



# WATER TREATMENT PLANTS

Lighting Solutions That Work for You



# LIGHTING SHOULD ADD VALUE TO YOUR OPERATIONS

Lighting in water treatment plants must not only be energy efficient and address code requirements, it should also provide for a properly lit work environment for your personnel. As one of the biggest energy expenses throughout your facility, your efficient operations require well-planned lighting.



## Traditional Lighting Is a Drain On Your Resources

- Wastes energy and requires both routine and unexpected maintenance that includes costly downtime, employee time and parts inventory
- Struggles to comply with ever-changing energy codes. A constant worry, this can add up in fixes that are costly and time-consuming
- Creates inconsistently lit areas or dark areas, affecting facility security, personnel safety and productivity

## The Acuity Brands Difference

For over a century, we have taken great pride in delivering thoughtful design, consistent performance, quality manufacturing and meaningful assistance when you need it. Our highly trained experts can help you select the right products for your applications and provide design assistance to address your requirements. And we'll help you choose quality LED lighting solutions with confidence. Our products are rigorously tested to industry-leading standards, achieving ANSI-accredited certifications. Backed by operational excellence and serviced warranties, our products combine design and precision with reliable performance to deliver the highest value throughout your facility's lifecycle.



# OPTIMIZE YOUR FACILITY WITH LED LIGHTING

Getting the most from your lighting means saving more money so you can invest back into your operations. The optimization starts with LED luminaires that save energy and minimize maintenance, and controls that help you better manage your lighting.

In the renovation example below, we replace 400W HID fixtures in a facility-wide application with LED high bay luminaires – and then build up to your optimized solution with controls.

With an expected service life of 20 years, our lighting solutions can help you achieve 60% savings in energy costs and 50% savings in maintenance costs on average, so you can generate the savings to fund your initial investment and obtain a payback in as little as 1.4 years.

## Renovation Examples: 250 Fixtures – Estimated Savings

	System	Average Yearly Operating Cost/Savings*		Investment Drivers
OPTIMIZED	Replace with: LED High Bay, Occ Sensors, and wireless controls	\$18,870	\$120,437	1.4 Yearly Payback
	Replace with: LED High Bay & Occupancy Sensor	\$23,587	\$115,720	1.5 Yearly Payback
	Replace with: LED High Bay	\$47,174	\$92,132	2.0 Yearly Payback
	Existing Lighting: 400W Metal Halide High Bay	\$139,307 (energy & maintenance)		

Operating Cost
  Savings

\*Savings assume \$.12/kWh utility rate, 8,736 yearly operating hours and typical MH lamp / ballast replacement and labor cost.



# LIGHTING CONTROLS TO MAXIMIZE YOUR RETURN

## Stand-Alone Solutions Tailored to Your Needs and Budget

Whether to address code and mandated requirements or simply better manage your lighting, stand-alone controls help you achieve a solution that responds to your needs.

We can help you design the right solution for your facilities with options from Dark to Light<sup>®</sup> and SensorSwitch<sup>™</sup>. Occupancy sensing, motion detection, photo-sensing and dimming capabilities create a lighting solution that provides the right illumination levels, any time of the day or night, and light the indoor and outdoor space for your personnel.

### Dark to Light<sup>®</sup>



Offers a wide variety of stand-alone control options to meet the code requirements of your water treatment plant including DLL Elite, DTL Connect and a premium line of silicon filter controls, energy-saving part-night controls, inline controls and intelligent HPS cycling controls

### SensorSwitch<sup>™</sup>



Provides an innovative, high quality and cost-effective controls solution to provide energy savings and code compliance for the interior of your water treatment plant. Our broad selection of occupancy sensors and photocell products are easy to install and easy to use.





