



ARBOR WINDS

STADIUM BRIDGES PROJECT
Catherine Widgery
2013

CONCEPT: *Arbor Winds*

As one drives around Ann Arbor, the gracious stands of trees stand out as a clear expression of the town's identity. Researching the history of Ann Arbor, I discovered that even the founders had felt the importance of trees and decided to incorporate "Arbor" into the town's name. So on a literal level, trees have symbolized this arbor town from the beginning and the current Parks Department has preserved this special character of place. The Nichols Arboretum and many parks within the town's limits express the husbandry and reverence for trees as well as respect for precious natural resources.

On a deeper, less literal level, trees as portrayed in the artwork *Arbor Winds* are a metaphor for our own paradoxical fragility and strength in the context of our life cycles. We speak of having "deep roots" or of "branching out" or of how someone is "blooming". After a long winter, the return to life of spring is expressed above all through the return of leaves to trees. We all feel the sense of being reborn in the spring with the blossoms and leaves and, in the autumn, the somewhat wistful sadness as the leaves reach their glory of color and then fall.

Arbor Winds evokes not just trees but wind and light as expressions of the energy that surrounds us. In each panel we see the ghostly afterimage as if the wind has blown the tree; we see both moments in time simultaneously. These images etched in glass and stone are like those etched in our memories. We walk through a forest and it is our mental "snapshots" of the branches against the sky or the texture of the thick trunk, or the dense layers of the many trunks silhouetted against the forest underbrush that remain in our memories. Indeed each of these etched images, whether in stone or glass is more the memory of moments rather than a physical reality: a subtle expression of our own ephemeral existence and the light traces we leave behind.

DESCRIPTION

ETCHED STONE PANELS ON WALLS OF UNDERPASS

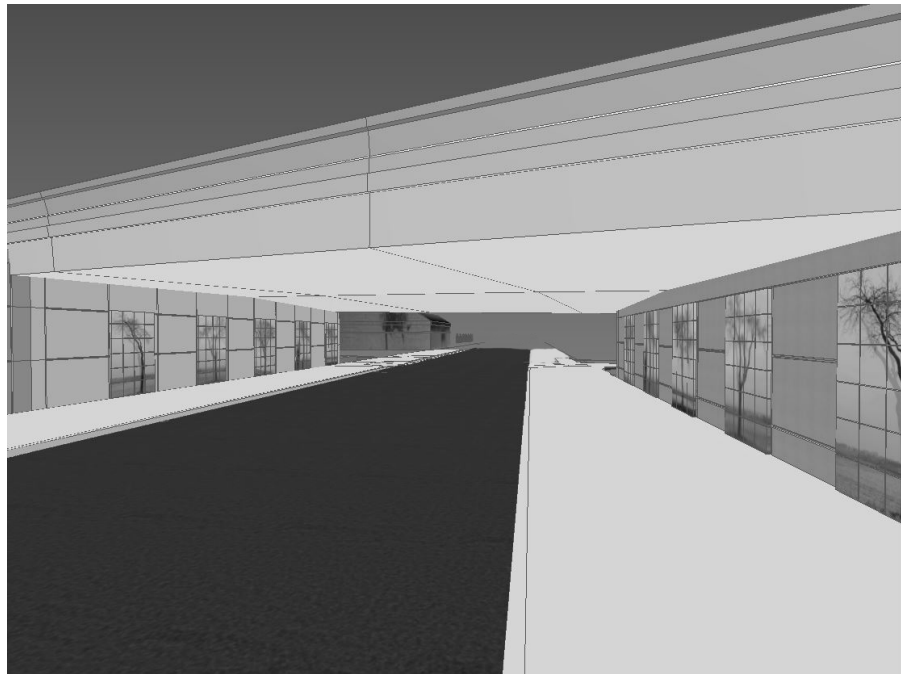
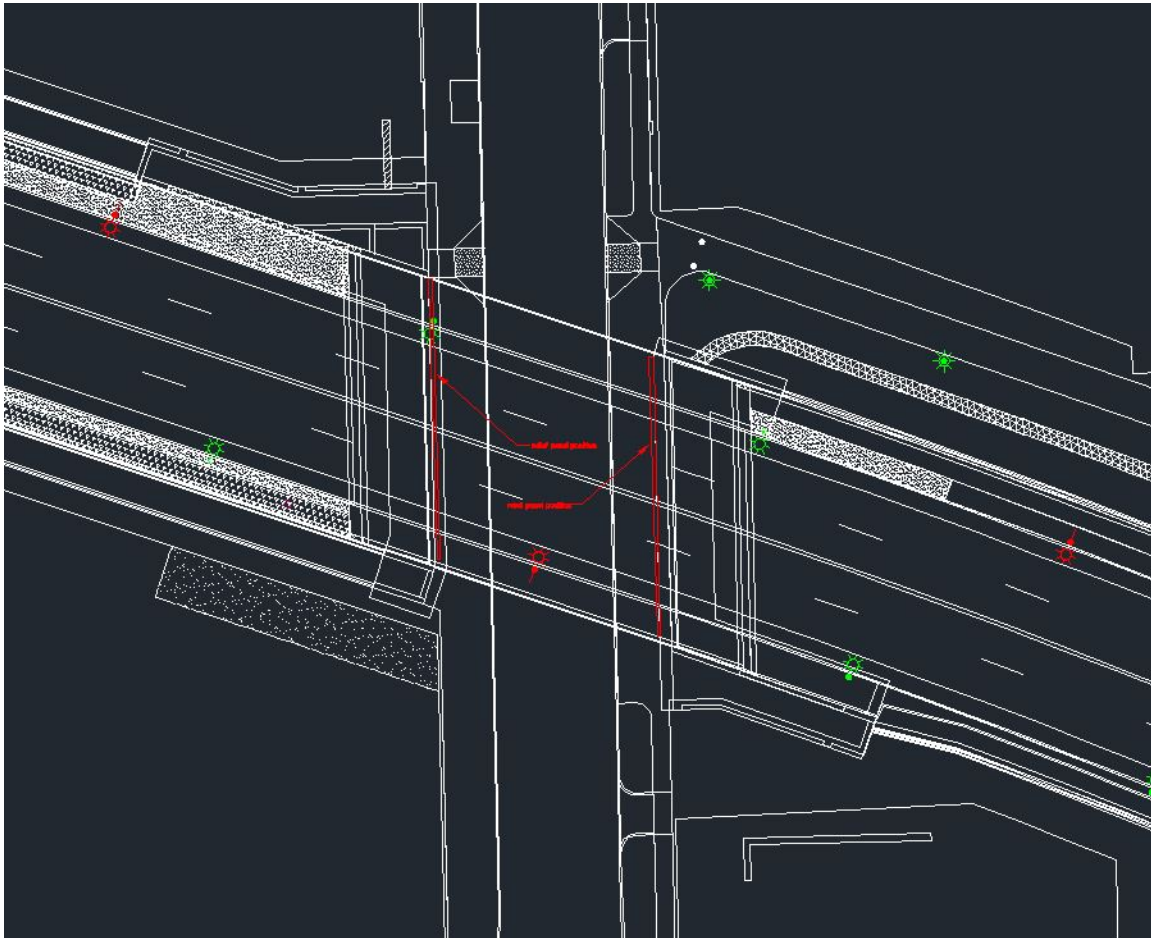
Three areas are engaged by the artwork. The first is the underpass of State Street below the Stadium Bridge. This is a gateway to the town so the two lines of iconic trees etched into stone panels on the underpass walls suggest a colonnade to greet visitors to Ann Arbor. These trees are etched into stone panels set in alternating columns on the walls of the underpass. Each tree panel is lit at night by three "Lumiere" LED fixtures set flush with grade (see cut sheets for technical description) so the underpass glows at night. The stone recommended for this artwork is Pennsylvania Blue Stone because it has density and durability and the capacity to be etched subtly with an image. It would be "thermal sealed" which protects the stone. (This process entails simultaneously applying a high temperature flame and cold water stream to the stone at the same time. Information about this technology

was provided by Endless Mountain Stone who supplied the image below) It will also be sealed after installation with a spray coating that repels salt and dirt.

