

DEPARTMENT OF MATERIAL ENGINEERING

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I. STAFF

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II. EQUIPMENT

II.1 Teaching and Research Laboratories

1. Concrete technology laboratory
2. Lightweight concrete laboratory
3. Ceramics laboratory
4. Binders laboratory
5. Building chemistry laboratory
6. Laboratory for scanning electron microscopy and mercury intrusion porosimetry
7. Laboratory for X-ray diffraction analysis
8. Laboratory for differential thermal analysis

II.2 Special Measuring Instruments and Computers

- Derivatograph-C, MOM Budapest, Hungary
- Derivatograph G 425, MOM Budapest, Hungary
- Diffractometer Mikrometa 2, Chirana, Prague, Czech Republic
- Scanning electron microscope BS-301, Tesla Brno, Czech Republic
- Spectrophotometer Specol, Carl Zeiss Jena, Germany
- Equipment for determination of thermal conductivity PMV - 01, Elsys, Prague, Czech Republic
- Apparatus for determination of thermophysical parameters - Isomet, Model 104, Applied Precision, Bratislava, SR
- Schmidt concrete test hammers, Proseq SA, Zürich, Switzerland
- Dyna pull-off tester, Proseq SA, Zürich, Switzerland
- Resonance apparatus RP-5, Mankovický, Bratislava, SR
- Porosimeter, Model 70H, Carlo Erba, Milan, Italy
- Test apparatus for determination of air content B 2020, BC-Export Unlingen, Germany
- Pentium computers
- Testing machines with loads of 200, 400, 1000 and 3000 kN
- Testing device for determination of the watertightness of concrete
- Apparatus for measuring changes in length

III. TEACHING

III.1 Graduate Study

Subject	Semester	Hours Per Week		Lecturer
		Lectures	Seminars	
Chemistry for Civil Engineers	1	2	1	V. Pavlík
Building Materials I.	2	2	1	I. Rouseková S. Unčík
Building Materials II.	3	2	1	I. Rouseková S. Unčík
Building Materials	1	2	2	D. Šályová M. Šveda
Building Materials	1	2	2	A. Bajza
Chemistry of Building Materials	7	3	4	V. Pavlík
Ceramics	7	3	3	M. Šveda
Binders	8	3	3	A. Bajza
Precast Concrete Technology	8	3	4	S. Unčík
Concrete Technology	9	3	4	A. Bajza
Concrete Technology	5	2	2	A. Bajza
Designing Plants for Production of Building Materials	9	0	4	J. Šimovič
Technology of Built-Up Constructions	9	2	3	M. Čabrák
Testing	10	2	2	V. Priechodský
Technological Project	10	0	8	J. Šimovič
Lightweight Concrete	10	2	3	D. Šályová
Insulating Materials	10	2	2	M. Šveda

IV. RESEARCH TARGETS

Current research in the Department is focused, above all, on the utilisation of industrial waste products in cement composites, the effects of admixtures on concrete properties, the durability of building materials as well as the modification of properties of brick-shatter using organic substances and lightweight materials made from industrial wastes.

V. RESEARCH PROJECTS

1. Revitalisation by a Penetrating Corrosion Inhibitor of the Passivating Conditions of Steel Reinforcement in Concrete (A. Bajza)
2. Effect of the Pore Structure of Brick Shatter on Its Frost Resistance (M. Šveda)