# nLight® Air Networked Lighting Controls Platform

nLight AIR is a simplified wireless lighting control solution that eliminates the need to run wires, resulting in an overall lower cost of install. The nLight AIR sensor is a relay, occupancy sensor, and photo controller all in one device embedded into a wide variety of indoor and outdoor luminaires. This feature provides a cost effective solution for applications where an IP65 enclosure is needed and enables control, occupancy detection, and daylight harvesting per individual fixture and can be added to communication networks for group control, current monitoring and driver/lamp outage detection.

- Turns lights off when space is unoccupied, increasing energy savings and the life of your luminaires
- Light only the space you need with optional dimming and photocell settings



## Simple

Wireless install and setup, nLight AIR embedded sensors work as occupancy sensors and photocells out-of-the-box while the CLAIRITY™ Pro app allows you to easily adjust sensor settings.



## Scalable

Ideal for any application, small to large, indoor to outdoor, scaling from one room to a whole building, across an entire site. Visualize Real-Time Operational Data with SensorView software.



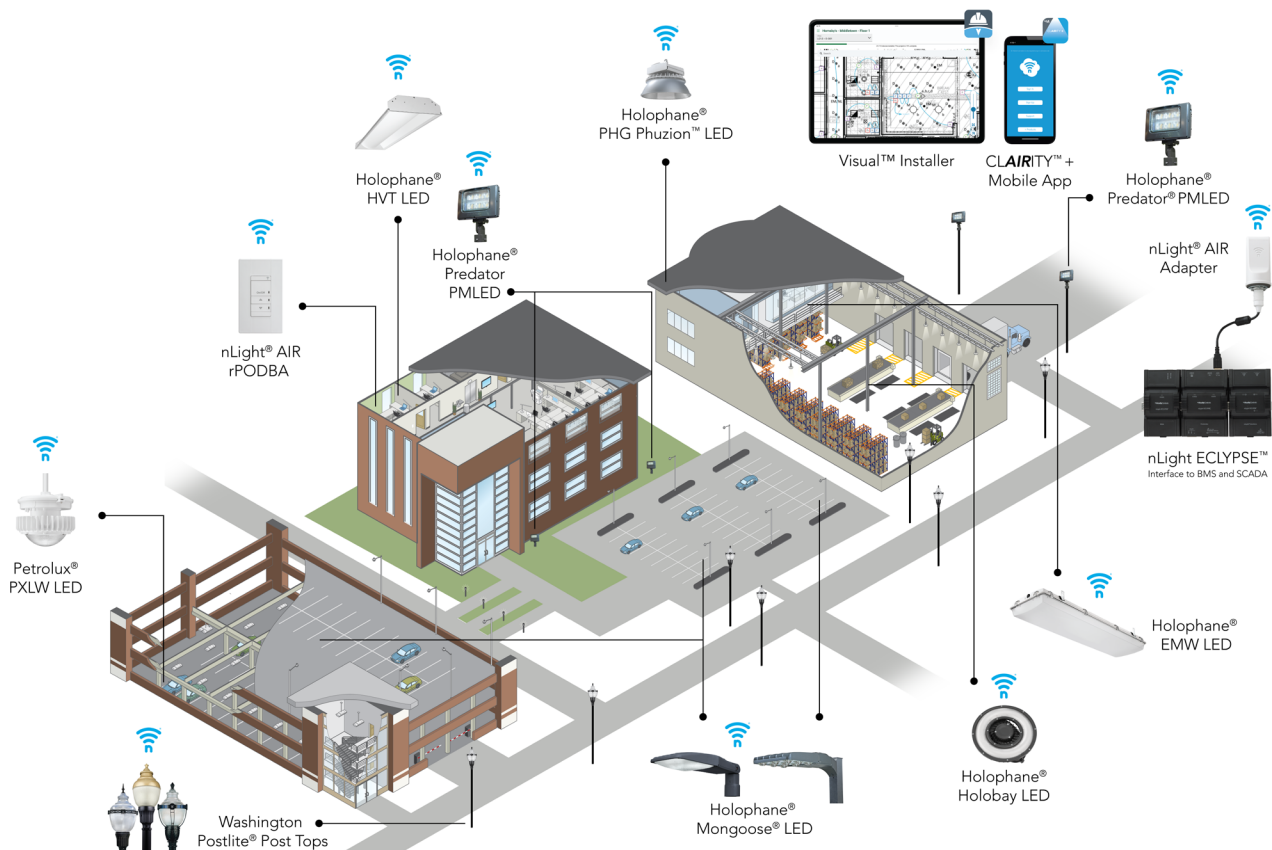
## Connected

Connects light fixtures, sensors, and other control devices to create a digital network with unmatched flexibility. Integrate with building management systems leveraging BACnet® capabilities.



## Secure

Our commitment to security incorporates core principles and best practices early into the product development lifecycle and governance policies that meet industry best practices and guidelines.



















# YOUR OUTDOOR LIGHTING SOLUTIONS

Proper illumination levels help deter unwanted access and ensure a well-lit environment for your personnel. Combined with light levels can be adjusted when personnel are present while limiting light trespass to the surrounding community. Additionally, motion detectors contribute to even greater energy savings.









TYPE	FIXTURE	INDUSTRY RATINGS*	DESCRIPTION
Large Area Lighting		IP66, CSA, DLC, -40F ((-40C) to 131°F (55° C)	The Holophane HMAO LED IV uses a modular chip design to provide a lightweight solution with up to 65% energy savings and 50% maintenance savings over traditional HID high mast products. Replaces up to 1,000 watt HPS.
		IP66, CSA, DLC, -40F ((-40C) to 104°F (40° C)	The Mongoose LED provides an energy-saving and sustainable solution that is easy to install with two sizes/form factors, three mounting options, and the ability to tilt the fixture. Replaces 150-1,000W HID shoebox and cobra head luminaires.
		UL, ASSHTO Wind Loadings	The Holophane Lowering Device high mast system has been the most reliable in applications such as Water Treatment Plants, ports, highways, correctional facilities and railroads. Poles range from 50' to 150'.
