

2016-03-09 Bi-weekly Seismic Call Agenda Attachment

<u>The comparison of two editions in ASME Section III, Division 1, Article NE-3000</u>					
Subarticle	Title	2001 Edition including 2003 Addenda	2007 Edition including 2008 Addenda	Design Affected (Yes/No)	Remarks
NE-3100	General Design				
NE-3110	Loading Criteria				
NE-3111	Loading Conditions	Same	Same	No	
NE-3112	Design Loadings	Same	Same	No	
NE-3112.1	Design Pressure	Same	Same	No	
NE-3112.2	Design Temperature	Same	Same	No	
NE-3112.3	Design Mechanical Loads	Same	Same	No	
NE-3112.4	Allowable Stress Intensity and Stress Values	~. The material shall not be used at metal and design temperatures <u>above those for which</u> stress intensity values are listed. The values in the Tables may be interpolated for intermediate temperatures.	~. The material shall not be used at metal and design temperatures <u>that exceed the temperature limit in the applicability column for</u> which stress intensity values are listed. The values in the Tables may be interpolated for intermedia	No	The meanings of changed sentence has not impact to the design of MC components .

			te temperatur es.		
NE-3113	Service Limits	Same	Same	No	
NE-3113.1	Level A Service Limits	Same	Same	No	
NE-3113.2	Level B Service Limits	Same	Same	No	
NE-3113.3	Level C Service Limits	Same	Same	No	
NE-3113.4	Level D Service Limits	Same	Same	No	
NE-3113.5	Level E Service Limits	Same	Same	No	
NE-3114	Testing Conditions	Same	Same	No	
NE-3120	Special Considerations				
NE-3121	Corrosion	Same	Same	No	
NE-3122	Cladding	Same	Same	No	
NE-3122.1	Primary Stress	Same	Same	No	
NE-3122.2	Design Dimensions	Same	Same	No	
NE-3122.3	Bearing Stresses	Same	Same	No	
NE-3122.4	Maximum Allowable Stress Values	Same	Same	No	
NE-3122.5	Maximum Allowable Temperature	Same	Same	No	
NE-3123	Welds Between Dissimilar Metals	Same	Same	No	

NE-3125	Configurations	Same	Same	No	
NE-3130	General Design Rules				
NE-3131	General Requirements	Same	Same	No	
NE-3132	Dimensional Standards for Standard Products	Dimensions of standard products shall comply with the standards and specifications listed in <u>Table NE-3132-1</u> when the standard or specification is referenced in the specific design Subarticle . ~ .	Dimensions of standard products shall comply with the standards and specifications listed in <u>Table NCA-7100-1</u> when the standard or specification is referenced in the specific design Subarticle . ~ .	No	Table reference revised
NE-3133	Component Under External Loading				
NE-3133.1	General	Same	Same	No	
NE-3133.2	Nomenclature	$S = p$ the lesser of 2 times the allowable stress at design metal temperature from Section II, Part D, Subpart 1, Tables 1A and 1B or 0.9 times the	$S = t$ the lesser of 2 times the allowable stress at design metal temperature from Section II, Part D, Subpart 1, Tables 1A and 1B or 0.9 times the	No	Corrected by errata

		tabulated yield strength at design metal temperature from Section II, Part D, Subpart 2 , Table Y-1, psi (kPa)	tabulated yield strength at design metal temperature from Section II, Part D, Subpart 1 , Table Y-1, psi (MPa)		
NE-3133.3	Cylindrical Shells	Same	Same	No	
NE-3133.4	Spherical Shells and Formed Heads	Same	Same	No	
NE-3133.5	Stiffening Rings for Cylindrical Shells	Same	Same	No	
NE-3133.6	Cylindrical Under Axial Compression	Same	Same	No	
NE-3133.7	Conical Heads	Same	Same	No	
Table NE-3132-1	Dimensional Standards	It maintains a table.	Deleted	No	Table deleted
NE-3134	Material Properties	Same	Same	No	
NE-3134.1	Yield Strength Values	The values of yield strength Sy shall be those given in Section II, Part D, Subpart 2 , Table Y-1.	The values of yield strength Sy shall be those given in Section II, Part D, Subpart 1 , Table Y-1.	No	Corrected by errta
NE-3134.2	Ultimate Tensile Strength Values	The values of ultimate tensile strength shall be those	The values of ultimate tensile strength shall be those	No	Corrected by errta

