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4.2.1 Stress Function Solution for Pure Compression 4.2.2 Stress Function Solution for Pure Bending; 4.3 Steel Stresses in Circular Bearings with Compressible Rubber; 4.3.1 Stress Function Solution for Pure Compression; 4.3.2 Stress Function Solution for Pure Bending; 4.4 Yielding of Steel Shims under Compression; 4.4.1 Yielding of Steel Shims for the Case of Incompressible Rubber; 4.4.2 Yielding of Steel Shims for the Case of Compressible Rubber; 5 Buckling Behavior of Multilayer Rubber Isolators; 5.1 Stability Analysis of Bearings; 5.2 Stability Analysis of Annular Bearings

5.3 Influence of Vertical Load on Horizontal Stiffness 5.4 Downward Displacement of the Top of a Bearing; 5.5 A Simple Mechanical Model for Bearing Buckling; 5.5.1 Postbuckling Behavior; 5.5.2 Influence of Compressive Load on Bearing Damping Properties; 5.6 Rollout Stability; 5.7 Effect of Rubber Compressibility on Buckling; 6 Buckling of Multilayer Rubber Isolators in Tension; 6.1 Introduction; 6.2 Influence of a Tensile Vertical Load on the Horizontal Stiffness; 6.3 Vertical Displacement under Lateral Load; 6.4 Numerical Modeling of Buckling in Tension; 6.4.1 Modelling Details

6.4.2 Critical Buckling Load in Compression and Tension 7 Influence of Plate Flexibility on the Buckling Load of Multilayer Rubber Isolators; 7.1 Introduction; 7.2 Shearing Deformations of Short Beams; 7.3 Buckling of Short Beams with Warping Included; 7.4 Buckling Analysis for Bearing; 7.5 Computation of Buckling Loads; 8 Frictional Restraint on Unbonded Rubber Pads; 8.1 Introduction; 8.2 Compression of Long Strip Pad with Frictional Restraint; 8.3 The Effect of Surface Slip on the Vertical Stiffness of an Infinite Strip Pad

8.4 The Effect of Surface Slip on the Vertical Stiffness of a Circular Pad

Sommario/riassunto

"Mechanics of Rubber Bearings for Seismic and Vibration Isolation collates in a compact form all of the information on the mechanics of the increasingly important technology of multi-layer rubber bearings. It explores a unique & comprehensive combination of relevant topics, covering all prerequisite fundamental theory and providing a number of closed form solutions to various boundary value problems as well as a comprehensive historical overview on the use of this technique.The authors progress logically through increasingly complex analyses; many of the results presented are new and are needed for a proper understanding of these bearings and for the design and analysis of vibration isolation or seismic isolation systems. The advantages afforded by adopting these natural rubber systems"otheir cost effectiveness, simplicity, and reliability"is clearly explained to designers and users of this emerging technology, bringing into focus the design and specification of bearings for buildings, bridges and industrial structures"--

"Mechanics of Rubber Bearings collates in a compact form all of the information on the mechanics of the increasingly important technology of multi-layer rubber bearings"--