

<b>DEPARTMENT OF BUILDING SERVICES</b>
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**II. EQUIPMENT****II.1 Teaching and Research Laboratories**

Laboratory - Trnávka  
 Applied Precision Ltd., Bratislava  
 Imos - Asec, Ltd., Bratislava

**II.2 Special Measuring Instruments and Computers**

Bruel & Kjer Thermal Comfort Analyzer  
 Anemometer  
 Izomet 104  
 Globe Meter  
 Measuring Unit  
 Instrument for Hydraulic Balancing of Heating Systems

Computer room:  
 PC computers: DTK 486, Escom 386, Eurocomp-Pentium, Pentium 200,  
 Plotter, printer

**III. TEACHING****III.1 Graduate Study**

Subject	Semester	Hours Per Week		Lecturer
		Lectures	Seminars	
Technical Equipment of Buildings	4	2	2	Peráčková, Tonhauzer
Technical Equipment of Buildings II	5	2	1	Petráš, Lulkovičová
Technical Equipment of Buildings III	6	2	1	Székyová, Boďo
Internal Water and Gas Piping	7	3	2	Valášek, Tonhauzer
Internal Drainage	7	2	1	Valášek
Ventilation	7	2	2	Székyová
Heating I	7	2	2	Lulkovičová
Heating II	8	2	2	Petráš
Design IV	7	0	3	Peráčková
Design V	8	0	4	Lulkovičová
Design VI	9	0	4	Székyová
Design VII	10	0	4	Lulkovičová

Air Conditioning	8	2	2	Székyová
Computer Design Systems	8	0	3	Kalús
Measuring and Control I	8	2	2	Koudelková
Measuring and Control II	9	2	2	Ehrenwald,
Energy Supply of Buildings	8	2	1	Takács
Excursions	9			Takács
Building Control Systems	10	2	2	Ehrenwald
Special Seminar	9, 10	0	2	Peráčková, Kalús, Székyová
Heating Audit	10	1	3	Petráš
Technical Equipment of Buildings	3	1	1	Peráčková, Valášek
Heating Systems	9	2	2	Petráš
Industrial Installations	9	2	2	Hrbatý
Renewable Energy in Technical Equipment of Buildings	9	2	2	Lulkovičová, Takács
Ventilation & Air Conditioning Systems I	9	2	2	Leimberger
Industrial Air Conditioning Systems II	9	2	2	Székyová
Sanitation Audit	10	1	3	Peráčková
Ventilation Audit	10	1	3	Leimberger
Combustion Technology	10	2	1	Lulkovičová
Fire-Fighting Equipment	9	2	2	Jánošková
Diploma Seminar	10			
Internships				Peráčková, Kalús, Székyová
Technology Equipment	9	2	2	Tonhauzer
Sanitary-Technical Equipment	10	2	1	Valášek
Operation of Air Conditioning Systems	10	2	1	Székyová

#### IV. RESEARCH TARGETS

- measuring and control systems in heating
- indoor climate and indoor air quality of buildings
- modernization of sanitation and ventilation
- rational use of fuels and energy
- ecological cities

#### V. RESEARCH PROJECTS

##### Domestic Projects

1. VEGA – Optimization of the Process of Production, Distribution and Consumption Based on Energy Audits of Buildings (3 years, Prof. Petráš)

2. VEGA – Prediction of Energy and Ecological Impacts on the Minimization of an Environmental Load Through Utilization of Renewable Energy Sources (3 years, Assoc. Prof. Lulkovičová)
3. VEGA – Determination of Criteria for Recovery of Energy and Fluids in Technical Energy Systems: Concerning Sustainable Indoor Environment Quality (3 years, Assoc. Prof. Peráčková)

#### International Projects

1. SOCRATES / ERASMUS – Student Mobility – PH Pinkafeld (Austria, 6 students), DTU Lyngby (Denmark, 2 students), TU Vienna (Austria)
2. CIRIUS – Student Mobility - ICIEE – DTU (Lyngby, Denmark)
3. AUSTRIA – SLOVAKIA – Kooperation im Bereich Ausbildung, mit Schwerpunkt Konzeption Eines Double Degree Programms im Bereich Gebäudetechnik und Forschung auf dem Gebiet der TGA im Jahr 2006 (Assoc. Prof. Lulkovičová, O.; 2006)
4. CEEPUS II – AT – 0050 – 01 – 0506 – M – 1600 – Education without Frontiers (Assoc. Prof. Lulkovičová, O.; 2006)
5. KEGA – Preparation of Teaching Materials for Building Service Specializations (Assoc. Prof. Lulkovičová, O.; 2006)

