

Subject 325

July 6, 2018

SUMMARY OF TOPICS

The following changes in requirements to the Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems, UL 325, are being proposed:

- 1. Change to Introduction Scope**
- 2. Direct Plug-In Devices**
- 3. Removing Type AF and CF Wiring, and Editorial Revision to 15.1.5**
- 4. Proposal for Button Battery Requirements to be Included in UL 325, Reference to Horizontal Standard, UL 4200A**
- 5. Constant Pressure Override Capability for Gate Operators Using Portable Wireless Controls**
- 6. Barrier Arm Manual Release Exception**
- 7. Barrier Arm Pendulum Support**
- 8. Outdoor Use Clarification of Edge Sensor Testing**
- 9. Requirements for Lasers**
- 10. Swing Gate Entrapment Zone Definition and Instruction**
- 11. Edge Sensor Endurance Test Force Clarification**

STP BALLOTS AND ALL COMMENTS DUE: September 4, 2018

UL's goal is to have no interest category comprise more than one-third of the STP membership balance. To improve the current balance for STP 325, UL is looking for participants in the AHJ, Commercial/Industrial User, Consumer, General, Government, and Testing & Standards interest categories. Definitions for these interest categories are available on the Standards STP Internet site:

<http://ulstandards.ul.com/develop-standards/participation/interest-categories/>

If you are interested in applying for STP 325 membership or are aware of potential candidates for this STP, please contact the STP Project Manager, Amy.K.Walker@ul.com.

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~.

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1. Change to Introduction Scope

BACKGROUND

This topic was previously sent to the STP as part of a preliminary review on September 8, 2017 as Topic 1 and discussed at the November 15-16, 2017 STP meeting as Topic 15.

RATIONALE

Proposal submitted by: Brent Nichols, Picasso Gate

Regarding codes involving doors and door operators, the International Residential Code and the International Building Code are model codes that have superseded the BOCA National Building Code, the Standard Building Code and the Unified Building Code which are no longer published.

Reference to ASTM F2200 is needed because UL 325 is used in conjunction with that standard. Additionally, the International Residential Code, the International Building Code, and the International Fire Code are applicable from a design requirements standpoint because both UL 325 and ASTM F2200 are referenced in all of those model codes.

Vehicular gate systems are different from all other systems covered in UL 325 because of the widely varying site conditions typically encountered. Thus, there are many instances where UL 325 cannot be completely followed. Examples include a Class I application where security becomes a higher priority than entrapment protection, a pedestrian gate that cannot be installed in the vicinity of a vehicular gate, and a warning placard that cannot be placed on the site within view of a gate user. The proposed language clarifies that safety is not to be compromised and that coordination between the installer and gate operator manufacturer is needed because both safety and coordinated installations remain essential in preserving the terms and conditions of the labeled/listed operator even with site installation variations. The proposed language in proposed paragraph 1.4.2 should be included in all gate operator installation instructions, reflecting a "performance-based" requirement.

PROPOSAL

1.4 Doors and door operators intended for exit use, as defined in The National Fire Protection Association Life Safety Code, NFPA 101, and covered by these requirements are intended for installation in accordance with the International Residential Code and the International Building Code as applicable.

1.6 Vehicular gate operators are intended to be installed on gates that meet the requirements in ASTM F2200 and to other design requirements specific to the site installation which may be included in codes such as the International Residential Code, the International Building Code, and the International Fire Code as applicable.

Note from the project manager: For ease of review, only the changes to Table A.1 are being included as part of this proposal. The remainder of Table A.1 is unchanged.

