

# Composite Elevated Tank

WATER STORAGE

[www.cbi.com](http://www.cbi.com)







Sizes range from 500,000 to 3,500,000 gallons. Above is a 1,500,000 gallon tank



Architectural lines blend well with surrounding structures and landscapes



Concrete support structure requires minimum maintenance on both inside and exterior



3,000,000 gallon tank in Souderton, PA

## Why choose a composite elevated tank?

The tensile strength of steel has long been recognized as a characteristic most effective in producing leak-free water-retaining vessels. Reinforced concrete is one of the most efficient and economical materials to carry compressive loads. A composite elevated tank (CET) combines these materials to produce an efficient, long lasting structure.

A CET from CB&I can be a cost effective solution for large-capacity tanks. The low maintenance requirements of the interior and exterior of the support structure minimize long-term ownership costs.

We have designed and built hundreds of CETs of various capacities and heights since their introduction to the marketplace.

Our concrete forming system (forms, ties and bulkheads) minimizes pour lines and allows proper vibration of the concrete, reducing bug holes and honeycombing to obtain architectural grade concrete. We install a ¼ inch thick formed steel liner over the concrete dome, which minimizes voids between the concrete and steel and meets the AWWA D107 minimum thickness requirement for plates in contact with water.

The self-supporting dome roof minimizes interior structural supports in the vapor area of the tank where condensation occurs. Since this is the most corrosion-prone area in the tank, future maintenance requirements are reduced.

The concrete support structure exterior is enhanced by an architectural pattern that blends well with surrounding structures. In addition, the exterior coating and logo on the steel tank can be custom designed to identify your municipality, company or product.

Since the construction of our first elevated tank in 1894, we have become a global leader in the design and construction of elevated water storage tanks. We pioneered the transition to welded steel tanks in the 1930s and built our first Composite Elevated Tank in 1986. We also have been instrumental in the development of the AWWA D107 Standard for composite elevated tanks.

## Taking the Lead with QHSES

CB&I is committed to setting a leading example in all areas of Quality, Health, Safety, Environment and Security, and encourages our partners, subcontractors and clients to join us in the pursuit of outstanding QHSES performance. Taking the Lead is a company-wide initiative that brings a single, united QHSES culture to our diverse workforce and organization, a culture where setting the right example in QHSES attitude and behavior is simply 'In our DNA.'



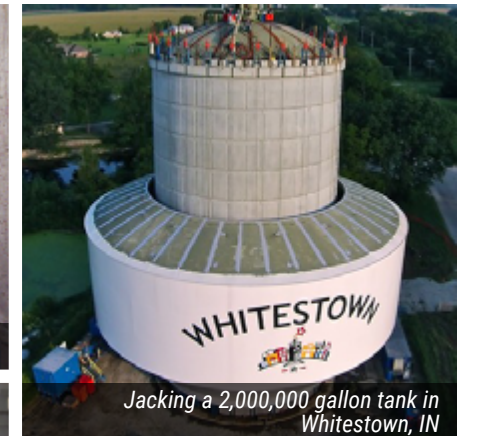
Standard designs provide efficient head ranges from 35-50 ft to minimize pumping costs and variations in water pressure



Piping and valves in support structure



Piping and valves in support structure



Jacking a 2,000,000 gallon tank in Whitestown, IN



Painting tank exterior prior to jacking

## Selecting a composite elevated tank

CB&I sample specifications and detail drawings for engineers and owners who are planning elevated water storage projects. Contact our regional sales force to receive guidance on specifying your tank or visit [www.cbi.com/water](http://www.cbi.com/water) to view our standard specifications and drawings.

### Maintenance

- Concrete support structure requires minimal maintenance
- Maintenance access to all exterior surfaces is unhindered
- Multi-purpose interior space
- Dual use as offices, meeting rooms, pump station, fire station, equipment and machinery storage, etc.
- Reinforced concrete support structure
  - Easily integrates with interior structural steel for multiple floors
  - Allows exterior windows
- Offset riser pipe maximizes available interior space

### Economics

- Can be economical in larger capacities
- Effective cost is reduced when the value of the interior space is considered
- Turnkey supply of foundation and painting offers cost and schedule savings

## Aesthetic design

- Clean modern appearance
- Vertical and horizontal architectural lines blend well with surrounding structures and landscapes
- Capitalizes on high visibility locations
  - Optional lettering and logos enhance community identity and pride
  - Optional custom architectural concrete support structure designs available

## Safety and security

- Solid threshold steel door with deadbolt lock restricts unauthorized entry
- Overhead door
  - Quick entry and exit for trucks and large equipment
  - Easy access for larger storage items
- Enclosed interior access ladders
  - Minimizes vandalism and unsightly graffiti
  - Minimizes unauthorized tank access
  - Facilitates climbing during inclement weather

