WELCOME

TITLE 24 REQUIREMENTS & THE MAXLITE PRODUCT LINE

9/5/14 Webinar

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MAXLITE PRESENTS:
TITLE 24 REQUIREMENTS & THE MAXLITE PRODUCT LINE

- Indoor Title 24:
  - Section 130.0 – General requirements for interior lighting
  - Section 130.1 – Indoor lighting controls
    - 130.1(a) – Area controls
    - 130.1(b) – Multi-level lighting controls
    - 130.1(c) – Shut-off lighting controls
    - 130.1(d) – Automatic daylighting controls
    - 130.1(e) – Demand responsive controls
  - Section 140.6 – Indoor lighting
  - MaxLite's Indoor Title 24 Product Line
- Outdoor Title 24:
  - Section 130.2 – Outdoor lighting controls & equipment
  - Section 130.4 – Lighting control acceptance & certificate requirements
  - Section 130.7 – Outdoor lighting
  - MaxLite's Outdoor Title 24 Product Line
- Other Resources
- Title 24 Product List & FAQ
- T24 Contact

Title 24
A Few Comments First

- **1.)** Compliance to a standard via performance and confirmed at plan check and commissioning. The burden of compliance is on architects, builders and owners.
- **2.)** T24 is not a fixture qualification system, there is no qualified product list, only products that can help meet project qualification.
- **3.)** Note: controls themselves have to comply with Title 20.
- **4.)** T24 is not a fixture qualification system for Commercial applications, but does have a qualification system for Residential Indoor applications.
- **5.)** Residential applications will not be part of this presentation.

Section 130.0
General Requirements For Interior Lighting

- **(a) Must comply with sections 130.0 thru 130.5**
- **(b) Residential only areas:**
  - **1.) High-rise residential dwelling units.**
  - **2.) Outdoor lighting that is attached to a high-rise residential or hotel/motel building, and is separately controlled from the inside of a dwelling unit or guest room.**
  - **3.) Fire station dwelling accommodations.**
  - **4.) Hotel and motel guest rooms.**
  - **5.) Dormitory and Senior housing dwelling accommodations.**
- **(c) Luminaire classification and power**

This section specifies three overall requirements:

1.) What additional sections are mandatory

2.) What spaces need only meet the residential provisions; however, in buildings containing these functional areas, all other functional areas not listed here, such as common areas, shall comply with the applicable nonresidential lighting Standards.

3.) Source type–by–source type, the last section covers how to determine the wattage of a luminaire (for purposes of calculating the installed lighting power) and how the luminaires must be labeled and by whom.

Section 130.1(a)
Area Controls

- **Manual ON/OFF**
- **Each Space Independently Controlled/Same Room**
- **Emergency Egress Limit of 0.2W/sq.ft**
- **Dimmable Luminaires**

Let's now look at the requirements for 'Area' lighting controls.

1.) All luminaires will have manually switched ON/OFF capability

2.) The general lighting in each enclosed space shall be independently controlled and, with certain exceptions, the control shall be in the same room as the lighting.

3.) Under certain conditions, up to 0.2 watts per square foot of lighting in any area within a building may be continuously illuminated during occupied times to allow for emergency egress

4.) If controlling dimmable luminaires, a dimmer switch must allow manual ON and OFF functionality, and be capable of manually controlling lighting through all lighting control steps that are required in Section 130.1(b).

Section 130.1(a)
Area Controls (cont.)

- **Exceptions to accessibility and same room requirements**
  - **Malls, auditoriums, sales floors, industrial facilities, convention centers and arenas**
  - **Public restrooms having two or more stalls**
- **Additional lighting controls**
- **Separately controlled lighting systems**
  - **General vs. other**
  - **Display, ornamental and special effect**
  - **Track lighting**

5.) Some notable exceptions to the requirements about controls being accessible and being in the same room with the lighting include: In malls, auditoriums, retail and wholesale sales floors, industrial facilities, convention centers, and arenas, the lighting control shall be located so that a person using the lighting control can see the lights or area controlled by that lighting control, or so that the area being lit is annunciated.

Public restrooms having two or more stalls may use a captive key override or other manual switch not accessible to unauthorized personnel

6.) Other lighting controls may be installed in addition to the manual lighting controls provided they do not override the required functionality

Section 130.1(a)
Area Controls (cont.)

- **Exceptions to accessibility and same room requirements**
  - **Malls, auditoriums, sales floors, industrial facilities, convention centers and arenas**
  - **Public restrooms having two or more stalls**
- **Additional lighting controls**
- **Separately controlled lighting systems**
  - **General vs. other**
  - **Display, ornamental and special effect**
  - **Track lighting**

7.) We also see that:

a.) General lighting shall be separately controlled from all other lighting systems in an area.

b.) Floor and wall display, window display, case display, ornamental, and special effects lighting shall each be separately controlled on circuits that are 20 amps or less.

c.) When track lighting is used, general, display, ornamental, and special effects lighting shall each be separately controlled.

Section 130.1(b)
Multi-level Lighting Controls

- If:
  - General lighting
  - Enclosed area ≥ 100 sq.ft
  - Connect lighting load ≥ 0.5W/sq.ft
- Then:
  - Table 130.1-A
  - Do not override
  - Each luminaire controlled by at least one of these methods:
    - Manual dimming per 130.1(a)
    - Lumen maintenance
    - Tuning
    - Automatic daylight controls per 130.1(d)
    - Demand responsive control per 130.1(e)

The general lighting of any enclosed area 100 square feet or larger, with a connected lighting load that exceeds 0.5 watts per square foot shall meet the following requirements:

Section 130.1(b)
Multi-level Lighting Controls (cont.)

- Lighting shall have the required number of control steps and meet the uniformity requirements in accordance with TABLE 130.1-A; and

- Multi-level lighting controls shall not override the functionally of other lighting controls required for compliance with Sections 130.1(a), and (c) through (e); and

- Each luminaire shall be controlled by at least of one of the following methods:
  A.) Manual dimming meeting the applicable requirements of Section 130.1(a)
  B.) Lumen maintenance
  C.) Tuning
  D.) Automatic daylighting controls in accordance with Section 130.1(d)
  E.) Demand responsive lighting controls in accordance with Section 130.1(e)

EXCEPTIONS:

- Classrooms, with a connected general lighting load of 0.7 watts per square feet and less, shall have at least one control step between 30-70 percent of full rated power.

- An area enclosed by ceiling height partitions that has only one luminaire with no more than two lamps

Section 130.1(b)
Multi-level Lighting Controls (cont.)

Here is Table 130.1-A referenced in the previous slide.

We see, for example, that an LED luminaire must have continuous dimming that ranges at least from 20% to 100%.

Luminaire Type	Minimum Required Control Steps (percent of full rated power[1])				Uniform level of illuminance shall be achieved by:
Line-voltage sockets except GU-24	Continuous dimming 10-100 percent				
Low-voltage incandescent systems					
LED luminaires and LED source systems					
GU-24 rated for LED					
GU-24 sockets rated for fluorescent > 20 watts	Continuous dimming 20-100 percent				
Pin-based compact fluorescent > 20 watts[2]					
GU-24 sockets rated for fluorescent ≤ 20 watts	Minimum one step between 30-70 percent				Stepped dimming; or Continuous dimming; or Switching alternate lamps in a luminaire
Pin-based compact fluorescent ≤ 20 watts[2]					
Linear fluorescent and U-bent fluorescent ≤ 13 watts					
Linear fluorescent and U-bent fluorescent > 13 watts	Minimum one step in each range:				Stepped dimming; or Continuous dimming; or switching alternate lamps in each luminaire, having a minimum of 4 lamps per luminaire, illuminating the same area and in the same manner
	20-40 %	50-70 %	80-85 %	100 %	
Track Lighting	Minimum one step between 30 – 70 percent				Step dimming; or Continuous dimming; or Separately switching circuits in multi-circuit track with a minimum of two circuits.
HID > 20 watts	Minimum one step between 50 - 70 percent				Stepped dimming; or Continuous dimming; or Switching alternate lamps in each luminaire, having a minimum of 2 lamps per luminaire, illuminating the same area and in the same manner.
Induction > 25 watts					
Other light sources					

1. Full rated input power of ballast and lamp, corresponding to maximum ballast factor
2. Includes only pin based lamps: twin tube, multiple twin tube, and spiral lamps

Section 130.1(c)
Shut-off lighting controls

- All installed Indoor Lighting
- Countdown Timer Switches
- Automatic Time Switch Control (other than occ sensor)
- Required Occupancy Sensors
- Required Partial ON/OFF Occupancy Sensors
- Hotel/Motel Guest Rooms

Here we see the list of auto shutoff controls we will cover in the next few slides.

Section 130.1(c)1
All Installed Indoor Lighting

- Auto Off When Typically Unoccupied
- Only One Floor per control
- 5,000 sq.ft Threshold
  - Exception: Malls, etc.
- Separate Controls
- Exceptions:
  - Continuous use
  - Compliance with 130.1(c)5 or 130.1(c)7
  - Emergency egress in office buildings up to 0.05W/sq.ft
  - Electrical equipment rooms

All installed indoor lighting:

- Shall be controlled with an occupant sensing control, automatic time-switch control, signal from another building system, or other control capable of automatically shutting OFF all of the lighting when the space is typically unoccupied; and
- Shall use separate controls for the lighting on each floor; and
- Shall use separate controls for general, display, ornamental, and display case lighting. And
- Shall use separate controls for a space enclosed by ceiling height partitions not exceeding 5,000 square feet;
  EXCEPTION: In the following function areas the area controlled may go up to 20,000 square feet: Malls, auditoriums, single tenant retail, industrial, convention centers, and arenas,

Section 130.1(c)1
All Installed Indoor Lighting (cont.)

- Auto Off When Typically Unoccupied
- Only One Floor per control
- 5,000 sq.ft Threshold
  - Exception: Malls, etc.
- Separate Controls
- Exceptions:
  - Continuous use
  - Compliance with 130.1(c)5 or 130.1(c)7
  - Emergency egress in office buildings up to 0.05W/sq.ft
  - Electrical equipment rooms

EXCEPTIONS to this provision in general include:

- Where the lighting is serving an area that is in continuous use, 24 hours per day/365 days per year.
- Lighting complying with Section 130.1(c)5, or 7.
- In office buildings, up to 0.05 watts per square foot of lighting in any area within a building may be continuously illuminated, provided that the area is designated an emergency egress area on the plans and specifications submitted to the enforcement agency.
- Electrical equipment rooms subject to Article 110.26(D) of the California Electric Code.

Section 130.1(c)2
Countdown Timer Switches

- **May not be used to comply with 130.1(c)1**
  - **Exceptions:**
    - **Single-stall bathrooms and closets less than 70 square feet (10 minutes)**
    - **Lighting in a server aisle in a server room (30 minutes)**

Countdown timer switches shall not be used to comply with the automatic shut-OFF control requirements in Section 130.1(c)1 above except for:

1.) Single-stall bathrooms less than 70 square feet, and closets less than 70 square feet may use countdown timer switches with a maximum setting capability of ten minutes.

2.) Lighting in a Server Aisle in a Server Room, as defined in Section 100.1, may use countdown timer switches with a maximum setting capability of 30 minutes

Section 130.1(c)3,4,5
Override, Holidays & Required Occupancy Sensors

- **Override required but ≤ 2 hours**
- **Automatic holiday shutoff required**
- **Occupancy Sensors:**
  - **In offices 250 square feet or smaller,**
  - **Multipurpose rooms of less than 1,000 square feet,**
  - **Classrooms, and conference rooms**
- **Manual Shut-off capability**

If an automatic time-switch control, other than an occupant sensing control, is installed to comply with Section 130.1(c)1, it shall incorporate an override lighting control that allows the lights to remain on for no more than 2 hours (longer in certain space types such as a mall or an auditorium).

That same control shall also incorporate an automatic holiday "shut-OFF" feature that turns OFF all loads for at least 24 hours, and then resumes the normally scheduled operation. Again, an exception is granted to certain space types such as retail stores and restaurants.

In the following spaces, lighting shall be controlled with occupant sensing controls to automatically shut OFF all of the lighting when the room is unoccupied. In addition, controls shall be provided that allow the lights to be manually shut-OFF in accordance with Section 130.1(a) regardless of the sensor status.

- In offices 250 square feet or smaller,
- multipurpose rooms of less than 1,000 square feet,
- classrooms, and conference rooms

Section 130.1(c)6,7
Required Partial On/Off

- In Addition To 130.1(c)1
  - Aisles and open areas in warehouses
  - Library stacks
  - Corridors & stairwells
- Instead of 130.1(c)1
  - Access to guestrooms & dwelling units
  - Parking garages/areas

The following are required in addition to section 130.1(c)1 above:

A.) In aisle ways and open areas in warehouses, lighting shall be controlled with occupant sensing controls that automatically reduce lighting power by at least 50 percent when the areas are unoccupied. The occupant sensing controls shall independently control lighting in each aisle way, and shall not control lighting beyond the aisle way being controlled by the sensor. Some exceptions exist

B.) In library book stack aisles 10 feet or longer that are accessible from only one end, and library book stack aisles 20 feet or longer that are accessible from both ends, lighting shall be controlled with occupant sensing controls that automatically reduce lighting power by at least 50 percent when the areas are unoccupied. The occupant sensing controls shall independently control lighting in each aisle way, and shall not control lighting beyond the aisle way being controlled by the sensor.

C.) Lighting installed in corridors and stairwells shall be controlled by occupant sensing controls that separately reduce the lighting power in each space by at least 50 percent when the space is unoccupied. The occupant sensing controls shall be capable of automatically turning the lighting fully ON only in the separately controlled space, and shall be automatically activated from all designed paths of egress. Also, occupancy sensors are required in certain areas (such as certain stairwells and parking garage areas) INSTEAD of 130.1(c)1.

