



PHILIPS

Service Smart
Spec Smart

2017 Quick Ship Guide



Supporting your
shelf stocking
requirements

A commitment to service excellence

For over 120 years, Philips has led the lighting industry introducing innovative, energy-efficient lighting solutions and building a trusted reputation for exceptional performance and reliability. As the industry continues to transform, so do we to meet the changing needs of our customers.

We have integrated the latest in innovation and performance options in the lighting market into two on time delivery programs featuring an outstanding product selection of our top selling luminaires, lamps, and ballasts. Staying true to our commitment for service excellence, we are offering a order-to-shipping time guarantee of 2 days for Service Smart and 10 days for Spec Smart items.

Order-to-shipping timelines

Service Smart items are shipped out within 2 days of order, Spec Smart items are shipped out within 10 days of order.

Service Smart



Spec Smart



Transportation timelines

For an accurate delivery date, add the following transportation times to the 2 or 10 day shipping time.



Toronto
Montreal
Ottawa



Windsor



Quebec City
Sudbury



Manitoba
New-Brunswick



Nova-Scotia
P.E.I
Saskatchewan



Alberta



Newfoundland
Vancouver

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Indoor Commercial & Industrial

Philips CFI general area lighting luminaires include a broad array of fluorescent, LED and HID solutions for commercial, medical and industrial applications. The portfolio ranges from value based, reliable products to systems including integrated controls and sophisticated optics.

Indoor Commercial



Strips



Surface



Recessed



Decorative

Indoor Industrial



Strips



Linear



High Bay



Wet Location

Indoor Commercial

Catalogue No.	Size	Lamp/Watts	Voltage	Ballast	Service Quantity*		Appl. Page
					Service Smart 2 days	Spec Smart 10 days	
Strips							
FluxStream LED							
FSS220L840-UNV-DIM	2-1/2" x 22-1/2"	2,000 lms/4000K	120/277	0-10v dim	40		56
FSS330L840-UNV-DIM	2-1/2" x 33-1/2"	3,000 lms/4000K	120/277	0-10v dim	30		56
FSS455L840-UNV-DIM	2-1/2" x 44-3/4"	5,500 lms/4000K	120/277	0-10v dim	60		56
FSS8110L840-UNV-DIM	2-1/2" x 89-1/2"	11,000 lms/4000K	120/277	0-10v dim	30		56
FSS220L840-347-DIM	2-1/2" x 22-1/2"	2,000 lms/4000K	347	0-10v dim	15		56
FSS330L840-347-DIM	2-1/2" x 33-1/2"	3,000 lms/4000K	347	0-10v dim	10		56
FSS440L835-UNV-DIM	2-1/2" x 44-3/4"	4,000 lms/3500K	120/277	0-10v dim	100		56
FSS440L840-UNV-DIM	2-1/2" x 44-3/4"	4,000 lms/4000K	120/277	0-10v dim	250		56
FSS880L840-UNV-DIM	2-1/2" x 89-1/2"	8,000 lms/4000K	120/277	0-10v dim	140		56
FSS440L840-347-DIM	2-1/2" x 44-3/4"	4,000 lms/4000K	347	0-10v dim	30		56
FSS880L840-347-DIM	2-1/2" x 89-1/2"	8,000 lms/4000K	347	0-10v dim	30		56
FluxStream LED Accessory							
FSSWG4	4' Fluxstream Wireguard, White				40		N/A
N Series Strip							
N117-UNV-1/1-EB	2-1/2" x 24"	1-T8/17	120/277	T8 ELEC.	15		56
N125-UNV-1/1-EB	2-1/2" x 36"	1-T8/25	120/277	T8 ELEC.	10		56
N132-347-1/1-EB	2-1/2" x 48"	1-T8/32	347	T8 ELEC.		100	56
N132-UNV-1/1-EB	2-1/2" x 48"	1-T8/32	120/277	T8 ELEC.	40		56
N132-UNV-1/1-EB-OPTIS	2-1/2" x 48"	1-T8/32	120/277	T8 ELEC.		100	56
Strip Reflectors N and T Series							
TSS-4	Symmetric Silver Reflector for T Series Strip				40		56
N & T Accessories							
CG-4	Wireguard for T Series Strip				500		N/A
CGS-4	Wireguard for N Series Strip				150		N/A

* Value indicates maximum quantity per order.



Indoor Commercial

Catalogue No.	Size	Lamp/Watts	Voltage	Ballast	Service Quantity*		Appl. Page
					Service Smart 2 days	Spec Smart 10 days	

Strips continued

Surface T5 Strip SV Series

SV4S128UNVPG	2" x 46"	1-T5/28	120/277	T5 ELEC.	70		56
SV4S154UNVPG	2" x 46"	1-T5HO/54	120/277	T5HO ELEC.	30		56
SV4S228UNVPG	2" x 46"	2-T5/28	120/277	T5 ELEC.	60		56
SV4S254UNVPG	2" x 46"	2-T5HO/54	120/277	T5HO ELEC.	100		56
SV8S154347PG	2" x 92"	2-T5HO/54	347	T5HO ELEC.		100	56
SV8S254347PV	2" x 92"	4-T5HO/54	347	T5HO ELEC.	40		56
SV8S254UNVPV	2" x 92"	4-T5HO/54	120/277	T5HO ELEC.		100	56

T Series Strip

TN132-347-1/2-EB	2" x 98"	2-T8/32	347	T8 ELEC.	20		56
TN132-347-1/2-EB-OPTIS	2" x 98"	2-T8/32	347	T8 ELEC.		100	56
TN132-UNV-1/2-EB-OPTIS	2" x 98"	2-T8/32	120/277	T8 ELEC.		100	56
TN132-UNV-1/2-EB	2" x 98"	2-T8/32	120/277	T8 ELEC.	30		56
T232-347-1/2-EB	2" x 48"	2-T8/32	347	T8 ELEC.	80		56

T5 SV Series Accessories

SV5GXG4	Wireguard for T5 SV Series				50		N/A
SV5LWW4SSLD	SV5 Louver Accessory - Solid White Blade Louver				15		N/A
SV5LWW4SSLDX	SV5 Louver Accessory - Solid White with Miro Reflector Louver					100	N/A
SV5RIW4SSLD	Symmetric Solid White Reflector				70		N/A
SV5-CPL	SV T5 Strip Coupler. Required for row mounting				5		N/A
SV5F48	48" Stem & Canopy Set (2 per luminaire recommended)					100	N/A
SVC60	Cable & Canopy Kit (Adjustable 6" to 60")					100	N/A
SVCC60-UNV	Powerfeed cable/canopy kit 20/277V (adjustable 6" to 60")					100	N/A

Surface

Commercial Wrap

CFW232-120-1/2EB-GENIS	6-1/2" x 48"	2-T8/32	120	T8 ELEC.	100		56
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CSW Cubelite

CSW248-UNVA2ZO	4" x 48"	2-T8/32	120/277	T8 ELEC.		100	56
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OW Wrap

OWL440L835-UNV-DIM	8-5/8" x 48"	4,000 lms/3500k	120/277	0-10v dim	20		56
OWL440L840-UNV-DIM	8-5/8" x 48"	4,000 lms/4000k	120/277	0-10v dim	30		56
OWL450L840-UNV-DIM	8-5/8" x 48"	4,500 lms/4000k	120/277	0-10v dim	40		56
OWN232-UNV-1/2-EB	8-5/8" x 48"	2-T8/32	120/277	T8 ELEC.	100		56

SMR Surface Modular

1SMR232-FA01-UNV-1/2-EB	1' x 4'	2-T8/32	120/277	T8 ELEC.	20		56
2SMR432-FS01-UNV-1/4-EB	2' x 4'	4-T8/32	120/277	T8 ELEC.	10		56

* Value indicates maximum quantity per order.



Indoor Commercial

Catalogue No.	Size	Lamp/Watts	Voltage	Ballast	Service Quantity*		Appl. Page
					Service Smart 2 days	Spec Smart 10 days	

Recessed

TG8 Series

1TG8232-01-347-1/2-EB	1' x 4'	2-T8/32	347	T8 ELEC.	70		56
1TG8232-01-UNV-1/2-EB	1' x 4'	2-T8/32	120/277	T8 ELEC.	80		56
1TG8232-12-UNV-1/2-EB-OPTIS	1' x 4'	2-T8/32	120/277	T8 ELEC.		100	56
2TG8231U6R-01-UNV-1/2-EB	2' x 2'	2-T8U6/32	120/277	T8 ELEC.	60		56
2TG8232-01-347-1/2-EB	2' x 4'	2-T8/32	347	T8 ELEC.	50		56
2TG8232-01-UNV-1/2-EB	2' x 4'	2-T8/32	120/277	T8 ELEC.	50		56
2TG8332-01-347-1/3-EB	2' x 4'	3-T8/32	347	T8 ELEC.	40		56
2TG8332-01-UNV-1/3-EB	2' x 4'	3-T8/32	120/277	T8 ELEC.	80		56
2TG8432-01-347-1/4-EB	2' x 4'	4-T8/32	347	T8 ELEC.	90		56
2TG8432-01-UNV-1/4-EB	2' x 4'	4-T8/32	120/277	T8 ELEC.	300		56

T-Grid LED Troffer

2TG43L835-4-FS-02F-UNV-DIM	2' x 4'	4300 lms/3500k	120/277	0-10v dim		100	56
2TG48L835-4-FS-02F-UNV-DIM	2' x 4'	4800lms/3500k	120/277	0-10v dim	45		56

FluxGrid LED

1FGG38L835-4-D-UNV-DIM	1' x 4'	3,800 lms/3500k	120/277	0-10v dim		100	56
1FGG38L840-4-D-UNV-DIM	1' x 4'	3,800 lms/4000k	120/277	0-10v dim		100	56
1FGG41B835-4-D-UNV-DIM	1' x 4'	4,000 lms/3500k	120/277	0-10v dim	30		56
1FGG41B840-4-D-UNV-DIM	1' x 4'	4,000 lms/4000k	120/277	0-10v dim	50		56
1FGG45L835-4-D-UNV-DIM	1' x 4'	4,500 lms/3500k	120/277	0-10v dim		100	56
1FGG45L840-4-D-UNV-DIM	1' x 4'	4,500 lms/4000k	120/277	0-10v dim		100	56
2FGG38B835-2-D-UNV-DIM	2' x 2'	3,800lms/3500k	120/277	0-10v dim	80		56
2FGG38B840-2-D-UNV-DIM	2' x 2'	3,800lms/4000k	120/277	0-10v dim	100		56
2FGG38L835-2-D-UNV-DIM	2' x 2'	3,800lms/3500k	120/277	0-10v dim	30		56
2FGG38L840-2-D-UNV-DIM	2' x 2'	3,800lms/4000k	120/277	0-10v dim	30		56
2FGG42B835-4-D-UNV-DIM	2' x 4'	4,200lms/3500k	120/277	0-10v dim	125		56
2FGG42B840-4-D-UNV-DIM	2' x 4'	4,200lms/4000k	120/277	0-10v dim	100		56
2FGG43L835-4-D-UNV-DIM	2' x 4'	4,300lms/3500k	120/277	0-10v dim	30		56
2FGG45L840-2-D-UNV-DIM	2' x 2'	4,500 lms/4000k	120/277	0-10v dim	30		56
2FGG74L840-4-D-UNV-DIM	2' x 4'	7,400 lms/4000k	120/277	0-10v dim		100	56
2FGG74L835-4-D-UNV-DIM	2' x 4'	7,400 lms/3500k	120/277	0-10v dim		100	56
2FGG48L835-4-D-UNV-DIM	2' x 4'	4,800 lms/3500k	120/277	0-10v dim		100	56
2FGG48L840-4-D-UNV-DIM	2' x 4'	4,800 lms/4000k	120/277	0-10v dim		100	56
2FGG54L835-4-D-UNV-DIM	2' x 4'	5,400 lms/3500k	120/277	0-10v dim	20		56
2FGG54L840-4-D-UNV-DIM	2' x 4'	5,400 lms/4000k	120/277	0-10v dim	30		56
2FGG43L840-4-D-UNV-DIM	2' x 4'	4,300lms/4000k	120/277	0-10v dim	30		56
2FGG45L835-2-D-UNV-DIM	2' x 2'	4,500 lms/3500k	120/277	0-10v dim		100	56

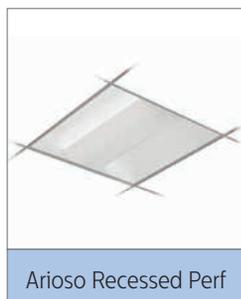
* Value indicates maximum quantity per order.



Indoor Commercial

Catalogue No.	Size	Lamp/Watts	Voltage	Ballast	Service Quantity*		Appl. Page
					Service Smart 2 days	Spec Smart 10 days	
Decorative							
EvoGrid							
1EVG38L835-4-D-UNV-DIM	1' x 4'	3,800 lms/3500k	120/277	0-10v dim	20		56
1EVG38L840-4-D-UNV-DIM	1' x 4'	3,800 lms/4000k	120/277	0-10v dim	25		56
2EVG38L835-2-D-UNV-DIM	2' x 2'	3,800 lms/3500k	120/277	0-10v dim	20		56
2EVG38L840-2-D-UNV-DIM	2' x 2'	3,800 lms/4000k	120/277	0-10v dim	30		56
2EVG48L835-4-D-UNV-DIM	2' x 4'	4,800 lms/3500k	120/277	0-10v dim	30		56
2EVG48L840-4-D-UNV-DIM	2' x 4'	4,800 lms/4000k	120/277	0-10v dim	50		56
Arioso LED							
1AVEG38L835-4-ACR-UNV	1' x 4'	3800 lms/3500K	120/277	0-10v dim	35		56
2AVEG38L835-2-ACR-UNV	2' x 2'	3800 lms/3500K	120/277	0-10v dim	60		56
2AVEG38L835-2-ACR-UNV-DIM	2' x 2'	3800 lms/3500K	120/277	0-10v dim		100	56
2AVEG38L835-4-ACR-UNV	2' x 4'	3800 lms/3500K	120/277	0-10v dim	50		56
2AVEG38L835-4-ACR-UNV-DIM	2' x 4'	3800 lms/3500K	120/277	0-10v dim		100	56
2AVEG38L840-2-ACR-UNV-DIM	2' x 4'	3800 lms/4000K	120/277	0-10v dim		100	56
Arioso Fluorescent							
2AVG232-SPMW-UNV-1/2-EB	2' x 4'	2-T8/32	120/277	T8 ELEC.	30		56
2AVG332-ACR-347-1/3-EB-OPTIS	2' x 4'	3-T8/32	347	T8 ELEC.		100	56
2AVG2CF40-SPMW-UNV-1/2-EB	2' x 2'	2-TT5/40	120/277	TT5 ELEC.	10		56
Arioso Recessed Perf							
2AVG332-SPMW-UNV-1/3-EB	2' x 2'	3-T8/32	120/277	T8 ELEC.	10		56
ClearAppeal							
1CAG30L835-4-DS-UNV-DIM	1' x 4'	3,000 lms/3500k	120/277	0-10v dim		100	56
2CAG34L835-2-DS-UNV-DIM	2' x 2'	3,400 lms/3500k	120/277	0-10v dim		100	56
2CAG42L835-4-DS-UNV-DIM	2' x 4'	4,200 lms/3500k	120/277	0-10v dim		100	56

* Value indicates maximum quantity per order.



Catalogue No.	Size	Lamp/Watts	Voltage	Ballast	Service Quantity*		Appl. Page
					Service Smart 2 days	Spec Smart 10 days	

Strips

T Series Strip

T232-UNV-1/2-EB	4-1/8" x 48"	2-T8/32	120/277	T8 ELEC.	250		56
TT232-347-1/4-EB	4-1/8" x 96"	4-T8/32	347	T8 ELEC.	80		56
TT232-UNV-1/4-EB	4-1/8" x 96"	4-T8/32	120/277	T8 ELEC.	200		56

Linear

IF Industrial Series Accessories

FL-173	Turret Wireguard				50		N/A
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IS/IA Industrial Strips

IA232-UNV-1/2-EB	10" x 48"	2-T8/32	120/277	T8 ELEC.	20		56
IS232-UNV-1/2-EB	10" x 48"	2-T8/32	120/277	T8 ELEC.	90		56
TIS232-347-1/4-EB	10" x 96"	4-T8/32	347	T8 ELEC.	20		56
TIS232-UNV-1/4-EB	10" x 96"	4-T8/32	120/277	T8 ELEC.	100		56

IS/IA Industrial Strips Accessories

FKR-173	Wireguard for IS/IA Series				20		N/A
FKR-126	5' Chain Hanging Kit for IS/IA Series				150		N/A

High Bay

FBD Fluorescent High Bay

FBD454HO-UNV-1/4-EB	13-3/4" x 48"	4-T5HO/54	120/277	T5HO ELEC.	70		60/67
FBD454HO-UNV-1/4-EB-WC6-LPT841	13-3/4" x 48"	4-T5HO/54	120/277	T5HO ELEC.		100	60/67
FBD654HO-347-1/42-EB	19-7/8" x 48"	6-T5HO/54	347	T5HO ELEC.	30		60/67
FBD654HO-UNV-1/42-EB	19-7/8" x 48"	6-T5HO/54	120/277	T5HO ELEC.	40		60/67
FBD654HO-UNV-1/42EB-WC6-LPT841	19-7/8" x 48"	6-T5HO/54	120/277	T5HO ELEC.		100	60/67

FBD Fluorescent High Bay Accessories

WG-FBD4	Wireguard Narrow-body				15		N/A
WG-FBD6	Wireguard Wide-body				10		N/A
FH360-347	Sensor highbay 347V Sensor Switch					100	N/A
FBF/FBE/CHAINKIT	54" Chains and V brackets				70		N/A
FBF/FBE-GRIP10	10' cables and V brackets				100		N/A

* Value indicates maximum quantity per order.



T Series Strip



IS/IA Industrial Strips



FBD High Bay

Indoor Industrial

Catalogue No.	Size	Lamp/Watts	Voltage	Ballast	Service Quantity*		Appl. Page
					Service Smart 2 days	Spec Smart 10 days	

High Bay Continued

FBX LED High Bay

FBX16LL40-UNV	2' x 2'	16,000 lms/4000K	120/277	0-10v dim	40		60
FBX24LL40-347	2' x 2'	24,000 lms/4000K	347	0-10v dim	50		60
FBX16LL40-347-WC6	2' x 2'	16,000 lms/4000K	347	0-10v dim		100	60
FBX24LL40-UNV	2' x 2'	24,000 lms/4000K	120/277	0-10v dim	100		60
FBX24LL40-UNV-WC6	2' x 2'	24,000 lms/4000K	120/277	0-10v dim	100		60
FBX24LL40-347-WC6	2' x 2'	24,000 lms/4000K	347	0-10v dim	40		60
FBX24LL40-UNV-LFA	2' x 2'	24,000 lms/4000K	120/277	0-10v dim		100	60

FBX Accessories

MD360	Motion Detector With Circular Coverage; 120 - 277 Volt				30		N/A
FBX-CHAIN-KIT	FBX Chain Kit				100		N/A
WG-FBX-2W	FBX Wireguard - 16000, 20000 & 24000 lumen versions				60		N/A
WG-FBX-2N	Wireguard for 8000 and 12000 lumen versions				20		N/A
WG-FBX-4	Wireguard for 36000 and 45000 lumen versions				30		N/A
FBX-GRIP5	5' cables & V brackets				50		N/A
FBX-GRIP10	10' cables & V brackets				50		N/A
FBX-PENHGR	FBX Pendant Hanger				40		N/A

HBO Series

HBO400PTT-A16-PSC-LP-WHC6-OR-UP	17-1/2" Reflector	18,500 lms (apprx.)	120/277/347	CWA		100	60/67
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SHE

SHE454HO-UNV-1/4EB-GENRS-CORD	11-1/8" x 48-1/8"	4-T5HO/54	120/277	T5HO ELEC.	100		60
SHE454HO-347-1/4EB-GENRS-CORD	11-1/8" x 48-1/8"	4-T5HO/54	347	T5HO ELEC.	50		60
SHE654HO-UNV-1/42EB-GENRS-CORD	16-1/8" x 48-1/8"	6-T5HO/54	120/277	T5HO ELEC.	100		60
SHE654HO-347-1/42EB-GENRS-CORD	16-1/8" x 48-1/8"	6-T5HO/54	347	T5HO ELEC.	60		60

SHE Accessories

SHE6L	SHE4L Frame & Lens - 16-1/8"x48"				5		N/A
SHE4L	SHE4L Frame & Lens - 11-1/8"x48"				10		N/A

TriLyte-T5/T8 Fluorescent High Bay

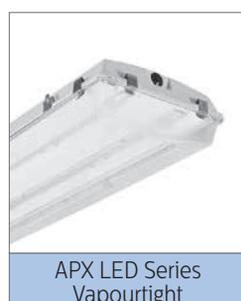
FH4C5DX654UNVP6	23" x 48"	6-T5HO/54	UNIV	T5HO ELEC.	25		60/67
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* Value indicates maximum quantity per order.



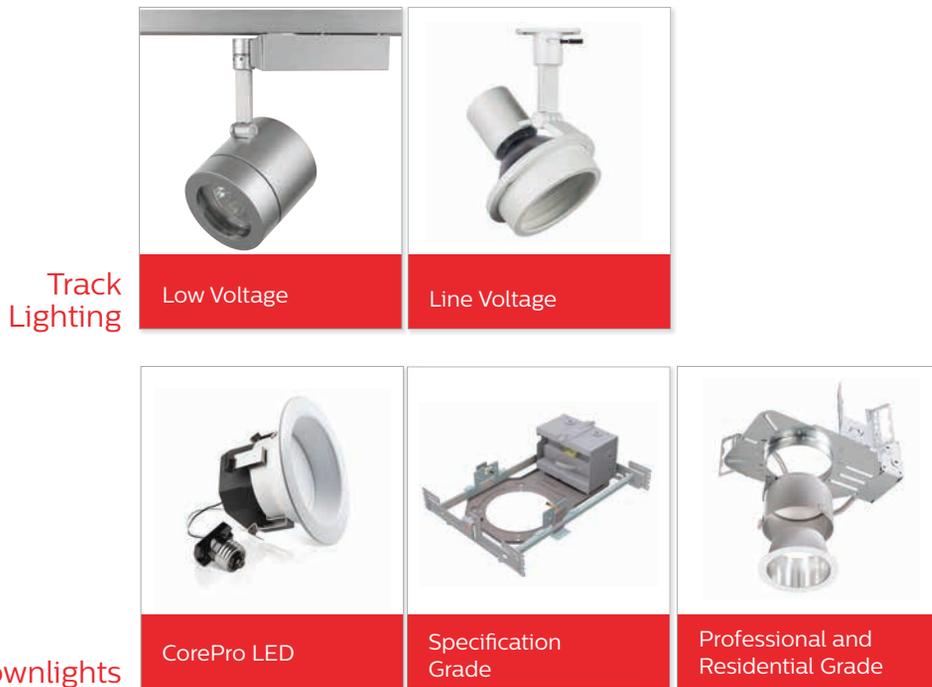
Catalogue No.	Size	Lamp/Watts	Voltage	Ballast	Service Quantity*		Appl. Page
					Service Smart 2 days	Spec Smart 10 days	
Wet Location							
APX LED Series Vapourtight							
APX24LL40-UNV	14-5/8" x 52"	24,000 lms/4000K	120/277	0-10v dim		100	67
APX LED Series Vapourtight Accessories							
APX-CMKIT	APX Ceiling Mount Bracket Kit (pair)					10	N/A
APX-VKIT	APX Bale Hanger Kit (pair)					100	N/A
VaporLume Luminaire							
BVL232-UNV-1/2EB-GENIS-SS	6-3/4" x 50-3/4"	2-T8/32	120/277	T8 ELECT.	100		65
BVL254HO-UNV-1/2EB-GENRS-SS	6-3/4" x 50-3/4"	2-T5HO/54	120/277	T5HO ELEC.	75		65
VaporLume							
DWAE232-UNV-1/2-EB	7" x 50"	2-T8/32	120/277	T8 ELECT.	30		65
DWAE35L840-4-UNV	7" x 50"	3500 lms/4000K	120/277	0-10v dim	25		65
DWAE43L840-4-UNV	7" x 50"	4300 lms/4000K	120/277	0-10v dim	20		65
TDWAE232-UNV-1/4-EB	7" x 97-13/16"	4-T8/32	120/277	T8 ELECT.	10		65
Vaporlume LED Accessories							
TBK	Stainless Steel Top Bracket Kit (pair)					25	N/A
WBK	Surface or Chain Mounting Brackets (pair)					20	N/A
Dock Lights							
Industrial LED Dock Light							
ID5L42-120	LED Dock Light					100	N/A
Accessories							
Drywall Flange Kits - For G type troffers in ceilings requiring flanges. Not for continous row mounting							
FMA14	1' x 4' Cut-out Dim: 12-5/8" (321mm) x 48-5/8" (1235mm)					100	N/A
FMA22	2' x 2' Cut-out Dim: 24-5/8" (626mm) x 24-5/8" (626mm)					20	N/A
FMA24	2' x 4' Cut-out Dim: 24-5/8" (626mm) x 48-5/8" (1235mm)					40	N/A
Mounting Hardware							
FL-123	5' Chain and "S" Hooks					35	N/A
Stem Kits - includes one canopy, stem rod and hardware. One kit per suspension point required							
CS-12	12" Stem (5/8" O.D.)					20	N/A
CS-400	Rigid Canopy (Stems Ordered Separately)					40	N/A
CS-48	48" Stem (5/8" O.D.)					25	N/A

* Value indicates maximum quantity per order.



