

1. Record Nr.	UNINA9910811116903321
Autore	Engineers American Society of Civil
Titolo	Design of Steel Lighting System Support Pole Structures
Pubbl/distr/stampa	, : American Society of Civil Engineers, , 2021 ©2021
ISBN	0-7844-8301-9
Edizione	[1st ed.]
Descrizione fisica	1 online resource (81 pages)
Collana	Standards ; ; v.ASCE/SEI 72-21
Disciplina	625.7/9
Soggetti	Roads - Lighting - Supports - Design and construction - Standards Tubular steel structures - Design and construction - Standards
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- CONTENTS -- PREFACE -- ACKNOWLEDGMENTS -- Chapter 1: General -- 1.1 Scope -- 1.2 Definitions -- Chapter 2: Loads -- 2.1 Scope -- 2.2 SYMBOLS for Construction Load -- 2.3 Classification of Structures -- 2.4 Combinations of Loads -- 2.5 Dead Load -- 2.6 Live Load -- 2.7 Wind Load -- 2.7.1 Scope -- 2.7.2 Symbols for Wind Load -- 2.7.3 General Requirements -- 2.7.4 Shielding -- 2.7.5 Strength Design of Supporting Structures -- 2.7.5.1 Design Wind Force Applied to Supporting Structures -- 2.7.5.2 Design Wind Force Applied to Lighting Fixtures -- 2.7.5.2.1 Effective Projected Area of Fixtures -- 2.7.5.3 Design Wind Force Applied to Mounting Systems -- 2.7.5.4 Design Wind Force Applied to Appurtenances -- 2.7.6 Strength Design of Attachments -- 2.8 Earthquake Load -- 2.8.1 Scope -- 2.8.2 Symbols for Earthquake Load -- 2.8.3 General Requirements -- 2.8.4 Analysis Considerations -- 2.8.4.1 Structural Analysis Considerations -- 2.8.4.2 Equivalent Lateral Force Procedure -- 2.8.4.2.1 Fundamental Period Calculation -- 2.8.4.3 Modal Response Spectrum Analysis -- 2.8.4.3.1 Base Shear and Modal Mass Contributed by Each Mode -- 2.8.4.3.2 Seismic Forces Contributed by Each Mode -- 2.8.5 Overstrength Factor -- 2.9 Fatigue Load -- 2.9.1 Scope -- 2.9.2 General Requirements -- 2.10 Stiffness Requirement -- 2.10.1 Scope -- 2.10.2 General Requirements -- Chapter 3: Steel Design -- 3.1 Scope -- 3.2 Symbols -- 3.3 Analysis -- 3.4 Design Strength -- 3.5

