Street and Area Lighting Standards Design Guide — Steel

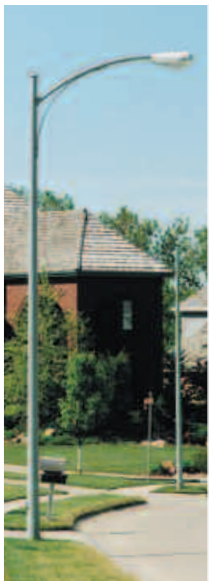
valmont
STRUCTURES

As a leading manufacturer of structural lighting standards,Valmont offers the most complete and comprehensive group of standards in the industry. With production facilities strategically located, Valmont is in a unique position to provide outstanding services throughout the world.

Through our international support system, Valmont provides a highly technical and helpful sales force. In addition, Valmont's engineering and product development expertise continues to set the standards the industry uses as its benchmark.

This catalog is designed to assist you in describing and defining the lighting standard which will meet your requirements. The products listed within are the "backbone" of our street and area lighting standards. The variety of products which could be produced as an offspring of these core product lines is infinite. Valmont offers the best opportunities of providing your structural lighting requirements for non-standard products not listed in this catalog. Chances are that if you can imagine a lighting structure, Valmont can design and build it.

Valmont's people, including our agents, suppliers, and related partners, are dedicated individuals working together towards continuous improvement and leadership. We maintain our commitment in providing you with quality and service in every product manufactured.



Round Tapered Poles with Luminaire Arms

External and Internal Hinged Poles

Round Non-Tapered Poles

Tapered Poles

Fatigue Resistant Square Non-Tapered Poles

Round Tapered Low Level Lighting Poles

Table Of Contents

Product Ordering Codes

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POLE TYPE DESIGN SERIES

DS30/EM30/DS250
Round tapered roadway lighting pole with single member pipe arm assembly

DS32
Round tapered roadway lighting pole with single member tapered arm assembly

DS60/DS70
Round tapered roadway lighting pole with truss support pipe arm assembly

DS90
Round tapered roadway lighting pole with davit arm

DS210
Round tapered area lighting pole

DS220
Square tapered area lighting pole

DS330
Square non-tapered area lighting

DSF10/DSF15/DSF20/DSF35
Square hinged area lighting pole

DS200/DS201/DS202
Round tapered pedestal pole

DS340
Round non-tapered area lighting pole

DS30-660A300-4S-GV

Design Series

Nominal Shaft Base Diameter

Description is listed in decimal form with the decimal place always falling between the first two characters (e.g. 660=6.60" or 800=8.00")

When the base diameter reaches 10.0" or more, the first digit becomes an alpha character.

For example:
T=10"
E=11"
W=12"
H=13"

Also note example: (T50=10.50" Base Diameter)

Nominal Shaft Wall Thickness, Material Yield, & Cross Section

A=11 Gauge (0.1196"), 55KSI, Round Tapered

B=10 Gauge (0.1345"), 55KSI, Round Tapered

4=5 Gauge (0.2092"), 55KSI, Round Tapered

E=7 Gauge (0.1793"), 55KSI, Round Tapered

F=0.188" Tubing, 55KSI, Square Non-tapered

J=3 Gauge (0.2391"), 55KSI, Round Tapered

N=7 Gauge (0.1793"), 50KSI, Square Non-tapered

Q=11 Gauge (0.1196"), 55KSI, Square Non-tapered

V=0.120" Tubing, 42KSI, Round Non-tapered

W=7 Gauge (0.1793"), 55KSI, Square Non-tapered

Nominal Shaft Length

Description is listed as follows: The first two digits are measured in feet increments and the last digit is measured in inches. (e.g. 300=30'-0" or 389=38'-9")

Fixture Mounting Method or Luminaire Arm Length

STREET LIGHTING

Luminaire Arms:
The numeric digits describe the length of the arm. The alpha character describes the number of arms required per pole. (e.g. 4S=4' Single Arm or 8D=8' Double Arms or 6F=6' Quadruple Arms). Longer arms will require two digits and one alpha character.

S=Single
D=Double
T=Triple
F=Quadruple

AREA LIGHTING

Tenon Mounting:
P2=2.38" O.D. x 4.0"
P3=3.5" O.D. x 6.0"
P4=4.0" O.D. x 6.0"
P5=2.88" O.D. x 4.0"
PL=2.38" O.D. Plain Top
P9=Special Tenon Size (Advised by Customer)

Drill Mounting:
D1=Drilling for 1 Luminaire
D2=Drilling for 2 @180°
D3=Drilling for 3 @120°
D4=Drilling for 4 @90°
D5=Drilling for 2 @90°
D6=Drilling for 3 @90°

Finish Coatings

DB=Dark Bronze
MB=Medium Bronze
BK=Black
WH=White
GV=Galvanized
PP=Primed

Abbreviations for Standard and Optional Features:

HH=Handhole
PC=Pole Cap
FBC=Full Base Cover
NC=Nut Cover
M117=Festoon Box
AB=Anchor Bolts
LAB=Less Anchor Bolts

The above referenced abbreviations are input after the finish coating characters (e.g. -HH -AB -NC).

Coating Specifications

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GALVANIZING

SURFACE PREPARATION

Prior to being incorporated into an assembled product, steel plates 3/4 inches or more in thickness may require blast cleaning to remove rolled-in mill scale, impurities and non-metallic foreign materials. After assembly, all weld flux shall be mechanically removed.

The iron or steel product is degreased by immersion in an agitated 4.5%-6% concentrated caustic solution elevated to a temperature ranging from 150°F-180°F. It is then pickled by immersion in a heated sulfuric acid solution of 10%-12% concentration, controlling the temperature between 150°F-160°F. It is next rinsed clean from any residual effects of the caustic or acid solutions by immersion in a circulating fresh water bath.

Final preparation is done by immersion in a concentrated zinc ammonium chloride flux solution heated to 170°F. The solution's acidity content is maintained between 4.5-5.0 pH.

ZINC COATING

The product is hot-dip galvanized to the requirements of either ASTM A123 (fabricated products) or ASTM A153 (hardware items) by immersion in a molten bath of prime western grade zinc maintained between 810°F-850°F. Maximum aluminum content of the bath is controlled to 0.01%. Flux ash is skimmed from the bath surface prior to immersion and extraction of the product to assure a debris free zinc coating.

POWDER FINISH COAT

SURFACE PREPARATION

The exterior steel surface is blast cleaned to Steel Structures Painting Council Surface Preparation Specification No. 6 (SSPC-SP6) requirements utilizing cast steel abrasives conforming to the Society of Automotive Engineers (SAE) Recommended Practice J827. The blast method used is a re-circulating, closed cycle centrifugal wheel system with abrasive conforming to SAE Shot Number S280.

INTERIOR COATING

Interior surfaces (pole shafts only) at the base end for a length of approximately 2.0' are mechanically cleaned and coated with a zinc rich epoxy powder. The coating is electrostatically applied and cured in a gas fired convection oven by heating the steel substrate to a minimum of 350°F and a maximum of 400°F.

EXTERIOR COATING

All exterior surfaces are coated with either Urethane or Triglycidyl Isocyanurate (TGIC) Polyester Powder to a minimum dry film thickness of 2.0 mils (0.002") for urethane powder or 3.0 mils (0.003") for TGIC powder. The coating is electrostatically applied and cured in a gas fired convection oven by heating the steel substrate to a minimum of 350°F and a maximum of 400°F.

QUALITY

Thermosetting powder resin provides both intracoat as well as substrate fusing adhesion that meets 5A or 5B classifications (most stringent) of ASTM D3359. Prior to shipment small poles are wrapped in .188" thick ultraviolet inhibiting plastic backed foam. Larger poles are cradled in a 1.0" rubberized foam base.

POWDER PRIME COAT

SURFACE PREPARATION

The exterior steel surface is blast cleaned to Steel Structures Painting Council Surface Preparation Specification No.6 (SSPC-SP6) requirements utilizing cast steel abrasives conforming to the Society of Automotive Engineers (SAE) Recommended Practice J827. The blast method used is a re-circulating, closed cycle centrifugal wheel system with abrasive conforming to SAE Shot Number S280.

INTERIOR COATING

Interior surfaces (pole shafts only) at the base end for a length of approximately 2.0' are mechanically cleaned and coated with a zinc rich epoxy powder. The coating is electrostatically applied and cured in a gas fired convection oven by heating the steel substrate to a minimum of 350°F and a maximum of 400°F.

EXTERIOR COATING

All exterior surfaces are coated with a Urethane Polyester Powder to a minimum dry film thickness of 2.0 mils (0.002"). The coating is electrostatically applied and cured in a gas fired convection oven by heating the steel substrate to a minimum of 350°F and a maximum of 400°F.

QUALITY

Thermosetting powder resin provides both intracoat as well as substrate fusing adhesion that meets 5A or 5B classifications (most stringent) of ASTM D3359.

FIELD-APPLIED TOP COATING RECOMMENDATIONS

Top coats known to be compatible with the exterior coating are TNEMEC's Series 70 through 75 (or equal) two-component Aliphatic Polyurethane Enamels*. Prior to application, the exterior surfaces must be free of any contaminants such as grease, oil, dirt, etc. Appropriate solvents can be used to remove specific contaminants. Light sanding of exterior surfaces further enhance adhesion of the top coat.

*Other generic top coats must be field tested for compatibility.

Round Tapered Poles with Luminaire Arms

DS30, EM30, DS50, DS250, DS60, DS70, DS90, DS32

ANCHOR BOLTS

Anchor Bolts are fabricated from carbon steel bar conforming to AASHTO M314 Grade-55 or ASTM F1554 Grade-55. Bolts have an "L" bend on one end and are galvanized a minimum of 12 inches on the threaded end. Four anchor bolts are provided per pole. Each anchor bolt is furnished with two hex nuts and two flat washers.

ANCHOR BASE

The anchor base (base plate) is fabricated from structural quality hot rolled carbon steel plate conforming to ASTM A36. The base plate telescopes the pole shaft and is circumferentially welded top and bottom. The base is provided with slotted bolt holes to accommodate a ± 0.5" variation in the nominal bolt circle.

POLE SHAFT

The pole shaft conforms to ASTM A595 Grade-A and is supplied in 11 gauge (0.1196") or 10 guage (0.1345") thickness. The pole is of one-piece construction with a full length longitudinal high frequency electric resistance weld and is round in cross-section having a uniform taper of approximately 0.14 inches per foot of length.

HANDHOLE

The reinforcing handhole rim consists of either a nominal 3" x 5" rectangular shaped tubing or 4" x 6.5" oval shaped pipe material. The 3" x 5" handhole is provided with a steel attachment bar, steel cover, and one round head machine screw. The 4" x 6.5" handhole includes two tabs for mounting a steel cover with hex head attachment screws. The handhole is welded into the pole shaft and is located 1'-6" above the base and 90°clockwise with respect to the luminaire arm when viewed from the top of the pole for one and two arm applications. For three arms (120-degree separation) the handhole is oriented directly under the arm which is perpendicular to a side of the base plate. In the four arm application the handhole is oriented directly under any arm, all of which are perpendicular to the sides of the base plate.

ELECTRICAL GROUND

A nut holder is provided near the handhole and includes a 0.5"-13UNC hex head bolt and nut.

UNDERGROUND WIRING ACCESS (EM30 SERIES ONLY)

A 1" diameter hole is provided in the pole shaft to facilitate wiring access. The hole is located at 1'-0" below the ground line and 90°clockwise with respect to the luminaire arm when viewed from the top of the pole.

NUT COVERS (STANDARD)

Nut covers for anchor bolts are zinc die cast. Each cover is fastened to the shaft by a 0.25" stainless steel, self-tapping, hex head screw. Nut covers are not available for the EM30 series.

FULL BASE COVER (OPTIONAL)

The optional full base cover is fabricated from ABS plastic. Valmont reserves the right to provide a steel assembly on some applications depending upon the finish requirement and/or pole shaft base diameter. Both steel and plastic covers are a two-piece assembly secured together with two fasteners.

LUMINAIRE ARM

DS30, DS50, DS60, DS70, EM30, AND DS250 luminaire arms are made from 2 inch schedule 40 pipe (2.38" O.D.) with a minimum yield strength of 36,000 psi. DS32 and DS90 luminaire arms are made from ASTM A595 Grade-A material and are supplied in 11 gauge (0.1196") thickness.

MULTIPLE ARMS

Twin luminaire arm applications are oriented at 180°with respect to each other. For applications of two arms which are oriented other than 180°please consult Valmont.

LUMINAIRE ARM ATTACHMENT

The DS30, EM30, DS50, and DS250 pole and mating arm simplex components are cast steel. They are welded to their respective members and will allow the luminaire arm to be erected and held in place by gravity while being secured with a single 0.5"-13 UNC high strength hex head hub bolt. The attachment provides an internal weather resistant wiring raceway.

The DS32 arm and pole simplex plates are fabricated from structural quality hot rolled carbon steel conforming with ASTM A36 material, each welded to its respective member. Three 0.75"-10 UNC high strength structural hex head bolts are used to connect the arm to the pole. The attachment provides an internal weather resistant wiring raceway.

The DS60 and DS70 pole and mating arm simplex components are cast steel. They are welded to their respective members and will allow the luminaire arm to be erected and held in place by gravity while being secured with four 0.5"-13 UNC high strength hex head bolts. The attachment provides an internal weather resistant wiring raceway.

POLE TOP CAP

Each pole assembly is provided with a removable pole top cap and three set screws.

FINISH COATINGS

Standard finishes available are galvanized, prime coat (powder), and finish coat (powder). For information regarding the scope and application of these coatings please refer to page 5.

FASTENING HARDWARE

All structural fasteners are galvanized high strength carbon steel. All other fasteners are galvanized or zinc plated carbon steel or stainless steel.

MOUNTING HEIGHT

Mounting height is a nominal vertical distance as measured from the base of the lighting standard to the center of the luminaire arm at the point of luminaire attachment.

DESIGN

The standards shown in this section are designed to withstand dead loads and theoretical dynamic loads developed by 100 mph winds with a 1.3 gust factor (also meets ice load criteria up to 0.5" thick) under the following conditions, unless noted otherwise in the tables.

The luminaire mounted on each arm shall not exceed an effective projected area of 2.0 square feet, including any external ballast, glare shield or other luminaire accessories. For purposes of design, effective projected area (EPA) is considered to be the product of the actual projected area and the drag coefficient. The drag coefficient used for luminaires is taken as 0.6 and the actual projected area of the luminaire as 3.3 square feet for the designs shown herein.

The luminaire center of gravity is assumed to be located 1'-0" beyond the nominal arm spread. Standards are designed for ground mounted applications. Standards mounted on structures, such as bridges and buildings, may necessitate special consideration requiring Valmont's recommendation.

Standards to be located in areas of known abnormal conditions also require special consideration. For example, coastal areas, airports, and areas of special winds such as the Chinook type along the eastern slope of the Rocky Mountains.

Height correction factors and drag coefficients are applied to the entire structure. An appropriate safety factor is maintained based on the minimum yield strength of the material incorporated in the standard.

Under single arm loading conditions, a relatively straight appearing standard is an important aesthetic consideration. To control the appearance of the standards under deadload conditions, a limiting slope criterion of 0.35 inches per foot of shaft length (1 degree 40 minutes of angular rotation) is applied at the point of attachment.

Single Pipe Luminaire Arm

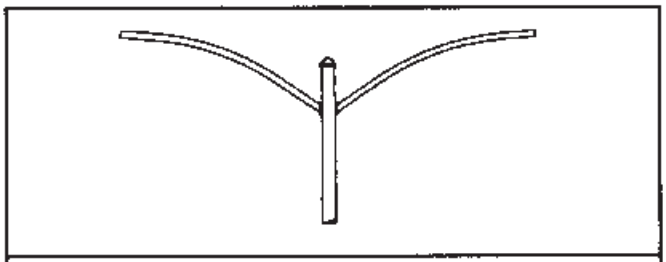
Nominal Mounting Height (ft)	Shaft				Arm		Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Max. Lum. Weight (lbs)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
21	**590A200	5.9	3.1	175	8	75	9.0	.5	10.00	0.88
26	**590A250	5.9	2.4	175	4	75	9.0	.5	10.00	0.88
	**590A250	5.9	2.4	180	6	72	9.0	.5	10.00	0.88
	**590A250	5.9	2.4	190	8	51	9.0	.5	10.00	0.88
31	660A300	6.6	2.4	220	4	75	9.5	.5	10.50	0.88
	660A300	6.6	2.4	225	6	59	9.5	.5	10.50	0.88
	660A300	6.6	2.4	235	8	48	9.5	.5	10.50	0.88
36	730A350	7.3	2.4	265	4	75	10.5	.5	11.25	0.88
	730A350	7.3	2.4	270	6	67	10.5	.5	11.25	0.88
	730A350	7.3	2.4	280	8	40	10.5	.5	11.25	0.88
	850A350	8.5	3.6	345	8	75	11.5	.5	12.00	1.00
40	900A389	9.0	3.6	390	8	75	12.5	.5	12.38	1.00

Twin Pipe Luminaire Arms

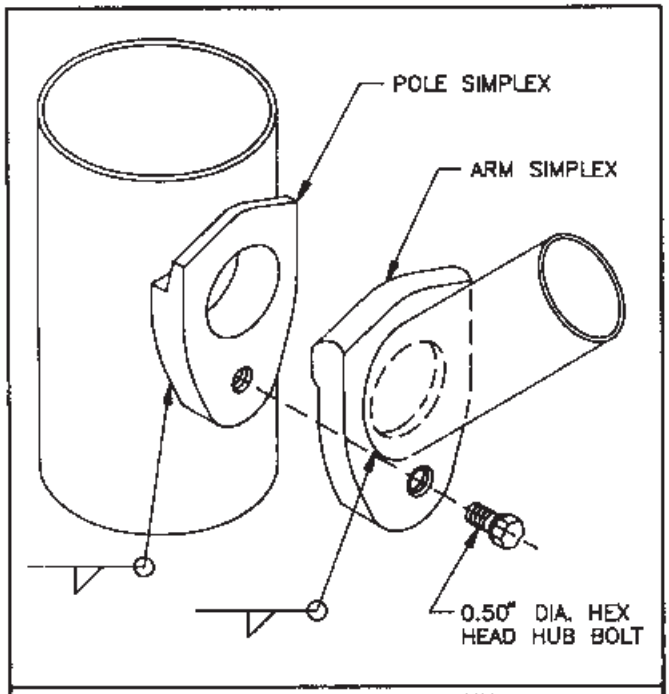
Nominal Mounting Height (ft)	Shaft				Arm		Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Max. Lum. Weight (lbs)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
21	**590A200	5.9	3.1	210	8	75	9.0	.5	10.00	0.88
26	**590A250	5.9	2.4	225	8	75	9.0	.5	10.00	0.88
31	660A300	6.6	2.4	270	8	75	9.5	.5	10.50	0.88
36	730A350	7.3	2.4	315	8	75	10.5	.5	11.25	0.88
40	900A389	9.0	3.6	425	8	75	12.5	.5	12.38	1.00

DS30 NOTES:

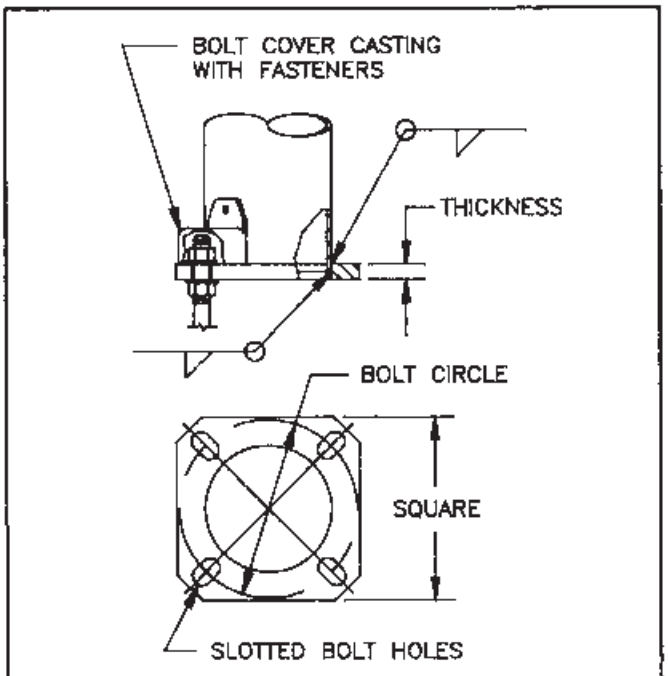
1. All designs utilize 1" x 36" x 4" anchor bolts.
2. All designs utilize 11 gauge material (.1196").
3. **3" x 5" nominal handhole - all others 4" x 6.5" nominal.
4. Structure weight is a nominal value which includes the pole shaft, base plate, and luminaire arm only.
5. All designs based on a 100 mph wind speed w/1.3 gust factor and maximum luminaire EPA of 2.0.
6. **Special Note:** Maximum luminaire weights vary per design.



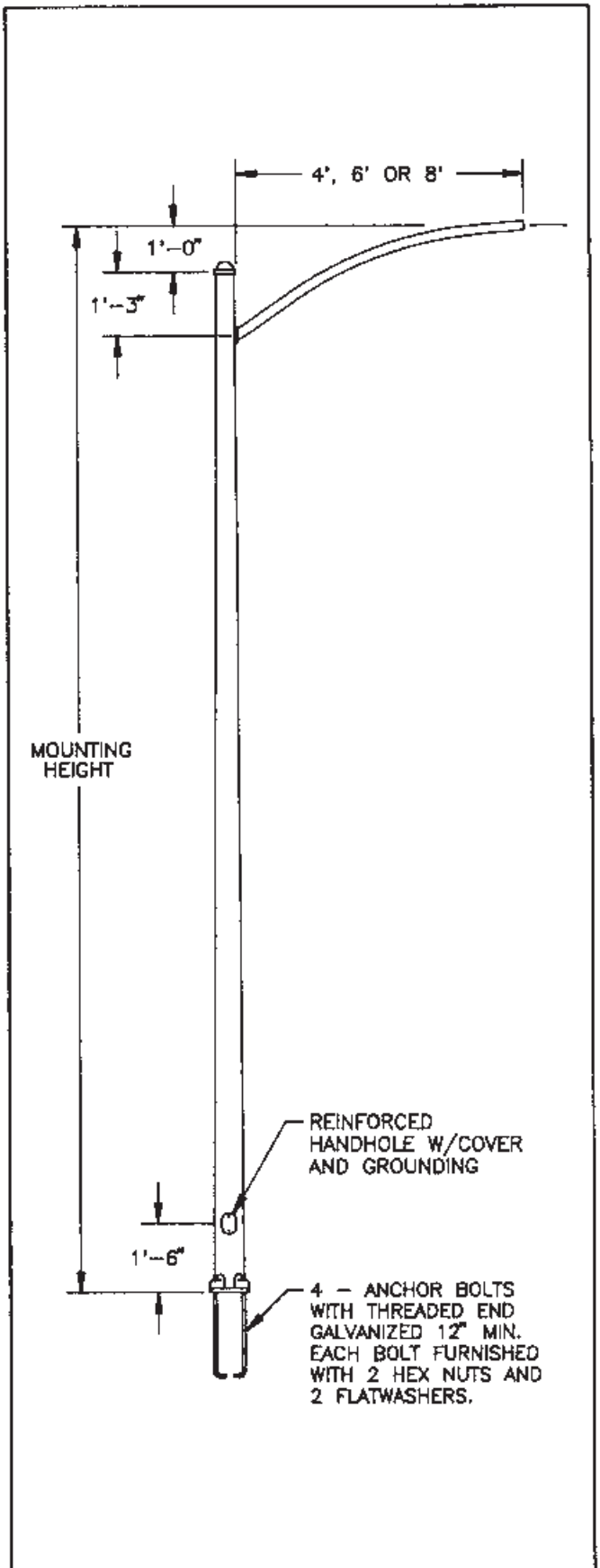
TWIN ARM ARRANGEMENT



ARM ATTACHMENT DETAIL



POLE BASE DETAIL



DS30 POLE DETAIL

Single Pipe Luminaire Arm

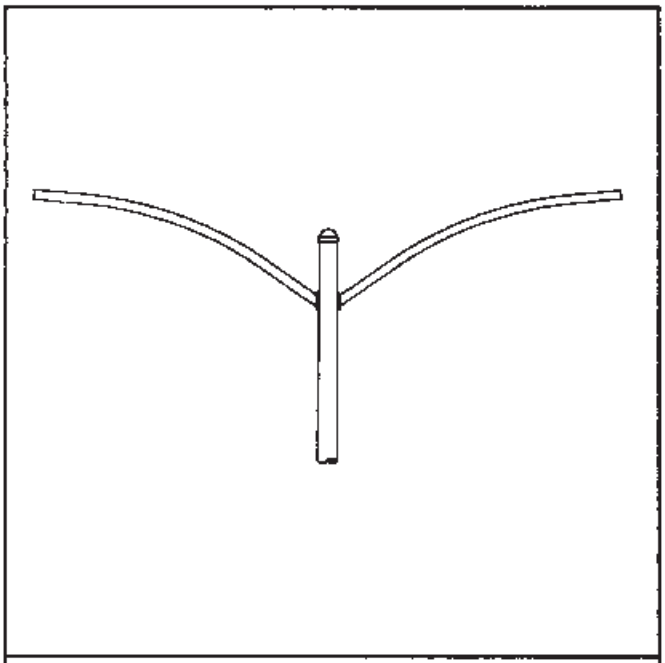
Nominal Mounting Height (ft)	Shaft				Embedment		Arm	
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Ground Line Dia. (in)	Embed. Depth (ft)	Max. Lgth. (ft)	Max. Weight (lbs)
21	**590A250	5.9	2.4	160	5.2	5	4	75
	**590A250	5.9	2.4	163	5.2	5	6	60
	**590A250	5.9	2.4	170	5.2	5	8	44
	**700A250	7.0	3.5	215	6.3	5	8	75
26	**660A300	6.6	2.4	205	5.9	5	4	75
	**660A300	6.6	2.4	210	5.9	5	6	72
	**660A300	6.6	2.4	220	5.9	5	8	42
	800A300	8.0	3.8	275	7.3	5	8	75
31	730A350	7.3	2.4	250	6.6	5	4	75
	730A350	7.3	2.4	255	6.6	5	6	50
	730A350	7.3	2.4	265	6.6	5	8	35
	900A350	9.0	4.1	350	8.3	5	8	75
36	950A420	9.5	3.6	410	8.5	7	8	75
40	T00A460	10.0	3.6	460	9.0	7	8	75

Twin Pipe Luminaire Arms

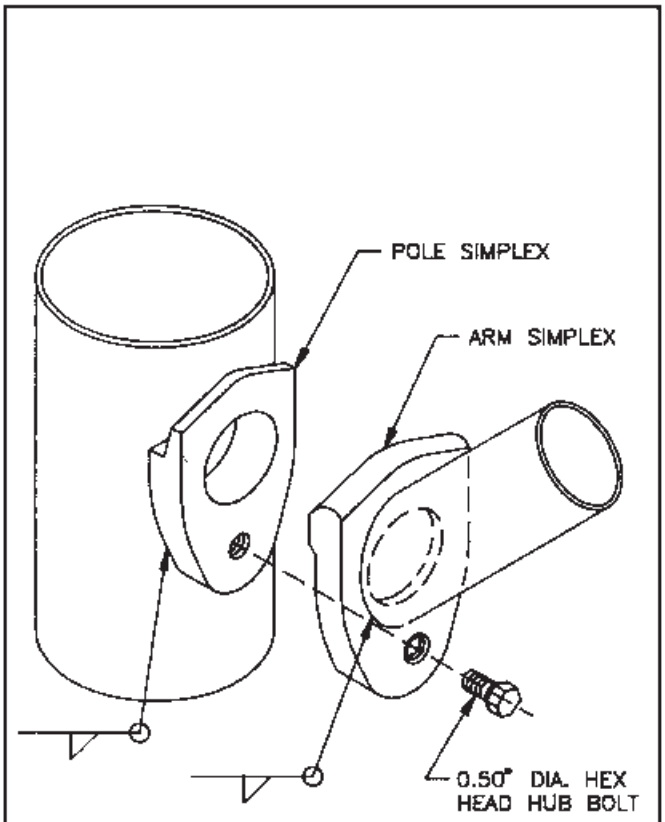
Nominal Mounting Height (ft)	Shaft				Embedment		Arm	
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Ground Line Dia. (in)	Embed. Depth (ft)	Max. Lgth. (ft)	Max. Weight (lbs)
21	**590A250	5.9	2.4	210	5.2	5	8	75
	**700A250	7.0	3.5	250	6.3	5	8	75
26	**660A300	6.6	2.4	250	5.9	5	8	75
	800A300	8.0	3.8	310	7.3	5	8	75
31	730A350	7.3	2.4	300	6.6	5	8	75
	900A350	9.0	4.1	385	8.3	5	8	75
36	950A420	9.5	3.6	445	8.5	7	8	75
40	T00A460	10.0	3.6	495	9.0	7	8	75

EM30 NOTES:

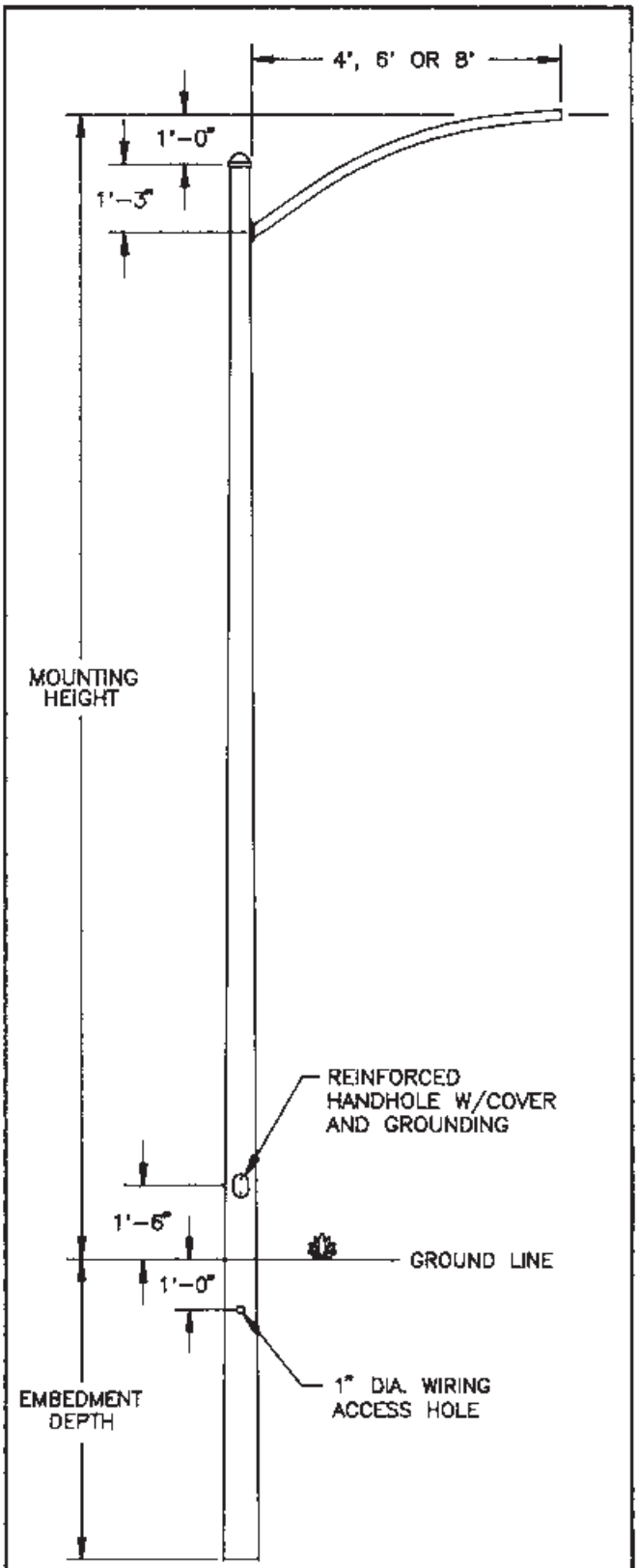
1. A designs utilize 11 gauge material (.1196")
2. ** 3" x 5" nominal handhole, all others 4" x 6.5" nominal.
3. Structure weight is a nominal value which includes the pole shaft and luminaire arm only.
4. All designs based on a 100 mph wind speed w/1.3 gust factor and maximum luminaire EPA of 2.0.
5. **SPECIAL NOTE**: Maximum luminaire weights vary per design.



TWIN ARM ARRANGEMENT



ARM ATTACHMENT DETAIL



EM30 POLE DETAIL

Single Pipe Luminaire Arm

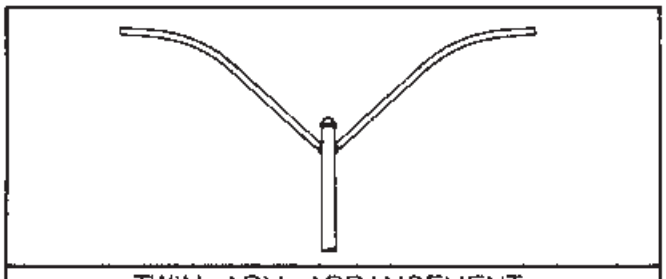
Nominal Mounting Height (ft)	Shaft				Arm		Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Max. Lum. Weight (lbs)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
20	**590A170	5.9	3.5	160	8	75	9.00	.5	10.00	0.88
	650A170	6.5	4.1	180	8	75	9.50	.5	10.50	0.88
25	**590A220	5.9	2.8	185	8	75	9.00	.5	10.00	0.88
	700A220	7.0	3.9	220	8	75	10.00	.5	10.88	0.88
30	660A270	6.6	2.8	230	6	75	9.50	.5	10.50	0.88
	660A270	6.6	2.8	232	8	68	9.50	.5	10.50	0.88
	750A270	7.5	3.7	260	8	75	10.50	.5	11.25	0.88
32	660A296	6.6	2.5	231	4	75	9.50	.5	10.50	0.88
	660A296	6.6	2.5	233	6	66	9.50	.5	10.50	0.88
	660A296	6.6	2.5	235	8	45	9.50	.5	10.50	0.88
	800A296	8.0	3.9	295	8	75	11.00	.5	11.50	0.88
35	730A320	7.3	2.8	273	6	75	10.50	.5	11.25	0.88
	730A320	7.3	2.8	275	8	65	10.50	.5	11.25	0.88
	800A320	8.0	3.5	310	8	75	11.00	.5	11.50	0.88
40	900A370	9.0	3.8	385	8	75	12.50	.5	12.38	1.00
45	950A420	9.5	3.6	440	8	75	13.00	.5	13.00	1.00

Twin Pipe Luminaire Arms

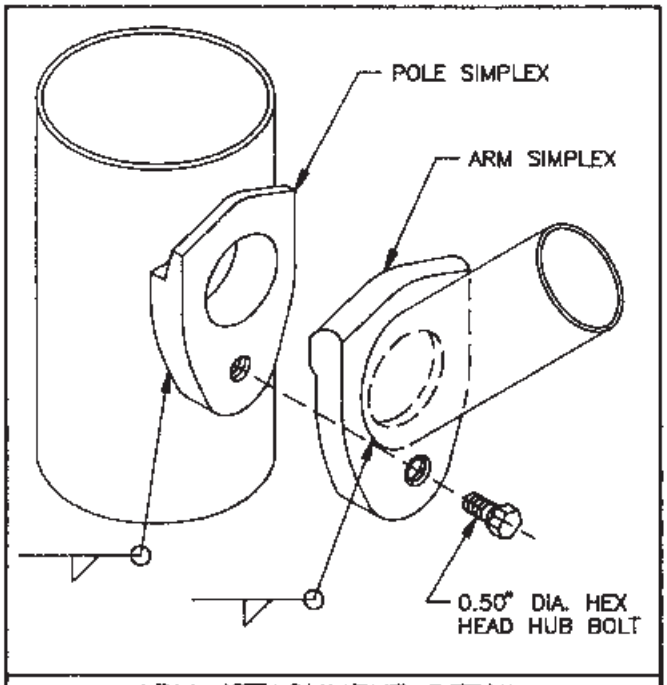
Nominal Mounting Height (ft)	Shaft				Arm		Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Max. Weight (lbs)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
20	**590A170	5.9	3.5	200	8	75	9.00	.5	10.00	0.88
25	**590A220	5.9	2.8	220	8	75	9.00	.5	10.00	0.88
	700A220	7.0	3.9	255	8	75	10.00	.5	10.88	0.88
30	660A270	6.6	2.8	265	6	75	9.50	.5	10.50	0.88
	750A270	7.5	3.7	300	8	75	10.50	.5	11.25	0.88
32	660A296	6.6	2.5	275	8	75	9.50	.5	10.50	0.88
	800A296	8.0	3.9	335	8	75	11.00	.5	11.50	0.88
35	730A320	7.3	2.8	315	8	75	10.50	.5	11.25	0.88
	800A320	8.0	3.5	345	8	75	11.00	.5	11.50	0.88
40	900A370	9.0	3.8	420	8	75	12.50	.5	12.38	1.00
45	950A420	9.5	3.6	480	8	75	13.00	.5	13.00	1.00

DS50 NOTES:

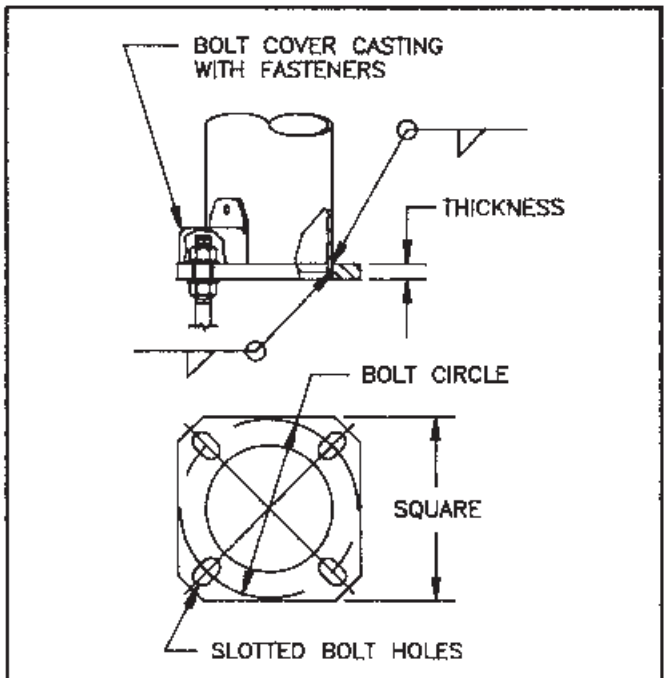
1. All designs utilize 1" x 36" x 4" anchor bolts.
2. All designs utilize 11 gauge material (.1196").
3. ** 3" x 5" nominal handhole - all others 4" x 6.5" nominal.
4. Structure weight is a nominal value which includes the pole shaft, base plate, and luminaire arm only.
5. All designs based on a 100 mph wind speed w/1.3 gust factor and maximum luminaire EPA of 2.0
6. **SPECIAL NOTE:** Maximum luminaire weights vary per design.