The tree images are divided up into panels of 21" square by 3" thick with a 3/8" gap between them. Masks for the sandblasting are computer cut from a series of digital photographs. The etching will be done in a several-stage process because the ghostly image is not etched as deeply as the main tree image. One image is etched and then areas are covered for subsequent sandblasting. (This information is based on conversations with Arnet's Monuments in Ann Arbor). The panels would then be anchored to the existing concrete walls. (Details about the installation come from Scott Albaugh at Albaugh Masonry, a local stone installer). Below is an image of this stone.

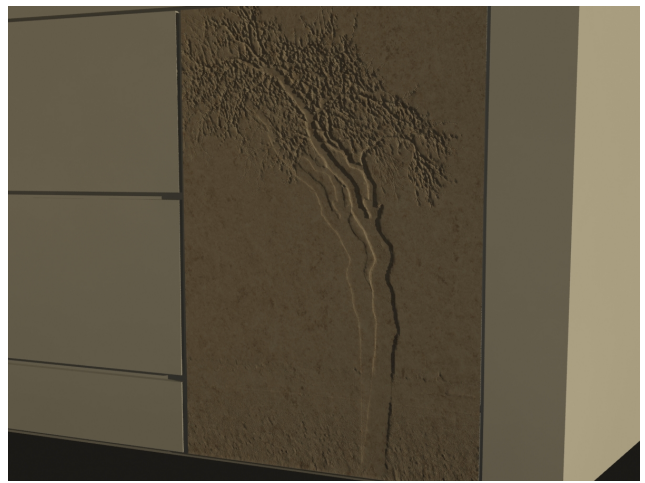
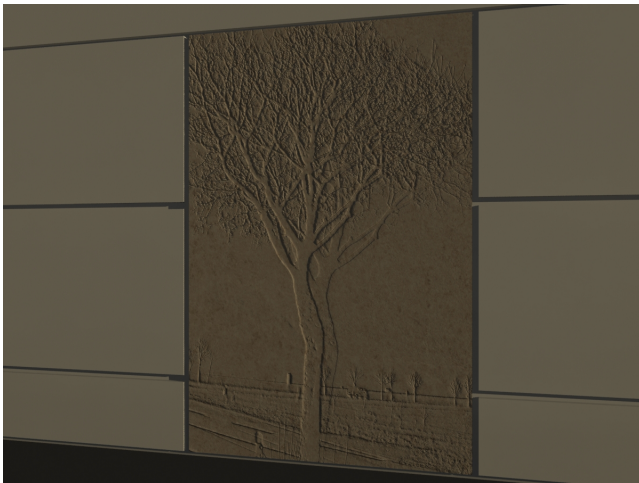


and some views of the placement of the work on the underpass.





The image below does not show the 3" thickness nor the color of Pennsylvania Bluestone. It is a computer attempt at what the etching would look like. There can be great delicacy and accuracy with actual sandblasting using photographic masks.



TECHNICAL DESCRIPTION OF WORK FOR STONE INSTALLATION by Scott Albaugh of Albaugh Masonry

*Stone to begin with a granite starter course that is +/- 12" tall as a higher density stone base to protect against salts that are broadcast over the sidewalk during winter months.

*Starter course to sit on 3" X 4" x 1/2" stainless angle with 6 stainless expandable anchors that are drilled into existing concrete walls 6" deep. Stainless angle to be set 1/2" above existing sidewalk with neoprene expansion filler underneath.

*Stone to be installed initially with an outdoor frost conditions approved thinset that adheres stone to existing concrete walls filling all voids and getting "Full Coverage" on back of stones.

*Stones would be then anchored to the concrete using 1" wide x 1/8" thick 304 stainless straps that are then attached to wall and stone using "Tapcon" concrete screw anchors. Or in the case of areas abutting other stones 1/4" stainless pins would be used to connect to other stones. No stone anchors would be exposed. All anchors and straps would be hidden from view.

*Stones would be spaced with stone industry approved plastic shims and joints would be filled with silicone sealant. Dow 795 or approved equal. A sealant joint would be at the bottom of stonework where it comes in contact with the existing sidewalk as well as along the sides between the stone and the existing concrete wall.

*Upon completion stone would be sealed with "Prosoco Saltguard WB" to prevent salt damage due to salt sprays from road traffic and salts installed on sidewalk for de-icing.

*Stone installation would be done completing the work in one of the ten areas at a time and then moving to another. The sidewalk could remain open in a limited capacity. We propose to caution tape area and stop work as needed to allow for safe travel of pedestrians through work area. We would provide "Caution Men Working" signs at both ends of site.

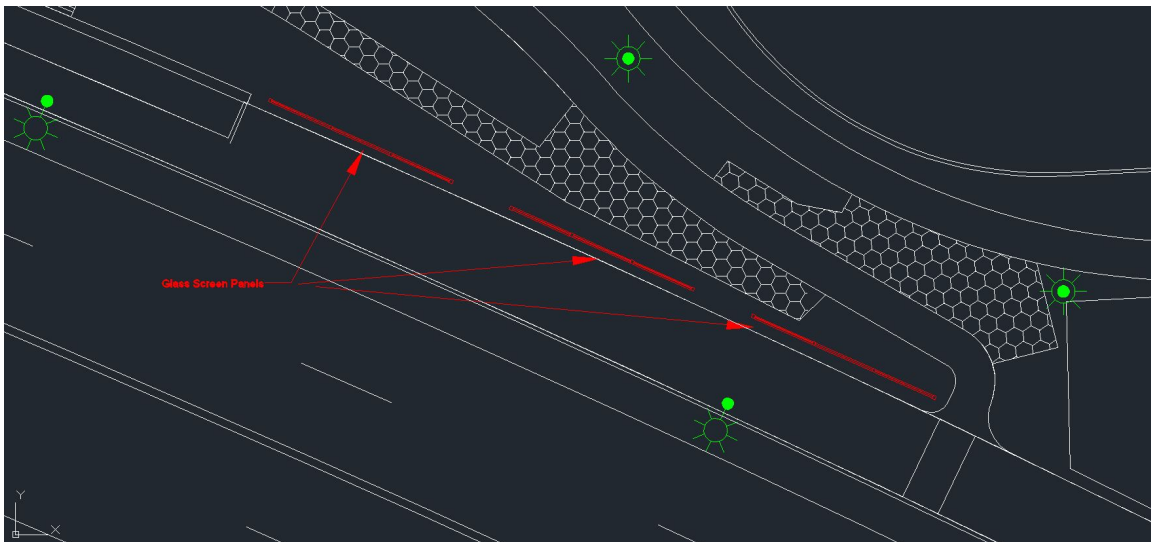
*The project timeline of the installation would be approximately two weeks or ten working day.

*Albaugh Masonry Stone and Tile Inc. is licensed and insured with an umbrella of \$5Million.

