Automotive

Dealership Design Guide

AUTOMOTIVE
DEALERSHIP SOLUTIONS

COOPER Lighting

AUTOMOTIVE DESIGN GUIDE

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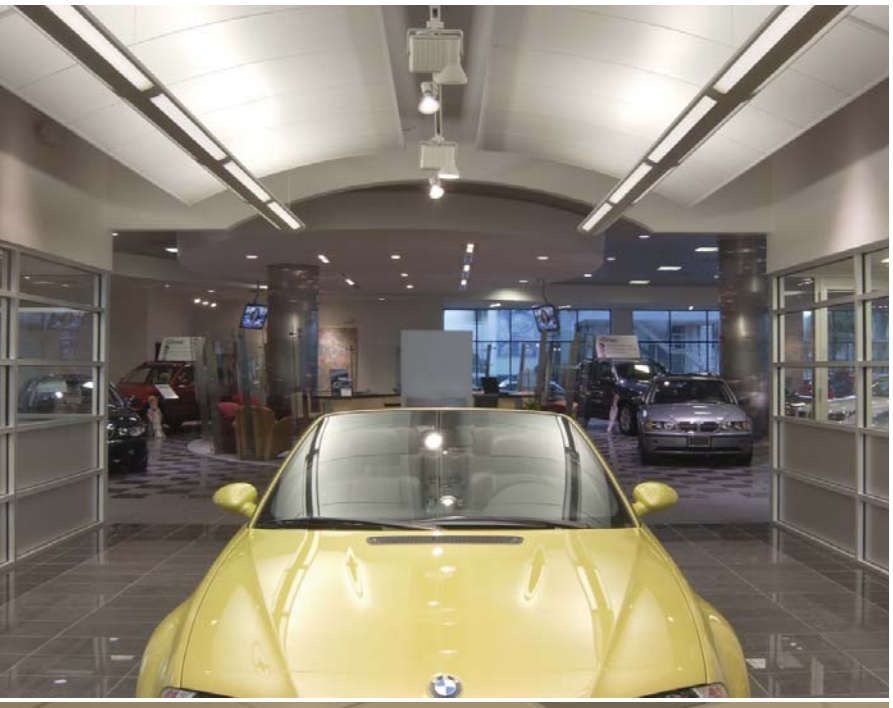
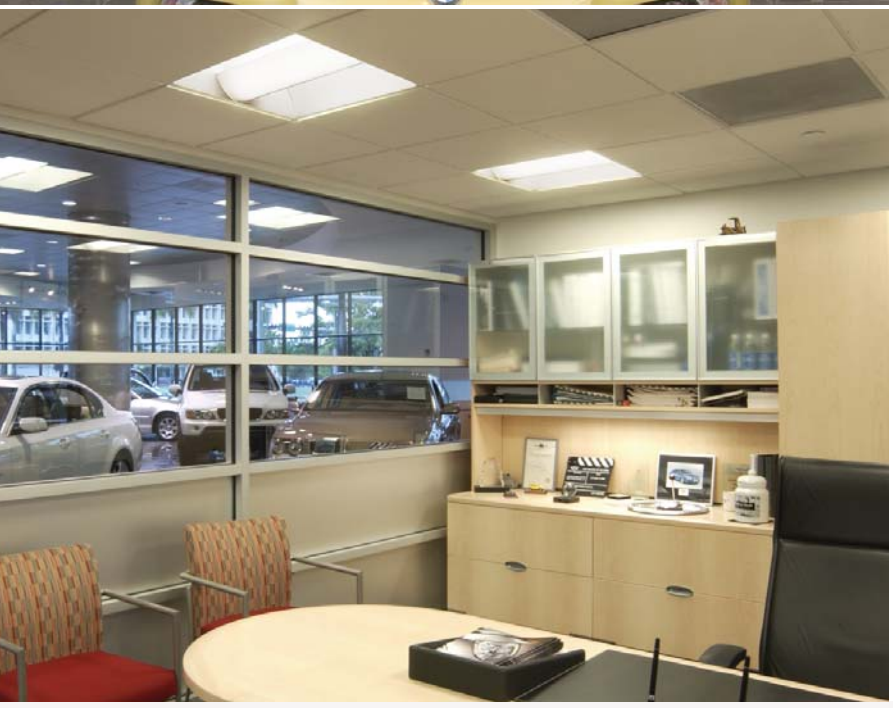




LEADING THE LIGHTING INDUSTRY

Cooper Lighting is a recognized industry leader offering first-class lighting solutions for even the most challenging applications. Addressing every area of an automotive dealership, Cooper Lighting manufactures high performance products that create inviting areas of uniform illumination, endure the most rigorous operating environments and offer exceptional energy savings opportunities.

Purchasing a vehicle is an emotional decision for consumers. Lighting displays can help showcase the outward appeal of an automobile, but more importantly, lighting can evoke the feeling of comfort for customers craving luxury, the rush of wind for an individual longing for the freedom of a sporty convertible or portray ironclad safety for the family desiring protection for their loved ones. Regardless of the emotions you would like to stir, Cooper Lighting's team of application experts have over 50 years of experience turning customer vision into reality. Whether the project calls for straight-forward illuminance calculations or state-of-the-art three dimensional renderings, Cooper Lighting can provide the supporting documentation necessary to complete your next automotive dealership project.

OUTDOOR SITE LIGHTING

Exterior site lighting provides the first impression of an automotive dealership and is an outward expression of image. During daytime hours, the form of the exterior site light should compliment dealership architecture and tie to dealership branding. For evening operation, properly designed site lighting entices customers, attracting business to the dealership. When developing site lighting configurations careful consideration should be given to surrounding establishments, the image you would like to portray to customers and the impact the lighting system will have on operating costs.

CONSIDER YOUR LOCATION

When selecting the proper light levels for your next dealership project, first determine how much visual competition is created by adjoining properties. The human eye is drawn to the brightest area in its field of view. In order to capture consumer attention, site lighting illuminance levels should be at least comparable with that of neighboring establishments without being over-illuminated. If neighboring property is yet to be developed, review what type of future growth is currently in the zoning documentation. Note IESNA competition levels associated with these common development types.

Neighboring Development	IESNA Competition Level
Auto Mall/Auto City	High-Enhanced
Service Stations/Convenience Store	Medium-High
Large National Retailers	Medium
Small Retail Centers	Low

The Illuminating Engineering Society of North America [IESNA] characterizes surrounding ambient environments as high, medium or low competition areas. Based on this competition level, an average maintained illuminance target and a maximum allowable uniformity level are recommended for each section of an automotive dealership.

Area to Illuminate	High Competition Maintained Level [fc]	Medium Competition Maintained Level [fc]	Low Competition Maintained Level [fc]	Horizontal Uniformity [Max.Min.]
Parking and Circulation [Non-Merchandising Area]	10	7	5	10:1
General Merchandise [Main Automotive Display Lot]	50	30	20	5:1
Featured Displays [Front Row and Display Stands]	75	50	35	3:1

Exterior lighting requirements continue to grow more stringent. Many states and municipalities have adopted legislation that impacts lighting design applications. For areas requiring dark sky friendly solutions, full cutoff flat glass optical assemblies provide focused illumination with zero uplight and minimal high angle light while retaining superior uniformity. When strict spill light control is mandated, house-side shields and application-specific optical assemblies keep light on task. Whether the goal of your site lighting design is safety, general ambiance or highlighting feature displays, Cooper Lighting offers application-specific optical solutions that provide the highest level of photometric performance and control.

OUTDOOR SITE LIGHTING THAT HEIGHTENS CONSUMER AWARENESS.


MCGRAW-EDISON [Talon]


MCGRAW-EDISON [Galleria Square]


MCGRAW-EDISON [Galleria Round]


MCGRAW-EDISON [CLM]


MCGRAW-EDISON [Landau]


INVUE [Icon]

CONSIDER YOUR IMAGE

Site lighting provides a means of navigation through the exterior merchandising area and rounds out the overall aesthetic appeal of the automotive dealership. Whether your style calls for the simple elegance of a square housing or the fluid appeal of a rounded architectural luminaire, Cooper Lighting is a recognized site lighting leader offering a variety of fixture forms to compliment any architectural motif.

Site lighting luminaires can be further tied to dealership colors or branding through a full line of architectural finish options and available custom color striping on select products.

STANDARD ARCHITECTURAL FINISHES

BK
Black

AP
Grey

BZ
Bronze

WH
White

DP
Dark Platinum

GM
Graphite Metallic

OPTIONAL STRIPED REVEAL COLORS [Galleria Only]

CSR
Red

CSB
Blue

CSY
Yellow

CSG
Green

CSD
Gold

CSS
Silver

CSW
White

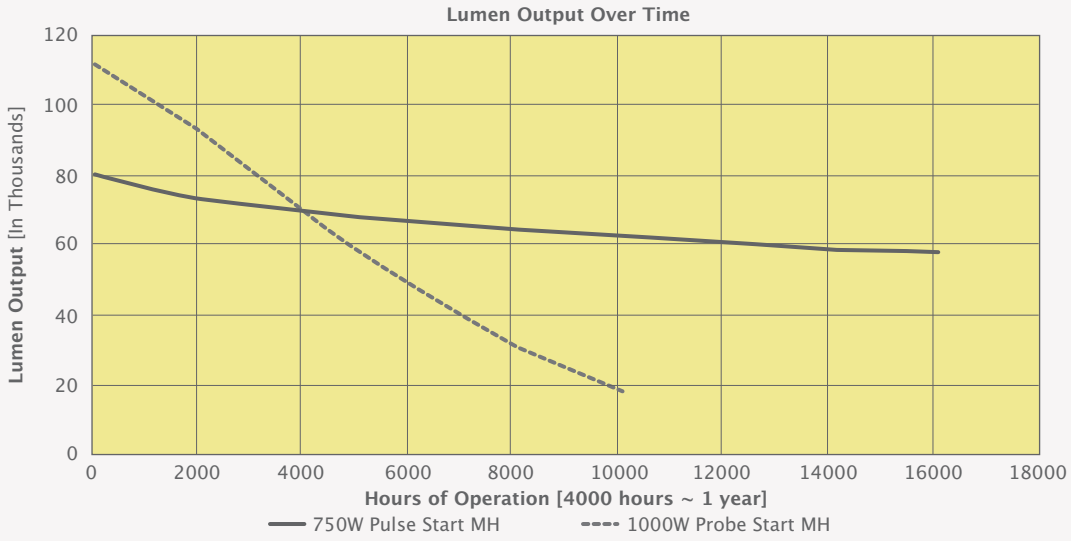
Customers are more likely to enter a dealership and remain on the premises when the lighting creates a comfortable environment. Accel Optics, Cooper Lighting's family of automotive reflector solutions, specialize in focused front row product displays that engage the customer, general merchandise lighting that creates an inviting dealership appearance emanating safety and security and perimeter lighting that precisely frames the automotive dealership lot.

