

PROTOTYPE OF MINI-COMPOSITE ELEVATED TANK CONSTRUCTED

By Chuck Stinnett • Freelance Journalist

HENDERSON, KY. — A prototype of a composite elevated water storage tank tailored for smaller applications while still offering an affordable, more maintenance-free option than traditional all-steel tanks has been constructed and is now available for viewing.

Pittsburg Tank & Tower Group (PTTG) has pioneered a mini-composite elevated tank (CET) that features a support shaft made from stackable pre-cast concrete segments topped by a steel tank with a capacity ranging from 50,000 to 250,000 gallons or more.

The design, for which a final patent application is being filed, is tailored for water systems desiring a more maintenance-free, lower life-cycle-cost option that also offers speed of construction.

PTTG has also fine-tuned the product since first announcing it in spring 2022. It has standardized an outside diameter of 12 feet, with reinforced (steel mesh or rebar) concrete walls eight inches thick and a segment height of six feet.

Those dimensions make it practical to precast the segments in a controlled environment, such as at PTTG's shop in Henderson, KY, or other controlled location, and transport two segments on a single flatbed trailer without a need for escort vehicles. Segments can also be poured on-site.

Either option greatly reduces the amount of construction work at elevated heights to enhance safety and quality. The pre-cast segments are then raised by crane and locked into place, resulting in less build time.

PTTG is offering standard capacities of 50,000, 75,000, 100,000, 150,000, 200,000 or 250,000 gallons, with options for larger tanks upon request. PTTG's engineering team utilizes applicable AWWA, ASCE and AIC design criteria.

As with all CETs, this PTTG product for smaller applications eliminates the need for painting or other maintenance of the support shaft. To further reduce future maintenance, these precast CET's offer several options for tanks that don't require initial or future painting, including glass-fused-to-steel tanks as well as welded stainless, bolted stainless, or bolted galvanized steel tanks.

This precast CET offers several advantages:

- **Safety is enhanced by fewer manhours worked at elevated heights.**
- **Quality is improved by constructing at ground level.**
- **Greater security against vandalism and less exposure to attractive-nuisance liabilities.**
- **An option to use local concrete.**

- **Tanks are readily available to be raised, lowered or even relocated.**
- **Lower carbon footprint than an all-steel structure.**
- **If an owner opts for a painted steel tank, it can be disconnected and lowered to the ground for future repainting and related maintenance.**



PTTG Chairman of the Board Ben Johnston characterized the new process for constructing a composite elevated tank as just the latest innovation in the past 150 years of water towers.

Elevated steel water tanks date back to the 1880s. What started as riveted structures quickly converted to welded structures in the 1930s as that technology spread. Population growth spurred the need for larger capacity tanks, which resulted in a rapid response by industry leaders. Double ellipsoidal, radial cone and water spheres were commonplace in the 1930s and '40s, followed by spheroidal, hydropillars and, in the 1980s, the composite elevated tank. Capacities over the same time increased from 50,000 and 100,000 gallons to tanks as large as 4-million-gallon capacity.

Pittsburg Tank & Tower, founded in 1919, entered the composite tank market in 1997. Its prototype CET has been precast, fabricated and erected at its headquarters in Henderson, KY. The prototype is intended as a 1/4th scale model of a 100,000-gallon CET. 💧💧

