Meyda

CUSTOM LIGHTING

Custom Lighting Fixtures and Layouts

Introduction

Custom lighting. Most custom lighting manufacturers offer a complete line of lighting fixtures that can be customized with the finish, size, diffuser color and material, and lamping of your choice. If a client is looking for a completely unique design, distinctive lighting creates your vision and meets your specific needs. Innovations and emerging technologies add value that transcends architectural and decorative lighting for any project or application. This custom approach can be used to create bespoke chandeliers, pendants, ceiling mounts, wall sconces, billiard/island fixtures, lighted pot racks and exterior lighting.

The Specification of Custom Decorative Lighting

The specification of custom decorative lighting involves much more than just ordering beautiful fixtures. This subject includes creating custom layered lighting designs for a space and developing custom luminaires. It is important to develop an understanding of the engineering and fabrication methods used to meet requirements for customized lighting sizes, finishes, diffuser materials, hardware and lamping options. Collaborating with a reputable manufacturer enables the specification of lighting that fulfills the aesthetic, functional and budget objectives to meet your exact requirements.

Custom Lighting Designs, Layered Lighting

Utilize “lighting layers" to satisfy the different lighting needs in a space and make it beautiful.

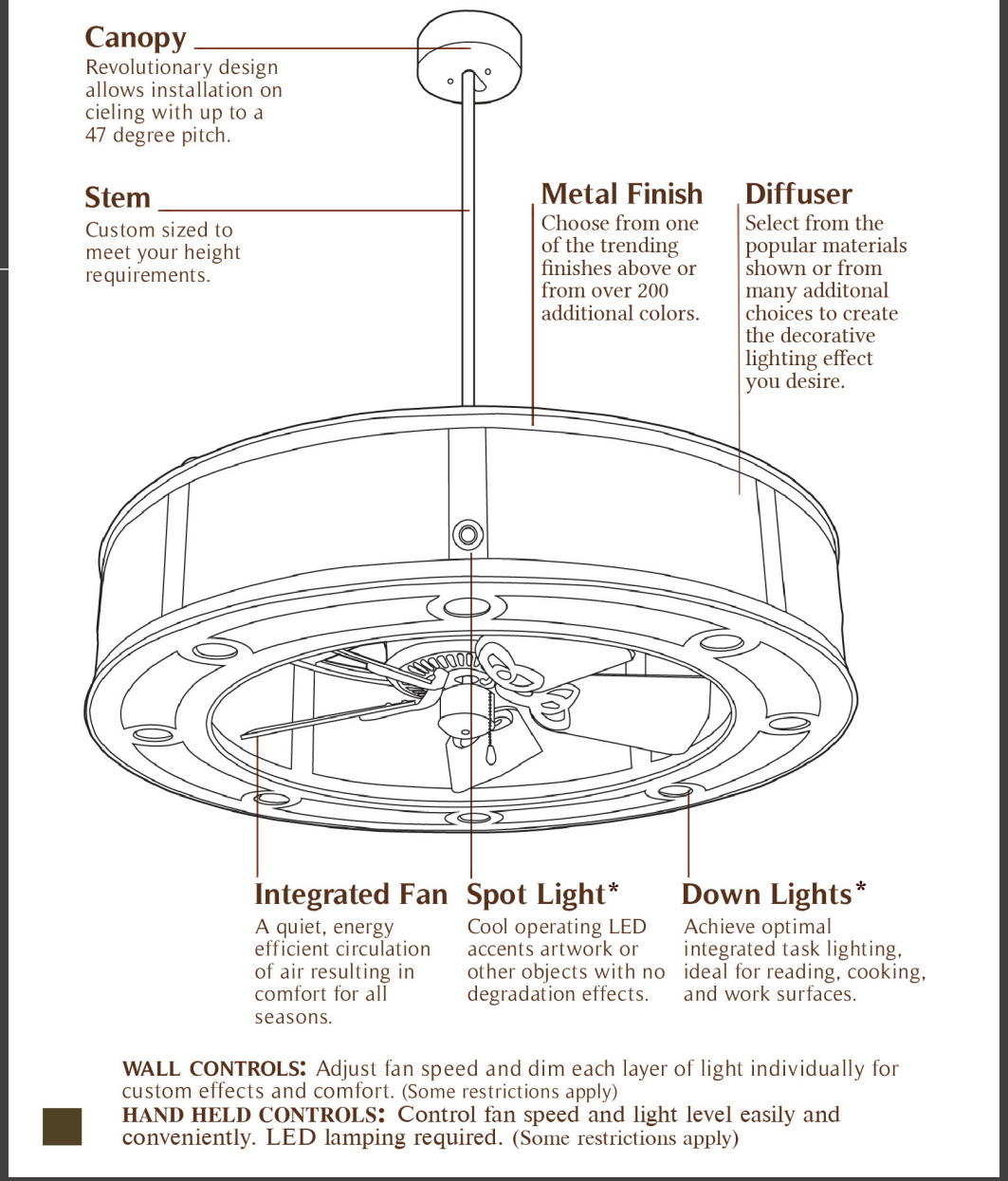
Ambient or general lighting provides an overall comfortable level of brightness without glare, usually from a ceiling mounted fixtures.

Task lighting such as undercabinet lighting helps you prepare food or illuminate objets d’art in curios and on bookshelves. Sconces by the bathroom mirror serve as vanity lights to deliver flattering illumination while shaving or applying makeup.

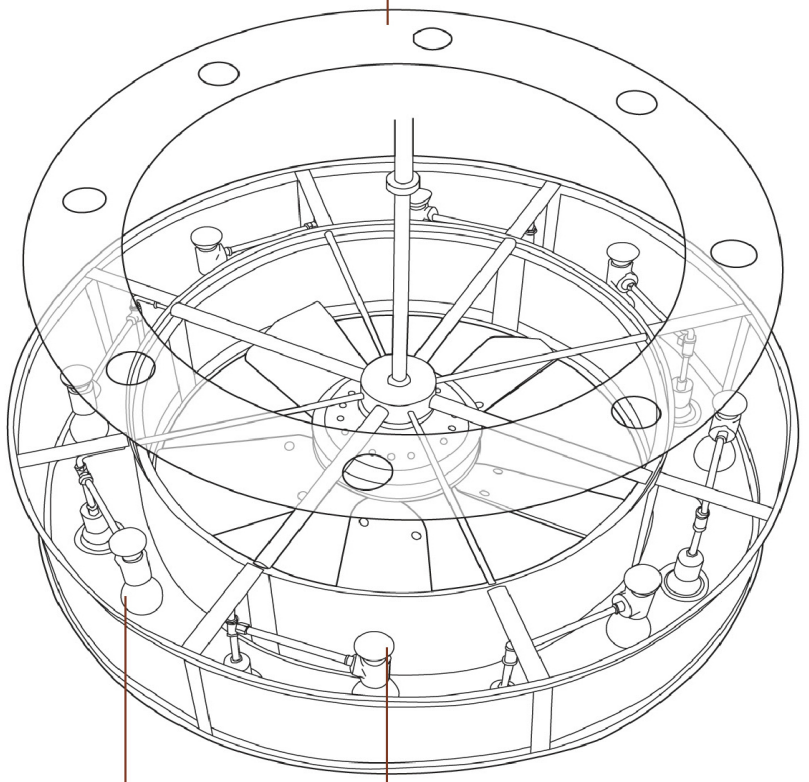
Accent lighting adds drama to a space and directs light onto surfaces or objects, or washes a wall. Accent artwork or pictures for a greater impact with spots, picture lights or recessed fixtures.