AccelOptics

CONSIDER YOUR POCKETBOOK

When selecting site lighting products, three important cost factors should be evaluated—fixture construction, energy consumption and maintenance cycle. Corrosive moisture, broad temperature variation and flocking insects make the outdoor environment particularly challenging for optimal luminaire performance. Premium materials and precisely toleranced construction allow site lighting products to perform efficiently with minimal maintenance. Cooper Lighting uses silicone gasketing, enhanced TGIC powder coat paint and premium reflector materials to ensure the highest level of photometric performance and unwavering endurance over the fixture's installed life.

In addition to luminaire construction, light source selection can dramatically impact the operating and maintenance costs of the lighting system. Pulse Start Metal Halide technology is being embraced for its efficiency, extended life, high lumen maintenance and color consistency. The increased color rendering index [CRI] of pulse start lamps improves visibility and heightens the overall safety and security of the site. Higher lumen maintenance reduces the number of fixtures needed to achieve a consistent illuminance level over the fixture's installed life. Initial savings are compounded by decreased energy consumption and less frequent maintenance intervals. By supporting a full array of both horizontal and vertical lamp positions, Cooper Lighting's outdoor luminaire portfolio offers the broadest selection of energy saving pulse start solutions.



Lamp Type	Lamp Orientation	Maintained Lumens	Life [hrs.]	Input Watts	Efficacy [lms/w]
1000W Probe Start MH	Vertical	82,000	10,000	1080	102
	Horizontal	71,500	9,000	1080	97
1000W Pulse Start MH	Vertical	96,000	15,000	1100	109
	Horizontal	86,000	9,000	1100	98
875W Pulse Start MH	Vertical	80,000	20,000	940	106
	Horizontal	76,000	12,000	940	101
750W Pulse Start MH	Vertical	62,000	16,000	820	100
	Horizontal	47,500	12,000	820	83

energy savings

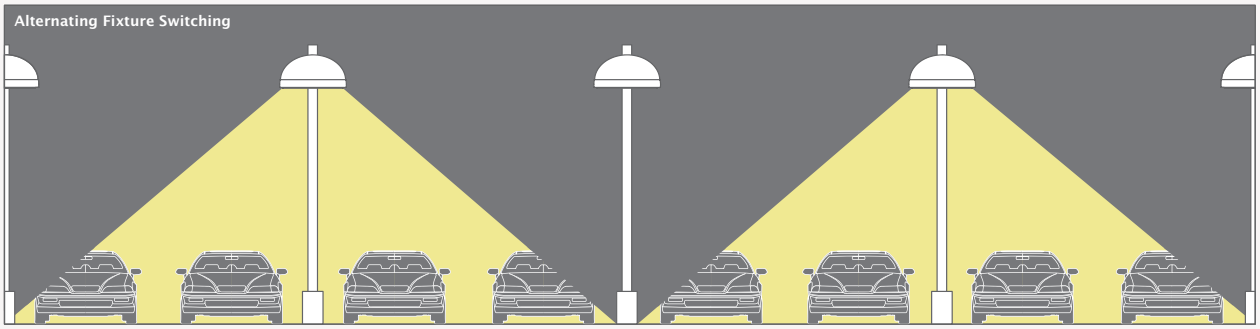
Lamp Type	Average Input Watts	Number of Fixtures [1]	Operating Hours/Day	Days/ Year	$/KWH	Total Annual Operating Cost [2]	Annual Savings [3]	% Savings
1000W Probe Start MH	1080	150	10	365	0.10	$59,130		
875W Pulse Start MH	940	150	10	365	0.10	$51,465	**$7,665**	**13%**
750W Pulse Start MH	820	150	10	365	0.10	$44,895	**$14,235**	**24%**

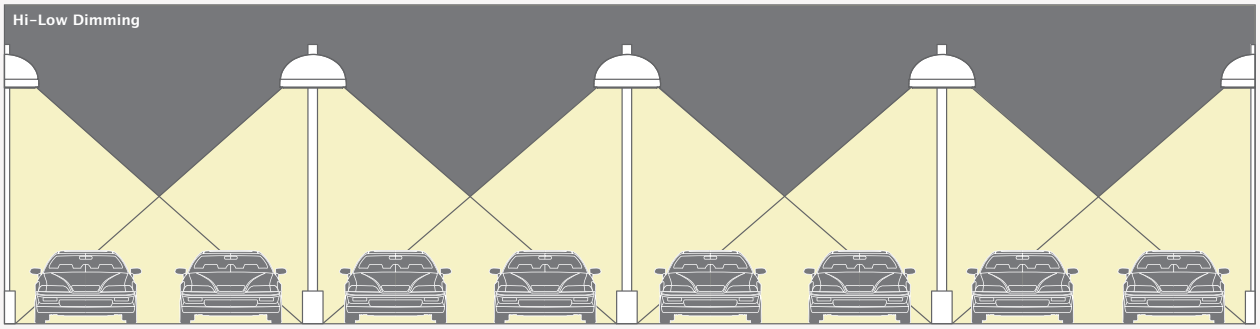
NOTES: 1 A medium sized automotive dealership typically has 150 fixtures on site. If your dealership varies from this size, savings can be calculated using the following multiplier: 0.67 [100 fixtures], 1.33 [200 fixtures], 1.67 [250 fixtures]. **2** Total annual cost is the cost of operating 150 fixtures 10 hours per day with a national average energy cost of $0.10 per KWH. Annual Cost = (Input watts)*(# of fixtures)*(operating hours)*(days/year)*(KWH/1000). **3** Annual Savings is the money saved by operating 150 fixtures for 10 hours per day with the listed pulse start lamp over the standard 1000W probe start lamp. Annual Savings = (Total Annual 1000W Probe Start MH cost) – (Total Annual Cost Pulse Start MH).

Beyond efficient light source selection, close-of-business site light dimming offers the next level of energy savings opportunities. On average, site lighting installations operate for approximately 10 hours each evening. During this time, only 4-6 hours are during actual business hours. Through close-of-business dimming protocol an average sized dealership could reduce operating expenses related to lighting system energy consumption in excess of 38%. Cooper Lighting's Hi-Low dimming option enables increased energy savings through an internally integrated dimming relay that reduces power while closely maintaining site lighting uniformity levels that ensure safety and inventory protection throughout the site.

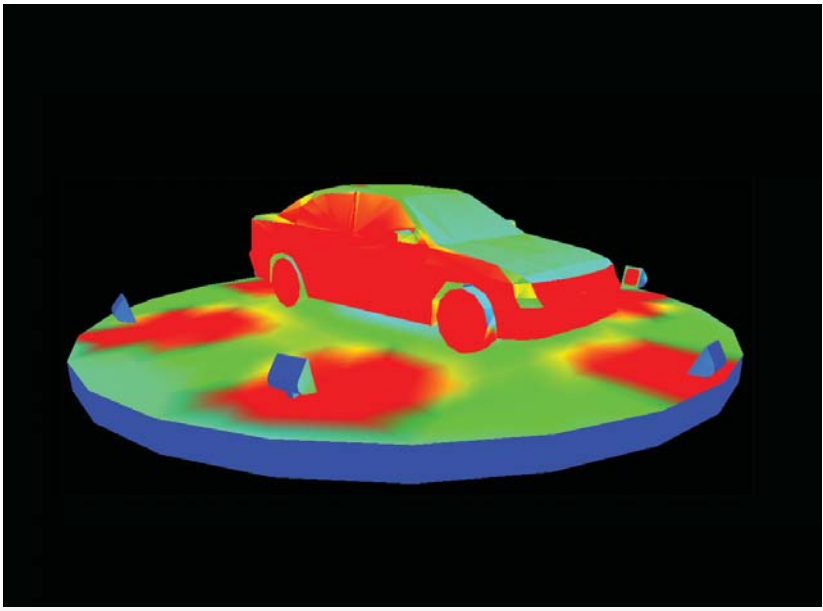
Lamp Type	Average Input Watts	Number of Fixtures [1]	Off Business Operating Hours/Day	Days/ Year	$/KWH	Total Annual Operating Cost [2]	Dimming Annual Savings [3]	% Savings
1000W Probe Start MH [Full Power]	1080	150	5	365	0.10	$29,565		
1000W Probe Start MH [Hi-Low Dimming]	665	150	5	365	0.10	$18,204	**$11,361**	**38%**
875W Pulse Start MH [Full Power]	940	150	5	365	0.10	$25,733		
875w Pulse Start MH [Hi-Low Dimming]	575	150	5	365	0.10	$15,741	**$9,992**	**39%**
750W Pulse Start MH [Full Power]	820	150	5	365	0.10	$22,448		
750W Pulse Start MH [Hi-Low Dimming]	498	150	5	365	0.10	$13,633	**$8,815**	**39%**

NOTES: 1 A medium sized automotive dealership typically has 150 fixtures on site. If your dealership varies from this size, savings can be calculated using the following multiplier: 0.67 [100 fixtures], 1.33 [200 fixtures], 1.67 [250 fixtures]. **2** Total annual cost is the cost of operating 150 fixtures 5 hours per day with a national average energy cost of $0.10 per KWH. Annual Cost = (Input watts)*(# of fixtures)*(operating hours)*(days/year)*(KWH/1000). **3** Annual Savings is the money saved by operating 150 fixtures in dimmed operation for 5 hours per day. Annual Savings = (Total Annual [Full Power] Cost) – (Total Annual [Hi-Low Dimming] Cost).





