II

PART A – FERROUS MATERIAL SPECIFICATIONS

1995 ASME BOILER & PRESSURE VESSEL CODE

AN INTERNATIONALLY RECOGNIZED CODE

MATERIALS

The American Society of Mechanical Engineers

ASME BOILER AND PRESSURE VESSEL CODE
AN INTERNATIONALLY RECOGNIZED CODE

SECTION II

Materials

Part A — Ferrous

Material Specifications

1995 EDITION

JULY 1, 1995

ASME BOILER AND PRESSURE VESSEL COMMITTEE
SUBCOMMITTEE ON MATERIALS

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
United Engineering Center 345 East 47th Street New York, N.Y. 10017

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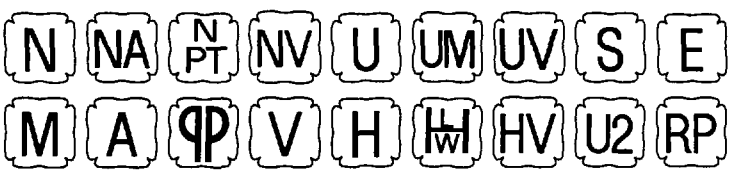

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ASME BOILER AND PRESSURE VESSEL CODE
An Internationally Recognized Code

SECTION II
Materials
Part A — Ferrous Material Specifications

1995 Edition

This new Edition of Section II, Part A, contains the latest version of material specifications as listed in Appendix A of the 1994 Addenda to the 1992 Edition of Section II, Part A.

SUMMARY OF CHANGES

The 1995 Edition of Section II, Part A includes revisions, additions, and deletions, incorporated directly into the affected pages. Changes given below are identified by a margin note, **E95**, placed next to the affected area.

Location	*Page*	*Change*
Personnel	xvii–xxvi	Revised in its entirety
Contents	xxxiii–xlii	Updated to reflect E95 Edition
Appendix A	xlv–liv	Revised in its entirety
SA-6/SA-6M	1–44	Revised in its entirety
SA-20/SA-20M	45–86	Revised in its entirety
SA-36/SA-36M	87–108	Revised in its entirety
SA-53	123–145	Revised in its entirety
SA-105/SA-105M	147–156	Revised in its entirety
SA-134	171–175	Revised in its entirety
SA-135	177–185	Revised in its entirety
SA-181/SA-181M	195–200	Revised in its entirety
SA-202/SA-202M	251–253	Revised in its entirety
SA-203/SA-203M	255–258	Revised in its entirety
SA-204/SA-204M	259–261	Revised in its entirety
SA-225/SA-225M	291–293	Revised in its entirety
SA-249/SA-249M	319–328	Revised in its entirety
SA-263	333–344	Revised in its entirety
SA-265	355–361	Revised in its entirety

Location	*Page*	*Change*
SA-278	387–391	Revised in its entirety
SA-283/SA-283M	393–395	Revised in its entirety
SA-302/SA-302M	401–403	Revised in its entirety
SA-307	405–411	Revised in its entirety
SA-312/SA-312M	413–422	Revised in its entirety
SA-320/SA-320M	423–433	Revised in its entirety
SA-325	435–444	Revised in its entirety
SA-350/SA-350M	485–495	Revised in its entirety
SA-353/SA-353M	507–510	Revised in its entirety
SA-354	511–518	Revised in its entirety
SA-358/SA-358M	519–526	Revised in its entirety
SA-388/SA-388M	605–612	Revised in its entirety
SA-395	613–623	Revised in its entirety
SA-403/SA-403M	625–633	Revised in its entirety
SA-409/SA-409M	635–642	Revised in its entirety
SA-420/SA-420M	647–656	Revised in its entirety
SA-437/SA-437M	675–680	Revised in its entirety
SA-449	681–687	Revised in its entirety
SA-450/SA-540M	689–699	Revised in its entirety
SA-453	713–722	Revised in its entirety
SA-484/SA-484M	763–775	Revised in its entirety
SA-487/SA-487M	777–782	Revised in its entirety
SA-522/SA-522M	805–809	Revised in its entirety
SA-524	811–819	Revised in its entirety
SA-530/SA-530M	821–829	Revised in its entirety
SA-533/SA-533M	831–835	Revised in its entirety
SA-540/SA-540M	841–850	Revised in its entirety
SA-543/SA-543M	861–863	Revised in its entirety
SA-553/SA-553M	865–868	Revised in its entirety
SA-563	887–896	Revised in its entirety
SA-564/SA-564M	897–903	Revised in its entirety
SA-587	925–931	Revised in its entirety
SA-592/SA-592M	933–936	Revised in its entirety
SA-609/SA-609M	937–951	Revised in its entirety
SA-638/SA-638M	961–964	Revised in its entirety
SA-660	975–979	Revised in its entirety
SA-671	995–1004	Revised in its entirety
SA-672	1005–1013	Revised in its entirety
SA-691	1031–1038	Revised in its entirety
SA-695	1047–1050	Revised in its entirety
SA-705/SA-705M	1055–1073	Revised in its entirety
SA-723/SA-723M	1083–1088	Revised in its entirety

