ANSI/AWWA **F101-25**

*(Revision of ANSI/AWWA F101-19)*

AWWA Standard

# Contact-Molded, Fiberglass-Reinforced Plastic Wash-Water Troughs and Launders

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American Water Works Association

Approved American National Standard ANSI

STANDARD Since 1881

## AWWA Standard

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# Foreword

*This foreword is for information only and is not a part of ANSI*/AWWA F101.*

## I. Introduction

I.A. *Background.* The purpose of this standard is to establish the minimum quality requirements for contact-molded, fiberglass-reinforced, thermoset resin wash-water troughs and launders for use in municipal and industrial water treatment plants. The troughs or launders are intended for use in treatment basins or tanks. However, the specific application must consider the limitations specified under Sec. 1.1, and information must be provided by the purchaser to completely describe the fabrication requirements. Purchaser-specific information that should be considered is summarized in the foreword, Sec. III.A. The purchaser should review these recommendations and other appropriate data and make provisions in the purchaser's documents to describe the specific service requirements.

I.B. *History*. In 1986, the AWWA Standards Council authorized the development of AWWA standards to describe contact-molded, fiberglass-reinforced, thermoset resin wash-water troughs and launders. Beginning in 1987, with preliminary, unfinished standards developed by an earlier American Society for Testing and Materials (ASTM, now ASTM International) group, the AWWA Standards Committee on Fiberglass Weirs, Troughs, and Baffles formulated and reviewed several drafts of this final standard. The AWWA Standards Committee on Fiberglass Weirs, Troughs, and Baffles prepared ANSI/AWWA F101 and completed work on the first edition of this standard titled AWWA Contact-Molded, Fiberglass-Reinforced Plastic Wash Water Troughs and Launders. The final draft was submitted to the committee for letter ballot voting on Aug. 23, 1990, and a consensus for acceptance was received. The first edition of the standard was approved by the AWWA Board of Directors on Jan. 23, 1991. Subsequent editions of this standard were approved by the AWWA Board of Directors on June 23, 1996; Jan. 20, 2002; Jan. 21, 2007; Jan. 20, 2013, and Jan. 24, 2019. This edition was approved on Jan. 23, 2025.

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 direct and indirect drinking water additives. Other members of

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the original consortium included the Water Research Foundation (formerly 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. Specific policies of the state or local agency.

2. Four standards developed under the direction of NSF:[‡] NSF/ANSI/CAN[§] 60, Drinking Water Treatment Chemicals—Health Effects; NSF/ANSI/CAN 61, Drinking Water System Components—Health Effects; NSF/ANSI/CAN 372, Drinking Water System Components—Lead Content; and NSF/ANSI/CAN 600, Health Effects Evaluation and Criteria for Chemicals in Drinking Water.

3. 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/CAN 61. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdictions. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

NSF/ANSI/CAN 600 (which formerly appeared in NSF/ANSI/CAN 60 and 61 as Annex A, "Toxicology Review and Evaluation Procedures") 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 NSF/ANSI/CAN 600 procedures may not always be identical, depending on the certifier.

ANSI/AWWA F101 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.

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

[¶] Both publications available from National Academies Press, 500 Fifth Street NW, Washington, DC 20001.



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1. Determine additives requirements, including applicable standards.

2. Determine the status of certifications by parties offering to certify products for contact with, or treatment of, drinking water.

3. Determine current information on product certification.

**II. Special Issues.** This standard has no applicable information for this section.

**III. Use of This Standard.** It is the responsibility of the user of an AWWA standard to determine that the products described in that standard are suitable for use in the particular application being considered.

III.A. *Purchaser Options and Alternatives*. The following information should be provided by the purchaser:

1. Standard used—that is, ANSI/AWWA F101, Contact-Molded, Fiberglass-Reinforced Plastic Wash-Water Troughs and Launders, of latest revision.

2. Whether compliance with NSF/ANSI/CAN 61, Drinking Water System Components—Health Effects, is required, in addition to the requirements of the Safe Drinking Water Act.