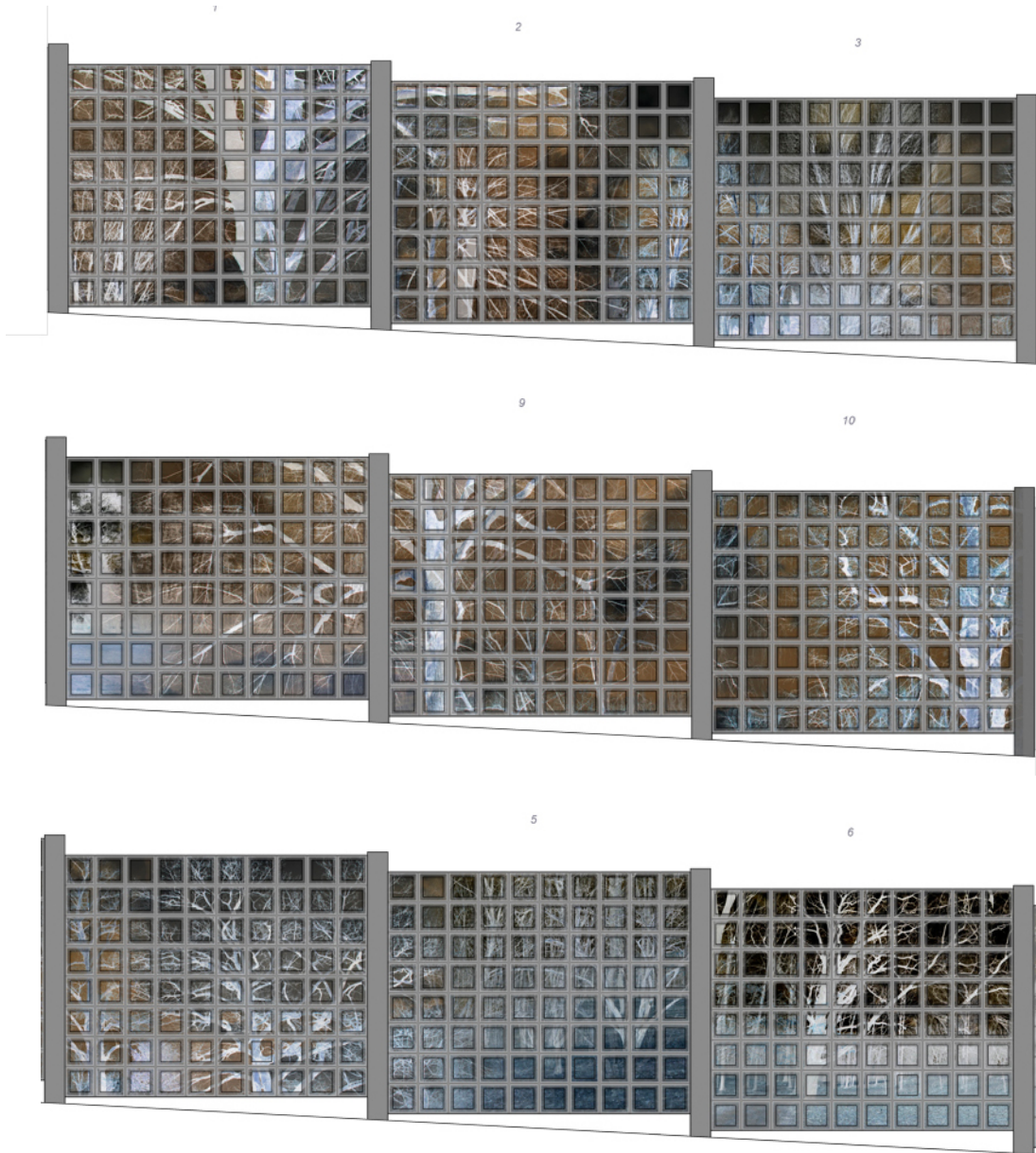
GLASS SCREEN PANELS ALONG SIDEWALK: WHITE STREET TERMINATION

The second area where artwork would be installed is The White Street termination on the north side of East Stadium Blvd. Along the stretch of sidewalk above the curving walkway of the new park area would be three sections of glass art each 24' long and comprised of three panels. A mock-up would be built on the site to determine the optimum dimensions of these art panels. We have currently calculated the price with the fence approximately 5.5' (66") high, but in conversation with the stakeholders we could decide what looks best. It is a transparent/translucent sculptural form visible from the small new park area and the street and paths below as well as being seen by people in cars and pedestrians on the bridge. Each of the 5.5' x 8' panels has a perforated aluminum screen structure onto which are attached eighty 8" squares of 1/2" thick tempered, laser-etched glass. These squares are bolted to the aluminum frames with spacers of varying lengths so that the surface of the glass is not flat but undulates as if the wind had blown it. The impression is of a translucent film blowing first out one side and then out the other of the plane of the aluminum structure.

The renderings we have in the site photos do not show the imagery or material of glass but should be considered only to show the placement and approximate scale within the landscape. The imagery etched into the glass is layers of those "snapshots" of the forest as described above. Ghostly images of tree branches and trunks in a forest and against the sky are superimposed on the actual trees on both sides. The sunlight catches the etching to make it luminous and always slightly different depending on the angle of the sun. The railing forms over each panel house small LED lights that wash the glass with light so that it is luminous at night. The transformer for these lights (that consume just 2 watts each) is housed in the end vertical pole and the wiring is all hidden and protected from the elements in the tubes. The wiring comes from just one source at the end nearest the closest junction box. See location of three screens in site map below.



Below shows the three sets of panels.



Below is a photograph of a sample etching.

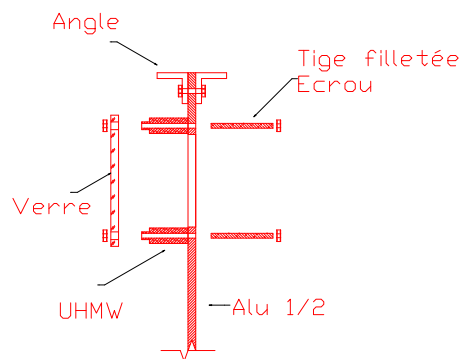
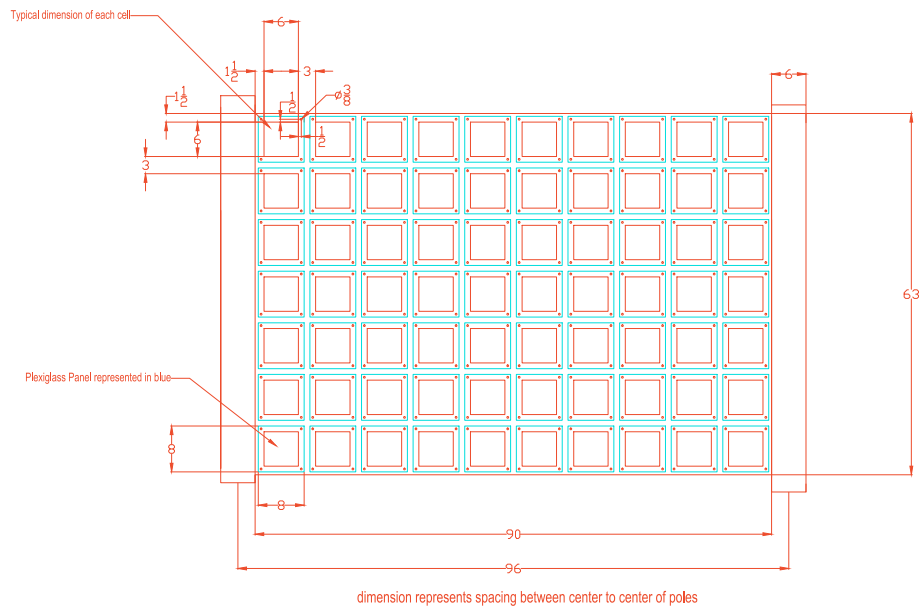


The sun will project delicate shadows onto the ground...see below.