VI. COOPERATION

VI.1 Cooperation in Slovakia

1. HYDROSTOP Ltd., Poprad
2. ZIPP Bratislava Ltd., Bratislava
3. HOLCIM BETON Ltd., Bratislava
4. Applied Precision Ltd., Bratislava
5. Sika Slovakia Ltd., Bratislava
6. Slovak Institute of Standardisation, Bratislava
7. Slovak Office of Standards, Metrology and Testing, Bratislava
8. BETÓN-RACIO, Ltd., Trnava
9. TERRANOVA - INDUSTRIA Ltd., Bratislava
10. HOLCIM, Joint Stock Company, Bratislava
11. Chestreal, Joint Stock Company, Bratislava
12. Premac Ltd., Bratislava
13. SE, Joint Stock Company, Nuclear Power Plant, Jaslovské Bohunice
14. Termstav, Joint Stock Company, Bratislava
15. MC-Bauchemie Ltd., Nitra
16. Civil Engineering Technical and Testing Institute, Bratislava
17. ORGWARE, Joint Stock Company, Bratislava
18. Cooling Towers Ltd., Jaslovské Bohunice
19. SKW-MBT Slovakia Ltd., Žilina
20. Porfix, Joint Stock Company, Zemianske Kostol'any
21. Hebel Pórobetón, Ltd., Šaštín
22. Calmit, Ltd. Bratislava

VI.2 International Cooperation

1. Klokner Institute, TU Prague, Czech Republic
2. Department of Building Materials, FCE TU Opole, Poland
3. Research Institute of Civil Engineering, Zlín, Czech Republic
4. Research Institute of Building Materials, Joint Stock Company, Brno, Czech Republic
5. Brno University of Technology, Brno, Czech Republic

6. Czech Technical University, Prague, Czech Republic
7. VŠB - Technical University of Ostrava, Czech Republic
8. Dansk Beton Teknik A/B, Hellerup, Denmark
9. NNC AB, Solna, Sweden
10. Institute of Fundamental Technological Research – Polish Academy of Sciences, Warsaw, Poland

VI.2.1 Visitors to the Department

- doc. Ing. T. Klečka, CSc., Klokner Institute, Czech Technical University, Prague, Czech Republic, 3 days
- doc. Ing. K. Kolář, CSc., Faculty of Civil Engineering, Czech Technical University, Prague, Czech Republic, 3 days

VI.2.2 Visits of Staff Members and Postgraduate Students to Foreign Institutions

- Adolf Bajza, Faculty of Civil Engineering TU, Brno, Czech Republic, 2 days
- Ildikó Rouseková, Faculty of Civil Engineering TU, Brno, Czech Republic, 2 days
- Adolf Bajza, Klokner Institute, Czech Technical University, Prague, Czech Republic, 3 days
- Ildikó Rouseková, Klokner Institute, Czech Technical University, Prague, Czech Republic, 3 days

VII. THESES

VII.1 Graduate Theses

No.	Student's Name	Title
1.	Matúš Hejtmánek	The Effect of Selected Secondary Raw Materials on the Elimination of a Reduction Core in Roofing Tiles
2.	Monika Jozefíková	Protective Surface Covering of Concrete to Prevent Carbonation
3.	Jozef Olczár	Fibre Cement Composites with Alkali Resistant Glass Fibres
4.	Milan Pohlod	The Effect of Plasticizers on Properties of Cement Composites

VIII. OTHER ACTIVITIES

VIII.2 Commercial Activities

1. Solution to the elimination of the reduction core in roofing tiles (M. Šveda)
2. Compressive strength and flexural strength tests (S. Unčík)
3. Compressive strength and flexural strength tests (S. Unčík)
4. Compressive strength and flexural strength tests (S. Unčík)
5. Construction of D2 highway Bratislava-Lamačská Road - Staré Grunty – Sitina tunnel (S. Unčík)
6. Evaluation of the service life of fibre-reinforced concrete containers (A. Bajza, I. Rouseková, V. Pavlík, S. Unčík).

