



Title 24 Solutions



California Energy Solutions



The California Energy Commission (CEC) was established in 1974 to be the state's primary authority to develop and maintain Building Energy Efficiency Standards, or Energy Codes. The energy policies are committed to reducing energy costs and environmental impacts of energy use.

In 1978, State Legislation (SB 331, Robbins) mandated that these policies be unified into a single code within the California Code of Regulations, and was designated as the California Building Standards Code Title 24, and is updated every three years.

Regularly updating the Energy Code helps ensure that builders use the most energy-efficient and energy-conserving technologies and construction practices, while being cost-effective over the lifespan of a building.




applies to:

- Non-Residential Buildings
- High-Rise Residential Buildings (except Dwelling Units)
- Hotel/Motel Occupancies (including Guest Rooms)
- Healthcare Facilities


requires:

- Total lighting power be within a specified budget
- Lighting Controls to allow for the efficient operation of installed lighting, ensuring that energy efficient equipment is used to satisfy building lighting needs

TITLE 24, PART 6: non-residential indoor lighting requirements




In a commercial building, indoor lighting is one of the single largest consumers of energy, totaling about one-third of electricity use. The objective of Title 24 Non-residential Lighting Standard is to effectively reduce this energy use without compromising the quality of light.



The primary mechanism for regulating indoor lighting energy is to limit the allowed lighting power (in watts) installed within the building.

Other mechanisms require basic equipment efficiency and require that the lighting is controlled to permit efficient operation.



Proposed energy budgets (i.e. energy consumption per square foot of floor space) are equal to or better than an established baseline. This baseline varies by climate zone and building type, so the standards are tailored to local conditions.

MANDATORY LIGHTING CONTROLS:

- **Manual Area Controls**

Manual on and off controls separately controlling lighting in each area

- **Multi-Level Controls**

Providing occupants with the ability to use all of the light, some of the light, or none of the light in an area

- **Shut-Off Controls**

Automatically shutting off or reducing light output when the space is vacant

- **Automatic Daylighting Controls**

Separately controlling general lighting in day lit areas based on amount of daylight in the space

- **Demand Responsive Lighting Controls**

Controls that are capable of receiving and automatically responding to a demand response signal

all projects must comply with mandatory requirements

The Title 24 Non-Residential Lighting Standards are designed to effectively reduce wasteful, inefficient or unnecessary consumption of energy by limiting the allowed lighting power (in watts) installed in the building.

There is no general restriction regarding where or how general lighting power is used, meaning installed lighting may be greater in some areas of the building and lower in others, as long as the total does not exceed the allotted lighting power.



EXIT

From the Garden

New Fuji
Savings!
Fuji Apples
New Crop Organic
\$1.49

\$4.99

Hydrangeas
\$6.99



applies to:

- Single Family Homes
- Single Family Buildings
- Low-Rise Multifamily Buildings (Three Stories or Less)
- High-Rise Multifamily Residential Units
- Residential Spaces in Non-Residential Buildings
- Dwelling Spaces of Fire Stations
- Dormitories
- Senior Housing





TITLE 24, PART 6: residential indoor lighting requirements

The 2019 Title 24 Energy Code requires high efficacy lighting throughout residential spaces. Joint Appendix 8 (JA8) provides the qualification requirements for these light sources. Requirements cover a broad scope but are only required for residential use, ensuring that lighting is energy-efficient while maintaining performance.



- JA8 Qualification Requirements:**
- Efficacy
 - Dimmability
 - Longevity
 - Color Temperature
 - Color Rendering
 - Flicker (Light Modulation)
 - Start Time
 - Audible Noise
 - Power Factor



All T24 indoor and outdoor luminaire and lighting control requirements are mandatory for residential buildings and spaces.

