CASE STUDY

Eco-friendly composite housing solution

At first glance the three-bedroom bungalow’s appearance is unremarkable. But its structure is wholly unique: entirely made with ArmaForm cored structural insulating panels. Armacell in action.

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WELCOME TO 39 SUNSET LANE

Located on the Meteghan River waterfront on Nova Scotia’s southwest shore, the 2,000-square-foot beachfront home looks like any other. It has a kitchen, three bedrooms, bathrooms and a roof, and from a distance it looks like it might be made of wood. Far from it, however, the conventional design hides a unique structure: it is the first structural insulated panels (SIP) home using ArmaForm core material, made of 100% recycled PET. Or as the builders, Joel German and David Saulnier, say: “Whereas such kind of homes are usually built of wood, shettroc and bricks, this is made from 612,000 recycled plastic bottles and is the first of its kind.”

**Panels strong enough to withstand a hurricane**

Although the ArmaForm cored roof and wall panels are lightweight, they proved to be strong. An 8 x 8 foot wall panel (2.4 x 2.4 metres), weighing only 80 pounds (36 kg/m²), withstood speeds of 326 mph (524 km/h) in a wind tunnel test chamber. **Twice as strong as a Category 5 hurricane!**

David Saulnier, President JD Composites, says: “They basically couldn’t destroy the panel, although the testing machine was at maximum power. They had never loaded a panel by hand in the test chamber that they couldn’t break, ever. Ours was the first.”

**Assembled in less than a day**

The build also came together very quickly. The entire 2,000-square-foot structure consists of around 170 panels, each designed for a different position. The panels were manufactured by three people in three weeks and the assembly itself was completed within 14 hours!

**Built for generations to come**

ArmaForm is a closed-cell material. Even if something punctures the skins of the wall or roof panels and humidity passes through the core, ArmaForm maintains its functionality and shape. It is impermeable to water and moisture absorption and prevents degradation of the panels’ structural and insulation properties, unlike conventional materials.

In warmer and more humid climates, ArmaForm is resistant to rot, mildew and termites. Additionally, it can bear heavier loads than a wood, steel or concrete structure, and thus easily supports thick ice and snow loads in winter. JD Composites states that their house is a truly “lock up and leave” home that requires no maintenance during unattended periods and has a life expectancy of over 250 years.

**Tackling plastic pollution**

With this new housing concept JD Composites, presents an innovative solution that will help control the overflow of landfills and reduce further environmental damage associated with the production of plastics. Saulnier emphasises: “This is a way to get rid of plastic waste and at the same time develop structures that are sustainable.” And German adds: “With backgrounds in the seafood and boat building sectors, we’ve seen our ocean and beaches heavily polluted. Now, with this new process for building homes, we’re not only offering an affordable and sustainable solution for creating green homes, we feel as though we’re finally doing our small part to help clean up some of the mess.”
As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell’s products significantly contribute to global energy efficiency making a difference around the world every day. With 3,100 employees and 24 production plants in 16 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology. For more information, please visit: www.armacell.com

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