Perimeter and Wall Mounted Lighting		IP66, CSA, DLC, -40F ((-40C) to 104°F (40° C)	The WallConnect™ offers excellent performance, ease of maintenance, and typically require fewer units to achieve light level requirements at your facility. Replaces up to 400W HID.
Security Zones and Flood Lighting		IP66, CSA, DLC, -40F ((-40C) to 104°F (40° C)	The Predator LED floodlight provides cutting edge optics and LED technology to deliver optimal performance and uniformity in applications such as perimeter and security lighting. Replaces up to 1,000W HID Floods. Recommended models: PSLED, PLLED, PMLD
		IP66, CSA, DLC, -40F ((-40C) to 104°F (40° C)	The 75LED Utility Floodlight offers a value-driven solution for floodlighting applications where reliability, high performance, simple installation and hassle-free maintenance must be balanced with initial cost of installation. Replaces 100-400W HID.
		IP66, CSA, DLC, -40F ((-40C) to 104°F (40° C)	The ACP LED industrial utility floodlight is a robust but affordable solution that provides exceptional illumination while reducing energy and maintenance costs for a long system life. Replaces 100-1,000W HID. Recommended models: APC1, ACP2, ACP0
Roadways and Parking		IP66, CSA, DLC, -40F ((-40C) to 104°F (40° C)	The AutoConnect™ portfolio provides best-in-class performance, with DTL® controls and next-generation DALI® digital drivers. Replaces 50-400W HID.
		IP66, CSA, DLC, -40F ((-40C) to 104°F (40° C)	The Autobahn family is available in seven economical form factors & sizes to provide flexible design options for cobrahead replacement in any roadway and area application. Available in Seven Sizes and Ten Styles. Replaces 70W to 400W HID.
		IP66, CSA, DLC, -40F ((-40C) to 104°F (40° C)	The Mongoose LED provides an energy-saving and sustainable solution with features easy to install in two sizes/form factors, three mounting options, and the ability to tilt the fixture. Replaces 150-1,000W HID shoebox and cobra head luminaires.
Walkways and Basin Areas		IP66, Marine -40°C to 65°C CSA, NEMA4X, DLC	Petrol(R) PXLW LED Round Low Bay is the optimal cost-efficient, light weight, feature-packed solution for the demanding environments where dust, dirt, and moisture are a concern. Recommended model: PXLW, PXHW
		IP66, CSA, DLC, -40F ((-40C) to 104°F (40° C)	The 75LED Utility Floodlight offers a value-driven solution for floodlighting applications where reliability, high performance, simple installation and hassle-free maintenance must be balanced with initial cost of installation. Replaces 100-400W HID.
		IP66, CSA, DLC, -40F ((-40C) to 104°F (40° C)	The 245L Contemporary LED Post-Top offers excellent optical control and heat dissipation to give you a beautiful, efficient lighting source. Replaces up to 150 watt HPS.
Canopy and Open Air		IP66, CSA, DLC, -40F ((-40C) to 104°F (40° C)	The Parkpak LED luminaire can be applied for ceiling, wall, pole or swivel pendant mounting arrangements in parking garages, overhead canopies, walkways, parking areas and building perimeters because of its small, low profile footprint and weight. Replaces up to 250W HID.

