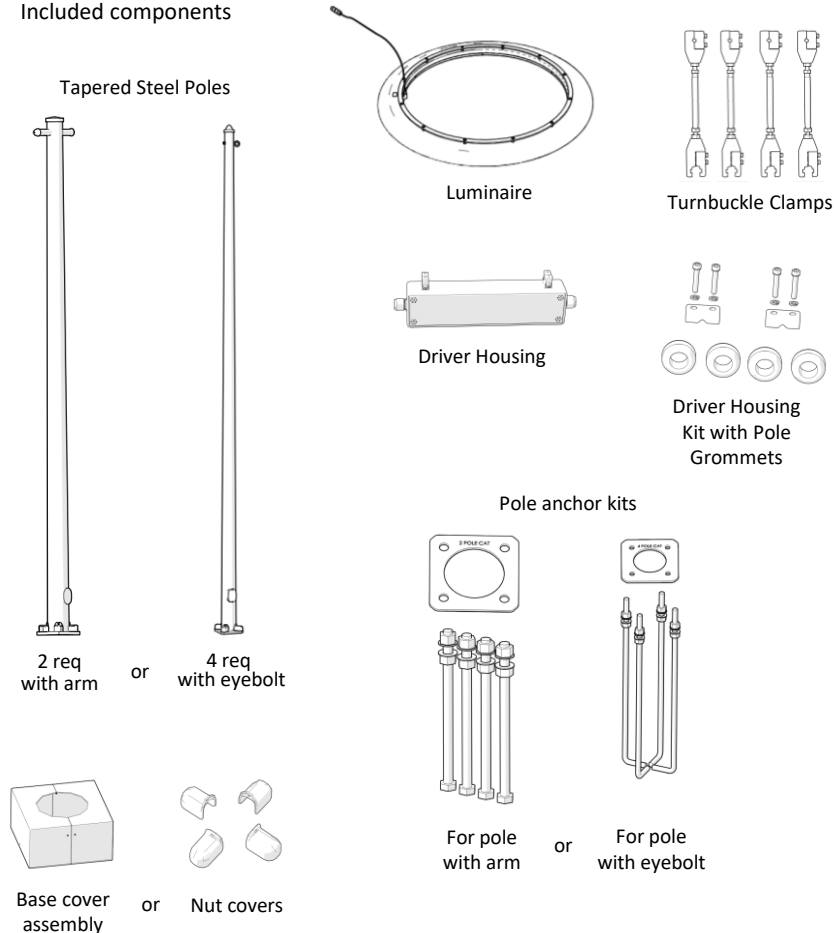


Included components



ASSEMBLE WITH CARE! Pangard II® Polyester Powdercoat is a strong, long-lasting finish. To protect this finish during assembly, place unwrapped powdercoated parts on packaging foam or other non-marring surface. Do not place or slide powdercoated parts on concrete or other hard or textured surface – this will damage the finish causing rust to occur. Use touch-up paint on any gouges in the finish caused by assembly tools.

Important: Read all installation instructions before proceeding.

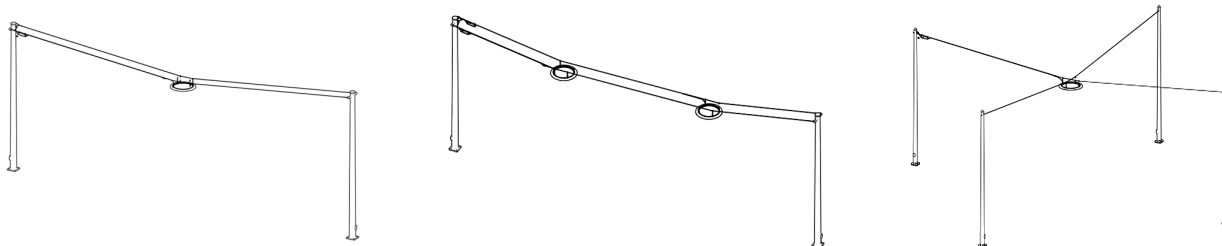
Landscape Forms is not responsible for site preparation and footings. Refer to the installation guide for the Typology Catenary Ring Light anchor kit for installing the anchor bolts.

CAUTION! This unit is heavy. To avoid injury or damage to the finish, we recommend using a crane or lift for hoisting the unit onto the anchors.

WARNING! LED cartridge and driver are not rated for connection or disconnection while energized. Doing so may damage LEDs and will void the warranty. Disconnect incoming power before making or breaking any electrical connections.

Tools Required

- Safety glasses
- Wrench (2), (1-1/16" for poles with eyebolt; 2-3/8" for poles with arm)
- 7/16" open end wrench
- Screwdriver, Phillips
- Wiring tools and connectors
- Proper personnel, crane or lift for raising poles and luminaire into place
- Level
- Tape Measure (25')
- Hex keys - 3/32", 9/64"
- Phillips screw drivers #1 and #2



INSTALLATION INSTRUCTIONS:

Catenary suspended light systems require additional components, including the catenary wire rope, attachment hardware, electrical cord, and cable ties. These components are supplied by others.

The Typology Catenary Ring Light has two primary ways of being supported. Poles with arms are used when two poles support 1 or 2 luminaires. Poles with eyebolts are used to support 1 luminaire when four poles are to be used. Standard pole height is 20 feet (max). Typical luminaire height is 16 feet. Spacing between poles is 50 feet. Contact lighting support for other possible configurations.

