

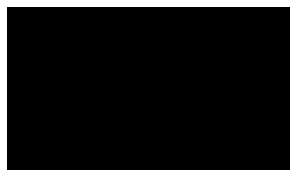
American Water Works Association

ANSI/AWWA C600-99

(Revision of ANSI/AWWA C600-93)



AWWA STANDARD
FOR
INSTALLATION OF DUCTILE-IRON WATER
MAINS AND THEIR APPURTENANCES



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AMERICAN WATER WORKS ASSOCIATION

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†Liaison, nonvoting

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Foreword

This foreword is for information only and is not a part of AWWA C600.

I. Introduction.

I.A. *Background.* The provisions of this standard were intended to act as a guide for installing extensions to existing distribution systems and in preparing specifications for contracts for the construction of new systems or extensions. The standard was to be used as a guide for installing bell-and-spigot cast-iron pipe and did not cover the provision and delivery of material, any other type of pipe, or any other type of joint. The standard included a model addendum, which was to be used with project specifications, and was designed to be used as a part of the contract documents.

I.B. *History.* The first edition of this AWWA standard, titled “Standard Specifications for Laying Cast-Iron Pipe” (7D.1-1938), was adopted in April 1938. The standard was published in the February 1938 edition of *Journal AWWA*. The standard was revised in 1949, including a change of title to “Standard Specifications for Installation of Cast-Iron Water Mains” (7D.1-T-1949 and C600-49T). The standard was expanded by adding numerous tables and installation guidelines. The model addendum was also expanded. The revised standard was published in the December 1949 edition of *Journal AWWA*. Section 9b, Joining of Mechanical-Joint Pipe, was added in May 1954. Section 9c, Joining of Push-On Joint Pipe, was added in 1964.

In 1975, the AWWA Standards Council formed the present C600 committee to revise AWWA C600 to reflect current practices and to add ductile iron as a pipe material. To do this, the committee decided to completely change the character of the standard, removing the model addendum and making the standard consistent with the style of other AWWA standards.

In 1980, an addendum to the standard was approved that revised parts of Sec. 3.4 regarding mechanical-joint assembly.

The revisions made in the 1982 edition included the elimination of references to gray cast-iron pipe as a material for new pipeline installation, because it was no longer being manufactured for water utility service. Also, metric conversions were included in the 1982 revision; these were direct conversions of customary US inch-pound units, rather than those shown in International Organization for Standardization (ISO) standards.

The revisions made in 1987 included new references, a caveat against prolonged exposure of polyethylene film to sunlight, revised sections on thrust restraint and hydrostatic testing, and a discussion on making service taps on polyethylene-encased iron mains. The standard was revised again in 1993 and approved by the AWWA Board of Directors on June 6, 1993.

I.C. *Acceptance.* In May 1985, the US Environmental Protection Agency (USEPA) entered into a cooperative agreement with a consortium led by NSF International (NSF) to develop voluntary third-party consensus standards and a certification program for all direct and indirect drinking water additives. Other members of the original consortium included the American Water Works Association Research Foundation (AWWARF) and the Conference of State Health and Environmental Managers (COSHEM). The American Water Works Association (AWWA) and the Association of State Drinking Water Administrators (ASDWA) joined later.

In the United States, authority to regulate products for use in, or in contact with, drinking water rests with individual states.* Local agencies may choose to impose requirements more stringent than those required by the state. To evaluate the health effects of products and drinking water additives from such products, state and local agencies may use various references, including

1. An advisory program formerly administered by USEPA, Office of Drinking Water, discontinued on Apr. 7, 1990.
2. Specific policies of the state or local agency.
3. Two standards developed under the direction of NSF, ANSI[†]/NSF[‡] 60, Drinking Water Treatment Chemicals—Health Effects, and ANSI/NSF 61, Drinking Water System Components—Health Effects.
4. Other references, including AWWA standards, *Food Chemicals Codex*, *Water Chemicals Codex*,[§] and other standards considered appropriate by the state or local agency.

