structura

CATENARY DESIGN GUIDE

TABLE OF CONTENTS

WHAT WE PROVIDE

Luminaires with Cable Mounting, Adjustment and Power Supplies

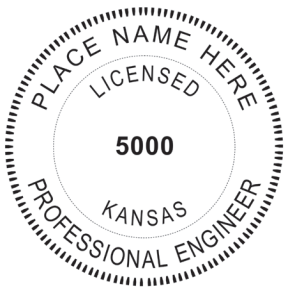
Dimmable IP67 power supply and a standard 40’ lead wire provided with the Structura fixture. Stainless steel clamp, rod and turnbuckles with ±1.5” adjustability provided for fixture mounting and leveling.

Poles with Cable Eyes

Pad eye for cable mounting welded to designated catenary pole. Poles must be oriented so that pad eye is in line with the cable.

Cable Assemblies

1 x 19 stainless steel cable with turnbuckles on each end. Cable size determined from layout design. Cables provide ±5” of adjustability. Lengths must be verified prior to final engineering/release.



Stamped Drawings

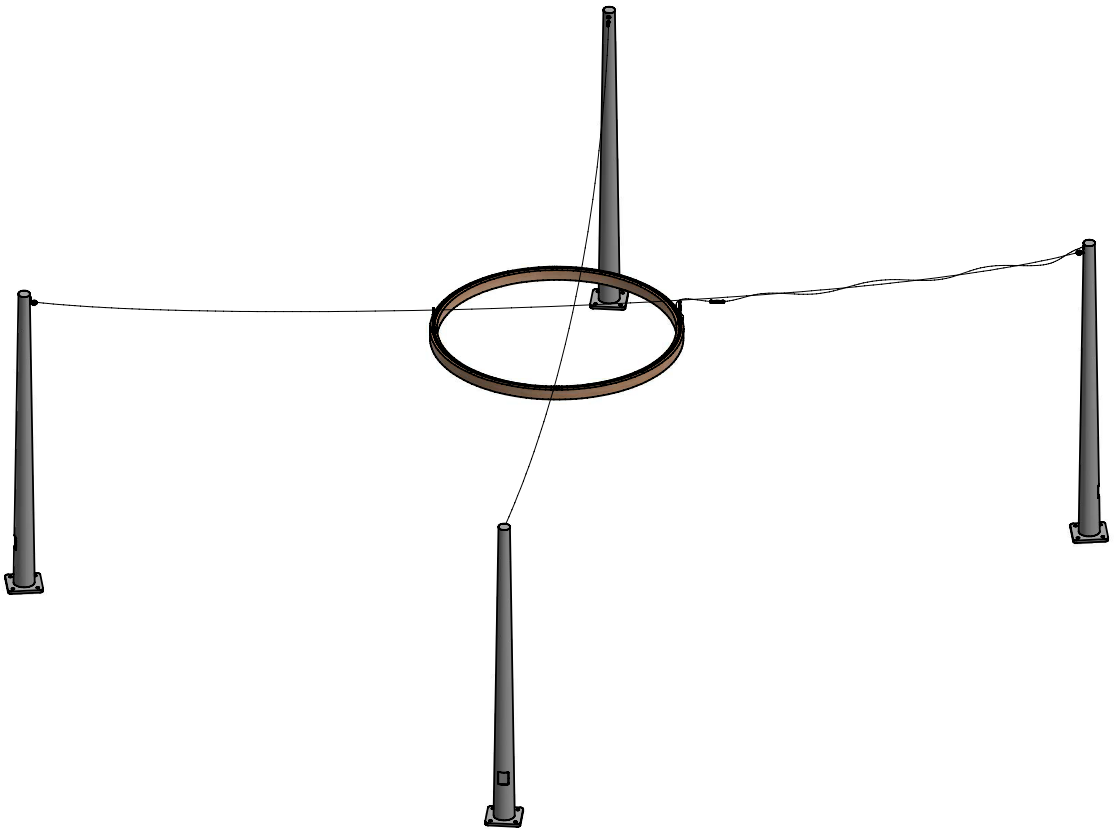
Stamped drawings will extend lead time, have additional costs, and may not have licensing in all states. Base and cable reaction forces will be provided with stamped drawings.

