



REDUCE LIFETIME COSTS WITH STEEL TANKS FOR WASTEWATER TREATMENT

Since the dawn of modern wastewater treatment design, concrete has been a widely accepted material for use in treatment tanks for applications ranging from activated sludge processes to sequencing batch reactors and oxidation ditches. Concrete has been popular because it combines economy with relative durability. For applications that require extremely large (> 5 MGD) tanks to be constructed on site, the pourability of concrete makes it still a preferred way to go.

But for applications up to 5.0 MGD and below, steel construction offers significant advantages over concrete; benefits that lead to lower operating and lifetime costs, regardless of the application.

Steel lasts longer

On an absolute level, steel as a material holds up roughly as long as concrete over a lifetime of exposure to corrosive liquids, heat, cold, UV and other stresses. The difference with steel is that, over its lifespan, a welded steel tank is typically less prone to failure and costs less to repair and maintain. Throughout the decades-long life of a treatment facility, where a tank may need to be reconfigured, upgraded or moved, welded steel proves itself more amenable to all of these changes. By resisting obsolescence, steel can actually outlast concrete in today's treatment plants.

Steel costs less

Material costs for welded steel may be higher for a given application. But over the lifetime of a reactor, clarifier or other facility, steel will end up being the more economical choice. Why? There are several reasons:

- Repairing a leak in a welded steel tank is generally a simpler and lower-cost operation than repairing a similar leak in concrete. It can often be done by a local welding shop.
- Steel's greater durability reduces the frequency and cost of maintenance, downtime and repair.
- The greater ease with which welded steel can be modified, reconfigured and moved make it less costly when plant requirements change.

- In many cases, welded steel tanks can be field erected more quickly and at lower cost than concrete.
- A welded steel tank typically requires less physical space, less yard piping and less electrical conduit than a site-built concrete system.

Steel is more useful

Because they are fabricated off-site, welded steel tanks often offer shorter lead times and faster on-site setup than concrete tanks. DAVCO™ field-erected treatment plants from Evoqua are available in a variety of configurations, including activated sludge processes, sequencing batch reactors, and oxidation ditch configurations. Capacities range from 0.1 MGD to 5.0 MGD with full turnkey, retrofit and upgrade solutions available.

Steel is reusable

With the long life of tanks in waste treatment facilities, it's inevitable that they become part of a plant upgrade, often involving reconfiguration. With a concrete tank, your investment is literally sunk into the ground. The size, shape and location of the asset is not something you can change.

Welded steel tanks, however can be cut, re-welded, expanded, reduced, moved and reconfigured with standard steel-working tools. Through-wall piping is a simple addition. Wall coatings can be changed as use changes. The whole side of a tank can be opened up to provide access for cleaning and reconfiguration.

Build for the future. Build with steel.

Although concrete will always be part of the mix, plant designers are increasingly looking to steel, especially in the form of pre-fabricated, field erected systems like Evoqua's OMNIPAC® SBR treatment system. For many applications, steel offers advantages that far outweigh concrete in the areas of lifetime cost, reliability, maintainability, applicability and flexibility. For designers planning on long-term operation, with its inevitable change and adaptation, steel is an economical way to avoid a future that could otherwise be cast in concrete.

DAVCO™ FIELD-ERECTED BIOLOGICAL WASTEWATER TREATMENT PLANTS

Evoqua, through its DAVCO™ product line, is an industry leader in the manufacture and installation of steel-construction, field-erected biological treatment plants for the reduction of biochemical oxygen demand, total suspended solids, total nitrogen, and phosphorus.

Municipalities and contractors for industrial clients can reduce their overall capital expenditure and have a shorter concept-to-completion timeline. DAVCO field-erected treatment plants are available in a variety of configurations, including activated sludge processes, sequencing batch reactors, and oxidation ditch configuration. Capacities range from 0.1 MGD to 5.0 MGD with full turnkey, retrofit or upgrade solutions available.

Benefits

- Offers quick installation—the permanent field-erected biological treatment systems are pre-assembled and then erected at the job site.
- Requires less physical space, less yard piping and electrical conduit, and less maintenance than site-built concrete systems.
- Easily incorporates a wide range of biological process options and special configurations such as the unique dual-path design.
- Proves a viable option for colder climates when partially or fully buried to protect from freeze damage.

Features

- Rehab/Retrofit existing equipment (regardless of manufacturer)
- Single-source responsibility
- Over 50 years of experience and process expertise
- Equipment engineering and quality manufacturing
- Short on-site completion timeline
- Complete technical support

Applications

- Municipal Wastewater
 - Field Erected Package Plants
 - Chain and Scraper Systems
 - Traveling Bridge Filters
 - Deep and Shallow Bed Sand Filters
 - Circular Clarifiers
 - Ballasted High-Rate Clarifiers
- Industrial Wastewater
 - Commercial or Home Developers
 - Reuse and Reclamation
 - Biological Nutrient Removal (BNR)
 - BOD/COD/TSS Reduction

Examples of steel tankage in action

- Key West Resort Utilities expanded an existing 3-stage BNR activated sludge plant with a treatment capacity of 250,000 GPD to 350,000 GPD by installing steel tanks.
- The community of Marathon, Florida saved \$90 million on a treatment upgrade by scrapping plans for a large centralized treatment plant and instead building a decentralized system that included four factory-built, OMNIPAC® field-erected steel-tank SBR systems.
- Regional Utilities of South Walton County, Florida saved money during a system-wide upgrade by easily converting an existing .05 MGD OMNIPAC SBR field-erected steel-tank treatment system into a digester.



Evoqua's single source approach integrates experience with equipment design, steel fabrication, field installation/construction, and commissioning services.



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MU_FETP_AP_0417