		given in Section II, Part D, Subpart 2 , Table TCD.	given in Section II, Part D, Subpart 1 , Table U.		
NE-3134.3	Coefficient s of Thermal Conductivit y and Thermal Diffusivity	Same	Same	No	
NE-3134.4	Coefficient s of Thermal Expansion	Same	Same	No	
NE-3134.5	Modulus of Elasticity Values	Same	Same	No	
NE-3134.6	Allowable Stress Intensity and Stress Values	Same	Same	No	
NE-3135	Attachments	Same	Same	No	
NE-3200	Design by Analysis				
NE-3210	Design Criteria				
NE-3211	Genral Requirement s for Applicabili ty	Same	Same	No	
NE-3212	Basis for Determining Stresses	Same	Same	No	
NE-3213	Terms Relating to Stress Analysis	Same	Same	No	

NE-3213.1	Stress Intensity	<p>Stress intensity is the equivalent intensity of combined stress, or, in short, the stress intensity is defined as twice the maximum shear stress. In other words, the stress intensity is the difference between the algebraically largest principal stress and the algebraically smallest principal stress at a given point. Tensile stresses are considered positive and compressive stresses are considered negative.</p>	<p>Stress intensity is defined as twice the maximum shear stress, which is the difference between the algebraically largest principal stress and the algebraically smallest principal stress at a given point. Tensile stresses are considered positive and compressive stresses are considered negative.</p>	No	The sentences changed
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NE-3213.2	Gross Structural Discontinuity	Same	Same	No	
NE-3213.3	Local Structural Discontinuity	Same	Same	No	
NE-3213.4	Normal Stress	Normal stress is the component of stress normal to the plane of reference. This is also referred to as direct stress. Usually the distribution of normal stress is not uniform through the thickness of a part, so this stress is considered to be made up in turn of two components , one of which is uniformly distributed and equal to the average value of	Normal stress is the component of stress normal to the plane of reference. This is also referred to as direct stress. Usually the distribution of normal stress is not uniform through the thickness of a part, so this stress is considered to have two components , one uniformly distributed and equal to the average stress across the thickness	No	The sentences changed

		stress across the thickness under consideration, and the other of which varies from this average value with the location across the thickness.	under consideration, and the other varying from this average value across the thickness.		
NE-3213.5	Shear Stress	Same	Same	No	
NE-3213.6	Membrane Stress	Membrane stress is the component of normal stress which is uniformly distributed and equal to the average of stress across the thickness of the section under consideration.	Membrane stress is the component of normal stress that is uniformly distributed and equal to the average of stress across the thickness of the section under consideration.	No	The sentences changed
NE-3213.7	Bending Stress	Bending stress is the variable component of normal stress described in NE-3213.4.	Bending stress is the component of normal stress that varies across the thickness.	No	The sentences changed

