



MEMORANDUM

TO: District Engineers

FROM: Gregg A. Freeby, P.E., Director
Bridge Division

Carol T. Rawson, P.E., Director
Traffic Operations Division

SUBJECT: Revised Traffic Signal Pole Standards

Gregg A. Freeby, P.E. **DATE:** January 4, 2012

Carol T. Rawson, P.E.

The Bridge Division (BRG), with assistance from the Traffic Operations Division (TRF), has substantially revised the entire Traffic Signal Pole Standards Collection to address needed updates in material specifications and make corrections and improvements to details and notes in response to input from industry regarding fabrication practices and capabilities.

Included in the revised standards collection is a new sheet, MA-DPD-12, Mast Arm Damper Plate Details, which is intended to standardize the commonly employed vibration mitigation device to conform it to the size and position on the mast arm that has been recommended by past TxDOT sponsored research to be most effective.

Listed below under each standard sheet designation are some of the changes made to the sheets:

SP-80(1)-12

- Eliminated portion of note 1 specifying connection bracket option A for Types II and III Traffic Signal Arms for Type C poles;
- Revised and moved MATERIALS table to sheet SP-80(2)-12;
- Renumbered notes, as needed.

SP-80(2)-12

- Eliminated inapplicable 5/16" weld size from pole to base plate socket connection;
- Added penetration requirements for pole seam weld;
- Added arm coupling details;
- Added revised MATERIALS table from sheet SP-80(1)-12 and associated notes;
- Revised Cambridgeshire Guided Busway (CGB) Connector note to clarify that threaded couplings are to be provided;
- Renumbered notes, as needed.

SP-100(1)-12

- Eliminated portion of note 1 specifying connection bracket option A for Types II and III Traffic Signal Arms for Type C poles;
- Revised and moved MATERIALS table to sheet SP-100(2)-12;
- Renumbered notes, as needed.

SP-100(2)-12

- Eliminated inapplicable 5/16" weld size from pole to base plate socket connection;
- Added penetration requirements for pole seam weld;
- Added arm coupling details;
- Added revised MATERIALS table from sheet SP-100(1)-12 and associated notes;
- Revised CGB Connector note to clarify that threaded couplings are to be provided;
- Renumbered notes, as needed.

SMA-80(1)-12

- Removed Vibration Warning note;
- Revised CGB Connector note to clarify that threaded couplings are to be provided;
- Eliminated note 4 specifying connection bracket option A for Types II and III Traffic Signal Arms, and renumbered notes;
- Revised the General Notes, adding references to Specification Items 686, 445, 441 and make other changes;
- Renumbered notes, as needed.

SMA-80(2)-12

- Added expanded version of the Vibration Warning note originally shown on SMA-80(1)-99;
- Removed Options A and B for Bracket Assembly Details, providing more generic language for Option C (text "Option C" has been removed from description);
- Added penetration requirements for pole seam weld;
- Renumbered notes, as needed.

SMA-100(1)-12

- Removed Vibration Warning note;
- Revised CGB Connector note to clarify that threaded couplings are to be provided;
- Eliminated note 4 specifying connection bracket option A for Types II and III Traffic Signal Arms, and renumbered notes;
- Revised the General Notes, adding references to Specification Items 686, 445, 441 and make other changes;
- Renumbered notes, as needed.

SMA-100(2)-12

- Added expanded version of the Vibration Warning note originally shown on SMA-100(1)-99;
- Removed Options A and B for Bracket Assembly Details, providing more generic language for Option C (text "Option C" has been removed from description);
- Added penetration requirements for pole seam weld;
- Renumbered notes, as needed.

DMA-80(1)-12

- Removed Vibration Warning note;
- Revised CGB Connector note to clarify that threaded couplings are to be provided;
- Revised the General Notes, adding references to Specification Items 686, 445, 441 and make other changes;
- Renumbered notes, as needed.

DMA-80(2)-12

- Added expanded version of the Vibration Warning note originally shown on DMA-80(1)-99;
- Removed Options A and B for Bracket Assembly Details, providing more generic language for Option C (text "Option C" removed from description);
- Added penetration requirements for pole seam weld;
- Renumbered notes, as needed.

DMA-80(3)-12

- Eliminated note 1 specifying connection bracket option A for Types II and III Traffic Signal Arms, and renumbered notes;
- Renumbered notes, as needed.

DMA-100(1)-12

- Removed Vibration Warning note;
- Revised CGB Connector note to clarify that threaded couplings are to be provided;
- Revised the General Notes, adding references to Specification Items 686, 445, 441 and make other changes;
- Renumbered notes, as needed.

DMA-100(2)-12

- Added expanded version of the Vibration Warning note originally shown on DMA-100(1)-99;
- Removed Options A and B for Bracket Assembly Details, providing more generic language for Option C (text "Option C" removed from description);
- Added penetration requirements for pole seam weld;
- Renumbered notes, as needed.

DMA-100(3)-12

- Eliminated note 1 specifying connection bracket option A for Types II and III Traffic Signal Arms, and renumbered notes;
- Renumbered notes, as needed.

