STI/SPFA Annual Product Awards

2011 AWARD WINNERS

Recognized for outstanding achievements in DESIGN, DEVELOPMENT and CONSTRUCTION of steel fabricated products
**Elevated Tank of the Year**

**CB&I, Inc.**

**PRODUCT DESCRIPTION:** Fluted Column Style Elevated Tank

**OWNER:** Keokuk Municipal Water Works

**LOCATION OF PRODUCT:** Keokuk, IA

**DATE OF COMPLETION:** December 2011

**DATE OF OPERATION:** December 2011

**OVERALL HEIGHT:** 165’

**COLUMN HEIGHT / LENGTH:** 98’

**DIAMETER:** 135’

**CAPACITY OR FLOW:** 4,000,000 GALLONS

**PRODUCT DESCRIPTION AND SPECIAL FEATURES:**

This 4,000,000 gallon behemoth built in Keokuk, Iowa, is the largest capacity elevated tank west of the Mississippi and the second largest elevated tank ever built in the world!

The challenging design required 2,000,000 pounds of steel to support the 33,000,000+ pounds of water, up 160’ in the air in a massive 136’ diameter tank bowl sitting on a 90’ diameter fluted pedestal. The foundation had to use drilled piers down to bed rock to support the loads.

Although the Owner considered a number of tank options, the owner chose all steel construction due to its proven durability and long track record of reliable service.

To protect their investment and to minimize future maintenance cycles, the Owner selected the highest quality coatings by using a fluorourethane coating on the exterior, and a 100% solids hi-build polyurethane coating on the inside wet. The letters “KEOKUK” were painted on two sides of the tank that will help to promote the community and increase local pride.

This project effectively demonstrates and showcases steel’s advantages as being the material of choice when building the very largest elevated tanks.
PRODUCT DESCRIPTION: Reservoir Water Storage Tank
OWNER: Eastern Municipal Water District
LOCATION OF PRODUCT: Hemet – Gibbel Rd. RW Tank, CA
DATE OF COMPLETION: May 2011
DATE OF OPERATION: December 2011
OVERALL HEIGHT: 32’ + 3’ Knuckle
COLUMN HEIGHT OR LENGTH: 37’, 10 7/8
DIAMETER: 162’ – 0”
CAPACITY OR FLOW: 5,000,000 GALLONS

PRODUCT DESCRIPTION AND SPECIAL FEATURES:
Engineer, design, fabricate, erect 5.0 MG Water Storage Tank, including interior and exterior coatings, cathodic protection and all appurtenances. Tank was designed to AWWA D100-05 Standards. There were 410 tons of steel used in the construction of this tank.
PRODUCT DESCRIPTION:
30,000 Ton-Hour Thermal Energy Storage Tank

OWNER:
University of Texas

LOCATION OF PRODUCT:
Austin, TX

DATE OF COMPLETION:
January 2011

DATE OF OPERATION:
March 2011

OVERALL HEIGHT:
67' -5"

COLUMN HEIGHT OR LENGTH:
N/A

DIAMETER:
104’ – 8”

CAPACITY OR FLOW:
4,330,000 GALLONS

PRODUCT DESCRIPTION AND SPECIAL FEATURES:
This unique and very large 4,333,000 gallon welded steel tank (104.5’ diameter x 67.5’ shell height) was wedged onto a very small site. The tank will actually pay for itself thru energy savings by operating as a thermal energy storage (TES) tank built for the University of Texas in Austin.

The tank stores reserves of chilled water that is more economically produced during off-peak energy times to cool campus buildings occupied by over 50,000 students and professors during the heat of the day.

The foundation design and construction were very complicated as the tank was surrounded on all sides by existing structures with high voltage mains running directly under the tank and to top it off - the soils were very poor! This necessitated a unique asymmetric pile layout that still addressed the tank loads. The internal flow diffusers were specifically designed for this tank.

To make the tank aesthetically pleasing and acceptable to the campus architect:
* an architectural painted aluminum jacket was used over the panel insulation serving as a façade on the exterior tank shell and
* a low profile cone roof was used to minimize the overall tank height.

