

# Design Standards Letter

**Letter Number: D-1995-05**

**Letter Date: 07/24/1995**

**Effective Date: 07/21/1995**

**Section/Plan No.: D8-01, D8-02**

**Subject: Revisions to the English versions and new Metric sections of the Design Division's Policy, Procedure and Design Manual**

## Body

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Attached are copies of revisions to the English versions and new Metric sections of the Design Division's Policy, Procedure and Design Manual. These revised and new sections are in a one-column format. The revisions are summarized as follows.

**Contents, Volume II. Revision date changed to 7-21-95.**

**Revision dates for Sections 8-01 and 8-02 are changed to 7-21-95.**

**Sections 8-01.2(4) (a) thru (c), 8-01.4(9) (a) thru (c), 8-01.4(10), 8-01.4(12) (a) & (b), 8-01.6(1) (a) & (b), 8-02.6(1) (a) thru (d), 8-02.7(2) (a) & (b), 8-02.8(2) (a) thru (c), 8-02.14(3), 8-02.17(5) (a) & (b) and 8-02.17(6) are added and other sections renumbered as needed. Sections 8-01.5(4) (a) & (b) and 8-02.8(3) are deleted and other sections renumbered as needed. Figures 8-01.6, 8-01.9, 8-01.10, 8-01.16, 8-02.7, and 8-02.22 are renamed. Figures 8-01.18 thru 8-01.21 and 8-02.23 thru 8-02.25 are added.**

**Sections 8-01 and 8-02, General. Many sections are clarified with minor revisions. Revision dates changed to 7-21-95.**

**Section 8-01.4(2) (b), Average Maintained Intensity. Added information for intensities in intersections and interchanges.**

**Section 8-01.4(8), Control Station and Power Supply. This section reflect the use of base mounted control stations with separate power supplies.**

**Section 8-01.4(9), Circuiting. Added information on system voltage, conduit and cable.**

**Section 8-01.4(10), Pull boxes and Cable Splicing. Added new guidelines for pull pull boxes and cable splicing.**

**Section 8-01.5(4), Cables and Conduit. Added new guidelines for cables and conduit.**

**Section 8-01.5(7), Control Stations and Power Supplies. Added new guidelines for control stations and power supplies.**

**Section 8-01.6(1), Iso-Footcandle Diagram. Added information for continuous and basic lighting.**

**Section 8-01.7(1), Voltage Drop and Wire Sizes. Revised formulas to conform to current National Electrical Codes and added maximum wire sizes. Revised the example problem to reflect changes in formulas. Added an example of a line loss load calculation.**

**Section 8-01 Figures, General. Added notes to figures 8-01.1 thru 8-01.5 for clarification. Revision dates are changed to 7-21-95.**

**Figure 8-01.4, Typical Basic Lighting Plan for Signalized Interchanged and Channelized Intersections Using Divisional Islands. Revised light pole locations to be consistent with direct reflectance lighting. Revision date is changed to 7-21-95.**

**Figure 8-01.6, Typical Basic Lighting Plan for Unchannelized / Unsignalized Intersections. Revised light pole locations and added maximum pavement widths for each configuration. Revision date is changed to 7-21-95.**

**Figure 8-01.9, Continuous Lighting - Luminaires At 45 Ft. Mounting Height One Staggered Across Roadway. Deleted the luminaire spacing chart. This new figure shows luminaire types and maximum spacing for continuous lighting using a staggered configuration. Revision date is changed to 7-21-95.**

**Figure 8-01.10, Continuous Lighting - Luminaires At 45 Ft. Mounting Height One Side of Roadway. Deleted the average maintained intensity charts. This new figure shows luminaire types and maximum spacing for continuous lighting using a one-side configuration. Revision date is changed to 7-21-95.**

**Figure 8-01.11, Electrical Component Tables. Removed unneeded tables. Added wire sizes to several tables. Revised Table 8-01.1 to reflect current National Electrical Codes. Revision date is changed to 7-21-95.**

**Figure 8-01.16, Highway Lighting Symbols For Plans. Revised some symbols to be consistent with traffic signal symbols and added some symbols. Revision date is changed to 7-21-95.**

