CATENARY SOLUTIONS

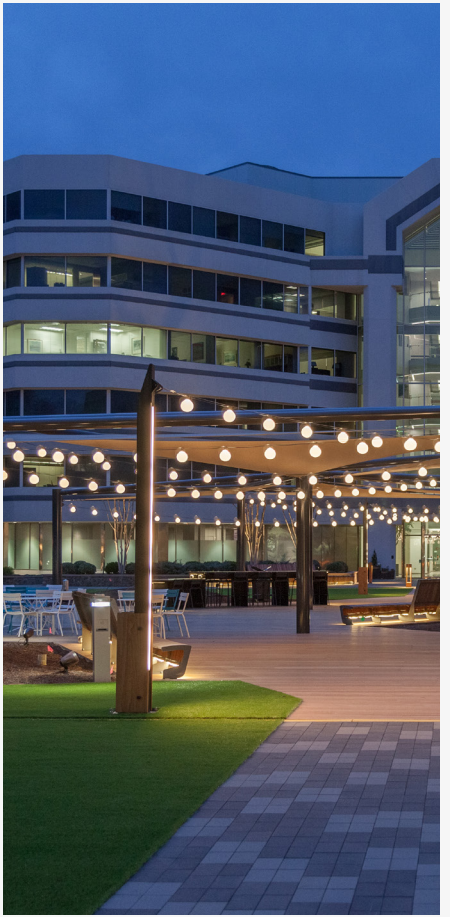
Balancing form and function, beauty and performance

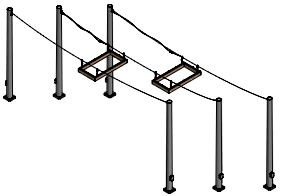
structura

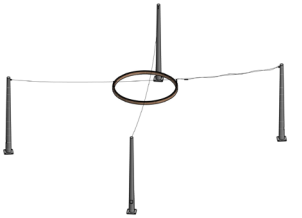
CATENARY SOLUTIONS

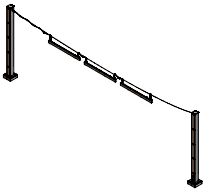
A catenary is a curve that is found throughout nature and technology. The term “catenary” is derived from the Latin word catenaria, meaning “chain”.

Any freely hanging cable or string assumes this shape if it has uniform mass per unit of length and is acted upon by gravity.









WHAT WE CAN PROVIDE

Luminaires with Cable Mounting, Adjustment and Power Supplies

Dimmable IP67 power supply and a standard 40’ lead wire provided with the 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.

CATENARY SYSTEMS

Catenary systems can come in a variety of ways. String lights, multiple fixtures, wall to wall, etc.

When designing the layout you need to take in account environmental factors. The systems need to be designed to withstand the extreme environmental factors due to their unpredictability. Possible environmental factors include ice loading, wind loading, seismic activity and elevation.


VININGS
LOFTS
&
APARTMENTS
LEASING OFFICE

AURA

Exterior / Interior Illuminated Wood Pendant

The Aura LED pendant luminaire is designed for suspension on catenary tension cables and ceiling mounting. Aura is made to withstand outdoor, wet environments and indoor installations.

Specifications

- Available in 2 to 12’ lengths
- IP67 rated luminaire
- Smooth, dot free illumination
- Dimmable exterior IP65 rated remote transformer
- Direct and direct/indirect illumination options
- Catenary cable, ceiling cable, and wall mount options

