

PENGARUH DESAIN PASIF BANGUNAN TERHADAP LINGKUNGAN TERMAL SMAK KOLESE SANTO YUSUP MALANG

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ABSTRAK

Kenyamanan merupakan aspek yang diperhatikan dalam membangun bangunan. Salah satu jenis kenyamanan bangunan adalah kenyamanan termal. Kenyamanan termal sendiri secara umum dipahami sebagai kenyamanan pada situasi di mana lingkungan tubuh sedang panas. Kondisi kenyamanan termal selalu berhubungan dengan suhu udara. Peraturan Menteri PU Nomor 29 Tahun 2006 menjelaskan beberapa standar kenyamanan bangunan gedung, antara lain kenyamanan termal, kenyamanan akustik, kenyamanan visual, dan kenyamanan ruang gerak. Bangunan Kelas Baru SMAK Kolese Santo Yusup Malang berorientasi dengan sisi terpanjang menghadap timur-barat. Kenyamanan termal di Bangunan Kelas Baru SMAK Kolese Santo Yusup Malang perlu dikaji mengingat temperatur ruangan pada bangunan tersebut yang panas, terutama di siang hari. Pengamatan visual di lapangan dan pengukuran kondisi lingkungan termal di lapangan dilakukan untuk meneliti lingkungan termal pada bangunan sekolah. Mengumpulkan data eksisting dengan cara secara langsung melakukan pengukuran dan observasi penghawaan pada ruang kelas menggunakan alat Thermo Hygrometer. Penelitian ini berfokus pada desain pasif bangunan ruang kelas baru SMAK Kolese Santo Yusup Malang dengan lingkungan termal eksisting, dengan hasil penelitian suhu rata rata sebesar 29.11°C dan suhu ruang tertinggi sebesar 32.10°C. Desain pasif bangunan ruang kelas baru SMAK Kolese Santo Yusup Malang berpengaruh terhadap lingkungan termal eksisting. Berdasarkan analisis desain pasif berdasarkan variabel desain yang mempengaruhi kinerja termal pada bangunan. Aspek bentuk bangunan, bukaan bangunan, dan selubung bangunan ruang kelas baru SMAK Kolese Santo Yusup Malang belum memenuhi standar dan masih dapat ditingkatkan untuk meningkatkan kualitas lingkungan termal eksisting.

Kata kunci: Desain Pasif , Lingkungan Termal, SMAK Kolese Santo Yusup Malang

ABSTRACT

Comfort is an aspect that is considered when building a building. One type of building comfort is thermal comfort. Thermal comfort itself is generally understood as comfort in situations where the body's environment is hot. Thermal comfort conditions are always related to air temperature. Minister of Public Works Regulation Number 29 of 2006 explains several building comfort standards, including thermal comfort, acoustic comfort, visual comfort and space comfort. The new classroom building at SMAK Santo Yusup College Malang is oriented with the longest side facing east-west. Thermal comfort in the New Class Building SMAK Santo Yusup College Malang needs to be studied considering that the room temperature in the building is hot, especially during the day. Visual observations in the field and measurements of thermal environmental conditions in the field were carried out to examine the thermal environment in school buildings. Collect existing data by directly measuring and observing the ventilation in the classroom using a Thermo Hygrometer. This research focuses on the passive design of the new classroom building at SMAK Kolese Santo Yusup Malang with the existing thermal environment, with research results of an average temperature of 29.11°C and the highest room temperature of 32.10°C. The passive design of the new classroom building at SMAK Kolese Santo Yusup Malang has an effect on the existing thermal environment. Based on passive design analysis based on design variables that influence the thermal performance of buildings. Aspects of the building shape, building openings and building envelope of the new classrooms at SMAK Kolese Santo Yusup Malang do not meet standards and can still be improved to improve the quality of the existing thermal environment.

Keywords: Passive Design, Thermal Environment, SMAK Santo Yusup Malang