Abstracts
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Sources of surface water pollution and some methods of treatment

The aim of this study was to identify sources of pollution of surface water and some pollutant removal methods. Surface waters are contaminated by substances migrating from the soil and by surface flow and subsurface flow. There are other sources such as transport, land melioration, etc. One of the method of ammonium ion removal from the water is ion-exchange method using basaltic rock-mantle. However oil-related compounds can be effectively removed by ultrafiltration.

Jarosław KRĄŻELEWSKI, Olgierd PUŁA

Deep excavation support system inside the Centennial Hall in Wrocław

The Centennial Hall (Hala Stulecia) is a structure which was included in the cultural and natural heritage of UNESCO as a pioneer achievement of the 20th-century engineering and architecture. The main task of the last modernization of the Centennial Hall was deepening the flooring in the central part of the entertainment arena to -4.80 m in order to implement a moving floor supported on hydraulic cylinders. The groundwater level was about 2.5 m below the flooring. Cohesive soil was located at the depth of 14 m below the flooring. Cut off wall was necessary to be positioned to the depth of about 15 m, and height limitations were 12 m. DSM and Jet Grouting columns were recommended to meet the General Contractor requirements: short task execution, construction of a cut-off wall ensuring the maximum sealing at the passage through the boulder clay layer, and low-cost implementation.

Anna OSTROWSKA–BUĆKO

Wind energy utilisation based on small vertical axis wind turbines

The purpose of this paper is to characterise the wind energy and to describe its conversion into electric energy. The article presents two design variants for wind energy conversion which are vertical axis wind turbine and horizontal axis wind turbine, pointing out their advantages and disadvantages. Furthermore the climatic conditions in Poland were analysed, regarding wind resources and possible locations of wind turbines. As a result of analyses the vertical axis wind turbine was appointed as the solution which is more suitable for Polish region, allowing for better and wider utilisation of wind energy (in comparison to the other design). The power obtained this way is used as a support for existing individual light and heating systems, and improves local energy security.

Joanna PIOTROWSKA-WORONIAK, Grzegorz WORONIAK

Reduction of emission pollution as a result of thermomodernisation historic sacral buildings

The paper presents the environmental effect that can be archived after thermomodernisation based on energy audits carried out in historic sacra buildings. Four church were analysed, all of them were located in the are of the Drohiczyn Diocese.

Wojciech SAS, Andrzej GŁUCHOWSKI

Cyclic triaxial tests of subgrade soils in road construction

Increase of road infrastructure investments in Poland is related to increase of unbound material demand and therefore alternative methods of road design are developed. With growth of road constructions, increase of traffic is observed. Important percentage of all road traffic is heavy transport. Limits of transported capacity regulates maximum load capacity on vehicle axle. This situation results in development of new design guides and today Catalogue of Typical Pavement Structures will be updated or replaced. In this article verification of laboratory tests was confronted with European Code 13286-7 (2004).