



Steven W. Troxler
Commissioner

North Carolina Department of Agriculture
and Consumer Services
Standards Division

Marcus Helfrich
Director

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MEMORANDUM

Information concerning Vehicle Barrier Protection. Our interpretation of the requirements in the *LP-Gas Code*, including equivalent protection for dispensing sites.

This information will serve as the Department's interpretation of the requirements in NFPA 58, the *LP-Gas Code*, concerning protecting LP-Gas containers and dispensing equipment from impact by vehicles, also known as vehicle barrier protection, VBP.

This applies to all LP-Gas containers except those that are part of a stationary bulk plant as defined in NFPA 58 Sections 4.3.1 and 3.3.10, 2024 edition. All references are to NFPA 58, the *LP-Gas Code*, 2024 edition, unless otherwise stated. Use of the 2024 edition requirements is specified after it was made effective by NFPA on September 14, 2023, and has been enforced by inspectors since January 1, 2024.

GENERAL REQUIREMENTS

Section 6.8.1.2 requires LP-Gas containers within 10 feet of a public vehicular thoroughfare be provided with a means of VBP. (See the definition of VBP in section 3.3.84, with supplemental (non-mandatory) information in A.3.3.84.)

Where concrete filled guard posts are specified (6.28.3.14), they shall meet the stated requirements. These requirements are not retroactive to sites installed prior to January 1, 2014.

SPECIFIC REQUIREMENTS FOR DISPENSERS

The requirements in the *LP-Gas Code* section 6.28.3.14(A) for bollards are:

“Concrete filled guard posts shall be constructed of steel not less than 4 in. (100 mm) in diameter with the following characteristics:

- (1) Spaced not more than 4 ft (1200 mm) between posts on center
- (2) Set not less than 3 ft (900 mm) deep in a concrete footing of not less than 15 in. (380 mm) diameter
- (3) Set with the top of the posts not less than 3 ft (900 mm) above ground
- (4) Located not less than 3 ft (900 mm) from the protected installation”

Bollards attached to anchor plates and anchor bolted to concrete **are not approved** equivalent protection unless calculations are provided showing their resistance to 2000 pounds-force applied at 36 inches above ground level. Bollards anchor bolted into anything other than concrete are never approved, because anchor bolts are rated for concrete.

EQUIVALENT PROTECTION FOR DISPENSERS

Acceptable equivalent protection devices, for section 6.28.3.14(B), are shown here with detailed requirements and photos of examples. These equivalent protection methods are not automatically approved and require specific approval letters be issued from our office and attached to the firm record. In each case, the barriers must be at least three feet from the protected installation, in accordance with the specification for bollards, above.

- (1) Concrete Jersey Barriers – Openings between barriers shall not exceed four feet. Use of four-foot-long barriers, or less, is suggested to meet the requirement for a 50% open perimeter. These barriers must be at least 24 inches tall and must have a base at least 24 inches deep. Plastic Jersey barriers are NOT acceptable.



- (2) Bin Blocks and Security Planters - Openings between barriers shall not exceed four feet. Use of four-foot-long barriers, or less, is suggested to meet the requirement for a 50% open perimeter. Bin blocks and security planters must be at least 24 inches tall and have a base at least 24 inches deep. Security planters must be filled with soil, gravel, or concrete. Plants are optional.



- (3) Highway Guard Rails – Openings for access are required and must not exceed four feet in width. The requirement for the perimeter being 50% open is met by the design of these barriers having clear space at ground level. They must be installed according to manufacturer's instructions.



- (4) Highway Cable Barriers – Openings for access are required and must not exceed four feet in width. The requirement for the perimeter being 50% open is met by the design of these barriers having clear space at ground level. They must be installed according to manufacturer’s instructions.



- (5) Wooden Guard Rails - Openings for access are required and must not exceed four feet in width. The requirement for the perimeter being 50% open is met by the design of these barriers having clear space at ground level. The horizontal wooden member must be at least a nominal 2” by 6” beam. The support posts must be at least nominal 6” by 6” lumber set at least 18 inches into the ground and spaced not more than four feet. Wood must be treated to resist rot.



REQUIREMENTS FOR CONTAINERS OTHER THAN DISPENSERS

Cylinder exchange cabinets that are lockable, ventilated enclosures of metal exterior construction do not need VBP. For cabinets not meeting this description, protection will generally be curbing or concrete-filled guard posts, bollards.

Requirements for protection away from section 6.28 do not specify concrete filled guard posts. However, protection by concrete filled guard posts will meet the intent for VBP when they are set as described above. If the posts are protecting cylinder exchange cabinets, they shall not interfere with operation of the cabinet doors and in no case, be closer than two feet from the cabinet. Posts protecting other containers shall be at least one foot from the container(s).

Wooden timbers that are a minimum of 6 inches by 8 inches, such as railroad ties, that have been treated to prevent decay, may also be used for protection. They shall be set in a manner like guard posts.

Curbing shall be a minimum of six inches high and fixed in place. Use of pre-cast curbs or wood timbers (as described immediately above) are acceptable. The curbing or timbers shall be at least as wide as the cabinet(s) being protected, where required. Curbs shall be at least three feet from any part of the container or exchange cabinet they are protecting and shall be placed to protect from each direction vehicles may be expected to approach. Curbs that are not part of a sidewalk shall be fastened in place by rebar or other steel rods that closely match the diameter of the holes provided for fixing the curbs in place and prevent displacement of the curb when bumped by wheels. Increased spacing may be required if vehicles with more overhang, such as school busses, RVs, or delivery vehicles, regularly back up to the curbing. Curbs shall be replaced if they deteriorate from the specified dimensions.

The *LP-Gas Code* specifies that VBP is required when vehicles travel or park within 10 feet of a container or dispenser. Instead of directly protecting the containers, you could place restraining curbs, timbers, or other physical barriers that prevent vehicles from coming within 10 feet of them.

Any other form of VBP that is not defined above must be submitted for review to LP.requests@ncagr.gov prior to installation and use. Questions may be sent to this email address or call the LP-Gas Engineer at 984-236-4750.