## VI. COOPERATION

### VI.1 Cooperation in Slovakia

1. VVÚPS-NOVA, Bratislava
2. Institute of Construction and Architecture, Slovak Academy of Science, Bratislava
3. University of Technology, Košice
4. Geberit-Slovakia, Bratislava
5. TMS Montys, Ltd., Bratislava
6. REHAU, Ltd., Bratislava
7. Slovak Institute of Technical Normalization, Bratislava
8. Technical Testing Institute, Piešťany
9. Ministry of Town Planning and Construction of the Slovak Republic, Bratislava
10. Technical University, Žilina
11. The Ministry of the Environment of the Slovak Republic
12. Slovak Health Spa - Piešťany
13. Slovak Metrology Institute Bratislava
14. SEA - Slovak Energy Agency
15. SSTP - Slovak Society of Environmental Techniques
16. DEVI, Ltd. Bratislava
17. Witzemann Slovakia, Ltd., Bratislava
18. Herz, Ltd., Bratislava
19. Atcon System, Ltd., Bratislava
20. Robert Bosh – Junkers Thermotechnik, Ltd., Bratislava
21. Laufen, Ltd., Bratislava

## VI.2 International Cooperation

1. ENSI - Energy Saving International AS, Oslo, Norway
2. Hansa, AG, Burglengenfeld, Germany
3. Geberit, AG, Rottenbrunn, Germany
4. GAS, Ltd. Prague, Czech Republic
5. ČVÚT – Civil Engineering Faculty, Prague, Czech Republic
6. VÚT, Brno, Czech Republic
7. Deutsche Institute für Bautechnik, Berlin, Germany
8. Czech Association of Civil Engineers, Prague, Czech Republic
9. ASHRAE – Atlanta, Georgia, USA
10. REHVA – Brussels, Belgium
11. Fachhochschule Pinkafeld, Austria
12. Fachhochschulstudiengänge Burgenland, Ges.m.b.H., Austria
13. The Danish Technical University – International Center for the Indoor Environment and Energy, Lyngby, Denmark
14. Technical University, Budapest, Hungary
15. Hansa, Ltd., Kralovice, Czech Republic
16. LDM, Ltd., Česká Třebová, Czech Republic
17. VOGEL and Noot, Ltd., Austria
18. JIKA Laufen, Znojmo, Czech Republic
19. HERZ Ges.m.b.H, Austria

### VI.2.1 Visitors to the Department

1. Prof. Papež, K.; The Czech Technical University of Prague, Czech Republic
2. Assoc. Prof. Hirš, J., K.; The Czech Technical University of Prague, Czech Republic
3. Kabele, The Czech Technical University of Prague, Czech Republic
4. Assoc. Prof. Kuba, J., Mining University, the Faculty of Civil Engineering, Ostrava, Czech Republic
5. Dipl. Ing. Zaphel, W.; Draxler, E.; Muhl, M.; Geyer, J.; Seerig, A.; Urank, D.; Krottil, R.: Fachhochschule Pinkafeld, Austria (Austrian - Slovak Action)
6. Mr. Astleintner, K.; VOGEL and NOOT, Wartberg, Austria
7. Kotenko, A.: Odessa State Academy of Building and Architecture, Ukraine (Ukrainian student studying for 10 months in our dept./ IVF)

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

1. Petráš, D.: presentation, ASHRAE Annual Winter Meeting 2006, USA
2. Petráš, D.: committee member, the Czech Technical University of Prague, Czech Republic
3. Petráš, D.: conference presentation, the Technical University, Pecs, Hungary
4. Petráš, D.: presentation, AICCAR congress, Milan, Italy
5. Petráš, D.: meeting of EU project, Jyvaskyta, Finland
6. Petráš, D.: Stavebný veľtrh exhibition, Brno, Czech Republic
7. Petráš, D.: ministry delegate, Geneva, Switzerland
8. Petráš, D.: REHVA meeting, Moscow, Russia
9. Petráš, D.: presentation at Healthy Building, Lisbon, Portugal
10. Petráš, D.: committee president, the Faculty of Civil Engineering, Technical University, Brno, Czech Republic
11. Petráš, D.: presentation at IHTC congress, Sydney, Australia