Decorative lighting brightens the space, illuminates beautiful objects, and creates beauty by its own design.

Layered Lighting from Single Fixture



Layered Lighting from Single Fixture



Top Diffuser (OPTIONAL)
Reduces glare when seen from above.

Inner Lights*
Illuminate diffuser material to create a beautiful decorative lighting effect.

Up Lights*
Achieve optimal ambient lighting to radiate a comfortably illuminated space.

*ADDITIONAL LAMPING OPTIONS

Design and Engineering

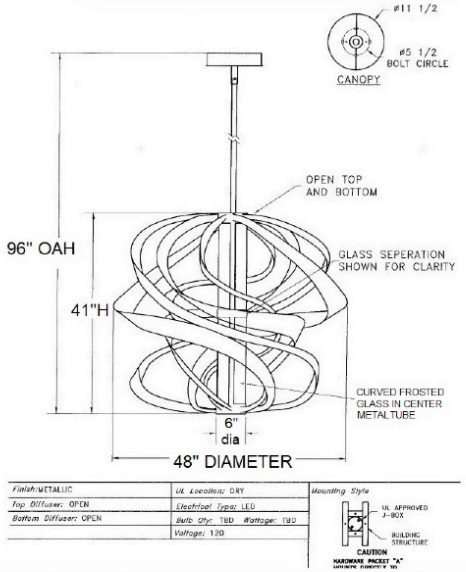
Designers and engineers should be able to work with clients on any type of custom lighting design– from chicken scratch on a napkin to a product photo, sample or drawing. Designs are integrated into architectural interior and exterior plans to visualize fixtures in place, prior to fabrication while sharing layouts. CAD drawings help to project plans to fulfill your aesthetic vision, functional requirements and building codes. Consistent client communication ensures accuracy and ignites a creative spark and ingenuity to fuel conceptual work.

Engineers review product testing, perform technical troubleshooting and implement upgrades based on testing. They work on design specifications and photometrics that comply with industry standards and project requirements, and provide information for publication.

Evolution of an Architectural Drawing

ORIGINAL "INSPIRATION"

Actually want quoted.....



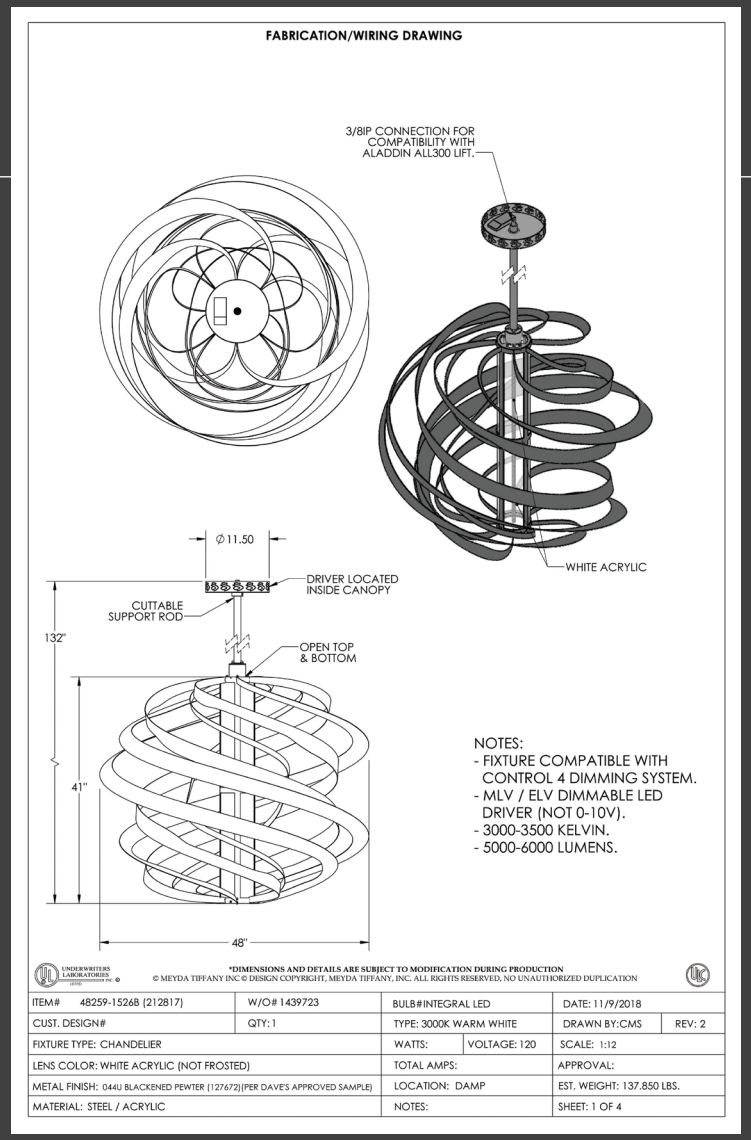
***Metal Swirly* Chandelier (Rachel)**

> Qty = 1
> Per drawing above
> Center metal tube with frosted glass inserts
> Assume pivot at top for sloped ceiling

Quote as:

> Hard-wired dimmable LED
> E-26 base sockets
> *Brushed nickel (plated)* finish
> Standard *Nickel powder coat* finish

Evolution of an Architectural Drawing



FABRICATION/WIRING DRAWING

3/8IP CONNECTION FOR COMPATIBILITY WITH ALADDIN ALL300 LIFT.

