CHAPTER 2

TYPES OF STORAGE

2-1. General. Required storage capacity at Army installations is met by use of elevated or ground storage. Elevated storage feeds the water distribution system by gravity flow. Storage which must be pumped into the system is classified as ground storage. Clearwell storage, which is usually part of a water treatment plant, is not included in computing storage.

2-2. Ground storage. Ground storage is usually located remote from the treatment plant but within the distribution system. Ground storage is used to reduce treatment plant peak production rates and also as a source of supply for repumping to a higher pressure level. Such storage for repumping is common in distribution systems covering a large area, because the outlying service areas are beyond the range of the primary pumping facilities. Ground storage may be in tanks on the ground surface or below natural ground elevation.

2-3. Elevated storage.

a. General. Elevated storage is provided within the distribution system to supply peak demand rates and equalize system pressures. In general, elevated storage is more effective and economical than ground storage because of the reduced pumping requirements, and the storage can also serve as a source of emergency supply since system pressure requirements can still be met temporarily when pumps are out of service. Elevated storage can be: 1) Above natural grade. The tank is supported by a tower or pedestal where all storage is contained above ground except for water in the feeder or supply pipes. 2) At natural grade. 3) Below natural grade.

b. Type. The most common types of elevated storage are elevated steel tanks, concrete tanks built above or below natural grade, and standpipes. Examples of conventional elevated steel tanks are given in figures 2-1 and 2-2. Storage at natural grade is preferred where local terrain will allow the placement of a tank (such as on a hillside) sufficiently above the facility to be served. Storage above natural grade should be discouraged since this construction would require steel, a highly skilled labor force, and special equipment - all would be in short supply. Storage above natural grade will be used only when the terrain is flat or when gravity-fed storage at natural grade would be impractical. Storage below natural grade is usually done for aesthetic reasons and will not be made for mobilization construction unless circumstances require this kind of storage.

