ASME B31.3-2020
(Revision of ASME B31.3-2018)

Process Piping

ASME Code for Pressure Piping, B31

AN INTERNATIONAL PIPING CODE®

The American Society of Mechanical Engineers

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The American Society of
Mechanical Engineers

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FOREWORD

Responding to evident need and at the request of The American Society of Mechanical Engineers (ASME), the American Standards Association initiated Project B31 in March 1926, with ASME as sole administrative sponsor. The breadth of the field involved required that membership of the Sectional Committee be drawn from some 40 engineering societies, industries, government bureaus, institutes, and trade associations.

Initial publication in 1935 was as the American Tentative Standard Code for Pressure Piping. Revisions from 1942 through 1955 were published as American Standard Code for Pressure Piping, ASA B31.1. It was then decided to publish as separate documents the various industry Sections, beginning with ASA B31.8-1955, Gas Transmission and Distribution Piping Systems. The first Petroleum Refinery Piping Code Section was designated ASA B31.3-1959. ASA B31.3 revisions were published in 1962 and 1966.

In 1967–1969, the American Standards Association became first the United States of America Standards Institute, then the American National Standards Institute (ANSI). The Sectional Committee became American National Standards Committee B31 and the Code was renamed the American National Standard Code for Pressure Piping. The next B31.3 revision was designated ANSI B31.3-1973. Addenda were published through 1975.

A draft Code Section for Chemical Plant Piping, prepared by Section Committee B31.6, was ready for approval in 1974. It was decided, rather than have two closely related Code Sections, to merge the Section Committees and develop a joint Code Section, titled Chemical Plant and Petroleum Refinery Piping. The first edition was published as ANSI B31.3-1976.

In this Code, responsibility for piping design was conceptually integrated with that for the overall processing facility, with safeguarding recognized as an effective safety measure. Three categories of Fluid Service were identified, with a separate Chapter for Category M Fluid Service. Coverage for nonmetallic piping was introduced. New concepts were better defined in five Addenda, the fourth of which added Appendix M, a graphic aid to selection of the proper Fluid Service category.

The Standards Committee was reorganized in 1978 as a Committee operating under ASME procedures with ANSI accreditation. It is now the ASME Code for Pressure Piping, B31 Committee. Section committee structure remains essentially unchanged.

The second edition of Chemical Plant and Petroleum Refinery Piping was compiled from the 1976 Edition and its five Addenda, with nonmetal requirements editorially relocated to a separate Chapter. Its new designation was ANSI/ASME B31.3-1980.

Section Committee B31.10 had a draft Code for Cryogenic Piping ready for approval in 1981. Again, it was decided to merge the two Section Committees and develop a more inclusive Code with the same title. The work of consolidation was partially completed in the ANSI/ASME B31.3-1984 Edition.

Significant changes were made in Addenda to the 1984 Edition: integration of cryogenic requirements was completed; a new stand-alone Chapter on high-pressure piping was added; and coverage of fabrication, inspection, testing, and allowable stresses was reorganized. The new Edition was designated as ASME/ANSI B31.3-1987 Edition.

Addenda to the subsequent five Editions, published at 3-year intervals, were primarily used to keep the Code up to date. New Appendices were added, however, on requirements for bellows expansion joints, estimating service life, submittal of Inquiries, aluminum flanges, and quality control in the 1990, 1993, 1999, and 2002 Editions, all designated as ASME B31.3.

In a program to clarify the application of all Sections of the Code for Pressure Piping, changes were made in the Introduction and Scope statements of the 1996 Edition, and its title was changed to Process Piping.

Under direction of ASME Codes and Standards management, SI (metric) units of measurement were emphasized. With certain exceptions, SI units were listed first in the 1996 Edition and were designated as the standard. Instructions for conversion were given where SI units data were not available. U.S. Customary units also were given. By agreement, either system may have been used.

Beginning with the 2004 Edition, the publication cycle of ASME B31.3 was changed to biennial. Other changes made in the 2004 Edition included the introduction of the weld joint strength reduction factor, W, and the additions of Appendix P, Alternative Rules for Evaluating Stress Range, and Appendix S, Piping System Stress Analysis Examples.