Section 130.1(c)8
Hotel/Motel Guestrooms

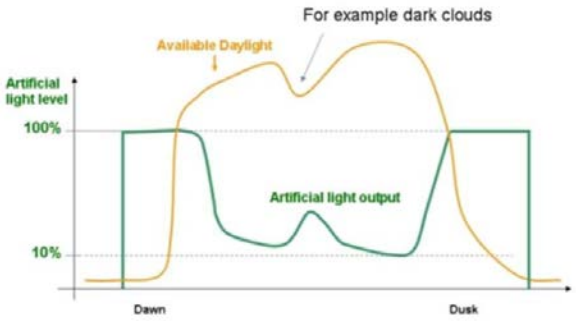
- **30 Minutes By:**
  - **Captive key**
  - **Occupancy sensors**
  - **Other automatic control**
- **Exception:**
  - **One high efficacy luminaire**

Hotel & motel guest rooms shall have captive card key controls, occupancy sensing controls, or automatic controls such that, no longer than 30 minutes after the guest room has been vacated, lighting power is switched off.

There is an exception when one high efficacy luminaire as defined in TABLE 150.0-A or 150.0-B is switched separately and where the switch is located within 6 feet of the entry door.

Section 130.1(d)
Automatic Daylighting Controls

- **Daylit Zones**
- **Luminaire Control**
  - **Separation of control**
  - **# of control steps**
  - **Level of illuminance**
  - **Exceptions**
- **Parking Garages**



Daylit zones are defined in the standard. This includes definitions for:

- Skylit daylit zones,
- Primary sidelit daylit zones, and
- Secondary sidelit daylit zones

Luminaires providing general lighting that are in or are partially in the Skylit Daylit Zones or the Primary Sidelit Daylit Zones shall be controlled independently by fully functional automatic daylighting controls that meet Section 110.9, and the following requirements:

- All Skylit Daylit Zones and Primary Sidelit Daylit Zones shall be shown on the plans.
- Luminaires in the Skylit Daylit Zone shall be controlled separately from those in the Primary Sidelit Daylit Zones.
- Luminaires that fall in both a Skylit and Primary Sidelit Daylit Zone shall be controlled as part of the Skylit Daylit Zone.

Section 130.1(d)
Automatic Daylighting Controls (cont.)

For luminaires in daylight zones, automatic daylighting controls shall be installed and configured to operate according to all of the following requirements:

1.) Photosensors shall be located so that they are not readily accessible to unauthorized personnel, and the location where calibration adjustments are made to an automatic daylighting controls shall not be readily accessible to unauthorized personnel.

2.) Automatic daylighting controls shall provide functional multi-level lighting having at least the number of control steps specified in TABLE 130.1-A. (note: there are some exceptions to this)

3.) For each space, the combined illuminance from the controlled lighting and daylight shall not be less than the illuminance from controlled lighting when no daylight is available.

4.) In areas served by lighting that is daylight controlled, when the illuminance received from the daylight is greater than 150 percent of the design illuminance received from the general lighting system at full power, the general lighting power in that daylight zone shall be reduced by a minimum of 65 percent.

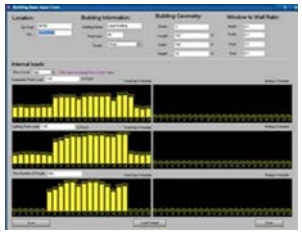
EXCEPTIONS to this provision overall include:

- Rooms in which the combined total installed general lighting power in the Skylit Daylit Zone and Primary Sidelit Daylit Zone is less than 120 Watts.
- Rooms which have a total glazing area of less than 24 square feet.
- Parking garages complying with Section 130.1(d)3.

See standard for full details on parking garage requirements.

Section 130.1(e)
Demand Responsive Controls

- **15% Reduction for Buildings > 10,000 sq.ft**
- **Exceptions:**
  - **Non-habitable spaces**
  - **Spaces with an LPD < 0.5W/sq.ft**



Lighting power in buildings larger than 10,000 square feet shall be capable of being automatically reduced in response to a demand responsive signal; so that the building's total lighting power can be lowered by a minimum of 15 percent below the maximum total lighting power.

Lighting shall be reduced in a manner consistent with uniform level of illumination requirements in TABLE 130.1-A.

Spaces that are non-habitable shall not be used to comply with this requirement, and spaces with a lighting power density of less than 0.5 watts per square foot shall not be counted toward the building's total lighting power.

Section 140.6
General Compliance Path

- **A building complies with this section if:**
  - **Actual ≤ Allowed**
  - **Comply with the Automatic Daylighting Controls in Secondary Daylit Zones**

In the first part of this section, the standard establishes that the building complies with this section, wrt to indoor lighting, as long as the combined actual lighting power is no greater than that allowed and..

As long as the lighting controls comply with subsection (d) wrt secondary daylit zones.

Section 140.6(a)
Calculation Of Actual Indoor LPD

- **Two Interlocked Lighting Systems**
- **Reduction of Wattage thru Controls**
- **Lighting Wattage Exclusions**

In the next few slides we will cover, when making the indoor LPD computations:

- How to handle interlocking lighting systems, and
- How the wattage can be reduced thru controls

Also, this section of the standard shows a long list of applications, such as theme or visual effect lighting in theme parks, that is exempt from the calculation.

Section 140.6(a)1
Two Interlocked Lighting Systems

- **In certain spaces:**
  - **No more than two lighting systems may be used for an area and, if there are two, they must be interlocked. Where there are two interlocked lighting systems, the watts of the lower wattage system may be excluded from the actual indoor Lighting Power Density.**
  - **If interlocked with a Nonprogrammable Double-Throw Switch to prevent simultaneous operation of both systems.**

No more than two lighting systems may be used for an area and, if there are two, they must be interlocked.

Where there are two interlocked lighting systems, the watts of the lower wattage system may be excluded from the actual indoor Lighting Power Density if:

A.) An Installation Certificate detailing compliance with Section 140.6(a)1 is submitted; and

B.) The area or areas served by the interlocking systems is an auditorium, a convention center, a conference room, a multipurpose room, or a theater; and

C.) The two lighting systems are interlocked with a Nonprogrammable Double-Throw Switch to prevent simultaneous operation of both systems.

Section 140.6(a)2
Reduction of Wattage Thru Controls

- **Application of the PAF under certain conditions.**

In calculating actual indoor Lighting Power Density, the installed watts of a luminaire providing general lighting in an area listed in TABLE 140.6-A may be reduced by the product of (i) the number of watts controlled as described in TABLE 140.6-A, times (ii) the applicable Power Adjustment Factor (PAF), if the long list of requirements found in the standard are complied with.

Section 140.6(a)
Lighting Power Density Adjustment Factors (PAF)

TYPE OF CONTROL		TYPE OF AREA		FACTOR
a. To qualify for any of the Power Adjustment Factors in this table, the installation shall comply with the applicable requirements in Section 140.6(a)2 b. Only one PAF may be used for each qualifying luminaire unless combined below. c. Lighting controls that are required for compliance with Part 6 shall not be eligible for a PAF				
1. Partial-ON Occupant Sensing Control		Any area ≤ 250 square feet enclosed by floor-to-ceiling partitions; any size classroom, conference or waiting room.		
2. Occupant Sensing Controls in Large Open Plan Offices		In open plan offices > 250 square feet: One sensor controlling an area that is:	No larger than 125 square feet	0.40
			From 126 to 250 square feet	0.30
			From 251 to 500 square feet	0.20
3. Dimming System	Manual Dimming	Hotels/motels, restaurants, auditoriums, theaters		0.10
	Multiscene Programmable			0.20
4. Demand Responsive Control		All building types less than 10,000 square feet. Luminaires that qualify for other PAFs in this table may also qualify for this demand responsive control PAF		0.05
5. Combined Manual Dimming plus Partial-ON Occupant Sensing Control		Any area ≤ 250 square feet enclosed by floor-to-ceiling partitions; any size classroom, conference or waiting room		0.25

And here we see table 140.6-A showing the PAFs.

We see, as an example, that if we use an occupancy sensor in an open plan office area that is less than 125 sq.ft, we get to reduce our watts for that area by 40%.

Section 140.6(b)
Calculation Of Allowed Indoor LPD

- **Complete Building Method**
- **Area Category Method**
- **Tailored Method**

The allowed indoor Lighting Power Density for each building type, or each primary function area shall be calculated using only one of the methods in Subsection 1, 2 or 3 below as applicable.

- The Complete Building Method,
- The Area Category Method, OR
- The Tailored Method

Section 140.6(c)1
Complete Building Method

- **Only certain building types (see Table 140.6-B)**
- **Certain projects:**
  - **One occupancy**
  - **Mixed occupancy but one is ≥ 90%**
  - **Tenant space where one use is ≥ 90%**
  - **Parking garage exception**
- **Lighting permits/plans**
- **Allowance = LPD (table 146-E) X Floor Area**

The Complete Building Method shall be used only for building types, as defined in Section 100.1, that are specifically listed in TABLE 140.6-B. (For example, retail and wholesale stores, hotel/motel, and high-rise residential buildings shall not use this method.)

Section 140.6(c)1
Complete Building Method (cont.)

The Complete Building Method shall be used only on projects involving:

1.) Entire buildings with one type of use occupancy; or

2.) Mixed occupancy buildings where one type of use makes up at least 90 percent of the entire building (in which case, when applying the Complete Building Method, it shall be assumed that the primary use is 100 percent of the building); or

3.) A tenant space where one type of use makes up at least 90 percent of the entire tenant space (in which case, when applying the Complete Building Method, it shall be assumed that the primary use is 100 percent of the tenant space).

- However, if a parking garage plus another type of use listed in TABLE 140.6-B are part of a single building, the parking garage portion of the building and other type of use portion of the building shall each separately use the Complete Building Method.

The Complete Building Method shall be used only when the applicant is applying for a lighting permit and submits plans and specifications for the entire building or the entire tenant space.

Under the Complete Building Method, the allowed indoor Lighting Power allotment is the Lighting Power Density value in TABLE 146-E times the floor area of the entire building

Section 140.6(b)
Complete Building Method Lighting Power Density Values

TYPE OF BUILDING	ALLOWED LIGHTING POWER DENSITY (WATTS PER SQUARE FOOT)
Auditorium Building	1.5
Classroom Building	1.1
Commercial and Industrial Storage Building	0.6
Convention Center Building	1.2
Financial Institution Building	1.1
General Commercial Building/Industrial Work Building	1.0
Grocery Store Building	1.5
Library Building	1.3
Medical Building/Clinic Building	1.1
Office Building	0.8
Parking Garage Building	0.2
Religious Facility Building	1.6
Restaurant Building	1.2
School Building	1.0
Theater Building	1.3
All others buildings	0.6

And here we see the LPDs allowed under the Complete Building Method.
So, for example, a grocery store would be allowed 1.5 watts per square foot

Section 140.6(c)2
Area Category Method

- **Used only for certain primary function areas**
- **May not apply to complete building**
- **Include interior partitions in area calculations**
- **0.6 W/sq.ft for 'Unleased Tenant Area'**
- **Space Allowance = Space LPD x Space Area**
  - **Overall Allowance = Sum of Space Allowances**
- **Additional lighting power allowance**

The next method, the Area Category Method, shall be used only for certain primary function areas, as defined in Section 100.1, (see Table 140.6-C)

Primary Function Areas in TABLE 140.6-C shall not apply to a complete building. Each primary function area shall be determined as a separate area.

Where areas are bounded or separated by interior partitions, the floor area occupied by those interior partitions may be included in any Primary Function Area.

If at the time of permitting for a newly constructed building, a tenant is not identified for a multi-tenant area, a maximum of 0.6 watts per square foot shall be allowed for the lighting in each area in which a tenant has not been identified. The area shall be classified as Unleased Tenant Area.

Under the Area Category Method, the allowed indoor Lighting Power Density for each primary area is the Lighting Power Density value in TABLE 140.6-C times the square feet of the primary function. The total allowed indoor Lighting Power Density for the building is the sum of all allowed indoor Lighting Powers Densities for all areas in the building.

In addition to the allowed indoor Lighting Power Density calculated above, the building may add additional lighting power allowances for specialized task work, ornamental, precision, accent, display, decorative, and white boards and chalk boards, under certain conditions.

Section 140.6(c)
Area Category Method – Lighting Power Density Values

PRIMARY FUNCTION AREA		ALLOWED LIGHTING POWER (W/ft²)		PRIMARY FUNCTION AREA		ALLOWED LIGHTING POWER (W/ft²)
Auditorium Area		1.5 [3]		Library Area	Reading areas	1.2 [3]
Auto Repair Area		0.9 [2]			Stack areas	1.5 [3]
Beauty Salon Area		1.7		Lobby Area	Hotel lobby	1.1 [3]
Civic Meeting Place Area		1.3 [3]			Main entry lobby	1.5 [3]
Classroom, Lecture, Training, Vocational Areas		1.2 [5]		Locker/Dressing Room		0.8
Commercial and Industrial Storage Areas (conditioned and unconditioned)		0.6		Lounge Area		1.1 [3]
Commercial and Industrial Storage Areas (refrigerated)		0.7		Malls and Atria		1.2 [3]
Convention, Conference, Multipurpose and Meeting Center Areas		1.4 [3]		Medical and Clinical Care Area		1.2
Corridor, Restroom, Stair, and Support Areas		0.6		Office Area	> 250 square feet	0.75
Dining Area		1.1 [3]			≤ 250 square feet	1.0
Electrical, Mechanical, Telephone Rooms		0.7 [2]		Parking Garage Area	Parking Area	0.14
Exercise Center, Gymnasium Areas		1.0			Dedicated Ramps	0.3
Exhibit, Museum Areas		2.0			Daylight Adaptation Zones [9]	0.6
Financial Transaction Area		1.2 [3]		Religious Worship Area		1.5 [3]
General Commercial and Industrial Work Areas	Low bay	0.9 [2]		Retail Merchandise Sales, Wholesale Showroom Areas		1.2 [6 and 7]
	High bay	1.0 [2]				
	Precision	1.2 [4]		Theater Area	Motion picture	0.9 [3]

And here we see the top half of the table showing the LPDs allowed under the Area Category Method.

As an example, we see that a reading area in a library area would be allowed 1.2 watts/sq.ft.

