

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. Binder 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 determining thermal conductivity PMV - 01, Elsynt, Prague, Czech Republic
- Apparatus for determining 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 determining air content B 2020, BC-Export Unlingen, Germany
- Pentium computers
- Testing machines with loads of 200, 400, 1000 and 3000 kN
- Device for waterproofing concrete
- Apparatus for measuring of length changes

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
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	L. Marko, S. Unčík
Concrete Technology	9	3	4	A. Bajza
Designing Plants for Production of Building Materials	9	0	4	J. Šimovič
Technology of Built-Up Constructions	9	2	3	L. Marko
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 affects of admixtures on concrete properties, as well as the modification of properties of brick-shatter using organic substances and light materials from industrial wastes.

V. RESEARCH PROJECTS

1. Optimisation of Properties of Mortars and Concrete Based on Mining Rocks and Industrial Wastes (I. Rouseková)
2. Revitalisation of Passivating Conditions of Steel Reinforcement in Concrete by Penetrating Corrosion Inhibitor (A. Bajza)
3. Effect of 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. HOLCIMBETON 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. SE, Joint Stock Company, Nuclear Power Plant, Mochovce
15. Termstav, Joint Stock Company, Bratislava
16. MC-Bauchemie Ltd., Nitra
17. Civil Engineering Technical and Testing Institute, Bratislava
18. Baumit Ltd, Bratislava
19. ORGWARE, Joint Stock Company, Bratislava
20. Chemical Factories, Joint Stock Company, Nováky
21. Cooling Towers Ltd., Jaslovské Bohunice
22. SKW-MBT Slovakia Ltd., Žilina
23. SE, Joint Stock Company, Nováky
24. Neusiedler, Joint Stock Company, Ružomberok
25. Porfix, Joint Stock Company, Zemianske Kostol'any
26. Hebel Pórobetón, Ltd., Šaštín
27. 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. CarboTech Bohemia Ltd., Ostrava, Czech Republic
5. Department of Civil Engineering, University of Toronto, Canada
6. Institute for Prefabrication and Precast Concrete Buildings, Weimar, Germany
7. Research Institute of Building Materials, Joint Stock Company, Brno, Czech Republic
8. Brno University of Technology, Brno, Czech Republic
9. Czech Technical University, Prague, Czech Republic
10. VŠB - Technical University of Ostrava, Czech Republic

VI.2.1 Visitors to the Department

- Dr. J.P. Skalny, Materials Service Life, LLC, Monroeville, PA, USA, 10 days
- Prof. Ing.R. Drochytka, CSc., Faculty of Civil Engineering, Brno Technical University, Brno, Czech Republic, 2 days
- Prof. Ing. J. Cigánek, CSc., Faculty of Civil Engineering, Ostrava, Czech Republic, 1 day
- Ing. T. Klečka, CSc., Klokner Institute, Czech Technical University, Prague, Czech Republic, 2 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, Brno Technical University, Brno, Czech Republic, 2 days
- Ildikó Rouseková, Klokner Institute, Czech Technical University, Prague, Czech Republic, 3 days
- Adolf Bajza, Klokner Institute, Czech Technical University, Prague, Czech Republic, 3 days

VII. THESES

VII.1 Graduate Theses

No.	Student's Name	Title
1.	Róbert Bahník	Self-Compacting Concrete
2.	Juraj Bartalan	Additional Insulation of Masonry by Infusion Solutions
3.	Katarína Brnčová	The Effect of Reduction Core in Brick Shatter on Its Frost Resistance
4.	Monika Bršlicová	The Effect of High Temperature on the Properties of Cement Composites
5.	Lucia Jurkovičová	The Effect of the Composition of Cellular Concrete and Surface Hydrophobisation on Its Physical Properties
6.	Katarína Kozmálová	The Effect of CaCO ₃ on Some Properties of Brick Shatter
7.	Jozef Maška	Effect of Dried PVAC Dispersion on the Properties of Cement Mortars
8.	Silvia Sekáčová	The Effect of Polymer Dispersion on the Properties of Cement Mortars
9.	Jana Ugorčáková	The Effect of a Corrosion Inhibitor on Steel Reinforcement in Concrete

