
Glass Tank Life Cycle Analysis Proven Invalid!

In review of liquid storage tank products offered today in the municipal market, there is a “life cycle cost analysis” promoted by glass tank suppliers that has been proven invalid. Although discounted by leading engineers and referred to as a “sham” under review, some specifying engineers have included this analysis in tank bid specifications released. If used, the outcome is always the same as it only justifies the purchase of a glass coated tank.

Earlier Excel versions of this glass “life cycle cost analysis” used calculations that were hidden and embedded, maintaining a value of the glass tank at the end of its service life of 80% of its original value. Needless to say, this was proven false. This led to the next version of glass “life cycle cost analysis”, which has been referred to by industry experts and knowledgeable specifying engineers as invalid.

The latest approach starts with a glass tank that is more expensive than an epoxy coated tank and adds the recoating costs on the epoxy tank over a 45 year period. It concludes with a calculation that the “life cycle cost of glass” is less expensive than an epoxy coated tank because glass tanks are never recoated. Needless to say, this review is not credible and is designed to promote a single glass tank product in the marketplace.

Under review, the facts on today’s technology and liquid storage tanks are as follows:

- Today’s glass coated tanks will not provide a 45 year service life. Due to coating recipe changes due to spalling, “one fire” process over “two fire” process, and lighter tank designs offered, today’s glass tanks will provide a field service life of between 25-40 years. [Note: To date, numerous glass tanks have been replaced in the field due to spalling (flaking of the glass into the stored water). All of these tanks were in service less than 5-10 years before failure.]
- At 30-40 years of service, today’s glass tanks must be totally replaced, since glass tanks can never be recoated in the field. This is part of the “sham” promoted in the “glass life cycle costs” calculation. The cost for glass tank replacement has not been included in their analysis.
- The glass tank is outdated itself in the municipal market because municipalities require tank products and infrastructure development that provides extended service life, not shortened. As noted by one specifying engineer, “Why would any municipality install a tank that has a 30-40 year service life and can’t be recoated in the field...and then pay a premium for it?”
- Glass tank sidewall panels are becoming another outdated relic of the past due to its high initial purchase cost and shortened field service life. (Note: The only component part of a glass tank that is glass coated are the tank sidewall panels. The tank bottom is concrete. Structural components are galvanized. The tank top is an aluminum dome.)

- Currently, there is only one manufacturer in the U.S. that is manufacturing a glass coated tank. When a single tank product becomes specified and is supported by an invalid “life cycle cost analysis” review, then the involved municipality is subject to being excessively overcharged.
- LIQ FUSION 7000 FBE (fusion bond epoxy) coating system provided by Tank Connection is an extended service life coating. An LIQ Fusion tank may have to be recoated at 25 years of service, but it can be recoated in the field. At 40 years of service, an LIQ Fusion coated tank is at 50% of its service life, while a glass tank requires replacement.
- One state review agency, ADEM, outlines proper tank maintenance by recognizing steel tanks as having an “indefinite service life if periodic maintenance and recoating is provided”. Many bolted steel storage tanks exist in the field today that are over 100 years old. **Using today’s advanced coating technologies, there is no reason to purchase a storage tank product that cannot be recoated in the field.**
- Today’s glass coated tanks will provide a field service life of 25-40 years in municipal water applications, depending on the glass formulation used. The new international glass EN 15282 specification promotes a “25 year” glass tank design.
- A Tank Connection, our LIQ Fusion 7000 FBE™ coated tank will have a field service life of 60-80+ years in municipal water storage applications.

Tank Connection Outperforms Competitor Storage Tank Products With Extended Service Life:

Design Code	Construction Type	Tank Connection Fusion Tanks		Competitor Epoxy Tanks		Competitor Glass Tanks	
		PDT*	Service Life**	PDT*	Service Life**	PDT*	Service Life**
AWWA D103	Bolted	40+	60-80+	30+	40+	30+	30-40
AWWA D100	Welded	40+	60-80+	40+	60-80+	N/A	
FM 4020	Bolted, Welded	40+	60-80+	30+	40+	30+	30-40
FM Principles	(not a valid listing)			10+	10-15+	N/A	
NFPA-22	Bolted, Welded	40+	60-80+	30+	40+	30+	30-40
AISC	Bolted, Welded, Hybrid	40+	60-80+	20+	20-30+	25+	25-30+
EN 15282	Bolted - glass coated	40+	60-80+	N/A		25+	25-30+
API 650	Welded	40+	60-80+	40+	60-80+	N/A	

* PDT - Plate Design Thickness - A function of steel design.

** Service Life - A function of periodic maintenance and coatings.

TANK CONNECTION, LLC

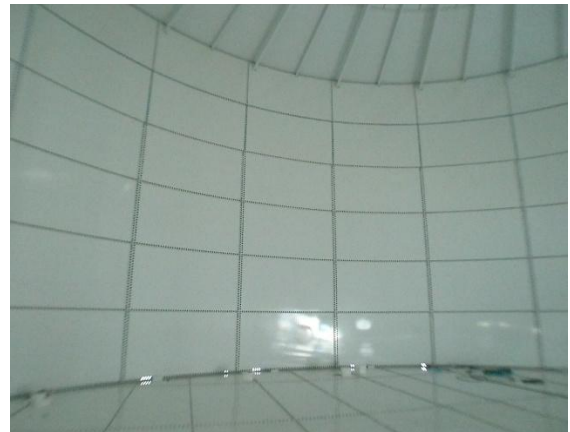
WWW.TANKCONNECTION.COM

3609 N. 16TH STREET PARSONS, KANSAS 67357
620.423.3010 FAX: 3999

The Recognized Experts in Storage – Tank Connection Affiliate Group is a collection of the recognized experts in RTP (rolled, tapered panel), API 12B (flanged panel), FP (flat panel), Field-weld, Shop-weld and Hybrid tank fabrication. With over 2,100 years of combined industry experience in storage applications, Tank Connection stands alone as a global leader in storage containment.

In today's market of advanced coatings technologies there is no reason to settle for a storage tank product that has a shortened, finite field service life for an infrastructure project. Water and wastewater storage tanks should be selected that will stand the test of time, without limitation. While we continue to review competitor glass and epoxy tank designs offered in the market-place today that are being designed and fabricated lighter and cheaper, Tank Connection's goal is to provide the #1 bolted storage tank available worldwide. To knowledgeable engineers, Tank Connection is satisfying all of today's infrastructure requirements . . . high quality storage containment . . . extended service life . . . low maintenance . . . competitive pricing.

Life Cycle Costs Promoted on Glass Tanks Doesn't Hold Water – In today's storage tank market, glass tanks have a life cycle cost that is 25%-50% higher than a Tank Connection LIQ Fusion Tank.



At TCAG, We Design Tanks for Long Service Life & Low Maintenance – We lead the industry in both bolted RTP and field-weld storage tank designs. We design and manufacture storage tanks with conservative PDT and advanced, unmatched Fusion coating systems. All TCAG tanks and silos are designed for low maintenance requirements and extended service life. Reference TCAG-2102 document for further information on the “life cycle cost analysis” of liquid storage tank products.

Get Connected with the Unmatched Performance of Tank Connection Affiliate Group!

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