1. Lift the pole into position over the installed anchors (refer to Typology Catenary Ring Light anchor kit installation guide) as shown in Fig. 1. Align the arm tab holes or eyebolt at top of pole to point toward the opposing pole position. Ensure that the base plate is resting on all four washers.
2. Install Hardware as shown in Fig.1.
3. Plumb pole and tighten all anchors. Note: pole is tapered.
4. Install the nut covers or the base cover as shown in Fig. 2. Repeat for remaining poles.
5. Install Catenary cables as shown in Fig. 3. Cable and attachment hardware supplied by others. See Fig 4 and 5 for supplied pole mount dimensions. Stainless steel cable is required (6mm – 8mm diameter is acceptable; Minimum allowable working limit 3.5kips)
6. Once both cables are installed loosely, adjust tensioning turnbuckles accordingly to get a center sag of approximately 5-6% of the pole-to-pole span. For 50-foot pole spacing (typical) the sag should be no less than 30". **WARNING: Over tensioning the catenary cables causes increased load on the poles and anchoring system and structural failure can occur.**
7. Locate the turnbuckle assemblies and clamp parts. (Fig. 6.) The turnbuckle clamp assembly can be adjusted in length as needed to level the light fixture once it is mounted to the cables. Proper adjustment limits and procedure shown in Fig. 7.
8. Attach first turnbuckle clamp to the luminaire as shown in Fig. 8-1.
9. The other 3 turnbuckle clamps can be loosely attached to the rail in the same manner. Space the clamps 90 degrees apart (see Fig. 8-2). Finger tighten the clamp screws. The Typology Catenary Ring Light requires a minimum of 2 cables and 4 clamp assemblies.
10. Loosen all 8 turnbuckle inner nuts as shown in Fig. 7, by holding the 9/64" hex key and turning the nut with a 7/16" wrench.
11. Rotate the top cable clamps as shows in Fig. 9
12. Lift Luminaire to catenary cables with scissors or bucket lift. Once the cables are in place, install clamp blocks as shown in Fig. 9. **Make sure the clamp with the electrical cord is on the side that is closest to the pole with the electrical roughed in.**
13. Attach the cable clamp blocks to the catenary cables. It may be necessary to loosen and adjust the bottom rail clamps to make adjustments in or out slightly to allow the turnbuckle clamps to be vertical. **WARNING: It is important that the turnbuckles are vertical, with no side loads and the fixture is level.** Adjust the turnbuckle height to level the fixture. See Fig. 7 for allowable turnbuckle adjustment.
14. Once the luminaire is level, and turnbuckles are vertical, tighten all clamp mount screws and turnbuckle jam nuts.
15. Install Driver Housing on catenary cable near pole with electrical rough in (see Fig. 10 – 13).