\* Verify exact fixture for specific rating



# WE UNDERSTAND THE CHALLENGES YOU FACE

	CHALLENGES	SOLUTIONS
	<b>Worker Safety &amp; Productivity</b>	Proper lighting improves facility and site visibility, reduces maintenance, and creates a better, safer work environment
	<b>Facility Security</b>	High quality exterior lighting enhances site security and deters potential intruders
	<b>Energy Savings</b>	Durable LED lighting and controls ensure electrical cost savings and greater environmental stewardship
	<b>Demanding Environments and Code Compliance</b>	Our robust luminaires and controls solutions are specifically designed and rated to perform in for your most challenging applications
	<b>Sustainable Operations</b>	Upgrading to high quality LED lighting and controls reduces operating costs and improves overall facility operations.
	<b>Capital Funding Constraints</b>	Holophane and its trusted partners can provide options for funding and project delivery, so that you can reap the operational benefits of solid state lighting.
















# YOUR INDOOR LIGHTING SOLUTIONS

Uniform lighting within your indoor facilities helps keep personnel safe and productive. Combined with occupancy sensing controls, light levels can be adjusted when personnel are present to maximize energy savings.

See the specific offering from our recommended models for hazardous and demanding conditions that fit the locations within your facility.



TYPE	FIXTURE	INDUSTRY RATINGS*	DESCRIPTION
Processing Areas		IP65, IP66-40°F (-40°C) to 176°F (80°C) CSA, IK, NSF, DLC	The HOLOBAY™ highbay provides exceptional light output and long life in high ambient temperatures featuring the latest LED technology and Holophane's prismatic borosilicate glass. Replaces 250-1,000W HID
		IP66 -40F (-40C) to 131F (55C), C1D1, C1D2, C2D2, C3, NEMA 3 and 4X	The PHV High Bay was created to solve even the most challenging industrial applications. This fixture's unique tilting capability allows for customized light distribution in any space and delivers true industrial tings and listings. Replaces 250-1,000W HID
Mechanical Rooms		IP65, IP66-40°F (-40°C) to 149°F (65°C) CSA, NEMA 4X, IK, NSF, DLC	Holophane Linear Solutions are perfect for heavy industrial applications specially designed for wet, damp, and cold storage locations where strength and toughness are required. Recommended models: EMS, EMW, HRTC, EMX, HZ, EMXH,
Underground Tunnels		IP65, IP66, IP67, IP69K -40°F (-40°C) to 149°F (65°C) C1D2, C2D2, C3 CSA, NEMA 4X, IK, NSF, DLC IK, NSF, DLC	Holophane Linear Solutions are perfect for heavy industrial applications specially designed for wet, damp, and cold storage locations where strength and toughness are required. Recommended models: EMX, EMXH, EMX, EMXH
		IP65, IP66, IP67, Marine -40°F (-40°C) to 149°F (65°C) CSA, NEMA 4X, IK, DLC	Petrolux® PXLW LED Round Low Bay is the optimal cost-efficient, light weight, feature-packed solution for the demanding environments where dust, dirt and moisture are a concern. Recommended model: PXLW, PXHW