Variations

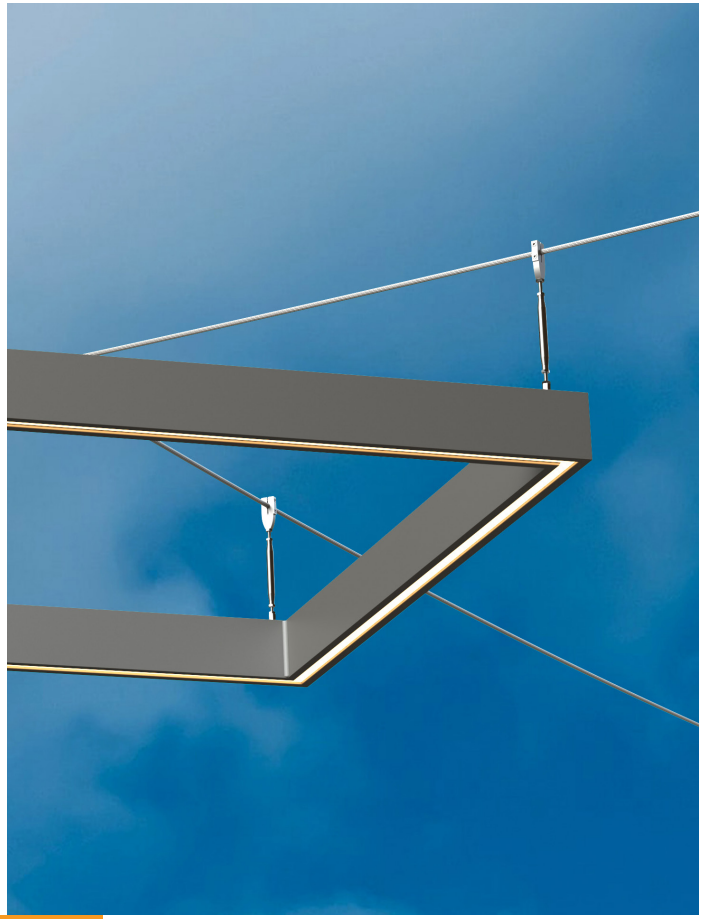
Aura-Ring

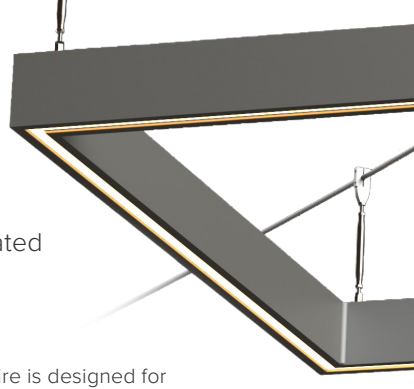
Aura-Linear

Aura-Rectangle

Aura-Oval







VOLTA

Exterior / Interior Illuminated Aluminum Pendant

The Volta LED pendant luminaire is designed for suspension on catenary tension cables and ceiling mounting. Volta is made to withstand outdoor, wet environments and indoor installations.

Specifications

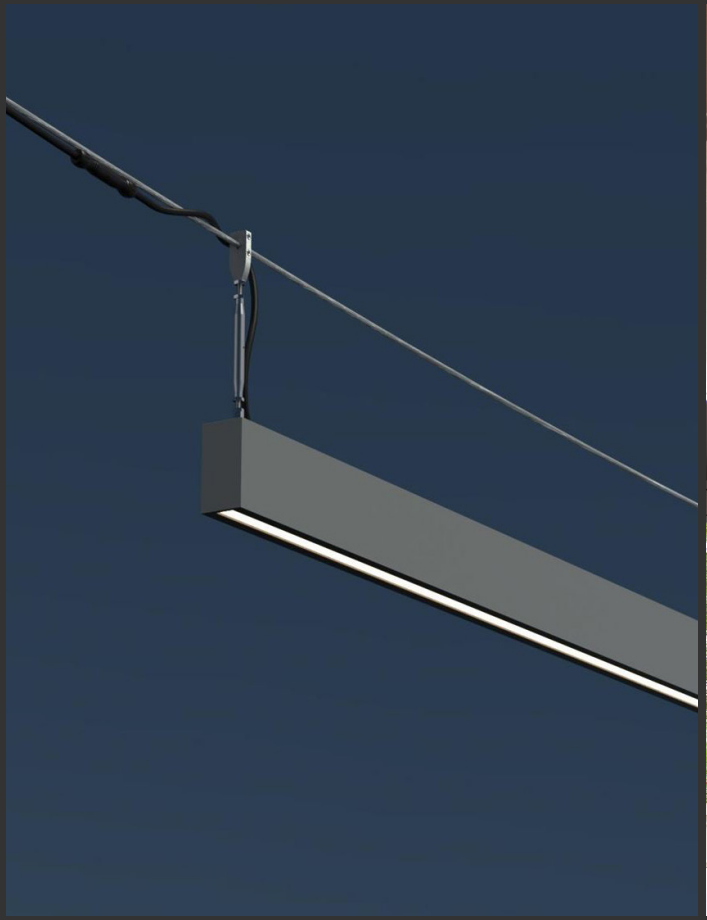
- Available in 2 to 12’ lengths
- IP67 rated luminaire
- Smooth, dot free illumination
- Dimmable exterior IP65 rated remote transformer
- Direct and direct/indirect illumination options
- Catenary cable, ceiling cable, and wall mount options