Indoor Downlighting and Track Lighting

Philips Lightolier downlighting and track systems deliver all the flexibility required to create stunning, visually appealing environments. Years of industry experience sets Lightolier apart for performance, style and efficiency.



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Performance is key.

Philips Lightolier is committed to offering solutions that are tailored to meet your lighting needs. We have developed a classification system to help you choose the right product every time, whether you are looking for a particular optical performance, light distribution, or wet location rated fixtures, Philips Lightolier has the ideal solution to fit your needs with performance style and efficiency.

Star Rating System - See page 72 for explanation.

Good	*
Better	**
Best	***
Performance	****

Light Distribution

General Lighting	G
Task Lighting	T
Wall Washing	W
Accent Lighting	A

Special Purpose

Wet location	
--------------	---

SlimSurface LED

Catalogue No.	Rating	Description	Voltage	Lumens	Colour Temp.	Service Quantity*		
						Service Smart 2 days	Spec Smart 10 days	
4" Square								
S4S827K7	** G 	SLIM 4" SQUARE 650 LM 27K 80CRI 120V Triac Dim White WET	120	650	2700K	10		
S4S830K7	** G 	SLIM 4" SQUARE 650 LM 30K 80CRI 120V Triac Dim White WET	120	650	3000K	80		
S4S830K7AL	** G 	SLIM 4" SQUARE 650 LM 30K 80CRI 120V Triac Dim Aluminum WET	120	650	3000K		100	
S4S830K7BK	** G 	SLIM 4" SQUARE 650 LM 30K 80CRI 120V Triac Dim Black WET	120	650	3000K		100	
5" Round								
S5R827K7	** G 	SLIM 5" ROUND 650 LM 27K 80CRI 120V Triac Dim White WET	120	650	2700K	50		
S5R827K7AL	** G 	SLIM 5" ROUND 650 LM 27K 80CRI 120V Triac Dim Aluminum WET	120	650	2700K		100	
S5R830K7	** G 	SLIM 5" ROUND 650 LM 30K 80CRI 120V Triac Dim White WET	120	650	3000K	300		
S5R830K7AL	** G 	SLIM 5" ROUND 650 LM 30K 80CRI 120V Triac Dim Aluminum WET	120	650	3000K		100	
S5R835K7	** G 	SLIM 5" ROUND 650 LM 35K 80CRI 120V Triac Dim White WET	120	650	3500K	70		
S5R840K7	** G 	SLIM 5" ROUND 650 LM 40K 80CRI 120V Triac Dim White WET	120	650	4000K	40		
S5R830K7BK	** G 	SLIM 5" ROUND 650 LM 30K 80CRI 120V Triac Dim Black WET	120	650	3000K		100	
S5R927K7	** G 	Slim 5" ROUND 600lm 2700K 90CRI 120V Triac Dim White WET	120	600	2700K	20		

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Better	** General Lighting G	Wet location 



SlimSurface LED

Catalogue No.	Rating	Description	Voltage	Lumens	Colour Temp.	Service Quantity*	
						Service Smart 2 days	Spec Smart 10 days
6" Square							
S6S827K10	** G 	SLIM 6" SQUARE 1000 LM 27K 80CRI 120V Triac Dim White WET	120	1000	2700K	10	
S6S830K10	** G 	SLIM 6" SQUARE 1000 LM 30K 80CRI 120V Triac Dim White WET	120	1000	3000K	50	
S6S830K10AL	** G 	SLIM 6" SQUARE 1000 LM 30K 80CRI 120V Triac Dim Aluminum WET	120	1000	3000K		100
S6S830K10BK	** G 	SLIM 6" SQUARE 1000 LM 30K 80CRI 120V Triac Dim Black WET	120	1000	3000K		100
7" Round							
S7R827K10	** G 	SLIM 7" ROUND 1000 LM 27K 80CRI 120V Triac Dim White WET	120	1000	2700K	20	
S7R830K10	** G 	SLIM 7" ROUND 1000 LM 30K 80CRI 120V Triac Dim White WET	120	1000	3000K	160	
S7R830K10AL	** G 	SLIM 7" ROUND 1000 LM 30K 80CRI 120V Triac Dim Aluminum WET	120	1000	3000K		100
S7R830K10BK	** G 	SLIM 7" ROUND 1000 LM 30K 80CRI 120V Triac Dim Black WET	120	1000	3000K		100

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Better **	General Lighting G	Wet location 



CorePro LED

Catalogue No.	Rating	Description	Input Watts	Lumens	Service Quantity*		App. Page
					Service Smart 2 days	Spec Smart 10 days	
LED 4" Full Fixture = IC/Airseal Remodeler OR IC/Airseal Frames + Trim/LED Light Engine Package							
<i>IC/Airseal Remodeler</i>							
CP4RR	N/A	4" CorePro LED Downlight IC/Airseal Remodeler	N/A	N/A	20		75
<i>IC/Airseal Frames</i>							
CP4RN	N/A	4" CorePro LED Downlight New Construction IC/Airseal Frame	N/A	N/A	30		75
<i>Trim with LED Light Engine</i>							
CP4RB07830W	* G 	4" CorePro LED Downlight 800 lm 80 CRI 30K 120V WH	11	800	100		75
CP4RB07840W	* G 	4" CorePro LED Downlight 850 lm 80 CRI 40K 120V WH	11	850	100		75
LED 5" Full Fixture = IC/Airseal Remodeler OR IC/Airseal Frames + Trim/LED Light Engine Package							
<i>IC/Airseal Remodeler</i>							
CP5RR	N/A	5" CorePro LED Downlight IC/Airseal Remodeler	N/A	N/A	10		75
<i>IC/Airseal Frames</i>							
CP5RN	N/A	5" CorePro LED Downlight New Construction IC/Airseal Frame	N/A	N/A	30		75
<i>Trim with LED Light Engine</i>							
CP5RB08830W	* G 	5" CorePro LED Downlight 950 lm 80 CRI 30K 120V WH	13	950	100		75
CP5RB08840W	* G 	5" CorePro LED Downlight 1000 lm 80 CRI 40K 120V WH	13	1000	100		75
LED 6" Full Fixture = IC/Airseal Remodeler OR IC/Airseal Frames + Trim/LED Light Engine Package							
<i>IC/Airseal Remodeler</i>							
CP6RR	N/A	6" CorePro LED Downlight IC/Airseal Remodeler	N/A	N/A	10		75
<i>IC/Airseal Frames</i>							
CP6RN	N/A	6" CorePro LED Downlight New Construction IC/Airseal Frame	N/A	N/A	50		75
<i>Trim with LED Light Engine</i>							
CP6RB10830W	* G 	6" CorePro LED Downlight 1200 lm 80 CRI 30K 120V WH	14	1200	100		75
CP6RB10840W	* G 	6" CorePro LED Downlight 1250 lm 80 CRI 40K 120V WH	14	1250	100		75

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Good *	General Lighting G	Wet location 



Core Pro LED 4"

LyteCaster LED

Catalogue No.	Rating	Description	Service Quantity*		App. Page
			Service Smart 2 days	Spec Smart 10 days	

LED 4" Aperture Round - Full Fixture = Light Engine + Frame + Trim

Light Engines

L4R06830VA	N/A	LyteCaster LED 4" Downlight Light Engine 650 lm, 80 CRI, 3000K	30		75
L4R06835VA	N/A	LyteCaster LED 4" Downlight Light Engine 650 lm, 80 CRI, 3500K	40		75
L4RA06835WVA	N/A	LyteCaster LED 4" Adjustable Light Engine/Trim 650 lm, 80 CRI, 3500K		100	75

Frames

L4RANZ10UVA	N/A	LyteCaster LED 4" IC AirSeal New Construction Frame-in Kit with nails, 0-10V, 120/277V	10		75
L4RANE1VA	N/A	LyteCaster LED 4" IC AirSeal New Construction Frame-in Kit with nails, ELV, 120V	40		75

Trims

L4RBW	** G 	LyteCaster LED 4" white baffle downlight with white flange	10		75
L4RDD	** G 	LyteCaster LED 4" clear diffuse downlight cone with white flange	100		75
L4RDW	** G 	LyteCaster LED 4" white downlight cone with white flange	40		75

LED 5" Aperture Round - Full Fixture = Light Engine + Frame + Trim

Light Engines

L5R10830VA	N/A	LyteCaster LED 5" Downlight Light Engine 1000 lm, 80 CRI, 3000K	50		75
L5R10835VA	N/A	LyteCaster LED 5" Downlight Light Engine 1000 lm, 80 CRI, 3500K	60		75
L5RA10835WVA	N/A	LyteCaster LED 5" Adjustable Light Engine/Trim 1000 lm, 80 CRI, 3500K		100	75

Frames

L5RANE1VA	N/A	LyteCaster LED 5" IC AirSeal New Construction Frame-in Kit with nails, ELV, 120V	60		75
L5RANZ10UVA	N/A	LyteCaster LED 5" IC AirSeal New Construction Frame-in Kit with nails, 0-10V, 120/277V	20		75

Trims

L5RBW	** G 	LyteCaster LED 5" white baffle downlight with white flange	50		75
L5RDD	** G 	LyteCaster LED 5" clear diffuse downlight cone with white flange	100		75
L5RDW	** G 	LyteCaster LED 5" white downlight cone with white flange	70		75

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Better **	General Lighting G	Wet location 



LyteCaster LED

Catalogue No.	Rating	Description	Service Quantity*		App. Page
			Service Smart 2 days	Spec Smart 10 days	
LED 6" Aperture Round - Full Fixture = Light Engine + Frame + Trim					
Light Engines					
L6R15830VA	N/A	LyteCaster LED 6" Downlight Light Engine 1500 lm, 80 CRI, 3000K	30		75
L6R15835VA	N/A	LyteCaster LED 6" Downlight Light Engine 1500 lm, 80 CRI, 3500K	35		75
L6RA15835WVA	** GA 	LyteCaster LED 6" Adjustable Light Engine/Trim 1500 lm, 80 CRI, 3500K		100	75
Frames					
L6RANEIVA	N/A	LyteCaster LED 6" IC AirSeal New Construction Frame-in Kit with nails, ELV, 120V	40		75
L6RANZ10UVA	N/A	LyteCaster LED 6" IC AirSeal New Construction Frame-in Kit with nails, 0-10V, 120/277V	10		75
Trims					
L6RBW	** G 	LyteCaster LED 6" white baffle downlight with white flange	20		75
L6RDD	** G 	LyteCaster LED 6" clear diffuse downlight cone with white flange	70		75
L6RDW	** G 	LyteCaster LED 6" white downlight cone with white flange	25		75

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Better **	General Lighting G	Wet location 
	Accent Lighting A	



LyteCaster LED Accent

Catalogue No.	Rating	Description	Service Quantity*	
			Service Smart 2 days	Spec Smart 10 days
LED 3" Aperture -Round and Square: Full Fixture = Light Engine + Frame + Trim				
Light Engines				
L308830F	N/A	3" Light Engine 3000K 80 CRI Flood	70	
L308830NF	N/A	3" Light Engine 3000K 80 CRI Narrow Flood	50	
L308835F	N/A	3" Light Engine 3500K 80 CRI Flood	70	
L308835NF	N/A	3" Light Engine 3500K 80 CRI Narrow Flood	50	
Frames				
L3ANE1	N/A	3" New Construction AirSeal IC 120V ELV Nail	100	
L3NZ10U	N/A	3" New Construction Non-IC 120V/277 0-10V Screw		100
Round Trims				
L3RAW	*** GA	3" Round Adjustable Accent White Cone White Flange	10	
L3RAD	*** GA	3" Round Adjustable Accent Diffused Cone White Flange	20	
L3RDD	*** G	3" Round Downlight Diffused Cone White Flange	20	
L3RDW	*** G	3" Round Downlight White Baffle White Flange	25	
L3RGA	** GA	3" Adjustable Gimbal Aluminum	10	
L3RGB	** GA	3" Adjustable Gimbal Black	10	
L3RGW	** GA	3" Adjustable Gimbal White	100	
L3RSW	*** G	3" Round Downlight Shower Light Flat Glass White	40	
Square Trims				
L3SDD	*** G	3" Square Downlight Diffuse Cone White Face Plate	10	
L3SDW	*** G	3" Square Downlight White Cone White Face Plate	10	
L3SSW	*** G	3" Square Shower Light White Face Plate	10	
Complete Product: Remodeler, Light Engine and Trim included				
L3CE1	*** WA	3" Remodeler Non-IC 120V ELV	50	

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Better **	General Lighting G	Wet location
Best ***	Wall Washing W	
	Accent Lighting A	



LyteProfile LED

Catalogue No.	Rating	Description	Voltage	Input Watts†	Service Quantity*		App. Page
					Service Smart 2 days	Spec Smart 10 days	
LED 4" Aperture Round: Full Fixture = Light Engine + Frame + Trim							
Light Engines							
P4RD830VB	N/A	4" LyteProfile Light Engine 80 CRI 3000K	N/A	N/A	30		75-76
P4RD835VB	N/A	4" LyteProfile Light Engine 80 CRI 3500K	N/A	N/A	50		75-76
Frames							
P4RD10NZ10UVB	N/A	4" LyteProfile Non-IC New Construction Frame,1000 lm, 0-10V dimming, Universal voltage	120/277/ UNIV	11.3	50		75-76
P4RD15NZ103VB	N/A	4" LyteProfile Non-IC New Construction Frame, 1500 lm, 0-10V dimming, 347V	347	18.5		100	75-76
P4RD15NZ10UVB	N/A	4" LyteProfile Non-IC New Construction Frame,1500 lm, 0-10V dimming, Universal voltage	120/277/ UNIV	16.8	30		75-76
P4RD20NZ10IVB	N/A	4" LyteProfile Non-IC New Construction Frame, 2000 lm, 0-10V dimming, 120V	120	25.2	10		75-76
P4RD10NZ103VB	N/A	4" LyteProfile Non-IC New Construction Frame,1000 lm, 0-10V dimming, 347V	347	13.3		100	75-76
P4RD20NZ103VB	N/A	4" LyteProfile Non-IC New Construction Frame, 2000 lm, 0-10V dimming, 347V	347	28.63		100	75-76
Trims							
P4RDCC	*** G 	4" LyteProfile Comfort Clear Reflector White Painted Flange	N/A	N/A	80		75-76
P4RLWCC	*** W 	4" LyteProfile Comfort Clear Lens Wall Wash White Painted Flange	N/A	N/A	10		75-76

† +/- 10%

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Best	***	General Lighting G Wet location 
	***	Wall Washing W



LyteProfile LED

Catalogue No.	Rating	Description	Voltage	Input Watts†	Service Quantity*		App. Page
					Service Smart 2 days	Spec Smart 10 days	
LED 6" Aperture Round: Full Fixture = Light Engine + Frame + Trim							
Light Engines							
P6RD830VB	N/A	6" LyteProfile Light Engine 80 CRI 3000K	N/A	N/A	50		75-76
P6RD835VB	N/A	6" LyteProfile Light Engine 80 CRI 3500K	N/A	N/A	80		75-76
Frames							
P6RD10NZ10UVB	N/A	6" LyteProfile Non-IC New Construction Frame, 1000lm, 0-10V dimming, Universal voltage	120/277/ UNIV	10	20		75-76
P6RD15NZ10UVB	N/A	6" LyteProfile Non-IC New Construction Frame, 1500lm, 0-10V dimming, Universal voltage	120/277/ UNIV	15.7	60		75-76
P6RD15NZ103VB	N/A	6" LyteProfile Non-IC New Construction Frame, 1500lm, 0-10V dimming, 347V	347	16.8		100	75-76
P6RD20NZ10UVB	N/A	6" LyteProfile Non-IC New Construction Frame, 2000lm, 0-10V dimming, Universal voltage	120/277/ UNIV	21	50		75-76
P6RD25NZ101VB	N/A	6" LyteProfile Non-IC New Construction Frame, 2500lm, 0-10V dimming, 120V	120	34.5	20		75-76
P6RD20NZ103VB	N/A	6" LyteProfile Non-IC New Construction Frame, 2000lm, 0-10V dimming, 347V	347	22		100	75-76
P6RD25NZ103VB	N/A	6" LyteProfile Non-IC New Construction Frame, 2500lm, 0-10V dimming, 347V	347	30.7		100	75-76
Trims							
P6RDCC	*** G 	6" LyteProfile Comfort Clear Reflector White Painted Flange	N/A	N/A	100		75-76
P6RLWCC	*** W 	6" LyteProfile Comfort Clear Lens Wall Wash White Painted Flange	N/A	N/A	10		75-76

† +/- 10%

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Best	***	
	General Lighting	G
	Wall Washing	W
		Wet location 



Calculite LED

Catalogue No.	Rating	Description	Voltage	Lumen	Service Quantity*		App. Page
					Service Smart 2 days	Spec Smart 10 days	
LED 4" Round Aperture: Full fixture = Light Engine + Frame + Trim							
Light Engines							
C4L10830MZ10U	N/A	4" Calculite Gen 3, Light Engine 80 CRI, 3000K, medium beam, 0-10V dimming, universal voltage	120/277	1000 lm	20		74
C4L10830WZ10U	N/A	4" Calculite Gen 3, Light Engine 80 CRI, 3000K, wide beam, 0-10V dimming, universal voltage	120/277	1000 lm		100	74
C4L10835MZ10U	N/A	4" Calculite Gen 3, Light Engine 80 CRI, 3500K, medium beam, 0-10V dimming, universal voltage	120/277	1000 lm	20		74
C4L10835WZ10U	N/A	4" Calculite Gen 3, Light Engine 80 CRI, 3500K, wide beam, 0-10V dimming, universal voltage	120/277	1000 lm		100	74
C4L10840MZ10U	N/A	4" Calculite Gen 3, Light Engine 80 CRI, 4000K, medium beam, 0-10V dimming, universal voltage	120/277	1000 lm		100	74
Frames							
C4RN	N/A	Calculite LED Gen 3, 4" Round Aperture, New Construction, Universal Voltage, 0-10V dimming	120/277	N/A	50		74
C4RN3	N/A	Calculite LED Gen 3, 4" Round Aperture, New Construction, 347V, 0-10V dimming	347	N/A	20		74
C4RR	N/A	Calculite LED Gen 3, 4" Round Aperture, Remodeler, Universal Voltage, 0-10V dimming	120/277	N/A	5		74
Trims							
C4RDLC	**** W	Calculite LED Gen 3, 4" Round Comfort Clear Diffuse	N/A		25		74
C4RDLCD	**** W	Calculite LED Gen 3, 4" Round Clear Diffuse	N/A		20		74
C4RDCL	**** W	Calculite LED Gen 3, 4" Round Specular Clear	N/A		10		74

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Performance ****	Wall Washing W	Wet location



Specification Grade Downlights

Calculite LED

Catalogue No.	Rating	Description	Voltage	Lumen	Service Quantity*		App. Page
					Service Smart 2 days	Spec Smart 10 days	
LED 6" Round Aperture: Full fixture = Light Engine + Frame + Trim							
Light Engines							
C6L15830MZ10U	N/A	6" Calculite Gen 3, Light Engine 80 CRI, 3000K, medium beam, 0-10V dimming, universal voltage	120/277	1500 lm	5		74
C6L15835MZ10U	N/A	6" Calculite Gen 3, Light Engine 80 CRI, 3500K, medium beam, 0-10V dimming, universal voltage	120/277	1500 lm	20		74
C6L15835WZ10U	N/A	6" Calculite Gen 3, Light Engine 80 CRI, 3500K, wide beam, 0-10V dimming, universal voltage	120/277	1500 lm		100	74
C6L20830MZ10U	N/A	6" Calculite Gen 3, Light Engine 80 CRI, 3000K, medium beam, 0-10V dimming, universal voltage	120/277	2000 lm	5		74
C6L20835MZ10U	N/A	6" Calculite Gen 3 Light Engine 80 CRI, 3500K, medium beam, 0-10V dimming, universal voltage	120/277	2000 lm	10		74
C6L20835WZ10U	N/A	6" Calculite Gen 3 Light Engine 80 CRI, 3500K, wide beam, 0-10V dimming, universal voltage	120/277	2000 lm		100	74
Frames							
C6RN	N/A	Calculite LED Gen 3, 6" Round Aperture, New Construction, Universal Voltage, 0-10V dimming	120/277	N/A	60		74
C6RN3	N/A	Calculite LED Gen 3, 6" Round Aperture, New Construction, 347V, 0-10V dimming	347	N/A		100	74
Trims							
C6RDLLC	**** W	Calculite LED Gen 3, 6" Round, Comfort Clear Diffuse			30		74
C6RDLCD	**** W	Calculite LED Gen 3, 6" Round, Clear Diffuse			30		74
C6RDLCL	**** W	Calculite LED Gen 3, 6" Round, Specular Clear			20		74

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Performance ****	Wall Washing W	Wet location

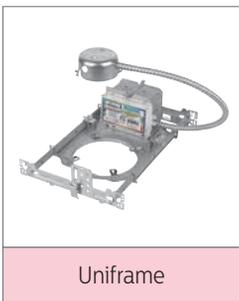


Uniframe CFL

Catalogue No.	Rating	Description	Voltage	Lamp Envelope Code	Service Quantity*		App. Page
					Service Smart 2 days	Spec Smart 10 days	
5 ¼ " CFL Aperture: Full fixture = Frame + Trim							
Frame							
1001F26U	N/A	5" Uniframe Non-IC 26W CFL Screw	120/277	26W TTT		100	76
Trims							
1076	* G	5" Basic Black Baffle	N/A	N/A	30		76
1076WH	* G	5" Basic White Baffle	N/A	N/A	200		76
1076CH	* G	5" Basic Chrome Cone	N/A	N/A	50		76
1005WB	** G	5" Premium Die-Cast Step Baffle	N/A	N/A	15		76
1005CL	** G	5" Specular Alzak Cone	N/A	N/A	40		76

* Value indicates maximum quantity per order.