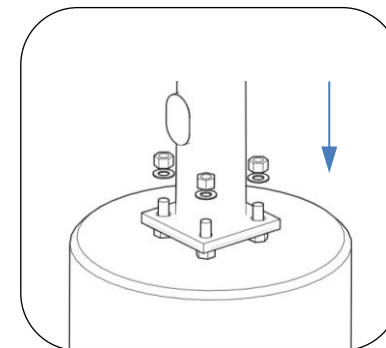


Fig. 1 – Install pole

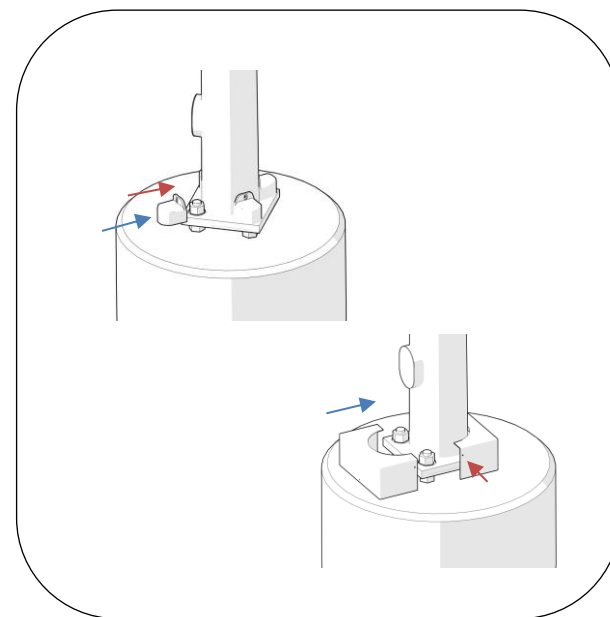


Fig. 2 – Install Nut Covers/Base Cover

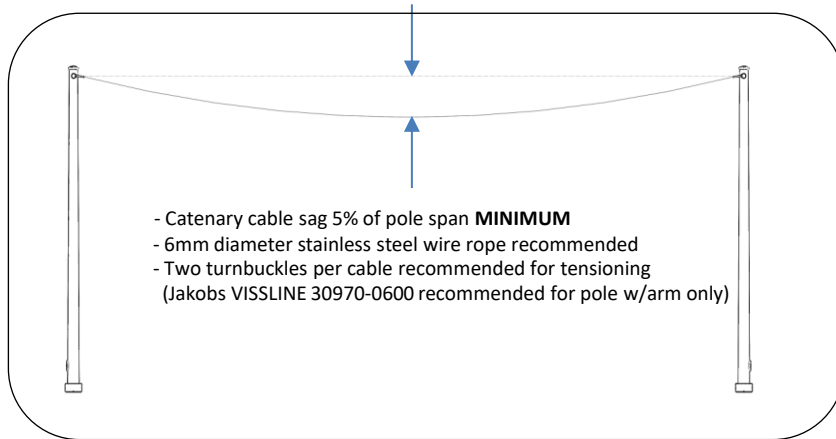


Fig. 3 - Attach cables to poles

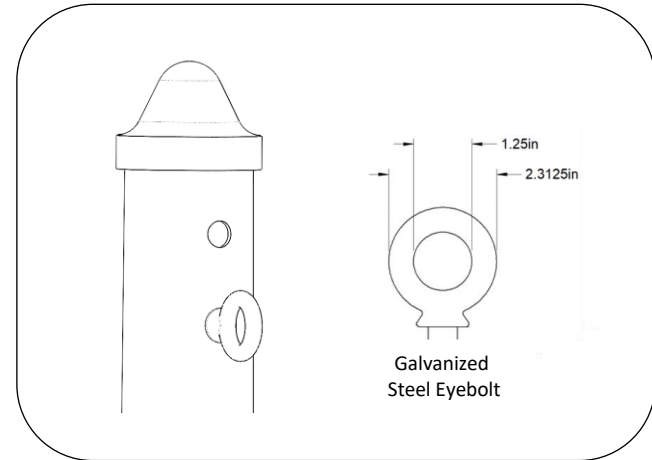


Fig. 5 – Eyebolt detail

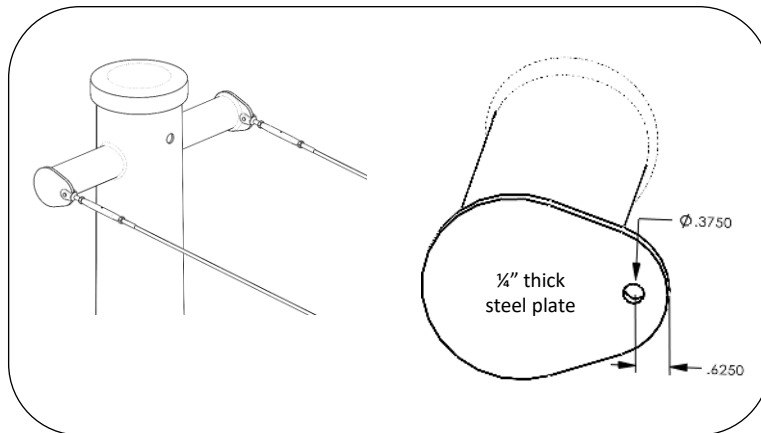


Fig. 4 – Arm Tab Detail

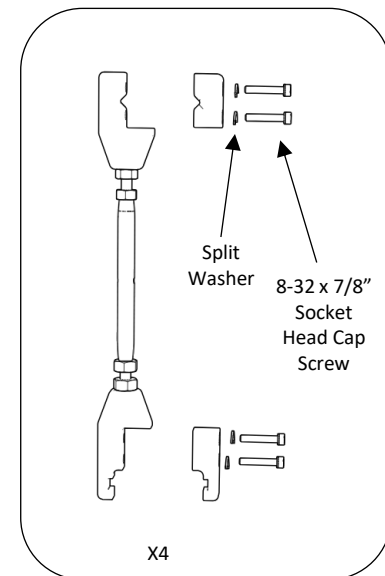
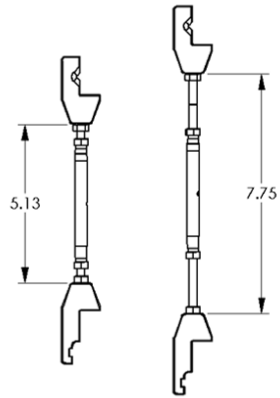


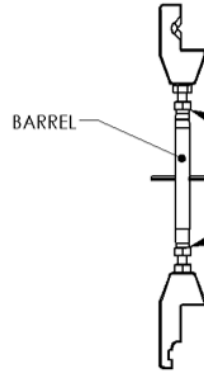
Fig. 6 – Turnbuckle Assembly and hardware



Minimum and Maximum clamp length adjustment



NEVER LOOSEN OR ADJUST THESE NUTS! THEY ARE SET AT THE CORRECT LOCATION IN THE FACTORY



Proper height adjustment requires both clamp ends to be held while rotating the barrel to adjust length.

