Comparative analysis of the luminous performance of fenestration with Japanese paper and glazing with a polymeric film in meditation rooms

Mário Bruno CRUZ,¹ Júlia PEREIRA,² Maria da Glória GOMES³, Mário S. Ming KONG⁴
(1) Arquitetura, Faculdade de Arquitetura, Universidade de Lisboa, Lisbon, Portugal
Email: mariobrunocruz@yahoo.com
ORCID: 0000-0002-4580-6273
(2) Engenharia, CERIS, DECivil, Instituto Superior Técnico, Universidade de Lisboa, Lisbon, Portugal
Email: julia.pereira@tecnico.ulisboa.pt
ORCID: 0000-0003-4539-8844
(3) Engenharia, CERIS, DECivil, Instituto Superior Técnico, Universidade de Lisboa, Lisbon, Portugal
Email: maria.gloria.gomes@tecnico.ulisboa.pt
ORCID: 0000-0003-1499-1370
(4) Arquitetura, Faculdade de Arquitetura, Universidade de Lisboa, Lisbon, Portugal
Email: mskong@fa.ulisboa.pt
ORCID: 0000-0002-4236-2240

Abstract

In Japan, Shôji has been used in fenestration that communicates with the exterior in rooms for meditation practice. This Japanese paper seems to be geared towards filtering the amount of solar light adequate to meditation practice. In the West, it has been replaced with an adhesive polymeric film, such as Japanese paper, imitating the Shôji, which can be used in external glazing. In this study, the effect of replacing the Shôji with this polymeric film will be analysed through a set of experimental tests conducted in reduced scale models. We look forward to having the intelligence to be creative enough to find new solutions to the problems that are emerging in this field. So, in these models, the Japanese paper solution will be applied and, in parallel, another model, with a 6mm single clear glazing, with and without the adhesive film, will be tested. The tests will be carried out in an external environment, during the Winter and Summer equinoxes and the Spring solstice, to obtain significant data from different solar geometries. The present paper will only focus on the results of winter equinox. The main aim of the present study is to understand if there are advantages in keeping the traditional Japanese solution, compared to the solutions offered by the adhesive films in glazing. Moreover, the results of the present study, provide a better understanding of the illuminance conditions, using traditional Japanese solution of Shôji and the application of the adhesive polymeric film, which are of utmost importance inside a meditation room where the light, with its immense power of creation and fantasy, strongly influence the meditation practitioner’s health, wellbeing and mood.

Keywords: Meditation, Shôji, Japanese paper, adhesive polymeric film, illuminance.