Table A.1
Reference Standards

Ref.	Paragraph Number(s) where cited	Component or Subject	Applicable Standard(s) for U.S.	Applicable Standard(s) for Canada
<u>2A</u>	<u>1.4, 1.6</u>	<u>Residential Code</u>	<u>International Residential Code</u>	<u>None specified</u>
3	<u>1.4, 1.6</u>	Building Code	International Building Code (IBC)	None specified
<u>3A</u>	<u>1.6</u>	<u>Automated Vehicular Gate Construction</u>	<u>ASTM F2200, Standard Specification for Automated Vehicular Gate Construction</u>	<u>None specified</u>
<u>3B</u>	<u>1.6</u>	<u>Fire Code</u>	<u>International Fire Code</u>	<u>None specified</u>

2. Direct Plug-In Devices

RATIONALE

Proposal submitted by: Steve Kuscsik, UL LLC

Products within the scope of UL 325 have traditionally been powered via permanently-connected field wiring, or power supply cord with plug. A construction not anticipated by UL 325 is a direct plug-in unit, similar to what might be seen for a Class 2 power supply or a plug-in air freshener.

These requirements in this proposal address the specific construction and performance requirements for these devices when used in UL 325 applications. The requirements are adopted from UL 1310, the Standard for Class 2 Power Units, and UL 73, the Standard for Motor-Operated Appliances, with specific modification of the requirements to address use in a garage or outdoors.

These requirements represent present practice.

13.1.1 An appliance shall have provision for permanent connection of a wiring system unless otherwise noted in either 13.3, 13.4, 13.5, 13.7, ~~or 13.8,~~ or 13.9.

13.9 Direct plug-in accessories

13.9.1 An accessory device, such as an unattended operation control accessory, configured for direct plug-in instead of power supply cord or permanent wiring, shall comply with Supplement SB.

SUPPLEMENT SB - REQUIREMENTS FOR DIRECT PLUG-IN DEVICES

SB1 Construction

SB1.1 The integral blades, including the grounding pin if applicable, of a direct plug-in unit shall also comply with the construction requirements (e.g. dimensions, spacings, and the relative arrangement of the blades) in the Standard for Wiring Devices - Dimensional Specifications, ANSI/NEMA WD 6. For example, a two wire, direct plug-in unit for use on a nominal 125 V, 15 A circuit is to comply with the plug construction requirements in the Plug and Receptacle 125 volts, 15 amperes, 2 pole, 2 wire figure, Figure 1-15 of the Standard for Wiring Devices - Dimensional Specifications, ANSI/NEMA WD 6.

SB1.2 When evaluated in accordance with SB1.3, an appliance having integral blades for direct insertion into a receptacle shall comply with the specifications in Table SB1.1.

Table SB1.1
Specifications for plug-in appliances

<u>Algebraic/Quantity</u>	<u>Maximum acceptable value</u>	
<u>W</u>	<u>7.78 N</u>	<u>(28 ozf)</u>
<u>WY/Z</u>	<u>13.34 N</u>	<u>(48 ozf)</u>
<u>WY/S</u>	<u>13.34 N</u>	<u>(48 ozf)</u>
<u>WX</u>	<u>0.56 N</u>	<u>(80 ozf-in)</u>

In this table, the variables are defined as follows.

W is the weight of the appliance in N (ozf) and is evaluated as a force equal to the appliance mass in kg (oz) as measured on a scale or balance.

Y is the distance, in mm (in), illustrated in Figure SB1.1.

Z is the shorter distance in mm (in), of Z₁ or Z₂ illustrated in Figure SB1.1.

S is the shorter distance in mm (in), of S₁ or S₂ illustrated in Figure SB1.1.

X is the longer distance in mm (in), of X₁ or X₂ illustrated in Figure SB1.1.

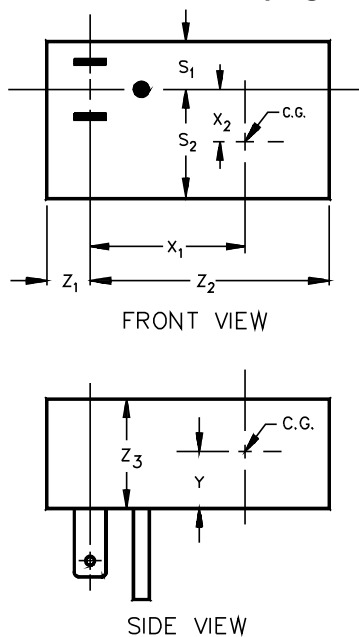
SB1.3 Compliance with SB1.2 and Table SB1.1 shall be determined as follows:

- a) Any attached cord is to be cut off at the enclosure, or at the strain-relief means when the means extends outside the enclosure.
- b) A directly-mounted accessory is to be in place.
- c) A removable part is to be in place.
- d) A mounting tab is not to be included in the measurement of linear dimensions for the purpose of determining moments.

