



UNIVERSITI
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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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Organised by
Department of Built Environment Studies and Technology
College of Built Environment
Universiti Teknologi MARA Perak Branch
Malaysia

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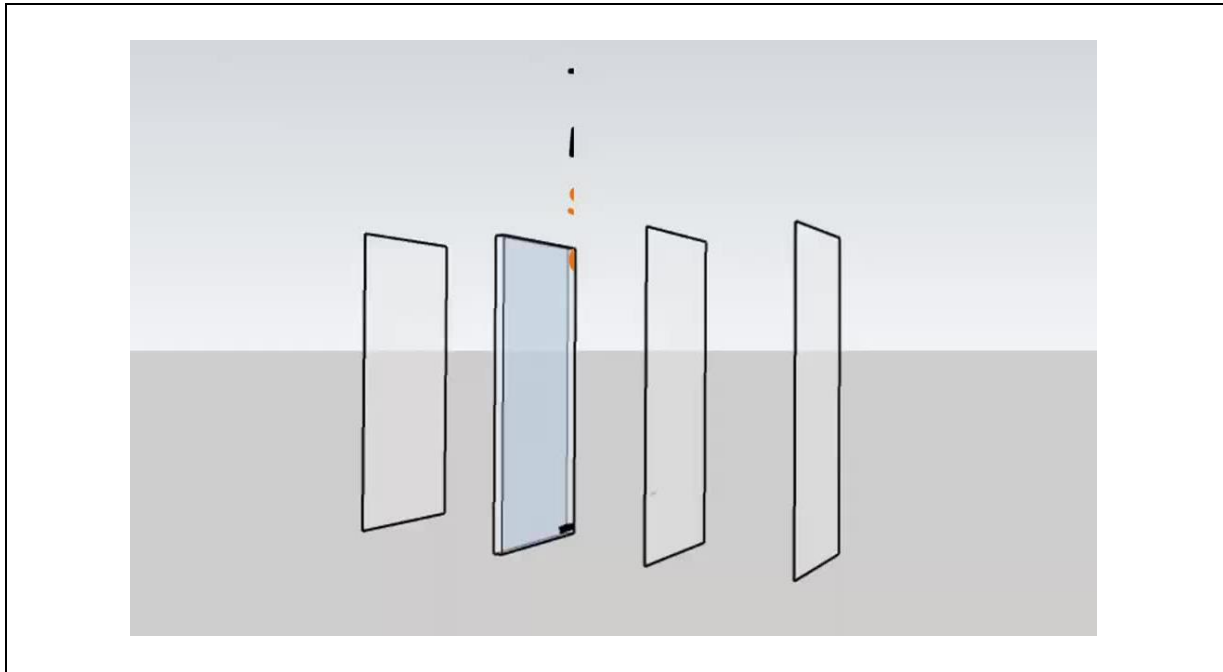
SMARTHY WINDOW GLASS

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Smarthy Window Glass

Innovation Idea:

Malaysia is known for its warm and humid climate, which can lead to challenges related to low thermal comfort for high-rise building occupants. The high temperatures and humidity levels are prevalent in many parts of the country which can result in discomfort glare and decline in people's well-being who live and work in these conditions. In urban areas, the phenomenon is known as Urban Heat Island (UHI) effect exacerbates thermal discomfort. The overuse of artificial building materials, the lack of green spaces, and increased urbanisation contribute to higher temperatures in cities compared to their surrounding rural areas. As a result, residents often experience increased heat stress and discomfort, especially during hot seasons. In this study, the focus is to develop a smart and healthy window glass that can produce a thermal comfort temperature inside a building, as the window is one of the building elements that highly contributes towards the absorptivity of solar radiation. Furthermore, smart and healthy window glass can reduce the discomfort glare of building occupants. The method of analysis is done qualitatively via document review, design thinking process, and simulation. The document review focuses on the observation of the performance of common window types that have been used mainly for residential areas, offices, or commercial buildings. Meanwhile, the simulation includes the visualisation of the design and performance evaluation of the product. The product allows an effective control of solar heat gain, maintaining a comfortable indoor temperature. This improved thermal comfort enhances the well-being of occupants and creates a more pleasant and productive living or working environment.

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

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