

# From T to Trapezoidal: a new reefer floor design

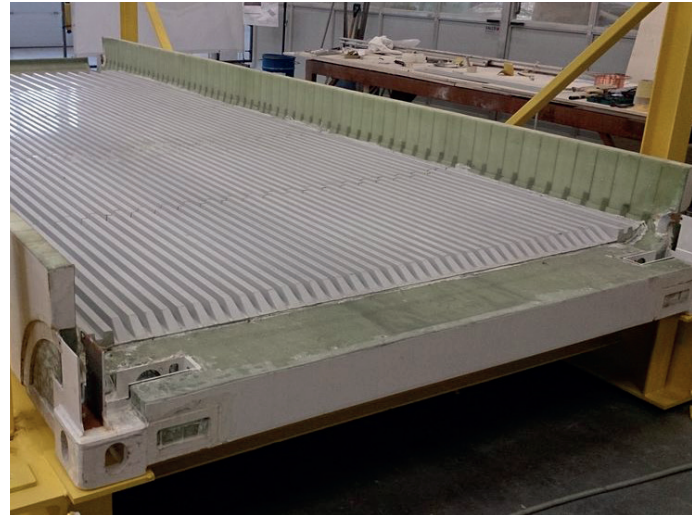
## Ribbed Floor

In the October edition of World Cargo News attention was paid to Composites for Reefers and the development of the first CSC approved composite container: the Cargoshell. The article explained the benefits of using composites, which include excellent insulation properties, lower weight and a reduced carbon footprint. Composite material also prevents internal condensation and does not corrode or attract fungus. In a special feature, WCN has announced the newly developed ribbed floor. This newsletter examines this floor, which was also developed by Cargoshell.

## Ventilation and Hygiene

Reefers are often used for transporting foodstuffs. Maintaining a correct and uniform temperature within the containers is essential. It is for this reason that reefer containers have floors which allow air to circulate freely around the cargo. In conventional reefers, ventilation is achieved with a so called T-bar floor in which ventilation channels are created between the T-shaped extrusions. However, in practice these T-bars often create unhygienic conditions if unpackaged food is transported in the reefer container or if packaging gets damaged. The gaps in the ventilation channels are difficult to clean and any residue can become a breeding ground for bacteria.

The ribbed floor is developed to solve the issues of circulated ventilation and hygiene. The surface of this floor has trapezium-shaped ribs. The surface of the ribs is smooth, making thorough cleaning straightforward. Thanks to the trapezium shape of the ribs there is nowhere hard-to-remove dirt to accumulate. The image shows a Cargoshell reefer with a ribbed floor.



## Fibre Reinforcement

The floor of the reefer also needs to be mechanically strong enough to support the wheel load of vehicles that are driven into the container to load or unload. In the Cargoshell reefer this is made possible by the combination of the shape of the ribs, the distance between them and strong fibre reinforcement used in the composite material.

Working closely with Food Biobased Research (FBR) of Wageningen University & Research, the design of the ribbed floor, in terms of the effectiveness of the air circulation, was optimised using FBR's special simulation program. The design of the Cargoshell reefer floor was shown to allow excellent air circulation throughout the container.

You can follow the progress of this development via the newsletters at [www.cargoshell.com](http://www.cargoshell.com).