Highland Tank | TechNews

Developing Auxiliary Water Storage Systems

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Chlorine Contact Tank System for EPA 4 Log disinfection

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Water is a finite resource; we drink it, cook with it, wash with it, travel on it and use it for agricultural/industrial/commercial applications. Solutions for fulfilling sustainable management of freshwater are either finding alternative freshwater resources using conventional means or better utilizing the limited water resources available.

It is becoming apparent in many areas that the public water supply may not be adequate to meet the needs for process water, fire protection, and even quality potable water.

Buildings like schools, hospitals, data centers and other institutional facilities need a reliable and redundant water supply.

Highland Tank's HIghDRO storage systems have become a vital component of any distribution system. Highland Tanks are becoming a critical element in providing safe, secure water during periods of drought, infrastructure failure, loss of pumping capacity and fire flow protection.

Operational benefits of a Highland Tank in water distribution are.

- Equalize supply and demand (HT Buffer Tanks)
- Equalize pump rates
- minimize pressure variations (HT Surge Tank)
- Reduce pump size and energy costs
- Blending of water resources
- Provide water for industrial demand
- Store treated water
- Provide contact time for disinfectants/oxidizers (HT Chlorine Contact Tank)

Implementing superior design practices for storage tanks provide a sustainable and efficient water supply while maintaining water quality. Highland Tank provides the means for safe, secure storage vessels and engineered systems for most all industrial/commercial/municipal applications.

TANK TYPE AND PURPOSE

There are several tanks common to water distribution systems that come in contact with raw, treated, or finished water. Tanks used in water distribution can either be atmospheric or ASME. These tanks can be:

1. Finished water storage tanks
2. Hydro pneumatic tanks
3. Backwash Tanks
4. Contact Chambers
5. Clear wells
6. Wet wells
7. Surge Tanks

The focus of this article is on tanks that store partially treated and finished water for fire protection, potable and non-potable applications hereafter referred to as water storage tanks.

Water storage tanks can also be classified by construction material (welded steel), shape (cylindrical, rectangular) and ownership (private, utility). Cisterns are tanks that store water for a variety of purposes such as irrigation, fire suppression and drinking.

Potable water may be stored in aboveground or underground tanks for such purposes as drinking, process, laundry or washing. Treated water may arrive from a public water source or filtered from rainwater. Non potable water can be stored for uses such as irrigation, fire protection, toilet flushing.

Water tank design and construction can also codes such as American Water Works Association (AWWA) AWWA D100-Standard for Welded Steel Tanks for Water Storage and the National Fire Protection Associations (NFPA) NFPA 22-Standard for Water Tanks for Private Fire Protection.

Buffer/Break Tank

Atmospheric water tanks are vented to the atmosphere to allow free flow of air during filling and draining cycles. The vent is critical in maintaining atmospheric pressure especially in above ground applications.

Most atmospheric tanks are of single wall design and tested in accordance with Underwriters' Laboratories tank construction codes UL-58, UL 1746, and UL 142.

Water tanks single wall construction use one sheet of steel meeting ASTM standards. Material thickness range from 12 gauge to 1 ¼" mild carbon or stainless steel.

Flat flanged or dished heads, continuous exterior/interior welds on all joints with a 5-psi factory air test ensure a safe and secure storage tank.

Insulated Fire Protection Tank

ASME water tanks can be manufactured for a wide range of municipal, institutional, commercial, and industrial applications. Tank construction complies with ASME Section VIII Division I and welded in accordance with ASME Section IX. ASME pressure vessel's material of construction consists of SA516 GR70 carbon steel and type 304 and 316 stainless (includes "L" grades).

Most ASME vessels utilize flanged tank fittings (raised or flat face, slip-on weld neck, lap joint). Man ways are limited to 24" diameter cylindrical or elliptical.

Emergency Water Pressure Vessels

Both atmospheric and ASME water tanks can be installed above or below ground. Above ground vertical tanks require saddles or skids where vertical tanks have ring base or legs.

Both underground tanks require advanced corrosion protection systems that come with a limited 10-year warranty.

Please consult your local Highland Tank representative for all your storage and system application needs.

Call 814-893-5701 today or visitus at www.highlandtank.com for more information.

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