In 1928, the first edition of the code for Fusion Welding and Gas Cutting in Building Construction was published by the American Welding Society. In 1936, the first edition of a similar code for highway and railroad bridges was published. For a number of years, separate codes were continued for each type of steel structure.

The separate committees preparing the two codes were consolidated in 1963 into a single committee, the Structural Welding Committee. In 1972, the Committee consolidated the two codes into a single version applicable to structural welding in general, along with specific requirements for buildings, bridges, and tubular structures. A series of consolidated codes have been published since that initial one, representing the latest state of the art for welding of structural steel.

In the early 1970s, interest was expressed in developing a similar consolidated code for the structural welding of aluminum. Because of the interest of both The Aluminum Association and the American Welding Society, it was decided to begin in the mid-70s the task of developing a structural welding code for aluminum. Initially, the effort was undertaken by a task force of The Aluminum Association. In 1979, this task force became a subcommittee of the AWS Structural Welding Committee and the Structural Welding Code—Aluminum resulted from the continued activity of that subcommittee.

Many of the users of this code will also be users of the Structural Welding Code—Steel. As a result, it was felt that as much similarity as possible between the codes for steel and aluminum should be achieved. Thus, the same general format was used in the development of the 1983 and 1990 editions of the aluminum code as in the steel code. The D1.2-97 code was reorganized so that the 1990 Sections 4 and 5 (Technique and Qualification) were merged into one new Section 4. Furthermore, Appendix H of D1.2-90 was moved to after the Preface.

Sections 1 through 7 constitute a body of rules for the regulation of welding on aluminum structures. This edition represents a major reorganization of the D1.2-97 format (see Annex L). For example, Sections 7, 8, and 9 of D1.2-97 have been eliminated, and their provisions distributed throughout the code.

Users should note that, beginning in this edition, the tables and figures for each section will be located at the end of each section.

Recommended joint details have been prepared for numerous complete joint penetration groove welded joints. Herein lies one of the major differences between the Structural Welding Code—Steel and this code. While the steel code allows for prequalified welding procedures, this code does not. This is mainly because of the many and varied possible welding conditions that can be obtained with semi-automatic welding variables most often used with aluminum and the wide range of both heat treatable and nonheat treatable alloys that may be welded under this code. Therefore, all of the joint details and the welding procedures used with this code shall be individually qualified and included in the Welding Procedure Specification (WPS).

Procedures and standards are outlined for several methods of nondestructive testing. Methods included are visual, radiographic and dye-penetrant. Ultrasonic testing is allowed, but the procedure and acceptance criteria shall be specified in the contract documents (see Annex H).

This code does not concern itself with such design considerations as the arrangements of parts, loading, and the computation of stresses for proportioning the load-carrying members of a structure and their connection. Such considerations, it is assumed, are covered elsewhere in a general code or specification, such as the Specification for Aluminum Structures (The Aluminum Association).

The first edition of the Structural Welding Code—Aluminum (hereafter referred to as the code) represented the continuing AWS policy to provide standards for structural welding. This code is provided for the fabrication, erection and manufacturing industries as a set of rules and regulations for the welding of structural aluminum. Some of the more important aspects of this edition of the code are outlined in the following paragraphs.
Changes in Code Requirements. All editorial and technical changes to the text are indicated by underlining. Changes to illustrations are indicated by a single vertical line.

Commentary. After the first edition of this code was published, the Committee prepared a Commentary on the Structural Welding Code—Aluminum, similar to the Commentary for the AWS D1.1, Structural Welding Code—Steel. The Commentary was issued separately in 1984. In this edition, the Committee has updated the Commentary in line with the revised provisions, and it has been bound into the code after the Annexes. The Commentary is not intended to supplement code requirements, but only to provide a useful document for interpretation and application of the code. None of its provisions are binding.

Welding Inspector Qualifications. All users are urged to review the provisions relating to the welding inspector qualification requirements in 5.1.3 and its subsections. The requirements in this code are identical with those requirements for welding inspector qualification given in ANSI/AWS D1.1-88, Structural Welding Code—Steel.

Index. As in previous codes, the entries in the Index are referred to by subsection number rather than by page number. This should enable the user of the Index to locate a particular item of interest in minimum time.

Errata. It is the Structural Welding Committee’s policy that all errata should be made available to users of the code. Therefore, in the Society News Section of the AWS Welding Journal, any errata (major corrections) that have been noted will be published in the July and November issues of the Welding Journal.

Suggestions. Comments and suggestions for the improvement of this standard are welcomed. They should be sent to the Secretary, AWS D1 Committee on Structural Welding, American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

Interpretations. Official interpretations of any of the technical requirements of this standard may be obtained by sending a request, in writing, to the Managing Director, Technical Services Division, American Welding Society. A formal reply will be issued after it has been reviewed by the appropriate personnel following established procedures (see Annex K).