WHITE ACRYLIC

Ø11.50

DRIVER LOCATED INSIDE CANOPY

CUTTABLE SUPPORT ROD

132"

OPEN TOP & BOTTOM

41"

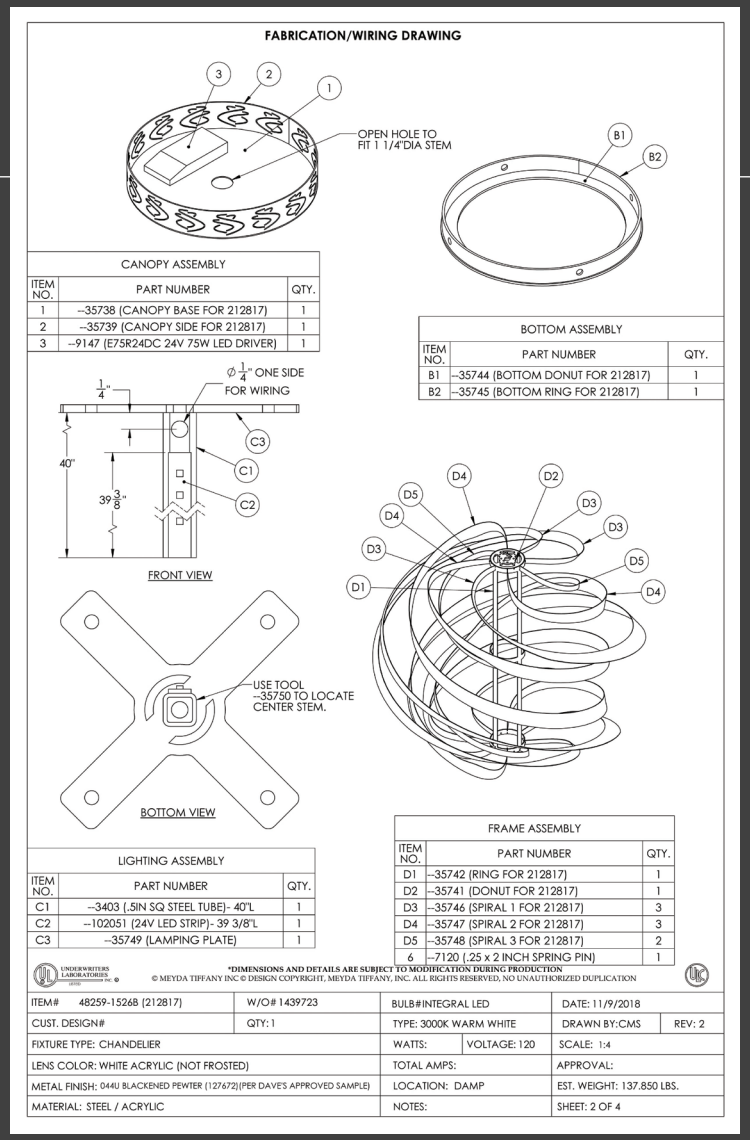
48"

NOTES:
- FIXTURE COMPATIBLE WITH CONTROL 4 DIMMING SYSTEM.
- MLV / ELV DIMMABLE LED DRIVER (NOT 0-10V).
- 3000-3500 KELVIN.
- 5000-6000 LUMENS.

UNDERWRITERS LABORATORIES

*DIMENSIONS AND DETAILS ARE SUBJECT TO MODIFICATION DURING PRODUCTION

ITEM# 48259-1526 (212817)	W/O# 1439723	BULB#INTEGRAL LED	DATE: 11/9/2018	
CUST. DESIGN#	QTY: 1	TYPE: 3000K WARM WHITE	DRAWN BY:CMS	REV: 2
FIXTURE TYPE: CHANDELIER		WATTS:	VOLTAGE: 120	SCALE: 1:12
LENS COLOR: WHITE ACRYLIC (NOT FROSTED)		TOTAL AMPS:		APPROVAL:
METAL FINISH: 044U BLACKENED PEWTER (127672)(PER DAVE'S APPROVED SAMPLE)		LOCATION: DAMP		EST. WEIGHT: 137.850 LBS.
MATERIAL: STEEL / ACRYLIC		NOTES:		SHEET: 1 OF 4



FABRICATION/WIRING DRAWING

OPEN HOLE TO FIT 1 1/4"DIA STEM

CANOPY ASSEMBLY		
ITEM NO.	PART NUMBER	QTY.
1	--35738 (CANOPY BASE FOR 212817)	1
2	--35739 (CANOPY SIDE FOR 212817)	1
3	--9147 (E75R24DC 24V 75W LED DRIVER)	1

BOTTOM ASSEMBLY		
ITEM NO.	PART NUMBER	QTY.
B1	--35744 (BOTTOM DONUT FOR 212817)	1
B2	--35745 (BOTTOM RING FOR 212817)	1

Ø 1/4" ONE SIDE FOR WIRING

1/4"

40"

39 3/8"

FRONT VIEW

USE TOOL --35750 TO LOCATE CENTER STEM.

BOTTOM VIEW

LIGHTING ASSEMBLY		
ITEM NO.	PART NUMBER	QTY.
C1	--3403 (.5IN SQ STEEL TUBE)- 40"L	1
C2	--102051 (24V LED STRIP)- 39 3/8"L	1
C3	--35749 (LAMPING PLATE)	1

FRAME ASSEMBLY		
ITEM NO.	PART NUMBER	QTY.
D1	--35742 (RING FOR 212817)	1
D2	--35741 (DONUT FOR 212817)	1
D3	--35746 (SPIRAL 1 FOR 212817)	3
D4	--35747 (SPIRAL 2 FOR 212817)	3
D5	--35748 (SPIRAL 3 FOR 212817)	2
6	--7120 (.25 x 2 INCH SPRING PIN)	1