		The variation may or may not be linear across the thickness.	The variation may or may not be linear across the thickness.		
NE-3213.8	Primary Stress		Same	No	
NE-3213.9	Secondary Stress		Same	No	
NE-3213.10	Local Primary Membrane stress		Same	No	
NE-3213.11	Peak Stress	Same	Same	No	
NE-3213.12	Load Stress	Same	Same	No	
NE-3213.13	Thermal Stress	Same	Same	No	
NE-3213.14	Total Stress	Same	Same	No	
NE-3213.15	Service Cycle	Same	Same	No	
NE-3213.16	Stress Cycle	Same	Same	No	
NE-3213.17	Fatigue Strength Reduction Factor	Same	Same	No	
NE-3213.18	Shakedown	Same	Same	No	
NE-3213.19	Free End Displacement	Same	Same	No	
NE-3213.20	Expansion Stresses	Same	Same	No	
NE-3213.21	Limit Analysis - Collapse Load	Same	Same	No	
NE-3213.22	Collapse Load - Lower Bound	Same	Same	No	
NE-3214	Stress Analysis	Same	Same	No	
NE-3215	Derivation of Stress Intensities	Same	Same	No	
NE-3216	Derivation of Stress Differences	Same	Same	No	

NE-3216.1	Constant Principal Stress Direction	Same	Same	No	
NE-3216.2	Varying Principal Stress Direction	Same	Same	No	
NE-3217	Classification of Stresses	Same	Same	No	
NE-3220	Stress Intensity and Buckling Stress Values for Other Than Bolts				
NE-3221	Stress Intensity Values				
NE-3221.1	General Primary Membrane Stress Intensity	Same	Same	No	
NE-3221.2	Local Membrane Stress Intensity	Same	Same	No	
NE-3221.3	Primary General or Local Membrane Plus Primary Bending Stress Intensity	Same	Same	No	
NE-3221.4	Primary Plus Secondary Stress Intensity	Same	Same	No	
NE-3221.5	Analysis for Cyclic Operation	Same	Same	No	
NE-3221.6	Thermal Stress Ratchet	Same	Same	No	
NE-3221.7	Deformation Limits	Same	Same	No	

Table NE-3217-1	Classification of Stress Intensity in Vessels for Some Typical Cases	Same	Same	No	
Table NE-3221-1	Summary of Stress Intensity Limits	Same	Same	No	
Fig. NE-3221-1	Stress Categories and Limits of Stress Intensity for Design Conditions	Same	Same	No	
Fig. NE-3221-2	Stress Categories and Limits of Stress Intensity for Level A and B Service Limits; and for Level C Service Limits where the Structure is not integral and Continuous	Same	Same	No	

Fig. NE-3221-3	Stress Categories and Limits of Stress Intensity for Level C Service Limits where the Structure is Integral and Continuous; and for Level D Service Limits where the Structure is not Integral and Continuous, and at Partial Penetration Welds	Same	Same	No	
Fig. NE-3221-4	Stress Categories and Limits of Stress Intensity for Level D Service Limits where the Structure is Integral and Continuous	Same	Same	No	
NE-3222	Buckling Stress Values				
NE-3222.1	Basic Compressive Allowable Stress	Same	Same	No	
NE-3222.2	Stability Stress Limits	Same	Same	No	
NE-3226	Testing Limits	Same	Same	No	

NE-3227	Special Stress Limits	Same	Same	No	
NE-3227.1	Bearing Loads	~ (1) for materials to which Note (2) of Section II, Part D, Subpart 1, Tables 1A and 1B applies, the lower of 0.5Sy at 100°F (38°C) and 0.675Sy at temperature; ~	~ (1) for materials to which Note (G5) of Section II, Part D, Subpart 1, Tables 1A and 1B applies, the lower of 0.5Sy at 100°F (38°C) and 0.675Sy at temperature; ~	No	Corrected by errta
NE-3227.2	Pure Shear	Same	Same	No	
NE-3227.3	Progressive Distortion of Nonintergal Connection	~ Therefore, primary plus secondary stress intensities (NE-3221.4) which result in slippage between the parts of a nonintegral connection in which is engagement could occur as a result of progressive distortion shall be	~ Therefore, primary plus secondary stress intensities (NE-3221.4) which result in slippage between the parts of a nonintegral connection in which is engagement could occur as a result of progressive distortion shall be	No	Corrected by errta

