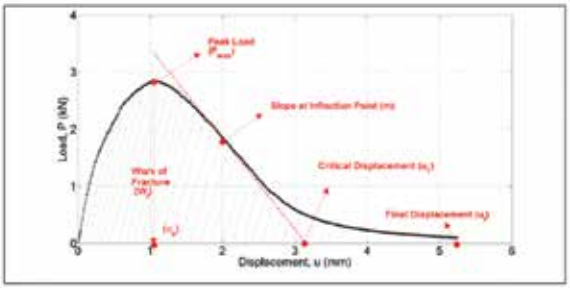
Name of Test **Illinois Flexibility Index Test (I-FIT)**	Developer(s) Al-Qadi and co-workers University of Illinois at Urbana–Champaign
Test Method(s) AASHTO T 124-20	Adoption by Agencies California, Illinois, Missouri, Oregon, Vermont
Description A 150-mm diameter by 50-mm thick semi-circular specimen with a 15-mm notch is simply supported by two bars on the flat surface. The load is applied to the curved surface above the notch at a vertical rate of 50 mm/min. Load and vertical displacement are recorded until the load drops below 0.1 kN. Fracture energy is calculated from the area beneath the load displacement curve to 0.1 kN. The post-peak slope of the load displacement curve is an indicator of the brittle to ductile failure. The flexibility index parameter is calculated by multiplying the fracture energy by a scaling factor constant and dividing by the slope. A minimum of three specimens are used to calculate the average flexibility index.	Photographs/Illustrations  
Test Results Flexibility Index	Test Temperature(s) 25°C
Equipment & Cost Load Frame and Fixture Saw for cutting specimens Saw for notching specimens	 $10,000 to 20,000 $6,000 $3,000
Specimen Type and Aging Condition Gyratory specimen, 3 cuts, 1 notch (2 hours)	Number of Replicate Specimens Not specified
Specimen Conditioning Conditioning for 2 hours at 25°C	Testing Time <1 minute per specimen
Data Analysis Complexity Fair (using Excel Spreadsheet) Simple (using software)	Test Variability Single-Operator Precision: 27.1% COV (AASHTO) Multi-laboratory Precision: 34.1% COV (AASHTO)
Field Validations Good (pavement sections in Illinois and on FHWA ALF)	Overall Practicality for Mix Design and QA Good for Mix Design Fair for QA

Key References

- Al-Qadi, I.L., H. Ozer, J. Lambros, A.E. Khatib, P. Singhvi, T. Khan, J. Rivera-Perez, and B. Doll (2015) Testing Protocols to Ensure Performance of High Asphalt Binder Replacement Mixes using RAP and RAS. ICT Report No. FHWA-ICT-15-017. Illinois Center for Transportation.
- Al-Qadi, Imad L., D. L. Lippert, S. Wu, H. Ozer, G. Renshaw, I. M. Said, A. F. Espinoza Luque, et al. *Utilizing Lab Tests to Predict Asphalt Concrete Overlay Performance*. FHWA-ICT-17-020, Urbana, IL: Illinois Center for Transportation, 2017.