Star Rating System		Light Distribution		Special Purpose	
Good	*	General Lighting	G	Wet location	💧
Better	**				



Uniframe CFL

Catalogue No.	Rating	Description	Volt.	Lamp Env. Code	Service Quantity*		Uniframe Non IC		App. Page
					Service Smart 2 days	Spec Smart 10 days	1101F2642-347	1101F2642U	

6 3/4" Aperture: Full fixture = Frame + Trim

CFL Frames

1101F2642U	N/A	6 3/4" Uniframe Non-IC CFL	120/277	26/32/42W TTT	40		N/A	N/A	76
1101T13U	N/A	6 3/4" Uniframe Non-IC CFL	120/277			100			76

LED Frames

1101LED09N35Z10U	N/A	Uniframe LED, Round Apert. New Const., Universal Volt. 0-10V Dimming, 3500K	120/277	900 lm	30		76		
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Trims

1101HCL**	**** G	6 3/4" Performance Open Reflector Horizontal CFL Specular Clear	N/A	N/A	15		26/32/42W TTT	26/32/42W TTT	76
1101CL	**** G	6 3/4" Performance Open Reflector Vertical CFL UniFrame Specular Clear	N/A	N/A	10		26/32/42W TTT	26/32/42W TTT	76
1176WH	* G	6 3/4" Basic White Baffle	N/A	N/A	50		26/32/42W TTT	26/32/42W TTT	76
1178SH	* G	6 3/4" Opal Lexan Dish	N/A	N/A		100	26/32/42W TTT	26/32/42W TTT	76
1176CH	* G	6 3/4" Basic Chrome Cone	N/A	N/A	20		26/32/42W TTT	26/32/42W TTT	76
1105BK	** G	6 3/4" Premium Die-Cast Black Step Baffle	N/A	N/A	15		26/32/42W TTT	26/32/42W TTT	76
1105WB	** G	6 3/4" Premium Die-Cast White Step Baffle	N/A	N/A	30		26/32/42W TTT	26/32/42W TTT	76
1105CL	*** G	6 3/4" Specular Clear Alzak Reflector	N/A	N/A	30		26/32/42W TTT	26/32/42W TTT	76
1146CD	*** G	6 3/4" Deep Alzak Reflector	N/A	N/A		100	26/32/42W TTT	26/32/42W TTT	76

* Value indicates maximum quantity per order. **Not compatible with 1101LED09N35Z10U.

Star Rating System	Light Distribution	Special Purpose
Good *	General Lighting G	Wet location 
Better **		
Best ***		
Performance ****		



Calculite CFL

Catalogue No.	Rating	Description	Lamp/Watts	Ballast/Voltage	Service Quantity*		App. Page
					Service Smart 2 days	Spec Smart 10 days	
Compact Fluorescent - 4 1/2" aperture Full Fixture = Frame + Trim							
Frames							
S4126VU	N/A	Frame 4 1/2" 1-26W TTT 120/277V	1-26W TTT	Electronic/120/277	10		77
Vertical Trims							
8011CCLW	**** G	4 1/2" Vertical Reflector	N/A	N/A	15		77
Compact Fluorescent - 6" aperture Full Fixture = Frame + Trim							
Frames							
S6142BU	N/A	Frame 6" 1-26/32W TTT 120/277V	1-26/32W TTT	Electronic/120/277	60		77
S6132BU	N/A	Frame 6" 1-32W TTT 120/277V	1-32W TTT	Electronic/120/277	50		77
S6118BU	N/A	Frame 6" 1-18W TTT 120/277V	1-18W TTT	Electronic/120/277		100	77
Horizontal Trims							
8031CCLW	**** G	6" Open Reflector	N/A	N/A	25		77
Vertical Trims							
8021CCLW	**** G	6" Vertical Reflector	N/A	N/A	15		77
8021CCL	**** G	6" Comfort Clear, molded trim ring	N/A	N/A		100	77
Compact Fluorescent - 7 3/8" aperture Full Fixture = Frame + Trim							
Frames							
S7142BU	N/A	Frame 7 3/8" 1-26/32/42W TTT 120/277V	1-26/32/42W TTT	Electronic/120/277	10		77
Horizontal Trims							
8056CCLW	**** G	7 3/8" Open Reflector	N/A	N/A	10		77
Compact Fluorescent - 8 3/4" aperture Full Fixture = Frame + Trim							
Frames							
S8242HU	N/A	Frame 8 3/4" 2-26/32/42W TTT 120/277V	2-26/32/42W TTT	Electronic/120/277		100	77
Horizontal Trims							
8038CCLW	**** G	8 3/4" Open Reflector	N/A	N/A		100	77

* Value indicates maximum quantity per order.

Star Rating System

Performance

Light Distribution

General Lighting

G



300X Flex Series Frames – Low Voltage

Catalogue No.	Description	Voltage	Lamp Env. Code	Service Quantity*		App. Page
				Service Smart 2 days	Spec Smart 10 days	
New Construction Frames – 3 3/4" Aperture						
<i>IC New Construction</i>						
302MRIC7SPX	Lytepoints 3 3/4" IC Frame MR16 Silent Pack 7" Box	120	MR16	125		81
<i>Lyteping IC Airseal</i>						
302MRAICSPX	Lytepoints 3 3/4" AirSeal IC Frame MR16 Silent Pack	120	MR16	40		81
<i>Non IC New Construction</i>						
302MREX	Lytepoints 3 3/4" Non-IC Frame MR16 Electronic Transformer	120	MR16	30		81
302MRSPX	Lytepoints 3 3/4" Non-IC Frame MR16 Silent Pack	120	MR16	250		81
Remodelers – 3 3/4" Aperture						
<i>Non-IC Ultra Shallow Electronic Remodeler</i>						
303MRE	Lytepoints 3 3/4" Ultra Shallow Remodeler MR16 Electronic Transformer	120	MR16	15		81
<i>Non-IC Magnetic Remodeler</i>						
300MRSPX	Lytepoints 3 3/4" Remodeler MR16 Silent Pack	120	MR16	250		81

* Value indicates maximum quantity per order.



300X Flex Series Low Voltage Trims and Frames Matrix

Catalogue No.	Rating	Description	Service Quantity*	
			Service Smart 2 days	Spec Smart 10 days
Adjustable Alzak Cone				
304CLX	*** G A	Lytepoints 3 3/4" MR16 Adjustable Specular Clear Cone	40	
Adjustable Premium Die-Cast Baffle				
305BKX	*** G A	Lytepoints 3 3/4" MR16 Adjustable Baffle Black	15	
305WHWX	*** G A	Lytepoints 3 3/4" MR16 Adjustable Baffle White	25	
308WWX	*** G A	Lytepoints 3 3/4" MR16 Adjustable Pinhole White		100
Basic Baffle				
375WHX	** G	Lytepoints 3 3/4" MR16 Adjustable Basic Baffle White	20	
Basic Cone				
394CHX	** G	Basic Cone MR16 3 3/4" Chrome	100	
374CHX	** G	Lytepoints 3 3/4" MR16 Adjustable Basic Cone Clear	25	
Elbow				
378WHX	** A	Lytepoints 3 3/4" MR16 Adjustable Elbow White	20	
Nelio Open Adjustable				
348STX	** A	Lytepoints 3 3/4" MR16 Open Square Adjustable Brushed Steel	10	
348WHX	** G A	Lytepoints 3 3/4" MR16 Open Square Adjustable White	20	
Nelio Premium Die-Cast Adjustable Baffle				
344AWHX	*** G A	Lytepoints 3 3/4" MR16 Square Adjustable Baffle Brushed White	10	
Residence				
313BKX	** G A	Lytepoints 3 3/4" MR16 Adjustable Gimbal Black	100	
313ABX	** G A	Lytepoints 3 3/4" MR16 Adjustable Gimbal Antique Brass	10	
313WHX	** G A	Lytepoints 3 3/4" MR16 Adjustable Gimbal White	250	
313STX	** G A	Lytepoints 3 3/4" MR16 Adjustable Gimbal Brushed Steel	30	
Shower Light				
377WHX	** G A 	Lytepoints 3 3/4" MR16 Flat Lens Shower Light White	40	
Shower Light Baffle				
376WHX	** G A 	Lytepoints 3 3/4" MR16 Dome Shower Light White	10	
Slot Aperture				
309WHX	*** A	Lytepoints 3 3/4" MR16 Adjustable Slot Aperture White	30	

Corresponding frames on page 27.

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Better **	General Lighting G	Wet location 
Best ***	Accent Lighting A	



300X Flex Series Low Voltage Trims and Frames Matrix

	Non IC New Construction		IC New Construction	IC Airseal	Remodelers	
	302MREX	302MRSPX	302MRIC75PX	302MRAICSPX	303MRE	300MRSPX
	50W MR6 / 35W MR16IR	50W MR16 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	35W MR16IR	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	35W MR16IR	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	35W MR16IR	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	35W MR16IR	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	35W MR16IR	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	50W MR6 / 35W MR16IR	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR	N/A	50W MR6 / 35W MR16IR
	N/A	N/A	N/A	N/A	N/A	50W ES/ESD-16



500X Flex Series Frames - Line Voltage

Catalogue No.	Description	Ballast/ Voltage	Service Quantity*	
			Service Smart 2 days	Spec Smart 10 days
IC New Construction				
502AICSX	Frame-In Kit IC/AirSeal 4 1/4" PAR20	120V	250	
Non-IC New Construction				
502X	V-Frame Frame-In Kit Non-Ic 4 1/4" PAR20	120V	200	
Remodelers				
501X	Remodeler Swivel 4 1/4" PAR20	120V	180	

* Value indicates maximum quantity per order.



502AICSX



502X



501X

500X Flex Series Line Voltage Trims and Frames Matrix

Catalogue No.	Rating	Description	Service Quantity*		IC	Non IC	Remodeler
			Service Smart 2 days	Spec Smart 10 days	502AICSX	502X	501X
4 1/4" Line Voltage							
Residence							
513ABX	* G A	Residence PAR20 4 1/4" Antique Brass	10		50W PAR20	50W PAR20	50W PAR20
513BKX	* G A	Residence PAR20 4 1/4" Black	40		50W PAR20	50W PAR20	50W PAR20
513STX	* G A	Residence PAR20 4 1/4" Stainless	40		50W PAR20	50W PAR20	50W PAR20
513WHX	* G A	Residence PAR20 4 1/4" White	200		50W PAR20	50W PAR20	50W PAR20
Contour							
516WHX	* G A 	Contour PAR20 4 1/4" White	50		50W PAR20	50W PAR20	50W PAR20
Adjustble Step Baffle							
575BKX	** G A	Adjustable Step Baffle PAR20 4 1/4" Black	10		50W PAR20	50W PAR20	50W PAR20
575WHX	** G A	Adjustable Step Baffle PAR20 4 1/4" White	80		50W PAR20	50W PAR20	50W PAR20
Adjustable Alzak Cone							
594CHX	** G A	Adjustable Alzak Cone PAR20 4 1/4" Chrome	40		50W PAR20	50W PAR20	50W PAR20
Adjustable Premium Cone							
574STX	** G A	Adjustable Premium Cone PAR20 4 1/4" Brushed Steel	15		50W PAR20	50W PAR20	50W PAR20

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution	Special Purpose
Good * G	General Lighting G	Wet location 
Better ** A	Accent Lighting A	



LyteCaster Incandescent Complete Units

Catalogue No.	Rating	Description	Lamp Wattage	Voltage	Aperture Size	Service Quantity*	
						Service Smart 2 days	Spec Smart 10 days
Trim and Frame included							
0020WH	* G	LyteCaster Step Baffle with Frame PAR20	50W PAR20, 50W R20	120/277	3 3/4	10	
0030WH	* G	LyteCaster Step Baffle with Frame PAR30	75W PAR30, 85W BR30, 100W A19	120/277	5 1/4	40	
0040WH	* G	LyteCaster Step Baffle with Frame PAR38	150W PAR38/ BR40, 100W A19	120/277	6 3/4	10	

* Value indicates maximum quantity per order.

Star Rating System	Light Distribution
Good *	General Lighting G



Lytening Incandescent Frames

Catalogue No.	Description	Voltage	Service Quantity*	
			Service Smart 2 days	Spec Smart 10 days
Insulated Ceiling				
<i>Frame-In-kits</i>				
1000IC	5" IC Insulated Ceiling Frame-In Kit	120	20	
1100IC	6 3/4" IC Frame-In Kit Incandescent	120	25	
Lytening IC/Non-IC AirSeal New Construction				
<i>AirSeal 3 3/4"</i>				
2002AIC	3 3/4" Lytening Airseal IC Incandescent Frame-In-Kit Nail Convertible	120	50	
<i>AirSeal 5 3/8"</i>				
1004ICN	5" Lytening Airseal IC Incandescent Frame-In-Kit Nail Convertible	120	200	
<i>AirSeal 7"</i>				
1104ICN	6 3/4" Lytening Airseal IC Incandescent Frame-In-Kit Nail Convertible	120	80	
Lytening IC/Non-IC AirSeal Remodelers				
<i>AirSeal Remodeler</i>				
1004ICR	5" Lytening Airseal IC Incandescent Remodeler Convertible	120	40	
<i>Remodeler Ring</i>				
1103RS	6 3/4" Remodeler Ring Incandescent	120	10	
Non-IC				
1002	5 1/4" Non-IC Frame Incandescent	120	70	
2002	3 3/4" Lytecaster Inc Non-IC Frame	120	80	
1102P1	6 3/4" Incandescent Non-IC Frame-In Kit	120	100	

Note: For compatible trims see page 32.

* Value indicates maximum quantity per order.



Insulated Ceiling



Lytening Airseal IC



Airseal Remodeler



Remodeler Ring



Non-IC

LyteCaster Incandescent / Halogen Trims and Frames Matrix

Catalogue No.	Rating	Description	Service Quantity*		IC Ceiling**		
			Service Smart 2 days	Spec Smart 10 days	1000IC	1100IC	
3 3/4" Aperture							
Basic Baffle							
2076CH	* G	3 3/4" Basic Cone Chrome	50				
2076WB	* G	3 3/4" Basic Baffle White	80				
Reflector							
308WWX	* G	3 3/4" Pinhole white		100			
5 1/4" Aperture							
Basic Baffle							
1076	* G	5 1/4" Basic Baffle Black	30		60W A19 65W BR30 75W PAR30L		
1076WH	* G	5 1/4" Basic Baffle Black	200		60W A19 65W BR30 75W PAR30L		
Lexan Dish***							
1078	💧	5 1/4" Dropped Opalex Diffuser	15		60W A19 65W BR30 75W PAR30L		
Basic Cone							
1076CH	* G	5 1/4" Basic Cone Chrome	50		60W A19 65W BR30 75W PAR30L		
Basic Grooved Baffle							
R620WH	* G	5 1/4" Grooved Baffle White PAR30	60		60W A19 65W BR30 75W PAR30L		
Premium Die Cast Step Baffle							
1005WB	** G	5 1/4" Die-Cast Step Baffle White	15		60W A19 65W BR30 75W PAR30L		
Specular Alzak Cone							
1005CL	** G	5 1/4" Alzak Cone Clear	40		60W A19 65W BR30 75W PAR30L		

* Value indicates maximum quantity per order.

**Max wattage - compatible with LED or conventional technology

***Not recommended for use with LED lamps

Star Rating System	Light Distribution	Special Purpose
Good *	General Lighting G	Wet location 💧
Better **		



Professional/Residential Downlights

	Non IC Ceiling**			Airseal New Ceiling**		Remodelers**	
	1002	2002	1102P1	1004ICN	1104ICN	1004ICR	1103RS
		50W PAR20 / R20					
		50W PAR20 / R20					
		50W PAR20 / R20					
		100W A19 65W BR30 75W PAR30L		60/40W A19		60/40W A19	
		100W A19 65W BR30 75W PAR30L		60/40W A19		60/40W A19	
		100W A19 65W BR30 75W PAR30L					
		100W A19 65W BR30 75W PAR30L		60/40W A19		60/40W A19	
		100W A19 65W BR30 75W PAR30L		60/40W A19		60/40W A19	
		100W A19 65W BR30 75W PAR30L		60/40W A19		60/40W A19	
		100W A19 65W BR30 75W PAR30L		60/40W A19		60/40W A19	



LyteCaster Incandescent / Halogen Trims and Frames Matrix

Catalogue No.	Rating	Description	Service Quantity*		IC Ceiling**		
			Service Smart 2 days	Spec Smart 10 days	1000IC	1100IC	
6 3/4" Aperture							
Basic Baffle							
1176	* G	6 3/4" Basic Baffle BR40 Black	10		100W PAR38 100W BR40 60W A19		
1176WH	* G	6 3/4" Basic Baffle BR40 Gloss White	50		100W PAR38 100W BR40 60W A19		
Basic Cone							
1176CH	* G	6 3/4" Basic Cone Chrome	20		100W PAR38 100W BR40 60W A19		
Basic Reflector							
1171	* G	6 3/4" Basic Gloss White Reflector BR40	15		100W PAR38 100W BR40 60W A19		
Deep Alzak Reflector							
1146	*** G	6 3/4" Specular Clear Reflector A lamp	30				
1146CD	*** G	6 3/4" Specular Reflector Comfort Clear Diffuse		100			
Lexan Dish***							
1178SH	* G 	6 3/4" Dropped Opalex Diffuser		100	100W PAR38 100W BR40 60W A19		
Premium Die Cast Step Baffle							
1105BK	** G	6 3/4" Die-Cast Step Baffle Black	15		100W PAR38 100W BR40 60W A19		
1105WB	** G	6 3/4" Die-Cast Step Baffle White	30		100W PAR38 100W BR40 60W A19		
Specular Alzak Cone							
1105CL	** G	6 3/4" Alzak Cone Clear	30		100W PAR38 100W BR40 60W A19		

* Value indicates maximum quantity per order.

**Max wattage - compatible with LED or conventional technology

***Not recommended for use with LED lamps

Star Rating System		Light Distribution		Special Purpose	
Good	*	General Lighting	G	Wet location	
Better	**				
Best	***				



Professional/Residential Downlights

	Non IC Ceiling**			Airseal New Ceiling**		Remodelers**	
	1002	2002	1102P1	1004ICN	1104ICN	1004ICR	1103RS
		105W PAR38 150W BR40 150W A21		90W PAR38 120W BR40 75W A19		105W PAR38 150W BR40 150W A21	
		105W PAR38 150W BR40 150W A21		90W PAR38 120W BR40 75W A19		105W PAR38 150W BR40 150W A21	
		105W PAR38 150W BR40 150W A21		90W PAR38 120W BR40 75W A19		105W PAR38 150W BR40 150W A21	
		105W PAR38 150W BR40 150W A21		90W PAR38 120W BR40 75W A19		105W PAR38 150W BR40 150W A21	
		105W PAR38 150W BR40 150W A21				105W PAR38 150W BR40 150W A21	
		105W PAR38 150W BR40 150W A21				105W PAR38 150W BR40 150W A21	
		105W PAR38 150W BR40 150W A21		90W PAR38 120W BR40 75W A19		105W PAR38 150W BR40 150W A21	
		105W PAR38 150W BR40 150W A21		90W PAR38 120W BR40 75W A19		105W PAR38 150W BR40 150W A21	
		105W PAR38 150W BR40 150W A21		90W PAR38 120W BR40 75W A19		105W PAR38 150W BR40 150W A21	
		105W PAR38 150W BR40 150W A21		90W PAR38 120W BR40 75W A19		105W PAR38 150W BR40 150W A21	

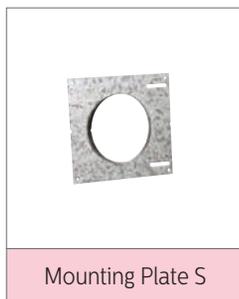


Specular Alzak Cone

LyteCaster Accessories

Catalogue No.	Description	Service Quantity*	
		Service Smart 2 days	Spec Smart 10 days
Mounting Plates			
0089L	Mounting Plate Long 3 3/8"	60	
0089S	300 Series Mounting Plate Short 3 3/8"	100	
0092L	Mounting Plate Long 8 1/8"	100	
0092S	500 Series Mounting Plate Short 8 1/8"	100	
Vapour Barrier Extenders			
VBE300	Vapor Barrier For 9" IC Box	200	

* Value indicates maximum quantity per order.



Calculite Accessories

Catalogue No.	Description	Service Quantity*	
		Service Smart 2 days	Spec Smart 10 days
Mounting Bars			
1950	MOUNTING BARS 18" SET OF (2)	200	
1951	MOUNTING BARS 27" SET OF (2)	300	
1956	MOUNTING BARS CLIPS SET OF (4)	40	

* Value indicates maximum quantity per order.



CorePro LED Track Lighting

Catalogue No.	Description	Voltage	Aperture Size	Lumens	Service Quantity*	
					Service Smart 2 days	Spec Smart 10 days
LED						
CorePro LED						
LT08RWF830BK	CorePro LED Mini Cylinder, 700 lm, 35° Wide Flood, 80 CRI / 3000K CCT, Matte Black Finish	120	2 1/4	700	50	
LT08RWF830WH	CorePro LED Mini Cylinder, 700 lm, 35° Wide Flood, 80 CRI / 3000K CCT, Matte White Finish	120	2 1/4	700	50	

* Value indicates maximum quantity per order.



Lytespan Line Voltage Track Lighting

Catalogue No.	Description	Lamp Wattage	Voltage	Lamp Env. Code	Service Quantity*	
					Service Smart 2 days	Spec Smart 10 days
Line Voltage						
Classic Basic						
9030NBK	Lytespan Gimbal Ring PAR30 BK	75	120	PAR30	15	
9030NWH	Lytespan Gimbal Ring PAR30 WH	75	120	PAR30	20	
9038NBK	Lytespan Gimbal Ring PAR38 BK	120	120	PAR38	40	
9038NWH	Lytespan Gimbal Ring PAR38 WH	120	120	PAR38	60	
Par Ring						
6278WH	PAR-Ring 50W PAR20 White	50	120	PAR20	20	
6282WH	PAR-Ring 75W PAR30S White	75	120	PAR30	25	
55215WH	PAR Ring 250W PAR38 White	250	120	PAR38	70	
Par Ring Front Relamping						
55241WH	PAR Ring 75W PAR30S Front Relamp White	75	120	PAR30	30	
55242WH	PAR Ring 250W PAR38 Front Relamp White	250	120	PAR38	25	
Par-Tech Low Profile Adaptor						
8201WH	Par-Tech Low Profile Adapter, White	55W PAR16, 50W PAR20, 75W PAR30, 250W PAR38			30	
Universal						
6320WH	Universal Lytespot White	150W A21, 55W PAR16, 50W PAR20, 250W PAR38, 300W BR40	120		40	

* Value indicates maximum quantity per order.



Lytespan Low Voltage Track Lighting

Catalogue No.	Description	Lamp Wattage	Voltage	Service Quantity*	
				Service Smart 2 days	Spec Smart 10 days
Alcyon Cylinder					
22MC6WH	Alcyon MR16 Mini Cylinder, White	50W MR16, 37W MR16 IR	120	20	
Barelite					
850WH	Lytespan Barelite MR16 50W Elec	50W MR16	120	15	
DomeLite					
851WH	Lytespan Domelite MR16 50W Elec	50W MR16	120	15	
Reflector					
24MHT45RF	Mini HID Reflector T4.5, Anonized clear	50W MR16	120		100

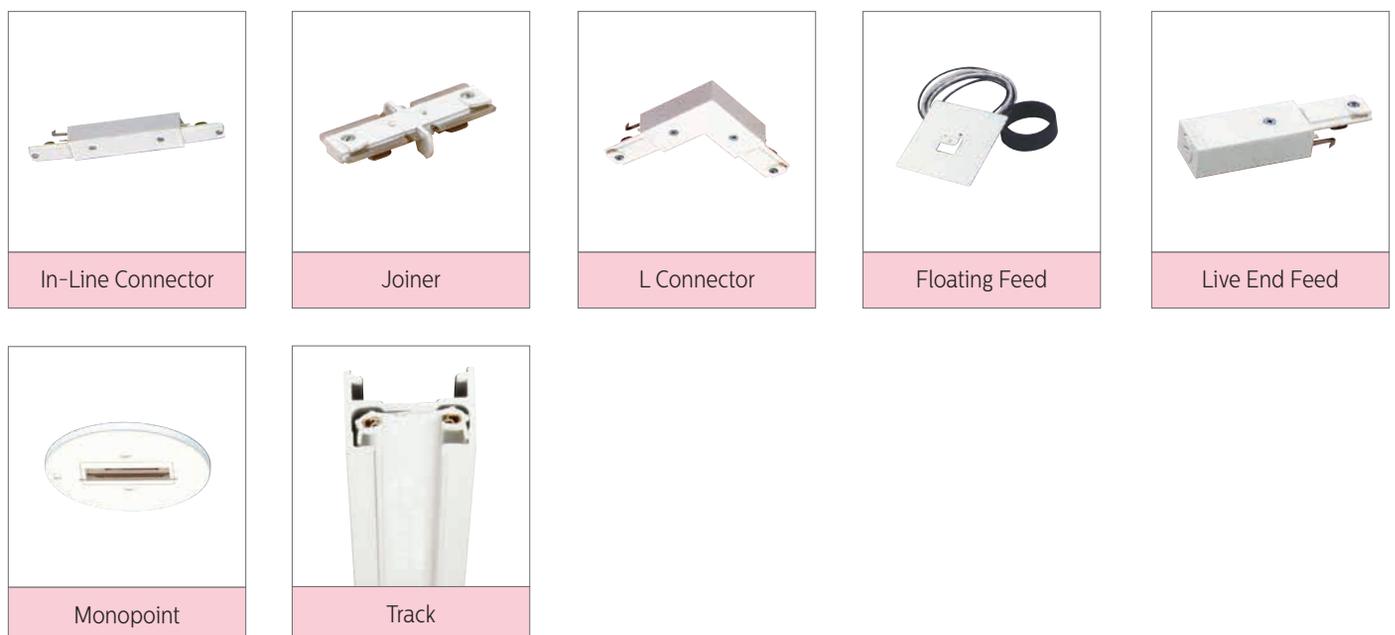
* Value indicates maximum quantity per order.