		limited to the value S_y (Section II, Part D, Subpart 2 , Table Y-1).	limited to the value S_y (Section II, Part D, Subpart 1 , Table Y-1).		
NE-3227.4	Triaxial Stresses	Same	Same	No	
NE-3227.5	Nozzle Piping Transition	Same	Same	No	
NE-3227.6	Application of Elastic Analysis for Stresses Beyond the Yield Strength	Same	Same	No	
NE-3228	Application of Plastic Analysis	Same	Same	No	
NE-3228.1	Plastic Analysis	Same	Same	No	
NE-3228.2	Limit Analysis	The limits on local membrane stress intensity (NE-3221.2) and primary membrane plus primary bending stress intensity (NE-3221.3) need not be satisfied at a specific	The limits on local membrane stress intensity (NE-3221.2) and primary membrane plus primary bending stress intensity (NE-3221.3) need not be satisfied at a specific	No	Corrected by errta

		location if it can be shown by means of limit analysis or by tests that the specified loadings do not exceed two-thirds of the lower bound collapse load except for those materials of Section II, Part D, Subpart 1, Tables 2A and 2B to which Note (2) of those tables is applicable . ~.	location if it can be shown by means of limit analysis or by tests that the specified loadings do not exceed two-thirds of the lower bound collapse load except for those materials of Section II, Part D, Subpart 1, Table 2A to which Note G7 is applicable and Table 2B to which Note G1 is applicable . ~.		
NE-3228.3	Simplified Elastic-Plastic Analysis	Same	Same	No	
NE-3228.4	Impluse Loads	Same	Same	No	
Table NE-3228.3(b) - 1	Values of m, n and T_{\max} for Various Classes of Permitted Marerials	Same	Same	No	
NE-3230	Stress Limits for Bolts				
NE-3231	Design Conditions	Same	Same	No	

NE-3232	Combined Loads	Same	Same	No	
NE-3232.1	Average Stress	Same	Same	No	
NE-3232.2	Maximum Stress	Same	Same	No	
NE-3232.3	Fatigue Analysis of Bolts	Same	Same	No	
NE-3236	Design Stress Values	Same	Same	No	
NE-3300	Design Formula				
NE-3310	Design Criteria				
NE-3311	Requirements for Acceptability	Same	Same	No	
NE-3320	Design Considerations				
NE-3324	Vessels under Internal Pressures				
NE-3324.1	General Requirements	Same	Same	No	
NE-3324.2	Nomenclature	Same	Same	No	
NE-3324.3	Cylindrical Shells	Same	Same	No	
NE-3324.4	Spherical Shells				
NE-3324.5	Formed Heads, General Requirements				
NE-3324.6	Ellipsoidal Heads	Same	Same	No	
NE-3324.7	Hemispherical Heads	Same	Same	No	
NE-3324.8	Torispherical Heads	Same	Same	No	
NE-3324.9	Conical Heads without Transition Knuckle	Same	Same	No	

NE-3324.10	Torispheric al Heads	Same	Same	No	
NE-3324.11	Reducer Sections	Same	Same	No	
NE-3324.12	Nozzles	Same	Same	No	
Fig. NE- 3324.2-1	Principal Dimensions of Typical Heads	Same	Same	No	
Table NE- 3324.2-1	Values of Factor K	Same	Same	No	
Table NE- 3324.8(b) - 1	Values of Factor M	Same	Same	No	
Fig. NE- 3324.11(a) (6) -1	Large Head Opening:Rev erse Curve and Concial Shell Reducer Sections	Same	Same	No	
Table NE- 3324.11(b) (2) -1	Values Δ for Junctions at the Large Cylinder for $\alpha \leq 30$ deg	Same	Same	No	
Table NE- 3324.11(b) (3) -1	Values Δ for Junctions at the Small Cylinder for $\alpha \leq 30$ deg	Same	Same	No	
NE-3325	Flat Heads and Covers	Same	Same	No	
NE-3325.1	Nomenclatur e	Same	Same	No	
NE-3325.2	Thickness	Same	Same	No	
NE-3325.3	Values of C	Same	Same	No	
Fig. NE- 3325-1	Some Acceptable Types of Unstayed Flat Heads and Covers	Same	Same	No	

