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M42

Steel Water-Storage Tanks

Revised Edition



American Water Works
Association

Steel Water-Storage Tanks

AWWA MANUAL M42

Revised Edition



**American Water Works
Association**

Manual of Water Supply Practices — M42, Revised Edition

Steel Water-Storage Tanks

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Contents

List of Figures, vii

List of Tables, xi

Preface, xiii

Acknowledgments, xv

Introduction, xvii

- Definitions, xviii
- AWWA Standards, xviii
- Welded Tanks, xix
- Bolted Tanks, xx
- Composite Elevated Tanks, xx

Part I Elements of Steel Water Tanks 1

Chapter 1 Typical Capacities and Configurations.3

- Reservoirs, 3
- Standpipes, 3
- Roof Designs for Reservoirs and Standpipes, 10
- Elevated Tanks, 12
- Multiple-Column Elevated Tanks, 13
- Pedestal Elevated Tanks, 18

Chapter 2 Appurtenances.....29

- Shell Manholes, 29
- Pipe Connections, 30
- Overflow, 32
- Ladders and Safety Devices, 33
- Roof Openings, 36
- Vents, 37
- Devices for Indicating Water Level, 39
- Emergency Fill/Withdraw Connections, 40

Chapter 3 Cathodic Protection.41

- Nature of Corrosion, 41
- Principles of Cathodic Protection, 43
- Cathodic Protection Design, 44
- Maintenance, 45

Chapter 4 Coating Systems49

- Interior Coatings, 49
- Exterior Coatings, 51
- Inspection and Quality Control, 52
- Removing Coating by Abrasive Blasting, 52

Part II	The New Tank Project	55
Chapter 5	Selecting and Sizing Water-Storage Tanks.....	57
	Peak Demand, 57	
	Fire Flow, 58	
	Top and Bottom Capacity Levels, 58	
	Water Quality Issues, 58	
	Energy Costs, 60	
	Future Needs, 60	
	Environmental Impact, 60	
	Tank Costs, 60	
Chapter 6	Construction Considerations	63
	Design Standards, 63	
	Contract Documents, 64	
	Constructor Capabilities, 64	
	Guarantees, 64	
	Soil Investigations, 64	
	Reservoir and Standpipe Foundations, 67	
	Elevated Tank Foundations, 69	
	Tank Site, 69	
	Tank Coating: Welded Steel Tanks, 71	
	Tank Coating: Bolted Steel Tanks, 73	
	Tank Water Testing and Disinfection, 73	
	Engineer's Role, 73	
	Bidding Documents, 74	
Chapter 7	Inspecting New Tank Construction.	77
	Responsibility for Quality, 77	
	The Foundation, 78	
	Fabrication, 80	
	Steel Delivery, 80	
	Tank Erection, 80	
	Field Cleaning and Coating, 83	
	Mechanical and Electrical Appurtenances, 85	
Part III	Existing Tanks	87
Chapter 8	Routine Operation and Maintenance.....	89
	Energy Management, 89	
	Controls, 90	
	Periodic Operator Inspection, 90	
	Tank Washouts, 92	
Chapter 9	Professional Examination and Renovation	95
	Tank Maintenance Engineer's Functions and Qualifications, 96	
	Pre-Bid Inspection, 98	
	Preparing Specifications, 103	
	Monitoring the Constructor's Progress, 105	
	Periodic Reinspection, 108	

Chapter 10	Cold-Weather Operation.....	109
	Causes and Results of Freezing, 109	
	Data Related to Freezing, 112	
	Designing Tanks for Cold Weather, 112	
	Cold-Weather Operating Procedures, 117	
	Systems to Prevent Freezing, 119	
	Dealing With Frozen Tanks, 121	
Appendix A	Bibliography	123
Appendix B	Steel Water Tank Industry Standards	125
Appendix C	ANSI/AWWA D101-53 (R86), Inspecting and Repairing Steel Water Tanks, Standpipes, Reservoirs, and Elevated Tanks for Water Storage	131
Index	141	
AWWA List of Manuals	147	

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Figures

- F-1 A tank constructed in 1902 is still serving Wabash, Ind., with practically no metal loss, xvii