Glass is a durable, green material which at this thickness and “toughened” is very strong. Glass surrounds us; think of walking down a downtown street with all the glass storefronts. By having each square be only 8”, any damage could be more easily replaced.

The aluminum for the glass panel screens is type 6061 T, one of the stiffest and most durable alloys. After perforation and assembly, all the aluminum elements are powder coated electrostatically and baked into the metal. My experience has been that this is the most durable finish available especially for areas where there is corrosive salt spray. Some of my sculptures that have used this finish have been out in the severe weather of Quebec for 20 years and still look as pristine as they did when they were first installed. The junction between the aluminum structure of the fence and the glass is a critical one. My fabricator devised a solution using a custom computer-controlled cut UHMW type of plastic (an exterior grade polyethylene) that will fit into the hole in the glass and provide stability for the panel that will be as much as four inches in front of the support. Please see the drawings below for details.



The foundations for the fence are comprised of twelve 12" diameter concrete columns. The 12" diameter holes will be augered out to a depth of 66" near the edge of the sidewalk where there is currently earth and mulch. The sonotubes are then filled with concrete and the contractor will make sure they are vertical and level on the top to receive the base plates of the posts. To install the fence, holes will be drilled into the concrete columns and threaded rod will be epoxied in place. The predrilled base plates of the fence posts will be set on these pins and bolted into place. An engineer will evaluate the soil conditions to insure that this plan is appropriate. Please see the technical details provided by Louis Wojtowicz a local concrete contractor with his estimate in the budget envelope.

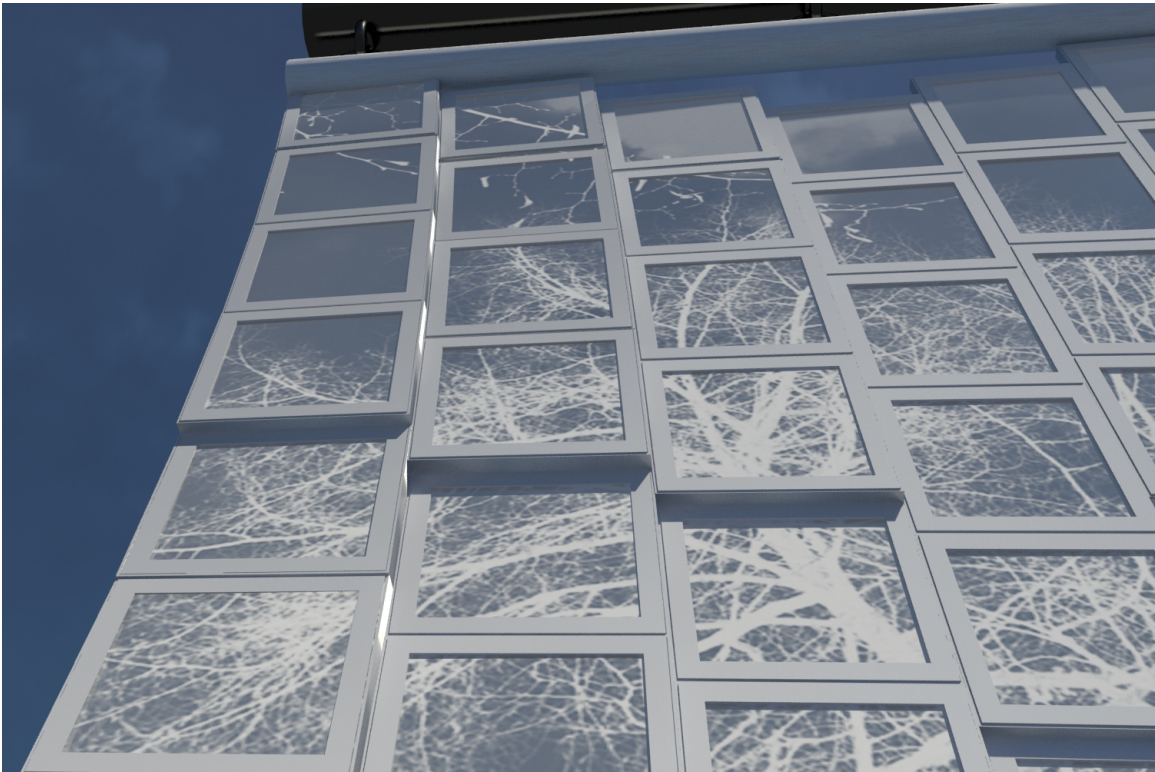
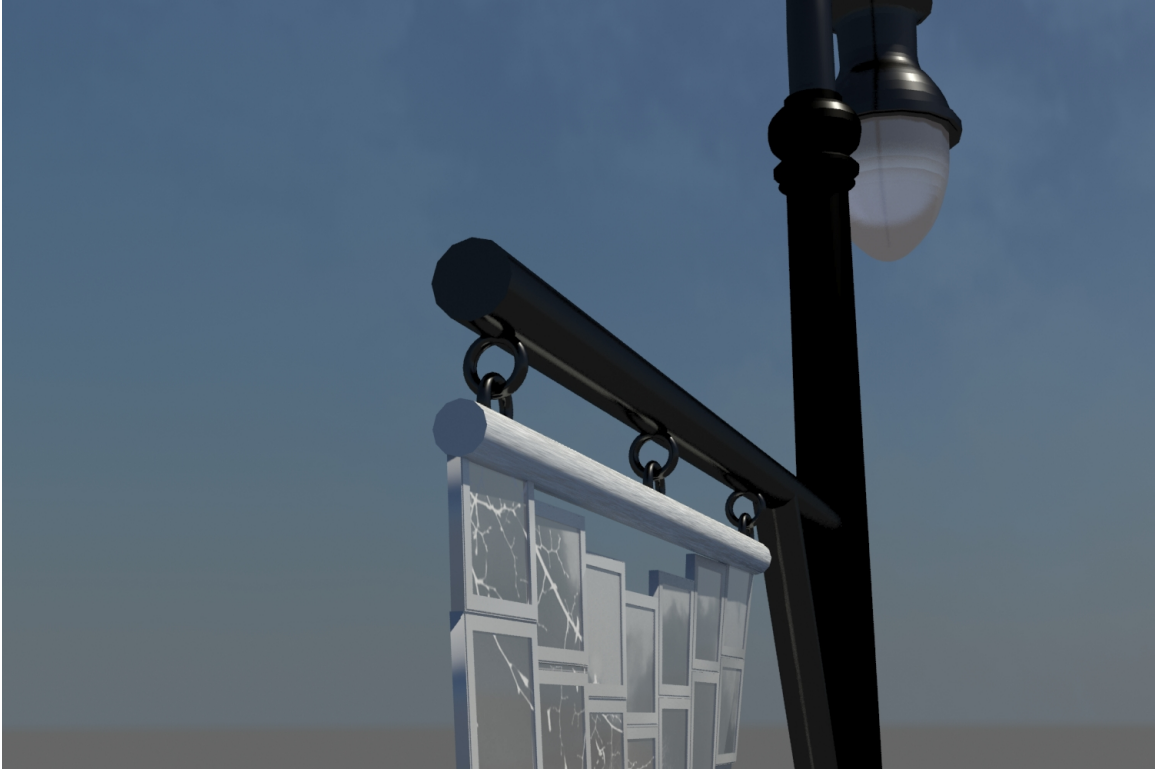
BANNERS ON STADIUM BRIDGE

