

APPENDIX A **FIXTURE CUTSHEETS**

patent no. US 6,652,119 B1



MiT5

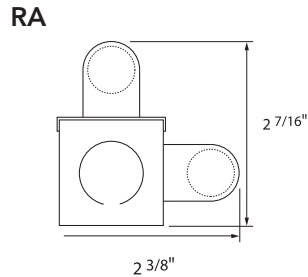
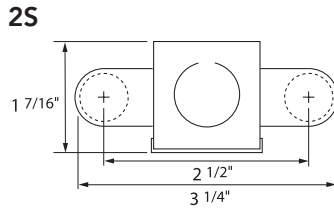
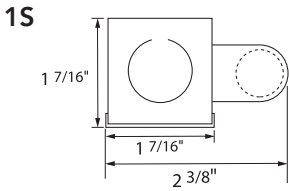
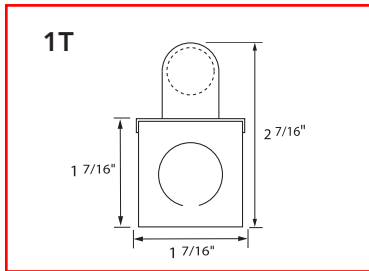
MiT5

type: **TYPE F1**

LINEAR T5 FLUORESCENT

low profile T5 fluorescent fixture

- SPECIFICATIONS |**
- Fully assembled housing is formed and welded, 20 ga. steel, chemically treated to resist corrosion and enhance paint adhesion
 - Standard finish is high reflectance white powder coat, matte black, or glossy black applied post production
 - Knock-outs accept standard electrical fittings (by others)
 - Rotational locking lamp holders
 - Available for one or two T5 14W, 21W, 28W, 35W and high output 24W, 39W, 54W, 80W linear fluorescent lamps
 - Standard 120V or 277V, 50-60Hz electronic high power factor ballast is pre-wired to the lamp holders
 - Dimming and emergency battery back up options available (**consult factory for availability and system compatibility**)
 - UL and ULC listed for dry and damp locations
 - IBEW
 - Made in the U.S.A.
- NOTE: Includes program rapid start ballast.**



SPECIFICATION / ORDER FORMAT						DIMENSIONAL INFO.
model no.	lamp position	wattage - lamp	voltage	wiring method	options	overall length
MiT5	-1T	14 - 14w T5	/UNV-120-277V	/RS	Dimming - (consult factory)	22-1/2"
	-1S	21 - 21w T5	/347		/EB - emergency ballast	34-5/16"
	-2S	28 - 28w T5			(consult factory)	46-1/16"
	-RA	35 - 35w T5			/DL - damp location	57-15/16"
		24 - 24w T5 HO			/CU - custom finish	22-1/2"
		39 - 39w T5 HO			(consult factory)	34-5/16"
		54 - 54w T5 HO				46-1/16"
		80 - 80w T5 HO				57-15/16"

MiT5 | ACCESSORIES

type:

LENSES | Two-piece system comprised of polycarbonate channel and striated snap-on cover



M5LNP	Clear fine prismatic acrylic lens with mounting clips (sold by the foot)	__ft.
M5LNCF	Frosted acrylic lens with mounting clips (sold by the foot)	__ft.

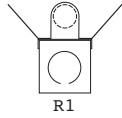
TUBE GUARD |

TG	Tube Guard (sold by the foot)	__ft.
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CABLE KIT |

BAC-4N-W	Aircraft suspension kit, 4', white
BAC-4P-W	Aircraft suspension kit w/ power feed, 4', white

REFLECTORS | 20 ga. steel construction, white powder coat finish (consult factory for optional reflector materials and finishes)



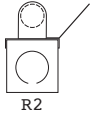
R1

SYMMETRICAL

MiT5-1T-R1-14/24
MiT5-1T-R1-21/39
MiT5-1T-R1-28/54
MiT5-1T-R1-35/80

for fixture models

MiT5-1T14	MiT5-1T24
MiT5-1T21	MiT5-1T39
MiT5-1T28	MiT5-1T54
MiT5-1T35	MiT5-1T80

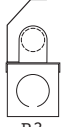


R2

ASYMMETRICAL

MiT5-1T-R2-14/24
MiT5-1T-R2-21/39
MiT5-1T-R2-28/54
MiT5-1T-R2-35/80

MiT5-1T14	MiT5-1T24
MiT5-1T21	MiT5-1T39
MiT5-1T28	MiT5-1T54
MiT5-1T35	MiT5-1T80



R3

INSIDE ASYMMETRICAL

MiT5-1T-R3-14/24
MiT5-1T-R3-21/39
MiT5-1T-R3-28/54
MiT5-1T-R3-35/80

MiT5-1T14	MiT5-1T24
MiT5-1T21	MiT5-1T39
MiT5-1T28	MiT5-1T54
MiT5-1T35	MiT5-1T80



RE

ELLIPTICAL

MiT5-1T-RE-14/24
MiT5-1T-RE-21/39
MiT5-1T-RE-28/54
MiT5-1T-RE-35/80

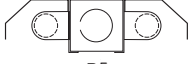
MiT5-1T14	MiT5-1T24
MiT5-1T21	MiT5-1T39
MiT5-1T28	MiT5-1T54
MiT5-1T35	MiT5-1T80



R4

MiT5-1S-R4-14/24
MiT5-1S-R4-21/39
MiT5-1S-R4-28/54
MiT5-1S-R4-35/80

MiT5-1S14	MiT5-1S24
MiT5-1S21	MiT5-1S39
MiT5-1S28	MiT5-1S54
MiT5-1S35	MiT5-1S80



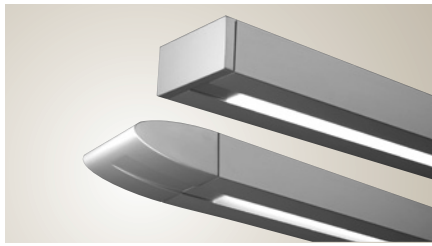
R5

MiT5-2S-R5-14/24
MiT5-2S-R5-21/39
MiT5-2S-R5-28/54
MiT5-2S-R5-35/80

MiT5-2S14	MiT5-2S24
MiT5-2S21	MiT5-2S39
MiT5-2S28	MiT5-2S54
MiT5-2S35	MiT5-2S80

T5
architectural LIGHTING

12.2012



Naro T5/T5HO

Type: **TYPE F2**

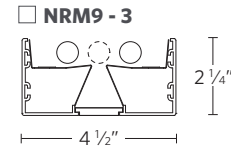
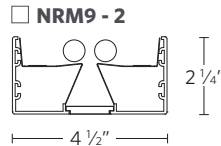
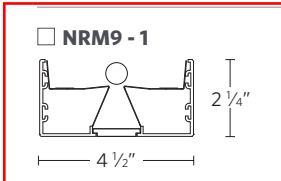
Project:

SPECIFICATIONS

Suspended

NRM9

LAMPING OPTIONS



SPECIFICATIONS

Construction

Nominal 4 1/2"W x 2 1/4"H extruded aluminum housing. Die-cast aluminum end caps are mechanically attached with no exposed fasteners.

Reflectors

Semi-specular high reflectance aluminum or high reflectance white painted steel. Select semi-specular (SPR) for a wide distribution and maximum row spacing. Select white (WHR) for narrow applications (i.e. corridors) to soften side wall shadows.

Shielding

Frosted acrylic diffuser.

Finish

White polyester powder painted or satin anodized. Satin anodized consists of satin anodized housing with end caps painted C110 (aluminum) to match. Optional custom colors available, consult factory.

Electrical

Specify 120V, 277V or 347V. Pre-wired with 16AWG fixture wires. For special circuiting or wire gauge, consult factory. Plug-in electrical connectors included. UL and C-UL listed.

Luminaire Length

4' and 8' lengths in a single section. For total luminaire length add 1/2" for each standard endcap or 4 1/2" for each sculptured endcap. Using internal joiners, 4' and 8' sections can be joined to form longer rows.

Eco-friendly Packaging

100% post-consumer recycled cardboard box, 100% recycled cardboard cradles and kraft paper tape. Biodegradable, protective luminaire bag.

CATALOG NUMBER

Examples: NRM9 2 28T5 SPR FST 40FT R8 277 GEB10 DCT LP835 F1/18 C100 — NRM9 2 28T5 WHR FST 40FT R8 277 GEB10 1SE EL DCT LP835 F1/18 C100

Luminaire	# of Lamps in Cross Section	Lamp Type	Reflector	Shielding	Luminaire Row Length	Maximum Section Length	Voltage	Ballast Type	# of Emergency Modules
NRM9	1 2 3	28T5 ¹ 28W T5 54T5HO 54W T5HO	SPR Specular reflector WHR White Reflector	FST Frosted Diffuser	X FT (4' increments)	R4 4' section(s) R8 8' section(s)	120 277 347 ²	GEB10 <10% THD Electronic ADEZ ^{1,2} Advance Mark 10 dim DMHL3D ¹ Lutron Hi-Lume dim ADZT ¹ Advance Mark 7 0-10V dim OSDIM ^{1,2} Osram 0-10V dim	(Blank) None 1SE 1 section 2SE 2 sections XSE X sections

Reference [Ballast Wizard](#) on website or consult factory for other options.

Emergency Type ³	Switching	Lamp Color	Mounting Type /	Overall Suspension	Finish	Options
(Blank) None EC Emergency circuit EL ¹ Emergency battery pack EN ¹ Emergency battery pack w/night light circuit	SCT Single circuit DCT Dual circuit	L/LP No lamp LP830 3000k 80+ CRI LP835 3500k 80+ CRI LP841 4100k 80+ CRI Available with T5 only: LP830P 3000K 80+ CRI Premier LP835P 3500K 80+ CRI Premier LP841P 4100K 80+ CRI Premier <i>Reference Lamp Chart on website or consult factory for other options.</i>	F1/ T-bar ceiling (universal mounting bracket) F1A/ T-bar ceiling (UMB with integrated J-box) F2/ Hard ceiling (horizontal J-box) F3/ Rigid stem	12 12" 15 15" 18 18" 21 21" 24 24" XX XX" <i>Overall suspension is measured from ceiling to bottom of luminaire</i>	C041 White white (low gloss) C100 Satin anodized finish C099 Custom finish	ACG Adjustable cable grippers BLK Black cord, cord manager and canopy (not available with F3 mtg) CP Chicago plenum (available with F1A only) DU ⁴ Dust cover DL Damp location label ELH Emergency through wiring w/separate feed ELS Emergency through wiring w/single feed, shared neutral ELS2 Emergency through wiring w/single feed, separate neutrals GLR Fusing (fast blow) GMF Fusing (slow blow) MCS Matching feed canopy at support NEPP5D nLight enabled control module per row/zone OJB Offset junction box SCEP Sculptured end cap SLP Sloped ceiling (for 10-45°, must be specified along with F2, ACG and OJB options) XXXX Integrated sensor; choose options and obtain code on page 2

Notes:

- 1 Not available in 347V
- 2 Not available with 28T5 lamps

- 3 Emergency type is installed in last 4' of luminaire sections. Separate feed required unless ELS or ELS2 is specified
- 4 Not available w/3-lamp cross section

Naro T5/T5HO

Type:

Project:

Suspended

NRM9

INTEGRATED NLIGHT MICRO SENSOR

Determine the appropriate sensor type, network type and sensor power source for your application. Enter the code in the Options section of the Catalog Number.

EXAMPLE: PDT1

Sensor Type (choose one)	
ADC nLight model nES ADCX	Daylight Dimming Specify 0-10V dimming ballast No occupancy sensing
PDT nLight model nES PDT7 ADCX	Daylight Dimming and/or Occupancy Detection Specify 0-10v dimming ballast for daylight dimming Specify fixed-output ballast for occupancy detection only (daylight dimming disabled)

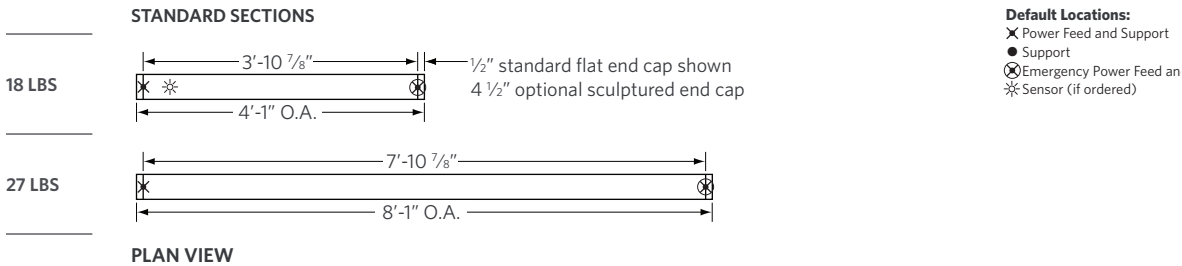
Network Type & Sensor Power Source (choose one)	
1*	nLight-Enabled (Network-Ready) with Luminaire-Integrated Power Pack 10' Cat-5e cable and splitter provided
2	Standalone Operation (No Networking) with Luminaire Integrated Power Pack No Cat-5e cable provided
3*	nLight-Enabled (Network-Ready) with Remote nLight Power Pack or nPanel 10' Cat-5e cable and splitter provided Order required remote nLight Power Pack or nPanel separately through nLight (Acuity Brands Controls)

For more information about the Integrated nLight Micro Sensor, its capabilities and options, download the PDF guide at: PeerlessLighting.com/nLight-Sensor-Guide

*nLight-Enabled (network-ready) options include one RJ-45 connector on the luminaire and 10' of Cat-5e cable and a splitter to control the entire luminaire row (depending on wattage/voltage limitations). The Cat-5e cable drop is located in the same section as the sensor. For multiple zones, please contact techsupport@peerlesslighting.com.

WEIGHTS & SUPPORT SPACING

Suspension spacing equals section length. Default location shown. Consult factory for stem mounting suspension spacing and alternate locations.

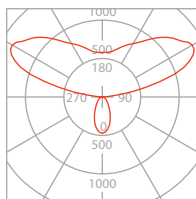


CONFIGURATIONS

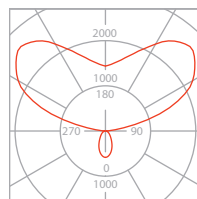


Mitered corner, "X" and "T" connectors available for suspended configurations. Reference [Pattern Connector Guide](#) for additional details.

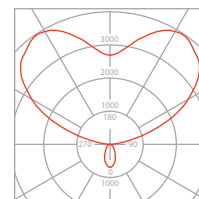
PHOTOMETRICS Actual performance may differ as a result of end-user environment and application.



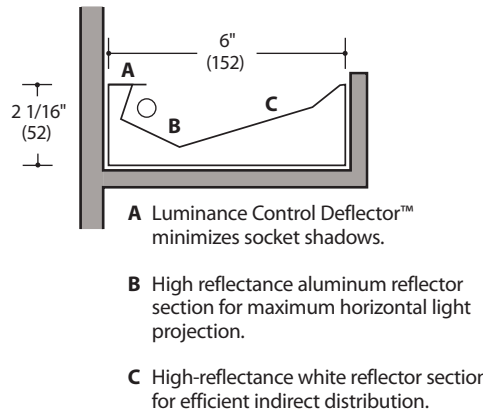
1-LAMP T5HO
91.6% efficiency
4578 delivered lumens
84.6% up / 15.4% down



2-LAMP T5HO
90.6% efficiency
9058 delivered lumens
89.1% up / 10.9% down



3-LAMP T5HO
90.2% efficiency
13530 delivered lumens
91.8% up / 8.2% down



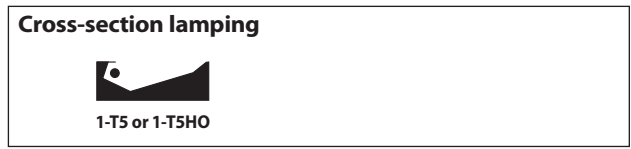
Cove-25 CC-AI-2500 Mounting and Distribution

Product Description
 Concealed Cove steel fixture built for T5 lamping with excellent asymmetric distribution for effective perimeter lighting within an architectural cove.

Ordering Guide

Product, lamping, & length						Options				
CC -	AI -	25				CWM -		1CWQ -		
Mounting	Distribution	Series	Lamp Count	Nominal Length(ft)	Lamp Type	Color	Ballast Options	Circuiting	Other Options	Volts
CC Concealed Cove	AI Asymmetric indirect	25	1 → 3 1 → 4 2 → 6 2 → 8 see notes		T5HO T5	CWM (matte white) is standard	ELB/PS is standard DIM see Ballast Options	1CWQ	AMA F EF WKC/WP see Other Options	120 277
<p>notes: Lamp count = total number of lamps in the fixture For ordering guide information in shaded areas, choose selection by reading ACROSS the shaded areas for correct specifications.</p>										

CC-AI-2514T5HO-CWM-ELB/PS-1CWQ-F-120 is a typical catalog number for a 1-lamp (1 lamp in cross-section), 4-foot long, high-output T5 fixture, matte white finish, electronic ballast, pre-wired with single-circuit, fuse, 120 volts.



Ballast Options

Specify in place of **ELB/PS**:

DIM Dimming options are available. Please contact factory and provide make and model of requested dimming ballast to confirm fit and compatibility with the specified lamp configuration.

Other Options

- AMA** Adjustable Mounting Angle. Quick-attach component to tilt housing either **5°** or **10°**
- F** Fuse. Slow or fast blow, determined by Litecontrol.
- EF** Emergency Fluorescent Ballast. Battery-powered ballast from a listed manufacturer will operate one T5 or T5HO lamp for 1 1/2 hours.
- WKC/WP** Corner Wiring Kit. With quick-connects.

Questions to Ask

1. Row information, including desired fixture lengths?
2. Lamp type? 3. Ballast options? 4. Other options? 5. 120 or 277 volt?

Quick Find **25**

 litecontrol.com

Specifications

HOUSING. Die-formed steel. Ends provided with 7/8" diameter hole to accommodate pre-wiring.

REFLECTORS. Angled reflector is die-formed high-reflectance aluminum, precisely shaped for maximum horizontal light projection. Straight sloped reflector is 24-gauge steel, finished in high-reflectance white for maximum indirect light distribution. Luminance Control Deflector™ (LCD), finished in high reflectance white, reduces wall brightness directly above fixture and minimizes socket shadows between fixtures.

