

**INFLUENCE OF MOUNTING HEIGHT ON THE OPERATING
CELL TEMPERATURE AND ELECTRICAL OUTPUT OF
PHOTOVOLTAIC MONOCRYSTALLINE MODULE INSTALLED
ABOVE CONCRETE ROOF**

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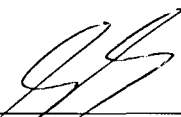
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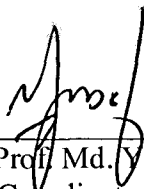
This Final Year Project Report entitled “**Influence of Mounting Height on the Operating Cell Temperature and Electrical Output of Photovoltaic Monocrystalline Module Installed above Concrete Roof**” was submitted by Noor Alia Binti Jalipen, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Physics, in the Faculty of Applied Sciences, and was approved by



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ABSTRACT

The influence of temperature' effect on the electrical output of Monocrystalline photovoltaic module has been investigated in order to determine the temperature difference with respect to cell and ambient temperature that suit the tropical climate like Malaysia. Australian standards have determined that 25°C is the temperature difference (ΔT) in photovoltaic system design, but the value has not been specified or not well documented at certain circumstances such as climate, types of module or installation configuration of photovoltaic module. In this study, an adjustable photovoltaic module frame was designed and constructed. It is capable of varying the height of photovoltaic module. The photovoltaic module was initially set up to be tilt at constant angle and 0 cm of height on concrete roof. After that, the electrical output such as irradiance, voltage, current and cell temperature was recorded using data logging methods. This experiment conducted at Photovoltaic Laboratory Kompleks Teratai, UiTM Shah Alam for a period of two days and was repeated by using 10cm and 20 cm of heights. The experimental results indicate that significantly decreases in open circuit voltage with increase in the module temperature at irradiance above 500W/m² while current showed marginally increase of the module temperature rise. At low irradiance, it was found that the temperature difference fluctuate but increase proportional with irradiance at bright day above 500W/m². In this paper, the three different heights are compared. 25 °C observed when installed at 0cm above roof, 19.8°C and 14.5°C at 10 and 20cm respectively. It has shown that, the temperature differences (ΔT) decreases by increasing the photovoltaic module height from concrete roof. Therefore, from this study 25 °C should be review by considered climate, types of module or installation configuration of photovoltaic module