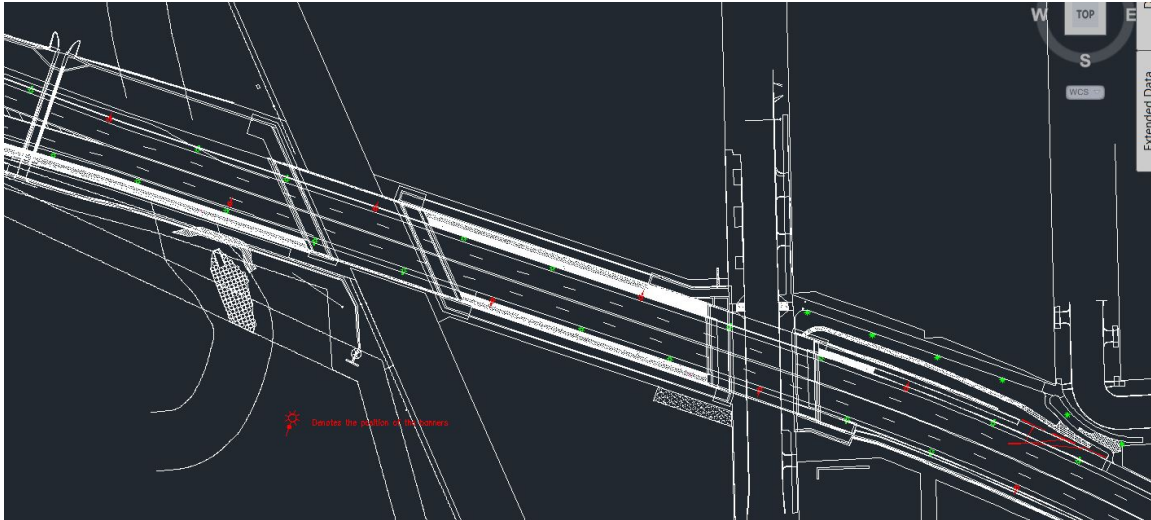
The third element in *Arbor Winds* is a series of eight banners on the bridge itself. These banners, attached to the existing lampposts by steel arms, will be anchored to 8 alternating lampposts on either side of the road hanging over the sidewalk. They appear to curl as if caught by the wind. The image is made up of two images of the same tree superimposed one on the other as if seen in two different moments. Each is etched on a different face of the plexi-glass. The whole curved banner form will move slightly in the wind, however the curve of the plane is fixed: it is created from the shifting facets of each of the ninety-one 6" squares to form a complex curve. Each 6" square of etched acrylic is held in an aluminum frame that are welded together. The street lamps will illuminate these banners at night.











The image above indicates the position of the banners in red

TIME LINE

Below is the preliminary time line for the work to be done after signing the contract:

Design and Planning: months 1-3

- Purchase insurance
- Meet with the stakeholders and community members to get input about how this project might better reflect the wishes of the community
- Have an engineer study the technical aspects of the design and make any necessary modifications
- Create the final designs and submit images for approval of the stakeholders
- Arrange for this work to be in the fabrication schedule of my two main fabricators
- Have the fabrication drawings created and stamped by the engineer before being sent to the fabricators

Fabrication stage: months 4-10

- Month 4 - materials ordered, lighting fixtures ordered
- Month 7 - 50% completion documented by photographs submitted to the committee
- Month 10 - 100% completion documented by photographs submitted to the committee

Installation stage: months 11-12

- Month 11 - obtain permits for sidewalk closure in the underpass and on the north side of the bridge, schedule the foundations to be poured, have electrical work roughed in ready for installation.

- Make arrangements for transport.
- Month 12 - arrange for installation crews: stone, metal and electrical and supervise installation.
- Test all systems for the lighting

PROPOSED FABRICATORS:

For the metal work: Michel Bernier, who has fabricated 10 of my major projects over more than 20 years. He is an exceptional fabricator from all standpoints: quality of workmanship, cost control and completing the job done on schedule.

For the glass work: Peters Studio. In the past four years, I have completed five major projects with them. They are renowned as one of the most prestigious art glass fabricators in the world, with enormous resources and staff as well as contacts in the glass fabrication world to bring projects in on time, within budget and at the very highest quality.

For the stone work: Arnet's Monuments. I have based my decision to use them on images of the work completed and conversation with the owner but would ask for references from the local community and upon being awarded the contract, I would enter into more detailed tests.

For the concrete foundation for the glass screens: Louis Wojtowicz. He has stressed the importance of putting plywood on the new sidewalks and his care in protecting them and any planting. He will remove all the dirt as part of his estimate.

For the stone installation: Albaugh Masonry. They have come highly recommended by Dave Sikes at Genesee Stone. He is 85 years old and we had a long talk and he said simply that Scott Albaugh is both honest and does excellent work. I have used his recommendations for the stonework thickness as well as the method of installation. His company has many years of experience with this type of installation.

I would recommend that the committee visit my web site www.widgery to see the over 45 projects pictured there. I believe the level of workmanship and materials shown in these projects is self evident.

MAINTENANCE

There is no maintenance required beyond a semi-annual pressure washing of the artwork. The glass screen may need to be cleaned twice a year depending on the conditions. It is difficult to calculate this cost as presumably the City of Ann Arbor has a bucket lift so that the banners can be cleaned. I estimate \$600 per washing. There will be salt spray on the stone panels after the winter so I would recommend that the stone panels be washed at least once a year in the spring. Scott Albaugh

will put a protective coating, Prosoco Saltguard WB, against salt and other corrosive substances on the stone after installation.

I have used LED lighting in nine projects and there had been no maintenance issues as the lights continue to function beautifully. LED lighting requires almost no maintenance as the bulbs last for years. The electrical cost of running them is minimal. I would include complete technical information about the lights at the time of project completion. We have included the cut sheets of the proposed fixtures in this document.

DESCRIPTION

Boca 696 is a compact 6-1/4 inch diameter in-ground dimmable LED luminaire. It comes with standard with either an integral 12V step down transformer or a low voltage fixture, in which case a remote low voltage transformer is required. The integral transformer allows the fixture to be connected directly to 120V, 230V, 240V, 277V or 347V line voltage (specify). The adjustable lamp assembly provides +/- 23° vertical tilt and 360° horizontal rotation for precision uplighting, wall washing or general illumination in constricted areas. Designed for recessed mounting in concrete, brick, stone or dirt, it is suitable for drive-over applications. Fixture is also suitable for recessed mounting in indoor or outdoor wood

SPECIFICATION FEATURES

A ... Material

Recessed housing is constructed from corrosion-resistant stainless steel. Trim ring and trim collar are die cast from corrosion resistant solid brass. The trim ring and trim collar are also available in machined stainless steel, machined bronze or machined copper.

B ... Finish

Solid brass, bronze, copper or stainless steel trim ring and trim collar are unpainted to reveal the natural beauty of the material. Brass, bronze and copper will patina naturally over time. The brass trim ring and trim collar can also be painted a variety of standard colors or custom colors as requested.