LAMPING. Available in one-lamp T5 or T5HO.

BALLAST. Electronic Ballast (ELB/PS), high power factor, thermally protected Class P, Sound Rated A, less than 10% THD, manufactured by a UL Listed manufacturer, as available, determined by Litecontrol. Ballasts with a voltage range of 120 to 277 will be used when fixture configuration and ballast availability allow. The minimum number of ballasts will be used.

CIRCUITING. Fixtures are wired such that one end will have factory-installed push-in quick-connects. The other end will be stripped back 1/2" for quick connection in field. For fixtures to accommodate special circuits such as night light and emergency in-field wiring may be required. See Pre-wiring Information online for details.

BALLAST DISCONNECT. Fixture supplied with a ballast disconnect device to enable compliance with the NEC.

MOUNTING. Fixtures are installed in cove provided by others. See Planning for installation for detailed information.

CERTIFICATION. Fixtures are UL Listed  for United States and Canada. Fixtures are rated for damp locations. Consult factory for details.

Note: Litecontrol reserves the right to change specifications without notice for product development and improvement.

Planning for installation

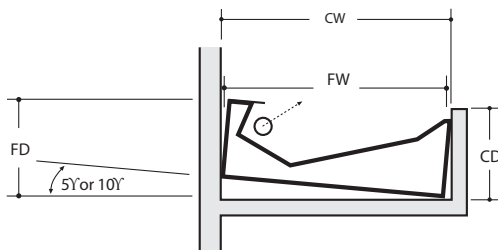
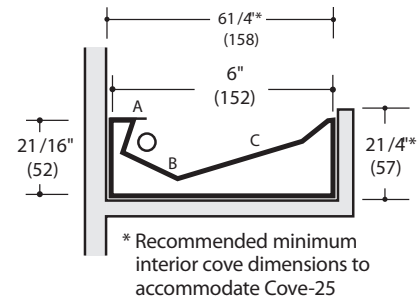
Cove provided by others. Interior cove dimensions should allow for 2 1/16" x 6" fixture cross-section to fit within cove, taking into consideration as-built tolerances. For maximum efficiency, wall and ceiling above cove should have matte surfaces with high reflectances. See design guidelines below. Maximum fixture weight per foot is two and a half pounds.

Corner Wiring Kit

Provides the advantages of pre-wiring around corners. Make connections at each end of the flexible whip, push wires into fixtures, then snap onto headers. Specify **WKC/WP** (with push-in quick-connects).

Adjustable Mounting Angle (AMA) Option

With this option, you can get an even lower beam throw, projecting light at lower angles resulting in a greater amount of light directed into the space. A simple, snap-on accessory is used to tilt the fixture an additional 5° or 10° above horizontal. Room geometry and cove location are considerations when using this option. A simple cross-section sketch of the space, drawn to scale, will determine the appropriate angle of tilt needed.



Angle of Tilt	Ordering Option	Fixture Depth (FD)	Fixture Width (FW)	Recommended Cove Depth (CD)	Recommended Cove Width (CW)
0	(standard)	2 1/16"	6"	2 1/4"	6 1/4"
5°	AMA	2 9/16"	6 3/16"	2 1/4"	6 1/2"
10°	AMA	3 1/16"	6 1/4"	2 1/4"	6 1/2"

Actual fixture lengths are sized to match T5 lamp lengths. See table below to determine total fixture and row lengths.

Nominal Fixture Length	3'	4'	6'	8'
Actual Fixture Length	34 3/8"	46 1/4"	68 5/8"	92 1/4"

Design guidelines

For maximum illumination level flexibility, two types of lamping are available- standard T5 and high-output T5. For other lamping choices in a 3 1/8" deep x 8" wide fixture refer to Cove-30 (CC-AI-3000).

As the distance from fixture to ceiling is increased, light distribution becomes more uniform. To avoid excessive brightness on ceiling, maximize the distance from the fixture to the ceiling. A fixture with less output (i.e., standard T5) may be tolerated closer to ceiling than one with higher output (high-output T5). To best evaluate an acceptable mounting position, a mock-up is recommended.

Position fixtures along walls as desired to satisfy visual design goals. To avoid excess corner brightness, stop fixtures 7-13" short of end walls; 0-6" from outside corner. See table above for actual fixture lengths.

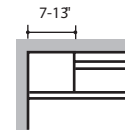
As-built cove dimensions should include tolerances to accommodate fixture. See recommended cove depth and width dimensions in table above.

If using high-output T5 lamps, be advised that lamp lumens per foot for each of the lamp lengths are different. Caution is advised when mixing fixture lengths in rows.

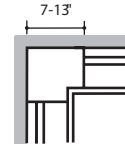
For an even lower peak output angle and better distribution, consider the Adjustable Mounting Angle (AMA) option. This lowers the beam throw by 5° or 10°. This should only be considered if viewing angles prevent a direct view of the raised portion of the fixture, or if a cut-off angle below horizontal is deemed acceptable.

If the zonal cavity method is used to calculate an average illumination, it is advised in a perimeter layout to derate the illuminance by 10%.

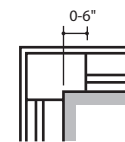
Single row end clearance



Inside corner positioning

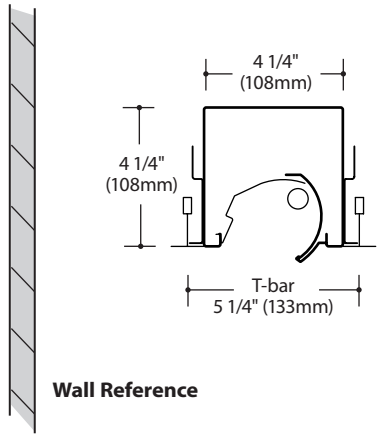


Outside corner positioning



Photometric data

ANGLE	CANDLEPOWER SUMMARY					OUTPUT LUMENS	CC-AI-2514T5HO-LP/ELB 86.9 % Efficiency																ZONAL LUMEN SUMMARY							
	0	45	90	135	180		ITL Certified Test Report #ITL49604				80				70				50				30				0		ZONE	LUMENS
180	1031	1031	1031	1031	1031		RCC	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0	0				
175	1066	1066	1033	993	967	97	RW	.83	.83	.83	.83	.71	.71	.71	.71	.48	.48	.48	.28	.28	.28	.09	.09	.09	.00	0-90°	0	0.0	0.0	
165	1158	1111	1008	825	749	276	0	.75	.72	.69	.66	.64	.61	.59	.57	.42	.41	.39	.24	.23	.23	.08	.08	.07	.00	90-120°	1701	34.0	39.2	
155	1228	1143	951	663	579	422	1	.68	.63	.58	.54	.58	.54	.50	.46	.37	.34	.32	.21	.20	.19	.07	.06	.06	.00	90-130°	2409	48.2	55.5	
145	1272	1141	866	509	430	527	2	.62	.55	.49	.45	.53	.47	.42	.39	.32	.29	.27	.19	.17	.16	.06	.06	.05	.00	90-150°	3549	71.0	81.7	
135	1519	1118	756	377	319	613	3	.57	.48	.42	.37	.48	.41	.36	.32	.29	.25	.23	.16	.15	.14	.05	.05	.04	.00	90-180°	4344	86.9	00.0	
125	1862	1256	620	260	227	708	4	.52	.43	.36	.32	.44	.37	.31	.27	.25	.22	.19	.15	.13	.12	.05	.04	.04	.00	0-180°	4344	86.9	00.0	
115	2155	1454	455	164	152	784	5	.48	.38	.32	.27	.40	.33	.27	.24	.23	.19	.17	.13	.11	.10	.04	.04	.03	.00					
105	1548	1397	265	92	100	673	6	.44	.34	.28	.23	.37	.29	.24	.20	.20	.17	.14	.12	.10	.09	.04	.03	.03	.00					
95	437	484	58	50	49	245	7	.40	.31	.25	.20	.34	.26	.21	.18	.18	.15	.13	.11	.09	.07	.03	.03	.02	.00					
90	0	10	0	4	0		8	.37	.28	.22	.18	.32	.24	.19	.15	.17	.13	.11	.10	.08	.07	.03	.03	.02	.00					
							9	.35	.25	.19	.16	.30	.22	.17	.14	.15	.12	.10	.09	.07	.06	.03	.02	.02	.00					
							10	Floor Cavity Reflectance .20																						



Mod 44 Recessed Wall/Wash

LG-WWD-4400
 Exposed Grid Ceiling
 Recessed Wall Wash Direct

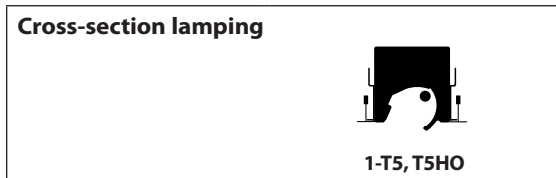
Product Description

Recessed fixture for grid ceilings with an optical system designed to provide uniform wall wash lighting. The WWD-4400 has a low-profile housing (nominally 4" x 4") and uses T5 or T5HO lamping. The fixture can be row-configured for continuous run installations along a wall, and has an optional regressed lens that completely shields the lamp from view. UL Listed. This fixture is Cradle to Cradle Silver Certified^{CM} by MBDC.

Ordering Guide

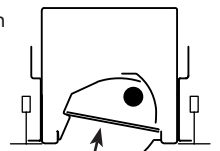
Product, Lamping & Length					Options							
LG -	WWD -	44					CWM -					
Mounting	Distribution	Series	Lamp Count*	Nominal Length (ft)	Lamp Type	Diffuser	Finish	Position	Ballast	Other options	Volts	
LG Recessed (exposed grid ceiling)	WWD Wall Wash Direct	44	1 → 2 →	2, 3, 4 6, 8	T5 T5HO (not available in T8)	-- SGL	CWM (Matte White) is standard	IND INT EOR/LH EOR/RH	ELB/PS is standard T5/T5HO DIM see Ballast Option	F CCEA see Other options	120 277	
<p><small>*Lamp Count = total number of lamps in the fixture</small></p> <p>For Ordering Guide information in shaded areas, choose selection by reading ACROSS the shaded areas for correct specifications.</p>												

LG-WWD-4414T5-CWM-IND-LP/ELB-F-120 is a typical catalog number for a 1-lamp, 4-foot long T5 fixture, Matte White finish, individual fixture with an electronic ballast, optional fuse, 120 volts.



Diffuser

SGL Soft Glow Lens. Extruded, frosted acrylic lens regressed at an angle above the ceiling to soften view of lamp from directly below while minimizing visibility from normal viewing angles.



Soft Glow Lens

Position

IND Individual fixture.
INT Intermediate fixture in a row.
EOR/LH Left hand end-of-row fixture in a row.
EOR/RH Right hand end-of-row fixture in a row.

Ballast Option

Specify in place of **ELB/PS**:

DIM Dimming options are available. Please contact factory and provide make and model of requested dimming ballast to confirm fit and compatibility with the specified lamp configuration.

Other Options

F Fuse. Slow or fast blow, determined by Litecontrol.
CCEA City of Chicago Environmental Air Modification.

Questions to Ask

1. Row information, including desired fixture length?
2. Diffuser type? 3. Other options? 4. 120 or 277 volt?

Quick Find 44wwd

 litecontrol.com

Specifications

HOUSING. Die-formed and welded steel, with 3/8" regression at housing bottom for rigidity and appearance. Continuous mounting rail along sides, with bottom flange regressed 1/16", is used as a lateral spacing aid between main T-bars, allows clearance for T-bar supporting wires, and accepts mounting of side clips. Furnished with 6" long, steel splines for insertion at each side of housing at junction of fixtures in rows for precise alignment. End headers have clearance holes for easy row installation.

REFLECTOR. Formed semi-specular high reflectance aluminum primary optic. Formed steel wall-side reflector painted gray. Painted, extruded aluminum room-side reflector shield extends below the ceiling and includes a pre-installed alignment spline that is slid between adjoining fixtures in the field.

END CAPS. Straddle T-bars and attach to ends of individual fixtures and ends of rows.

BALLAST. Low-profile Electronic Ballast (**ELB/PS**), high power factor, thermally protected Class P, Sound Rated A, less than 10% THD, manufactured by a UL-Listed manufacturer, as available, determined by Litecontrol. Ballasts with a voltage range of 120 to 277 will be used when fixture configuration and ballast availability allow. The minimum number of ballasts will be used.

LAMPING. Available in one-lamp T5 or T5HO in cross-section.

BALLAST DISCONNECT. Fixture supplied with a ballast disconnect device to enable compliance with the NEC.

MOUNTING. For installation in exposed inverted T-bar grid ceilings (NEMA type G, 1 1/2" high T-bar) only. Side T-bar clips and T-bar end caps provided; field installed by contractor. Knockouts in housing top for wiring. Holes provided in mounting rail for S-hooks of chain supports or guy wires.

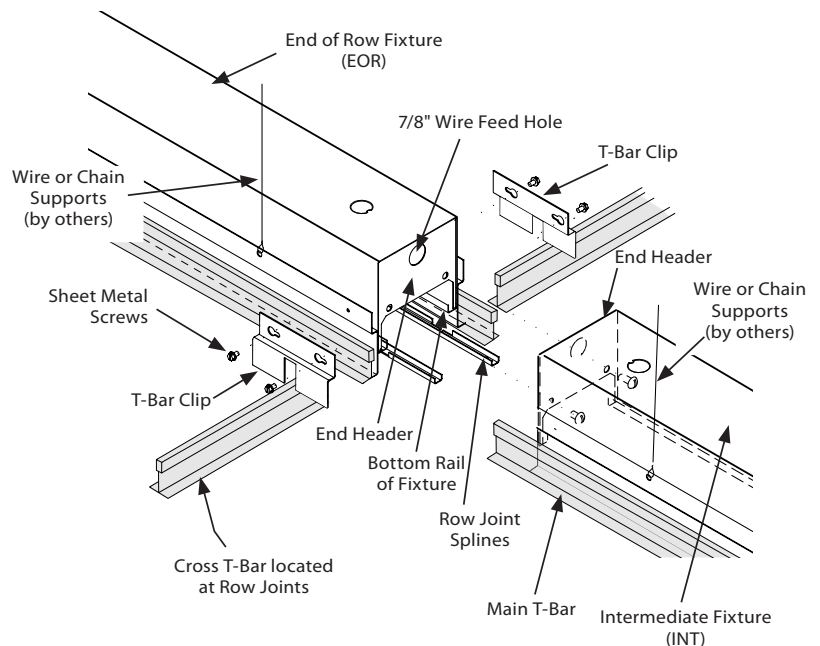
CERTIFICATION. Fixtures are UL Listed  for United States and Canada. Fixtures are rated for damp locations. Consult factory for details.

This fixture is Cradle to Cradle Certified^{CM} Silver by MBDC.

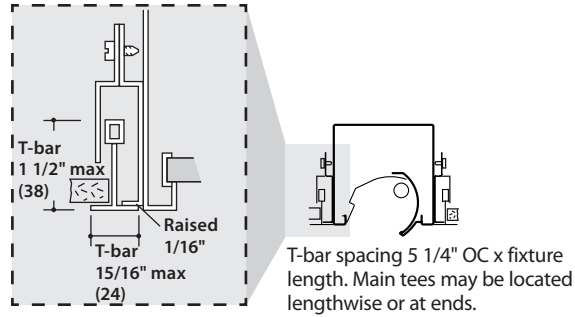
Note: Litecontrol reserves the right to change specifications without notice for product development and improvement.

General notes for specifiers and contractors

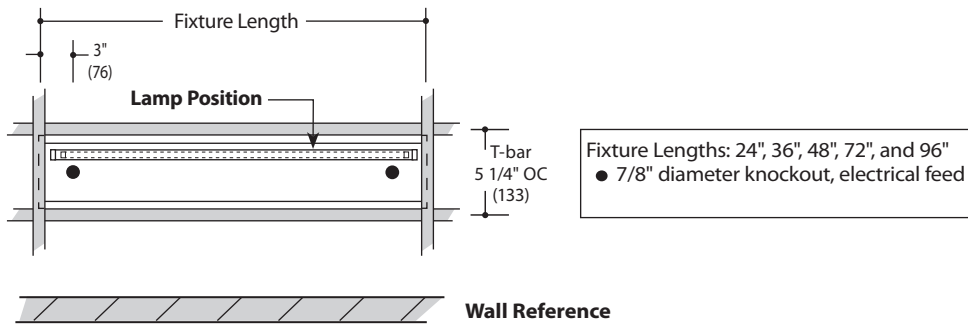
1. Fixtures may be mounted in exposed grid ceilings, either as individual units, or in rows, for continuous light.
2. Suffixes for individual fixtures (IND), and row fixtures (INT, EOR/LH, EOR/RH) should be shown on electrical and reflected ceiling plans, together with fixture type designations and lengths. Example: B-EOR/LH-2', B-INT-6'; B-IND-4'. These will be shown on order processing and carton labeling, and will assist with on-the-job installation.
3. Electrical and ceiling contractors should understand that this system is not a standard troffer construction (due to continuous light feature), so coordination between the two trades is essential.
4. All main tees and cross tees must be rigidly attached to each other (i.e. with angles and pop rivets, by others), so main tees will not twist or pivot under fixture weight. Additional supporting means may be necessary and required by local codes, to provide adequate support of ceiling grid in fixture areas. Knockouts are located in housing top for wiring. Access openings and cover plates are not provided.
5. Electrical contractor must attach T-bar clips, supplied by Litecontrol, after the fixtures have been installed.
6. Installation instructions for this fixture and all Litecontrol fixtures are available from your Litecontrol representative or by contacting the factory. Instructions are also provided with every fixture shipment.