Track Lighting Accessories

Catalogue No.	Description	Service Quantity*	
		Service Smart 2 days	Spec Smart 10 days
Connectors			
In Line Connector			
6054NBK	Basic In-Line Connector Black	15	
6054NWH	Basic In-Line Connector White	10	
Joiner			
6049NBK	Basic Mini Coupler Black	40	
6049NWH	Basic Mini Coupler White	25	
L Connector			
6050NBK	Basic "L" Connector Black	20	
6050NWH	Basic "L" Connector White	15	
Feeds			
Floating Feed Canopy			
6061WH	Floating Canopy Kit, White	5	
6063WH	Floating Power Feed, White	25	
Live End Feed			
6048NBK	Basic Live End Black	50	
6048NWH	Basic Live End White	90	
Monopoint			
Monopoint Connection			
6190BK	Lytespan Monopoint, Matte Black	20	
6190WH	Lytespan Monopoint, Matte White	15	
Track			
Fast Track			
6004NBK	4' Ind Basic Track without Live End Black	20	
6004NWH	4' Ind Basic Track without Live End White	35	
6008NBK	8' Ind Basic Track without Live End Black	40	
6008NWH	8' Ind Basic Track without Live End White	50	
6012NWH	12' Basic Track without Live End Matte White	50	

* Value indicates maximum quantity per order.



Architectural & Entertainment LED Lighting Systems

Philips Color Kinetics offers professional LED lighting systems in a multitude of types, form factors, and output levels. Colour-changing, tunable white, solid white, and solid colour LED lighting fixtures deliver high-quality, digitally controllable light in the full range of interior and exterior architectural and entertainment applications.



Cove Lighting

Under Cabinet

Architectural LED Lighting Systems

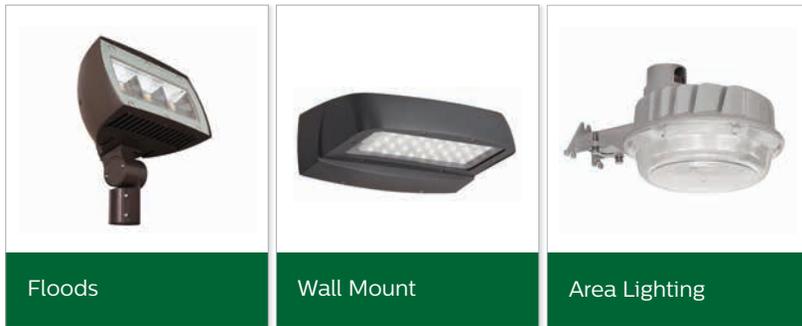
Catalogue No.	Description	Service Quantity*	
		Service Smart 2 days	Spec Smart 10 days
Cove Lighting			
120-000125-00	Cove QLX 4 FT mounting track. One piece of four-foot track.	20	
108-000032-05	10 foot, white, UL-listed leader cable for eW Cove QLX Powercore		10
Under Cabinet			
523-000027-72	Ultra-low-profile LED, 120 VAC, 9.25 in (235 mm), White Housing		20
523-000027-73	Ultra-low-profile LED, 120 VAC, 19.25 in (489 mm), White Housing		20
523-000027-74	Ultra-low-profile LED, 120 VAC, 39.25 in (997 mm), White Housing		20
523-000027-75	Ultra-low-profile LED, 120 VAC, 9.25 in (235 mm), White Housing		10
523-000027-76	Ultra-low-profile LED, 120 VAC, 19.25 in (489 mm), White Housing		10
523-000027-77	Ultra-low-profile LED, 120 VAC, 39.25 in (997 mm), White Housing		10
108-000035-01	eW Profile Powercore, Jumper Cable, 12", White, UL		30
120-000065-00	eW Profile Powercore, Wiring Compartment, White, UL		10
108-000034-00	eW Profile Powercore, Leader Cable, 10 FT, White, US Plug, UL		10

* Value indicates maximum quantity per order.



Outdoor General Purpose Lighting

Philips Keene outdoor luminaires are your best value because they are innovative, contractor friendly, and energy efficient. Readily available and dependable, Keene solutions cover a wide variety of applications for your day-to-day outdoor lighting needs.



Outdoor General Purpose Lighting

Catalogue No.	Rating	Lamp	Wattage	Ballast Type/Voltage	Service Quantity*	
					Service Smart 2 days	Spec Smart 10 days
Area Lighting						
Dusk To Dawn						
DTDLED1C5K120GY3SP	**	3356 Lumens LED	39	120	20	
Dusk to Dawn Accessories						
DTDARMGY3S		Mounting arm accessory with hardware			40	
Floods						
Lytepro Flood						
STKLPF1K-8	***	1773 Lumens LED	20	120-277	30	
STKLPF2K-8	***	3460 Lumens LED	40	120-277	35	
STKLPF3T-8	***	7012 Lumens LED	85	120-277	20	
STKLPF4T-8	***	9191 Lumens LED	105	120-277	20	
LytePro Flood Accessories						
BT10		Universal slipfitter converts LPF3 & LPF4 yoke mount to tenon mount			20	
Pentafood PF5						
PF5Y1000MAL-T	***	MH	1000	CWA 120/277/347	15	

* Value indicates maximum quantity per order.

Performance is key.

Philips Keene is committed to offering solutions that are tailored to meet your lighting needs. We have developed a classification system to help you choose the right product every time.

Star Rating System

Good	*
Better	**
Best	***



Outdoor General Purpose Lighting

Catalogue No.	Rating	Lamp	Wattage	Ballast Type/Voltage	Service Quantity*		App. Page
					Service Smart 2 days	Spec Smart 10 days	
Wall Mount							
LED Wall Light							
LWLEDIC5KI20PCBBZ	**	829 Lumens LED	12	120	20		82
LytePro7							
LPW7-8DGY	***	1154 Lumens LED	14	120-277	50		82
LPW7-8BZ	***	1154 Lumens LED	14	120-277	20		82
LPW7-8WH	***	1154 Lumens LED	14	120-277	30		82
LytePro16							
LPW16-78DGY	***	3374 Lumens LED	40	120-277	50		82
LPW16-78BZ	***	3374 Lumens LED	40	120-277	20		82
LytePro32							
LPW32-78BZ	***	6913 Lumens LED	71	120-277	30		82
LPW32-78DGY	***	6913 Lumens LED	71	120-277	30		82
LPW32-79BZ	***	6913 Lumens LED	71	347-480	10		82
LPW32-79DGY	***	6913 Lumens LED	71	347-480	10		82
LPW32-79WH	***	6913 Lumens LED	71	347-480	40		82
Mini & Maxi							
313150NLXL-1	**	E17 HPS	150	Reactor NPF, 120V	15		82
313175MAL-T	**	E17 MH	175	CWA 120/277/347	25		82
553250MAL-T	**	ED28 MH	250	CWA 120/277/347	15		82
553400MAL-T	**	ED37/BT37 MH	400	CWA 120/277/347	15		82
TLW Wallprism							
TLW070NLXLPC-1	*	E17 HPS	70	Reactor NPF, 120V	40		82
WallPack							
313LED36L530NWUNVBZ	**	3052 Lumens LED	35	120/277	10		82
553LED72L530NWUNVBZ	***	6726 lumens LED	65	120/277	15		82

* Value indicates maximum quantity per order.

Star Rating System

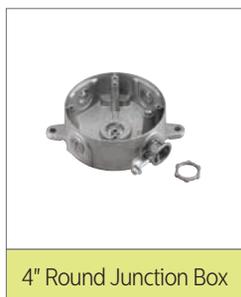
Good	*
Better	**
Best	***



Boxes and Accessories

Catalogue No.	Description	Service Quantity*	
		Service Smart 2 days	Spec Smart 10 days
4" Round Junction Box			
75C	Aluminum 5 hole junction box with cover - 1/2" NPT	30	
Junior Junction Box			
CL49	Aluminum junior 2 hole junction box for lampholders at end of run - 1/2" NPT	40	
Photocontrols			
P105A	Button type Mini-Photocontrol, 120V	15	

* Value indicates maximum quantity per order.



Outdoor Urban, Residential and Landscape Lighting

Philips Hadco is known for its craftsmanship in landscape lighting with the ability to bring a total solution to extend beauty and safety beyond daylight hours for parks, public and residential spaces.

Landscape Lighting



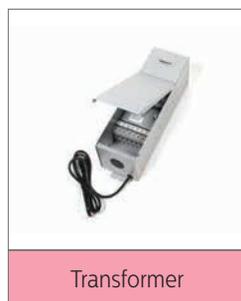
Landscape Lighting

Catalogue No.	Rating	Description	Lamp	Wattage	Voltage	Service Quantity*	
						Service Smart 2 days	Spec Smart 10 days
Accent Lighting							
FlexScape							
BL9DW-HS7	***	Accent, LED Architectural Accent, FlexScape, Bronze, 3000K, 12V	670	12	12v	30	
BL9DW-AS7	***	Accent, LED Architectural Accent, FlexScape, Black, 3000K, 12V	670	12	12v	20	
IL9DW-A	***	Inground, LED FlexScape, Black, 3000K, 12V	642	12	12v	10	
Micro Accent							
BL5016-HS7	***	Accent, Aluminum Bullyte w/ Stake, Bronze, 50W MR16, 12V	MR16	50W Max.	12v	10	
Path Lighting							
MUL4 Series							
MUL4-HS7LED2W	***	Path Light, Aluminum w/Stake, Bronze, 2W LED, 12V	G4 bi-pin , 105 lumens	12	12v	10	
Accessories							
Connectors							
LVC3		Landscape Accessories, Connector (LVC3)				30	
LVC4		Landscape Accessories, Connector (LVC4)				10	
Transformers/Power Supply							
TC152-12TP	***	Transformer, powdercoated steel with removable door, cord/plug		150VA	120v	10	

* Value indicates maximum quantity per order.

Star Rating System

Best ***



Outdoor Urban, Roadway & Tunnel Lighting

Philips Lumec's forward thinking outdoor lighting solutions address revolutionary changes in designs, products and technologies. Contemporary designs by Lumec perfectly meet the lighting requirements of any street, boulevard, public space or park.



Roadway
Lighting

Outdoor Urban & Roadway Lighting

Catalogue No.	Rating	Description	Lumens	Wattage	Voltage	Service Quantity*	
						Service Smart 2 days	Spec Smart 10 days
Roadway Lighting							
<i>StreetView</i>							
SVM-60W32LED4K-G2-LE3-UNIV-DMG-RC-GY3	***	StreetView, 60w, type3, 120-277v, grey	7855	71	120-277		50
SVM-90W48LED4K-G2-LE3-UNIV-DMG-RC-GY3	***	StreetView, 90w, type3, 120-277v, grey	11628	105	120-277		50
<i>MiniView</i>							
SVS-35W16LED4K-T-LE3-UNIV-DMG-RC-WC10-GY3	**	MiniView, 35w, type3, 120-277v, grey	3842	36	120-277		50
SVS-54W16LED4K-T-LE3-UNIV-DMG-RC-WC10-GY3	**	MiniView, 54w, type3, 120-277v, grey	5268	54	120-277		50
<i>StreetView Accessories</i>							
ACC-SVM-UNIV-PH8		Photocell for SVM, 120-277v			120-277		50
ACC-SVM-PH9		Shorting cap for SVM			120-480		50
<i>MiniView Accessories</i>							
ACC-SVS-PH9		Shorting cap for SVS			120-480		50

* Value indicates maximum quantity per order.

Star Rating System

Better	**
Best	***



Applications

Lighting applications

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Lighting technology & terms explained

General Lamp Information

Incandescent/Halogen

The incandescent lamp is a source of electric light that works by incandescence, (a general term for heat-driven light emissions which includes the simple case of black body radiation). An electric current passes through a thin tungsten filament, heating it until it produces light. A filling gas is often used in the enclosing glass to reduce the filament evaporation rate and improve average life.



The enclosing glass bulb prevents the oxygen in air from reaching the hot filament, which otherwise would be destroyed rapidly by oxidation. Incandescent lamps provide superior colour rendering, easy dimming and economical maintenance. The colour Temperature of incandescent sources ranges all the way from warm tones (approx. 2700K) of conventional A lamps to the brilliant light (approx. 3000K) of tungsten halogen. (As of Jan. 2015 Canada has phased out the manufacturing and import of 40/60/75/100 watt incandescent bulbs.)

Units featuring reflector lamps, such as PAR and low-voltage MR16 lamps, are a good choice for accent lighting and wall washing, or wherever highly controlled beams and long lamp life are desired. The longer life of PAR and low-voltage MR16 lamps also make them a good choice for locations that are difficult to access. Small-scale halogen PAR lamps, such as PAR16 and PAR20, produce crisp, white light that is very similar in effect to low voltage halogen lighting although offering a lower lamp life when compared to other PAR lamps or MR16's. By bringing out form, colour and texture in the objects being lighted, low voltage halogen lighting draws the viewer in and adds excitement to the composition.

Fluorescent

The light produced by a compact fluorescent lamp or fluorescent tube, is the result of a three step process which starts with with an electric current being passed through the electrodes of the lamp. This electricity excites mercury vapour that's contained in the lamps to produce a short wave, ultraviolet light. This ultraviolet light then passes through phosphors that are coated on the lamps to produce visible light. There have been some environmental concerns over the mercury content in fluorescent light sources. However, ... Philips manufactures lamps with very low mercury levels which are far less harmful.



HID

A High-intensity discharge (HID) lamp is a type of electrical lamp that produces light by means of an electric arc between tungsten electrodes housed inside a transparent fused quartz or translucent fused polycrystalline alumina tube. This tube is filled with both gas and metal salts. The gas facilitates the arc's initial strike. Once the arc is started, it heats and evaporates the metal salts forming a plasma, which greatly increases the intensity of light produced by the arc. High-intensity discharge lamps are a type of arc lamp.

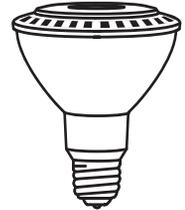


Compared to fluorescent and incandescent lamps, certain HID lamps have higher luminous efficacy since a greater proportion of their radiation is in visible light as opposed to heat. Their overall luminous efficacy is also much higher, they give a greater amount of light output per watt of electricity input. High Intensity Discharge (HID) light sources provide high output, long life and the greatest possible energy efficiency. These characteristics make them a prime consideration for many commercial applications. Metal Halide is best suited for interior applications as it provides better colour rendering

than high pressure sodium. HID lighting should be used for ceilings over twelve feet where a strong punch of light is required. For ceilings over 15 feet, consider Metal Halide PAR lamps, which provide an even stronger throw of light.

LED

A light-emitting diode (LED) consists of a semiconductive device that emits light when an electric current is passed through it.



The semiconductor is an electronic component that converts electrical energy directly to light through the movement of electrons between the two terminals of diode, which occur by a process called electroluminescence. When a light emitting diode is electrically connected, electrons start moving at the junction of the N-type and P-type semiconductors within the diode. When there is a jump over of electrons at the p-n junction, the electron loses a portion of its energy.

In regular diodes this energy loss is in the form of heat. However, in LEDs the specific type of N and P conductors produce photons (light) instead of heat. The amount of energy lost defines the colour temperature of light produced.

LEDs are important because due to their efficiency and low energy, they are beginning to replace most conventional light sources.

A LED is much more efficient than an incandescent light bulb due to the fact that they have higher efficacy producing more lumens per watt. Incandescent bulbs use more energy to produce the same levels of light as LEDs due to the fact that more energy is being converted to heat that is emitted with the light. Whereas LEDs produce far less heat and all that is produced is at the P-N junction which emits through the back of the circuit board.

Philips Lighting is a global market leader with recognized expertise in the development, manufacturing & application of innovative LED lighting solutions. We offer the widest range of LED products available.

Cutting-edge technology is able to reduce the lamp's colour temperature to a warm glow when dimmed, taking LED lamp dimming to new levels, mimicking incandescent dimming.

Our PAR lamps utilize COB (Chips on Board) a new technology of LED packaging for LED light engine. Multi LED chips are packaged together as one lighting module.

- SMD (Surface mounted diode) is a standalone chip on a ceramic base that can be integrated into various packages for linear LED strips or downlights.
- COB (chip on board) LED, which comes as a high powered chip in direct contact with a printed circuit board optimal thermal management.
- MCOB (multiple chips on board) LEDs, which are multiple COB LEDs integrated to form a single chip. This technology is used in LED bulbs and tubes.
- MCCOB (multiple chips and cups on board) packages, which are used for high bay fixtures and floodlights.

By employing the latest advances in optics, electrical LED packages, lamp shape and heat management methods, we can produce high-quality, long-lasting LED solutions.

Choosing the right lamp.

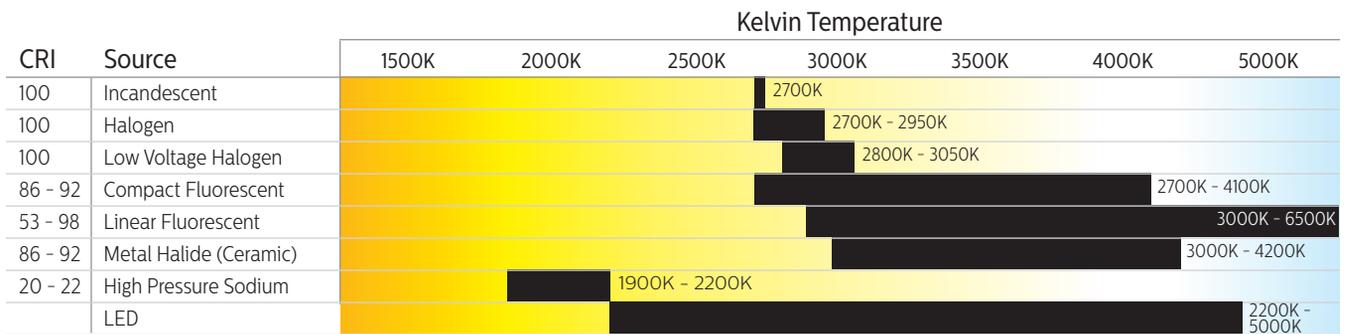
When selecting the light source for your application, there are some things you need to consider.

Colour Rendering Index:

The Colour Rendering Index (CRI) is a relative scale to determine a light source's ability to render an object's colour. The higher the number, 100 being the best, the better the colour rendering. Specify a source that has 90+ where colour matching/selection is occurring; 80+ for pleasant appearance of people, food and merchandise; 80+ for offices, educational, health care and institutional settings; 70+ for most industrial tasks.

Colour Temperature:

Colour Temperature is measured in Kelvin and represents whether the light source appears warm (1,500K), neutral (3,500K), cool or daylight (5,500K). The chart below highlights the colour temperature and how it affects the mood of the space.



Lamp Technology: Average Lifetimes

Lumens per Watts	Lamp Life (Hours)
LED (upwards of 100 lumens per watt) Upwards of 100,000 hours Lamp Life (note many drivers are rated for only 60,000 hours of life)	
Linear Fluorescent (31-101 Lumens Per Watt) 7500 - 36 000 Hours Lamp Life	
Metal Halide (30-112 Lumens Per Watt) 9 000 - 24 000 Hours Lamp Life	
Compact Fluorescent (62-76 Lumens Per Watt) 10 000 - 20 000 Hours Lamp Life	
Halogen MR16 (50w) (17 Lumens Per Watt) 2 000 - 6 000 Hours Lamp Life	
Halogen PAR30 (75w) (13 Lumens Per Watt) 3 000 Hours Lamp Life	
Incandescent BR40 (85w) (11 Lumens Per Watt) 2 500 Hours Lamp Life	
Incandescent A19 (100w) (15 Lumens Per Watt) 750 - 1 500 Hours Lamp Life	

Lamp Life:

Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not. LED lifetime means the length of time (in hours) until half of the LED light sources maintain at least 70% of their initial lumen output (B50,L70).

CRI Source

25 - 90 LED

The light from an LED has an inherently narrow spectrum

Indoor commercial linear lighting

Step 1 – Decide on a suitable light level

Analyze the existing lighting system and the task being performed. This secondary step is necessary because experience has shown that worker productivity and light levels go hand in hand. The following table is a quick reference for the accepted standards of these applications.

Interior Applications	Illuminance Horizontal	Category/Value (LUX)	Illuminance Vertical	Category/Value (LUX)
Determination of illuminance categories				
Open Plan Office				
Intensive VDT use	Important	150 lx (15 fc)	Very Important	50 lx (5 fc)
Intermittent VDT use	Important	300 lx (50 fc)	Important	50 lx (5 fc)
Private Offices				
Private Office	Important	500 lx (50 fc)	Important	50 lx (5 fc)
Schools				
Hallways	Not Important		Very Important	100 lx (10 fc)
Photocopies (3rd Generation)	Very Important	500 lx (50 fc)	Not Important	
Public Spaces				
Banks (general circulation areas)	Somewhat Important	100 lx (10 fc)	Somewhat Important	30 lx (3 fc)
Healthcare (Clinics & Offices)				
Patient Rooms (Ambient Lighting)	Not Important	50 lx (5 fc)	Not Important	30 lx (3 fc)
General Areas				
Stairways, Corridors, Toilets & Washrooms	Important	10 - 15 fc	Not Important	
Lobbies, Lounges, Receptions Areas	Important	15 - 20 fc	Not Important	

Indoor recommendations from the IES for quality lighting.

Step 2 – Choose a luminaire that fits your application

There are different styles of luminaires, and by design, each has particular applications they are designed for. Picking the right luminaire for your application can be just as important as the installation. Here are some fluorescent luminaires shown within the guide and the applications that are recommended for each of them.

Shielded Glare-Free Architectural:

Architectural styling combined with visually exciting elements provides shadowless balanced brightness. Low brightness glow provides the occupant with a soft awareness of the lighting element, while increasing depth perception and a sense of orientation within a space.

Applications:

Open office and lobby areas where reading and computer terminal tasks are undertaken. Ideal for office, retail, senior living and hospital environments.

Parabolic:

Ideal for office environments. This luminaire's deep cell louver allows for a visual cut-off of the lamp to the eye as reducing visual glare while still emitting sufficient light along task (horizontal) and VDT monitor (vertical) work planes.

Applications:

Open office and lobby areas where reading and computer terminal tasks are undertaken.

Lensed Troffer:

These are high performance lens troffers that offer adequate lighting at an economically based value. These models offer hemmed edges which eliminate the hazard of cuts to the hand during installation. They also incorporate light leak stops which block light from being visible in areas other than within the door frame. Mitered corner door frames offer a finished look to the door frame.

Applications:

Classrooms, open office and retail areas where general lighting is required at budget levels.

Modular Surface Lens:

The ISM is a high quality, surface modular luminaire that features a shallow and durable one-piece construction. This design feature helps to create a clean ceiling appearance wherever it's installed. This luminaire also allows for ease in its installation due to its reversible flush steel door and snap-on wiring channel cover. Its shallow 4" deep design allows it to be utilized in areas where low plenum depth restrictions are apparent.

Applications:

Ideal in areas for low ceiling applications or areas in which recessing a luminaire is not feasible. Suitable in classrooms, open office and retail areas where general lighting is required at budget levels.

Surface Wrap Lens:

Low profile, OW Wrap 2-11/16" deep lensed luminaire. The wrap around lens design delivers a floating panel effect, and because of its wraparound design, emits light laterally which aides in reducing ceiling contrast.