12. Petráš, D.: University of Auckland, Australia
13. Petráš, D.: University of Melbourne, Australia
14. Petráš, D.: presentation, Singapore
15. Petráš, D.: presentation, Summer School, the Czech Technical University of Prague, Czech Republic
16. Petráš, D.: presentation, Climacademy, Sofia, Bulgaria
17. Petráš, D.: meeting, the Faculty of Civil Engineering, Ostrava, Czech Republic
18. Petráš, D.: award, the Faculty of Civil Engineering, Technical University, Brno
19. Petráš, D.: presentation, Aquatherm, Prague, Czech Republic
20. Babiak, J., Bekö, G., Balážová, I.: presentation, Climacademy, Pamporovo, Bulgaria
21. Babiak, J., Boldiš, T., Bekö, G.: presentation, Healthy Buildings, Lisbon, Portugal
22. Bekö, G.: presentation, International Conference on Air Conditioning and Ventilation, Prague, Czech Republic
23. Bekö, G.: lecture and seminar, University of Texas at Austin, USA, Austin, Texas, USA
24. Bekö, G.; Babiak, J.; Halvoňová, B.: International Center for Indoor Environment and Energy, DTU, Lyngby, Denmark (SOCRATES for Ph.D. students)
25. Ehrenwald, P.: presentation, Control of Power & Heating Systems, Zlín, Czech Republic
26. Tóthová, V.: 4<sup>th</sup> HVAC summer school, Zduchovice, Czech Republic

## VII. THESES

### VII.1 Graduate Theses

No.	Student's Name	Title	Supervisor
1	Bajči, A.	Air-Heated Ventilation and Cooling of Selected Areas in a Shopping Center	Székyová, M.
2	Beleš, M.	Design of Low – Temperature Heating and High-Temperature Cooling	Petráš, D.
3	Beňadiková, G.	Supply of Drinking, and Fire – Fighting Water for Dwelling Houses	Jánošková, T.
4	Bízek, J.	Technical Equipment in a Canteen	Jánošková, T.
5	Borovec, M.	Design of a Solar Collector for an Energy System with Year – Round Operation in a Hotel	Lulkovičová, O.
6	Bullová, D.	Large – Scale Low – Temperature Heating in a Relaxation Spa	Kalús, D.
7	Černý, L.	Technical – Economic Analysis of Heating System Renovation in a Vrakuňa Factory Hall for Panel Production	Kalús, D.
8	Dynka, E.	Technical – Economic Analysis of Heat Supply in an Industrial Park – Renewable Energy Source Base	Takács, J.
9	Farkašovský, M.	Straw as an Additional Heat Source for a Local Boiler Room in the Town of Šaľa	Takács, J.
10	Fekete, M.	Heating a Sports Hall	Kalús, D.
11	Hubka, M.	Final Documentation for Public and Internal Drainage in a Building for Vehicle Service and Show Room	Tonhauzer, I.
12	Kaušitz, M.	Design of Combined Heating System in Salesian	Petráš, D.