- 1-1 Welded steel reservoir, 4
- 1-2 Cross-sectional view of a welded steel reservoir, 4
- 1-3 Bolted steel reservoir, glass fused to steel, 5
- 1-4 Cross-sectional view of a bolted steel reservoir, 5
- 1-5 Welded steel standpipe with decorative pilasters, 8
- 1-6 Cross-sectional view of a typical welded steel standpipe, 8
- 1-7 Bolted steel reservoir, 9
- 1-8 Cross-sectional view of a bolted steel standpipe, 9
- 1-9 Column- and rafter-supported cone roof tank, 11
- 1-10 Column- and rafter-supported roof with knuckle, 11
- 1-11 Self-supporting dome roof or umbrella roof, 12
- 1-12 Self-supporting ellipsoidal roof, 13
- 1-13 Double-ellipsoidal tank, 14
- 1-14 Cross-sectional view of double-ellipsoidal tank, 14
- 1-15 Medium-capacity welded elevated tank, 15
- 1-16 Cross-sectional view of medium-capacity, torus-bottom welded elevated tank, 16
- 1-17 Large-capacity elevated tank, 17
- 1-18 Cross-sectional view of large-capacity multi-column elevated tank, 17
- 1-19 Spherical single-pedestal tanks give pleasant silhouette, 19
- 1-20 Cross-sectional view of small-capacity spherical single-pedestal tank, 19
- 1-21 Alternative single-pedestal tank design, 20
- 1-22 Large-capacity single-pedestal elevated tank, 21
- 1-23 Cross-sectional view of large-capacity single-pedestal elevated tank, 21
- 1-24 Folded-plate design of a modified single-pedestal tank support, 22
- 1-25 Cross-sectional view of modified single-pedestal tank, 23
- 1-26 Composite elevated welded tank, 24
- 1-27 Cross-sectional view of a composite elevated welded tank, 25
- 1-28 Composite elevated bolted tank, 26
- 1-29 Cross-sectional view of a composite elevated bolted tank, 26

- 2-1 Inward-opening shell manhole detail, 30
- 2-2 Outward-opening shell manhole detail, 30
- 2-3 Recessed inlet-outlet pipe bottom connection detail, 31
- 2-4 Non-recessed inlet-outlet pipe bottom connection details, 32
- 2-5 Overflow air break with flap valve, 33
- 2-6 Exterior caged ladder details, 34
- 2-7 Safe-climbing rail for an outside ladder, 35
- 2-8 Roof guardrail details, 36
- 2-9 Roof manhole assembly details, 37
- 2-10 Double 90° elbow roof vent detail, 38
- 2-11 Pan deck vent detail, 38
- 2-12 Typical clog-resistant vent detail, 39

- 3-1 Schematic diagram of a battery, 42
- 3-2 Corrosion of steel in water, 43
- 3-3 Tank corrosion protection—vertically suspended anodes, 46
- 3-4 Tank corrosion protection—horizontally suspended anodes, 47

- 5-1 Typical daily flow at constant pumping rate, 59
- 5-2 Typical daily flow with variable-rate pumping, 59
- 5-3 Relative cost by type of steel tank for 500,000-gal (1.9-ML) tanks, 61
- 5-4 Relative cost by type of elevated steel tank, 61

- 6-1 Soil-testing operations, 66
- 6-2 Example of tank supported on granular berm foundation, 68

- 7-1 Tank foundation construction, 79
- 7-2 Typical welding operation in the field, 81
- 7-3 Reviewing a weld radiograph, 82
- 7-4 Newly erected elevated tank, 83

- 9-1 Experienced riggers evaluate hard-to-reach areas on tower tanks, 97
- 9-2 Active corrosion penetrated this $\frac{1}{4}$ -in. (6-mm) steel tank bottom in 9 years. Periodic inspections and washouts would have revealed and prevented this problem well in advance of failure, 99
- 9-3 Measuring shell thickness with ultrasonic equipment, 100
- 9-4 Washing out tanks allows easier inspection and keeps tanks sanitary, 101
- 9-5 Inspection of the degree of abrasive blast cleaning, 106

- 9-6 An abrasive blast-cleaning operation, 106

- 10-1 A frozen water tank, 110
- 10-2 Isothermal lines for lowest one-day mean temperatures and normal daily minimum 30°F (–1°C) temperature line for January, United States and Southern Canada, 114
- 10-3 Double-seating, internal-closing drain valve, 116
- 10-4 Tank riser bubbler system, 119
- 10-5 Pumped circulation system for small riser pipes, 120
- 10-6 Tank-thawing operation, 122