NE-3326	Spherically Dished Covers with Bolting Flanges				
NE-3326.1	Nomenclature				
NE-3326.2	Spherically Dished Heads with Bolting Flanges	Same	Same	No	
Fig. NE-3326.1-1	Spherically Dished Covers with Bolting Flanges	Same	Same	No	
NE-3327	Quick Actuating Closures	Same	Same	No	
NE-3327.1	Positive Locking Devices	Same	Same	No	
NE-3327.2	Other Quick Access and Safety Devices	Same	Same	No	
NE-3327.3	Manual Operation	Same	Same	No	
NE-3327.4	Pressure Indicating Device	Same	Same	No	
NE-3328	Combination Units	Same	Same	No	
NE-3330	Openings and Reinforcement				
NE-3331	General Requirement for Openings	Same	Same	No	
NE-3332	Reinforcement Requirement for Openings in Shells and Formed Heads				
NE-3332.1	Openings not Requiring Reinforcement	Same	Same	No	
NE-3332.2	Required Area of Reinforcement	Same	Same	No	
NE-3332.4	Reinforcement for External Pressure	Same	Same	No	

NE-3332.5	Reinforcement for Both Internal and External Pressure	Same	Same	No	
Table NE-3332.2-1	Values of Spherical Radius Factor K_1	Same	Same	No	
Fig. NE-3332.2-1	Chart for Determining Values of F	Same	Same	No	
NE-3333	Reinforcement Required for Openings in Flat Heads	Same	Same	No	
NE-3334	Limits of Reinforcement	Same	Same	No	
NE-3334.1	Limit of Reinforcement Along the Vessel Wall	Same	Same	No	
NE-3334.2	Limit of Reinforcement Normal to the Vessel Wall	Same	Same	No	
Fig. NE-3334.2-1	Nozzle Dimensions	Same	Same	No	
NE-3335	Metal Available for Reinforcement	Same	Same	No	
NE-3335.1	Reinforcement of Multiple Openings	Same	Same	No	
Fig. NE-3335.1-1	Arrangement of Multiple Openings	Same	Same	No	
NE-3336	Strength of Reinforcing Material	Same	Same	No	
NE-3336.1	Strength of Weld	Same	Same	No	

NE-3336.2	Strength of Attachment	Same	Same	No	
NE-3338	Pressure Stresses in Openings for Fatigue Evaluation under Operating Conditions				
NE-3338.1	General	Same	Same	No	
NE-3338.2	Stress Index Method	Same	Same	No	
Table NE-3338.2 (c) -1	Stress Indices for Nozzles	Same	Same	No	
Fig. NE-3338.2-1	Direction of Stress Components	Same	Same	No	
NE-3350	Design of Welded Connections				
NE-3351	Welded Joint Categories				
NE-3351.1	Category A	Same	Same	No	
NE-3351.2	Category B	Same	Same	No	
NE-3351.3	Category C	Same	Same	No	
NE-3351.4	Category D	Same	Same	No	
Fig. NE-3351-1	Welded Joint Locations Typical of Categories A,B,C and D	Same	Same	No	
NE-3352	Permissible Types of Welded Joints	Same	Same	No	
NE-3352.1	Joint of Category A	Same	Same	No	

NE-3352.2	Joint of Category B	(a) Same (b) None	(a) Same (b) Surface examination in accordance with NE-5280(b) may be substituted for radiographic examination required in NE-5221 for Category B butt welds in electrical penetration assemblies subject to the following limitations: (1) The allowable stress for the weld joint shall be multiplied by a factor of 0.8. (2) P-No. 1 base materials shall be used for construction.	No	There is no impact in APR1400 design because the revised contents have relaxed the requirement of nondestructive examination for Category B butt weld in the electrical penetration assemblies.
NE-3352.3	Joint of Category C	Same	Same	No	
NE-3352.4	Joint of Category D	Same	Same	No	

