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## Evaluation of cracking resistance and durability of 100% reclaimed asphalt pavement mixtures

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Cracking resistance and durability of rejuvenated asphalt mixtures containing 100% Reclaimed Asphalt Pavement (RAP) was studied through binder and mixture tests. In-place recycled pavements often have a high content of RAP material. In order to achieve successful recycling, it is necessary to ensure that the recycled pavement has good initial performance and its performance does not drop too quickly over time. This study looks at the cracking resistance of rejuvenated binders and mixtures and investigates the changes in this parameter over a pavement's life. The Pressure Aging Vessel was used to simulate the long-term aging of the binders. Cracking resistance of binders was characterized by their creep stiffness and m-value, obtained from Bending Beam Rheometer (BBR) test. Four samples of artificially aged and then rejuvenated binders were tested for their BBR parameters after standard and extended aging. Also, two virgin binders were used as controls. The cracking resistance of the mixtures was tested by the Texas Overlay Test. Two rejuvenated mixtures and two virgin asphalt control mixtures were used. To investigate the changes in the cracking resistance, the Accelerated Pavement Weathering System (APWS) was employed to simulate long-term environmental aging. Results from both binder and mix testing indicated that rejuvenated binders and mixtures had significantly better cracking resistance than virgin binders and new mixtures. The resistance of rejuvenated mixtures dropped slightly faster than new mixtures when aged by the APWS. Results from this experience confirmed that properly rejuvenated binders could potentially provide good cracking resistance for the recycled pavement.

### Biography

Hesham Ali received his PhD in Civil Engineering from the City University of New York. He is a Professor and the Director of the Green Paving Laboratory at Florida International University. He has held senior level positions in Florida Department of Transportation for approximately 10 years. He also has published over 30 papers on Pavement and Geotechnical Engineering.

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