AWWA C604-06
(First Edition)

American Water Works Association

The Authoritative Resource on Safe Water®

AWWA Standard

Installation of Steel Water Pipe—4 In. (100 mm) and Larger

STANDARD
American Water Works Association
Since 1881

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AWWA Standard

This document is an American Water Works Association (AWWA) standard. It is not a specification. AWWA standards describe minimum requirements and do not contain all of the engineering and administrative information normally contained in specifications. The AWWA standards usually contain options that must be evaluated by the user of the standard. Until each optional feature is specified by the user, the product or service is not fully defined. AWWA publication of a standard does not constitute endorsement of any product or product type, nor does AWWA test, certify, or approve any product. The use of AWWA standards is entirely voluntary. AWWA standards are intended to represent a consensus of the water supply industry that the product described will provide satisfactory service. When AWWA revises or withdraws this standard, an official notice of action will be placed on the first page of the classified advertising section of *Journal AWWA*.The action becomes effective on the first day of the month following the month of *Journal AWWA* publication of the official notice.

Science and Technology

AWWA unites the drinking water community by developing and distributing authoritative scientific and technological knowledge. Through its members, AWWA develops industry standards for products and processes that advance public health and safety. AWWA also provides quality improvement programs for water and wastewater utilities.

Committee Personnel

The Steel Water Pipe-Manufacturers Technical Advisory Committee (SWPMTAC) Task Force for Development and Maintenance of AWWA C604, which developed this standard, had the following personnel at the time:

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Foreword

This foreword is for information only and is not a part of AWWA C604.

I. Introduction.

I.A. *History of Standard.* This standard pertains to the in-ground installation of steel pipelines for use in the distribution and transmission of water, air, and other products in water system facilities. It has been prepared by the AWWA Standards Committee on Steel Pipe, initially formed as Committee A7A in 1939. At that time, the Steel Water Pipe Manufacturers Technical Advisory Committee was organized as a subsidiary group to function as a source of technical information for the parent committee. Committee A7A and its successors, Committee 8310D and the AWWA Standards Committee on Steel Pipe have assumed responsibility for all AWWA standards and manuals pertaining to steel pipe, fittings, linings and coatings, field installations, and related items.

In 1996 the AWWA Standards Council directed the Standards Committee on Steel Pipe to develop a standard for the installation of steel pipelines and their appurtenances used in water treatment or conveying facilities. This standard, AWWA C604, is the first steel pipe installation standard developed by AWWA.

I.B. *Discussion.* AWWA C604 includes all types of steel pipe 4 in. (100 mm) in diameter and larger typically used in the water industry, regardless of pipe manufacturing source. With adequate quality assurance, pipe manufactured in a fabricator's shop or in a steel-pipe mill is suitable for water utility service. Pipe produced in a fabricator's shop or pipe mill for installation in accordance with AWWA C604 shall meet the stringent design, quality control, and testing requirements of AWWA Manual M11 and AWWA C200. Shop and mill-fabricated pipe made from materials and in accordance with the quality control measures stipulated in AWWA Manual M11 and AWWA C200 will ensure fabricated pipe of high quality.

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 Environ-

mental 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, NSF†/ANSI‡ 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI 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 NSF/ANSI 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.

Annex A, "Toxicology Review and Evaluation Procedures," to NSF/ANSI 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 Annex A procedures may not always be identical, depending on the certifier.

AWWA C604-06 does not address additives requirements. Thus, users of this standard should consult the appropriate state or local agency having jurisdiction in order to

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*Persons outside the United States should contact the appropriate authority having jurisdiction.

†NSF International, 789 North Dixboro Road, Ann Arbor, MI 48105.

‡American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.

§Both publications available from National Academy of Sciences, 500 Fifth Street, NW, Washington, DC 20001.

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.

II.A. *Application.* AWWA C604-06, Standard for Installation of Steel Water Pipe—4 In. (100 mm) and Larger, can be used as a reference when making extensions to existing distribution or transmission systems or when constructing new distribution or transmission systems using steel pipe. It is not the intent for this standard to be used as a contract document, but it may be used as a reference in contract documents. It is based on 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 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.* The following items should be included in the purchaser's specifications.

Considerable supplemental information is required in conjunction with the use of this standard, including, but not limited to, contract documents consisting of detailed plans and specifications. The specifications should cover, as a minimum, detailed instructions pertaining to all references in this standard to "as specified" and "in accordance with the specifications." In addition, the purchaser shall provide specific supplementary information to the contract documents regarding the following:

1. Pipe design criteria and type of pipe ends.

2. Pipe laying schedules, line drawings, markings, appurtenances, vaults, valves, and existing utilities.

3. Pipe bedding specification and drawing details.

4. Inspection for pipe joints, protective coatings and linings, and pipe zone compaction.

5. Surface restoration.

6. Special handling requirements.

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

IV. Major Revisions. This is the first edition of this standard.

V. Comments. If you have any comments or questions about this standard, please call the AWWA Volunteer & Technical Support Group at 303.794.7711, FAX 303.795.7603, write to the group at 6666 W. Quincy Avenue, Denver, CO 80235-3098, or e-mail at standards@awwa.org.

Contents

All AWWA standards follow the general format indicated subsequently. Some variations from this format may be found in a particular standard.

American Water Works Association

AWWA C604-06
(First Edition)

AWWA Standard

Installation of Steel Water Pipe— 4 In. (100 mm) and Larger

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard provides the field installation guidelines for buried steel water pipe, 4 in. (100 mm)* and larger, and their appurtenances.

The information contained in this standard is intended to be used as a guide to assist in the installation of steel water pipe. Whenever the methods contained herein conflict with those of the contract documents and/or the purchaser, the contract documents and/or purchaser should be followed.

1.1.1 *Conditions which may require additional considerations.* Installations that require special attention, techniques, and materials are not covered. Some of these installations are

1. Piping through rigid walls.

*Metric conversions given in this standard are direct conversions of US customary units and are not those specified in the International Organization for Standardization (ISO) standards.