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## Cristina Piselli

Master of Science, Building Engineering-Architecture

PhD candidate in Energy and Sustainable Development

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## Education

- September 2007 – February 2014  
University of Perugia, Italy, Department of Building and Environmental Engineering  
Master degree in Building Engineering and Architecture, with the grade *110/110 e lode*
- September 2012 – March 2013  
Graz University of Technology, Austria, Institute for Architecture and Landscape  
*Erasmus* undergraduate internship

## Master thesis

“Thermal-energy analysis of *Cool-Green Roofs* for historical buildings in the city center of Perugia:  
Experimental analysis and dynamic simulation modeling”

The purpose of this thesis was to analyze an innovative type of green roof, named *Cool-Green Roof*, combining the features of both green and cool roofs. In fact, it is characterized by a specific vegetative layer able to optimize the quote of short-wave radiation reflected by the selected vegetation. The developed solution was studied when applied in a case study building represented by a multifamily XVI century building in central Italy, characterized by cement based roof ceiling needing to be retrofitted. Both in-lab and in-field experimental analyses were carried out for evaluating the building thermal-physics and the solar reflectance and thermal emittance of the selected plant compared to other flat roof materials and greeneries. Additionally, the year-round performance of *Cool-Green Roof* was assessed through calibrated and validated dynamic thermal-energy simulation.

Supervisors: Prof. Franco Cotana

Dr. Anna Laura Pisello

## Research Experience

- November 2014– Present (expected 3 years)  
PhD candidate in Energy and Sustainable Development at CIRIAF – Inter-university Research Centre, University of Perugia, Italy  
Supervisor: Prof. Franco Cotana
- September 2016– December 2016  
Visiting scholar at GREA – Innovació Concurrent, University of Lleida, Spain  
Supervisor: Prof. Luisa F. Cabeza
- May 2014– October 2014  
Post-graduate fellowship for conducting research activities on building thermal-energy dynamic simulation, building energy efficiency and energy efficiency optimization, building envelope and new materials, building performance monitoring, environmental sustainability, global warming mitigation through buildings' improvement strategies at CIRIAF – Inter-university Research Centre, University of Perugia, Italy

## Statistics

(<https://www.researchgate.net>)

*RG Score* 16.09

*Publications* 17

*Reads* 1,769

*Citations* 53

## Skills & Activities

*Skills* Energy Efficiency in Building, Building Simulation, Energy, Energy Saving, Energy Conservation, Optimization, Green Building, Sustainable Architecture, Sustainability, Built Environment, Outdoor Environment, Building, Architecture, Green Architecture, Sustainable Development, Sustainable Building, Sustainable Design, Sustainable Construction, Building Materials, Solar Radiation, PCM, Thermal Comfort, Energy Efficiency, IAQ, Indoor thermal comfort, Solar, Lighting, Energy Modeling, Bioclimatic Architecture, Building Automation, Architecture Science, Building Technology, Urban Sustainability, Microclimate monitoring, Building Monitoring, Occupancy behavior, Occupancy simulation

*Languages* Italian (Mother language)  
English (Professional)  
Spanish (Intermediate)

French, German (Basic)