There are no:

- Maximum lighting power thresholds for spaces
- Required calculations of lighting power
- Prescriptive methods for showing code compliance

ALL PERMANENTLY INSTALLED LUMINAIRES ARE REQUIRED TO BE HIGH EFFICACY

- Lighting attached to walls, ceilings, or columns
- Luminaires with easily interchangeable lamps
- Track and flexible lighting systems
- Lighting inside permanently installed cabinets
- Lighting attached to the top or bottom of permanently installed cabinets
- Lighting attached to ceiling fans
- Lighting integral to exhaust fans
- Lighting integral to garage door openers if it is used as general lighting, is switched independently from the garage door opener, and does not automatically turn off after a pre-determined amount of time



Almost any luminaire can be classified as high efficacy, as long as the luminaire is installed with a JA8 compliant lamp. The exception is recessed downlight luminaires in ceilings, which must meet additional requirements.



LIGHTING CONTROLS

lighting controls may be individual devices or systems consisting of two or more components

GENERAL CONTROL REQUIREMENTS:

- All permanently installed luminaires must have readily accessible Wall-Mounted Controls that permit the luminaires to be manually turned on and off
- Three-way, Four-way and other lighting circuits controlled by more than one switch must reduce lighting power consumption by a minimum of 65% at the lowest setting
- Provide reduced flicker operation
- Off setting must produce zero lumen output
- Can not bypass the Dimmer or Vacancy Sensor function
- Ability to turn lights off, then on to the level set by the Dimmer if the lights are off
- Dimmers and Vacancy Sensors are not required for any luminaires located in hallways or in closets less than 70 square feet.
- Bathrooms, Garages, Laundry Rooms, and Utility Rooms are required to have at least one luminaire in that space to be controlled by an Occupancy or Vacancy Sensor
- All LED Luminaires are required to be controlled by a National Electrical Manufacturers Association (NEMA) SSL 7A Compliant Dimmer, unless using a Vacancy or Occupancy Sensor. The combined use of this dimmer with LED luminaires can ensure flicker free operation when the luminaire is dimmed
- Provide a visible status signal to indicate if device is operating properly or if it has failed or malfunctioned
- Lighting Control Indicator Lights must consume no more than one watt of power per indicator light
- Multiscene Programmable Controllers must have appropriate Dimmer functionality
- Occupant Sensing Controls must automatically turn the controlled lights in the area either off or down no more than 20 minutes after the area has been vacated
- Occupant Sensing Control Systems may consist of a combination of single or multilevel Occupant, Motion or Vacancy Sensor Controls



Indoor lighting controls can produce energy savings for the owners and users of the spaces. Requirements are focused on dimming and occupancy sensing for applicable spaces.

STEALTH

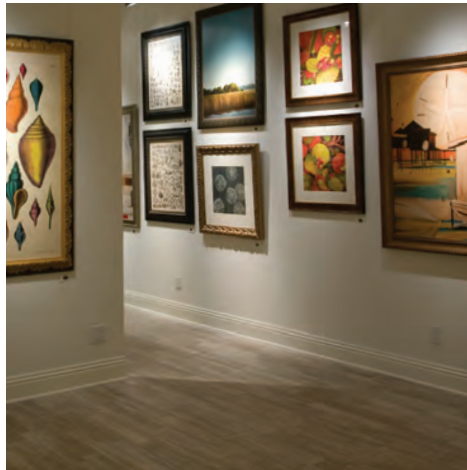
LED Wall Wash Luminaire

FOR ANY WALL LIGHTING APPLICATION

- Lockable, precision aiming adjustment: 360°+ aiming horizontal and 360° vertical rotation
- Precise beam and optical design provides excellent uniformity with up to 8 foot fixture to fixture spacing
- Cast and finned aluminum heatsink thermally engineered to provide optimal heat dissipation ensuring long life and consistent performance
- Dimming allows smooth illumination down to 1%
- Select from Black, Silver and White finishes



RETAIL



GALLERY



GROCERY SIGNAGE
AND CASES

35W Stealth Wall Wash Luminaire (CTL181) in 3000K, 3500K and 4000K, High CRI (90+) with Standard Dimming Option can be used to comply with the 2016 Title 24 Part 6 JA8 high efficacy LED light source requirements



