

A Photoelastic investigation of stress distribution in deep beams with an without web opening

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Abstract

The present work is a photoelastic investigation of the stress distribution in deep beams with an without web openings. The general form of stress diffusion has been established and the critical zones have been identified. The critical tensile and shear stresses have been evaluated and their sensitivity to various span-to-depth ratios and opening positions along the span have been established. Based on stress flow pattern and contours of principal tensile stresses, failure mechanisms have been predicted and recommendations have been made for the design of reinforced concrete deep beams.