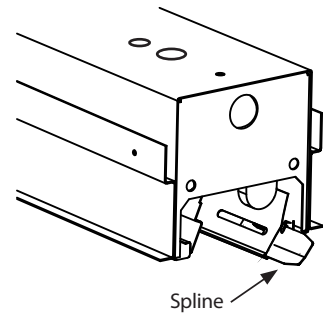
Planning for installation



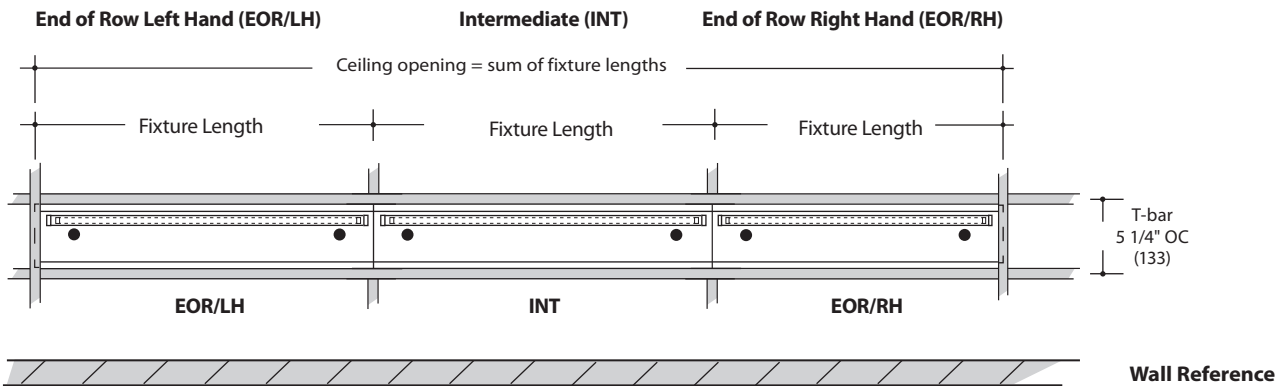
Individual Fixtures (IND)



Spline Detail



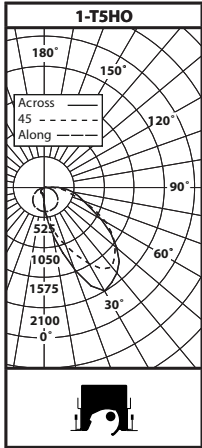
Row fixtures



Row is comprised of fixtures of standard lengths:

End of Row fixtures (EOR/LH & EOR/RH) are used at ends, Intermediate fixtures (INT) are used between other fixtures. Continuous opening in ceiling is framed by main tees parallel to row, spaced 5 1/4" OC and at end of row, spacing equal to the sum of the fixture lengths.

Photometric data



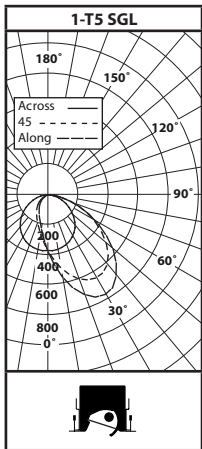
CANDLEPOWER SUMMARY					
ANGLE	0	45	90	135	180
90	3	3	6	138	223
85	2	2	25	271	379
80	6	9	61	377	503
75	32	23	103	489	607
70	36	47	147	722	718
65	52	64	182	970	890
60	60	86	219	1220	1132
55	84	111	249	1425	1388
50	95	130	278	1581	1619
45	104	121	306	1702	1812
40	119	120	332	1802	1932
35	120	115	353	1729	2011
30	109	120	374	1520	2068
25	113	128	386	1300	1883
20	122	142	394	1089	1537
15	128	150	407	916	1180
10	141	181	414	724	884
5	230	300	420	563	617
0	418	418	418	418	418

LG-WWD-4414T5HO 68.7% Efficiency																		
Litecontrol Certified Test Report #66016000																		
RCC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	82	82	82	82	80	80	80	80	76	76	76	73	73	73	70	70	69	
1	73	69	66	63	71	68	65	62	65	62	60	62	60	58	60	58	55	
2	66	59	54	49	64	58	53	49	55	51	48	53	50	46	51	48	44	
3	59	51	45	40	57	50	44	39	48	43	39	46	42	38	44	40	36	
4	54	44	38	33	52	44	37	32	42	36	32	40	35	31	38	34	29	
5	49	39	32	27	47	38	32	27	37	31	27	35	30	26	34	30	24	
6	45	35	28	23	43	34	28	23	33	27	23	31	26	23	30	26	21	
7	41	31	24	20	40	30	24	20	29	24	20	28	23	19	27	23	18	
8	38	28	22	17	37	27	21	17	27	21	17	26	21	17	25	20	15	
9	35	25	19	15	34	25	19	15	24	19	15	23	18	15	23	18	13	
10	33	23	17	13	32	23	17	13	22	17	13	21	17	13	21	16	12	

Floor Cavity Reflectance .20

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	% LAMP	% LUMINAIRE
180-90°	0	0	0
90-0°	3093	69	100
180-0°	3093	69	100

LUMINANCE SUMMARY (cd/m ²)			
ANGLE	0°	45°	90°
45°	1464	1704	4309
55°	1458	1927	4323
65°	1225	1508	4288
75°	1231	885	3963
85°	228	228	2856



CANDLEPOWER SUMMARY					
ANGLE	0	45	90	135	180
90	1	1	1	30	41
85	1	1	16	49	59
80	1	1	45	95	86
75	0	3	74	158	147
70	5	11	104	226	222
65	9	17	135	295	304
60	17	37	166	372	391
55	29	55	197	444	482
50	45	74	228	513	572
45	63	91	257	572	649
40	78	109	285	615	711
35	95	127	306	637	757
30	113	147	326	641	767
25	134	169	342	625	752
20	158	196	354	593	704
15	187	225	364	546	637
10	232	266	370	491	552
5	292	312	374	428	456
0	369	369	369	369	369

LG-WWD-4414T5-SGL 49.3% Efficiency																		
Litecontrol Certified Test Report #68316600																		
RCC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	59	59	59	59	57	57	57	57	55	55	55	52	52	52	50	50	49	
1	53	51	49	47	52	50	48	46	48	46	45	46	45	43	44	43	41	
2	49	44	41	38	47	44	40	38	42	39	37	40	38	36	39	37	34	
3	44	39	35	32	43	38	34	31	37	33	31	35	33	30	34	32	29	
4	40	34	30	27	39	34	30	26	33	29	26	31	28	26	30	28	24	
5	37	31	26	23	36	30	26	23	29	25	22	28	25	22	27	24	21	
6	34	28	23	20	33	27	23	20	26	22	20	25	22	19	25	22	18	
7	32	25	21	17	31	24	20	17	24	20	17	23	20	17	22	19	16	
8	29	23	18	15	29	22	18	15	22	18	15	21	18	15	20	17	14	
9	27	21	17	14	27	20	16	14	20	16	14	19	16	14	19	16	13	
10	26	19	15	12	25	19	15	12	18	15	12	18	15	12	17	14	11	

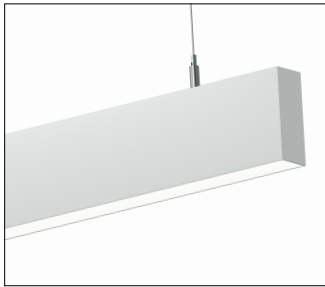
Floor Cavity Reflectance .20

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	% LAMP	% LUMINAIRE
180-90°	0	0	0
90-0°	1286	49	100
180-0°	1286	49	100

LUMINANCE SUMMARY (cd/m ²)			
ANGLE	0°	45°	90°
45°	1141	1648	4653
55°	647	1228	4397
65°	273	515	4089
75°	0	148	3660
85°	147	147	2350

M36[®] LED

Linear LED Direct **TYPE L1**
Surface, Pendant & Wall Mount



Project: _____

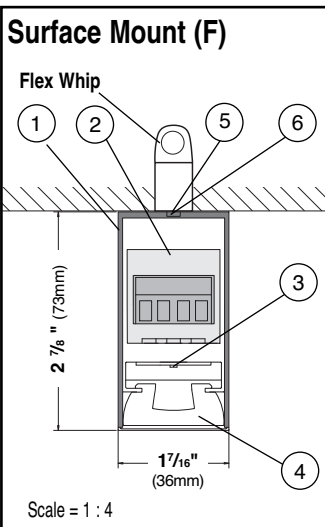
Type: _____ **Qty:** _____

L36 - - - - -
Series Light Engine CCT Shielding Mounting Nominal Length Finish Voltage

Options

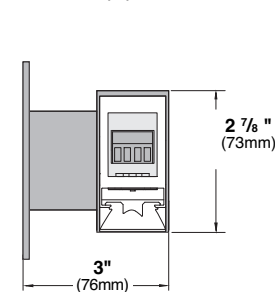
Series	Light Engine	CCT	Shielding	Mounting	Nominal Length	Finish	Voltage	Options
L36 M36 LED	1L35 100% Output	27 2700K 30 3000K	LW LED optimized white lens	F Surface Mount C Cable	01 1 ft. 02 2 ft.	WH White BK Black	120 277	DML¹ Dimming (0-10V) Logarithmic
	1L30 85% Output	35 3500K 40 4000K	MI Clear Lens with Microprism NB LMO symmetric	S Swivel Stem RS Rigid Stem W Wall Mount	03 3 ft. 04 4 ft. 05 5 ft. 06 6 ft. 07 7 ft. 08 8 ft.	SV Silver SP Specify Premium Color		DME¹ Lutron Eco-System Dimming
	1L25 70% Output		A2 LMO asymmetric 20° Wall Washer A5 LMO asymmetric 5° Wall Grazer					DM3¹ Lutron 3-Wire Dimming
	1L20 55% Output							DMD¹ Digital Addressable (DALI) Dimming
								DL Damp Location
								FW Flex Whip (Surface Mount Only)

¹ Must be minimum of 2 ft.



- Housing** - Continuous, 6063-T6 extruded aluminum profile up to 12 feet long. Joined with Connector Plus Joining System for ease of installation and to ensure a uniform appearance.
- Driver** - All drivers are Electronic Class 2, universal 120V/277V input. Standard Driver is Dimming (0-10V) linear or non-dimming depending on control. Other drivers are Lutron A-Series (DM3/DME), and 0-10V Logarithmic (DML) or DALI (DMD) dimming may be specified as well. 1ft length has a custom non-dimming driver.

Mounting Diagrams

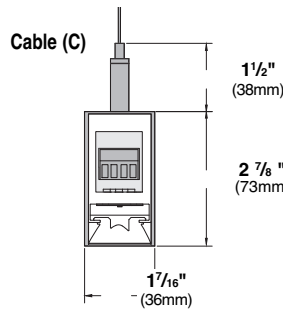


3. LED Light Engine - High efficiency LED light engine equipped with brand-name LEDs, available in 2700K, 3000K, 3500K, or 4000K. CCT tolerance within a 3-step MacAdam ellipse.

4. Shielding - LED optimized and impact resistant white acrylic diffuser, clear impact resistant acrylic lens with micro prismatic inlay, clear impact resistant acrylic symmetrical LMO lens, clear impact resistant acrylic 5° asymmetrical LMO lens or clear impact resistant acrylic 20° asymmetrical LMO lens.

5. Ø 7/8" Feed Hole - Drilled at factory 2 1/4" (57mm) from end of fixture. Whip option available, surface mount only.

6. Ø 9/32" Mounting Hole (1) - Drilled at factory 6 1/4" from end of fixture and nominally every 24" Mounting hardware supplied and



installed by others.

Linear Runs - Continuous run configurations are available in 1.514" steps. Due to driver integration, for lengths under 4ft. please consult factory. Round up length to nearest nominal foot to generate order code. Suspension points might not be symmetrical for certain run lengths. Please consult factory if symmetrical suspension locations are required.

Interior Luminaire Finish - Selux utilizes a high quality Polyester Powder Coating. All Selux luminaires are finished in our Tiger Drylac certified facility and undergo a five stage intensive pretreatment process where product is thoroughly cleaned, phosphated, and sealed. Selux powder coated products provide excellent salt and humidity resistance as well as ultra

Swivel/Rigid Stem (S/RS)



violet resistance for color retention. All products are tested in accordance with test specifications for coatings from ASTM and PCI. Standard interior colors are White (WH), Black (BK), and Silver (SV). Selux premium colors (SP) are available, please specify from your Selux color selection guide.

5 Year Limited LED Luminaire Warranty - Selux offers a 5 Year Limited Warranty to the original purchaser that the M36 LED luminaire shall be free from defects in material and workmanship for up to five (5) years from date of shipment. This limited warranty covers the fixture, LED driver and LED light engine when installed and operated according to Selux instructions. Fixture suitable for ambient temperature of 35° C (95° F). For details and exclusions, see "Selux Terms and Condition of Sale."

Listings and Ratings: Tested to IESNA LM-79-08 and LM-80 test standards at 25° C ambient temperature.

Selux Corp. © 2013
TEL (845) 834-1400
FAX (845) 834-1401
www.selux.us
L36-1113-01 (ss.v1.7)

Union Made Affiliated with IBEW Local 363

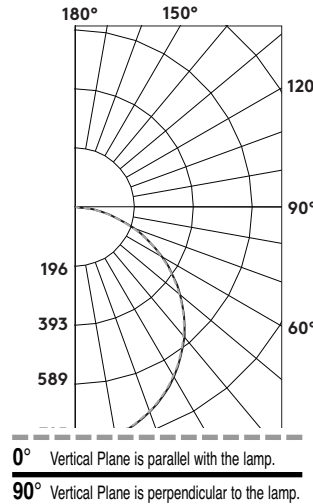
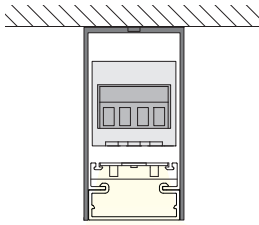
NRTL Listed for Damp Location (i.e. UL, CSA)



In a continuing effort to offer the best product possible, we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product. Specification sheets found at www.selux.us are the most recent versions and supercede all other printed or electronic versions.

Photometry

L36-LW / 180 LED / 4000K CCT



Catalog #: **L36-1L35-40-LW-04**
 Report #: **31435**
 Lamp: **180 white LEDs**
 Total Lumens: **2197**
 Luminaire Efficacy: **62 lm/W**
 Max Candela: **785 @ 2.5° from Vertical**
 Spacing Criterion (0-180): **1.26**
 Spacing Criterion (90-270): **1.24**
 Spacing Criterion (Diagonal): **1.38**

COEFFICIENTS OF UTILIZATION - Zonal cavity method

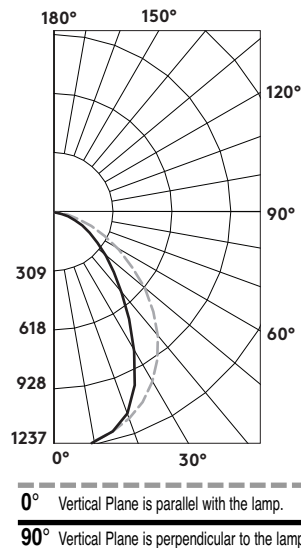
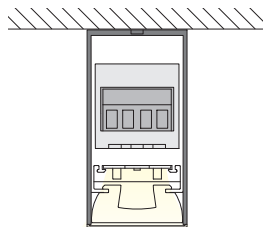
RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
1	109	104	100	96	106	102	98	94	97	94	91	94	91	88	90	88	86	84
2	99	91	84	78	96	89	82	77	85	80	75	82	77	73	79	75	72	70
3	90	79	71	65	88	78	70	64	75	68	63	72	67	62	70	65	61	59
4	82	70	62	55	80	69	61	54	67	59	54	64	58	53	62	57	52	50
5	76	63	54	47	74	62	53	47	60	52	46	58	51	46	56	50	45	43
6	70	57	48	41	68	56	47	41	54	46	41	52	45	40	51	45	40	38
7	65	51	43	36	63	50	42	36	49	41	36	47	41	36	46	40	35	33
8	60	47	38	32	59	46	38	32	45	37	32	44	37	32	42	36	32	30

CANDELA DISTRIBUTION					
	0	22.5	45	67.5	90
0	782	782	782	782	782
5	778	772	780	783	780
15	750	743	750	752	750
25	694	690	693	692	689
35	616	612	611	609	607
45	518	514	512	510	507
55	404	399	399	395	392
65	278	273	272	269	267
75	148	144	144	142	141
85	37	36	34	32	31
90	0	0	0	0	0

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT.
0-30	603.89	N.A.	27.50
0-40	986.15	N.A.	44.90
0-60	1736.16	N.A.	79.00
0-90	2196.89	N.A.	100.0
90-180	0	N.A.	0
0-180	2196.89	N.A.	100.0

DOWNLOAD IES FILE:
http://www.selux.us/fileadmin/us/interior/ies_file/M36_IES.zip

L36-NB / 180 LED / 4000K



Catalog #: **L36-1L35-40-NB-04**
 Report #: **31435-1**
 Lamp: **180 white LED**
 Total Lumens: **2638**
 Luminaire Efficacy: **74 lm/W**
 Max Candela: **1237 @ 5° from Vertical**
 Spacing Criterion (0-180): **1.24**
 Spacing Criterion (90-270): **1.08**
 Spacing Criterion (Diagonal): **1.22**

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
1	110	106	102	99	107	104	100	97	100	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	87	82	89	84	80	85	82	78	82	79	76	74
3	93	84	76	71	91	82	75	70	79	73	69	77	72	68	74	70	66	64
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39
8	64	52	44	38	63	51	43	38	50	43	38	49	42	38	47	42	37	36
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32
10	57	44	37	32	56	44	37	32	43	36	32	42	36	31	41	35	31	30

Effective Floor Cavity Reflectance 0.20

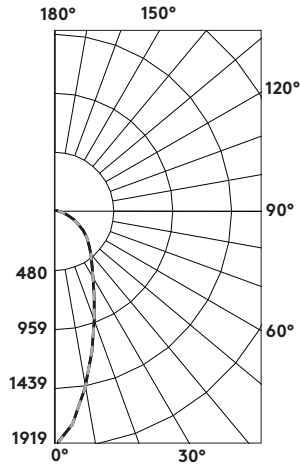
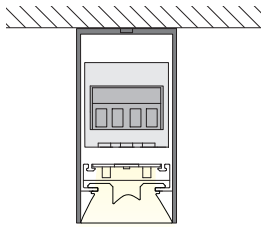
CANDELA DISTRIBUTION					
	0	22	45	67	90
0	1237	1237	1237	1237	1237
5	1232	1235	1228	1229	1235
15	1194	1190	1186	1186	1190
25	1102	1097	1074	1027	1001
35	955	938	851	730	685
45	761	726	584	478	444
55	532	491	373	301	276
65	315	285	217	175	161
75	141	128	98	82	76
85	25	23	18	16	16
90	.22	.11	.11	.11	.11

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT.
0-30	936.98	N.A.	35.50
0-40	1458.28	N.A.	55.30
0-60	2272.05	N.A.	86.10
0-90	2637.64	N.A.	100.0
90-180	.04	N.A.	0
0-180	2637.68	N.A.	100.0

DOWNLOAD IES FILE:
http://www.selux.us/fileadmin/us/interior/ies_file/M36_IES.zip

Photometry

L36-A5 / 180 LED / 4000K



0° Vertical Plane is parallel with the lamp.
90° Vertical Plane is perpendicular to the lamp.

