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Standard Specification for Automated Vehicular Gate Construction[1]

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1. Scope

1.1 This specification defines performance-based and prescriptive-based methods of evaluating various classes of gates that are used for vehicular traffic and are to be automated.

1.2 Gate types addressed in this specification include horizontal slide gates, horizontal swing gates, vertical lift gates, vertical pivot gates and overhead pivot gates.

1.3 Gate types not listed in this specification will be subject to any applicable provisions contained in this specification.

1.4 Automated vehicular gates that do not comply with this specification shall be subject to independent evaluation for compliance with UL 325.

1.5 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

2. Referenced Documents

2.1 *UL Standard:*

UL 325 Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems[2]

3. Terminology

3.1 *bottom retainer*—an angle or lip attached to the bottom horizontal member of a slide gate, usually used on a gate installed in a high security-related application, intended to protect a gate from crash-through related damage from vehicular impact.

3.2 *catcher*—see *receiver guide*.

3.3 *Class I Gate*—a gate intended for use in garages or parking areas associated with a residence of one to four single families.

3.4 *Class II Gate*—a gate intended for use in a commercial location or building such as a multi-family housing unit (five or more single family units), hotel, garages, retail store, or other building accessible by or servicing the general public.

3.5 *Class III Gate*—a gate intended for use in an industrial location or building such as a factory or loading dock area or other locations not accessible by or intended to service the general public.

3.6 *Class IV Gate*—a gate intended for use in a guarded industrial location or building such as a airport security area or other restricted access locations not servicing the general public, in which unauthorized access is prevented via supervision by security personnel.

3.7 *entrapment*—the condition of being caught or held in a position that increases the risk of injury.

3.8 *gate latch*—a manual mechanism that secures the gate in either the fully closed or fully open position.

3.9 *gate lock*—an electro-mechanical mechanism that locks the gate in either the fully closed or fully open position.

3.10 *positive stop*—a physical device that limits gate travel.

3.11 *protrusion*—an object less than 9 in.^{2} (5806 mm) of cross sectional area and permanently attached to the gate with a surface that extends beyond the extreme horizontal or vertical planes created by the gate structure members.

3.12 *receiver post*—a post to which a receiver guide is attached.

3.13 *receiver guide*—a device mounted to a post or other fixed object which provides lateral stability to a closed gate.

3.14 *vehicular horizontal slide gate*—a gate that slides in a horizontal direction and is intended for use at a vehicular entrance or exit to a drive, parking lot, or the like.

3.15 *vehicular horizontal swing gate*—a gate that swings in a horizontal arc in a horizontal plane and is intended for use at a vehicular entrance or exit to a drive, parking lot, or the like.

3.16 *vehicular overhead pivot gate*—a gate made in one rigid piece designed to close an entire opening at a vehicular entrance or exit to a drive, parking lot, or the like, where opening and closing is accomplished by pivoting the gate about an axis, with or without a horizontal track to guide the top of the gate.

3.17 *vehicular vertical lift gate*—a gate that moves in the vertical direction and is intended for use at a vehicular entrance or exit to a drive, parking lot or the like.

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[2] Available from Underwriters Laboratories (UL), 333 Pfingsten Rd., Northbrook, IL 60062-2096, http://www.ul.com.

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3.18 *vehicular vertical pivot gate*—a gate that moves in an arc in a vertical plane and is intended for use at a vehicular entrance or exit to a drive, parking lot, or the like.

3.19 *weight bearing exposed roller*—an exposed roller that supports weight from the gate.

4. General Requirements

4.1 Gates shall be constructed in accordance with the provisions given for the appropriate gate type listed in Sections 5 – 10.

4.2 Gates shall be designed, constructed and installed to not fall over more than 45 degrees from the vertical plane, when a gate is detached from the supporting hardware.

4.3 Gates shall have smooth bottom edges, with vertical bottom edged protrusions not exceeding 0.50 in. (12.7 mm) when other than the *Exceptions* listed in 4.8.

