



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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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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PHOTOCATALYTIC PRECAST CONCRETE WALL

Muhammad Syahzuwan Azmi¹ and Mohamed Ezad Hafez Pahreraji²

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

32610 Seri Iskandar, Perak

Email: 2021483044@student.uitm.edu.my¹, ezad@uitm.edu.my²



Photocatalytic Precast Concrete Wall

Innovation Idea:

Vehicle emissions and the manufacturing industry in Malaysia contribute to air pollution by releasing large amounts of chemical compounds and dust, which can stain and discolour the exterior of building surfaces. The dampness of concrete also encourages mould spores to grow, leading to health problems such as respiratory problems and resulting to dirty walls. Furthermore, some buildings, specifically high-rise and skyscraper structures, prioritise the cleanliness of exterior walls to preserve their aesthetic value. Nevertheless, the cleaning of buildings, especially for high-rise buildings, raises a lot of safety concerns. Due to a lack of adherence to safety procedures and the environment of the building itself, many accidents occur to workers who clean the building. Hence, this research aims to develop a self-cleaning precast concrete wall using a catalyst admixture in the effort to keep the building clean and maintain the aesthetic value of the building. To achieve the aim, a sample and a prototype were developed using concrete grade 20 and titanium dioxide as a chemical additive material. The outcome of this study demonstrates that Titanium Dioxide enables the precast concrete wall to self-clean its surface through a chemical reaction, as confirmed by the self-cleaning test.

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

Tarikh : 20 Januari 2023

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