Fig. 7 – Turnbuckle clamp adjustment

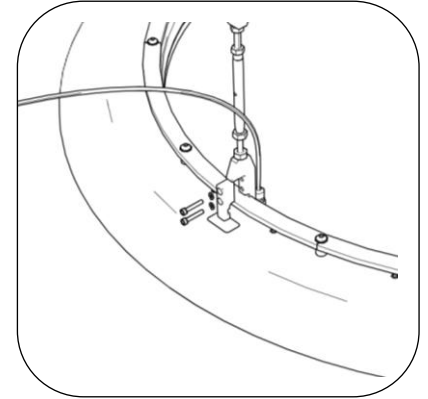


Fig. 8-1 – Install first clamp near the cord

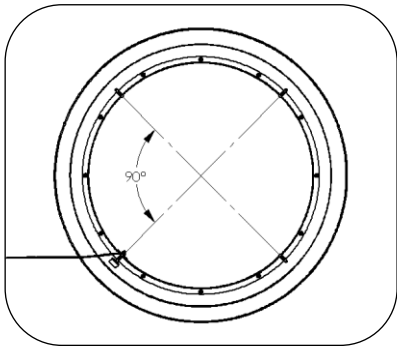


Fig. 8-2 – Other 3 clamp Locations

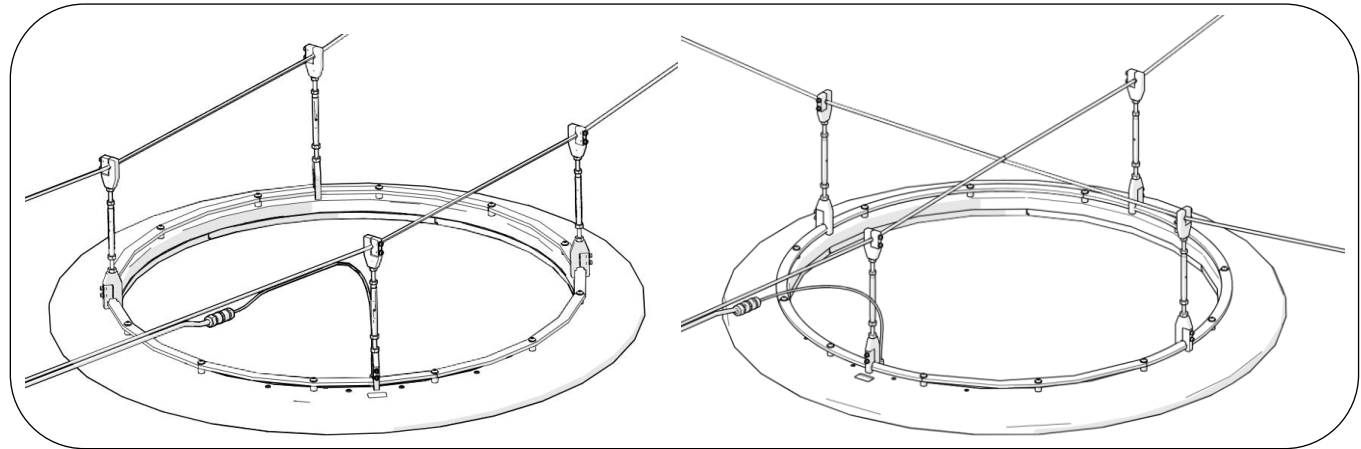


Fig. 9 – Top clamp alignment with cables

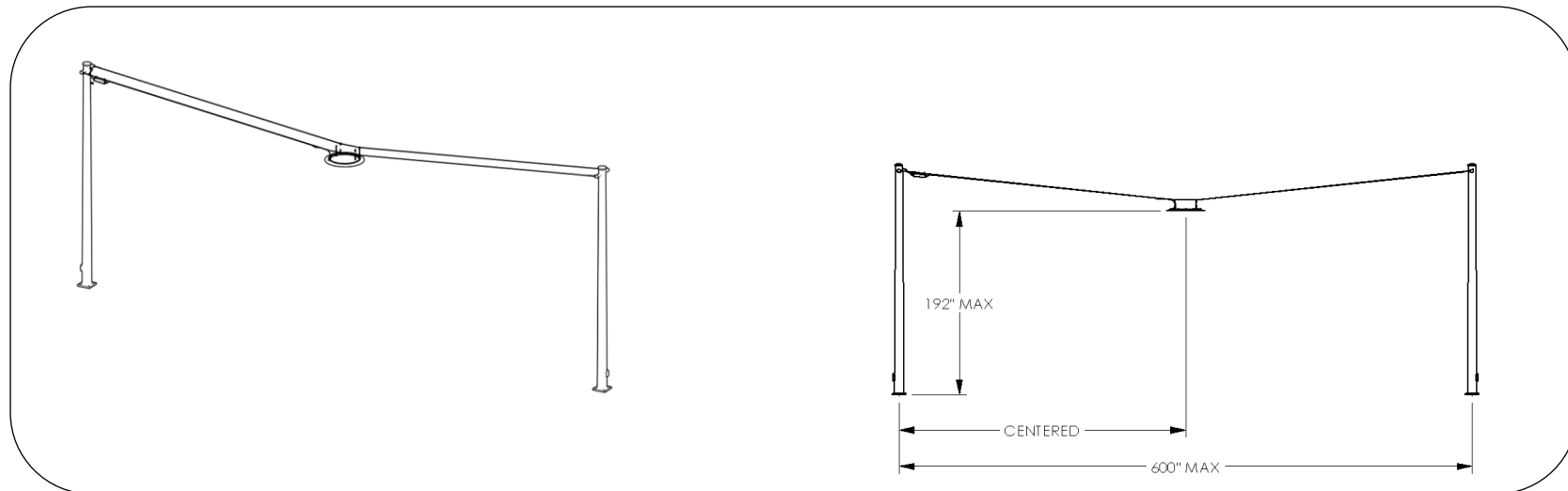


Fig. 10 – 2 Poles with arms, single luminaire - limit values

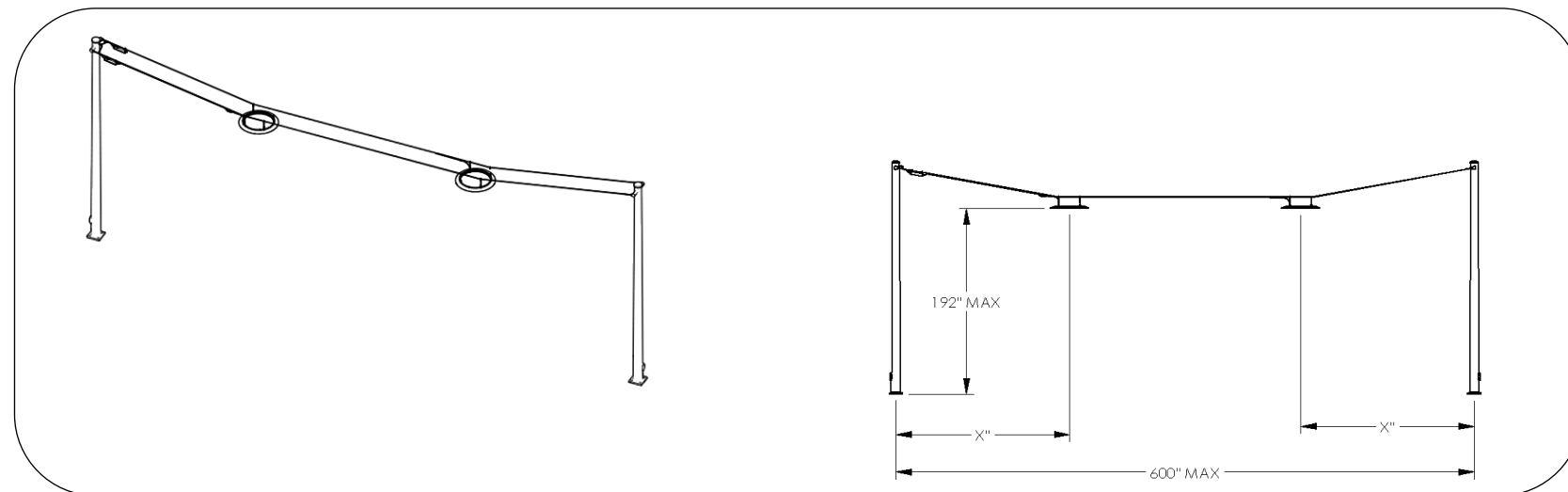


Fig. 11 – 2 Poles with arms, 2 luminaire – limit values

