

ABSTRAK

Sistem tata udara merupakan sistem pengondisian udara yang berfungsi untuk mengatur tingkat kenyamanan baik keadaan suhu maupun kelembaban udara. Dalam hal ini penelitian dilakukan di Gedung Siap Cetak Inspiration – Yogyakarta yang kondisinya kurang baik sehingga perlu diadakan manajemen sistem tata udara pada gedung tersebut, di antaranya besar *cooling load* yang dibutuhkan oleh setiap ruangan dan desain ruangan didasarkan pada comfort zone yaitu 23°C.

Untuk menghitung perancangan *cooling load* pada setiap ruangan terutama pada ruang *print UV* dan *Laser Engraving* dibutuhkan temperatur luar ruangan 31°C=87°F dan didapat hasil perhitungan beban pendingin dinding 1704,687 *Btu/h*, beban pendingin atap 1164,985 *Btu/h*, beban pendingin dinding kaca 1288,222 *Btu/h*, beban pendingin lantai 793,819 *Btu/h*, beban pendingin manusia 2250 *Btu/h*, beban pendingin lampu 271,196 *Btu/h*, dan beban pendingin dari peralatan elektronik 720,192 *Btu/h*. Jadi total hasil yang didapat dalam perancangan beban pendingin dari gedung percetakan Inspiration sebesar 8229,101 *Btu/h* setara dengan 1 PK atau satu unit AC jenis split pada setiap ruangan.

Kata kunci: *cooling load*, ruangan, AC

ABSTRACT

The air condition system is an air conditioning system that functions to regulate the comfort level of both the temperature and humidity condition of the air. In this case the research was carried out in the Inspiration Printing Building - Yogyakarta where the condition is not good so it needs an air system management in the building, including the large cooling load needed by each room and the room design is based on the comfort zone of 23°C.

To calculate the cooling load design in each room, especially in the UV print room and Laser Engraving, it requires an outdoor temperature of 31°C=87°F and the results of calculation of the wall cooling load was 1704,687 Btu/h, the roof cooling load was 1164,985 Btu/h, the glass wall cooling load was 1288,222 Btu/h, the floor cooling load was 793,819 Btu/h, the human cooling load was 2250 Btu/h, the lamp cooling load was 271,196 Btu/h, and the cooling load from electronic equipment was 720,192 Btu/h. So the total results obtained in the design of the cooling load of the Inspiration printing building amounted to 8229,101 Btu/h equivalent to 1 PK or one unit of split type AC in each room.

Keywords: *cooling load, room, AC*