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Development of outdoor thermal comfort model for tourists in urban historical areas; A case study in Isfahan

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## ACCEPTED MANUSCRIPT

1	Development of Outdoor Thermal Comfort Model for Tourists in Urban
2	Historical Areas; A case study in Isfahan
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## 7 Abstract

The present study intended to evaluate thermal comfort conditions in microclimates of the urban 8 9 historical areas of Isfahan, Iran during a heatwave. The thermal comfort conditions of different 10 historical sites were compared during the daylight hours to determine the best time to visit each historical site. Using the results of this study, tourists can select the best timeframe with 11 appropriate thermal conditions to visit the historical sites of Isfahan. Along with performing field 12 measurements in the intended historical sites, a questionnaire was used to determine the thermal 13 comfort range of tourists. ENVI-met is used in order to properly simulate the outdoor thermal 14 15 environment of the historical touristic areas in Isfahan during the hottest as well as the most touristic month of the year. The results of questionnaire and simulations are compared with each 16 other. It was shown that three historical sites with higher thermal stress experience an unpleasant 17 18 thermal condition. The results of questionnaire show that the comfort range of tourists is within 23.06 – 29.73°C PET. The thermal conditions of Si-o-Se Pol, Hasht Behesht and Nagsh-e-Jahan 19 are within the thermal comfort range at 19,20 and 21 pm respectively. During the daytime, 20 thermal comfort conditions varied from 4.9 °C PET at 8 am to 8.1 °C PET at 3 pm. Early 21 morning hours were the most comfortable time to visit the historical sites of Menar-e-Jonban, 22 Masjed-e-Jame and Vank Cathedral in Isfahan. During the peak hours of heat, the priority of 23 thermal comfort goes to Masjed-e-Jame, Menar-e-Jonban and Si-o-Se Pol, respectively. 24

Key words: Outdoor thermal comfort, Field survey, Tourist, ENVI-met, Urban Historical Sites,
Climate Comfort Pattern

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