



## Plastic Theory of Structures: In SI/Metric Units (Structures and solid body mechanics series)

By Michael R. Horne

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Plastic Theory of Structures focuses on the use of plastic theory in design and shows how code requirements are related to theoretical considerations. More specifically, the effect of axial load and shear force on plastic moment capacity is examined, along with biaxial bending, frame and local instability, and the use of partial load factors. The significance of repeated loading in plastic design is also highlighted.

Comprised of six chapters, this book begins with an overview of plastic failure and the behavior beyond the elastic limit (with particular emphasis on the failure loads) of structures in which resistance to bending action is the primary means by which the loads are supported. Attention is paid to how the collapse load factor of a given structure may be derived, that is, the structure has been analyzed in relation to plastic collapse. The reader is then introduced to methods of plastic analysis; plastic moments under shear force and axial load; and minimum weight design. The book also considers variable repeated loading before concluding with a chapter on stability and the influence of various structural parameters and appropriate methods for the estimation of failure loads.

This monograph will be of interest to civil and structural engineers.

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