Location	*Page*	*Change*
SA-727/SA-727M	1093–1095	Revised in its entirety
SA-736/SA-736M	1105–1108	Revised in its entirety
SA-737/SA-737M	1109–1111	Revised in its entirety
SA-781/SA-781M	1151–1165	Revised in its entirety
SA-788	1167–1178	Revised in its entirety
SA-834	1237–1240	Revised in its entirety
SA-836/SA-836M	1241–1245	Revised in its entirety

1995 ASME
BOILER AND PRESSURE VESSEL CODE

SECTIONS

I Rules for Construction of Power Boilers
II Materials
- Part A — Ferrous Material Specifications
- Part B — Nonferrous Material Specifications
- Part C — Specifications for Welding Rods, Electrodes, and Filler Metals
- Part D — Properties

III Subsection NCA — General Requirements for Division 1 and Division 2
III Division 1
- Subsection NB — Class 1 Components
- Subsection NC — Class 2 Components
- Subsection ND — Class 3 Components
- Subsection NE — Class MC Components
- Subsection NF — Supports
- Subsection NG — Core Support Structures
- Appendices

III Division 2 — Code for Concrete Reactor Vessels and Containments
IV Rules for Construction of Heating Boilers
V Nondestructive Examination
VI Recommended Rules for the Care and Operation of Heating Boilers
VII Recommended Guidelines for the Care of Power Boilers
VIII Rules for Construction of Pressure Vessels
- Division 1
- Division 2 — Alternative Rules

IX Welding and Brazing Qualifications
X Fiber-Reinforced Plastic Pressure Vessels
XI Rules for Inservice Inspection of Nuclear Power Plant Components

ADDENDA

Colored-sheet Addenda, which include additions and revisions to individual Sections of the Code, are published annually and will be sent automatically to purchasers of the applicable Sections up to the publication of the 1998 Code. The 1995 Code is available only in the loose-leaf format; accordingly, the Addenda will be issued in the loose-leaf, replacement-page format.

INTERPRETATIONS

ASME issues written replies to inquiries concerning interpretation of technical aspects of the Code. The Interpretations for each individual Section will be published separately and will be included as part of the update service to that Section. They will be issued semiannually (July and December) up to the publication of the 1998 Code. Interpretations of Section III, Divisions 1 and 2, will be included with the update service to Subsection NCA. Interpretations are not part of the Code or the Addenda.

CODE CASES

The Boiler and Pressure Vessel Committee meets regularly to consider proposed additions and revisions to the Code and to formulate Cases to clarify the intent of existing requirements or provide, when the need is urgent, rules for materials or constructions not covered by existing Code rules. Those Cases which have been adopted will appear in the appropriate 1995 Code Cases book: (1) Boilers and Pressure Vessels and (2) Nuclear Components. Supplements will be sent automatically to the purchasers of the Code Cases books up to the publication of the 1998 Code.

FOREWORD

The American Society of Mechanical Engineers set up a committee in 1911 for the purpose of formulating standard rules for the construction of steam boilers and other pressure vessels. This committee is now called the Boiler and Pressure Vessel Committee.

The Committee's function is to establish rules of safety governing the design, fabrication, and inspection during construction of boilers and pressure vessels, and to interpret these rules when questions arise regarding their intent. In formulating the rules, the Committee considers the needs of users, manufacturers, and inspectors of pressure vessels. The objective of the rules is to afford reasonably certain protection of life and property and to provide a margin for deterioration in service so as to give a reasonably long, safe period of usefulness. Advancements in design and material and the evidence of experience have been recognized.

