Journal Of Contemporary Urban Affairs

2018, Volume 2, Number 3, pages 122– 136

Evaluation of the Thermal Comfort in the Design of the Museum Routes: The Thermal Topology

* Ph.D. Candidate **SELMA SARAOUI**[1], Dr. **AZEDDINE BELAKEHAL** [2], Dr. **ABDELGHANI ATTAR** [3] Dr. **AMAR BENNADJI** [4]

[1] Department of Architecture, University of Bejaia, Algeria.
[2] Laboratoire de Conception et de Modélisation des Formes et des Ambiances (LACOMOFA), Department of Architecture, University of Biskra, Algeria.
[3]MCB at the Department of Architecture, University of Bejaia, Algeria.
[4] The Scott Sutherland School of Architecture and Built Environment, the Robert Gordon University, UK
E mail: saraoui.selma@gmail.com , E mail: belakehal@gmail.com , E mail: attar.a.ghani@gmail.com , E mail: a.bennadji@rgu.ac.uk

ARTICLE INFO:

Article history:
Received 15 July 2018
Accepted 23 September 2018
Available online 13 October 2018

Keywords:
Segments;
Route;
Thermal comfort;
Design;
Topology.

ABSTRACT

Museums are nowadays among the most popular projects for the public, the concept of thermal comfort in museums is often treated after the realization. Even if in the design, the architect shows a particular intention to work with daylight which is considered for these projects as main, the architect often considers certain elements that have an influence on the energy balance of these projects such as: orientation, building materials. The museum route is the key to the success of any museum project, it is the space of the visitor, the space in which he is invaded by sensations. In this study, we will first evaluate the thermal comfort in the museum as a whole (building) and then through its route. The objective is to guide reflection in the design of the museum towards the route in order to reduce energy consumption. In order to carry out our study, some European museums were analysed by means of simulation, according to the thermal comfort of their designs for the most unfavourable conditions, then by a thermal analysis of the museum route according to the segmentation principle using the average radiant temperature. This method allowed us to bring out correspondences between the architectural form and the route. Finally, the segmentation method constitutes the basis of a new methodological approach called "thermal topology" based on the discontinuities of the temperatures in the route.

JOURNAL OF CONTEMPORARY URBAN AFFAIRS (2018), ***2***(3), 122-136.
https://doi.org/10.25034/ijcua.2018.4727

www.ijcua.com

1. Introduction

The birth of architecture had always been linked to the human being and his needs. Theories on the architectural space have

***Corresponding Author:**
Department of Architecture, University of Bejaia, Algeria.
E-mail address: saraoui.selma@gmail.com