



Coffee Break Training - Fire Protection Series

Hazardous Materials: Aboveground Flammable and Combustible Liquid Tank Emergency Venting – Part 2: Tank Shapes

No. FP-2013-2 January 8, 2013

Learning Objective: The student shall be able to describe common types of aboveground flammable and combustible liquid storage tanks based on their shapes.

Aboveground flammable and combustible liquid tanks are produced in a variety of shapes. Tanks are permitted to be of any shape, size or type consistent with sound engineering practices. They do not have to be listed by an independent testing agency. (See Coffee Break Training FP-2010-21 for a description of “listed” products.)

The most common shapes of steel tanks are cylindrical horizontal, cylindrical vertical and rectangular. Cylindrical horizontal tanks lie on their sides in steel or concrete saddles. Cylindrical horizontal tanks offer some portability, significant capacity and with a double-walled tank meet secondary containment requirements.



This horizontal tank is outfitted with a secondary containment enclosure for built-in spill capture.

Cylindrical vertical tanks have the largest capacity for the required footprint, but they may require extensive external secondary containment site preparation. This includes drainage, to direct liquids away from tanks, or diking (called “bunding” in Europe), to capture spilled liquids.

Rectangular tanks have the most efficient use of space for space-restrictive applications, but they are limited in capacity. Typical applications for this style of tank are in vehicle service or industrial-type applications where space is most often the issue.

Tank Shape/Type	Description
Cone roof	This tank has vertical sides and is equipped with a fixed, cone-shaped roof that is welded to its sides.
Open top-floating roof	This tank is similar to the cone roof tank in construction but has no fixed roof. A pontoon-type roof floats directly on the liquid surface.
Internal floating roof/ Covered floating roof	This tank is a combination of both the cone roof and the open top-floating roof tank. It has a cone roof but with the addition of an internal floating roof or pan that floats directly on the fuel surface.
Horizontal	This tank is commonly cylindrical in shape with flat ends. It is usually mounted on legs or steel or concrete support structures.
Spherical or spheroid	This tank is commonly used as a pressure tank or pressure vessel where vapor capture is important, especially with high vapor pressure liquids such as methyl chloride, propane or butane.
Rectangular	This tank is a six-sided vessel with sides, top and bottom consisting of flat planes.

For additional information, refer to National Fire Protection Association 30, *Flammable and Combustible Liquids Code*.



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