FEATURE DISPLAY LIGHTING

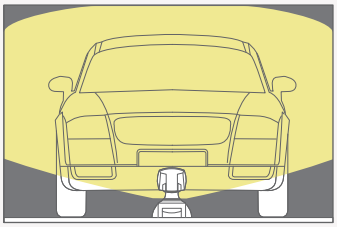


FLEXIBILITY AND VERSATILITY
The use of floodlighting products to highlight an automobile on an exterior display stand or platform is a powerful merchandising technique. Directional sources play off the vehicle's form to reveal its appeal, attracting attention and increasing the likelihood of connecting with the customer. Display stands require floodlighting fixtures with flexibility and versatility to accommodate continuous change while maintaining eye-catching illumination on the featured vehicle. Display stands are classified as feature displays with recommended 50-75 FC average illuminance.

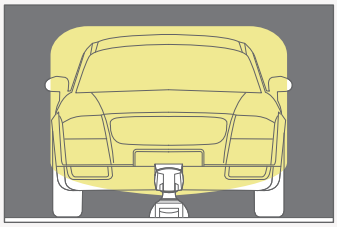
Controlled optical systems limit wasted energy by focusing illumination on the vehicle. For dark sky friendly locations, the addition of supplemental shielding and other light control options limit unwanted stray light and minimize direct lamp glare.

Area to Illuminate	Maintained Levels [fc]	Uniformity [Max./Min.]
Featured Displays	75-100	3:1

4-SIDED SHIELD
Controls lamp glare and spill light in all directions. Useful when aiming direction or intended target lies in close proximity to pedestrian traffic and motor vehicle activity.

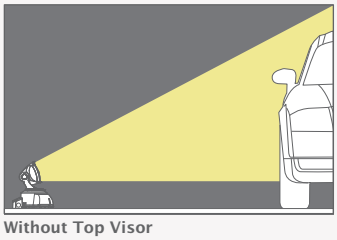


Without 4-Sided Shield

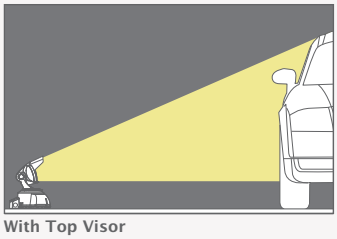


With 4-Sided Shield

TOP VISOR
Controls excess spill and glare on top portion of distribution. Especially useful in uplighting vehicles to limit light travel above the intended target.



Without Top Visor



With Top Visor

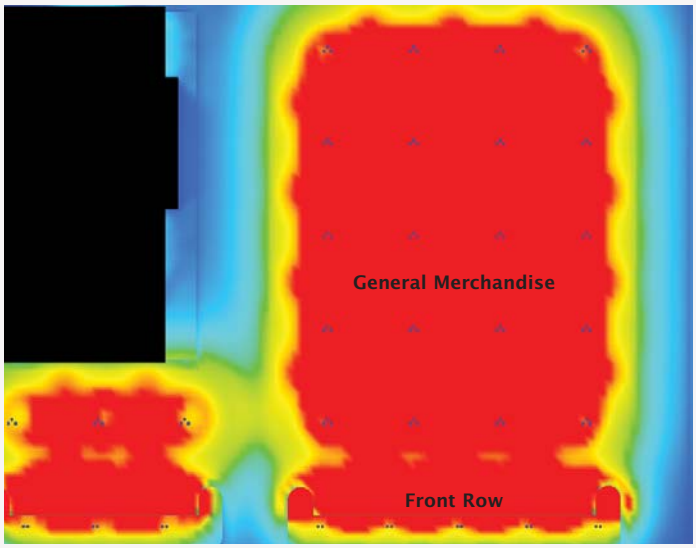
INVUE [Phocus]

INVUE [Vision Flood]

LUMARK [Impact Flood]

LUMARK [SF Falcon]

HIGH COMPETITION SITE LIGHTING



HIGH COMPETITION DISPLAY

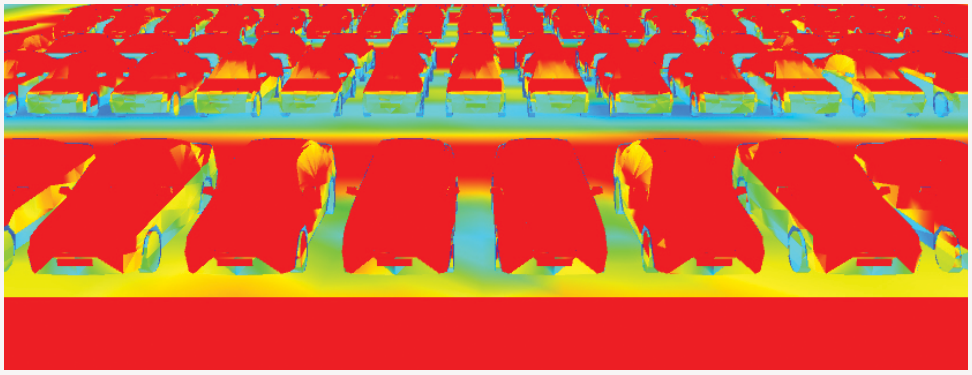
When your automotive dealership lot is neighbored by well illuminated dealerships or service stations high competition lighting levels are recommended. Create a front row feature display along the roadway with primary traffic flow. To prevent obstructing the view of displayed vehicles, mount poles at grade [25' pole/fixture mounting height]. The remaining areas of the dealership displaying vehicles are considered general merchandise areas. To protect merchandise, mount poles on a 2.5' concrete base [25' pole, 27 1/2' fixture mounting height].

Area to Illuminate	High Maintained Levels [fc]	Horizontal Uniformity [Max.Min.]
Parking and Circulation [Non-Merchandising Area]	**10**	10:1
General Merchandise [Main Automotive Display Lot]	**50**	5:1
Featured Displays [Front Row and Display Stands]	**75**	3:1

Arrow denotes optical orientation.

Footcandles [fc]

80 52 34 22 14 9 6 4



1000W MH FLAT GLASS ENHANCED FRONT ROW DISPLAY

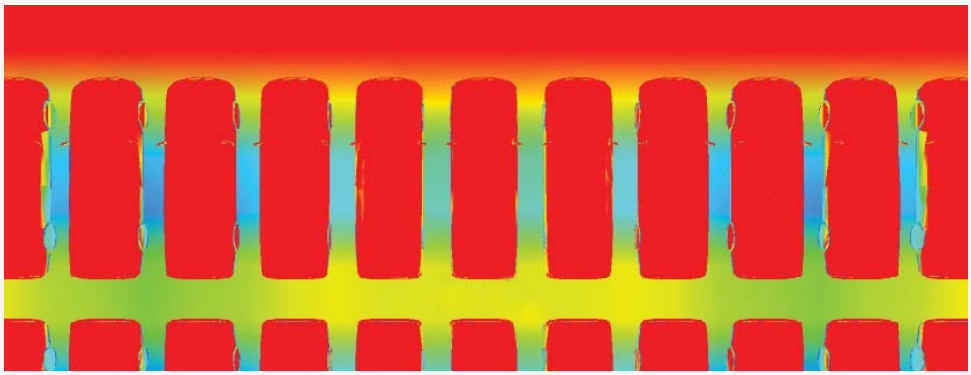
Areas with extremely high visual competition could use enhanced illumination levels between 75-100 FC.

Mounting Height [ft.]	25
Spacing [ft.]	40
Maintained Average FC	94.5
Uniformity	1.22

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH [2]
Automotive Front Row [AF]	2 @ 180°	Talon [TLL]	TLL21KMFF25XX [3]	TLL21KMFF25XX [3]	TLL21KMFF25XX0 [4]
		Galleria Square [GSM]	GSM21KMFF25XX [3]	GSM21KMFF25XX [3]	GSM21KMFF25XX0 [4]
		Galleria Round [GRM]	GRM21KMFF25XX [3]	GRM21KMFF25XX [3]	GRM21KMFF25XX [3]
		CLM	CLM21KMFF25XX [3]	CLM21KMFF25XX [3]	CLM21KMFF25XX0 [4]

NOTES: **1** Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



1000W MH FLAT GLASS ENHANCED MERCHANDISE DISPLAY

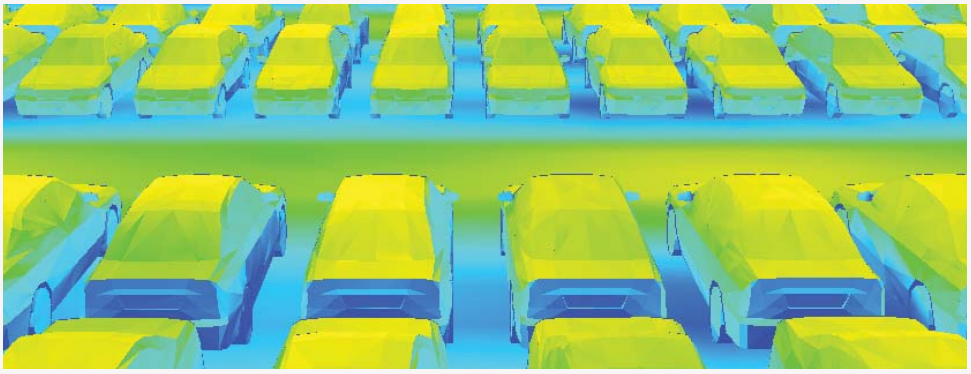
Areas with extremely high visual competition could use enhanced illumination levels between 50-60 FC.