LED TRACK LUMINAIRES

- Sleek design with superior performance
- Wide range of wattage/lumen outputs, luminaire sizes, and beam distributions
- Specification Grade Performance TIR Optics
- Optics are field interchangeable within each fixture size to allow for changing environments
- Dimming is standard



*All models except:
CTL9054WF27CD
CTL9054WF3CD
CTL9054WF35CD

All Eclipse Curve CTL905 Track Luminaire Series can be used to comply with the 2019 Title 24 Part 6 JA8 high efficacy LED light source requirements



The Regulator

current limiting device

120V Track Power Feed that limits the rated power that can go through a track run. Using an integral Circuit Breaker/Current Limiter, luminaires can be spread farther apart and use high efficacy sources to stay below the rated wattage of the Current Limiter. If the wattage exceeds the rated wattage of the Current Limiter, the limiter turns off current to the controlled lighting.



End Feed, Single/Two-Circuit Track

LA-23-R
Single Circuit End Feed

LA-223-R
Two Circuit End Feed
Two Circuit Breakers Required



In-Line Feed, Single/Two-Circuit Track

LA-33-R
Single Circuit In-Line Feed

LA-233-R
Two Circuit In-Line Feed
Two Circuit Breakers Required



Thin End Feed, Single/Two-Circuit Track

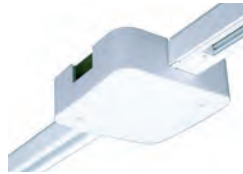
LA-23T-R
Single Circuit Thin End Feed



End Feed, 0-10V Dimming Track

E2CD-ACL10LT24
0-10V Dimming Track End Feed, Polarity Left

E2CD-ACL10RT24
0-10V Dimming Track End Feed, Polarity Right



I-Coupler, 0-10V Dimming Track

E2CD-ACL11T24
0-10V Dimming Track I-Coupler



Current Limiting Device for Odyssey 120V Flexible Track

Center down cord and square canopy. Silver finish.

LIRCLD - 8 Ft. Cord

LIRCLD6 - 19 Ft., 8 Inch Cord

- For 120V Single Circuit, Two-Circuit, 0-10V Dimming and Odyssey Track Systems
- Standard with 1 foot (12 inches) of Single End Feed or double In-Line Feed for Single Circuit, Two-Circuit or 0-10V Dimming Track
- To add additional track length, a Conductive Mini-Connector or other Conductive Track Connector must be used (sold separately)

- Pry-outs for electrical feed and oval mounting holes secure connector to junction box or mounting surface
- Ground terminals for supply ground wire, center pry-out allows feeding from junction box
- Tamper proof Steel Mounting Screws secure cover to plate; tamper proof Locking Screw mechanically secures connector into track
- Available in Black, White or Silver, Odyssey Current Limiter available in Silver



REG Series

For use with the following Single or Two-Circuit Power Feeds:

LA-23-R

LA-33-R

LA-223-R

LA-233-R

LA-23T-R



E2CD-ACLCB Series

For use with the following 0-10V Dimming Track Power Feeds:

E2CD-ACL10LT24

E2CD-ACL10RT24

E2CD-ACL11T24

Illuminated Circuit Breakers/Power Limit Switches

- Fifteen different breaker ratings for Single and Two-Circuit Track. 0-10V Dimming Track Circuit Breaker available in four different ratings. (Sold separately)
- When sizing circuit breakers for LEDs, allow for an additional 25% overhead to account for in-rush currents
- May be used as a standard ON/OFF switch
- Quick connect blade terminals; easy connection to included pig-tails; breaker snaps into the power feed without the use of tools
- Illuminated rocker switch is easily seen from floor level to confirm that power is being supplied to track circuit