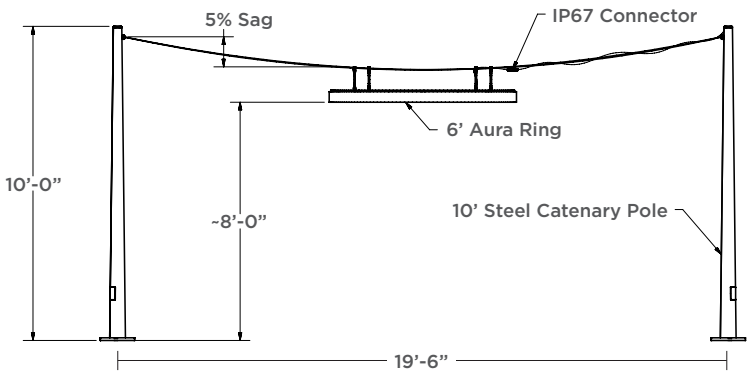
What We Don’t Provide

- Structural design and engineering of building attachment or pole foundation
- Installation
- Building cable attachment detail

AURA RING

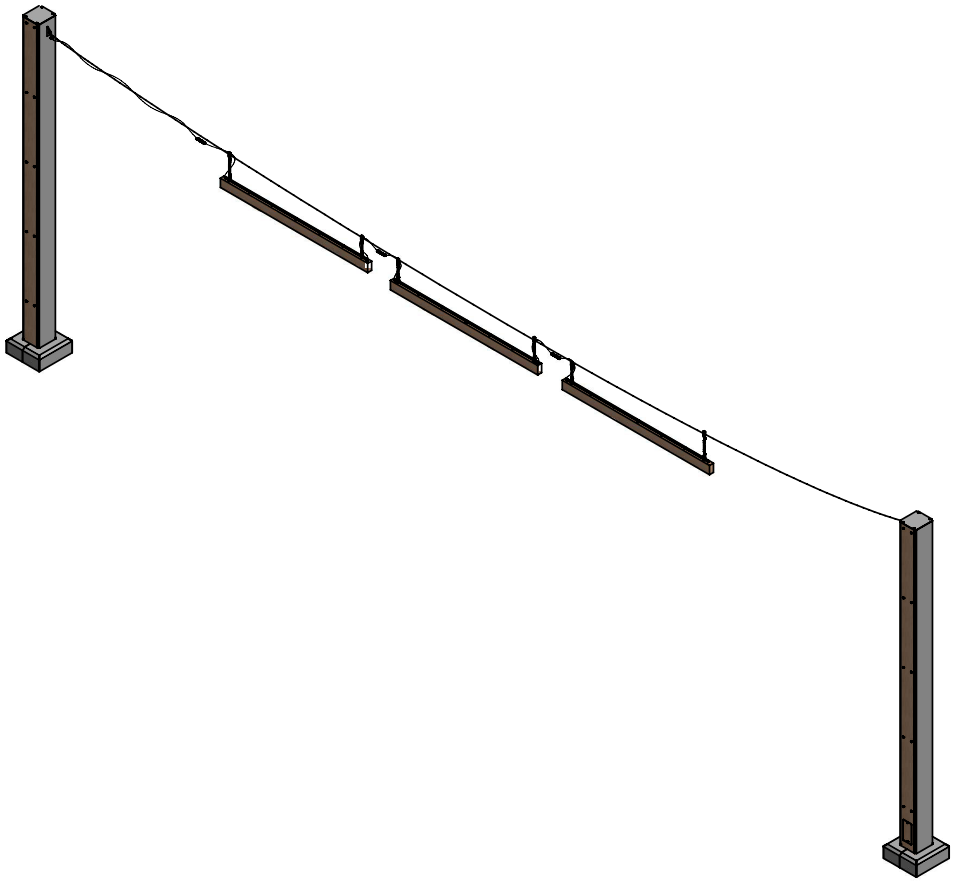
Solid wood exterior/interior round LED pendants