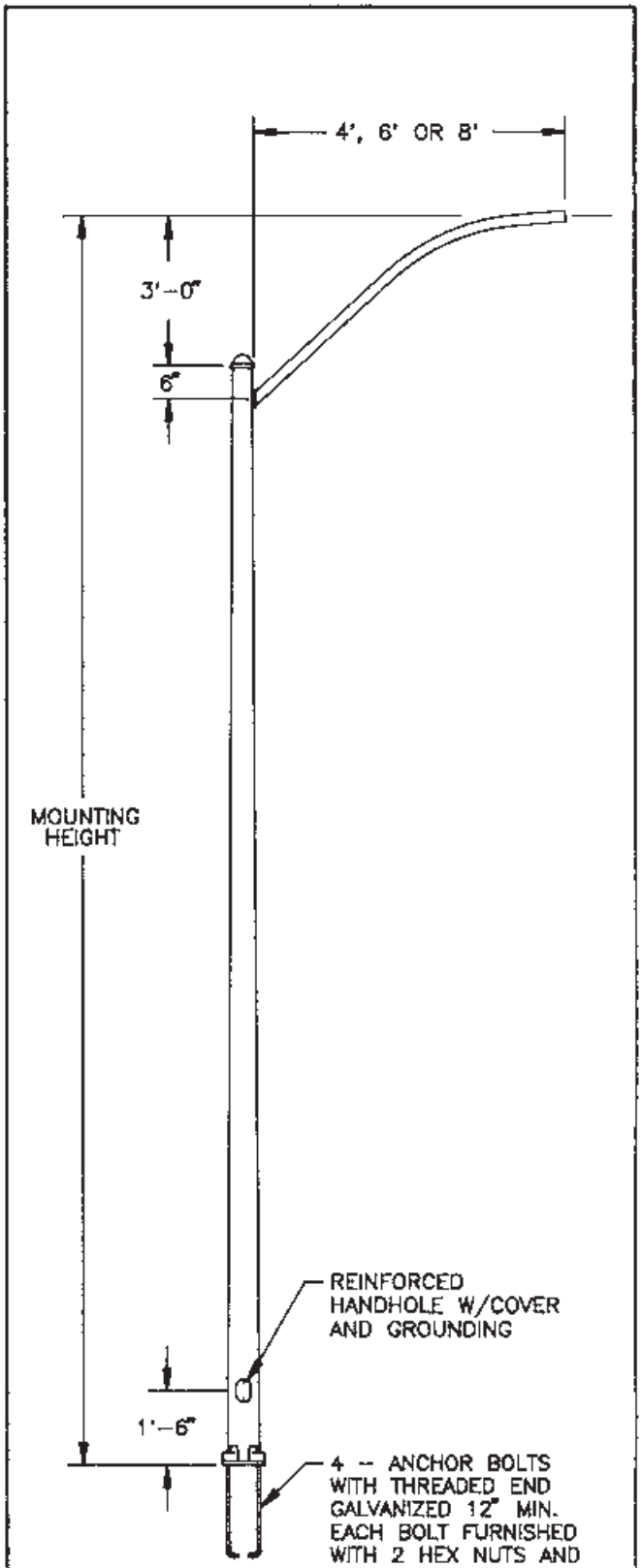
TWIN ARM ARRANGEMENT



ARM ATTACHMENT DETAIL



POLE BASE DETAIL



DS50 POLE DETAIL

Three Pipe Luminaire Arms @ 120°

80 MPH w/1.3 Gust Factor

Nominal Mounting Height (ft)	Shaft				Arm	Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
30	750A270	7.5	3.7	330	8	10.5	.5	11.25	0.88
32	800A296	8.0	3.9	360	8	11.0	.5	11.50	0.88
35	800A320	8.0	3.5	375	8	11.0	.5	11.50	0.88
40	900A370	9.0	3.8	500	8	12.5	.5	12.38	1.00

100 MPH w/1.3 Gust Factor

Nominal Mounting Height (ft)	Shaft				Arm	Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
30	750A270	7.5	3.7	330	8	10.5	.5	11.25	0.88
32	800A296	8.0	3.9	360	8	11.0	.5	11.50	0.88
35	850A320	8.5	4.0	415	8	11.5	.5	12.00	1.00
40	950A370	9.5	4.3	500	8	13.0	.5	13.00	1.00

Four Pipe Luminaire Arms @ 90°

80 MPH w/1.3 Gust Factor

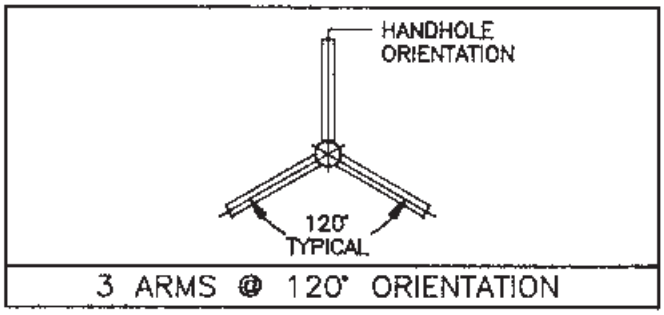
Nominal Mounting Height (ft)	Shaft				Arm	Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
30	750A270	7.5	3.7	365	8	10.5	.5	11.25	0.88
32	800A296	8.0	3.9	395	8	11.0	.5	11.50	0.88
35	800A320	8.0	3.5	410	8	11.0	.5	11.50	0.88
40	900A370	9.0	3.8	535	8	12.5	.5	12.38	1.00

100 MPH w/1.3 Gust Factor

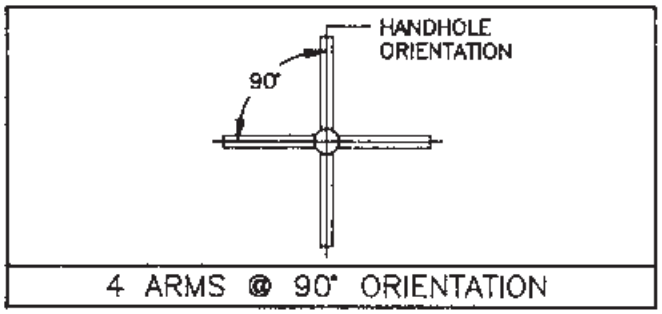
Nominal Mounting Height (ft)	Shaft				Arm	Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
30	800A270	8.0	4.2	380	8	11.0	.5	11.50	0.88
32	900A296	9.0	4.9	455	8	12.5	.5	12.38	1.00
35	950A320	9.5	5.0	485	8	13.0	.5	13.00	1.00
40	T00A370	10.0	4.8	545	6	13.5	.5	14.00	1.00

DS250 NOTES:

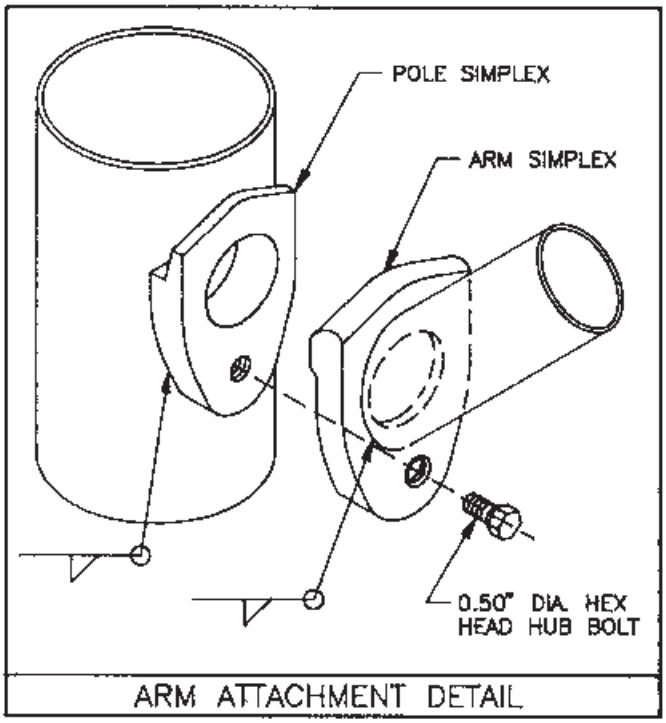
1. All designs utilize 1.00" x 36" x 4" anchor bolts.
2. All designs utilize 11 gauge material (.1196").
3. All designs provided with 4" x 6.5" nominal handhole.
4. Maximum luminaire EPA and weight per arm is 2.0 ft^2 and 75 lbs.
5. Structure weight is a nominal value which includes the pole shaft, base plate, and luminaire arm only.



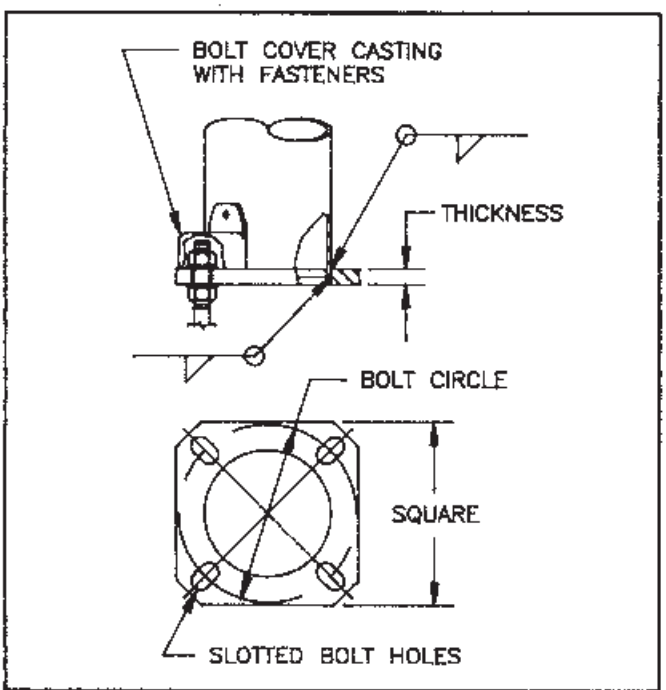
3 ARMS @ 120° ORIENTATION



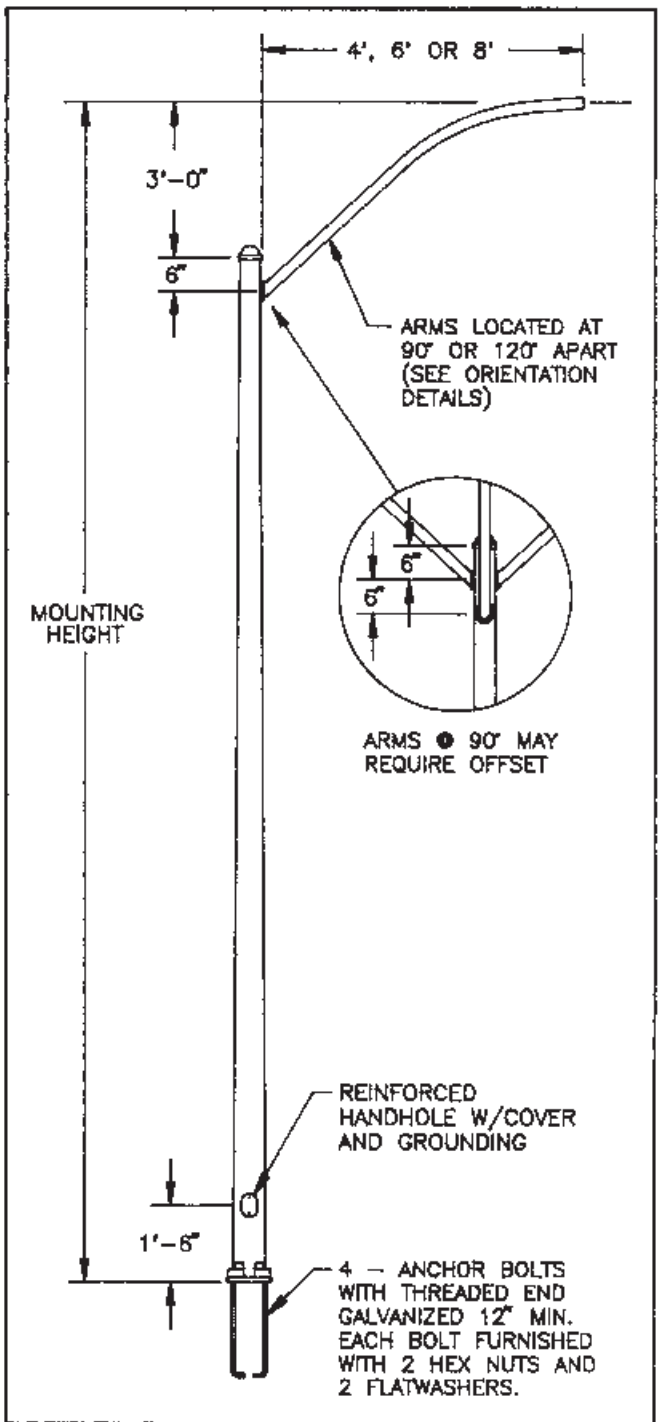
4 ARMS @ 90° ORIENTATION



ARM ATTACHMENT DETAIL



POLE BASE DETAIL



DS250 POLE DETAIL

Single Pipe Luminaire Arm

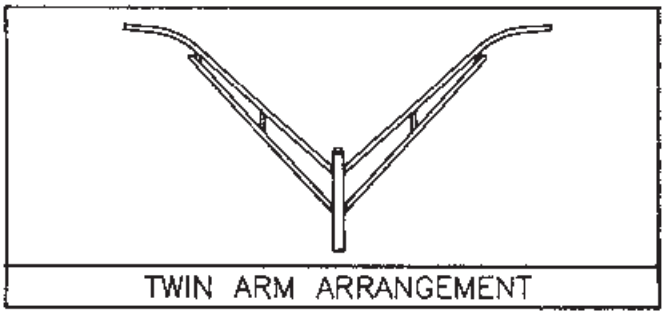
Nominal Mounting Height (Ft.)	Shaft				Arm	Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
25	650A200	6.5	3.7	280	12	9.5	.5	10.50	0.88
	700A200	7.0	4.2	300	15	10.0	.5	10.88	0.88
30	700A250	7.0	3.5	320	12	10.0	.5	10.88	0.88
	• 750A250	7.5	4.0	338	15	10.5	.5	11.25	0.88
35	800A300	8.0	3.8	385	12	11.0	.5	11.50	0.88
	• 850A300	8.5	4.3	410	15	11.5	.5	12.00	1.00

Twin Pipe Luminaire Arms

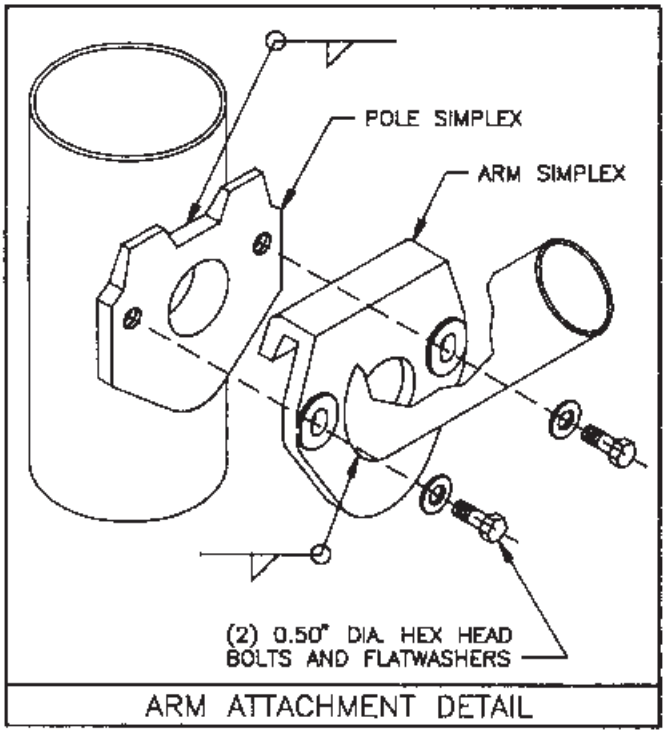
Nominal Mounting Height (Ft.)	Shaft				Arm	Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
25	650A200	6.5	3.7	395	12	9.5	.5	10.50	0.88
	700A200	7.0	4.2	415	15	10.0	.5	10.88	0.88
30	700A250	7.0	3.5	435	10	10.0	.5	10.88	0.88
	750A250	7.5	4.0	455	12	10.5	.5	11.25	0.88
	• 800A250	8.0	4.5	460	15	11.0	.5	11.50	0.88
35	800A300	8.0	3.8	500	10	11.0	.5	11.50	0.88
	850A300	8.5	4.3	520	12	11.5	.5	12.00	1.00
	• 850A300	8.5	4.3	525	15	11.5	.5	12.00	1.00

DS60 NOTES:

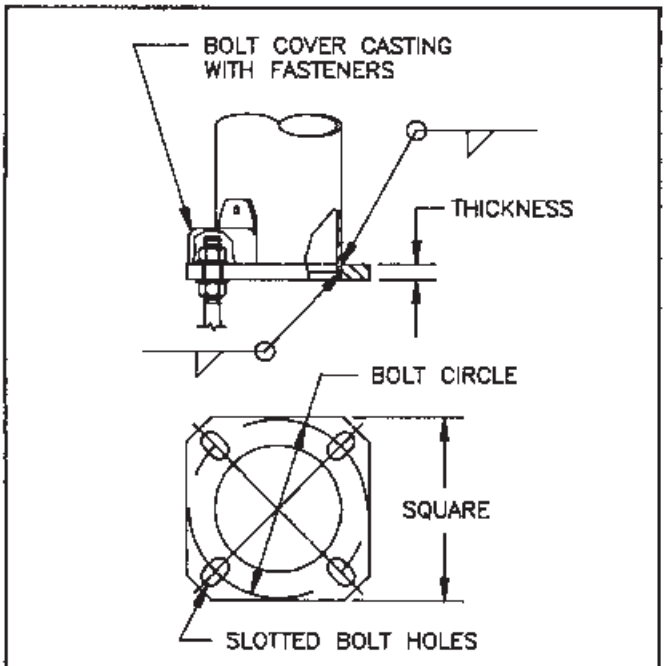
1. All designs utilize 1" x 36" x 4' anchor bolts.
2. All designs utilize 11 gauge material (.1196").
3. All designs provided with 4" x 6.5" nominal handhole.
4. Maximum luminaire weight is 75 lbs per arm.
5. • = Designed to 90 mph w/1.3 gust. Consult Valmont for higher wind speed designs. All other designs based on a 100 mph wind speed w/1.3 gust factor and maximum luminaire EPA of 2.0.
6. Structure weight is a nominal value which includes the pole shaft, base plate, and luminaire arm only



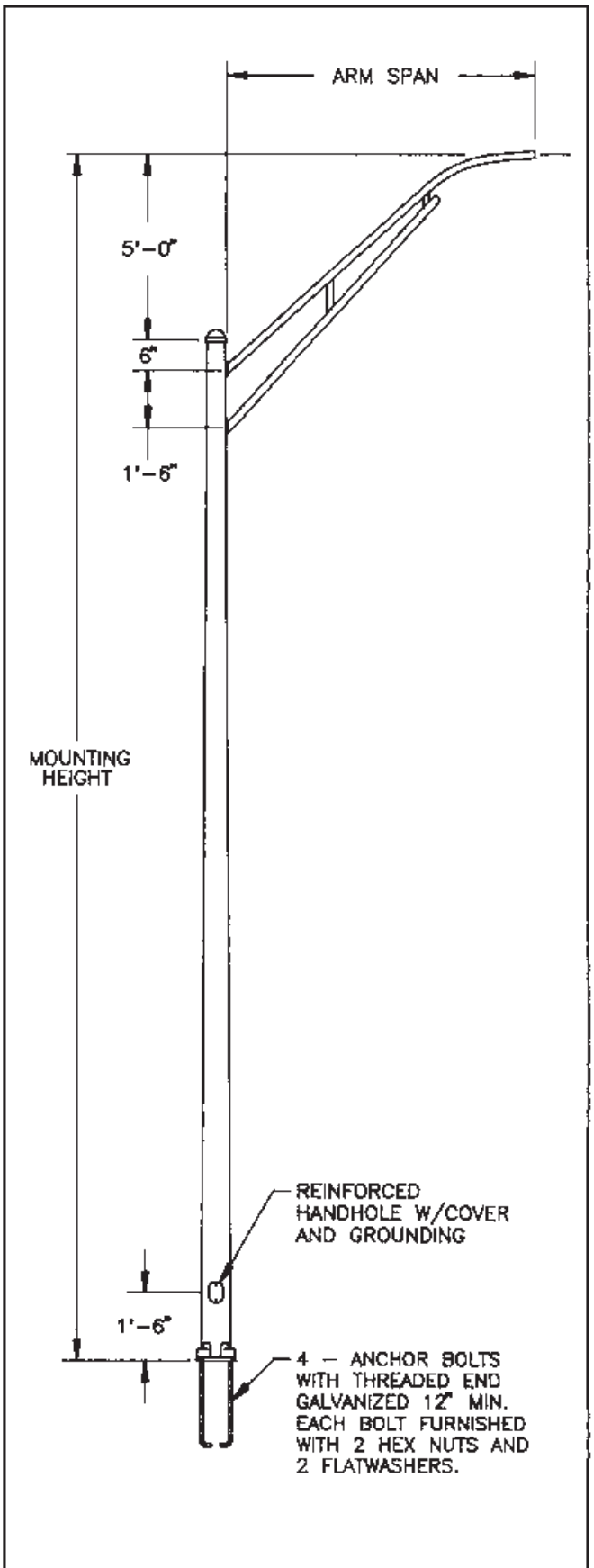
TWIN ARM ARRANGEMENT



ARM ATTACHMENT DETAIL



POLE BASE DETAIL



DS60 POLE DETAIL

Single Pipe Luminaire Arm

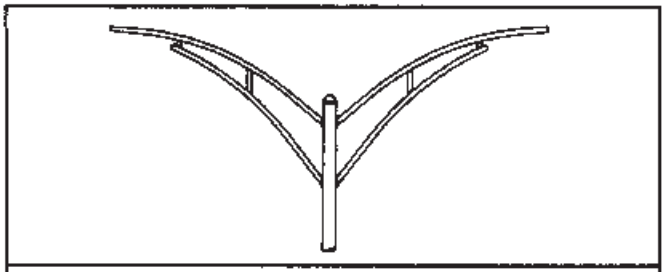
Nominal Mounting Height (Ft.)	Shaft				Arm	Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
25	700A220	7.0	3.9	295	15	10.0	.5	10.88	0.88
30	750A270	7.5	3.7	345	12	10.5	.5	11.25	0.88
	800A270	8.0	4.2	370	15	11.0	.5	11.50	0.88
35	800A320	8.0	3.5	375	10	11.0	.5	11.50	0.88
	850A320	8.5	4.0	405	12	11.5	.5	12.00	1.00
	900A320	9.0	4.5	445	15	12.5	.5	12.38	1.00
40	900A370	9.0	3.8	450	12	12.5	.5	12.38	1.00
	950A370	9.5	4.3	510	15	13.0	.5	13.00	1.00

Twin Pipe Luminaire Arms

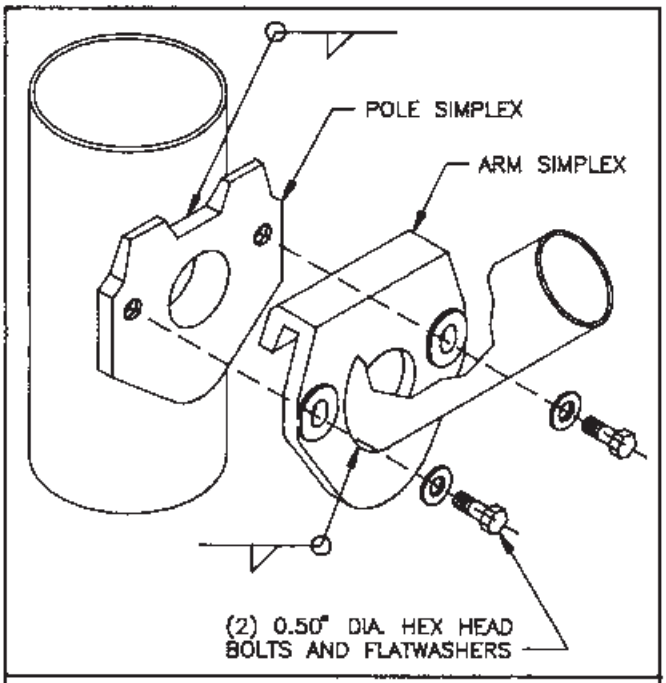
Nominal Mounting Height (Ft.)	Shaft				Arm	Pole Base			
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)
25	700A220	7.0	3.9	385	15	10.0	.5	10.88	0.88
30	750A270	7.5	3.7	445	12	10.5	.5	11.25	0.88
	800A270	8.0	4.2	490	15	11.0	.5	11.50	0.88
35	800A320	8.0	3.5	465	10	11.0	.5	11.50	0.88
	850A320	8.5	4.0	500	12	11.5	.5	12.00	1.00
	900A320	9.0	4.5	560	15	12.5	.5	12.38	1.00
40	900A370	9.0	3.8	565	10	12.5	.5	12.38	1.00
	950A370	9.5	4.3	630	12	13.0	.5	13.00	1.00
	T00A370	10.0	4.8	665	15	13.5	.5	14.00	1.00

DS70 NOTES:

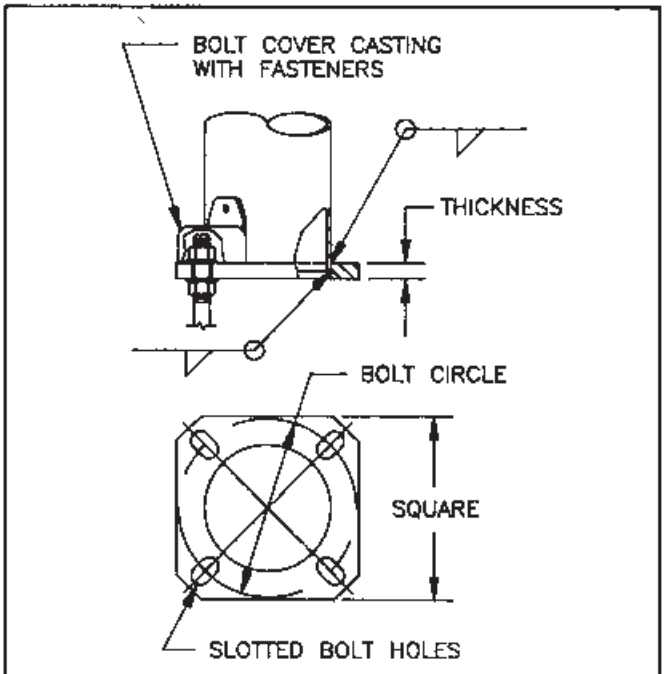
1. All designs utilize 1" x 36" x 4" anchor bolts.
2. All designs utilize 11 gauge material (1196).
3. All designs provided with 4" x 6.50" nominal handhole
4. Maximum luminaire weight is 75 lbs per arm
5. All designs based on a 100 mph wind speed w/1.3 gust factor and maximum luminaire EPA of 2.0.
6. Structure weight is a nominal value which includes the pole shaft, base plate, and luminaire arm only.



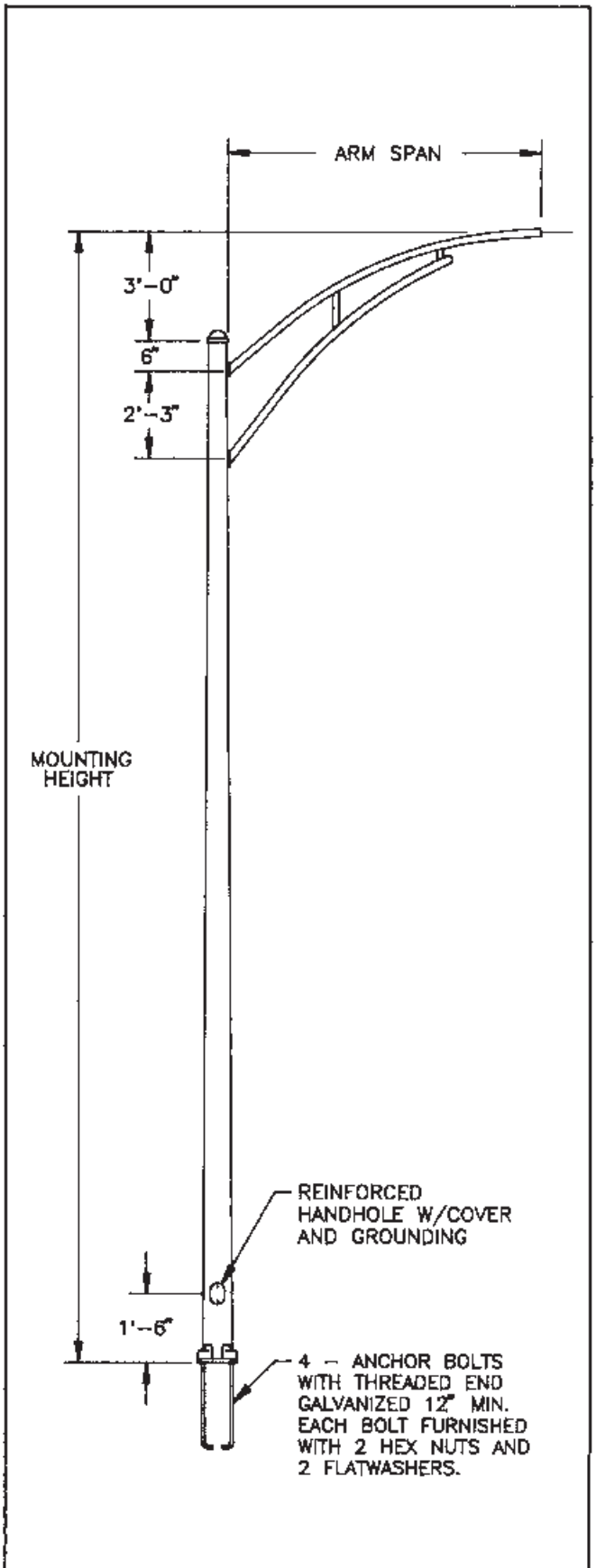
TWIN ARM ARRANGEMENT



ARM ATTACHMENT DETAIL



POLE BASE DETAIL



DS70 POLE DETAIL

Single Davit Arm

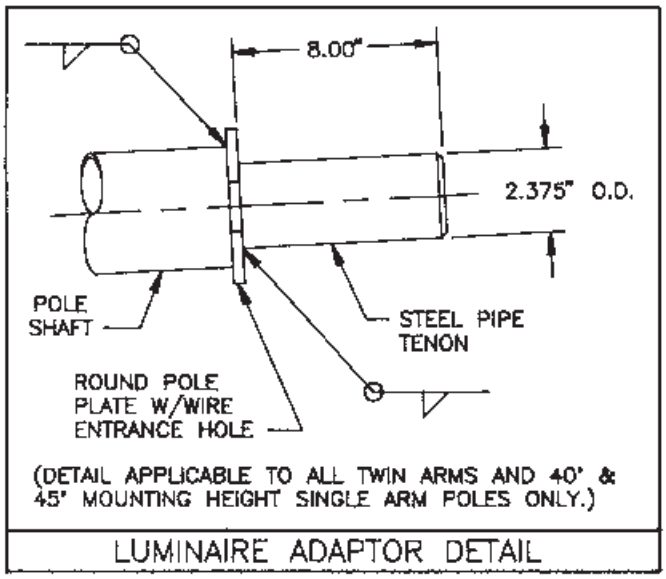
Nominal Mounting Height (ft)	Shaft				Arm	Pole Base				Anchor Bolts
						Bolt Circle				
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Dia. (in)	± (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)
25	643A28T	6.4	2.4	195	6.5	9.5	.5	10.50	0.88	1 x 36 x 4
30	713A33T	7.1	2.4	235	6.5	10.0	.5	10.88	0.88	1 x 36 x 4
35	782A389	7.8	2.4	290	6.5	11.0	.5	11.50	0.88	1 x 36 x 4
40	950A436	9.5	3.4	410	6.5	13.0	.5	13.00	1.00	1 x 36 x 4

Twin Davit Arms (Two Piece)

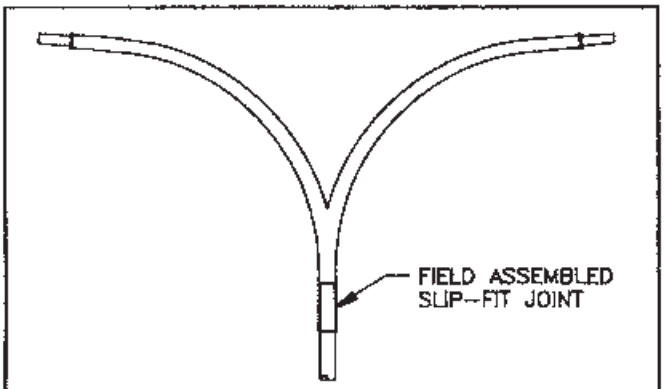
Nominal Mounting Height (ft)	Shaft				Arm	Pole Base				Anchor Bolts
						Bolt Circle				
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lgth. (ft)	Dia. (in)	± (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)
25	750A286	7.5	3.8	320	6.5	10.5	.5	11.25	0.88	1 x 36 x 4
30	800A336	8.0	3.6	370	6.5	11.0	.5	11.50	0.88	1 x 36 x 4
35	900A386	9.0	3.9	450	6.5	12.5	.5	12.38	1.00	1 x 36 x 4
40	950A436	9.5	3.4	495	6.5	13.0	.5	13.00	1.00	1 x 36 x 4

DS90 NOTES:

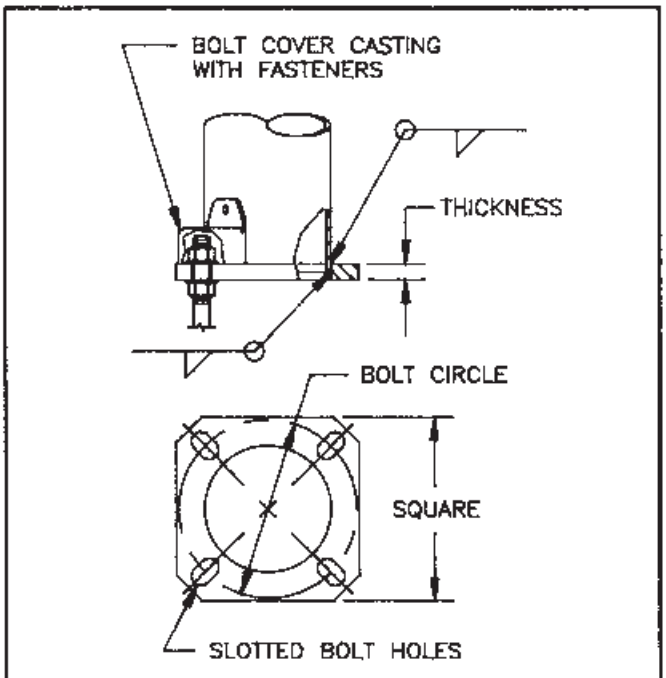
1. All designs utilize 11 gauge material (.1196").
2. All poles provided with 4" x 6.5" nominal handhole.
3. Maximum luminaire weight is 75 lbs. per arm.
4. All twin davits are provided as a two-piece field-assembled unit.
5. Structure weight is a nominal value which includes the pole shaft, base plate, and luminaire arm only.
6. All designs based on a 100 mph wind speed w/1.3 gust factor and maximum luminaire EPA of 2.0