Warehouse/ Shops		IP65 -40°F (-40°C) to 131°F (55°C) CSA, IK, DLC	The PHG® high bay provides exceptional light output and long life in high ambient temperatures featuring the latest LED technology and Holophane's prismatic borosilicate glass. Replaces 175-400W HID.
		IP65, IP66-40°F (-40°C) to 176°F (80°C) CSA, IK, NSF, DLC	The HOLOBAY™ highbay provides exceptional light output and long life in high ambient temperatures featuring the latest LED technology and Holophane's prismatic borosilicate glass. Replaces 250-1,000W HID
Hazardous and Demanding Conditions		IP65, IP66, IP67, Marine -40°F (-40°C) to 149°F (65°C), C1D1, C1D2, C2D1, C2D2, C3, CSA, NEMA 4X, IK, DLC	The Petrolux family of high and low bays from Holophane is your go-to solution for demanding environments and is the optimal cost-efficient, feature-packed solution for demanding environments where dust, dirt and moisture are a concern. Replaces 250-400W HID. Recommended models: PXHH, PXLH (Hazardous), PXLW, PXHW
Emergency and Exit		IP66, NEMA 4X, NSF listed Meets UL 924, NFPA 101, NEC and OSHA illumination standards	The DeSoto™ DSL46 is NEMA 4X, IP66 and NSF rated providing protection in hose-down or harsh environments where moisture, dirt and dust would limit the life of ordinary emergency lighting. 90 minute rated.
		UL Listed, NOM certified, NEMA 4X ratings, NSF certified, Meets UL 924, NFPA 101, NEC and OSHA illumination standards	The DeLeon DLT LX is ideal for high-abuse, cold weather and wet location applications.
		UL damp location listed Meets UL 924, NFPA 101, NEC and OSHA illumination standards	The Magellan QM LED Combo from Holophane is a great fit for above the door and other tight fit applications, offers universal mounting, and is damp location listed.

\* Verify exact fixture for specific rating



# BE PREPARED FOR ANYTHING. EVEN A POWER LOSS.

## IOTA® ILB Emergency Drivers

IOTA ILB integral constant power emergency drivers can be installed within enclosed and gasketed fixtures to deliver undiminishing emergency illumination for the required runtime. Output options range from 5W to 15W to deliver lumen levels suitable for standard ceiling heights or elevated luminaires.



## IOTA® IIS Central Inverters

IOTA IIS inverter systems deliver single-phase or three-phase emergency power to designated emergency circuits to operate emergency fixtures at full output during a loss of normal power. The IIS Inverter can be installed in areas away from moisture and humidity while still delivering up to 50kVA of emergency power to the facility's paths of egress.



# ACCESS EQUIPMENT THE EASY WAY



Swivelpole™ lowering poles allow you to eliminate the danger of accessing fixtures and equipment at hazardous heights. Say goodbye to scaffolding, elevated work platforms, and ladders that lead to time consuming and expensive repairs. With Swivelpole, you can respond to any equipment issues on site, hassle free, and without the need for access gear.