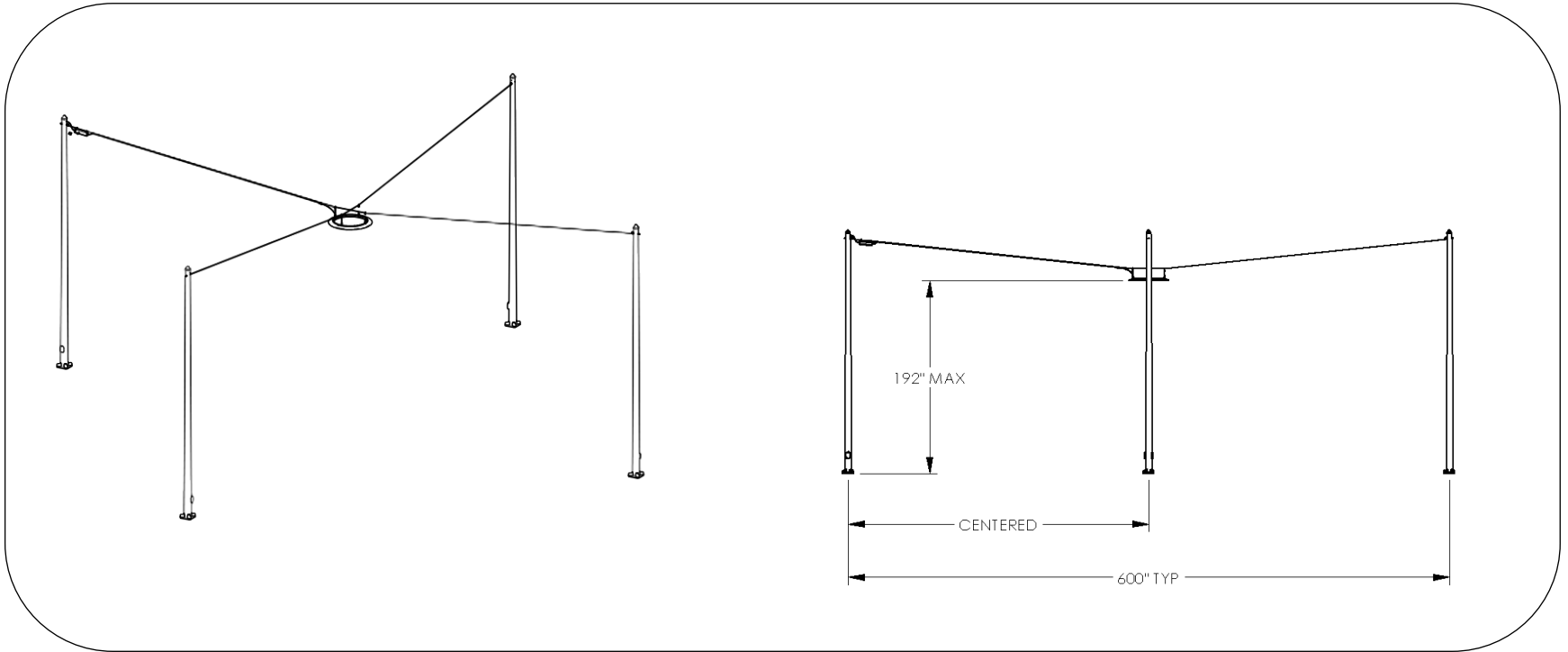


Fig. 12 – 4 Poles with eyebolt, 1 luminaire – limit values

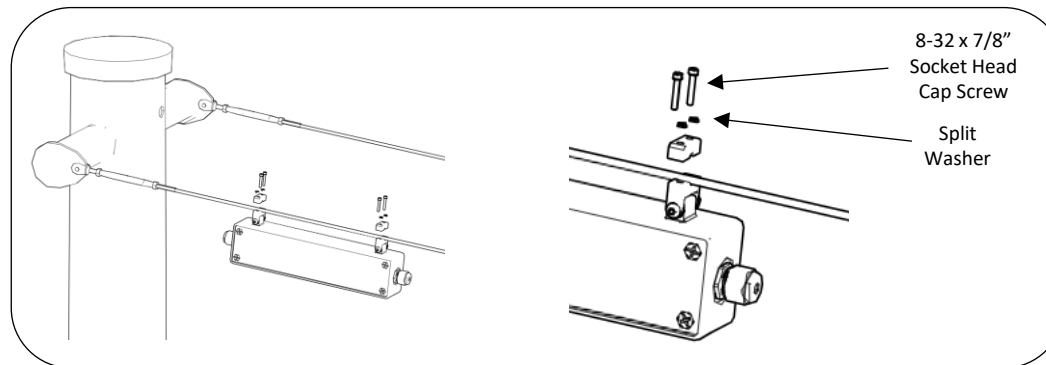


Fig. 13 – Driver Housing Installation

PROCEDURE FOR WIRING:

The Typology Ring light luminaire is assembled at the factory. The light cartridge is mounted into the head of the Ring and will not need to be removed during installation. Use of LED drivers other than the supplied unit is not recommended and will void the warranty.

