

## DESIGNING AN ELASTOMER FOR REINFORCED ELASTOMERIC CUSHION BRIDGE EXPANSION JOINTS

**Welivita W.K.C.S. , Wijayasiri I.S.W.C. , Weragoda V.S.C\***

*Department of Materials Science and Engineering, University of Moratuwa, Sri Lanka*

*\*Email: [sampathw@uom.lk](mailto:sampathw@uom.lk)*

This project is focused to improve the properties and to avoid the premature failures of the Reinforced Elastomeric Cushion Bridge Expansion Joint which is used by the industrial organization of Expressway Operation, Maintenance and Management Division of Road Development Authority in Sri Lanka.

During the project, COMSOL Multiphysics software was used to analyze the stresses of the expansion joint. Rubber compounds were mixed in a two-roll mill according to a predetermined formulation and were vulcanized using a compression molding machine. Tensile strength, hardness, abrasion resistance, aging resistance (ozone aging and hot air oven aging) were measured according to the standards.

**Keywords:** Bridge expansion joints, Elastomeric cushion, Rubber joint design