WARM DIMMING

R2A 2" ADJUSTABLE DOWNLIGHTS

Round • Square • Trimmed • Trimless

Light that Warms as it Dims
 3000K at full brightness to 1800K when dimmed
 90+ CRI Throughout dimming range
 Precision TIR Optics
 Up to 1000 delivered lumens
 Compatible with Triac, ELV, 0-10V, eldoLED and Eco-System dimming

Provides a sense of well-being and comfort
 Create a unique environment
 - *Relaxed*
 - *Intimate*
 - *Comfortable*
 Mimics Incandescent with far superior efficacy



R2ANCWD
 2" Warm Dim Adjustable Recessed Downlight: New Construction IC and StopAire™



RN2ANCWD
 2" Warm Dim Trimless Adjustable Recessed Downlight: New Construction IC and StopAire™



R2ASQNCWD
 2" Square Warm Dim Adjustable Recessed Downlight: New Construction IC and StopAire™



RN2ASQNCWD
 2" Square Warm Dim Trimless Adjustable Recessed Downlight: New Construction IC and StopAire™

2-Inch Round Trimmed and Trimless (R2ANCWD1MVD, RN2ANCWD1MVD) and 2-Inch Square Trimmed and Trimless (R2ASQNCWD1MVD, RN2ASQNCWD1MVD) Housings with the Warm Dim LED Module (Medium or Flood Beam Spread) using the 120-277V Triac/ELV/0-10V Dimming option combined with any Trim can be used to comply with the 2019 Title 24 Part 6 JA8 high efficacy LED light source requirements.

2" Static White LED Downlights

R2RM Series R2SQRM Series R2ANC Series

SW
STATIC WHITE

- Rated for Insulated Ceiling (IC) and StopAire™ applications; for use in direct contact with insulation materials
- Adjustable Downlight Series has a Universal LED Module Adjustment Mechanism with white graduation marks every 15° for consistent aiming, plus set screw to lock adjustment in place
- Available in 2700K, 3000K, 3500K and 4000K in standard (83) and high (93+) CRI
- TIR Optics produce a Flood beam distribution
- Available for non-dimming and dimming applications