Please note the many footnotes in the table. For example the #3 footnote for our reading area tells us that this area is also allowed 0.5 watts/sq.ft in ornamental lighting.

Section 140.6(c)3
Tailored Method

- **Most complicated**
- **Depends on:**
  - **The IESNA illuminance task,**
  - **The room cavity ratio (RCR) of the space and**
  - **For display lighting, the throw distance**
- **Commonly used for retail lighting**

The tailored method is most complicated since it is based on the IESNA system of illuminance categories.

Lighting allowances depend on the IESNA illuminance task, the room cavity ratio (RCR) of the space, and for display lighting, the throw distance.

The tailored method is most commonly used for retail lighting. In this case, a separate lighting allowance is produced for general illumination, wall displays, and feature displays. See standard for full details.

Section 140.6(d)
Tailored Method Lighting Power Allowances

1	2	3	4	5
Primary Function Area	General Illumination Level (Lux)	Wall Display Power (W/ft)	Allowed Combined Floor Display Power and Task Lighting Power (W/ft²)	Allowed Ornamental/ Special Effect Lighting
Auditorium Area	300	2.25	0.3	0.5
Civic Meeting Place	300	3.15	0.2	0.5
Convention, Conference, Multipurpose, and Meeting Center Areas	300	2.50	0.4	0.5
Dining Areas	200	1.50	0.6	0.5
Exhibit, Museum Areas	150	15.0	1.2	0.5
Financial Transaction Area	300	3.15	0.2	0.5
Grocery Store Area	500	8.00	0.9	0.5
Hotel Function Area	400	2.25	0.2	0.5
Lobby Area:				
Hotel lobby	200	3.15	0.2	0.5
Main entry lobby	200	0	0.2	0
Lounge Area	200	7.00	0	0.5
Malls and Atria	300	3.50	0.5	0.5
Religious Worship Area	300	1.50	0.5	0.5
Retail Merchandise Sales, and Showroom Areas	400	14.00	1.0	0.5
Theater Area:				
Motion picture	200	3.00	0	0.5
Performance	200	6.00	0	0.5
Transportation Function Area	300	3.15	0.3	0.5
Waiting Area	300	3.15	0.2	0.5

And here we see the table for the tailored method.

Section 140.6(d)
Automatic Daylighting Controls In Secondary Daylit Zones

- **All luminaires in, or partially in, a Secondary Sidelit Daylit Zones and that is not in a Primary Sidelit Daylit Zones shall:**
  - **1.) Be controlled independently from all other luminaires by automatic daylighting controls; and**
  - **2.) Be controlled in accordance with the applicable requirements in Section 130.1(d)2; and,**
  - **3.) All Secondary Sidelit Daylit Zones shall be shown on the plans submitted to the enforcing agency.**
- **EXCEPTION 1: Luminaires in Secondary Sidelit Daylit Zone(s) in areas where the total wattage of general is less than 120 Watts.**
- **EXCEPTION 2: Luminaires in Parking garages complying with Section 130.1(d)3**

And then, for our last section wrt indoor lighting, all luminaires providing general lighting that is in, or partially in, a Secondary Sidelit Daylit Zones, and that is not in a Primary Sidelit Daylit Zones shall:

- Be controlled independently from all other luminaires by automatic daylighting controls; and
- Be controlled in accordance with the applicable requirements in Section 130.1(d)2; and,
- All Secondary Sidelit Daylit Zones shall be shown on the plans submitted to the enforcing agency.

RKT – Recessed Troffer Retrofit Kits

maxLED by MAXLITE

PROJECT NAME:_____ CATALOG NUMBER:_____

NOTES:_____ FIXTURE SCHEDULE:_____

RKT - Recessed Troffer Retrofit Kits

RKT SERIES

PRODUCT DESCRIPTION:

MaxLite's troffer retrofits offer service professionals an economical solution to safely upgrade fluorescent luminaires to include an LED light source. The installation process is quick and easy and does not require the installer to remove the existing fixture.

FEATURES:

- Pre-punched holes for easy handling
- Includes Thermal Dot indicators to quickly validate application suitability
- Custom CCTs available upon request, please contact your MaxLite sales representative for quotations
- LM-80 chip yields over 103,000 hour L70 lifetime using TM-21 extrapolation

CONSTRUCTION:

- Galvanized steel body
- Reflective finish improves retrofit efficacy
- Integrated tunnel cover houses driver and will enclose most existing linear fluorescent ballasts
- 'S' hook supplied for temporary hanging during installation

CONTROL:

- RKT Troffer Retrofit Kits are supplied with a 0-1-10v simple dimming driver Compatible with standard 0-10v dimming controls
- Simple dimming driver is supplied with an auxiliary output wire (yellow wire) which can be used with MaxLite's MLFPIRK wireless remote dimming kit.

MODEL SELECTION (Full list of order codes on pg. 2) — Typical order example: RKT4514U4535DV

RKT		14	U			DV
FAMILY	NOMINAL LENGTH	NOMINAL WIDTH	INPUT VOLTAGE	INPUT WATTAGE	CCT	DIMMABILITY
RKT= LED Troffer Retrofit Kit	20= 20" 45= 45"	14= 14"	U= 120-277V	40= 40 watts 45= 45 watts	35= 3500K 41= 4100K 50= 5000K	DV= 0-10V Dimmable

ACCESSORIES

ORDER CODE	MODEL NUMBER	DESCRIPTION	
71583	MLFPIRK	Infrared Remote Control	
70691	MLFPRWP	Remote Control Wall Plate	

Add MaxLite's Infrared Remote Control to maximize efficiency without increasing labor costs. The IR remote control offers continuous dimming down to 10% and can even shut the retrofit off entirely, without requiring any additional wiring from the switch to the existing fixtures. Add the MLFPRWP wall plate to holster the remote control.

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RKT - Recessed Troffer Retrofit Kits

RKT SERIES

SPECIFICATIONS:

ITEM	SPECIFICATION	RKT2014U4035DV	RKT2014U4041DV	RKT2014U4050DV	RKT4514U4535DV	RKT4514U4541DV	RKT4514U4550DV
		DETAILS					
GENERAL PERFORMANCE	Color Temperature (CCT)	3500K	4100K	5000K	3500K	4100K	5000K
	Lumens Delivered	3,630	3,580	3,935	4,275	4,275	4,500
	Efficacy	91 lm/w	90 lm/w	98 lm/w	95 lm/w	95 lm/w	100 lm/w
	Lumen Maintenance (L70)	103,000 hours					
ELECTRICAL	Power Consumption	40W			45W		
	Power Factor	> .90%					
	Input Voltage	120V-277V					
PHYSICAL	Dimensions	20.75" x 13.75"			43.75" x 13.75"		
	Weight	2.85 lb			5.25 lbs		
	Mounting	Self tapping hex head (4)			Self tapping hex head (6)		
	Ambient Temperature	0-104F					
CERTIFICATION	Certification	cETLus, DLC, FCC, LM-80					
	Material Usage	RoHS compliant; no mercury					
	Environment	Indoor					
	Warranty	5 year when installed in accordance with factory supplied instruction manual					

ORDERING:

ORDER CODE	MODEL	WATTS	SIZE	INPUT VOLTAGE	COLOR TEMPERATURE (CCT)
72683	RKT2014U4035DV	40	2 X 2	120-277V	3500K
72684	RKT2014U4041DV				4100K
72685	RKT2014U4050DV				5000K
72937	RKT4514U4535DV	45	2 X 4	120-277V	3500K
72938	RKT4514U4541DV				4100K
72939	RKT4514U4550DV				5000K

Lighting layouts and spacing criteria available upon request
Please contact your MaxLite representative to order products that don't have order codes listed here.

ArcMax Lay-In LED Panels

ArcMAX™ LAY-IN LED PANEL

2'x2' and 1'x4'

maxLED by MAXLITE

The MaxLite ArcMAX™ Lay-In LED panels are LED replacements for fluorescent troffers in new or remodel construction. MaxLite's performance optic system, advanced light distribution and architectural styling delivers unprecedented value. High efficacy, excellent color rendering, and low glare combined with a sustainable construction positions these fixtures as ideal solutions for offices, schools, hospitals, retail, and other applications.

PROJECT NAME	
CATALOG NUMBER	
NOTES	
FIXTURE TYPE	ROOM SCHEDULE

FEATURES:

- Watts: 42 nominal
- Avail. color temps: 3500, 4100 and 5000K
- 50,000 hr. life
- Dimming: 0-10V standard
- Warranty: five year limited
- CRI: >82
- Controlled brightness optic eliminates pixelation
- LM-79 test data available
- Also available in 2'x4'

CONTROL:

- Steel housing and reflectors
- Angled interior end caps for volumetric projection
- ABS reflector end caps
- Polycarbonate milky white diffuser cover
- External driver housing with rear access
- "Stab and lock" installation BUS
- Link up to nine fixtures of the same size

LUMINAIRE ORDERING INFORMATION:

WATTS (Nominal)	ORDER CODE	MODEL	DELIVERED LUMENS	LIFE (Hrs)	DIMENSIONS (W" X L" X H")	CCT
42	72199	MLVT22D4235	3400*	50,000	23.7 X 23.7 X 3.5	3500
42	72198	MLVT22D4241	3640**	50,000	23.7 X 23.7 X 3.5	4100
42	72197	MLVT22D4250	3750*	50,000	23.7 X 23.7 X 3.5	5000
42	72196	MLVT14D4235	3400*	50,000	11.8 X 47.7 X 4.0	3500
42	72195	MLVT14D4241	3640*	50,000	11.8 X 47.7 X 4.0	4100
42	72194	MLVT14D4250	3750*	50,000	11.8 X 47.7 X 4.0	5000

*Performance output is preliminary; contact MaxLite for final data.
**DLC Compliant

MAX-0070

DLC T24 ETL FC MAXLITE

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Revised: 8-28-14

ArcMAX™ LAY-IN LED PANEL

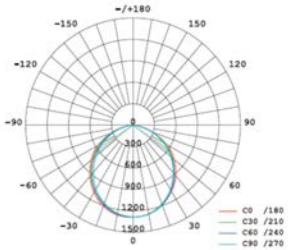
2'x2' and 1'x4'

maxLED by MAXLITE

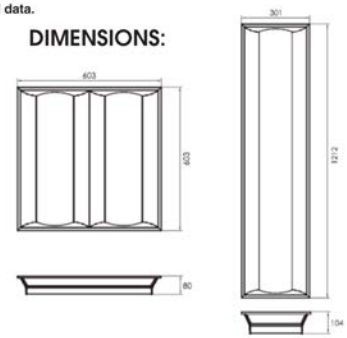
SPECIFICATIONS:

ITEM	SPECIFICATION	DETAILS – 2'X2'			DETAILS – 1'X4'		
General Performance	Spacing Criteria	Available upon request			Available upon request		
	Color Temperature (CCT)	3500	4100**	5000	3500	4100	5000
	Beam Angle	105 deg.			105 deg.		
	Lumens Delivered	3400*	3640**	3750*	3400*	3600*	3750*
	Efficacy (LM/W)	81	86	89	81	86	89
	Color Consistency	Proprietary binning for uniform color			Proprietary binning for uniform color		
	Lumen Maint. (L70)	50,000 hours			50,000 hours		
	Equivalency	42w replaces 3x18W fluorescent			42w replaces 2x36W fluorescent		
Electrical	Power Factor	Over 96%			Over 96%		
	Input Voltage	120V-277V 50/60 Hz			120V-277V 50/60 Hz		
	THD	6.50%			6.50%		
	Power Consumption	42 Watts, 750mA			42 Watts, 750mA		
Physical	Dimensions	23.7" x 23.7" x 3.5"			11.8" x 47.7" x 4.0"		
	Weight	8.5 lbs.			9.5 lbs.		
	Housing	Steel/ ABS			Steel/ ABS		
	Lens	Translucent white polycarbonate			Translucent white polycarbonate		
	Mounting	G & T-Grid Lay-in			G & T-Grid Lay-in		
	Operating Temperature	-30°F to 130°F			-30°F to 130°F		
	Humidity	20% - 85% RH, non condensing			20% - 85% RH, non condensing		
Certification	Certification	ETL, FCC, LM-79, LM-80			ETL, FCC, LM-79, LM-80		
	Material Usage	RoHS compliant; no mercury			RoHS compliant; no mercury		
	Environment	Indoor / dry / IP40			Indoor / dry / IP40		
	LED Class	L70 rated to 50,000 hours			L70 rated to 50,000 hours		
	Warranty	5 year			5 year		

*Performance output is preliminary; contact MaxLite for final data.
**DLC Compliant



DIMENSIONS:



DLC T24 ETL FC MAXLITE

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Revised: 8-28-14

ECO-T LED Recessed Troffers

ECO-T 2X2 LED RECESSED TROFFER

MLRT22D

maxLED by MAXLITE

Combining high efficiency and a high quality light in a performance-and value-optimized package, MaxLite's ECO-T LED Recessed Troffer represents the inflection point to making LEDs a cost-effective replacement for fluorescent troffers in lay-in or T-grid ceilings for the commercial and institutional market, including schools and municipalities.

ECO-T offers a classic recessed housing with LED strips that resemble fluorescent tubes when lit. While fluorescent fixtures can buzz and flicker and contribute to headache and eye fatigue, ECO-T is constructed with LM-80-rated LEDs and a prismatic clear diffuser for higher lumens, making it the silent and flicker-free solution for offices, lobbies, hallways and conference rooms in schools, municipalities, airports, healthcare facilities, showrooms, corporate campuses and retailers trying to stretch renovation and construction budgets. With standard 0-10v dimming provided, ECO-T maintains 90 percent of the light in a 60-degree beam angle to project light downward towards surfaces.