Mounting Height [ft.]	27.5
Spacing [ft.]	55
Maintained Average FC	54.6
Uniformity	1.15

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH
Area Round [AR]	3 @ 90°	Talon [TLL]	TLL31KMRF25XX [2]	TLL31KMRF25XX [2]	TLL31KMRF25XX [2]
		Galleria Square [GSM]	GSM31KMRF25XX [2]	GSM31KMRF25XX [2]	GSM31KMRF25XX [2]
		Galleria Round [GRM]	GRM31KMRF25XX [2]	GRM31KMRF25XX [2]	GRM31KMRF25XX [2]
		CLM	CLM31KMRF25XX [2]	CLM31KMRF25XX [2]	CLM31KMRF25XX [2]

NOTES: **1** Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



ENHANCED 1000W MH FLAT GLASS ENERGY SAVING DIMMING

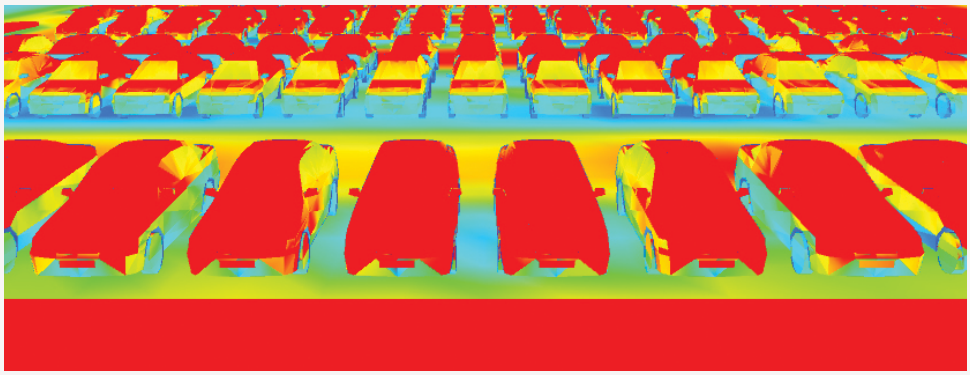
After hours operation of money and energy saving Hi-Lo dimming relay mounted internal to the fixture.

Mounting Height [ft.]	27.5
Spacing [ft.]	55
Maintained Average FC	32.1
Uniformity	1.15

POLE FIXTURE COMBINATION ORDERING LOGIC

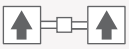
Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH
Area Round [AR]	3 @ 90°	Talon [TLL]	TLL31KMRF25XXHL [2]	TLL31KMRF25XXHL [2]	TLL31KMRF25XXHL [2]
		Galleria Square [GSM]	GSM31KMRF25XXHL [2]	GSM31KMRF25XXHL [2]	GSM31KMRF25XXHL [2]
		Galleria Round [GRM]	GRM31KMRF25XXHL [2]	GRM31KMRF25XXHL [2]	GRM31KMRF25XXHL [2]
		CLM	CLM31KMRF25XXHL [2]	CLM31KMRF25XXHL [2]	CLM31KMRF25XXHL [2]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



1000W MH FLAT GLASS FRONT ROW DISPLAY

IESNA recommends 75 FC average illuminance for areas of high competition.

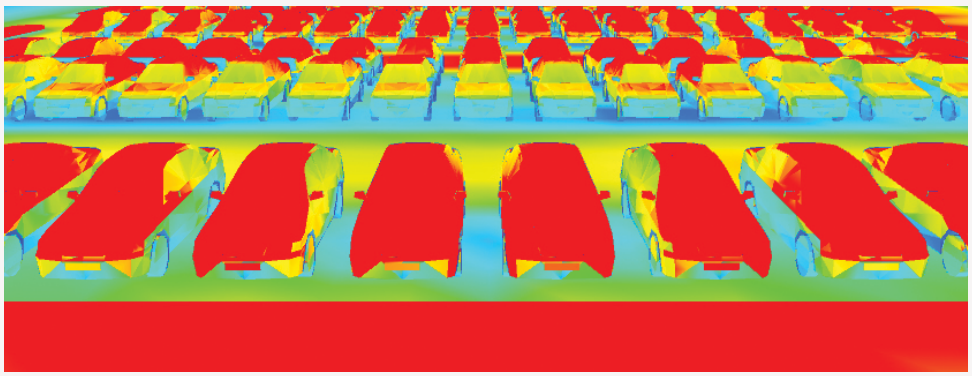


Mounting Height [ft.]	25
Spacing [ft.]	50
Maintained Average FC	75.2
Uniformity	1.23

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH [2]
Automotive Front Row [AF]	2 @ 180°	Talon [TLL]	TLL21KMFF25XX [3]	TLL21KMFF25XX [3]	TLL21KMFF25XX0 [4]
		Galleria Square [GSM]	GSM21KMFF25XX [3]	GSM21KMFF25XX [3]	GSM21KMFF25XX0 [4]
		Galleria Round [GRM]	GRM21KMFF25XX [3]	GRM21KMFF25XX [3]	GRM21KMFF25XX [3]
		CLM	CLM21KMFF25XX [3]	CLM21KMFF25XX [3]	CLM21KMFF25XX0 [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



750W MH FLAT GLASS FRONT ROW DISPLAY

IESNA recommends 75 FC average illuminance for areas of high competition.

Mounting Height [ft.]	25
Spacing [ft.]	40
Maintained Average FC	75.1
Uniformity	1.22

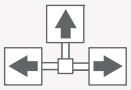
POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH [2]
Automotive Front Row [AF]	2 @ 180°	Talon [TLL]	TLL275PFF25XX [3]	TLL275PFF25XX [3]	TLL275PFF25XX0 [4]
		Galleria Square [GSM]	GSM275PFF25XX [3]	GSM275PFF25XX [3]	GSM275PFF25XX0 [4]
		Galleria Round [GRM]	GRM275PFF25XX [3]	GRM275PFF25XX [3]	GRM275PFF25XX [3]
		CLM	CLM275PFF25XX [3]	CLM275PFF25XX [3]	CLM275PFF25XX0 [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].

1000W MH FLAT GLASS GENERAL MERCHANDISE DISPLAY

IESNA recommends 50 FC average illuminance for areas of high competition.

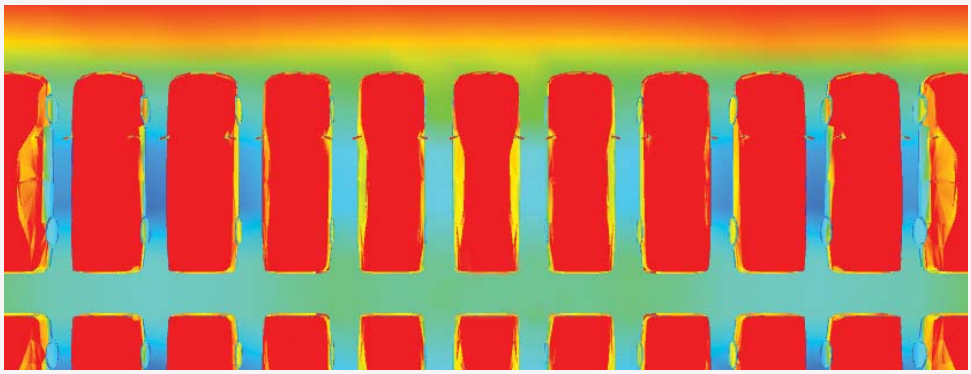


Mounting Height [ft.]	27.5
Spacing [ft.]	60
Maintained Average FC	50.2
Uniformity	1.26

POLE FIXTURE COMBINATION ORDERING LOGIC

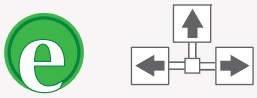
Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH
Area Round [AR]	3 @ 90°	Talon [TLL]	TLL31KMRF25XX [2]	TLL31KMRF25XX [2]	TLL31KMRF25XX [2]
		Galleria Square [GSM]	GSM31KMRF25XX [2]	GSM31KMRF25XX [2]	GSM31KMRF25XX [2]
		Galleria Round [GRM]	GRM31KMRF25XX [2]	GRM31KMRF25XX [2]	GRM31KMRF25XX [2]
		CLM	CLM31KMRF25XX [2]	CLM31KMRF25XX [2]	CLM31KMRF25XX [2]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



750W MH FLAT GLASS GENERAL MERCHANDISE DISPLAY

IESNA recommends 50 FC average illuminance for areas of high competition.

