



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**

BUILDCON 2023
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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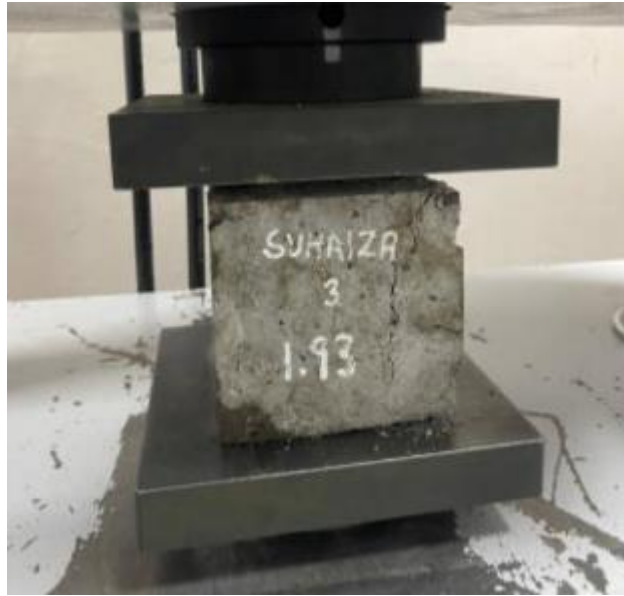
RECYCLED RUBBER WATERPROOFING FOR FLAT ROOF

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Recycled Rubber Waterproofing For Flat Roof

Innovation Idea:

Concrete is a popular construction material due to its ease of preparation, low cost, and minimal maintenance. Malaysia's weather conditions, such as high winds, thunderstorms, hailstorms, and hot temperatures, can cause roof damage. Moss thrives in humid environments, and excessive rain and moisture can compromise the structural integrity of the material or surface of a roof. Hence, roof maintenance is crucial in preventing problems, restoring its quality, and extending its lifespan. The main goal of this study is to develop a recycled rubber waterproofing for flat roofs and assemble prototypes from the improvised designs. The objectives of the study are to demonstrate the performance of the recycled rubber waterproofing for flat roof prototype and showcase entrepreneurial skills in proposing the prototype to be marketable. The data collection involved is secondary data collection from a variety of sources: academic institutions, industry reports, published studies, databases, and literature review. Instead of producing a prototype, this research utilised 3D modelling using the materials and procedure to demonstrate the prototype. The compressive strength test was performed when crystalline admixtures were mixed with recycled tyres in concrete that had been cured for 7, 28, and 35 days. The finding reveals that the recycled rubber waterproofing for flat roofs is proven to be durable, long-lasting, easy to install, time-saving, and low labour costs. In addition, the innovation contributes to environmental sustainability by reducing landfill waste and virgin material consumption. These flexible rubber-based materials were found to accommodate structural movements and temperature fluctuations without cracking or losing waterproofing properties, preventing water penetration and reducing leak risks. These improvements are advocated by

the project innovation on recycled rubber waterproofing for flat roofs through research and development, field testing, partnerships with manufacturers, industry standards, sustainability certifications, and financial incentives. These recommendations encourage the use of sustainable, green building methods in the building sector.

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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MELALUI REPOSITORI INSTITUSI UiTM (IR)**

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3. Tujuan permohonan ini adalah bagi membolehkan akses yang lebih meluas oleh pengguna perpustakaan terhadap semua maklumat yang terkandung di dalam penerbitan melalui laman Web PTAR UiTM Cawangan Perak.

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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