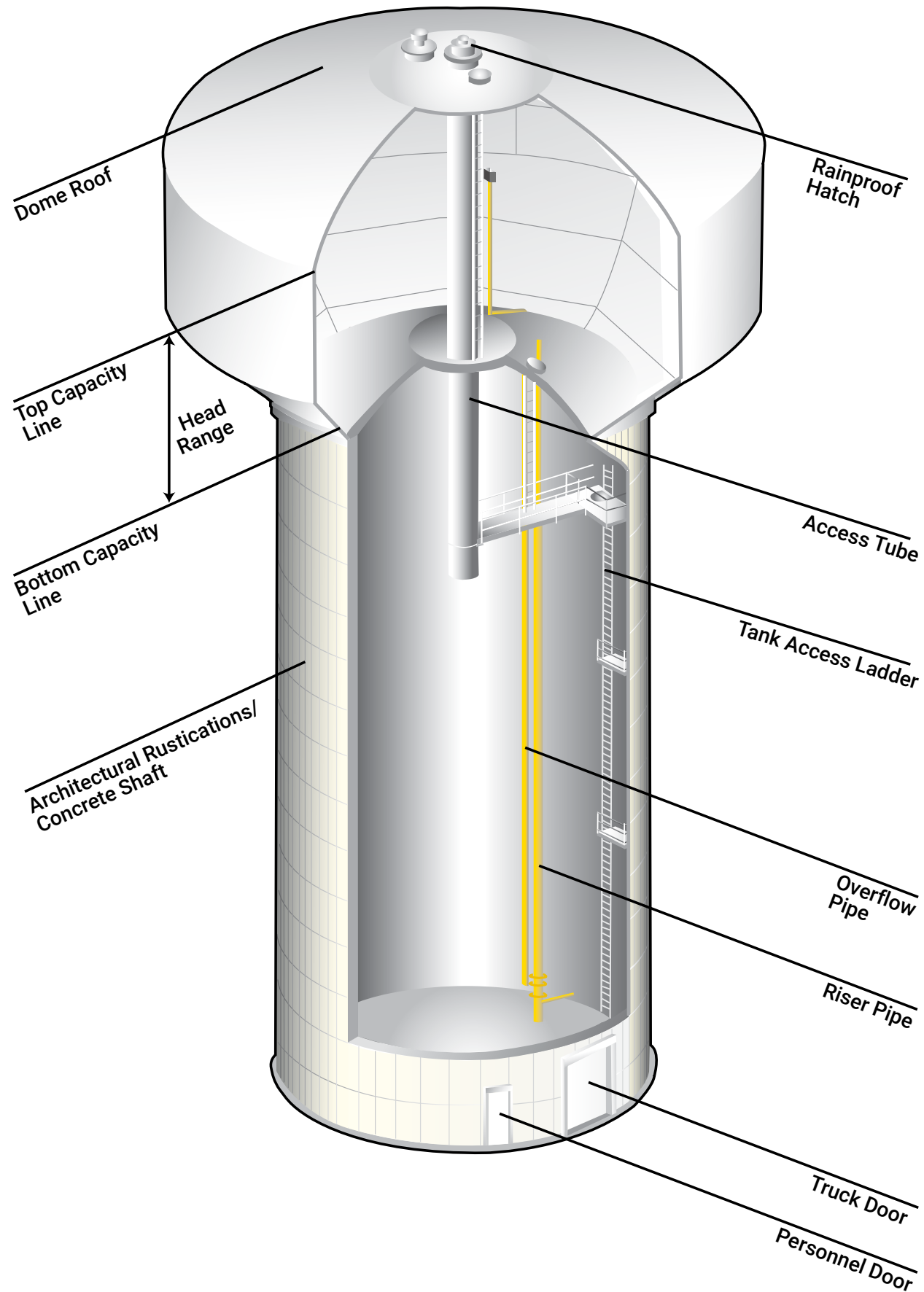
## Optimum head range

- Standard design provides efficient head range
  - Minimizes pumping costs
  - Minimizes variation in water pressure
- Optional head ranges available

## Dome roofs

- Improves appearance
- No ponding or bird baths
- Reduces topside corrosion and dirt streaks on tank exterior
- Minimizes snow and ice accumulation

## Standard features and options



## Standard features

- One 36" wide by 80" high personnel door with threshold
- Concrete floor inside base
- Stainless steel riser pipe with expansion joint
- Steel overflow pipe in tank with weir box
- Stainless steel overflow pipe to grade with splash block
- Galvanized ladders and platforms in support structure
- Safety devices on ladders as required by state and federal regulations
- Galvanized walkway with handrails from top of support structure to access tube hatch
- One 48" diameter access tube
- Painted ladder in access tube
- Painter's rings at top of support structure
- Tank drain
- One 24" wide by 36" high painter's ring hatch with louver
- One 30" tank bottom manway with access ladder to walkway
- Two 30" diameter roof hatches
- One 24" diameter painter's ventilation roof hatch
- Minimum 1/4" thick steel roof plates
- Seal welding underside of roof
- Interior lighting in support structure and access tube
- Lightning protection