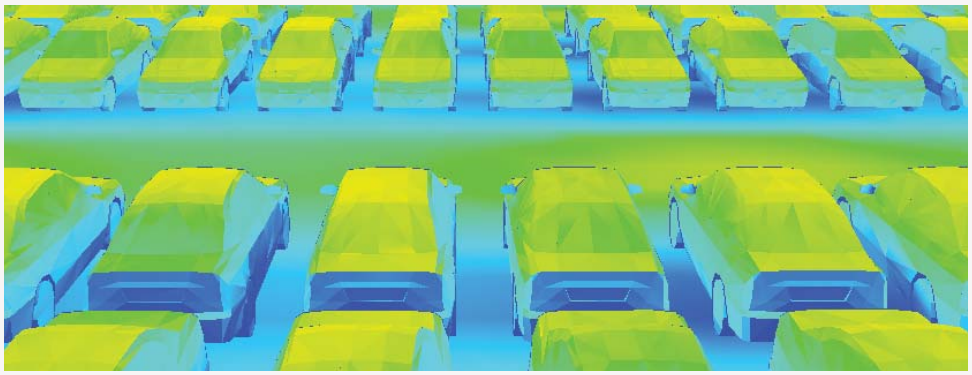


Mounting Height [ft.]	27.5
Spacing [ft.]	60
Maintained Average FC	39.9
Uniformity	1.25

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH
Area Round [AR]	3 @ 90°	Talon [TLL]	TLL375PRF25XX [2]	TLL375PRF25XX [2]	TLL375PRF25XX [2]
		Galleria Square [GSM]	GSM375PRF25XX [2]	GSM375PRF25XX [2]	GSM375PRF25XX [2]
		Galleria Round [GRM]	GRM375PRF25XX [2]	GRM375PRF25XX [2]	GRM375PRF25XX [2]
		CLM	CLM375PRF25XX [2]	CLM375PRF25XX [2]	CLM375PRF25XX [2]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



1000W MH FLAT GLASS ENERGY SAVING DIMMING

After hours operation of money and energy saving Hi-Lo dimming relay mounted internal to the fixture.

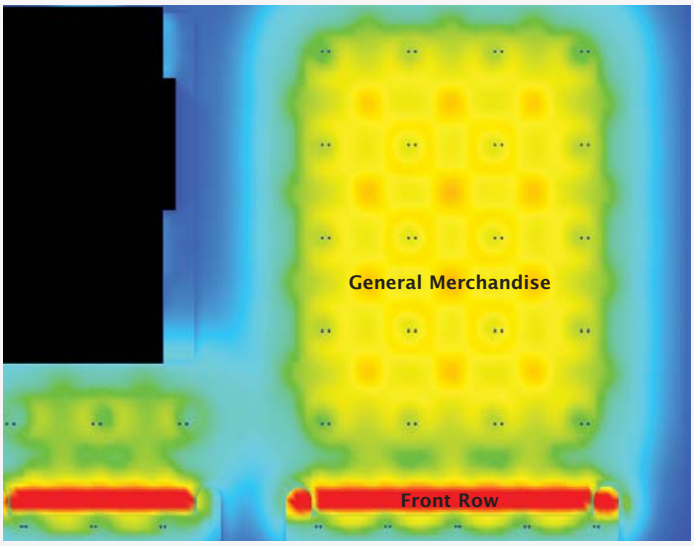
Mounting Height [ft.]	27.5
Spacing [ft.]	60
Maintained Average FC	30.1
Uniformity	1.25

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH
Area Round [AR]	3 @ 90°	Talon [TLL]	TLL31KMRF25XXHL [2]	TLL31KMRF25XXHL [2]	TLL31KMRF25XXHL [2]
		Galleria Square [GSM]	GSM31KMRF25XXHL [2]	GSM31KMRF25XXHL [2]	GSM31KMRF25XXHL [2]
		Galleria Round [GRM]	GRM31KMRF25XXHL [2]	GRM31KMRF25XXHL [2]	GRM31KMRF25XXHL [2]
		CLM	CLM31KMRF25XXHL [2]	CLM31KMRF25XXHL [2]	CLM31KMRF25XXHL [2]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].

MEDIUM COMPETITION SITE LIGHTING



MEDIUM COMPETITION DISPLAY

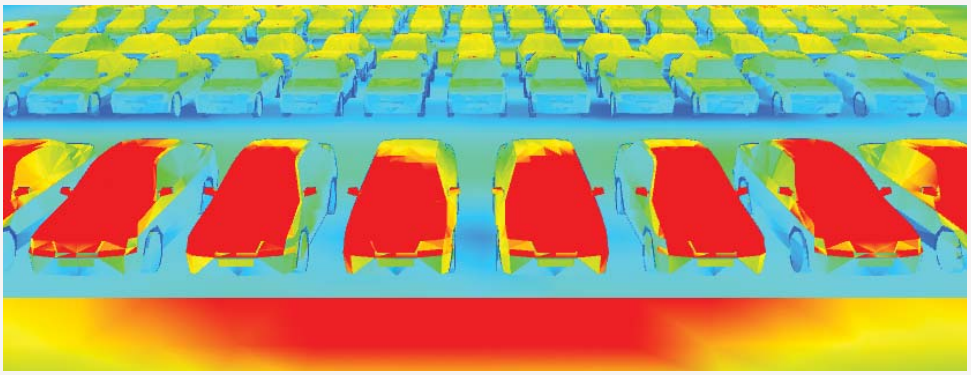
When your automotive dealership lot is neighbored by service stations or large national retailers medium competition lighting levels are recommended. Create a front row feature display along the roadway with primary traffic flow. To prevent obstructing the view of displayed vehicles, mount poles at grade [25' pole/fixture mounting height]. The remaining areas of the dealership displaying vehicles are considered general merchandise areas. To protect merchandise, mount poles on a 2.5' concrete base [25' pole, 27 1/2' fixture mounting height].

Area to Illuminate	Medium Maintained Levels [fc]	Horizontal Uniformity [Max.Min.]
Parking and Circulation [Non-Merchandising Area]	**7**	10:1
General Merchandise [Main Automotive Display Lot]	**30**	5:1
Featured Displays [Front Row and Display Stands]	**50**	3:1

Arrow denotes optical orientation.

Footcandles [fc]

70 46 30 19 12 8 5 3



1000W MH FLAT GLASS FRONT ROW DISPLAY

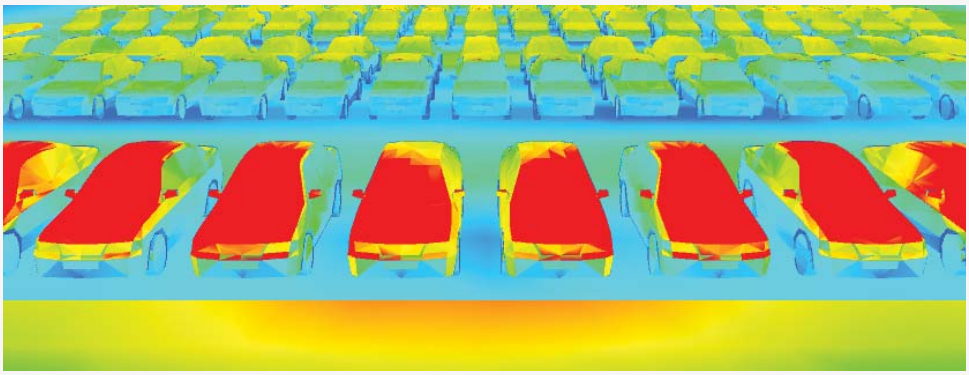
IESNA recommends 50 FC average illuminance for areas of medium competition.

Mounting Height [ft.]	25
Spacing [ft.]	60
Maintained Average FC	61.9
Uniformity	2.45

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH [2]
Automotive Front Row [AF]	2 @ 180°	Talon [TLL]	TLL21KMFF25XX [3]	TLL21KMFF25XX [3]	TLL21KMFF25XX0 [4]
		Galleria Square [GSM]	GSM21KMFF25XX [3]	GSM21KMFF25XX [3]	GSM21KMFF25XX0 [4]
		Galleria Round [GRM]	GRM21KMFF25XX [3]	GRM21KMFF25XX [3]	GRM21KMFF25XX [3]
		CLM	CLM21KMFF25XX [3]	CLM21KMFF25XX [3]	CLM21KMFF25XX0 [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



750W MH FLAT GLASS FRONT ROW DISPLAY

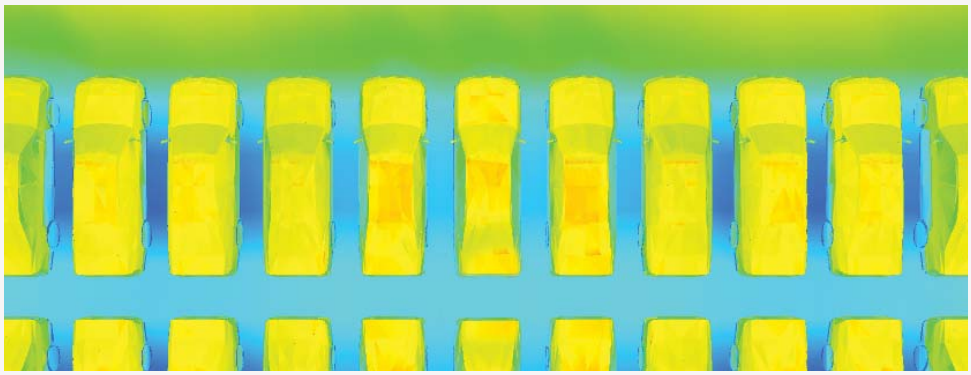
IESNA recommends 50 FC average illuminance for areas of medium competition.

