

New Rubber-based Isolator for Low-Rise Buildings



RESEARCH INSTITUTION Universiti Teknologi MARA (UiTM)

INDUSTRY COLLABORATOR Doshin Rubber Products Sdn Bhd

DATE OF COMPLETION June 2022

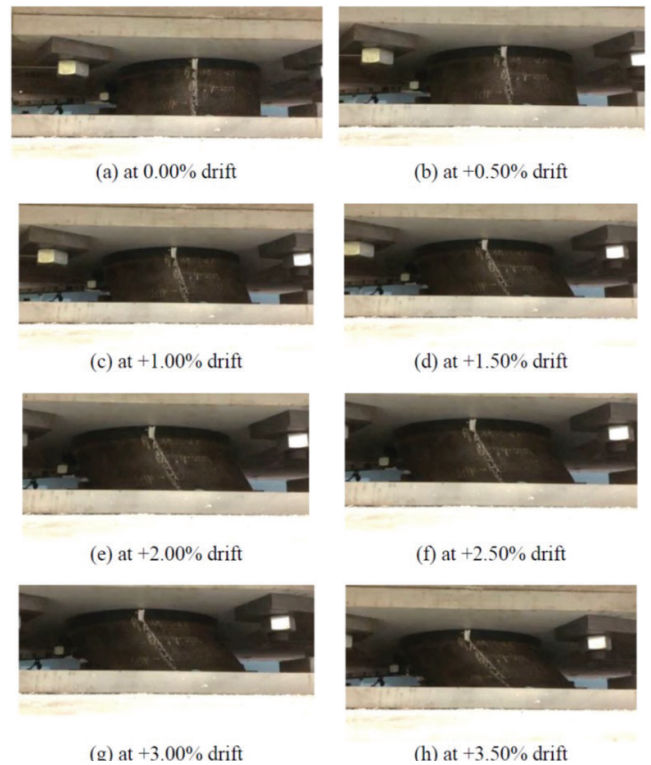
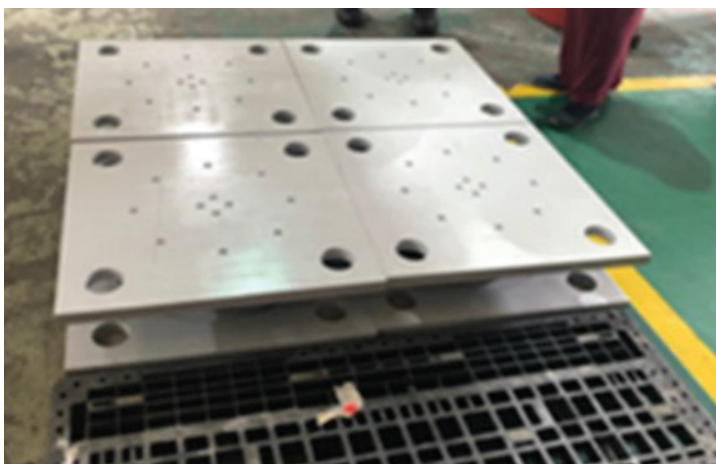
PROJECT DURATION 42 months (including 6 months of extension due to MCO)

MRC GRANT APPROVED RM227,213.12

PROJECT OUTPUT Design Procedure for RC Building with Special Base Isolation using Direct Displacement-Based Design (DDBD)

Computer modelling done for the new base isolator has determined that it will be able to resist low to medium earthquake excitation up to 7 Richter scale. Other than that, a seismic vulnerability assessment to compare the performance of the RC frame with and without the base isolator was successfully developed. The research team has proposed a guideline for designing low-rise RC buildings with base isolation using Direct Displacement Base Design (DDBD). For commercialization, Doshin is targeting to promote the use of the new base isolator for low-rise buildings located in medium to high-seismic activity countries or regions.

To advance Malaysia's leading edge in rubber solutions for earthquake management, Doshin Rubber Products Sdn Bhd and Universiti Teknologi MARA (UiTM) have collaborated to determine the performance of a new base isolator specially designed for low-rise buildings. The new base isolator was placed underneath a foundation and two-storey reinforced concrete (RC) frame constructed in accordance with BS8110 (non-seismic code of practice) and tested under in-plane lateral cyclic loading. The RC frame equipped with the new base isolator performed better from visual observation which was then further confirmed from the result of lateral strength capacity, elastic stiffness, ductility and equivalent viscous damping.



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