**Figure 8-01.18, Luminaire Locations for Lighting Island Noses. Added this figure to aid in determining luminaire locations, sizes and mounting heights for proper lighting of island noses. New figure date 7-21-95.**

**Figure 8-01.19, Limits of Silhouette Discernment Lighting. Added this figure to aid in designing intersection lighting. New figure dated 7-21-95.**

**Figure 8-01.20, Limits of Direct Reflectance Lighting. Added this figure to aid in designing intersection lighting. New figure dated 7-21-95.**

**Figure 8-01.21, Basic Lighting at Ramps. Added this figure to aid in locating light poles in ramp gore areas. New figure dated 7-21-95.**

**Section 8-02.3, Warrants. Added requirements for warrant submittals.**

**Section 8-02.7(2) (b), 170 Controllers. Added information of type 170 controllers.**

**Section 8-02.8(2), Coordination Interface. Rewrote this section to reflect current signal equipment.**

**Section 8-02.9, Meaning and Application of Signal Indications. Added information throughout this section for clarification.**

**Section 8-02.10, Location of Signals and Appurtenances. Added information throughout this section for clarification.**

**Section 8-02.10(5), Service Pole and Power Supply Assembly. This section reflects new guidelines for power supply types and locations.**

**Section 8-02.11(1), Inductive Loop Detector. Revised this section for clarification.**

**Section 8-02.11(3), Magnetometer / Microloop Detectors. Added information on these type of detectors.**

**Section 8-02.12, Pull Boxes. This section reflects new guidelines for pull boxes.**

**Section 8-02.13(1), Conduit Size. Added guidelines for conduit sizing. Moved the table in this section to Figure 8-02.23.**

**Section 8-02.14, Control and Power Cable. Simplified the example to determine voltage drop. Moved the table at the end of the section to Figure 8-02.23.**

**Section 8-02.15, Circuit Breaker Trip Rating. Simplified the methods for determining amperage requirements. Revised the tables in this section and moved them to Figure 8-02.22.**

**Section 8-02.16, Cable Size From Power Supply to Controller. Simplified the methods for determining amperage requirements. Revised the tables in this section and moved them to Figure 8-02.22.**

**Section 8-02.17(5), Temporary Traffic Signal Installations. Added guidelines for wood pole and steel pole span wire signals.**

**Section 8-02.17(6), Temporary Signals During Upgrades. Added this section.**

**Figure 8-02.5, Traffic Signal Symbols. Revised some of the symbols and added several new signs. Sign numbers are designated with an "S" to prevent confusion with TCP signs. Revision date is changed to 7-21-95.**

**Figure 8-02.7, Louvers and Tunnel Visors - Angle of Complete Obscurity. Units are shown on the grids. Revision date is changed to 7-21-95.**

**Figure 8-02.9, Quantity Sheet, D-37A. The D-37A sheet shows quantities for span wire signals and pull box drain types. Other minor revisions are made. Revision date is changed to 7-21-95.**

**Figure 8-02.10, Quantity Sheet, D-37B. The D-37B sheet shows closed loop interconnect cable. Revision date is changed to 7-21-95.**

**Figure 8-02.11, Quantity Sheet, D-37C. The D-37C sheet shows information for type 170 controllers used in Districts 4 and 8 and other additional information. Revision date is changed to 7-21-95.**

**Figure 8-02.22, Wire Properties, Power Requirements and Cable and Breaker Sizing. Moved revised tables from the text to this figure. Revision date is changed to 7-21-95.**

**Figure 8-02.23, Cable and Conduit Data. Moved revised tables from the text to this figure. Revision date is changed to 7-21-95.**

**Figure 8-02.24, Typical Layout for Induction Loop Detectors. Added this figure to aid in detector design. New figure dated 7-21-95.**

**Figure 8-02.25, Typical Layout for Magnetometer or Microloop Detectors. Added this figure to aid in detector design. New figure dated 7-21-95.**

**If you have any question, please call Rick Bennett at 314-751-1409.**

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**Attachments**