3. Trough or launder flow capacity.

4. Dimensional and weight limitations.

5. Water quality (such as expected pH and temperature ranges) and materials present in the water (including chemical and biological constituents) with which the fabrications will be in contact.

6. Range of normal operating and extreme ambient temperatures anticipated during storage, project construction, maintenance, or other dewatered conditions.

7. Fittings, clearances, and attachment methods to be used and their requirements.

8. Type of installation.

9. Operating conditions.

10. Whether a fire-retardant additive is required. The purchaser may desire plastic fabrications that include a fire-retardant additive to protect against flame spread and smoke propagation during storage, plant construction, and other conditions when basins are dewatered. The purchaser should recognize that these fabrications may be more costly, availability may be more limited, and certification to NSF/ANSI/CAN 61 or other health effects standards for products in contact with drinking water may not be possible.

11. Fabrication classification (Sec. 1.1.1).

12. Whether certified drawings are to be provided (Sec. 4.1).



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13. Details of federal, state, provincial, territorial, and local requirements (Sec. 4.2).

14. Color and aesthetic treatments (Sec. 4.2.2.1[b]).

15. Whether ultraviolet stabilizers are required (Sec. 4.2.3).

16. Loading conditions and design criteria for the fabrications (Sec. 4.3.2).

17. Specimens to be provided by the manufacturer (Sec. 5.1).

18. Tests to be performed by the manufacturer (Sec. 5.2).

19. Retest agreement requirements (Sec. 5.2.3).

20. Whether plant inspection is required, the conditions under which the inspection is to be carried out, and whether specific test equipment and testing assistance are required (Sec. 5.3).

21. Corrective action requirements if materials or products fail to conform to this standard, including assignment of cost for repair/replacement (Sec. 5.4).

22. Whether a guarantee statement is to be placed on the final product (Sec. 6.1.2).

23. Whether an affidavit of compliance is to be provided (Sec. 6.3).

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

**IV. Major Revisions.** Major revisions made to the standard in this edition include the following:

1. Clarified Sec. III.A *Purchaser Options and Alternatives* to include the conditions under which the inspection is to be carried out and whether specific test equipment and testing assistance are required (foreword III.A, item 20).

2. Added potential repair option in cases of nonconformance (foreword III.A, item 21).

3. Definition for *constructor* was removed as it was also removed from Affidavit of Compliance section because an affidavit may be requested from a party other than the constructor. The term *constructor* is not used anywhere else in this standard (Section 3 and Sec. 6.3).

4. Definitions for *potable water*, *reclaimed water*, and *wastewater* were added (Section 3).

5. Removed clause to specify inspection conditions and replaced with a reference to the purchaser's documents (Sec. 5.3.1).

6. Revised *Access to work* section to refer to the purchaser's documents for agreements on access and assistance with test equipment (Sec. 5.3.2).



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7. Added other potential nonconformance resolutions besides replacement. Deleted affidavit of compliance from the nonconformance section (Sec. 5.4) since it is covered in Sec. 6.3.

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



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ANSI/AWWA F101-25
(Revision of ANSI/AWWA F101-19)

AWWA Standard

# Contact-Molded, Fiberglass-Reinforced Plastic Wash-Water Troughs and Launders

## SECTION 1: GENERAL

### Sec. 1.1 Scope

This standard describes the minimum requirements for fiberglass-reinforced plastic (FRP) wash-water troughs and launders made by the contact-molding process, including flat-bottom, round-bottom, and V-bottom troughs and launders. Requirements are included for materials, properties, design, construction, dimensions, tolerances, work quality, and appearance. This standard also describes the requirements for using general-purpose and chemical-resistant resins. These fabrications are generally used in municipal water supply service and industrial water supply service applications.

1.1.1 *Classification*. Resistance to the corrosive or chemical environment shall be determined before molding either Type I or Type II fabrications. Typically, municipal water supply service applications use Type I, and industrial water supply service applications may use either Type I or Type II, depending on the environment. Troughs and launders shall be classified according to type as follows:

1.1.1.1 Type I. Fabrications shall be manufactured with a polyester resin of the orthophthalic or isophthalic formulation. Type I fabrications shall



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