The wiring schematic is to be used to connect the unit to line voltage. It is the responsibility of the installer to make sure that all connections are made in accordance with the NEC and local building codes. Connection hardware to line in at pole base is not included.

WARNING: LED cartridge and driver are not rated for connection or disconnection while energized. Doing so may damage LEDs and will void the warranty. Disconnect incoming power before making or breaking any electrical connections.

Electrical Installation:

1. Make sure power is off to Line-in wires roughed in to bottom of the light pole.
2. **Electrical cord for Line-in and Line-out of Driver Housing supplied by others. Provided cord grips are suitable for cords 0.24" to 0.47" OD. For Line-in we recommend 3-conductor, 16 AWG SJOOW cord (min). For Line-out, use 2-conductor SJOOW cord. See Chart 1 for allowable cord length per given wire gauge vs percentage of output drop.**
3. Install provided rubber grommet at the top of the pole near the driver housing as shown in Fig. 15.
4. Remove four Philips head screws from driver housing lid to access driver wires.
5. Route Line-in cord thru the cord grip on the correct side of the driver housing (See Fig. 17). Using the included lever nut connectors, connect Line, Neutral, and Ground wires to matching wires of the driver per Fig. 14 wiring diagram.
6. Tighten cord grip.
7. Route wire thru the grommet in the pole and down to the hand hole. Strain relieve the cord inside the top of the pole. See Fig. 16.
8. Use appropriate wire ties (supplied by others) to attach the cord to the Catenary cable.
9. Route Line-out cord thru the other cord grip. Strip Cord wire as needed. Make connections to the driver output wires as shown in Fig. 14 using provided lever nuts.
Note the color of the wires that attach to the LED + and LED - wires.
10. Tighten cord grip.
11. Reinstall driver housing lid with 4 Philips-head screws
12. Use appropriate wire ties (supplied by others) to secure Line-out cord to catenary cable down to the luminaire.
13. **Cut cord and install into luminaire connector as shown in Fig. 18.**
14. Make connections to Line-in at the base of the pole and install hand hole cover.

Output	Distance from Driver to Luminaire for 1% Output Drop (ft)		
	14 AWG	16 AWG	18 AWG
Standard Output	28	18	11
High Output	21	13	8

Output	Distance from Driver to Luminaire for 3% Output Drop (ft)		
	14 AWG	16 AWG	18 AWG
Standard Output	85	54	34
High Output	66	41	25

Output	Distance from Driver to Luminaire for 5% Output Drop (ft)		
	14 AWG	16 AWG	18 AWG
Standard Output	142	90	56
High Output	111	69	42