Catalog #: **L36-1L35-40-A5-04**

Report #: **31435-3**

Lamp: **180 white LEDs**

Total Lumens: **2813**

Luminaire Efficacy: **79 lm/W**

Max Candela: **1919 @ 5° from Vertical**

Spacing Criterion (0-180): **1.08**

Spacing Criterion (90-270): **0.76**

Spacing Criterion (Diagonal): **0.94**

DOWNLOAD IES FILE:

http://www.selux.us/fileadmin/us/interior/ies_file/M36_IES.zip

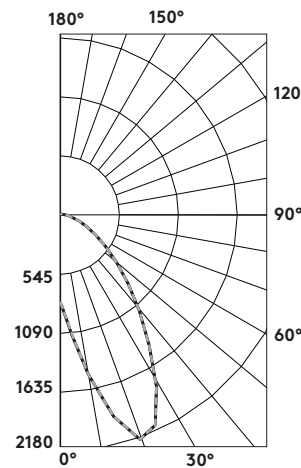
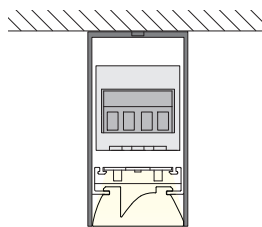
RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	93	91	89	87
2	102	95	89	84	99	93	88	83	89	85	81	86	83	79	83	80	77	75
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66
4	87	77	69	63	85	75	68	62	73	67	62	71	65	61	69	64	60	58
5	81	70	61	56	79	68	61	55	66	60	55	65	59	54	63	58	54	52
6	75	63	55	50	74	63	55	49	61	54	49	59	53	49	58	52	48	46
7	71	58	50	45	69	58	50	45	56	49	44	55	49	44	53	48	44	42
8	66	54	46	41	65	53	46	41	52	45	40	51	45	40	50	44	40	38
9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37	35
10	59	47	39	34	58	46	39	34	45	39	34	44	38	34	43	38	34	32

Effective Floor Cavity Reflectance 0.20

CANDELA DISTRIBUTION					
0	0	22	45	67	90
5	1898	1898	1898	1898	1898
15	1886	1827	1765	1724	1726
25	1740	1577	1361	1217	1175
35	1485	1257	970	810	766
45	1161	946	682	562	533
55	828	676	483	410	399
65	540	454	334	295	289
75	316	273	208	182	177
85	146	128	97	80	78
90	27	23	17	15	14
	.88	.88	.55	.33	.22

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT.
0-30	1120.58	N.A.	39.80
0-40	1635.33	N.A.	58.10
0-60	2440.77	N.A.	86.60
0-90	2816.87	N.A.	100.0
90-180	.12	N.A.	0
0-180	2816.99	N.A.	100.0

L36-A2 / 180 LED / 4000K



0° Vertical Plane is parallel with the lamp.
90° Vertical Plane is perpendicular to the lamp.

Catalog #: **L36-1L35-40-A2-04**

Report #: **31435-2**

Lamp: **180 white LEDs**

Total Lumens: **2657**

Luminaire Efficacy: **75 lm/W**

Max Candela: **2179 @ 20° from Vertical**

Spacing Criterion (0-180): **1.18**

Spacing Criterion (90-270): **0.52**

Spacing Criterion (Diagonal): **1.58**

DOWNLOAD IES FILE:

http://www.selux.us/fileadmin/us/interior/ies_file/M36_IES.zip

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
1	110	105	101	98	107	103	100	96	99	96	93	95	93	91	91	90	88	86
2	101	93	87	81	98	91	85	80	88	83	78	84	80	77	81	78	75	73
3	92	82	75	68	90	81	74	68	78	72	67	75	70	66	73	68	64	62
4	85	73	65	59	82	72	64	58	70	63	57	67	61	57	65	60	56	54
5	78	66	57	51	76	65	57	51	63	56	50	61	54	50	59	53	49	47
6	72	59	51	45	70	58	50	44	57	49	44	55	49	44	54	48	43	41
7	67	54	46	40	65	53	45	39	52	44	39	50	44	39	49	43	39	37
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33
9	58	45	37	32	57	45	37	32	44	37	32	43	36	31	42	36	31	30
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27

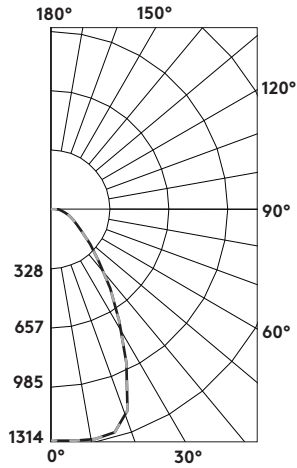
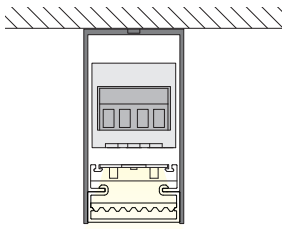
Effective Floor Cavity Reflectance 0.20

CANDELA DISTRIBUTION					
0	22	45	67	90	
0	824	824	824	824	824
5	818	740	680	647	641
15	775	597	499	458	447
25	699	485	394	352	342
35	595	395	318	288	283
45	476	314	257	240	240
55	352	238	197	188	196
65	230	160	132	129	136
75	115	83	66	63	63
85	25	18	13	9.9	9
90	.11	.22	.11	.11	.11

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT.
0-30	828.94	N.A.	31.20
0-40	1368.38	N.A.	51.50
0-60	2247.76	N.A.	84.60
0-90	2657.1	N.A.	100.0
90-180	.04	N.A.	0
0-180	2657.14	N.A.	100.0

Photometry

L36-MI / 180 LED / 4000K



0° Vertical Plane is parallel with the lamp.
90° Vertical Plane is perpendicular to the lamp.

RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
1	112	108	105	102	109	106	103	100	102	99	97	98	96	94	94	93	91	89	89	89	89
2	104	98	92	88	102	96	91	87	92	88	85	89	86	83	86	84	81	79	79	79	79
3	97	89	82	77	95	87	81	76	84	79	75	82	77	74	79	76	73	71	71	71	71
4	90	81	74	68	88	79	73	68	77	71	67	75	70	66	73	69	65	63	63	63	63
5	84	74	66	61	83	73	66	61	71	65	60	69	64	60	67	63	59	57	57	57	57
6	79	68	60	55	77	67	60	55	65	59	54	64	58	54	62	57	54	52	52	52	52
7	74	63	55	50	73	62	55	50	61	54	50	59	54	49	58	53	49	47	47	47	47
8	70	58	51	46	68	57	51	46	56	50	45	55	49	45	54	49	45	43	43	43	43
9	66	54	47	42	64	54	47	42	52	46	42	51	46	42	51	45	42	40	40	40	40
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	38	37	37	37	37

Effective Floor Cavity Reflectance 0.20

CANDELA DISTRIBUTION					
0	22	45	67	90	
5	1306	1306	1306	1306	1306
15	1299	1299	1296	1298	1308
25	1252	1262	1277	1289	1302
35	1149	1175	1149	1020	956
45	968	946	669	578	546
55	533	439	362	299	281
65	201	208	190	162	150
75	112	116	102	91	89
85	59	52	43	39	38
90	9.7	7.4	6.3	6.3	6.3
	.11	.11	.11	0	0

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT.
0-30	980.97	N.A.	47.40
0-40	1437.23	N.A.	69.50
0-60	1906.40	N.A.	92.20
0-90	2068.18	N.A.	100.0
90-180	.02	N.A.	0
0-180	2068.63	N.A.	100.0

Catalog #: L36-1L35-40-MI-04

Report #: 6453-1

Lamp: 180 white LEDs

Total Lumens: 2068

Luminaire Efficacy: 58 lm/W

Max Candela: 1314 @ 10° from Vertical

Spacing Criterion (0-180): 1.22

Spacing Criterion (90-270): 1.00

Spacing Criterion (Diagonal): 1.04

DOWNLOAD IES FILE:

http://www.selux.us/fileadmin/us/interior/ies_file/M36_IES.zip

Conversion Chart (Values based on 4000K)	
CCT	Multiply
2700K	
3000K	0.93
3500K	0.98
4000K	1.00

Energy Consumption for Non-Dimming Luminaires

Fixture Length	1ft	2ft	3ft	4ft	5ft	6ft	7ft	8ft	RUN (approximate)
Standard Driver (0-10V) Linear	9.2W	17.7W	24.7W	35.3W	41.2W	54.2W	66.0W	73.1W	9.2W/ft.
DM3/DME Drivers at 277V	20.1W	26.7W	38.4W	43.9W	58.9W	72.6W	78.0W		9.8W/ft.
DML & DMD Driver	17.7W	24.7W	35.3W	41.2W	54.2W	66.0W	73.1W		9.2W/ft.

L36-1L35-35-NB-XX-4-XX

Lighting facts®
A Program of the U.S. DOE

Light Output (Lumens) **2603**
Watts **33.4**
Lumens per Watt (Efficacy) **77**

Color Accuracy
Color Rendering Index (CRI) **83**

Light Color
Correlated Color Temperature (CCT) **3555 (Bright White)**

LED Lumen Maintenance Projection at 25,000 Hours at 25°C Ambient* **95.04%**
Warranty** **Yes**

* Based on TM-21 projections for the light source.
** See www.lightingfacts.com/products for details.

Registration Number: WVZA-R2XNAC (2/20/2013)
Model Number: L36-1L35-35-NB-XX-4-XX
Type: Surface-mounted fixture (other)

L36-1L35-30-A2-XX-4T-XX

Lighting facts®
A Program of the U.S. DOE

Light Output (Lumens) **2553**
Watts **34.9**
Lumens per Watt (Efficacy) **73**

Color Accuracy
Color Rendering Index (CRI) **85**

Light Color
Correlated Color Temperature (CCT) **3088 (Bright White)**

LED Lumen Maintenance Projection at 25,000 Hours at 25°C Ambient* **95.04%**
Warranty** **Yes**

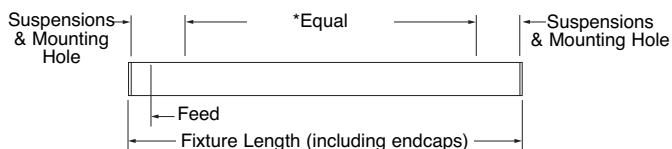
* Based on TM-21 projections for the light source.
** See www.lightingfacts.com/products for details.

Registration Number: WVZA-78PERV (2/20/2013)
Model Number: L36-1L35-30-A2-XX-4T-XX
Type: Wall wash fixture

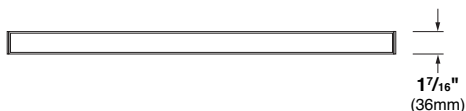
Surface & Pendant

*For Surface Mount lengths 3 ft. and greater - additional mounting holes are approximately every 24".

Nominal (4 foot shown) - Side view



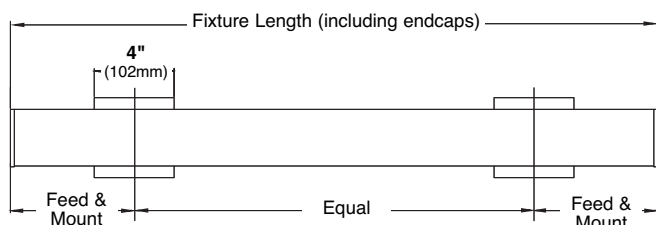
Nominal (4 foot shown) - Bottom view



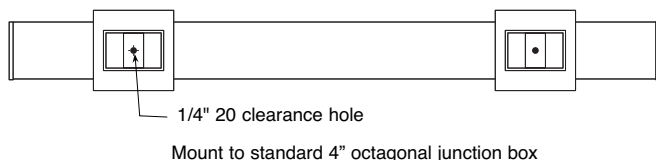
	L36 Single Linear LED		
	Fixture Length (including End Caps)	Suspensions	Feed
1' individual	11 ³ / ₁₆ " (285mm)	1 ¹¹ / ₁₆ " (43mm)	2 ³ / ₁₆ " (56mm)
2' individual	21 ¹³ / ₁₆ " (544mm)	1 ¹¹ / ₁₆ " (43mm)	2 ³ / ₁₆ " (56mm)
3' individual	32 ⁷ / ₁₆ " (823mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)
4' individual	46 ¹ / ₁₆ " (1169mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)
5' individual	58 ³ / ₁₆ " (1477mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)
6' individual	70 ⁴ / ₁₆ " (1785mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)
7' individual	85 ⁷ / ₁₆ " (2170mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)
8' individual	94 ⁸ / ₁₆ " (2400mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)

Wall

Front view



Back view



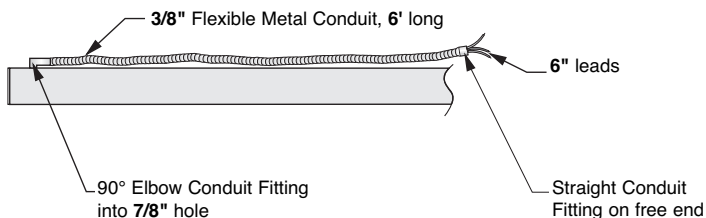
	L36 Single Linear LED Wall Mount	
	Fixture Length	Feed & Mount
1' individual	**N/A	**N/A
2' individual	21 ¹³ / ₁₆ " (544mm)	3 ³ / ₁₆ " (81mm)
3' individual	32 ⁷ / ₁₆ " (823mm)	6 ³ / ₁₆ " (157mm)
4' individual	46 ¹ / ₁₆ " (1169mm)	6 ³ / ₁₆ " (157mm)
5' individual	58 ³ / ₁₆ " (1477mm)	6 ³ / ₁₆ " (157mm)
6' individual	70 ⁴ / ₁₆ " (1785mm)	6 ³ / ₁₆ " (157mm)
7' individual	85 ⁷ / ₁₆ " (2170mm)	6 ³ / ₁₆ " (157mm)
8' individual	94 ⁸ / ₁₆ " (2400mm)	6 ³ / ₁₆ " (157mm)

** 1 ft. wall mount not available

For other lengths, lamping, continuous runs or configurations, please specify overall length (in feet), accessories desired and sketch/drawing of configuration. Selux will detail project drawings upon order and supply submittal drawings for approval. Individual fixtures cannot be field joined. If you have any questions please contact Selux customer service or applications engineering for assistance (1-800-SELUX-CS).

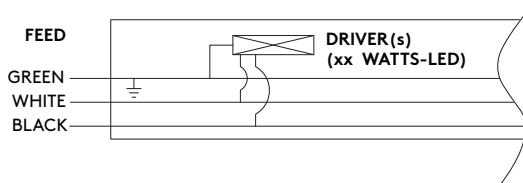
Option for Surface Mount Only: M36 LED Flex Whip

For wiring diagram, see below.

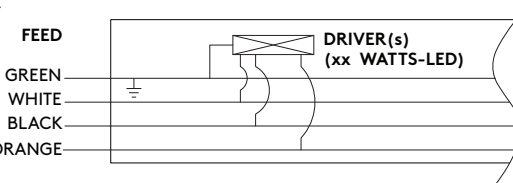


Wiring

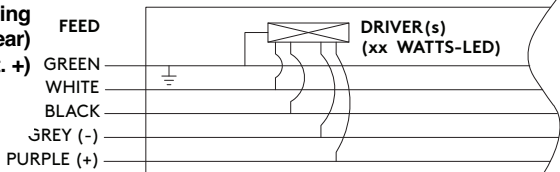
STANDARD Non-Dimming (1 ft.)



DM3** Lutron 3-Wire Dimming

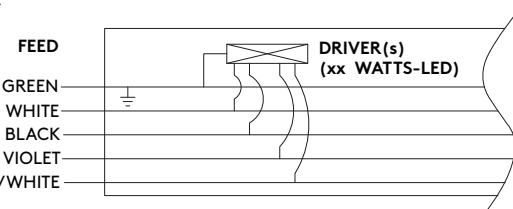


STANDARD* Dimming (0-10V Linear) (2 ft. +)

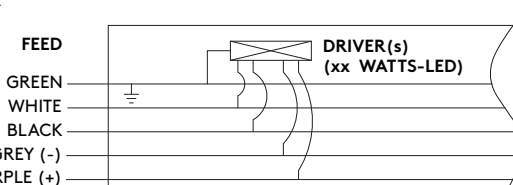


*Note: For non-dimming, cap Grey and Purple

DME** Lutron Eco-System Dimming



DML & DMD** Logarithmic & Digital Addressable (DALI) Dimming



**Not available for 1ft.

Standard Wiring Non-Dimming (1 ft.)	GREEN = Ground (Green) / WHITE = Neutral (White) BLACK = Hot (Black)
Standard Dimming, DML & DMD (2 ft. +)	GREEN = Ground (Green) / WHITE = Neutral (White) BLACK = Hot (Black) GREY = 'E1' Digital or 0-10V Dimming Control PURPLE = (+) DALI or 0-10V Dimming Control For Non-Dimming, cap Grey and Purple
DM3	GREEN = Ground (Green) / WHITE = Neutral (White) BLACK = Hot (Black) ORANGE = 3-Wire Dimming Control
DME	GREEN = Ground (Green) / WHITE = Neutral (White) BLACK = Hot (Black) VIOLET = 'E1' Digital Link Dimming Control VIOLET / WHITE = 'E2' Digital Link Dimming Control

Compatible Dimmers

DM3/DME Drivers:

Equipped with Lutron Hi-lume A-Series. For lengths 2 ft. thru 4 ft. inrush current < 2 A. For lengths 5 ft. thru 8 ft. inrush current < 4 A. Please visit Lutron's website at www.lutron.com for further information regarding dimmer and controller compatibility. Minimum dimming level down to 1%.

