



Fixcel™

exceptional rigidity low nominal weight

NEAPO Fixcel™ honeycomb structure is a new production material for the construction industry. This functional structure is best suited for constructions, which require both horizontal and vertical rigidity combined with low nominal weight.

Fixcel™ production uses triple seam rolling technology to join hot-galvanized steel profiles together, thus forming a load-bearing honeycomb structure to the required width and length.

Floors, walls and mezzanine floors are typical applications for this extremely solid material providing an even surface for external insulation and internal surface finishes. Clear width pitched roofs can be built without roof trusses, as well as wide-span canopies involving a minimum number of supporting columns and girders.

NEAPO

Major advantages of the Fixcel™ honeycomb panel are the following:

- extremely lightweight
- high load bearing capacity and rigidity
- 100% recyclable
- fire-proof
- mildew-free
- hermetically tight
- corrosion resistant
- earthquake resistant

Optimal structure is based on severe calculations

The Fixcel™ honeycomb structures are custom designed to the requirements of each application. The necessary calculations are part of Neapo's customer service. The design codes used for calculation are based on the following major standards of structural planning:

- SFS-EN 1990: 2002, Eurocode: Basis of structural design
- SFS-EN 1993-1-1:2005, Eurocode 3: Design of steel structures. Part 1-1: General rules and rules for buildings.
- SFS-EN 1993-1-3:2006, Eurocode 3: Design of steel structures. Part 1-3: General rules. Supplementary rules for cold-formed members and sheeting.
- SFS-EN 1993-1-5:2006, Eurocode 3: The planning of steel structures. Part 1-5: Plated structural elements.

Demanding tests confirm the calculations

Thorough research and development has refined the rigidity and load bearing capacity, as well as the acoustic and thermodynamic qualities of the honeycomb structure to perfection. The Fixcel™ structure has been tested in accordance to the most demanding test procedures carried out by leading research facilities.

The results indicate the rigidity of the Fixcel™ structure holds. As an integral, lightweight structure, Fixcel™ enables wide-span canopies without separate supporting columns and girders.

Fire resistance exceeds the standard requirements

The fire resistant Fixcel™ panel has been approved for use in bulkhead, mezzanine floor- and staircase structures. The Fixcel™ bulkhead and mezzanine floor elements pass the required 120 minute fire classification and the staircase element passes the required 60 minute fire classification. The fire resistance tests, or load bearing tests, are performed in accordance to the following standards:

- SFS-EN 1365-1:1999, Fire resistance tests for load bearing elements – Part 1: Walls
- SFS-EN 1365-2:2000, Fire resistance tests for load bearing elements – Part 2: Floors and roofs
- SFS-EN 1365-6:2002, Fire resistance tests for load bearing elements – Part 6: Stairs

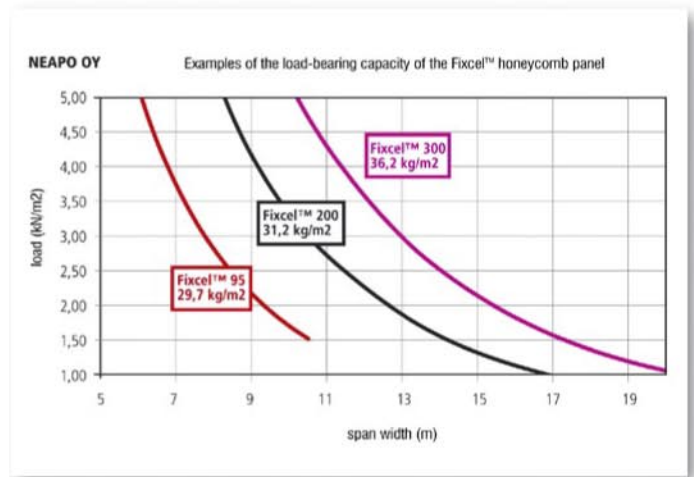
The Fixcel™ structures have greatly exceeded the standard requirements. For example, a tested staircase element equivalent to a four floor construct has been additionally loaded with up to 28 kN/m, which is equivalent to a 15-floor-high tower.

Sustainability over the entire lifespan

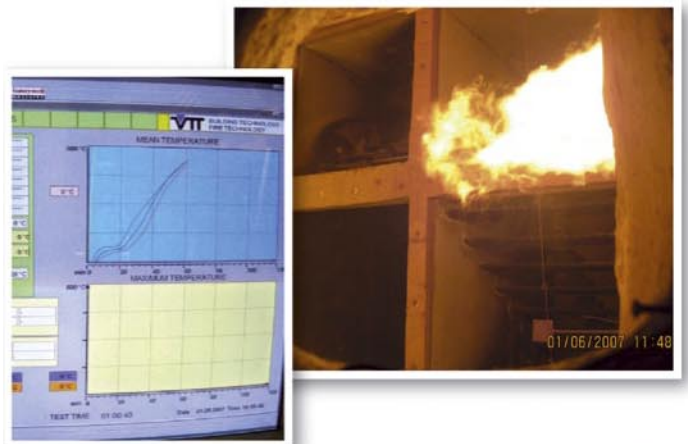
The 100% recyclable material makes Fixcel™ a highly environment-friendly solution. The structure is an insulation material and hermetically tight, thus being optimal for low-energy construction. Thanks to the prefabrication, material loss and environmental impacts are minimal.

Multiple applications

The Fixcel™ technology is already applied to various demanding constructions. The completely prefabricated elevator shafts are transported to site, hoisted and attached to apartment buildings. Additional top floors are delivered to site as large, customized modules. Floating buildings are lowered to the water in their complete forms, and Fixcel™ structure's energy efficiency makes the construction of low-energy houses possible. The field of applications is continuously growing, thanks to Neapo's customers stimulating our creativity.



Images: Neapo



NEAPO Oy
 Telakkatie 5
 FI-23500 Uusikaupunki
 Finland
 Phone +358 2 846 1616
 Fax+358 2 846 1626
 info@neapo.com
 www.neapo.com

NEAPO