Interests Basketball, Photography, Travel, Reading, Design

## Publication Highlights

### Journal Publications

- Cristina Piselli, Mohammad Saffari, Alvaro de Gracia, Anna Laura Pisello, Franco Cotana, Luisa F. Cabeza: *Optimization of roof solar reflectance under different climate conditions, occupancy, building configuration and energy systems*. *Energy and Buildings* 2017; 151. DOI:10.1016/j.enbuild.2017.06.045
- Veronica Lucia Castaldo, Anna Laura Pisello, Ilaria Pigliautile, Cristina Piselli, Franco Cotana: *Microclimate and air quality investigation in historic hilly urban areas: Experimental and numerical investigation in central Italy*. *Sustainable Cities and Society* 2017; 33. DOI:10.1016/j.scs.2017.05.017
- Anna Laura Pisello, Veronica Lucia Castaldo, Cristina Piselli, Claudia Fabiani, Franco Cotana: *Thermal performance of coupled cool roof and cool façade: Experimental monitoring and analytical optimization procedure*. *Energy and Buildings* 2017. DOI:10.1016/j.enbuild.2017.04.054
- Anna Laura Pisello, Veronica Lucia Castaldo, Cristina Piselli, Franco Cotana: *Coupling artworks preservation constraints with visitors' environmental satisfaction: Results from an indoor microclimate assessment procedure in a historical museum building in central Italy*. *Indoor and Built Environment* 2017. DOI:10.1177/1420326X17694422
- Anna Laura Pisello, Veronica Lucia Castaldo, Cristina Piselli, Claudia Fabiani, Franco Cotana: *How peers' personal attitudes affect indoor microclimate and energy need in an institutional building: Results from a continuous monitoring campaign in summer and winter conditions*. *Energy and Buildings* 2016; 126. DOI:10.1016/j.enbuild.2016.05.053
- Anna Laura Pisello, Gloria Pignatta, Cristina Piselli, Veronica Lucia Castaldo, Franco Cotana: *Investigating the dynamic thermal behavior of building envelope in summer conditions by means of in-field continuous monitoring*. *Journal of Engineering and Applied Sciences* 2016; 9(3). DOI:10.3844/ajeassp.2016.505.519
- Anna Laura Pisello, Veronica Lucia Castaldo, Cristina Piselli, Gloria Pignatta, Franco Cotana: *Combined Thermal Effect of Cool Roof and Cool Façade on a Prototype Building*. *Energy Procedia* 2015; 78. DOI:10.1016/j.egypro.2015.11.205
- Anna Laura Pisello, Cristina Piselli, Franco Cotana: *Thermal-physics and energy performance of an innovative green roof system: The Cool-Green Roof*. *Solar Energy* 2015; 116. DOI:10.1016/j.solener.2015.03.049
- Anna Laura Pisello, Cristina Piselli, Franco Cotana: *Influence of human behavior on cool roof effect for summer cooling*. *Building and Environment* 2015; 88. DOI:10.1016/j.buildenv.2014.09.025
- Federica Rosso, Anna Laura Pisello, Gloria Pignatta, Veronica Lucia Castaldo, Cristina Piselli, Franco Cotana, Marco Ferrero: *Outdoor thermal and visual perception of natural cool materials for roof and urban paving*. *Procedia Engineering* 2015; 118. DOI:10.1016/j.proeng.2015.11.394

## Book Chapters

Anna Laura Pisello, Veronica Lucia Castaldo, Federica Rosso, Cristina Piselli, Marco Ferrero, Franco Cotana: *Traditional and Innovative Materials for Energy Efficiency in Buildings*. Key Engineering Materials 2016; 678. DOI:10.4028/www.scientific.net/KEM.678.14

## Conference Proceedings

Cristina Piselli, Anna Laura Pisello, Alvaro de Gracia, Mohammad Saffari, Franco Cotana, Luisa F. Cabeza: *Optimization of Coupled Building Roof Solar Reflectance Capability and Insulation Level for Annual Energy Saving under Italian Climate Zones*. 17th CIRIAF National Congress, Sustainable Development, Human Health and Environmental Protection, Perugia, Italy, 2017

Anna Laura Pisello, Veronica Lucia Castaldo, Cristina Piselli, Iaria Pigliautile, Franco Cotana: *Microclimate Mitigation for Reducing Summer Overheating in Historic District*. ISES EuroSun 2016 conference, Palma de Mallorca, Spain, 2016

Anna Laura Pisello, Veronica Lucia Castaldo, Cristina Piselli, Iaria Pigliautile, Luisa F. Cabeza, Gabriel Pérez, Franco Cotana: *Microclimate Mitigation by means of Thermal-energy Storage: A case study in Central Italy*. ISES EuroSun 2016 conference, Palma de Mallorca, Spain, 2016