13	Kohútová, J.	Community Building Complex Final Project for Sanitary Installation, Drainage, and Gas Piping in Hotel Kitchens	Valášek, J.
14	Konkol, R.	Design of a Heat Pump for Heating in a Family House	Lulkovičová, O.
15	Lehotská, E.	Final Project for Sanitary Installation in a Multifunctional Building	Valášek, J.
16	Leporis, M.	Ventilation and Air Conditioning for Sterile Spaces in Prievidza Hospital	Bod'ó, R.
17	Marák, I.	Design of New Sprinkler for Permanently Placed Fire – Fighting Equipment for Halls	Jánošková, T.
18	Matejko, P.	Design of Low – Temperature Heating – Environmental Energy Base	Petráš, D.
19	Michalíček, B.	Ventilation of an Indoor Swimming Pool – Bratislava / Rača	Bod'ó, R.
20	Michalský, M.	Heating a Factory Hall via Gas Infrared Heaters	Kalús, D.
21	Mazúr, J.	Ventilation of a Chrysler Car Service Station in Bratislava	Bod'ó, R.
22	Modoryoá, D.	Final Project for External Sanitary Installations and Service Pipes in a Factory Area	Valášek, J.
23	Nagy, R.	Heat Source for a Local Boiler Room – Natural Gas Base	Takács, J.
24	Pauko, P.	Design of Low – Temperature Systems in a Hotel - Geo-Thermal Water Energy Base	Petráš, D.
25	Pindroch, M.	Alternative Solution for Internal Water Piping in a Spa	Tonhauzer, I.
26	Podhora, M.	Design of a Solar Energy System in a Boarding House	Lulkovičová, O.
27	Poliach, P.	Ventilation and Air Conditioning of Selected Rooms in a Bank	Székyová, M.
28	Popovičová, M.	Project for Internal Drainage in an Office Building – Vacuum Rain Water Drainage System	Peráčková, J.
29	Scholtzová, Z.	Final Project for Sanitary Installations in a Residential Building	Peráčková, J.
30	Skokanová, K.	Ventilation of a Kitchen	Bod'ó, R.
31	Sokol, M.	Ventilation and Air Conditioning Selected Areas of an Office Building	Székyová, M.
32	Šándorová, Z.	Ventilation of Selected Areas in an Office Building	Bod'ó, R.
33	Štefánik, M.	Final Project for Warm Water Heating System for a Multistorey Residential Building in Bratislava, Heydukova Street	Takács, J.
34	Štuller, R.	Alternatives for Warm Water Preparation in Residential Buildings	Peráčková, J.
35	Šuster, L.	Ventilation of the Archive of the Slovak Insurance Company on Račianska Street, Bratislava	Bod'ó, R.
36	Tomanová, K.	Design of a Bivalent Solar Energy System with Year – Round Operation in an Office Building	Lulkovičová, O.

37	Tóth, M.	Energy Audit of High – Rise Buildings – ZT Building System	Peráš, D.
38	Tužinský, P.	Air-Heated Ventilation of an Industrial Hall with Heat Recovery	Kalús, D.
39	Uvíra, M.	Air Heated Ventilation of a Factory Hall	Székyoá, M.
40	Valcharčiak, A.	Ventilation of Selected Areas of a Furniture Studio Exposition in a Furniture Store in Bratislava	Boďo, R.
41	Zajíček, P.	Heating of a House - Boarding – Solar and Geothermal Energy Base	Kalús, D.
42	Zinai, S.	Air - Heated Ventilation and Cooling of an Industrial Hall – Cheese Production	Székyová, M.

## VII.2 Doctoral Theses

No.	Student's Name	Title	Supervisor
1.	Ehrenwald, P.	Analysis of Possible Energy Savings via Computer - Controlled Heating in a Building.	
2.	Boldiš, T.	Combined Heating Systems - Electrical Base	Petráš, D.
3.	Repka, N.	Contribution to a Design of Combined Heating and Ventilation Systems in Halls	Petráš, D.

## VIII. OTHER ACTIVITIES

### VIII.1 Special Lectures

- [1] Organization of International Conference on Heating 2006, Tatranské Matliare, 2006
- [2] Organization of the SANHYGA International Conference 2006, Piešťany, 2006
- [3] Organization of an International Conference on the Indoor Climate of Buildings 2006, Tatranská Lomnica
- [4] Organization of national conference on Measuring and Calculating Heat Cost (with international participation)
- [5] Organization of a Seminar on Energy Audits of Single Family and Residential Buildings
- [6] Cooperation in organization of a seminar on Heat Sources, Water, and Drainage Systems, and Ventilation and Air Conditioning during Aqua-Therm 2006 Exhibition, Nitra
- [7] Organization of a national conference on Ventilation and Air Conditioning 2006 (with international participation), Štrbské Pleso