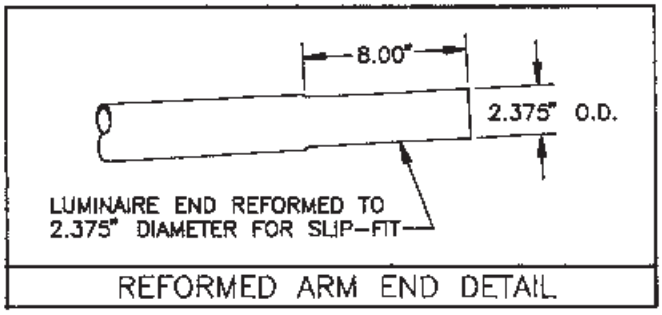
LUMINAIRE ADAPTOR DETAIL



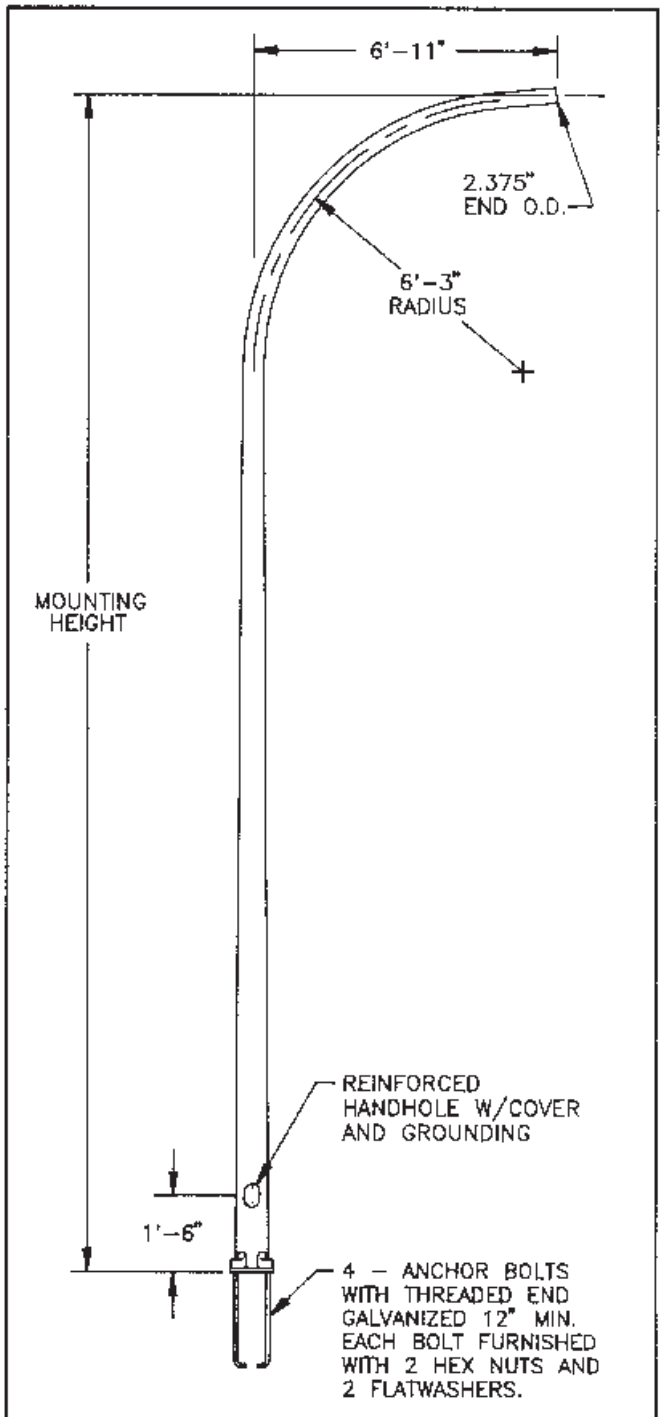
TWIN ARM ARRANGEMENT



POLE BASE DETAIL



REFORMED ARM END DETAIL



DS90 POLE DETAIL

Single Tapered Luminaire Arm

Nominal Mounting Height (ft)	Shaft				Arm	Pole Base				Anchor Bolts
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lngth. (ft)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)
30	750A286	7.5	3.5	295	8	10.5	.5	11.25	0.88	1.00 x 36 x 4
	800A286	8.0	4.0	349	15	11.0	.5	11.50	0.88	1.00 x 36 x 4
35	800A336	8.0	3.3	340	8	11.0	.5	11.50	0.88	1.00 x 36 x 4
	850A336	8.5	3.8	395	12	11.5	.5	12.00	1.00	1.00 x 36 x 4
	900A336	9.0	4.3	425	15	12.5	.5	12.38	1.00	1.00 x 36 x 4
40	900A386	9.0	3.6	430	10	12.5	.5	12.38	1.00	1.00 x 36 x 4
	950A386	9.5	4.1	485	12	13.0	.5	13.00	1.00	1.00 x 36 x 4
	T00A386	10.0	4.6	515	15	13.5	.5	14.00	1.00	1.00 x 36 x 4
45	950A436	9.5	3.4	500	10	13.0	.5	13.00	1.00	1.00 x 36 x 4
	T00A436	10.0	3.9	560	12	13.5	.5	14.00	1.00	1.00 x 36 x 4
	T50B436	10.5	4.4	645	15	14.0	.5	14.50	1.25	1.25 x 42 x 6

Twin Tapered Luminaire Arms

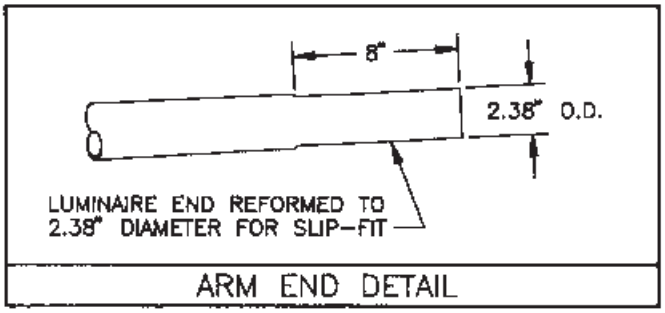
Nominal Mounting Height (ft)	Shaft				Arm	Pole Base				Anchor Bolts
	Designation Number	Base O.D. (in)	Top O.D. (in)	Struct. Weight (lbs)	Max. Lngth. (ft)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)
30	750A286	7.5	3.5	390	12	10.5	.5	11.25	0.88	1.00 x 36 x 4
	800A286	8.0	4.0	445	15	11.0	.5	11.50	0.88	1.00 x 36 x 4
35	800A336	8.0	3.3	395	8	11.0	.5	11.50	0.88	1.00 x 36 x 4
	850A336	8.5	3.8	470	12	11.5	.5	12.00	1.00	1.00 x 36 x 4
	900A336	9.0	4.3	515	15	12.5	.5	12.38	1.00	1.00 x 36 x 4
40	900A386	9.0	3.6	490	10	12.5	.5	12.38	1.00	1.00 x 36 x 4
	950A386	9.5	4.1	560	12	13.0	.5	13.00	1.00	1.00 x 36 x 4
	T00A386	10.0	4.6	600	15	13.5	.5	14.00	1.00	1.00 x 36 x 4
45	950A436	9.5	3.4	585	10	13.0	.5	13.00	1.00	1.00 x 36 x 4
	T00A436	10.0	3.9	645	12	13.5	.5	14.00	1.00	1.00 x 36 x 4
	T50B436	10.5	4.4	740	15	14.0	.5	14.50	1.25	1.25 x 42 x 6

DS32 NOTES:

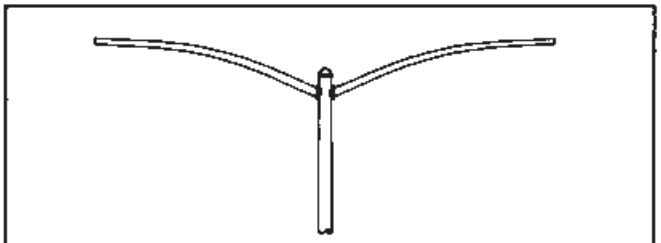
1. All designs with the letter "A" utilize 11 gauge material (.1196"). Designs with the letter "B" utilize 10 gauge material (.1345").
2. All designs utilize 4" x 6.5" nominal handhole.
3. Maximum luminaire weight is 75 lbs. per arm.
4. Nominal luminaire mounting heights as charted are within ± 1' depending upon the arm length selected and respective rise height.
5. Structure weight is a nominal value which includes the pole shaft, base plate, and luminaire arm only.
6. All designs based on a 100 mph wind speed w/1.3 gust factor and maximum luminaire EPA of 2.0.

Luminaire Arm Schedule

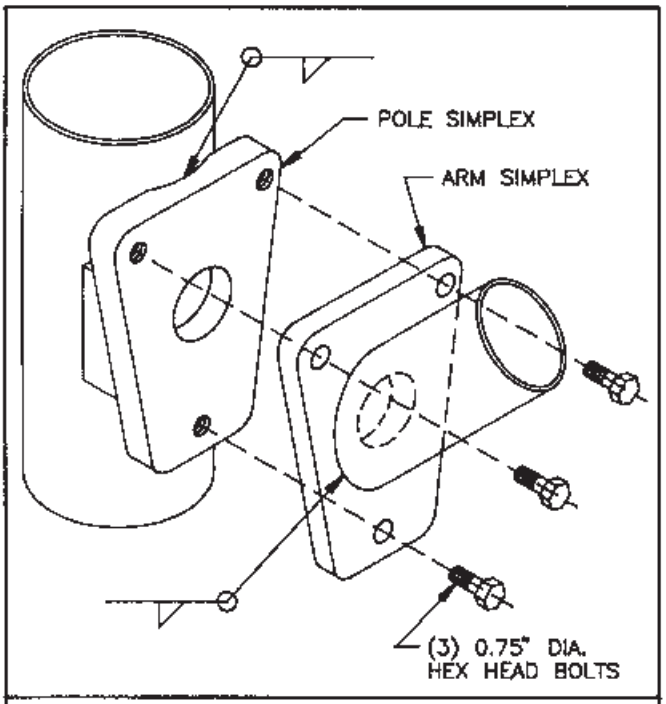
Arm Span (Ft)	Rise Height	Arm Size (in)
4	0'-6"	3.0 x 2.4 x 11 Ga.
6	1'-0"	3.3 x 2.4 x 11 Ga.
8	1'-4"	3.6 x 2.4 x 11 Ga.
10	1'-8"	3.8 x 2.4 x 11 Ga.
12	2'-0"	4.1 x 2.4 x 11 Ga.
15	2'-6"	4.6 x 2.4 x 11 Ga.



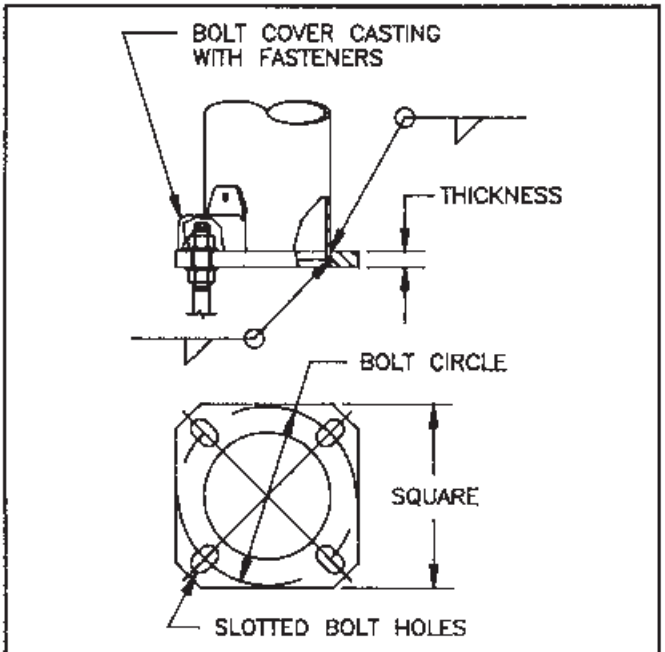
ARM END DETAIL



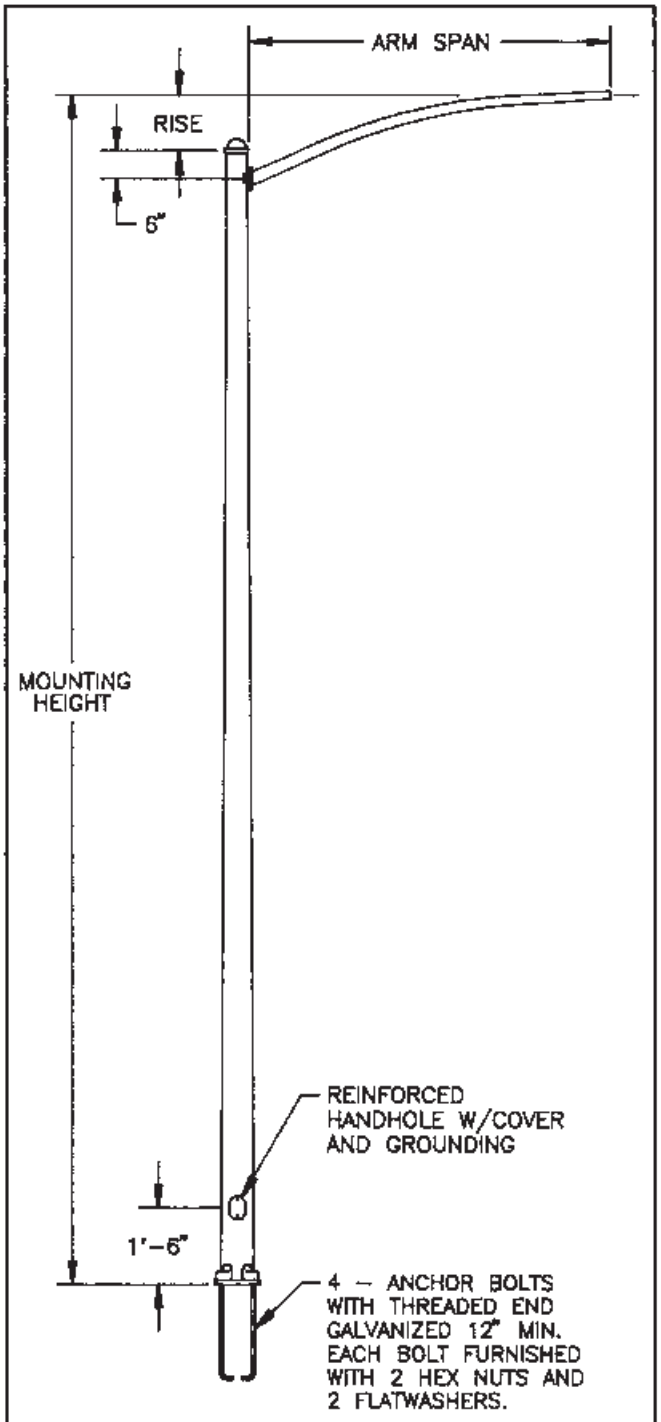
TWIN ARM ARRANGEMENT



ARM ATTACHMENT DETAIL



POLE BASE DETAIL



DS32 POLE DETAIL

Tapered Poles

DS210, DS220

ANCHOR BOLTS

Anchor Bolts are fabricated from carbon steel bar conforming to AASHTO M314 Grade-55 or ASTM F1554 Grade-55. Bolts have an “L” bend on one end and are galvanized a minimum of 12 inches on the threaded end. Four anchor bolts are provided per pole. Each anchor bolt is furnished with two hex nuts and two flat washers.

ANCHOR BASE

The anchor base (base plate) is fabricated from structural quality hot rolled carbon steel plate conforming to ASTM A36. The base plate telescopes the pole shaft and is circumferentially welded top and bottom. Please refer to the charted bolt circles and detail drawings to determine the type of hole or slot accommodation made for the anchor bolt.

POLE SHAFT

The pole shaft conforms to ASTM A595 Grade-A and is supplied in 11 gauge (0.1196"), 7 gauge (0.1793") 5 gauge (0.2092") or 3 gauge (0.2391") thickness. The pole can be either one-piece or two piece construction, with a full length longitudinal high frequency electric resistance weld. The DS210 series is round in cross-section having a uniform taper of approximately 0.14 inches per foot of length. The DS220 series shaft is square in cross section having flat sides, radiused corners and a uniform taper of approximately 0.11 inches per foot of length.

HANDHOLE

The reinforcing handhole rim consists of either a nominal 3" x 5" rectangular shaped tubing or 4" x 6.5" oval shaped pipe material. The 3" x 5" handhole is provided with a steel attachment bar, steel cover, and one round head machine screw. The 4" x 6.5" handhole includes two tabs for mounting a steel cover with hex head attachment screws. Both handhole types are welded in the pole shaft and are located 1'-6" above the base.

ELECTRICAL GROUND

A nut holder is provided near the handhole and includes a .5"-13UNC hex head bolt and nut.

NUT COVERS (OPTIONAL)

Nut covers for anchor bolts are zinc die cast. Each cover is fastened to the shaft by a 0.25" stainless steel, self-tapping, hex head screw. Nut covers are a standard component for the DS210 series and are NOT available for the DS220 series.

FULL BASE COVER (STANDARD)

The optional full base cover is fabricated from ABS plastic. Valmont reserves the right to provide a steel assembly on some applications depending upon the finish requirement and/or pole shaft base diameter. Both steel and plastic covers are a two-piece assembly secured together with two fasteners. A full base cover is a standard component on the DS220 series.

POLE TOP TENON (STANDARD)

Pole top tenons are fabricated from structural quality hot rolled carbon steel with a guaranteed minimum yield strength of 30,000 psi. A pole top plate and tenon of weldable grade hot rolled commercial quality carbon steel is circumferentially welded to the top of the pole shaft. This plate provides an internal weather resistant wiring race-way into the pole top tenon. Standard sizes are either 2.38" O.D. x 4" long (P2) or 4" O.D. x 6" long (P4) steel tubing. See page 1 for other available sizes.

POLE TOP CAP

A removable cap is available as an option to be used in conjunction with drilled shafts for direct luminaire arm attachment.

STANDARD FINISH

Standard finishes available are galvanize, prime coat (powder), and finish coat (powder). For information regarding the scope and application of these coatings please refer to page 5.

FASTENING HARDWARE

All structural fasteners are galvanized high strength carbon steel. All fasteners are galvanized or zinc plated carbon steel or stainless steel.

DESIGN

The standards shown in this section are designed to withstand dead loads and theoretical dynamic loads developed by variable wind speeds, as charted, with an appropriate gust factor under the following conditions:

The luminaire(s) and/or mounting bracket(s) center of gravity, or centroid, is assumed to be located a maximum of 2'-6" above the pole top. For purposes of design, effective projected area (EPA) is considered to be the product of the actual projected area and the drag coefficient.

The listed weights include luminaire(s) and/or mounting bracket(s) and are based on a weight to EPA ratio of 25 pounds per square foot.

The wind velocities are based on 10 mph increments from 80 mph through 100 mph (reference wind map). Standards to be located in areas of known abnormal conditions require special consideration. For example: coastal areas, airports, and areas of special winds such as the Chinook type along the eastern slope of the Rocky Mountains.

Standards are designed for ground mounted applications. Standards mounted on structures, such as bridges and buildings, also necessitate special consideration requiring Valmont’s recommendation.

Height correction factors and drag coefficients are applied to the entire structure. An appropriate safety factor is maintained based on the minimum yield strength of the material incorporated in the standard. Secondary moments are considered on all designs.

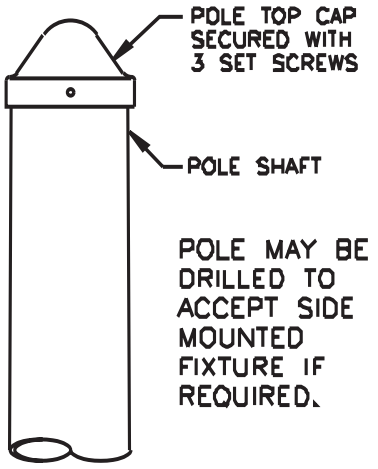
Maximum weight and EPA values for DS220 products are determined by analyzing stress from two wind directions as shown. Due to the increased area and reduced section properties, stress levels across the points generally control the allowable loads.

Valmont Industries, Inc. reserves the right to install various, engineer approved, material hanging accommodations to facilitate the manufacturing process. If this method is not acceptable, Valmont Industries, Inc. must be notified by the customer prior to manufacturing.

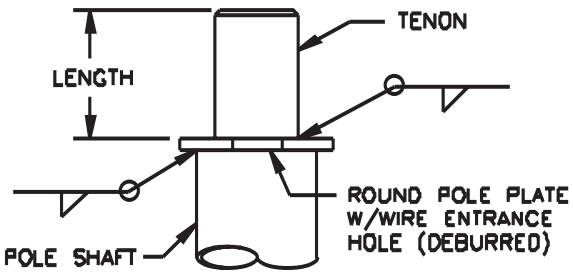
Nominal Mounting Height (ft)	Shaft					Pole Base				Anchor Bolts	80MPH w/1.3 Gust		90MPH w/1.3 Gust		100MPH w/1.3 Gust	
						Bolt Circle										
	Designation Number	Base O.D. (in)	Top O.D. (in)	Wall Thk. (ga)	Struct. Weight (lbs)	Dia. (in)	± (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)
20	**590A200-P2	5.9	3.1	11	140	9.0	.5	10.00	0.88	1.00 x 36 x 4	19.3	482	15.1	377	12.2	305
	650A200-P2	6.5	3.7	11	160	9.5	.5	10.50	0.88	1.00 x 36 x 4	24.2	605	19.3	482	15.6	390
25	**590A250-PL	5.9	2.4	11	155	9.0	.5	10.00	0.88	1.00 x 36 x 4	12.5	312	9.9	247	8.0	200
	700A250-P2	7.0	3.5	11	200	10.0	.5	10.88	0.88	1.00 x 36 x 4	20.3	507	16.2	405	13.1	327
	700E250-P2	7.0	3.5	7	280	10.0	.5	10.88	1.00	1.00 x 36 x 4	30.5	760	24.0	625	19.8	495
30	660A300-PL	6.6	2.4	11	200	9.5	.5	10.50	0.88	1.00 x 36 x 4	11.7	292	9.3	232	7.5	187
	800A300-P2	8.0	3.8	11	265	11.0	.5	11.50	0.88	1.00 x 36 x 4	18.9	473	14.9	373	12.0	300
	800E300-P2	8.0	3.8	7	380	11.0	.5	11.50	1.25	1.25 x 42 x 6	33.5	838	27.0	675	22.0	550
35	730A350-PL	7.3	2.4	11	250	10.5	.5	11.25	0.88	1.00 x 36 x 4	11.2	280	8.9	222	7.1	177
	850A350-P2	8.5	3.6	11	315	11.5	.5	12.00	1.00	1.00 x 36 x 4	18.9	472	15.1	377	12.2	305
	950A350-P2	9.5	4.6	11	370	13.0	.5	13.00	1.00	1.00 x 36 x 4	23.2	580	18.2	455	14.5	363
39	782A389-PL	7.8	2.4	11	285	11.0	.5	11.50	0.88	1.00 x 36 x 4	10.7	267	8.5	212	6.6	165
	900A389-P2	9.0	3.6	11	355	12.5	.5	12.38	1.00	1.00 x 36 x 4	17.2	430	13.5	338	10.8	270
	900E389-P2	9.0	3.6	7	515	12.5	.5	12.38	1.25	1.25 x 42 x 6	28.5	715	23.0	575	19.0	475
45	T00A450-P2	10.0	3.7	11	450	13.5	.5	14.00	1.00	1.00 x 36 x 4	17.4	435	13.5	338	10.6	265
	T00E450-P2	10.0	3.7	7	650	13.5	.5	14.00	1.25	1.25 x 42 x 6	28.5	715	23.0	575	19.0	475
	E00E450-P4	11.0	4.7	7	780	15.0	.5	16.50	1.50	1.25 x 42 x 6	35.7	893	28.0	700	22.3	558
50	T00A500-P2	10.0	3.0	11	475	13.5	.5	14.00	1.00	1.00 x 36 x 4	13.2	330	10.6	265	8.3	208
	T00E500-P2	10.0	3.0	7	680	13.5	.5	14.00	1.25	1.25 x 42 x 6	20.5	512	16.5	412	13.6	340
	E00E500-P4	11.0	4.0	7	812	15.0	.5	16.50	1.50	1.25 x 42 x 6	29.9	748	23.5	588	18.6	465
	H00E500-P4	13.0	6.0	7	1020	17.0	N/A	18.00	1.50	1.50 x 54 x 6	50.4	1260	39.7	992	31.4	785
	H00J500-P4	13.0	6.0	3	1335	17.5	N/A	18.50	1.75	1.75 x 84 x 6	69.2	1730	55.0	1375	44.2	1105
55	E00E550-P4	11.0	3.5	7 & 11	890	15.0	.5	16.50	1.50	1.25 x 42 x 6	21.6	540	17.7	442	14.7	367
	W00E550-P4	12.0	4.5	7 & 11	975	16.0	N/A	17.00	1.50	1.50 x 54 x 6	32.2	805	25.9	647	21.1	527
	W504550-P4	12.5	5.2	5 & 7	1225	16.5	N/A	17.50	1.50	1.50 x 54 x 6	43.8	1095	35.0	875	28.6	715
60	W00E600-P4	12.0	4.0	7 & 7	1060	16.0	N/A	17.00	1.50	1.50 x 54 x 6	25.9	647	20.7	517	16.8	420
	H00E600-P4	13.0	4.8	7 & 11	1075	17.0	N/A	18.00	1.50	1.50 x 54 x 6	30.1	752	24.5	612	20.2	505
	W504600-P4	12.5	4.5	5 & 7	1275	16.5	N/A	17.50	1.50	1.50 x 54 x 6	34.0	850	27.6	690	22.6	565
65	H00E650-P4	13.0	4.3	7 & 7	1200	17.0	N/A	18.00	1.50	1.50 x 54 x 6	27.3	682	22.0	550	17.9	447
	H004650-P4	13.0	4.3	5 & 7	1400	17.0	N/A	18.00	1.50	1.50 x 54 x 6	30.8	770	24.8	620	20.4	510
70	H00E700-P4	13.0	3.6	7 & 7	1270	17.0	N/A	18.00	1.50	1.50 x 54 x 6	20.6	515	16.7	417	13.7	342
	H004700-P4	13.0	3.6	5 & 7	1440	17.0	N/A	18.00	1.50	1.50 x 54 x 6	23.6	590	19.2	480	15.8	395

DS210 NOTES:

1. **3" x 5" nominal handhole - all others 4" x 6.5" nominal.
2. Structure weight is a nominal value which includes the pole shaft and base plate only.
3. Designs showing two shaft gauges indicates structure is provided as a two-piece, field assembled, unit. Heavier gauge is the bottom section.
4. Maximum weight and EPA values are based on top mounted luminaires and/or brackets having a centroid 2'-6" above the nominal mounting height.

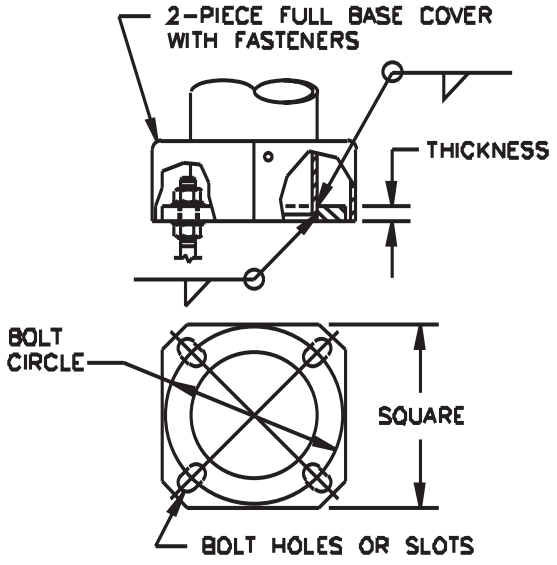


CAP DETAIL (OPTIONAL)

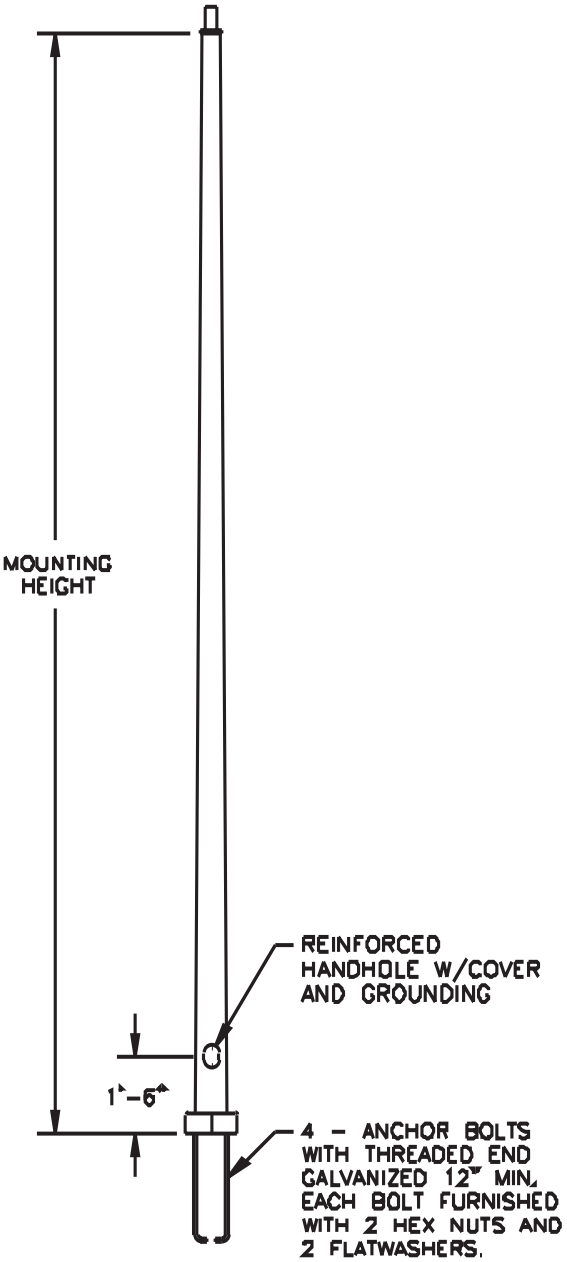


DESIGN NUMBER	O.D. (in)	PIPE SIZE	LENGTH (in)
P2	2.375	2.0" SCHED 80	4
P4	4.000	3.5" SCHED 40	6
PL	2.400	POLE TOP	N.A.

TENON DETAIL (STANDARD)



POLE BASE DETAIL



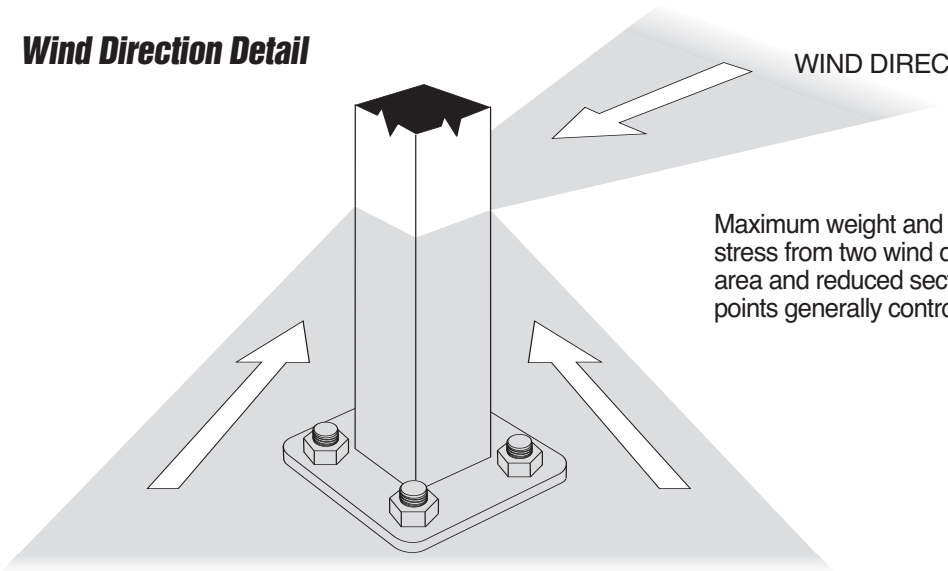
DS210 POLE DETAIL

Nominal Mounting Height (ft)	Shaft					Pole Base			Anchor Bolts	80MPH w/1.3 Gust		90MPH w/1.3 Gust		100MPH w/1.3 Gust	
	Designation Number	Base O.D. (in)	Top O.D. (in)	Wall Thk. (ga)	Struct. Weight (lbs)	Bolt Circle (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)
20	**525A200	5.25	3.05	11	155	10.75	10.75	0.75	1.00 x 36 x 4	18.0	452	13.8	345	10.7	268
	**550E200	5.50	3.30	7	235	11.00	11.00	1.00	1.00 x 36 x 4	30.5	764	24.0	602	19.0	477
25	**600A250	6.00	3.25	11	205	12.00	11.50	0.88	1.00 x 36 x 4	16.8	422	12.6	315	9.5	238
	641E250	6.41	3.66	7	310	12.50	11.88	1.25	1.00 x 36 x 4	28.5	713	22.5	563	18.2	455
30	641A300	6.41	3.11	11	260	12.50	11.88	0.88	1.00 x 36 x 4	13.6	340	9.8	245	7.0	175
	641E300	6.41	3.11	7	375	12.50	11.88	1.25	1.00 x 36 x 4	23.6	590	17.9	448	13.7	343
	713E300	7.13	3.83	7	431	13.50	12.63	1.25	1.00 x 36 x 4	27.4	687	21.6	542	17.3	434
35	681A350	6.81	2.96	11	305	13.00	12.25	0.88	1.00 x 36 x 4	10.7	269	7.3	184	4.8	120
	713E350	7.13	3.28	7	475	13.50	12.63	1.25	1.00 x 36 x 4	23.4	585	17.4	435	13.0	325
	788E350	7.88	4.03	7	540	14.50	13.38	1.25	1.00 x 36 x 4	25.7	643	18.8	470	13.8	345
39	718A389	7.18	2.92	11	345	13.50	12.63	0.88	1.00 x 36 x 4	8.6	215	5.4	135	3.0	75
	713E389	7.13	2.87	7	500	13.50	12.63	1.25	1.00 x 36 x 4	19.3	483	14.2	355	10.4	260
	875E389	8.75	4.49	7	670	15.75	14.25	1.50	1.25 x 42 x 6	26.1	654	20.6	517	16.2	405
45	788E450	7.88	2.93	7	620	14.50	13.38	1.25	1.00 x 36 x 4	16.0	400	11.1	278	7.4	187
	875E450	8.75	3.80	7	730	15.75	14.25	1.50	1.25 x 42 x 6	23.5	588	16.6	415	11.4	287
50	881E500	8.81	3.31	7	780	16.00	15.50	1.25	1.25 x 42 x 6	19.4	485	13.2	332	8.7	218

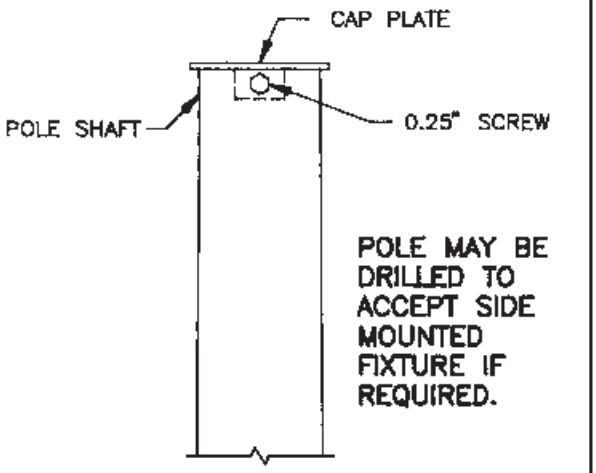
DS220 NOTES:

1. ** 3" x 5" nominal handhole, all others 4" x 6.5" nominal.
2. Structure weight is a nominal value which includes the pole shaft and base plate only.
3. The pole base plate is provided with bolt holes 0.25" larger than the anchor bolt diameter.
4. Maximum weight and EPA values are based on top mounted luminaires and/or brackets having a centroid 2'-6" above the nominal mounting height.

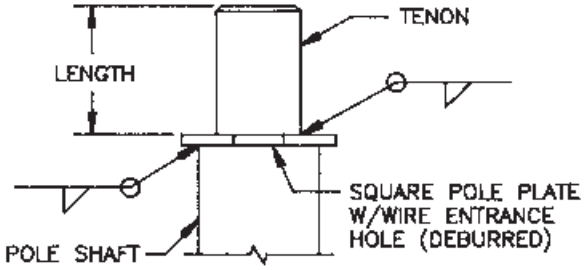
Wind Direction Detail



Maximum weight and EPA values are determined by analyzing stress from two wind directions as shown. Due to the increased area and reduced section properties, stress levels across the points generally control the allowable loads.