Changes that were made to the 2006 and 2008 Editions of ASME B31.3 included the requirement that valves have blowout-proof stems and the addition of a definition for elevated temperature fluid service, respectively. The most significant change that was made to the 2010 Edition of ASME B31.3 was the addition of Chapter X, High Purity

Piping. In the 2012 Edition, Tables A-1M and A-2M were added to Appendix A that give allowable design values in SI units, and Appendix N, Application of ASME B31.3 Internationally, was also added.

For the 2016 Edition, the allowable design values in SI units as shown in Tables A-1M and A-2M were changed from for information only to values that may be used to meet the requirements of the Code.

In this Edition, SI units are given first, with U.S. Customary units in parentheses. Table K-1 in Appendix K is an exception, containing only U.S. Customary units. The allowable design values in Tables A-1 and A-2 are given in U.S. Customary units, and the SI values are given in Tables A-1M and A-2M. Either the U.S. Customary units or the SI units for these allowable design values may be used. Except for Tables A-1, A-1M, A-2, A-2M, C-1, C-1M, C-6, C-6M, and K-1, values in SI units are to be regarded as the standard, unless otherwise agreed between the contracting parties. Instructions are given in Table K-1 for converting tabular data in U.S. Customary units to appropriate SI units.

Interpretations, Code Cases, and errata to the B31.3 Code on Process Piping are published on the following ASME web page: *https://cstools.asme.org/csconnect/CommitteePages.cfm?Committee=N10020400.*

ASME B31.3-2020 was approved by the American National Standards Institute on September 29, 2020.

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Code for Pressure Piping

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INTRODUCTION

The ASME B31 Code for Pressure Piping consists of a number of individually published Sections, each an American National Standard, under the direction of ASME Committee B31, Code for Pressure Piping.

Rules for each Section reflect the kinds of piping installations considered during its development, as follows:

B31.1 Power Piping: piping typically found in electric power generating stations, in industrial and institutional plants, geothermal heating systems, and central and district heating and cooling systems

B31.3 Process Piping: piping typically found in petroleum refineries; onshore and offshore petroleum and natural gas production facilities; chemical, pharmaceutical, textile, paper, ore processing, semiconductor, and cryogenic plants; food and beverage processing facilities; and related processing plants and terminals

B31.4 Pipeline Transportation Systems for Liquids and Slurries: piping transporting products that are predominately liquid between plants and terminals and within terminals, pumping, regulating, and metering stations

B31.5 Refrigeration Piping and Heat Transfer Components: piping for refrigerants and secondary coolants

B31.8 Gas Transmission and Distribution Piping Systems: piping transporting products that are predominately gas between sources and terminals, including compressor, regulating, and metering stations; gas gathering pipelines

B31.9 Building Services Piping: piping typically found in industrial, institutional, commercial, and public buildings, and in multi-unit residences, which does not require the range of sizes, pressures, and temperatures covered in B31.1

B31.12 Hydrogen Piping and Pipelines: piping in gaseous and liquid hydrogen service and pipelines in gaseous hydrogen service

This is the B31.3 Process Piping Code Section. Hereafter, in this Introduction and in the text of this Code Section B31.3, where the word *Code* is used without specific identification, it means this Code Section.

It is the owner's responsibility to select the Code Section that most nearly applies to a proposed piping installation. Factors to be considered by the owner include limitations of the Code Section; jurisdictional requirements; and the applicability of other codes and standards. All applicable requirements of the selected Code Section shall be met. For some installations, more than one Code Section may apply to different parts of the installation. The owner is also responsible for imposing requirements supplementary to those of the Code if necessary to assure safe piping for the proposed installation.

Certain piping within a facility may be subject to other codes and standards, including but not limited to

— ANSI Z223.1 National Fuel Gas Code: piping for fuel gas from the point of delivery to the connection of each fuel utilization device

— NFPA Fire Protection Standards: fire protection systems using water, carbon dioxide, halon, foam, dry chemicals, and wet chemicals

— NFPA 99 Health Care Facilities: medical and laboratory gas systems

— building and plumbing codes, as applicable, for potable hot and cold water, and for sewer and drain systems

The Code specifies engineering requirements deemed necessary for safe design and construction of pressure piping. While safety is the primary consideration, this factor alone will not necessarily govern the final specifications for any piping installation. The Code is not a design handbook. Many decisions that must be made to produce a sound piping installation are not specified in detail within this Code. The Code does not serve as a substitute for sound engineering judgments by the owner and the designer.