UNDERWRITERS LABORATORIES

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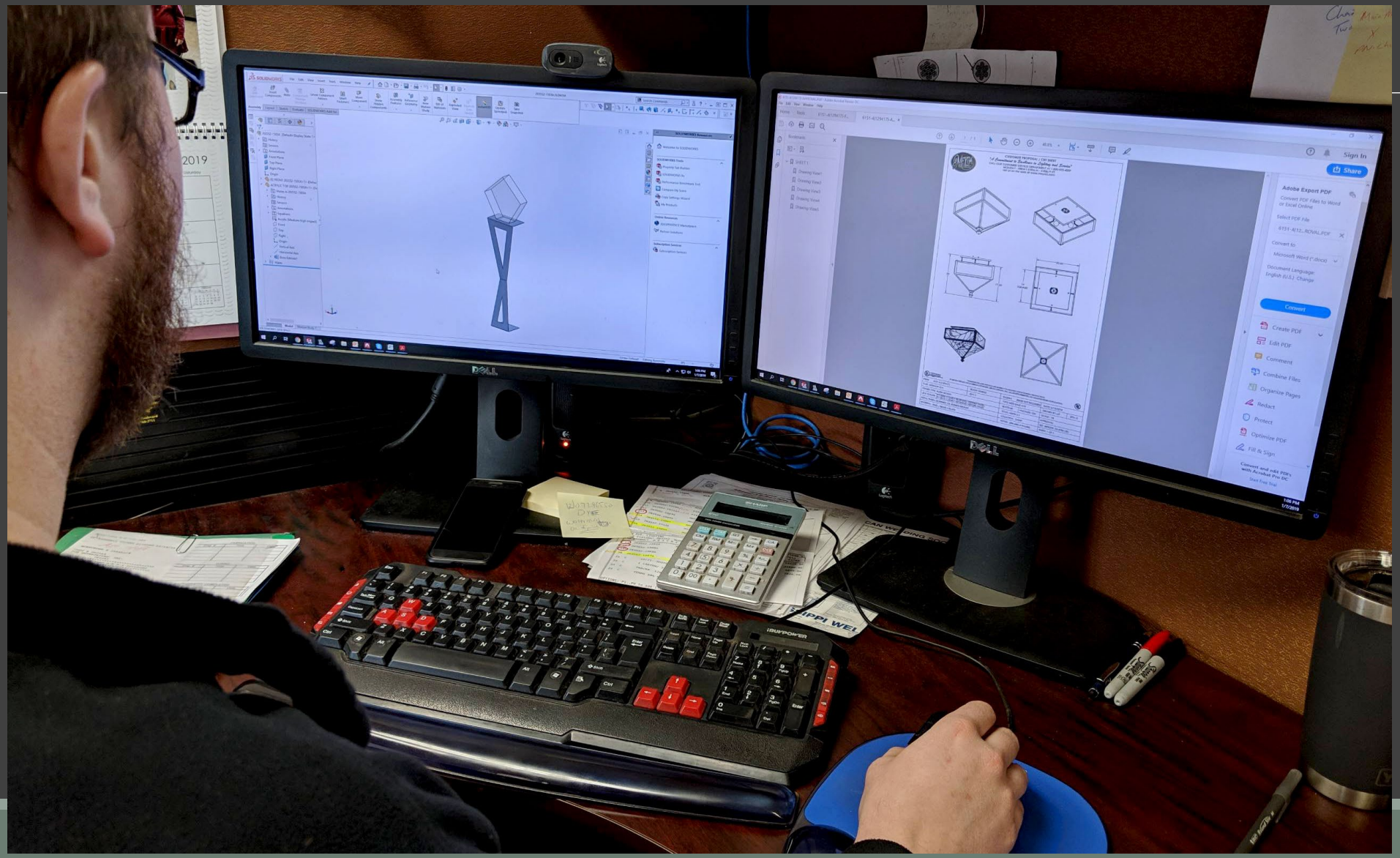
METAL FINISH: 044U BLACKENED PEWTER (127672)(PER DAVE'S APPROVED SAMPLE)		LOCATION: DAMP		EST. WEIGHT: 137.850 LBS.
MATERIAL: STEEL / ACRYLIC		NOTES:		SHEET: 2 OF 4

Design and Engineering

Customization will include choosing fixture style, dimensions and proportions, lens, shade and finish materials, diffuser requirements, electrification and lumen output, installation specifications, and other issues that impact fixture aesthetics and function, manufacturability, budget and lead time. Work closely with a manufacturers engineering team to verify installation specifications including weight restrictions, wattage and amp requirements, hardware, and assembly instructions.