IX. PUBLICATIONS

IX.1 Journals

- [1] ŠVEDA, M.: The Effect of the Firing Temperature and Dwell Time on the Frost Resistance of Clay Roofing Tiles. *Brick and Tile Industry International*, Vol. 57, No. 6, 2004, pp.36-43
- [2] ŠVEDA, M.: The Effect of the Firing Temperature and Dwell Time on the Frost Resistance of Clay Roofing Tiles. *Silika*, 2004, Vol. 3-4, pp. 85-91 (in Slovak)
- [3] ŠVEDA, M.: The Effect of the Firing Process on the Durability of Clay Roofing Tiles. *Střechy, fasády, izolace*, Vol. 11, 2004, No. 9, pp. 30-33 (in Slovak)
- [4] UNČÍK, S.: Conformity Control – Actual Problem of Concrete Production. *Eurostav*, 2004, No. 6 (in Slovak)

IX.2 Books and Textbooks

- [1] 1. ŠVEDA, M.: State of the Art in the Field of Strength Determination of Brick Products. In: *Annual of Buildings - 2005*, Bratislava: JAGA, 2004 (in Slovak)
- [2] UNČÍK, S. et al : *European Standards and Concrete*. Trnava: EBR, 2004, ISBN 80- 969039-2-6 (in Slovak)
- [3] ROUSEKOVÁ, I. – BAJZA, A.: Durability of High Performance Concrete. In: *Annual of Buildings - 2005*. Bratislava : JAGA, 2005 (in Slovak)

IX.3 Conferences

- [1] ROUSEKOVÁ, I. – BAJZA, A.: Resistance of Fibre-Reinforced Concrete to Attack by Ammonium Nitrate Solutions. In: *CONSTRUMAT 2004. Proceedings of 10th International Conference on Building Materials*. Košice, TU 2004, pp. 18-25. ISBN 80-8073-175-6
- [2] UNČÍK, S.: Selected Aspects of Concrete Production. In: *Proceedings of BetónRacio Seminar*. Trnava, BetónRacio 2004, pp. 1-54.
- [3] ŠVEDA, M.: Testing the Strength Properties of Brick Products. In: *CONSTRUMAT 2004. Proceedings of 10th International Conference on Building Materials*. Košice, TU 2004, pp. 31-38. ISBN 80-8073-175-6
- [4] PAVLÍK, V.: Concrete Corrosion Through Leaching. In: *CONSTRUMAT 2004. Proceedings of 10th International Conference on Building Materials*. Košice, TU 2004, pp. 9-17. ISBN 80-8073-175-6
- [5] STRUHÁROVÁ, A.: The Effect of the Composition of Cellular Concrete and Its Surface Hydrophobing on Selected Physical Properties. In: *CONSTRUMAT 2004. Proceedings of 10th International Conference on Building Materials*. Košice, TU 2004, pp. 26-30. ISBN 80-8073-175-6
- [6] LEDEREROVÁ, M.: Wastes and Waste Management in the Building Industry. In: *CONSTRUMAT 2004. Proceedings of 10th International Conference on Building Materials*. Košice, TU 2004, pp. 2-5. ISBN 80-8073-175-6
- [7] PAGÁČ, S.: The Effect of Hyperplastisizers on Selected Properties of Cement Mortars. In: *CONSTRUMAT 2004. Proceedings of 10th International Conference on Building Materials*. Košice, TU 2004, pp. 6-8. ISBN 80-8073-175-6

- [8] BAJZA, A.: Cement Composites from Point of View of the Present and Future. In: Cement 2004. Proceedings of International Conference on Sustainable Development. Bratislava, ZVCV SR 2004, pp. E1 – E18
- [9] BAJZA, A. – ROUSEKOVÁ, I.: Durability of High Performance Concrete. In: Proceedings of Concrete Days 2004. Bratislava, STU DBCB 2004, pp. 217-229
- [10] BAJZA, A. – ROUSEKOVÁ, I.: Durability of High Performance Concrete. In: Proceedings of Conference on Concrete and Technology. Bratislava, Stachema 2004, pp. 15-25
- [11] BAJZA, A.: Repair Materials. In: Proceedings of the Repair of Concrete Constructions. Bratislava, ZSBK 2004, pp. 125-152