To the greatest possible extent, Code requirements for design are stated in terms of basic design principles and formulas. These are supplemented as necessary with specific requirements to ensure uniform application of principles and to guide selection and application of piping elements. The Code prohibits designs and practices known to be unsafe and contains warnings where caution, but not prohibition, is warranted.

This Code Section includes the following:

(a) references to acceptable material specifications and component standards, including dimensional requirements and pressure–temperature ratings

(b) requirements for design of components and assemblies, including piping supports

(c) requirements and data for evaluation and limitation of stresses, reactions, and movements associated with pressure, temperature changes, and other forces

(d) guidance and limitations on the selection and application of materials, components, and joining methods

(e) requirements for the fabrication, assembly, and erection of piping

(f) requirements for examination, inspection, and testing of piping

Either International System (SI, also known as metric) or U.S. Customary units may be used with this edition. Local customary units may also be used to demonstrate compliance with this Code. One system of units should be used consistently for requirements applying to a specific installation. The equations in this Code may be used with any consistent system of units. It is the responsibility of the organization performing calculations to ensure that a consistent system of units is used.

ASME Committee B31 is organized and operates under procedures of The American Society of Mechanical Engineers that have been accredited by the American National Standards Institute. The Committee is a continuing one, and keeps all Code Sections current with new developments in materials, construction, and industrial practice. New editions are published at intervals of 2 years.

Code users will note that paragraphs in the Code are not necessarily numbered consecutively. Such discontinuities result from following a common outline, insofar as practical, for all Code Sections. In this way, corresponding material is correspondingly numbered in most Code Sections, thus facilitating reference by those who have occasion to use more than one Section.

This edition of Code Section B31.3 is not retroactive. Normally, agreement is made between contracting parties to use a specific edition, considering requirements of the authority having jurisdiction. When specified as the latest edition and when no edition is specified, the specific edition is the one issued at least 6 months prior to the original contract date for the first design activity.

Users of this Code are cautioned against making use of Code revisions without assurance that they are acceptable to the proper authorities in the jurisdiction where the piping is to be installed.

The B31 Committee has established an orderly procedure to consider requests for interpretation and revision of Code requirements. To receive consideration, such request must be in writing and must give full particulars in accordance with Appendix Z.

The approved reply to an inquiry will be sent directly to the inquirer. In addition, the question and reply will be published as part of an Interpretation supplement.

A Case is the prescribed form of reply when study indicates that the Code wording needs clarification, or when the reply modifies existing requirements of the Code or grants permission to use new materials or alternative constructions. The Case will be published as part of a Case supplement.

Code Cases remain available for use until annulled by the ASME B31 Standards Committee.

A request for revision of the Code will be placed on the Committee's agenda. Further information or active participation on the part of the proponent may be requested during consideration of a proposed revision.

Materials ordinarily are listed in the stress tables only when sufficient usage in piping within the scope of the Code has been shown. Requests for listing shall include evidence of satisfactory usage and specific data to permit establishment of allowable stresses, maximum and minimum temperature limits, and other restrictions. Additional criteria can be found in the guidelines for addition of new materials in the ASME Boiler and Pressure Vessel Code, Section II. (To develop usage and gain experience, unlisted materials may be used in accordance with para. 323.1.2.)

ASME B31.3-2020
SUMMARY OF CHANGES

Following approval by the ASME B31 Committee and ASME, and after public review, ASME B31.3-2020 was approved by the American National Standards Institute on September 29, 2020.

ASME B31.3-2020 includes the following changes identified by a margin note, **(20)**.

