EXPERIMENTAL INVESTIGATION OF TEMPERATURE DISTRIBUTION IN NON-HEATED AND PRE-HEATED HOT MIX ASPHALT PATCH REPAIR

J. Byzyka, M. Rahman & D.A. Chamberlain
Brunel University, London, United Kingdom

ABSTRACT
The study focuses on the issue of hot mix asphalt patch repairs, the performance of which is greatly reduced by repair edge disintegration. This is caused by low interface temperatures during the repair operation which result in poor bonding between the fill material and the host pavement. Twelve shallow repairs comprising six non-heated and six pre-heated for 10 min 15 s with an experimental infrared heater have been investigated. Temperatures were measured at the repair interfaces during the laying and compaction of the fill mixture. The lowest temperatures were located at corners and at vertical sides due to high thermal contact resistance in these interfaces. Comparing repairs pre-heated with non-heated repairs, the temperatures at corners and at vertical faces increased in an average 10.85 °C - 24.45 °C and 34.97 °C respectively. Such temperature increases are important for enhancing repair boundary fusion and interfacial bonding.