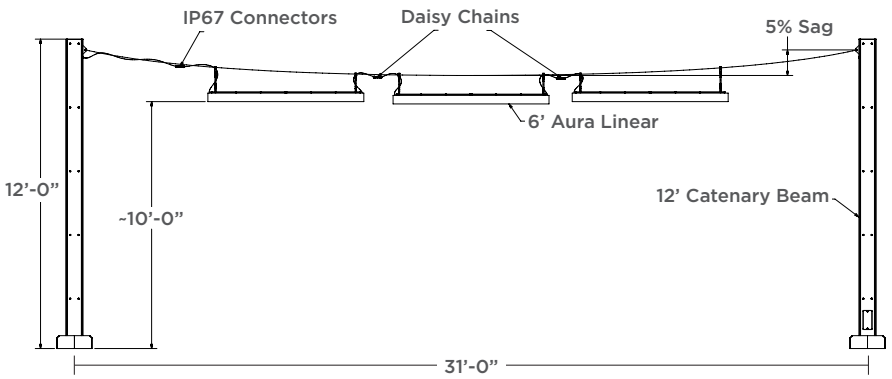




AURA LINEAR

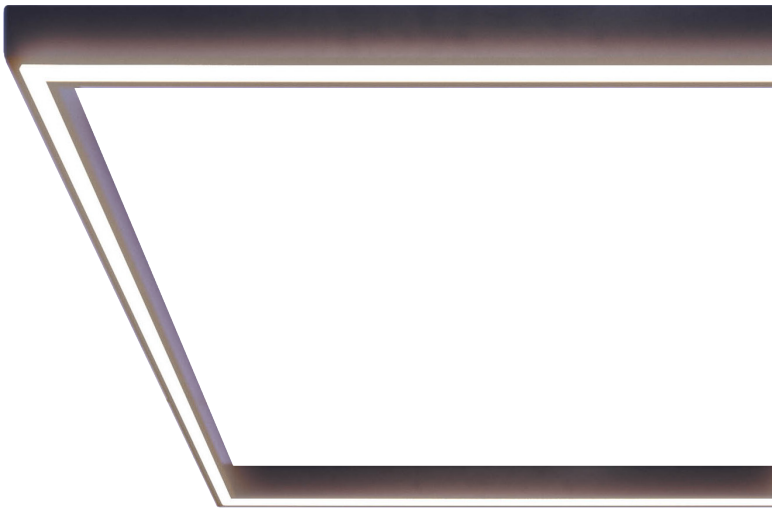
Solid wood exterior/interior linear LED pendants