VIII. OTHER ACTIVITIES

VIII.2 Commercial Activities

1. Technical Support for the Application of Admixtures to Concrete (A. Bajza)
2. Diagnostics and Design of Reconstruction of 204 m Stack in SCP Ružomberok (A. Bajza, I. Rouseková, Dubík, M.)
3. Evaluation of Cement Mortars on the Floors of a Villa on Brusnicová St.(A. Unčík)
4. Evaluation of the Reference Areas and State of Cooling Tower No. 11, INTERSON 125 m. (A. Bajza, I. Rouseková, M. Dubík)
5. Testing of Mortars (S. Unčík)
6. Evaluation of Selected Properties of Concrete (A. Struhárová)
7. Evaluation of the Quality of Materials Used and Work Done in the Repair of the External Surface of Cooling Tower V2 No 102 EBO (A. Bajza)
8. Diagnostics of Reinforced Concrete Construction of Crane Runway (S. Unčík)

IX. PUBLICATIONS

IX.1 Journals

- [1] ŽIVICA, V.- BAJZA, A.: Acidic Attack of Cement Based Materials - a Review Part. 2. Factors of Rate of Acidic Attack and Protective Measures. Construction and Building Materials Vol. 16, 2002, pp. 215-222
- [2] ROUSEKOVÁ, I.: Solidification of Selected Heavy Metals from Galvanic Sludges into Cement Matrix. Slovak Journal of Civil Engineering, Vol. IX, 2001, No. 3, pp. 1-11, ISSN 1210-3896
- [3] ŠVEDA M.: The Prospects of Survival for "Older" Brickworks in Slovakia. Ziegelindustrie International, Vol. 55, 2002, No. 5, pp. 36 – 43
- [4] ŠVEDA M.: The Effect of Antika Admixture on the Frost Resistance of Clay Roofing Tiles. Ziegelindustrie International, Vol. 55, 2002, No. 10, pp. 29 – 33 (in Slovak)
- [5] ŠVEDA M.: The Prospects for Survival of "Older" Brickworks in Slovakia. Silika, Vol. 11, 2001, Nos. 7-8, pp. 236 – 240 (in Slovak)
- [6] ŠVEDA M.: Black Reduction Core in Roofing Tiles – Its Origin and Possibilities of Removal. Silika, Vol. 12, 2002, Nos. 3-4, pp. 96-99 (in Slovak)
- [7] ŠVEDA M.: The Effect of Water Absorption of Clay Roofing Tile on Its Frost Resistance. Střechy, fasády, izolace, Vol. 9, 2002, No. 3, pp. 44-46 (in Slovak)
- [8] ŠVEDA M.: The Relation Between Water Absorption and the Frost Resistance of Roofing Tile. Silika, Vol. 12, 2002, Nos. 5-6, pp. 160-164 (in Slovak)
- [9] BAJZA, A.: Non-Traditional Cement Composites. Stavba, Vol. V, 2002, No. 9, pp. 32-35 (in Slovak)
- [10] UNČÍK, S.: Concreting in Winter. Nový Stavebný Trh, Vol. 4, 2002, No. 1, pp. 16-17 (in Slovak)
- [11] MARKO. L.: Prefabricated Dwelling Houses for Low-Income Families. Stavba, Vol. V, 2002, No. 6, pp. 40-43 (in Slovak)

- [12] MARKO, L.: Prefabricated Low-Storey Buildings. Stavba, Vol. V, 2002, No. 7-8, pp. 40-47 (in Slovak)
- [13] MARKO, L.: Aesthetic Properties of Concrete. Stavba, Vol. V, 2002, No. 9, pp. 41-45 (in Slovak)

