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Altri autori (Persone)	Barron Brian R
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Nota di contenuto	Design for Thermalstresses; Contents; Preface; Nomenclature; 1 Introduction; 1.1 Definition of Thermal Stress; 1.2 Thermal-Mechanical Design; 1.3 Factor of Safety in Design; 1.4 Thermal Expansion Coefficient; 1.5 Young's Modulus; 1.6 Poisson's Ratio; 1.7 Other Elastic Moduli; 1.8 Thermal Diffusivity; 1.9 Thermal Shock Parameters; 1.10 Historical Note; Problems; References; 2 Thermal Stresses in Bars; 2.1 Stress and Strain; 2.2 Bar between Two Supports; 2.3 Bars in Parallel; 2.4 Bars with Partial Removal of Constraints; 2.5 Nonuniform Temperature Distribution; 2.6 Historical Note; Problems

References  
3 Thermal Bending; 3.1 Limits on the Analysis; 3.2 Stress Relationships; 3.3 Displacement Relations; 3.4 General Thermal Bending Relations; 3.5 Shear Stresses; 3.6 Beam Bending Examples; 3.7 Thermal Bowing of Pipes; 3.8 Historical Note; Problems; References; 4 Thermal Stresses in Trusses and Frames; 4.1 Elastic Energy Method; 4.2 Unit-Load Method; 4.3 Trusses with External Constraints; 4.4 Trusses with Internal Constraints; 4.5 The Finite Element Method; 4.6 Elastic Energy in Bending; 4.7 Pipe Thermal Expansion Loops; 4.8 Pipe Bends; 4.9 Elastic Energy in Torsion  
4.10 Historical Note  
Problems; References; 5.1 Introduction; 5.2 Strain Relationships; 5.3 Stress Relationships; 5.4 Stress-Strain Relations; 5.5 Temperature Field Equation; 5.6 Reduction of the Governing Equations; 5.7 Historical Note; Problems; References; 6 Plane Stress; 6.1 Introduction; 6.2 Stress Resultants; 6.3 Circular Plate with a Hot Spot; 6.4 Two-Dimensional Problems; 6.5 Plate with a Circular Hole; 6.6 Historical Note; Problems; References; 7 Bending Thermal Stresses in Plates; 7.1 Introduction; 7.2 Governing Relations for Bending of Rectangular Plates  
7.3 Boundary Conditions for Plate Bending  
7.4 Bending of Simply-Supported Rectangular Plates; 7.5 Rectangular Plates with Two-Dimensional Temperature Distributions; 7.6 Axisymmetric Bending of Circular Plates; 7.7 Axisymmetric Thermal Bending Examples; 7.8 Circular Plates with a Two-Dimensional Temperature Distribution; 7.9 Historical Note; Problems; References; 8 Thermal Stresses in Shells; 8.1 Introduction; 8.2 Cylindrical Shells with Axisymmetric Loading; 8.3 cooldown of Ring-Stiffened Cylindrical Vessels; 8.4 Cylindrical Vessels with Axial Temperature Variation; 8.5 Short Cylinders  
8.6 Axisymmetric Loading of Spherical Shells  
8.7 Approximate Analysis of Spherical Shells under Axisymmetric Loading; 8.8 Historical Note; Problems; References; 9 Thick-Walled Cylinders and Spheres; 9.1 Introduction; 9.2 Governing Equations for Plane Strain; 9.3 Hollow Cylinder with Steady-State Heat Transfer; 9.4 Solid Cylinder; 9.5 Thick-Walled Spherical Vessels; 9.6 Solid Spheres; 9.7 Historical Note; Problems; References; 10 Thermoelastic Stability; 10.1 Introduction; 10.2 Thermal Buckling of Columns; 10.3 General Formulation for Beam Columns; 10.4 Postbuckling Behavior of Columns  
10.5 Lateral Thermal Buckling of Beams

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## Sommario/riassunto

The tools engineers need for effective thermal stress design. Thermal stress concerns arise in many engineering situations, from aerospace structures to nuclear fuel rods to concrete highway slabs on a hot summer day. Having the tools to understand and alleviate these potential stresses is key for engineers in effectively executing a wide range of modern design tasks. Design for Thermal Stresses provides an accessible and balanced resource geared towards real-world applications. Presenting both the analysis and synthesis needed for accurate design, the book emphasizes key principles,

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Soggetti	Information science Documentation Library science Information services Information storage and retrieval systems Library Science Information Services Information Science Systemes d'information Services d'information Sciences de l'information Bibliotheconomie library science documentation (activity) Library & Information Science Periodicals.
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