Fig. NE-3352-1	Typical Butt Joints	Same	Same	No	
NE-3355	Welding Grooves	Same	Same	No	
NE-3356	Fillet Welds	Same	Same	No	
NE-3358	Design Requirements for Head Attachments				
NE-3358.1	Skirt Length of Formed Heads	Same	Same	No	
NE-3358.2	Unstayed Flat Heads Welded to Shells	Same	Same	No	
NE-3358.3	Head Attachments using Corner Joints	Same	Same	No	
NE-3358.4	Flat Heads with Hubs	Same	Same	No	
Fig. NE-3358.1(a) - 1	Heads Attached to Shells	Same	Same	No	
NE-3359	Design Requirements for Nozzle Attachment Welds	Same	Same	No	
NE-3360	Special Vessel Requirements				
NE-3361	Tapered Transitions	Same	Same	No	
Fig. NE-3361-1	Category A and B Joints between Sections of Unequal Thickness	Same	Same	No	
NE-3362	Bolted Flange and Studded Connection	Same	Same	No	
NE-3363	Access Openings	Same	Same	No	
NE-3364	Attachments	Same	Same	No	
NE-3365	Supports	Same	Same	No	

NE-3366	Bellows Expansion Joints				
NE-3366.1	General Requirements	Same	Same	No	
NE-3366.2	Design Requirements	<p>~. (e) (1) ~. The cyclic life plot (versus the combined stress) used in evaluating NE-3365.1 (d) shall be obtained from the results of at least 25 fatigue tests on bellows of varying diameters, thicknesses, and convolution profiles.</p> <p>~. (e) (2) (b) ~. Cumulative fatigue requirements can be satisfied in accordance with NE-3365.1 (g) without additional testing by assuming that the slope of the fatigue</p>	<p>~. (e) (1) ~. The cyclic life plot (versus the combined stress) used in evaluating NE-3366.2 (d) shall be obtained from the results of at least 25 fatigue tests on bellows of varying diameters, thicknesses, and convolution profiles.</p> <p>~. (e) (2) (b) ~. Cumulative fatigue requirements can be satisfied in accordance with NE-3366.2 (g) without additional testing by assuming that the slope of the fatigue</p>	No	Corrected by errta

		<p>curve is 4.3 (on a log-log plot) and that the curve passes through the test point.</p> <p>~</p> <p>(e) (3) (b)</p> <p>~. the pressure test of NE-6230, provided that the test is conducted at 2.25 times the equivalent cold design pressure, and single rotation and universal joints are held at their design rotation angle or offset movement during the test and the requirements of NE-3365.1 (b) are not exceeded by such a test.</p> <p>~</p>	<p>curve is 4.3 (on a log-log plot) and that the curve passes through the test point.</p> <p>~</p> <p>(e) (3) (b)</p> <p>~. the pressure test of NE-6230, provided that the test is conducted at 2.25 times the equivalent cold design pressure, and single rotation and universal joints are held at their design rotation angle or offset movement during the test and the requirements of NE-3366.2 (b) are not exceeded by such a test.</p> <p>~</p>		
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NE-3367	Closures on Small Penetrations	Closures on penetrations of 2 in. pipe size (DN 50) or less may be made by the use of closure fittings such as blind flanges, welded plugs, or caps manufactured in accordance with standards listed in Table NE-3132-1.	Closures on penetrations of NPS 2 (DN 50) or less may be made by the use of closure fittings such as blind flanges, welded plugs, or caps manufactured in accordance with standards listed in Table NCA-7100-1.	No	Table reference revised
NE-3700	Electrical and Mechanical Penetration Assemblies				
NE-3720	Design Rules	Same	Same	No	