

Why use Composites in Trains, Trams and Metros ?

• Rapid construction

Lightweight, modular interiors are easy to handle and install, providing man-hour savings.

• High stiffness and strength

Composites are durable, providing excellent fatigue, impact and environmental resistance. The non-corrosive materials reduce maintenance costs. Structural composites require little (if any) supporting framework, and carry fittings readily. Passenger room increases, while internal noise reduces.

• Weight savings

Weight savings enable higher speeds to be attained, reduce power consumption and acceleration inertia. Low weight materials enable existing tracks to be used for new high speed and tilting trains. Smaller ancillary items (suspension, frame, door actuators, etc.) can be used. An increased payload can be carried. The designer can achieve a lower centre of gravity, providing greater stability.

• Passenger comfort

Trains designed in composites are spacious and aesthetically pleasing. Weight placement optimisation enables passengers to travel in greater comfort.

• Cost

Lightweight sandwich panels are quick to install resulting in man-hour savings. Prepreg materials are processed more rapidly than 'wet' systems, with less waste. Lighter trains require less power, and faster trains provide operational efficiencies. The multiple benefits of using composites add up to a cost-effective solution.

• Design flexibility

The previously inconceivable becomes reality. Trains are designed for maximum performance, with optimum centre of gravity. Exteriors adopt aerodynamic profiles and interiors are designed with smooth, aesthetic contours, enhancing passenger comfort.

• Safety

Enhanced safety features include the incorporation of fire resistant materials, the adoption of energy absorbing honeycombs and prepregs, and the elimination of sharp, jagged edges in a crash situation.