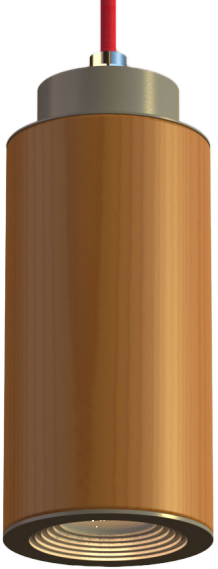
Variations

Volta-Linear

Volta-Rectangle

Volta-Ring





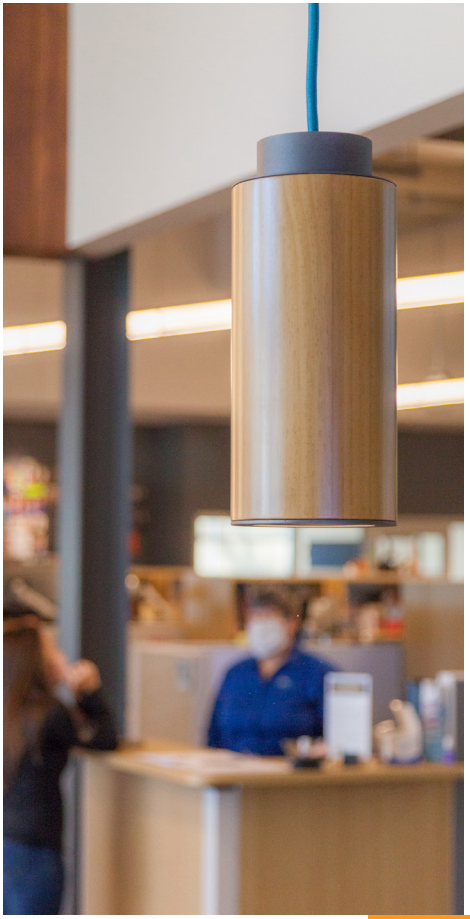
STELA

Wood Shrouded Cylinder

Stela is a 6” wood shrouded cylinder design for both interior and exterior applications.

Specifications

- IP67 rated luminaire
- Four standard color temperature and distribution types
- Catenary, pendant, stem and surface mounting options



PIKE

Metal Cylinder Pendant

Pike is a metal cylinder pendant design for both interior and exterior applications.

Specifications

- IP67 rated luminaire
- Four standard color temperature and distribution types
- Catenary, pendant, stem and surface mounting options

METRO

Small Scale, Versatile LED Luminaire

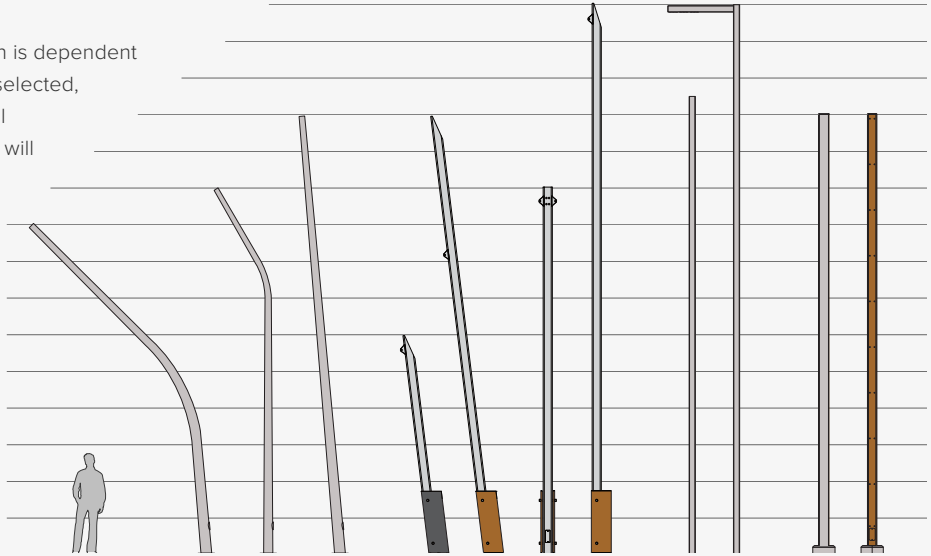
Metro’s sleek low profile provides high output for roadway, pedestrian, area and spotlight applications.

