DESIGN OF STUDENT DORMITORY IN HUMID TROPICAL CLIMATE REGIONS USING THE BIOCLIMATIC ARCHITECTURE CONCEPT

CASE STUDY: STUDENT DORMITORY INSTITUT TEKNOLOGI SEPULUH NOPEMBER SURABAYA

By : Katerina
Student Identity Number : 3211207007
Supervisor : Ir. Hari Purnomo, M.Bdg.Sc
Co-Supervisor : Dr. Eng. Ir. Dipl-Ing. Sri Nastiti NE, MT

ABSTRACT

Students’ building are often simply designed and have minimum space standard, which in turn rises various problems such as thermal comfort, avoiding direct sunlight and the need of wind flow inside the room. In addition, students also need clothesline area that in fact requires direct sunlight, despite the availability of laundry service, but this may result in façade visual disturbance, thus both issues will be settled using bioclimatic architecture concept.

This study was begun by field and user survey related to students’ need of thermal comfort and clothesline (personal and territorial factor). Field data results were then combined with theory and precedent assessment related to thermal comfort and clothesline area, resulted in design parameter and criteria which will be useful in advance design process using geometry.

By using design method of geometry- channel transformation, an illustration of mass shaped as ‘V’ letter and trapezoid-shaped room with opening orientation towards North-East and South East were obtained. Exterior building facade-processing using shading devices and light shelves horizontal plane as well as in the open-facade towards innercourt drying area were provided in front of each room unit with vertical landscaping that blends with the building design.

Key words : student dormitories, bioclimatic architecture, clothesline, geometry, channel transformations