SB1.4 When the integral blades are inserted into a parallel-blade duplex receptacle, no part of the device, including a mounting tab, shall interfere with the full insertion of an attachment plug into the adjacent receptacle.

Exception: A device is not required to comply with this requirement when the device covers the adjacent receptacle completely.

Figure SB1.1
Dimensions of a direct plug-in unit



C.G. = Center of Gravity

CP100

SB1.5 A device shall not be supplied with a mounting tab unless all the following conditions are met:

- a) The device is of a type such that semi-permanent mounting does not introduce a risk of fire or electric shock;
- b) The device is intended for use on a 15-A, 125-V receptacle;
- c) A screw is supplied and constructed so as to secure the mounting tab of the device to a parallel-blade, duplex receptacle that has provisions for a center screw as shown in Figure SB1.2;
- d) For a device without a grounding pin, the mounting tab is constructed so that the device is able to be mounted to both grounding and non-grounding receptacles; and
- e) The marking specified in SB7.1 is supplied.

SB1.6 The enclosure of a unit shall be capable of being gripped for removal from the receptacle to which it is connected, and the perimeter of the face section from which the blades project shall not be less than 5.1 mm (0.20 in) from any point on either blade. In order to determine compliance with this requirement for units with rounded edges, the perimeter of the face section is considered to be the point at which the articulate probe is able to access as shown in Figure SB1.3.

Exception: For a tab-mounted appliance intended for use with a fixed system, the perimeter of the face section shall not be less than 6.4 mm (.25 in) from any point on either blade.

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Figure SB1.2
Parallel duplex receptacle