Anna Laura Pisello, Veronica Lucia Castaldo, Cristina Piselli, Claudia Fabiani, Franco Cotana: *Can we assume that peers behave the same? Results from a continuous monitoring campaign in an office building*. CLIMA 2016 conference, Aalborg, Denmark, 2016

Anna Laura Pisello, Cristina Piselli, Gloria Pignatta, Claudia Fabiani, Filippo Ubertini, Franco Cotana, Mattheos Santamouris: *Net Zero Energy settlement in Europe: first findings of the Zero-Plus Horizon 2020 project*. 16th CIRIAF National Congress, Sustainable Development, Environmental Protection and Human Health, Assisi, Italy, 2016

Anna Laura Pisello, Gloria Pignatta, Cristina Piselli, Veronica Lucia Castaldo, Franco Cotana: *Effect of dynamic characteristics of building envelope on thermal performance in summer conditions: in field experiment*. 15th CIRIAF National Congress, Energy, Environment and Sustainable Development, Perugia, Italy, 2015

## Projects

- ZERO-PLUS: *Achieving near Zero and Positive Energy Settlements in Europe using Advanced Energy Technology* (HORIZON 2020)  
The aim of this research project is to search for buildings design for new highly energy performing buildings (H2020-EE-2015-1-PPP). In this project, a comprehensive, cost-effective modular system for Net Zero Energy (NZE) settlements will be developed and implemented in a series of case studies across the EU. In ZERO-PLUS, the challenge of significantly reducing the costs of NZE settlements will be achieved through the implementation of three parallel strategies:
  - Increasing the efficiency of the components directly providing the energy conservation and energy generation in the NZE settlement.
  - Reducing the "balance of system" costs through efficient production and installation processes.

- Reducing operational costs through better management of the loads and resources on a district scale rather than on the scale of a single building.

WEBSITE of the PROJECT: <http://www.zeroplus.org/index.php/>

- INPATH-TES: *PhD on innovation Pathways for TES* (HORIZON 2020)

Following the EC SET-Plan Education and Training Roadmap, the concept of this project is to develop a joint PhD programme between universities and research centres, on the topic of Thermal Energy Storage (TES). The goal of INPATH-TES is to create a network of universities and research institutes to implement a joint PhD programme on TES technologies.

The final result of such a network is to educate professionals on these technologies for the European research and industry institutions. The partners in the proposal will be the core of a future larger network of excellent R&D institutions, and industries for co-funding and industrial placement, sharing infrastructure capacities, and enhancing mobility of students.

WEBSITE of the PROJECT: <http://www.inpathtes.eu/>

- HERACLES: *HERitage Resilience Against CLimate Events on Site* (HORIZON 2020)

The project goal is to design, validate and promote responsive systems/solutions for effective resilience of CH against climate change effects, considering as a mandatory premise an holistic, multidisciplinary approach through the involvement of different expertise's (end-users, industry/SMEs, scientists, conservators/restorers and social experts, decision, and policy makers).

This will be operationally pursued with the development of a system exploiting an ICT platform able to collect and integrate multisource information in order to effectively provide complete and updated situational awareness and support decision for innovative measurements improving CH resilience, including new solutions for maintenance and conservation.

The HERACLES effectiveness will be ensured by the design and validation of manageable methodologies also for the definition of operational procedures and guidelines for risk mitigation and management.

WEBSITE of the PROJECT: <http://www.heracles-project.eu/>

- IEA-EBC Annex 66: *Definition and Simulation of Occupant Behavior in Buildings*

The Annex 66 project aims at setting up a standard occupant behavior definition platform, establish a quantitative simulation methodology to model occupant behavior in buildings, and understand the influence of occupant behavior on building energy use and the indoor environment. The goal is to provide scientific description and clear understanding of energy related occupant behavior in buildings, as well as research methodologies and simulation tools to bridge the gap between occupant behavior and the built environment, thus to assist building design, operation, and energy technologies evaluation through the close co-operation of researchers all over the world.

WEBSITE of the PROJECT: <https://annex66.org/>

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Perugia, 6<sup>th</sup> July 2017

Signature

*Justine Pi'selli*