C ... Gasket

Recessed housing and trim ring are sealed with a high temperature silicone o-ring gasket to prevent water intrusion.

D ... Lens

Minimum 1/4" thick tempered glass lens, factory sealed with high temperature adhesive to prevent water intrusion and breakage due to thermal shock. Suitable for drive-over applications up to 5000 pounds.

E ... Hardware

Stainless steel hardware is standard to provide maximum corrosion-resistance.

F ... Socket

Ceramic socket with 250° C Teflon® coated lead wires and GU5.3 bi-pin base.

G ... Electrical

When ordered as a line voltage fixture, an integral 12V transformer is included for connection to 120V, 230V, 240V, 277V, or 347V line voltage (specify). Bottom of line voltage fixtures include two 1/2-14 NPSM brass female conduit fittings for through wiring. When ordered as a low voltage fixture, a remote 12V transformer is required (not included). Sides of the low voltage fixture include two 1/2-14 NPSM brass female conduit fittings 180° apart for through wiring. NOTE: initial power draw on LED equipped fixtures is 15 watts. When sizing remote transformers use 15 watts per LED fixture. Nominal power draw after start up is 6 watts or 10 watts accordingly.

H ... LED

LED modules are included and are available in four color temperatures (2700,3000,4000,5700) and three distributions (spot, narrow, and flood). Both color temperature and distribution must be specified when ordering - see reverse side for details and catalog logic.

I ... Labels & Approvals

UL and cUL listed, standard wet label. Manufactured to ISO 9001-2000 Quality Systems Standard. IBEW union made.

J ... Warranty

Lumière warrants its fixtures against defects in materials & workmanship for three (3) years. Auxiliary equipment such as transformers, ballasts and lamps carry the original manufacturer's warranty.

Catalog #		Type
Project		
Comments		Date
Prepared by		

K ... Recessed Housing

Recessed housing is available to ship in advance of complete fixture for rough-in purposes. Specify option -LBB and order separately the accompanying recessed housing from below. Finish must be specified on recessed housing as trim collar is permanently attached and sealed to the housing at the factory.

Line Voltage
696-NBR-xxx/12-BB
Brass line voltage recessed housing
xxx specifies voltage:
120,230,240, 277 or 347

696-NBZ-xxx/12-BB
Bronze line voltage recessed housing
xxx specifies voltage:
120,230,240, 277 or 347

696-NCP-xxx/12-BB
Copper line voltage recessed housing
xxx specifies voltage:
120,230,240, 277 or 347

696-NSS-xxx/12-BB
Stainless steel line voltage recessed housing
xxx specifies voltage:
120,230,240, 277 or 347

696-yy-xxx/12-BB
Painted brass line voltage recessed housing
yy specifies painted finish: BK, BZ, CS, VE, WT
xxx specifies voltage:
120,230,240, 277 or 347



BOCA

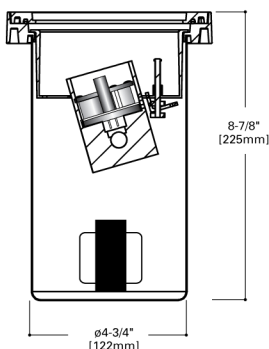
696

**10W LED
6W LED**

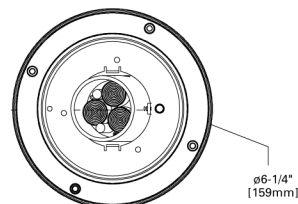
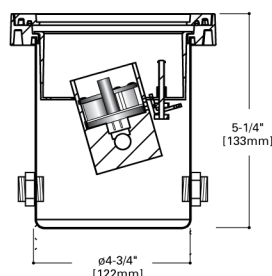
**Line Voltage
w/ Integral 12V transformer
Low Voltage**

Inground

Boca 696-LED
w/ Integral Transformer



Boca 696-LED
for Remote Transformer

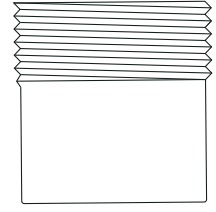
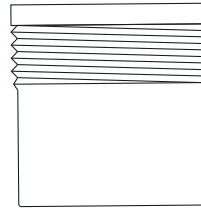
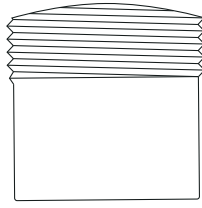
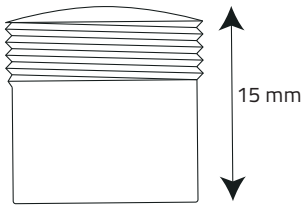


Lamp	Watts	Beam Spread	CBCP	°K	Life (hrs.)	Base	Volts
6LED2712	6	12°	3358	2700	50000	GU5.3 bi-pin	12
6LED2721	6	21°	937	2700	50000	GU5.3 bi-pin	12
6LED2741	6	41°	472	2700	50000	GU5.3 bi-pin	12
6LED3012	6	12°	3694	3000	50000	GU5.3 bi-pin	12
6LED3021	6	21°	1019	3000	50000	GU5.3 bi-pin	12
6LED3041	6	41°	646	3000	50000	GU5.3 bi-pin	12
6LED4012	6	12°	4280	4000	50000	GU5.3 bi-pin	12
6LED4021	6	21°	1179	4000	50000	GU5.3 bi-pin	12
6LED4041	6	41°	754	4000	50000	GU5.3 bi-pin	12
6LED5712	6	12°	4496	5700	50000	GU5.3 bi-pin	12
6LED5721	6	21°	1275	5700	50000	GU5.3 bi-pin	12
6LED5741	6	41°	792	5700	50000	GU5.3 bi-pin	12
10LED2712	10	12°	5037	2700	50000	GU5.3 bi-pin	12
10LED2721	10	21°	1406	2700	50000	GU5.3 bi-pin	12
10LED2741	10	41°	708	2700	50000	GU5.3 bi-pin	12
10LED3012	10	12°	5513	3000	50000	GU5.3 bi-pin	12
10LED3021	10	21°	1521	3000	50000	GU5.3 bi-pin	12
10LED3041	10	41°	964	3000	50000	GU5.3 bi-pin	12
10LED4012	10	12°	6389	4000	50000	GU5.3 bi-pin	12
10LED4021	10	21°	1759	4000	50000	GU5.3 bi-pin	12
10LED4041	10	41°	1125	4000	50000	GU5.3 bi-pin	12
10LED5712	10	12°	6711	5700	50000	GU5.3 bi-pin	12
10LED5721	10	21°	1903	5700	50000	GU5.3 bi-pin	12
10LED5741	10	41°	1182	5700	50000	GU5.3 bi-pin	12
50MR16/NSP	50	12°	11,000	3050	4000	GU5.3 bi-pin	12
50MR16/NSL	50	25°	3200	3050	4000	GU5.3 bi-pin	12
50MR16/FL	50	40°	2000	3050	4000	GU5.3 bi-pin	12
50MR16/WFL	50	60°	1200	3050	4000	GU5.3 bi-pin	12