PROJECT NAME	
CATALOG NUMBER	
NOTES	
FIXTURE TYPE	ROOM SCHEDULE

ASSEMBLED IN THE US AVAILABLE

BUILDINGS MONEY-SAVING PRODUCTS 2013

FEATURES:

- Lumens: 3500K CCT: 3597
  4100K CCT: 3421
  5000K CCT: 3768
- 50,000 hour life at L70 standards
- 9 lbs.
- 0-10V dimming standard
- Five year limited warranty
- CRI: 85
- Fits standard T-bar grid (drop ceilings)
- Also available in 2'x4'
- Room side access door to service and upgrade LED strips

CONSTRUCTION:

- The housing and back panel are sheet steel, and provide heat sink and thermal control capabilities
- Standard prismatic lens allows high lumen output
- Profile including the control box is 3.3 inches
- Modular construction for easy replacement

Order Number	Model Number	Description
71774	RT22TWD	ECO-T 2x2 Translucent White Diffuser

CONTROL:

- Integral Class2 ETL-listed LED driver
- Up to 20 panels can be linked to each master panel

Luminaire Ordering Information:

Watts	Order Number	Model Number	Lumens	CRI	Lamp Life (Hrs.)	Dimensions (L"xW"xH")	CCT
45	71500	MLRT22D4535	3597	85	50,000	23.75" x 23.75" x 3.3"	3500
45	71482	MLRT22D4541	3421	85	50,000	23.75" x 23.75" x 3.3"	4100
45	71498	MLRT22D4550	3768	84	50,000	23.75" x 23.75" x 3.3"	5000

MAXO1106

*These products have been submitted for DLC qualification; please check our website for their updated DLC status on 1/31.

SUPPORTS T24 COMPLIANCE

Installation instructions available online: Specifications are subject to change without notice

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Revised: 8-28-14

ECO-T 2X2 LED RECESSED TROFFER

MLRT22D

maxLED by MAXLITE

SPECIFICATIONS:

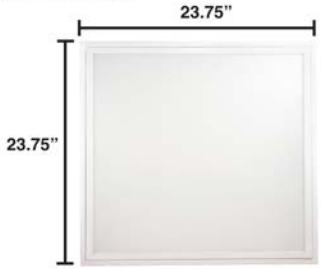
Item	Specification	MLRT22D4535	MLRT22D4541	MLRT22D4550
General Performance	Spacing Criteria	Available upon request		
	Color Temperature	3500K	4100K	5000K
	Lumens	3597	3421	3768
	Efficacy	79 lm/w	78.8 lm/w	85 lm/w
	Color Consistency	Proprietary binning for uniform color		
	Lumen Maintenance (L70)	50,000 hours		
Electrical	Power Factor	Over 98%		
	Input Voltage	120V-277V 50/60 Hz		
	Power Consumption	45 Watts		
Control	Dimming	0-10V Dimming Standard		
Physical	Dimensions (+/-1/16")	23.75" x 23.75" x 3.3"		
	Weight	9 lbs.		
	Housing	Sheet steel		
	Optics	Std. prismatic diffuser		
	Mounting	Fits standard grid for drop ceilings		
	Operating Temperature	-20°F to 130°F		
	Humidity	20% - 85% RH, non condensing		
Certification	Certification	ETL, cETL, FCC		
	Material Usage	RoHS compliant; no mercury		
	Environment	Indoor use		

MASTER / SATELLITE DEFINITION:
Each panel can be wired a Master/Satellite Panel. During mounting, one fixture in the room should be wired to Master, and the others in the room should be wired as Satellite, with a low voltage power cord.

BUILDING AUTOMATION COMPATIBLE:
Multiple panels can also be controlled from a single source. The panels can be linked to a building automation system. Contact your MaxLite representative for inquiries involving dimming control methods.

Recommended Dimming Controls	
Lutron	NFTV0-10
Leviton	IP710 DL

DIMENSIONS:



Reveal Dimensions:
22.7" x 22.7"

SUPPORTS T24 COMPLIANCE

Lighting layouts and spacing criteria available upon request
Installation instructions available online: Specifications are subject to change without notice

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Revised: 8-28-14

Micro-T Lay-In LED Panels

MICRO-T™ LAY-IN LED PANELS

MLMT14D/MLMT24D

maxLED by MAXLITE

MaxLite's Micro-T™ Lay-In LED Panel is the next evolution of LED troffer lighting that departs from standard designs by using single or multiple strips, comprised of LM-80 tested LED chips individually enclosed in MicroCell™ louvers. The Micro-T panel is designed for remodel or new construction installations in gridded lay-ins and troffers in offices, retail, public spaces, and businesses.

PROJECT NAME	
CATALOG NUMBER	
NOTES	
FIXTURE TYPE	ROOM SCHEDULE

FEATURES:

- Full metal housing
- Individual MicroCell™ LED arrays
- White post formed finish standard
- 0-10V dimmable
- Multiple rear KO for installation
- 100° optics
- Low profile height for installation ease*
- Also available in 2x2 configurations
- CRI: >82

CONSTRUCTION:

- Sheet steel housing
- Smooth hemmed edges
- Impact resistant polycarbonate Lens
- PMMA MicroCell louver tray
- Separate driver enclosure
- Damp rated

ELECTRICAL:

- 120-277V 50/60Hz
- 0-10V dimming driver std.
- L70 at 50,000 hrs.
- Specially binned LEDs for color consistency

LUMINAIRE ORDERING INFORMATION:

WATTS (Nomimal)	ORDER CODE	MODEL	DELIVERED LUMENS	LIFE (Hrs)	DIMENSIONS (L" X W" X H")	CCT
35	72532	MLMT14D3535	3150	50,000	47.6 x 11.8 x 1.8	3500
35	72534	MLMT14D3541	3,310	50,000	47.6 x 11.8 x 1.8	4100
35	72536	MLMT14D3550	3,485	50,000	47.6 x 11.8 x 1.8	5000
72	72542	MLMT24D7235	6,750	50,000	47.6 x 23.6 x 1.8	3500
72	72540	MLMT24D7241	7,100	50,000	47.6 x 23.6 x 1.8	4100
72	72538	MLMT24D7250	7,450	50,000	47.6 x 23.6 x 1.8	5000

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MAXLITE

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Revised: 8-28-14

MICRO-T™ LAY-IN LED PANELS

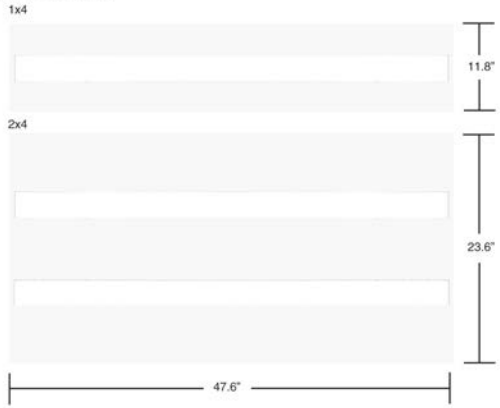
MLMT14D/MLMT24D

maxLED by MAXLITE

SPECIFICATIONS:

ITEM	SPECIFICATION	DETAILS – MLMT14D35			DETAILS – MLMT24D72		
General Performance	Spacing Criteria	Available upon request			Available upon request		
	Color Temperature (CCT)	3500	4100	5000	3500	4100	5000
	Lumens Delivered	3150	3310	3485	6750	7100	7450
	Efficacy (LM/W)	90 lm/w	95 lm/w	100 lm/w	94 lm/w	99 lm/w	103 lm/w
	Color Consistency	Proprietary binning for uniform color			Proprietary binning for uniform color		
	Lumen Maint. (L70)	50,000 hours			50,000 hours		
Electrical	Power Factor	Over 90%			Over 90%		
	Input Voltage	120V-277V 50/60 Hz			120V-277V 50/60 Hz		
	Power Consumption	35 watts			72 watts		
Physical	Dimensions	47.6" x 11.8" x 1.8"			47.6" x 23.6" x 1.8"		
	Weight	18 lbs.			23 lbs.		
	Housing	Steel			Steel		
	Lens	Polycarbonate, MicroCell is PMMA			Polycarbonate, MicroCell is PMMA		
	Mounting	T-Grid, G-Grid lay-in, suspended			T-Grid, G-Grid lay-in, suspended		
	Operating Temperature	-4°F to 104°F			-4°F to 104°F		
	Humidity	10% - 95% RH			10% - 95% RH		
Certification	Certification	ETL for cUL Class 2, FCC Part 15 Class B, LM79, LM80			ETL for cUL Class 2, FCC Part 15 Class B, LM79, LM80		
	Material Usage	RoHS compliant; no mercury			RoHS compliant; no mercury		
	Environment	Indoor / outdoor (damp)			Indoor / outdoor (damp)		
	LED Class	L70 rated to 50,000 hours			L70 rated to 50,000 hours		
	Warranty	5 year			5 year		

DIMENSIONS:



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Revised: 8-28-14

Direct Lit LED Flat Panels

Direct Lit LED 2X2 Flat Panel

SAVER SERIES

maxLED by MAXLITE

Typically used to replace 2'x2' and 2'x4' fluorescent fixtures, the Direct Lit LED Flat Panel Saver Series™ is designed to lay in drop ceilings in offices, schools and healthcare applications. The flat panels are fully dimmable, and are compatible with building controls, motion sensors, timers, and daylight harvesting systems.

The design of the panels produces an even, consistent shadowless light. The LEDs enable long life, high lumen maintenance, and high CRI, and are low maintenance and constructed without hazardous materials.

PROJECT NAME	
CATALOG NUMBER	
NOTES	
FIXTURE TYPE	ROOMS SCHEDULE

FEATURES:

- Lumens delivered: 3500K CCT: 3540
  4100K CCT: 3770
  5000K CCT: 3745
- 40 watts nominal
- 50,000 hour life at L70 standards
- 9.25 lbs.
- Features 0-1-10v Simple Dimming*
- Optional dimming: IR Remote
- Five year limited warranty
- CRI: >82
- Fits standard T-bar and narrow grid drop ceilings
- LM-79 test data is available online
- Also available in 1'x4' and 2'x4'
- Standard white finish
- Translucent white polystyrene face frame
- Includes integrated seismic clips
- Suitable for damp locations

CONSTRUCTION:

- Face frame is satin polycarbonate
- Housing is steel
- Lens is translucent white polystyrene
- Profile, including the control box, is 4.0 inches
- Unique mounting gives flush-fit in drop ceiling
- Modular construction for easy replacement of drivers or light boards
- Fixtures are Type IC rated for contact with insulation after installation

CONTROL:

- Standard integrated driver
- Up to 20 panels can be linked to each master panel

*Simple Dimming Drivers eliminate the questions and hassle associated with dimming LEDs. MaxLite saver series Direct Lit panels don't require a power pack or separate switch to shut off. Simply select any fluorescent or LED 0-10v dimming control and the driver will automatically shut off when the control reaches the bottom of its' range.

LUMINAIRE ORDERING INFORMATION:

Watts	Order Number	Model Number	Lumens	Lamp Life (Hrs.)	Dimensions (L"xW"xH")	CCT
40	72586	MLFP22DS4035	3540	50,000	23.8" X 23.8" X 4.0"	3500
40	72587	MLFP22DS4041	3770	50,000	23.8" X 23.8" X 4.0"	4100
40	72588	MLFP22DS4050	3745	50,000	23.8" X 23.8" X 4.0"	5000

MAX130075

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Revised: 8-14-14

Direct Lit LED 2X2 Flat Panel

SAVER SERIES

maxLED by MAXLITE

SPECIFICATIONS:

ITEM	SPECIFICATION	DETAILS		
General Performance	Spacing Criteria	Available upon request		
	Color Temperature (CCT)	3500	4100	5000
	Lumens Delivered	3539	3773	3748
	Efficacy (LM/W)	89 lm/w	95 lm/w	95 lm/w
	CRI	>82		
	Color Consistency	Proprietary binning for uniform color		
	Lumen Maint. (L70)	50,000 hours		
Electrical	Power Factor	Over 95%		
	Input Voltage	120V-277V 50/60 Hz		
	Power Consumption	40 watt nominal		
Control	Dimming Switch	Standard 0-1-10V dimming Optional IR dimming		
	Linking Lengths/Qty	15 cable feet x 20 panels		
Physical	Dimensions	23.8" x 23.8" x 4.0"		
	Weight	9.25 lbs		
	Housing	Steel		
	Lens	Translucent white styrene		
	Mounting	Fits standard grid for drop ceilings		
	Operating Temperature	-30°F to 130°F (-2-c to 50c)		
	Humidity	20% - 85% RH, non condensing		
Certification	Certification	cETLus, FCC, LM79, LM80		
	Material Usage	RoHS compliant; no mercury		
	Environment	Damp locations		
	LED Class	L70 rated to 50,000 hours		
	Warranty	5 year		

**** The data shown is preliminary: please contact MaxLite for the most recent report data.**

IR DIMMING:

When all the units are joined, one remote control aimed at the Master Unit will control all the other units in the room, up to a maximum of 20 units. With one click, all the units can be turned on, dimmed and turned off. IR dimming is optional, see page 1 for ordering information.

BUILDING AUTOMATION COMPATIBLE:

Multiple panels can also be controlled from a single source. The panels can be linked to building automation systems. Contact your MaxLite representative for inquiries involving dimming control methods other than 0-1-10V and IR.

OPTIONAL ACCESSORIES:

Order Number	Model Number	Short Description
70816	MLFPFK2X2	Flange mounting kit
71583	MLFPIRK	IR control kit
71119	MLCHKSQ	Cable hung kit
71372	MLSMKFP22D	Surface mount kit 2x2 direct lit

MAXLITE

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Revised: 8-14-14

LED Utility Wraps

maxLED by MAXLITE

PROJECT NAME:_____ CATALOG NUMBER:_____

NOTES:_____ FIXTURE SCHEDULE:_____

Page: 1 of 4

LED UTILITY WRAP
LSU SERIES

Utility Wrap with Optional Wire Guard

PRODUCT DESCRIPTION:
A cost effective LED Utility Wrap Fixture, features full length U Wrap Acrylic lens, one piece fabricated steel body. Designed to meet or exceed 7-10Fc at 8' installed heights for parking drive lane compliance. For uses as utility lighting, parking garage and stairwell lighting where meets applicable building and safety codes.