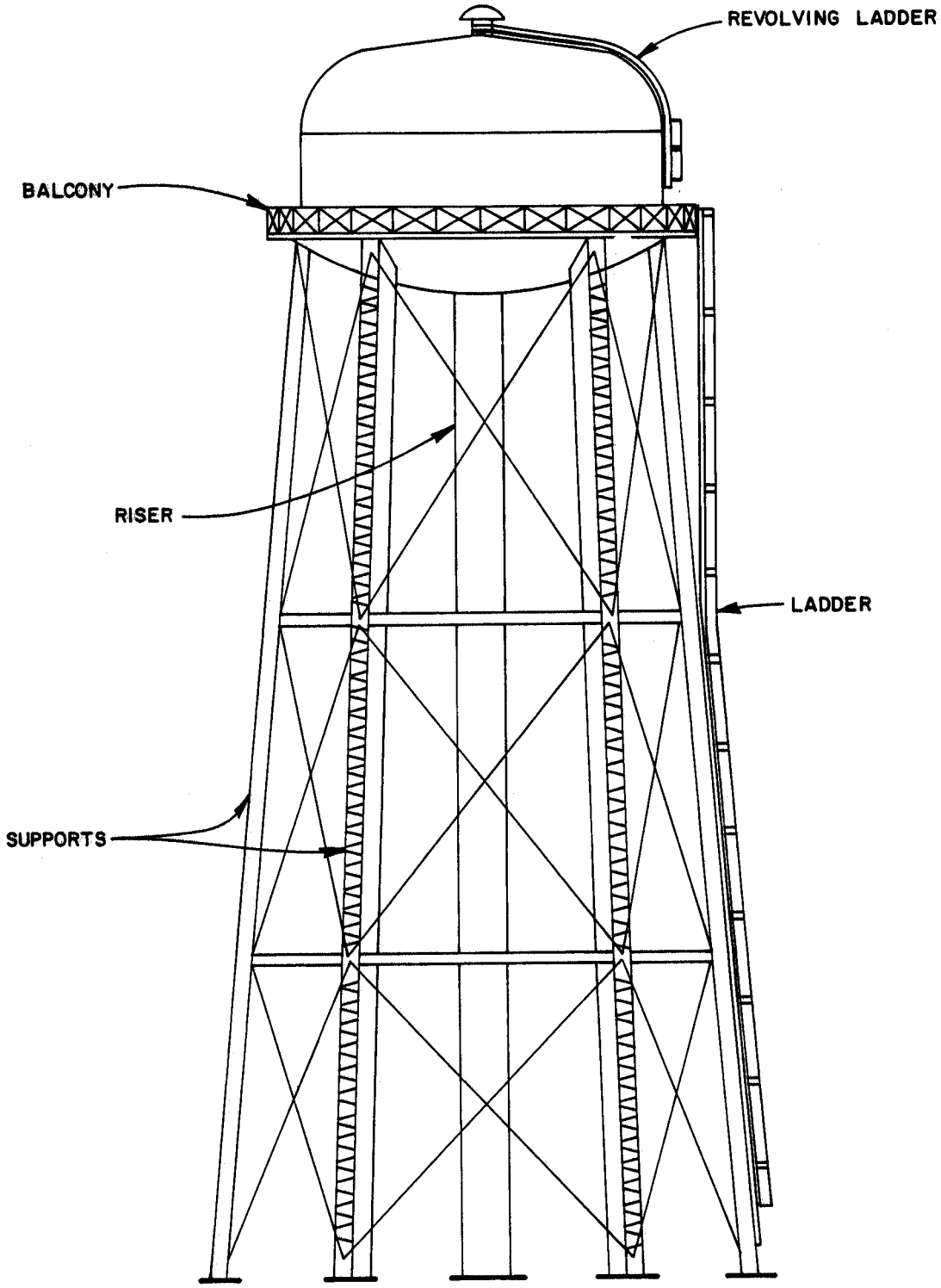

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FIGURE 2-1. ELEVATED STORAGE TANK

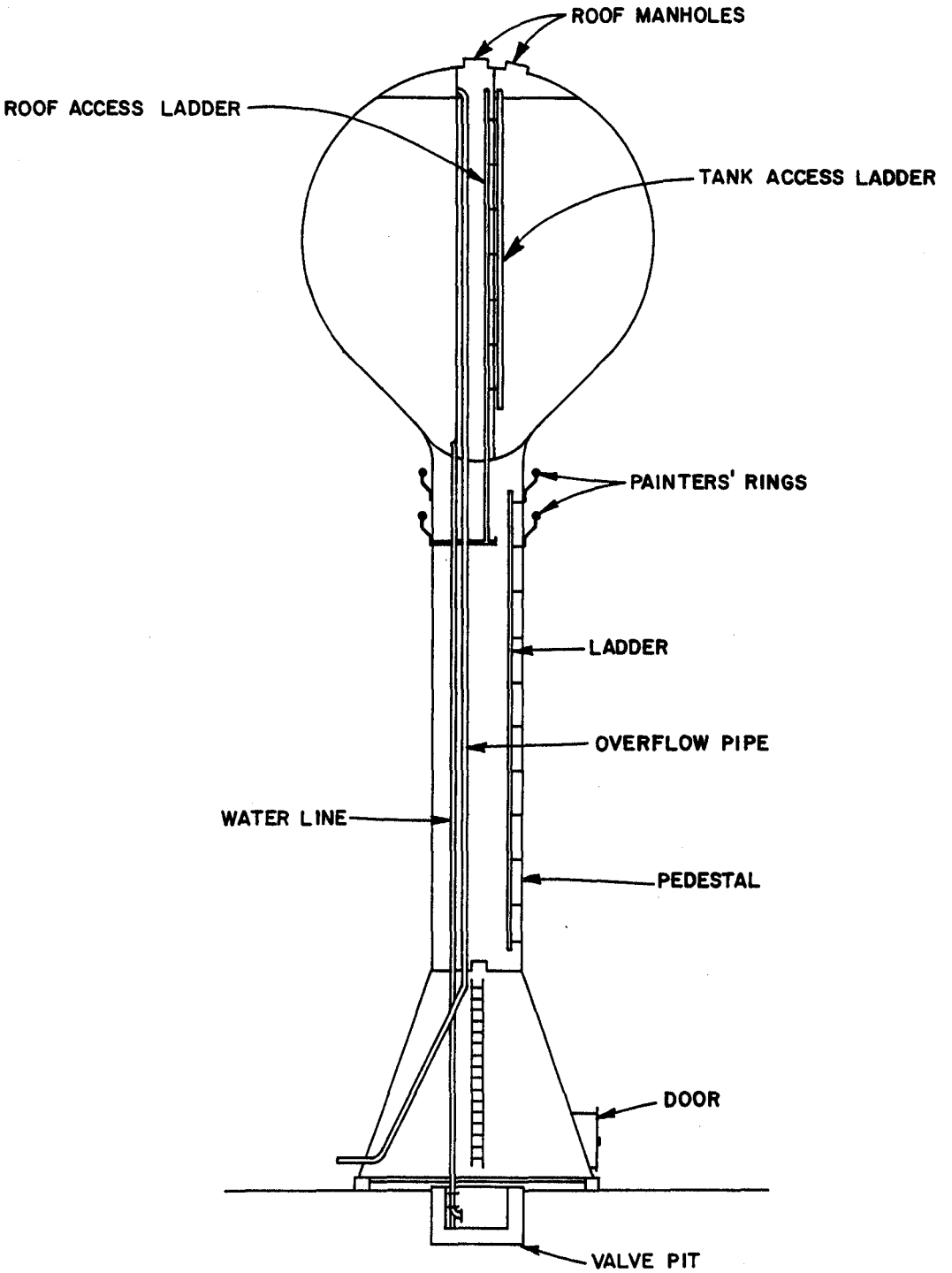

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FIGURE 2-2. ELEVATED STORAGE TANK (ALTERNATIVE DESIGN)