Mounting Height [ft.]	25
Spacing [ft.]	50
Maintained Average FC	59.8
Uniformity	1.23

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH [2]
Automotive Front Row [AF]	2 @ 180°	Talon [TLL]	TLL275PFF25XX [3]	TLL275PFF25XX [3]	TLL275PFF25XX0 [4]
		Galleria Square [GSM]	GSM275PFF25XX [3]	GSM275PFF25XX [3]	GSM275PFF25XX0 [4]
		Galleria Round [GRM]	GRM275PFF25XX [3]	GRM275PFF25XX [3]	GRM275PFF25XX [3]
		CLM	CLM275PFF25XX [3]	CLM275PFF25XX [3]	CLM275PFF25XX0 [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



1000W MH FLAT GLASS GENERAL MERCHANDISE DISPLAY

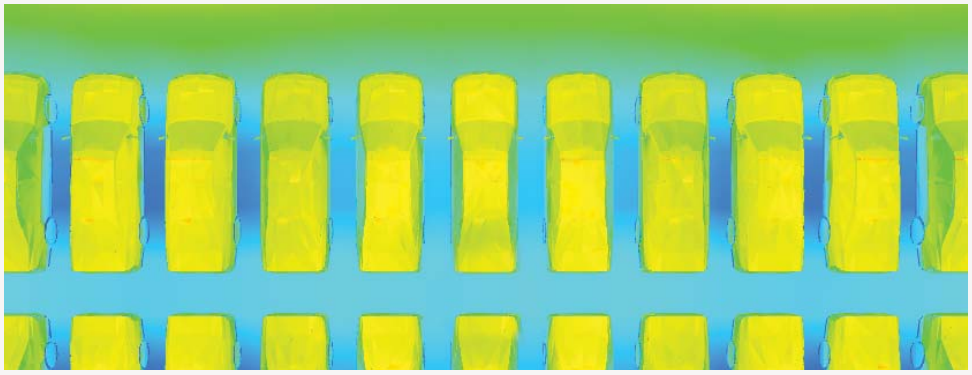
IESNA recommends 30 FC average illuminance for areas of medium competition.

Mounting Height [ft.]	27.5
Spacing [ft.]	62
Maintained Average FC	31.9
Uniformity	1.16

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH [2]
Area Round [AR]	2 @ 180°	Talon [TLL]	TLL21KMRF25XX [3]	TLL21KMRF25XX [3]	TLL21KMRF25XX0 [4]
		Galleria Square [GSM]	GSM21KMRF25XX [3]	GSM21KMRF25XX [3]	GSM21KMRF25XX0 [4]
		Galleria Round [GRM]	GRM21KMRF25XX [3]	GRM21KMRF25XX [3]	GRM21KMRF25XX [3]
		CLM	CLM21KMRF25XX [3]	CLM21KMRF25XX [3]	CLM21KMRF25XX0 [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



750W MH FLAT GLASS GENERAL MERCHANDISE DISPLAY

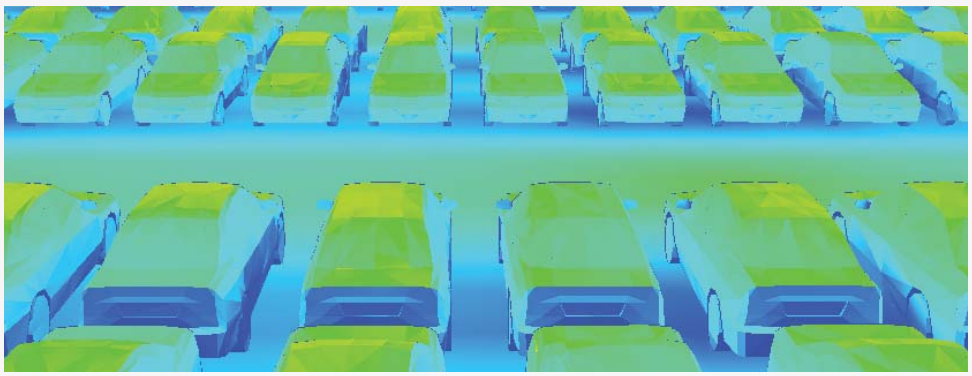
IESNA recommends 30 FC average illuminance for areas of medium competition.

Mounting Height [ft.]	27.5
Spacing [ft.]	62
Maintained Average FC	25.4
Uniformity	1.10

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family	80 MPH	90 MPH	100 MPH [2]
Area Round [AR]	2 @ 180°	Talon [TLL]	TLL275PRF25XX [3]	TLL275PRF25XX [3]	TLL275PRF25XX0 [4]
		Galleria Square [GSM]	GSM275PRF25XX [3]	GSM275PRF25XX [3]	GSM275PRF25XX0 [4]
		Galleria Round [GRM]	GRM275PRF25XX [3]	GRM275PRF25XX [3]	GRM275PRF25XX [3]
		CLM	CLM275PRF25XX [3]	CLM275PRF25XX [3]	CLM275PRF25XX0 [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



1000W MH FLAT GLASS ENERGY SAVING DIMMING

After hours operation of money and energy saving Hi-Lo dimming relay mounted internal to the fixture.

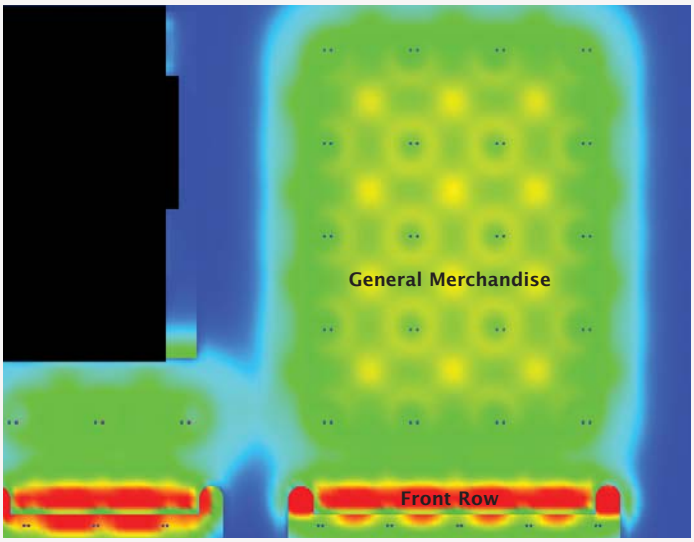
Mounting Height [ft.]	27.5
Spacing [ft.]	62
Maintained Average FC	19.2
Uniformity	1.10

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH [2]
Area Round [AR]	2 @ 180°	Talon [TLL]	TLL21KMRF25XXHL [3]	TLL21KMRF25XXHL [3]	TLL21KMRF25XX0HL [4]
		Galleria Square [GSM]	GSM21KMRF25XXHL [3]	GSM21KMRF25XXHL [3]	GSM21KMRF25XX0HL [4]
		Galleria Round [GRM]	GRM21KMRF25XXHL [3]	GRM21KMRF25XXHL [3]	GRM21KMRF25XXHL [3]
		CLM	CLM21KMRF25XXHL [3]	CLM21KMRF25XXHL [3]	CLM21KMRF25XX0HL [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].

LOW COMPETITION SITE LIGHTING



LOW COMPETITION DISPLAY

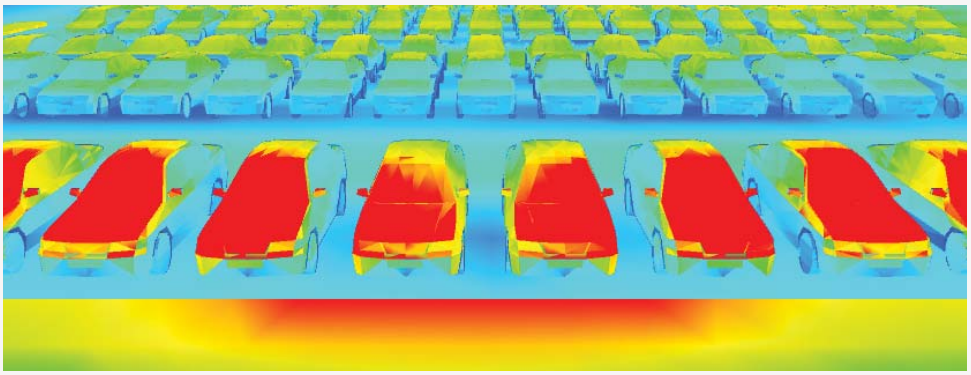
When your automotive dealership lot is neighbored by small retail centers and businesses low competition lighting levels are recommended. Create a front row feature display along the roadway with primary traffic flow. To prevent obstructing the view of displayed vehicles, mount poles at grade [25' pole/fixture mounting height]. The remaining areas of the dealership displaying vehicles are considered general merchandise areas. To protect merchandise, mount poles on a 2.5' concrete base [25' pole, 27 1/2' fixture mounting height].

Area to Illuminate	Low Maintained Levels [fc]	Horizontal Uniformity [Max./Min.]
Parking and Circulation [Non-Merchandising Area]	**5**	10:1
General Merchandise [Main Automotive Display Lot]	**20**	5:1
Featured Displays [Front Row and Display Stands]	**35**	3:1

Arrow denotes optical orientation.

Footcandles [fc]

50 33 21 14 9 6 4 2



1000W MH FLAT GLASS FRONT ROW DISPLAY

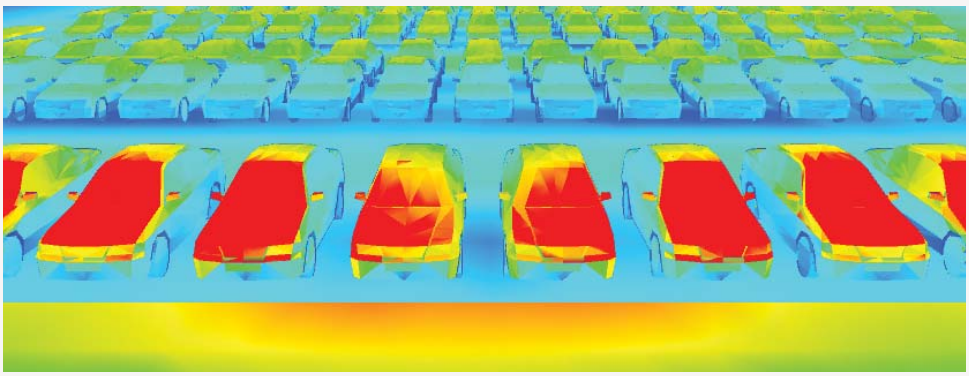
IESNA recommends 35 FC average illuminance for areas of medium competition.