FEATURES:
- Thermal/Lumen balanced light engine[5]
- Steel Construction
- Back and End Knockouts
- Class II driver, with 0-10V dimming
- Low power consumption
- Ceiling or wall mounted
- For covered use only – damp rated
- Wire Guard available
- White Finish standard
- CRI > 83
- Optional Occupancy Sensor available
- Assembled in USA available upon request

CONSTRUCTION:
- 20 Ga. Steel body and end caps
- Clear Acrylic Prismatic Lens
- Electrostatic Paint pre-assembly
- Universal voltage 120-277v

THERMAL/ LUMEN BALANCED LIGHT ENGINES –
MaxLite engineered low drive rates allow cooler operating temperatures. This translates as less thermal heat sinking needed, while allowing more LED's to be used, resulting in more lumen output. Cooler LED's perform correspondingly longer than harder driven hot LED's.

CONTROL:
- Omni-directional quad element infrared sensor
- 3 Daylight Harvesting setting
- 0-10V selectable output for low dim control
- Walk test and sensor operation LED indicator
- Direct lead wires for easy wiring connections
- 8 rotary DIP switch selectable control modes
- 7 low dim levels changeable via Accu-Set

MODEL SELECTION (Full list of order codes on pg. 3) — Typical order example: LSU4806SU30DV40

LS	U		06	S	U		DV		
FAMILY	TYPE	LENGTH (IN)	WIDTH (IN)	APPLICATION	VOLTAGE	NOMINAL WATTAGE	DIMMING	CCT	OPTIONS
LS	U= Utility Wrap	24= 24" 48= 48"	06= 6.75"	S= Surface Mount	U= Universal 120-277VAC	20= 20W** 30= 30W 50= 50W*	DV= 0-10V Dim-ming	40= 4000K 50= 5000K	MS= Motion Sensor **Wire Guard Back Up Emergency EM=

ACCESSORIES		
ORDER CODE	MODEL NUMBER	DESCRIPTION
72460	LSUWG2407	WIRE GUARD - WRAP FIXTURE 2FT X 6.75IN
72463	LSUWG4807	WIRE GUARD - WRAP FIXTURE 4FT X 6.75IN

NOTES:
1. *50W not available in 24" length
2. **20W available in 4' length only
3. **Wire Guards sold separate, see pg. 3 for order code
4. For DLC compliance to Category 9 Stairwell & Passageway use MS models
5. For DLC compliance to Category 21 Linear Ambient Direct use standard models
6. For DLC Category 23 Lowbay performance use 4' 50w model

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MAX14048 Revised: 08-05-14 MAXLITE

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LED UTILITY WRAP
LSU SERIES

Page: 2 of 4

SPECIFICATIONS:

ITEM	SPECIFICATION	LSU24 DETAILS	LSU48 DETAILS		
GENERAL PERFORMANCE	Spacing Criteria	Available Upon Request			
	Color Temperature (CCT)	4000K, 5000K	4000K, 5000K		
	Wattage	30w	20w	30w	50w
	Deliver Lumens	2902-3017	2193-2170	3583-3233	4625-4923
	Efficacy (LM/W)	>90.2	>107	>103	>97.3
	Standby Lumens*	0-50% Selectable with Occupancy Sensor			
	Color Consistency	Proprietary binning for uniform color			
	Lumen Maintenance (L70)	See below			
ELECTRICAL	Power Factor	Over 0.90	Over 0.90		
	Maximun THD	<20%	<20%		
	Input Voltage	120-277V	120-277V		
	Input Cosum: (tested)	<32.9	<20.1	<31.5	<48.8
CONTROL	System	0-10v Dimming			
	Linking to external control	20w = 20 Fixtures | 30w = 15 Fixtures | 50w = 10 Fixtures			
Occ SENSOR**	Sensor Load	Max 800W			
	Dimming Levels	0/ 5/ 10/ 20/ 25/ 33/ 50% selectable			
	Ambient Light Level	Selectable Ambient Light Levels (3 levels)			
	Time Delay	Selectable Time delay (1 min to 30 min)			
	Type	Omni-directional quad element pyroelectric			
	Optics	Standard: Conical / 8-15' Install Hts / 2x Ht beam width			
	Rating	120-277V / Wet Listed			
PHYSICAL	Dimensions (L x W x H)	25" x 6.75" x 2.5"	48.75" x 6.75" x 2.5"		
	Dimensions w/ Occ Cntrl	29.5" x 6.75" x 2.5"	53.25" x 6.75" x 2.5"		
	Weight	5 +/- .5 lbs	7 +/- .5 lbs		
	Housing	Steel painted after fab			
	Lens	Acrylic Prismatic			
	Mounting	Ceiling Surface			
	Operating Temperature	-4°F to 104°F			
CERTIFICATION	Certification	UL, FCC, LM79, LM80			
	Material Usage	RoHS compliant; no mercury			
	Environment	Indoor / Outdoor Covered – DAMP			
	Warranty	5 Year			

L70 LUMEN MAINTENANCE AT 25°C PER IESNA TM-21-2008	
MODELS	IESNA CALCULATED LIFE
LSU2406SU30XXXX	54,000 Hrs
LSU4806SU20XXXX	76,000 Hrs
LSU4806SU30XXXX	76,000 Hrs
LSU4806SU50XXXX	59,000 Hrs

NOTES:
1. ***Designed for sustainability. Contact MaxLite for any repair or replacement components needed
2. ** Must order with "MS" suffix to receive occupancy control, factory assembled only, not sold separate
3. * Contact MaxLite for Final LM-79 reports

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Note: The dimming option combined with off the shelf motion sensors meet T24 requirements.

BayMax LED Linear High Bays

BayMAX™ LED Linear High Bays
BLHT

maxLED by MAXLITE

MaxLite's BayMax™ LED Linear High Bay Fixture family offers a high performance LED luminaire that is ideal in manufacturing, warehousing, commercial and gymnasium applications. Its bi-level capable wiring option offers a cost effective way to reduce your energy costs by using motion sensors or simple switching techniques while its dimming driver option allows for full output control. LM-80-tested LED populated custom strips provide ideal light distribution for mounting heights from 15- to 40-ft. The 110-, 160- and 250-watt performance and value-optimized fixtures replace up 400-watt metal halide high bay fixtures. The fixture is constructed of sheet steel for heat sink and thermal control and a specular reflector for high performance. A top side access door provides easy serviceability by enabling unobstructed driver access.

PROJECT NAME	
CATALOG NUMBER	
NOTES	
FIXTURE TYPE	ROOM SCHEDULE

ASSEMBLED IN THE U.S. AVAILABLE

FEATURES:
- High efficacy LED boards with dual copper cladding for thermal dissipation
- Optional occupancy sensor, lensed door and wire guard available
- Housing has top side access door for easy field access of driver and control gear
- 50,000 hour rated life
- Operating temp: -30F to 120F

CONTROL:
- 22 Ga. post painted steel housing
- Std. 87 percent reflectance reflector; optional 95 percent
- Single dimming (SD) or twin non-dimming drivers/bi-level (AB) available
- 120- to 277-volt universal voltage (contact MaxLite for other voltages needed)
- Standard V-Hook included
- Standard knock outs at ends and rear

Features MaxLite's "Thermal I Lumen Balanced Light Engines" – MaxLite engineered low drive rates allow cooler operating temperatures. This translates to less thermal heat sinking needed, while allowing more LEDs to be used, resulting in more lumen output. Cooler LEDs perform correspondingly longer than harder driven hot LEDs.

LUMINAIRE ORDERING INFORMATION:

WATTS (Nominal)	ORDER CODE	MODEL	DELIVERED LUMENS	DRIVER	LIFE	DIMENSIONS (L" X W" X H")	CCT
110	72332	BLHT110UAB4810	11,240	Twin Non-Dimming (AB)	50,000	48" x 10" x 3" (1216mm x 253mm x 77mm)	5500
110	72334	BLHT110USD4810	11,240	Single Dimming (SD)	50,000	48" x 10" x 3" (1216mm x 253mm x 77mm)	5500
160	72335	BLHT160UAB4815	16,170	Twin Non-Dimming (AB)	50,000	48" x 14.75"x 3" (1216mm x 375mm x 77mm)	5500
160	72337	BLHT160USD4815	16,170	Single Dimming (SD)	50,000	48" x 14.75"x 3" (1216mm x 375mm x 77mm)	5500
250	72339	BLHT250UAB4820	21,890	Twin Non-Dimming (AB)	50,000	48" x 20"x 3" (1216mm x 508mm x 77mm)	5500
250	72338	BLHT250USD4820	21,890	Single Dimming (SD)	50,000	48" x 20"x 3" (1216mm x 508mm x 77mm)	5500

To include optional occupancy sensor, add MS at the end of the Model No (ex. BLHT160UAB4815MS)
**** Preliminary output data, contact MaxLite for LM-79 reports***

DLC T24 RoHS COMPLIANT UL LISTED FC MAXLITE

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BayMAX™ LED Linear High Bays
BLHT

maxLED by MAXLITE

SPECIFICATIONS:

SPECIFICATION	BayMAX LED Linear Highbay		
	BLHT110Uxx4810	BLHT160Uxx4815	BLHT250Uxx4820
Lumens	11,240	16,170	21,890
Efficacy	97 lm/W	104 lm/w	90 lm/W
Power Consumption	116 W	156 W	243 W

ITEM	SPECIFICATION	DETAILS
General Performance	Spacing Criteria	Available upon request
	Color Temperature (CCT)	5500K
	Color Rendering Index (CRI)	70 min
	Lumen Maintenance (L70)	50,000 hours
Electrical	Power Factor	Over 95%
	Input Voltage	120V-277V 50/60 Hz
Physical	Housing	22 gauge galvanized post painted steel
	Lens	Clear acrylic lens (available)
	Mounting	V-hooks provided
	Operating Temperature	-30°F to 120°F
	Humidity	20% - 85% RH, non condensing
Certification	Certifications *	ETL, FCC, LM-79, LM-80
	Material Usage	RoHS compliant no mercury
	Environment	Indoor
	LED Class	L70 rated to 50,000 hours
	Warranty	5 years

**** Preliminary output data, contact MaxLite for LM-79 reports***

BLHT250UAB4820

BLHT160UAB4815

BLHT110UAB4810

ACCESSORIES:

DESCRIPTION	Fixture Specific Accessories (Shipped Separately/Field Installed)		
	BLHT110Uxx4810	BLHT160Uxx4815	BLHT250Uxx4820
Door Frame & Lens	MLFHBL4DF	MLFHBL6DF	MLFHBL8DF
Door Frame and Flat Wire Guard	MLFHBL4DFWG	MLFHBL6DFWG	MLFHBL8DFWG
Door Frame, Flat Wire Guard & Lens	MLFHBL4DFWGL	MLFHBL6DFWGL	MLFHBL8DFWGL

DESCRIPTION	General Accessories
10ft SO Cord & Plug for 277V	SKHBLC277
10ft SO Cord & Plug for 120V	SKHBLC120
Cable Hanging Kit	MLCHKSQ

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BayMax LED High Bay Pendants

BayMAX™ LED High Bay Pendants
BLHP

maxLED by MaxLite

MaxLite's BayMax™ LED High Bay Pendants offer performance LED luminaires that replace up to 400-watt metal halide fixtures in commercial, manufacturing, warehousing, or any high mounting height application. The fixtures feature advanced dacrotized coatings for corrosion resistance, an advanced optic package for uniform horizontal levels, and excellent vertical distribution with reduced glare. Patented heat dissipation technology extends component life. Dimming drivers provide adjustable light levels that maximize energy savings while providing the exact amount of light level needed for the task. These IP65-rated fixtures contain LM-80 tested LEDs with individual custom optics that provide ideal light distribution for mounting heights from 15 to 40 ft.

PROJECT NAME	
CATALOG NUMBER	
NOTES	
FIXTURE TYPE	ROOM SCHEDULE

FEATURES:
- Dacrotized finish*
- High efficacy LED boards and matched heat sink for optimized thermal dissipation
- Reflector optics
- Dual down-rod mounting for stability
- IP65-rated for wet locations
- Modular optic array design
- Dimming driver
- CRI: 70 (min.)
- L70 rated lumen maintenance to 65k hr. +
- Operating temp: -30˚F to 120˚F
- White or charcoal finish available

CONTROL:
- 120-277V dimming driver

CONSTRUCTION:
- Die cast aluminum body and heat sink
- Discreet high performance reflectors
- IP65-rated Class B drivers
- Tempered glass
- 120-277V universal voltage
- Pendant or surface mount

LUMINAIRE ORDERING INFORMATION:

WATTS (Nominal)	ORDER CODE	MODEL	DELIVERED LUMENS*	COLOR	DIMENSIONS (L" X W" X H")	CCT
132	72486	BLHP130UD1513M50	10,800	CHARCOAL	15.2" x 13" x 25.8" (387mm x 329mm x 656mm)	5000
132	72592	BLHP130UD1513M50W	10,800	WHITE	15.2" x 13" x 25.8" (387mm x 329mm x 656mm)	5000
160	72487	BLHP160UD1813M50	13,430	CHARCOAL	18.3" x 13"x 25.8" (466mm x 329mm x 656mm)	5000
160	72593	BLHP160UD1813M50W	13,430	WHITE	18.3" x 13"x 25.8" (466mm x 329mm x 656mm)	5000
200	72488	BLHP200UD2113M50	15,870	CHARCOAL	21.5" x 13"x 25.8" (545mm x 329mm x 656mm)	5000
200	72594	BLHP200UD2113M50W	15,870	WHITE	21.5" x 13"x 25.8" (545mm x 329mm x 656mm)	5000

MAX12112

DLC RoHS COMPLIANT ETL FC MaxLite

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BayMAX™ LED Pendant Highbays
BLHP

maxLED by MaxLite

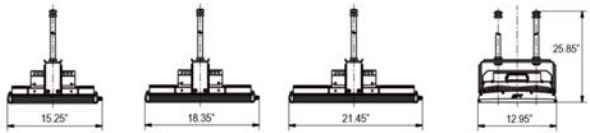
SPECIFICATIONS:

SPECIFICATION	BayMAX LED Linear Highbay		
	BLHP130UD1513x	BLHP160UD1813x	BLHP200UD2113x
Lumens	10,800	13,430	15,870
Efficacy	82 lm/w	83 lm/w	78 lm/w
Power Consumption	132 w	161 w	203 w

ITEM	SPECIFICATION	DETAILS	
General Performance	Spacing criteria	Available upon request	
	Color temperature (CCT)	5000K	
	Color rendering index (CRI)	70 min.	
	Lumen Maintenance (L70 @ 25c per TM-21)		
	BLHP130UD1513x	BLHP160UD1813x	BLHP200UD2113x
	67,000 Hrs.	67,000 Hrs.	67,000 Hrs.
Electrical	Power factor	Over 90%	
	Input voltage	120V-277V 50/60 Hz	
Physical	Housing	Die cast aluminum	
	Lens	Tempered glass	
	Mounting	Twin pendent mount (provided)	
	Operating Ttemperature	-30°F to 120°F	
	Humidity	20% - 85% RH, non condensing	
Certification	Certifications *	ETL, FCC, LM-79, LM-80, DLC	
	Material usage	RoHS compliant; no mercury	
	Environment	IP65	
	LED class	LM-80	
	Warranty	5 years	

**Dacrotized Coating:*
The anti-corrosion performance of the dacrotized coating is superior to other surface treatment technologies. Compared with electro-zinc plating yellow-chromate, hot dip galvanizing or alloy plating. The dacrotized coating provides superior rust inhibiting characteristics in salt spray test (KS D 9502,ASTM B-117) and cycle corrosion test (CCT)

Dimensions/Weight:



130W 22 lbs. | 160W 26.5 lbs. | 200W 31 lbs. | All

Length | Width

DLC RoHS COMPLIANT ETL FC MaxLite

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LED Downlights

LED Commercial Recessed Downlight Retrofits

The commercial-grade LED Recessed Downlight Retrofits are ideal for retrofitting inefficient fixtures in malls, hospitals, airports, offices, lobbies and other commercial applications. ENERGY STAR®-qualified models are available.

LED Recessed Downlight Retrofits

The LED Recessed Downlight Retrofits are replacements for existing, less efficient incandescent and compact fluorescent (CFL) light sources commonly used in the recessed downlighting marketplace. ENERGY STAR®-qualified models are available.

LED Commercial Recessed Downlight Fixtures

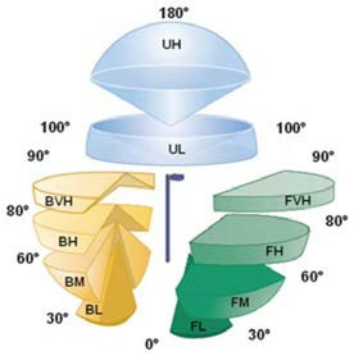
Offered in a variety of aperture sizes, color temperatures and wattages, MaxLite's ENERGY STAR-certified LED Commercial and Architectural Recessed Downlights are an easy-to-install, high-performance lighting solution.

LED Recessed Downlight Fixtures

The LED Recessed Downlight Fixtures are designed for new construction and remodel recessed projects.

Section 130.2
Outdoor Lighting Controls & Equipment

- **(A) Outdoor Incandescent Lighting**
  - **Motion sensor if > 100 watts**
- **(B) BUG Ratings – if lamp > 150 watts**
  - **Uplight per Table 130.2-A**
  - **Glare per Table 130.2-B**
  - **Exceptions – see standard**



Next, let's look at requirements for outdoor lighting controls…

a.) All outdoor incandescent luminaires rated over 100 watts, determined in accordance with Section 130.0(c)2, shall be controlled by a motion sensor.

b.) All outdoor luminaires rated for use with lamps greater than 150 lamp watts, shall comply with certain Uplight, and Glare requirements via the luminaires BUG rating which is a function of the zonal output of the luminaire and the lighting zone in which the project is located.

See the standard for the two tables.

Section 130.2
TABLE 10-114-A Lighting Zone Characteristics & Rules For Amendments By Local Jurisdictions

Zone	Ambient Illumination	State wide Default Location	Moving Up to Higher Zones	Moving Down to Lower Zones
LZ1	Dark	Government designated parks, recreation areas, and wildlife preserves. Those that are wholly contained within a higher lighting zone may be considered by the local government as part of that lighting zone.	A government designated park, recreation area, wildlife preserve, or portions thereof, can be designated as LZ2 or LZ3 if they are contained within such a zone.	Not applicable.
LZ2	Low	Rural areas, as defined by the 2000 U.S. Census.	Special districts within a default LZ2 zone may be designated as LZ3 or LZ4 by a local jurisdiction. Examples include special commercial districts or areas with special security considerations located within a rural area.	Special districts and government designated parks within a default LZ2 zone maybe designated as LZ1 by the local jurisdiction for lower illumination standards, without any size limits.
LZ3	Medium	Urban areas, as defined by the 2000 U.S. Census.	Special districts within a default LZ3 may be designated as a LZ4 by local jurisdiction for high intensity nighttime use, such as entertainment or commercial districts or areas with special security considerations requiring very high light levels.	Special districts and government designated parks within a default LZ3 zone may be designated as LZ1 or LZ2 by the local jurisdiction, without any size limits.
LZ4	High	None.	Not applicable.	Not applicable.

Here we see Title 24 definitions of the lighting zones used for the BUG ratings.

Please note that the same property could end up being designated as in a different lighting zone in Title 24 vs. 90.1 vs. the MLO

Section 130.2(c)
Outdoor Lighting Controls

- Photocell or Astronomical Time Switch When Daylight Available
- Independently Circuited & Controlled
- Mounted ≤ 24':
  - Vacancy operated
  - 40 – 80% step
  - 1500 watts together
  - Exceptions
- Sales Lighting
  - Part night control
  - 40 – 80% step via motion sensor
- Ornamental Lighting
  - Part night control
  - 40 – 80% step via motion sensor
  - 50% via centralized time-based control
  - Wall-mounted bilaterally symmetric ≤ 24' – see mounted ≤ 24'

Section 130.2(c)
Outdoor Lighting Controls (cont.)

Finally, Outdoor lighting controls shall be installed that meet the following requirements as applicable:

1.) All installed outdoor lighting shall be controlled by a photocontrol or outdoor astronomical time-switch control that automatically turns OFF the outdoor lighting when daylight is available.

2.) All installed outdoor lighting shall be circuited and independently controlled from other electrical loads by an automatic scheduling control.

3.) All installed outdoor lighting, where the bottom of the luminaire is mounted 24 feet or less above the ground, shall be controlled with automatic lighting controls based on vacancy sensing.

4.) And there are similar requirements for the lighting of sales areas and certain ornamental lighting such as for building facades, ornamental hardscape and outdoor dining lighting.

Section 130.4
Lighting Control Acceptance & Installation Certificate Requirements

- **Lighting Control Acceptance Requirements**
- **Lighting Control Installation Certificate Requirements**

Section 130.4 of the standard covers the requirement for certificates of acceptance and installation for lighting equipment being submitted to the enforcement agency.

LED WallMax – Large Wall Pack: Full Cutoff

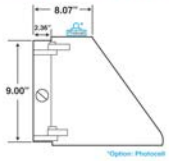
maxLED by MaxLite

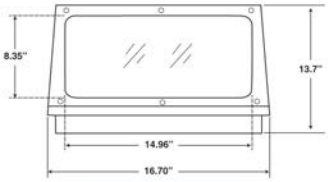
PROJECT NAME:_____ CATALOG NUMBER:_____

NOTES:_____ FIXTURE SCHEDULE:_____

LED WALLMAX
LARGE WALL PACK: FULL CUTOFF
MLLWP40LED50DS, MLLWP70LED50DS

MLLWP40LED50DS MLLWP70LED50DS





PRODUCT DESCRIPTION:
MaxLite's Wall Packs meet full cut off criteria established by the IESNA. Fixture can mount to electrical box or direct to wall.

FEATURES:
- Replaces up to 250 Watt Metal Halide
- CCT 5000K
- 50,000 hour life at L70 standards
- Self-contained driver
- Universal 120V through 277V
- Maintenance free; no UV
- Dusk To Dawn / Occupancy sensor compatible
- Can mount on electrical box or direct to wall
- LM-79/80 data available
- 5 Year Limited Warranty
- 20W and 30W models available
- DLC Listed

CONTROLS:
- **120VAC/208-277VAC Photocontrol:** Voltage-specific photocontrols power the fixture when light levels reach 20 lux or below, and turn it off at 30 lux or higher. Operating temperature of 30ºF-120ºF. Photocell mounted externally.
- **Motion/Daylight Sensor:** 0-10V microwave-based motion sensor with integral photocontrol, allowing for three output states: 100%; 10/20/30/50% output; or 0% output. Detection area, hold time, daylight threshold, and dimming level all have DIP switches. Operating temperature of -31ºF-158ºF. At its maximum mounting height of 32 feet, the sensor can detect motion up to 30 feet away. Sensor mounted internally, behind glass.

MODEL SELECTION (Full list of order codes on pg. 2) — Typical order example: MLLWP60LED50PC27EM

MLLWP		LED50	DS				
FAMILY	WATTAGE (NOMINAL)	TECH.	STYLE	COLOR	CONTROLS	VOLTAGE	EMERGENCY BACKUP
MLLWP= Large Wall Pack	40= 40W replaces up to 175W MH 70= 70W replaces up to 250W MH	LED50= LED	DS= Full Cutoff	OMIT= Bronze (Std) W= White[1]	(OMIT)= None PC12= 120V Photocontrol PC27= 277V Photocontrol MS4= Motion/Daylight Sensor (Hi/Low/Off)	(OMIT)= 120-277V (Std) UH= 347-480V	(OMIT)= None EM= Emergency Battery Backup

NOTES:
1. [1] Consult factory for lead time
2. CAUTION: This fixture is DLC compliant and designed for downward illumination only.
3. In the event of a power failure, the battery backup units switch to emergency mode (700 lumen output) and operates the fixture for a minimum of 90 minutes.

maxLED by MaxLite

LED WALLMAX
LARGE WALL PACK: FULL CUTOFF
MLLWP40LED50DS, MLLWP70LED50DS

SPECIFICATIONS:

ITEM	SPECIFICATION	MLLWP40LED50 DETAILS	MLLWP70LED50 DETAILS
GENERAL PERFORMANCE	Spacing Criteria	Available upon request	
	Power Consumption	36 Watts	51 Watts
	Lumens Delivered	3220	4600
	Efficacy	89 lumens/watt	90 lumens/watt
	Color Temperature	5000K	
	Color Consistency	Proprietary binning for uniform color	
	Lumen Maintenance (L70)	50,000 hours	
ELECTRICAL	Power Factor	Over 98%	
	Input Voltage	120V-277V 50/60 Hz	
PHYSICAL	Weight	10.5 lbs	
	Housing	Aluminum	
	Lens	Tempered glass	
	Mounting	Fits electrical box or mount directly	
	Operating Temperature	-30°F to 130°F	
	Humidity	20% - 85% RH, non condensing	
CERTIFICATION	Certification	cETLus, FCC, LM79, LM80, DLC	
	Material Usage	RoHS compliant; no mercury	
	Environment	Outdoor	
	LED Class	N/A	

Lighting layouts and spacing criteria available upon request
CAUTION: This fixture is DLC compliant and designed for downward illumination only.

ORDERING:

ORDER CODE	MODEL NUMBER	OPTIONS	FINISH	VOLTAGE	WATTAGE	CCT
70877	MLLWP40LED50DS	None	Bronze	120-277V	40	5000K
71390	MLLWP40LED50DSPC12	120V Photocontrol	Bronze			
73504	MLLWP40LED50DSPC12EM	120V Photocontrol; Emergency Battery Backup	Bronze			
71389	MLLWP40LED50DSPC27	277V Photocontrol	Bronze			
73821	MLLWP40LED50DSUH	None	Bronze	347-480V		
71131	MLLWP40LED50DSW	None	White	120-277V		
74144	MLLWP40LED50DSMS4 T24	Motion/Daylight Sensor	Bronze			
71136	MLLWP70LED50DS	None	Bronze		70	
73591	MLLWP70LED50DSEM	Emergency Battery Backup	Bronze			
71392	MLLWP70LED50DSPC12	120V Photocontrol	Bronze			
71391	MLLWP70LED50DSPC27	277V Photocontrol	Bronze			
71132	MLLWP70LED50DSW	None	White			
74143	MLLWP70LED50DSMS4 T24	Motion/Daylight Sensor	Bronze			
73850	MLLWP70LED50DSWPC12	120V Photocontrol	White			

Please contact your MaxLite representative to order products that don't have order codes listed here.

Merak LED Roadway & Area Lights

Merak™ LED Roadway and Area Lights

MELR

maxLED by MaxLite

DesignLights Consortium®-qualified, our Merak® energy saving LED Roadway and Area Lights utilize LM-80-rated LEDs to ensure long life and high thermal endurance. The Merak fixtures comes with a shorting photocell receptacle cap that allows for optional NEMA photocells. This very low EPA fixture also features a high-impact lens over a series of LED modules, sealed in a durable aluminum die cast housing.

