

Item No. **865S**
Non-Reflectorized Traffic Buttons

865S.1 Description

This item shall govern furnishing of "Non-Reflectorized Traffic Buttons" complete in place in conformity with details indicated on the Drawings.

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text the inch-pound units are given preference followed by SI units shown within parentheses.

865S.2 Submittals

The submittal requirements of this specification item include:

- A. Specific applications and color of traffic buttons.
- B. Specific manufacturer with test results and technical specifications for proposed traffic buttons.
- C. Manufacturer's recommendations for surface preparation, cleaning, placement temperatures and installation instructions.
- D. Applicable epoxy system and adhesive types [867S.5], adhesive components and mixing recommendations.

865S.3 Materials

The outer surface of the button shall be round and dome-shaped with a uniform curvature and shall conform to City of Austin Standard Detail 865S-1, Traffic Buttons (Non-Reflectorized)". The topsides of the buttons shall be smooth and free from surface irregularities, pits, cracks, checks, chipping, discoloration and any other defects, which adversely affect appearance and application.

The bottom surface of the markers shall be of a design for adhesion with epoxy adhesives conforming to Item No. 867S, "Epoxy Adhesive" and shall be rough textured, free from gloss, glaze or any other substance that may reduce its bond to the adhesive. The buttons shall be made of a ceramic material meeting the following specifications:

A. Glaze Thickness

The glazed surface shall have a mean thickness of not less than 0.005 inch (125 μm) when measured not closer than 1/4 inch (6.5 millimeters) from the edge of the button. The glaze thickness shall be measured on a fractured edge of the button to the nearest 0.001 inch (25 μm) by a calibrated scale microscope.

B. Water Absorption

The water absorption of the button shall not exceed 1.0 percent of the original dry weight (mass) when tested in accordance with ASTM Designation: C 373.

C. Autoclave Test

The glazed surface of the button shall not craze, spall or peel when subjected to one cycle of the Autoclave Test at 250 psi (1 725 kPa) in accordance with the procedures of ASTM Designation: C 424.

D. Color

The color of the buttons shall be determined by visual comparison with calibrated standards having C.I.E. Chromaticity Coordinated limits determined in accordance with Federal Methods of Tests TT-T-141, Method 4252 falling within an area having the following corner points:

	1		2		3		4		Brightness
	x	y	x	y	x	y	x	y	(%MgQ)
White	.290	.316	.310	.296	.330	.321	.310	.342	80 min
Yellow	.453	.456	.472	.423	.544	.456	.516	.484	40 min

865S.4 Testing

Testing will be in accordance with the TxDOT manual of Testing Procedures. Results of appropriate tests shall be furnished by the Contractor when required by the Engineer or designated representative. Applicable tests shall include the following:

- Tex-611-J (adhesion requirements)
- Federal methods TT-T141A, Method 4252 (color requirements)
- ASTM Designation: C 373 (water absorption)
- ASTM Designation: C 424 (autoclave test)

The Engineer or designated representative shall inspect and reject any buttons that are cracked, chipped, or otherwise damaged prior to acceptance.

865S.5 Construction Method

The Contractor shall use a crew experienced in the work of installing traffic buttons and in the necessary traffic control for such operations on the roadway surface and shall supply all the equipment, personnel, traffic control and materials necessary for the placement of the traffic buttons as indicated on the Drawings or as directed by the Engineer or designated representative. All work shall conform to the current edition of the Texas Manual of Uniform Traffic Control Devices (MUTCD), The City of Austin Transportation Criteria Manual and Standard Detail 865S-1.

The traffic buttons shall be placed in accordance with the Drawings or as directed by the Engineer or designated representative. The portion of the highway surface to which the button is attached by the adhesive shall be prepared by any method approved by the Engineer or designated representative in order to be free of dirt, curing compound, grease, oil, moisture, loose or unsound pavement and any other material which would adversely affect the bond of the adhesive. The wet epoxy shall be applied in sufficient quantity so as to insure the following:

- A. 100 percent of the bonding area of the button shall be in contact with epoxy.
- B. The button itself shall not contact the pavement but shall sit on the epoxy "cushion".
- C. When the button is pressed onto the pavement, adhesive shall be forced out around its entire perimeter.

Unless indicated otherwise on the Drawings, the epoxy adhesive shall be machine mixed and applied in accordance with the manufacturer's recommendations.

Any excess adhesive or other foreign material on or in front of the reflective face(s) of the button shall be removed so that reflectivity will not be impaired.

When the project is complete, the button shall be firmly bonded to the pavement, lines formed by the buttons shall be true and the entire installation shall present a neat appearance. Any individual button placed that does not conform to the requirements of this specification and/or plans shall be removed and replaced with buttons conforming to these requirements at the Contractor's expense.

865S.6 Measurement

Non-Reflectorized Traffic Buttons will be measured per each, complete in place.

865S.7 Payment

Payment will be made at the unit bid price per each traffic button of the color and material specified. The price shall include full compensation for all work performed and all materials furnished in constructing, transporting and placing the buttons.

Payment will be made under:

Pay Item No. 865S: Non-Reflectorized Traffic Buttons; _____ in color of _____ material -
Per Each.

End

SPECIFIC CROSS REFERENCE MATERIALS	
Specification Item 865S "Non Reflectorized Traffic Buttons"	

City of Austin Standard Details

<u>Designation</u>	<u>Description</u>
865S-1	Traffic Buttons (Non-Reflectorized)

City of Austin Standard Specifications

<u>Designation</u>	<u>Description</u>
Item No. 867S	Epoxy Adhesive

Texas Department of Transportation: Manual of Testing Procedures

<u>Designation</u>	<u>Description</u>
Tex 611-J	Adhesion Test For Traffic Buttons, Markers, and Jiggle Bars

SPECIFIC CROSS REFERENCE MATERIALS -Continued	
Specification Item 865S "Non Reflectorized Traffic Buttons"	

American Society for Testing and Materials (ASTM)

<u>Designation</u>	<u>Description</u>
C 373	Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity of Fired Whiteware Products
C 424	Test Method for Craze Resistance of Fired Whitewares by Autoclave Treatment

Federal Specifications

<u>Designation</u>	<u>Description</u>
Federal methods TT-T141A, Method 4252	(color requirements)

City of Austin Transportation Criteria Manual

<u>Designation</u>	<u>Description</u>
Section 8	Traffic Control

State of Texas Manual on Uniform Traffic Control Devices for Streets and Highways

<u>Designation</u>	<u>Description</u>
Part III	Markings
Part VI	Traffic Controls for Street and Highway Construction, Maintenance, Utility and Incident Management Operations
Part VI, Article D	Markings
Part VI, Article F	Control of Traffic Through Work Areas

RELATED CROSS REFERENCE MATERIALS
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Specification Item 865S "Non Reflectorized Traffic Buttons"

City of Austin Standard Specifications

<u>Designation</u>	<u>Description</u>
Item No. 873S	Raised Pavement Markers
Item No. 874S	Eliminating Existing Pavement Markings and Markers
Item No. 875S	Pavement Surface Preparation For Markings

Texas Department of Transportation: Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges

<u>Designation</u>	<u>Description</u>
Item No. 672	Raised Pavement Markers
Item No. 677	Eliminating Existing Pavement Markings and Markers
Item No. 678	Pavement Surface Preparation For Markings