# WHAT YOU NEED TO KNOW ABOUT RATINGS FOR WATER TREATMENT PLANTS

## IP Ratings

FIRST DIGIT Degree of Protection against solid objects		SECOND DIGIT Degree of Protection against water	
0	Non-protected	0	Non-protected
1	Pro-TECTED against a solid object great than 50mm such as a hand	1	Protected against water dripping vertically
2	Protected against a solid object greater than 12mm such as a finger	2	Protected against dripping water when incident up to 150 from vertical
3	Protected against a solid object great than 2.5mm such as a wire or a tool	3	Protected against water spraying at an angle of up to 60°
4	Protected against a solid object greater than 1.00mm such as a wire or thin strip	4	Protected against water splashing from any direction
5	Dust-protected, prevents ingree of dust sufficient to cause harm	5	Protected against jets of water from any direction (i.e. sink faucet with 0.2-5inch nozzle; 4 psi and 3.3 gal/min at 3-yards distance).
6	Dust-tight, no dust ingress	6	Protected against heavy seas or powerful jets in harmful quantities (i.e. 2.5-inch hose flow with 0.5-inch nozzle; 14.5 psi, 26 gal/min at 3-years distance).
		7	Protected against harmful ingress of water when immersed between a depth of 150mm and 1 meter for 30 minutes maximum
		8	Protected against submersion, suitable for continuous immersion in water
		9	Protected against close-range high pressure, high temperature spray downs (i.e. high temp pressure water & low flow; 80°C at 1450 psi and 3.5 gal/min at 0.5-foot distance) * IEC 60529 and ISO 20653

## Things to Remember

### Ingress protection is a self-certification

What does this mean? Self-certification means there is no governing body that certifies a manufacturer performed these tests properly or even at all. Anyone can say they tested to IP ratings without actually testing. Acuity Brands is a UL Certified testing facility. We take IP seriously and ensure we are compliant with the exact IEC and UL codes even going beyond the testing protocols to ensure our fixtures are protected.

### There are 3 standards for ingress protection that are all slightly different

- IEC 60529- general IP ratings for enclosures
- IEC 60596- IP ratings specific to luminaires
- ISO 20653- IP ratings specific to industrial tracking
- There are OTHER, oversea standards such as the DIN 40004 standard (since withdrawn) that manufactures can certify to.

## Degree of Protection Against Mechanical Impact

IEC 62262 - IK Rating System		
IKXX	Degree of Protection Against Mechanical Impact	Relative Measurement (approximate)
00	Non-protected	-
01	Protected against 0.14 joules impact	Impact strength of a half dollar coin (0.014kg) falling 1 meter
02	Protected against 0.20 joules impact	Impact strength of a AA-Battery (0.02kg) falling 1 meter
03	Protected against 0.35 joules impact	Impact strength of a car key fob (0.035kg) falling 1 meter
04	Protected against 0.5 joules impact	Impact strength of a golf ball (0.05kg) falling 1 meter
05	Protected against 0.7 joules impact	Impact strength of a C-Battery (0.07kg) falling 1 meter
06	Protected against 1.0 joules impact	Impact strength of an iPhone 8 (0.1kg) falling 1 meter
07	Protected against 2.0 joules impact	Impact strength of an iPhone 8+ (0.2kg) falling 1 meter
08	Protected against 5.0 joules impact	Impact strength of a football (0.5kg) falling 1 meter
09	Protected against 10.0 joules impact	Impact strength of a baseball bat (1kg) falling 1 meter
10	Protected against 20.0 joules impact	Impact strength of a 2L soda (2kg) falling 1 meter
10+	Protected against 30.0 joules impact	Impact strength of a 2L soda (2kg) falling 1 meter



# Hazardous Classes, Divisions and Groups

## CLASS - Defines nature of hazardous material in the environment

### Class I - Gas

Presence of flammable gases or vapors may be present in sufficient quantities to protect explosive/ignitable mixtures

#### Typical Class II Locations

Petroleum refineries, dispensing areas, petrochemical companies, aircraft hangers/fuel serving areas, industrial firms with dip tanks, utility gas plans, waster water treatment.