This Code contains mandatory requirements, specific prohibitions, and nonmandatory guidance for construction[1] activities. The Code does not address all aspects of these activities and those aspects which are not specifically addressed should not be considered prohibited. The Code is not a handbook and cannot replace education, experience, and the use of engineering judgment. The phrase *engineering judgment* refers to technical judgments made by knowledgeable designers experienced in the application of the Code. Engineering judgments must be consistent with Code philosophy and such judgments must never be used to overrule mandatory requirements or specific prohibitions of the Code.

The Code does not fully address tolerances. When dimensions, sizes, or other parameters are not specified with tolerances, the values of these parameters are considered nominal and allowable tolerances or local variances may be considered acceptable when based on engineering judgment and standard practices as determined by the designer.

[1] *Construction*, as used in this Foreword, is an all-inclusive term comprising materials, design, fabrication, examination, inspection, testing, certification, and pressure relief.

The Boiler and Pressure Vessel Committee deals with the care and inspection of boilers and pressure vessels in service only to the extent of providing suggested rules of good practice as an aid to owners and their inspectors.

The rules established by the Committee are not to be interpreted as approving, recommending, or endorsing any proprietary or specific design or as limiting in any way the manufacturer's freedom to choose any method of design or any form of construction that conforms to the Code rules.

The Boiler and Pressure Vessel Committee meets regularly to consider revisions of the rules, new rules as dictated by technological development, Code Cases, and requests for interpretations. Only the Boiler and Pressure Vessel Committee has the authority to provide official interpretations of this Code. Requests for revisions, new rules, Code Cases, or interpretations shall be addressed to the Secretary in writing and shall give full particulars in order to receive consideration and action (see Mandatory Appendix covering preparation of technical inquiries). Proposed revisions to the Code resulting from inquiries will be presented to the Main Committee for appropriate action. The action of the Main Committee becomes effective only after confirmation by letter ballot of the Committee and approval by ASME.

Proposed revisions to the Code approved by the Committee are submitted to the American National Standards Institute and published in *Mechanical Engineering* to invite comments from all interested persons. After the allotted time for public review and final approval by ASME, revisions are published annually in Addenda to the Code.

Code Cases may be used in the construction of components to be stamped with the ASME Code symbol beginning with the date of their approval by ASME.

After Code revisions are approved by ASME, they may be used beginning with the date of issuance shown on the Addenda. Revisions, except for revisions to material specifications in Section II, Parts A and B, become mandatory 6 months after such date of issuance, except for boilers or pressure vessels contracted for

prior to the end of the 6 month period. Revisions to material specifications are originated by the American Society for Testing and Materials (ASTM), and are usually adopted by ASME. However, those revisions may or may not have any effect on the suitability of material, produced to earlier editions of specifications, for use in ASME construction. ASME material specifications approved for use in each construction Code are listed in the Appendices of Section II, Parts A and B. These Appendices list, for each specification, the latest ASTM edition adopted by ASME, and earlier and later editions considered by ASME to be identical for ASME construction.

Manufacturers and users of components are cautioned against making use of revisions and Cases that are less restrictive than former requirements without having assurance that they have been accepted by the proper authorities in the jurisdiction where the component is to be installed.

Each state and municipality in the United States and each province in Canada that adopts or accepts one or more Sections of the Boiler and Pressure Vessel Code is invited to appoint a representative to act on the Conference Committee to the Boiler and Pressure Vessel Committee. Since the members of the Conference Committee are in active contact with the administration and enforcement of the rules, the requirements for inspection in this Code correspond with those in effect in their respective jurisdictions. The required qualifications for an Authorized Inspector under these rules may be obtained from the administrative authority of any state, municipality, or province which has adopted these rules.

The Boiler and Pressure Vessel Committee in the formulation of its rules and in the establishment of maximum design and operating pressures considers materials, construction, methods of fabrication, inspection, and safety devices. Permission may be granted to regulatory bodies and organizations publishing safety standards to use a complete Section of the Code by reference. If usage of a Section, such as Section IX, involves exceptions, omissions, or changes in provisions, the intent of the Code might not be attained.

Where a state or other regulatory body, in the printing of any Section of the Boiler and Pressure Vessel Code, makes additions or omissions, it is recommended that such changes be clearly indicated.

The National Board of Boiler and Pressure Vessel Inspectors is composed of chief inspectors of states and municipalities in the United States and of provinces in Canada that have adopted the Boiler and Pressure Vessel Code. This Board, since its organization in 1919, has functioned to uniformly administer and enforce the rules of the Boiler and Pressure Vessel Code. The cooperation of that organization with the Boiler and Pressure Vessel Committee has been extremely helpful.

