



UNIVERSITI
TEKNOLOGI
MARA

Cawangan Perak



BUILDCON2023

**COMPILATION OF PROJECT INNOVATION IDEAS
SEMESTER MARCH – AUGUST 2023**

EMBRACING SMART CONSTRUCTION TRANSFORMATION

BUILDERS' CONVENTION DAY 2023

**Department of Built Environment Studies and Technology
College of Built Environment
Universiti Teknologi MARA Perak Branch**

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COMPILATION OF PROJECT INNOVATION IDEAS
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Organised by
Department of Built Environment Studies and Technology
College of Built Environment
Universiti Teknologi MARA Perak Branch
Malaysia

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Editors

Siti Akhtar Mahayuddin

Noor Rizallinda Ishak

Nor Asma Hafizah Hadzaman

Sallehan Ismail

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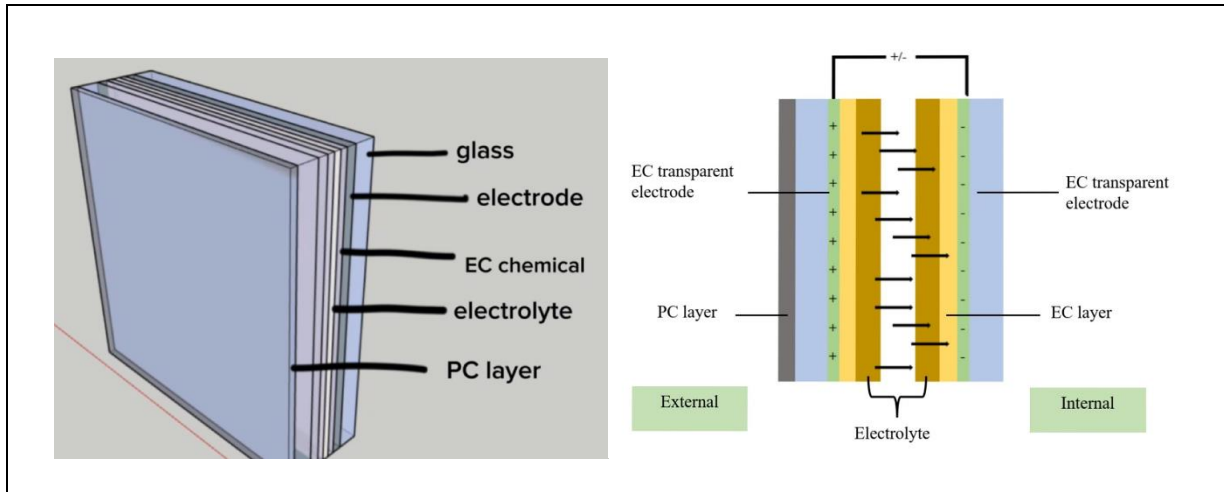
PHOTOELECTROCHROMIC (PEC) GLAZING PANELS

Nurul Zahidah Zol¹ and Wan Nur Syazwani Wan Mohammad²

^{1,2}Department of Built Environment Studies and Technology, College of Built Environment, Universiti Teknologi MARA Perak Branch,

32610 Seri Iskandar, Perak

Email: zahidahzol17@gmail.com¹, wannur956@uitm.edu.my²



Photoelectrochromic (PEC) Glazing Panels

Innovation Idea:

Human activity has increased sea levels and air temperatures, disrupted weather patterns, and made the oceans more acidic by releasing carbon dioxide and other greenhouse gases into the atmosphere. Buildings are important and account for 30% to 40% of the global primary energy consumption. The use of transparent glazing or roller blinds is a hindrance because it can make the building users feel uncomfortable. Although this is the case, poorly performing glazed buildings hinder solar heat gain and daylight penetration, particularly in the case of large office building facades. Therefore, the objectives of the research are to: 1) propose a PEC glazing panels that allows the amount of daylight can be minimised into buildings in Malaysia, 2) demonstrate the performance of the innovation, and 3) recommend the marketability potential of the innovation. Extensive literature reviews were conducted via various databases (i.e., Web of Science, Science Direct, and Scopus). Subsequently, a simulation model using SketchUp 2023 software was performed to visualise the concepts and ideas of the PEC Glazing Panels. The findings revealed that the proposed PEC glazing panels have the potential to be marketed locally or internationally due to its great benefits (i.e., minimal daylight penetration and glare into the building). Thus, it is hoped that the proposed PEC glazing panels can improve the performance of the existing glazing systems, promoting comfort, health, and overall well-being for building occupants.

Surat kami : 700-KPK (PRP.UP.1/20/1)

Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim
Rektor
Universiti Teknologi MARA
Cawangan Perak



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Kelulusan daripada pihak tuan dalam perkara ini amat dihargai.

Sekian, terima kasih.

“BERKHIDMAT UNTUK NEGARA”

Saya yang menjalankan amanah,

SITI BASRIYAH SHAIK BAHARUDIN
Timbalan Ketua Pustakawan

nar

Setuju.

27.1.2023

PROF. MADYA DR. NUR HISHAM IBRAHIM
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