Case N-500-4
Alternative Rules for Standard Supports for Classes 1, 2, 3, and MC
Section III, Division 1

Inquiry: What alternative rules to Section III, Subsection NCA and NF may be used for the construction of Class 1, 2, 3, and MC Standard Supports?

Reply: It is the opinion of the Committee that an alternative to the requirements of NCA and NF, Class 1, 2, 3, and MC Standard Supports except dampers (NF-3412.5), snubbers and struts (Type 47, Fig. A1 of ANSI MSS SP-58) and their associated attachments may be constructed to ANSI MSS SP-58-2009 “Pipe Hangers and Supports — Materials, Design and Manufacture” and the following additional requirements:

1 MATERIALS

1.1 The materials and allowable stresses listed in Table 2 of ANSI MSS SP-58-2009 may be used, except for ASTM specifications A48, A126, A395, and A536 castings within Table 2.

1.2 The use of other materials per 3.2 of ANSI MSS SP-58-2009 is limited to material specifications permitted for use for any type or class of support under Subsection NF including those permitted by a Code Case applicable to Subsection NF, except that the allowable stresses shall be calculated in accordance with ANSI MSS SP-58-2009.

1.3 Certified Material Test Reports in accordance with NCA-3867.4(a) shall be supplied with the Standard support for all materials except carbon steel materials with a specified minimum tensile strength of 75,000 psi or less, exempt materials as identified in NF-2121(b), or small products as defined in NF-2610(c).

1.4 The identification of materials requiring Certified Material Test Reports shall meet the requirements of NCA-3856.

2 DESIGN

2.1 For Design and Service Level A, stresses shall not exceed those of ANSI MSS SP-58-2009.

2.2 For Service Level B, stresses shall not exceed 1.33 times those of ANSI MSS SP-58-2009.

2.3 For Service Level C, stresses shall not exceed 1.50 times those of ANSI MSS SP-58-2009.

2.4 For Service Level D, stresses shall not exceed 2.0 times those of ANSI MSS SP-58-2009.

2.5 The stresses caused by Test loadings shall be limited to 80% of the tabulated value of yield stress.

2.6 For all service levels, tensile and compressive stresses shall not exceed 70% of the tabulated value of ultimate tensile strength at the service temperature and shear stresses shall not exceed 42% of the tabulated value of ultimate tensile strength at the service temperature. Stresses shall not exceed 50% of critical buckling stress for Design, Level A and Level B and 67% of critical buckling stress for Level C, Level D and Test. Consideration shall be given to combinations of stresses.

2.7 The requirements of NF-3330 “High Cycle Fatigue Design for Class 1” shall be met for Class 1 supports.

2.8 The requirements of NF-3225 “Design of Bolting” and NF-3324.6 “Design Requirements for Bolted Joints” shall be met.

2.9 Section 11.3 of ANSI MSS SP-58-2009 shall not be used. Supports may be designed by load rating in accordance with NF-3480 using the allowable stresses in 2.1 through 2.8.

3 QUALITY ASSURANCE

3.1 The standard supports shall be manufactured under a quality assurance program which meets the requirements specified by the purchaser.

4 OTHER REQUIREMENTS

4.1 The use of this Case shall be in accordance with NCA-1140 and shall be listed on the applicable data report for the component which utilizes the standard support.

4.2 All welds shall be visually examined to the acceptance standards of NF-5360.