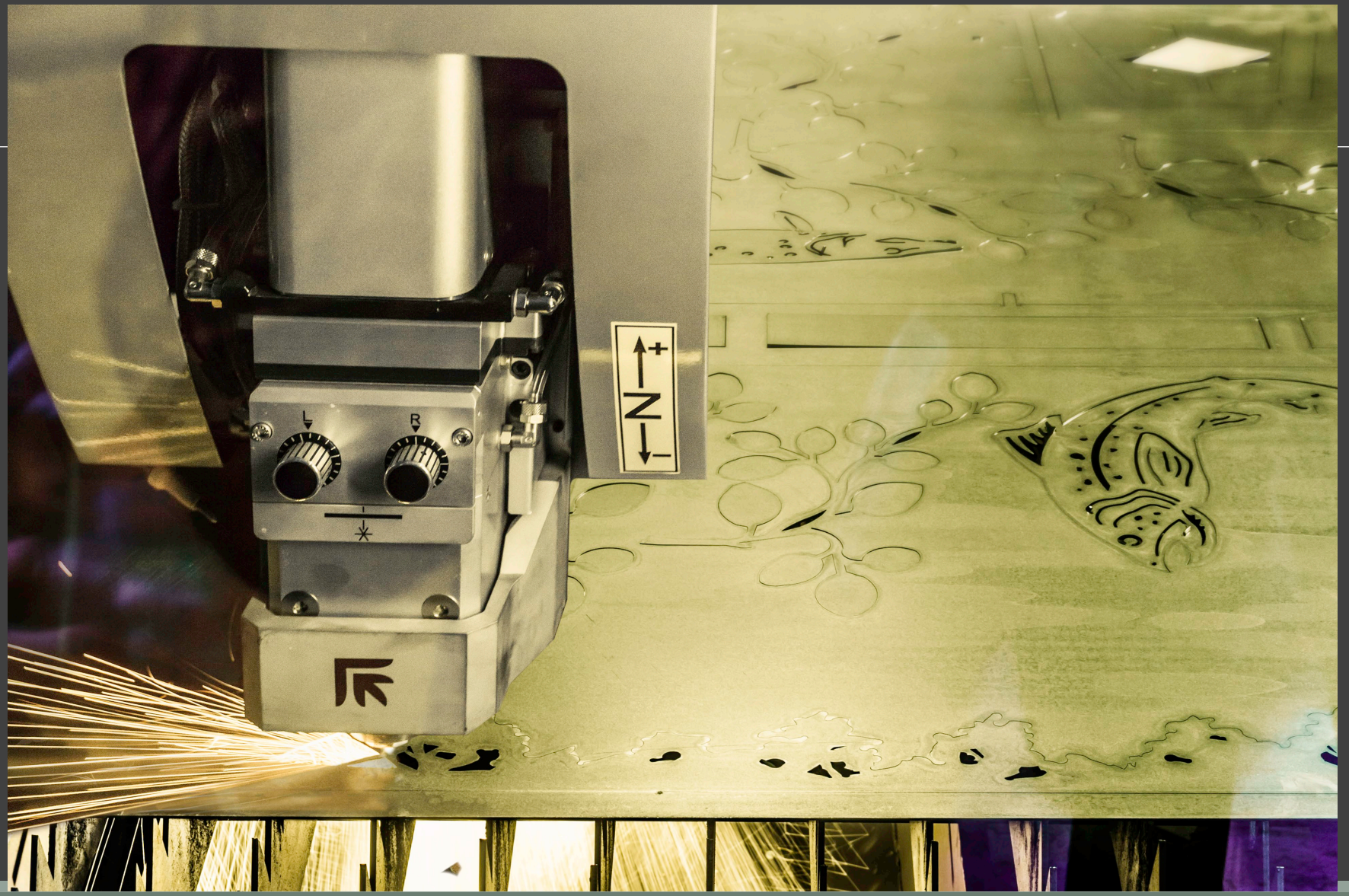
Design and Engineering



Fabrication, Laser Cutting

Specify Fiber Laser Cut over Plasma Cutting for the best quality processing of raw materials into components for custom projects. This would apply to fixtures with cut-out patterns including artwork filigree, profiles, lettering, decorative accents, geometric patterns and other custom shapes. Laser cutting eliminates heat, slag, and oxidization from the finished part during the cutting process compared to plasma cutting. Plasma cutting requires a lot more post processing to achieve a quality part like edge cleaning, de burring, rust removal (all rust never leaves once a part begins to corrode). Laser cutting does not require immersing material in corrosive water to process parts and the speed and operating costs of Fiber lasers is fractional in comparison to water jet machining.

Fiber Laser Cutter



Fabrication, Laser Cutting

Laser cutting does not require special tooling for efficient cutting such as punch processing. Punch machines are efficient for high production projects but are limited by tooling required to punch through material. If an engineer needs to maintain tooling or source new tool profiles, lead times and costs can be affected. Modern day fiber laser processing works on steel, galvanized steel, stainless steel, aluminum, copper, brass and bronze. Older style “CO2” lasers are unable to process the high-end red metals like copper, brass and bronze.

Downstream operations are much easier to perform as the tolerances from laser cutting are closer than other machining operations, therefore improving overall quality and reducing manufacturing costs. In addition to cutting parts from sheets of metal, lasers cut tube and pipe with some capable of processing up to an 8”-plus diameter material in square or rectangular profiles.

Fiber Laser Cutter

Fabrication, Laser Cutting

There is a time and place for using water jet cutting, such as very thick glass or glass profiles with a unique profile not achievable by hand work.

Lasers will produce sharp edges and cut cleanly and there generally will not be a need for grinding an edge unless the design requires it to be a softer radius (rather than sharp 90 degree cutout). In this case, specify a “broken edge” or “chamfered edge”-- this is a quickly performed manual process by which an artisan will grind away a small amount of material to help round off the corner. This helps hide a seam between metal parts, rounds corners if they may come in contact with a person, and softens a transition from one surface to another.

Some lasers use oxygen to add heat to aid in cutting very thick material efficiently - parts that require 3/16” or thicker steel plate could be affected. The oxygen may leave behind a thin layer of loose material on the cut surface. If care is not taken to remove the thin layer (no thicker than household plastic wrap) it may compromise a paint or powder coat finish as in some cases the material may flake off of the clean metal underneath. Simply brushing the part with a coarse wire will remove any scale created by this procedure.

Fabrication, Press Brakes

A key tool in any fabricator’s workshop, Press Brakes use special tooling to bend or “press” corners or special contours in metal. These machines are extremely fast to set up for a small production run and using them saves time, as welding can be the slowest and most costly operation.

Fabrication, Hand Forging

Forging uses extreme heat to temporarily soften metal to achieve efficient bending and hammering of metal parts. A forge is one of the oldest technologies in metal fabrication but a lot of modern day efficiencies can reduce costs. Using modern day hammers, forges and machinery can significantly reduce labor time and costs. Choose an experienced factory with the appropriate tools to create high quality fixtures that require forging to create architectural detailing such as delicate scrolling or a unique hammered texture to accentuate a handsome finish.

Fabrication, Hand Forging

Fabrication, Hot Working Glass Diffusers

Hot working glass features mouth-blowing glass at very precise high temperature controlled furnaces with molten glass set at 2000° plus degrees to create diffusers with special contours, curves, bends and castings. Glass-blowing requires an understanding of different types of glass, how it bends and the stress releasing processes performed to ensure durability. Working with a supplier who has the ability to build molds efficiently can greatly reduce custom expense as diffuser molds are costly to produce and maintain.

Blown-Glass Diffusers

Blown-Glass Diffusers

Fabrication, Warm Working Glass

Warm working glass uses three main processes, based on the working temperature and time endured by the glass. Kiln-fired glass (heated from 1000-2000° degrees) becomes progressively softer, less rigid, and less viscous with increasing temperatures. Fusing glass retains its shape but becomes adherent and joins adjacent glass pieces together, frequently creating multiple colored layers. Slumping glass softens the shape and becomes flexible while resembling its solid form. Casting glass melts into a viscous liquid that takes shape from its containing mold.

Fabrication, Fused Glass

Fused Glass Fixtures

Fabrication, Cold Working Glass Diffusers

Cold working glass features stained glass that is exposed to various techniques at room temperature including cold sawing, grinding, abrading, sanding, and cutting. Make sure to specify glass with a sanded finished edge. Glass that is cut leaves sharp burs that need to be removed by grinding, sanding, or etching. Chemical and abrasives further diffuse light source and create a matte finish if one is required. Pieces of glass are copperfoil constructed together with solder to create stained glass shades.

Fabrication, Cold Working Glass

Fabrication, Acrylics

In many commercial settings acrylics are the preferred material as they are easier to crate and ship, as well as handle during fabrication and installation. Larger panels can be used at a lower manufacturing costs. A common misnomer is plastic is cheap; in fact plastics can rival many types of glass in appearance and cost. The value gained by specifying a polymer like acrylic is ease of manufacturing. A bowl that may take days in an oven to thermoform from glass can be replicated in acrylic for much less processing time. The acrylic is a fraction of the weight of glass.

Fabrication, Acrylics

Cutting acrylics and other plastics with a CNC router ensures high part repeatability at a low cost. 3 dimensional carvings can be applied to add textures or lettering. Molds can be carved for thermoforming.