### VIII.2 Commercial Activities for Firms and Institutions

1. Boldiš, T., et al.: Translation and adoption of EU Standard 14 337, Slovakia 2006
2. Petráš, D., et al.: Methodology for Energy Supply Audit on SAV (Slovak Academy of Science) Grounds, Slovakia 2006
3. Kalús, D., et al.: Renovation of Heat Source for PD Town of Mestečko, Slovakia, 2006
4. Petráš, D., et al.: Energy Audit of a Military Hospital in Bratislava, Slovakia, 2006
5. Takács, J., et al.: Utilization of the Balneological Potential in Geothermal Water, Slovakia, 2006
6. Petráš, D., et al.: Energy Concept for Town of Trnava, Slovakia, 2006



7. Takács, J., et al.: The Structure of Heat Energy Requirements, Slovakia, 2006
8. Lulkovičová, O., et al.: Sustainable Development in Building Services, Slovakia, 2006
9. Kalús, D., et al.: Design of a Low - Energy House Using Solar Energy, Slovakia, 2006
10. Petráš, D., et al.: Energy Audit of School Buildings in Town of Žiar nad Hronom, Slovakia, 2006

## IX. PUBLICATIONS

### IX.1 Journals

1. BEKÖ, G.; HALÁS, O.; CLAUSEN, G., WESCHLER, C. J.: Initial Studies of Oxidation Processes on Filter Surfaces and Their Impact on Perceived Air Quality. *Indoor Air*, Vol. 16, 2006, pp. 56-63 (in Slovak)
2. KOLAŘÍK, J.; BABIAK, J.: The Use of a Thermoactive Building System for Heating and Cooling Office Buildings – I. Heating, Ventilation, Installations, Vol. 15, 2006/1, pp. 45-48 (in Slovak)
3. KOLAŘÍK, J.; BABIAK, J.: The Use of a Thermoactive Building System for the Heating and Cooling of Office Buildings – II. Heating, Ventilation, Installations. Vol. 15, 2006/5, pp. 45-48 (in Slovak)
4. BEKÖ, G.; HALÁS, O.; CLAUSEN, G.: Initial Studies of Oxidation Processes on Filter Surfaces and Their Impact on Perceived Air Quality. *Indoor Air*, Vol. 16, 2006, No. 1, pp. 56-63 (in English)
5. PETRÁŠ, D.: Energy Audit Versus Energy Certification of Buildings. *Eurostav*, Vol. 12, 2006/2, pp. 46-48 (in Slovak)
6. PETRÁŠ, D.: Heating of Houses and Apartment Buildings – 1st part. *TZB Haustechnik*, Vol. 14, 2006/1, pp. 10-14 (in Slovak)
7. PETRÁŠ, D.: Heating of Houses and Apartment Buildings – 2nd part. *TZB Haustechnik*, Vol. 14, 2006/2, pp. 6-10 (in Slovak)
8. PETRÁŠ, D.: Energy Audit of Buildings. The First Step to Their Energy Certification. *Stavba*, Vol. 9, 2006/3, pp. 26-29 (in Slovak)
9. PETRÁŠ, D.: Key Number Method. Postgraduate Course on Complex Aspects of Energy - Efficient Building Operation. Dept. of Building Services, pp. 6 CD, 2006 (in Slovak)
10. PETRÁŠ, D.: Heating of Houses and Apartment Buildings –3rd part. *TZB Haustechnik*, Vol. 14, 2006/4, pp. 6-11 (in Slovak)
11. PETRÁŠ, D.: Heating of Houses and Apartment Buildings - 4th part. *TZB Haustechnik*, Vol. 14, 2006/5, pp. 6-11 (in Slovak)
12. PETRÁŠ, D.: Heating of Houses and Apartment Buildings –5th part. *TZB Haustechnik*, Vol. 14, 2006/6, pp. 48-51 (in Slovak)
13. BABIAK, J.; KOLAŘÍK, J.: Cooling and Heating of Office Buildings Using a Thermoactive Building System. *TZB Haustechnik*, Vol. 14, 2006/6, pp. 29-33 (in Slovak)
14. PETRÁŠ, D.: Heating of Houses and Apartment Buildings: Current State Versus Future. *Štýl bývania*, Vol. 12, 2006/1-2, pp. 82-83 (in Slovak)
15. PETRÁŠ, D.: Energy Audit of BA-NKS Residential Building. *Stavebné materiály*, Vol. 2,