The Code Committee does not rule on whether a component shall or shall not be constructed to the provisions of the Code. The Scope of each Section has been established to identify the components and parameters considered by the Committee in formulating the Code rules. Laws or regulations issued by municipality, state, provincial, federal, or other enforcement or regulatory bodies having jurisdiction at the location of an installation establish the mandatory applicability of the Code rules, in whole or in part, within their jurisdiction. Those laws or regulations may require the use of this Code for vessels or components not considered to be within its Scope or may establish additions or deletions in that Scope. Accordingly, inquiries regarding such laws or regulations are to be directed to the issuing enforcement or regulatory body.

Questions or issues regarding compliance of a specific component with the Code rules are to be directed to the ASME Certificate Holder (Manufacturer). Inquiries concerning the interpretation of the Code are to be directed to the ASME Boiler and Pressure Vessel Committee. ASME is to be notified should questions arise concerning improper use of an ASME Code symbol.

The specifications for base materials given in Section II, Parts A and B are identical with or similar to those of the American Society for Testing and Materials. When reference is made in an ASME material specification to an ASTM specification for which a companion ASME specification exists, the reference shall be interpreted as applying to the ASME material specification. Specifications for welding materials given in Section II, Part C are identical with or similar to those of the American Welding Society. Not all materials included in the material specifications in Section II have been adopted for Code use. Usage is limited to those materials and grades adopted by at least one of the other Sections of the Code for application under rules of that Section. All materials allowed by these various Sections and used for construction within the scope of their rules shall be furnished in accordance with material specifications contained in Section II or referenced in Appendices A of Section II, Parts A and B except where otherwise provided in Code Cases or in the applicable Section of the Code. Materials covered by these specifications are acceptable for use in items covered by the Code Sections only to the degree indicated in the applicable Section. Materials for Code use should preferably be ordered, produced, and documented on this basis; Appendix A to Section II, Part A and Appendix A to Section II, Part B list editions of ASME and year dates

of ASTM specifications that meet ASME requirements and which may be used in Code construction. Material produced to an ASME or ASTM specification with requirements different from the requirements of the corresponding specifications listed in Appendix A of Part A or Part B may also be used in accordance with the above, provided the material manufacturer or vessel manufacturer certifies with evidence acceptable to the Authorized Inspector that the corresponding requirements of specifications listed in Appendix A of Part A or Part B have been met. Material produced to an ASME or ASTM material specification is not limited as to country of origin.

When required by context in this Section, the singular shall be interpreted as the plural, and vice-versa; and the feminine, masculine, or neuter gender shall be treated as such other gender as appropriate.

Publication of the SI (Metric) Edition of the ASME Boiler and Pressure Vessel Code was discontinued with the 1986 Edition. Effective October 1, 1986, the SI Edition was withdrawn as an ASME Boiler and Pressure Vessel Code document.

STATEMENT OF POLICY ON THE USE OF CODE SYMBOLS AND CODE AUTHORIZATION IN ADVERTISING

ASME has established procedures to authorize qualified organizations to perform various activities in accordance with the requirements of the ASME Boiler and Pressure Vessel Code. It is the aim of the Society to provide recognition of organizations so authorized. An organization holding authorization to perform various activities in accordance with the requirements of the Code may state this capability in its advertising literature.

Organizations that are authorized to use Code Symbols for marking items or constructions which have been constructed and inspected in compliance with the ASME Boiler and Pressure Vessel Code are issued Certificates of Authorization. It is the aim of the Society to maintain the standing of the Code Symbols for the benefit of the users, the enforcement jurisdictions, and the holders of the symbols who comply with all requirements.

Based on these objectives, the following policy has been established on the usage in advertising of facsimiles of the symbols, Certificates of Authorization, and reference to Code construction. The American Society of Mechanical Engineers does not "approve," "certify," "rate," or "endorse" any item, construction, or activity and there shall be no statements or implications which might so indicate. An organization holding a Code Symbol and/or a Certificate of Authorization may state in advertising literature that items, constructions, or activities "are built (produced or performed) or activities conducted in accordance with the requirements of the ASME Boiler and Pressure Vessel Code," or "meet the requirements of the ASME Boiler and Pressure Vessel Code."

