


Event:
Date:
Place:

ENERGY in BUILDINGS 2017
Saturday October 21, 2017
Athens, Hellas



#	<p>Arash Rasooli PhD researcher</p>	
Title:	Mechanical Engineer, PhD student at Delft University of Technology	
Presentation title:	<p>Energy and Comfort Monitoring in Existing Buildings: A Large-Scale Measurement Campaign of 150 Dutch Dwellings</p>	
<p>With the introduction of smart meters, there is now a huge potential available for analysis of the real-time energy consumption patterns. From the scientific point of view, the analysis of such patterns in parallel with real time measured data of other variables such as air temperature, can lead to invaluable information. Along the same line, measurement campaigns provide the opportunity to observe the correlations between measured data leading to thermal comfort, thermo-physical characteristics of the building, HVAC, and the energy consumption. In the current research, the setup of an extensive monitoring campaign of 150 houses in the Netherlands is explained and the preliminary results of the collected data are shown. Three separate monitoring campaigns are run in a period of one year. Each campaign takes place in 50-60 dwellings. The houses are inspected; the tenants fill in questionnaire and the measurement equipment are installed in all rooms by installers who are trained for the whole procedure. In addition to the smart data which is the pattern from the gas and electricity consumption, various parameters such as air properties (temperature, relative humidity, and CO2 concentration), presence patterns of occupants, perceived comfort level of occupants, and more, are examined. Similarly, for the thermo-physical properties, the thermal resistance of exterior walls and windows, the supply and return temperatures of the heating system are studied in few case studies. More in-depth investigation takes place in a smaller sample by studying extensive measured data of thermal comfort including radiant temperature and local air velocity, local climatic conditions. Along the same line, other thermo-physical characteristics such as the seasonal efficiency and electricity consumption of the heating systems take place in selective houses. This would also show the level of dependence of the results on the extensity of the measurements.</p>		

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CV:

Arash Rasooli is a PhD candidate at Delft University of Technology. Before starting as a PhD, Arash completed an M.Sc. in Mechanical Engineering at TU Delft. He moved to the Netherlands in 2012 after completing his B.Sc. in Mechanical Engineering track Solid Mechanics.

Currently, Arash works at OTB: Research for the Built Environment, Section DWK: Housing Quality and Process Innovation. He started working at OTB in 2013 as an intern, during his M.Sc. internship and thesis. His field of work is "Heat and Mass Transfer in Buildings" and his PhD project title is:

"Determination of Thermo-Physical Characteristics of dwellings as Input for Energy Models for Buildings and the Building Stock"

His project includes a combination of experimental investigations through tests and field measurements and simulation of heat and mass transfer in the buildings.

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