### Class II - Dust

Presence of combustible dust

#### Typical Class II Locations

Grain elevators, flour, feed mills, producers of plastics, medicines, fireworks, etc., coal preparation plants, food processing facilities.

### Class III - Fibers

Presence of ignitable fibers - materials produced contain combustible flyings.

#### Typical Class III Locations

Textile mills, cotton gins, seed mills, wood processing

## DIVISION- Defines probability of hazardous material being able to produce explosive or ignitable mixture based upon its presence

### Division 1 - Normally Hazardous

High probability of producing an explosive or ignitable mixture due to hazardous material being present continuously or periodically under normal operating conditions.

### Division 2 - Not Normally Hazardous

Low probability of producing an explosive or ignitable mixture and its present only during abnormal conditions for a short period of time.

## GROUP - Defines type of hazardous material

### Groups A, B, C, D

Ignition temperature and explosive pressure

### Groups E, F, G

Dust grouped according to ignition temperature and conductivity of the hazardous surface

HAZARDOUS AREA ELECTRICAL GUIDELINES					
	Substance	Typical Environments	US Classifications	Group Classifications	Volatility
CLASS I	Flammable Gases, Vapors or Liquids (Acetylene, Hydrogen, Ether, Gasoline)	WTP Applications ■ Chemical Storage ■ Screen Rooms ■ Head Works ■ Process Rooms ■ Ariation Basins ■ Sedimentation	<b>Div 1: Always Present</b> Hazardous material is continuously present in the space	A = Acetylene B= Hydrogen C= Ether D = Gasoline	
			<b>Div 2: Not Normally Present</b> Hazardous material can be present due to unusual operation		
CLASS II	Combustible Dust Areas with combustible dust (Metal [Div. 1 Only], Coal, Grain)	■ Coal Mines ■ Coal Power Plants ■ Grain Silo ■ Flour Processing ■ Munitions ■ Grass See Storage	<b>Div 1: Always Present</b> Hazardous material is continuously present in the space	E = Metal Dust F= Coal Dust G= Grain Dust	
			<b>Div 2: Not Normally Present</b> Hazardous material can be present due to unusual operation		
CLASS III	Ignitable Fibers and Flyings Areas with ignitable fibers	■ Pulp and Paper Mill ■ Woodworking Facility ■ Textile Mill ■ Cotton Gin	<b>Div 1: Always Present</b> Hazardous material is continuously present in the space	N/A	
			<b>Div 2: Not Normally Present</b> Hazardous material can be present due to unusual operation	N/A	

\* Regulated by UL 844/NEC 500-503/CEC Section 18 & IEC60079/NEC 505-506

## What Are T-Codes and What Does the Temperature Rating Mean?

- T-codes are the rating the fixture receives so that the surface temp of the fixture does not reach 80% of the auto ignition temperature of the material present in the space
- T6 code means that when a fixture is installed at or below it's UL Ambient rating, the fixtures surface temp will not exceed 185F/85C and will not auto-ignite hazardous materials
- Higher T-code number means the luminaire has a lower surface temp and more application possibilities for the fixture

T-Code	Max. Surface Temperature (°F/°C)		T-Code	Max. Surface Temperature (°F/°C)	
T1	840	450	T3A	356	180
T2	572	300	T3B	329	165
T2A	536	280	T3C	320	160
T2B	500	260	T4	275	135
T2C	446	230	T4A	248	120
T2D	419	215	T5	212	100
T3	392	200	T6	185	85



## LIGHTING SOLUTIONS THAT WORK FOR YOU

Our team of highly trained sales professionals are located throughout the country and are ready to assist you at your facility.

Contact us for help with:

- Coordinated site visits and project support
- Audit and lighting recommendations
- Lighting and controls system design assistance
- Education and training
- Proposal and business case response support
- Contract submittals
- Commissioning support
- Technical, and Field service support

Contact Your Expert Today