The ASME Symbol shall be used only for stamping and nameplates as specifically provided in the Code. However, facsimiles may be used for the purpose of fostering the use of such construction. Such usage may be by an association or a society, or by a holder of a Code Symbol who may also use the facsimile in advertising to show that clearly specified items will carry the symbol. General usage is permitted only when all of a manufacturer's items are constructed under the rules.

STATEMENT OF POLICY ON THE USE OF ASME MARKING TO IDENTIFY MANUFACTURED ITEMS

The ASME Boiler and Pressure Vessel Code provides rules for the construction of boilers, pressure vessels, and nuclear components. This includes requirements for materials, design, fabrication, examination, inspection, and stamping. Items constructed in accordance with all of the applicable rules of the Code are identified with the official Code Symbol Stamp described in the governing Section of the Code.

Markings such as "ASME," "ASME Standard," or any other marking including "ASME" or the various Code Symbols shall not be used on any item which is not constructed in accordance with all of the applicable requirements of the Code.

Items shall not be described on ASME Data Report Forms nor on similar forms referring to ASME which tend to imply that all Code requirements have been met when, in fact, they have not been. Data Report Forms covering items not fully complying with ASME requirements should not refer to ASME or they should clearly identify all exceptions to the ASME requirements.

GUIDELINE ON THE APPROVAL OF NEW MATERIALS UNDER THE ASME BOILER AND PRESSURE VESSEL CODE

Code Policy. It is the policy of the ASME Boiler and Pressure Vessel Committee to adopt for inclusion in Section II, Parts A and B, only such specifications as have been adopted by the American Society for Testing and Materials, and in Section II, Part C, only such specifications as have been adopted by the American Welding Society.

It is expected that requests for Code approval will normally be for materials for which there is an ASTM or AWS specification. For other materials, a request shall be made to ASTM or AWS to develop a specification that can be presented to the Code Committee.

It is the policy of the ASME Boiler and Pressure Vessel Committee to consider requests to adopt new materials only from boiler, pressure vessel, or nuclear power plant component Manufacturers or end users. Further, such requests should be for materials for which there is a reasonable expectation of use in a boiler, pressure vessel, or nuclear power plant component constructed to the rules of one of the Sections of this Code.

Application. The inquirer shall identify to the Committee the Section or Sections and Divisions of the Code in which the new material is to be incorporated, the temperature range of application, whether cyclic service is to be considered, and whether external pressure service is to be considered. The inquirer shall identify all product forms, size ranges, and specifications for which incorporation is desired.

The inquirer shall state whether or not the material is covered by patents, whether or not it is licensed, and if licensed, any limitations on its manufacture.

Mechanical Properties. Together with the specification for the material, the inquirer shall furnish the Committee with adequate data on which to base design values for inclusion in the applicable tables. The data shall include values of ultimate tensile strength, yield strength, reduction of area, and elongation, at 100°F (or 50°C) intervals, from room temperature to 100°F (or 50°C) above the maximum intended use temperature, unless the maximum intended use temperature does not exceed 100°F. If adoption is desired at temperatures at which time-dependent behavior may be expected to control design values, data on these time-independent properties shall be provided to a temperature 100°F (50°C) above the temperature at which time-dependent behavior becomes significant. Any heat treatment that is required to produce the tensile properties should be fully described.

If coverage is desired at temperatures at which time-dependent behavior may be expected, creep rate and creep rupture strength data of base metal and appropriate weld metals and weldments shall also be provided, at 100°F (or 50°C) intervals to 100°F (or 50°C) above the maximum intended use temperature.

If adoption at temperatures below room temperature is requested, and if it is desired to take design advantage of increased strength at lower temperatures, data on the time-independent properties shall be provided at 100°F (or 50°C) intervals to and including the lowest intended use temperature.

Notch toughness data shall be provided for materials for which Code toughness rules would be expected to apply. The data shall include test results for the intended lowest service metal temperature and for the range of material thicknesses desired. For welded construction, the notch toughness data shall include the results of Code toughness tests for weld metal and heat-affected zone for weldments made by the intended welding processes.

If the material is to be used in components that operate under external pressure, stress–strain curves (tension or compression) shall be furnished, at 100°F (or 50°C) intervals over the range of design temperatures desired. External pressure charts are based on the early portion (up to 1% strain) of the stress–strain curve. The stress–strain curve (not load versus extension) shall be determined using a Class B-2 or better accuracy

extensometer as defined in ASTM E 83. Numerical data, when available, should be submitted. The data should include the original cross-sectional area of the test specimen and stress–strain curves with units marked on them.