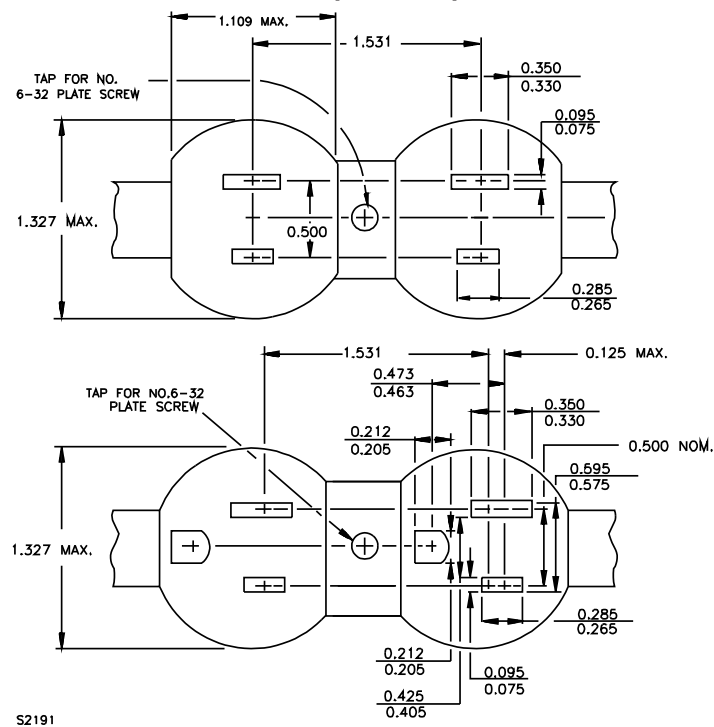
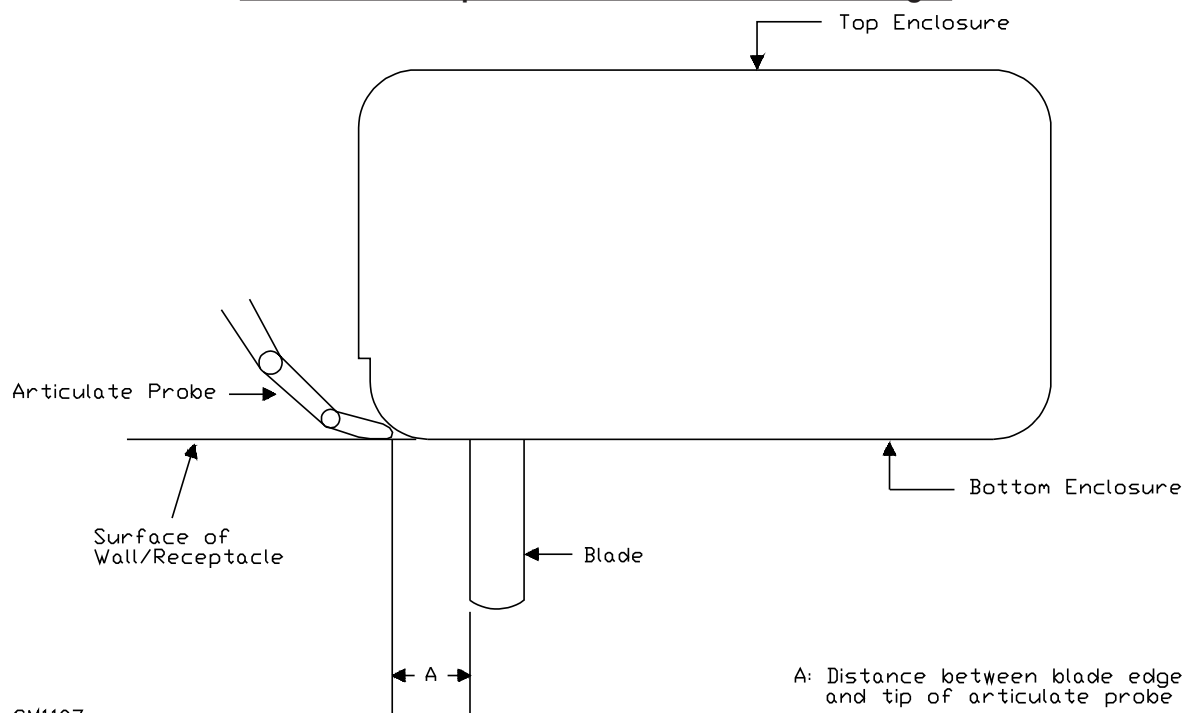