Chart 1. Allowable cord length per Wire Gauge

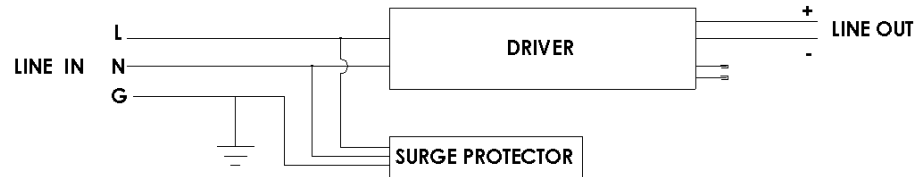


Fig. 14. WIRING DIAGRAM

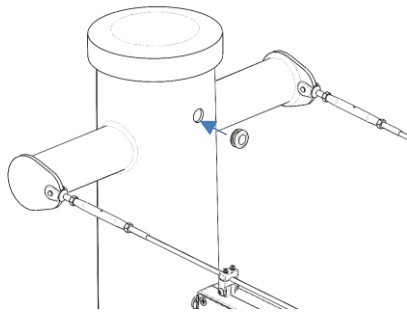


Fig. 15 Grommet Installation

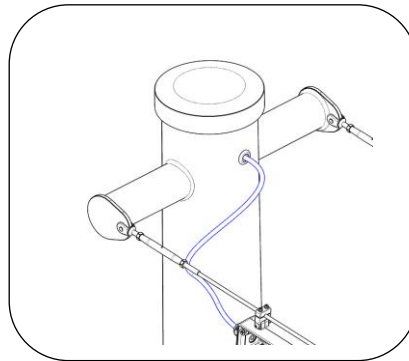


Fig. 16 Cord Routing

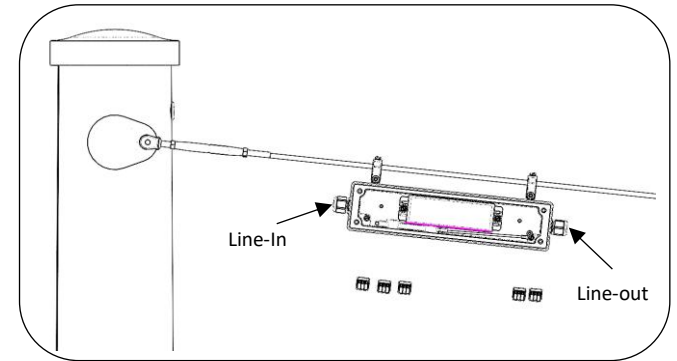
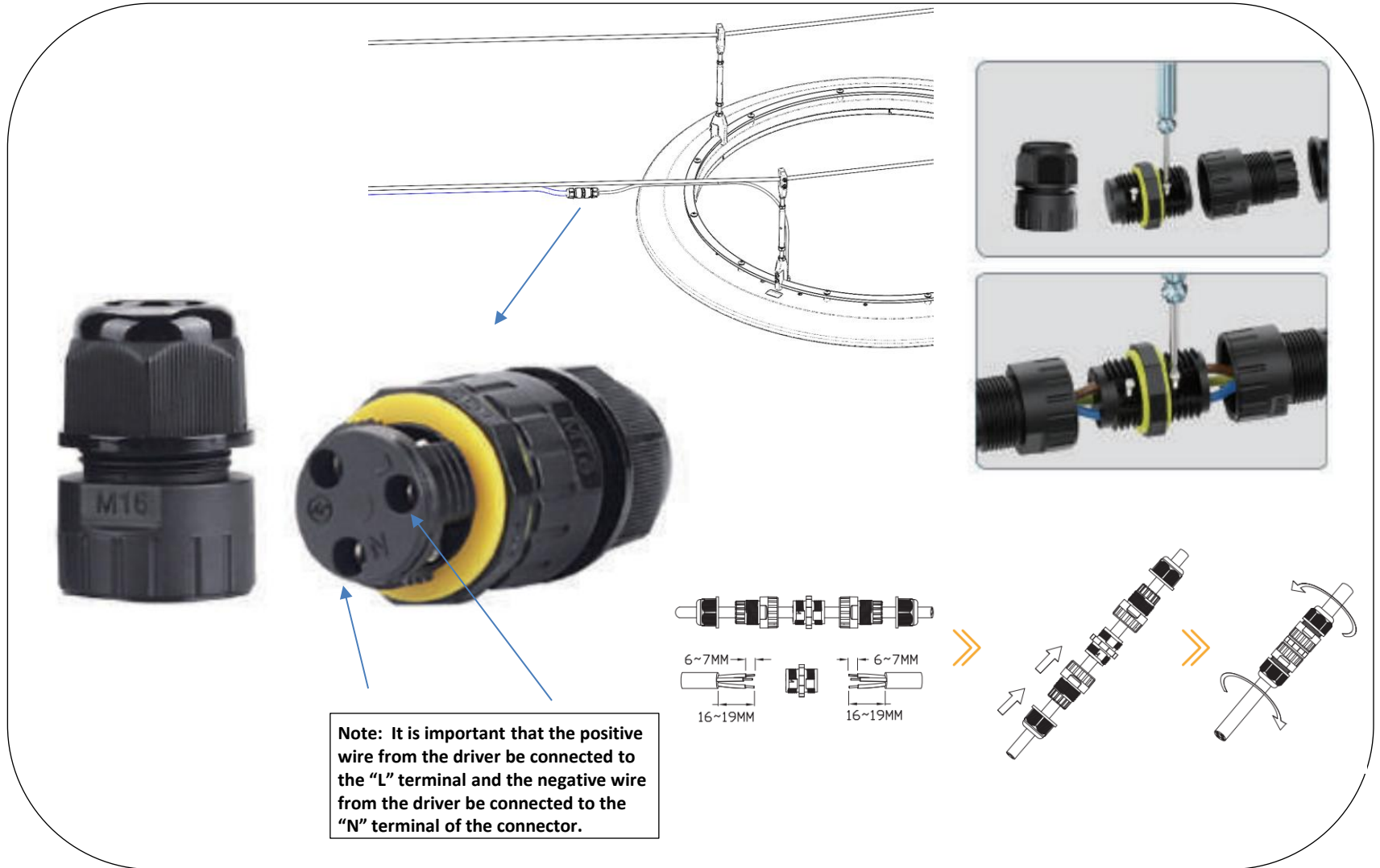
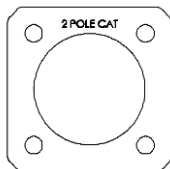


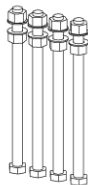
Fig. 17 Driver Assembly Orientation



Included components



1x – Wooden template



Anchor bolt kit

Included: hardware is galvanized

20ft Pole with Arm: (4) 1-1/2" x 25-1/2" Heavy Hex Bolt (F1554-36), (8) 1-1/2" Heavy Hardened Washer (ASTM F436 – Type 1), (8) 1-1/2 Heavy Hex Nut (A563-A)

Tools Required

- Safety glasses
- Wrenches, 2-3/8"
- Level

Landscape Forms is not responsible for site preparation and footings. The following chart gives necessary information for calculating proper footing size, depending on the specified light pole.

WARNING! Pole mounted luminaires must be attached before pole installation. Failure to do so may cause vibration damage to the pole and will void the pole warranty.

Calculations assuming base of the pole is at grade level.

INSTALLATION PROCEDURE FOR ANCHOR BOLTS:

1. Prepare footing as required by local codes.
2. **Anchors must be aligned parallel to future catenary cables.** (see Fig. 1.)
3. Install anchor hooks, hex nuts, washers and wooden template as shown in Fig 2. Level template in all directions. **Note:** template thickness is less than base plate thickness. Dimensions given account for the difference.
4. After footing has properly cured, remove wooden template. Do not remove lower hex nuts or washers.

