WHATS NEW SINCE 2011

2545.1B & 2565.1B QUALIFICATION OF WORKERS

The provisions of 1802 are hereby supplemented with the following:

Signal and Lighting Certification: When the Contractor is working on Traffic Signal System(s) or Lighting System(s), provide at least one Contractor employee on the site who is MnDOT Signal and Lighting Certified to perform or directly supervise the installation and testing of any MnDOT Traffic Signal System or Lighting System.

MnDOT’s Office of Traffic, Safety, and Technology (OTST) provides Signal and Lighting Certification. For information contact OTST at phone number (651) 234-7055.

“2016 SPEC BOOK”

THE NEW 2016 SPEC BOOK IS NOW THE GOVERNING DOCUMENT ON ALL MnDOT SIGNAL AND LIGHTING PROJECTS

MANY ITEMS THAT WERE IN THE MnDOT SPECIAL PROVISIONS FOR THE 2014 SPEC BOOK HAVE BEEN MOVED TO THE NEW 2016 SPEC BOOK

THE STANDARD SPECIFICATIONS FOR CONSTRUCTION WILL BE UPDATED EVERY TWO YEARS. NEXT UPDATE 3RD QUARTER 2017

THE SPEC BOOK RELEASED LATE 2017 WILL BE THE 2018 STANDARD SPECIFICATIONS FOR CONSTRUCTION

“2016 SPEC BOOK”

THE 2016 SPEC BOOK WRITING STYLE IS PLAIN LANGUAGE

ACTIVE VOICE/IMPERATIVE MOOD

COMPLETE, CORRECT, CLEAR, CONCISE, CONSISTANT

2565.3 G.1

PROVIDE PREFORMED RIGID PVC OR SAW-CUT INDUCTIVE LOOP DETECTORS AS REQUIRED BY THE CONTRACT.

IN THIS WRITING FORMAT THE CONTRACTOR IS ASSUMED.

“WHATS NEW SINCE 2011”

2545.2A.7 & 2565.2A.7 Shop Drawings

Prepare shop drawing submittals in accordance with 1502 for all products not on MnDOT’s Approved/Qualified Products List (APL).

Submit products showing compliance with contract documents. Review shop drawings for accuracy, completeness, and compliance with contract documents prior to submittal.
What’s New Since 2011
Chapter 10
Foundations & Equipment Pads

“WHAT’S NEW SINCE 2011”

ALL MnDOT CONCRETE FOUNDATIONS AND EQUIPMENT PADS MUST USE A RIGID METAL TEMPLATE TO HOLD BOTH THE ANCHOR BOLTS AND CONDUITS IN PROPER POSITION UNTIL THE CONCRETE CURES.

“WHAT’S NEW SINCE 2011”

WHEN A FULL LENGTH FIBER FORMING TUBE IS USED FOR MAST ARM PA POLE FOUNDATIONS CUT FOUR RECTANGULAR HOLES INTO THE FORMING TUBE BEFORE INSTALLING IN THE DRILLED SHAFT IN ACCORDANCE WITH SPECIAL PROVISIONS.

“WHAT’S NEW SINCE 2011”

MnDOT DOES REQUIRE LARGER FOUNDATIONS WHEN 60 TO 80 FOOT SIGNAL MAST ARMS ARE DESIGNED INTO A SIGNAL SYSTEM PROJECT. REFER TO CONTRACT DOCUMENTS IN THIS CASE.

“WHAT’S NEW SINCE 2011”

THE FOLLOWING ROADWAY LIGHTING STANDARD PLATES HAVE BEEN REVISED

8106 EQUIPMENT PAD B
8127 LIGHT FOUNDATION DESIGN E
8128 LIGHT FOUNDATION DESIGN H
8308 REINFORCED CONCRETE MEDIAN BARRIER TYPE F
8309 REINFORCED CONCRETE MEDIAN BARRIER TYPE F & GLARE SCREEN
8332 (SIX) ANCHOR BOLT CLUSTER FOR LIGHT POLES
MnDOT now requires two grounding electrodes be installed and the rebar must also be grounded for all equipment pads.

