

SUMMARY

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EDITORIAL

Europe enlarges, europeanroads review too

Yves Ghiron, Publication Manager

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TEN Construction Programme

A trans-European network (TEN) at the service of Europe's citizens

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On 12 December 2003, the European heads of government formally gave their collective go-ahead to a "European Initiative for Growth" which foresees significant investments in transport infrastructures. This initiative prepared by the European Commission comes in the wake of a series of recent proposals outlining its long-term strategy towards building and financing Europe's transport system. An ambitious rail construction programme coupled with more road user charges spell out a poor deal for Europe's motorists – and its flagging economies. On behalf of the road sector, the European Union Road Federation has expressed its strong concern over these proposals and how they relate the true transport challenges of an enlarged Europe.

José Papi



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The implementation of technological progress has already significantly improved Transport's overall environmental performance

Geopolitical Land Transport

Can Europe build a geopolitical land transport strategy in the Balkans (Part two)?

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Any reflections on the geopolitical aspects of motorways and more generally of land transport in Europe requires, for diagnostic clarity, a distinction between the EU bloc and the former socialist countries.

The first group is of course far from homogeneous: the EU comprises, for example, the sub-group of countries in which the motorway infrastructure is almost completed, that in which this infrastructure is far from being completed, and the sub-group of intermediate countries and that of the Nordic countries. However, the second group is even more heterogeneous, owing to its recent history, even if Central and Eastern European Countries (CEECs) have been exhibiting some common points since the fall of the Berlin Wall.

Jean-Antoine Winghart

Modified Road Bitumens

Evaluation of intrinsic fatigue performance of bituminous mixes

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A lot of fatigue tests have been produced up to now but it is still very difficult to have a good understanding of the fatigue phenomenon. After a quick presentation of the fatigue phenomenon, testing procedures are analyzed to find the most reliable one allowing a good analysis of the fatigue behavior.

A new damage approach, proposed by French *Ecole nationale des travaux publics de l'Etat (ENTPE)* is applied to the results of fatigue testing. It is very important in this approach to be aware of the heating effect (often non-negligible) to be sure to have at the end a meaningful parameter representing actual fatigue damage and not other different phenomenon.

In order to have some possible comparisons, with a standard mix formulation using good quality aggregates, three different binders have been tested: pure 70/100 pen bitumen and two modified ones, 70/100+5% Polymer A and 70/100+5% Polymer B. Results, showing the new fatigue law representation for the three mixes, show the evolution of road fatigue damage with traffic and improvement of fatigue behavior with modified bitumen. Furthermore, some additional results show influence of rest periods.

Philippe Des Croix

Pavement design comparisons

Pavement design methods

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Because each country has its own climate, its own particular resources and means of production as well as its own method of reasoning, individual countries have developed their own pavement design methods. In the late 1950s, the AASHO tests conducted in the USA contributed to the introduction of a systematic design approach. Later, in the 1970s, the Shell SPDM method (Shell Pavement Design Method) was the first to propose an analytical approach. Most of the methods currently in use are based to a greater or lesser extent on this foundation. Since the 1990s, these methods have all undergone revisions and/or clarifications to one degree or another.

In the current context, particularly in Europe, road and motorway projects increasingly involve firms working outside their home country. As such, it is of interest to examine the main characteristics of the most commonly used methods. This analysis will concentrate mostly on the French, British, AASHTO and Shell methods for bitumen-type structures.

Laurent Porot, Lito Achimastos

Microsurfacing Technology

Progress and diversity in the field of microsurfacing

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There has been growing interest in microsurfacing for several years. This seems to be an important trend rather just a manifestation of fashion.

This sustained demand is accompanied by technical improvements and innovations which we shall outline briefly in this paper.

Jean-Pierre Serfass, Jacques Samanos

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Exxon

Technology Transfer

Achieve better roads in Poland while saving resources with French function dissociation concept 43

The efficient allocation of resources is the key for durable development in general and in particular in Road Construction. Experience has demonstrated that a technology embracing too many performance properties is wasting valuable resources. Skid resistance and structural strength have to be optimised independently to reduce the construction and maintenance expenses. In order to help Poland to respond to the increase of volume and severity of road traffic going with the enlargement of European Union, a French and Polish technical and institutional co-operation - COCOP - has been organised. This joint project involves the French Road Direction, the Polish Public Road Direction and the Polish Highway building and management Agency. This article describes the co-operation process during this project and gives recommendations for the optimisation of resources in the maintenance of Polish road network. Yves Brosseau, Bogdan Bogdanski, Didier Carré

Skid resistance

Operational assessment of the skid resistance of airfield pavements in winter time 49

With modern air transport, aircraft cover the whole planet. They take off on one continent and land on another, and at each of the departure and destination airports they find different weather conditions. In 1996, the Civil Aviation Directorate of Transport Canada initiated a research programme on the skid resistance of runways in winter conditions, with the help of NASA (US National Aeronautics and Space Administration), the FAA (US Federal Aviation Administration), the Civil Aviation Authority of Norway and the French Civil Aviation Authority (DGAC/STBA). The ambitious objective of this research was to work out an International Runway Friction Index (IRFI) designed to provide pilots with the necessary information to estimate aircraft landing distances, in winter conditions, on contaminated runways. Patrick Lerat, Jean-Claude Deffieux

Road Safety Policies

RISER

Roadside Infrastructure for safer European Roads 54

Every year, 14,000 motorists die and countless numbers are seriously injured as the result of single-vehicle collisions on European roads. Now, a European research project named RISER is demonstrating that these accidents can be reduced in severity and number through the establishment of European guidelines on objective, technical performance requirements for roadside elements.

Alvaro Figaredo

Road Noise Barrier

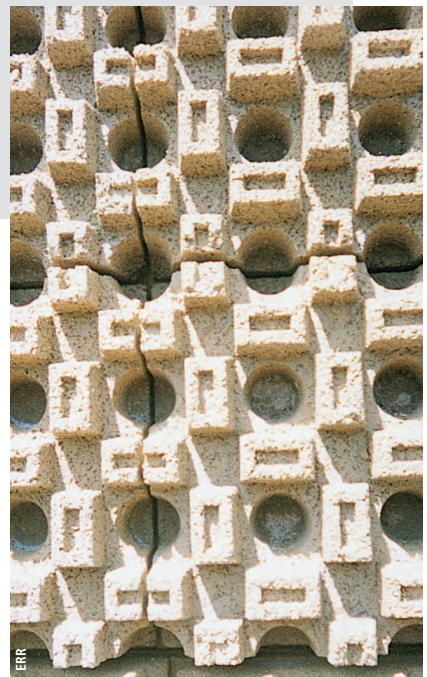
Fractal geometry applied to noise barriers 59

Along many a highway and byway, noise barriers protect neighboring residents from noise, a form of pollution that has grown hand in hand with traffic. Have the absorption and transmission characteristics of these barriers been optimized? Are we able to explain how they work?

These are the issues that are of concern to both engineers and decision-makers alike. To improve our understanding of these phenomena in view to help in the design of new high performance noise barriers, Colas SA and its subsidiary Somaro have joined up with Professor Sapoval and his team (*Ecole Polytechnique, Centre national de la recherche scientifique - Cnrs - , Ecole normale supérieure de Cachan*). Didier Peyrard, Bernard Sapoval

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The jagged structure of the barrier absorbs noise



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