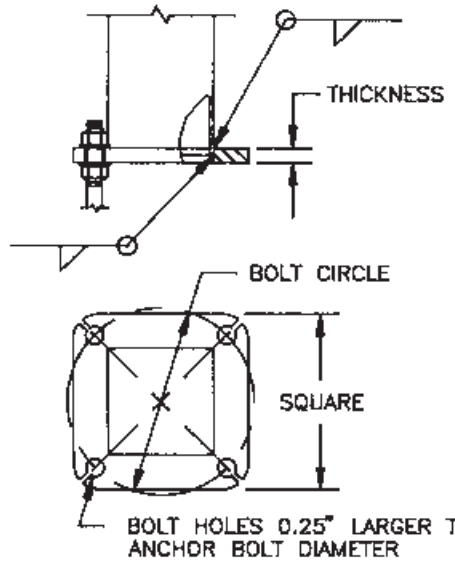


CAP DETAIL (OPTIONAL)

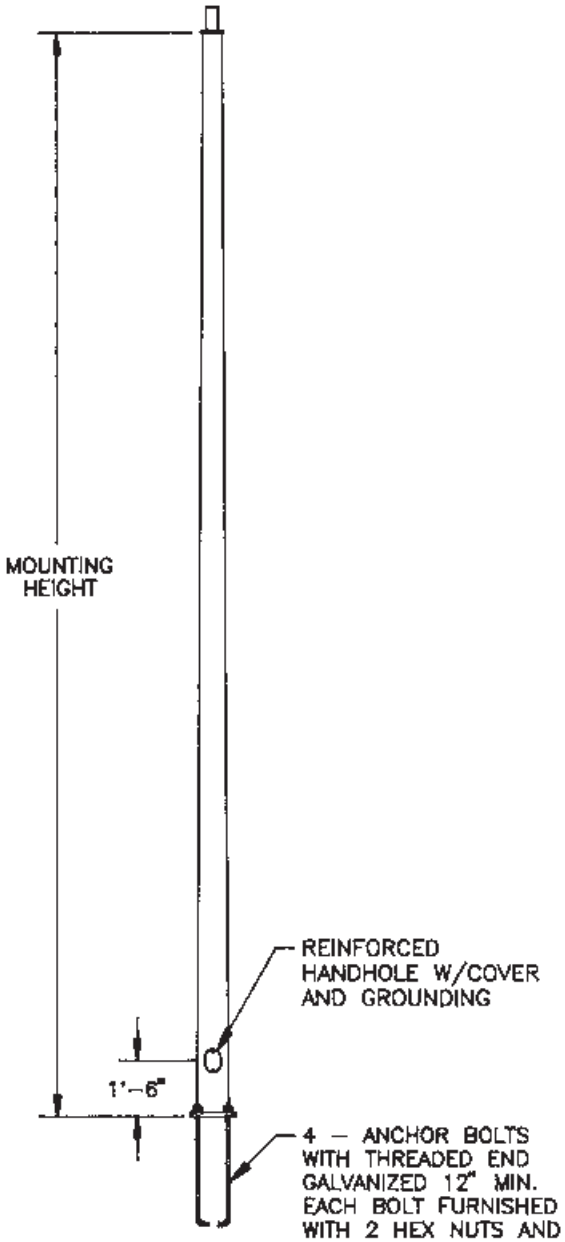


DESIGN NUMBER	O.D. (in)	PIPE SIZE	LENGTH (in)
P2	2.375	2.0" SCHED 80	4
P4	4.000	3.5" SCHED 40	6

TENON DETAIL (STANDARD)



POLE BASE DETAIL



DS220 POLE DETAIL

Fatigue Resistant Square Non-Tapered Poles

DS330

ANCHOR BOLTS

Anchor Bolts are fabricated from carbon steel bar conforming to AASHTO M314 Grade-55 or ASTM F1554 Grade-55. Bolts have an “L” bend on one end and are galvanized a minimum of 12 inches on the threaded end. Four anchor bolts are provided per pole. Each anchor bolt is furnished with two hex nuts and two flat washers.

ANCHOR BASE

The anchor base (base plate) is fabricated from structural quality hot rolled carbon steel plate conforming to ASTM A36. The base plate telescopes the pole shaft and is circumferentially welded top and bottom. The base is provided with a slotted anchor bolt opening that enables a range of bolt circles to be utilized. The pole chart information lists bolt circle ranges for each pole type.

POLE SHAFT

The pole shaft is fabricated from weldable grade hot rolled commercial quality carbon steel and is supplied in 11 gauge (0.1196") or 7 gauge (0.1793") material thickness having a guaranteed minimum yield strength of 55,000 psi. Shafts are of one-piece construction with a full length longitudinal high frequency electric resistance weld. The shaft is uniformly square in cross section with flat sides, rounded corners (.75" per corner), and no taper.

HANDHOLE

The reinforcing handhole rim consists of a rectangular shaped tubing material having a nominal 2.5" x 5" opening. It is provided with a steel attachment bar, steel cover, and one round head machine screw. The handhole is welded in the pole shaft and is located 1'-6" above the base.

ELECTRICAL GROUND

A nut holder is provided near the handhole and includes a 0.5"-13 UNC hex head bolt and nut.

FULL BASE COVER (STANDARD)

The standard full base cover is fabricated from ABS plastic. It is a two-piece cover secured together with two plastic hand push rivets.

POLE TOP CAP (STANDARD)

A removable top cap is provided and is used in conjunction with drilled pole shafts for accommodation of a direct mounted luminaire arm attachment.

POLE TOP TENON (OPTIONAL)

Pole top tenons are fabricated from structural quality hot rolled carbon steel with a guaranteed minimum yield strength of 30,000 psi. A pole top plate and tenon of weldable grade hot rolled commercial quality carbon steel is circumferentially welded to the top of the pole shaft. This plate provides an internal weather resistant wiring raceway into the pole top tenon. Standard sizes are of either 2.38" O.D. x 4" long (P2) or 4" O.D. x 6" long (P4) steel tubing.

STANDARD FINISH

Standard finishes available are galvanize, prime coat (powder), and finish coat (powder). For information regarding the scope and application of these coatings please refer to page 5.

FASTENING HARDWARE

All structural fasteners are galvanized high strength carbon steel. All other fasteners are galvanized or zinc plated carbon steel or stainless steel.

DESIGN

The standards shown in this section are designed to withstand dead loads and theoretical dynamic loads developed by variable wind speeds, as charted, with an appropriate gust factor under the following conditions:

The wind velocities are based on 10 mph increments from 80 mph through 100 mph (reference wind map). Standards to be located in areas of known abnormal conditions require special consideration. For example: coastal areas, airports, and areas of special winds such as the Chinook Winds along the eastern slope of the Rocky Mountains.

Standards are designed for ground mounted applications. Standards mounted on structures (such as bridges and buildings) also necessitate special consideration requiring Valmont’s recommendation.

Height correction factors and drag coefficients are applied to the entire structure. An appropriate safety factor is maintained based on the minimum yield strength of the material incorporated in the standard.

Valmont Industries, Inc. reserves the right to install various, engineer approved, material hanging accommodations to facilitate the manufacturing process. If this method is not acceptable, Valmont Industries, Inc. must be notified by the customer prior to manufacturing.

FATIGUE RESISTANT PRODUCT

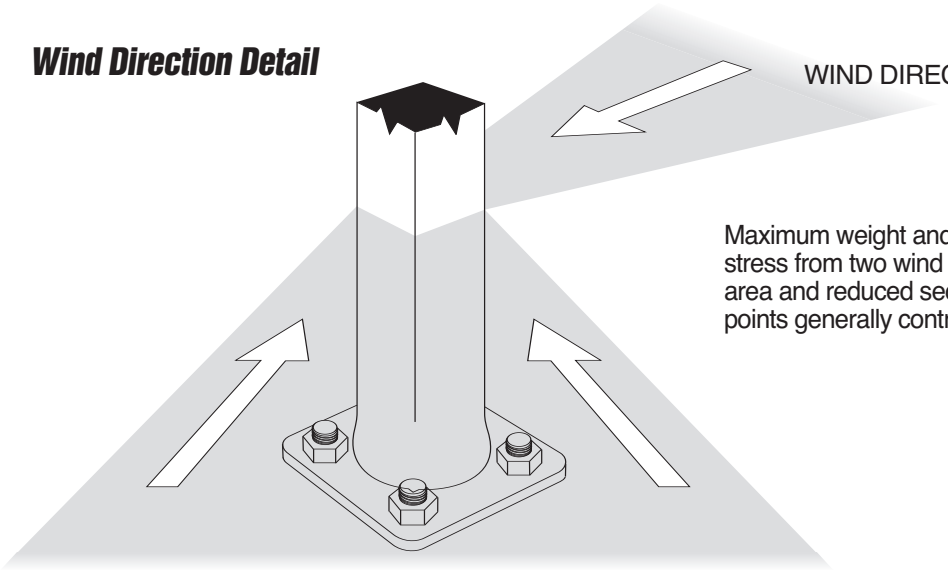
This product was specially designed to reduce the effects of fatigue in the welded connection between the pole shaft and base plate. Square poles, by the very nature of their shape, are more susceptible to fatigue at this critical joint than in any other geometric pole shape or design. By flaring out the shaft, and creating a round section at this critical welded connection point, the stress and resulting fatigue occurring at this point is more evenly distributed and thus enhances the structures longevity and overall performance.

Nominal Mounting Height (ft)	Shaft				Pole Base				Anchor Bolts	80MPH w/1.3 Gust		90MPH w/1.3 Gust		100MPH w/1.3 Gust	
	Designation Number	Base O.D. (in)	Wall Thk. (ga)	Struct. Weight (lbs)	Bolt Circle Dia. (in)	Bolt Circle ± (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)
10	400Q100	4.00	11	75	8.5	0.5	8.25	0.75	.75 x 17 x 3	30.6	765	23.8	595	18.9	473
12	400Q120	4.00	11	90	8.5	0.5	8.25	0.75	.75 x 17 x 3	24.4	610	18.8	470	14.8	370
14	400Q140	4.00	11	100	8.5	0.5	8.25	0.75	.75 x 17 x 3	19.9	498	15.1	378	11.7	293
16	400Q160	4.00	11	115	8.5	0.5	8.25	0.75	.75 x 17 x 3	15.9	398	11.8	295	8.9	223
18	400Q180	4.00	11	125	8.5	0.5	8.25	0.75	.75 x 17 x 3	12.6	315	9.2	230	6.7	168
20	400Q200	4.00	11	140	8.5	0.5	8.25	0.75	.75 x 17 x 3	9.6	240	6.7	167	4.5	150
	500Q200	5.00	11	185	11.0	1.0	11.00	1.00	.75 x 17 x 3	17.7	443	12.7	343	9.4	235
	500W200	5.00	7	265	11.0	1.0	11.00	1.00	.75 x 17 x 3	28.1	703	21.4	535	16.2	405
25	400Q250	4.00	11	170	8.5	0.5	8.25	0.75	.75 x 17 x 3	4.8	150	2.6	100	1.0	50
	400W250	4.00	7	245	8.5	0.5	8.25	0.88	.75 x 17 x 3	10.8	270	7.7	188	5.4	135
	500Q250	5.00	11	225	11.0	1.0	11.00	1.00	.75 x 17 x 3	9.8	245	6.3	157	3.7	150
	500W250	5.00	7	360	11.0	1.0	11.00	1.00	.75 x 17 x 3	18.5	463	13.3	333	9.5	238
30	400W300	4.00	7	291	8.5	0.5	8.25	0.75	.75 x 17 x 3	6.7	168	4.4	110	2.6	65
	500Q300	5.00	11	265	11.0	1.0	11.00	1.00	.75 x 17 x 3	4.7	150	2.0	50	-	-
	500W300	5.00	7	380	11.0	1.0	11.00	1.00	.75 x 17 x 3	10.7	267	6.7	167	3.9	100
	600W300	6.00	7	520	12.0	1.0	12.50	1.00	1.00 x 36 x 4	19.0	475	13.2	330	9.0	225
35	500W350	5.00	7	440	11.0	1.0	11.00	1.00	.75 x 17 x 3	5.9	150	2.5	100	-	-
	600W350	6.00	7	540	12.0	1.0	12.50	1.00	1.00 x 36 x 4	12.4	310	7.6	190	4.2	105
40	600W400	6.00	7	605	12.0	1.0	12.50	1.00	1.00 x 36 x 4	7.2	180	3.0	75	-	-

DS330 NOTES:

1. All designs provided with 2.5" x 5" nominal handhole.
2. Structure weight is a nominal value which includes the pole shaft and base plate only.
3. Maximum weight and EPA values are based on side mounted fixtures only. Consult Valmont on loading criteria for pole top mounted luminaires and/or brackets.

Wind Direction Detail



WIND DIRECTION ACROSS POINTS

Maximum weight and EPA values are determined by analyzing stress from two wind directions as shown. Due to the increased area and reduced section properties, stress levels across the points generally control the allowable loads.

Valmont is widely recognized throughout the industry as the leader in product design.

The DS330 square steel lighting pole is just another example why.

INCREASED PERFORMANCE

The unique bell-shaped base minimizes the effects of pole vibration by improving the fatigue performance of the shaft to base plate connection.

HOW WE DID IT

We evenly distributed the stress' by flaring out the bottom 4" of the pole shaft and creating a round section at the critical welded connection point.

UPDATED EXTERIOR DESIGN

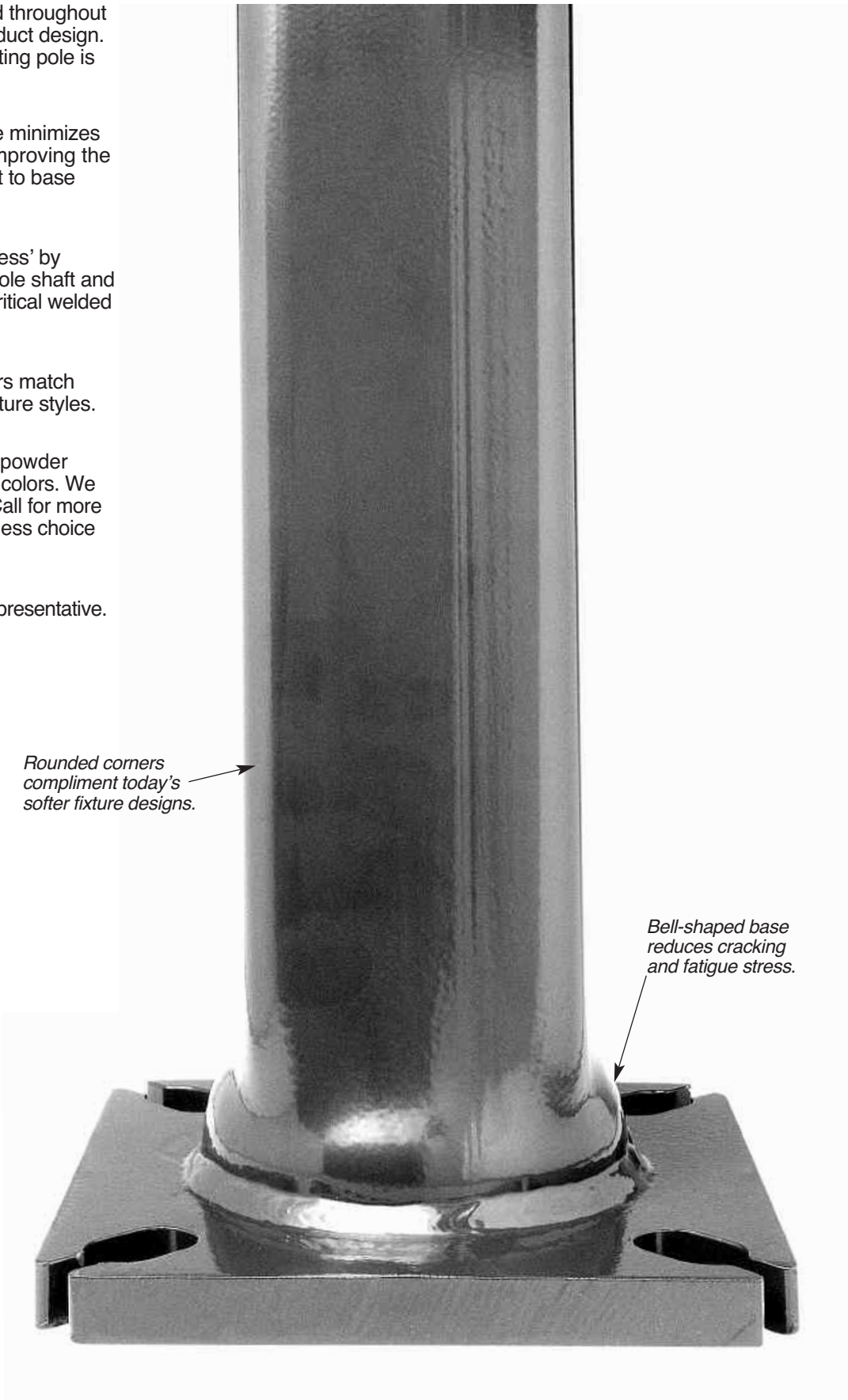
The DS330's rounded corners match many of today's softer corner fixture styles.

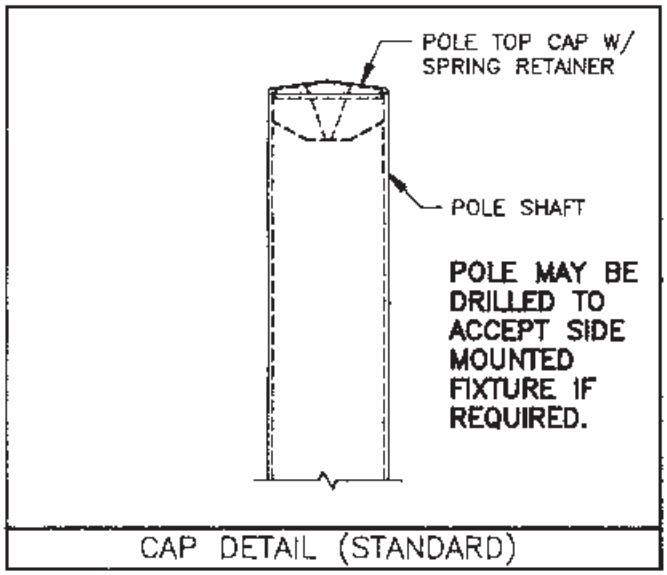
ENDLESS CHOICE OF COLORS

Valmont delivers top quality powder coatings in an endless choice of colors. We can match any color you need. Call for more information about Valmont's endless choice of colors.

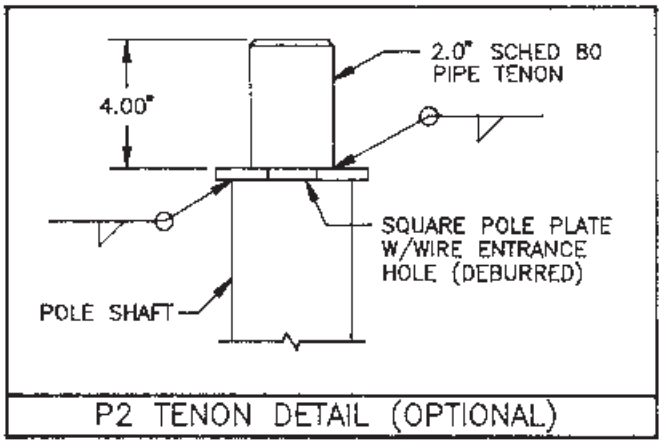
QUESTIONS?

Contact your local Valmont representative.

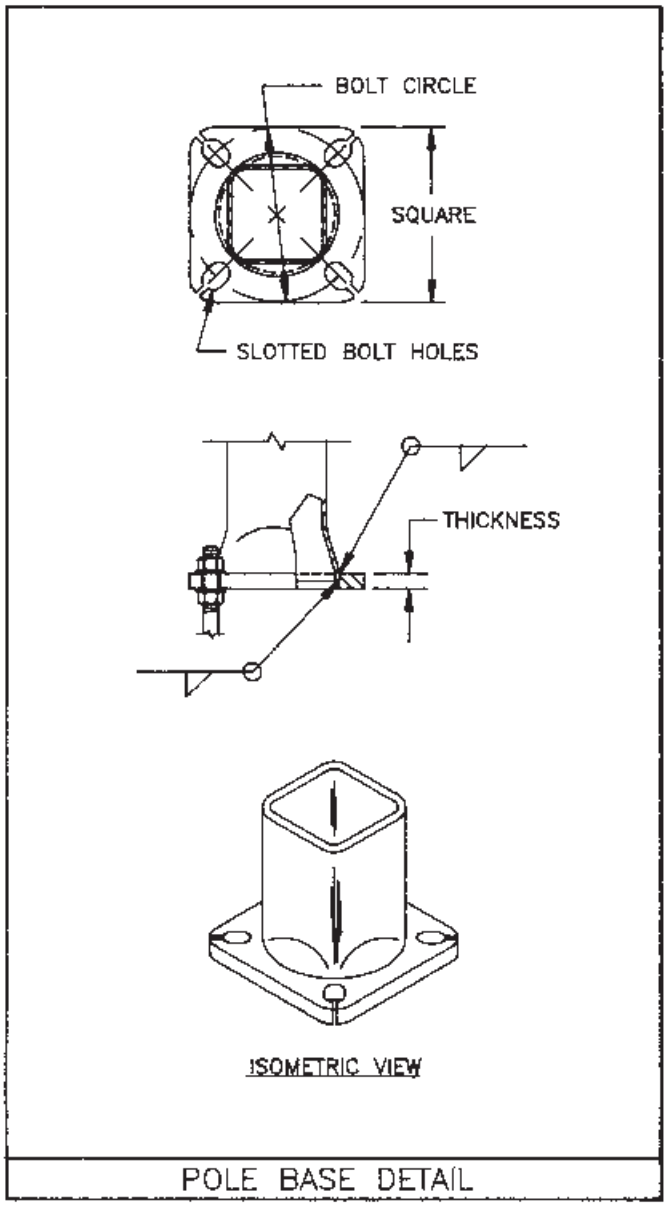




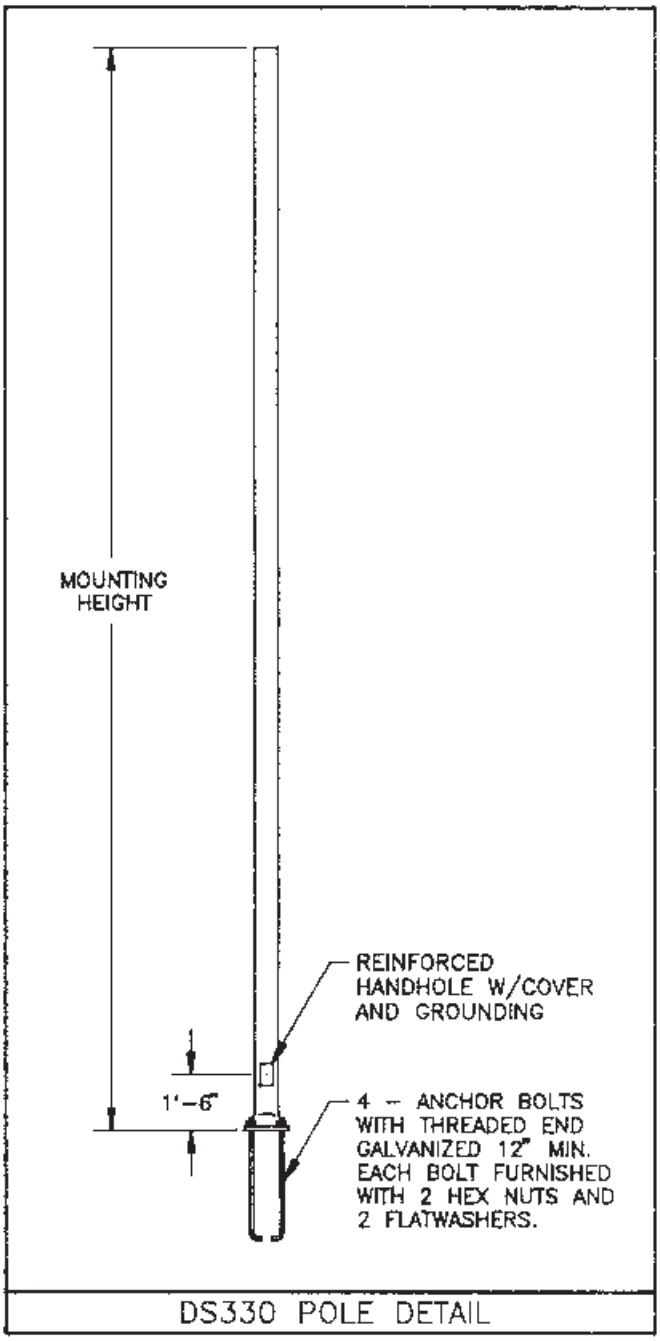
CAP DETAIL (STANDARD)



P2 TENON DETAIL (OPTIONAL)



POLE BASE DETAIL



DS330 POLE DETAIL

Round Non-Tapered Poles

DS340

ANCHOR BOLTS

Anchor Bolts are fabricated from carbon steel bar conforming to AASHTO M314 Grade-55 or ASTM F1554 Grade-55. Bolts have an “L” bend on one end and are galvanized a minimum of 12 inches on the threaded end. Four anchor bolts are provided per pole. Each anchor bolt is furnished with two hex nuts and two flat washers.

ANCHOR BASE

The anchor base (base plate) is fabricated from structural quality hot rolled carbon steel plate conforming to ASTM A36. The base plate telescopes the pole shaft and is circumferentially welded top and bottom. The base is provided with bolt slots to accommodate a bolt circle range from 7" to 9".

POLE SHAFT

Pole shafts are fabricated from hot rolled welded steel tubing of one-piece construction with a full length longitudinal high frequency electric resistance weld. The cross-section is round with no taper. Shaft material shall have a minimum yield strength of 42,000 psi.

HANDHOLE

The reinforcing handhole rim consists of a nominal 2.5" x 5" rectangular shaped tubing material. The handhole is provided with a steel attachment bar, steel cover, and one round head zinc plated machine screw.

ELECTRICAL GROUND

A nut holder is welded near the handhole and includes a 0.5"-13UNC hex head bolt and nut.

FULL BASE COVER (STANDARD)

The full base cover is fabricated from ABS plastic. The covers are two-piece assemblies secured together with two fasteners.

STANDARD FINISH

Standard finishes available are galvanized, prime coat (powder), and finish coat (powder). For information regarding the scope and application of these coatings please refer to page 2.

POLE TOP CAP (STANDARD)

A removable top cap is provided and is used in conjunction with drilled pole shafts for accommodation of a direct mounted luminaire arm attachment.

POLE TOP TENON (OPTIONAL)

Pole top tenons are fabricated from structural quality hot rolled carbon steel with a guaranteed minimum yield strength of 30,000 psi. A pole top plate and tenon of weldable grade hot rolled commercial quality carbon steel is circumferentially welded to the top of the pole shaft. This plate provides an internal weather resistant wiring raceway into the pole top tenon. Standard sizes are of either 2.38" O.D. x 4" long (P2) or 4" O.D. x 6" long (P4) steel tubing. See page 1 for other available sizes.

FASTENING HARDWARE

All structural fasteners are galvanized high strength carbon steel. All other fasteners are galvanized or zinc plated carbon steel or stainless steel.

DESIGN

The standards as shown in this section are designed to withstand dead loads and theoretical dynamic loads developed by variable wind speeds, as charted, with an appropriate gust factor under the following conditions:

The luminaire(s) and/or mounting bracket(s) center of gravity is assumed to be located at the pole top for all designs. For purposes of design, effective projected area (EPA) is considered to be the product of the actual projected area and the drag coefficient.

The listed weights include luminaire(s) and/or mounting bracket(s).

The wind velocities are based on 10 mph increments from 80 mph through 100 mph (reference wind map). Standards to be located in areas of known abnormal conditions require special consideration. For example: coastal areas, airports, and areas of special winds such as the Chinook type along the eastern slope of the Rocky Mountains.

Standards are designed for ground mounted applications. Standards mounted on structures, such as bridges and buildings, also necessitate special consideration requiring Valmont’s recommendation.

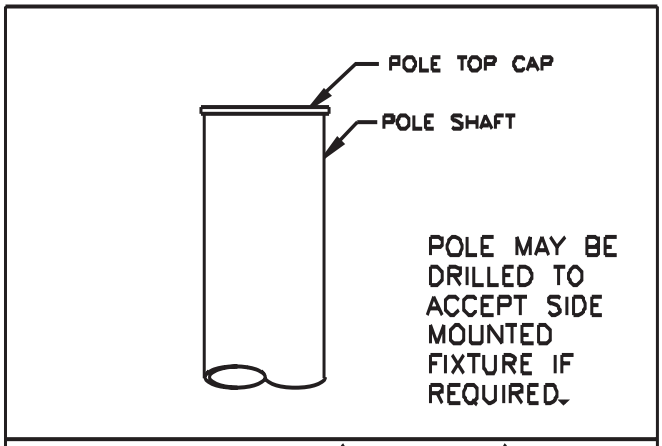
Height correction factors and drag coefficients are applied to the entire structure. An appropriate safety factor is maintained based on the minimum yield strength of the material incorporated in the standard. Secondary moments are considered on all designs.

Valmont Industries, Inc. reserves the right to install various, engineer approved, material hanging accommodations to facilitate the manufacturing process. If this method is not acceptable, Valmont Industries, Inc. must be notified by the customer prior to manufacturing.

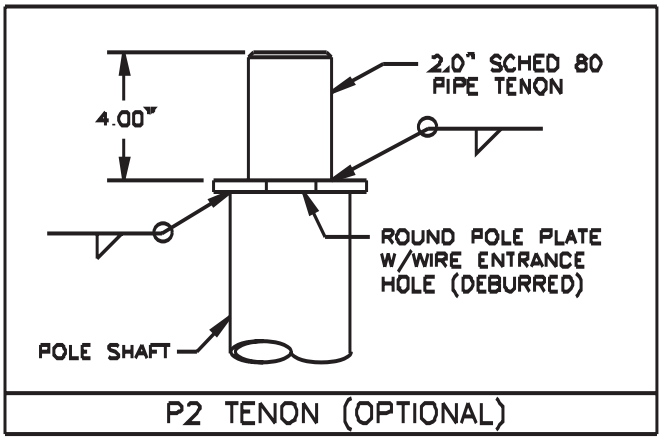
Nominal Mounting Height (ft)	Shaft				80 MPH w/1.3 Gust		90 MPH w/1.3 Gust		100 MPH w/1.3 Gust	
	Designation Number	Pole O.D. (in)	Wall Thk. (in)	Structure Weight (lbs)	Max. EPA (ftft2)	Max. Weight (lbs)	Max. EPA (ftft2)	Max. Weight (lbs)	Max. EPA (ftft2)	Max. Weight (lbs)
10	300V100	3.00	0.120	55	10.00	250	7.70	190	6.00	175
	400V100	4.00	0.120	70	19.10	480	15.00	375	12.20	305
	450V100	4.50	0.120	75	24.50	615	19.50	490	15.80	395
12	300V120	3.00	0.120	60	7.70	195	5.80	145	4.40	130
	400V120	4.00	0.120	80	15.00	390	11.80	300	9.50	240
	450V120	4.50	0.120	85	19.80	495	15.70	395	12.70	320
14	300V140	3.00	0.120	70	6.00	175	4.40	130	3.30	90
	400V140	4.00	0.120	90	12.20	305	9.40	250	7.60	195
	450V140	4.50	0.120	95	16.20	405	12.80	320	10.30	260
16	300V160	3.00	0.120	80	4.60	125	3.20	100	2.30	60
	400V160	4.00	0.120	100	9.60	250	7.40	185	5.90	150
	450V160	4.50	0.120	105	13.10	330	10.20	265	8.20	205
18	300V180	3.00	0.120	90	3.40	90	2.30	60	1.40	70
	400V180	4.00	0.120	110	7.60	190	5.70	180	4.50	130
	450V180	4.50	0.120	115	10.50	265	8.20	210	6.50	165
20	300V200	3.00	0.120	100	2.40	100	1.40	75	-	-
	400V200	4.00	0.120	120	6.00	150	4.45	150	3.45	125
	450V200	4.50	0.120	130	8.50	215	6.60	165	5.20	130
	500V200	5.00	0.120	145	11.75	300	9.10	230	7.25	180
25	400V250	4.00	0.120	145	2.85	100	1.95	75	1.35	75
	450V250	4.50	0.120	155	4.80	130	3.60	90	2.70	90
	500V250	5.00	0.120	180	7.25	180	5.50	150	4.25	150
	5006250	5.00	0.180	260	12.10	300	9.40	250	7.45	200
30	450V300	4.50	0.120	185	2.30	80	1.50	75	1.00	60
	500V300	5.00	0.120	210	4.20	150	3.00	125	2.25	100
	5006300	5.00	0.180	305	8.00	200	6.50	160	4.75	125

DS340 NOTES:

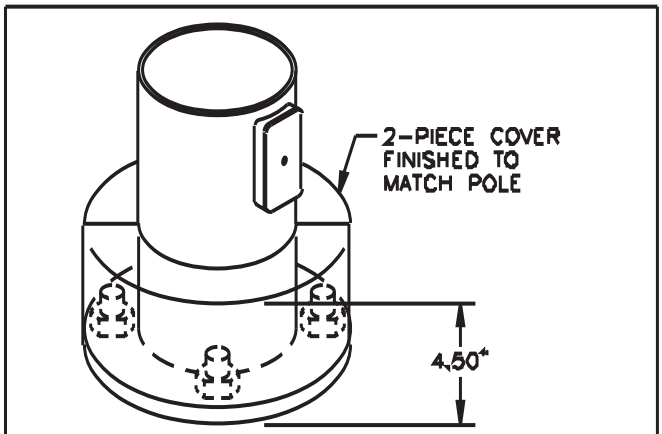
1. All designs utilize 0.75" x 17" x 3" anchor bolts.
2. All designs are provided with 2.5" x 5" nominal handhole.
3. Structure weight is a nominal value which includes the pole shaft and base plate only.
4. Pole base plate dimensions are the same for all designs. See pole base detail drawing for dimensions.
5. Maximum weight and EPA values are based on side mounting fixtures only. Consult Valmont on loading criteria for pole top mounted luminaires and/or brackets.



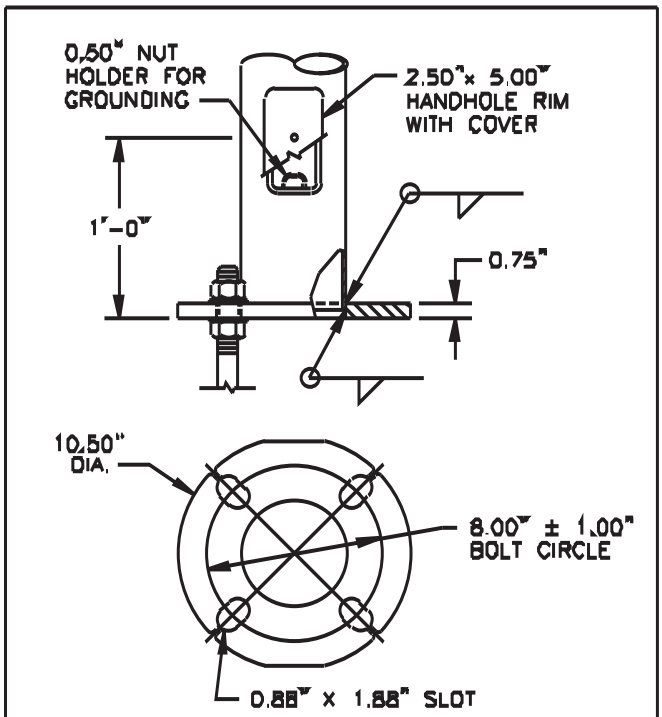
CAP DETAIL (STANDARD)



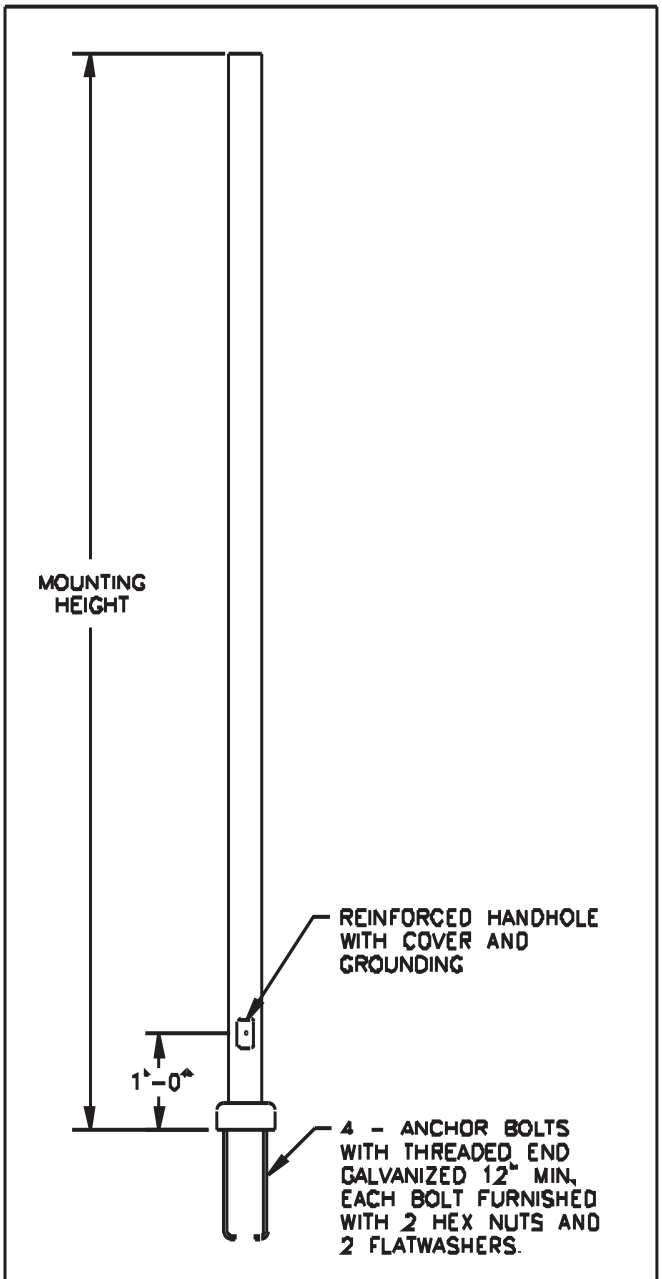
P2 TENON (OPTIONAL)



FULL BASE COVER



POLE BASE AND HANDHOLE DETAIL



DS340 POLE DETAIL

Round Tapered
Low Level Lighting Poles

DS200, DS201, DS202

ANCHOR BOLTS

Anchor Bolts are fabricated from carbon steel bar conforming to AASHTO M314 Grade-55 or ASTM F1554 Grade-55. Bolts have an “L” bend on one end and are galvanized a minimum of 12 inches on the threaded end. Either three (DS200) or four (DS202) anchor bolts are provided per pole. Each anchor bolt is furnished with two hex nuts and two flat washers.

POLE SHAFT

The pole shaft conforms to ASTM A595 Grade-A and is supplied in 11 gauge (0.1196") thickness. The pole is of one-piece construction with a full length longitudinal high frequency electric resistance weld and is round in cross-section having a uniform taper of approximately 0.14 inches per foot of length.

POLE TOP

The pole top is held to a 3" O.D. (± 0.13") for an external luminaire or bracket slip fit requirement. For internal slip fit requirements, please consult the factory before ordering.

ANCHOR BASE (DS200 ONLY)

The anchor base (base plate) is provided on the DS200 series only. It is fabricated from structural quality hot rolled carbon steel plate conforming to ASTM A36. The base plate telescopes the pole shaft and is circumferentially welded top and bottom. Please refer to the charted bolt circle and detail drawing for information regarding bolt hole accommodations.

