

Temperature Profile Modelling in Flexible Pavement Design

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Abstract : The temperature effect on asphalt pavement structure is a crucial factor at the design stage. In this paper, by applying the German guidelines for temperature along the asphalt depth is estimated. The aim is to consider temperature profiles in different seasons in numerical modelling. The model is built with an elastic and isotropic solid element with 19 subdivisions of asphalt layers to reflect the temperature variation. Comparison with the simple three-layer pavement system (asphalt layers, base, and subgrade layers) will be followed to see the difference in result without temperature variation along with the depth. Finally, the fatigue life calculation was checked to prove the validity of the methodology of considering the temperature in the numerical modelling.

Keywords : temperature profile, flexible pavement modeling, finite element method, temperature modeling

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