PROJECT NAME
CATALOG NUMBER
NOTES
FIXTURE TYPE

FEATURES:

- Durable, die-cast aluminum housing
- Sealed high impact polycarbonate lens
- Stainless steel latches for tool-less maintenance
- Sustainable LED module arrays, each with an independent heat sink
- Types I through III distributions
- Available in NEMA photocell-ready configuration
- Universal (120 to 277) volt operation with no re-strike delay; 347- and 480-volt models available by custom order
- Precise aiming with mast installation toggle and arm sleeve pivots
- 10 Kv surge protection and dimmable
- IP66 rating

Photocell shown for reference only, not included

CONSTRUCTION:

- Optics are designed to reduce glare
- Aluminum die cast 6082 alloy
- Corrosion resistant polyester powder coat finish
- High shock and vibration resistance
- Five year limited warranty

INSTALLATION:

- Adjustable slipfitter with -15 to +30 degree adjustment for horizontal leveling or tilting
- Slipfitter can be locked at a 90 degree angle for pole top tenon installation
- Adjustable to accomodate from 1.5 to 2-3/8 in. mounting pipe or tenon

ASSEMBLED IN THE U.S. AVAILABLE

DLC LISTED · RoHS COMPLIANT · cULus LISTED · FC

MERAK ROADWAY AND AREA ORDERING
TYPICAL ORDER EXAMPLE: MELR120U350

Series	Technology	Type	Wattage	Voltage	Distribution	CCT	Finish*	Photo-control
ME = Merak	**L** = LED	**R** = Roadway and Area Light	**30** = 30W; 2550 lm **60** = 60W; 5380 lm **90** = 90W; 7930 lm **120** = 120W; 10570 lm **150** = 150W; 13200 lm **180** = 180W; 15860 lm **210** = 210W; 18500 lm **240** = 240W; 21000 lm **270** = 270W; 23760 lm **300** = 300W; 26400 lm	**U** = 120-277V **4*** = 347-480V	**1** = Type I **2** = Type II **3** = Type III**	**50** = 5000K	**Blank** = Standard Gray Finish **B** = Bronze **BL** = Black **W** = White	**PC** = Photo-control Receptacle

MAX12114

*For 347V and 480V special order only; contact MaxLite for MOQ.
**DLC listing on Type III distribution only

When ordering beam type, add 1, 2 or 3 for IES beam type to end of model number as indicated.

MaxLite®: 1-800-555-5629 | **Fax:** 973-244-7333 | **Web:** www.maxlite.com | **E-mail:** info@maxlite.com

MaxLite Revised: 7-14-14

Merak™ LED Roadway and Area Lights

MELR

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SPECIFICATIONS:

Item	Specification	Details
General Performance	Spacing Criteria	Available upon request
	Color Temperature (CCT)	5000K
	Lumens	As noted on pg. 1
	Efficacy	See pg. 1
	Beam Type Avail.	Type I, II or III
	CRI	>75
	Lumen Maintenance (L70)	104,000 hours
Electrical	Power Factor	Over 96% @120v
	Input Voltage	120V-277V 50/60 Hz
	Power Consumption	See pg. 1 for nominal
	Input Current	700MA
	Working Voltage	DC 53-210V
Physical	Dimensions	See chart below
	Weight	See chart below
	Housing	Aluminum die cast, extruded alum rails
	Lens	Polycarbonate X 2.3 mm thick
	Mounting	1.96-2.36 in. pipe (50mm-60mm)
	Mounting Heights	15-80FT
	Operating Temperature	-40°C~50°C
	Humidity	10% - 95% RH, non condensing
Certification	Certification	cULus, FCC, LM79, LM80
	Material Usage	RoHS compliant; no mercury
	Environment	Outdoor / IP66
	Warranty	5 years

Model	Fixture Weight Lbs. (Kg)	Fixture Equivalent	EPA (Sq. Ft.)	Dimensions L" x W" x H"
MELR30Ux50	10.8 (4.9)	70W HPS/MH	1.17	19.8" x 13.6" x 4"
MELR60Ux50	13.9 (6.3)	100-150W HPS/MH	1.31	22.2" x 13.6" x 4"
MELR90Ux50	16.9 (7.7)	175-250W HPS/MH	1.45	24.6" x 13.6" x 4"
MELR120Ux50	20 (9.1)	250W HPS/MH	1.59	27.1" x 13.6" x 4"
MELR150Ux50	23.1 (10.5)	300-400W HPS/MH	1.72	29.5" x 13.6" x 4"
MELR180Ux50	24.2 (11)	400W HPS/MH	1.86	31.9" x 13.6" x 4"
MELR210Ux50	25.3 (11.5)	500-600W HPS/MH	2.01	34.4" x 13.6" x 4"
MELR240Ux50	26.4 (12)	600W HPS/MH	2.21	36.9" x 13.6" x 4"
MELR270Ux50	30.6 (13.9)	750W HPS/MH	2.34	39.3" x 13.6" x 4"
MELR300Ux50	32.3 (14.6)	750-1000W HPS/MH	2.48	41.7" x 13.6" x 4"

ACCESSORIES:

6390LBK

WMB1HBZ

A wide assortment of mounting accessories are available.

DLC · RoHS COMPLIANT · cULus LISTED · FC · MaxLite

MaxLite®: 1-800-555-5629 | **Fax:** 973-244-7333 | **Web:** www.maxlite.com | **E-mail:** info@maxlite.com

Revised: 7-14-14

LED Vapor Tight Linear Fixtures

maxLED by MaxLite

PROJECT NAME:_____ CATALOG NUMBER:_____

NOTES:_____ FIXTURE SCHEDULE:_____

LED VAPOR TIGHT LINEAR FIXTURES
LSV SERIES

24" LED Vapor Tight

Sensor

48" LED Vapor Tight

PRODUCT DESCRIPTION:
A cost effective LED Vapor Tight Fixture, features full length polycarbonate lens, one piece white (PC) Polycarbonate body. Designed to meet or exceed IES recommended Fc at installed heights for parking drive lane compliance. For uses as utility lighting, parking garage and stairwell lighting where meets applicable building and safety codes.

FEATURES:
- Thermal/Lumen balanced light engine[5]
- Non-Corrosive (PC) Polycarbonate housing
- Stainless Steel spec grade hasps and clips
- Back KO location and End sealed Conduit openings methods
- Low power consumption
- Ceiling or wall mounted
- IP66 rated with hermetic sealing
- White Finish standard
- CRI >83
- Assembled in USA available upon request

CONSTRUCTION:
- One piece (PC) Polycarbonate housing body
- Clear Lens with inside ribbing Std.
- Translucent white lens optional
- Electrostatic Painted Steel gear tray
- Universal voltage 120-277v
- 0-10V Dimming standard
- Class II driver

THERMAL/ LUMEN BALANCED LIGHT ENGINES –
MaxLite engineered low drive rates allow cooler operating temperatures. This translates as less thermal heat sinking needed, while allowing more LED's to be used, resulting in more lumen output. Cooler LED's perform correspondingly longer than harder driven hot LED's.

CONTROL:
- Omni-directional quad element infrared sensor
- Frequency detection zero-cross relay switching
- 0-10V selectable output for low dim control
- Walk test and sensor operation LED indicator
- Direct lead wires for easy wiring connections
- 8 rotary DIP switch selectable control modes
- 7 low dim levels changeable via Accu-Set

MODEL SELECTION (Full list of order codes on pg. 3) — Typical order example: LSV4806SU30DV40MS

LS	V		06	S	U		DV		
FAMILY	TYPE	LENGTH (IN)	WIDTH (IN)	APPLICATION	VOLTAGE	NOMINAL WATTAGE	DIMMING	CCT	OPTIONS
LS= Linear Series	V= Vapor Tight	24= 26" 48= 50"	06= 6.75"	S= Surface Mount	U= Universal 120-277VAC	30= 30W 50= 50W**	DV= 0-10V Dim-ming***	40= 4000K 50= 5000K	MS= Motion sensor TS= Translucent white diffuser EM= Back up lighting

NOTES:
1. DLC is only approved on fixtures with clear lens
2. **50W not available in 24 length
3. For DLC compliance to Category 9 Stairwell & Passageway use MS models
4. For DLC compliance to Category 21 Linear Ambient Direct use standard models
5. For DLC Catagory 23 Lowbay performance use 4' 50w model without TS option
6. Clear lens are standard and frosted lens is optional

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LED VAPOR TIGHT LINEAR FIXTURES
LSV SERIES

SPECIFICATIONS:

ITEM	SPECIFICATION	LSV24 DETAILS	LSV48 DETAILS	
	Color Temperature (CCT)	4000K, 5000K	4000K, 5000K	
	Wattage	30W	30W	50W
	Deliver Lumens	3082-3113	3937-3506	4998-5043
	Efficacy (LM/W)	>95	>112	>104
	Spacing Criteria	1.28 (0-180) / 1.68 (90-180)	1.18 (0° – 180°) / 1.72 (90° – 270°)	
	Beam Angle	70.3° (V) / 36.2° (H)	74.8° (V) / 47.6° (H)	
	Standby Lumens	0-50% Selectable with Occupancy Sensor		
	Color Consistency	Proprietary binning for uniform color		
	Lumen Maintenance (L70)	50,000 hours		
ELECTRICAL	Power Factor	Over 0.90	Over 0.90	
	Maximun THD	<20%	<20%	
	Input Voltage	120-277V	120-277V	
	Power Cosum. (tested)	32.15	31.0	<48.11
CONTROL	System	0-10v Dimming		
	Control	30w = 15 Fixtures | 50w = 10 Fixtures		
Occ SENSOR**	Sensor Load	Max 800W		
	Dimming Levels	0/ 5/ 10/ 20/ 25/ 33/ 50% selectable		
	Ambient Light Level	Selectable Ambient Light Levels (3 levels)		
	Time Delay	Selectable Time delay (1 min to 30 min)		
	Type	Omni-directional quad element pyroelectric		
	Optics	Standard: Conical / 8-15' Install Hts / 2x Ht beam width		
	Rating	120-277V / Wet Listed		
PHYSICAL	Dimensions (L x W x H)	26" x 6.75" x 4.75"	50" x 6.75" x 4.75"	
	Dimensions w/ Occ Cntrl	30.25" x 6.75" x 4.75"	54.25" x 6.75" x 4.75"	
	Weight	5 +/- 5 lbs	7 +/- 5 lbs	
	Housing	5VA Opaque Polycarbonate		
	Lens	Ribbed Clear Polycarbonate Std		
	Mounting	Ceiling Surface mount (Hardware incl)		
	Operating Temperature	-4°F to 104°F		
CERTIFICATION	Certification	UL, FCC, LM79, LM80, Back Up Lighting conforms to UL1598		
	Material Usage	RoHS compliant; no mercury		
	Environment	Indoor / Outdoor Covered – Wet, IP65		
	Warranty	5 Year		

L70 LUMEN MAINTENANCE AT 25°C PER IESNA TM-21-2008

MODELS	IESNA CALCULATED LIFE
LSV2406SU30XXXX	56,000 Hrs
LSV4806SU30XXXX	76,000 Hrs
LSV4806SU50XXXX	54,000 Hrs

NOTES:
1. *Contact MaxLite for Final LM-79 reports
2. ** Must order with "MS" suffix to receive occupancy control, factory assembled only, not sold separate
3. Designed for sustainability. Contact MaxLite for any repair or replacement components needed

Phone: 1-800-555-5629 | Fax: 973-244-7333 | Web: www.maxlite.com | E-mail: info@maxlite.com

LED Area Light Series

maxLED by MaxLite

PROJECT NAME:_____ CATALOG NUMBER:_____

NOTES:_____ FIXTURE SCHEDULE:_____

LED Area Lights Series
MLAR

MLAR70LED50

MLAR100LED50

MLAR140LED50

PRODUCT DESCRIPTION:
MaxLite's LED Area Lights are efficient, energy saving replacements for metal halide and high-pressure sodium fixtures, containing an universal voltage driver.

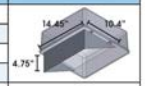
The fixtures come standard with a 6" extruded arm in standard dark bronze; a white finish is also available.

FEATURES:
- Replaces up to 400 Watt pulse start metal halide
- CCT: 5000K
- CRI > 66
- Universal 100 to 277V, 50/60 Hz driver
- 6" extruded aluminum arm included
- Full cutoff classification both type V square and wide distributions
- Black ceramic paint frit lens mask reduces glare and improves appearance
- Constructed without any hazardous materials
- Compatible with mechanical relay type Photocell and occupancy sensor
- LM-79/80 reports available
- Calculated L_{70} based on LM-80 testing > 100,000 hours
- Five year limited warranty

MODEL SELECTION (Full list of order codes on pg. 3) — Typical order example: MLAR140LED50WPCMS4

MLAR		LED	50				
FAMILY	WATTAGE	TECH.	(CTT)	COLOR	VOLTAGE	PHOTOCONTROL	CONTROL
MLAR= Large Flood	70= 70W 100= 100W 140= 145W	LED= LED	50= 5,000K	OMIT= Bronze (Standard) W= White[1]	OMIT= 120-277V UH= 347-480V	OMIT= None PC= Rotatable Photocontrol Socket	OMIT= None MS4= Motion/Daylight Sensor (Hi/Low/Off)

REPLACEMENT / OPTIONAL ARMS / ACCESSORIES

ORDER CODE	MODEL NUMBER	DESCRIPTION	ACCESSORIES IMAGES
71454	AR6STBZ	6" area light arm for 4"-6" square poles (Bronze)	
71455	AR12STBZ	12" area light arm for 4"-6" square poles (Bronze)	
71453	AR12RPBZ	12" area light arm for 4" round poles (Bronze)	
72710	MLARFLGS	Glare/House Side Shield	
72112	SB2BZ[2]	Swivel bracket 2 piece, supports max weight of 18lbs	

NOTES:
1. [1] Consult factory for lead time
2. [2] Swivel bracket is only for 70W and 100W

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LED Area Lights Series
MLAR

SPECIFICATIONS:

ITEM	SPECIFICATION	MLAR70LED50	MLAR100LED50	MLAR140LED50	MLAR70LED50/5W	MLAR100LED50/5W	MLAR140LED50/5W
		TYPE V SQUARE OPTICS - DETAILS			TYPE V SQUARE WIDE OPTICS - DETAILS		
GENERAL PERFORMANCE	Spacing Criteria	Available upon request					
	Power Consumption	62W	100W	136W	62W	100W	136W
	Lumens Delivered	5,220	9,130	11,730	5,470	9,160	12,140
	Efficacy	85 lm/w	92 lm/w	86 lm/w	89 lm/w	92 lm/w	90 lm/w
	CRI	68			70		68
	Beam Angle	74°	78°	79°	117°	115°	116°
	Field Angle	94°		93°	151°	153°	151°
	Color Temperature (CCT)	5000K					
	CRI	68 min					
	Lumen Maintenance (L70)	100,000 hours					
ELECTRICAL	Power Factor	Over 90%					
	Input Voltage	120V-277V 50/60 Hz					
PHYSICAL	Dimension	16.5" x 16.5" x 7.5"					
	EPA	1.10					
	Weight	17 lbs.					
	Housing	Aluminum					
	Lens	Tempered glass					
	Mounting	6" Ext. Alum Arm, Std					
	Operating Temperature	-30°F to 115°F					
CERTIFICATION	Certification	cETLus, FCC, LM79, LM80, DLC					
	Material Usage	RoHS compliant; no mercury					
	Environment	Outdoor					
	Humidy	20% - 85%, RH, non condensing					
	Warranty	5 Year					

Lighting layouts and spacing criteria available upon request

DIMENSIONS:

OPEN OPTICS OPTIONS:

LED Large Flood Light Series

maxLED by MaxLite

PROJECT NAME:_____ CATALOG NUMBER:_____

NOTES:_____ FIXTURE SCHEDULE:_____

LED Large Flood Light Series
MLFL

MLFL70LED50

MLFL100LED50

MLFL140LED50

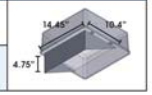
PRODUCT DESCRIPTION:
An efficient, energy saving replacement for metal halide and high-pressure sodium fixtures, containing an integral listed driver, the LED Flood Light Series fixtures can be easily installed to a slip fitter.