Page	*Location*	*Change*
xx	Introduction	After subpara. (f), paragraph added
2	300.1.4	Added, and subsequent paragraph redesignated
10	Table 300.4	Appendix D deleted
12	301.3.2	Title revised
12	301.3.3	Title revised
12	301.3.4	Title revised
13	302.2.4	Revised
14	302.2.5	Last sentence deleted
16	Table 302.3.3C	General Note revised
19	302.3.6	Subparagraph (a)(1) revised
24	304.3.1	Subparagraphs (a) and (a)(2) revised
31	304.5.2	Subparagraph (b) revised
32	304.7.2	Subparagraphs (b) and (c) revised
34	306.5.2	Revised
34	307.1.2	Last sentence deleted
36	311.2.2	Subparagraph (d) revised
37	314.2.1	Subparagraph (c) revised
40	319.3.4	Subparagraph (b) revised
40	319.3.6	Revised
41	319.4.4	(1) Subparagraphs (a) and (b) revised
		(2) Subparagraph (c) and eqs. (19) and (20) deleted
43	320.1	Revised
44	320.2	(1) Revised
		(2) Footnote 9 added
49	Table 323.2.2	Items A-3(b) and B-3 revised
56	Table 323.3.1	(1) Items 4, A-5, and B-5 revised
		(2) Note (4) deleted
60	Table 326.1	Revised in its entirety
66	328.5.2	Revised in its entirety
66	328.5.4	Subparagraphs (d), (e)(2), and (f) revised
67	Figure 328.5.2A	Title revised
67	Figure 328.5.2B	Title revised
68	Figure 328.5.2C	(1) Title revised
		(2) Variable for nominal pipe wall thickness revised

Page	*Location*	*Change*
69	328.6	Revised
71	330.1	Last paragraph added
73	331.1.1	Subparagraph (a) revised
73	331.1.3	Subparagraph (b)(5)(-a) revised
74	Table 331.1.1	Note (7) revised
73	331.1.6	Subparagraph (c) revised
75	331.2.6	Revised
78	332.4	Last sentence added
90	344.6.2	Subparagraph (a) revised
103	A321.5.1	Subparagraph (a) revised
103	A321.5.2	Revised in its entirety
106	A328.2.1	Subparagraph (b)(6) revised
107	Table A326.1	Standards ASTM D3309, ASTM D2310, ASTM D2447, ASTM D3309, and ASTM F1974 deleted
109	A328.2.5	Nomenclature in subpara. (c)(1) revised
120	M331	Revised
124	K300	Revised in its entirety
124	K300.1	K300.1.4 added, subsequent paragraphs redesignated, and cross-references updated
125	K302.3.1	Subparagraphs (b) and (d) revised
126	K302.3.2	Subparagraphs (b), (c), and (d) revised
127	K302.3.6	Subparagraph (a) revised
128	K304.1.2	Revised
128	K304.1.3	Revised
128	K304.2.4	Revised
129	K304.7.2	Subparagraph (c) revised
130	K304.7.3	Revised
130	K304.8.1	First paragraph and footnote 6 revised
130	K304.8.2	Former subpara. (a) deleted, and subsequent subparagraphs revised and redesignated
130	K304.8.3	Subparagraph (c) revised
130	K304.8.5	First paragraph revised
131	K307	Revised in its entirety
132	K314.2	Subparagraph (b) revised
133	K317.2	Title revised
134	K322.6.3	(1) Subparagraphs (a) and (b) revised (2) Subparagraph (c) deleted
135	K323.2.2	Revised in its entirety
135	K323.3.1	Revised
135	K323.3.4	Revised in its entirety
139	Table K326.1	(1) Standards under “Bolting” and “Metallic Fittings, Valves, and Flanges” revised (2) Note (1)(c) added
140	K328	Revised
140	K328.1	Revised in its entirety

Page	*Location*	*Change*
140	K328.2.1	Subparagraphs (b) and (f) revised
140	K328.3.1	Revised in its entirety
141	K330.1	Revised
141	K331	Revised in its entirety
143	K332.4.1	Revised
143	K332.4.2	Subparagraph (a) revised
143	K333	Revised in its entirety
144	K341.3.3	Subparagraphs (a) and (b) revised
144	K341.4.1	(1) Subparagraph (b) revised (2) Subparagraph (c) added
148	K345.1	Subparagraphs (a), (b), and (d) revised
148	K345.2.1	Former footnote 10 deleted
149	K346.1	Revised
149	K346.2	(1) Subparagraph (b) added, and subsequent subparagraphs redesignated (2) Subparagraphs (d) and (f) revised
152	U328	Revised
152	U328.2	Revised in its entirety
152	U328.4.2	Added
154	U341.4.1	(1) First paragraph and subparas. (a) and (b) revised (2) Subparagraph (c) added
159	Specification Index for Appendix A	(1) A381, B166, B462, B649, B688, and B690 revised (2) B547 deleted
163	Notes for Tables A-1, A-1M, A-1A, A-1B, A-2, and A-2M	(1) General Note (f) and in-text table in Note (42) revised (2) Note (44) deleted
167	Table A-1	(1) Under Iron — Castings, for Gray A278 40, Note (9) reference deleted (2) Under Carbon Steel — Pipes and Tubes, for A285 Gr. A A134, A285 Gr. B A134, and A285 Gr. C A134, Type/Grade and UNS No. added (3) For A516 Gr. 60, stress values for 700°F and 800°F revised (4) For A516 Gr. 65, stress values for 850°F and 900°F revised (5) Under Carbon Steel — Pipes (Structural Grade), A283 Gr. A and B deleted (6) A1011 Gr. 30, 33, 36, and 40; A36; A283; and A1011 Gr. 45 and 50 revised (7) Under Carbon Steel — Plates, Bars, Shapes, and Sheets (Structural), A283 A and B deleted (8) A1011 30, 33, 36, 40, 45, and 50; A283 C and D; and A36 revised (9) Under Stainless Steel — Pipes and Tubes, A376 16-8-2H deleted (10) A312 TP310S revised (11) A358 310S deleted (12) For A813, A814, A249, and A312 S31254, Notes and stress values revised

