

Abstracts Vol. 9 No. 1

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Heating cost calculations on the example of the selected apartment

The aim of the research is to present the method of calculations of individual heating costs of flats and business premises regarding the energy law, in which the heating fee corresponds to the consumption of heat and takes into account the indications of electronic cost allocators. Generally, in new buildings or buildings after thermal modernisation, external walls are not a significant component of heat losses. Therefore, the amount of heat lost per 1 m² in individual apartments is similar, and the receivables for central heating 1 m² of usable space of such flats should be similar. The answer to the question of how large divergences may be in heating for 1 m² in individual apartments is provided by EU regulations. The presented author's method combines the advantages of using heating cost allocators with the feeling of proper heating cost accounting, which residents have when settling without dividers based on the PLN/m² rate. In this method, the price per unit of heat is due to the invoice of the heat supplier. Based on the numerical results obtained in the presented method, it is possible to determine which part of the fees is settled on the surface of flats, and how much on dividers.

Iwona CHMIELEWSKA

Coefficient of permeability of peat

The paper presents the results of oedometer tests of peat samples. The aim of the research was to determine coefficient of permeability of peat. The oedometer tests were carried out on samples taken from the subsoil of Bargłów Kościelny bypass road. Samples were taken in the vertical and horizontal directions. The oedometer tests were conducted using a set of five oedometers with the possibility of automatic registration of displacement sensor readings. On the basis of test results the oedometric modulus of primary compression, consolidation coefficient and the coefficient of permeability were determined. It was shown that the values of parameters determined for samples taken in the vertical and horizontal directions were significantly different. The values of the determined parameters were compared with the values given in the literature.

Maciej CHOLEWIŃSKI

Mild pyrolysis of coals and its impact on possible mercury releases from pulverised coal-fired power plants

The paper concerns the impact of mild pyrolysis of coals on the possible mercury releases from the combustion process. It was proven that while mild pyrolysis may lead to the decrease of mercury content in solid fuel (from 0 do even 80% of dry mass), the resulting increased SO₂/HCl ratio in flue gasses may be disadvantageous in the case of the mercury oxidation as well. However, when optimised, for analysed lignites, this type of thermal pre-combustion technique could satisfy up to 4-26% of mercury decrease requirements while for analysed hard coal it seems to be pointless to adopt it within power plant. Therefore, the environmental benefits of mild pyrolysis will be strongly depend on the type of fuel (i.e. mercury compounds in dry matter) and the conditions (time, temperature) of the process.

Błażej SMOLIŃSKI

Analysis of the application of GRP panel technologies for modernisation of large-diameter sewage collectors

One of the basic tasks of local authorities is to provide the needs of the inhabitants, including the provision of communal services. Due to dynamic development of urban centers, it is urgent to carry out an effective modernization of the sewerage systems to ensure their adequate capacity and effective operation. In the context of the modernization of sewage collectors, the relining method using GRP panels made of fiberglass composite and polyester or vinyl ester resins is desirable. In the paper the effectiveness of using GRP panels technology for modernisation of large-diameter sewage collectors has been verified, taking into consideration the process of selection of required wall thickness of GRP panels. In the analyses the numerical modelling was used and co-operation of the structure with the soil has been taken into account.

Dariusz TOMASZEWICZ

Steel frame as the basis for checking the pull-out capacity of bonded diagonal anchor bolts

The paper concerns a device for testing diagonal anchorages, designed by the author. This device constitutes the basis for the testing equipment used for the performed test. No such research has been conducted so far. The article describes the way the rack was designed and what components it is made of. The possibilities and practical examples of the device are also indicated.

Marta WIŚNIEWSKA

Operation, closure and reclamation of the unorganized landfills on example of the landfill called "Łysa Góra"

The aim of the study was to analyse the operation and way of remediation of landfill which had not authorisation required by law but it was used for depositing municipal and hazardous wastes. The landfill called "Łysa Góra" is the example of unorganized landfill. It is located in the village named Bodzanów, belonging to the province of Masovia. This landfill was working since year 1985 without permits required by law. The process of remediation of landfill was analysed and the results of the study of groundwater were shown in the paper.

Maciej ZAŁUSKA, Janina PIEKUTIN, Lech MAGREL

Economic and energetic efficiency of biogas plant depending on the substrate applicable

In order to obtain the results most accurately describing the real state of economic and energetic efficiency, the data from the various biogas plants was analysed over the next three years, i.e. 2014-2016. After the analysis, it should be noticed that the substrate and its price have a significant impact on the profitability of the biogas plant operation. A biogas plant Rusing substrate of agricultural origin bears large costs related to the purchase of the load. However, the installation Rusing sewage sludge from the sewage treatment plant does not bear any costs related to the substrates, but shows significant profits.