4.4 The minimum height for barbed tape shall not be less than 8 ft (2.44 m) above grade.

4.5 The minimum height for barbed wire shall not be less than 6 ft (1.83 m) above grade.

4.6 An existing gate latch shall be disabled when a manually operated gate is retrofitted with a powered gate operator.

4.7 A gate latch shall not be installed on an automatically operated gate.

4.8 Protrusions shall not be permitted on any gate.

Exceptions:

4.8.1 For all gates, vertical bottom edge protrusions not exceed 0.50 in. (12.7 mm) which shall be smooth on all surfaces with no sharp edges.

4.8.2 For all gates, gate locks and edge sensors shall not be considered protrusions.

4.8.3 Protrusions at the leading and trailing vertical gate edges shall not exceed 0.50 in. (12.7 mm), and shall be smooth on all surfaces with no sharp edges.

4.8.4 Top pickets and top decorative designs shall not be considered protrusions, provided they are in a vertical plane with respect to the gate. Protrusions extending outside the vertical plane shall be permitted provided such protrusions are located 7 ft (2.13 m) or more above grade.

4.8.5 For horizontal slide gates, gate locks, wheels and positive stops shall not be considered protrusions.

4.8.6 For horizontal slide gates, bottom retainers shall not be considered protrusions only when used in Class IV applications.

4.8.7 For vertical lift gates, gate locks, top pickets and top decorative designs shall not be considered protrusions.

4.8.8 For vertical lift gates, positive stops shall not be considered protrusions only when used at the top of gates.

4.8.9 For vertical pivot gates, gate locks shall not be considered protrusions.

4.9 Gates shall be designed, constructed and installed such that their movement shall not be initiated by gravity when an automatic operator is disconnected, in accordance with the following.

4.9.1 Vehicular horizontal slide gate. Shall not result in continuous, unimpeded movement in either lineal direction of its travel.

4.9.2 Vehicular horizontal swing gate. Shall not result in continuous, unimpeded movement in either direction along the arc of its path of travel.

4.9.3 Vehicular vertical lift gate. Shall be restrained from movement along the lineal path of its travel.

4.9.4 Vehicular vertical pivot gate. Shall be restrained from movement along the arc of its path of travel.

4.9.5 Vehicular overhead pivot gate. Shall be restrained from movement along the translational path of its travel.

4.10 For pedestrian access in the vicinity of an automated vehicular gate, a separate pedestrian gate shall be provided. The pedestrian gate shall be installed in a location such that a pedestrian shall not come in contact with a moving vehicular access gate. A pedestrian gate shall not be incorporated into an automated vehicular gate panel.

5. Specific Applications

5.1 Any non-automated gate that is to be automated shall be upgraded to conform to the provisions of this specification.

5.2 This specification shall not apply to gates generally used for pedestrian access and to vehicular gates not to be automated.

5.3 Any existing automated gate, when the operator requires replacement, shall be upgraded to conform to the provisions of this specification in effect at that time.

6. Vehicular Horizontal Slide Gates

6.1 The following provisions shall apply to Class I, Class II and Class III vehicular horizontal slide gates:

6.1.1 All weight bearing exposed rollers 8 ft (2.44 m), or less, above grade shall be guarded or covered.

6.1.2 All openings shall be designed, guarded, or screened from the bottom of the gate to the top of the gate or a minimum of 72 in. (1.83 m) above grade, whichever is less, to prevent a 2 ¼ in. (57 mm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position. The gate panel shall include the entire section of the moving gate, including any back frame or counterbalance portion of the gate.

6.1.3 A gap, measured in the horizontal plane parallel to the roadway, between a fixed stationary object nearest the roadway (such as a gate support post) and the gate frame when the gate is in either the fully open position or the fully closed position, shall not exceed 2 ¼ in. (57 mm). See Fig. 1.

Exception: All other fixed stationary objects greater than 16 in. (406 mm) from the gate frame shall not be required to comply with this section.

6.1.4 Positive stops shall be required to limit travel to the designed fully open and fully closed positions. These stops shall be installed at either the top of the gate, or at the bottom of the gate where such stops shall horizontally or vertically project no more than is required to perform their intended function.

6.1.5 All gates shall be designed with sufficient lateral stability to assure that the gate will enter the receiving guide

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