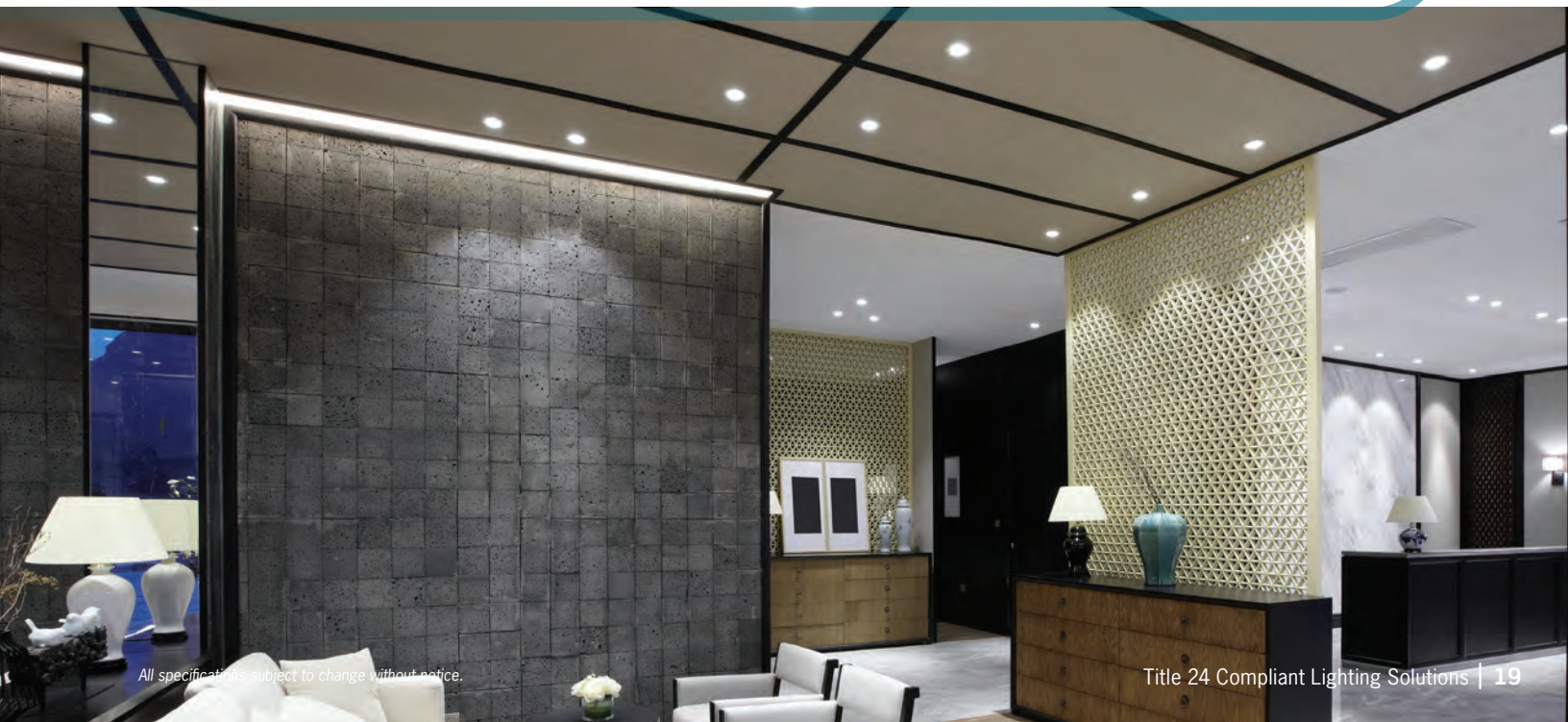


R2RM Round and R2SQRM Square Housings can be used to comply with 2016 Title 24 JA8 Part 6 high efficacy LED light source requirements by combining the following:

- 10W/1100lm LED Series
- Any High CRI Color Temperature
- Flood Beam
- MVD Dimming Option (120/277V Triac/ELV/ 0-10V Dimming)
- With or without the Chicago Plenum option
- CST2322L-CLR Trim (for Round Housings) or C2322SQ-WHT Trim (for Square Housings)

The R2ANC Series Housings can be used to comply with 2016 Title 24 Part 6 JA8 high efficacy LED light source requirements by combining the following:

- 10W/1000lm or 14W/1300lm LED Series
- MVD Dimming Option (120/277V Triac/ELV/0-10V Dimming)
- All Color Temperatures with Standard or High CRI (except Crisp White)
- Flood Beam
- C2304-CLR Trim





K SERIES DOWNLIGHTS

4" and 6" UNIVERSAL VOLTAGE LED COMMERCIAL RECESSED DOWNLIGHTS

ideal for residential, commercial and retail applications

4" and 6" K Series Universal Voltage Round Recessed Downlights feature classic look trim options and soft-glow optics that mimic traditional incandescent sources.



New Construction and Remodel Housings
Insulated Ceiling (IC)/StopAire™ Rated
Universal Voltage: 120V through 277V with
several dimming options
Low profile design for shallow plenums:
K4: 4"
K6: Less than 5"

2700K, 3000K, 3500K and 4000K; High CRI 90+
Multiple beam distributions available
Field interchangeable optics, no tools required



K4 Series can be used to comply with the 2019 Title 24 Part 6 JA8 high efficacy LED light source requirements using the following combinations:

LED Series 1 or 2: Flood Beam, CTR2002 (-PL-P, -CLR-P, -WHT-P), CTR2001-P, CTR2001W-P trims and MVD dimming option

LED Series 1 or 2: Wide Beam, CTR2002 (-PL-P, -CLR-P, -WHT-P), and CTR2001W-P trims and MVD dimming option

Any K6 Series can be used to comply with the 2019 Title 24 Part 6 JA8 high efficacy LED light source requirements using any of the following trims:

- CTR3002(-PL, -CLR, -WHT, -BLK)
- CTR3002-B-BLK
- CTR3001H(-WHT, -P)
- CTR3001(-WHT, -P, -B)
- CTR1913-P

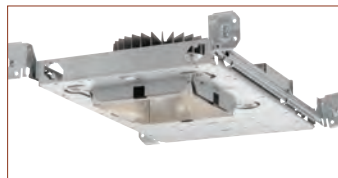
R SERIES

LED ARCHITECTURAL RECESSED DOWNLIGHTS

- 4-Inch Round and Square Apertures, Specification Grade Shallow Downlights
- Fits into a 2-1/2" plenum space
- New Construction and Insulated Ceiling (IC)/StopAire Housings
- 2700K, 3000K, 3500K, 4000K; 83 (80min) CRI or 90+ High CRI
- Multi-volt 120-277V standard
- Medium, Flood, and Wide Flood beam distributions
- All R4S downlights are available for Non-Dimming and Dimming applications
- Several different trim styles, trimmed and trimless, and finishes are available; all trims are Wet Location Certified



**4" ROUND NEW
CONSTRUCTION HOUSING**



**4" SQUARE NEW
CONSTRUCTION HOUSING**



**4" ROUND INSULATED
CEILING (IC)/STOPAIRE
HOUSING**



**4" SQUARE INSULATED
CEILING (IC)/STOPAIRE
HOUSING**

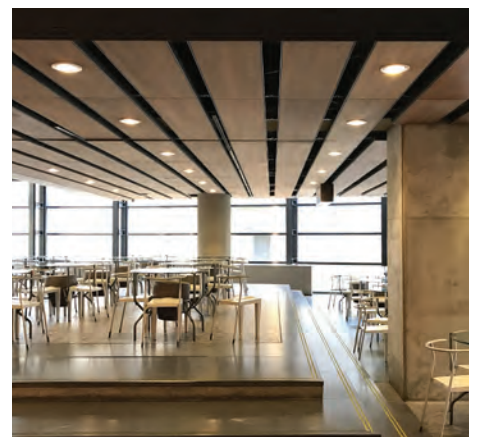
R4SNC and R4SSQNC Housings can be used to comply with 2016 Title 24 JA8 Part 6 high efficacy LED light source requirements by combining any of the following:

- LED Series 1 (10W/1000lm), Series 2 (14W/1400lm), Series 3 (20W/2000lm) or Series 4 (28W/2800lm)
- Any Color Temperature
- Any CRI
- MVD Dimming Option (Triac/ELV/0-10V Dimming)
- Any Beam Distribution
- Any Trim

R4SIC and R4SSQIC Housings can be used to comply with 2016 Title 24 JA8 Part 6 high efficacy LED light source requirements by combining any of the following:

- LED Series 1 (10W/1000lm), Series 2 (14W/1400lm) or Series 3 (20W/2000lm)
- Any Color Temperature
- Any CRI
- MVD Dimming Option (Triac/ELV/0-10V Dimming)
- Any Beam Distribution
- Any Trim

Important Notes: Trimless options require use of accessory mud frame (MF4 or MFSSQ4 - ordered separately).



INTEGRATED LED PENDANTS

ConTech Lighting provides a wide selection of Decorative Pendants that add a unique, signature look to any décor. Pendants are the adaptable decorative lighting option and great for saving space and keeping work areas uncluttered.



8W Quick Release Pendant

2 Ft, 4 Ft, 6 Ft or 8 Ft Cord Lengths; field adjustable

Can be used as a mono-point ceiling canopy or on a line voltage track system (mounting options not included)