ORDERING INFORMATION

Sample Number: 696-10LED2712-120/12-BK-F70

<p>Series 696 = 6 1/4" dia. Boca Inground LED Uplight, 22° Tilt, 360° Rotation</p> <p>Source 6LED2712 = 6W 2700K, 12° Spot, GU5.3 Base 6LED2721 = 6W 2700K, 21° Narrow, GU5.3 Base 6LED2741 = 6W 2700K, 41° Wide, GU5.3 Base 6LED3012 = 6W 3000K, 12° Spot, GU5.3 Base 6LED3021 = 6W 3000K, 21° Narrow, GU5.3 Base 6LED3041 = 6W 3000K, 41° Wide, GU5.3 Base 6LED4012 = 6W 4000K, 12° Spot, GU5.3 Base 6LED4021 = 6W 4000K, 21° Narrow, GU5.3 Base 6LED4041 = 6W 4000K, 41° Wide, GU5.3 Base 6LED5712 = 6W 5700K, 12° Spot, GU5.3 Base 6LED5721 = 6W 5700K, 21° Narrow, GU5.3 Base 6LED5741 = 6W 5700K, 41° Wide, GU5.3 Base 10LED2712 = 10W 2700K, 12° Spot, GU5.3 Base 10LED2721 = 10W 2700K, 21° Narrow, GU5.3 Base 10LED2741 = 10W 2700K, 41° Wide, GU5.3 Base 10LED3012 = 10W 3000K, 12° Spot, GU5.3 Base 10LED3021 = 10W 3000K, 21° Narrow, GU5.3 Base 10LED3041 = 10W 3000K, 41° Wide, GU5.3 Base 10LED4012 = 10W 4000K, 12° Spot, GU5.3 Base 10LED4021 = 10W 4000K, 21° Narrow, GU5.3 Base 10LED4041 = 10W 4000K, 41° Wide, GU5.3 Base 10LED5712 = 10W 5700K, 12° Spot, GU5.3 Base 10LED5721 = 10W 5700K, 21° Narrow, GU5.3 Base 10LED5741 = 10W 5700K, 41° Wide, GU5.3 Base</p>	<p>Voltage 12 = 12 Volt Remote Transformer Required (not included) 120/12 = 120V to 12V Integral Transformer 230/12 = 230V to 12V Integral Transformer 240/12 = 240V to 12V Integral Transformer 277/12 = 277V to 12V Integral Transformer</p> <p>Finish <u>Painted</u> BK = Black BZ = Bronze CS = City Silver VE = Verde WT = White <u>Premium Finishes</u> NBR = Natural Brass NBZ = Natural Bronze NCP = Natural Copper NSS = Natural Stainless Steel</p>	<p>Accessories <u>Filters</u> F71 = Peach Dichroic Filter, 2.00" Dia F72 = Amber Dichroic Filter, 2.00" Dia F73 = Green Dichroic Filter, 2.00" Dia F74 = Medium Blue Dichroic Filter, 2.00" Dia F75 = Yellow Dichroic Filter, 2.00" Dia F76 = Red Dichroic Filter, 2.00" Dia F77 = Dark Blue Dichroic Filter, 2.00" Dia F78 = Light Blue Dichroic Filter, 2.00" Dia F79 = Neutral Density Dichroic Filter, 2.00" Dia F80 = Magenta Dichroic Filter, 2.00" Dia F22 = Red Color Filter, 2.00" Dia F33 = Blue Color Filter, 2.00" Dia F44 = Green Color Filter, 2.00" Dia F55 = Yellow Color Filter, 2.00" Dia F66 = Mercury Vapor Color Filter, 2.00" Dia <u>Optical Lenses</u> LSL = Linear Spread Lens (elongate standard beam spread), 2.00" Dia OSL = Overall Spread Lens (increase beam spread), 2.00" Dia DJF = Diffused Lens (provide even illumination), 2.00" Dia <u>Optical Louver</u> LVR = Hex Cell Louver (reduce glare), 2.00" Dia</p> <p>Notes: * Integral Options Include 12V transformer. * See ACCESSORIES & TECHNICAL DATA section of the Lumière catalog for Mounting Accessories. * Consult your Cooper Lighting representative for additional options and finishes.</p>
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Heavy Wall Curved Face

- ø38-100mm pipe
- wall thickness >2.5mm
- 15mm hole with Ø16mm x 1.8mm counterbore
- M16 x 1 internal thread

Thin Wall Curved Face

- ø38-100mm pipe
- wall thickness >1.5mm
- 15mm hole
- M16 x 1 internal thread

Heavy Wall Flat Face

- Flat surface
- wall thickness >2.5mm
- 15mm hole with Ø16mm x 1.8mm counterbore
- M16 x 1 internal thread

Thin Wall Flat Face

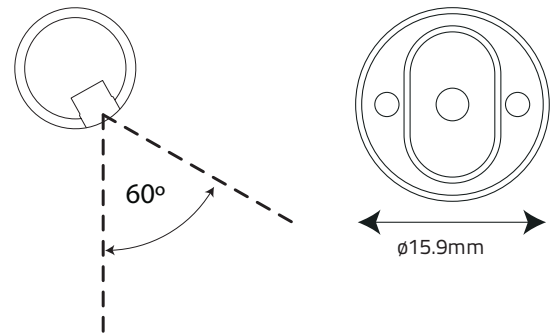
- Flat surface
- wall thickness >1.5mm
- 15mm hole
- M16 x 1 internal thread

Lighting Data

LED Quantity	1
LED type	Cree
Power	1.5W
Colour temperature	Lumen output
5000K	148
4000K	137
3000K	127
2700K	118

Electrical Data

Input current	500mA
Vf	3V
Driver	Maxi Jolly HV 1-30 minipucks in series
Connection	waterproof gel filled connector
Wire size and distances	max OD 2.08mm
	<100m - 0.5mm ²
	<150m - 0.75mm ²
	<200m - 1mm ²


Fixture data

Metalware standard	316 stainless steel
Metalware option	aluminium, brass, aged bronze patina, paint finish, hyper-duplex stainless steel
Lens standard	polycarbonate lens
Lens option	borosilicate lens
IP rating	IP66 polycarbonate lens
	IP67 borosilicate lens
Impact rating	IK10 (polycarbonate lens)
Ambient temperature	55°C
Warranty	5 years

Standard Beam Heavy wall suitable for wall thickness >2.5mm Curved Face ø38-1000mm handrail pipe

HLS-ST-HW-CF-DW	Standard, Heavy Wall, Curved, Face, 5000K
HLS-ST-HW-CF-NW	Standard, Heavy Wall, Curved Face, 4000K
HLS-ST-HW-CF-WW	Standard, Heavy Wall, Curved Face, 3000K
HLS-ST-HW-CF-IW	Standard, Heavy Wall, Curved, Face 2700K

Standard Beam Thin wall suitable for wall thickness >1.5mm Curved Face ø38-1000mm handrail pipe

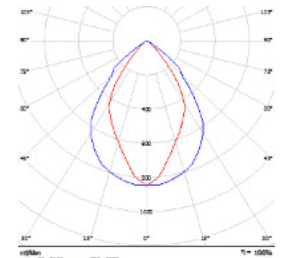
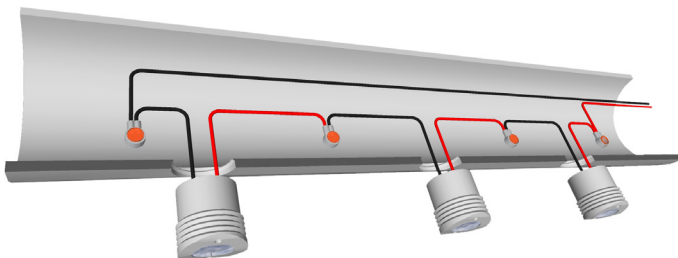
HLS-ST-TW-CF-DW	Standard, Thin Wall, Curved, Face 5000K
HLS-ST-TW-CF-NW	Standard, Thin Wall, Curved Face, 4000K
HLS-ST-TW-CF-WW	Standard, Thin Wall, Curved Face, 3000K
HLS-ST-TW-CF-IW	Standard, Thin Wall, Curved Face, 2700K