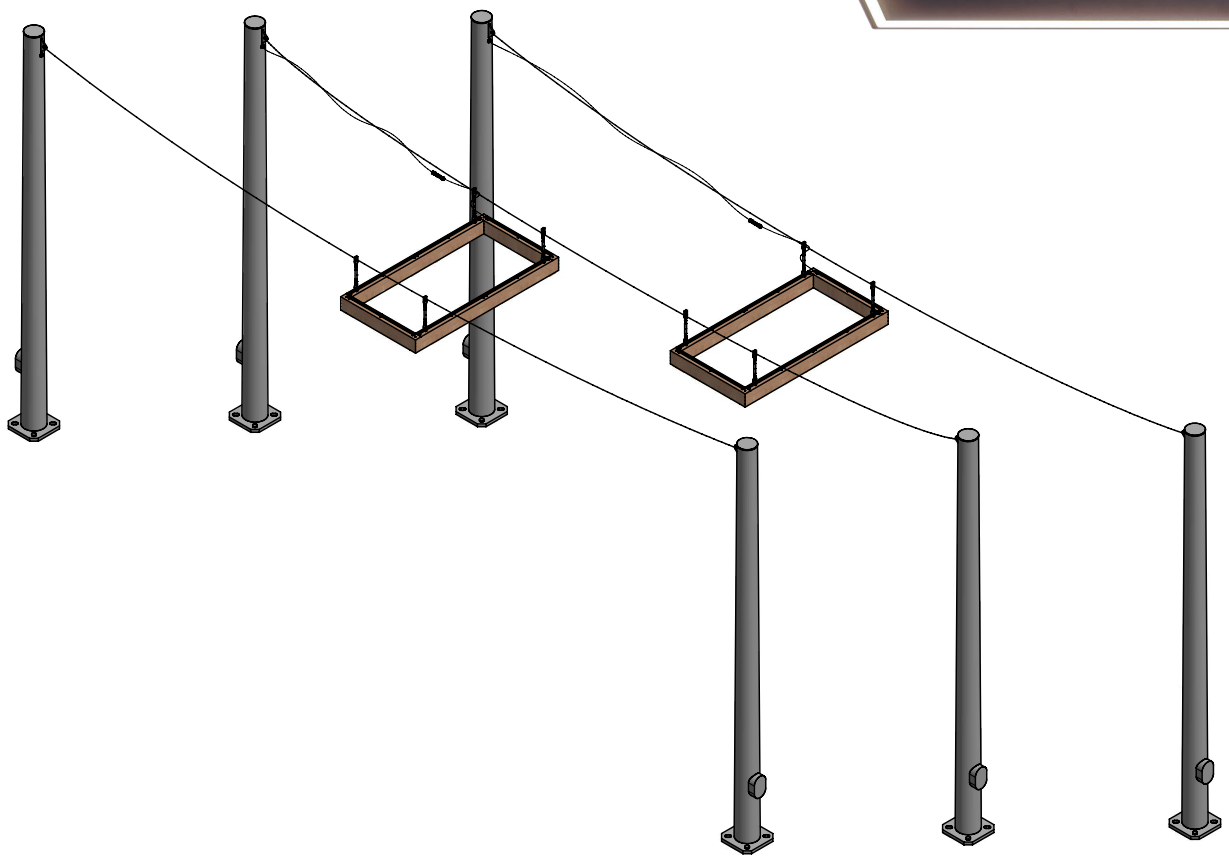


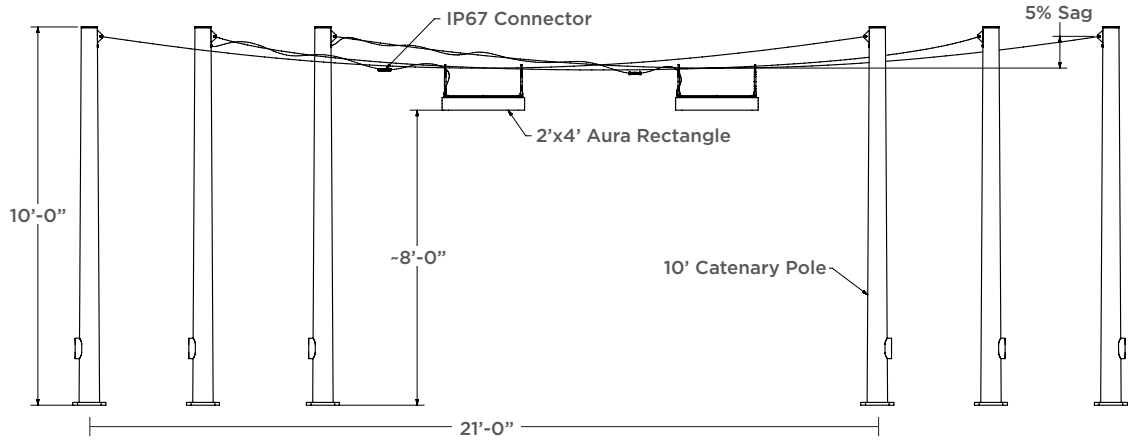


SQUARE/RECTANGLE SYSTEM

Solid wood exterior/interior square/rectangle LED pendants

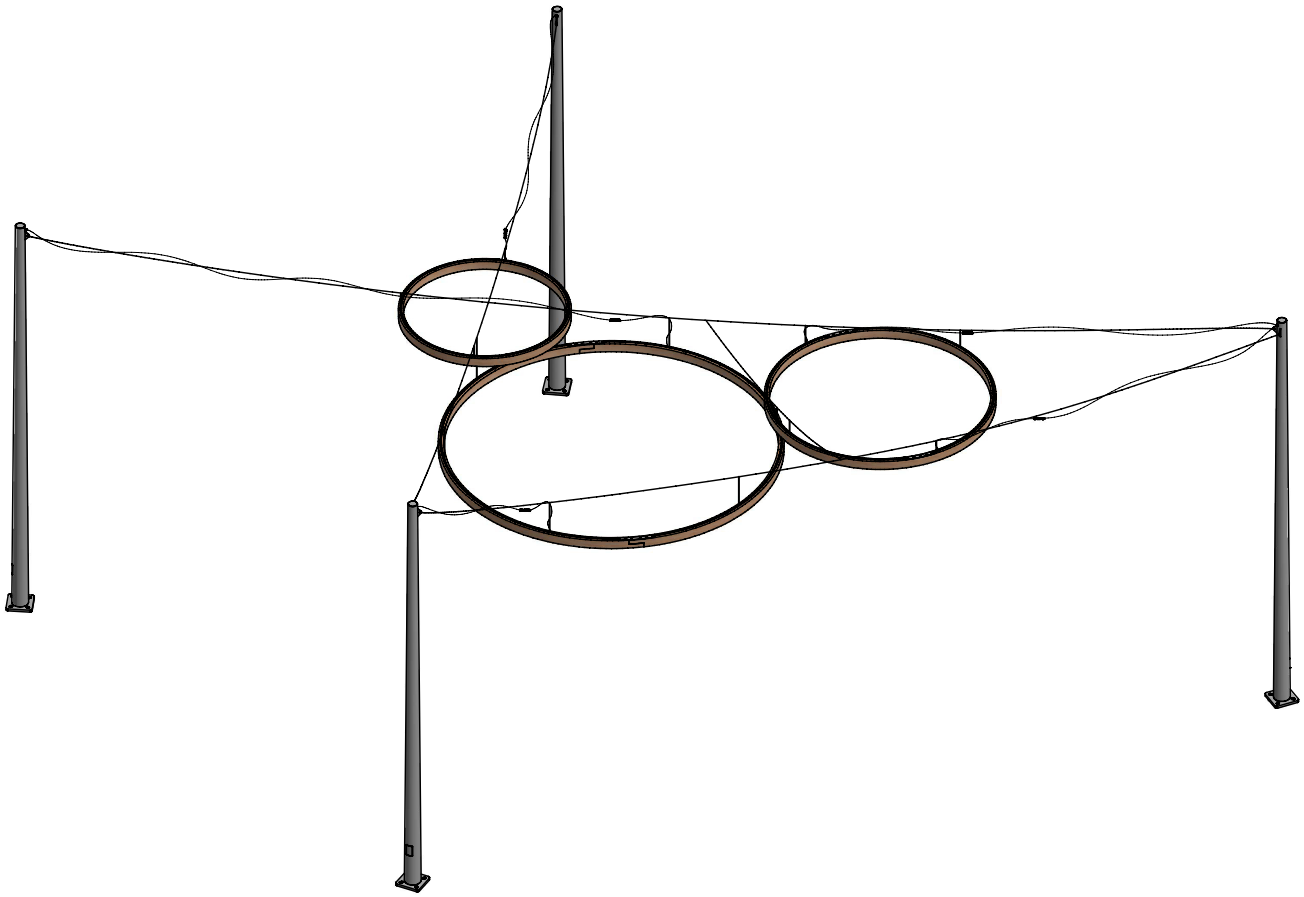


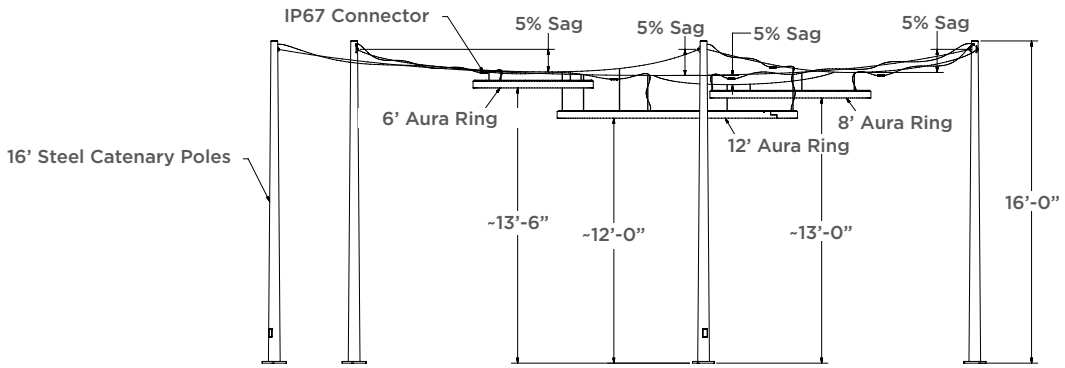




COMPLEX SYSTEM

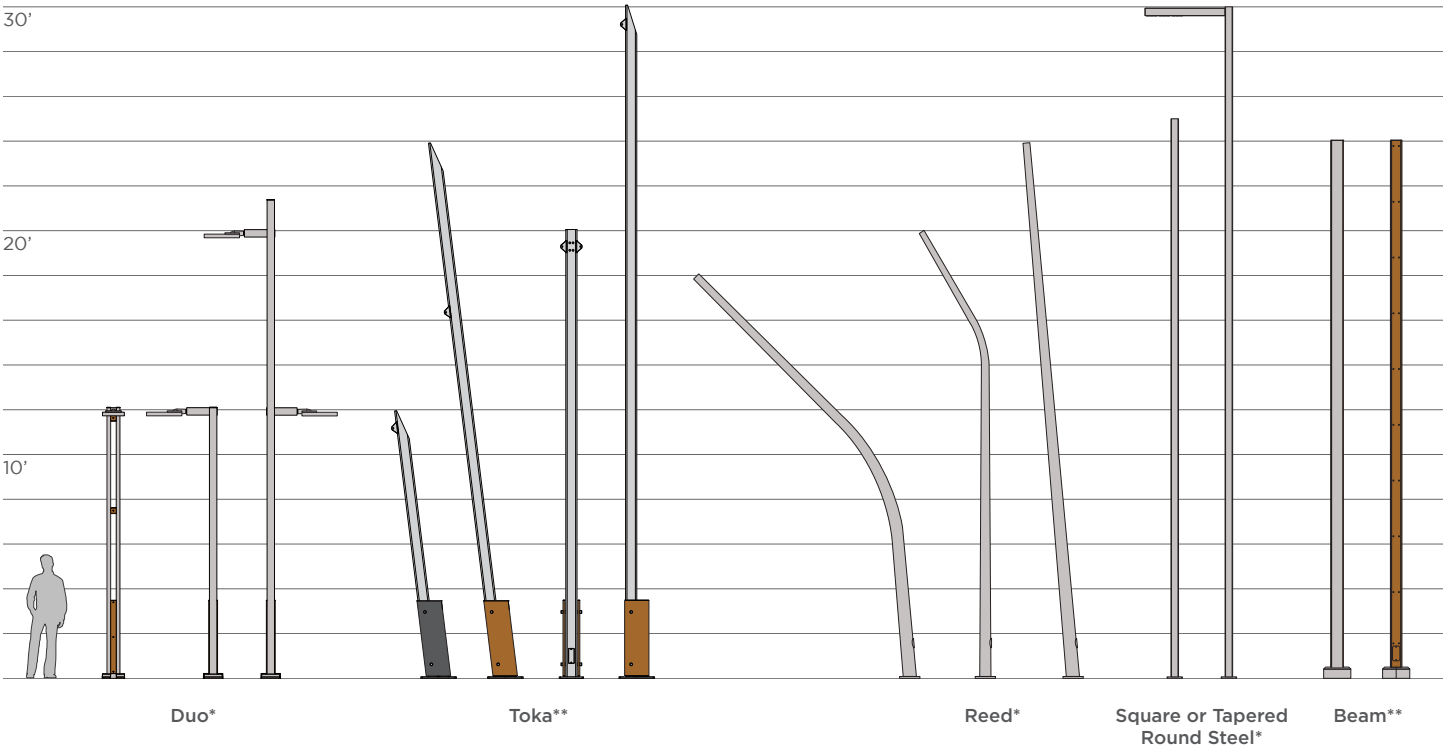
Solid wood exterior/interior LED
pendant multiples





POLE SELECTION GUIDELINES

Choosing the pole to use in your design is dependent upon the tension load of the luminaire selected, length of span, and other environmental considerations. Use the chart below as a guide to help determine which pole can be used for your design.



*Additional height options are available. | **Has a strong and weak orientation; additional height options are available.

	Duo	Toka	Reed	Square Steel	Tapered Round Steel	Beam
Minimal string lighting < 20’ span with min. 12” sag	✓	✓	✓	✓	✓	✓
String lighting > 20’ span with min. 12” sag		✓	✓	✓	✓	✓
Catenary Luminaires < 20’ span and < 20 lb. luminaire weight		✓	✓	✓	✓	✓
Catenary Luminaires < 40’ span and < 80 lb. luminaire weight		✓	✓		✓	✓
Catenary Luminaires > 40’ span or > 80 lb. luminaire weight					✓	

Site layout and location will play the biggest role in determining what poles will be available for each design.