New installation requirements for precast concrete light foundations Design E and Design H.

New specification language in the 2016 Spec Book for light pole foundation grading on roadside slopes.

Standard plates 8127 and 8128 have been changed to accommodate AASHTO requirements and to use stainless steel light poles.

New steel screw in light foundations Design E and H and new installation requirements.

Manufacturer has new installation requirements for stainless steel light poles.
MnDOT REQUIRES A SPECIFIC “BOLT TIGHTENING” INSTALLATION PROCEDURE FOR MOUNTING POLES TO FOUNDATIONS.

ALL RSC CONDUITS AND FITTINGS MUST HAVE ALL THREADS PROTECTED WITH A BRUSH ON CORROSION-RESISTANT COMPOUND IN ACCORDANCE WITH NEC Article 300.6 MnDOT 2565.3D.4.a

MnDOT NOW DEFINES THIS RIGID PVC CONDUIT FITTING AS A: END BELL

MnDOT NOW DEFINES THIS END OF THE CONDUIT AS A: BELL END

MnDOT Now Has Specific Requirements For Flexible Liquid Tight Conduit

MnDOT 3804
“WHAT’S NEW SINCE 2011”

MnDOT Now Requires PVC Coated Hot-Dip Galvanized RSC with Interior Lined Urethane Conduits and Fittings Including Expansion and Deflection /Expansion Fittings To Be Used on Bridges.

MnDOT 3805 & 3839

“WHAT’S NEW SINCE 2011”

MnDOT Requires AASHTO M 153 Sponge Rubber Expansion Joint Be Wrapped Around Expansion and Deflection/Expansion Fittings

MnDOT 3841

“WHAT’S NEW SINCE 2011”

What's New Since 2011
Chapter 12
Handholes, Pulling Vaults & Junction Boxes

“WHAT’S NEW SINCE 2011”

MnDOT Has Completely Updated What Handholes Are Listed on the APL

This Change Brings Handholes Into Full Compliance With Article 314.30 of the NEC

“WHAT’S NEW SINCE 2011”

All Handholes Shall Be Listed on the MnDOT Approved Products List (APL) for Signals

Backfilling Shall Be Done After The Cover Has Been Installed Onto the Handhole

“WHAT’S NEW SINCE 2011”

Polymer Concrete Ring and Covers Must Be Used in Sidewalks
“WHAT’S NEW SINCE 2011”

HANDHOLE TYPES HAVE TWO IDENTIFIERS
HH WHICH ARE EVERYWHERE EXCEPT IN SIDEWALKS
HHS HANDHOLES ARE USED ONLY IN SIDEWALKS

“WHAT’S NEW SINCE 2011”

HANDHOLE SIZING IN ACCORDANCE WITH THE NEC
Articles 314.28 & 314.30

314.28 (1) Straight Pulls.
In straight pulls, the length of the box or conduit body shall not be
less than eight times the metric designator (trade size) of the
largest raceway.

CONDUIT SIZE x 8 = HANDHOLE DIAMETER SIZE
4 INCHES x 8 = 32 INCHES
The existing PVC (HHS) handhole is only 22 ¾ inches inside
diameter.
MnDOT is presently working on a 24 Inch ID NRTL listed
Handhole that will be placed on the APL.
When this handhole is complete MnDOT will move to 3 inch
conduits

“WHAT’S NEW SINCE 2011”

RTMC PULLING VAULTS ARE BEING USED ON MnDOT
LIGHTING PROJECTS
ALL PULLING VAULTS SHALL BE LISTED ON THE
MnDOT APPROVED PRODUCTS LIST (APL) FOR
TRAFFIC MANAGEMENT SYSTEMS/ITS
BACKFILLING SHALL BE DONE AFTER THE COVER
HAS BEEN INSTALLED ONTO THE HANDHOLE

“WHAT’S NEW SINCE 2011”

MnDOT NOW REQUIRES LOCATOR BALLS BE
INSTALLED IN ALL HANDHOLES, RTMC PULLING
VAULTS, AND SPLICE VAULTS

“BALL ON A STICK”

What's New Since 2011
Chapter 13
Grounding & Bonding

“WHAT’S NEW SINCE 2011”