## Options

- Lettering, logos and decorative graphics
- Alternate style (as Waterspheroid® tank or Hydropillar)
- Architectural concrete support structure
- FreshMix® circulationsystem
- Structural framing, multiple floors and ceilings inside the support structure
- Additional openings in support structure (e.g., windows)
- Double personnel door
- Overhead doors
- Valve vault inside base
- Control room in support structure
- Dual risers
- Riser insulation and heat tracing
- Alternative ladder arrangements inside support structure
- Exterior access tube ladder
- Upsized 60 in. or 72 in. diameter access tube
- Internal tank ladder on access tube
- Exterior access tube ladder
- Roof handrail
- External security or decorative lighting
- FAA lighting
- Instrumentation
- Telemetry
- Cathodic protection
- Antenna penetrations and supports

## Standard capacities and dimensions

Capacity U.S. Gallons	Tank Diameter* ft-in.	Head Range** ft-in.	Support Structure Diameter ft-in.
500,000	50 - 0	37 - 6	28 - 0
600,000	62 - 0	32 - 6	28 - 0
750,000	59 - 0	40 - 0	32 - 0
1,000,000	70 - 0	40 - 0	36 - 0
1,250,000	79 - 0	40 - 0	40 - 0
1,500,000	81 - 0	45 - 0	44 - 0
2,000,000	93 - 0	45 - 0	52 - 0
2,500,000	105 - 0	45 - 0	52 - 0
3,000,000	110 - 0	50 - 0	60 - 0
3,500,000	118 - 0	50 - 0	60 - 0

\* Tank diameters based on listed/standard head ranges only.

\*\* CB&I has other head ranges and support structure diameters available for each capacity tank. Please contact us if you need assistance.

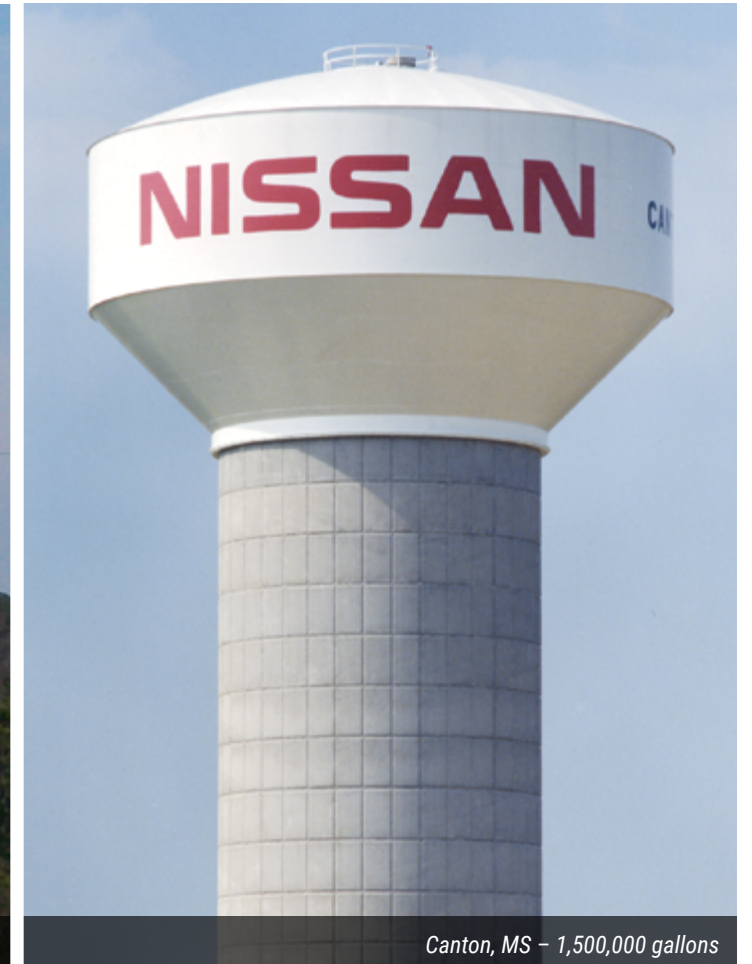




Enterprise, AL - 1,500,000 gallons



Charleston, SC - 1,500,000 gallons



Canton, MS - 1,500,000 gallons



Fountain Inn, SC - 2,000,000 gallons



League City, TX - 2,000,000 gallons



Eden Prairie, MN - 2,000,000 gallons



Brownsburg, IN - 1,000,000 gallons



CB&I is the world's leading designer and builder of storage facilities, tanks and terminals. With more than 59,000 structures completed throughout our 130-year history, CB&I has the global expertise and strategically located operations to provide our customers world-class storage solutions for even the most complex energy infrastructure projects.

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