If the material is to be used in cyclic service and the construction Code in which adoption is desired requires explicit consideration of cyclic behavior, fatigue data shall also be furnished over the range of design temperatures desired.

In general, for all mechanical properties, data shall be provided from at least three heats of material meeting all of the requirements of a specification for at least one product form for which adoption is desired, for each test at each test temperature. When adoption for both cast and wrought product forms is desired, data from at least three heats each of a wrought and of a cast product form shall be submitted. It is desired that the data represent all product forms for which adoption is desired. For product forms for which the properties may be size dependent, data from products of different sizes, including the largest size for which adoption is desired, shall be provided.

Test methods employed shall be those referenced in or by the material specifications, or shall be appropriate ASTM test methods or recommended practices for the properties tested.

Information describing service experience in the temperature range contemplated will be useful to the Committee.

Other Properties. The inquirer shall furnish to the Committee adequate data necessary to establish values for coefficient of thermal expansion, thermal conductivity and diffusivity, Young's modulus, shear modulus, and Poisson's ratio, when the construction Code in which adoption is desired requires explicit consideration of these properties. Data shall be provided over the range of temperatures for which the material is to be used.

Weldability. The inquirer shall furnish complete data on the weldability of material intended for welding, including data on procedure qualification tests made in accordance with the requirements of Section IX. Welding tests shall be made over the full range of thickness in which the material is to be used. Pertinent information, such as postweld heat treatment required, susceptibility to air hardening, effect of welding procedure and heat-affected zone and weld metal notch toughness, and the amount of experience in welding the material shall be given.

Physical Changes. For new materials, it is important to know the structural stability characteristics and the degree of retention of properties with exposure at temperature. The influence of fabrication practices, such as forming, welding, and thermal treatment, on the mechanical properties, ductility, and microstructure of the material are important, particularly where degradation in properties may occur. Where particular temperature ranges of exposure or heat treatment, cooling rates, combinations of mechanical working and thermal treatments, fabrication practices, exposure to particular environments, etc., cause significant changes in the mechanical properties, microstructure, resistance to brittle fracture, etc., it is of prime importance to call attention to those conditions that should be avoided in service or in manufacture of parts or vessels from the material.

Requests for Additional Data. The Committee may request additional data, including data on properties or material behavior not explicitly treated in the construction Code in which adoption is desired.

Code Case. The Code Committee will consider the issuance of a Code Case, to be effective for a period of 3 years, permitting the use of a new material, provided that the following conditions are met:

(a) the inquirer provides evidence that a request for coverage of the material in a specification has been made to ASTM;

(b) the material is commercially available and can be purchased within the proposed specification requirements;

(c) the inquirer shows that there will be a reasonable demand for the material by industry and that there exists an urgency for approval by means of a Code Case;

(d) the requests for approval of the material shall clearly describe it in ASTM specification form, including such items as scope, process, manufacture, conditions for delivery, heat treatment, chemical and tensile requirements, forming properties, testing specifications and requirements, workmanship, finish, marking, inspection, and rejection;

(e) all other requirements identified previously under Code Policy and Application apply; and

(f) the inquirer shall furnish the Code Committee with all the data specified in this Appendix.

PERSONNEL

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PREFACE

The American Society of Mechanical Engineers (ASME) and the American Society for Testing and Materials (ASTM) have cooperated for more than fifty years in the preparation of material specifications adequate for safety in the field of pressure equipment for ferrous and nonferrous materials, contained in Section II (Part A — Ferrous and Part B — Nonferrous) of the ASME Boiler and Pressure Vessel Code.

The evolution of this cooperative effort is contained in Professor A. M. Greene's "History of the ASME Boiler Code," which was published as a series of articles in *Mechanical Engineering* from July 1952 through August 1953 and is now available from ASME in a special bound edition. The following quotations from this history, which was based upon the minutes of the ASME Boiler and Pressure Vessel Committee, will help focus on the cooperative nature of the specifications found in Section II, Material Specifications.

"General discussion of material specifications comprising Paragraphs 1 to 112 of Part 2 and the advisability of having them agree with ASTM specifications," (1914).

"ASME Subcommittee appointed to confer with ASTM," (1916).

"Because of this cooperation the specifications of the 1918 Edition of the ASME Boiler Code were more nearly in agreement with ASTM specifications. In the 1924 Edition of the Code, 10 specifications were in complete agreement with ASTM specifications, 4 in substantial agreement and 2 covered materials for which ASTM had no corresponding specifications."

