www.biswbis.pb.edu.pl

CIVIL AND ENVIRONMENTAL ENGINEERING 1 (2010) ISSN: 2081-3279 BUDOWNICTWO I INŻYNIERIA ŚRODOWISKA

Abstracts
Vol. 1 No. 4

Paulina ANCHIM, Joanna PIOTROWSKA - WORONIAK
The "Eco small coal" – a way to cheaper and more ecological single-family house heating. Part 2 - Modernization of the boiler room

The paper aim is to present an example of the conversion of an existing oil boiler to the coal fired one, to reduce the cost of heat generation in the single family house.
The solution adopted coal boiler technology, including the costs of the project implementation. The cost of constructing the proposed boiler room modernization was calculated and the annual savings that can be achieved were shown. Alternative fuels, identified to allow for an environmentally sound manner, easy and inexpensive to provide heat for the single family house, was presented, too. As it turns out in the paper ecology, convenience and savings have much in common.

Michał BASZEŃ
The influence of diversity of physical and mechnical properties of wood on the stress distribution in structural elements

The influence of physical and mechanical properties of wood on the stress distribution and joint displacements in the wall and floor elements in the light wood framed structures was presented in this paper. There were presented stress values and displacement of construction obtained during the experimental tests in Bialystok Technical University, as well the values of physical and mechanical properties of wood used in the analyzed structures.

Katarzyna DOŁŻYK
Settlements of pad footings on sands

This paper aim to present the problem of pad footing settlement on sands. Using the empirical procedure, the settlement of pad footing is a function of Young's modulus. In this paper two values of Young's modulus are used, one value is taken from PN-81/B-03020 and the other one is obtained from theoretical equation. The value of Young's modulus obtained from the theoretical equation is a function of void ratio (e) and the level of stress (size of foundation). The value of Young's modulus shown in PN-81/B-03020 is a function of density index (I_D), but is independent of stress level. This paper shows that settlement of pad footing on sand is much less if theoretical value of Young's modulus is used in calculation, especially for a big pad footing on loose or medium compacted coarse and medium sands. So, if theoretical value of Young's modulus is used, the calculated value of pad footing settlement is more realistic.

Dorota DWORZAŃCZYK
Mortars and concrete used in livestock buildings

The paper presents a stand for thermogravimetric examinations of cement mortars and concretes. Corrosion in livestock buildings is discussed. The paper presents testing equipment, its technical specification and possibilities of the research stand. Exemplary test results of cement mortars and concretes with recycled aggregate are presented with the possibility of applying them for floors in the livestock buildings.

Katarzyna GŁADYSZEWSKA-FIEDORUK
Analysis of indoor environment in a kindergarten building. Part 1: Temperature

In order to ensure proper sanitary and hygienic conditions in a kindergarten building, one needs to remember about airing the rooms frequently and making sure that the temperature is not too high; this is why an efficient ventilation system is indispensable. Temperature is the parameter of indoor air whose influence people are most likely to feel. It is the decisive factor about their general physical and mental state and the efficiency of their work; temperature also ensures the so-called thermal comfort. A temperature that is either too high or too low may cause various diseases.
The research was conducted in three kindergartens which varied in terms of the space of the facilities and thermal

insulation of exterior walls. Thermomodernization in each kindergarten was carried out at a different time. The research focused on the quality of indoor air in particular rooms. This article discusses the results only with regard to air temperature in the kindergartens in question.

Katarzyna GŁADYSZEWSKA-FIEDORUK
Analysis of indoor environment in a kindergarten building. Part 2: Relative humidity

Excessive rise of humidity is the most frequently observed sign of problems with air circulation, which often result from a faulty ventilation system. Relative humidity value indoors should range from 30% to 65%, the ideal being between 40% and 50%.
The research was conducted in three kindergartens with different insulation of exterior walls; the objective was to assess the quality of indoor air with regard to relative humidity. Three series of measurements were taken in each of the kindergartens.
In the building where thermomodernization was carried out, humidity values in February and November dropped below the recommended ones. Even though outdoor relative humidity was high, indoor air in this kindergarten was dry. In the kindergarten whose heating system has not been modernized, humidity values inside the building were appropriate regardless of the season.

Marta KALISTY, Dorota MAŁASZKIEWICZ
Methods of testing concrete freeze resistance. Evaluation of freeze-thaw resistance of concrete with blast-furnace cement

Different methods of testing concrete freeze resistance are described in this paper. Water absorption and freeze resistance of concrete laboratory specimens with two types of cements ordinary Portland cement CEM I 32,5R and blast-furnace cement CEM III/A 32,5R without air-entering admixture was tested. Two testing procedures were applied: direct test according to Polish standard PN-88/B-06250 and scaling measurements in the presence of de-icing salt according to Polish standard PN-EN 1338:2005. Specimens containing blast-furnace cement had lower freeze resistance regardless the applied method.

Gennady KOCHETOV, Dmytro ZORYA, Julia GRINENKO
Integrated treatment of rinsing copper-containing wastewater

A comprehensive ion-exchange based technology is proposed for treatment of copper-containing rinsing water with closed-circuit water supply and utilisation of the valuable metal. We applied the principle of ferritisation for wastewater treatment. The research results were used for development of the new environmentally sound method for utilisation of eluates of ion-exchange filters with production of a marketable product - copper ferrit and other ferromagnetic substances.

Jerzy LISOWSKI, Nina SZKLENNIK
The role of the particular elements of the organizational structure of building company in the philosophy of total quality management (TQM)

The article presents partial results of research carried out on the influence of quality systems on functioning of several organizational areas of construction companies. The analysis indicates that total quality management may be a very useful amendment to the already implemented by construction enterprises quality systems according to the ISO norms if properly placed in their organizational structures.

Marzena MATEJCZYK
Specific for DNA damages gfp microbial biosensor as a tool for genotoxic action assessment of environmental pollution

In the presented paper, autofluorescent reporter of *Escherichia coli* K-12 *recA::gfpmut2* strain, which contained a plasmid-borne transcriptional fusion between DNA-damage inducible *recA* promoter involved in the SOS regulon response and fast folding GFP variant reporter gene-*gfpmut2*, have been used. GFP-based bacterial biosensors allowed the detection of bacterial cells response to selected tested genotoxic compounds such as mitomycin C (MMC), actinomycin D, *N*-methyl-

N'-nitro-*N*-nitrosoguanidine (MNNG) and formaldehyde (CH_2O). Experiment indicated that *E. coli* K-12 *recA::gfpmut2* biosensor strain is more specific and sensitive for especially two genotoxins: actinomycin D and MNNG and with very low response to other agents. So it was concluded that for formaldehyde and MMC *E. coli* K-12 *recA::gfpmut2* genetic system is disqualified for genotoxicity screening.

Anna ŻAKOWICZ

Varianting solutions of underground tanks on farms

The paper presents types of underground tanks used on farms, their basic static schemes and types of loads acting on tanks. In the calculation example results for two calculation methods, plate method and finite element method, were compared. The calculations were done for variants with and without included springy work of subsoil.