

Sirinath Thongkaw 2011: Energy Utilization Index and Benchmarking for Medical Service Department, Bangkok Metropolitan Administration. Master of Engineering (Mechanical Engineering), Major Field: Mechanical Engineering, Department of Mechanical Engineering. Thesis Advisor: Assistant Professor Kriengkrai Assawamartbunlue, Ph.D. 186 pages.

The objective of this study is to develop energy index and benchmarking for Medical Service Department, Bangkok Metropolitan Administration that are appropriated to the nature and the size of the agency and then define to energy benchmark. An efficient index based on engineering principles and eases of user. The index is a ratio between the difference of optimal energy consumption and actual energy consumption and optimal energy consumption. The actual energy consumption is the amount indicated in an energy invoice. The optimal energy consumption is derived from several energy standards and codes in form of equation as a function of variables such as number of outpatients, inpatients, staffs and ambient temperature.

Then inputs number of outpatients, inpatients, staffs and ambient temperature (at 2008) are substituted into optimal energy consumption equation find that the predicted energy consumption is lower than the actual consumption due to materials and electrical equipments are not pass energy standards and cods. So if the agencies can improve materials and electrical equipments until pass then affect to energy saving.

Energy utilization index is not only usage to identify whether energy is efficient used but also plan and establish energy criterion for increase efficient of energy usage consumption. However, optimal energy consumption equation need improve every 3 or 5 years depend on function of building and number of equipment.

---

Student's signature

---

Thesis Advisor's signature