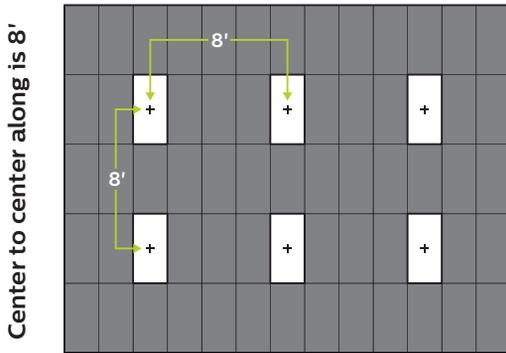
Applications:

Ideal in areas for low ceiling applications or areas in which recessing a luminaire is not feasible. Suitable in classrooms, open office and retail areas where general lighting is required at budget levels.

Step 3 - Space luminaires appropriately

The following table outlines the spacing, and the intensity of light, in footcandles, one can expect when installing these luminaires. The spacing of the luminaires in this example are to be measured center to center. As shown within these charts (see below), the 8' x 8' spacing means that the distance to the next luminaire is 8ft. in either direction, across or along.

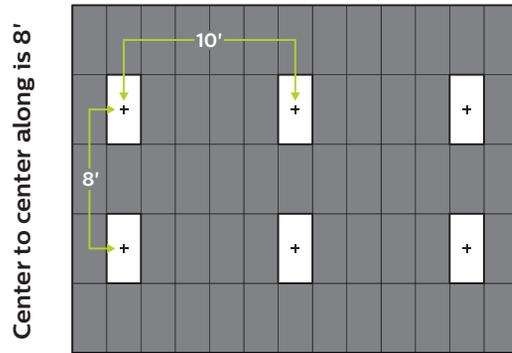
Center to center across is 8'



8' x 8' Spacing Example

Ceiling Grid: 2' x 4' grid
 Luminaire Size: 2' x 4'
 Room Dimensions: 26' x 20'

Center to center across is 10'



8' x 10' Spacing Example

Ceiling Grid: 2' x 4' grid
 Luminaire Size: 2' x 4'
 Room Dimensions: 26' x 20'

Luminaire Size	Family	Part Number	Average footcandles Center to Center		Page number
			8 x 8	8 x 10	
1' x 4'	TG8	1TG8232-01-UNV-1/2-EB	42	52	5
2' x 2'	TG8	2TG8231U6R-01-UNV-1/2-EB	40	48	5
2' x 4'	TG8	2TG8232-01-UNV-1/2-EB	48	50	5
2' x 2'	Evogrid	2EVG38L835-2-D-UNV-DIM	56	45	6
2' x 4'	Evogrid	2EVG48L835-4-D-UNV-DIM	66	53	6
1' x 4'	ClearAppeal	1CAG30L835-4-DS-UNV-DIM	41	33	6
2' x 2'	ClearAppeal	2CAG34L835-2-DS-UNV-DIM	46	38	6
2' x 4'	ClearAppeal	2CAG42L835-4-DS-UNV-DIM	58	48	6
1' x 4'	Arioso	1AVEG38L835-4-ACR-UNV	53	43	6
2' x 2'	Arioso	2AVEG38L835-2-ACR-UNV	53	43	6
2' x 4'	Arioso	2AVEG38L835-4-ACR-UNV	52	42	6
2' x 4'	T-Grid	2TG43L835-4-FS-02F-UNV-DIM	61	50	5
1' x 4'	FluxGrid	1FGG38L835-4-D-UNV-DIM	53	42	5
2' x 2'	FluxGrid	2FGG38L835-2-D-UNV-DIM	51	43	5
2' x 4'	FluxGrid	2FGG43L835-4-D-UNV-DIM	57	49	5
2" x 46"	T5 Strip	SV4S128UNVPG	31	25	4

Footcandles are based on room size 50' (W) x 8.5' (H)

Indoor commercial linear lighting

Luminaire performance charts

The following charts represent the footcandles and watts per square feet achieved with specific luminaires that can be ordered through the Service Smart - Spec Smart program.

Room	Spacing	Units	Recessed Direct/Indirect				
			1AVEG38L835-4-ACR-UNV	1FGG38L835-4-D-UNV-DIM	2FGG38C835-2-D-UNV-DIM	2AVEG38L835-2-ACR-UNV	2AVEG38L835-4-ACR-UNV
60X60X9	8'x8'	FC	50	53	53	55	45
		W/Sq Ft	0.55	0.615	0.642	0.72	0.549
	8'x10'	FC	45	45	43	42	40
		W/Sq Ft	0.471	0.492	0.514	0.54	0.47
	10'X12'	FC	32	36	34	27	28
		W/Sq Ft	0.337	0.394	0.411	0.338	0.336
12'X12'	FC	27	23	23	23	23	
	W/Sq Ft	0.281	0.222	0.231	0.281	0.28	
			2AVG332-SPMW-UNV-1/3-EB	1EVG38L835-4-D-UNV-DIM	1CAG30L835-4-DS-UNV-DIM	2CAG34L835-2-DS-UNV-DIM	2CAG42L835-4-DS-UNV-DIM
60X60X9	8'x8'	FC	47	52	40	45	60
		W/Sq Ft	1.184	0.619	0.414	0.501	0.546
	8'x10'	FC	43	42	35	40	50
		W/Sq Ft	1.015	0.495	0.355	0.429	0.468
	10'X12'	FC	30	35	25	27	35
		W/Sq Ft	0.725	0.394	0.253	0.307	0.334
12'X12'	FC	25	24	20	23	30	
	W/Sq Ft	0.604	0.223	0.211	0.256	0.278	

FC: Average maintained footcandles - W/Sq Ft: Watts per square foot. Room measurements in feet (WxLxH)

Room	Spacing	Units	ISMR232-FA01-UNV-1/2-EB	
50x70x8.5	8' x 8'	FC	50	
		W/Sq Ft	0.90	
	8' x 10'	FC	40	
		W/Sq Ft	0.80	
12x16x8.5	6' x 8'	FC	50	
		W/Sq Ft	1.20	

FC: Average maintained footcandles - W/Sq Ft: Watts per square foot. Room measurements in feet (WxLxH)

Room	Spacing	Units	Recessed Flat Lens				
			1TG8232-01-UNV-1/2-EB	2TG8231U6R-01-UNV-1/2-EB	2TG8232-01-UNV-1/2-EB	2TG8332-01-UNV-1/3-EB	2TG8432-01-UNV-1/4-EB
50x70x8.5	8' x 8'	FC	52	48	50	94	113
		W/Sq Ft	0.90	0.90	0.96	1.30	1.80
	8' x 10'	FC	42	40	48	78	94
		W/Sq Ft	0.80	0.80	0.86	1.10	1.40
12x16x8.5	6' x 8'	FC	45	47	50	90	111
		W/Sq Ft	1.30	1.20	0.96	1.80	2.30

FC: Average maintained footcandles - W/Sq Ft: Watts per square foot. Room measurements in feet (WxLxH)

Results based on: Average footcandles maintained, total Light Loss Factor (L.L.F.)=0.82 Reflectances: 80% Ceiling (white acoustical tile), 50% Wall (off-white paint), 20% Floor (medium grey carpet). RE835 T8 lamps rated at 3000 lumens, RE835 TT5 lamps rated at 3150 lumens, RE835 T5 lamps rated at 2610 lumens & RE835 T5HO lamps rated at 4400 lumens. 1' x 1' calculation grid at 30" from finished floor. Results may vary.

Calculations have been performed according to IESNA & CIE standards and good practice. Some differences between measured values and calculated results may occur due to tolerances in calculation methods, testing procedures, component performance, measurement techniques and field conditions such as voltage and temperature variations. Input data used to generate the attached calculations such as room dimensions, reflectances, furniture and architectural elements significantly affect the lighting calculations. If the real environment conditions do not match the input data, differences will occur between measured values and calculated values.

Philips rating criteria & industrial design advice

Industrial Lighting and the Variables to be Considered

We face many challenges as the industrial sector evolves: Issues of an aging workforce, worker productivity and technology miniaturization. Improvements in lighting systems are just one aspect supporting the improvement to a worker's environment that aid in productivity, health and quality of visual space. Along with human factors, we face numerous environmental factors when determining the best solution for an industrial application. We need to consider task, temperature, facility operating schedule and energy. In the past the usual application for a 25 foot ceiling would be the standard 400W metal halide highbay on 20ft by 20ft grid. Now we have several options and factors to be considered. As with industrial processes and manufacturing, lighting has and continues to undergo many changes that are affording us greater options, flexibility, and control.

When we are choosing our lighting system we need to determine the most effective solution for the situation and we have several variables to consider. Maintenance, Temperature, humidity, corrosive atmosphere, classified locations, energy savings, control (occupancy, daylight, facility management) are some of the conditions to take into account. Philips Lighting has a wide cross section of products and technologies, designed to meet a variety of specifications and site conditions. Included in these are High Pressure Sodium, Metal Halide, Fluorescent, and LED. The LED products are available with a wider variety of control, which is more flexible and easier to use.

General Considerations in Lighting Design for Industrial Spaces

In good design practice the lighting designer should consider the following factors first and it is important for good design planning.

1. Determine the quantity and quality of illumination desired for a safe facility, personnel comfort and the manufacturing process being performed in the given space. (refer to the Lighting Handbook 10th edition).
2. Select luminaires and technology that will support the target illumination levels by examining the photometric characteristics and mechanical performance that will meet installation, operation and actual maintenance conditions.
3. Select luminaires and arrange them so that it will be easy and practical to maintain.
4. Take into account the energy management considerations and economics factors including initial, operating and maintenance costs (the total cost of ownership), versus the quantity and quality for optimum visual performance visual performance. The new LED luminaires and controls are as cost competitive as traditional sources and offer greater payback due to energy and maintenance savings.
5. The use of daylight and occupancy control is becoming increasingly more important when arranging luminaires for industrial space. Daylighting should always been taken into account when determining the ambient lighting in all applications. Design is changing and the quality of environment and natural light not only benefits the environment but also the worker. More and more we are seeing daylight present in industrial facilities. Occupancy controls are essential in today's industrial lighting applications, to offer greater energy savings and reduce wear and tear on the fixtures.

Special Considerations for Industrial Lighting Design

Lighting and Space Conditioning

Traditional lighting sources such as HID, Metal Halide, and High Pressure Sodium operate at high temperatures, which are often used as part of the heating system in the cooler months, but require additional cooling in the warmer months. Environmental conditions and close coordination with the HVAC needs to be considered when using today's LED systems, as they are not a significant source of heat.

High Humidity, Corrosive and Classified Location Lighting

Enclosed gasketed luminaires are used in non classified areas where environments contain nonflammable dusts and vapours or excessive dust. Enclosures protect the interior from the condition prevailing in the area. Steam processing plating areas, wash and shower rooms and other areas of high humidity are typical areas that require sealed and wet location listed luminaires. Severe corrosive conditions necessitate knowledge of atmospheric content to permit proper selection of luminaires. Classified locations are areas where atmospheres contain flammable dusts, vapours or gases in explosive concentrations. They are grouped by the National Electric Code on the basis of the hazardous characteristics. All electrical equipment must be approved for use in specific classes and groups. Luminaires are available and designed specifically to operate in these areas. Consult the National Electrical Code for Class I, Class II and Class III locations.

Abnormal Temperature Conditions

Low ambient temperatures must be recognized in such areas, they are many unheated heavy industrial plants, frozen food plants, cooled food places such as meat packing facilities and cold storage warehouses. Equipment should be selected to operate under such conditions. We need to pay close attention to lamp starting and light output characteristics should fluorescent be considered. With high intensity discharge equipment, temperature variation has practically no effect on

light output but the proper starting characteristics must be provided. In extremely cold temperatures High Pressure Sodium or Pulse Start Technology should be used, both pulse start and HPS have ignitor's to aid the lamp in starting (this is applicable in areas with temperatures from -20° C to -40° C). With incandescent filament lamp equipment neither the starting nor the operation is a problem in low temperatures, the only factor we need to consider is that incandescent is a large energy consumer and not considered an energy efficient source.

Abnormally high temperatures in truss heights in foundries, steel mills, forge shops, etc. Caution should be used when selecting luminaires for such locations in particular, it is important to pay attention to the temperature limitations of fluorescent and HID ballasts under such conditions. Often ballasts should be remotely located at a lower or cooler temperature level or special high temperature equipment should be used. It is important to keep in mind that fluorescent lamp output is significantly sacrificed when operating above 40° C ambient. Most Philips Industrial LED luminaires are designed to operate between -35° C to 40° C. Depending on the environmental conditions, the specification sheets should be reviewed to ensure that the specified product meets the application requirements.

Critical

Where high speed machinery is in use, the luminaires should be installed on alternating phases.

Energy and Quality issues for Good Lighting Design

Increasingly in the design industry we are seeing sustainable design and minimal environmental issues playing a greater role. Technology has advanced greatly and offer solutions to energy and aging work force crisis. Lamps, ballasts and sources have been put to the test and improved. With the success of the T5 highbay, Pulse Start Technology, The Ceramic Metal Halide Lamp, LED luminaires and systems, and Controls taken into consideration we can make are designs more efficient and more appealing in appearance.

- T5 Highbays offer use a better CRI using less wattage than the good old work horse 400W MH highbay. We have a CRI of 85 accompanied with the fact T5HO's commonly can save you 40% of your energy consumption. If we use a T5HO with an occupancy we can further this savings by an additional 40%. Giving you a savings of 60% vs. the standard 400W MH highbay. (hint* a good application would be in warehouse aisles with occupancy sensors at each end of the aisles).
- Ceramic Metal Halide Lamps also offer a CRI of 85 when accompanied with pulse start technology and the HI-LOW control can also give you energy savings along the same lines of 40%- 50%. Keep in mind that using electronic ballasts also improved our start up times in HID lighting; they start in 4-8 minutes compared to the standard 400 W HID with magnetic ballast, starting in 10-20 minutes.
- LED luminaires instant off and instant on eliminate the disruptive and potentially dangerous cycling off/on of some traditional sources. The combination of LEDs and specifically designed optics ensures outstanding illumination, while the designs offers modern styles and appearances. With several lumen packages, optical distribution patterns, and CRI options available, Philips industrial luminaires such as FBX, HBL, HBX, LBX, and RBX, offer exceptional lighting in mid to high ceiling applications.

Maintenance

Regular cleaning and prompt replacement of lamp outages is essential in any well-operated industrial lighting system. It is important for lighting designers to examine the quality of construction and reflector finishes in any luminaire. It is also important to take into account provisions for maintenance access so the system can be properly serviced. Another point that should be considered is that it may be necessary to do the servicing during plant operating hours.

Supplementary Lighting in Industrial Application

Difficult to see tasks often require a specific amount of light that cannot be obtained through general lighting methods. To solve such problems often supplementary luminaires are used to provide higher illuminance levels for small or restricted areas. Also they are used to provide a specific light level, colour, permit a specific aiming angle or positioning of the light source to produce or avoid highlights or shadows to best portray the detail of the task.

Task lighting needs can be very specific so it is important to recognize the exact nature of the visual task and to understand the reflecting or transmitting characteristics. An improvement in visibility of the task will depend on one or more of these visual fundamental factors- luminance, contrast, size and time. In analyzing the problem, the designer may find that seeing difficulty is caused by insufficient luminance, poor contrast (veiling reflections), and small size or that the task motion is too fast for existing visual conditions.

The planning of task specific lighting also entails the consideration of the visual comfort of the worker and also those workers in the immediate area. Task lighting may need to be shielded to prevent glare for the worker and his or her associates. Luminance ratios should be carefully controlled. Ratios between the task and general lighting should be limited in the immediate surrounding areas. To attain correct application it is important to coordinate the task and general illumination.

Large retail & commercial lighting using highbays

Mounting heights of 25'

Step 1

Determine if the layout will be for General Lighting or for use over Feature Areas. For General Lighting refer to the chart for 30 Footcandles below and if Feature Area lighting is needed refer to the chart for 50 footcandles on the next page.

Step 2

Choose between Metal Halide, Pulse Start Metal Halide, T5, or LED lamp sources. Refer to the index on page 66 for general information on lamp sources.

Step 3

Determine the approximate dimensions of the space to be illuminated.

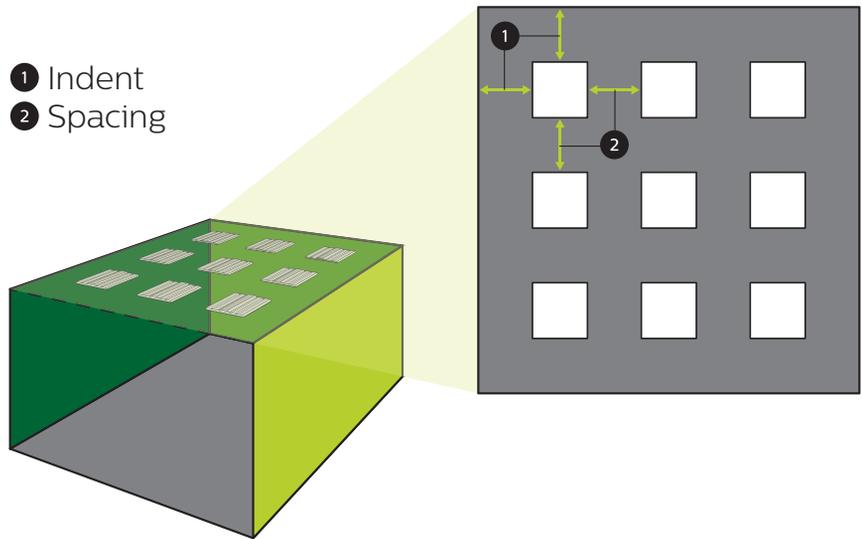
Step 4

Locate the dimensions in the left column (Select the nearest value).

Step 5

Identify the products available by matching the dimensions (Step 3) and the products available for the 25' mounting heights.

Light Level - 30 Footcandle Average - 25' Mounting Height											
Family		FBX		SHE-4 lamp		SHE-6 lamp		FBD-6 lamp		TriLite - 6 lamp	
Light Source		LED		T5HO		T5HO		T5HO		T5HO	
											
		FBX24LL40-UNV		SHE45HO-UNV-1/4EB-GENRS-CORD		SHE654HO-UNV-1/42EB-GENRS-CORD		FBD654HO-UNV-1/42-EB		FH4C5DXX654UNVP6	
L	W	Spacing	Qty	Spacing	Qty	Spacing	Qty	Spacing	Qty	Spacing	Qty
50	50	16x17	9	17x12	12	16x17	9	16X17	9	25X12	8
	100	14x25	14	14X17	21	20X17	15	17X25	12	17X25	12
	150	17X25	18	15X17	30	21X17	21	19X25	16	25x19	16
	200	17x25	24	15X17	39	15X25	26	18X25	22	18X25	22
100	100	20x20	25	16X17	36	20X20	25	25x20	20	25x20	20
	150	19x25	32	19X16	48	21X20	35	21X25	28	21X25	28
	200	20x25	40	18X17	66	22X20	45	22X25	36	22X25	36
	250	21x25	48	17X20	75	19X25	52	23X25	44	23X25	44
150	300	21x25	56	17X20	90	20X25	60	23X25	52	23X25	52
	200	22x25	54	18X19	88	22X21	63	22X25	54	22X25	54
	250	21x25	72	18X19	112	23X21	77	23X25	66	23X25	66
	300	21x25	84	18X19	128	21X25	84	23X25	78	23X25	78
200	350	22x25	96	18X19	152	21X25	102	25x25	84	25x25	84
	400	22x25	108	19X19	168	21X25	114	25X25	96	25X25	96
	300	23X25	104	18X20	170	21X25	112	25x25	96	25x25	96
	350	23x25	120	18X20	190	22X25	128	25X25	112	25X25	112
250	400	24X25	136	18X20	220	22X25	144	25X25	128	25X25	128
	450	24x25	152	19X20	240	22X25	160	25X25	144	15X25	144
	500	24x25	168	20x22	225	26x25	152	25x27	152	25x27	152
	350	23x25	150	19X19	234	22X25	160	25X25	140	25X25	140
300	400	24X25	170	20X19	260	22X25	180	25X25	160	25X25	160
	450	24x25	190	20X19	299	23X25	200	26X25	170	26X25	170
	500	24x25	210	20X19	325	23X25	220	27X25	190	27X25	190
	550	24x25	230	20X19	364	23X25	240	26X25	210	26X25	210
300	400	23x25	204	19X20	315	22X25	216	27X25	180	27X25	180
	450	24x25	228	20X20	345	23X25	240	26X25	204	26X25	204
	500	24x25	252	19X20	390	23X25	264	26X25	228	26X25	228
	550	24x25	276	20X20	420	23X25	288	26X25	252	26X25	252
	600	24x25	300	19X20	465	23X25	312	26X25	276	26X25	276



Light Level - 50 Footcandle Average - 25' Mounting height											
Family	FBX		SHE-4 lamp		SHE - 6 lamp		FBD - 6 lamp		TriLyte - 6 lamp		
Light Source	LED		T5HO		T5HO		T5HO		T5HO		
	FBX24LL40-UNV		SHE45HO-UNV-1/4EB-GENRS-CORD		SHE654HO-UNV-1/42EB-GENRS-CORD		FBD654HO-UNV-1/42-EB		FH4C5DXX654UNVP6		
L	W	Spacing	Qty	Spacing	Qty	Spacing	Qty	Spacing	Qty	Spacing	Qty
50	50	17x12	12	12X10	20	12.5X12.5	16	17X12	12	17X12	12
	100	14X17	21	11X13	36	12X17	24	14X17	21	14X17	21
	150	15X17	30	12.5X12.5	48	14X17	33	17X17	27	17X17	27
	200	15X17	39	12.5X12.5	64	14X17	42	17X17	36	17X17	36
100	100	17X17	36	14X13	56	17X14	42	17X17	36	17X17	36
	150	17X17	54	12.5X14.25	84	17X17	54	17X20	45	17X20	45
	200	18X17	66	13X14	105	17X17	72	17X20	60	17X20	60
	250	19X17	78	14X14	126	18X17	84	17X20	75	17X20	75
150	300	19X17	96	14X14	154	18X17	102	18X20	85	18X20	85
	200	17X19	96	13X15	150	15X19	104	18X19	88	18X19	88
	250	18X19	112	14X15	180	17X19	120	19X19	104	19X19	104
	300	18X19	136	14X15	210	17X19	144	19X19	128	19X19	128
200	350	19X19	152	14X15	250	17X19	168	19X19	144	19X19	144
	400	18X19	176	14X15	280	17X19	184	20X19	160	20X19	160
	300	19X18	176	14X15	273	18X18	187	19X20	160	19X20	160
	350	19X18	198	15X15	312	18X18	209	18X20	190	18X20	190
250	400	19X18	231	14X15	364	18X18	242	19X20	210	19X20	210
	450	19X18	253	15X15	403	18X18	275	19X20	240	19X20	240
	500	19X18	286	15X15	442	19X18	297	19X20	260	19X20	260
	350	18X19	247	14X16	384	18X18	266	19X19	234	19X19	234
300	400	18X19	286	15X16	432	17X19	299	20X19	260	20X19	260
	450	19X19	312	14X16	496	18X19	325	20X19	286	20X19	286
	500	19X19	351	15X16	544	18X19	364	20X19	325	20X19	325
	550	19X19	377	15X16	592	18X19	403	19X21	348	19X21	348
300	400	19X19	336	15X15	520	18X19	352	20X20	300	20X20	300
	450	19X19	368	15X15	580	18X19	400	20X20	345	20X20	345
	500	19X19	416	15X16	646	19X19	432	20X20	375	20X20	375
	550	19X19	448	15X16	703	18X19	480	20X20	420	20X20	420
	600	19X19	496	15X16	760	19X19	512	20X20	450	20X20	450

Large retail & commercial lighting using highbays

Mounting heights of 40'

Step 1

Determine if the layout will be for General Lighting or for use over Feature Areas. For General Lighting refer to the chart for 30 Footcandles below and if Feature Area lighting is needed refer to the chart for 50 footcandles on the next page.

Step 2

Choose between Metal Halide, Pulse Start Metal Halide, T5, or LED lamp sources. Refer to the index on page 66 for general information on lamp sources.

Step 3

Determine the approximate dimensions of the space to be illuminated.

