



**American Water Works
Association**

ANSI/AWWA D108-10
(First Edition)

The Authoritative Resource on Safe Water®

AWWA Standard

Aluminum Dome Roofs for Water Storage Facilities



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6666 West Quincy Avenue
Denver, CO 80235-3098
T 800.926.7337
www.awwa.org

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Committee Personnel

The Standards Subcommittee on Aluminum Dome Roofs, which developed this standard, had the following personnel at the time:

G. Clark Margolf, *Chair*

T.W. Bloomer II, DYK Incorporated, El Cajon, Calif.	(AWWA)
J.C. Ellrich, Mid Atlantic Storage Systems Inc., Washington Court House, Ohio	(AWWA)
G.C. Margolf, Temcor, Gardena, Calif.	(AWWA)
S.W. Meier, Tank Industry Consultants, Indianapolis, Ind.	(AWWA)
J. Staat, Conservatek Industries Inc., Conroe, Texas	(AWWA)

The AWWA Standards Committee on Steel Elevated Tanks, Standpipes, and Reservoirs, which reviewed and approved this standard, had the following personnel at the time of approval:

Stephen W. Meier, *Chair*

General Interest Members

D.M. Algranti, Albert A. Webb Associates, Riverside, Calif.	(AWWA)
E. Darrimon, Bay Area Coating Consultant Service Inc., Denair, Calif.	(AWWA)
W.J. Dixon, Dixon Engineering Inc., Lake Odessa, Mich.	(AWWA)
F.S. Kurtz,* Standards Engineer Liaison, AWWA, Denver, Colo.	(AWWA)
S.W. Meier, Tank Industry Consultants, Indianapolis, Ind.	(AWWA)
J.W. Nollenberger, Centennial, Colo.	(AWWA)
B.M. Shepherd,* Standards Council Liaison, Claremont, Calif.	(AWWA)
J.I. Strand, Short Elliott Hendrickson Inc., Chippewa Falls, Wis.	(AWWA)
C.C. Sundberg, CH2M HILL, Issaquah, Wash.	(AWWA)
R.S. Wozniak, Bow Tech Ltd., Batavia, Ill.	(AWWA)

Producer Members

J.W. Davis, Tnemec Company, Kansas City, Mo.	(AWWA)
B.E. Kromer, Tank Builders Inc., Euless, Texas	(AWWA)
S. Lamb, Nickel Institute, Huntington, W.V.	(AWWA)

* Liaison, nonvoting

G.A. Larson, CB&I Inc., Clive, Iowa	(AWWA)
K. McGuire, Columbian TecTank Inc., Parsons, Kan.	(AWWA)
L.D. Scott,* CB&I Inc., San Luis Obispo, Calif.	(AWWA)
D.L. Stilger, Caldwell Tanks Inc., Louisville, Ky.	(AWWA)

User Members

T.M. Dawson, Emerald Coast Utilities Authority, Pensacola, Fla.	(AWWA)
M.W. Griffin, Missouri American Water, St. Louis, Mo.	(AWWA)
C.P. Harder, City of Fort Worth, Fort Worth, Texas	(AWWA)
E.J. King, Connecticut Water Company, Clinton, Conn.	(AWWA)
J.L. Ortiz, San Francisco Public Utilities Commission, San Francisco, Calif.	(AWWA)
J.P. Scott, New Jersey–American Water Company, Delran, N.J.	(AWWA)
D.T. Wagner, East Bay Municipal Utility District, Oakland, Calif.	(AWWA)

* Alternate

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Foreword

This foreword is for information only and is not a part of ANSI/AWWA D108.*

I. Introduction.

I.A. *Background.* In 1982, members of the American Water Works Association (AWWA) became aware of the increased usage of aluminum domes as roofs on water storage tanks and reservoirs. As a result of this, it was decided to incorporate a reference to aluminum domes in the AWWA standards.

I.B. *History.* In 1987, Appendix A, Aluminum Dome Roofs for Water-Storage Tanks, became a part of D103-87, AWWA Standard for Factory Coated Bolted Steel Tanks for Water Storage.

In 1996, Section 15, Structurally Supported Aluminum Dome Roofs, was incorporated into D100-96, AWWA Standard for Welded Steel Tanks for Water Storage Tanks.

In 1997, Aluminum Dome Roofs left appendix status and became Section 13, Structurally Supported Aluminum Dome Roofs, in D103-97, with revisions similar to those in D100-96.

In 2005, D100-05 was issued, incorporating revisions to Section 15, Structurally Supported Aluminum Dome Roofs.

In 2009, the AWWA Standards Committee on Steel Elevated Tanks, Standpipes, and Reservoirs, as part of an initiative to reorganize the AWWA standards under its umbrella, developed a separate standard for aluminum dome roofs that would be applicable to all tanks. That standard is now designated D108, AWWA Standard for Aluminum Dome Roofs for Water Storage Facilities, and was approved by the AWWA Board of Directors on Jan. 17, 2010.

