Abstract
The design of energy efficient lighting in historic streetscapes presents greater challenges than that of new streetscapes due to the additional constraints related to the importance of preserving the streetscapes' architectural style, history, integrity and its soulfulness while also allowing for the streetscapes' new function in an energy efficient manner.
This paper presents the lighting design studies of streetscapes and streetscape along Malioboro Shopping Street Yogyakarta, a case study that takes into consideration all of the above aspects. Electrical energy conservation is most used energy in commercial streetscapes in Indonesia and this paper aims to evaluate the alternatives of lighting design based on holistic lighting approach with Radiance and Open Studio software.

The luminaire and the lighting design of Malioboro Shopping Street was based on the careful study of the remaining original luminaire. Through an integration of proper lighting design techniques for historic streetscapes and based on the lighting needs for the streetscapes’ new function and energy efficient, lighting design is established. Post occupancy illuminance measurement shows that the illumination in most area are inadequate. The design approach presented in this paper can potentially be applied to other historic streetscapes with similar function to preserve the soul of the urban heritage.

Keywords: Luminaire design; radiance; energy efficiency

1. About the Soulful Malioboro Streetscape, Yogyakarta

The word Malioboro also probably came from the word 'Marlborough', the name of English Duke who lived there in 1811-1816. In Sanskrit, the word 'Malioboro' means bouquet or wreath. It may be related to the past when Karaton had a big event then Malioboro would be full of flower.

In the colonial era, malioboro become the center of the Dutch government as strategy to maintain their domination by building Vredeburg Fort (1790) at the south end of Malioboro Street near to the existing traditional market, followed by the Dutch Club (1822), the Dutch Governor’s Residence (1830), Java Bank and the Post Office.

Malioboro street also an important role in the independence era (post-1945), as the Indonesian people fought to defend their independence in battles that took place north-south along the street.

http://www.tourjogja.com/read/18/jalan-malioboro-the-24-hours-street.html

Malioboro is one of the famous shopping spots in Indonesia. Malioboro is a name of street in Yogyakarta. Located of Malioboro Street in the center of Yogyakarta Special Region. It is between the road of Jenderal Ahmad Yani and the street of Abu Bakar Ali.

One of the main tourist attractions in Yogyakarta is Jalan Malioboro as a name of the street that become a

Contact Author:
Syarifah Ismailiyah Al Athas, ST., MT., IAI. , GP.
Lecturer in Department of Architecture
Universitas Islam Indonesia
UII Main Campus M. Natsir Building
Jl. Kaliurang km. 14,5 Yogyakarta
www.architecture.uii.ac.id
Tel: +62274 898583 ext 3238
e-mail: syarifah.alathas@uii.ac.id
iconic of Yogyakarta city. Malioboro situated in the downtown which an icon and also the busiest business district in the area. The street is alive 24 hours a day and extends for 1 km from North to South with historical Dutch colonial-era architecture, new modern building architecture mixed in with the Chinese and contemporary commercial districts.

Currently Yogyakarta Special Region are doing revitalize malioboro area. With a row of shops and food stall tightly on two sides, Malioboro was considered less friendly with pedestrians. In the pedestrian area, the enlarged pavement is placed 1-2 long benches that can be utilized to enjoy the atmosphere or feel of Malioboro. And Also, there is an antique-style lamp which is one of nine Yogyakarta icons placed along the malioboro road.

Best way to explore the streets are by foot, just within walking distance from Tugu Railway Station until southern end a junction, known as “Nol Kilometer”. Another option is hiring a pedicab or the ubiquitous four-wheeled horse-drawn carts called “andong”.

Therefore there are many factors to support pedestrians comfort in the area malioboro. One of important aspect to be here is the lighting factor to the users of the pedestrian area and to the store and food stall along the malioboro street.

The existence of street furniture for streetlight lighting is supported by the design and the proper arrangement will form the impression of space and give characteristic of local cultural identity of the area which is very necessary to be preserved and observed in accordance with the initial goal.

2. Lighting in Malioboro Streetscape
3. Energy Efficient Lighting for Heritage District

4. Conclusion *(Should be in 10.5 Point Text, Title Case, Bold)*

Paper manuscripts should be written and arranged in a style that is succinct easily followed. An informative
but short title, a concise abstract with keywords, and a well-written introduction will help to achieve this. Simple language, short sentences and a good use of headings all help to communicate the information more effectively. Discursive treatment of the subject matter is discouraged. Figures should be used to aid the clarity of the paper. The reader should be carefully guided through the paper. Always think about your reader.

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