Mounting Height [ft.]	25
Spacing [ft.]	65
Maintained Average FC	52.5
Uniformity	2.89

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH [2]
Automotive Front Row [AF]	2 @ 180°	Talon [TLL]	TLL21KMFF25XX [3]	TLL21KMFF25XX [3]	TLL21KMFF25XX0 [4]
		Galleria Square [GSM]	GSM21KMFF25XX [3]	GSM21KMFF25XX [3]	GSM21KMFF25XX0 [4]
		Galleria Round [GRM]	GRM21KMFF25XX [3]	GRM21KMFF25XX [3]	GRM21KMFF25XX [3]
		CLM	CLM21KMFF25XX [3]	CLM21KMFF25XX [3]	CLM21KMFF25XX0 [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



750W MH FLAT GLASS FRONT ROW DISPLAY

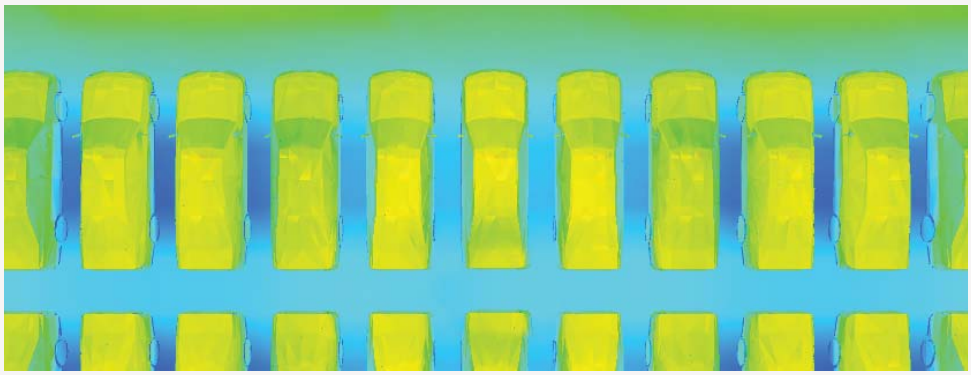
IESNA recommends 35 FC average illuminance for areas of medium competition.

Mounting Height [ft.]	25
Spacing [ft.]	65
Maintained Average FC	42.7
Uniformity	2.76

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH [2]
Automotive Front Row [AF]	2 @ 180°	Talon [TLL]	TLL275PFF25XX [3]	TLL275PFF25XX [3]	TLL275PFF25XX0 [4]
		Galleria Square [GSM]	GSM275PFF25XX [3]	GSM275PFF25XX [3]	GSM275PFF25XX0 [4]
		Galleria Round [GRM]	GRM275PFF25XX [3]	GRM275PFF25XX [3]	GRM275PFF25XX [3]
		CLM	CLM275PFF25XX [3]	CLM275PFF25XX [3]	CLM275PFF25XX0 [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



1000W MH FLAT GLASS GENERAL MERCHANDISE DISPLAY

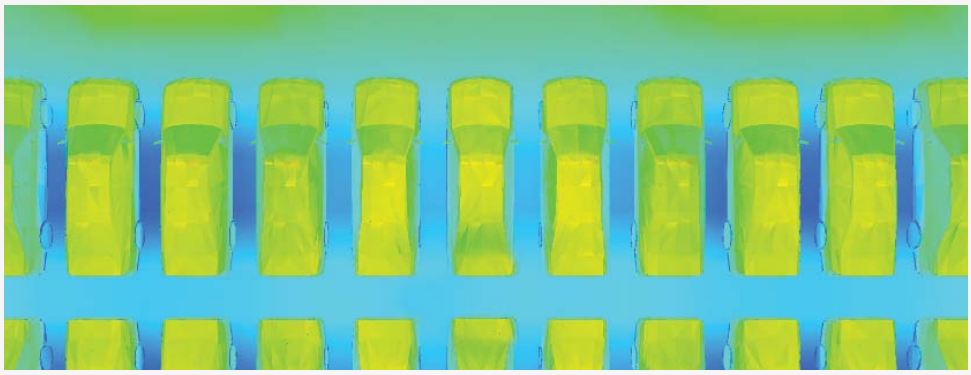
IESNA recommends 20 FC average illuminance for areas of medium competition.

Mounting Height [ft.]	27.5
Spacing [ft.]	93
Maintained Average FC	21.9
Uniformity	1.88

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH [2]
Area Round [AR]	2 @ 180°	Talon [TLL]	TLL21KMRF25XX [3]	TLL21KMRF25XX [3]	TLL21KMRF25XX0 [4]
		Galleria Square [GSM]	GSM21KMRF25XX [3]	GSM21KMRF25XX [3]	GSM21KMRF25XX0 [4]
		Galleria Round [GRM]	GRM21KMRF25XX [3]	GRM21KMRF25XX [3]	GRM21KMRF25XX [3]
		CLM	CLM21KMRF25XX [3]	CLM21KMRF25XX [3]	CLM21KMRF25XX0 [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



750W MH FLAT GLASS GENERAL MERCHANDISE DISPLAY

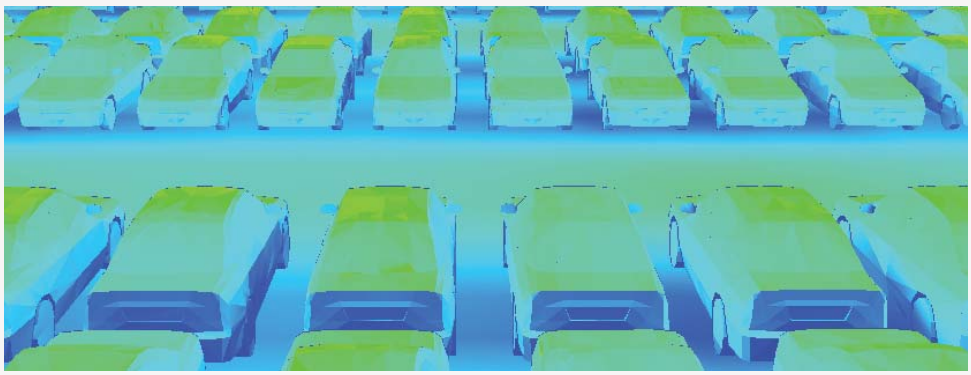
IESNA recommends 20 FC average illuminance for areas of medium competition.

Mounting Height [ft.]	27.5
Spacing [ft.]	93
Maintained Average FC	18.0
Uniformity	1.82

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family	80 MPH	90 MPH	100 MPH [2]
Area Round [AR]	2 @ 180°	Talon [TLL]	TLL275PRF25XX [3]	TLL275PRF25XX [3]	TLL275PRF25XX0 [4]
		Galleria Square [GSM]	GSM275PRF25XX [3]	GSM275PRF25XX [3]	GSM275PRF25XX0 [4]
		Galleria Round [GRM]	GRM275PRF25XX [3]	GRM275PRF25XX [3]	GRM275PRF25XX [3]
		CLM	CLM275PRF25XX [3]	CLM275PRF25XX [3]	CLM275PRF25XX0 [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].



1000W MH FLAT GLASS ENERGY SAVING DIMMING

After hours operation of money and energy saving Hi-Lo dimming relay mounted internal to the fixture.

Mounting Height [ft.]	27.5
Spacing [ft.]	93
Maintained Average FC	16.5
Uniformity	2.55

POLE FIXTURE COMBINATION ORDERING LOGIC

Distribution	Fixture Configuration	Product Family [1]	80 MPH	90 MPH	100 MPH [2]
Area Round [AR]	2 @ 180°	Talon [TLL]	TLL21KMRF25XXHL [3]	TLL21KMRF25XXHL [3]	TLL21KMRF25XX0HL [4]
		Galleria Square [GSM]	GSM21KMRF25XXHL [3]	GSM21KMRF25XXHL [3]	GSM21KMRF25XX0HL [4]
		Galleria Round [GRM]	GRM21KMRF25XXHL [3]	GRM21KMRF25XXHL [3]	GRM21KMRF25XXHL [3]
		CLM	CLM21KMRF25XXHL [3]	CLM21KMRF25XXHL [3]	CLM21KMRF25XX0HL [4]

NOTES: 1 Pole fixture combination includes pole, fixtures, lamp, and mounting hardware. Fixture supplied with 5-Tap [120/208/240/277/480V] ballast wired 480V. **2** 0 noted where needed to designate a heavier gauge pole. **3** Combination supplied with SSS5A25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4]. **4** Combination supplied with SSS5M25S square straight steel shaft, anchor bolts [AB1], template [TMP1] and base cover. Replace XX with color designation [page 4].

SHOWROOM LIGHTING

INSPIRATION AND FUNCTIONALITY

Showrooms are multifunctional facilities used for customer reception, retail display and business-closing transactions. Discrete tasks performed in each area require custom lighting solutions that create separation of space and illuminance geared toward the primary function in the area. Some tasks lend themselves to general ambient lighting with uniform illuminance while others require dramatic light levels with high contrast ratios that accentuate displays and vehicles. A flexible lighting system will allow the lighting effect to stay current as your display changes. Good lighting builds traffic, attracts customers and sells merchandise. Whether providing a general overall illuminance or highlighting primary display areas – Cooper Lighting's interior luminaires will produce a warm, inviting showroom atmosphere that draws the customer in and drives vehicles out the door.

Ambient Lighting: General uniform light level within the overall space.
Task Lighting: Lighting directed to a specific surface or area to provide illumination for a visual task.
Accent Lighting: Directional lighting to create visual interest and emphasize key objects or areas. Luminance levels on the key objects up to 10 times the ambient level to create an eye-catching display.