• MnDOT HAS CHANGED GROUNDING REQUIREMENTS
IN ROADWAY LIGHTING LIGHT POLE BASES.
ALL MnDOT SIGNAL SERVICE FOUNDATIONS MUST CONTAIN TWO 15 FOOT GROUND RODS AND THE REBAR MUST BE BONDED TO GROUND

GROUNDING ELECTRODES INCLUDING GROUND RODS AND PLATE ELECTRODES ARE DEFINED IN MnDOT 3818

"WHAT'S NEW SINCE 2011"

Chapter 14 Lighting

NEW SPECIFICATION LANGUAGE IN 2016 SPEC BOOK TO INSTALL DIRECT BURIED LIGHTING CABLE IN PVC OR HDPE CONDUIT WHEN NOT LOCATED UNDER TOP SOIL.

"WHAT'S NEW SINCE 2011"

MnDOT NOW REQUIRES A RED WARNING TAPE (RIBBON) BE INSTALLED 12 INCHES ABOVE ALL DIRECT BURIED LIGHTING CABLE

MnDOT REQUIRES A GROUNDING LUG WITH TANG FOR GROUNDING THE #4 GROUNDING CONDUCTOR TO THE LIGHT POLE BASE
MnDOT has clarified what devices can be used in light pole base wiring.

MnDOT now requires that tape be applied under the rubber boots on breakaway fuse holders.

MnDOT has added an additional breakaway fuse holder to the APL for lighting.

MnDOT now requires stainless steel woven wire cloth be installed in stainless steel and steel light pole bases.
**WHAT'S NEW SINCE 2011**

FILL GAPS BETWEEN THE FOUNDATION AND ALUMINUM LIGHT POLE BASE THAT EXCEED AN 1/8 INCH WITH 100% CLEAR SILICONE.

**WHAT'S NEW SINCE 2011**

MnDOT has approved LED roadway luminaires for use at a 40 and 49 foot mounting height. The LED luminaires are a replacement for a 250 and 400 watt HPS luminaires.

**WHAT'S NEW SINCE 2011**

MnDOT has approved LED underpass luminaires. These are mounted 17 feet above the roadway and 20 feet from the right driving edge (fog line). These are a replacement for a 250 watt HPS luminaire.

**WHAT'S NEW SINCE 2011**

MnDOT designs all new rest area and roadway lighting projects with light emitting diode (LED) luminaires.

**WHAT'S NEW SINCE 2011**

MnDOT LED luminaires come standard with a 7 pin photocontrol receptacle making it possible to plug in a smart photocontrol device for luminaire lighting controls.

**WHAT'S NEW SINCE 2011**

MnDOT has added requirements for a welded hub on light poles that require air obstruction lights.
MnDOT requires machine printed labels showing the feed point numbers be installed on the front door and the side of the cabinet that faces the roadway.

MnDOT requires the cable assemblies to be labeled in the service cabinet and the light pole base.

In accordance with NEC 110.24, MnDOT now requires the contractor to provide available fault current calculations at the line side of the meter socket. This requirement applies to both lighting and signal projects.

MnDOT requires labels showing 40 or 49 be installed on the bottom of the luminaire by the contractor.
MnDOT UTILIZES FIBER OPTIC INTERCONNECT CABLE

MnDOT REQUIRES LIGHTING CABLE BE LABELED IN BOTH THE SERVICE CABINET AND EACH LIGHT BASE

MnDOT NOW REQUIRES THE USE OF SELF-FUSING ELECTRICAL INSULATION PUTTY TAPE WHEN WRAPPING A SPLIT BOLT CONNECTION. SEE 2565.3J.4

MnDOT has changed the requirements for CAT 5e Ethernet Cable (Outside Plant)

C.6d Ethernet Cable (Outside Plant)

Provide shielded Category 5 Ethernet cables for use in outdoor applications from the traffic signal cabinet or other type cabinet to the point of connection with required equipment in the system meeting the following requirements:

- 4 pairs of conductors, stranded tinned copper,
- 24 AWG 7/32,
- Color coded pairs as follows:
  - Pair 1: Blue, White/Blue
  - Pair 2: Orange, White/Orange
  - Pair 3: Green, White/Green
  - Pair 4: Brown, White/Brown

MnDOT now has a revised saw cut loop detector Standard Plate (8130E) and a new Rigid PVC loop detector Standard Plate (8132B).
What’s New Since 2011
Chapter 17
Mast Arm Poles
& Pedestals

MnDOT NOW HAS POLES THAT SUPPORT 60 TO 80 FOOT MAST ARMS.
SEE STANDARD PLATES 8133 & 8134

What’s New Since 2011
Chapter 18
Signal Heads

MnDOT USES COUNTDOWN PEDESTRIAN INDICATIONS
ON MnDOT SIGNAL SYSTEM PROJECTS

WHAT’S NEW SINCE 2011
MnDOT REQUIRES DATE MARKING WITH A MACHINE PRINTED LABEL

206.3.3 Signal and Pedestrian Indication Labelling
Label the indications with the installation data as follows:
Place a date of installation on the back of the indication.
Provide labels for the date of installation on the back of the indication meeting the following requirements:
(1) Record the installation date on a white self-adhering label,
(2) Use machine printed numbers,
(3) White text on a black (0.7 mm) tall,
(4) Month/Year numeric format,
(5) Suitable for placement in wet locations,
(6) Paper based labels are not acceptable, and
(7) Place inside on the back of the indication.

MnDOT ADOPTS FLASHING YELLOW ARROW SIGNAL INDICATION AS A STANDARD
**“WHAT’S NEW SINCE 2011”**

Cluster Head Assemblies Used In Conjunction with FYA

Bimodal Solid Green Or Flashing Yellow Arrow

**“WHAT’S NEW SINCE 2011”**

The Bimodal Indication is found on the MnDOT APL for Signals

The Cluster Head Mounting Adaptor Is found on the MnDOT APL for Signals

**“WHAT’S NEW SINCE 2011”**

MnDOT Requires The Use of The Extended Threaded Pole Adaptor When Cluster Head Assemblies Are Mounted on The Pole. The Extended Threaded Pole Adaptor Is found on the MnDOT APL for Signals

**“WHAT’S NEW SINCE 2011”**

MnDOT REQUIRES THE MANUFACTURER TO PROVIDE COPIES OF THE PRE-RECORDED VOICE MESSAGES

**“WHAT’S NEW SINCE 2011”**

MnDOT HAS CHANGED THE DETAIL FOR THE PEDESTRIAN STATION FOUNDATION

What’s New Since 2011
Chapter 19
APS Pedestrian Push Buttons
“WHAT’S NEW SINCE 2011”

MnDOT NOW HAS AN APS POLE MOUNTING ADAPTORS LISTED ON THE APL.

“WHAT’S NEW SINCE 2011”

MnDOT NOW HAS AN APS POLE MOUNTING SPACERS LISTED ON THE APL.

What’s New Since 2011

Chapter 20
Emergency Vehicle Preemption

MnDOT NOW REQUIRES LED CONFIRMATION INDICATIONS WHICH ARE ON THE APPROVED PRODUCTS LIST.
MnDOT 3814

What’s New Since 2011

Chapter 21
Service Equipment

MnDOT NOW REQUIRES THE REMOVAL OF THE FIBER SUPPORT WASHER FROM THE APPROVED LAMP SOCKET.
MnDOT has added a lighting cabinet type RLF for use on small lighting projects. This cabinet also contains a flasher for beacons if required.

In accordance with NEC 110.24, MnDOT now requires the contractor to provide available fault current calculations at the line side of the meter socket. This requirement applies to both lighting and signal projects.

MnDOT requires damaged galvanized coatings for signals be repaired according to ASTM A780 Annex 2.
ASTM A780 ANNEX 2 REQUIRES THE USE OF ZINC RICH PAINTS WHICH CAN BE FOUND THE MnDOT APPROVED PRODUCTS LIST FOR SIGNALS

AT TIMES MnDOT WILL REQUIRE “SPECIAL” ELECTRONIC SIGNS TO BE INSTALLED ON SIGNAL POLES