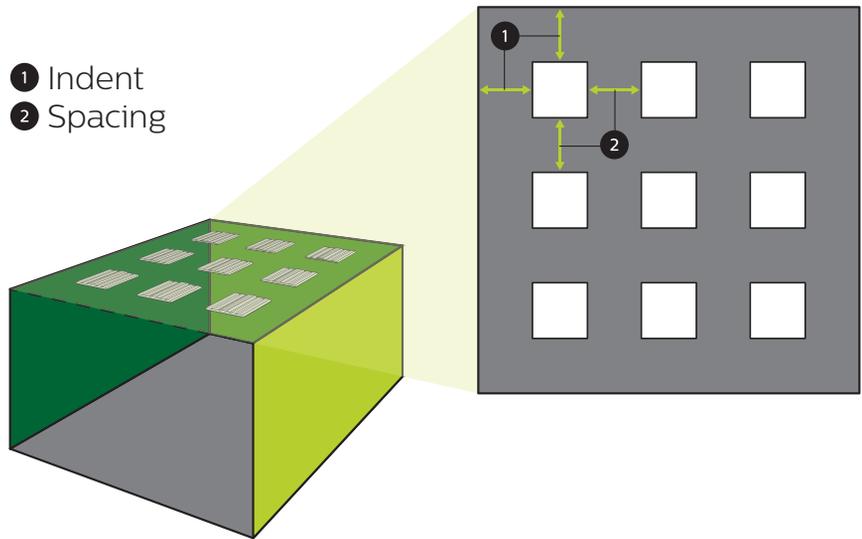
Step 4

Locate the dimensions in the left column (Select the nearest value).

Step 5

Identify the products available by matching the dimensions (Step 3) and the products available for the 40' mounting heights.

Light Level - 30 Footcandle Average - 40' Mounting Height											
Family		FBX		SHE-4 lamp		SHE-6 lamp		FBD-6 lamp		TriLyte - 6 lamp	
Light Source		LED		T5HO		T5HO		T5HO		T5HO	
											
		FBX24LL40-UNV		SHE45HO-UNV-1/4EB-GENRS-CORD		SHE654HO-UNV-1/42EB-GENRS-CORD		FBD654HO-UNV-1/42-EB		FH4C5DXX654UNVP6	
L	W	Spacing	Qty	Spacing	Qty	Spacing	Qty	Spacing	Qty	Spacing	Qty
50	50	17X12.5	12	12.5X10	20	17X12.5	12	17X17	9	17X17	9
	100	17X17	18	14X13	28	17X17	18	20X17	15	20X17	15
	150	19X17	24	15X12.5	40	17X17	27	21X17	21	21X17	21
	200	20X17	30	12X17	51	18X17	33	22X17	27	22X17	27
100	100	20x17	30	14x14	49	20x17	30	20x20	25	20x20	25
	150	19x20	40	15x17	60	19x20	40	21x20	35	21x20	28
	200	20x20	50	15X17	78	20x20	50	22x20	45	22x20	45
	250	21x20	60	17x17	90	21x20	60	19x25	52	19x25	52
150	300	23x20	65	17x17	108	20x20	75	20x25	60	20x25	60
	200	22x21.5	63	17x17	108	20x21	70	22x21.5	63	22x21.5	63
	250	23x21.5	77	18x17	126	21x21	84	21x25	72	21x25	72
	300	23x21.5	91	17x19	144	21.5x21.5	98	21.5x25	84	21.5x25	84
200	350	23x21.5	105	17x19	168	22x21.5	112	22x25	96	22x25	96
	400	23.5x21.5	119	17X19	192	22x21.5	126	22x25	108	22x25	108
	300	23x22	117	18X18	187	21.5x22	126	23x25	104	23x25	104
	350	23x22	135	18.5x18	209	22x22	144	23x25	120	23x25	120
250	400	23.5x22	153	18X18	242	22x22	162	23.5x25	136	23.5x25	136
	450	23.5x22	171	19X18	264	22.5x22	180	24x25	152	24x25	152
	500	22x25	184	18.5x18	297	23x22	198	24x25	168	24x25	168
	350	23x23	165	17.5x19	260	22x23	176	23x25	150	23x25	150
300	400	23x23	187	18X19	286	22x23	198	23.5x25	170	23.5x25	170
	450	22.5x25	200	18X19	325	22.5x23	220	24x25	190	26x27	190
	500	23x25	220	18.5x19	351	23x23	242	24x25	210	24x25	210
	550	23x25	240	18X19	390	23x23	264	24x25	230	24x25	230
300	400	23.5x23	221	19X19	336	22x23	234	23.5x25	204	23.5x25	204
	450	22.5x25	240	19X19	384	22.5x23	260	25x25	216	25x25	216
	500	23x25	264	19X19	416	23x23	286	25x25	240	25x25	240
	550	23x25	288	20x19	448	23x23	312	25x25	264	25x25	264
	600	23x25	312	19X19	496	23x23	338	25x25	288	25x25	288



Light Level - 50 Footcandle Average - 40' Mounting height											
Family	FBX		SHE-4 lamp		SHE - 6 lamp		FBD - 6 lamp		TriLyte - 6 lamp		
Light Source	LED		T5HO		T5HO		T5HO		T5HO		
	FBX24LL40-UNV		SHE45HO-UNV-1/4EB-GENRS-CORD		SHE654HO-UNV-1/42EB-GENRS-CORD		FBD654HO-UNV-1/42-EB		FH4C5DXX654UNVP6		
L	W	Spacing	Qty	Spacing	Qty	Spacing	Qty	Spacing	Qty	Spacing	Qty
50	50	12.5x10	20	10X8	30	12.5x10	20	12.5x12.5	16	12.5x12.5	16
	100	14x13	28	10x10	50	12.5x12.5	32	11x17	27	11x17	27
	150	15x12.5	40	11.5X10	65	14x12.5	44	12.5x17	36	12.5x17	36
	200	12x17	51	10X12.5	84	14.25x12.25	56	13.5x17	45	13.5x17	45
100	100	14X14	49	12.5X11	72	14x14	49	17x14	42	17x14	42
	150	15X17	60	11.5x12.5	104	15x14	70	17x17	54	17x17	54
	200	15x17	78	12.5X12.5	128	14.25x16.5	84	17x17	72	17x17	72
	250	16x17	96	13X12.5	152	15x17	102	18x17	84	18x17	84
150	300	16X17	114	14x12.5	176	15x17	120	18x17	102	18x17	102
	200	17x17	108	12.5x14	176	15x17	117	17x19	96	17x19	96
	250	18x17	126	13x14	209	16x17	144	17x19	120	17x19	120
	300	18x17	153	14x14	242	17x17	162	18x19	136	18x19	136
200	350	18.5x17	171	14x14	275	17x17	189	17.5x19	160	17.5x19	160
	400	17x19	192	14x14	319	17x17	216	17.5x19	184	17.5x19	184
	300	17x18	198	14x14	308	18x17	204	19x18	176	19x18	176
	350	17.5x18	220	14X14	350	17.5x17	240	18.5x18	209	18.5x18	209
250	400	18x18	253	14X14	392	17x18	264	19x18	231	19x18	231
	450	18X18	275	14X14	448	8x9	297	19.5x18	253	19.5x18	253
	500	18X18	308	14X14	490	17x18	330	19.25x18	286	19.25x18	286
	350	18.5x18	266	14X15	425	17x18	294	18x19	247	18x19	247
300	400	18X18	308	14X15	476	17x18	322	19x19.25	273	19x19.25	273
	450	19x18	336	14.5x15	527	18x18	364	19x19	312	19x19	312
	500	18.5x18	378	14.25x15	595	18x18	392	19x19	338	19x19	338
	550	18X19	403	14.5x15	646	18x8	434	19x19	377	19x19	377
300	400	18X19	352	14.25x15	560	18x18	374	19x19	336	19x19	336
	450	18X19	400	14.5x15	620	18x18	425	19x20	360	29x20	360
	500	18.5x19	432	14.25x15	700	18.5x18	459	18.5x20	405	18.5x20	405
	550	18X19	480	14.5x15	760	18x18	510	19x20	435	19x20	435
	600	19X19	512	15x15	820	18x19	544	19x20	480	19x20	480

Indoor industrial linear lighting

Step 1 - Choose a luminaire that fits your application

Open Industrials:

General purpose open industrial are well suited for satisfying both budget and basic lighting requirements. This fixture provides rigidity in it's ballast channel and reflector design to withstand low levels of abuse in areas of industrial activity.

Applications

Ideal for light-duty task lighting, aisles, warehousing, storage and retail applications.

Wet Location:

Completely moisture resistant, these gasketed enclosures are constructed of a fiberglass upper body and an inner crepe patterned impact resistant lens. The lens is retained which secured against an inner closed cell neoprene by tension mounted latches.

Applications

Ideal for parking garages, car washes, schools and kitchens.

Industrial Strips:

Created with the installer in mind, the T5, T8 and strip and T8 sidemount strips incorporate labor savings and solid design features. Time saving flip-on end caps and ballast covers install quickly. Strengthening ribs ensure uniformity and stability of the channel housing. It's quality lighting that will save you time and dollars.

Applications

Ideal for cove-lighting or areas in which general purpose and task lighting are required.



Step 2 - Decide on a suitable light level

Analyze the existing lighting system and the task being performed. This important first step is necessary because experience has shown that worker productivity and light levels go hand in hand. The following table is a quick reference for the accepted standards of these applications.

Application	Task	Footcandles
Performance of visual tasks of high contrast and large size		
Material Handling: Simple	Loading and unloading trucks and freight cars	10 - 20 fc
Material Handling: Moderate Difficulty	Wrapping, Labeling, and packaging	20 - 50 fc
Performance of visual tasks of high contrast and small size or visual tasks of low contrast and large size		
Warehouse and Storage	Active: The handling of bulky items with large labels	10 - 20 fc
Warehouse and Storage	Active: The handling of bulky items with small labels	20 - 50 fc
Laundries	Washing, flat work ironing, weighing, listing, marking	20 - 30 fc
Garages	Repairs	40 - 75 fc
Service desk	Invoicing	20 - 30 fc

Step 3 – Space the luminaires appropriately

The following table outlines the spacing, and the intensity of light, in footcandles, one can expect when installing these luminaires.

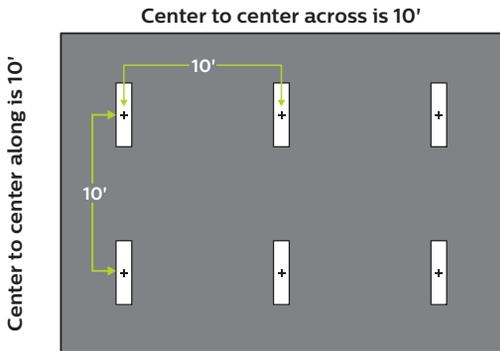
The spacing of the luminaire in this example is to be measured center to center. As shown within this chart, the 10 feet center to center spacing means that the distance to the next luminaire is 10ft in either direction, across or along.

Industrial Spacing Example

Ceiling Grid: 2' x 4' grid

Luminaire Size: Nominal 1' x 4'

Room Dimensions: 26' (W) x 20'(L) x 12'(H)



Luminaire Size	Part Number	Average footcandles Center to Center 10 ft	Page number
4'	SV4S254UNVPG	83	4
4'	IS232-UNV-1/2-EB	50	7

Footcandles are based on room size 50' (W) x 70' (L) x 12' (H)

Room	Spacing	Units	Open Industrials
------	---------	-------	------------------



			IS232-UNV-1/2-EB	TIS232-UNV-1/4-EB
50x70x12	12' ctr	FC	29	44
		W/Sq Ft	2.5	1.56
50x70x8.5	10' ctr	FC	50	68
		W/Sq Ft	1.7	1.04
50x70x8.5	12' ctr	FC	25	54
		W/Sq Ft	2.5	1.3
30x30x8.5	12' ctr	FC	38	44
		W/Sq Ft	1.7	1.3

FC: Average maintained footcandles - W/Sq Ft: Watts per square foot. Room measurements in feet (WxLxH)

Room	Spacing	Units	Wet Location
------	---------	-------	--------------



			DWAE232-UNV-1/2-EB	
50x70x12	12' ctr	FC	24	
		W/Sq Ft	1.8	
50x70x8.5	10' ctr	FC	45	
		W/Sq Ft	1.2	
50x70x8.5	12' ctr	FC	38	
		W/Sq Ft	1.7	
30x30x8.5	12' ctr	FC	33	
		W/Sq Ft	1.6	

FC: Average maintained footcandles - W/Sq Ft: Watts per square foot. Room measurements in feet (WxLxH)

Indoor industrial linear lighting

Room	Spacing	Units	Industrial Strips				
							
			T232-UNV-1/2-EB	TT232-UNV-1/4-EB	N132-UNV-1/1-EB	SV4S154UNVPG	SV4S254UNVPG
50x70x8.5	10' ctr	FC	32	88	20	45	83
		W/Sq Ft	1.7	0.89	2.7	1.92	0.9
30x30x8.5	8' ctr	FC	31	51	22	42	80
		W/Sq Ft	0.97	1.0	1.8	1.0	0.47
12x16x8.5	6' ctr	FC	48	47	31	36	67
		W/Sq Ft	0.83	0.86	1.0	0.92	0.4

FC: Average maintained footcandles - W/Sq Ft: Watts per square foot. Room measurements in feet (WxLxH)

Results based on: Average footcandles maintained, total Light Loss Factor L.L.F.=0.82 Reflectances: 50% Ceiling (Steel deck), 50% Wall (Cement block), 20% Floor (Dark concrete). RE835 T8 lamps rated at 3000 lumens, RE835 T5HO lamps rated at 4400 lumens & F96T12HO/EW rated at 8000 lumens. 1' x 1' calculation grid at 30" from finished floor. Results may vary.

Calculations have been performed according to IESNA & CIE standards and good practice. Some differences between measured values and calculated results may occur due to tolerances in calculation methods, testing procedures, component performance, measurement techniques and field conditions such as voltage and temperature variations. Input data used to generate the attached calculations such as room dimensions, reflectances, furniture and architectural elements significantly affect the lighting calculations. If the real environment conditions do not match the input data, differences will occur between measured values and calculated values.

Indoor industrial lighting using highbays

Application	Footcandles	Page
Assembly		72-73
Simple	30	72-73
Moderately difficult	100	72-73
Bakeries	30	72-73
Breweries	30	72-73
Clothing Manufacture		72-73
Cutting	300	72-73
Examining	500	72-73
Fitting, bundling, shading, stitching, measuring, pressing, sponging, decating, winding	30	72-73
Pattern making, prep of trim, piping, work with canvas, padding, piling, and marking	75	72-73
Pressing, receiving, opening, storing and shipping, shops	150	72-73
Clay & concrete products		
Molding, pressing, cleaning, trimming	30	72-73
Component Manucaturing		
Large items	60	72-73
Medium items	100	
Dairy products		
Boiler room, bottle storage, washing, pasteurizer, separator, storage refrigerator	30	72-73
Electrical equipment manufacturing	30	72-73
Foundries		
Heat treating, cleaning, shakeout	30	72-73
Garages		
Repairs	75	72-73
Write up	30	72-73
Inspection		
Simple	30	72-73
Moderately difficult	100	72-73
Laundries		
Washing, flat work ironing, weighing, listing, marking	30	72-73
Machining		
Rough bench or machining work	30	72-73
Medium bench or machining work	50	72-73
Material handling		
Wrapping, packing, labelling	30	72-73
Picking, classifying, loading	10	72-73
Meat packaging	30	72-73
Plating	30	72-73
Raw material processing		
Coarse to medium material	30	72-73
Fine material	50	72-73
Warehousing & storage		
Active	30	72-73
Inactive	5	72-73

Warehouse aisle lighting using highbays

Mounting heights of 20' to 40' / light level of 15 & 25 vertical footcandle average

Step 1

Determine if the items stored in the Aisle are Large (Rough & Bulky), Medium (Readily Portable) or Small (Hand-sized Boxes & Parts)

Step 2

If small items were selected (Step 1) refer to the Spacing for 15 vertical footcandle chart below, if Medium to Large items was selected refer to the Spacing for 25 vertical footcandle chart. Tip: Vertical footcandles are the measure of illuminance on a vertical surface such as the racking and the items stored in the racking compared to horizontal footcandles which are measured above the finished floor.

Step 3

Determine if the width of the aisle is 6' or 8'

Step 4

Determine the height the luminaires will be mounted

Step 5

Identify the products available and have your customer select the product they are interested in.

Step 6

Identify and inform your customer of the horizontal footcandles that will be achieved by the product selected. Please note the reading is from 2.5 feet (A.F.F) above the finished floor.

Step 7

Determine the length of the aisle that the luminaires will be mounted.

To determine the quantities of luminaires needed divide the length of the aisle by the recommended luminaire spacing. Length of Aisle ÷ Spacing = Luminaire Quantity

Step 8

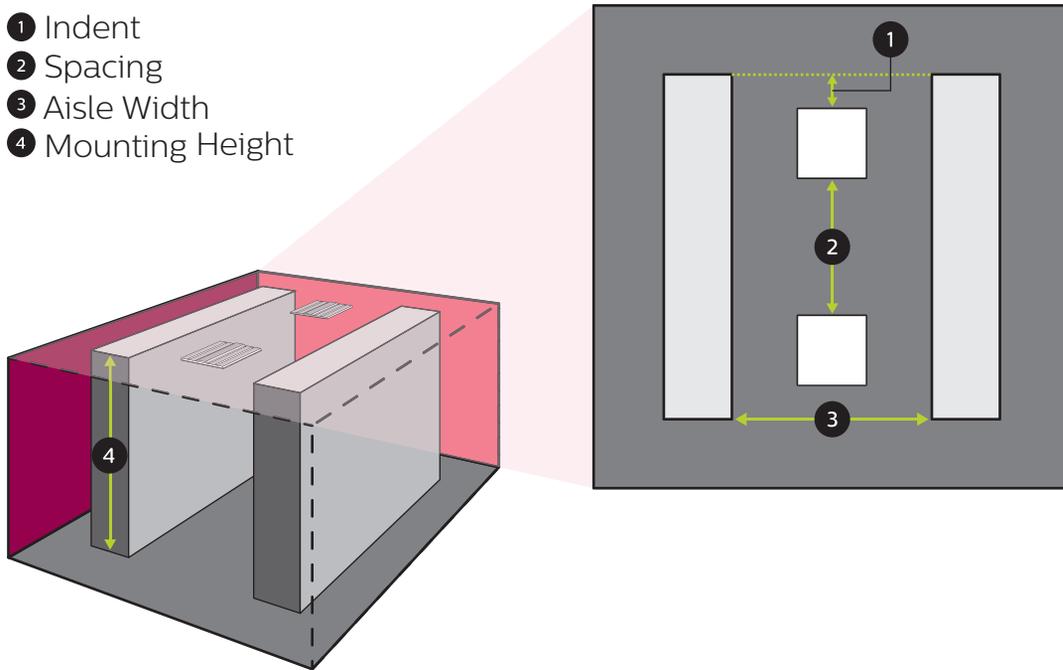
Luminaires should be indented from the start and end of the aisles 1/2 of the distance that is indicated by the suggested spacing ratio.

Example: 100 ft Aisle at a suggested fixture spacing of 10 ft would require 10 fixtures (100ft ÷ 10ft = 10 luminaires). The first fixture will be placed 5 ft from the start of the aisle and each subsequent fixture will be spaced 10ft from the previous fixture.

Small items storage Spacing for 15 horizontal fc @ 2.5 a.f.f.									
Family		HBO		Trilyte		FBD		APX	
Light source		HID		T5HO		T5HO		LED	
									
		HBO400PTT-A16		FH4C5DX654UNVP6		FBD65HO-UNV-1/42-EB FBD65HO-347-1/42-EB		APX24LL40-UNV	
Width	Height	Spacing	Horizon fc (2.5' Av. fc)	Spacing	Horizon fc (2.5' Av. fc)	Spacing	Horizon fc (2.5' Av. fc)	Spacing	Horizon fc (2.5' Av. fc)
6'	20'	—	—	—	—	—	—	—	—
	25'	49'	15fc	—	—	—	—	34'	15fc
	30'	40'	15fc	37'	15fc	35'	15fc	27'	15fc
	35'	33'	15fc	31'	15fc	29'	15fc	22'	15fc
	40'	28'	15fc	25'	15fc	25'	15fc	18'	15fc
8'	20'	—	—	—	—	—	—	—	—
	25'	49'	15fc	—	—	—	—	34'	15fc
	30'	40'	15fc	37'	15fc	35'	15fc	27'	15fc
	35'	33'	15fc	31'	15fc	29'	15fc	22'	15fc
	40'	28'	15fc	25'	15fc	25'	15fc	18'	15fc

These values are based on mean lumen operation in a medium dirty environment.

- ① Indent
- ② Spacing
- ③ Aisle Width
- ④ Mounting Height



Medium items storage Spacing for 25 horizontal fc @ 2.5 a.f.f									
Family		HBO		Trilyte		FBD		APX	
Light source		HID		T5HO		T5HO		LED	
									
		HBO400PTT-A16		FH4C5DXX654UNVP6		FBD65HO-UNV-1/42-EB FBD65HO-347-1/42-EB		APX24LL40-UNV	
Width	Height	Spacing	Horizon fc (2.5' Av. fc)	Spacing	Horizon fc (2.5' Av. fc)	Spacing	Horizon fc (2.5' Av. fc)	Spacing	Horizon fc (2.5' Av. fc)
6'	20'	—	—	—	—	—	—	—	—
	25'	49ft	20fc	34ft	20fc	32ft	20fc	25ft	20fc
	30'	30ft	20fc	28ft	20fc	26ft	20fc	20ft	20fc
	35'	25ft	20fc	23ft	20fc	21ft	20fc	16ft	20fc
	40'	21ft	20fc	19ft	20fc	17ft	20fc	12ft	20fc
8'	20'	—	—	—	—	—	—	—	—
	25'	49ft	20fc	34ft	20fc	32ft	20fc	25ft	20fc
	30'	30ft	20fc	28ft	20fc	26ft	20fc	20ft	20fc
	35'	25ft	20fc	23ft	20fc	21ft	20fc	16ft	20fc
	40'	21ft	20fc	19ft	20fc	17ft	20fc	12ft	20fc

These values are based on mean lumen operation in a medium dirty environment.

Indoor Residential & Commercial Lighting with downlights & track

Lighting effects explained

Each lighting technique is visually identified by an icon. Refer to the icon selected for product selection.

General Lighting - Symbol: G

Creates even luminosity in open spaces or hallways. Achieved with recessed lighting products such as Lytecaster Premium Die-cast Step Baffle luminaires.

- Provides an overall spread of light
- Makes for a comfortable visual environment

Ambiance Lighting - Symbol: A

Sets a mood through decorative luminaires integrated into the space.

- Illumination using decor-enhancing lighting elements
- Creates a feeling of warmth and intimacy
- Adds personal touch to any environment
- Adds luminance to the ceiling

Accent Lighting - Symbol: S

Attracts the eye to specific areas of the room. Useful to highlight paintings, sculptures and other displays. Especially effective when the luminaire provides added versatility, as with Slot Aperture.

- Directs extra light to selected objects and surfaces
- Provides dramatic interest
- Using multiple luminaires such as an open adjustable recessed downlight or track head closer to the wall could be considered as wall washing

Task Lighting - Symbol: T

Creates well diffused, supplementary lighting for tasks, such as reading, paperwork, food preparation. For kitchen or hobby tasks, a concentrated light from above is preferred. Light generally comes from over the shoulder.

- Directs extra light to work areas
- Enables improved task performance
- Some models are wet location certified for washroom task areas.

Philips Downlighting & Track families:

Lytecaster

Lytecaster sets the standard for the downlighting industry with innovative advances, trusted luminaires and flexible options that open up ever growing recessed lighting design opportunities.

Calculite

Calculite is Philips Lightolier's finest, most technologically advanced family of luminaires. Every Calculite product represents our highest standards of quality and boldest creative efforts in lighting engineering and luminaire craftsmanship. A unique optical apparatus that maintains perfect lamp-reflector alignment, providing essential glare control and outstanding visual comfort. (50° cut off).

Lytespan

Lytespan track provides lighting professionals with a truly unparalleled design vocabulary that speaks directly to the architectural beauty of a space, enhancing details and complementing the environment.

Typical office layouts and application advice

Designing office spaces

Open Office Recessed Layout

1. This is a typical open office layout, using an 8' by 8' or an 8' by 10' grid. We measure the spacing from the center of the fixtures.
2. Choose your luminaires according to the charts provided on pages 74-77.
3. If you would like to conserve energy, use a superior performing luminaire, with fewer lamps. Keep in mind task lighting is being incorporated into office space frequently, so the average lighting levels required are being decreased.

