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In Tampere 4th March 2011

Scientific report from Short Term Scientific Mission

My name is Kamila Horová, I am a Ph.D. student at Faculty of Civil Engineering at the Czech Technical University in Prague. Under the supervision of professor František Wald I study the topic which is focused on spreading of fire in multi-storey buildings. At this moment I am in the first year of my study, I try to collect all materials and knowledge all around the world about this theme to put together theoretical background, the State of the Art. After I would like to make decision which way of this wide theme is the best to continue and develop as regards public benefits.

In period of February 21st to March 7th I passed my Short Term Scientific Mission at Tampere University of Technology, Faculty of Built Environment, Department of Civil Engineering. Professor Markku Heinisuo, leader of Metal Structures, was so kind and looked after me during my stay in Tampere. I could get to know his research group, which works at three places: Seinäjoki, Hämeenlinna and Tampere. People from this group have been supporting needs of today´s time with their research.

After my coming to Tampere professor Heinisuo showed me his working places. As the first professor took me to Seinäjoki to knew research activities at Research Centre of Metal Structures. Henri Perttola, a researcher of the Centre explained me his research in area of RHS column bases. This theme was close to my theme of master thesis, therefore we could discuss of this topic. Then I visited University of Applied Science in Seinäjoki. The university system was introduced to me. After it I could visit local laboratories equipped with cone calorimeter, furnace for small scale tests, welding machines, etc. The second place I visited was Hämeenlinna. Karol Bzdawka, a researcher of Research Centre of Metal Structure, was introduced to me. He explained me his field of work, which concerns optimization of steel structures cost. Also here I visited local laboratories- one of HAMK (University of Applied Science in Hämeenlinna) and the second of Rautaruukki research centre. In HAMK laboratory there were done several tests of coating of metal sheets, effect of wind on composite wall, etc. After presentation of Ruukki´s business aims, technology and products I visited company´s laboratory, where, thanks to Dr. Jyrki Kesti, I could see several types of cladding system, roofing, development of new members, etc. Next day I met Mr. Mauri Laasonen at Tampere University of Technology. He guided me through the university complex and showed me local laboratory with a big furnace and an office where I had my own desk. After, I could study materials that were provided to me at this place. Mr Laasonen is an expert in

information technology. He explained me Natural Fire Design project of Ruukki. This project is focused on fire modelling based on fire packages. Fire in a building model is simulated by the help of FDS. He also explained me the importance of a systematization of design fires in Finland. Following days I could spend with personal studies. I read papers regarding integrated fire design and effect of grid size to temperature predictions in FDS, with which professor Heinisuo supported me. I appreciated it very much. Discussions with professor about natural fire design and about possibility of simulation were very interesting and benefiting for me. During our conversation some suggestions and interesting ideas for my following research work, what I can focus on, arose.

The last meeting professor Heinisuo arranged for me was a meeting with Jukka Hietaniemi and Jyri Outinen in Espoo. Both of them are experts from practice in the field of fire engineering. They also have large theoretical background gained from research. From this discussion I could know important knowledge as regards fire simulation in FDS, vertical spread of fire and many other interesting ideas, again about a future possible work in this field. I also obtained some interesting papers and contact to other fire researcher who could help me. This meeting was really benefiting for me.

At Tampere University of Technology I gained a lot of priceless knowledge of natural fire design and computational simulation made in FDS. I will use this experience and good ideas what to focus on in my research work. I would like also to concern knowledge obtained in Tampere to State of the Art of my Ph.D. work. I also promised to write an article focused on comparison of results from “Near field and far field temperature” model developed in Edinburgh and from fire simulation in FDS for an appropriate structure. I would be delighted if I can cooperate with Tampere University of Technology also in the future.

I have to thank Prof. Markku Heinisuo, Mr. Henri Perttola, Mr. Karol Bzdawka, Dr. Jyrki Kesti, Dr. Mauri Laasonen, Dr. Jyri Outinen and Dr. Jukka Hietaniemi that they devoted their time to me. They were very kind. I would like to thank the COST Office of the European Science Foundation for the realisation of this Short Term Scientific Mission in Tampere, Finland.

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