The welded steel tank met all of the challenges proposed by this site as well as provided additional benefits to the university:
* a 100% leak tight storage tank to eliminate the risk of any leakage on the adjacent campus dorms, parking structure and high voltage power station,
* the flexibility of steel design and construction in small, congested spaces,
* plus provided a low capital cost, low maintenance and a low life cycle cost.

This tank promotes and demonstrates the flexibility and aesthetics of steel designed structures to be built in very small spaces, and it pays for itself in a few years and continues to save the Owner money for many years to come.
### Standpipe Tank of the Year

**T BAILEY, INC.**

<table>
<thead>
<tr>
<th><strong>PRODUCT DESCRIPTION:</strong></th>
<th>Water Standpipe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OWNER:</strong></td>
<td>City of Kent</td>
</tr>
<tr>
<td><strong>LOCATION OF PRODUCT:</strong></td>
<td>Kent, WA</td>
</tr>
<tr>
<td><strong>DATE OF COMPLETION:</strong></td>
<td>October 2011</td>
</tr>
<tr>
<td><strong>DATE OF OPERATION:</strong></td>
<td>November 2011</td>
</tr>
<tr>
<td><strong>OVERALL HEIGHT:</strong></td>
<td>127' -0&quot;</td>
</tr>
<tr>
<td><strong>COLUMN HEIGHT OR LENGTH:</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>DIAMETER:</strong></td>
<td>75' -0&quot;</td>
</tr>
<tr>
<td><strong>CAPACITY OR FLOW:</strong></td>
<td>4,031,836 GALLONS</td>
</tr>
</tbody>
</table>

**PRODUCT DESCRIPTION AND SPECIAL FEATURES:**

Design, detail, fabricate, deliver, field erect, and finish paint a new 127' high shell x 75' Ø welded steel AWWA D-100 Section 14, four million gallon water standpipe for the City of Kent. The City commissioned a local mural design company to paint a customized landscape scene on the standpipe to blend it into the surrounding environment. This tank is part of several phases by the City to develop the site which will ultimately house the City’s Public Works.

The enormous foundation required mass excavation of 8000 cubic yards for the 18’w x 5’h spread footing and 3’w x 13’ high stemwall with cast in place vaults that contained over 81 tons of reinforcing steel and 1500 cubic yards of 4000 psi concrete. 98 each 3 ¼” Ø x 8’ long anchor bolts were required to anchor the approximate 34.5M lb. tank (approx. 1M lbs. of steel plus weight of water at capacity). The completely seal welded self-supporting dome roof weighed approximately 58,000 lbs. and was built on the ground and lifted into place using a 550 ton crane.
**Product Description:** Column (Pressure Vessel) used in the production of Super-Pure Polysilicon Material

**Owner:** Proprietary

**Location of Product:** Clarksville, TN

**Date of Completion:** August 2011

**Date of Operation:** August 2011

**Overall Height:** 196’-0”

**Overall Length:** N/A

**Diameter:** 10’-0” ID

**Capacity or Flow:** N/A

**Weight:** 360,000 Lbs

**Product Description and Special Features:**

Distillation Column – this product was the largest and heaviest item our company has ever built and shipped. We had to build it in three sections and weld them together in our paint / blast building before shipment to northern Tennessee. When the lead trailer and push trailer were connected to the transport dolly system, the entire assembly was over 300 feet long, or better than an NFL football field! The shipping of this column proved to be a huge undertaking; it actually took eight weeks to arrive at its destination after leaving our plant.

This column was worth over one million dollars, and took over 10,000 man-hours to build. The shipping cost of this column was an additional three hundred thousand dollars. The route to the jobsite had to be changed over a dozen times; the original route was to take the column over the Ohio River in Louisville, KY, but because of a bridge failure, this column travelled over 900 miles out of the way to reach its destination. The column took a circuitous route through western Indiana, central Illinois, eastern Missouri, including St. Louis, and into western Tennessee. The final leg took the column back into southern Kentucky before it arrived in northern Tennessee.
Product Description:
Ten (10) Each ULC S601-07 Triple Compartment, Integral Contained Fuel Storage Tanks

Owner:
Environmental Refueling Systems

Location of Product:
Edmonton, AB

Date of Completion:
August 2011

Date of Operation:
October 2011

Overall Height:
144"