Materials -- 3.5.1 Prequalified Structural Steel Material -- 3.5.1.1
Supplementary Requirements -- 3.5.2 Other Structural Steel Material --
3.5.3 Fasteners -- 3.5.4 Anchor Rods -- 3.5.5 Test Reports -- 3.6
Corrosion Control -- 3.6.1 Members and Components -- 3.6.2
Fasteners -- 3.6.3 Anchor Rods -- 3.6.4 Direct Embed Foundations --
3.7 Member Properties -- 3.7.1 Round Members -- 3.7.2 Multisided
Members.
3.8 Effective Yield Strengths -- 3.8.1 Tubular Round Members -- 3.8.2
Multisided Members -- 3.9 Tubular Pole Design Strength -- 3.9.1
Combined Axial Force, Shear, and Moments -- 3.9.1.1 Nominal Axial
Compressive Strength -- 3.9.1.2 Nominal Flexural Strength --
3.9.1.2.1 Tubular Round Members -- 3.9.1.2.2 Multisided Members --
3.9.1.3 Nominal Shear and Torsional Strengths -- 3.9.1.3.1 Tubular
Round Members -- 3.9.1.3.2 Multisided Members -- 3.10 Connections
-- 3.10.1 Pole Slip Splices -- 3.10.2 Flange Plates -- 3.10.2.1 Socketed
Connections -- 3.10.2.2 Butt-Welded Connections -- 3.11
Components and Attachments -- 3.12 Anchor Rod Strength -- Chapter
4: Fatigue Design -- 4.1 Scope -- 4.2 Symbols -- 4.3 Fatigue Analysis
-- 4.4 Fatigue Thresholds -- 4.4.1 Pole Sections -- 4.4.2 Slip Splices
-- 4.4.3 Circumferential Welds -- 4.4.4 Welded Attachments -- 4.4.5
Reinforced Holes and Cutouts -- 4.4.6 Unreinforced Holes and Cutouts
-- 4.4.7 Pole-to-Flange Plate Connections -- 4.4.7.1 Effective Center
Opening Diameter -- 4.4.7.2 Stiffener Connection with Flange Plates --
4.4.8 Anchor Rods -- 4.4.9 Bolts -- 4.5 Miscellaneous Fatigue Strength
Requirements -- 4.5.1 Pole Cross Sections -- 4.5.2 Holes and Cutouts
-- 4.5.3 Flange Plates -- 4.5.4 Butt-Welded Pole-to-Flange Plate
Connections -- 4.5.5 Socketed Pole-to-Flange Plate Connections --
4.5.6 Stiffened Pole-to-Flange Plate Connections -- 4.5.7 Foundations
-- Chapter 5: Foundation Design -- 5.1 Scope -- 5.2 Symbols -- 5.3
General -- 5.3.1 Foundation Analysis -- 5.3.2 Longitudinal
Reinforcement -- 5.3.3 Transverse Reinforcement -- 5.3.4 Shrinkage
and Temperature Reinforcement -- 5.4 Site Investigation -- 5.4.1
Concrete Mix Design -- 5.4.2 Frost Depth -- 5.4.3 Expansive Soil --
5.4.4 High Water Table -- 5.5 Drilled Shaft and Direct Embed
Foundations -- 5.5.1. Direct Embed Effective Foundation Diameter.
5.6 Mat Foundations -- 5.7 Corrosion Control -- 5.7.1 Direct Embed
Steel Sections -- 5.7.1.1 Ground Sleeves -- 5.7.2 Direct Embed Precast
Concrete Sections -- 5.8 Design Strength of Soil or Rock -- 5.9
Development of Anchor Rods -- 5.9.1 Deformed Anchor Rods -- 5.9.2
Headed Anchor Rods -- 5.10 Seismic Considerations -- 5.10.1
Longitudinal Reinforcement -- 5.10.2 Transverse Reinforcement --
5.10.3 Batter Piles -- Chapter 6: Fabrication -- 6.1 Scope -- 6.2
General -- 6.3 Materials -- 6.4 Welding -- 6.4.1 Tack Welds -- 6.4.2
Seam Welds -- 6.4.3 Backing -- 6.4.4 Fit-Up -- 6.4.5 Anchor Rods --
6.4.6 Weld Inspections -- 6.4.6.1 Ultrasonic Testing -- 6.5 Shearing --
6.6 Burning -- 6.7 Punching Holes -- 6.8 Forming -- 6.9 Galvanizing
-- 6.10 Additional Coatings -- 6.11 Fabrication Tolerances -- Chapter
7: Installation -- 7.1 Scope -- 7.2 General -- 7.3 Direct Embed
Foundations -- 7.4 Drilled Shaft Foundations -- 7.5 Anchor Rods --
7.5.1 Anchor Rod Tightening -- 7.6 Pole Slip Splices -- 7.7 Pole Flange
Plate Splices -- 7.8 Miscellaneous Bolted Connections -- 7.9
Installation Tolerances -- Chapter 8: Inspections, Assessments, and
Maintenance -- 8.1 Scope -- 8.2 Initial Construction Inspections -- 8.3
Periodic Condition Assessments -- 8.3.1 Evaluation of Dents in Steel
Poles -- 8.4 Damage Assessments -- 8.5 Additional Examination
Requirements -- 8.6 Maintenance -- 8.6.1 Grouted Base Flange Plates
-- Appendix A: Geotechnical Investigations -- Appendix B: Damage
and Condition Assessment Examples -- Chapter C1: General -- C1.1

Scope -- Chapter C2: Loads -- C2.1 Scope -- C2.3 Classification of Structures -- C2.4 Combinations of Loads -- C2.7.1 Scope -- C2.7.3 General Requirements -- C2.7.5 Strength Design of Supporting Structures -- C2.7.5.2.1 Effective Projected Area of Fixtures -- C2.7.5.3 Design Wind Force Applied to Mounting Systems -- C2.9.1 Scope. C2.9.2 General Requirements -- Chapter C3: Steel Design -- C3.3 Analysis -- C3.4 Design Strength -- C3.5 Materials -- C3.6.3 Anchor Rods -- C3.12 Anchor Rod Strength -- Chapter C4: Fatigue Design -- C4.1 Scope -- C4.3 Fatigue Analysis -- -- C4.4.7.2 Stiffener Connection with Flange Plates -- C4.4.8 Anchor Rods -- C4.4.9 Bolts -- C4.5.6 Stiffened Pole-to-Flange Plate Connections -- Chapter C5: Foundation Design -- C5.3 General -- C5.4 Site Investigation -- C5.10 Seismic Considerations -- Chapter C6: Fabrication -- C6.3 Materials -- C6.4.6 Weld Inspections -- C6.7 Punching Holes -- C6.8 Forming -- C6.9 Galvanizing -- C6.10 Additional Coatings -- Chapter C7: Installation -- C7.2 General -- C7.3 Direct Embed Foundations -- C7.5 Anchor Rods -- C7.5.1 Anchor Rod Tightening -- C7.9 Installation Tolerances -- Chapter C8: Inspections, Assessments, and Maintenance -- C8.1 Scope -- C8.3 Periodic Condition Assessments -- C8.3.1 Evaluation of Dents in Steel Poles -- C8.5 Additional Examination Requirements -- C8.6 Maintenance -- C8.6.1 Grouted Base Flange Plates -- REFERENCES -- INDEX.

Sommario/riassunto

Design of Steel Lighting System Support Pole Structures, ASCE/SEI 72-21, provides design parameters applicable to self-supporting structures, with base plates for installation on a concrete pier foundation, or as direct embedded, backfilled poles with the base section being either steel or concrete.
