Research group

I. *Research group heading/name & full address/affiliation*

PhD Magdalena Nakielska
PhD Mariusz Chalamoński, prof. UTP
PhD Krzysztof Pawłowski

UTP University of Science and Technology in Bydgoszcz
Faculty of Civil and Environmental Engineering and Architecture
Av. Prof. S. Kaliskiego 7,
85-796 Bydgoszcz
Poland

II. *Name of the group's leader with a short BIO (CV).*

PhD Magdalena Nakielska

Date of birth: 20th December 1976
Nationality: Polish
Telephone: (+48) 604-085-145
E-mail: magdalena.nakielska@gmail.com

EDUCATION DETAILS:

2015-2016	Postgraduate Studies "Energy-efficient construction from renewable energy sources"
2015	University of Science and Technology in Bydgoszcz PhD in Civil Engineering
2008	License exam - Designer building structures
2000 – 2003	University of Science and Technology in Bydgoszcz Eng. in Environmental Engineering
1996 – 2001	University of Science and Technology in Bydgoszcz Msc in Civil Engineering

WORK EXPERIENCE:

2001 to present	University of Sciences and Technology in Bydgoszcz, the Department of Heating, Ventilation and Sanitary Engineering
2003 – 2006	Building Designing Office "MASTER" Civil and Structural Engineers, Associated company: Clarke Nicholls & Marcel, Consulting Civil & Structural Engineers, London, England, Position: designer's assistant

Magdalena Nakielska works at the Department of Heating, Ventilation and Sanitary Engineering. PhD thesis on solar chimneys, was the beginning of research of study issues relating to the operation of the solar chimney. The subject of research interest are solar chimneys as a passive way assisted natural ventilation as well as issues concerning the construction and installation of energy-efficient construction. She is the author of many works in the field of energy performance of buildings and energy audits.

III. ***Names of the group's members and their research areas/interests.***

PhD Krzysztof Pawłowski - civil engineering, building physics, assessment of hygrothermal building condition

PhD Mariusz Chalamoński, prof. UTP - environmental engineering, thermodynamics, phase change material

IV. ***Leading research topic of the group.***

Solar chimney support gravitational ventilation.

V. ***Best realizations of the main research topic (brief characteristics or description).***

In order to check the operation of the solar chimney in Poland at UTP University of Science and Technology in Bydgoszcz, al. Kaliskiego 7, there are two rooms chosen to modify the existing gravity ventilation system by adding a new element – a solar chimney. Solar chimneys are superstructures built on the existing ventilating ducts. One superstructure was made of B20 ferroconcrete reinforced, the second test stand is a solar chimney made of solid bricks glued together. The barrier with south exposure is glazing. When compared to the situation without a solar chimney, the research shows intensification of air exchange. We can observe the increase in the stream of air volume. It results from intensified air exchange in a room. We continue to this research.

VI. ***General expression of interests.***

Subject includes analysis support natural ventilation using solar chimneys. Chimneys made of various materials including materials PCM.

VII. ***Specific interests and additional topics of extended interest.***

The research team is involved in the following measurements:
- measurements of air parameters,
- measuring air velocity in the room,
- analysis of the causes of abnormal working of natural ventilation,
- measurements parameter microclimate inside of existing buildings,
- numerical simulation of flow heat and mass

VIII. ***Other important characteristics of the group.***

The research group includes people involved in mutually additional issues related to (follow up) the main topic.

IX. ***Main group's achievements.***

The achievement of the group is to build two solar chimneys, which confirmed the passive cooling rooms in summer. In Poland, solar chimneys work by increasing natural ventilation. In view of the multidisciplinary group it is very well with each work.

X. ***5 selected publications and/or other relevant accomplishments.***

1. Nakielska M., Pawłowski K. 2016. Solar chimney as example of passive cooling system in building, Civil and Environmental Engineering, volume 7, no. 1
2. Pawłowski K., Bujarkiewicz A., Sztubecki j., Sztubecka M., Pasela R., Chalamoński M., Sobczak-Piąstka J., Piotrowska E. 2016. Project management of energy-saving technology. Advertising Agency TOP, Wloclawek
3. Chalamoński M., Nakielska M. 2012. Mathematical models of solar chimneys. Engineering and Protection Environmental. Publishing Office of Bydgoszcz University of Science and Technology, Bydgoszcz
4. Nakielska M. 2015. Solar chimney as energy-efficient ventilation system. Selected problems of the construction industry. Publishing Office of Bydgoszcz University of Science and Technology, Bydgoszcz
5. Chalamoński M., Nakielska M. 2015. Study the performance of the solar chimney. General construction. Issues structural materials and heat and moisture in the construction industry. Publishing Office of Bydgoszcz University of Science and Technology, Bydgoszcz