Standard Drivers Dimming (0-10V):

Equipped with 0-10V dimming drivers for linear dimming curve. Minimum dimming level preset to 1%. For lengths 2 ft. thru 5 ft. inrush current: 30mA²s @ 277V. For lengths 6 ft. thru 8 ft. inrush current: 60mA²s @ 277V. Consult factory for RUN. Driver manufacturer recommends the following dimmers, switches or dimming control systems.

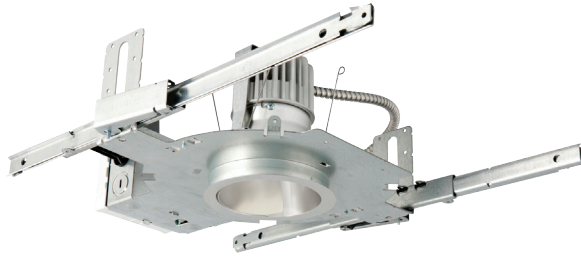
Dimmer & Switches Manufacturer	Website	Type	Recommended Driver Dimming Curve
Lutron Electronics	www.lutron.com/LEDtool	Nova T - NTFTV	Linear
		Diva - DVTV	
		Diva - NFTV	
Control Systems Manufacturer	www.lutron.com/LEDtool	GraphicEye - GRX-TVI w GRX3503	Linear
Lutron Electronics		Energy Savr Node - QSN-4T16S	
		TVM2 Module	

DML Drivers:

Equipped with 0-10V dimming drivers for logarithmic dimming curve. Minimum dimming level preset to 1%. For lengths 2 ft. thru 5 ft. inrush current: 30mA²s @ 277V. For lengths 6 ft. thru 8 ft. inrush current: 60mA²s @ 277V. Consult factory for RUN. Driver manufacturer recommends the following dimmers, switches or dimming control systems.

Dimmer & Switch Manufacturer	Website	Type	Recommended Driver Dimming Curve
Busch-Jaeger	www.busch-jaeger.de	2112U-101	Logarithmic
Jung	www.gb.jung.de	240-10	
Leviton Lighting Controls	www.leviton.com	IllumaTech - IP710-DLX	
Lightolier Controls	www.lightolier.com	ZP600FAM120	
Merten	www.merten.de	5729	
Pass & Seymour	www.legrand.us	CD4FB-W	
The Watt Stopper	www.wattstopper.com	DCLV1	

Luminaire Type:
Catalog Number
(autopopulated):



Gotham Architectural Downlighting
LED Downlights

4" Evo®
Open Wallwash

Solid-State Lighting

FEATURES

OPTICAL SYSTEM

- Self-flanged semi-specular, matte-diffuse or specular lower reflector
- Patented Bounding Ray™ optical design (U.S. Patent No. 5,800,050)
- 45° cutoff to source and source image
- Anodized kicker reflector

MECHANICAL SYSTEM

- 16-gauge galvanized steel construction; maximum 1-1/2" ceiling thickness
- Telescopic mounting bars maximum of 32" and minimum of 15", preinstalled, 4" vertical adjustment
- Toolless adjustments post installation
- Junction box capacity: 8 (4 in, 4 out) 12AWG rated for 90°C
- Light engine and driver accessible through aperture

ELECTRICAL SYSTEM

- Fully serviceable and upgradeable LED light engine
- 70% lumen maintenance at 60,000 hours based on IESNA LM-79-2008
- 120-277VAC, 50/60hz power supply with 0-10V dimming (10-100%); rated for 50,000-hour life
- Overload and short circuit protected

LISTINGS

- Fixtures are CSA certified to meet US and Canadian standards; wet location, covered ceiling

WARRANTY

- 5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

ORDERING INFORMATION

EXAMPLE: EVO WW 35/10 4AR 120

Series	Type	Color temperature	Nominal lumen values	Aperture/Trim color	Finish	Voltage	Driver
EVO	WW	27/ 2700 K	06 600 lumens	4AR Clear	(blank) Semi-specular	120	(blank) ² 0-10V dimming driver. Minimum dimming level 10% ECOS2 ^{3,4} Lutron® Hi-Lume® 2-wire forward-phase dimming driver. Minimum dimming level 1% ECOS3 ^{2,3} Lutron® Hi-Lume® 3-wire or EcoSystem® dimming driver. Minimum dimming level 1%
		30/ 3000 K	10 1000 lumens	4PR Pewter	LD Matte diffuse	277	
		35/ 3500 K	14 1400 lumens	4WTR Wheat	LS Specular	347	
		41/ 4100 K	18 1800 lumens	4GR Gold			
			20 2000 lumens	4WR ¹ White			

Options

SF	Single fuse	TRBL	Black painted flange
RRL	RELOC®-ready luminaire. Provides compatibility with Lithonia RELOC system. Access above ceiling required.	EL ⁵	Emergency battery pack with integral test switch
NEPP	Interface for Sensor Switch® nLight® network with integral power supply. Refer to TN-623-01 .	ELR ⁶	Emergency battery pack with remote test switch
TRW ⁵	White painted flange	CP ⁷	Chicago plenum
NSD	Sensor Switch® nLight® dimming relay. One 5A relay with one 0-10 VDC dimming output, shipped installed. Refer to nSP5-D .	BGTD	Bodine generator transfer device

ACCESSORIES order as separate catalog numbers (shipped separately)

CTA4-8 YK	Ceiling thickness adapter (extends mounting frame to accommodate ceiling thickness up to 2").
ISD BC	0-10V wallbox dimmer. Refer to ISD-BC .

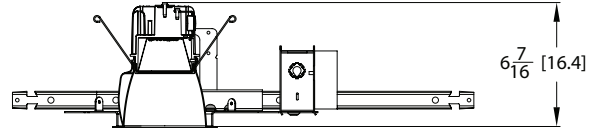
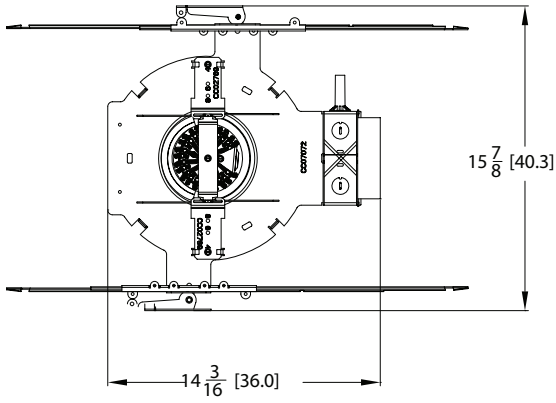
NOTES

ORDERING NOTES

1. Not available with finishes.
2. Refer to [TECH-240](#) for compatible dimmers.
3. Not available with NEPP option.
4. 120V only.
5. Not available with white reflector.
6. For dimensional changes, refer to [TECH-140](#). Access above ceiling required. Not available with CP option.
7. Not available with EL or ELR options.

DIMENSIONAL DATA

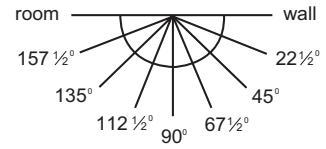
All dimensions are inches (centimeters) unless otherwise noted.



Aperture: 4-5/16 (11)
Ceiling Opening: 5-1/8 (13)
Overlap Trim: 5-7/16 (13.8)

TECHNICAL INFORMATION

Footcandle values are initial and tables are based on minimum of six units. For fixture-to-wall distance other than those shown, use maximum of one-to-one spacing (distance between fixtures not more than distance to wall) for best results.



Candlepower Data Footcandle values

EVO WW 35/10 4AR

INPUT WATTS: 20.5, DELIVERED LUMENS: 1012.4, LM/W=49.4, TEST NO. LTL21208

Vertical Angle	Plane angle					
	Wall 22.5	45	67.5	90	112.5	135 157.5
0	414	414	414	414	414	414
5	401	407	418	431	442	450
15	390	408	448	499	542	568
25	328	349	419	514	593	628
35	198	217	293	381	461	497
45	143	161	191	194	185	207
55	206	212	181	88	17	14
65	192	184	152	62	7	6
75	113	107	89	32	4	7
85	30	25	20	4	1	1
90	4	1	0	0	0	0

ft. from ceiling	Wallwash Illuminance Study (fc)								
	Illuminance on wall from 6 luminaires								
	Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall		
	3 ft. between luminaires			4 ft. between luminaires			5 ft. between luminaires		
1	19	18	19	15	12	15	14	8	14
2	23	24	23	17	17	17	15	13	15
3	15	15	15	10	12	10	8	10	8
4	11	11	11	8	9	8	6	7	6
5	10	10	10	8	8	8	6	6	6
6	9	9	9	7	7	7	6	6	6
7	8	8	8	6	6	6	5	5	5
8	7	7	7	5	5	5	4	4	4
9	6	6	6	4	4	4	3	4	3
10	5	5	5	4	4	4	3	3	3

EVO WW 35/14 4AR

INPUT WATTS: 26.3, DELIVERED LUMENS: 1368.2, LM/W=52.0, TEST NO. LTL21212

Vertical Angle	Plane angle					
	Wall 22.5	45	67.5	90	112.5	135 157.5
0	606	606	606	606	606	606
5	584	588	601	617	632	644
15	553	577	632	698	753	783
25	449	479	578	707	800	837
35	270	286	389	510	609	659
45	203	227	254	262	259	288
55	275	286	251	132	28	26
65	232	227	197	89	11	9
75	133	128	111	44	7	8
85	30	25	22	6	1	2
90	1	0	0	0	0	0

ft. from ceiling	Wallwash Illuminance Study (fc)								
	Illuminance on wall from 6 luminaires								
	Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall		
	3 ft. between luminaires			4 ft. between luminaires			5 ft. between luminaires		
1	23	21	23	18	15	18	17	10	17
2	31	31	31	23	23	23	20	16	20
3	20	21	20	15	16	15	11	14	11
4	15	15	15	11	12	11	9	10	9
5	14	13	14	10	10	10	8	8	8
6	12	12	12	9	9	9	7	7	7
7	11	10	11	8	8	8	7	7	7
8	9	9	9	7	7	7	6	6	6
9	8	8	8	6	6	6	5	5	5
10	6	7	6	5	5	5	4	4	4

EVO WW 35/18 4AR

INPUT WATTS: 29.0, DELIVERED LUMENS: 1682.7, LM/W=58.0, TEST NO. LTL21152

Vertical Angle	Plane angle					
	Wall 22.5	45	67.5	90	112.5	135 157.5
0	713	713	713	713	713	713
5	683	691	708	729	747	760
15	646	677	745	825	889	923
25	519	560	679	832	945	985
35	298	334	467	615	720	776
45	224	256	301	310	315	351
55	326	338	296	153	38	33
65	267	262	228	103	15	11
75	145	143	126	52	9	11
85	33	28	25	6	1	2
90	0	0	0	0	0	0

ft. from ceiling	Wallwash Illuminance Study (fc)								
	Illuminance on wall from 6 luminaires								
	Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall		
	3 ft. between luminaires			4 ft. between luminaires			5 ft. between luminaires		
1	26	24	26	21	17	21	19	11	19
2	36	36	36	27	26	27	24	19	24
3	23	24	23	16	19	16	13	16	13
4	17	17	17	13	14	13	10	11	10
5	16	15	16	12	12	12	9	10	9
6	14	15	14	11	11	11	9	9	9
7	12	12	12	9	10	9	8	8	8
8	11	11	11	8	8	8	7	7	7
9	9	9	9	7	7	7	6	6	6
10	8	8	8	6	6	6	5	5	5

PHOTOMETRY NOTES

- Tested in accordance with IESNA LM-79-08.
- Tested to current IES and NEMA standards under stabilized laboratory conditions.
- Actual performance may differ as a result of end-user environment and application.
- Actual wattage may differ by +/- 10% when operating between 120-277V +/- 10%.
- CRI: 83 typical.
- Consult factory or IES file for microgroove baffle, black cone or other photometric reports.

TYPE L3



trace™



features

Low wattage LED slot provides glowing transition between wall and ceiling.

Frosted lens with linear micro prism pattern obscures visibility to LED's and provides continuous, shadow-free illumination.

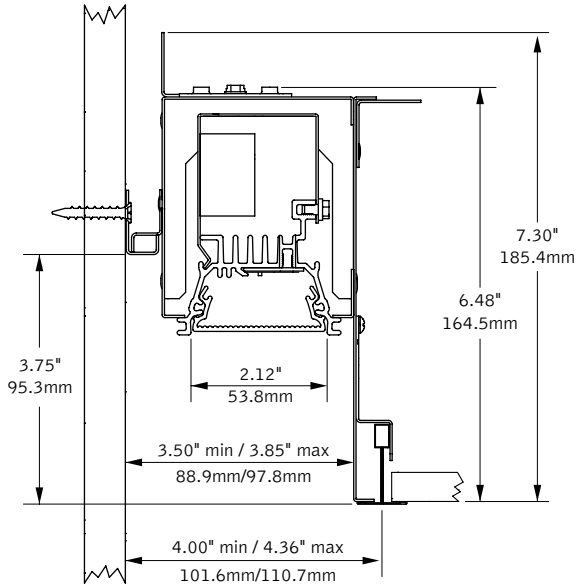
Housing creates 3" architectural slot.

Premium LEDs operate efficiently on a solid-core module platform to achieve excellent thermal management and reliable operation.

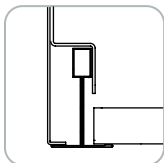
L70 at 50,000 hours

dimensional data

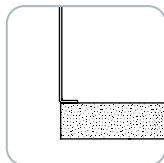
Grid Ceiling Shown



Mounting Details



Grid
15/16" or 9/16" Flat Tee
main runner required at edge.



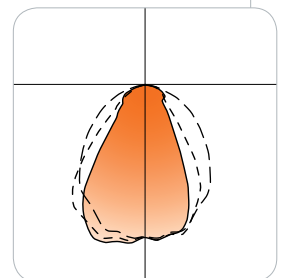
Drywall
Ceiling mounts below housing.

NOTE:
Luminaire must be installed prior to drywall ceiling.

performance

4' Luminaire
Delivered Lumens: 1207lm
Tested System Watts: 22.9W

Photometric performance is measured in accordance with IESNA LM-79.



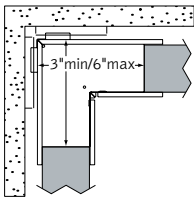
Visit focalpointlights.com for complete photometric data.

july 2013 F

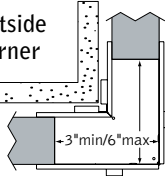
fixture:
project:

details

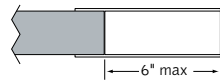
inside corner



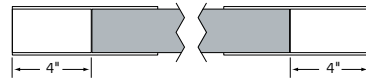
outside corner



sliding sleeve (ss)



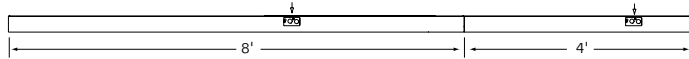
sliding sleeve pair (ssb)



Recommended to finish incremental lengths 6" or more.
Ex. 12'-8" opening with two 4" sliding sleeves.

notes: Luminaires must be installed prior to ceiling.
Corners and sliding sleeves do not integrate.

feed locations



12' Example. Each LED module requires an individual feed.
† indicates feed location.

specifications

led system

Proprietary linear LED module incorporates premium LEDs on a solid-core platform to achieve excellent thermal management. Module is available in 3000K or 3500K with CRI > 80. 0-10V dimming driver standard. LED module and driver are replaceable from below.

construction

- One piece .07" thick LED module housing of extruded aluminum.
- 20 Ga. steel outer housing creates floating ceiling effect and adjusts for alignment with walls.
- 20 Ga. steel internal bulkheads.
- 20 Ga. steel sliding sleeves and corners.

4' unit weight: 26 lbs

optic

Continuous illumination enabled by linear LED modules shielded by ribbed extruded frosted acrylic lens .06" thick with opal satin finish.
Extended outer housing provides cutoff to illuminated lens.

electrical

Standard 120-277V driver includes 0-10V analog dimming. Power factor > .9.

labels

UL and cUL listed.
Suitable for wood ceiling applications.

lifetime and warranty

LED system rated for 50,000 hours at 70% lumen output (L70). Rated life and lumen output based on maximum ambient temperature of 25°C. 5 year limited warranty.

finish

Polyester powder coat applied over a 5-stage pre-treatment.

ordering

luminaire series	FTRL	FTRL
Trace	FTRL	
shielding	AC	
Frosted Acrylic Diffuser	AC	
led system	LL1	
Standard Output	LL1	
color temperature		
3000K	L30	
3500K	L35	
circuits	1C	
Single Circuit	1C	
voltage		
120 Volt	120	
277 Volt	277	
driver	LD1	
0-10V Dimming	LD1	
mounting		
Grid	G	
Drywall	XF	
factory options		
Chicago Plenum	CP	
Emergency Circuit*	EC	
Flanged Ends (specify when ends do not terminate at a wall)	FL	
HLR/GLR Fuse	FU	
Sliding Sleeve (default location at right end of run)	SS	
Sliding Sleeve Pair (recommended to finish incremental lengths 6" or more. Ex. 12'-8" opening)	SSB	
finish	WH	
Matte White Housing	WH	
luminaire length		
Specify luminaire/row length in 1' increments (3' minimum)	XX'	
corner options		
90-degree Inside Corner	FTRL-IC90	
90-degree Outside Corner	FTRL-OC90	

* for more information see Reference section.