Thermoforming uses heat to mold acrylic with tooling to apply a profile. Selecting a manufacturer that has these capabilities ensures faster lead times better quality control.

When specifying acrylic material, be aware that UV exposure can affect the lifespan of an acrylic lens. Acrylic is less fragile than glass but it is breakable! Some epoxies do not dry clear or they can cause the material to craze if the wrong epoxy is used.

Acrylic Diffusers

Fabrication, Welding

Welding uses high heat to fuse or bind two materials together by liquefying the material and re cooling as a single bound material. There are three common types of welding: Stick welding, Mig welding and Tig welding.

Stick welding is primarily for high strength applications like bridge and ship building. A metalworker uses an electrode called a stick to fill a gap as it fuses the material. There is too much heat and spatter for this to be used in most decorative applications.

Mig welding is arguably the easiest form of welding. The machine feeds a coil of thin material that carries the energy to the parts which creates heat to melt and re fuse. The feeding wire also serves as a filler material to close any gaps. This leaves behind a large “bead” which requires grinding and blending. If an inexperienced fabricator puts two pieces of material together and welds then grinds smooth they run the risk of grinding off the weld.

Tig welding is the most highly sought after skill by the fabrication community. Extreme hand eye coordination along with extremely expensive machinery can achieve seamless fusion of steel, copper, bronze, brass stainless and other materials. The precision application of heat can immensely increase quality. Tig weld beads can be so minute that grinding may not be required. Tig welds can be polished smooth often to a seamless mirror polished finish. This can mimic a cast product and for a fraction of the cost for prototype quantities.

Fabrication, Welding

Fabrication, Grinding

Also know as blending, Grinding often leaves a welded seam with some marking or beading from the fusing process. A skilled fabricator can use a variety of products to smooth out the marks and blend them into the surrounding material. Often times, grinding can be more technical than welding and fabricating if a part needs polishing; special care is needed to maintain surface flatness. Inexperience may cause grind marks to show through even heavy paints.

Grinding

Value Engineering

For some large scale projects, budgets may be tight and specifiers may need to bring extra value. When project budgets call for a more simplified approach, ask for value-engineered lighting in styles similar to standard product or desired items. Advanced planning early in the project can be an effective cost-saving measure and it's vital to verify specifications with all stakeholders including non-specifiers.

When needed, manufacturers can present good, better and best custom lighting options. A specifier may choose the best selection for the lobby and other public spaces but use good items for individual hotel rooms. Often you can find options that meet value engineering goals within the product offering of these manufacturers. Domestic manufacturers may provide a competitive edge versus overseas suppliers that are subject to tariffs.

Materials, Hardware and Diffusers

For successful custom lighting solutions, specifiers can choose from a broad range of materials in nearly every medium. Hardware is available in bronze, copper and brass to aluminum and stainless steel. Diffusers and shades are offered in a wide variety of acrylic colors, art glass, exquisite crystal, mica and various fabrics such as linen, silk, parchment and burlap, and even jadestone and wood.

To sustain durability and longevity in exterior spaces, harsh environments and waterfront settings, fixtures can be produced from fine materials such as copper, bronze or brass. Steel construction can be treated with special finishing to prevent corrosion from water, wind or salt air.

Materials, Brass

Ma
Cop

Materials, Acrylics

Materials, Crystal

Materials, Fabric

Mica Diffusers

Mica is a natural mineral bonded with shellac to create a light diffuser and is usually available in Silver or Amber colors. Initially mica was widely used by coppersmiths in California during the 19th century. The originals are exhibited at The Metropolitan Museum in New York City.

Mica Diffusers, Lighted Pot Racks

Finishes, Powder Coat

Powder coating offers a value added, cost effective method of applying a wide variety of high quality finishes to custom lighting products for long lasting durability and superb aesthetics. Powder coating provides effective corrosion control, scratch resistance and can be made UV resistant while minimizing environmental impact. Choose from over 200 powder coat finishes from a reputable supplier’s palette. Some powder coats are not suitable for high exposure to the sun's UV rays and you need to advise the manufacturer that finishes need to be durable and rated for UV exposure. Marine grade finishes are available to help fixtures endure in harsh environments.

Finishes, Powder Coated Shades

Finishes – Powder Coated Hardware

Plated Finishes

Plated (or electroplated) finishes offer an upscale alternative when applied to metal that creates colors such as Polished Brass or Aluminum, and Brushed Nickel or Brass. A manufacturer can further finish a plated item to offer Antique Brass or Copper finishes.

Plated Finishes

Wet Paint Finishes

Wet paint can be applied using HVLP (high volume low pressure) spray systems and can be made durable, however most will not be as durable as powder coat. Wet paint can be applied by hand using a number of techniques: by brush, sponge or roller to achieve layered dimensions. Many premium finishes can help match a fixture to other design aesthetics.

Textured Finishes

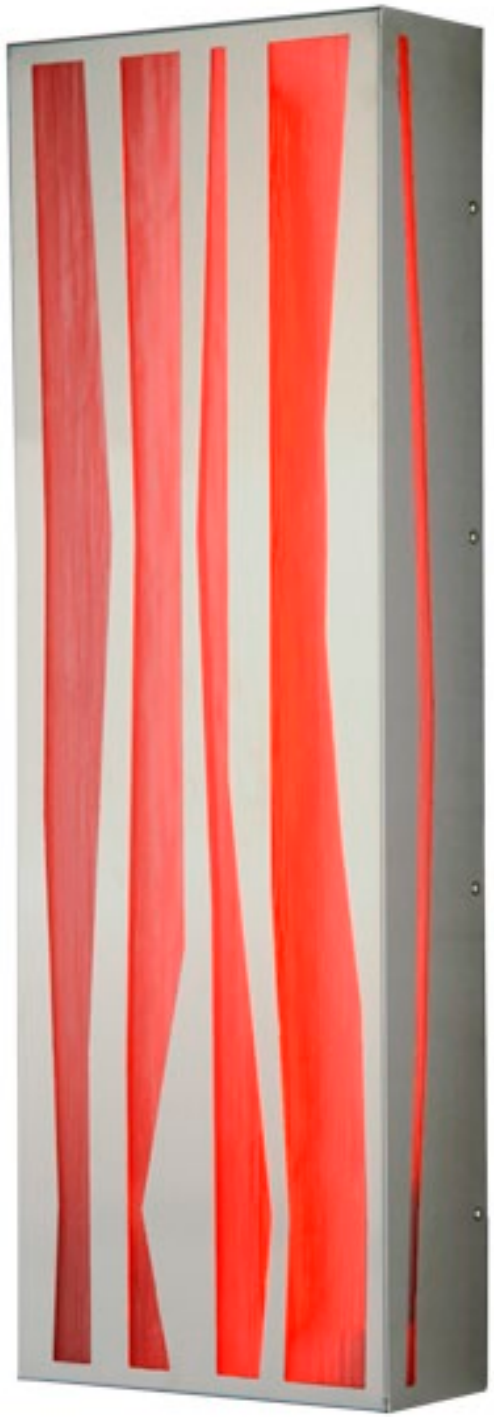
A metal texture helps accentuate the finish. Multiple old world hand forging techniques can be used to apply a variety of handsome metal textures for extra depth. Some hardware texture styles include hand hammered metal like antique pieces, a cracked ice look of a frozen lake, or a tobacco leaf design.