Designing a Private Office

1. Small offices are commonly 8'x 8' or 10'x10' in size.
2. If a high level of lighting and better quality of illumination is desired, it is recommended to use a superior optic and better performance rather than increasing the amount of luminaires. This will help bring energy consumption to a minimum and quality to a maximum.
3. There are two choices in terms of general lighting, one is to place two 2' x 4' luminaires perpendicular to the desk surface (see diagram A) the other is to place four 2' x 2' luminaires perpendicular to the desk surface (see diagram B).
4. Task lighting is always recommended in any small office or cubicle. The average age of employees is increasing, therefore supplemental lighting is becoming more necessary.
5. If you are incorporating task lighting, it is strongly recommended to switch general and task lighting separately.
6. Accent lighting to illuminate the walls is a good way to make your small office appear larger.

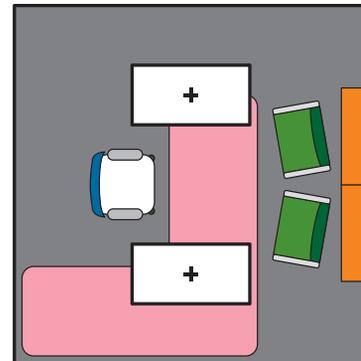
Designing a Boardroom

1. To design a boardroom you must consider light for all possible tasks. Multiple varying tasks, require multi level lighting. See your Philips rep for more detailed information.

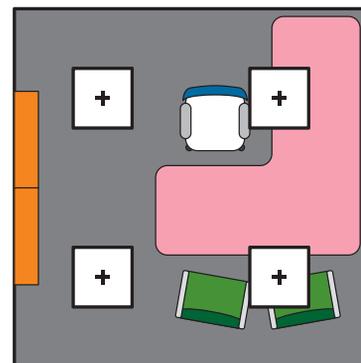
Designing a Corridor

Corridor Lighting is commonly a lighting application over lighted. Commonly you see levels of 30 plus foot candles. A recommended level of illumination is only 10-15 foot candles. There are 2 common approaches to illuminating a corridor in commercial applications;

- a) with a linear light source be it recessed or pendant
 - b) with recessed downlights.
1. Linear corridor lighting is often best achieved to use a 1 lamp linear fluorescent, pendant or a recessed troffer on 12, 14 or 16 foot centers. Commonly a 2 lamp will be used, but that is far more illumination than is actually required.
 2. Recessed downlight layouts should be on 6' or 8' centres. Keep in mind a recessed downlight with a single 13W compact fluorescent is sufficient to keep energy consumption under control.



A



B

General lighting with downlights

Step 1 - Decide on a suitable light level

Analyze the existing lighting system and the task being performed. The following table is a quick reference for the accepted standards of these applications.

Applications	Light Level
Recommended lighting level for all applications	
Kitchen - General	5 - 10 fc
Food prep., counters	50 - 100 fc
Sink, cooking top	30 - 60 fc
Bathroom - General	5 - 20 fc
Vanity	30 - 60 fc
Shower	5 - 20 fc
Living Room	3 - 6 fc
Dining Room	5 - 40 fc
Hobbies, various tasks	20 - 75 fc
Reading	15 - 30 fc

Step 2 - Choose distribution characteristics to suit your application

Reflectors today play an ever-increasing role in maximizing light output, especially with the widespread use of economical incandescent, fluorescent and HID. Crafted from high quality, corrosion-resistant aluminum, reflectors are designed to achieve the highest output possible from the available source. In addition, aperture size selection has been extended, ensuring a wider variety of lamps in all three performance options offered in this catalogue. Please consult product pages for rating.

Good *

Basic white or baffled reflectors provide good reflectivity and glare control. They are finished using a high-gloss paint featuring added durability, improved UV-inhibiting properties and better overall performance.

Better **

Anobrite® reflectors are chemically brightened and anodized for permanent high reflectivity. They ensure better glare control. Combined with baffles or Alzak® cones, these reflectors provide 25% higher performance than basic white reflectors.

Best ***

Deep Alzak® reflectors offer the highest efficiency and best glare control. Each reflector is chemically polished to a highly specular finish. Deep Alzak® delivers approximately 40% more light output than black baffled units, which results in fewer luminaires to light a space and significant long-term energy savings

Performance ****

Performance Alzak® reflectors feature dedicated horizontal and vertical optics suitable for commercial projects. Designed with cut-off from 60-65 degrees, these trims provide excellent glare control and lamp shielding as well as wattages up to a 42W Triple Tube. Performance trims deliver approximately 20 to 25% more light output than baffles or Alzak® cones units.

Cones and Baffles

Different reflector finishes have different impacts on luminaire performance. Lytecaster features these cone and baffle finishes:

CL - Clear Specular Alzak®

Provides the highest efficiency from the installed source, visually integrating with typical reflector finishes of parabolic louvered fluorescent troffers. Finished with the Iridescence free process, which virtually eliminates the rainbow effect.



CCD - Comfort Clear™ Diffuse

The Comfort Clear Diffuse finish produces a slightly brighter aperture than our standard Comfort Clear due to an additional chemical brightening. You can expect a slight reduction in light output compared to standard Comfort Clear.



CH - Chrome

A budget lower reflectance version of the Clear Specular Alzak®, it offers a clear specular finish.



CCL - Comfort Clear™

A new formula driven by the stringent reflector design requirements of vertical triple tube downlights. This process slightly softens the mirror image inherent with specular finishes. Comfort Clear presents a gentle luminosity when illuminated, thus minimizing a "dark-hole" appearance. This low maintenance finish is anti-iridescent and is fingerprints free.



BK - Black Step Baffle

Seamless matte black baffle is made of die-cast aluminum in premium version. Captures stray light in its precise sawtooth profile. Produces very low brightness that is ideal for low maintenance areas. Black phenolic baffles are available in a budget version.



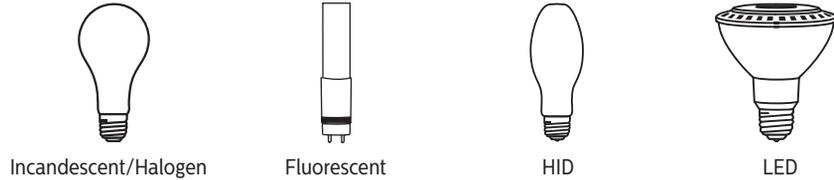
WH - White Step Baffle

Matte white painted baffle is made of die-cast aluminum in premium version. Produces a pleasant transition with most ceiling finishes. Baffle and flange are painted with the same paint and are a perfect match. White phenolic baffles are available in a budget version.



Step 3 - Choose your light source

Choose the appropriate light source for your application based on performance and savings that you are looking for. Consult page 54 for more detailed information on light sources.



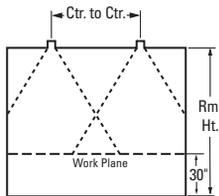
Understanding photometric data

General Lighting from Multiple Units

Footcandle values are initial and average and are at a work plane height of 30" above the floor. They are shown for various luminaire spacings in a large room (30' x 50') and a small room (8' x 12'), both with ceiling heights of 8' to 12'. Room finishes are typical: white ceiling (80% refl.), light walls (50% refl.), and dark floor (20% refl.).

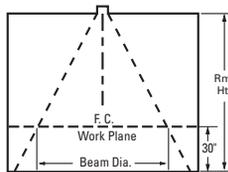
Downlighting from a Single Unit

Footcandle (FC) values are initial and are at the center of the beam, 30" above the floor. The Beam Diameter is to the point that the candlepower drops to 50% of maximum.



1105CL 1 x 13W Quad Tube		
Center to Center Spacing	Footcandles	
	Large Room	Small Room
4'	36	28
6'	16	13
8'	9	7

S.R. = 1.0



1005 75W BR-30 FL		
Height to Floor	Foot-Candles	Beam Diameter
8'	13	6'
10'	7	9'
12'	4	11'

Spacing Ratio

1105CL 1 x 13 Quad Tube

Given	1105CL Reflector Trims with one 13W Quad Tube lamp mounted in a small room with an 8' high white ceiling and light walls.
Find	The spacing of luminaires for 25 to 30 foot-candles (initial).
Solution	See Multiple Units chart. These luminaires, mounted on 4' centers, will provide 28 footcandles at a work plane height of 30" from the floor. The Spacing Ratio of 1.0 allows these luminaires to be mounted up to 5.5' apart (1 x (8 - 2.5)) and still provide even lighting.

General lighting with downlights

Step 4 - Space luminaires appropriately

Calculate LED		Luminaire Spacing									
Room	25'x25'				4' c/c	5' c/c	6' c/c	7' c/c	8' c/c	9' c/c	10' c/c
Reflectance	80,50,20										
LLF	0.85										
Work plane at	30"										
Frames	Trims	Light Engine	Nominal Lm.	Ceiling Height	Footcandles						
C4RN C4RN3 C4RR	C4RDLCC C4RDLCD C4RDLCL	C4LI0830MZ10U	1000	9'	55	38	25	21	N/A	N/A	N/A
C4RN C4RN3 C4RR	C4RDLCC C4RDLCD C4RDLCL	C4LI0830WZ10U	1000	9'	50	33	24	19	13	17	N/A
C4RN C4RN3 C4RR	C4RDLCC C4RDLCD C4RDLCL	C4LI0835MZ10U	1000	9'	55	40	25	22	N/A	N/A	N/A
C4RN C4RN3 C4RR	C4RDLCC C4RDLCD C4RDLCL	C4LI0835WZ10U	1000	9'	50	35	24	20	14	17	N/A
C4RN C4RN3 C4RR	C4RDLCC C4RDLCD C4RDLCL	C4LI0840MZ10U	1000	9'	59	41	27	23	N/A	N/A	N/A
C6RN C6RN3	C6RDLCC C6RDLCD C6RDLCL	C6LI5830MZ10U	1500	9'	76	52	33	28	N/A	N/A	N/A
C6RN C6RN3	C6RDLCC C6RDLCD C6RDLCL	C6LI5835MZ10U	1500	9'	80	55	35	30	N/A	N/A	N/A
C6RN C6RN3	C6RDLCC C6RDLCD C6RDLCL	C6LI5835WZ10U	1500	9'	70	50	33	27	20	22	N/A
C6RN C6RN3	C6RDLCC C6RDLCD C6RDLCL	C6L20830MZ10U	2000	9'	95	67	43	38	N/A	N/A	N/A
C6RN C6RN3	C6RDLCC C6RDLCD C6RDLCL	C6L20835MZ10U	2000	9'	100	70	45	40	N/A	N/A	N/A
C6RN C6RN3	C6RDLCC C6RDLCD C6RDLCL	C6L20835WZ10U	2000	9'	90	65	43	37	26	22	N/A

Calculate products listed here can be found on pages 20-21.

General lighting with downlights

Step 4 - Space luminaires appropriately

CorePro LED		Luminaire Spacing									
Room	25'x25'		4' c/c	5' c/c	6' c/c	7' c/c	8' c/c	9' c/c	10' c/c		
Reflectance	80,50,20										
LLF	0.8										
Work plane at	30"										
Trim with LED Light Engine	Frames	Ceiling Height	Footcandles								
CP4RB07830W CP4RB07840W	CP4RR CP4RN	9'	38	25	17	15	13	9	8		
CP5RB08830W CP5RB08840W	CP5RR CP5RN	9'	45	30	20	18	15	10	9		
CP6RB10830W CP6RB10840W	CP6RR CP6RN	9'	57	39	26	23	20	13	12		

Corepro products listed here can be found on page 14.

LyteCaster LED		Luminaire Spacing										
Room	25'x25'		4' c/c	5' c/c	6' c/c	7' c/c	8' c/c	9' c/c	10' c/c			
Reflectance	80,50,20											
LLF	0.8											
Work plane at	30"											
Trims	Frames	Light Engines	Ceiling Height	Footcandles								
L4RBW L4RDD L4RDW	L4RANZ10UVA L4RANE1VA	L4R06830VA L4R06830VA L4RA06835WA	9'	31	21	14	12	10	7	6		
L5RBW L5RDD L5RDW	L5RANE1VA L5RANZ10UVA	L5R10830VA L5R10835VA L5RAI0835WVA	9'	56	38	25	22	19	13	12		
L6RBW L6RDD L6RDW	L6RANE1VA L6RANZ10UVA	L6R15830VA L6R15835VA L6RA15835WVA	9'	76	51	34	30	26	18	16		

Lytecaster products listed here can be found on pages 15-17, for CL trim finishes add 10% to the footcandle levels.

LyteProfile LED		Luminaire Spacing									
Room	25'x25'		4' c/c	5' c/c	6' c/c	7' c/c	8' c/c	9' c/c	10' c/c		
Reflectance	80,50,20										
LLF	0.85										
Work plane at	30"										
Frames	Trims	Light Engines	Nominal Lm	Ceiling Height	Footcandles						
P4RD10NZ10UVB	P4RDCC	P4RD830VB	1000	9'	51	35	27	20	16	13	11
P4RD15NZ103VB	P4RDCC	P4RD830VB	1500	9'	75	51	39	29	23	19	16
P4RD20NZ101VB	P4RDCC	P4RD830VB	2000	9'	101	69	53	39	31	25	21
P6RD10NZ10UVB	P6RDCC	P6RD830VB	1000	9'	50	34	26	19	15	12	10
P6RD15NZ10UVB	P6RDCC	P6RD830VB	1500	9'	74	50	38	29	23	18	15
P6RD20NZ10UVB	P6RDCC	P6RD830VB	2000	9'	100	68	52	39	31	25	21
P6RD25NZ10UVB	P6RDCC	P6RD830VB	2500	9'	127	87	66	49	40	32	27

LyteProfile products listed here can be found on page 18-19, for CL trim finishes add 10% to the footcandle levels.

Step 4 - Space luminaires appropriately

LyteProfile LED Wall Washing				Luminaire Spacing			
Room	25'x25'			2' c/c	3' c/c	4' c/c	
Reflectance	80,50,20						
LLF	0.85						
Work plane at	30"						

Frames	Trims	Light Engines	Nominal Lm	Ceiling Height	Footcandles		
P4RD10NZ103VB	P4RLWCC	P4RD835VB	1000	9'	11	8	6
P4RD15BZ10UUV	P4RLWCC	P4RD835VB	1500	9'	16	12	8
P4RD20NV103VB	P4RLWCC	P4RD835VB	2000	9'	22	16	12
P6RD10NZ103VB	P6RLWCC	P6RD835VB	1000	9'	17	12	9
P6RD15NZ103VB	P6RLWCC	P6RD835VB	1500	9'	26	18	13
P6RD20NZ103VB	P6RLWCC	P6RD835VB	2000	9'	35	25	18
P6RD25NZ103VB	P6RLWCC	P6RD835VB	2500	9'	44	32	23

Lytecaster products listed here can be found on page 18-19.

Uniframe CFL				Luminaire Spacing						
Room	25'x25'			4' c/c	5' c/c	6' c/c	7' c/c	8' c/c	9' c/c	10' c/c
Reflectance	80,50,20									
LLF	0.8									
Work plane at	30"									

Trims	Light Source	Frames	Ceiling Height	Footcandles						
1076WH	26W Triple	1001F26U	9'	32	21	14	13	8	7	6
1076CH	26W Triple	1001F26U	9'	33	22	15	14	7	8	7
1005WB	26W Triple	1001F26U	9'	32	22	14	13	8	7	7
1176WH	26W Triple	1101F2642U	9'	42	28	19	17	11	10	9
	32W Triple			56	38	25	22	14	13	12
	42W Triple			75	51	34	30	19	17	16
1178SH	26W Triple	1101F2642U	9'	15	10	7	6	4	3	3
	32W Triple			21	14	9	8	5	5	4
	42W Triple			28	19	12	11	7	6	6
1176CH	26W Triple	1101F2642U	9'	43	29	20	18	12	11	10
	32W Triple			57	39	26	23	15	14	13
	42W Triple			76	52	35	31	20	18	14
1105WB	26W Triple	1101F2642U	9'	41	28	11	16	10	9	8
	32W Triple			55	37	25	22	14	13	11
	42W Triple			74	50	33	29	19	17	15
1146CD	26W Triple	1101F2642U	9'	60	40	26	24	15	14	12
	32W Triple			80	54	35	32	20	19	17
	42W Triple			105	72	47	42	27	25	22

Uniframe products listed here can be found on page 22-23.

Step 4 - Space luminaires appropriately

Calculite CFL		Luminaire Spacing							
Room	25'x25'		4' c/c	5' c/c	6' c/c	7' c/c	8' c/c	9' c/c	10' c/c
Reflectance	80,50,20								
LLF	0.8								
Work plane at	30"								
Trims	Light Source	Ceiling Height	Footcandles						
8011CCLW	18w TTT	8'	26	18					
		9'	25	17					
	26w TTT	8'	39	26	18	16			
		9'	38	26	17	15			
8021CCLW	26w TTT	8'	47	32	21	19			
		9'	45	31	20	18			
		10'	39	27	18	16			
8031CCLW	26w TTT	8'	47	32	22	19			
		9'	46	31	21	18			
		10'	44	30	20	18			
	32w TTT	8'		50	33	30			
		9'		48	32	29	19		
		10'		46	31	28	18		
8056CCLW	2 x 26 QT	8'			45	40	26	24	
		9'			43	39	25	23	
		10'			42	37	24		
8038CCLW	2 x 26w TTT	8'				57	38	35	32
		9'				61	39	37	33
		10'				59	38	35	32
		12'				55	35	32	29
	2 x 32w TTT	8'					47	44	40
		9'					46	42	38
		10'					43	40	37
		12'					40	37	34
	2 x 42w TTT	8'					56	53	47
		9'					54	50	45
		10'					51	48	43
		12'					47	44	40

Calculite products listed here can be found on page 24.

Indoor residential & commercial task lighting with downlights

Step 1 - Choose your light source



Incandescent/
Halogen



HID



Fluorescent



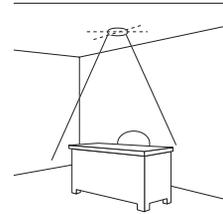
LED

For more details consult page 54.

Step 2 - Choose the downlight to suit your desired effect

Task Lighting

Luminaires using a medium beam lamp appropriately located over a work plane, a desk or a kitchen counter will supply a good lighting. It is very important to locate luminaires in a way to avoid shadows on the working plane.



Typical residential layouts and issues

Designing a bathroom

There are three key areas when it comes to providing illumination for a bathroom.

1. **Mirror lighting** - The best way to provide lighting for a mirror is from three different directions. First, we need to light from the top to illuminate the forehead and the second two are from each side of the mirror to illuminate each side of the face. Providing a recessed down light or a horizontally mounted wall luminaire is recommended. Providing illumination from each side of the mirror is essential, providing you have the space to accommodate the luminaires. A wall sconce on each side of the mirror, mounted half way up the mirror, as shown in illustration A. If you have an inset with walls on both sides, mount your sconces centered with the counter as seen in illustration B.
2. **Shower lighting** - Providing a luminaire in any shower or over any tub is in good design practice. Center a recessed down light with a drop lens over either a shower or bathtub, ensure that the lighting fixture you have chosen is wet location listed.
3. **Toilet lighting** - Toilet lighting is only required when the toilet is tucked away from the general lighting area. If the area does not appear to be well lit, provide a recessed down light over the toilet.
4. In larger bathrooms recessed down lights may be required for additional illumination or general lighting. Commonly a few luminaires are sufficient. It is recommended to space the luminaires on 6 foot centers, keep in mind when providing general illumination in a bathroom that you do have other lit areas; the mirror, shower and toilet, so don't over illuminate.
5. Light control and controlling each area is always important to remember when it comes to good design practice.



Typical residential layouts and issues

Designing a kitchen

There are two key elements to good kitchen lighting; lighting the horizontal surface and lighting the vertical surface. When designing a kitchen it is important to keep in mind what the surfaces are being used for, we need to see our task areas.

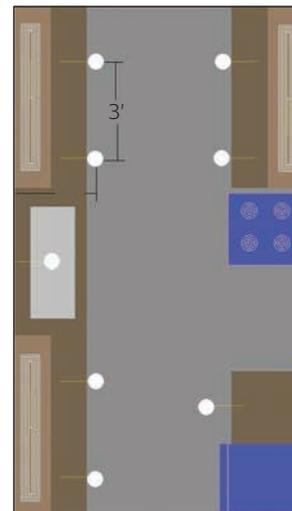
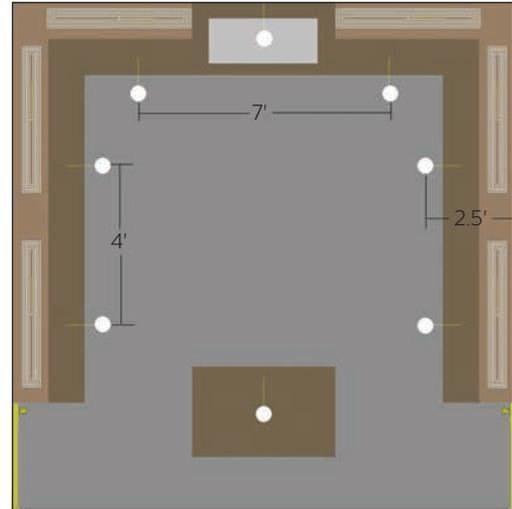
Horizontal Surfaces

All counter, sink, stove tops and islands are considered to be the horizontal task areas.

1. Counters are a very much used work space in kitchens. Providing a standard strip, single lamp linear source is the best way to illuminate such surfaces. A small recessed source can be used. However the work surface can appear to have a spotted effect. Linear sources give a more even look. When spacing your luminaires a good rule to follow is the 2:1 ratio, for instance, if you have 8 feet of counter space that you require 4 feet of a fluorescent linear source. Ensure you install centered in the space and at the front of the upper cabinetry. If you install the lighting fixture in the centre of the upper cabinets, your light source will not fall in the middle of your counter.
2. It is always important to provide good illumination over the sink and island. Decorative type pendant luminaires and recessed down lights are popular choices for this application. Place luminaire centered above sink. It is recommended to use a minimum 75W for incandescent or 26W for fluorescent.
3. When illuminating a kitchen island it is in good design practice to provide a series of 1, 3 or 5 luminaires depending on the size of your island. Space the luminaires evenly over the island. If you are using a 35W inc or a 9W fluo use 3 ft spacing, 50W inc or 13W fluo use 5 foot spacing and if you are using 75W or 26W fluorescent use 6 foot spacing.

Vertical Surfaces

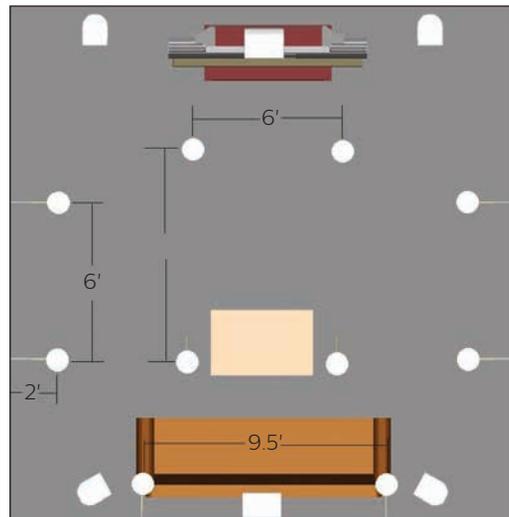
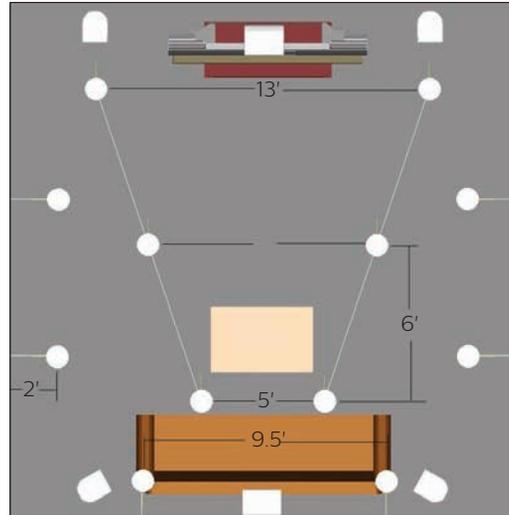
1. It is highly recommended to illuminate the cabinetry for the vertical tasks being performed in a kitchen. A flood type recessed down light or even better, a wall washer recessed luminaire is advised. Place luminaires 4 or 5 feet apart ideally. Try not to exceed 50W incandescent or 13W in fluorescent per luminaire.
2. A nice element to include in any kitchen design is also to incorporate accent or wall washing the lighting around the perimeter walls, this allows the space to appear larger. Please refer to pages 81 for wall washing and accent lighting recommendations.