Automobile manufactures offer customers many exciting paint and upholstery options from which to choose, but poor color rendering sources give finishes a dull appearance. The combination of light source color temperature and color rendering index [CRI] play a key role in achieving richly saturated colors representative of their true daylight appearance. Sources with CRI values above 80 should be selected to ensure accurate color evaluation.

Source	CRI	Color Temperature
Halogen	100	2800-3000K
Ceramic Metal Halide	80-96	3000-4100K
Fluorescent	86-92	2700-4100K
Metal Halide	65-92	3000-4100K

Energy consumed by lighting equipment accounts for as much as 40% of a typical utility bill, making it an excellent source for operational cost savings. Energy efficient building design practices outlined in the ASHRAE 90.1-2004 standard recommend a maximum power density of 0.9 W/ft^2 for automotive showroom lighting designs. Cooper Lighting offers a variety of lighting products with efficient fluorescent and ceramic metal halide [CMH] sources to achieve the desired lighting effect with minimal impact to your bottom line.

Lamp Type	Input Watts	Energy Savings	% Savings
50W MR16 Halogen	50		
20W Ceramic Metal Halide	23	**27W**	**54%**
90W PAR39 Halogen	90		
39W Ceramic Metal Halide	44	**46W**	**51%**
250W T4 Halogen	250		
70W Ceramic Metal Halide	77	**173W**	**69%**

NEO-RAY [Nimbus]
AMBIENT

METALUX [Ovation]
TASK + AMBIENT

LUMARK [Avid]
TASK + AMBIENT

RSA [Combolight]
TASK + ACCENT

SHOWROOM LIGHTING THAT ENHANCES MERCHANDISE APPEAL.





APPEALING
Showroom vehicles and displays should attract the attention of the customer from the moment they enter the dealership door. Whether you are highlighting the latest convertible or a multitude of color options, accent lighting is vital in realizing this effect.

Recommendations
Fixture Types: Track, Recessed
Lamp Type: Metal Halide
Color: Color temperature matching ambient source color temperature, color rendering index of 80+ and a luminance up to 10 times ambient levels.

INVITING
Overall dealership ambiance plays a crucial role in evoking a sense of comfort and directly impacts the customer's ability to make important decisions. A warm and inviting ambiance can be achieved with the appropriate luminaire and light source selection.

Recommendations
Fixture Types: Recessed, Pendant, Linear Direct / Indirect Fluorescent
Lamp Type: Compact Fluorescent, Linear Fluorescent, Metal Halide
Color: Color temperature matching ambient source color temperature and a color rendering index of 80+.

INTIMATE
Office and seating areas should be comfortable environments that encourage relaxation and facilitate business transactions. Softer lighting will make the customer at home in his surroundings while being conducive to the task at hand.

Recommendations
Fixture Types: Direct / Indirect Fluorescent, Recessed
Lamp Type: Compact Fluorescent, Linear Fluorescent
Color: Color temperature matching ambient source color temperature and a color rendering index of 80+.

PORTFOLIO [MD6]
TASK + WALL WASH

HALO [Stasis]
ACCENT

HALO [Connetix]
ACCENT

SURE-LITES [CCX]
SAFETY

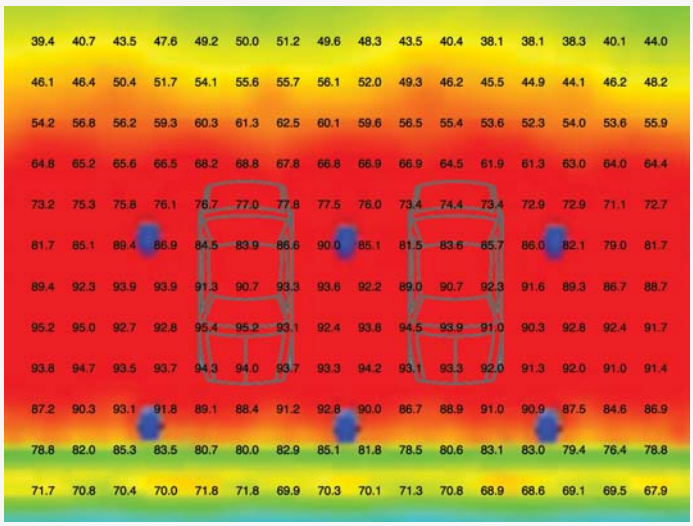
SERVICE DEPARTMENT LIGHTING

PRODUCTIVITY LEADS TO PROFITABILITY

The success of the service department is measured in productivity, and ultimately, profitability. Without proper lighting, the likelihood of costly mistakes and wasted time increases. The appropriate type and level of illumination greatly improves quality and workmanship in general and in fine detail areas. While proper lighting has a direct impact on the dealership's bottom-line, additional benefit results from increased customer satisfaction, repeat business and referrals. Cooper Lighting's family of high-bay luminaires provide optimal service bay lighting with uniform illumination and exceptional color rendition.

TYPICAL METAL HALIDE SERVICE BAY

This typical service bay is lit with the Lumark Benchmark, mounted at a height of 14'. With a maintained average of 75 footcandles, the vehicle and surrounding area is a well illuminated work environment. With the addition of luminaires at the front of each bay, the service area has optimal light levels along the wall for toolboxes and workbench surfaces.



LUMARK [Benchmark]

LUMARK [Benchmark]

LUMARK [Steeler]

LUMARK [Enterprise]

ENERGY SAVINGS

Service department lighting offers a great opportunity to increase energy savings and improve overall profitability. Energy efficient building design practices outlined in the ASHRAE 90.1-2004 standard recommend a maximum power density of 0.7 W/ft^2 for automotive service department lighting designs. By selecting high performance lighting equipment and incorporating energy efficient light sources, this recommendation is easily achieved. Cooper Lighting offers a variety of lighting products driven by efficient lamp sources to achieve improved light levels and increased productivity in the service area while creating energy savings opportunities.

The Metalux F-Bay family of fluorescent high-bays offer dramatic energy savings opportunities over traditional high intensity discharge systems to provide a quick return on investment.

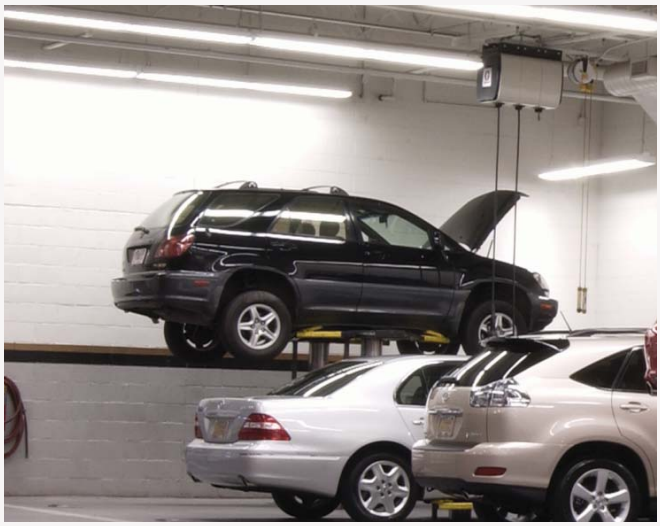
energy savings

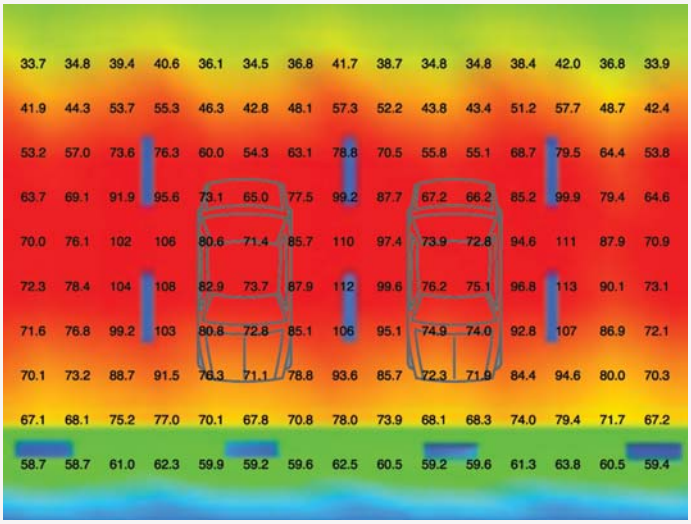
Lamp Type	Input Watts	Number of Fixtures Per Bay	Operating Hours/Day	Days/ Year	$/KWH	Total Annual Operating Cost [1]	Annual Savings [2]	% Savings
400W Probe Start MH	455	4	12	365	0.10	$797		
350W Pulse Start MH	395	4	12	365	0.10	$692	**$105**	**13%**
4-Lamp 54W Fluorescent	229	4	12	365	0.10	$401	**$396**	**50%**

NOTES: 1 Total annual cost is the cost of operating 4 fixtures 12 hours per day with a national average energy cost of $0.10 per KWH. Annual Cost = (Input watts)*(# of fixtures)*(operating hours)*(days/year)*(KWH/1000). **2** Annual Savings is the money saved by operating 4 fixtures for 12 hours per day with the listed source over the standard 400W probe start lamp.

TYPICAL FLUORESCENT SERVICE BAY

This typical service bay is lit with Metalux F-Bay I5 fixtures at a mounting height of 14'. With a maintained average of 75 footcandles, the vehicle and surrounding area is a well illuminated work environment. With the addition of luminaires at the front of each bay, the service area has optimal light levels along the wall for toolboxes and workbench surfaces.





METALUX [F-Bay I5/I8]

METALUX [F-Bay HB/2HB]

METALUX [F-Bay MB]

METALUX [VT3]

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