Overall Length:
Skid – 544 ½", Tank – 451 ½"

Diameter:
118"

Capacity or Flow:
Three (3) Compartments, Total Capacity 79,980 L

Product Description and Special Features:
Ten (10) each ULC S601-07 triple compartment integral contained fuel storage tanks. This tank was designed to be used in remote refueling applications and incorporates 3 compartments for storage of different types of fuel at the same location in a single tank application. With an empty weight of 40,000 lbs, it was designed to be transported empty, loading and unloading using live roll flat deck trailers. The shipping features allow the tank to be delivered to site, set up and put into service within a minimal timeframe.

Specific Features of the tank are:
- Skid designed to be suitable for live rolling applications
- Fold down hand rail system for transporting purposes
- Flip up stair section contained within the shipping dimension of the tank
- Swiveling light fixtures and support poles that collapse and lock in place within the shipping envelope
- Full perimeter catwalk with access stairs; full perimeter guard rail
- Internal fill and discharge piping
- Installed cabinets and platforms for dispensing equipment, meters and fire extinguishers
- Integrally contained pump spill boxes
PRODUCT DESCRIPTION: Autoclave

OWNER: N/A

LOCATION OF PRODUCT: Salt Lake City, UT

DATE OF COMPLETION: September 2011

DATE OF OPERATION: September 2011

OVERALL HEIGHT: 19’ -10”

OVERALL LENGTH: 85’ – 4”

DIAMETER: 188” ID

CAPACITY OR FLOW: N/A

WEIGHT: 652,000 Lbs

PRODUCT DESCRIPTION AND SPECIAL FEATURES:

Autoclave -
- 652,000 lbs.
- 2.86” Thick
- Transportation – 240 wheels
**Product Description and Special Features:**

This is a transition spool for pump discharge for Dallas Storm Water Utilities. This 72” Square to Round Transition was fabricated under very tight tolerances and provided with Polyurethane lining and coating.

The design and dimensional tolerances of this transitional pump discharge necessary to provide hydraulic compliance with the Engineer’s needs made this a very challenging project. The expected golf ball size debris flying through the pump discharge required special attention and approvals for the lining and coating process. Unlike the conventional challenges, the overall geometry with the ancillaries required made these three pump discharges a landmark project.
Product Description: 102” Above Grade Cooling Water Pipe for Power Plant
Owner: Progress Energy Carolinas, Inc.
Location of Product: Goldsboro, NC
Date of Completion: 2011
Date of Operation: 2011
Overall Height: 11.33’
Overall Length: N/A
Diameter: 102” x 1” Plate / 102” x ¾” Plate

**PRODUCT DESCRIPTION AND SPECIAL FEATURES:**
102” above grade cooling water pipe for power plant.

These twin 102” diameter steel cooling water lines have been designed to span over a small river. Each line consists of seven pipe sections welded together on site to form a 177-foot long section weighing approximately 186,350 pounds. Each assembled pipe section has two ring girder pipe supports and two lifting rings attached. The ring girders are designed to support the 102” pipe for the 157-foot river span. The specially-designed lifting rings allow placement using one single lift for each assembled section.
Product Name: Testable AST Overfill Prevention Valve with Enhanced Flow Rates
Product Available: 2011

PRODUCT DESCRIPTION AND SPECIAL FEATURES:
An added safety feature to the industry’s safest overfill prevention valve product line - A testable overfill prevention valve with enhanced flow rates.

The unique test system allows for anyone to activate the float to a shutdown position, providing verification that the overfill prevention valve is functioning.

The unique test system can be engaged before or at any time during the filling operation.

Unique Features and Owner Benefits:
- Special Stainless Steel Type 305 wire rope that meets MIL specifications
- Breaking strength of the SS wire is over 360 LBS
- Short float design allows for fast filling time
- Complies with various regulations and standards such as PEI RP600, NFPA, IFC
- The overfill prevention valve is rated for 100 PSI Delivery rate
- Can be retrofitted to an existing AST
- The overfill prevention valve can accommodate direct filling or remote fill installations
- Available in 2" or 3 fill connections
- Testing systems can be custom designed for specific installation requirements