Finishes, Wet Painted and Textured

Nature elements are handpainted while other hardware features textured powder coats.

Finishes for Maximum Durability

Manufacturers can use a variety of pre-paint processes which can be administered to a steel fixture for further corrosion control if needed to perform in a harsh outdoor environment while providing a cost effective alternative to copper, brass or stainless steel. For the discerning client, specifying construction in brass or stainless steel will offer upmost longevity.



Finishes for Maximum Durability

This LED wall sconce is constructed of Marine Grade 316 Brushed Stainless Steel to a component level, IP56 rating sealed and waterproofed for protection from heavy seas. Additionally, it uses 2 120V circuits, LEDs transition from White to Amber over 577 nanometers of a wavelength so the light does not disturb turtles when they come to shore to lay their eggs during nesting season.

Custom Sizes

Scalability is important in today's changing marketplace. It's important to work with manufacturers that can create statement pieces in nearly any size– from the massive grand styled chandeliers, to mid-sized ceiling mounts and wall sconces, to delicate mini pendants. No project should be too large or complex. Scale and proportion can be optimized will the ideal amount of luminance and application efficiency.

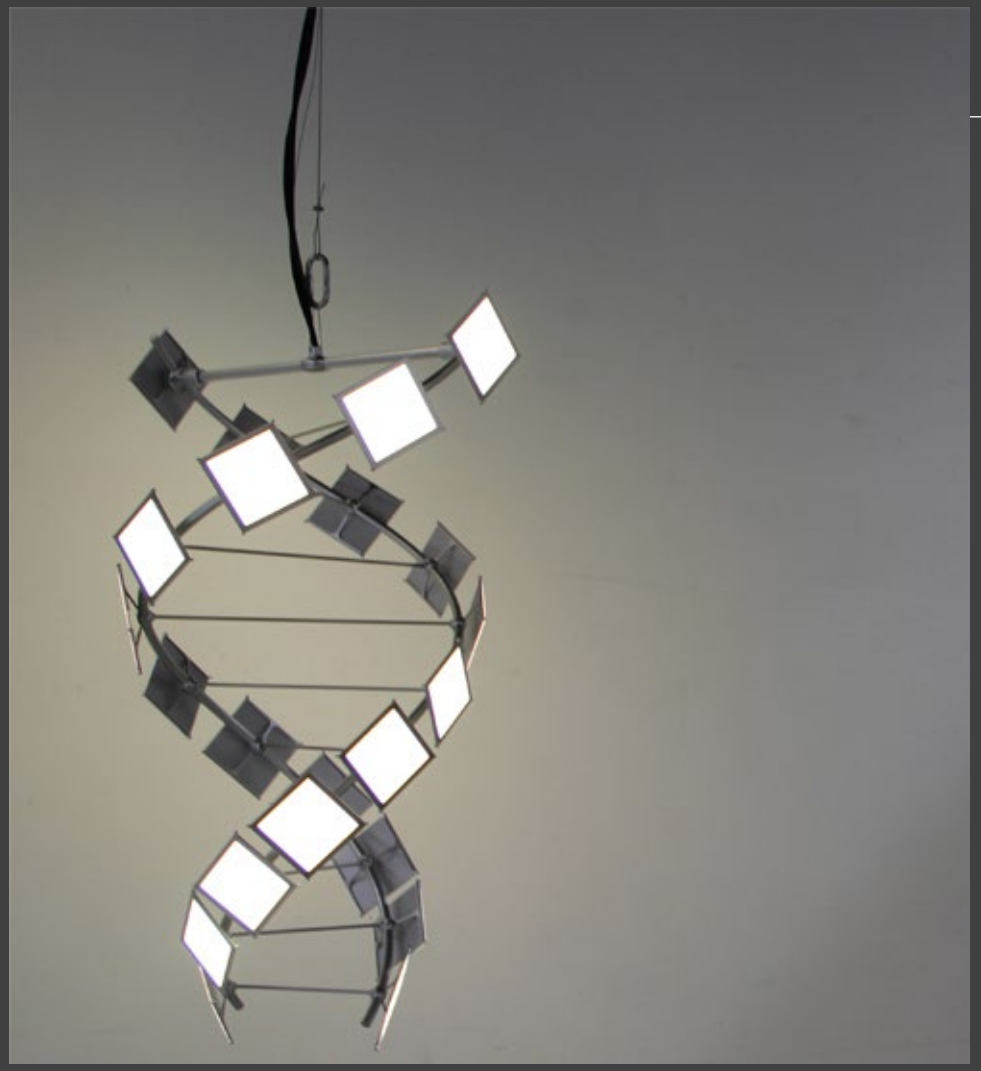
Custom Sizes, LED Fixtures

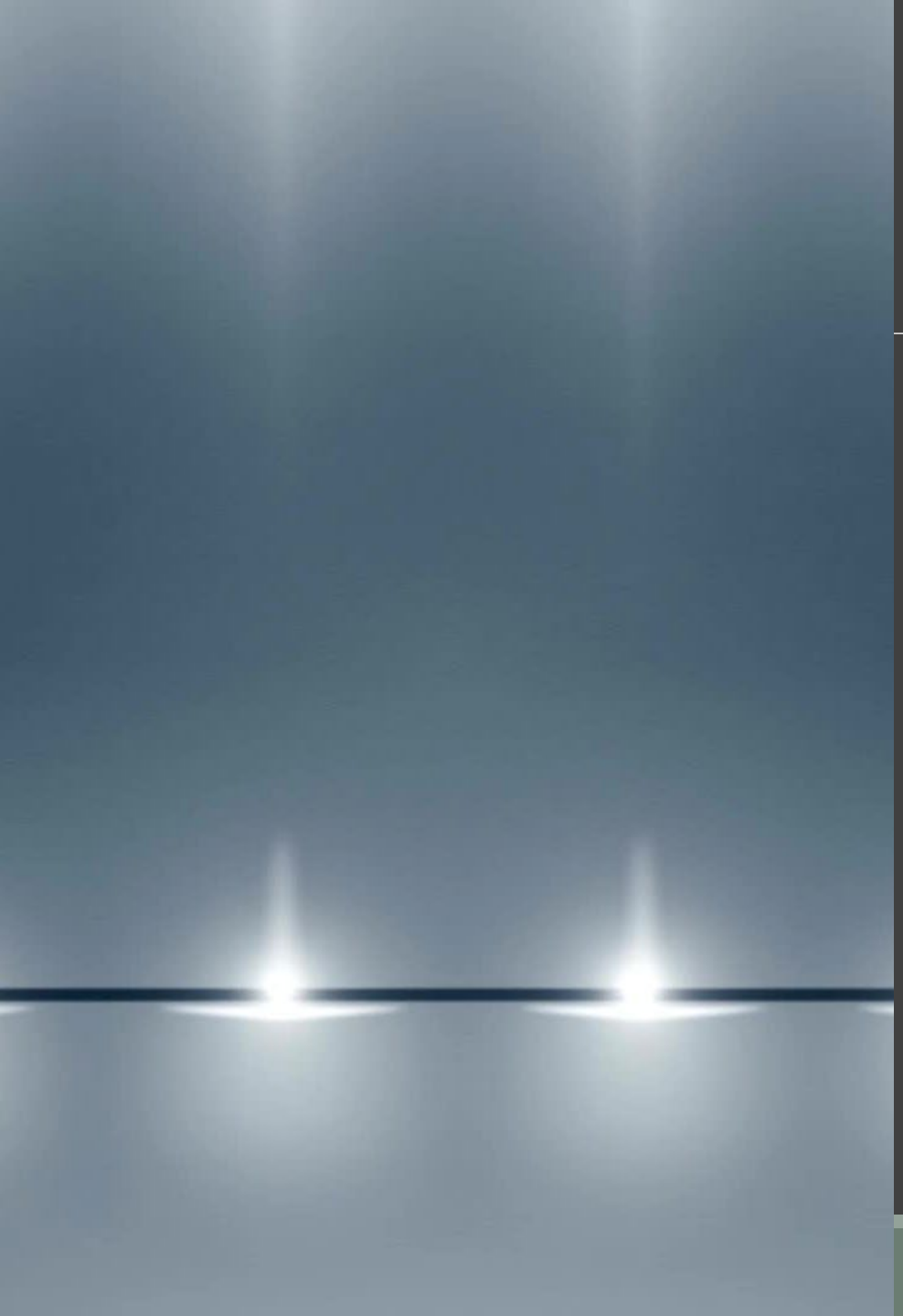
Custom Sizes, Pendants

Lamping Options

Dimmable lamping options present a variety of standard and energy efficient light sources for today’s interior and exterior environments. These options include efficient light emitting diodes (LEDs), organic light emitting diodes (OLEDs) and compact fluorescent lamps (CFLs) plus conventional lamps such as incandescent bulbs for low and line voltage systems to meet various electrical requirements and energy regulations.

OLED Fixtures





Lighting Controls and Smart Technology

Custom lighting designs may include smart technology or conventional controls to manage each lighting layer autonomously, and connected, throughout your space. Wall and hand held devices control a multitude of circuits, luminaires, fans, motion sensors, photo cells, integrated cameras for security, etc.

Custom Wiring

Special wiring, mounting and other options can be implemented to provide custom lighting solutions for individual design challenges and unique space requirements such as uneven ceiling and wall surfaces or fixtures installed distances from J-box.

The overall height of some fixtures can be modified by adjusting the chain or cable length in the field to accommodate specific application needs.

Fixture suspension systems can be engineered without a power cord, using aircraft cables for balance, precision and a clean aesthetic.

Custom Mounting