HANDHOLE (DS200 ONLY)

A reinforcing handhole rim is provided on the DS200 series only and is made of a rectangular shaped tubing material with a nominal 3" x 5" opening. It is provided with a steel attachment bar, steel cover, and one round head machine screw. The handhole is welded in the pole shaft and is located 1'-6" above the base.

ELECTRICAL GROUND (DS200 ONLY)

A nut holder is provided near the handhole and includes a 0.5"-13 UNC hex head bolt and nut.

UNDERGROUND WIRING ACCESS (DS201 ONLY)

A 1" diameter hole is provided in the pole shaft for wiring access on the DS201 series only. The hole is located 2'-6" below the ground line.

PEDESTAL BASE (DS202 ONLY)

The pedestal base is provided on the DS202 series only. It is fabricated from structural quality hot rolled carbon steel plate conforming to ASTM A36. The pedestal base is circumferentially butt welded to the pole shaft and is provided complete with two access doors.

ELECTRICAL GROUND (DS202 ONLY)

A nut holder is provided inside the pedestal base and includes a 0.5"-13 UNC hex head bolt and nut.

STANDARD FINISH

Standard finishes available are galvanized, prime coat (powder), and finish coat (powder). For information regarding the scope and application of these coatings please refer to page 5.

FASTENING HARDWARE

All structural fasteners are galvanized high strength carbon steel. All other fasteners are galvanized or zinc plated carbon steel or stainless steel.

DESIGN

The standards shown in this section are designed to withstand dead loads and theoretical dynamic loads developed by variable wind speeds, as charted, with an appropriate gust factor under the following conditions:

The luminaire(s) and/or mounting bracket(s) center of gravity, or centroid, is assumed to be located a maximum of 2'-0" above the pole top. For purposes of design, effective projected area (EPA) is considered to be the product of the actual projected area and the drag coefficient.

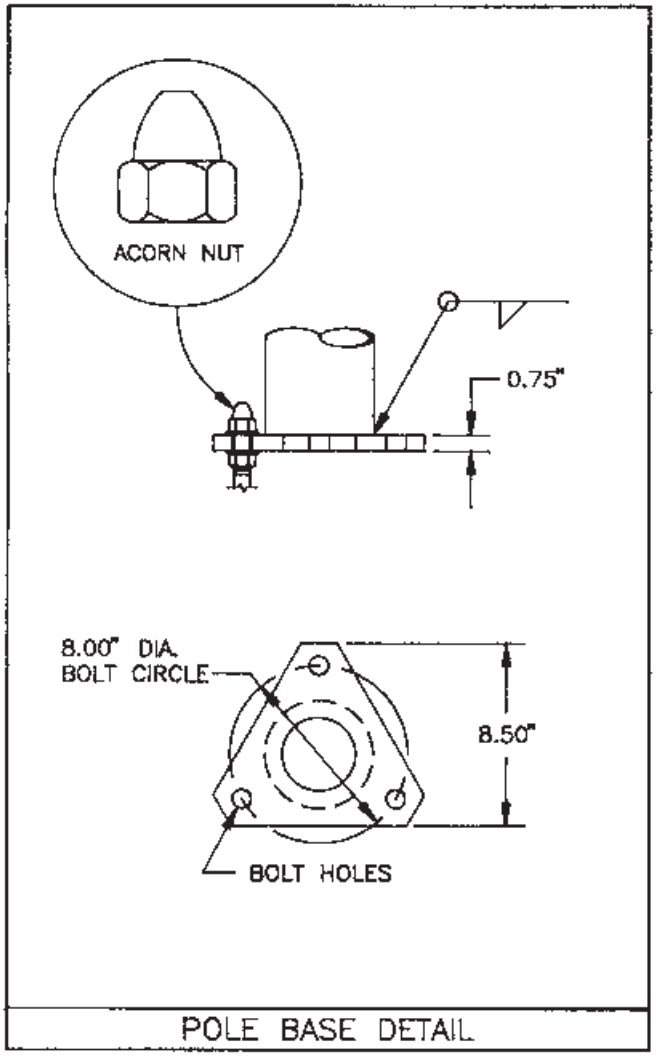
The wind velocities are based on 10 mph increments from 80 mph through 100 mph (reference wind map). Standards to be located in areas of known abnormal conditions may require special consideration. For example: coastal areas, airports, and areas of special winds such as the Chinook type along the eastern slope of the Rocky Mountains.

Standards are designed for ground mounted applications. Standards mounted on structures, such as bridges and buildings, may also necessitate special consideration requiring Valmont’s recommendation.

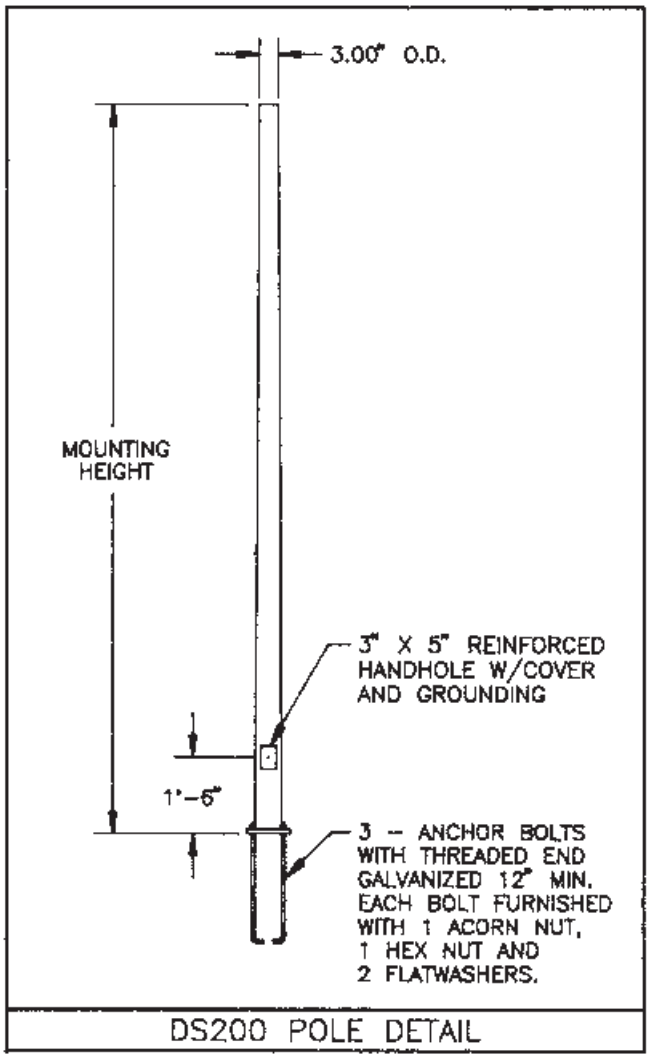
The embedded depth for the DS201 Series was designed using a minimum soil bearing pressure of 2000 psf.

Height correction factors and drag coefficients are applied to the entire structure. An appropriate safety factor is maintained based on the minimum yield strength of the material incorporated in the standard.

Valmont Industries, Inc. reserves the right to install various, engineer approved, material hanging accommodations to facilitate the manufacturing process. If this method is not acceptable, Valmont Industries, Inc. must be notified by the customer prior to manufacturing.



POLE BASE DETAIL

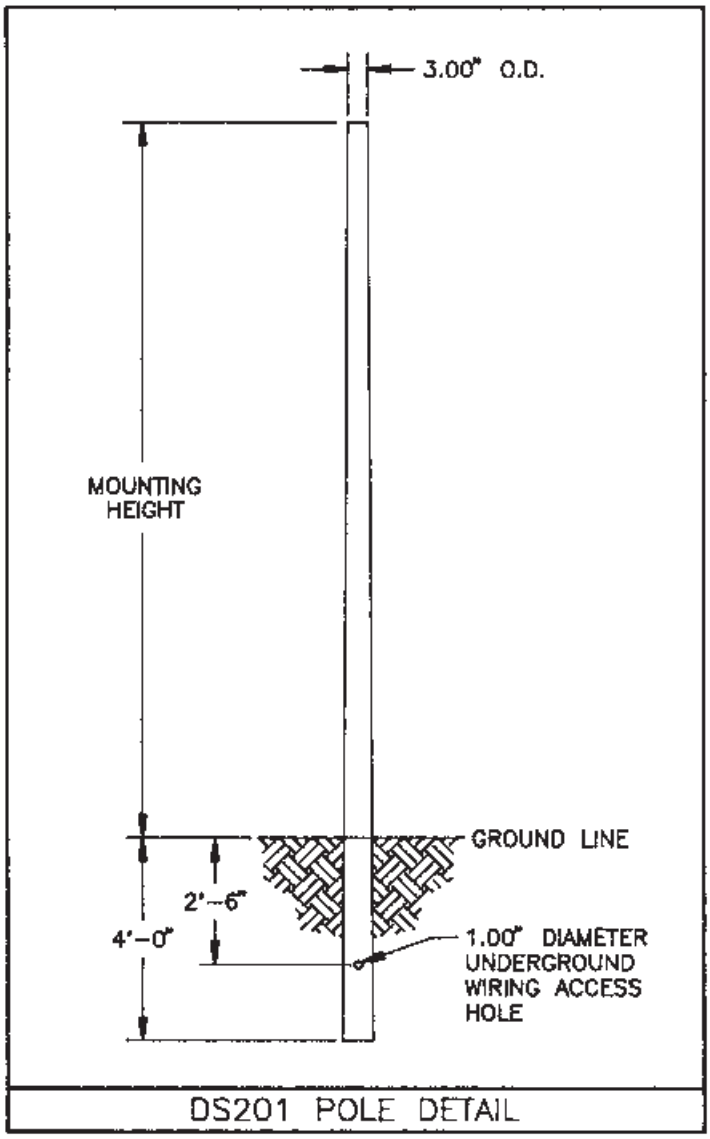


DS200 POLE DETAIL

Nominal Mounting Height (ft)	Shaft				80 MPH w/1.3 Gust	90MPH w/1.3 Gust	100 MPH w/1.3 Gust
	Designation Number	Base O.D. (in)	Wall Thk. (ga)	Struct. Weight (lbs)	Max EPA (ft^2)	Max EPA (ft^2)	Max EPA (ft^2)
10	440A100	4.40	11	60	11.6	8.9	7.0
12	468A120	4.68	11	70	11.8	9.0	7.1
14	496A140	4.96	11	80	11.4	8.7	6.8
16	524A160	5.24	11	95	10.0	7.6	5.9
18	552A180	5.52	11	110	8.9	6.7	5.2
20	580A200	5.80	11	125	7.5	5.5	4.2

DS200 NOTES:

1. All designs utilize 0.75" x 17" x 3" anchor bolts.
2. Structure weight is a nominal value which includes the pole shaft and base plate only.
3. Pole base plate is the same for all designs. See detail drawing for information.
4. Maximum fixture weight for all designs is 125 lbs.
5. Maximum weight and EPA values are based on top mounted luminaires and/or brackets having a centroid 2'-0" above the nominal mounting height.

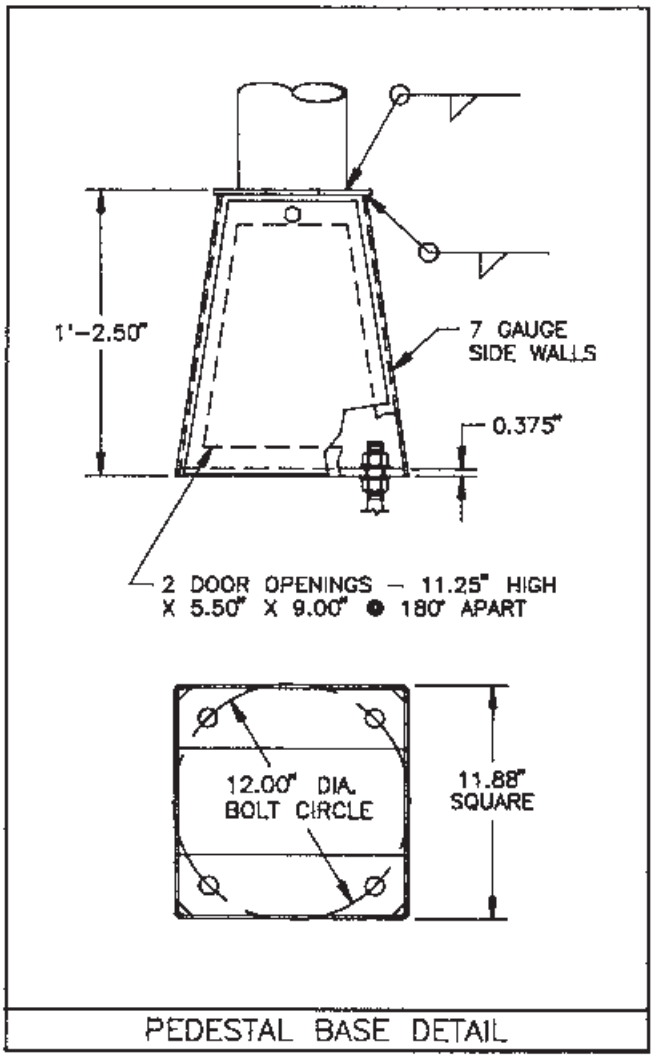


DS201 POLE DETAIL

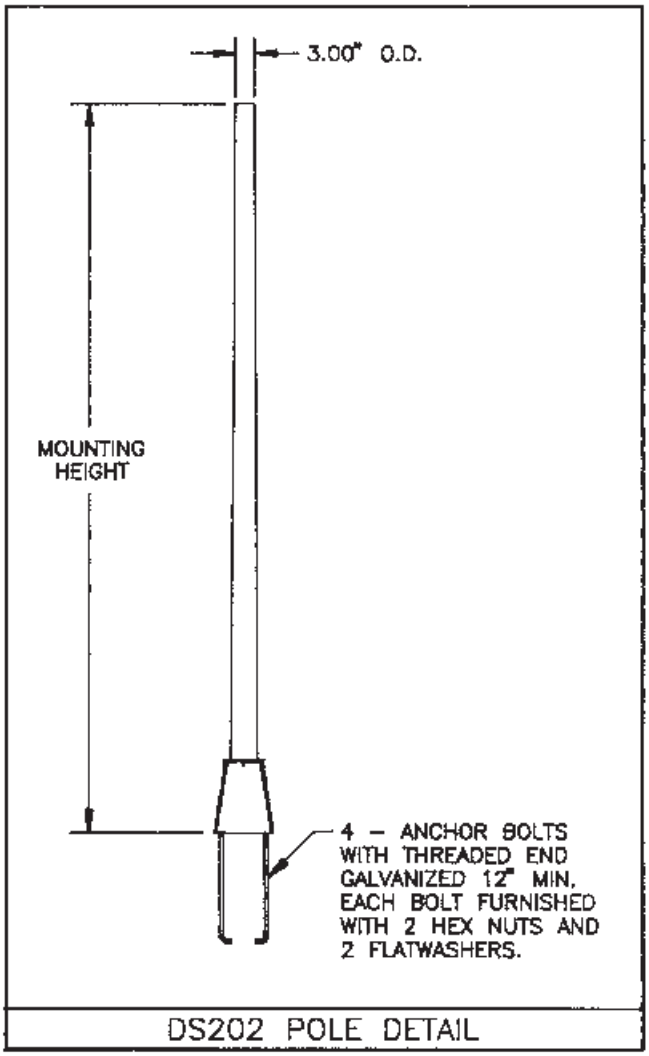
Nominal Mounting Height (ft)	Shaft				80 MPH w/1.3 Gust	90MPH w/ 1.3 Gust	100 MPH w/1.3 Gust
	Designation Number	Base O.D. (in)	Wall Thk. (ga)	Struct. Weight (lbs)	Max EPA (ft^2)	Max EPA (ft^2)	Max EPA (ft^2)
10	496A140	4.96	11	75	10.0	7.7	6.8
12	524A160	5.24	11	90	9.3	7.2	5.7
14	552A180	5.52	11	100	8.7	6.6	5.2
16	580A200	5.80	11	110	8.1	6.1	4.7
18	608A220	6.08	11	125	7.6	5.7	4.3
20	636A240	6.36	11	150	7.1	5.3	3.9

DS201 NOTES:

1. Maximum fixture weight for all designs is 125 lbs.
2. Structure weight is a nominal value which includes the pole shaft only.
3. Maximum weight and EPA values are based on top mounted luminaires and/or brackets having a centroid 2'-0" above the nominal mounting height.



PEDESTAL BASE DETAIL



DS202 POLE DETAIL

Nominal Mounting Height (ft)	Shaft				80 MPH w/ 1.3 Gust	90MPH w/ 1.3 Gust	100 MPH w/ 1.3 Gust
	Designation Number	Base O.D. (in)	Wall Thk. (ga)	Struct. Weight (lbs)	Max. EPA (ft^2)	Max. EPA (ft^2)	Max EPA (ft^2)
10	426A090	4.26	11	75	26.7	20.9	15.8
12	454A110	4.54	11	85	25.4	19.8	15.8
14	482A130	4.82	11	100	23.7	18.4	14.7
16	510A150	5.10	11	115	22.4	17.3	13.8
18	538A170	5.38	11	130	21.3	16.4	13.1
20	566A190	5.66	11	140	18.9	14.6	11.6

DS202 NOTES:

1. All designs utilize 0.75" x 1/" x 3" anchor bolts
2. Structure weight is a nominal value which includes the pole shaft and pedestal base only.
3. Pole pedestal base is the same for all designs. See detail drawing for information
4. Maximum fixture weight for all designs is 125 lbs
5. Maximum weight and EPA values are based on top mounted luminaires and/or brackets having a centroid 2'-0" above the nominal mounting height.

External & Internal Hinged Poles

DSF10, DSF15, DSF20, DSF35

ANCHOR BOLTS

Anchor Bolts are fabricated from carbon steel bar conforming to AASHTO M314 Grade-55 or ASTM F1554 Grade-55. Bolts have an “L” bend on one end and are galvanized a minimum of 12 inches on the threaded end. Four anchor bolts are provided per pole. Each anchor bolt is furnished with two hex nuts and two flat washers.

ANCHOR BASE

The anchor base (base plate) is fabricated from structural quality hot rolled carbon steel plate conforming to ASTM A36. The base plate telescopes the pole shaft and is circumferentially welded top and bottom. Please refer to the charted bolt circles and detail drawings to determine the type of hole accommodation made for the anchor bolt.

POLE SHAFT

The pole shaft is fabricated from weldable grade hot rolled commercial quality carbon steel having a guaranteed minimum yield strength of 55,000 psi and is supplied in 11 gauge (.1196") or 7 gauge (.1793") nominal thickness. The pole is of one-piece construction with a full length longitudinal high frequency electric resistance weld. The shaft is square in cross section having flat sides, radiused corners, and a uniform taper of approximately 0.11 inches per foot of length except for 4 inch square poles in the DSF10 series which are not tapered.

HANDHOLE

The reinforcing handhole rim consists of either a nominal 3" x 5" rectangular shaped tubing or 4" x 6.5" oval shaped pipe material. The 3" x 5" handhole is provided with a steel attachment bar, steel cover, and one round head machine screw. The 4" x 6.5" handhole includes two tabs for mounting a steel cover with hex head attachment screws. Both handhole types are welded in the pole shaft and are located 1'-6" above the base.

ELECTRICAL GROUND

A nut holder is provided near the handhole and includes a 0.5"-13 UNC hex head bolt and nut.

SHROUD

The shroud is a weldable grade hot rolled commercial quality carbon steel with a guaranteed minimum yield strength of 45,000 psi and is supplied in 7 Ga. (0.1793") thickness. It is a one-piece formed channel section and conforms to the pole shaft taper. The shroud is attached by a locking device with provisions for a padlock to prevent accidental or unauthorized lowering.

FULL BASE COVER (OPTIONAL)

The optional full base cover is fabricated from ABS plastic. Valmont reserves the right to provide a steel assembly on some applications depending upon the finish requirement and/or pole shaft base diameter. Both steel and plastic covers are a two-piece assembly secured together with two fasteners.

HINGE

The hinge includes a stainless steel pin. A flexible wiring guide is provided, passing through the hinge area for wiring protection. The DSF10 and DSF15 utilize an external hinge. The DSF20 and DSF35 utilize an internal hinge.

POLE TOP TENON (STANDARD)

Pole top tenons are fabricated from structural quality hot rolled carbon steel with a guaranteed minimum yield strength of 30,000 psi. A pole top plate and tenon of weldable grade hot rolled commercial quality carbon steel is circumferentially welded to the top of the pole shaft. This plate provides an internal weather resistant wiring raceway into the pole top tenon. Standard sizes are of either 2.38" O.D. x 4" long (P2) or 4" O.D. x 6" long (P4) steel tubing. See page 1 for other available sizes.

POLE TOP CAP (OPTIONAL)

A removable cap is available as an option to be used in conjunction with drilled pole shafts for accommodation of a direct mounted luminaire arm attachment.

STANDARD FINISH

Standard finishes available are galvanized (DSF10 & DSF15 only), prime coat (powder), and finish coat (powder). For information regarding the scope and application of these coatings please refer to page 5.

FASTENING HARDWARE

All structural fasteners are galvanized high strength carbon steel. All other fasteners are galvanized or zinc plated carbon steel or stainless steel.

DESIGN

The standards shown in this section are designed to withstand dead loads and theoretical dynamic loads developed by variable wind speeds, as charted, with an appropriate gust factor under the following conditions:

The luminaire(s) and/or mounting bracket(s) center of gravity, or centroid, is assumed to be located a maximum of 2'-6" above the pole top. For purposes of design, effective projected area (EPA) is considered to be the product of the actual projected area and the drag coefficient.

The listed weights include luminaire(s) and/or mounting bracket(s). To operate properly, the DSF10 and DSF20 hinge poles require a minimum weight loading of 50 lbs at the pole top. The DSF15 and DSF35 require 75 lbs.

The wind velocities are based on 10 mph increments from 80 mph through 100 mph (reference wind map). Standards to be located in areas of known abnormal conditions require special consideration. For example: coastal areas, airports, and areas of special winds such as the Chinook type along the eastern slope of the Rocky Mountains.

Standards are designed for ground mounted applications. Standards mounted on structures, such as bridges and buildings, also necessitate special consideration requiring Valmont’s recommendation.

Height correction factors and drag coefficients are applied to the entire structure. An appropriate safety factor is maintained based on the minimum yield strength of the material incorporated in the standard. Secondary moments are considered on all designs.

Maximum weight and EPA values are determined by analyzing stress from two wind directions as shown. Due to the increased area and reduced section properties, stress levels across the points generally control the allowable loads.

Valmont Industries, Inc. reserves the right to install various, engineer approved, material hanging accommodations to facilitate the manufacturing process. If this method is not acceptable, Valmont Industries, Inc. must be notified by the customer prior to manufacturing.

DSF10

Nominal Mounting Height (ft)	Shaft				Pole Base			Anchor Bolts	Winch	80MPH w/1.3 Gust		90MPH w/1.3 Gust		100MPH w/1.3 Gust	
	Designation Number	Base O.D. (in)	Wall Thk. (ga)	Struct. Weight (lbs)	Bolt Circle Dia. (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)	Model No.	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)
20	** 400F200	4.00	7	300	8.5-10	9.75	0.75	.75 x 17 x 3	M180A	11.6	217	8.5	217	6.2	217
25	** 400F250 641A250	4.00 6.41	7 11	370 355	8.5-10 12.5	9.75 11.88	0.75 0.88	.75 x 17 x 3 1.00 x 36 x 4	M180A M136	7.1 18.0	160 254	4.8 13.0	160 254	3.1 9.3	160 254
30	** 400F300 641A300	4.00 6.41	7 11	435 440	8.5-10 12.5	9.75 11.88	0.75 0.88	.75 x 17 x 3 1.00 x 36 x 4	M180A M136	4.0 12.5	120 230	2.1 8.3	120 230	0.8 5.1	120 230
35	718A350 713E350	7.18 7.13	11 7	540 700	13.5 13.5	12.63 12.63	0.88 1.25	1.00 x 36 x 4 1.00 x 36 x 4	M135 M135	7.1 22.0	160 155	3.2 16.9	160 155	- 12.1	- 155
39	718A389 713E389	7.18 7.13	11 7	555 740	13.5 13.5	12.63 12.63	0.88 1.25	1.00 x 36 x 4 1.00 x 36 x 4	M135 M135	4.3 19.5	135 110	- 13.5	- 110	- 9.2	- 110

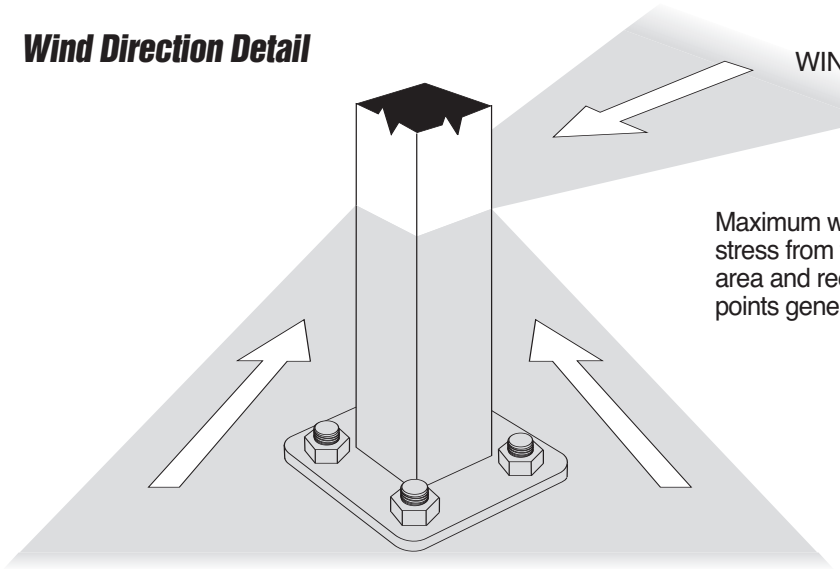
DSF15

Nominal Mounting Height (ft)	Shaft				Pole Base			Anchor Bolts	Winch	80MPH w/1.3 Gust		90MPH w/1.3 Gust		100MPH w/1.3 Gust	
	Designation Number	Base O.D. (in)	Wall Thk. (ga)	Struct. Weight (lbs)	Bolt Circle Dia. (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)	Model No.	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)
25	641A250	6.41	11	355	12.5	11.88	0.88	1.00 x 36 x 4	M136	17.5	493	12.6	493	9.0	493
30	641A300	6.41	11	440	12.5	11.88	0.88	1.00 x 36 x 4	M136	12.0	446	7.8	446	4.7	446
35	718A350 713E350	7.18 7.13	11 7	540 700	13.5 13.5	12.63 12.63	0.88 1.25	1.00 x 36 x 4 1.00 x 36 x 4	M135 M135	6.7 22.0	334 347	3.0 16.4	334 347	- 11.7	- 347
39	718A389 713E389	7.18 7.13	11 7	555 740	13.5 13.5	12.63 12.63	0.88 1.25	1.00 x 36 x 4 1.00 x 36 x 4	M135 M135	4.0 18.9	295 271	- 13.1	- 271	- 8.9	- 271

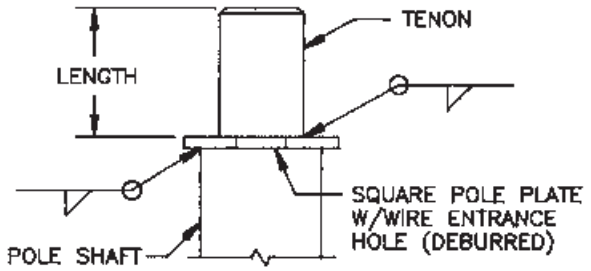
DSF10 & DSF15 NOTES:

1. ** 3" x 5" Nominal handhole - all others 4" x 6.5" nominal.
2. Structure weight is a nominal value which includes the pole shaft and base plate only.
3. The base plate is provided with bolt holes 0.25" larger than the anchor bolt diameter.
4. DSF15 design utilizes a shroud stiffener support angle (see drawing).
5. Maximum weight and EPA values are based on top mounted luminaires and/or brackets having a centroid 2'-6" above the nominal mounting height.
6. CAUTION: To prevent damage to the pole the winch cable must be kept taut when raising or lowering the pole.

Wind Direction Detail

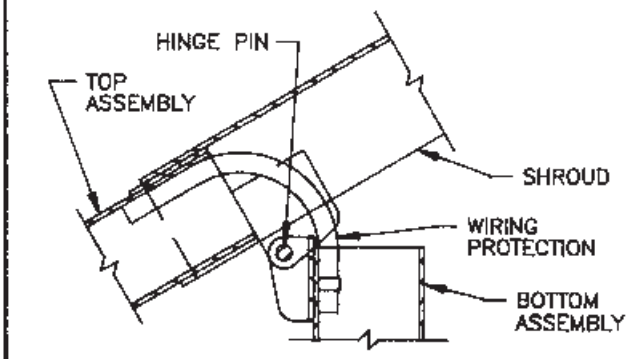


Maximum weight and EPA values are determined by analyzing stress from two wind directions as shown. Due to the increased area and reduced section properties, stress levels across the points generally control the allowable loads.

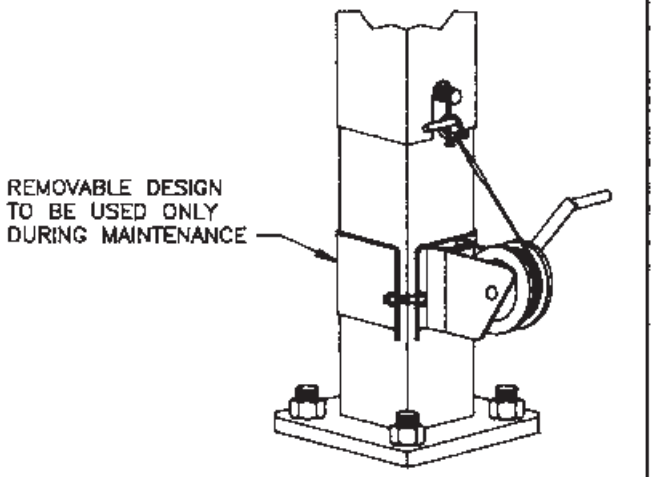


DESIGN NUMBER	O.D. (in)	PIPE SIZE	LENGTH (in)
P2	2.375	2.0" SCHED 80	4
P4	4.000	3.5" SCHED 40	6

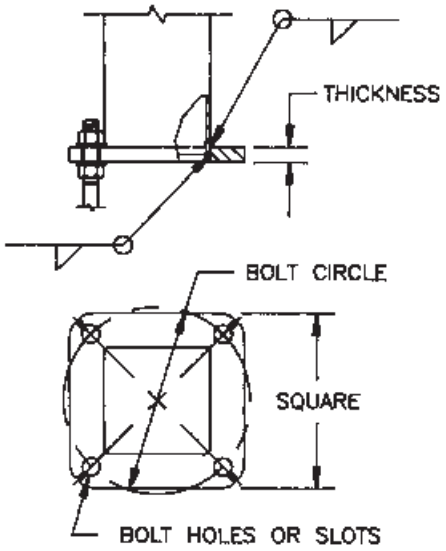
TENON DETAIL



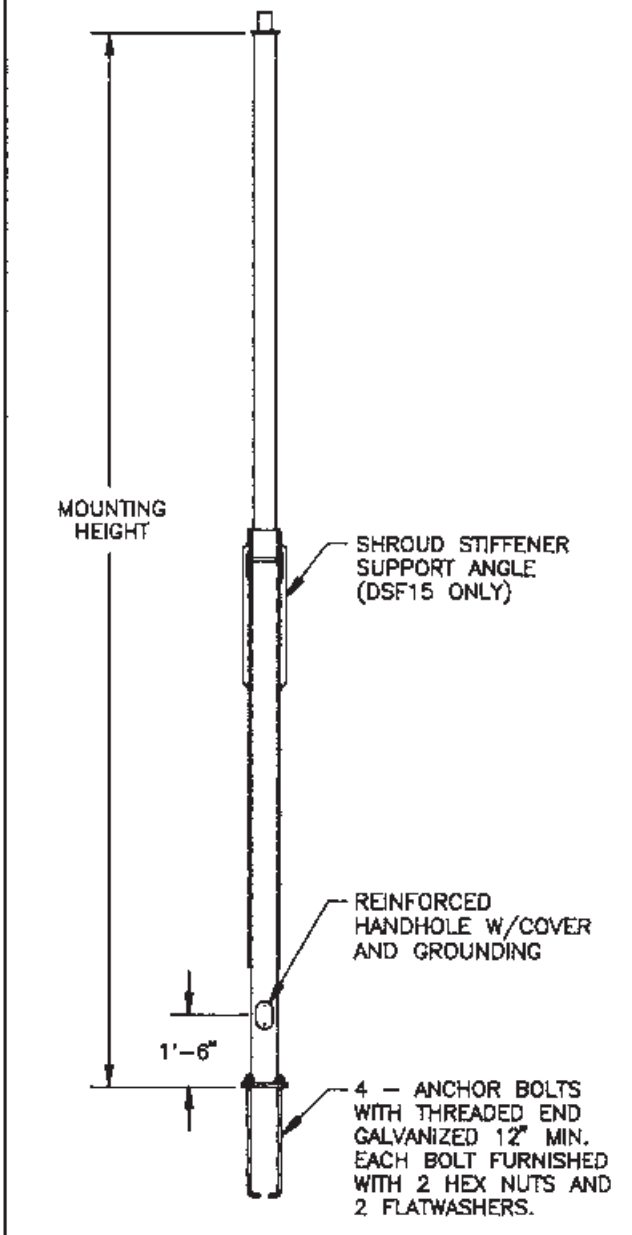
EXTERNAL HINGE DETAIL



WINCH DETAIL



POLE BASE DETAIL



DSF10 & DSF15 POLE DETAIL

DSF20

Nominal Mounting Height (ft)	Shaft				Pole Base			Anchor Bolts	Winch	80MPH w/1.3 Gust		90MPH w/1.3 Gust		100MPH w/1.3 Gust	
	Designation Number	Base O.D. (in)	Wall Thk. (ga)	Struct. Weight (lbs)	Bolt Circle Dia. (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)	Model No.	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)
20	** 525A200	5.25	11	160	10.75	10.75	0.75	1.00 x 36 x 4	M136	17.8	200	13.4	200	10.2	150
25	** 600A250	6.00	11	355	12.00	11.50	0.88	1.00 x 36 x 4	M136	7.1	160	4.8	160	3.1	160
30	641A300	6.41	11	430	12.50	11.88	0.88	1.00 x 36 x 4	M136	12.4	200	8.3	150	5.2	100

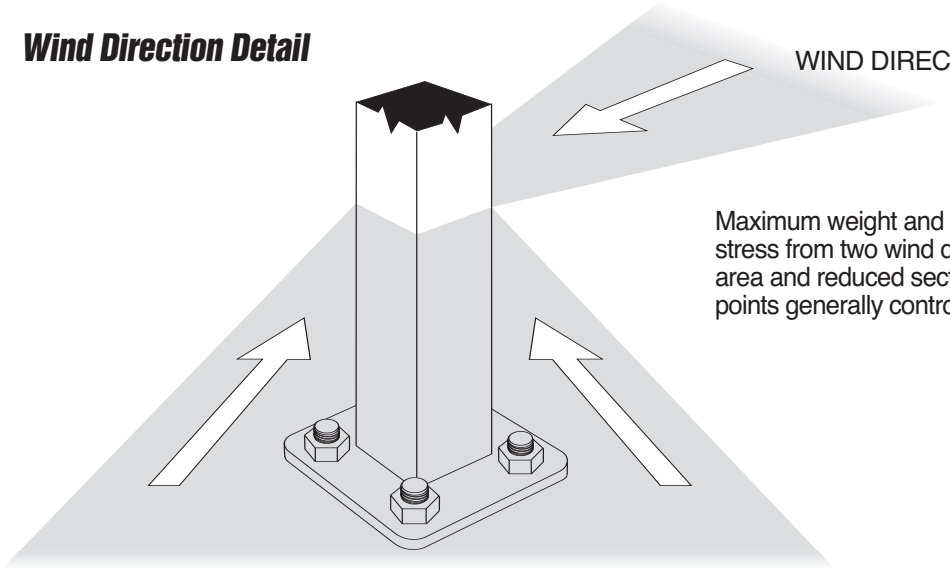
DSF35

Nominal Mounting Height (ft)	Shaft				Pole Base			Anchor Bolts	Winch	80MPH w/1.3 Gust		90MPH w/1.3 Gust		100MPH w/1.3 Gust	
	Designation Number	Base O.D. (in)	Wall Thk. (ga)	Struct. Weight (lbs)	Bolt Circle Dia. (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)	Model No.	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)	Max. EPA (ft^2)	Max. Weight (lbs)
35	713E350	7.13	7	700	13.50	12.63	1.25	1.00 x 36 x 4	M135	22.0	300	16.3	250	11.8	175
38	788E389	7.88	7	820	14.50	13.38	1.25	1.00 x 36 x 4	M135	20.7	300	14.5	250	9.9	200

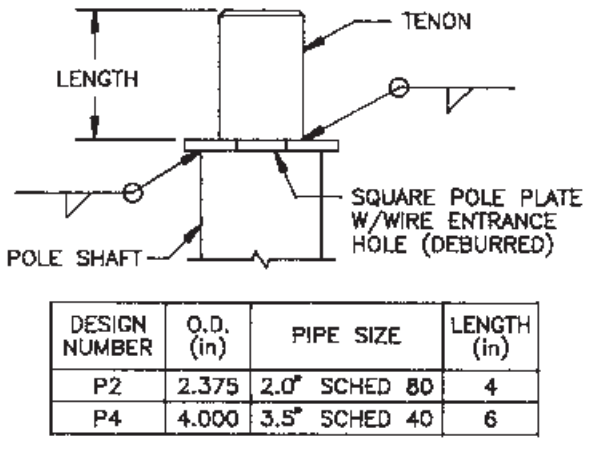
DSF10 & DSF15 NOTES:

1. **3" x 5" Nominal handhole - all others 4" x 6.5" nominal.
2. Structure weight is a nominal value which includes the pole shaft and base plate only.
3. The base plate is provided with bolt holes 0.25" larger than the anchor bolt diameter.
4. DSF35 design utilizes a shroud stiffener support angle, (see drawing).
5. Maximum weight and EPA values are based on top mounted luminaires and/or brackets having a centroid 2'-6" above the nominal mounting height.
6. CAUTION: To prevent damage to the pole the winch cable must be kept taut when raising or lowering the pole.