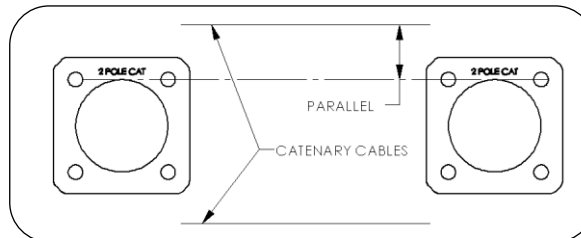


Fig. 1 – Proper Anchor Alignment

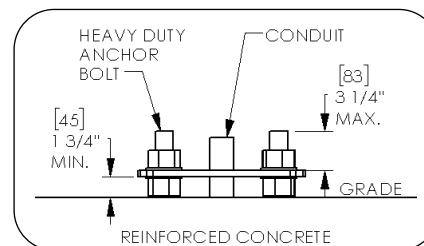
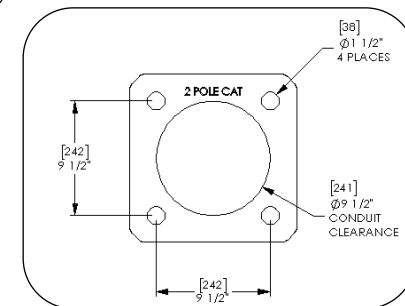


Fig. 2 – Anchor install detail, 10-inch base OD pole



10" diameter base pole

Pole Description	Number of Luminaires	Fixture Height (ft)	Seismic Load (see below)	Snow Load (see below)	Ice Load (see below)	Min Cable Sag Allowed (% span)	Base Overturning Moment (ft-lbs)	Base Shear (lbf)
20 ft Tapered Steel pole with Arm	1	18	X			3	37000	1500
20 ft Tapered Steel pole with Arm	1	17	X	X	X	5	31400 *	1710 *
20 ft Tapered Steel pole with Arm	2	17	X			5	32150	1800
20 ft Tapered Steel pole with Arm	2	17	X	X	X	5	39250 **	2100 **

Wind loads per AASHTO 2013: - 140 mph, Exposure C

Seismic Loads per ASCE 7-16: - Design spectral response acceleration parameter at short period, SDS and 1s period, SD1 = 2.0g

Snow Loads per ASCE 7-16: - 35psf (per luminaire) *

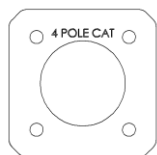
- 28psf (per luminaire) **

Ice loads per AASHTO 2013: - Ice thickness: 0.6 inch radial thickness of ice on all cables, arms, and poles

- Ice load: 3 psf on flat centered luminaires only

- Wind concurrent with Ice: 50mph with Exposure C

Included components



1x – wooden template



Anchor bolt kit

Included: hardware is galvanized

20ft Pole with Eyebolt: (4) Anchor Bolts, 1"-8 x 36" x 4" Hook (ASTM F1554 GRADE 55), (8) Tall Heavy Hex Nut, 1" x 8, (8) Flat washers, 1.06 ID" x 2" OD x 0.15" thick

Tools Required

- Safety glasses
- Wrenches, 1-5/8"
- Level

Landscape Forms is not responsible for site preparation and footings. The following chart gives necessary information for calculating proper footing size, depending on the specified light pole.

WARNING! Pole mounted luminaires must be attached before pole installation. Failure to do so may cause vibration damage to the pole and will void the pole warranty.

Calculations per AASHTO 2013, assuming base of the pole is at grade level.

INSTALLATION PROCEDURE FOR ANCHOR BOLTS:

1. Prepare footing as required by local codes.
2. **Anchors must be aligned parallel to future catenary cables. (see Fig. 1.)**
3. Install anchor hooks, hex nuts, washers and wooden template as shown in Fig 2. Level template in all directions. **Note:** template thickness is less than base plate thickness. Dimensions given account for the difference.
4. After footing has properly cured, remove wooden template. Do not remove lower hex nuts or washers.

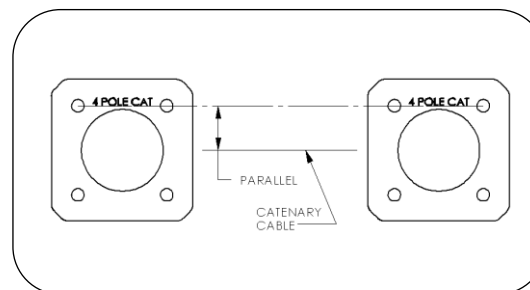


Fig. 1 – Proper Anchor Alignment

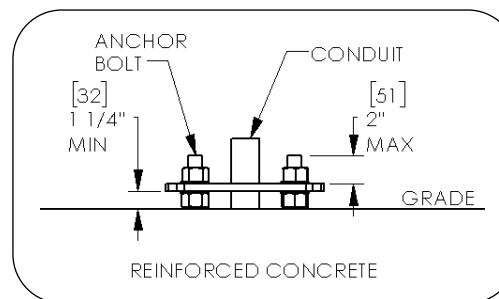
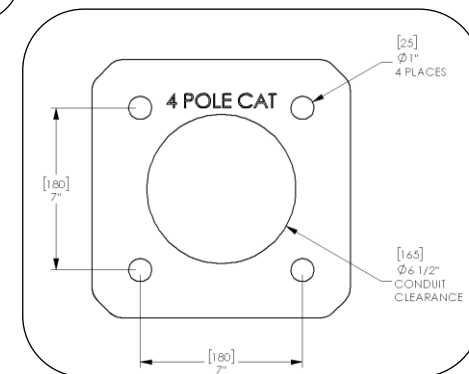


Fig. 2 – Anchor install detail, 7-inch base OD pole



7" diameter base pole

Pole Description	Number of Luminaires	Fixture Height (ft)	Seismic Load (see below)	Snow Load (see below)	Ice Load (see below)	Min Cable Sag Allowed (% span)	Base Overturning Moment (ft-lbs)	Base Shear (lbf)
20 ft Tapered Steel pole with Arm	1	16				5	14760	815

Wind loads per AASHTO 2013: - 90 mph, Exposure C