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Tables

1-1	Typical welded steel water-storage reservoir sizes, 6
1-2	Glass-coated bolted steel reservoirs and standpipes (capacity in thousand gallons), 7
1-3	Typical welded steel water-storage standpipe sizes, 10
1-4	Typical double-ellipsoidal steel elevated tank sizes, 15
1-5	Typical medium-capacity welded steel elevated tank sizes, 16
1-6	Typical large-capacity welded steel elevated tank sizes, 18
1-7	Typical small-capacity single-pedestal steel elevated tank sizes, 20
1-8	Typical large-capacity single-pedestal steel elevated tank sizes, 22
1-9	Typical modified single-pedestal steel elevated tank sizes, 23
1-10	Typical composite elevated welded tank sizes, 25
1-11	Typical composite elevated bolted tank sizes, 27
6-1	Typical soil investigation requirements, 65
10-1	Thousands of British thermal units (Btu) lost per hour from elevated steel tanks based on minimum water temperature of 42° F (5° C) and a wind velocity of 12 mph (5m/sec), 113
A-1	Sample pitting report, 135

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Preface

The purpose of this manual is to provide the water distribution system manager, operator, contractor, and consultant with information concerning steel tanks used for the storage of water during water production, treatment, and distribution. The manual covers the planning, specification, construction, operation, and maintenance of steel tanks of riveted, welded, and bolted construction.

This manual is not intended to be a technical commentary on American Water Works Association (AWWA) standards dealing with steel water-storage tanks; reference is made to those standards to make the reader aware of their existence and application. ANSI/AWWA D101, Standard for Inspecting and Repairing Steel Water Tanks, Standpipes, Reservoirs, and Elevated Tanks for Water Storage, was last reaffirmed in 1986 and withdrawn as a standard in 1998, the year this manual was first published. That standard is included in this manual as appendix C.

While the scope of this edition of the manual remains largely unchanged, updates have been made to the content throughout. This revised edition includes several new and many revised figures and tables, information on composite elevated tanks, recommended steel tank guidelines, water quality assurance, references to AWWA standards, and current steel water tank industry sources and organizations.

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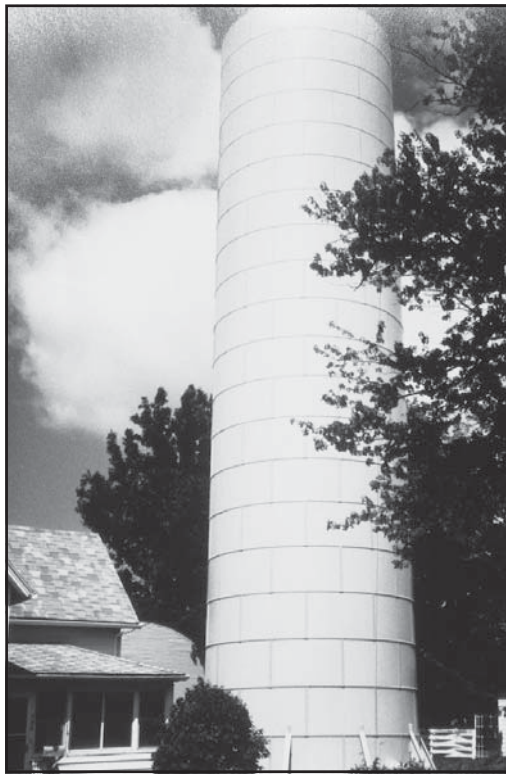
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Introduction

More than 100,000 steel water-storage tanks have been constructed within the last 100 years, a value that far exceeds the number of large water-storage vessels of any other type of construction material. Many steel water tanks have service histories in excess of a century and are still in service today (Figure F-1). Whereas early tanks were riveted, modern practice uses welded or bolted design and construction, which provide the advantage of a zero leakage tolerance.

To further increase their potential service life, steel tanks can be dismantled and re-erected in new locations. A tank that was originally in an optimal location can become useless if a factory relocates or there is a shift in housing patterns. However, a steel tank can be dismantled and then erected and coated at a new location.

This manual provides information on the selection, design, construction, maintenance, inspection, and repair of steel tanks for potable water storage. The manual will assist in tank sizing, configuration, site selection, design, operation, and maintenance.



Source: Tank Industry Consultants Inc.

Figure F-1 A tank constructed in 1902 is still serving Wabash, Ind., with practically no metal loss