Wind Direction Detail

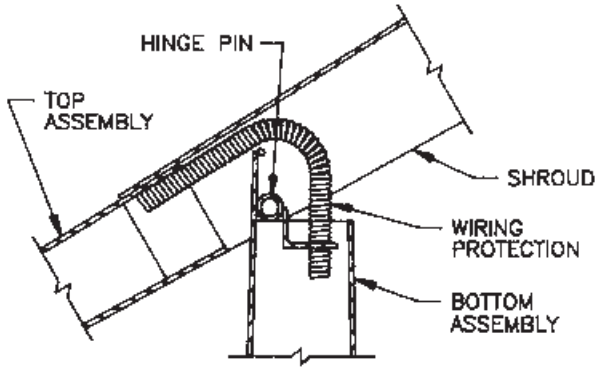


Maximum weight and EPA values are determined by analyzing stress from two wind directions as shown. Due to the increased area and reduced section properties, stress levels across the points generally control the allowable loads.

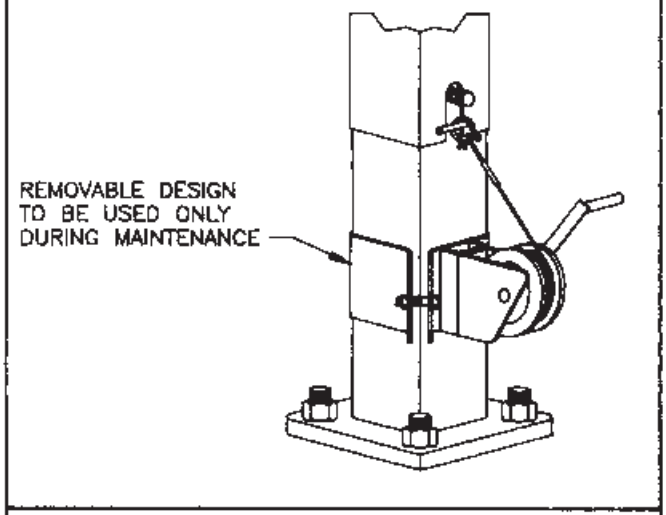


DESIGN NUMBER	O.D. (in)	PIPE SIZE	LENGTH (in)
P2	2.375	2.0" SCHED 80	4
P4	4.000	3.5" SCHED 40	6

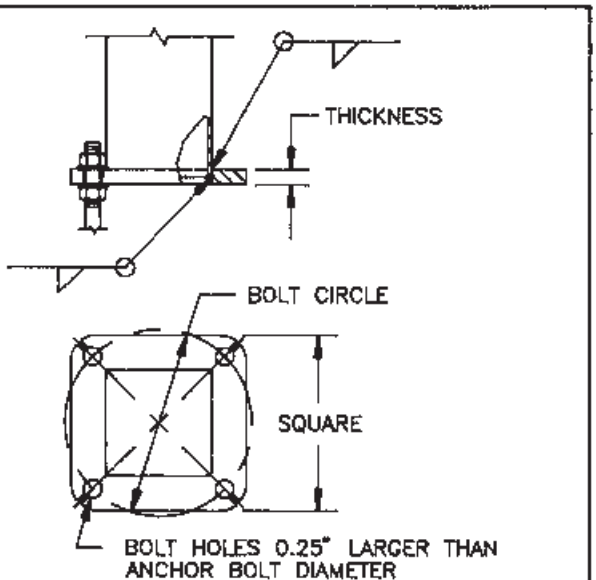
TENON DETAIL



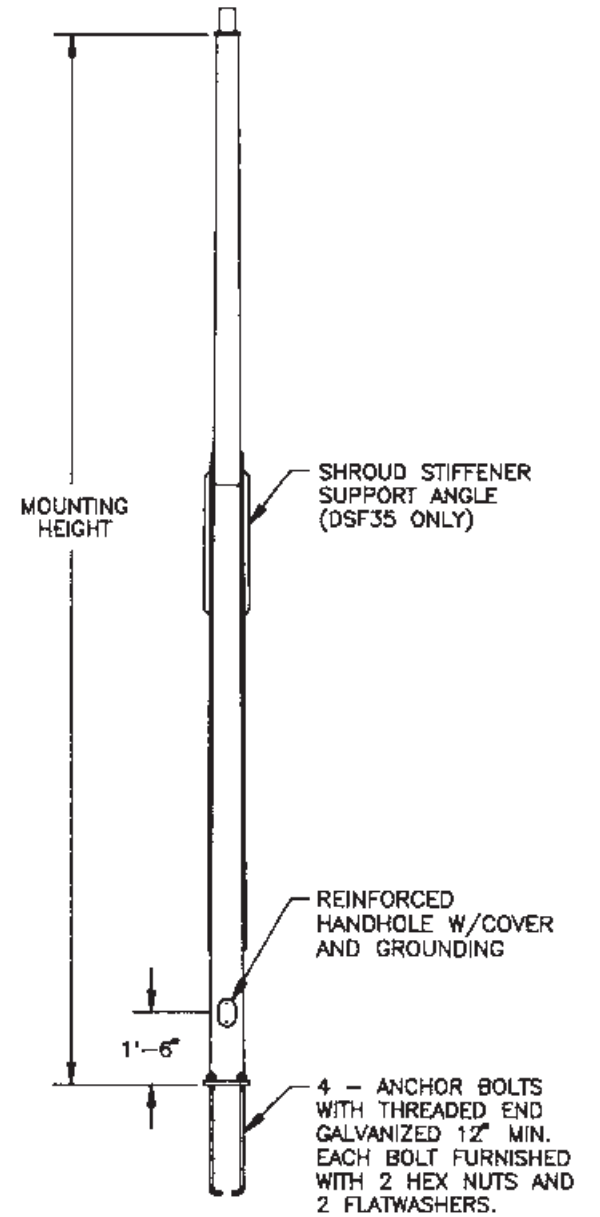
INTERNAL HINGE DETAIL



WINCH DETAIL



POLE BASE DETAIL

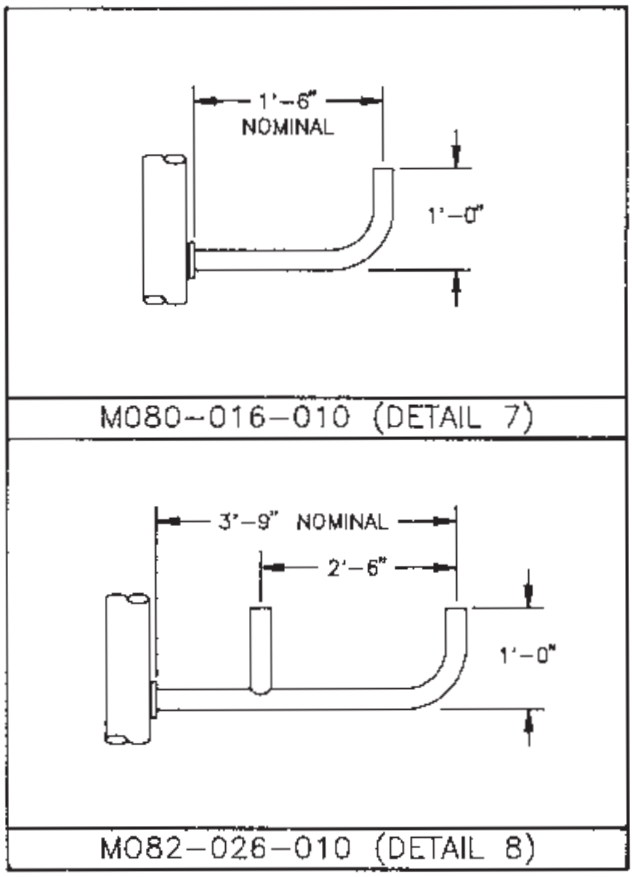


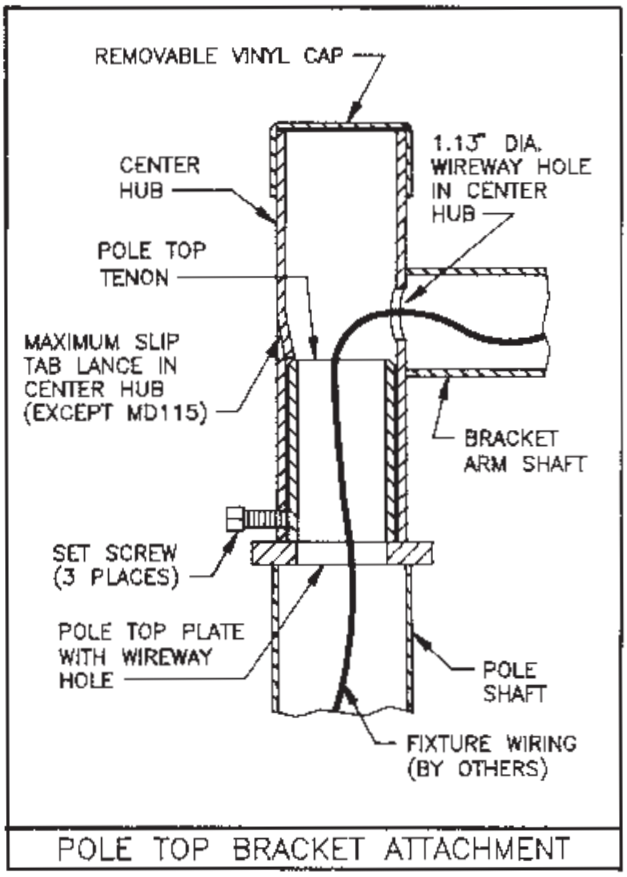
DSF20 & DSF35 POLE DETAIL

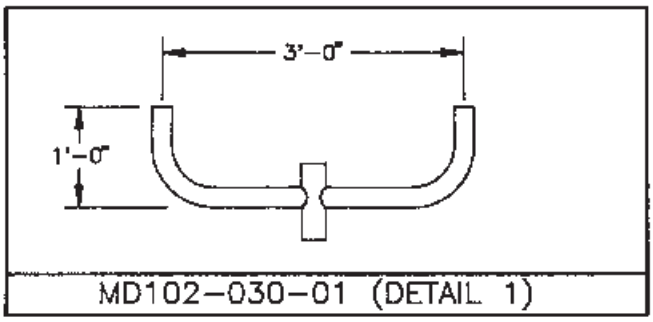
Number of Mounting Locations	Design Number	Orientation	Detail Number	Bracket Size		Max. Size of Luminaire	
				Weight (lbs)	EPA (ft^2)	Weight (lbs)	EPA (ft^2)
1	**M080-016-010	N/A	7	11	0.5	100	5.0
2	**M082-026-010	180	8	20	1.1	100	3.0
	MD102-030-01	180	1	21	1.0	150	7.3
3	MD103-026-01	180	2	32	1.6	150	4.7
	MY103-020-01	120	5	34	1.3	150	4.7
4	MD104-026-01	180	3	44	2.3	150	3.4
	MX104-040-01	90	6	44	1.6	150	3.5
5	MD115-030-01	180	4	86	3.5	100	3.0

BULLHORN NOTES:

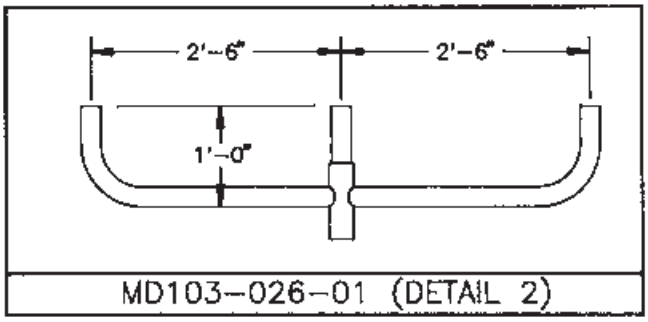
1. The maximum straight luminaire slipfit length is 4.63" for all arm brackets. Consult factory for other tenon applications.
2. Total combined weight and EPA of brakets and luminaires cannot exceed that allowed on pole ordered.
3. Adjacent tenon spacing and fixture dimensions must be compared for proper clearance between fixtures.
4. **= Side mounted brackets utilize single bolt simplex connection (see below details).
5. Maximum luminaire weight and EPA values are based on a 100 mph wind speed w/1.3 gust factor and maximum 70' mounting height.
6. MATERIAL: Center Hub = 2.5" schedule 40 pipe / Arms = 2.0" schedule 40 pipe.
7. MD115 MATERIAL: Center Hub = 4.0" schedule 40 pipe / Arms = 2.0" schedule 80 pipe.



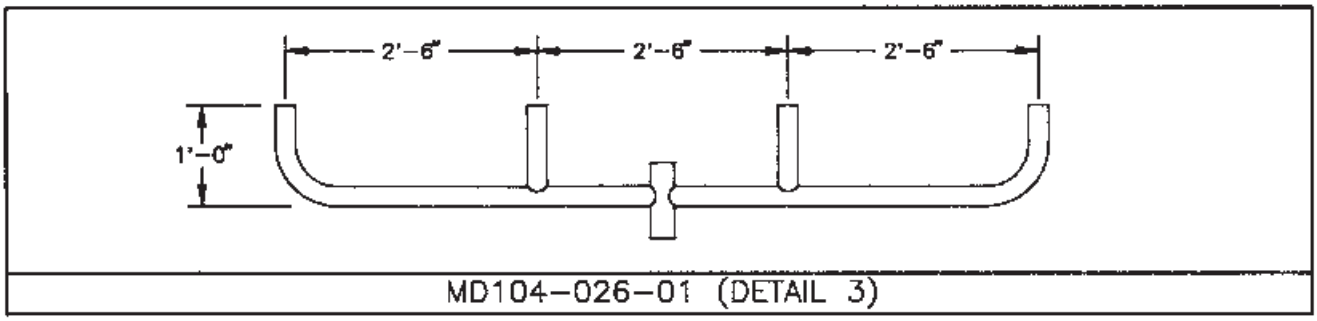




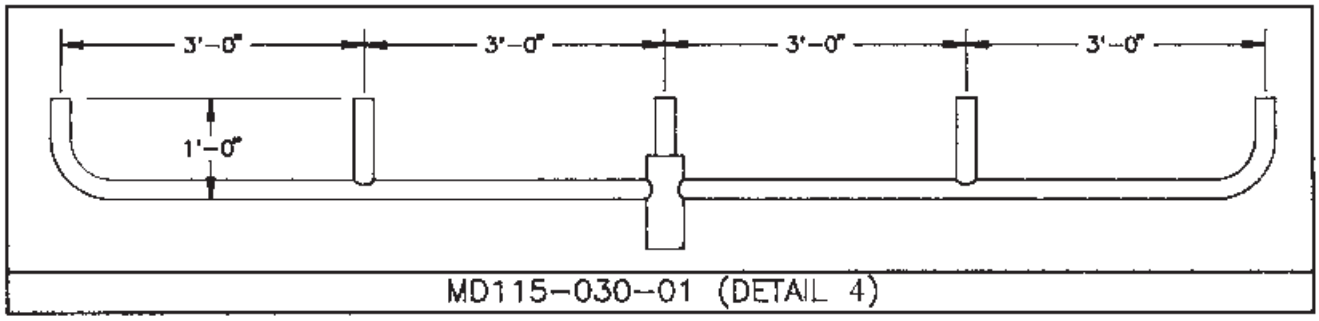
MD102-030-01 (DETAIL 1)



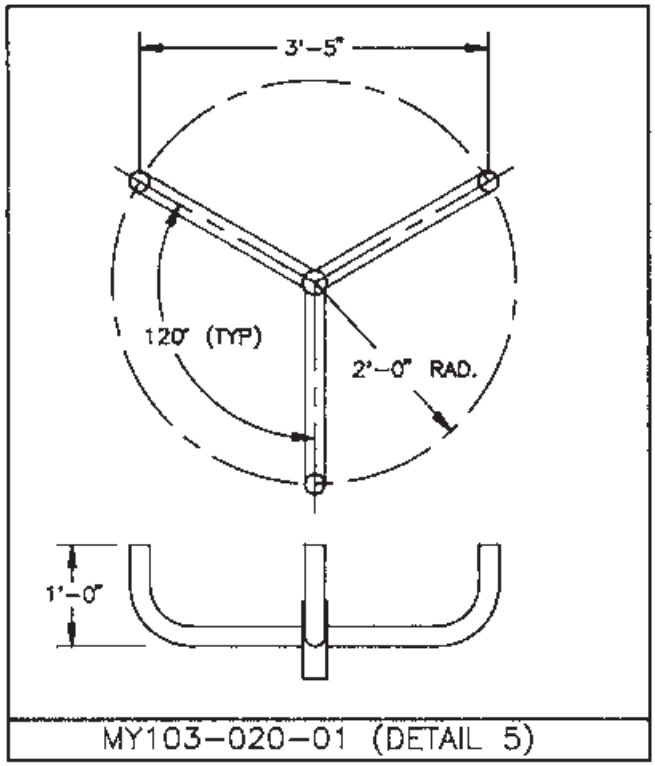
MD103-026-01 (DETAIL 2)



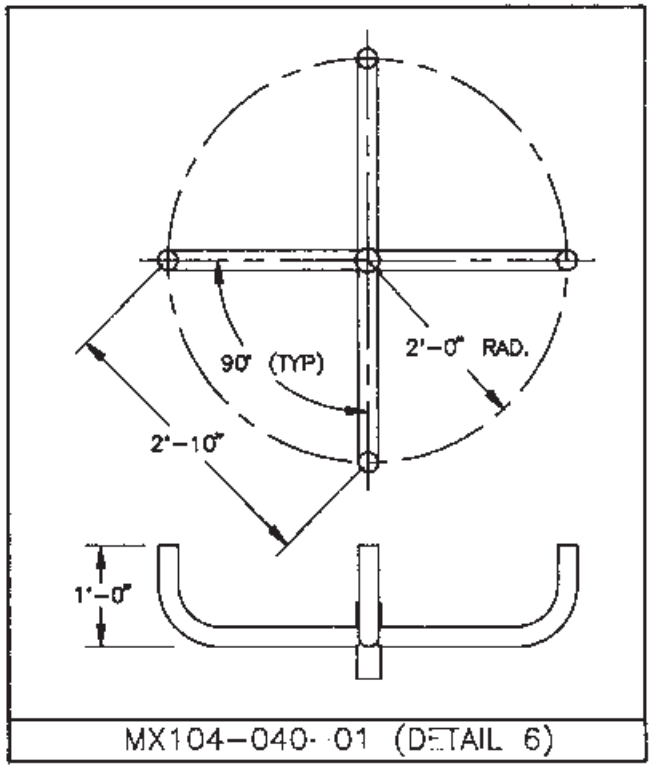
MD104-026-01 (DETAIL 3)



MD115-030-01 (DETAIL 4)



MY103-020-01 (DETAIL 5)

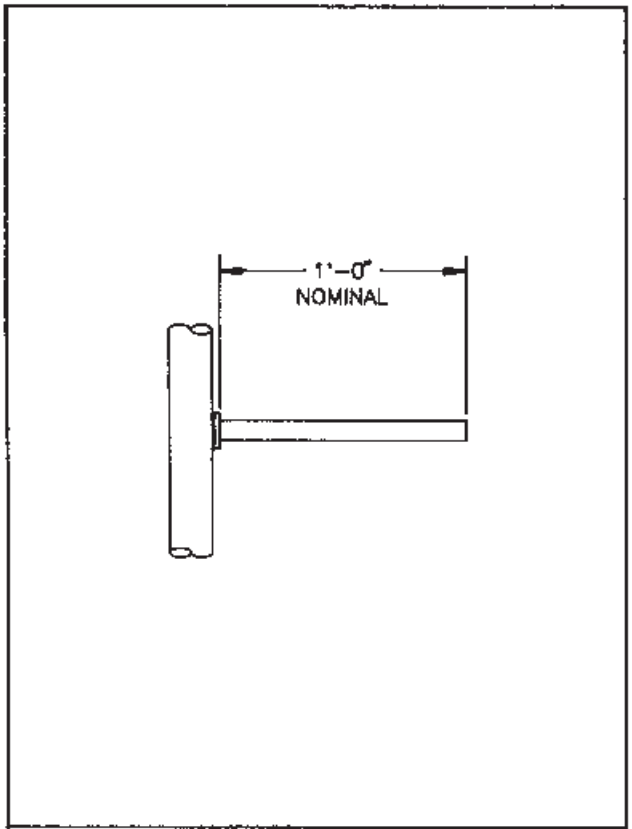


MX104-040-01 (DETAIL 6)

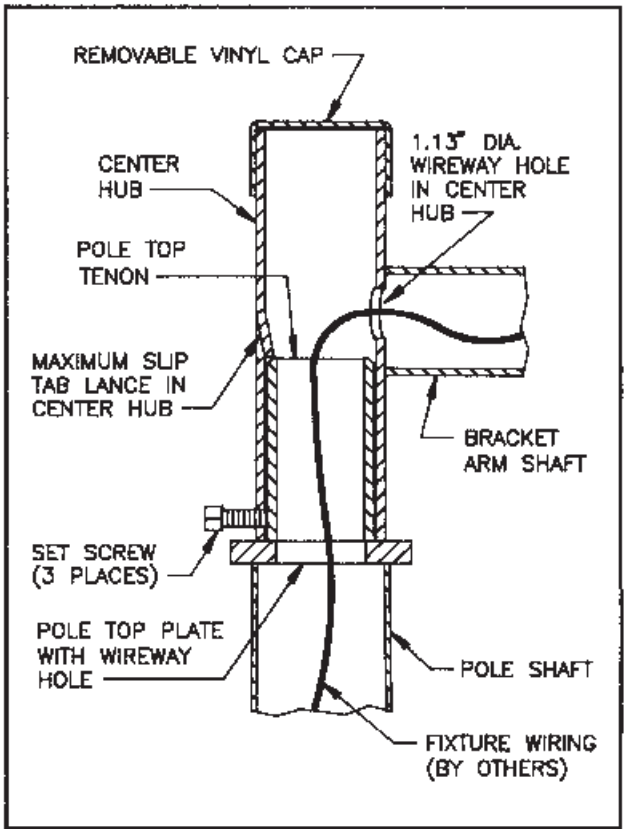
Number of Mounting Locations	Design Number	Orientation	Detail Number	Bracket Size		Max. Size of Luminaire	
				Weight (lbs)	EPA (ft²)	Weight (lbs)	EPA (ft²)
1	MS401-01-0	N/A	1	8	0.3	125	6.0
	** M070	N/A	7	9	0.3	125	6.0
2	MD402-01-0	180	2	11	0.4	125	6.0
	ML402-01-0	90	3	11	0.4	125	6.0
3	MT403-01-0	90	4	15	0.5	125	6.0
	MY403-01-0	120	5	15	0.5	125	6.0
4	MX404-01-0	90	6	18	0.6	125	6.0

SPOKE NOTES:

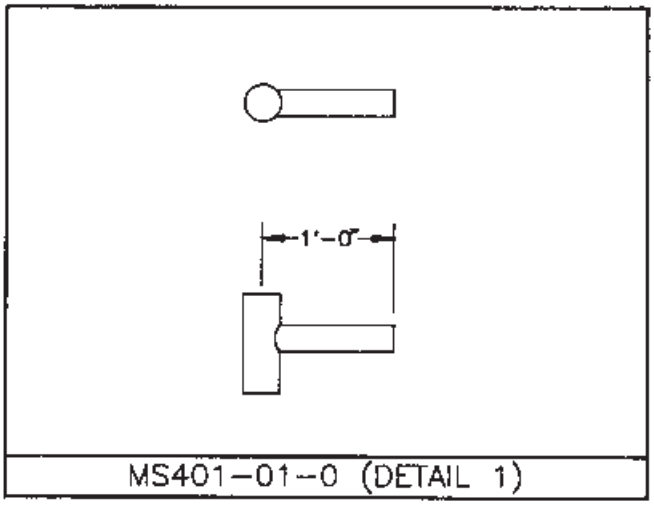
1. The maximum straight luminaire slipfit length is 10.50" for all arms brackets.
2. Total combined weight and EPA of brackets and luminaires cannot exceed that allowed on pole ordered.
3. ** – Side mounted bracket utilizes single bolt simplex (see below detail)
4. Maximum Luminaire weight and EPA values are based on a 100 mph wind speed w/1.3 gust factor and maximum 70' mounting height.
5. **MATERIAL:** Center Hub – 2.5" schedule 40 pipe / Arms – 2.0" schedule 40 pipe.



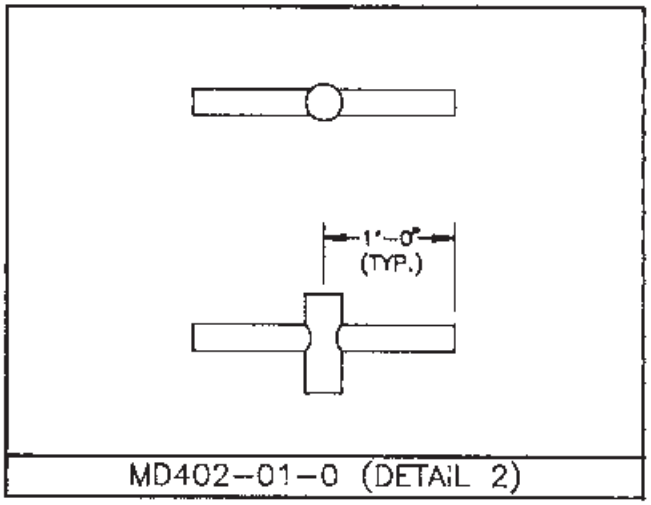
M070 (DETAIL 7)



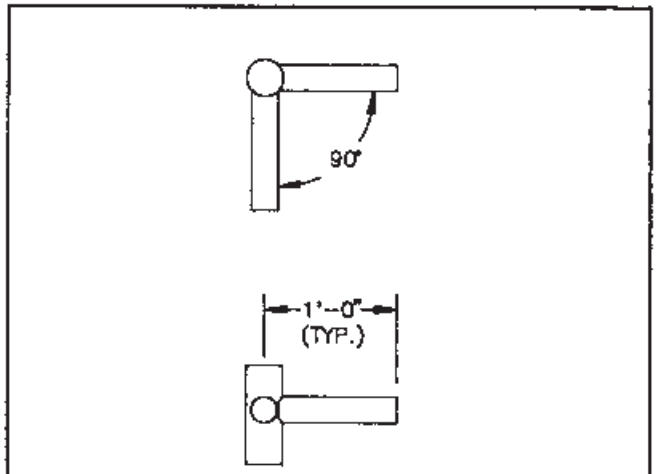
POLE TOP BRACKET ATTACHMENT



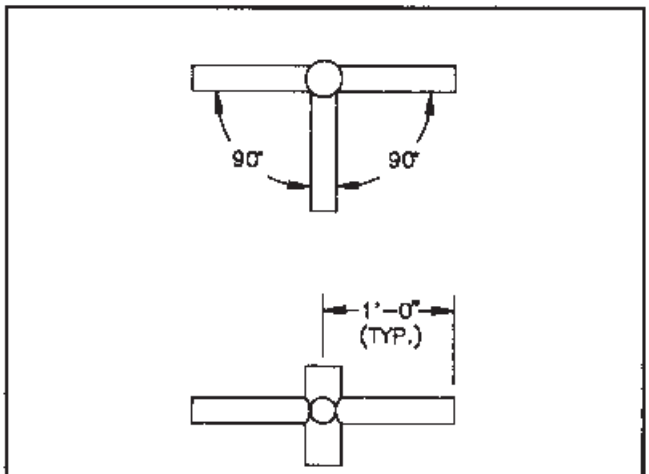
MS401-01-0 (DETAIL 1)



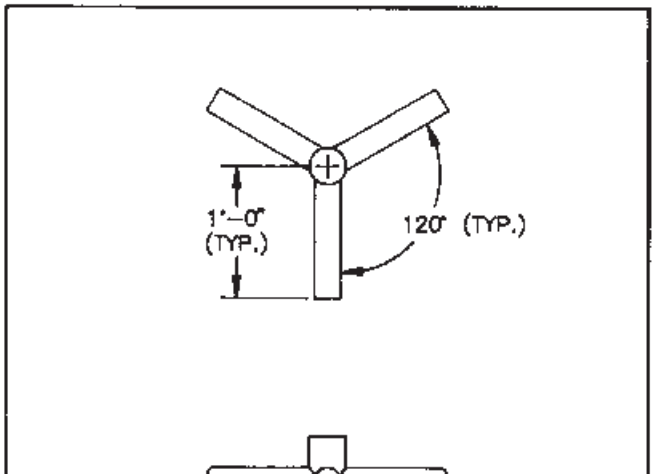
MD402-01-0 (DETAIL 2)



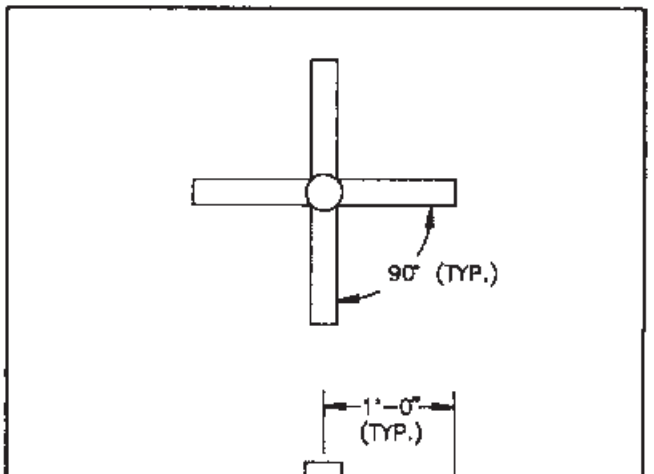
ML402-01-0 (DETAIL 3)



MT403-01-0 (DETAIL 4)



MY403-01-0 (DETAIL 5)

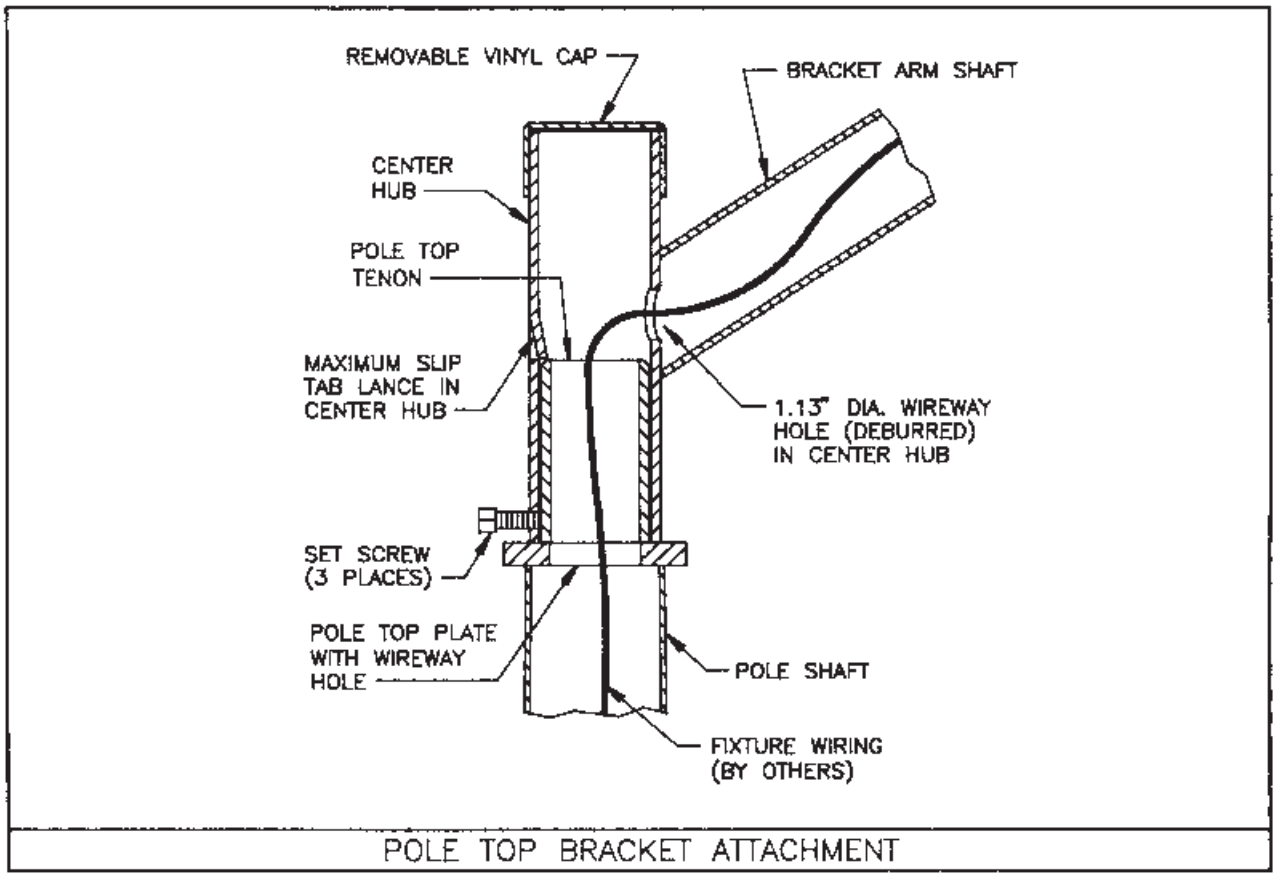


MX404-01-0 (DETAIL 6)

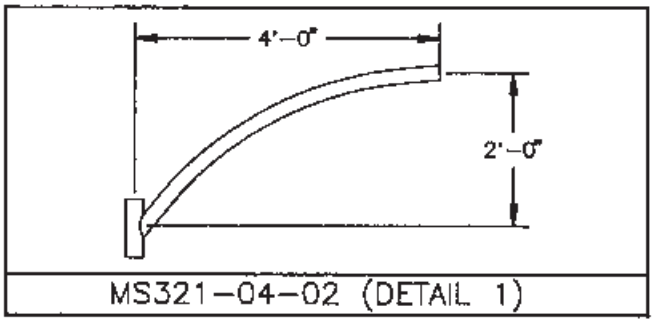
Number of Mounting Locations	Design Number	Orientation	Detail Number	Bracket Size		Max. Size of Luminaire	
				Weight (lbs)	EPA (ft^2)	Weight (lbs)	EPA (ft^2)
1	MS321-04-02	N/A	1	22	1.1	75	2.0
	MS321-06-02	N/A	2	29	1.5	75	2.0
2	MD322-04-02	180	3	40	2.1	75	2.0
	MD322-06-02	180	4	54	2.8	75	2.0
3	MY323-04-02	120	5	57	1.8	75	2.0
4	MX324-04-02	90	6	75	2.8	75	2.0

UPSWEEP NOTES:

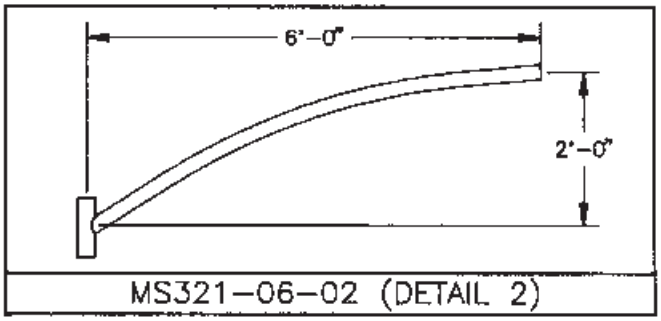
1. The maximum straight luminaire slipfit length is 6" for all 4' arms and 12" on all 6' arms on above brackets.
2. Total combined weight and EPA of brackets and luminaires cannot exceed that allowed on pole ordered.
3. Maximum Luminaire weight and EPA values are based on a 100 mph wind speed w/1.3 gust factor and maximum 70' mounting height.
4. **MATERIAL**: Center Hub = 2.5" schedule 40 pipe / Arms – 2.0" schedule 40 pipe.