Various certification organizations may be involved in certifying products in accordance with ANSI/NSF 60 (61). Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdiction. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

Appendix A, “Toxicology Review and Evaluation Procedures,” to ANSI/NSF 60 (61) does not stipulate a maximum allowable level (MAL) of a contaminant for substances not regulated by a USEPA final maximum contaminant level (MCL). The MALs of an unspecified list of “unregulated contaminants” are based on toxicity testing guidelines (noncarcinogens) and risk characterization methodology (carcinogens). Use of Appendix A procedures may not always be identical, depending on the certifier.

AWWA C600-99 does not address additives requirements. Thus, users of this standard should consult the appropriate state or local agency having jurisdiction in order to:

1. Determine additives requirements, including applicable standards.
2. Determine the status of certifications by all parties offering to certify products for contact with, or treatment of, drinking water.
3. Determine current information on product certification.

II. Special Issues. AWWA C600-99, Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances, can be used as a reference when making extensions to existing distribution or transmission systems or when constructing new distribution or transmission systems using ductile-iron mains with either mechanical or push-on joints. It is not intended for this standard to be used as a contract document, but it may be used as a reference in contract documents. It is based upon a consensus of the committee on the minimum practice consistent with sound, economical service under normal conditions, and its applicability under any circumstances must be reviewed by a responsible engineer. The standard is not

*Persons in Canada, Mexico, and non-North American countries should contact the appropriate authority having jurisdiction.

†American National Standards Institute, 11 W. 42nd St., New York, NY 10036.

‡NSF International, 3475 Plymouth Rd., Ann Arbor, MI 48106.

§Both publications available from National Academy of Sciences, 2102 Constitution Ave. N.W., Washington, DC 20418.

intended to preclude the manufacture, marketing, purchase, or the use of any product, process, or procedure.

III. Use of This Standard. AWWA has no responsibility for the suitability or compatibility of the provisions of this standard to any intended application by any user. Accordingly, each user of this standard is responsible for determining that the standard's provisions are suitable for and compatible with that user's intended application.

III.A. Purchaser Options and Alternatives. Supplemental information is required when using this standard, including, but not limited to, detailed plans and specifications. The specifications should contain, at a minimum, detailed instructions pertaining to all references in this standard that include the wording "as specified" and "in accordance with the purchaser's specifications."

III.B. Modification to Standard. Any modification of the provisions, definitions, or terminology in this standard must be provided in the purchaser's specifications.

IV. Major Revisions. There are no major revisions of this standard.

V. Comments. If you have any comments or questions about this standard, please call the AWWA Volunteer and Technical Support Department, (303) 794-7711 ext. 6283, FAX (303) 795-7603, or write to the department at 6666 W. Quincy Ave., Denver, CO 80235.

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AWWA STANDARD FOR INSTALLATION OF DUCTILE-IRON WATER MAINS AND THEIR APPURTENANCES

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard covers installation procedures for ductile-iron mains and their appurtenances for water service.

1.1.1 *Conditions not discussed.* Installations that require special attention, techniques, and materials are not discussed. Each of these installations requires special considerations based on many influencing factors that cannot be discussed adequately in a single standard. These installations can be performed by a competent engineering designer, including consultation with representatives of the material manufacturing industry. Some of these installations include the following:

1. Piping through rigid walls.
2. Piping on supports above or below ground.
3. Piping requiring insulation.
4. Treatment plant or pump-station piping.
5. Industrial piping.
6. Piping through geologically hazardous areas.
7. Piping in high-density-stray-current environments.
8. Piping through corrosive soil.
9. Piping through unstable soil.

Sec. 1.2 Purpose

The purpose of this standard is to provide the minimum requirements for the installation of ductile-iron water mains and their appurtenances, including materials, dimensions, tolerances, and testing procedures.