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| Thesis Title | The Experimental Study to reduce thermal load in Residential Air-Condition System |
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Abstract

This thesis is the study to find out how to reduce thermal load of an residential air-condition system by real experiment. Two air - conditioned sample houses which exactly have the same characteristic were built. After that, one sample house was improved. Then we measured for quantity of economical electrical energy by comparing to the energy use of another house which was not improved at all. From the experimental study, it was found that from considering by economic analysis, what we should do for the improvement are laying insulating glass fiber on the ceiling lining including window rainproof installation, painting the roof with heat proof paint including using light mass materials as the wall, installing a ventilator on the roof including laying glass fiber on the ceiling lining, laying glass fiber on the ceiling lining, lining heat–reflecting sheets under the roof tile including painting the external wall with heat proof paint, lining heat reflection sheets under the roof including sticking heat reflection film to the window glass, lining heat reflecting sheet under the roof tile, painting the external wall with heat proof paint, installing window rainproof, sticking heat reflecting film at the window glass and installing a ventilator on the roof. On the average, each method of the improvement can reduce cooling load of the air-conditioner approximately to 30, 27, 25, 25, 24, 18, 16, 13, 8, 6, 4 % respectively and can also reduce electrical energy using load approximately to 26, 23, 21, 21, 20, 14, 13, 10, 7, 4, 3 % respectively. And it was found by economic analysis that being improved by laying insulating glass fiber on the ceiling lining takes shortest period to get back our investment that is 0.8 year.


Keywords: Thermal load / energy / air - condition system