



FIGURE 11.3: Geometry of conical sections.

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From: Clarence D. Miller, "Shell Structures", in Structural Engineering Handbook, Chen Wai-Fah (editor), CRC Press, 1999

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Clarence D. Miller (Consulting Engineer, Bloomington, Indiana), "Shell Structures", in Structural Engineering Handbook, Chen Wai-Fah (editor), CRC Press, 1999

OUTLINE OF THIS 1999 PAPER:

11.1 Introduction

Overview • Production Practice • Scope • Limitations • Stress Components for Stability Analysis and Design • Materials • Geometries, Failure Modes, and Loads • Buckling Design Method • Stress Factor • Nomenclature

11.2 Allowable Compressive Stresses for Cylindrical Shells Uniform Axial Compression • Axial Compression Due to Bending Moment • External Pressure • Shear • Sizing of Rings (General Instability)

11.3 Allowable Compressive Stresses For Cones Uniform Axial Compression and Axial Compression Due to Bending • External Pressure • Shear • Local Stiffener Buckling

11.4 Allowable Stress Equations For Combined Loads For Combination of Uniform Axial Compression and Hoop Compression • For Combination of Axial Compression Due to Bending Moment, M , and Hoop Compression • For Combination of Hoop Compression and Shear • For Combination of Uniform Axial Compression, Axial Compression Due to Bending Moment, M , and Shear, in the Presence of Hoop Compression, • For Combination of Uniform Axial Compression, Axial Compression Due to Bending Moment, M , and Shear, in the Absence of Hoop Compression

11.5 Tolerances for Cylindrical and Conical Shells Shells Subjected to Uniform Axial Compression and Axial Compression Due to Bending Moment • Shells Subjected to External Pressure • Shells Subjected to Shear

11.6 Allowable Compressive Stresses Spherical Shells • Toroidal and Ellipsoidal Heads

11.7 Tolerances for Formed Heads

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