people, availing itself of a covered production structure of 5,800 sq m. TecnoWall manufactures shells for recreational vehicles, supplying vehicle outfitters with sandwich panels for walls, roofs and floorings. It makes use of a variety of internal materials: from traditional expanded polystyrene (EPS) to more modern extruded polysty-

rene foam (XPS), as well as closed cell PVC, PU and honeycomb polypropylene. Traditional wooden battening is combined with frames in polyurethane strips, and even polyurethane with embedded metal reinforcements. With an extensive presence in the European recreational vehicle market, TecnoWall also maintains business relations with manufacturers in China, Australia and South Africa. Although the motorhome sector is its predominant line of business, the company also supplies naval shipyards and heavy transportation vehicles, in addition to producing panels for pre-fabricated and mobile homes. TecnoWall has obtained UNI EN ISO 9001:2000 certification.

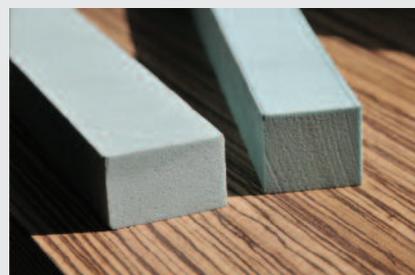


## Tecnoplast and Fibroplast: innovation in frames

TecnoWall is thus looking to the future, by introducing innovative products and technologies, and investing in a sector that has remained anchored to its past for too long a time.

"With the advent of inert materials capable of replacing wooden frames inside the shell," continues Yuri Pierini, "there was a real innovation in a sector that has been building in the same way for the past thirty years. Wood is a fantastic material, but it presents a variety of problems: it shrinks under high temperatures and expands when there's humidity in the air, and unfortunately these changes will "mark" the sides, with clear traces of battening beneath the fiberglass and aluminium. This is why several years ago we believed it would be possible to bring in to the motorhome sector some of the advanced technologies already making headways in the naval industry, by eliminating wood and adopting high performing materials and adhesives that are non water degradable."

TecnoWall has two advanced product lines, designed specifically to replace the traditional wooden battening inside the side panels, roof and flooring. TecnoPlast is a polyurethane compound that employs only original materials, using no recycled mate-



rials. It is produced in various densities, but the most common are 350, 400 and 450 kg/cubic m. Dimensionally stable, with operating temperature limits of  $-40/+100^{\circ}\text{C}$ , it is not subject to rotting because it absorbs very little water. TecnoPlast 400, for instance, according to EN 12087, has a dimensional variation of less than 0.2% after 24 hours in water, and a long term water absorption rate under 2.5%. Compared to its density, its capacity as a thermal insulator appears excellent: using the intermediate product TecnoPlast 400 as a reference once again, we have a thermal conductivity of 0.052 W/mK, with a linear thermal expansion coefficient of 0.112%. The mechanical properties are excellent, with a compressive strength greater than 10500 kPa and a

flexural strength greater than 14 N/mm<sup>2</sup> (TecnoPlast 400, values according to ISO 844 and UNI En ISO 178). Yet another hi-tech advanced product as an alternative to wood is FibroPlast: conceptually similar to TecnoPlast, it is instead combined with about 30% fiberglass. This allows for a roughly 30% reduction in weight compared to all other materials designed for the same purpose, providing unattainable structural performance for non-reinforced products. "Today, we have a range of products that act as an alternative to traditional wooden frames and are highly performing," concludes Yuri Pierini, "and we're prepared to work alongside vehicle manufacturers to create shells that are even more evolved, improving on transmittance and weight specifications, for instance."



outlines, incorporating changes and customizations to the final product. TecnoWall can process a customer's order in four weeks' time, which is quite an achievement. This is possible thanks to three bonding lines, in addition to three pantograph cutting areas. A traditional bonding line is one that uses liquid polyurethane cement, with a subsequent pressing by a steel press with heated platens. It's a widely used system and extremely versatile, which can be used for just about everything. A hot melt system was added to this, using a thermal fuse adhesive:

the process makes use of an environmentally friendly adhesive, free of volatile organic compounds and applied at a high-speed, allowing for contained costs and significant production volumes. But the highlight of TecnoWall's manufacturing process is without a doubt the bi-component adhesive production line.

"Bi-component is the best structural bonding system," affirms Yuri Pierini, "and it was created to produce loading cells for large transport vehicles. It's a system that guarantees a robust frame, to the point

where these cells fitted onto trucks can even sustain heavy loads, fitted from the inside, without any danger of tearing or breaking. With bi-component bonding, and with equal resistance, we can save up to 25% in the amount of material used. As an example, over an average motorhome floor, this translates into a savings in weight of between 10-15 kg. We've invested a great deal on this advanced bonding system: a technology that exists only here at TecnoWall, at a European level, and in the recreational vehicle sector."

