A COMPARATIVE STUDY ON DAYLIGHT EVALUATION IN KONYA ANATOLIAN SELJUKS AND OTTOMANS PERIOD

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ABSTRACT

Daylight control and energy efficiency in architectural design is accepted as one of the main inputs of sustainable architecture. Particularly the illuminance level in building design process, is related to visual comfort directly. Likewise, prayer spaces are the buildings which conserve prayers from outdoor conditions and maintain essential comfort standards. Particularly in mosques where are prayed collectively, high level of ambient lighting comfort conditions from the visual perspective is requested. Traditional mosques are operated to maintain homogeneous indoor ambient conditions to maintain comfortable thermal and visual environments. Especially in classical period traditional mosques the homogeneous sprawling sunlight which comes from the dome surroundings, both maintains the essential illuminance level for the indoor comfort conditions and also assists to create the sense of meeting under the dome.

Within the Izu Konya Silk Road City Research Project, built in different historical periods, three Anatolian Seljuks and Ottoman Mosques'(Aziziye Mosque, Sultan Selim and Tahir-Zuhre Mosque) interior spaces are shown with the plan sketches, therefore every mosque is evaluated particularly in summer term periods when users pray inside mosques in particular day and hour periods.

Evaluation results are tested by luxmeter device and maintained based on the facade windows' location. 'Design Builder' energy testing programme is used and each mosques' technical plans are modelled in 3D. Also illuminance control reports are maintained by the same simulation method. Natural illuminance level and daylight calculations are shown within the charts. Measures are done only when there is natural light inside mosque.

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Evaluation results are analysed based on the visual comfort level of prayers according to international standards. Within the scope of this Project, three chosen mosques constructed in Konya Anatolian Seljuks and Ottoman Historical periods which are both located in Konya city center, essential illuminance and visual comfort conditions are evaluated depending on the change in structural construction method and historical period.

Keywords: Daylight, Traditional Mosque Design, Interior Space Daylight Comfort

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