

New transport noise barrier developed in France

A new transport noise barrier developed in France is claimed to be up to 50% more effective than anything else on the market.

Philip Jolly of the French Technology Press Bureau reports on the award-winning design.

An innovative design of highway noise barrier which is claimed to provide unequalled levels of sound absorption has been developed in France.

Depending on its configuration, the moulded wood-cement barrier's performance is said to be 30–50% greater than that of the most effective noise barriers currently available on the market.

Collaboration between industry and academia

The barrier has been developed by road construction and maintenance group Colas and its road safety subsidiary Somaro in partnership with the École Polytechnique, the French school of engineering. A patent application has been filed for the design, which has already won the 2003 Siemens Prize for Applied Research.

The design is based on theoretical and experimental studies carried out by École Polytechnique on the acoustic properties of irregularly shaped objects. Resonators with a jagged or ragged geometrical shape were found to deliver better sound attenuation than ordinary, geometrically smooth systems.

Truncated cones and pyramids

The main challenge was to develop an irregular surface of an acoustically absorbent material that would be appropriate for moulding cost-effectively.

A prototype was built in the form of a wood-cement panel measuring 4 by 4m with a sophisticated surface morphology consisting of truncated cone and pyramid shapes—known as 'frustums'—arranged in repetitive fashion.

Measurements performed in a reverberation chamber resulted in the classification of the new noise barriers in the 'very high absorption' category of the relevant French standard – higher than any other product on the market.

Suitable for roads, railways and airports

The new barrier design is considered to be well-suited to a motorway environment, particularly for entrances to tunnels with heavy traffic. However, the technology is also suitable for high-speed railway lines and busy airports.

The costs are claimed to be competitive and are understood to be around € 200/m². The design is also highly flexible, such that the barriers can be built in a variety of



Close up of the moulded wood-cement surface, showing the noise attenuating conical and pyramidal frustum shapes



Trial panel of the new noise barrier, which is claimed to be 50% more effective than other barriers

shapes and colours in order to blend into their surroundings.

Following successful testing, Colas is now installing the system on its first road in France. The company is currently looking at opportunities across the rest of Europe, including the UK.

FOR FURTHER INFORMATION CONTACT

Philip Jolly
 TEL +44 (0) 207 235 5330
 EMAIL contact.ftpb@ubifrance.com

The design is also highly flexible, such that the barriers can be built in a variety of shapes and colours in order to blend into their surroundings