

Measurement and Evaluation of Outdoor Lighting Environment at Night in Residential Community in China: A Case Study of Hangzhou

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Abstract : With the improvement of living quality and demand for nighttime activities in China, the current situation of outdoor lighting environment at night needs to be assessed. Lighting environment at night plays an important role to guarantee night safety. Two typical residential communities in Hangzhou were selected. A comprehensive test method of outdoor lighting environment at night was established. The road, fitness area, landscape, playground and entrance were included. Field measurements and questionnaires were conducted in these two residential communities. The characteristics of residents' habits and the subjective evaluation on different aspects of outdoor lighting environment at night were collected via questionnaire. A safety evaluation system on the outdoor lighting environment at night in the residential community was established. The results show that there is a big difference in illumination in different areas. The lighting uniformities of roads cannot meet the requirement of lighting standard in China. Residents pay more attention to the lighting environment of the fitness area and road than others. This study can provide guidance for the design and management of outdoor lighting environment at night.

Keywords : residential community, lighting environment, night, field measurement

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