The fixtures come standard with a 2-3/8" slip fitter adjustable knuckle in standard dark bronze; consult the factory for white finish.

FEATURES:
- Replaces up to 400 Watt pulse start metal halide
- CCT: 5000K
- CRI > 66
- Universal 100 to 277V, 50/60 Hz driver
- 2-3/8" slip fitter knuckle included
- NEMA 5x5 and 7x7 distributions available
- Black ceramic paint frit lens mask reduces glare and improves appearance
- Constructed without any hazardous materials
- Compatible with mechanical relay type Photocell and occupancy sensor
- LM-79/80 reports available
- Calculated L_{70} based on LM-80 testing > 100,000 hours
- Five year limited warranty

MODEL SELECTION (Full list of order codes on pg. 2) — Typical order example: MLFL100LED50UHPC/F

MLFL		LED	50					
FAMILY	WATTAGE (NOMINAL)	TECH.	CCT	COLOR	VOLTAGE	PHOTOCONTROL	CONTROLS	DISTRIBUTION
MLFL= Large Flood	70= 70W 100= 100W 140= 140W	LED	50= 5000K	(OMIT)= Bronze (Standard) W= White[1]	(OMIT)= 120-277V (Standard) UH= 347-480V	(OMIT)= None PC= Rotatable Photocontrol Socket	(OMIT)= None MS4= Motion/Day-light Sensor (Hi/Low/Off)	(OMIT)= Medium Flood /F= Wide Flood

ACCESSORIES			
ORDER CODE	MODEL NUMBER	DESCRIPTION	ACCESSORIES IMAGE
71456	FL2.37TF270	Slip Fitter Knuckle (Bronze)	
72710	MLARFLGS	Glare/House Side Shield	

NOTES:
1. * Consult factory for lead time

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LED Large Flood Light Series
MLFL

SPECIFICATIONS:

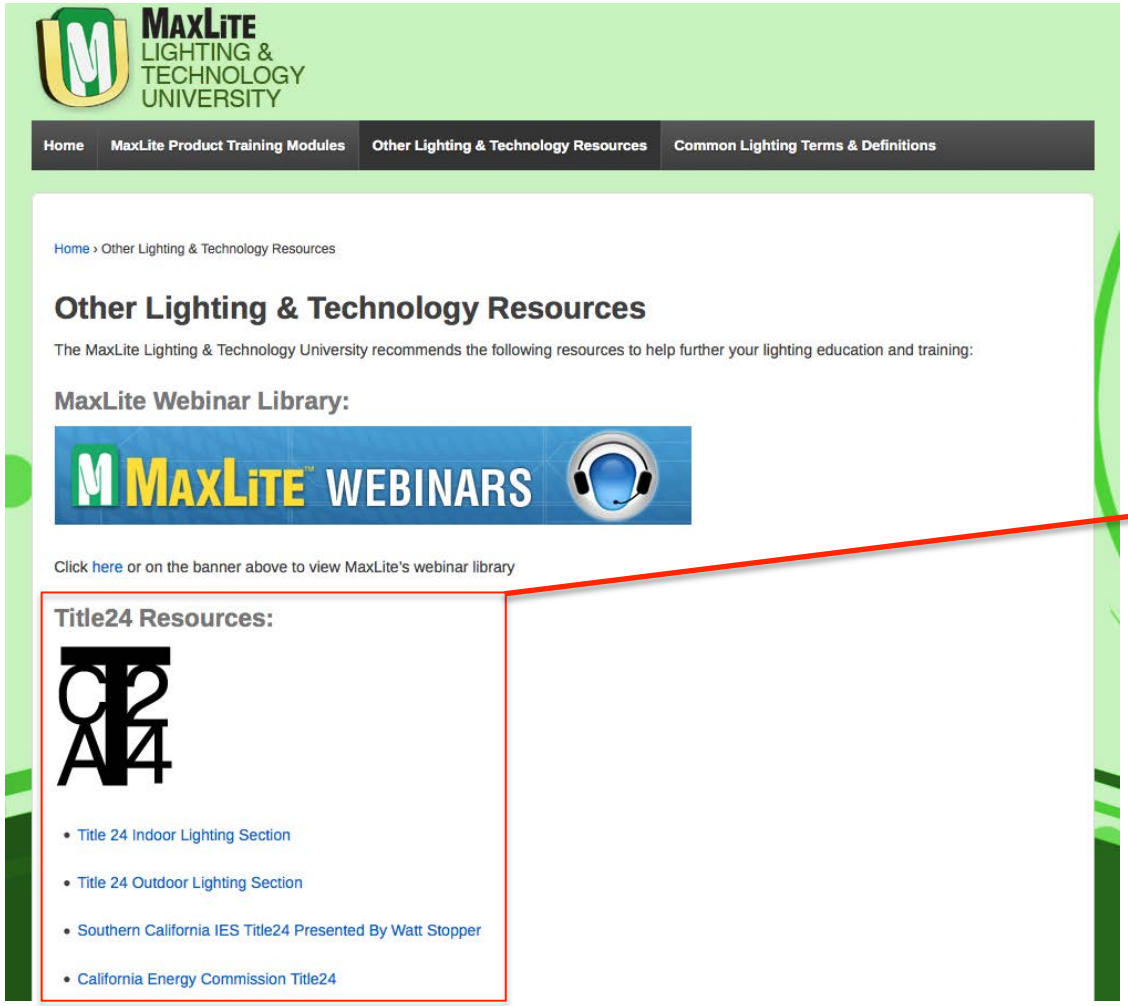
ITEM	SPECIFICATION	MLFL70LED50	MLFL100LED50	MLFL140LED50	MLFL70LED50/F	MLFL100LED50/F	MLFL140LED50/F
		NEMA 5X5 OPTICS - DETAILS			NEMA 7X7 OPTICS - DETAILS		
GENERAL PERFORMANCE	Spacing Criteria	Available upon request					
	Power Consumption	62W	100W	136W	62W	100W	136W
	Lumens Delivered	5,220	9,130	11,730	5,470	9,160	12,140
	Efficacy	85 lm/w	92 lm/w	86 lm/w	89 lm/w	92 lm/w	90 lm/w
	CRI	68			70		68
	Beam Angle	71°	78°	79°	117°	115°	116°
	Field Angle	92°	93°		152°	151°	151°
	Color Temperature (CCT)	5000K					
	CRI	68 min					
	Lumen Maintenance (L70)	100,000 hours					
ELECTRICAL	Power Factor	Over 90%					
	Input Voltage	120V-277V 50/60 Hz					
PHYSICAL	Dimension	16.5" x 16.5" x 7.5"					
	EPA	1.10					
	Weight	18.4 lbs.					
	Housing	Aluminum					
	Lens	Tempered glass					
	Mounting	2 3/8" slip fitter knuckle, std.					
	Operating Temperature	-30°F to 115°F					
CERTIFICATION	Certification	cETLus, FCC, LM79, LM80, DLC					
	Material Usage	RoHS compliant; no mercury					
	Environment	Outdoor					
	Humidy	20% - 85%, RH, non condensing					
	Warranty	5 Year					

Lighting layouts and spacing criteria available upon request
Please contact your MaxLite representative to order products that don't have order codes listed here.

ORDERING:

ORDER CODE	MODEL	WATTS	LUMENS	CCT	DIMENSIONS (L" x W" x H")
71589	MLFL70LED50	62	5220	5000	16.5" x 16.5" x 7.5"
72032	MLFL70LED50/F	62	5470		
71587	MLFL100LED50	100	9130		
72034	MLFL100LED50/F	100	9160		
71585	MLFL140LED50	136	11,730		
72036	MLFL140LED50/F	136	12,140		

TITLE 24
Other Resources



Visit the MaxLite University's [Other Lighting & Technology Resources] page for more information on Title 24.

MaxLite Supports T24 Compliance

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California Title 24

California's Title 24 building code is part of an ongoing piece of legislation that aims to reduce energy consumption in California through regulation of construction and building standards. At MaxLite we recognize that Title 24 is complex and can be difficult to work with. We want to make it easy. Browse our products below, all of which can easily support Title 24, and please contact us so that we can help you achieve the best solution for your building project.

Have Questions? Click here for **Title 24 Faqs**

Click an items SKU to view its data sheet. Click "download" for an Excel or PDF version of our product list with specs. Excel PDF Print this page

Image	Item (SKU)	Order #	Description	Watts	Equivalent Wattage	Lumens	Efficacy (lms/w)	Color Temp (K)	Lifetime	Listing
Outdoor LED Fixtures										
	LSV2406SU30DV40	73177	73177 LED VAPOR TIGHT 24" 120-277V 30W 0-10V 4000K	32.2	(3) F17T8; (2) F24T5	3082.0	96.0	4000	50000	DLC
	LSV2406SU30DV40EM	73189	73189 LED VAPOR TIGHT 24" 120-277V 30W 0-10V 4000K W/ BBU	32.2	(3)f17T8; (2)F24T5	3082.0	96.0	4000	50000	DLC
	LSV2406SU30DV40MS	73185	73185 LED VAPOR TIGHT 24" 120-277V 30W 0-10V 4000K W/ MOTION SENSOR	32.2	(3)F17T8; (2)F24T5	3082.0	96.0	4000	50000	DLC
	LSV2406SU30DV50	73178	73178 LED VAPOR TIGHT 24" 120-277V 30W 0-10V 5000K	32.2	(3) F17T8; (2) F24T5	3113.0	97.0	5000	50000	DLC
	LSV2406SU30DV50EM	73190	73190 LED VAPOR TIGHT 24" 120-277V 30W 0-10V 5000K W/ BBU	32.2	(3) F17T8; (2)F24T5	3113.0	97.0	5000	50000	DLC
	LSV2406SU30DV50MS	73186	73186 LED VAPOR TIGHT 24" 120-277V 30W 0-10V 5000K W/ MOTION SENSOR	32.2	(3) F17T8; (2) F24T5	3113.0	97.0	5000	50000	DLC
	LSV4806SU30DV40	73225	73225 LED VAPOR TIGHT 48" 120-277V 30W 0-10V 4000K	31.0	(3) F32T8; (2)F54T5	3937.0	112.0	4000	62000	DLC
	LSV4806SU30DV40EM	73237	73237 LED VAPOR TIGHT 48" 120-277V 30W 0-10V 4000K W/ BBU	31.0	(3) F32T8; (2) F54T5	3937.0	112.0	4000	62000	DLC

Title 24 FAQ

SUPPORTS T24 COMPLIANCE

Title 24 Frequently Asked Questions

Outdoor Lighting

Q: Which major changes affect outdoor lighting under the 2013 Code of Title 24?

A: With a few exceptions, motion sensors, photo controls and scheduling controls are now required on most outdoor lighting so that they turn off during daylight hours or reduce their power by at least 40% when the area is not in use.

Q: I am installing a flood light on the top of a 30-ft. pole. Do I need to have a motion sensor control?

A: No. Motion sensor controls are required, in addition to photo controls and scheduling controls, for all outdoor lighting mounted 24 feet high or lower, and for any incandescent luminaires over 100 watts.

Q: On a parking garage application, can I maximize my energy savings by reducing the lighting fixture power consumption by 90%?

A: No. Parking garage, parking areas, loading and unloading areas and general lighting areas must reduce at least 50% of the design power, but not lower than 20%

Q: I hear that covered parking garages are considered indoor applications under Title 24. Is it true and how will that affect my design?

A: Yes. Covered parking garages are considered indoor areas and daylighting zone requirements have to be considered. When primary side lit zones receive sufficient daylight to reach levels above 150% of that provided by electric lighting when no daylight is available, controls must reduce lighting power to zero.

Q: Does Title 24 also affect the lighting on my outdoor sales areas?

A: Yes. Outdoor sales areas must meet Title 24's outdoor lighting requirements and they must also automatically reduce the lighting power by at least 40%, but not more than 80%, during vacant periods. Once the space becomes occupied the lighting power can switch back to the higher light level.

TITLE 24
Resources & Contact Information

- http://www.energy.ca.gov/title24
  - Energy Efficiency Standards
  - Compliance Manual
- Hotline: 800-772-3300

California Energy Commission
Energy Standards Hotline

(916) 654-5106
or toll free in California
(800) 772-3300

HOURS:
Monday through Friday
8 a.m. to 12 p.m. and 1 p.m. to 4:30 p.m.

E-mail: title24@energy.state.ca.us

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THANKS FOR ATTENDING!

FOR MORE INFORMATION ABOUT OTHER MAXLITE PRODUCTS, OR FOR LIGHTING QUESTIONS IN GENERAL; PLEASE CONTACT:

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