Trace & Focus IV Comparison

6' corridor, 9' ceiling | 80/50/20 reflectances

	Avg FC	Uniformity (Avg/Min)	W/sq ft.
Trace — Floor	16.63	1.85	0.958
Focus IV (1T8) — Floor	14.90	1.35	1.458
Trace — Wall	24.26	8.09	
Focus IV — Wall	13.84	4.61	

floor

Trace (Standard Output)

16	19	22	23	23	23	23	21	19	16
14	17	19	20	20	20	20	19	17	14
9	11	12	12	13	13	12	12	11	9

Focus IV (1T8)

12	15	16	17	18	18	17	16	15	12
12	14	16	16	17	17	16	15	14	12
11	13	15	16	16	16	16	15	13	11

wall

Trace (Standard Output)

92	97	107	94	84	86	97	107	95	85
11	12	12	12	12	12	12	12	12	12
5	6	6	6	6	6	6	6	6	6
4	5	5	5	5	5	5	5	5	5
3	4	4	5	5	5	5	4	4	3

Focus IV (1T8)

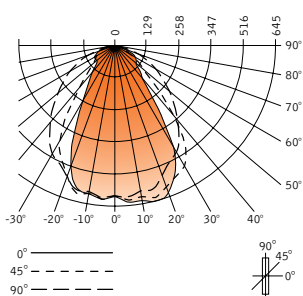
41	43	45	42	39	40	42	45	42	41
11	13	13	13	13	13	13	13	13	12
5	6	6	6	6	6	6	6	6	5
5	5	5	5	5	5	5	5	5	4
3	4	4	4	4	4	4	4	4	3

trace™

LED System: Standard Output
 Filename: FTRLLL1L30G.IES
 Catalog #: FTRL-AC-LL1-L30-1C-120-LD1-G-WH-4'
 Test #: 16610.0
 Tested System Watts: 22.9W



CANDLEPOWER DISTRIBUTION



Vertical Angle	Horizontal Angle					Zonal Lumens
	0°	45°	90°	135°	180°	
0°	601	601	601	601	601	601
5°	629	619	608	614	616	59
15°	645	629	594	607	588	173
25°	572	581	521	502	378	243
35°	311	499	459	331	170	242
45°	153	258	347	146	95	194
55°	111	133	245	86	90	143
65°	71	95	157	77	71	88
75°	31	46	73	46	38	48
85°	5	11	15	16	11	16
90°	0	0	0	0	0	0
95°	0	0	0	0	0	0
105°	0	0	0	0	0	0
115°	0	0	0	0	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0

LUMEN SUMMARY

Zone	Lumens	% Fixt	
0°-30°	475	39.4	
0°-40°	717	59.4	
0°-60°	1054	87.3	
0°-90°	1207	100	
Total Luminaire	0°-180°	1207	100

M36 LED

Recessed Linear LED Slot Grid

TYPE L4

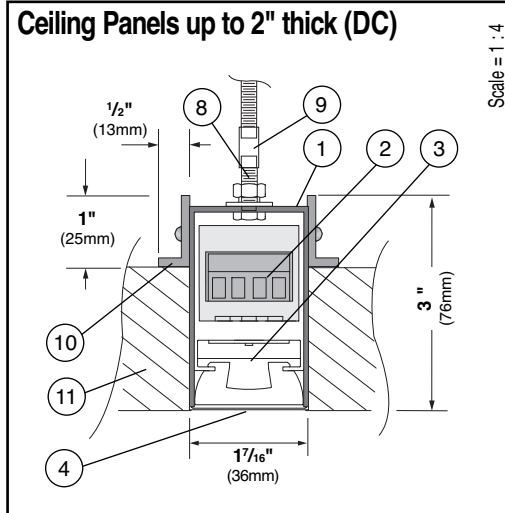
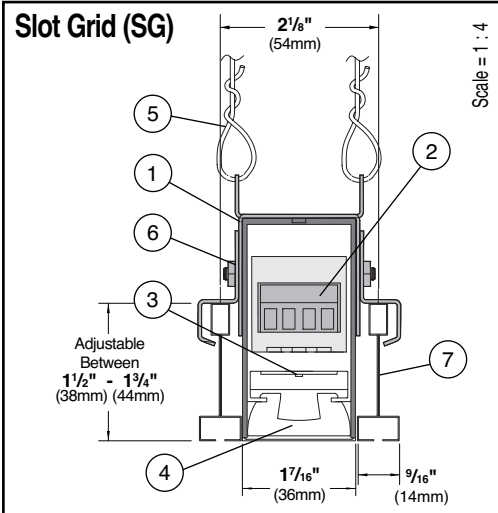


Project: _____

Type: _____ **Qty:** _____

L36								
Series	Light Engine	CCT	Shielding	Mounting	Nominal Length	Finish	Voltage	
Options								

Series	Light Engine	CCT	Shielding	Mounting	Nominal Length	Finish	Voltage	Options
L36 M36 Direct Linear LED Multi-Mount Form	1L35 100% Output	30 3000K	LW LED optimized white lens	SG Slot Grid	02 2 ft.	WH White	120	DML ¹ Dimming (0-10V) Logarithmic
		35 3500K		DC Ceiling Panels up to 2" thick (lengths per submittal drawings)	04 4 ft.	BK Black	277	
	1L30 85% Output	40 4000K	MI Clear Lens with Microprism		05 ⁴ 5 ft.	SV Silver		DME ¹ Lutron Eco-System Dimming
	1L25 70% Output		NB LMO symmetric A2 LMO asymmetric 20° Wall Washer		06 6 ft.	SP Specify Premium Color		DM3 ¹ Lutron 3-Wire Dimming
	1L20 55% Output		A5 LMO asymmetric 5° Wall Grazer		08 8 ft.			DMD ¹ Digital Addressable (DALI) Dimming DL Damp Location EMN ³ Emergency Battery Pack
<small>1 Consult factory for less than 2 ft. fixture length. 2 Not available in combination with EMN. 3 Minimum length of 4ft. required. 4 For 5 ft. dimming, consult factory.</small>								



- 1. Housing** - Continuous, 6063-T6 extruded aluminum profile up to 12 feet long. Joined with Connector Plus Joining System for ease of installation and to ensure a uniform appearance. For use in insulated ceilings, designed for direct contact with thermal insulation.
- 2. Driver** - Electronic Class 2 driver, universal for 120V/277V. Standard driver dimmable with trailing edge dimmers, high efficiency, PFC>0.95, soft start. Lutron A-Series (DM3/DME), 0-10V Linear (DM) and 0-10V Logarithmic (DML) or DALI (DMD) dimming may be specified as well.
- 3. LED Light Engine** - High efficiency LED light engine equipped with brand-name LEDs,

- available in 3000K, 3500K or 4000K. CCT tolerance within a 3-step MacAdam ellipse.
- 4. Shielding** - LED optimized and impact resistant white acrylic diffuser, clear impact resistant acrylic lens with micro prismatic inlay, clear impact resistant acrylic symmetrical LMO lens, clear impact resistant acrylic 5° asymmetrical LMO lens or clear impact resistant acrylic 20° asymmetrical LMO lens.
- 5. Support Wire to Structure** - Supplied and installed by others.
- 6. Support Bracket** - See page 3 for locations on luminaire.

- 7. Slot Grid Beam and Cross Tees** - Supplied and installed by others.
- 8. Pre-installed 1" 1/4-20 Stud** - See page 3 for details.
- 9. Coupling and Threaded Rod to Structure** - Supplied and installed by others.
- 10. Aluminum Angle Brackets** - Run entire length of fixture to block view into plenum area from below fixture.
- 11. Ceiling Panels up to 2" Thick** - Supplied and installed by others. Suitable for Decoustic® ceiling panel installations. Other ceiling systems possible, please consult factory. Decoustic® is a registered trademark of Decoustics Ltd. Corporation.

12. Flex Whip - (not shown) Standard and dimming wiring. See p.4 for details.

13. Stand-by Battery Pack - (not shown) Mounted on top of and accessible through fixture housing. See p.4 for details.

Linear Runs - Continuous run configurations are available in 1.55" steps. Due to driver integration, for lengths under 4ft. please consult factory. Round up length to nearest nominal foot to generate order code. Suspension points might not be symmetrical for certain run length. Please consult factory if symmetrical suspension locations are required.

Interior Luminaire Finish - Selux utilizes a high quality Polyester Powder Coating. All Selux luminaires are finished in our Tiger Drylac certified facility and undergo a five stage intensive pretreatment process where product is thoroughly cleaned, phosphated, and sealed. Selux powder coated products provide excellent salt and humidity resistance as well as ultra violet resistance for color retention. All products are tested in accordance with test specifications for coatings from ASTM and PCI.

Standard interior colors are White (WH), Black (BK), and Silver (SV). Selux premium colors (SP) are available, please specify from your Selux color selection guide.

5 Year Limited LED Luminaire Warranty - Selux offers a 5 Year Limited Warranty to the original purchaser that the M36 series LED luminaire shall be free from defects in material and workmanship for up to five (5) years from date of shipment. This limited warranty covers the fixture, LED driver and LED light engine when installed and operated according to Selux instructions. Fixture suitable for ambient temperature of 35° C (95° F). For details and exclusions, see "Selux Terms and Condition of Sale."

Listings and Ratings: Tested to IESNA LM-79-08 and LM-80 test standards at 25° C ambient temperature.

Selux Corp. © 2013
TEL (845) 834-1400
FAX (845) 834-1401
www.selux.us
L36-SG-1113-01 (ss-v1.5)

Union Made Affiliated
with IBEW Local 363

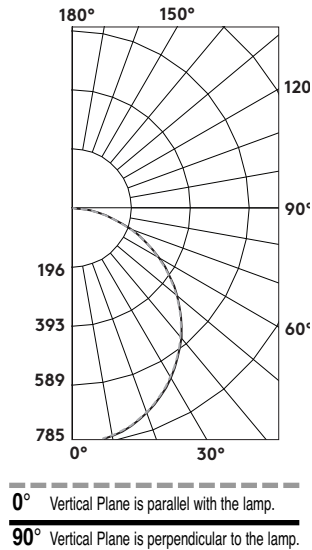
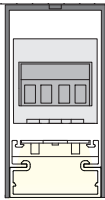
NRTL Listed for Damp
Location (i.e. UL, CSA)



In a continuing effort to offer the best product possible, we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product. Specification sheets found at www.selux.us are the most recent versions and supercede all other printed or electronic versions.

Photometry

L36-LW / 180 LED / 4000K CCT



Catalog #: **L36-1L35-40-LW-04**
 Report #: **31435**
 Lamp: **180 white LEDs**
 Total Lumens: **2197**
 Luminaire Efficacy: **62 lm/W**
 Max Candela: **785 @ 2.5° from Vertical**
 Spacing Criterion (0-180): **1.26**
 Spacing Criterion (90-270): **1.24**
 Spacing Criterion (Diagonal): **1.38**

COEFFICIENTS OF UTILIZATION - Zonal cavity method

RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
1	109	104	100	96	106	102	98	94	97	94	91	94	91	88	90	88	86	84
2	99	91	84	78	96	89	82	77	85	80	75	82	77	73	79	75	72	70
3	90	79	71	65	88	78	70	64	75	68	63	72	67	62	70	65	61	59
4	82	70	62	55	80	69	61	54	67	59	54	64	58	53	62	57	52	50
5	76	63	54	47	74	62	53	47	60	52	46	58	51	46	56	50	45	43
6	70	57	48	41	68	56	47	41	54	46	41	52	45	40	51	45	40	38
7	65	51	43	36	63	50	42	36	49	41	36	47	41	36	46	40	35	33
8	60	47	38	32	59	46	38	32	45	37	32	44	37	32	42	36	32	30
9	56	43	35	29	55	42	34	29	41	34	29	40	34	29	39	33	29	27
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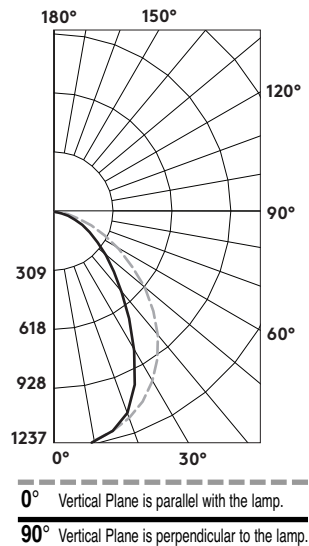
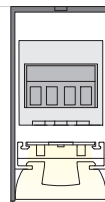
Effective Floor Cavity Reflectance 0.20

	CANDELA DISTRIBUTION				
	0	22.5	45	67.5	90
0	782	782	782	782	782
5	778	772	780	783	780
15	750	743	750	752	750
25	694	690	693	692	689
35	616	612	611	609	607
45	518	514	512	510	507
55	404	399	399	395	392
65	278	273	272	269	267
75	148	144	144	142	141
85	37	36	34	32	31
90	0	0	0	0	0

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT.
0-30	603.89	N.A.	27.50
0-40	986.15	N.A.	44.90
0-60	1736.16	N.A.	79.00
0-90	2196.89	N.A.	100.0
90-180	0	N.A.	0
0-180	2196.89	N.A.	100.0

DOWNLOAD IES FILE:
http://www.selux.us/fileadmin/us/interior/ies_file/M36_IES.zip

L36-NB / 180 LED / 4000K



Catalog #: **L36-1L35-40-NB-04**
 Report #: **31435-1**
 Lamp: **180 white LED**
 Total Lumens: **2638**
 Luminaire Efficacy: **74 lm/W**
 Max Candela: **1237 @ 5° from Vertical**
 Spacing Criterion (0-180): **1.24**
 Spacing Criterion (90-270): **1.08**
 Spacing Criterion (Diagonal): **1.22**

RW	0U				1U				2U				3U				4U				U
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	
1	110	106	102	99	107	104	100	97	100	97	94	96	93	91	92	90	89	87			
2	101	94	88	83	99	92	87	82	89	84	80	85	82	78	82	79	76	74			
3	93	84	76	71	91	82	75	70	79	73	69	77	72	68	74	70	66	64			
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56			
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50			
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44			
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39			
8	64	52	44	38	63	51	43	38	50	43	38	49	42	38	47	42	37	36			
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32			
10	57	44	37	32	56	44	37	32	43	36	32	42	36	31	41	35	31	30			

Effective Floor Cavity Reflectance 0.20

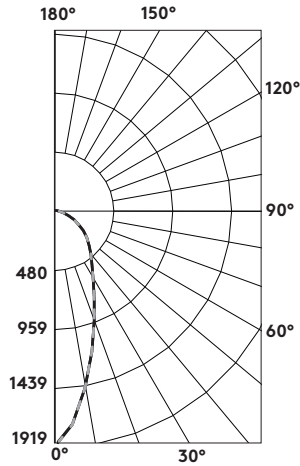
	CANDELA DISTRIBUTION				
	0	22	45	67	90
0	1237	1237	1237	1237	1237
5	1232	1235	1228	1229	1235
15	1194	1190	1186	1186	1190
25	1102	1097	1074	1027	1001
35	955	938	851	730	685
45	761	726	584	478	444
55	532	491	373	301	276
65	315	285	217	175	161
75	141	128	98	82	76
85	25	23	18	16	16
90	.22	.11	.11	.11	.11

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT.
0-30	936.98	N.A.	35.50
0-40	1458.28	N.A.	55.30
0-60	2272.05	N.A.	86.10
0-90	2637.64	N.A.	100.0
90-180	.04	N.A.	0
0-180	2637.68	N.A.	100.0

DOWNLOAD IES FILE:
http://www.selux.us/fileadmin/us/interior/ies_file/M36_IES.zip

Photometry

L36-A5 / 180 LED / 4000K



Catalog #: **L36-1L35-40-A5-04**
 Report #: **31435-3**
 Lamp: **180 white LEDs**
 Total Lumens: **2817**
 Luminaire Efficacy: **79 lm/W**
 Max Candela: **1919 @ 5° from Vertical**
 Spacing Criterion (0-180): **1.08**
 Spacing Criterion (90-270): **0.62**
 Spacing Criterion (Diagonal): **0.94**

KL	SU				/U				SU			SU			IU			U			
	RW	70	50	30	10	70	50	30	10	98	100	97	95	96	94	92	93		91	89	87
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	93	91	89	87			
2	102	95	89	84	99	93	88	83	89	85	81	86	83	79	83	80	77	75			
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66			
4	87	77	69	63	85	75	68	62	73	67	62	71	65	61	69	64	60	58			
5	81	70	61	56	79	68	61	55	66	60	55	65	59	54	63	58	54	52			
6	75	63	55	50	74	63	55	49	61	54	49	59	53	49	58	52	48	46			
7	71	58	50	45	69	58	50	45	56	49	44	55	49	44	53	48	44	42			
8	66	54	46	41	65	53	46	41	52	45	40	51	45	40	50	44	40	38			
9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37	35			
10	59	47	39	34	58	46	39	34	45	39	34	44	38	34	43	38	34	32			

Effective Floor Cavity Reflectance 0.20

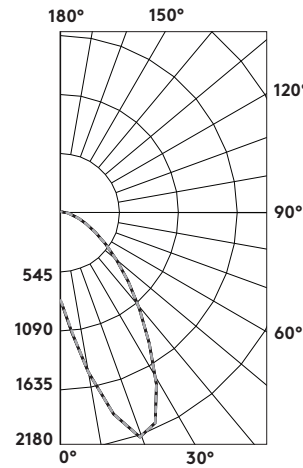
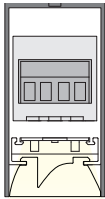
	0	22	45	67	90
0	1898	1898	1898	1898	1898
5	1886	1827	1765	1724	1726
15	1740	1577	1361	1217	1175
25	1485	1257	970	810	766
35	1161	946	682	562	533
45	828	676	483	410	399
55	540	454	334	295	289
65	316	273	208	182	177
75	146	128	97	80	78
85	27	23	17	15	14
90	.88	.88	.55	.33	.22

ZONE	LUMENS	%LAMP	%FIXT.
0-30	1120.58	N.A.	39.80
0-40	1635.33	N.A.	58.10
0-60	2440.77	N.A.	86.60
0-90	2816.87	N.A.	100.00
90-180	.12	N.A.	0
0-180	2816.99	N.A.	100.00

0° Vertical Plane is parallel with the lamp.
 90° Vertical Plane is perpendicular to the lamp.

