

Sommart Labaiyusoh 2013: Development of a Modular Metallic Thermoelectric Roof Power Generator. Master of Architecture (Building Innovation),  
Major Field: Building Innovation, Department of Technology Building.  
Thesis Advisor: Miss Sopa Visitsak, Ph.D. 107 pages.

This paper presents the application of thermoelectric devices in metal roof for the production of electricity (MTR-PG) by heat radiation from the sun. Test set (Solar collector) consists of a 70x70 cm black metal roof and a power generation equipment (Thermoelectric Generator) with a 20x12 cm copper sheet, 4 units of thermoelectric per serial number, an aluminum plate (heat sink) and a DC Fan.

The metal roof and the power generator equipment are cooled both naturally and by the use of a cooling fan. In natural ventilation, the temperature differences between the hot and the cold sides ( $\Delta T$ ) are 12 ° C (average 8.6 ° C) and up to 20-27 ° C (average 16 ° C) with the cooling fan. The average voltage is 0.12 V, which can generate electricity. In the utilization of alternative energy for architecture, the equipment requires further development.

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