Standard Beam Heavy wall suitable for wall thickness >2.5mm Flat Face Surface

HLS-ST-HW-FF-DW	Standard, Heavy Wall, Flat Face, 5000K
HLS-ST-HW-FF-NW	Standard, Heavy Wall, Flat Face, 4000K
HLS-ST-HW-FF-WW	Standard, Heavy Wall, Flat Face, 3000K
HLS-ST-HW-FF-IW	Standard, Heavy Wall, Flat Face, 2700K

Standard Beam Thin wall suitable for wall thickness >1.5mm Flat Face Surface

HLS-ST-TW-FF-DW	Standard, Thin Wall, Flat Face, 5000K
HLS-ST-TW-FF-NW	Standard, Thin Wall, Flat Face, 4000K
HLS-ST-TW-FF-WW	Standard, Thin Wall, Flat Face, 3000K
HLS-ST-TW-FF-IW	Standard, Thin Wall, Flat Face, 2700K



Q6M Model - Power Supply Center (PSC)



Housing & Mounting - Medium Size

18 gauge welded steel measuring 11"L x 7"W x 4.5"H with 7 knockouts. Built-in mounting bracket is designed for easy installation for both six-planes of surface-mounting and suspension by two 3/8" threaded rods. (Rods not included.) Standard finish is white powder coat.

Toroidal Transformer - Dual Tap (DT)

The Q6 Series Power Supply Center, utilizes two (2) primary taps (12V, 13V, or 24V, 26V). Loads may be connected to one (1) of the primary taps up to the full watt rating of the Power Supply Center. The advantage is that the PSC can be tapped to recover voltage drop and produce between 85%-100% light output. See voltage drop calculator on page 10.

Secondary Circuit

Protected by up to five magnetic circuit breakers. Appropriate size to the feed load per N.E.C. Article 411 (not to exceed 25 amps per load). All wiring by a certified electrical contractor must be Class 1 compliant to N.E.C. Chapter 3 available in 5A, 10A, 12.5A, 15A, 20A, and 25A.

Toroidal Choke

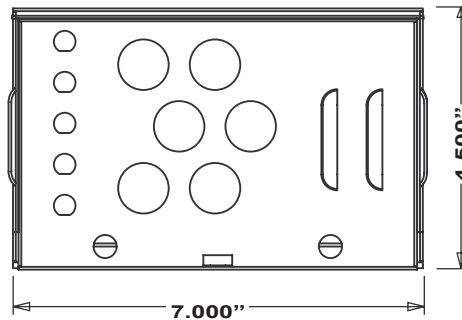
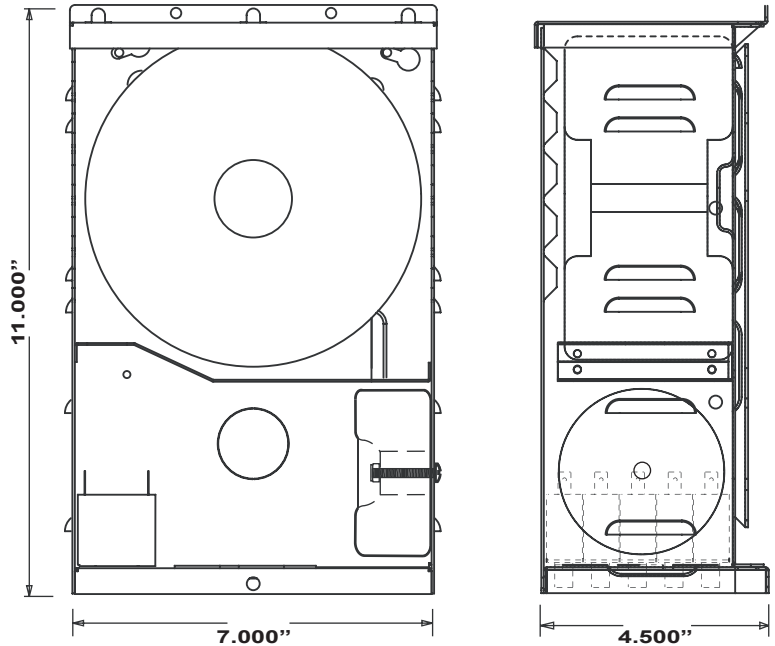
A Choke or "Debuzzing Coil" comes standard on every Q6M unit to reduce noise and in-rush current. A choke is especially helpful when dimming.

Mounting

Standard - 6 plane surface mount

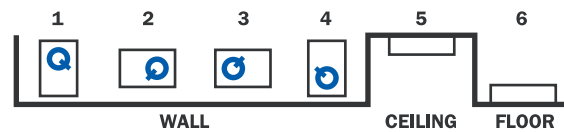
Standard - Rod suspension (Two - 3/8" threaded rods)


NOTE: Suspension rods are purchased separately and not from Q-Tran, Inc.



Model	Prim. V	Sec. V	No.	Brk Amp	Choke	Options
<div style="border: 1px solid black; padding: 5px; display: flex; justify-content: space-around; align-items: center;"> 1 - 2 / 3 - 4 X 5 + 6 + 7 </div>						
1. Model	Max Lamp Load Watts	PSC Efficiency	Max PSC Rating (Watts)	Max PSC Rating (VA)	Max Prim Amps@120V	Max Prim A. Amps@277V
Q6M-500DT	500W	94%	530 W	575	4.7 A	2.0 A
Q6M-600DT	600W	94%	626 W	690	5.7 A	2.4 A
Q6M-750DT	750W	94%	795 W	863	7.1 A	3.0 A
Q6MD-2x300DT	600W	92%	648 W	690	5.8 A	2.4 A
2. Primary Voltage						
120 (60Hz)		230 (50/60Hz)		277 (60Hz)		
3. Transformer Secondary Voltage						
Rated Volts			Max Volts			
12V		12 V		13V		
24V		24 V		26V		
4. Number of Secondary Breakers						
2 One to Five Secondary Circuit Breakers can be used						
5. Secondary Breakers Amperage						
Amps	Max 12V Load		Max 24V Load			
5	60W		120W			
10	120W		240W			
12.5	150W		300W			
15	180W		360W			
20	240W		480W			
25	300W		600W			
6. Choke						
CK-L	500W - 750W Choke					
7. Options						
BK	Black Powder Coat Finish		*Only available on Q6MD			
SN*	Shared Neutral					
Ordering Example						
Q6M - 600DT - 120/12 - 2x25 + CK-L			Only for 2x300			

Six (6) - Plane Surface Mounting Design





LISTED C US

**LOW VOLTAGE LIGHTING LUMINAIRE
POWER SUPPLY CENTER**

- SURFACE MOUNT ANY POSITION
- SUITABLE FOR DAMP LOCATIONS
- FOR SUPPLY CONNECTIONS USE WIRE RATED FOR AT LEAST 90 C
- SUITABLE FOR INDOOR USE ONLY
- COMPLIES WITH N.E.C. ARTICLE 411
- COMPLIES WITH UL STANDARD 2108
- ISOLATION TOROIDAL TRANSFORMER
- USE DIMMERS RATED FOR MAGNETIC LOW VOLTAGE LOAD
- 50/60 CYCLE A.C. ONLY
- MADE IN THE U.S.A.