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 the original consortium included the American Water Works Association Research Foundation (AwwaRF, now Water Research Foundation) 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.

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

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.

ANSI/AWWA D108 does not address additives requirements. 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 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.

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

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

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

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.

Contractual responsibilities for items such as design, material, fabrication, construction, inspection, and testing are not included in this standard and must be addressed by the purchaser.

This standard is based on the accumulated knowledge and experience of purchasers and manufacturers of aluminum dome roofs.

Many aluminum domes built almost 40 years ago are still in service. Properly operated and maintained aluminum dome roofs can have a very long service life.

The term tanks where used in this standard shall apply to welded steel tanks, bolted steel tanks, and concrete tanks or reservoirs.

III.A. Purchaser Options and Alternatives. Proper use of this standard requires that the purchaser specify certain basic requirements. The purchaser may desire to modify, delete, or amplify sections of this standard to suit special conditions. It is strongly recommended that modifications, deletions, or amplifications be made by supplementing this standard. This standard is not intended to cover aluminum dome roofs that are to be erected in areas subject to regulations that are more stringent than the requirements contained herein. In such cases, local regulations supersede the requirements of this standard. Where local, municipal, county, or state government requirements exist, such requirements are to govern, and this standard should be interpreted to supplement them.

It is the purchaser's responsibility to supplement or modify this standard for compliance with these local requirements. In addition, the purchaser is to provide clarification of the governing codes where they do not clearly refer to roofs, but where the purchaser intends such stipulations to apply to the tank roof under contract. As an example, if a governing code stipulates a building roof snow load of 40 lb/ft² (1,915 N/m²) and it is intended that the tank roof be designed for this load, the purchaser is to include this as a clarification.

The details of design and construction covered by this standard are minimum requirements. At a minimum, it is important that all of the design conditions in this standard be met. An aluminum dome roof cannot be represented as an ANSI/AWWA D108 roof if it does not meet the minimum requirements of this standard.

III.A.1. Information to be Provided by Purchaser for an Aluminum Dome Roof. This standard provides minimum requirements for the design, construction, inspection, and testing of an aluminum dome roof without any designation of which party must perform these tasks. For this reason, the following information should be provided by the purchaser:

1. Standard used—that is, ANSI/AWWA D108, Aluminum Dome Roofs for Water Storage Facilities, of latest revision.
2. Type of tank—whether bolted, welded, or concrete.
3. Tank details—that is, the diameter, height, and details of the top of the tank to which the aluminum dome roof is to attach.
4. Site location.
5. Desired time for completion.
6. Name of town and distance to the nearest town.
7. Type of road access available to the site.
8. Roof design loads (wind, live, and snow loads) and the applicable building code if it is different from the AWWA standard for the type of tank being covered by the aluminum dome roof.
9. Locations of all required roof accessories, including hatches, vents, and other accessories.
10. Whether roof handrails, walkways, or other safety devices are required and whether requirements in excess of OSHA CFR Part 1910 are required.
11. Details of other federal, state or provincial, and local requirements (Sec. 4.1).
12. Whether compliance with NSF/ANSI 61, Drinking Water System Components—Health Effects, is required.

III.B. *Information to Be Provided With Bid.*

1. Dimensions of the aluminum dome roof and design basis.
2. The number, names, and sizes of all accessories.
3. Appearance coatings or finish information if one is specified.

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

IV. Major Revisions. This is the first edition of the standard. Section 15 of ANSI/AWWA D100-05, Structurally Supported Aluminum Dome Roofs, serves as a basis for the development of this standard.

Section 15.11 of D100-05, Coatings, with modifications, was incorporated into this standard as Section 10, Coatings or Other Finishes. A provision for a nonglare mechanical finish was added for exterior surfaces.

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



**American Water Works
Association**

AWWA Standard

Aluminum Dome Roofs for Water Storage Facilities

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard establishes minimum criteria for the design, fabrication, and erection of structurally supported aluminum dome roofs. Aluminum dome roofs can be used on any size tank erected in accordance with AWWA standards. When this standard is specified, in the case of conflict between this standard and any other standard, the requirements of this standard shall govern.

Sec. 1.2 Description

The dome shall be a spherical structure conforming to the dimensions of the tank. The dome structure shall be a fully triangulated space truss complete with noncorrugated closure panels. The dome shall be clear span and designed to be self-supporting from the tank structure. The dome surface paneling shall be designed as a watertight system under all design load conditions. All raw edges of the aluminum panels shall be covered, sealed, and firmly clamped in an interlocking manner to prevent slipping or disengagement under all load conditions and temperature changes.