Abstracts
Vol. 6 No. 4

Katarzyna GŁADYSZEWSKA-FIEDORUK
Characteristics of the inner ventilation system in the modernised building of the Faculty of Civil and Environmental Engineering of the Bialystok University of Technology

The paper presents the technical condition of the ventilation system in the building of the Faculty of Civil and Environmental Engineering of the Bialystok University of Technology after its modernization. In connection with conducted comprehensive thermo-modernisation the changes that had been carried out during the ventilation system modernization were discussed. The described project increased the efficiency of ventilation systems and thereby reduction of energy consumption and operating costs.

Aleksandra GOLONKO, Monika KALINOWSKA, Renata ŚWISŁOCKA, Grzegorz ŚWIDERSKI, Włodzimierz LEWANDOWSKI
Applications of phenolic compounds and their derivatives in industry and medicine

This article presents a review of literature data about practical application of phenolic compounds, which are widely occurring in plants, in: agriculture, building construction and environmental engineering. Toxic compounds in natural environment can trigger negative health effects. Due to the broad spectrum, phenolic compounds such as phenolic acids and flavonoids can be a substitute of harmful compounds, such as metal-corrosion protectors and microbiologically influenced corrosion protectors and in agriculture, as natural pesticides. Antioxidant, antiproliferate, proapoptotic and antiinflammatory properties of phenolic compounds are the basis for their application in therapy of cancer, neurodegeneration, alergy and inflammation or in diabetese.

Agnieszka JABLONSKA-KRYSIŁEWICZ, Elżbieta SAPIESZKO
The comparative analysis of carrying capacity for construction elements of steel hall according to PN-90/B-03200 and PN-EN 1993-1-1

The aim of this paper was to compare rates of utilization of capacity of steel structure elements calculated according to the Polish Standard PN-90/B-03200 and Eurocodes PN-EN 1993-1-1. The elements of steel hall were calculated with the procedures ULS and SLS and the rates of utilization of capacity of them were placed in tabular. Based on this calculation the regression curves for all of analysed elements and only for truss were done. It was proved that the rates of utilization of capacity calculated according to Eurocode 3 increased in compare to the rates calculated according to Polish Standard. This increasing was caused by changes in values of partial safety factors of actions in EC0 and EC1. That can lead to more safety designing of steel structure but more expensive too.

Edwin KOŹNIEWSKI, Marcin ORŁOWSKI
The Monge method in modelling of one-sheet hyperboloid as a supporting structure

On the basis of the parameters of the existing building the description of one-sheet hyperboloid and a torus were presented. This description from 3D modelling view point was carried out. During the creation of 3D model the Monge method, axonometry and affinity transformations were used.

Edyta PAWLUCZUK, Katarzyna KALINOWSKA-WICHROWSKA
Use of recycled binder for production of small grain size concrete

The paper presents the results of research concerning the applicability of the recycled binder as a partial substitute of cement in the small grain size concrete. The binder is obtained in the process of multi-stage crushing of laboratory samples from the standard mortar. In the research experiment the influence of three factors on selected physical and mechanical properties of concrete was established. These factors were: age of recycled binder (1, 2, 3 months), a cement class used in recycled binder (32.5; 42.5; 52.5) and the recycled binder content (10, 20, 30% by cement mass). The tested
properties were as follows: compressive strength of concrete after 7, 28 and 90 days of curing, water absorption, and density of the concrete. The research results indicate that in adopted ranges of factor variability the presence of recycled binder significantly deteriorated of concrete parameters, and therefore it is necessary to continue research using thermal treatment recycled material.

Marcin SZKOBODZIŃSKI, Czesław MIEDZIAŁOWSKI

*Problems of establishing wind load in untypical building structures*

In times of advanced and modern architectural solutions, prediction of wind load can be a significant problem. This paper presents the issues of establishing wind load affecting untypical building structures. The elaboration includes an overview of methods used in determining the wind load, especially those related to wind tunnel research, computer analysis of the air flow and normative models.