Specifications

- Available in two sizes
- IP67 rated luminaire
- 5 standard color temperature options
- 6 standard distributions
- Catenary, fixed and adjustable mounting

POLE REQUIREMENTS

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



	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				✓	

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

Strength

- Catenary loading is significant so large/strong poles are required.
- The vast majority of catenary poles will need to be steel.
- Wood poles may have rare and limited use for string/festoon lighting in low ice environments.

Additional Component Mounting

- EPAs and weights of any features in addition to the catenary cable will limit the allowable catenary loading on a given pole.
- Often results in stronger poles being necessary.

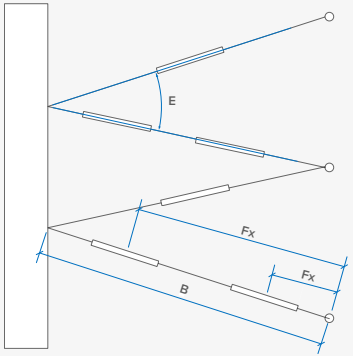
Height

- Often determined by minimum fixture height or ground clearance.
- Pole height = Minimum Fixture Height (MFH) + height of fixture + height of mounting + sag + clearance - foundation height.
- Taller pole ➔ More bending moment ➔ Stronger pole required.

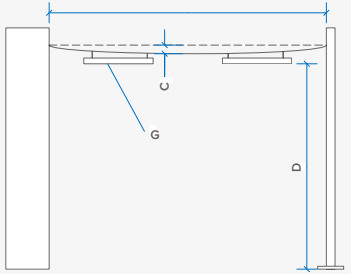
DESIGN INFORMATION

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.

Top View



Side View



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

FINISH OPTIONS

Structura's wood and finish system provide a level of beauty and longevity that is unmatched. We back up these claims with an industry-leading warranty and project experience.

Accoya® Finishes

All colors are shown on Accoya® wood. Finishes are a four-step application of stain and clear matte top coat. UV inhibitors and mildewcides are included, providing superior longevity.

Metal Finishes

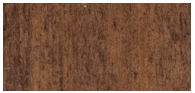
All colors are polyester powder coat paint meeting AAMA 2604 standard. Custom color or RAL color available by request.

ACCOYA® WOOD

S1 - Garapa

S2 - Teak

S3 - Cumaru



S4 - Ipe

S5 - Jarrah

S6 - Mahogany

S7 - Ebony

S8 - Weathered Grey

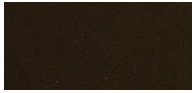
METAL

C1 - Bone White

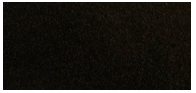
C3 - Grey

C4 - Speckled Silver

C5 - Textured Slate



C6 - Bronze

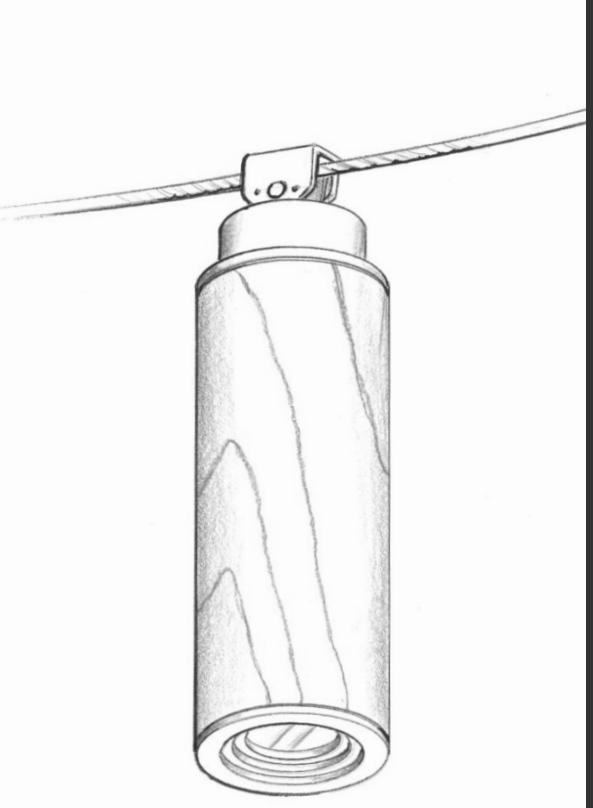


C7 - Jet Black

C8 - Textured Black

C9 - Textured Rust

C10 - Textured Silver



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