DOWNLOAD IES FILE:
http://www.selux.us/fileadmin/us/interior/ies_file/M36_IES.zip

L36-A2 / 180 LED / 4000K



Catalog #: **L36-1L35-40-A2-04**
 Report #: **31435-2**
 Lamp: **180 white LEDs**
 Total Lumens: **2657**
 Luminaire Efficacy: **75 lm/W**
 Max Candela: **2179 @ 20° from Vertical**
 Spacing Criterion (0-180): **1.18**
 Spacing Criterion (90-270): **0.52**
 Spacing Criterion (Diagonal): **1.58**

KL	SU				/U				SU			SU			IU			U			
	RW	70	50	30	10	70	50	30	10	96	99	96	93	95	93	91	91		90	88	86
1	110	105	101	98	107	103	100	96	99	96	93	95	93	91	91	90	88	86			
2	101	93	87	81	98	91	85	80	88	83	78	84	80	77	81	78	75	73			
3	92	82	75	68	90	81	74	68	78	72	67	75	70	66	73	68	64	62			
4	85	73	65	59	82	72	64	58	70	63	57	67	61	57	65	60	56	54			
5	78	66	57	51	76	65	57	51	63	56	50	61	54	50	59	53	49	47			
6	72	59	51	45	70	58	50	44	57	49	44	55	49	44	54	48	43	41			
7	67	54	46	40	65	53	45	39	52	44	39	50	44	39	49	43	39	37			
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33			
9	58	45	37	32	57	45	37	32	44	37	32	43	36	31	42	36	31	30			
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27			

Effective Floor Cavity Reflectance 0.20

	0	22	45	67	90
0	824	824	824	824	824
5	818	740	680	647	641
15	775	597	499	458	447
25	699	485	394	352	342
35	595	395	318	288	283
45	476	314	257	240	240
55	352	238	197	188	196
65	230	160	132	129	136
75	115	83	66	63	63
85	25	18	13	9.9	9
90	.11	.22	.11	.11	.11

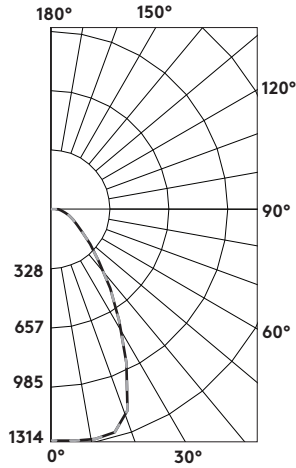
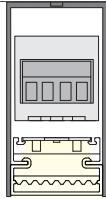
ZONE	LUMENS	%LAMP	%FIXT.
0-30	828.94	N.A.	31.20
0-40	1368.38	N.A.	51.50
0-60	2247.76	N.A.	84.60
0-90	2657.1	N.A.	100.00
90-180	.04	N.A.	0
0-180	2657.14	N.A.	100.00

0° Vertical Plane is parallel with the lamp.
 90° Vertical Plane is perpendicular to the lamp.

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Photometry

L36-MI / 180 LED / 4000K



0° Vertical Plane is parallel with the lamp.
90° Vertical Plane is perpendicular to the lamp.

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
1	112	108	105	102	109	106	103	100	102	99	97	98	96	94	94	93	91	89
2	104	98	92	88	102	96	91	87	92	88	85	89	86	83	86	84	81	79
3	97	89	82	77	95	87	81	76	84	79	75	82	77	74	79	76	73	71
4	90	81	74	68	88	79	73	68	77	71	67	75	70	66	73	69	65	63
5	84	74	66	61	83	73	66	61	71	65	60	69	64	60	67	63	59	57
6	79	68	60	55	77	67	60	55	65	59	54	64	58	54	62	57	54	52
7	74	63	55	50	73	62	55	50	61	54	50	59	54	49	58	53	49	47
8	70	58	51	46	68	57	51	46	56	50	45	55	49	45	54	49	45	43
9	66	54	47	42	64	54	47	42	52	46	42	51	46	42	51	45	42	40
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	38	37

Effective Floor Cavity Reflectance 0.20

CANDELA DISTRIBUTION					
	0	22	45	67	90
0	1306	1306	1306	1306	1306
5	1299	1299	1296	1298	1308
15	1252	1262	1277	1289	1302
25	1149	1175	1149	1020	956
35	968	946	669	578	546
45	533	439	362	299	281
55	201	208	190	162	150
65	112	116	102	91	89
75	59	52	43	39	38
85	9.7	7.4	6.3	6.3	6.3
90	.11	.11	.11	0	0

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT.
0-30	980.97	N.A.	47.40
0-40	1437.23	N.A.	69.50
0-60	1906.40	N.A.	92.20
0-90	2068.18	N.A.	100.0
90-180	.02	N.A.	0
0-180	2068.63	N.A.	100.0

Catalog #: **L36-1L35-40-MI-04**
 Report #: **6453-1**
 Lamp: **180 white LEDs**
 Total Lumens: **2068**
 Luminaire Efficacy: **58 lm/W**
 Max Candela: **1314 @ 10° from Vertical**
 Spacing Criterion (0-180): **1.22**
 Spacing Criterion (90-270): **1.00**
 Spacing Criterion (Diagonal): **1.04**

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Energy Consumption for Non-Dimming Luminaires

Fixture Length	1ft	2ft	3ft	4ft	5ft	6ft	7ft	8ft	RUN (approximate)
Standard Driver (0-10V) Linear	9.2W	17.7W	24.7W	35.3W	41.2W	54.2W	66.0W	73.1W	9.2W/ft.
DM3/DME Drivers at 277V		20.1W	26.7W	38.4W	43.9W	58.9W	72.6W	78.0W	9.8W/ft.
DML & DMD Driver		17.7W	24.7W	35.3W	41.2W	54.2W	66.0W	73.1W	9.2W/ft.

Conversion Chart (Values based on 4000K)

CCT	Multiply
3000K	0.93
3500K	0.98
4000K	1.00

L36-1L35-35-NB-XX-4-XX

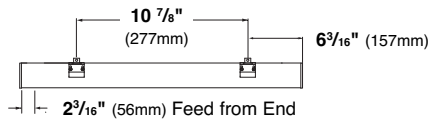


L36-1L35-30-A2-XX-4T-XX

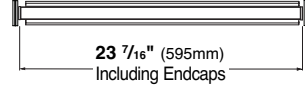


L36 Slot Grid Layout Dimensions

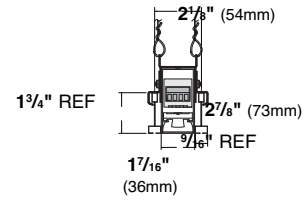
Nominal 2 foot Individual



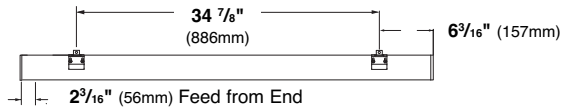
Bottom View



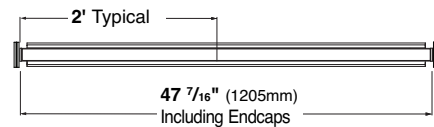
Typical End View (all lengths)



Nominal 4 foot Individual (SG Mounting shown)

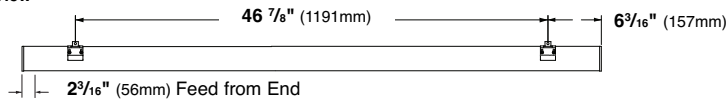


Bottom View

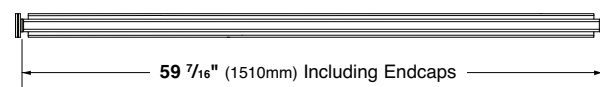


Nominal 5 foot Individual (SG Mounting shown)

Side View



Bottom View

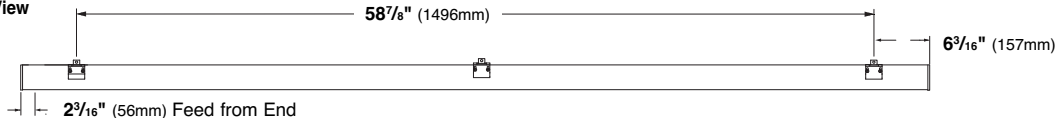


For other lengths, lamping, continuous runs or configurations please specify overall length (in feet), accessories desired and sketch/drawing of configuration. Selux will detail project drawings upon order and supply submittal drawings for approval. Individual fixtures cannot be field joined.

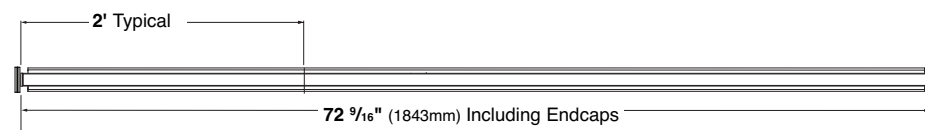
If you have any questions please contact Selux customer service or applications engineering for assistance (1-800-SELUX-CS).

Nominal 6 foot Individual (SG Mounting shown)

Side View



Bottom View

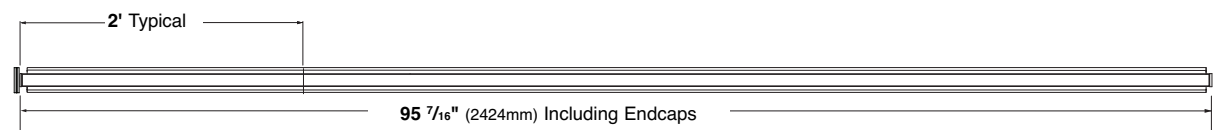


Nominal 8 foot Individual (SG Mounting shown)

Side View



Bottom View



L36 Slot Grid Layout Dimensions - DC Mountng

	L36 - DC		
	Fixture Length Incl. End Caps	Suspensions	Feed
1' individual	11 ³ / ₁₆ " (285mm)	1 ¹¹ / ₁₆ " (43mm)	3 ³ / ₁₆ " (81mm)
2' individual	21 ¹³ / ₁₆ " (554mm)	1 ¹¹ / ₁₆ " (43mm)	3 ³ / ₁₆ " (81mm)
3' individual	32 ⁷ / ₁₆ " (823mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)
4' individual	46 ¹ / ₁₆ " (1169mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)
5' individual	58 ³ / ₁₆ " (1477mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)
6' individual	70 ⁴ / ₁₆ " (1785mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)
7' individual	85 ⁷ / ₁₆ " (2170mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)
8' individual	94 ⁸ / ₁₆ " (2400mm)	6 ³ / ₁₆ " (157mm)	2 ³ / ₁₆ " (56mm)

For other lengths, lamping, continuous runs or configurations please specify overall length (in feet), accessories desired and sketch/drawing of configuration. Selux will detail project drawings upon order and supply submittal drawings for approval. Individual fixtures cannot be field joined. If you have any questions please contact Selux customer service or applications engineering for assistance (1-800-SELUX-CS).

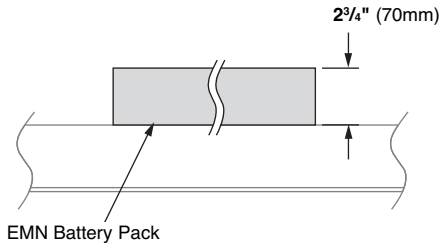
EMN Option / Flex Whips

M36 LED EMN Option

Stand-by Battery Packs mounted to top of fixture and can be maintained through fixture from below the ceiling.

For RUNS, please specify location of lit section (approx. 2ft.).

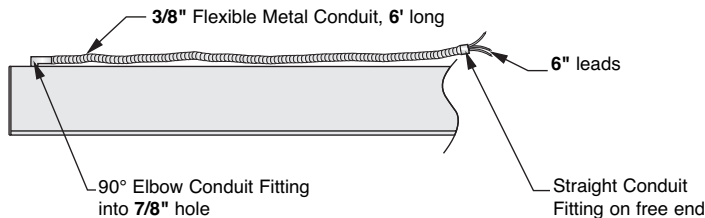
For Individual fixtures, the lit section will be located on the feed end of the luminaire.



EMN-model #	Input	Operation Duration	Fixture Lumen Output
ILB-2412	2.5W"	90min	600 lm (LW)

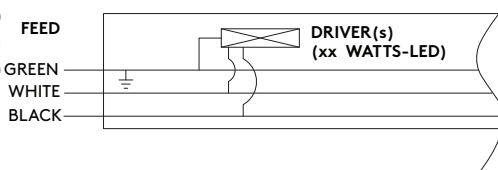
M36 LED Flex Whip

For wiring diagram, please see below.

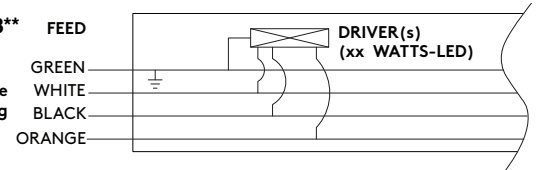


Wiring

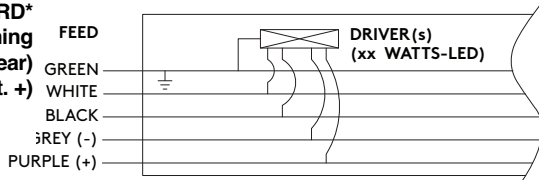
STANDARD Non-Dimming (1 ft.)



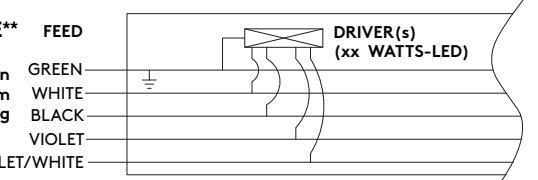
DM3** Lutron 3-Wire Dimming



STANDARD* Dimming (0-10V Linear) (2 ft. +)



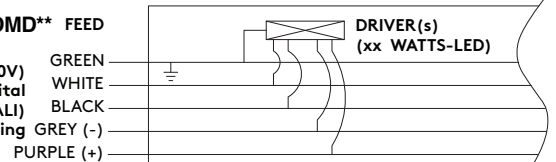
DME** Lutron Eco-System Dimming



*Note: For non-dimming, cap Grey and Purple

Standard Wiring Non-Dimming (1 ft.)	GREEN = Ground (Green) / WHITE = Neutral (White) BLACK = Hot (Black)
Standard Dimming, DML & DMD (2 ft. +)	GREEN = Ground (Green) / WHITE = Neutral (White) BLACK = Hot (Black) GREY = 'E1' Digital or 0-10V Dimming Control PURPLE = (+) DALI or 0-10V Dimming Control For Non-Dimming, cap Grey and Purple
DM3	GREEN = Ground (Green) / WHITE = Neutral (White) BLACK = Hot (Black) ORANGE = 3-Wire Dimming Control
DME	GREEN = Ground (Green) / WHITE = Neutral (White) BLACK = Hot (Black) VIOLET = 'E1' Digital Link Dimming Control VIOLET / WHITE = 'E2' Digital Link Dimming Control

DML & DMD** Logarithmic & Digital Addressable (DALI) Dimming



**Not available for 1ft.

Compatible Dimmers

DM3/DME Drivers:

Equipped with Lutron Hi-lume A-Series. For lengths 2 ft. thru 4 ft. inrush current < 2 A. For lengths 5 ft. thru 8 ft. inrush current < 4 A. Please visit Lutron's website at www.lutron.com for further information regarding dimmer and controller compatibility. Minimum dimming level down to 1%.

Standard Drivers Dimming (0-10V):

Equipped with 0-10V dimming drivers for linear dimming curve. Minimum dimming level preset to 1%. For lengths 2 ft. thru 5 ft. inrush current: 30mA²s @ 277V. For lengths 6 ft. thru 8 ft. inrush current: 60mA²s @ 277V. Consult factory for RUN. Driver manufacturer recommends the following dimmers, switches or dimming control systems.

Dimmer & Switches Manufacturer	Website	Type	Recommended Driver Dimming Curve
Lutron Electronics	www.lutron.com/LEDtool	Nova T - NTFTV	Linear
		Diva - DVTV	
		Diva - NFTV	
Control Systems Manufacturer	www.lutron.com/LEDtool	GraphicEye - GRX-TVI w GRX3503	Linear
Lutron Electronics		Energy Savr Node - QSN-4T16S	
		TVM2 Module	

DML Drivers:

Equipped with 0-10V dimming drivers for logarithmic dimming curve. Minimum dimming level preset to 1%. For lengths 2 ft. thru 5 ft. inrush current: 30mA²s @ 277V. For lengths 6 ft. thru 8 ft. inrush current: 60mA²s @ 277V. Consult factory for RUN. Driver manufacturer recommends the following dimmers, switches or dimming control systems.

Dimmer & Switch Manufacturer	Website	Type	Recommended Driver Dimming Curve
Busch-Jaeger	www.busch-jaeger.de	2112U-101	Logarithmic
Jung	www.gb.jung.de	240-10	
Leviton Lighting Controls	www.leviton.com	IlumaTech - IP710-DLX	
Lightolier Controls	www.lightolier.com	ZP600FAM120	
Merten	www.merten.de	5729	
Pass & Seymour	www.legrand.us	CD4FB-W	
The Watt Stopper	www.wattstopper.com	DCLV1	

M60 LED

Recessed Linear LED Slot Grid



selux

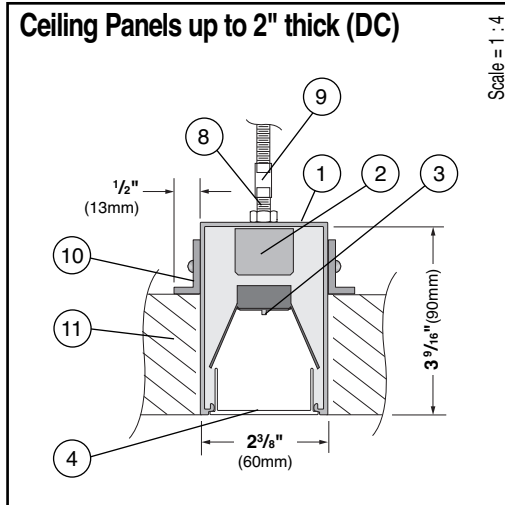
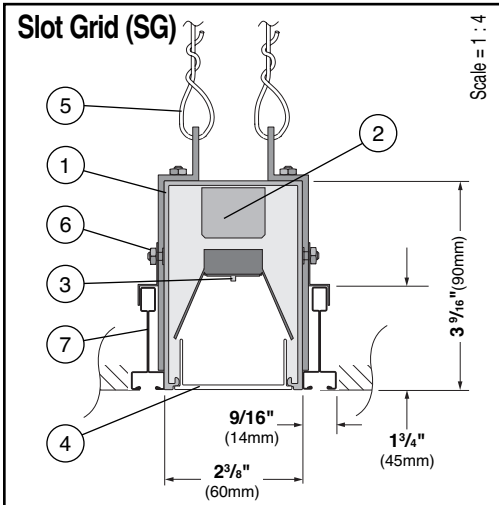


Project: _____

Type: _____ **Qty:** _____

L60U	1L35		LW					
Series	Light Engine	CCT	Optics	Mounting	Nominal Length	Finish	Options	Voltage

Series	Light Engine	CCT	Optics	Mounting	Nominal Length	Finish	Voltage	Options
L60U M60 Direct Linear LED Multi-Mount Form	1L35 Single Linear LED	27 2700K	LW LED optimized white lens	SG Slot Grid DC Ceiling Panels up to 2" thick (lengths per submittal drawings)	02 2 ft.	WH White BK Black SV Silver SP Specify Premium Color	120	DM ¹ Dimming (0-10V) Linear DML ¹ Dimming (0-10V) Logarithmic DME ¹ Lutron Eco-System Dimming DM3 ¹ Lutron 3-Wire Dimming DMD ¹ Digital Addressable (DALI) Dimming CCEA ² Chicago Plenum EMN ¹ Battery Pack DL Damp Location
		30 3000K 35 3500K 40 4000K			04 4 ft. 06 6 ft. 08 8 ft. RUN Create Run			
<p>¹ Consult factory for less than 2 ft. fixture length. ² Not available in combination with EMN.</p>								



- Housing** - Continuous, 6063-T6 extruded aluminum profile up to 12 feet long. Joined with Connector Plus Joining System for ease of installation and to ensure a uniform appearance. For use in insulated ceilings, designed for direct contact with thermal insulation.
- Driver** - Electronic Class 2 driver, universal for 120/277V, high efficiency, PFC>0.95, soft start. Lutron A-Series (DM3/DME), 0-10V Linear (DM) and 0-10V Logarithmic (DML) or DALI (DMD) dimming may be specified as well.
- LED Light Engine** - High efficiency LED light engine equipped with brand-name LEDs, available in 2700K, 3000K, 3500K or 4000K.