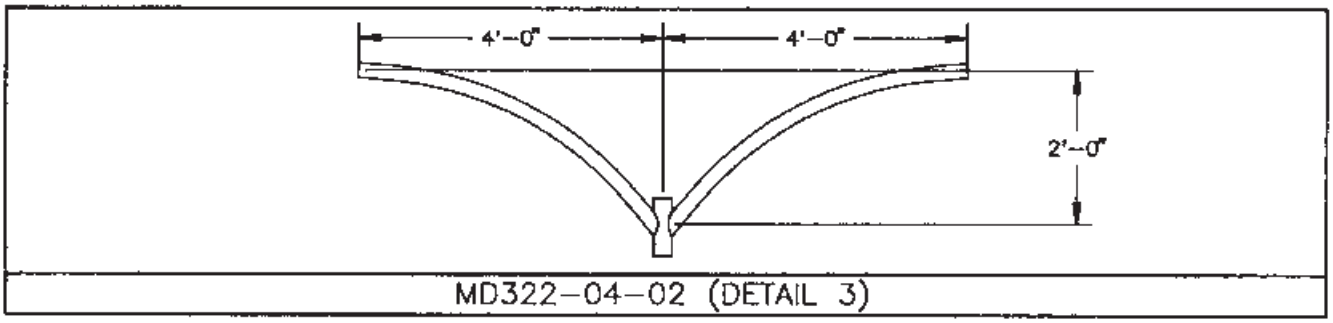
POLE TOP BRACKET ATTACHMENT



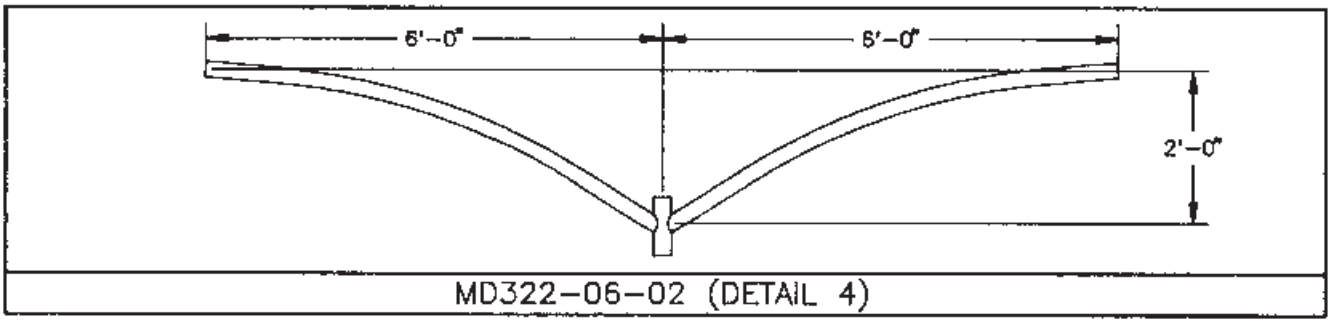
MS321-04-02 (DETAIL 1)



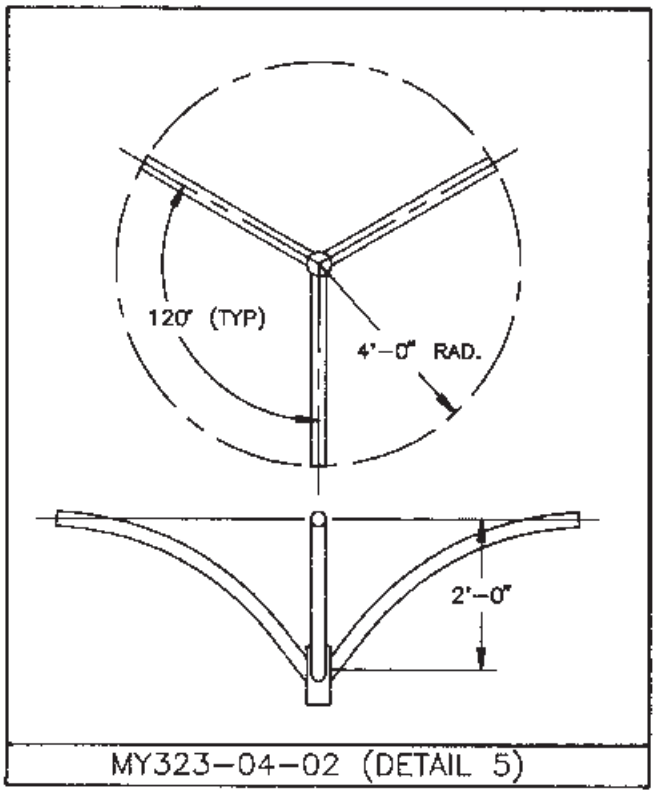
MS321-06-02 (DETAIL 2)



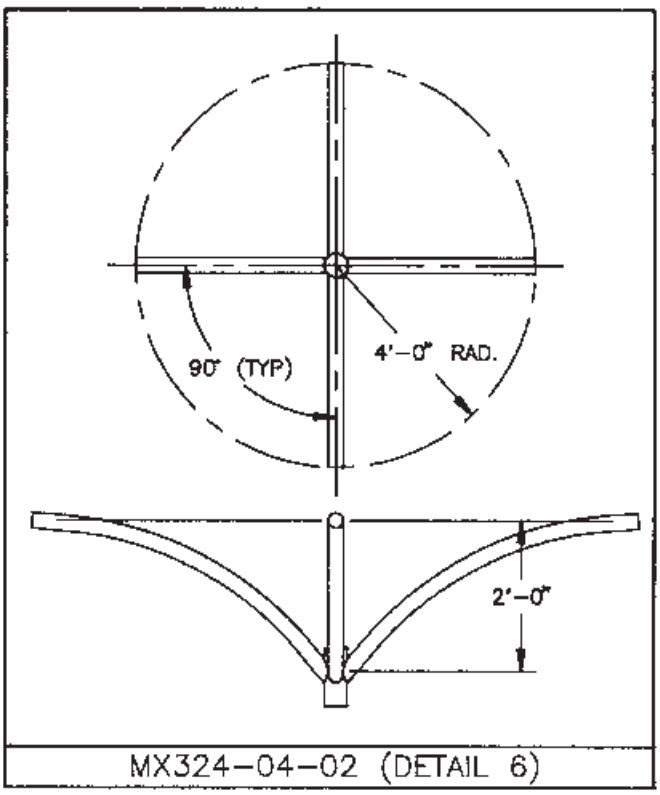
MD322-04-02 (DETAIL 3)



MD322-06-02 (DETAIL 4)



MY323-04-02 (DETAIL 5)

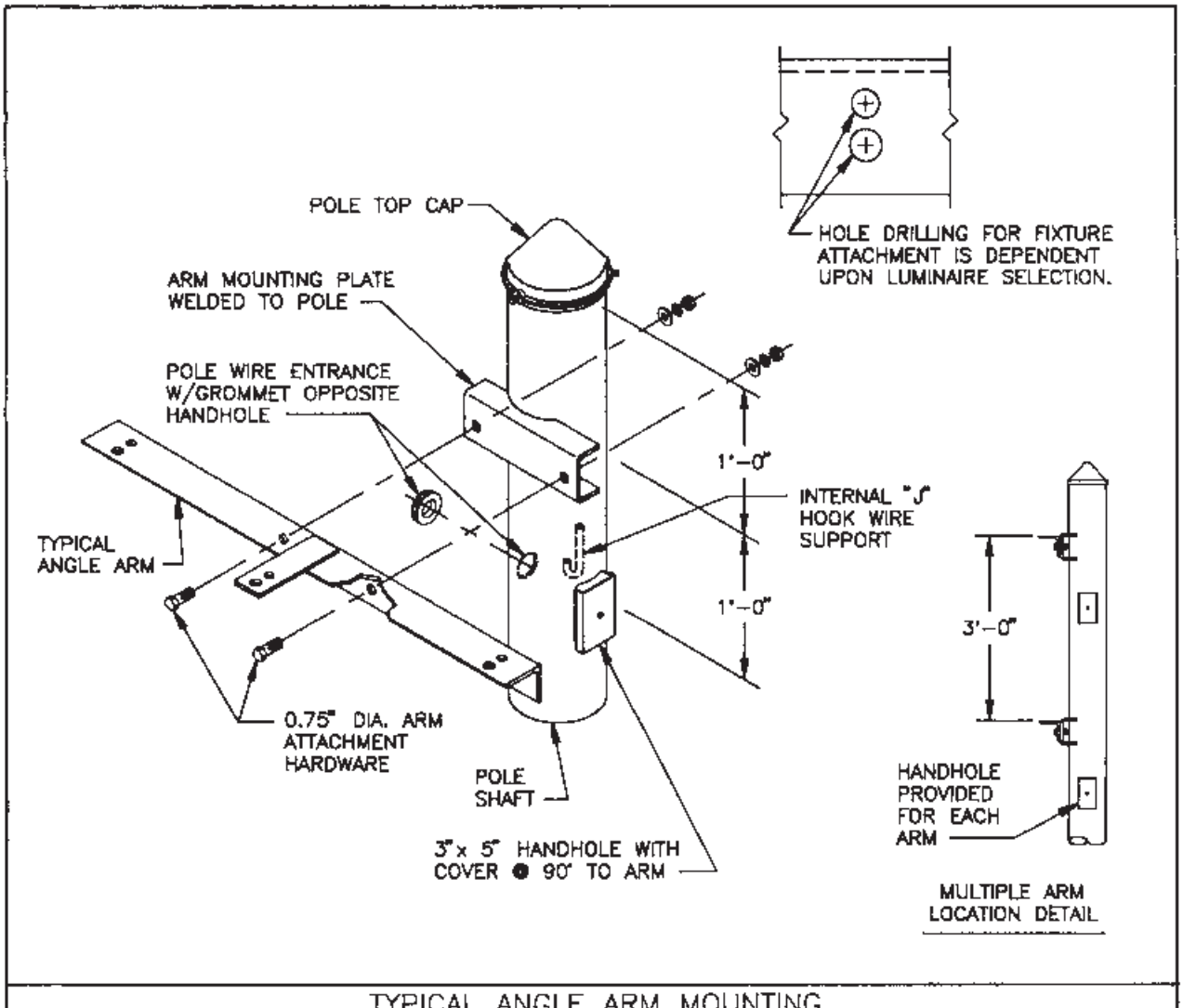


MX324-04-02 (DETAIL 6)

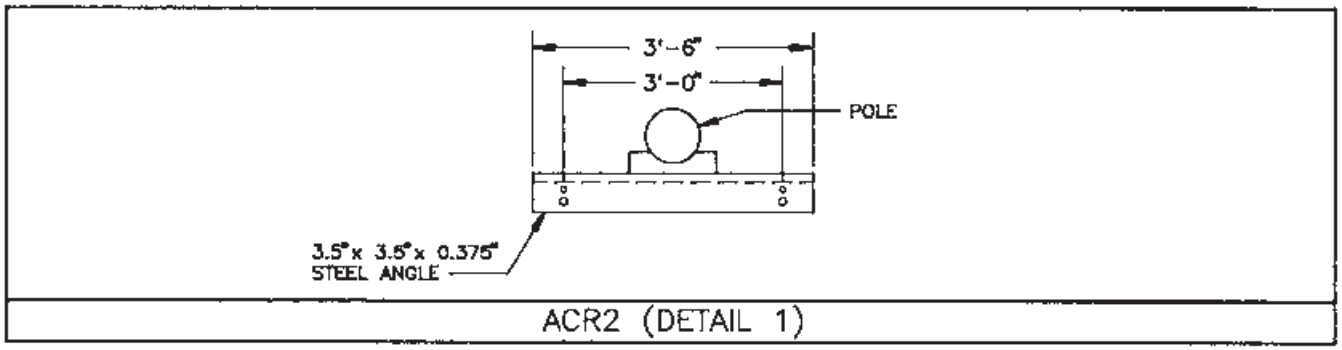
Number of Mounting Locations	Design Number	Detail Number	Bracket Size				Max. Size of Luminaire	
			Weight (lbs)	Max EPA (ft^2)	Angle Material Size (in)	Total Length (ft)	Weight (lbs)	EPA (ft^2)
2	ACR2	1	30	1.74	3.5 x 3.5 x .38	3.5	75	3.1
3	ACR3	2	47	2.73	3.5 x 3.5 x .38	5.5	75	3.1
4	ACR4	3	68	3.97	3.5 x 3.5 x .38	8.0	75	3.1
5	ACR5	4	103	5.95	4.0 x 4.0 x .38	10.5	75	3.1
6	ACR6	5	127	7.37	4.0 x 4.0 x .38	13.0	75	3.1

ACR NOTES:

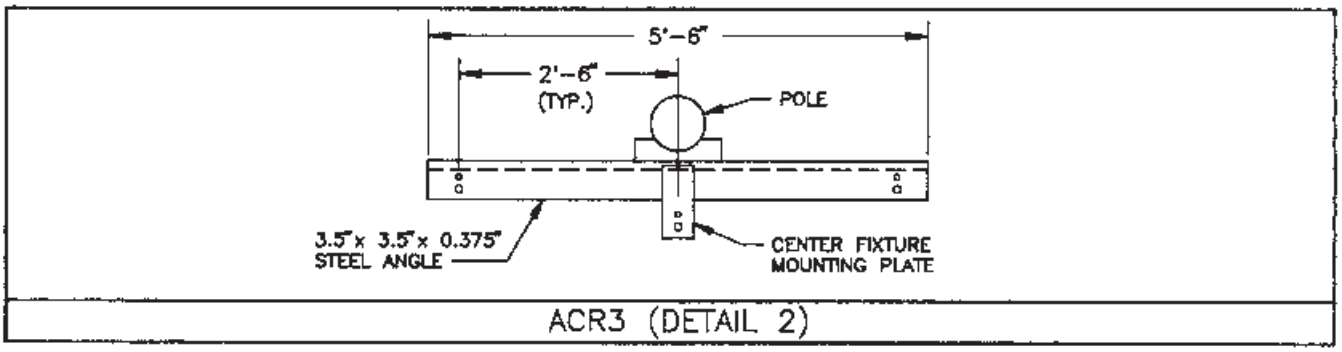
1. Total combined weight and EPA of brackets and luminaires cannot exceed that allowed on pole selected.
2. Spacing between fixture mounting locations must be compared against actual fixture dimensions to determine proper clearance.
3. Maximum luminaire weight and EPA values are based on a 100 mph wind speed w/1.3 gust factor and maximum 80' mounting height.
4. On ACR3 and ACR5 designs, the center fixture is slightly offset to allow for pole to luminaire clearance. Offset is approximately 8".



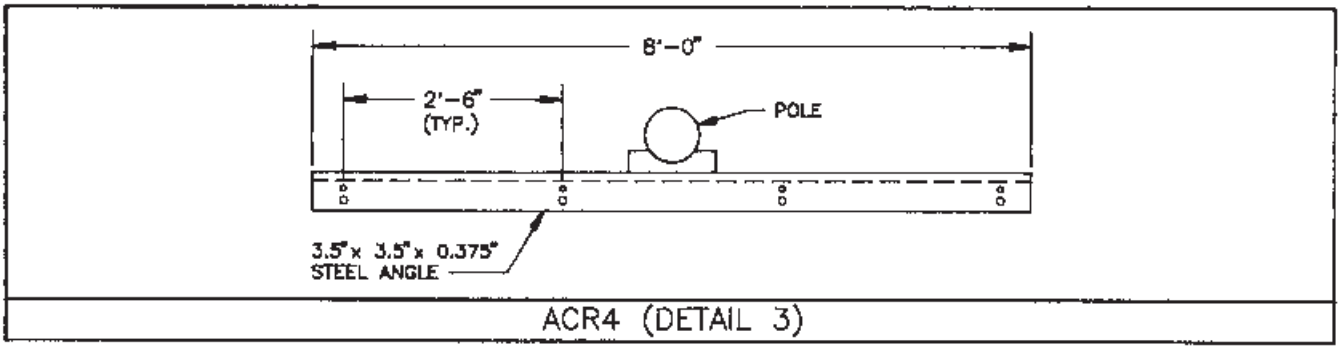
TYPICAL ANGLE ARM MOUNTING



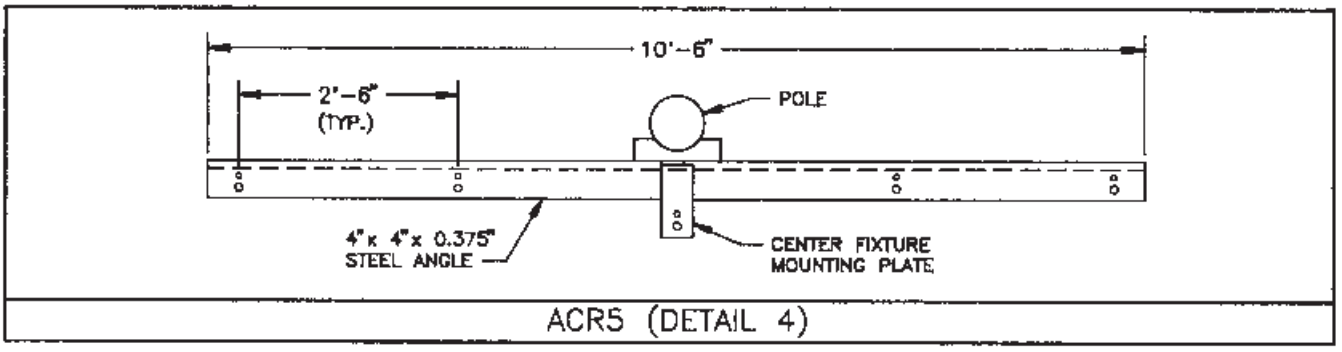
ACR2 (DETAIL 1)



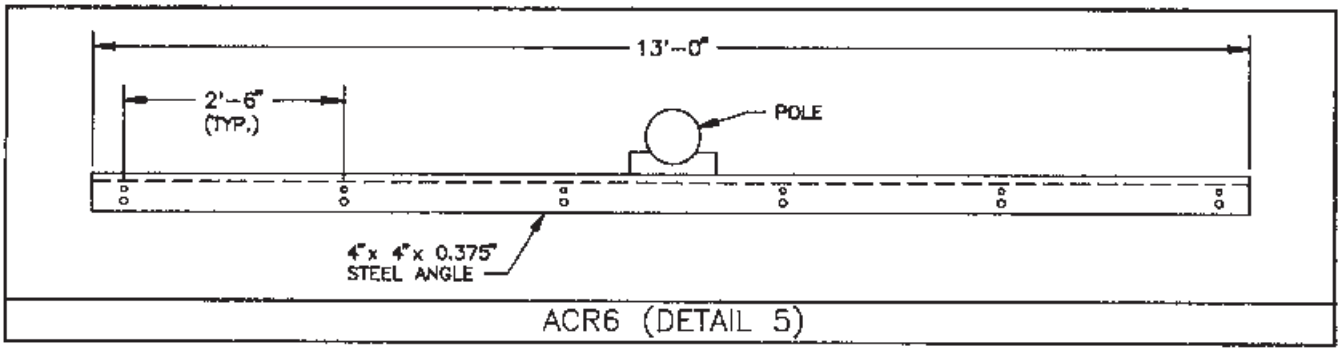
ACR3 (DETAIL 2)



ACR4 (DETAIL 3)



ACR5 (DETAIL 4)



ACR6 (DETAIL 5)

Aluminum Transformer Base

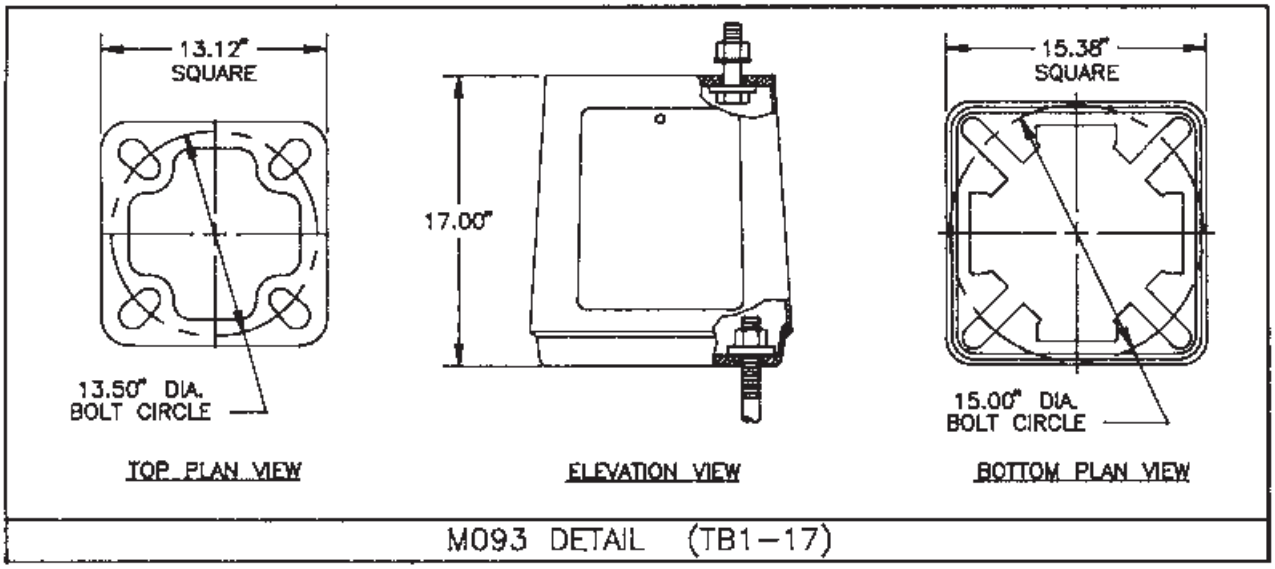
valmont STRUCTURES

The in service limitations of the aluminum transformer bases as charted below and detailed on the adjoining page are in compliance with the Federal Highway Administration's (FHWA) acceptance for use stipulations as they have issued for each base and Valmont's full scale testing of each base to satisfy the structural requirements of the 1994 edition of the American Association of State Highway and Transportation Officials' (AASHTO) 'Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals". All other field controlled breakaway requirements are the responsibility of the purchaser or his/her representative.

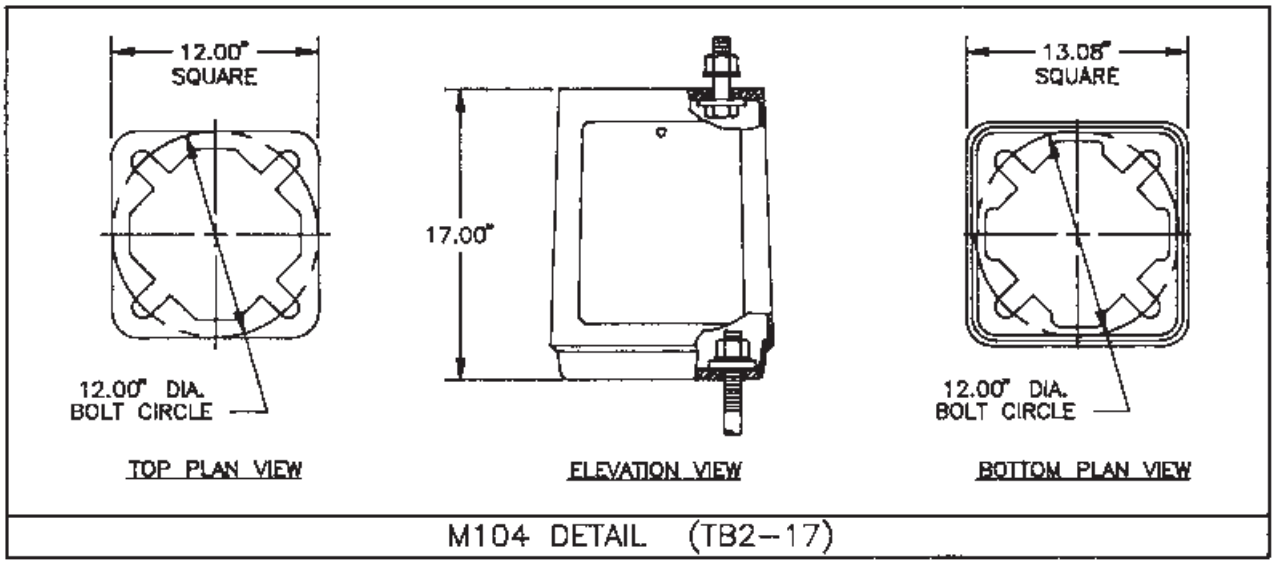
DISCLOSURE	M093 (TB1-17)	M104 (TB2-17)	M098 (TB3-17)
Maximum Lum. Mtg. Ht.	55' - 5"	40' - 10"	55' - 5"
Maximum Pole, Mast Arm & Luminaire Combined Wt.	950 lbs.	550 lbs.	900 lbs.
Transformer Base Bottom Bolt Circle	Load Case #1: 15" Load Case #2: 14"	Load Case #1: 12" Load Case #2: 11" Load Case #3: 10"	Load Case #1: 17 1/4' Load Case #2: 15'
Transformer Base Bottom Anchor Bolt Diameter	1" Maximum	1" Maximum	1 1/4" Maximum
Transformer Base Bottom Anchor Bolt, Steel Washer Size	2 3/4" ± 1/16" O.D. x 1/2" ± 1/32" Thick	2 3/4" ± 1/16" O.D. x 1/2" ± 1/32" Thick	2 3/4" ± 1/16" O.D. x 1/2" ± 1/32" Thick
Transformer Base Top Bolt Circle	Load Case #1: 13 1/2" Load Case #2: 12"	Load Case #1: 12" Load Case #2: 11" Load Case #3: 10"	Load Case #1: 15 1/8' Load Case #2: 13'
Transformer Base Top Connecting Bolt Diameter	1" Maximum	1" Maximum	1 1/4" Maximum
Transformer Base Top Connecting Bolt, Steel Washer Size	2 1/2" ± 1/16" O.D. x 3/8" ± 1/32" Thick	2 1/2" ± 1/16" O.D. x 3/8" ± 1/32" Thick	2 1/2" ± 1/16" O.D. x 3/8" ± 1/32" Thick
Maximum Allowable Moment That Can Be Applied At Top of Base	Load Case #1: 24,100 ft.-lbs. Load Case #2: 18,830 ft.-lbs.	Load Case #1: 21,450 ft.-lbs. Load Case #2: 17,800 ft.-lbs. Load Case #3: 14,160 ft.-lbs.	Load Case #1: 32,850 ft.-lbs. Load Case #2: 22,410 ft.-lbs.
Pole Base Plate Thickness	Load Case #1: 1.25" Min. Load Case #2: 1.25" Min.	Load Case #1: 1.00" Min. Load Case #2: 0.88" Min. Load Case #3: 0.88" Min.	Load Case #1: 1.25" Min. Load Case #2: 1.00" Min.
Pole Base Plate Square	Load Case #1: 13.13" Min. Load Case #2: 12.00" Min.	Load Case #1: 12.00" Min. Load Case #2: 11.50" Min. Load Case #3: 10.88" Min.	Load Case #1: 15.13" Min. Load Case #2: 12.50" Min.

BREAKAWAY NOTES:

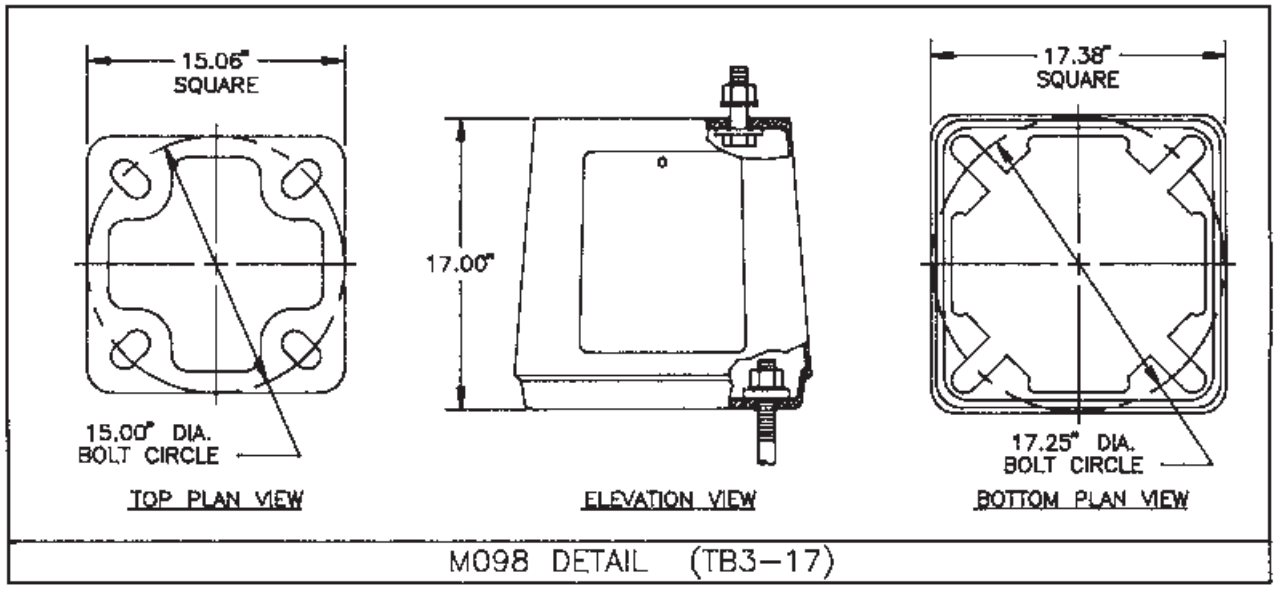
1. All designs above - level with shims only - ***DO NOT USE LEVELING NUTS.***
2. As noted within the above documentation there are specific limitations to aluminum breakaway transformer bases and the lighting standards that can be used in conjunction with these devices. It is recommended you consult Valmont when evaluating their use.



M093 DETAIL (TB1–17)



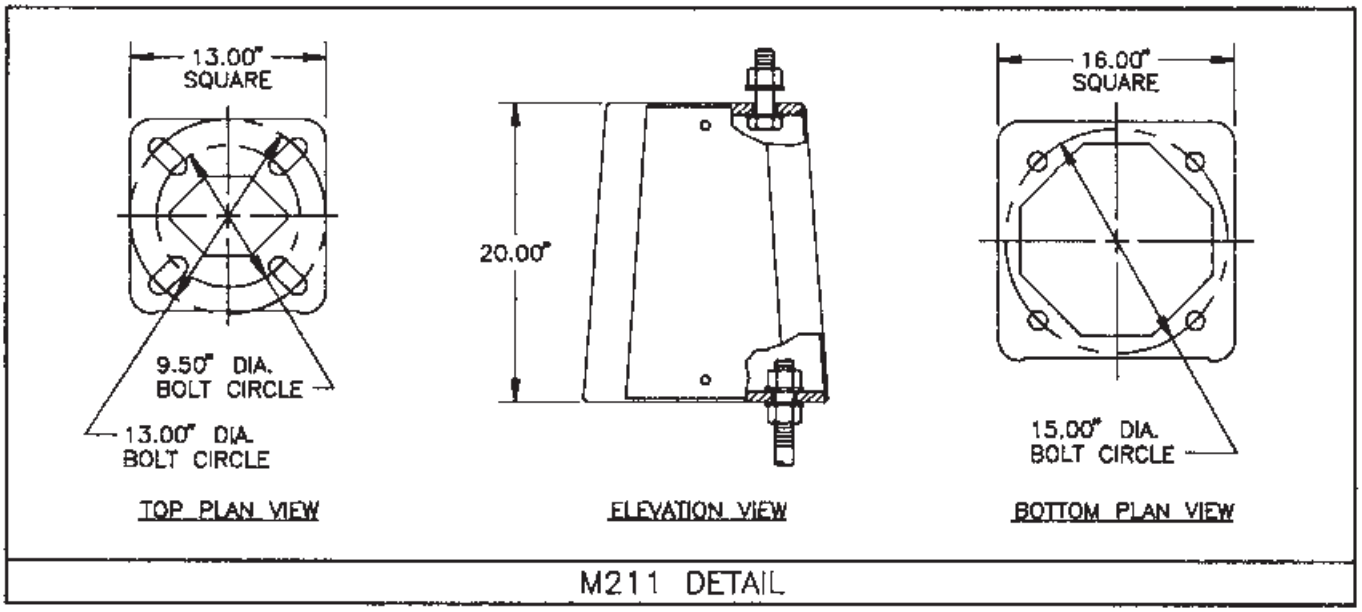
M104 DETAIL (TB2–17)



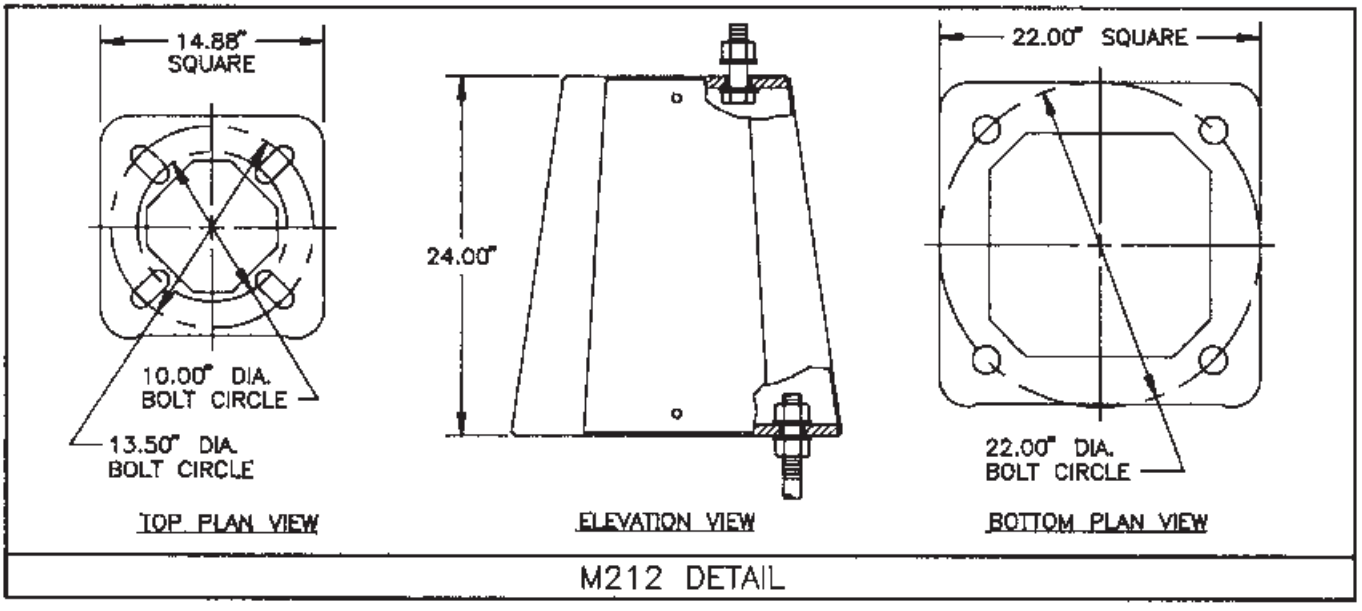
M098 DETAIL (TB3–17)

Steel Transformer Base

valmont STRUCTURES



M211 DETAIL

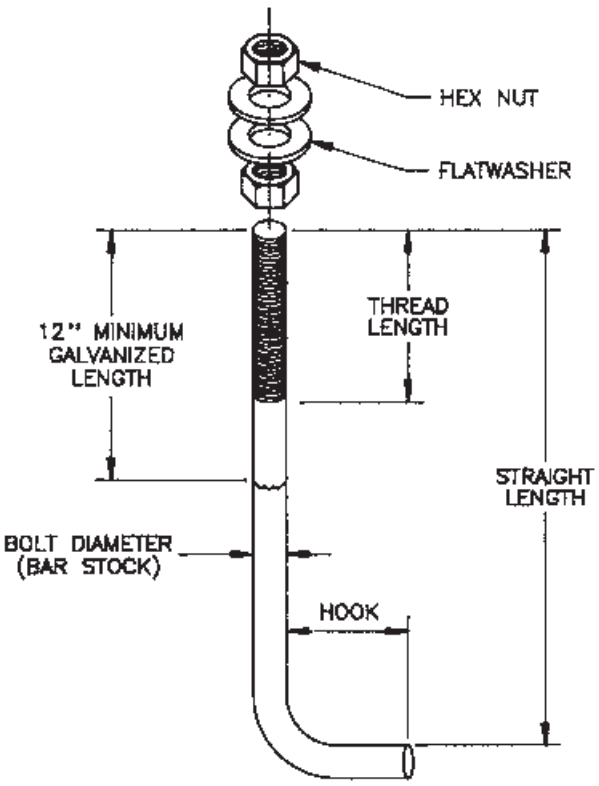


M212 DETAIL

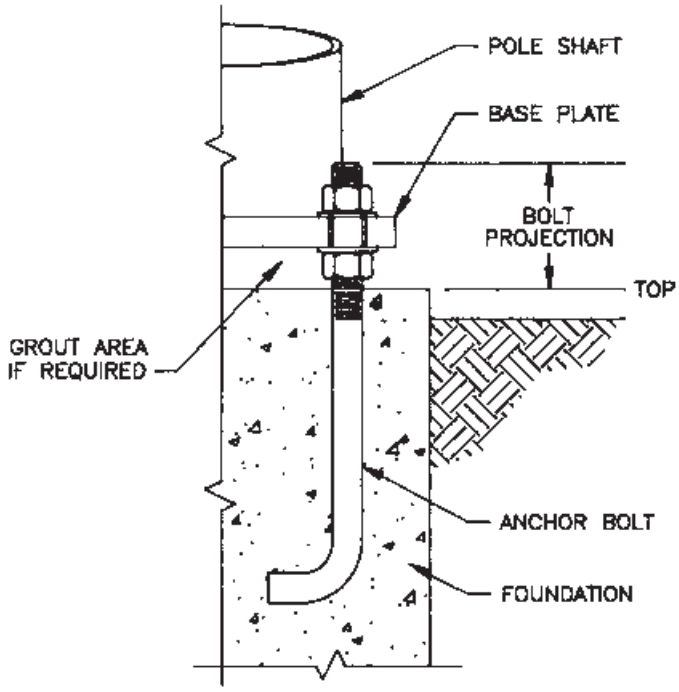
Model Number	Top Plate			Bottom Plate			Clear door Opening Top x Bott. x Lgth (in)	Total Height (in)
	Bolt Circle (in)	Max. Bolt Dia. (in)	Thick (in)	Bolt Circle (in)	Max. Bolt Dia. (in)	Thick. (in)		
M211	9.5 - 13.0	1.25	0.75	15.0	1.25	0.75	6.0 X 8.75 X 15.5	20
M212	10.0 - 13.5	1.25	0.75	22.0	1.25	0.75	8.0 X 10.5 X 19.5	24

TRANSFORMER NOTES:

1. Steel transformer bases are permanent, non-breakaway. devices.
2. The casing or shroud separating top and bottom plates are manufactured from 7 Gauge (0.1793") thick material.