Nearly any lighting fixture can be customized to mount in any space. Imperfections on ceiling or wall surfaces can be covered by various fixture hardware.

Suspension cables, cords and stems can be custom sized to meet specific requirements.

Fixtures can be engineered to install on flat and vaulted ceilings of any pitch or height.

Custom yokes wrap around wooden log beams in camps and timber homes.

In environments with harsh conditions, fixtures can be secured with anti-sway or seismic-proof suspensions for stability.

Custom Mounting

Anti-Sway Chains

Testing and Quality Control

Most reputable manufacturers use Light Labs where every product is lamped, wired, installed and tested for design, energy efficiency, performance and quality. A comprehensive checklist of specifications are evaluated against the client approved architectural drawings for quality assurance. Specs include product dimensions, finishes, diffuser colors and materials, hardware, components, optics, controls, and lamping features such as CRI, CCT, lumen output and rated life. Larger chandeliers and pendants receive special examination for structural integrity.

Custom Shipping and Installation

Custom packaging and special shipping are used to ensure that custom lighting fixtures ship securely and installs seamlessly. Your fixture should be custom-crated and shipped with sidemarks and detailed documentation to facilitate on-site logistics and installation.

Inspection, delivery timing and installation equipment should be coordinated with the contractor or electrician.

UL Listings

All products should be tested and approved by Underwriters Laboratories (UL), a national recognized independent product safety certification organization, and its affiliated organization (cUL), the Underwriters Laboratories of Canada. Custom lighting can be engineered and produced to meet nearly any industry standard including California Title 24, IP listings, Dark Sky, ADA Compliant, ETL and others.

Lead Times

Lead time management is extremely important in the custom lighting process. Timelines can vary depending on the size and the complexity of the project but are more likely to be ensured by providing deadlines in the beginning of the process. Most suppliers offer special accommodations upon request if provided with advance notice. Working with American manufacturers typically offers faster lead times with domestic production, a distinctive advantage over overseas suppliers. Do not book your electrician or contractor for fixture installation until you receive final shipping confirmation from the manufacturer.

Custom LED Chandeliers, Hospitality

Custom Retail Applications

Custom LED Chandeliers, Hospitality

Custom LED Chandeliers, Hospitality

Custom Rustic Chandeliers

Custom Chandeliers, Ballroom

Custom Residential Chandeliers

Custom LED Chandeliers

Modern LED Chandeliers, Restaurant

Modern LED Fixtures, Lobbies

Custom Chandeliers

Custom Chandelier

Custom Pendants, Restaurant