



E-Newsletter SCHOOL OF CIVIL ENGINEERING



WHAT DREAMS ARE MADE OF

ARCHITECTURE BEGINS WHERE
ENGINEERING ENDS

-Walter Gropius

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MERDEKA MALL 118 DOME : FIELD MEASUREMENT



SITE VISIT

A team from Universiti Teknologi MARA Shah Alam collaborated with other universities (UiTM Penang, USM and UM) and contractors to measure the tension ring of Malaysia's largest single layer dome, the Merdeka Mall 118 Dome. Led by Prof. Ir. Dr. Choong Kok Keong from Universiti Sains Malaysia, the project aimed to verify design predictions against real-time behavior during the de-propping process.



After thorough preparations and a successful trial measurement, the main field measurement was conducted in December 2023. Despite interruptions from rain, the data collected indicated that actual displacements aligned with design predictions.

Detailed evaluation and reporting of the findings are expected in early 2024, with the project enhancing understanding and potentially improving future design processes. The de-propping process, which was conducted in three stages involving the removal of temporary props in circular pattern starting from the inner towards the outer areas near the tension ring, took approximately half an hour to complete.



Team members:
 Ir. Dr. Oh Chai Lian, Ts. Dr. Nursafarina Ahmad,
 Mr Baharuddin Bahrol Zaman, Mr Azri Syafiq Kamarozaman

DE-PROPPING PROCESS

On the morning of November 10, 2023, the team participated in a trial field measurement to identify and address any issues related to stations, equipment, and the field test setup. Stringent safety policies were enforced at the construction site, including safety briefings for workers, appropriate attire for work at heights, and constant safety monitoring. During the trial measurement, four stations were strategically set up around the tension ring perimeter, equipped with essential tools such as dial gauges, linear variable displacement transducers (LVDTs), and data-loggers.



The project's primary goal was to assess the behavior of tension ring in real-time during the de-propping process and under actual service where the dome is supported by the tension ring. The measurement results show that the actual displacements were well within the design prediction. Although the initial plan was to extend the data measurement period to account for movement due to changes in temperature, the measurement had to be halted due to unexpected rain.



MONITORING WORK

The monitoring work was undertaken not only enhances the understanding of the actual behavior of the tension ring but also serves as a valuable basis for further improvements of the design process.



Stay Connected

Reach out to our dedicated team for any inquiries, assistance, or information you need.

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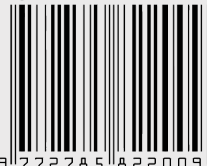


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