- 2006/1-2, pp. 46-47 (in Slovak)
16. LULKOVIČOVÁ, O.: Low Thermal and Condensing Boilers. Stavba, Vol. 9, No. 3, pp. 50-52 (in Slovak)
  17. LULKOVIČOVÁ, O.: The Technical and Emission Categorizations of Heating Boilers. TZB Haustechnik, Vol. 14, 2006, No. 1, pp. 6-8 (in Slovak)
  18. LULKOVIČOVÁ, O.: Heat Sources. Postgraduate Course on Complex Aspects of Energy - Efficient Building Operation. The Faculty of Civil Engineering, Dept of Building Services, 6 pp., CD, May 2006 (in Slovak)
  19. LULKOVIČOVÁ, O.; TAKÁCS, J.: Renewable Energy Sources. Postgraduate Course on Complex Aspects of Energy - Efficient Building Operation. The Faculty of Civil Engineering, Dept of Building Services, 8 pp., CD, 2006 (in Slovak)
  20. KALÚS, D.: Passive Buildings. Typical Panel Building IDA I Model. TZB Haustechnik, Vol. 14, 2006, No. 4, pp. 37-40 (in Slovak)
  21. KALÚS, D.: Passive Buildings. Typical Panel Building IDA I Model. Part 2 - Project and Realization. TZB Haustechnik, Vol. 14, 2006, No. 6, pp. 10-13 (in Slovak)
  22. KALÚS, D.: Passive Buildings – Progressive and Ecological Living. Životné prostredie, Vol. XL, 2006, No. 3, pp. 151-154 (in Slovak)
  23. KALÚS, D.: Typical Passive Panel Houses. Facility Management News, 2/2006, Vol. 8, Supplement to the Journal of Development News 7/2006, p. 12 (in Slovak)
  24. LULKOVIČOVÁ, O.: Open Gas Appliances. Stavebné materiály, Vol. 2, 2006, Nos.11-12, pp. 45-47 (in Slovak)
  25. VALÁŠEK, J.: Energy Efficiency of Warm Water Distribution Systems. TZB Haustechnik, 14, 2006, No. 3, pp. 6-7 (in Slovak)
  26. PERÁČKOVÁ, J.: Realization of Anti-Condensation Thermal Insulation. TZB Haustechnik, 14, 2006, No. 3, pp. 14-16 (in Slovak)
  27. JÁNOŠKOVÁ, T.: Design of Common Piping for Potable Water and Water Extinguishing Equipment in Dwellings. TZB Haustechnik, 14, 2006, No. 3, pp. 26-28 (in Slovak)
  28. PERÁČKOVÁ, J.: Technical Solutions of Shower Units. TZB Haustechnik, 14, 2006, No. 5, pp. 13-15 (in Slovak)
  29. VALÁŠEK, J.: Basic Requirements for Potable Water Piping in Buildings. Building Materials, 2, 2006, No.3, pp. 70-71 (in Slovak)
  30. VALÁŠEK, J.: Different View Points on Bathroom Sanitary Equipment. ASB, 13, 2006, Nos. 1-2, pp. 77-80 (in Slovak)
  31. VALÁŠEK, J.: Disposition of Sanitary Units in Dwellings. Building Materials, 2, 2006, Nos.11-12, pp. 24-26 (in Slovak)

## IX.2 Books and Textbooks

1. SZÉKYOVÁ, M.; FERSTL, K.; NOVÝ, R.: Ventilation and Air-Conditioning. Bratislava, JAGA Group, 2006, 359 pp. (in Slovak)
2. PETRÁŠ, D.; KOTRBATÝ, M.; et al.: Heating of Large – Scale Halls. Bratislava, JAGA Group, 2006, 206 pp. (in Slovak)

3. SZÉKYOVÁ, M.: Ventilation and Air Conditioning Equipment. In: Building Services, Bratislava, Verlag Dashöfer L.C., 2006. CD, 24 pp. (in Slovak)
4. EHRENWALD. P.: Regulation and Building Control Systems. Course on Complex Operating Aspects of Energy-Efficient Buildings. STU, Dept. of Building Services, 23 pp., 2006 (in Slovak)
5. SZÉKYOVÁ, M.: Ventilation and Air-Conditioning of Buildings. Course on Complex Operational Aspects of Energy-Efficient Buildings. STU, Dept. of Building Services, 7 pp., 2006 (in Slovak)
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