

Installation, Field Testing, and Maintenance of Fire Hydrants

AWWA MANUAL M17

Fourth Edition



**American Water Works
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Science and Technology

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MANUAL OF WATER SUPPLY PRACTICES—M17, Fourth Edition

Installation, Field Testing, and Maintenance of Fire Hydrants

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Foreword

This manual was prepared by the AWWA Standards Committee on Fire Hydrants. It is intended for use by persons responsible for the installation, operation, and maintenance of dry-barrel and wet-barrel fire hydrants. It is the fourth revision of the original manual, which was published in 1970.

The diversity of hydrants and the detailed maintenance procedures recommended by specific manufacturers make it difficult to develop a text that is both comprehensive and concise. Therefore, this manual is intended for use as a supplement to detailed information available from specific hydrant manufacturers.

It is the judgment of the committee that the major purpose and function of a fire hydrant is public fire protection. Usually, the hydrant is the property or responsibility of the water utility. However, during fire emergencies the hydrant is operated by members of a fire department rather than by water utility personnel.

The use of a fire hydrant as a source of water for street cleaning, construction projects, or for any purpose other than fire fighting is outside the primary purpose for which a hydrant is installed. Such uses should be rigidly restricted and controlled in the interest of keeping the fire hydrant in good working order for fire fighting.

The water utility, unless expressly relieved of its responsibility by the fire department in accordance with a written agreement, public ordinance, or other ownership, should schedule regular and sufficiently frequent inspections of hydrants to ensure they are in good working condition.

Additional AWWA publications on hydrants include ANSI/AWWA C502, *Standard for Dry-Barrel Fire Hydrants*, and ANSI/AWWA C503, *Standard for Wet-Barrel Fire Hydrants*. The bulk of the material in this manual refers to hydrants claimed by the respective manufacturers to be manufactured in accordance with ANSI/AWWA C502 and ANSI/AWWA C503; however, information is also included on hydrants that are not intended to comply with these standards, such as high-pressure and flush-type hydrants. Installation practices described are consistent with ANSI/AWWA C600, *Installation of Ductile-Iron Water Mains and Their Appurtenances*.

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The AWWA Standards Committee on Fire Hydrants gratefully acknowledges the contributions made by members of the M17 Subcommittee in preparing this manual. The committee's efforts in developing this manual answer the need in the industry for expanded information on fire hydrants.

*Alternate

†Liaison, nonvoting

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Chapter **1**

A Brief History of Fire Hydrants

This chapter is based, in part, on an article that appeared in the September 1944 Journal AWWA (36:9:928). The drawings in this chapter are also taken from that article.

ORIGINS

Before there were water distribution systems, water for fighting fires was available only from natural sources, such as rivers, lakes, and ponds, or from cisterns or barrels filled with water.

The first large water distribution systems were built during the seventeenth century in cities such as London and Boston. Over the course of many years, as the needs of growing populations became more sophisticated and complex, distribution systems were improved. Pipe materials improved, portable standpipes and valves were incorporated, and eventually, the forerunners of modern fire hydrants were used.

London's first water distribution system was built sometime in the early seventeenth century. In the United States, several water systems were built before or about the time of the American Revolution. Boston's water system was built around 1652, and others were built in the latter part of the eighteenth century. The earliest water mains were made by boring out logs; the mains were then buried. When water was needed for fighting fires, a hole was dug to expose the pipe, and a hole was bored into the pipe wall. Water collected around the pipe and was conducted by buckets or through a hose directly to the fire or to a pump. After use, the hole in the pipe was plugged with a tapered piece of wood—hence the term fire plug, which has persisted to this day. The location of the pipe hole was marked so that if it was needed again, it could be found and removed quickly.