ANCHOR BOLT DETAIL



FACTOR TABLE					
FACTOR	ANCHOR BOLT DIAMETER (IN.)				
	0.75	1.00	1.25	1.50	1.75
'X'	2.50	3.00	3.50	4.00	4.50
'Y'	1.25	1.50	1.75	2.00	2.50

BOLT PROJECTION CALCULATION:

DOUBLE NUT FORMULA=

FACTOR 'X' + BASE PLATE THICKNESS= MINIMUM BOLT PROJECTION

SINGLE NUT FORMULA=

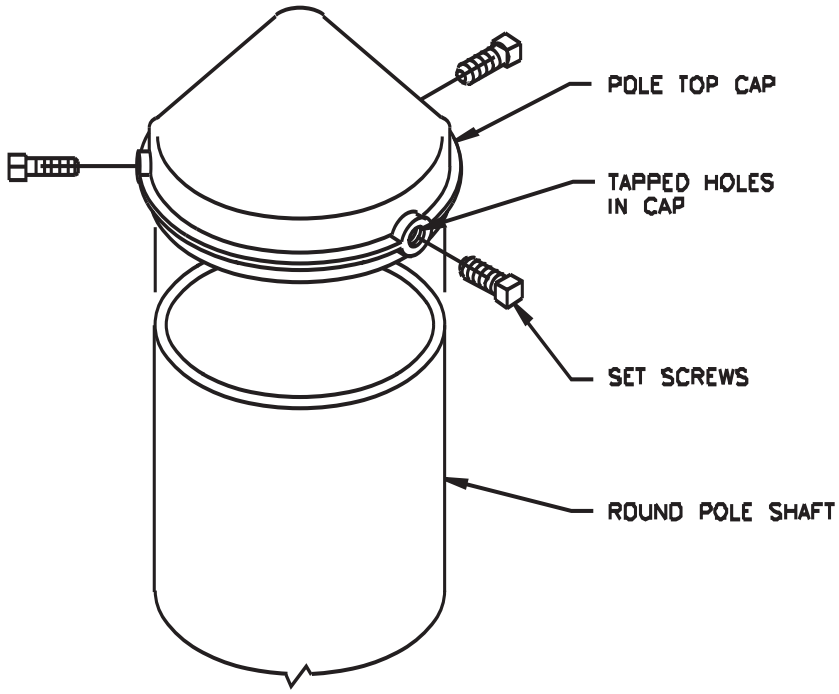
FACTOR 'Y' + BASE PLATE THICKNESS= MINIMUM BOLT PROJECTION

SEE POLE DETAIL CHART FOR BASE PLATE THICKNESS.

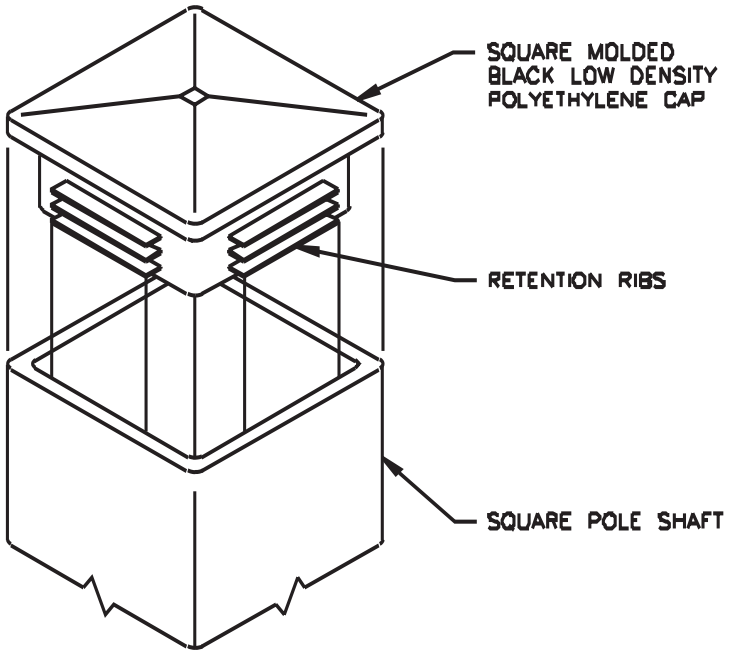
ADD 0.50" TO MINIMUM BOLT PROJECTION VALUE TO DETERMINE THE MAXIMUM ALLOWABLE BOLT PROJECTION.

Warning: Foundations used in conjuction with break-away devices should have total anchor bolt projection from grade limited to 4 inches as defined by AASHTO, "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."

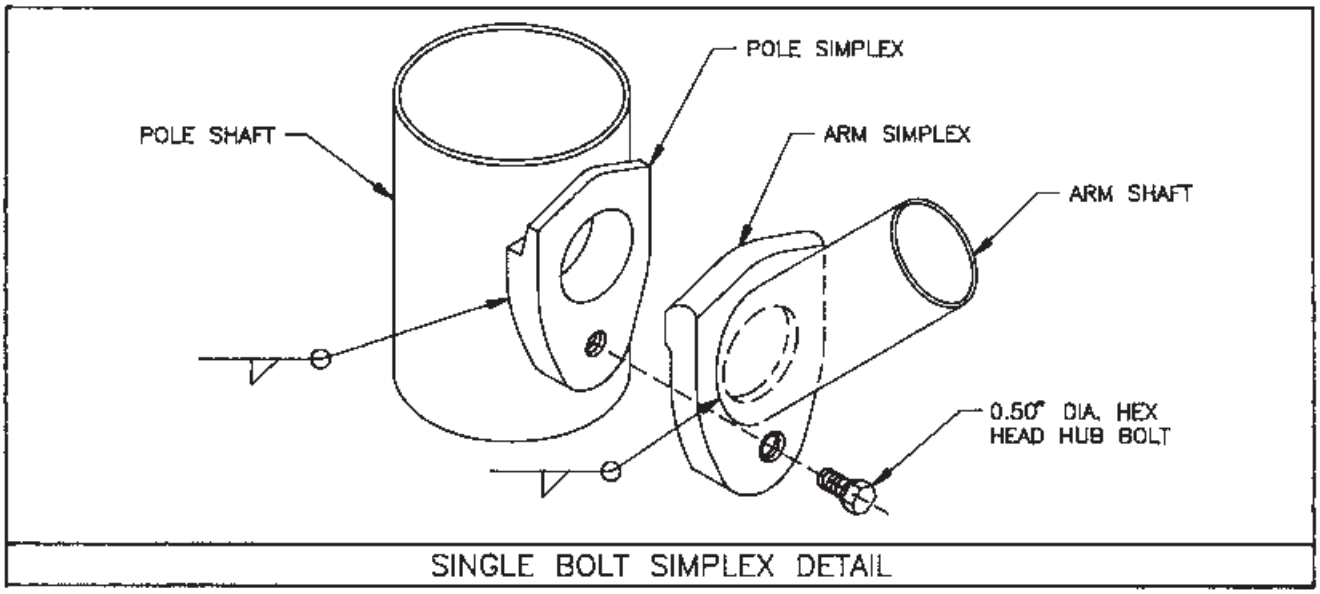
ANCHOR BOLT PROJECTION DETAIL



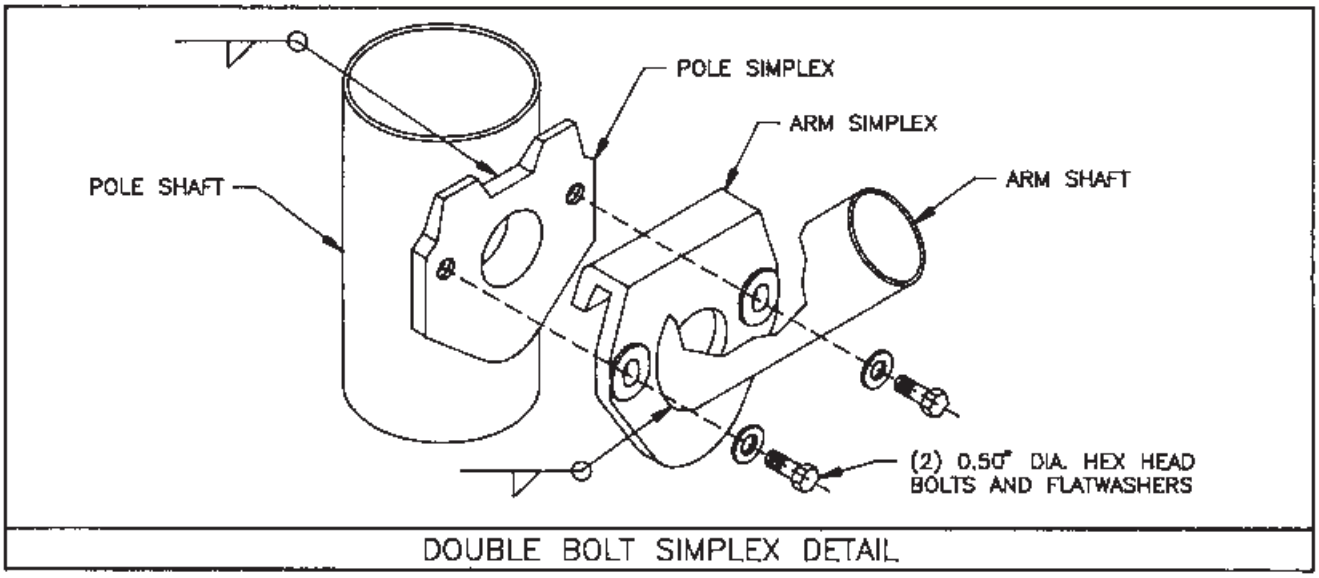
ROUND POLE TOP CAP



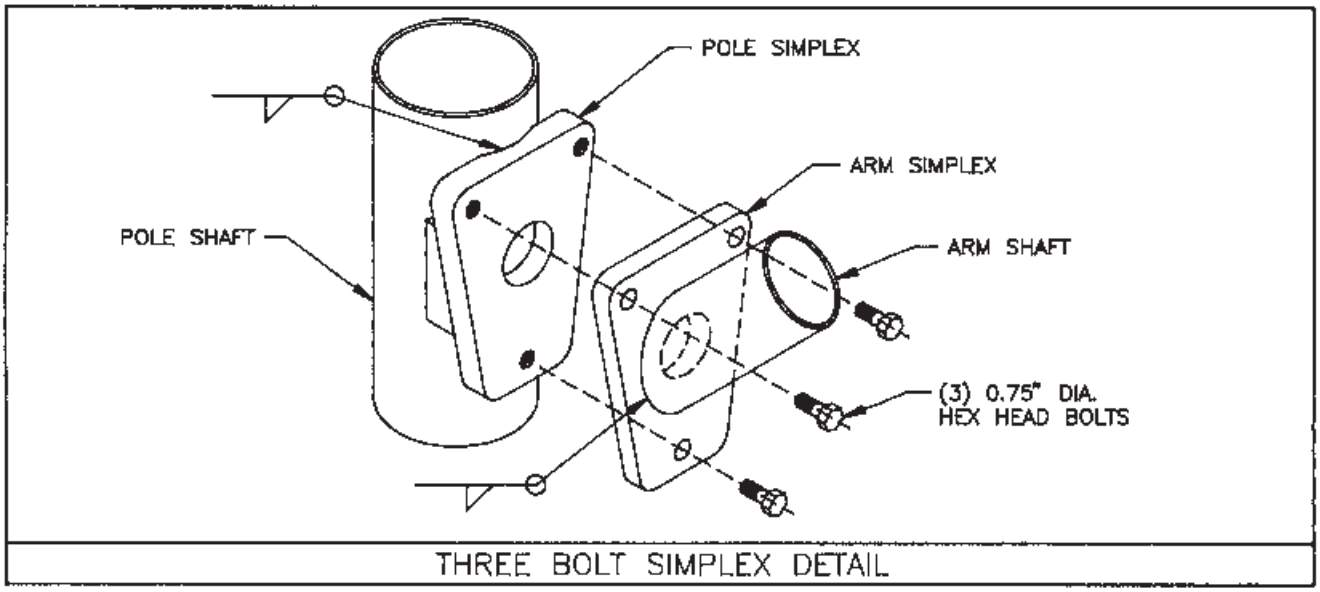
SQUARE POLE TOP CAP



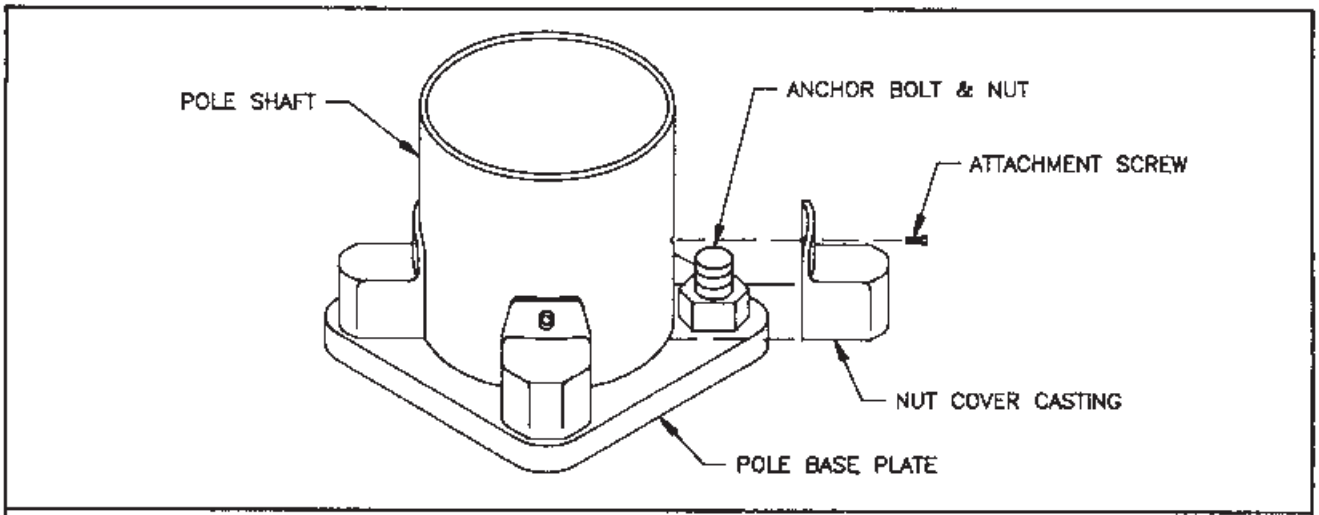
SINGLE BOLT SIMPLEX DETAIL



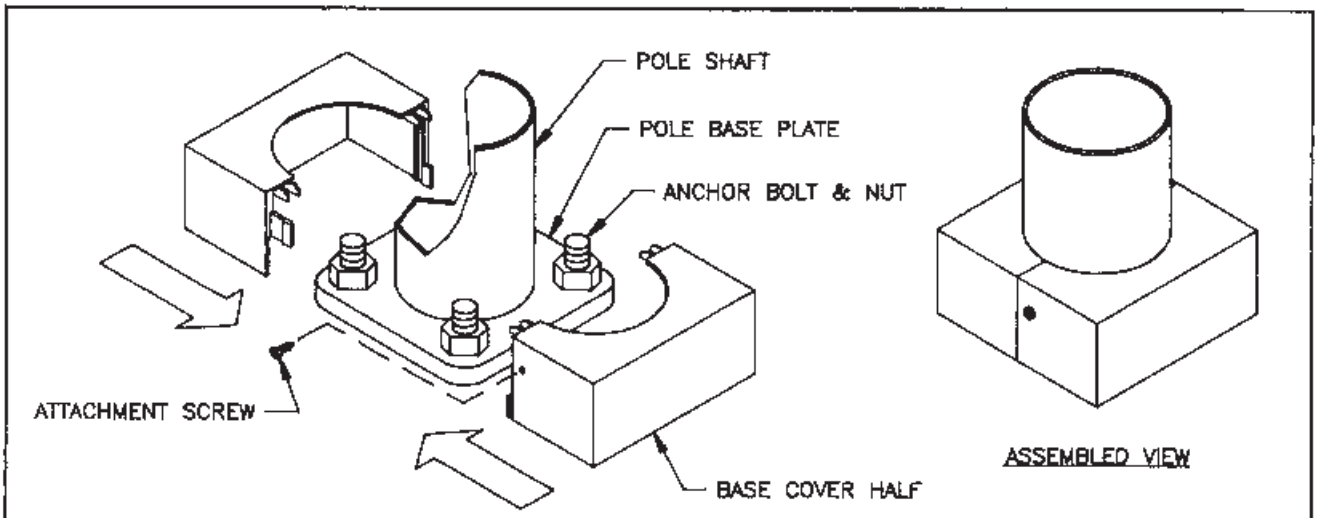
DOUBLE BOLT SIMPLEX DETAIL



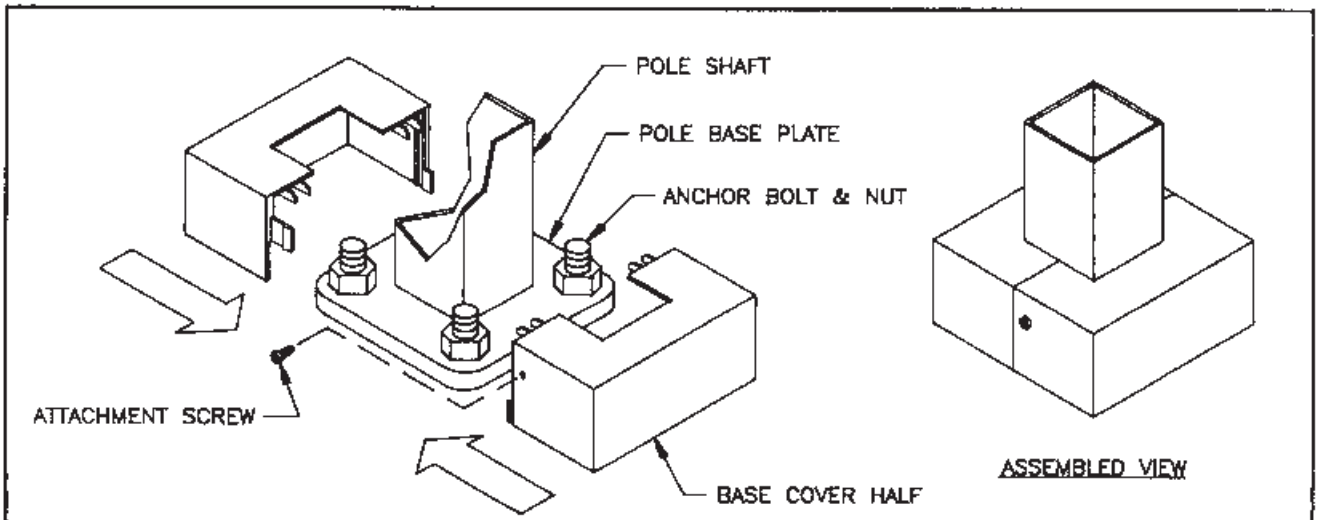
THREE BOLT SIMPLEX DETAIL



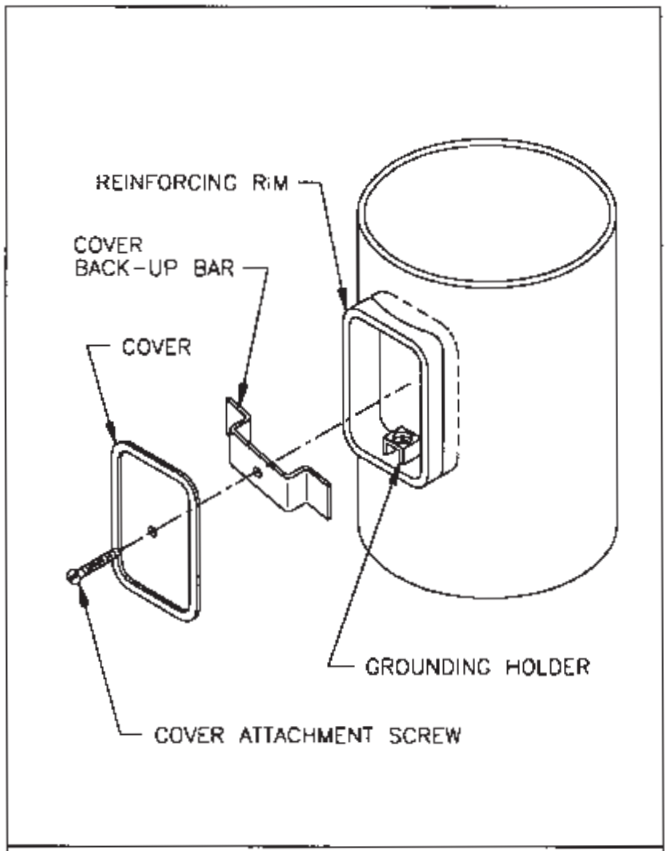
INDIVIDUAL NUT COVERS DETAIL



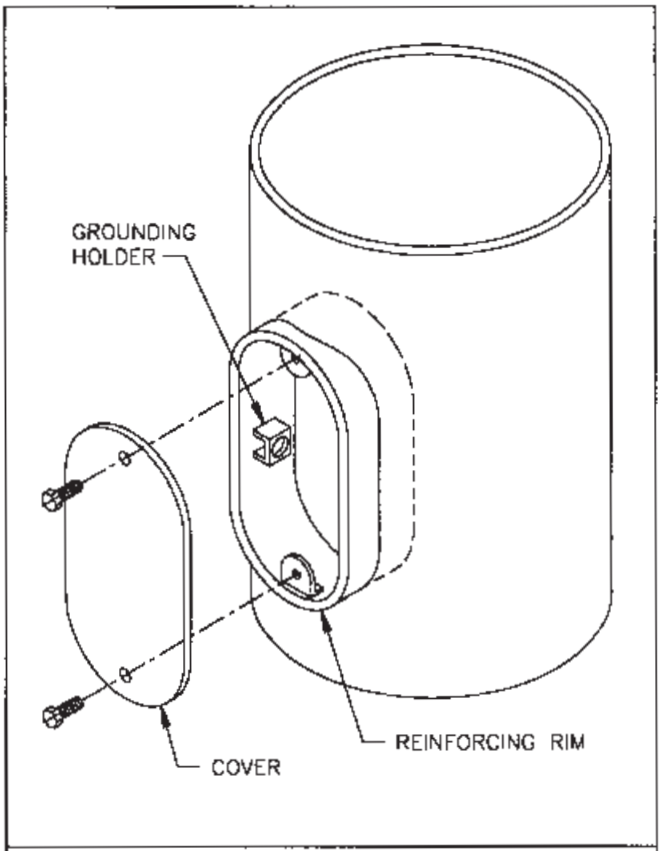
2–PIECE PLASTIC FULL BASE COVER (ROUND POLES) DETAIL



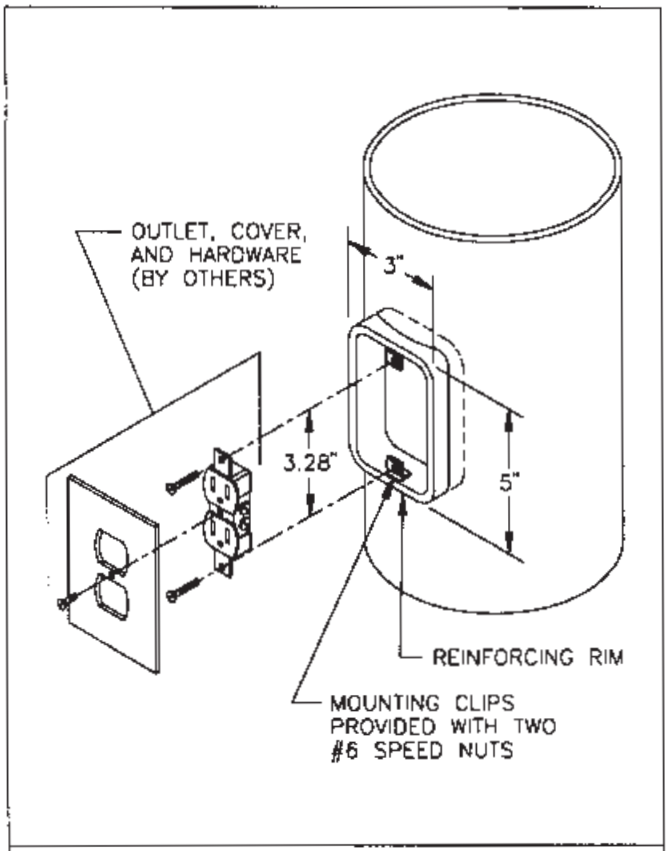
2–PIECE PLASTIC FULL BASE COVER (SQUARE POLES) DETAIL



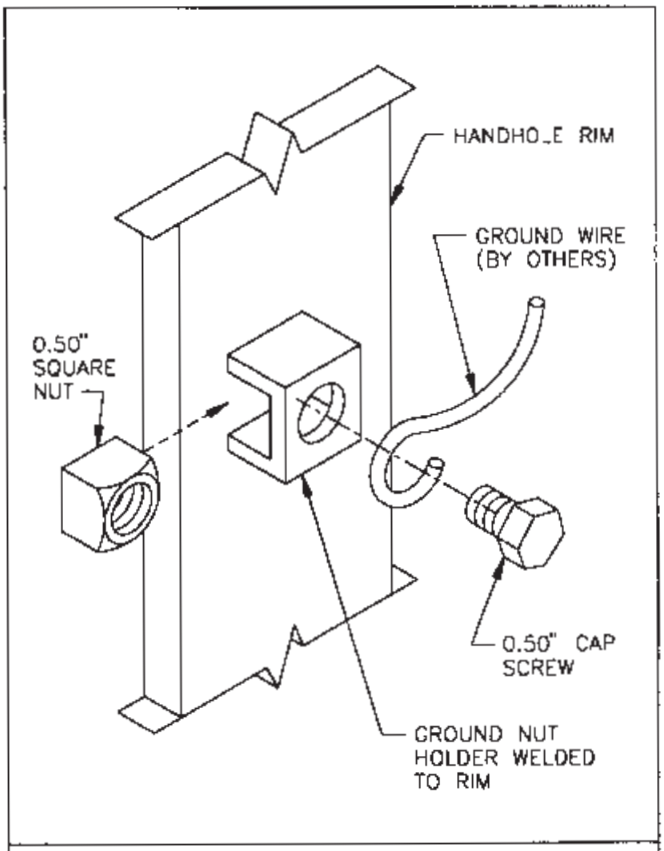
3" X 5" HANDHOLE DETAIL



4" X 6.5" HANDHOLE DETAIL



FESTOON BOX DETAIL



GROUNDING HOLDER DETAIL

WARRANTY

VALMONT INDUSTRIES, INC., warrants its products to be free from defects in materials and workmanship. Valmont Industries, Inc., will repair or replace without charge, F.O.B. Factory, any defective part returned to Valmont Industries, Inc., **within one year** from the date of delivery of the goods.

GENERAL PRODUCT WARRANTY

This warranty specifically excludes fatigue failure or similar phenomena resulting from induced vibration, harmonic oscillation or resonance associated with movement of air currents around the product.

The above warranties are given in lieu of all other warranties express or implied, including without limitation, the warranty of merchantability and the warranty of suitability for a particular purpose. It is expressly stated that Valmont assumes no liability for consequential or liquidated damages arising out of a breach of the sale, including any warranties arising therefrom, and buyer's remedy shall be limited to repair or replacement of defective parts as described above.

Any action for the breach under a sale including any warranties arising therefrom must be commenced within one year after the cause of action accrues.

TAXES

Valmont Industries, Inc., reserves the right to add any sales tax, duty, excise or any other tax which may be imposed on their product to the sales price of that product.

RETURNED GOODS

Prior written consent from Valmont Industries, Inc., must be secured before credit on returned goods will be given. Restocking charges, freight charges, product condition, product type and potential reselling abilities are considerations which will be included when evaluating returned goods requests.

CANCELLATION

The written consent of Valmont Industries, Inc., must be obtained prior to a cancellation of any order.

TERMS OF PAYMENT

Terms of payment are net, 30 days from date of invoice unless otherwise specified.

CLAIM FOR SHORTAGES

All claims for shortages must be made in writing within 30 days of receipt of shipment at destination.

QUOTATIONS

Prices quoted are subject to receipt and acceptance of order within 30 days of the quotation. The corporate office of Valmont Industries, Inc., Valley, Nebraska, is the final authority issuing all quotations and bids and the acceptance of all contracts and orders.

ROUTING

Routing and method of shipment will be determined by Valmont Industries, Inc., to the common carrier delivery point nearest destination. The customer will assume charges for special services such as cartage, air freight, express, parcel post, and multiple deliveries on one order.

SPECIAL DESIGN LOADING

For design or stress loading applications, other than those covered in each design section such as overhead wiring, guying of structures, structure mounted applications, or other field installed attachments, consult Valmont for design recommendations.

EXISTING FOUNDATION OR ANCHORAGE

If the poles are to be used on an existing foundation or on other structures, the customer assumes all responsibility for the structural integrity of the existing foundation and anchorage. The customer also assumes all liabilities associated with ensuring the pole being ordered will be a compatible fit to the existing foundation or anchorage.

Valmont Industries, Inc., reserves the right to change any portion of this publication and its terms without notice in order to promote product improvement and allow for material availability.

Distribute this information to installation personnel, future maintenance personnel, and owners.

This general information deals primarily with the long term durability of structures of the type supplied by Valmont. It is not intended to be a comprehensive description of how to install these structures. Competent installation contractors must be consulted upon for practices, and equipment that meet the demands of the conditions at each job location.

Valmont cannot be responsible for any damage that occurs during or after installation, or for any structure that has been modified or that is utilized in some way other than that described in our application recommendations.

For information about the structural capability of these products or about installation practices, please consult with the factory or nearest Valmont representative.

Grounding and Protection Against Electric Shock

The purchaser and installer must provide proper electrical grounding and warnings about any electrical hazards in accordance with applicable codes.

Corrosion Protection

Structures that are to be stored prior to use should be protected from moisture retention and kept well ventilated. Immediate removal of all packing and shipping materials is recommended to prevent accelerated finish deterioration.

Foundation details should assure that water or excessive moisture cannot accumulate at the base of the pole. This includes providing drainage for any water caused by condensation inside the pole.

All finishes are subject to gradual deterioration. The rate of deterioration is a function of many variables such as:

- Corrosive elements in the atmosphere.
- Salt spray from road surfaces or a marine environment.
- Moisture from rainfall or condensation.

An on-going maintenance program must include periodic inspection for normal deterioration of the protective coating and for any indication of corrosion, which may be localized. Renewal of the protective end of the coating, both inside and outside, must be done at the end of the coating life to preserve the structural integrity of each assembly. Valmont's brochure "Protective Coatings for Steel" has additional information on corrosion protection.

Field Painting

The following information applies only to application of finish coats over Valmont's standard prime coats (Valmont Specifications F73). The painter must check whether the prime coat is Valmont's standard or a special finish specified by the purchaser.

The primed surface should be free of any contaminant detrimental to adhesion, such as grease, oil, and dirt. This can be accomplished by chemically cleaning contaminated areas with stoddard solvent, petroleum naphtha, mineral spirits, turpentine, xylol or toluene. Light sanding of the primed surface further enhances adhesion of the top coat. Spot prime such areas as scratches and mars that have penetrated near or to the substrate.

Note: Field applied top coats containing high strength solvents should be tested for inter-coat and system adhesion. Primed surfaces not top coated within 30 days should be lightly sanded or chemically cleaned.

Weathering Steel

Weathering steel is not a completely maintenance-free material. An on-going maintenance program must include periodic inspection for any abnormal corrosion.

Suppliers of weathering steel can supply data about the behavior of these materials in various environments. Their application recommendations should be consulted for best results.

It is important to avoid continuous exposure to moisture. Liquid water, damp debris, or soil on weathering steel surfaces will cause accelerated corrosion. Excessive vegetation around the base can be harmful. A build-up of corrosion debris can adversely affect the inside of the pole base.

Unless tubular members are hermetically sealed they should be kept open for ventilation, particularly at the base.

At least one steel supplier recommends painting closely fitting (faying) surfaces. The best time for painting is immediately prior to installation to minimize damage to the protective coating.

Effects of Vibration

Although rare, vibrations severe enough to cause damage can occasionally occur in structures of all types. Because they are influenced by many interacting variables, vibrations are generally unpredictable. There is no single cure that will assure the prevention of all modes of vibration.

Vibration is believed to be more likely to occur when structures (or components such as arms) are installed without attaching the equipment which the structures are designed to support. Therefore the intended equipment, or devices equivalent in damping characteristics, should be installed at the time of erection.

Steel poles have been less affected by vibrations than poles of other materials. However, the user's maintenance program should include observation for excessive vibration and examination for any structural damage or bolt loosening.

Anchor Bolt Foundations

If anchorage hardware is furnished by others, the correct size and strength must be used.

When leveling nuts are used, the lower nuts should be close to the concrete surface (about 1" maximum). Large spaces between the pole base plate and the concrete can cause excessive stresses in the anchor bolts, particularly when there are large torsional forces in the pole.

Transformer Bases

In attaching a pole to a transformer base, when the pole base plate has slotted holes, place the connecting bolts on the largest possible bolt circle (i.e. the outer ends of the slots).

ASTM A325 Bolts

Threads may need to be lubricated in the field in order to achieve bolt tension in accordance with AISC recommendations. Hardware suppliers use beeswax and various commercial waxes as lubricants. They indicate that products like "WD-40" are commonly used in the field.

Hinged Poles

Wiring must pass through the wiring protection guide at the hinge to assure that the insulation won't be damaged during raising and lowering. The raising and lowering winch must be operated smoothly and the winch cable kept taut to avoid impact loadings which could cause collapse of the shaft extension shroud.

Information Required for Pole Design:

- Wind speed – MPH gust factor 1.3 _____
- Design Criteria: Valmont, AASHTO, Other (specify)

  _____
- Mounting Height of Luminaires _____
- Product Finish:
  - ☐ Galvanized
  - ☐ Prime Paint
  - ☐ Finish Paint

    Color_____

    ☐ Std. Valmont Color ☐ Light Fixture Manu. Color

    ☐ RAL Color ☐ Federal Color

    ☐ Special (Provide Chip)
  - ☐ Weathering Steel
- Fixture EPA _____ and Weight _____
- Street lighting:
  - Arm Rise_____
  - Arm Length _____
- Area Lighting Fixture Arrangement _____

  Brackets Required _____
- Accessories:

  ☐ Steps

  Location_____
  (Starting above base plate and ending location)

  ☐ Festoon Outlet

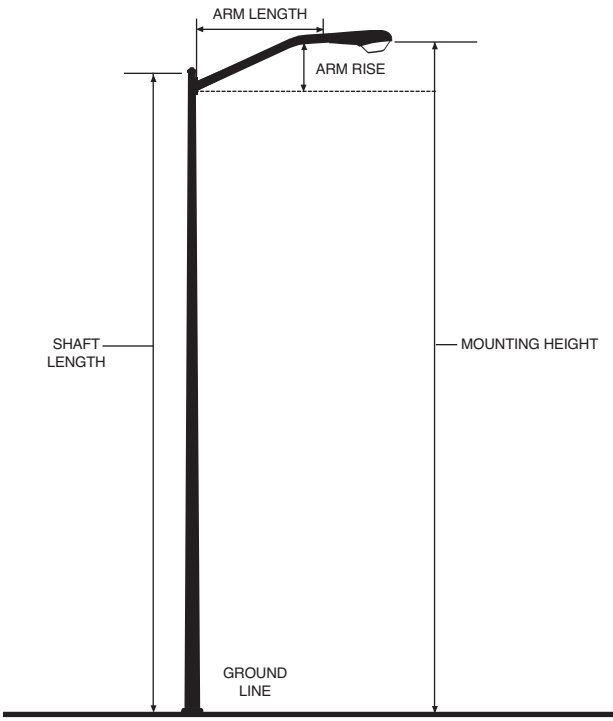
  Location_____
  (Radial orientation from handlhole as viewed from pole top and height above ground)

  ☐ Couplings

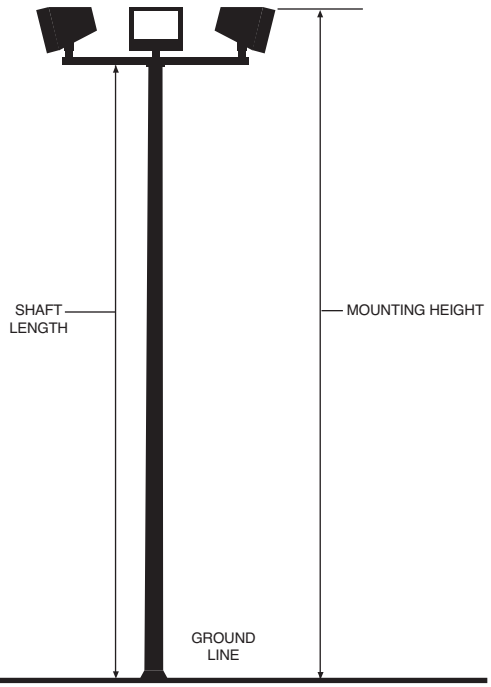
  Size_____

  Location_____

STREET LIGHT



AREA LIGHT



Basic Wind Velocity (miles per hour)

NOTES:

1. Values are based on annual extreme-mile 30 feet above ground. And 50 year mean recurrence interval for United States.
2. Canada based on peak mean hourly wind speeds for a 30 year return period, 30 feet above ground.
3. Caution is advised in using wind velocity contours in special wind areas such as mountainous areas and areas around the Great Lakes.
4. Hawaii has an 80 mph wind velocity.
5. This map is intended as a general guide. Check your local area for unique wind conditions.

Valley, Nebraska, USA
Farmington, Minnesota, USA
Salem, Oregon, USA
Charmeil, France
Rive-De-Gier, France
Monterrey, Mexico
Commerce City, Colorado, USA
Elkhart, Indiana, USA
Selbyville, Delaware, USA
Sidlce, Poland
Maarheeze, the Netherlands
Berrechid, Morocco
Brenham, Texas, USA
Plymouth, Indiana, USA
St. Julie, Quebec, Canada
Gelsenkirchen, Germany
Shanghai, China
Chesterfield-Derbyshire, UK

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