

**UNIVERSITI TEKNOLOGI MARA
PERAK BRANCH**

**2 IN 1 SMART WINDOW: DARKENING AND
GLOWING GLASS**

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Innovation project report submitted in partial fulfilment of the
requirement for the degree of
Bachelor of Science (Hons.) Construction Technology

Faculty Of Architecture, Planning and Surveying

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AUTHOR'S DECLARATION

I declare that the work in this innovation project was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

In the event that my innovation project report, be found to violate the conditions mentioned above, I voluntary waive the right of conferment of my degree and agree be subjected to the disciplinary rules and regulations of Universiti Teknologi MARA.

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ABSTRACT

Nowadays, the world's energy consumption is seen to be steadily increasing, demanding the development of new renewable energy sources. The carbon dioxide emission and other pollution gases becoming an issue not just for the environment, but also for human health. Plus, the building designs must consider the building's operating energy savings in compliance with the Green Campus Concept. This is because, more waste of electricity consumption will be made as the building's thermal load is getting higher. By reducing the exterior thermal loads can helps in minimizing the energy load, thus the selection of the right type of window glazed is a crucial aspect. In this case study, the main focus is to implement the combination of solar control glass and low emissivity glass with photochromic and photoluminescence coatings. This is to enhance even better the hostel's building in terms of thermal performance and its energy consumption in order to achieved sustainability. The method of analysis is done qualitatively which are by desktop studies, literature review, and simulation. Where the desktop study and literature review are focuses on the observation on the performance of common window types that been used mainly for residential, office, or commercial building. While the simulation method is to visualize the design, materials, and the performance of innovation product so that the potential of this sustainable windows idea for green campus concept can be delivered clearer.

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