

Event:
Date:
Place:

ENERGY in BUILDINGS 2018
Saturday November 3, 2018
Athens, Hellas



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| # | <p>Athina I. Samiou Architect Engineer A.U.Th. M.Sc. Environmental Design of Buildings M.A. Lighting Design-Multimedia</p> |  |
| Title: | <p>Architect Engineer Environmental and Lighting Designer, Athens-Greece</p> | |
| email: | samioua@outlook.com | • |
| Poster title: | Assessment of Daylighting Design Strategies in Preschool Buildings | |
| <p>Preschool environments are associated with the initial educational experience of a child. In order for these spaces to support the learning process, setting proper design criteria becomes a priority. Daylighting has been proven to be a key factor towards this direction, as it contributes to visual comfort, as well as socialization, stress elimination, learning performance and proper brain and vision development of children in that age. The objective of the present research is to determine the needs of daylighting in preschool buildings with reference to the climatic data of Greece, as well as to evaluate the Climate Based Daylight Modelling method as an assessment tool, that may be used at the daylight design stage or upgrade of such buildings. The main intention is to formulate a general rule for the daylighting design of preschool classrooms in Greece, as well as to provide a direction for daylight design choices that may be used in the future for the creation or renovation of preschool buildings. In order to assess different daylighting design scenarios in existing preschool classrooms, the Kindergarten of the German School of Athens (DSA), which is a modern example of a preschool building in Greece implemented in 2014, has been used as a case study. All 6 classrooms of the building were evaluated, firstly in terms of their existing daylighting performance. Following up, different daylighting design strategies were applied and examined by a set of DIVA for RHINO CBDM simulations, focusing on LEED v4 sDA and ASE metrics, with a main goal to determine those that offer the best possible daylighting performance upgrading results. In order to provide the optimum visual comfort solution and serve the educational practices that take place in these classrooms, these scenarios were then combined with proper artificial lighting installations, providing a complete lighting design proposal. Simulation results showed that all 6 classrooms receive sufficient daylight on the working plane during standard operating hours. Five out of six classrooms appeared extremely high ASE rates and therefore possible glare problem. Via the examination of different orientations, North appeared as the most optimal one, resulting to 15% reduced ASE rates and simultaneous maintenance of high sDA rates. In order to control direct daylight admission as well as glare, decisions associated to openings position and dimensioning, usage of horizontal blinds as external shading devices as well as rollers in the interior showed a positive effect on ASE levels reduction.</p> | | |

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CV:

Athina Samiou is an Architect Engineer and member of the Technical Chamber of Greece. She received her Diploma of Architecture from the School of Architecture – Faculty of Engineering of the Aristotle University of Thessaloniki in 2008.

In 2014 she received her M.Sc. entitled 'Environmental Design of Buildings' from the Welsh School of Architecture, Cardiff University –UK, whilst in 2018 she completed her postgraduate studies and was awarded with the M.A. entitled 'Lighting Design – Multimedia' of the Hellenic Open University.

She is an active freelance architect and architectural associate of major technical firms since 2008, and has participated in more than 30 large and small scale building projects in Greece. Her experience ranges from design and planning to construction process supervision and project management. A number of the projects she has worked on have been published in different architectural magazines and the press.

Within the framework of her postgraduate studies in Cardiff University she has participated in several seminars and conferences and had the chance to present her postgraduate research project associated to the impact of future climate change on urban microclimate.

Fields of interest: Daylighting Design, Energy Efficiency, Building Simulation Techniques, Environmental Design of buildings, Architectural Lighting Design