

ANSI/AWWA **C605-21**

(Revision of ANSI/AWWA C605-13)

AWWA Standard

Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings

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American Water Works
Association



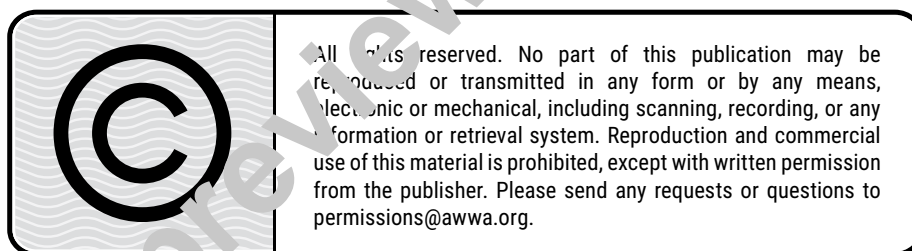
AWWA Standard

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Foreword

This foreword is for information only and is not a part of ANSI/AWWA C605.*

I. Introduction

I.A. *Background.* ANSI/AWWA C605, Standard for Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings, is offered as a reference to be used when constructing new PVC or PVCO pressurized pipelines or when making repairs or extensions to existing PVC and PVCO pressure pipelines. This standard provides information on pipe handling, trench excavation, pipe installation, appurtenance placement, and preparation of pipelines for use. It is not intended that this AWWA standard be used as a contract document; however, it may be used as a reference in contract documents. This standard represents the consensus of the standards committee on the recommended practice for the proper installation of PVC and PVCO pressure pipe. The standard is not intended to preclude the manufacture, marketing, purchase, or use of any product, process, or procedure.

I.B. *History.* This is the fourth edition of ANSI/AWWA C605. In 1978, the AWWA Standards Council authorized the AWWA Standards Committee on Thermoplastic Pressure Pipe to prepare a design and installation manual that would be followed by an installation standard for PVC pressure pipe. AWWA Manual M23, *PVC Pipe—Design and Installation*, was published in 1980.

In 1988, the AWWA Standards Committee on Thermoplastic Pressure Pipe was dissolved to allow for the formation of the AWWA Standards Committee on Polyvinyl Chloride (PVC) Pressure Pipe and Fittings. A new subcommittee was convened to resume work on the installation standard in 1989. On completion of the manual, development of this standard began. The first edition was effective July 1, 1995. The second edition of ANSI/AWWA C605 was approved by the AWWA Board of Directors on June 11, 2005. The third edition of ANSI/AWWA C605 was approved on June 9, 2013. This fourth edition was approved on January 25, 2021.

I.C. *Water Quality.* ANSI/AWWA C605 does not address water quality requirements. Various certification organizations may be involved in certifying products in accordance with NSF/ANSI/CAN[†] 61. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdiction.

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

† Standards Council of Canada, 55 Metcalfe Street, Suite 600, Ottawa, ON K1P 6L5 Canada.

Accreditation of certification organizations may vary from jurisdiction to jurisdiction. Users of this standard should consult the appropriate state, provincial, or local agency having jurisdiction to

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

II. Use of This Standard. It is not intended for this standard to be used as a purchase document, but it may be used as a reference in the project contract documents. It is based on a consensus of the AWWA Technical Committee on minimum practice consistent with sound, economical service under normal conditions, and its applicability under any circumstances must be reviewed by an engineer. It is the responsibility of the user of an AWWA standard to determine that the products and procedures described in that standard are suitable for use in the application being considered. Additional installation and testing requirements may be required.

II.A. *Purchaser Options and Additions.* The following items should be provided by the purchaser:

1. Standard used—that is, ANSI/AWWA C600, Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings, of latest revision.
2. Reference to applicable plans, drawings, and other contract documents (all sections).
3. Whether compliance with NSF/ANSI/CAN 61, Drinking Water Treatment Chemicals—Health Effects, is required.
4. Details of federal, state or provincial, and local requirements.
5. Materials inspection and acceptance requirements (Sec. 4.1).
6. Affidavit of compliance for materials used (Sec. 4.1.1).
7. Required alignment and grade (Sec. 5.1.1).
8. Special provisions for discovery of conflicting utilities and responsibility for facilities and responsibility for the location, relocation, and repair of the conflicting facilities or relocation of the pipeline if necessary (Sec. 5.1.3 and Sec. 5.2).
9. Requirements to notify property owners (Sec. 5.3).
10. Open trench, trench water, and trench stability requirements (Sec. 6.1).
11. Requirements for the protection of workers and the safety of the public (Sec. 6.1.1).

12. Special provisions for excavation and trenching requirements (Sec. 6.2).
13. Trench width, depth, bottom preparation, rock conditions, previous excavation, blasting, unstable subgrade, dewatering, and excavated material requirements (Sec. 6.2).
14. Special trench foundations (Sec. 6.2.7).
15. Special embedment materials (Sec. 7.3).
16. Line and grade tolerances (Sec. 7.4.2).
17. Trenchless installation (Sec. 7.4.4).
18. Gasket requirements (Sec. 7.5.5).
19. Use of fused joints (Sec. 7.5.6).
20. Thrust restraint requirements (Sec. 7.7).
21. Backfill requirements. (Sec. 7.8).
22. Non-surfaced area requirements (Sec. 7.8.3).
23. Type, number, and installation requirements for valves and fittings (Sec. 8.2).
24. Hydrant requirements (Sec. 8.3.1).
25. Special provisions for testing, including the assignment of responsibility for providing and conveying water for flushing, testing, disinfection, and provisions for disposal of disinfection water. Assignment of responsibility for providing equipment for testing witnessing and required recording of test results (Sec. 9.3.1).
26. System design pressure, test duration, and required test pressure (Sec. 9.3.3, Sec. 9.3.4, and Sec. 9.3.5).
27. Special requirements for the method of disinfection, sampling, and analysis (Sec. 9.4). See ANSI/AWWA C601, Standard for Disinfecting Water Mains, of latest revision.
28. Disinfection requirements (Sec. 9.4).
29. If delivery of an affidavit of compliance from the constructor is not required (Sec. 9.6).

II.B. *Modification to Standard.* Any modification to the provisions, definitions, or terminology in this standard must be provided by the purchaser.

III. Major Revisions. Major changes made to the standard in this revision include the following:

1. Installation embedment requirements and terminology have been updated throughout the standard to align with recommendations published in the third edition of AWWA M23.
2. Requirements for field cutting have been updated and expanded.

3. New larger pipe diameters that were added to AWWA C900 were also added to this standard.

IV. Comments. If you have any comments or questions about this standard, please call AWWA Engineering and Technical Services at 303.794.7711, FAX 303.795.7603, write to the department at 6666 West Quincy Avenue, Denver, CO 80235-3098, or email standards@awwa.org.



**American Water Works
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ANSI/AWWA C605-21
(Revision of ANSI/AWWA C605-13)

AWWA Standard

Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes underground installation and pressure testing requirements for polyvinyl chloride (PVC) and molecularly oriented polyvinyl chloride (PVCO) pressure pipe and fittings used to transport potable water, reclaimed water, irrigation water, and wastewater, or for the conveyance of any fluid compatible with PVC or PVCO. This includes products that comply with ANSI*/AWWA C900, ANSI/AWWA C907, or ANSI/AWWA C909. These piping systems often contain components made from other materials. It may be necessary to supplement this standard with special requirements not included in this standard (see foreword, Sec. II). Such special requirements shall be issued by the purchaser with input from the purchaser's engineering consultant(s), product manufacturer(s), and/or supplier(s).

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