IX.3 Conferences

- [1] BAJZA, A.- ROUSEKOVÁ, I.- DUBÍK, M.: Can Boric Acid Corrode Concrete? In: Proceedings of International Symposium on Non-Traditional Cement and Concrete. Brno, Brno University of Technology 2002, pp. 447-456. ISBN 80-214-2130-4.
- [2] BAJZA, A.- HUDOBA, I.: Concrete Technology in Former East European Countries: Challenges and Opportunities. Anna Maria Workshop II, Cement and Concrete: Trends and Challenges. Westerville, The Amer. Ceram. Soc. 2002, pp. 45-56. ISBN 1-57498-164-4-1.
- [3] ROUSEKOVÁ, I.- STRUHÁROVÁ, A.: Effect of Composition of Cellular Concrete and Its Surface Hydrophobisation on Selected Physical Properties. In: Proceedings of 8th CONSTRUMAT 2002 International Conference. Prague, CTU 2002, pp.101-105, ISBN 80-01-02571-3 (in Slovak).
- [4] PAVLÍK, V.: Effect of High Temperature on the Properties of Cement Mortars. In: Proceedings of 8th CONSTRUMAT 2002 International Conference. Prague, CTU 2002, pp.84-90. ISBN 80-01-02571-3 (in Slovak)
- [5] ŠVEDA, M.: Indirect Measurement of Frost Resistance of Brick Roofing Tile. In: Proceedings of 8th CONSTRUMAT 2002 International Conference. Prague, CTU 2002, pp.153-156. ISBN 80-01-02571-3 (in Slovak)
- [6] ŠÁLYOVÁ, D.: Additional Hydrophobisation Using Infusion Solutions. In: Proceedings of 8th CONSTRUMAT 2002 International Conference. Prague, CTU 2002, pp.136-140. ISBN 80-01-02571-3 (in Slovak)
- [7] UNČÍK, S.: Problem of Compatibility between Cement and Admixtures. In: Proceedings of 8th CONSTRUMAT 2002 International Conference. Prague, CTU 2002, pp.162-165. ISBN 80-01-02571-3 (in Slovak)
- [8] BAJZA, A.: Non-Traditional Cement Composites. In: Proceedings of Concrete Days 2002 Conference. Bratislava, KBKM, STU 2002, pp. 207-212 (in Slovak).
- [9] BAJZA, A.: Evaluation of the Quality of Selected Materials Used in the Construction of a Private Dwelling. In: Proceedings of 6th Conference on Defects in Buildings - The Use of Unsuitable Materials. Bratislava, Dom Techniky 2002, pp. 19-21. ISBN 80-233-477-1 (in Slovak)
- [10] BAJZA, A.: Repair Materials. In: Proceedings of Repair of Concrete Constructions. Bratislava, ZSBK 2002, pp. 125-152 (in Slovak)
- [11] ROUSEKOVÁ, I. – LEDEREROVÁ, M.: The Use of Fine Crushed Aggregate of Waste Rock in Mortars. In: Proceedings of 7th Scientific Conference. 10th Section: Building Materials. Košice, TU 2002, pp. 179-184. ISBN 80-7099-816-4 (in Slovak)
- [12] PAVLÍK, V.: Effect of Alkali Metals on the Carbonation of Cement Stone. In: Proceedings of 7th Scientific Conference. 10th Section: Building Materials. Košice, TU 2002, pp. 159-164. ISBN 80-7099-816-4 (in Slovak)

- [13] ŠVEDA M.: Effect of a Firing Programme on the Durability of Clay Roofing Tile. In: Proceedings of 7th Scientific Conference. 10th Section: Building Materials. Košice, TU 2002, pp. 217-220. ISBN 80-7099-816-4 (in Slovak)
- [14] ŠVEDA, M.: Selected Defects of Brick Constructions. In: Proceedings of 6th Conference on Defects in Buildings - The Use of Unsuitable Materials. Bratislava, Dom Techniky 2002, pp. 13-18. ISBN 80-233-477-1 (in Slovak)
- [15] UNČÍK, S.: Admixtures to Concrete. In: Proceedings of Production of Concrete. TU Košice, SAVT Bratislava, SSVTS 2002, pp. 23-41, ISBN 80-7099-753-2 (in Slovak)
- [16] Unčík, S.: Compatibility between Admixtures and Cement. In: Proceedings of Cement 2002 Conference. Stará Lesná 2002, pp. T1-T9
- [17] Unčík, S.: Compatibility of Cement and Admixtures. In: Proceedings of Cement Producers Seminar. Belušké Slatiny 2002, pp. 1-13