MA-C-12

- Revised MATERIALS table and notes;
- Replaced 1 ½" dia. wire outlet hole shown on bottom of clamp-on arm details at unspecified distance from clamp with 1 ½" threaded coupling located at 8" from face of clamp to receive CGB connector.

MA-C(ILSN)-12

- Revised TABLE OF DIMENSIONS for ILSN Support Arm Clamp-on table and CLAMP-ON DETAIL 1 and added an ILSN ARM COUPLING DETAIL.
- Revised wording of description of hole shown in clamp-on arm details at bottom of arm 8" from face of clamp to reflect the use of a $\frac{3}{4}$ " dia. threaded coupling for conduit connector.

MA-D-12

- Eliminated inapplicable 5/16" weld size from pole to base plate socket connection;
- Added penetration requirements for seam weld;
- Labeled detail of top portion of pole showing Internally Illuminated Street Name Sign (ILSN) clamp as Detail C and renamed details and sections in alpha order from top to bottom and left to right.

TS-FD-12

- Revised anchor bolt assembly details to,
 - a) eliminate lock washer between flat washer and top template;
 - b) specify minimum top and bottom template thicknesses of $\frac{1}{4}$ " and (Bolt Dia.)/4, respectively;
 - c) specify minimum galvanized length of top portion of anchor bolts;
 - d) require double nuts for anchor bolt connection to bottom template.
- Removed INSTALLATION PROCEDURE for anchor bolts;
- Added note requiring that anchor bolts be oriented in an orthogonal way with the fixed arm to ensure that two bolts are in tension under dead load;
- Removed note on electrical grounding of rebar cage in elevation view of FOUNDATION DETAILS, retaining the identical note given in the top view of the foundation;
- Updated the portion of the General Notes specifying anchor bolts materials, installation and galvanization requirements.

LUM-A-12

- Revised MATERIALS table and notes;
- Revised luminaire attachment slope angle and tolerance;
- Revised General Notes increasing assumed luminaire Effective Projected Area (EPA) from 1.5 to 1.6 sq. ft. and decrease assumed luminaire weight from 75 to 60 lbs.
- Revised General Notes to remove references to Items 686, 445 and 441.

CFA-12

- Revised General Notes to update material specifications, to reference MA-C standard for materials and fabrication specifications, to reference Item 445 in lieu of the American Society for Testing and Materials (ASTM) galvanizing specifications, and to update assumed luminaire size and weight.

LMA(1)-12 thru LMA(5)-12

- Made extensive revisions and reorganization of notes and details (adding content that expanded the standard from 4 to 5 sheets in length) including but not limited to the following:

- a) Eliminated Vibration Warning note from the standard because the pole has been explicitly designed for fatigue;
- b) Revised CGB Connector note to clarify that threaded couplings are to be provided;
- c) Revise General Notes on sheet LMA(1)-12, adding references to Items 686, 445, 441 and providing a table of equivalent dead load and wind load EPA for attachments in lieu of the long paragraph previously listing these design assumptions on sheet LMA(1)-01.
- d) Revised and relocated MATERIALS table;
- e) Removed Options A and B for Bracket Assembly Details, providing more generic language for Option C (text "Option C" removed from description);
- f) Incorporated details from MA-C and MA-D sheets to make the LMA-12 more of a stand alone set of details and to accommodate the revision noted in item c, below;
- g) Revised location of handhole from above to below centerline of the fixed mast arm within the built-up box with an optional J hook to accommodate access;
- h) Revised orientation of seam weld in the pole, added a second permissible seam weld 180 degrees away, and added penetration requirements for seam welds;
- i) Added note 11 to stipulate deburr holes can be used for drainage and wire access and provided an additional paragraph in General Notes requiring that the 2 1/2" dia. hole in the pole mounting plate to be aligned with the 4" dia. hole in the pole for wiring access or drainage.
- j) Revised anchor bolt assembly details to,
 - eliminate lock washer between flat washer and top template;
 - specify minimum top and bottom template thicknesses of 1/4" and (Bolt Dia.)/4, respectively;
 - specify minimum galvanized length of top portion of anchor bolts;
 - require double nuts for anchor bolt connection to bottom template.
- k) Revised General Notes on sheet LMA(3)-12 to require shop drawing submission of box-type connection between pole and fixed mounting arm;
- l) Revised CLAMP-ON CONNECTION details and included a TABLE OF DIMENSIONS for ILSN Support Arm Clamp-on and an ILSN ARM COUPLING DETAIL.
- m) Eliminated note specifying connection bracket option A for Types II, III, and IV Traffic Signal Arms;
- n) Numbered notes in sequence throughout all sheets.

The standard sheets can be found at the following web address:

<http://www.txdot.gov/insdot/orgchart/cmd/cserve/standard/toc.htm>

The sheets will be applicable to all new construction projects beginning with the June 2012 letting.

If you have any questions or need additional information concerning these standard details, please contact Tim Bradberry, Bridge Division, at (512) 416-2179 or Michael Chacon, Traffic Operations Division, at (512) 416-3120.

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