Page	*Location*	*Change*
		(13) For A358 S31254, stress values revised
		(14) A789 S32900 deleted
		(15) Under Stainless Steel — Plates and Sheets, A240 439 deleted
		(16) A240 310H revised
		(17) A240 S31254 Notes and stress values revised
		(18) Under Stainless Steel — Forgings and Fittings, A182 F10 deleted
		(19) A182 F310, A403 WP310S, and A403 WP310H revised
		(20) For A182 and A403 S31254, Notes and stress values revised
		(21) A403 S31254, A815 S31803, A403 N08367, and A815 S32750 deleted
		(22) A815 S32101, A815 S32205, and A815 S32760 revised
		(23) A182 S41000 and A182 S41026 deleted
		(24) A182 S32750 revised
		(25) Under Stainless Steel — Bar, A479 S31254 Note and stress values revised
		(26) A479 S32205 and A479 S20910 revised
		(27) Under Stainless Steel — Castings, for A351 CH10, A351 CH20, and A351 CF8C, stress values revised
		(28) Under Nickel and Nickel Alloy — Castings, A494 CX2MW reordered and revised
		(29) A494 CW12MW and A494 CW6M revised
		(30) Under Zirconium and Zirconium Alloy — Pipes and Tubes, B523 R60702, B658 R60702, and B658 R60705 revised
		(31) B523 R60705 deleted
		(32) Under Zirconium and Zirconium Alloy — Plates and Sheets, B551 R60702 and B551 R60705 revised
		(33) Under Zirconium and Zirconium Alloy — Forgings and Bar, B493 R60702, B550 R60702, B493 R60705, and B550 R60705 revised
		(34) Aluminum Alloy — Welded Pipes and Tubes category deleted
242	Table A-1M	(1) Listings for Nominal Composition Fe revised in their entirety
		(2) A134 revised
		(3) For A524, A333, A334, A671, A672, A139, API 5L, and A381, stress values revised
		(4) A516, A515, A1011, A283, A36, and A992 revised
		(5) A376 deleted
		(6) For A312, Type/Grade, UNS No., and Notes revised
		(7) A358 deleted
		(8) For A813, A814, A249, and A312, Notes deleted
		(9) A789 and A240 deleted
		(10) For A240 and A403, Type/Grade, UNS No., and Notes revised
		(11) A182, A403, A815, and A479 revised
		(12) For A351, stress values revised
		(13) Wld. tube B626 added
		(14) A494, B523, B658, B551, B493, and B550 revised

