Guide for the Analysis, Design, and Construction of Elevated Concrete and Composite Steel-Concrete Water Storage Tanks

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CHAPTER 1—GENERAL
1.1—Introduction
This document provides guidance for specifying, designing, and constructing elevated concrete and composite steel-concrete water storage tanks. Elevated tanks are used by municipalities and industry for potable water supply and fire protection. Commonly built sizes of elevated concrete and composite steel-concrete water storage tanks range from 500,000 to 3,000,000 gal. (1900 to 11,000 m³). Concrete pedestal heights range from 25 to 200 ft (8 to 60 m), depending on water system requirements and site elevation. The interior of the concrete pedestal may be used for material and equipment storage, office space, and other applications.

1.2—Scope
This document covers the design and construction of elevated concrete and composite steel-concrete water storage tanks. Topics include materials, construction requirements, determination of structural loads, design of concrete elements including foundations, design of concrete or steel tank components, geotechnical requirements, appurtenances, and accessories. Materials, design, fabrication, and construction of the steel vessel of composite steel-concrete tanks are addressed by applicable sections of AWWA D100.

Designs, details, and methods of construction are presented for the types of elevated concrete and composite steel-concrete water storage tanks shown in Fig. 1.1 and 1.2. This document may be used in whole or in part for other tank configurations; however, the designer should determine the suitability of such use for other configurations and details.