Typical residential layouts and issues

Designing a home theatre

1. It is recommended to choose a deep reflector for your recessed down lights and wall washer type luminaires. Minimizing glare and lamp image will decrease the reflectance in the screen.
2. Providing wall washer type luminaires on a dimmer is a great lighting technique to provide minimal non intrusive illumination during screening and a very soft light effect and level to provide safe circulation. Remember to take art work layouts and furniture location into account when determining the location of your wall washer luminaires. Perhaps consider the 300 series for accent artwork or posters in the space.
3. Try and avoid running recessed luminaires in rows in front of the screen. If you run your recessed down lights on a slight angle (as seen in illustration) you will minimize the probability of your luminaires reflecting in your screen. Option B would be to eliminate the two recessed down lights closest to the screen. Please see diagram two for details. This will make it very easy to have your general lights on a soft dimming setting even during a viewing.
4. Light control is very important in a home theatre design. Ensure you include a minimum of two slide dimmers, one for the wall washer luminaires and one for the recessed down lights for general illumination. Note it is in good design practice to include 3 or 4 dimmers in a home theatre.



Indoor residential & commercial lighting using wall washing

Step 1 – Choose a luminaire

Choose between a wall washer or an adjustable downlight.

Step 2 – Choose your light source



Incandescent/
Halogen



HID



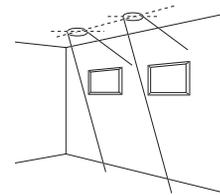
Fluorescent

For more details consult page 54.

Step 3 – Choose spacing criteria to suit desired effect

Wall Washing

Smoothly illuminated vertical surfaces from floor to ceiling. Wall washing luminaires are ideal to make rooms appear more spacious, define a space, light a wall with paintings or works of art and make colours and textures more lively.



Lamp	Distance from wall	Lighting starts at	Lighting level	Luminaire spacing
Low voltage halogen adjustable luminaire				
20W MR-16 FL	2 feet	1 foot	Medium	3 feet
20W MR-16 SP	2 feet	1 foot	High	3 feet
Line voltage halogen adjustable luminaire				
50W ES/ESD-16 FL	2 feet	1 foot	Medium	3 feet
50W PAR-20 FL	2 feet	1 foot	High	3 feet

Complete fixture consists of the Trim and Frame-in Kit. Select each separately.

Reflector Trim	Frame-in Kit (Low Voltage)	Lamp	Voltage	
313ABX	Remodeler Non-IC	300MRSPX	50W MR16 / 37W MR16 IR	120V
313BKX	Remodeler Non-IC	303MRE	37W MR16 IR	120V
313STX	Frame Non-IC	302MRSPX	50W MR16 / 37W MR16 IR	120V
313WHX	Frame Non-IC	302MREX	50W MR16 / 37W MR16 IR	120V
	Frame IC	302MRIC7SPX	50W MR16 / 37W MR16 IR	120V
	Frame IC	302MRIC9SPX	50W MR16 / 37W MR16 IR	120V
	Lyteneing Frame AirSeal®	302MRAICSPX	50W MR16 / 37W MR16 IR	120V
	Lyteneing Frame AirSeal®	302MRAICEX	50W MR16 / 37W MR16 IR	120V
	Frame-in Kit (Line Voltage)		Lamp	Voltage
	Remodeler Non-IC	300ESX	50W ES/ESD16 (GU10)	120V
	Frame Non-IC	302ESX	50W ES/ESD16 (GU10)	120V
	Frame IC	302ESICX	50W ES/ESD16 (GU10)	120V
	Lyteneing Frame AirSeal®	302ESAICX	50W ES/ESD16 (GU10)	120V
	Frame-in Kit (HID)		Lamp	Voltage
	Remodeler Non-IC	340IMH39MRE1	39W MR16 (GX10) CMH	120V

Parking lot and security lighting using wall mounts

Light level: 1 and 2 footcandles average

Step 1

Determine the height of the building where the luminaires will be placed.

Step 2

Select a mounting height that is approximately 3/4 the height of the building where the luminaires will be placed and locate the mounting height in the left most column.

Step 3

Choose between Metal Halide, high pressure sodium or LED as the light source for the application.

Step 4

Read down the column and identify the products that are available. Select the product of interest and make note of the part number.

Step 5

Determine if the fixtures selected will be used for Parking Lot Lighting or a Security Lighting application. This will determine the appropriate spacing between fixtures and coverage.

Step 6

Ensure the coverage the product selected provides is suitable for the application.

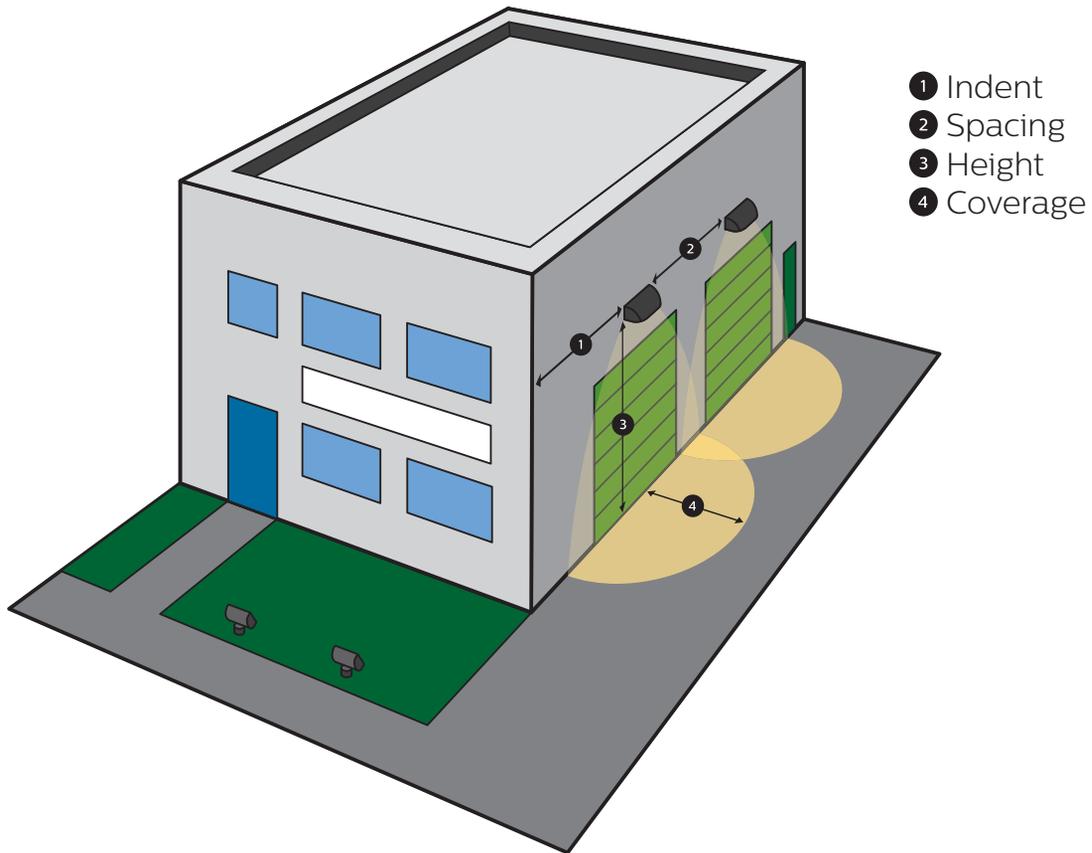
Step 7

Determine the length of the walls that the luminaires will be mounted.

Step 8

To determine the quantities of luminaires needed divide the length of the wall by the recommended luminaire spacing. $\text{Length of Wall} \div \text{Spacing} = \text{Luminaire Quantity}$

Spacing Tip: Luminaires should be indented from the starting and ending outside edges 1/2 of the distance that is indicated by the suggested spacing. Example: 100 ft Building at a suggested fixture spacing of 10 ft would require 10 fixtures ($100\text{ft} \div 10\text{ft} = 10$ luminaires). The first fixture will be placed 5 ft from the edge and each subsequent fixture will be spaced 10ft from the previous fixture.



1 - 2 Footcandles Average							
Height	Light Source			Security Lighting 1 Footcandle Average		Parking Lot Lighting 2 Footcandle Average	
	Metal Halide	High Pressure Sodium	LED	Spacing	Coverage	Spacing	Coverage
10'	313175MAL-T			80ft	35ft	40ft	35ft
	553250MAL-T			—	—	—	—
	553400MAL-T			—	—	—	—
		313150NLXL-1		80ft	45ft	60ft	45ft
		553400LXL-T		—	—	—	—
		TLW070NLXLPC-1		40ft	25ft	20ft	30ft
			LPW7-8DGY	25ft	15ft	12.5ft	15ft
			LPW16-78BZ	60ft	20ft	40ft	25ft
			LPW32-79WH	—	—	—	—
12' - 13'			LWLEDIC5K120PCBBZ	25ft	12ft	12.5ft	10ft
	313175MAL-T			65ft	40ft	34ft	40ft
	553250MAL-T			—	—	—	—
	553400MAL-T			—	—	—	—
		313150NLXL-1		80ft	50ft	50ft	50ft
		553400LXL-T		—	—	—	—
		TLW070NLXLPC-1		40ft	30ft	20ft	25ft
			LPW7-8DGY	30ft	15ft	15ft	13ft
			LPW16-78BZ	65ft	25ft	30ft	25ft
14' - 15'			LPW32-79WH	—	—	—	—
			LWLEDIC5K120PCBBZ	18ft	15ft	9ft	15ft
	313175MAL-T			60ft	40ft	30ft	40ft
	553250MAL-T			75ft	40ft	35ft	40ft
	553400MAL-T			—	—	—	—
		313150NLXL-1		90ft	40ft	45ft	50ft
		553400LXL-T		—	—	—	—
		TLW070NLXLPC-1		38ft	30ft	18ft	30ft
			LPW7-8DGY	25ft	15ft	13ft	20ft
16' - 19'			LPW16-78BZ	55ft	30ft	28ft	30ft
			LPW32-79WH	90ft	32ft	50ft	32ft
			LWLEDIC5K120PCBBZ	15ft	15ft	8ft	15ft
	313175MAL-T			50ft	45ft	25ft	50ft
	553250MAL-T			70ft	40ft	30ft	45ft
	553400MAL-T			80ft	60ft	40ft	65ft
		313150NLXL-1		80ft	60ft	40ft	60ft
		553400LXL-T		—	—	80ft	70ft
		TLW070NLXLPC-1		35ft	20ft	16ft	20ft
20' - 23'			LPW7-8DGY	16ft	20ft	8ft	20ft
			LPW16-78BZ	45ft	35ft	22ft	35ft
			LPW32-79WH	85ft	45ft	40ft	45ft
			LWLEDIC5K120PCBBZ	11ft	15ft	—	—
	313175MAL-T			45ft	50ft	23ft	50ft
	553250MAL-T			65ft	45ft	35ft	55ft
	553400MAL-T			70ft	70ft	37ft	65ft
		313150NLXL-1		70ft	65ft	35ft	65ft
		553400LXL-T		120ft	60ft	70ft	70ft
24' - 29'			TLW070NLXLPC-1	27ft	30ft	13ft	30ft
			LPW7-8DGY	15ft	25ft	—	—
			LPW16-78BZ	40ft	35ft	20ft	35ft
			LPW32-79WH	75ft	50ft	37ft	50ft
			LWLEDIC5K120PCBBZ	12ft	15ft	—	—
	313175MAL-T			40ft	50ft	19ft	50ft
	553250MAL-T			45ft	50ft	24ft	50ft
	553400MAL-T			60ft	70ft	37ft	65ft
		313150NLXL-1		60ft	70ft	32ft	65ft
30'		553400LXL-T		100ft	75ft	55ft	80ft
		TLW070NLXLPC-1		24ft	30ft	—	—
			LPW7-8DGY	17ft	20ft	—	—
			LPW16-78BZ	37ft	35ft	18ft	35ft
			LPW32-79WH	65ft	50ft	31ft	50ft
			LWLEDIC5K120PCBBZ	—	—	—	—
	313175MAL-T			40ft	50ft	19ft	50ft
	553250MAL-T			45ft	50ft	24ft	50ft
	553400MAL-T			60ft	70ft	32ft	65ft
	313150NLXL-1		60ft	70ft	32ft	65ft	
	553400LXL-T		100ft	75ft	55ft	80ft	
	TLW070NLXLPC-1		—	—	—	—	
		LPW7-8DGY	—	—	—	—	
		LPW16-78BZ	37ft	35ft	18ft	35ft	
		LPW32-79WH	65ft	50ft	31ft	50ft	
		LWLEDIC5K120PCBBZ	—	—	—	—	

These values are based on mean lumen operation in a medium dirty environment.

Legend and glossary of terms

SPACING:	Is the spacing between fixtures measured from the center of each fixture. Measurement is expressed in (') FEET.
INDENT:	Is the spot in which you space the fixtures from the beginning or end of a row. The indent should be no more than half of the spacing that is recommended. Measurement is expressed in (') FEET.
MOUNTING HEIGHT:	Is the distance the luminaire is to be mounted from the floor to the bottom of the reflector. Measurement is expressed in (') FEET.
COVERAGE:	Is the distance out from the luminaire that will be illuminated to the specified footcandle requirement. Measurement is expressed in (') FEET.
DISTANCE OUT:	Is the distance the luminaire will be placed from the location you would like to illuminate. Measurement is expressed in (') FEET.
A.F.F.:	Above Finished Floor
FC:	Footcandles

This glossary contains definitions of common lighting fundamental terms used in the lighting profession. For information not listed below refer to the IES Handbook.

A

Absorption

The dissipation of light within a surface or medium.

Accent Lighting

Directional lighting to emphasize a particular object or to draw attention to a part of the field of view.

Accommodation

The process by which the eye changes focus from one distance to another.

Adaptation

The process by which the visual system becomes accustomed to more or less light than it was exposed to during an immediately preceding period. It results in a change in the sensitivity of the eye to light.

Alternating Current (AC)

Flow of electricity which cycles or alternates direction many times per second. The number of cycles per second is referred to as frequency. Most common frequency used in this country is 60 Hertz (cycles per second).

Ambient Lighting

Background or fill light in a space.

Amperes (amps or A)

The unit of measurement of electric current.

B

Back Lighting

The illumination provided for scenery in off-stage areas visible to the audience.

Baffle

An opaque or translucent element that serves to shield a light source from direct view at certain angles, or serves to absorb unwanted light.

Ballast

An auxiliary device consisting of induction windings wound around a metal core and sometimes includes a capacitor for power correction. It is used with fluorescent and HID lamps to provide the necessary starting voltage and to limit the current during operation.

"Batwing" Distribution

Candlepower and distribution which serves to reduce glare and veiling reflections by having its maximum output in the 30° to 60° zone.

C

Candela

The unit of measurement of luminous intensity of a light source in a given direction.

Candlepower

Luminous intensity expressed in candelas.

Class "P" Ballast

Contains a thermal protective device which deactivates the ballast when the case reaches a certain critical temperature. The device resets automatically when the case temperature drops to a lower temperature.

Coefficient of Utilization (CU)

The ratio of the luminous flux (lumens) from a luminaire calculated as received on the work-plane to the luminous flux emitted by the luminaires lamps alone.

Colour Rendering Index (CRI)

Measure of the degree of colour shift objects undergo when illuminated by the light source as compared with the colour of those same objects when illuminated by a reference source of comparable colour temperature.

Colour Temperature

The absolute temperature of a blackbody radiator having a chromaticity equal to that of the light source.

Cone Reflector

Parabolic reflector that directs light downward thereby eliminating brightness at high angles.

Contrast

The difference in brightness (luminance) of an object and its background.

Cove Lighting

Lighting comprising sources shielded by a ledge or horizontal recess, and distributing light over the ceiling and upper wall.

Cutoff Luminaires

Outdoor luminaires that restrict all light output to below 85° from vertical.

D**Direct Current (DC)**

Flow of electricity continuously in one direction from positive to negative.

Direct Lighting

Lighting involving luminaires that distribute 90 to 100% of emitted light in the general direction of the surface to be illuminated. The term usually refers to light emitted in a downward direction.

Direct Glare

Glare resulting from high luminances or insufficiently shielded light sources in the field of view. It usually is associated with bright areas, such as luminaires, ceilings and windows which are outside the visual tasks or region being viewed.

Discomfort Glare

Glare producing discomfort. It does not necessarily interfere with visual performance or visibility.

Downlight

A small direct lighting unit which directs the light downward.

E**Efficacy**

The ratio of lumens produced by a lamp to the watts consumed. Expressed as lumens per watt (LPW).

F**Fill Light**

Illumination added to reduce shadows or contrast range.

Footcandle (fc)

The unit of illuminance when the foot is taken as the unit of length. It is the illuminance on a surface one square foot in area on which there is a uniformly distributed flux of one lumen.

G**Glare**

The sensation produced by luminance within the visual field that is sufficiently greater than the luminance to which the eyes are adapted to cause annoyance, discomfort, or loss in visual performance and visibility.

H**High Output Fluorescent Lamp**

Operates at 800 or more milliamperes for higher light output than standard fluorescent lamp (430MA).

I**Instant Start Fluorescent Lamp**

A fluorescent lamp designed for starting by a high voltage without preheating of the electrodes.

K**Kelvin**

Unit of measurement for colour temperature. The Kelvin scale starts from absolute zero, which is -273° Celsius.

Kilowatt-Hour (KWH)

Unit of electrical power consumed over a period of time. KWH = watts/1000 x hours used.

L**Lamp Lumen Depreciation (LLD)**

Multiplier factor in illumination calculations for reduction in the light output of a lamp over a period of time.

Louver

A series of baffles used to shield a source from view at certain angles or to absorb unwanted light. The baffles usually are arranged in a geometric pattern.

Low Voltage Lamps

Incandescent lamps that operate at 6 to 12 volts.

Lumen

The unit of luminous flux. It is the luminous flux emitted within a unit solid angle (one steradian) by a point source having a uniform luminous intensity of one candela.

Luminaire

A complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps and to connect the lamps to the power supply.

Lighting Glossary

Luminaire Direct Depreciation (LDD)

The multiplier to be used in illuminance provided by clean, new luminaires to the reduced illuminance that they will provide due to direct collection on the luminaires at the time at which it is anticipated that cleaning procedures will be instituted.

Luminaire Efficiency

The ratio of luminous flux (lumens) emitted by a luminaire to that emitted by the lamp or lamps used.

Luminance

The amount of light reflected or transmitted by an object.

Lux

The metric unit of illuminance. One lux is one lumen per square meter (lm/m²).

M

Maintenance Factor (MF)

A factor used in calculating illuminance after a given period of time and under given conditions. It takes into account temperature and voltage variations, dirt accumulation on luminaire and room surfaces, lamp depreciation, maintenance procedures and atmosphere conditions.

O

Overall Length (OAL)

Maximum overall length of a light fixture.

P

Parabolic Louvers

A grid of baffles which redirect light downward and provide very low luminaire brightness.

Photometry

The measurement of light quantities.

Poe

Power Over Ethernet is a kind of technology that allows network cables to also carry electricity in order to power devices.

Point Method Lighting Calculation

A lighting design procedure for predetermining the illuminance at various locations in lighting installations, by use of luminaire photometric data. .

Power Factor

Ratio of: Watts (volts x amperes) Power factor in lighting is primarily applicable to ballasts. Since volts and watts are usually fixed, amperes (or current) will go up as power factor goes down. This necessitates the use of larger wire sizes to carry the increased amount of current needed with Low Power Factor (L.P.F) ballasts. The addition of a capacitor to an L.P.F. ballast converts it to a H.P.F. ballast.

R

Reflection

Light bouncing off a surface. In specular reflection the light strikes and leaves a surface at the same angle. Diffuse reflected light leaves a surface in all directions.

Reflectance

Sometimes called reflectance factor. The ratio of reflected light to incident light (light falling on a surface). Reflectance is generally expressed in percent.

Reflected Glare

Glare resulting from specular reflections of high luminances in polished or glossy surfaces in the field of view. It usually is associated with reflections from within a visual task or areas in close proximity to the region being viewed.

Reflector

A device used to redirect the light flow from a source by bouncing it off the surface.

Refraction

The process by which the direction of a ray of light changes as it passes obliquely from one medium to another in which its speed is different.

Room Cavity Ratio (RCR)

A number indicating room cavity proportions calculated from length, width and height.

S

Spacing Ratio

Ratio of the distance between luminaire centers to the mounting height above the work-plane for uniform illumination.

Spectral power distribution (SPD)

The output of a light source can be characterized by its relative power at each wavelength. The output is measured and is placed on a graph which shows power vs. wavelength, which then shows which wavelengths a particular light source is stronger or weaker in possessing.

T

Task Lighting

Lighting directed to a specific surface or area that provides illumination for visual tasks.

Transformer

A device to raise or lower electric voltage.

Transmission

The passage of light through a material.

Tunable White LED's

Light Engines that combine individual chips to produce a range of CCT from warm white and cool white.

Lighting Glossary

V

Veiling Reflections

Regular reflections superimposed upon diffuse reflections from an object that partially or totally obscure the details to be seen by reducing the contrast. This is sometimes called reflected glare.

Visual Comfort Probability (VCP)

The rating of a lighting system expressed as a percent of people who, when viewing from the specified location and in a specified direction, will be expected to find it acceptable in terms of discomfort glare.

Visual Field

The field of view that can be perceived when the head and eyes are kept fixed.

W

Wall Wash Lighting

A smooth even distribution of light over a wall.

Watt (W)

The unit for measuring electric power. It defines the power or energy consumed by an electrical device. The cost of operating an electrical device is determined by the watts it consumes times the hours or use. It is related to volts and amps by the following formula: Watts = Volts x Amps.

Z

Zonal Cavity Method Lighting Calculation

A lighting design procedure used for predetermining the relation between the number and types of lamps or luminaires, the room characteristics, and the average illuminance on the work-plane. It takes into account both direct and reflected flux.

Design Notes:

Results based on: Average footcandles maintained, total Light Loss Factor (L.L.F.) Metal Halide = 0.6 and High Pressure Sodium = 0.75. Reflectances: 50% Ceiling (Steel deck), 50% Wall (Cement block), 20% Floor (Dark concrete). T5: RE835 T5 lamps rated at 2610 lumens, RE835 T5HO lamps rated at 4400 lumens. MH HID: 50W ED17 rated at 4100 lumens, 70W ED17 rated at 6200 lumens, 100W ED17 rated at 9500 lumens, 150W ED17 rated at 12500 lumens, 175W ED17 rated at 13500 lumens, 250W ED28/ED37/BT37 rated at 36000, BT56/ED56/E56 rated at 110,000. HPS HID: 35W E17 rated at 2250 lumens, 50W E17 rated at 4000 lumens, 70W E17/ED17 rated at 6300 lumens, 100W ED17 rated at 9500, 150W E17/ED17 rated at 16000 lumens, 250W ED18 rated at 27000 lumens, 250W ED28/BT28 rated at 26000 lumens, 400W E18 rated at 50,000 lumens, 400W ED37 rated at 47500 lumens, BT25/ED25/E25 rated at 140000 lumens. PS HID: 250W ED28 rated at 23750 lumens, 400W ED37 rated at 42600 lumens. 1' x 1' calculation grid at 30" from finished floor. Results may vary. LED: LLF .85. Photometric values based on test performed in compliance with LM-79.

Calculations have been performed according to IESNA & CIE standards and good practice. Some differences between measured values and calculated results may occur due to tolerances in calculation methods, testing procedures, component performance, measurement techniques and field conditions such as voltage and temperature variations. Input data used to generate the attached calculations such as room dimensions, reflectances, furniture and architectural elements significantly affect the lighting calculations. If the real environment conditions do not match the input data, differences will occur between measured values and calculated values.



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