

Event:

Energy in Buildings Athens Conference 2026

Date:

Saturday October 24, 2026

Place:

Divani Caravel Hotel Athens, Greece



#	Ioanna Loumaki Civil Engineer (Meng), MSc in Energy Production & Management	
Title:	MSc in Energy Production and Management, National Technical University of Athens, Athens, Greece	
email:	ioannaloumaki@gmail.com	•
Presentation title:	Climate Resilience of Phase Change Materials in Building Envelopes: A Dynamic Simulation Study	
The increasing impact of climate change intensifies the need for energy-efficient buildings, particularly in regions with high thermal loads. In this context, the present study aims to investigate the performance of phase change materials (PCMs) through their integration into the building envelope, with the objective of enhancing thermal stability and reducing energy loads. Through parametric analysis, the behavior of a selected phase change material (PCM), with specific thermophysical properties, is evaluated in non-existing test building models that simulate the basic typology of office buildings in Athens. The methodology followed includes dynamic energy simulation using DesignBuilder software, based on complete thermophysical data for the material under investigation. The assessment is carried out both under current typical meteorological year (TMY) climate data for the area where the existing reference building is located, and on the basis of estimated future climate data for the same area, as derived from IPCC scenarios. Emphasis is placed on the evaluation of the thermal stability and energy performance of the building envelope under conditions of increased thermal stress. The analysis of the behavior of phase change materials under different climatic conditions, through the assessment of critical parameters, contributes to a better understanding of their potential integration into contemporary building design, under conditions of increased thermal loads and future energy challenges.		
Short CV (EN) :		
Civil Engineer (MEng), currently working at PERI Hellas in the field of construction engineering, with experience in engineering design, project coordination, project delivery, and construction project management. Holds an MSc in Energy Production and Management from the National Technical University of Athens, with research interests in building energy performance, climate resilience, and sustainable building technologies.		
Short CV (GR) :	(If Greek)	
Πολιτικός Μηχανικός (MEng), με τρέχουσα επαγγελματική δραστηριότητα στην PERI Hellas στον κατασκευαστικό κλάδο, και επαγγελματική εμπειρία στον τεχνικό σχεδιασμό, τον συντονισμό και την υλοποίηση έργων. Κάτοχος MSc στην Παραγωγή και Διαχείριση Ενέργειας από το Εθνικό Μετσόβιο Πολυτεχνείο, με ερευνητικά ενδιαφέροντα στην ενεργειακή απόδοση των κτιρίων, την κλιματική ανθεκτικότητα και τις βιώσιμες τεχνολογίες κτιρίων		

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CV:

Civil Engineer (MEng, MSc) with professional experience in engineering design, technical coordination, construction management and project delivery across infrastructure and building projects. Currently working at PERI Hellas in the field of construction engineering, focusing on the technical design and coordination of temporary works supporting major infrastructure and building projects.

Previous professional experience includes construction management and project delivery support for high-end hospitality developments, as well as involvement in photovoltaic projects.

Holds an MSc in Energy Production and Management from the National Technical University of Athens and an Integrated Master's Degree in Civil Engineering from the University of Patras. Postgraduate research focused on the climate resilience of Phase Change Materials (PCMs) integrated into building envelopes through dynamic building simulation, assessing energy performance under current and future climate scenarios.

Research and professional interests include building energy performance, climate resilience, sustainable building technologies, construction engineering and project delivery.