A frosted diffusion lens is included for use as needed

Dimming down to 10%

Dry location listed

Finishes: Antique Bronze, Black, White, Silver

Decorative Gravity Fit Shades Not Included



Ceiling Canopy



Decorative Ceiling Canopy



Thin Ceiling Canopy



Three Pendant Canopy



Line Voltage Track Adapter



Odyssey Line Voltage Flexible Track Adapter

LPL4

UNDERCABINET LIGHTING



Slim Design: 1-Inch Square Cross-Section

Slide Switch Field Selectable CCT: 3000K, 3500K or 4000K

Integrated LED Driver

Standard and High Output; 90 CRI

Premium Diffusion Lens: No LED Dotting

Available in Four (4) Lengths: 8-Inch, 12-Inch, 24-Inch and 32-Inch

Each unit includes: 72-Inch Plug-and-Play Power Cord (LPAPL72), End-to-End Connector (LPACE) and two (2) 0-90° degree adjustable mounting clips with screws

Linkable Up to 400W

Optional Splice Boxes with Switch and/or Occupancy Sensor

Can be used to comply with 2019 Title 24 Part 6 JA8 high efficacy LED light source requirements







LPU2

UNDERCABINET LIGHTING

TITLE
24
PART 6 JAB8

superior versatility, color rendering and efficiency

- Thin profile; less than 1 inch in depth
- Selectable switch allows selection between three different color temperatures: 2700K, 3000K and 4000K, 90 CRI
- Integral ON/OFF Switch and High/Low Switch
- 120V/277V Triac dimmable
- Integral driver in each unit
- Available in the following lengths:
 - 12" (5W/Up to 300Lm)
 - 18" (8W/Up to 450Lm)
 - 24" (12W/Up to 900Lm)
 - 32" (16W/Up to 1050Lm)

- Linkable to 200W
- Bronze or White Finish with Frosted Lens
- Optional Occupancy Sensor Accessory
- Assorted Flexible Connectors allow for continuous row applications as well as applications with bends and corners
- Can be Used to Comply with 2019 Title 24 Part 6 JAB8 high efficacy LED Light Source Requirements

ConTech Lighting is your resource for innovative, high-performance and sustainable lighting solutions. Since our founding in 1980, we've been committed to providing the best fixture designs and product engineering available.

INNOVATION

We combine the latest energy efficient technology and design styles to create an extensive range of attractive and sustainable luminaires. We have over 5,000 products, including many high performance products that can't be found anywhere else. Our EcoTechnology solutions offer sustainable energy solutions that meet the qualitative needs of the visual environment with the least impact on the physical environment.



SUSTAINABILITY

At ConTech Lighting, our commitment to the environment is as important as our commitment to innovation, quality and our customers. We believe that lighting can be environmentally responsible and energy efficient, while providing high-quality performance and outstanding aesthetic design. EcoTechnology applies to our daily operation as well as to our products; from materials, manufacturing and transportation to the disposal process for our products and by-products.

QUALITY

We use the best components and manufacturing methods resulting in the highest quality fixtures. From cast housings and high performance reflectors, to the testing of each ballasted fixture before it ships, ConTech Lighting is defined by its quality. For consistency, we use only the most reliable LED chip makers including Cree, Nichia, Lumileds, Bridgelux, Samsung and Xicato.

SERVICE

Our responsive, personalized customer focus and market expertise represents an oasis of outstanding service in an industry that values it, but frequently doesn't receive it. We are here for you, live and in person, Monday through Friday 7:30am – 5:30pm CST. 847.559.5500.

PRODUCT AVAILABILITY AND SPEEDSHIP™

Many of our products are in stock and ready to ship. Our unique SpeedShip™ process takes ordered in stock products and ships them within 48 hours, at no additional cost to you.



MARKET EXPERTISE

Each market has its own unique lighting challenges. Designs can get tricky, having to verify every fixture, test every connector and make certain that every length of track is just right. We have an experienced staff of sales professionals to assist you with your projects from concept to completion.

LIGHTING EXPERIENCE

Lighting is more than just numbers on a spec sheet. Visit one of our facilities near you to experience the power of light to make your space more productive, more aesthetically pleasing, and more energy efficient. Visit our corporate Inspiration Center in Northbrook, Illinois, or one of our Leviton LIVE centers in San Francisco, California, New Orleans, Louisiana, or Chicago, Illinois.





Member of IALD LIRC

