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Qatar Green Building Conference 2016 – The Action

# Urban form and impacts on urban heat for a corridor environment in Doha, Qatar

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**ABSTRACT**

Doha, Qatar is a coastal city on the Arabian Gulf. Like all cities, temperatures can vary quite widely throughout the city due to various factors. In Doha, for instance, records of monitoring data from ten weather stations during 2015 show that, on average, the temperature varied by 7 degrees Celsius across the city.

This paper will analyze temperature, traffic and built morphology data for 2016 along a major roadway in Doha. The research utilizes data from 3 main sources: seven days of vehicle traverses gathered in different seasons and for three times of day (morning, midday, and evening) in 2016 on the Al Salwa Rd corridor, reaching from the coast to approximately 10 km inland; daily traffic count data for intersections along the corridor; and data on building footprint and height within 500 m of the corridor.

The paper will consider the influence of several factors on the temperature and air quality variation along this corridor, including: land cover, proximity to parks and vegetated areas, albedo, distance from the sea and built morphology.

Temperature data will be analyzed in terms of Urban Heat Island Index (UHII), and time exceeding 37 degrees Celsius, the temperature above which conditions are considered as sweltering for human comfort. Temperature distribution maps will then be analyzed in relation to the factors noted previously.

Finally, statistical analyses will be performed to test the correlation between the urban heat, built morphology, and traffic, using GIS to visualize the urban heat and built morphology.

*Keywords:* Urban heat island, urban corridor, air quality, human thermal comfort, microclimate

[http://dx.doi.org/  
10.5339/qproc.2016.qgbc.25](http://dx.doi.org/10.5339/qproc.2016.qgbc.25)

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