Page	*Location*	*Change*
		(15) B547 deleted
349	Table A-1B	B547 deleted
354	Table A-2	(1) A194 4 and A194 4L deleted
		(2) A193 B8 added
364	Table A-2M	(1) A194 4 and A194 4L deleted
		(2) A193 B8 added
385	Specification Index for Appendix B	D2447 and D3309 deleted
386	Table B-1	D3309, D2239, D2447, D3035, and F714 deleted
388	Table B-1M	D3309, D2239, D2447, D3035, and F714 deleted
412	Appendix D	Deleted
413	Appendix E	Revised in its entirety
419	F300.1.5	Former para. F300.1.4 editorially redesignated
419	F301.10.2	Revised
420	F302	Added
421	F323	Subparagraph (b) revised
423	F331.1	Revised
424	FA328	Added
428	H301	Revised
428	H302	Revised
429	H303	Revised
431	H304	Revised
437	Appendix J	Cross-references updated
453	Appendix K	(1) ASTM A928 added to Specification Index
		(2) Page column deleted in Specification Index
455	Notes for Table K-1	(1) General Notes (b) and (d) and Notes (3), (4), and (20) revised
		(2) General Note (h) added
		(3) Notes (6) and (12) deleted
456	Table K-1	Revised in its entirety
474	Figure M300	In Col. 1, cross-references to para. K300.1.5 revised to K300.1.6
477	R301	(1) Subparagraph (b) revised
		(2) Subparagraph (c) deleted
480	Appendix S	Revised in its entirety
495	V304	Revised in its entirety
500	Table W302.1-4	Editorially redesignated
507	Index	Added

Chapter I
Scope and Definitions

300 GENERAL STATEMENTS

(a) Identification. This Process Piping Code is a Section of The American Society of Mechanical Engineers Code for Pressure Piping, ASME B31, an American National Standard. It is published as a separate document for convenience of Code users.

(b) Responsibilities

(1) Owner. The owner of a piping installation shall have overall responsibility for compliance with this Code, and for establishing the requirements for design, construction, examination, inspection, and testing that will govern the entire fluid handling or process installation of which the piping is a part. The owner is also responsible for designating piping in Category D, Category M, High Pressure, and High Purity Fluid Services, and for determining if a specific Quality System is to be employed. [See (d)(4) through (d)(7) and Appendix Q.] Where applicable, the owner shall consider requirements imposed by the authority having jurisdiction regarding the piping installation. The owner may designate a representative to carry out selected responsibilities required by this Code, but the owner retains ultimate responsibility for the actions of the representative.

(2) Designer. The designer is responsible to the owner for assurance that the engineering design of piping complies with the requirements of this Code and with any additional requirements established by the owner.

(3) Manufacturer, Fabricator, and Erector. The manufacturer, fabricator, and erector of piping are responsible for providing materials, components, and workmanship in compliance with the requirements of this Code and of the engineering design.

(4) Owner's Inspector. The owner's Inspector (see para. 340) is responsible to the owner for ensuring that the requirements of this Code for inspection, examination, and testing are met. If a Quality System is specified by the owner to be employed, the owner's Inspector is responsible for verifying that it is implemented.

(c) Intent of the Code

(1) It is the intent of this Code to set forth engineering requirements deemed necessary for safe design and construction of piping installations.

(2) This Code is not intended to apply to the operation, examination, inspection, testing, maintenance, or repair of piping that has been placed in service. See para. F300.1 for examples of standards that may apply in these situations. The provisions of this Code may optionally be applied for those purposes, although other considerations may also be necessary.

(3) The Code generally specifies a simplified approach for many of its requirements. A designer may choose to use a more rigorous analysis to develop design and construction requirements. When the designer decides to take this approach, the designer shall provide to the owner details and calculations demonstrating that design, construction, examination, and testing are consistent with the design criteria of this Code. These details shall be adequate for the owner to verify the validity and shall be approved by the owner. The details shall be documented in the engineering design.

(4) Piping elements shall conform to the specifications and standards listed in this Code or, if not prohibited by this Code, shall be qualified for use as set forth in applicable Chapters of this Code.

(5) The engineering design shall specify any unusual requirements for a particular service. Where service requirements necessitate measures beyond those required by this Code, such measures shall be specified by the engineering design. Where so specified, the Code requires that they be accomplished.

(6) Compatibility of materials with the service and hazards from instability of contained fluids are not within the scope of this Code. See para. F323.

(d) Determining Code Requirements

(1) Code requirements for design and construction include fluid service requirements, which affect selection and application of materials, components, and joints. Fluid service requirements include prohibitions, limitations, and conditions, such as temperature limits or a requirement for safeguarding (see Appendix G). Code requirements for a piping system are the most restrictive of those that apply to any of its elements.

(2) For metallic piping not designated by the owner as Category M, High Pressure, or High Purity Fluid Service (see para. 300.2 and Appendix M), Code requirements are found in Chapters I through VI (the base Code) and fluid service requirements are found in

(-a) Chapter III for materials

(-b) Chapter II, Part 3, for components

(-c) Chapter II, Part 4, for joints