Figure SB1.3
Determination of perimeter of units with rounded edges

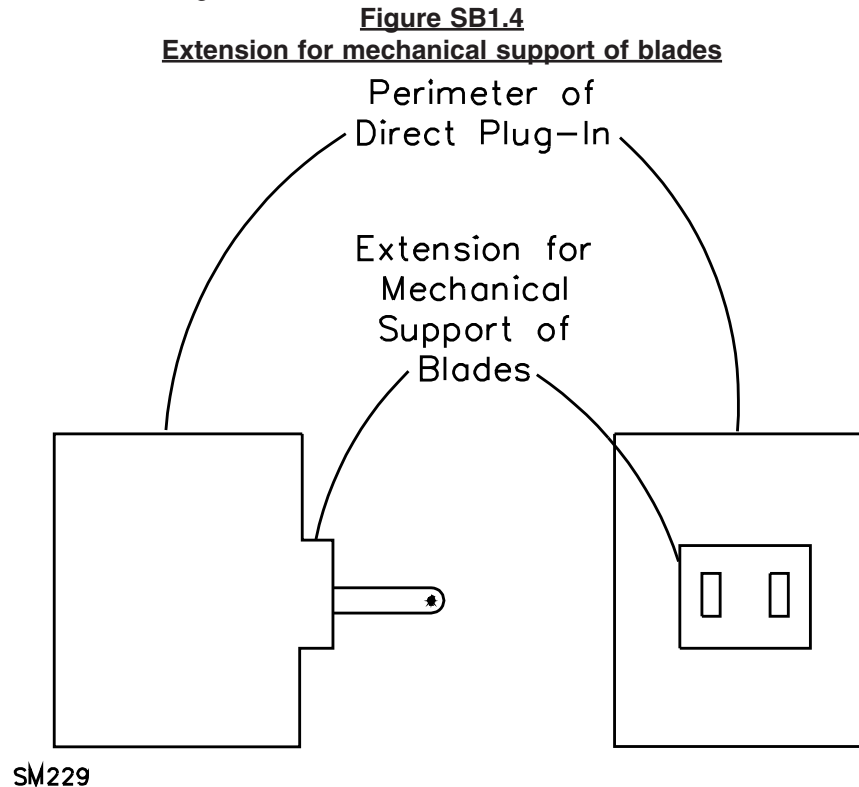


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SB1.7 With reference to SB1.6 for an extension from the face for mechanical support of the blades provided as shown in Figure SB1.4, the point of measurement shall be determined by application of the articulate probe, as shown in Figure SB1.4.



SB2 Direct Plug-In Blade Secureness Test

SB2.1 Each blade and the grounding pin, if provided, shall withstand a direct pull of 89 N (20 lbf) for 2 minutes without loosening. The two blades tested together shall also withstand a direct pull of 89 N for 2 minutes without loosening.

SB2.2 To determine whether a unit complies with the requirement in SB2.1, it is to be supported on a horizontal steel plate with the blades projecting downward through a hole having a diameter sufficient only to permit the blades to pass through it. A 9.1-kg (20-lb) weight is to be supported by each blade and the grounding pin, if provided, in succession and then by the two blades tested together. In a unit of nonrigid construction – for example, a unit of soft molded material – the displacement of either blade shall not exceed 2.4 mm (3/32 in) measured 2 minutes after removal of the weight.

SB3 Direct Plug-In Security of Input Contacts Test

SB3.1 The plug-in blades and the grounding pin shall not loosen to a degree that introduces a risk of fire or electric shock as a result of the tests described in SB3.2 and SB3.3.

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SB3.2 A unit is to be rigidly supported in the blades-up position. Each blade, in turn, is to be individually subjected to a force of 133.4 N (30 lbf) applied gradually along the longitudinal axis of the blade in a direction towards the face of the unit. The 133.4 N is to be maintained for 1 minute.

SB3.3 The sample used in SB3.2 is to be retested by being positioned as described in SB3.2 and subjecting both blades and the grounding pin, if provided, in combination, to a single applied force of 177.9 N (40 lbf) for 1 minute.

SB4 Abuse Tests – Direct Plug-In Units

SB4.1 General

SB4.1.1 The enclosure of a unit shall withstand the applicable mechanical abuse tests described in SB4 – SB6 without:

- a) Making live parts which pose a risk of electric shock accessible as specified in Accessibility of Uninsulated Live Parts or Film-Coated Wire, Section 10; or
- b) Producing any other condition that results in a risk of fire or electric shock as described in SB4 – SB6.

SB4.2 Impact on direct plug-in units

SB4.2.1 Three samples are to be subjected to this test. Each unit is to be dropped (free fall) three times in succession from a height of 914 mm (3 ft) onto a hardwood surface as described in SB4.2.2. Each of the drops is to result in the impact occurring at a point on the unit different from the impact points on the other drops. The blades shall not be subjected to a direct impact.

Exception: If the manufacturer so elects, fewer samples may be used in accordance with Figure SB4.1, wherein each series consists of three drops of the sample. The overall performance is acceptable upon completion of any one of the procedures represented in the figure.

SB4.2.2 The hardwood surface mentioned in SB4.2.1 is to consist of a layer of nominal 25.4-mm (1-in) thick tongue-and-groove oak flooring [actual size 19.1 by 57.2 mm (3/4 by 2-1/4 in)] mounted on two layers of nominal 19.1-mm (3/4-in) thick plywood. The assembly is to rest on a concrete floor or an equivalent nonresilient floor during the test.

SB4.2.3 After completion of the drop test specified in SB4.2.1, each sample is to be subjected to the Dielectric Voltage-Withstand Test, Section 47, and to an examination for evidence of development of a risk of fire or electric shock.