MnDOT Specification
Steel Screw In Light Foundation Design H
11/20/2015

Quality Control Requirements

1. Manufacturer to have in effect industry recognized written quality control for all materials and manufacturing processes.


Product Requirements

1. Hot dipped galvanized per ASTM A123, Grade 75.

2. Foundation base plate to be perpendicular to the shaft axis and hole centerline to concentric to the shaft axis +/- 0.188 in.

3. Stencil minimum ½ in letters manufacturer’s part number after galvanizing.

4. Pilot point and shaft axes to be concentric +/- 0.188 in.

5. Flame cut irregularities permissible;
   (5.1) Valleys not to exceed 3/32 in below nominal surface level, and
   (5.2) Peaks or positive irregularities not to exceed 1/32 in above nominal surface level or intersections of nominal surfaces.

6. Flame cut two cableway slots in the shaft perpendicular to the foundation base plate, 180 degrees apart.

7. Foundation base plate notched or projection aligned on the same centerline as the 3 in cableway slots in the pipe shaft to indicate the location of the 3 in cable slots after installation.

8. Foundation base plate is permanently stamped with the manufacturer’s identification in ½ in letters and the Julian date code in 1/4 in letters.

9. Before welding;
   (9.1) Hand grind,
   (9.2) Clean foundation base plate, helix and pilot point on all welded parts,
   (9.3) Tumble blast, and
   (9.4) Preheat.
10. Provide all materials new, unused, and mill traceable meeting the following:

(10.1) Foundation Base Plate: ASTM A709 Grade 36 hot rolled structural steel plate,

(10.2) Shaft: ASTM 500 Grade B, steel pipe piles,

(10.3) Helix: ½ in thick hot rolled steel plate or coil meeting the chemical and physical requirements of ASTM A709, Grade 36,

(10.4) Bolts: (4) full thread (shoulderless) hex head high strength bolts per ASTM A325, thread form 1-1/4-7UNC-2A X 5-1/4 in long per ANSI B18 2.6. Alternate per SAE J429 Grade 5 Type 1, thread form 1-1/4-7UNC-2A X 5 ¾ in long per ANSI B18 2.1, bolts to be hot dip galvanized per ASTM A153 Class C,

(10.5) Nuts: (8) heavy hex nuts per ASTM A194 Grade 2H recommended, or 2HM, or ASTM A563 Grade DH meeting the supplementary requirements of ASTM A563. Thread form 1-1/4-7UNC-2B per ANSI B18 2.2, hot dip galvanized ASTM A153 Class C, and

(10.6) Washers: (8) hot dip galvanized flat washers per ASTM F436 for 1 ¼ in bolt.

11. Manufacturer to provide required hardware in a bag secured to the foundation.

12. See Figure 1 for additional details and requirements.

**Documentation and Training Requirements**

1. Manufacturer to provide installation requirements with each steel screw in foundation.

2. Manufacturer to provide steel screw in foundation installation training and certification to contractors for those steel screw in light foundations provided by the manufacturer.
FIGURE 1

1 1/4" X 17" SQ. PLATE
7 1/2" DIA.

5/16" DRILLED & TAPPED THREADED HOLE WITH 5/16" X 3/4" HEX HEAD BOLT FOR GROUNDING LUG. CENTER GROUNDING LUG HOLE 1/2" FROM EDGE OF PLATE.

1 1/4" X 5 1/4" HEX HEAD BOLT, 2 HEAVY HEX NUTS & 2 FLAT WASHERS PER BOLT, 4 BOLTS REQUIRED.

5/16" DIA. (MIN OPENING) X 12" LG SLOT THRU BOTH WALLS

10" (10 3/4" OD) X 84" SHAFT 1/4" WALL THICKNESS

16" DIA. HELIX PILOT POINT

LIGHT FOUNDATION DESIGN H STEEL SCREW IN