



Coffee Break Training - Fire Protection Series

Hazardous Materials: Spill Control and Secondary Containment

No. FP-2014-46 November 18, 2014

Learning Objective: The student will be able to explain the difference between spill control and secondary containment for liquid and solid hazardous materials.

One of the model fire code control strategies for a liquid or solid hazardous material is to confine the product to its original container. In the event of spills or leaks, the codes employ additional strategies to limit the likelihood that the product will spread: spill control and secondary containment.

Spill control is required to prevent **liquids** from flowing to other parts of a room, building or area. The liquid in a container that falls to the floor and bursts should be controlled so it does not spread to other areas. Spill control for liquids is required by the model codes when rooms, buildings or areas used for liquid storage hold individual containers having a capacity of more than 55 gallons (208 liters (L)) **or** where the aggregate capacity of multiple vessels exceeds 1,000 gallons (3,785 L).

Spill control is accomplished by the construction of:

- Liquid-tight sloped or recessed floors to confine the product.
- Liquid-tight floors provided with liquid-tight raised or recessed sills or dikes.
- Sumps and collection systems.
- Other engineered systems approved by the code official.

The floors, sills, dikes, sumps and collection systems must be constructed of noncombustible material (except for surfaces), and the liquid-tight seal must be compatible with the material stored. When liquid-tight sills or dikes are provided, they are not required at perimeter openings that have an open-grate trench across the opening that connects to an approved liquid collection system.

Secondary containment, a means to confine the contents of the largest vessel in storage plus water discharged by a fire sprinkler system in rooms or rainwater in the outdoors, is required when:

- The capacity of an individual **liquid** container exceeds 55 gallons (208 L) or the aggregate capacity of multiple vessels exceeds 1,000 gallons (3,785 L).
- The capacity of an individual **solid** vessel exceeds 550 pounds (250 kilograms (kg)) or the aggregate capacity of multiple vessels exceeds 10,000 pounds (4,540 kg).

Secondary containment for solid hazardous materials is included so that contaminated water from fire protection systems or rainwater is confined in a smaller area around the primary storage vessel.

In some instances, as illustrated here, spill control and secondary containment can be incorporated in the same sump.

For more information, consider enrolling in the National Fire Academy course “Hazardous Materials Code Enforcement” (R0615). Information and applications can be obtained at <http://apps.usfa.fema.gov/nfacourses/catalog/details/10504>.



This flammable liquid storage room combines spill control and secondary containment into a single sump located below the grated floor deck.



Eligible for Continuing Education Units (CEUs)
at www.usfa.fema.gov/nfaonline

For archived downloads, go to:

http://www.usfa.fema.gov/training/coffee_break/