CATENARY FAQS

Is geographic location important when designing a catenary system?

Geographic location is critical when designing your project. Not only wind zones, but ice loading elevation and many other factors can dramatically change the cabling and poles required.

Can wood poles be used on catenary projects?

Wood-look poles will only work with minimal string light. If a wood look is desired, Beam may be a better alternative.

How much cable sag can be expected between connections?

As a rule of thumb, plan on a sag of 5% of the cable span for each cable length as the sag in a section. For example if you had a 20' cable span the sag would be 12".

What is the typical process to get budget estimates on projects?

Once Structura has obtained the required information, it will take one to two weeks (depending on the complexity of the design) for preliminary engineering. At this time, a budget estimate, layout drawings and BOM will be provided.

Can Structura provide stamped drawings if required?

Structura can provide stamped drawings for a fee. It is important to identify this at the budget stage so the cost can be included at the beginning of the project. Stamped drawings may extend the lead time for approval drawings.

What is the difference between preliminary and final engineering?

During the quoting phase, preliminary engineering will be done to estimate the size of the poles and cables. Final engineering will begin at the time of order or after an engineering fee has been paid. Poles and cable sizing are subject to change until final engineering is completed.

What are the mounting point requirements?

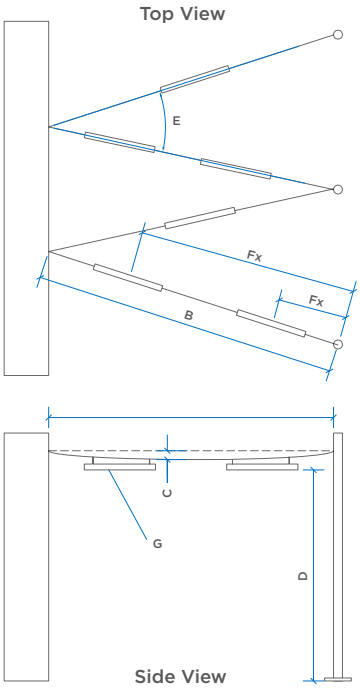
Rings 6' or smaller require four mounting points and rings 8' or greater must have six mounting points. Linears up to 6' must have two mounting points and linears 8' or greater require three mounting points. If mounting points are limited, please consult with the factory.

DESIGN INFORMATION

When designing catenary systems, each site has unique information that needs to be provided to ensure the proper sizing of the system components. The below information needs to be supplied before we can begin preliminary engineering or the quoting process.

Critical Information

- All span lengths (B)
- Cable sag (if greater than 5%) (C)
- Minimum fixture height (D)
- Cable angles (E)
- Luminaire center location from the pole (Fx)
- Spec of Structura luminaires (size/shape) (G)
- Geographic location of installation for wind and ice loading
- Any additional loading (fixtures, elevation, etc).
- AutoCAD file is preferred
- Elevation (if above ground level)
- Weight/foot of string lights



After all of the critical information is obtained by Structura:

1-2 Weeks:

- Preliminary Engineering – Approximate sizing for poles and cables without full analysis.
- Layout Drawings – Visual representation of Structura's interpretation of the critical information.
- Bill of Materials – List of what will and will not be provided by Structura.
- Budget Quote – Pricing for everything Structura will provide in the BOM as well as the Engineering Fee.

After Engineering Fee is paid or Purchase Order placed:

3-4 Weeks:

- Final Engineering – Post-analysis sizing for cables and poles. Includes reaction forces. PRICING AND SIZING ARE SUBJECT TO CHANGE UNTIL FINAL ENGINEERING IS COMPLETED!
- Final Quote – Pricing for everything Structura will provide based on Final Engineering.
- Approval Drawings – Layout, pole, and/or luminaire drawings that must be approved and reviewed prior to release.

After Approval Drawings are returned and deposit (50% of order) is received:

< 1 Week:

- Production – Structura can begin production for all ordered materials.
- Cables – 2-4 Weeks
- Luminaires – 8-10 Weeks
- Poles – 10+ Weeks (Depends on size, quantity, shop capacity, etc.)

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