

Event:  
Date:  
Place:

**ENERGY in BUILDINGS 2016**  
Saturday November 12, 2016  
Athens, Hellas



#	<p><b>Eftychia Eliopoulou</b> Architect, National Technical University of Athens MSc in Environmental Design of Buildings, WSA, Cardiff University PhD Researcher, National Technical University of Athens Inzeb Scientific Associate</p>	
Title:	PhD Researcher, National Technical University of Athens, Greece	
Presentation title:	<b>Facing the challenge of improving energy efficiency in existing buildings by Architectural Energy Retrofit (AER)</b>	
<p>The refinement of architectural space can play a catalytic role in building's energy balance. The present paper proposes a different configuration on the deep energy retrofit of building's challenge by proposing mainly strategies that hierarchize in a high position the invigoration of the building's architectural qualities. The main working hypothesis supports that bioclimatic trends, derived from primary architectural forms of the early design phase, predispose the final energy performance of the existing building. Architectural Energy Retrofit strategy focuses on these architectural features and at their holistic revival and refinement, indoors and outdoors. Restoration, modification and redesign of existing architectural elements and practices with positive impact on energy demand, are set as the main objectives, along with the revitalization of the external surrounding environment that will also lead to the best response of the end user's energy behavior. The achievement of substantial energy conservation with the implementation of solely architectural interventions tested on a real case study was estimated with Building Information Modeling (BIM) energy tools. Firstly, the original architectural concept was linked with the building's final energy use. Secondly, the energy saving benefit by applying architectural-based retrofit scenarios was described in technical terms. As a result, the barriers and the challenges of "quantifying" the energy efficiency of architecture, in order to be acceptable by the rest of the stake holders were highlighted. This alternative retrofit proposal adds a new base of discussion on deep energy retrofit strategies as it follows a diametrically opposed direction than the typical practices. The building instead of being "sealed" and its environment kept strictly controlled, it "opens" and interacts with its surroundings. Along with the significant energy saving benefits, Architectural Energy Retrofit accredits sustainable architectural practices as the key factor to developing efficient deep energy retrofit strategies.</p>		

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CV:

She is an architect engineer (M. Arch) graduated from the School of Architecture of the National Technical School of Athens. She has a M.Sc. in Environmental Design of Buildings, honored with distinction and scholarship from the Welsh School of Design of Cardiff University. She has been working as a project architect in the private sector and as a freelance sustainable design consultant for over 15 years. From 2011, she is an Energy Assessor and a seminar tutor at the educational program addressed to engineers who aim to qualify as Certified Permanent Energy Assessors in Greece. She is also a Green Design seminar tutor, introducing bioclimatic principles, addressed to engineers with various backgrounds. She has published articles about bioclimatic design in technical magazines and conferences and has been awarded in energy design and architectural competitions. Professional development and research interest on contemporary energy design topics, motivated her to continue her academic studies at the doctoral level. From 2015, she is a PhD researcher in the School of Architecture of the National Technical School of Athens, honored with university scholarship. Her academic topics of research are architectural retrofit strategies with high energy performance implemented in the common energy retrofit strategies, exploring non-energy benefits in sustainable design strategies and advanced building energy simulation. She is also a scientific associate of Institute of Zero Energy Buildings, contributing at the holistic research of the team on issues regarding the conservation of energy in buildings.