"In Section II, Material Specifications, the paragraphs were given new numbers beginning with S-1 and extending to S-213," (1925).

"Section II was brought into agreement with changes made in the latest ASTM specifications since 1921," (1932).

"The Subcommittee on Material Specifications arranged for the introduction of the revisions of many of the specifications so that they would agree with the latest form of the earlier ASTM specifications...," (1935).

From the preceding, it is evident that many of the material specifications were prepared by the Boiler and Pressure Vessel Code Committees, then subsequently, by cooperative action, modified and identified as ASTM specifications. Section II, Parts A and B, currently contain many material specifications which are identical with the corresponding ASTM specifications and some which have been modified for Code usage.

In 1969, the American Welding Society began publication of specifications for welding rods, electrodes, and filler metals, hitherto issued by ASTM. The Boiler and Pressure Vessel Committee has recognized this new arrangement, and is now working with AWS on these specifications. Section II, Part C, contains the welding material specifications approved for Code use.

All identical specifications are indicated by the ASME/ASTM symbols or the ASME/AWS symbols. The specifications prepared and copyrighted by ASTM and AWS are reproduced in the Code with the permission of the respective Society. The ASME Boiler and Pressure Vessel Committee has given careful consideration to each new and revised ASTM or AWS specification, and has made such changes as they deemed necessary to make the specification adaptable for Code usage. In addition, ASME has furnished ASTM with the basic requirements that should govern many proposed new specifications. Joint action will continue an effort to make the ASTM, AWS, and ASME specifications identical.

To assure that there will be a clear understanding on the part of the users of Section II, ASME publishes both the identical specifications and those amended for Code usage in three parts every three years, in the same page size to match the other sections of the Code, and Addenda are issued annually to provide the latest changes in Section II specifications.

The ASME Boiler and Pressure Vessel Code has been adopted into law by 45 states and many municipalities in the United States and by all of the Canadian Provinces.

CONTENTS

Specifications Listed by Materials

Specifications Listed in Numeric Sequence

APPENDIX 1 — MANDATORY PREPARATION OF TECHNICAL INQUIRIES TO THE BOILER AND PRESSURE VESSEL COMMITTEE

1-100 INTRODUCTION

The ASME Boiler and Pressure Vessel Committee meets regularly to consider written requests for interpretations and revisions to the Code rules, and to develop new rules as dictated by technological development. The Committee's activities in this regard are limited strictly to interpretations of the rules or to the consideration of revisions to the present rules on the basis of new data or technology. As a matter of published policy, ASME does not approve, certify, rate, or endorse any item, construction, proprietary device, or activity, and, accordingly, inquiries requiring such consideration will be returned. Moreover, ASME does not act as a consultant on specific engineering problems or on the general application or understanding of the Code rules. If, based on the inquiry information submitted, it is the opinion of the Committee that the inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

All inquiries that do not provide the information needed for the Committee's full understanding will be returned.

1-200 INQUIRY FORMAT

Inquiries shall be limited strictly to interpretations of the rules or to the consideration of revisions to the present rules on the basis of new data or technology. Inquiries shall be submitted in the following format.

(a) Scope. Involve a single rule or closely related rules. An inquiry letter concerning unrelated subjects will be returned.

(b) Background. State the purpose of the inquiry, which would be either to obtain an interpretation of Code rules, or to propose consideration of a revision to the present rules. Provide concisely the information needed for the Committee's understanding of the inquiry, being sure to include reference to the applicable Code Section, Division, Edition, Addenda, paragraphs, figures, and tables. If sketches are provided, they shall be limited to the scope of the inquiry.

(c) Inquiry Structure. Prepare statements in a condensed and precise question format, omitting superfluous background information, and, where appropriate, composed in such a way that "yes" or "no" (perhaps with provisos) would be an acceptable reply. This inquiry statement should be technically and editorially correct.

(d) Proposed Reply. State what it is believed that the Code requires. If in the inquirer's opinion a revision to the Code is needed, recommended wording shall be provided.

1-300 SUBMITTAL

Inquiries shall preferably be submitted in typewritten form; however, legible handwritten inquiries will also be considered. They shall include the name and mailing address of the inquirer, and be mailed to the following address:

Secretary
ASME Boiler and Pressure Vessel Committee
345 East 47th Street
New York, NY 10017