- CCT tolerance within a 3-step MacAdam ellipse.
- Shielding** - LED Optimized white acrylic diffuser lens.
 - Support Wire to Structure** - Supplied and installed by others.
 - Support Bracket** - See page 3 for locations on luminaire.
 - Slot Grid Beam and Cross Tees** - Supplied and installed by others.
 - Pre-installed 1" 1/4-20 Stud** - See page 3 for details.
 - Coupling and Threaded Rod to**

- Structure** - Supplied and installed by others.
- Aluminum Angle Brackets** - Run entire length of fixture to block view into plenum area from below fixture.
 - Ceiling Panels up to 2" Thick** - Supplied and installed by others. Suitable for Decoustic® ceiling panel installations. Other ceiling systems possible, please consult factory. Decoustic® is a registered trademark of Decoustics Ltd. Corporation.
 - Flex Whip** - (not shown) Standard and dimming wiring. See p.4 for details.
 - Stand-by Battery Pack** - (not shown) Mounted on top of and accessible through fixture housing. See p.4 for details.

Linear Runs - Continuous run configurations are available in 1/4" steps, starting at 8ft. Round up length to nearest nominal foot to generate order code. Suspension points might not be symmetrical for certain run length. Please consult factory if symmetrical suspension locations are required.

Interior Luminaire Finish - Selux utilizes a high quality Polyester Powder Coating. All Selux luminaires are finished in our Tiger Drylac certified facility and undergo a five stage intensive pretreatment process where product is thoroughly cleaned, phosphated, and sealed. Selux powder coated products provide excellent salt and humidity resistance as well as ultra violet resistance for color retention. All products are tested in accordance with test specifications for coatings from ASTM and PCI.

Standard interior colors are White (WH), Black (BK), and Silver (SV). Selux premium colors (SP) are available, please specify from your Selux color selection guide.

5 Year Limited LED Luminaire Warranty - Selux offers a 5 Year Limited Warranty to the original purchaser that the M60 series LED luminaire shall be free from defects in material and workmanship for up to five (5) years from date of shipment. This limited warranty covers the fixture, LED driver and LED light engine when installed and operated according to Selux instructions. Fixture suitable for ambient temperature of 35° C (95° F). For details and exclusions, see "Selux Terms and Condition of Sale."

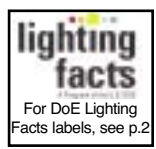
Listings and Ratings:
Tested to IESNA LM-79-08 and LM-80 test standards at 25° C ambient temperature.

Selux Corp. © 2014
TEL (845) 834-1400
FAX (845) 834-1401
www.selux.us
L60U-SG-0214-01 (ss-v3.2)

Union Made Affiliated with IBEW Local 363

NRTL Listed for Damp Location (i.e. UL, CSA)

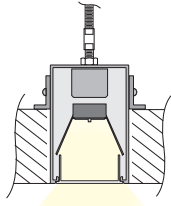
For IC and Non-IC Construction



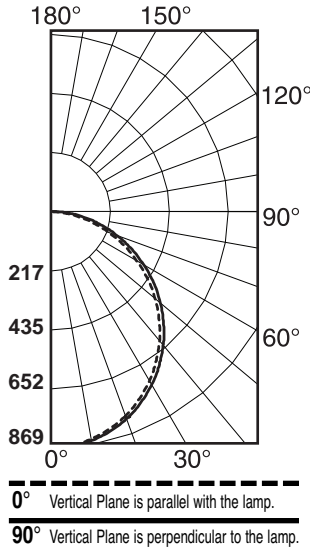
In a continuing effort to offer the best product possible, we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product. Specification sheets found at www.selux.us are the most recent versions and supersede all other printed or electronic versions.

Photometry

L60U / 350mA LED / 3500K CCT



Catalog #: L60U-1L35-35-LW-4T-120
 Report #: LTL-24033-1
 Lamp: 180 white LEDs
 Total Lumens: 2453
 Luminaire Efficacy: 74 lm/W
 Max Candela: 869 @ 0.5° from Vertical
 Spacing Criterion (0-180): 1.26
 Spacing Criterion (90-270): 1.26
 Spacing Criterion (Diagonal): 1.38



COEFFICIENTS OF UTILIZATION - Zonal cavity method

RC	80				70				50				30				10				0					
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30
1	109	104	99	96	106	101	98	94	97	94	91	93	91	88	90	88	86	83								
2	99	90	83	78	96	88	82	77	85	79	75	82	77	73	79	75	72	69								
3	90	79	71	64	87	78	70	64	75	68	63	72	66	62	69	65	61	58								
4	82	70	61	55	80	69	61	54	66	59	53	64	58	53	62	56	52	50								
5	76	63	54	47	73	62	53	47	59	52	46	57	51	46	56	50	45	43								
6	70	56	47	41	68	55	47	41	54	46	40	52	45	40	50	44	40	38								
7	65	51	42	36	63	50	42	36	49	41	36	47	40	35	46	40	35	33								
8	60	47	38	32	59	46	38	32	45	37	32	43	37	32	42	36	31	30								
9	56	43	35	29	55	42	34	29	41	34	29	40	33	29	39	33	28	27								
10	53	39	32	26	51	39	31	26	38	31	26	37	31	26	36	30	26	24								

Effective Floor Cavity Reflectance 0.20

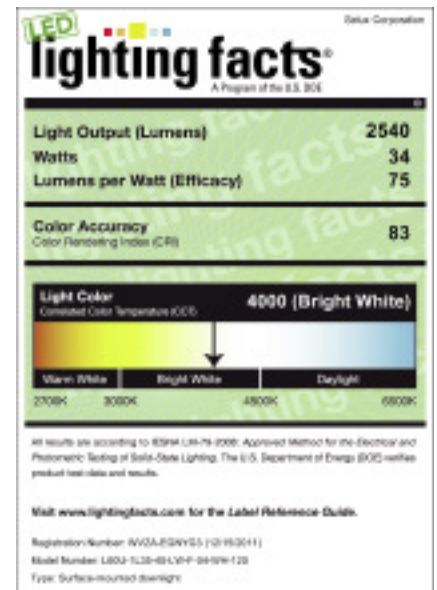
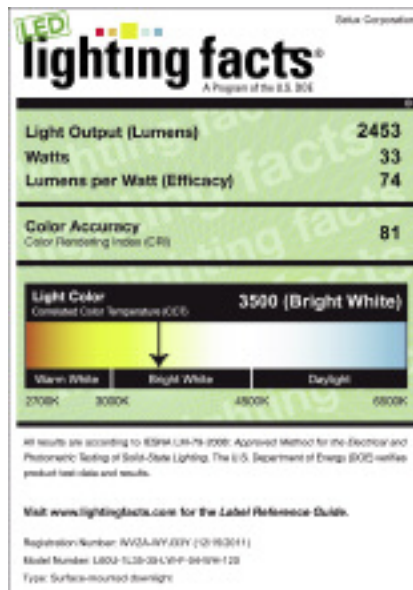
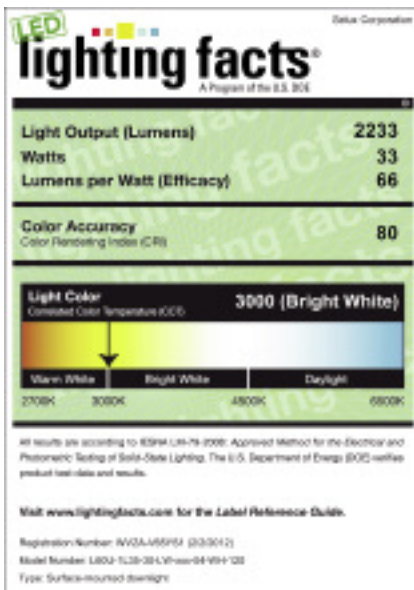
	CANDELA DISTRIBUTION				
	0	22.5	45	67.5	90
0	865	865	865	865	865
5	857	861	864	861	864
15	826	830	831	826	829
25	765	767	769	764	766
35	677	679	679	674	676
45	568	569	570	564	565
55	443	444	443	439	439
65	307	308	306	302	301
75	168	168	168	166	162
85	47	46	43	41	40
90	0	0	0	0	0

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT.
0-30	668.8	N.A.	27.3
0-40	1092.4	N.A.	44.5
0-60	1924.8	N.A.	78.5
0-90	2452.8	N.A.	100.0
90-180	0	N.A.	0
0-180	2452.8	N.A.	100.0

DOWNLOAD IES FILE:
http://www.selux.us/fileadmin/us/interior/ies_file/L60_IES.zip

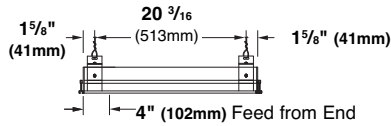
Energy Consumption for Non-Dimming Luminaires									
Fixture Length	1ft	2ft	3ft	4ft	5ft	6ft	7ft	8ft	RUN (approximate)
Standard Driver	8.4W	15.9W	24.3W	33.0W	40.1W	50.8W	63.4W	69.7W	8.75 W/ft.
DM3/DME Drivers at 277V	17.7W	26.6W	38.0W	44.3W	56.9W	70.8W	77.2W	10.1W/ft.	
DM/DMD Driver	17.3W	25.9W	37.1W	43.2W	55.6W	69.2W	75.4W	9.9W/ft.	

LED CCT Prorate Table	
(Values based on 4ft. 1L35 Light Engine.)	
CCT	Lumens
3000K	2233
3500K	2453
4000K	2540

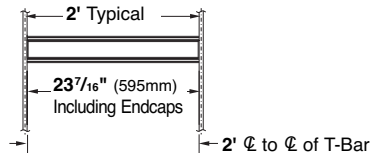


L60 Slot Grid Layout Dimensions

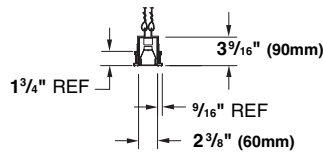
Nominal 2 foot Individual



Bottom View

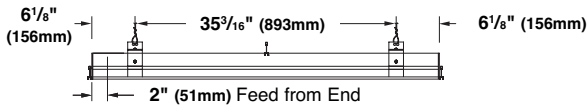


Typical End View (all lengths)

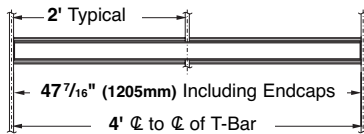


Nominal 4 foot Individual (SG Mounting shown)

Side View



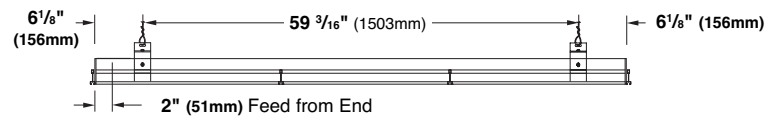
Bottom View



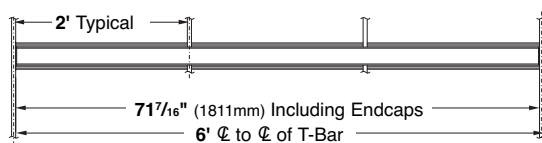
For other lengths, lamping, continuous runs or configurations please specify overall length (in feet), accessories desired and sketch/drawing of configuration. Selux will detail project drawings upon order and supply submittal drawings for approval. Individual fixtures cannot be field joined. If you have any questions please contact Selux customer service or applications engineering for assistance (1-800-SELUX-CS).

Nominal 6 foot Individual (SG Mounting shown)

Side View

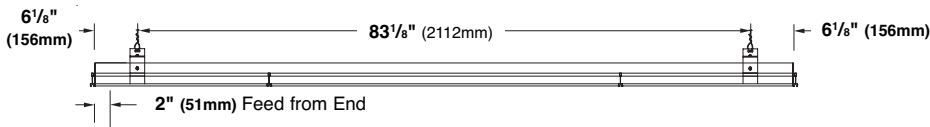


Bottom View

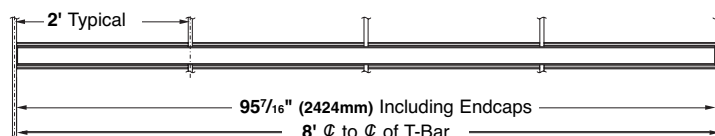


Nominal 8 foot Individual (SG Mounting shown)

Side View



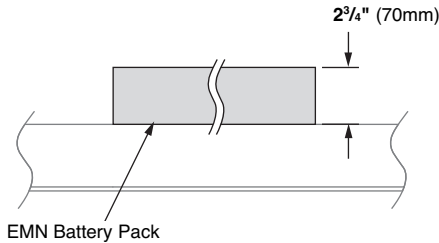
Bottom View



EMN Option / Flex Whips

M60 LED EMN Option

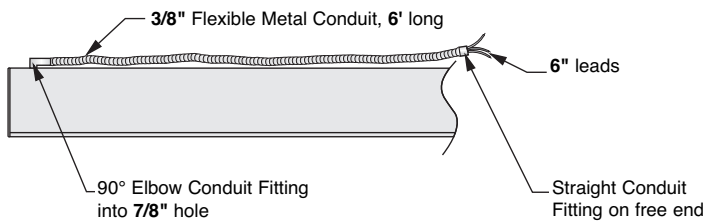
Stand-by Battery Packs mounted to top of fixture and can be maintained through fixture from below the ceiling.
For RUNS, please specify location of lit section (approx. 2ft.).
For Individual fixtures, the lit section will be located on the feed end of the luminaire.



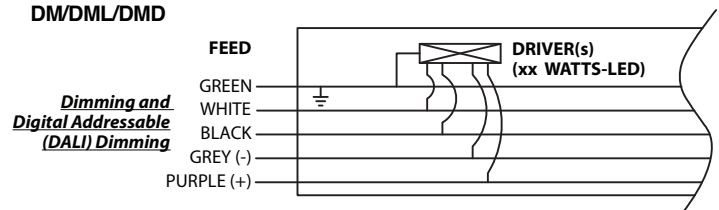
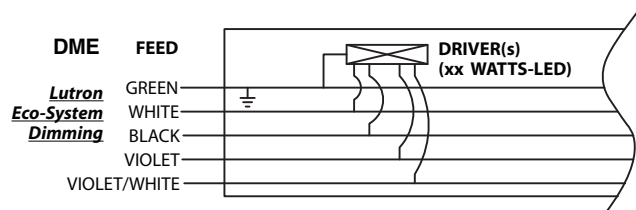
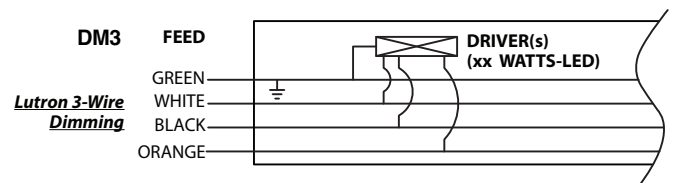
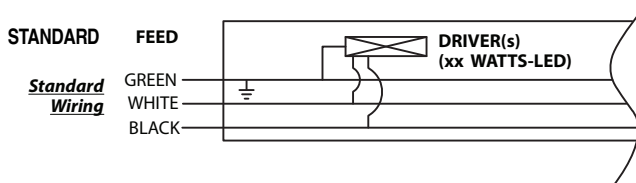
EMN-model #	Input	Operation Duration	Fixture Lumen Output
ILB-2412	2.5W	90min	700 lm

M60 LED Flex Whip

For wiring diagram, please see below.



Wiring



Standard Wiring	GREEN = Ground (Green) / WHITE = Neutral (White) BLACK = Hot (Black)
<i>*Where Applicable, these wire(s) are added to the STD. Above.</i>	
DM3	ORANGE = 3-Wire Dimming Control
DME	VIOLET = 'E1' Digital Link Dimming Control VIOLET / WHITE = 'E2' Digital Link Dimming Control
DM, DML & DMD	GREY = 'E1' Digital or 0-10V Dimming Control PURPLE = (+) DALI or 0-10V Dimming Control

Compatible Dimmers

DM3/DME Drivers:

Equipped with Lutron Hi-lume A-Series. Please visit Lutron’s website at www.lutron.com for further information regarding dimmer and controller compatibility. Minimum dimming level down to 1%.

DM Drivers:

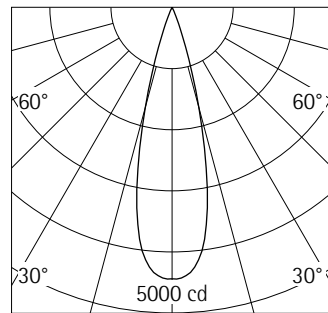
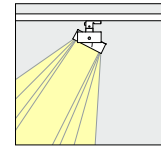
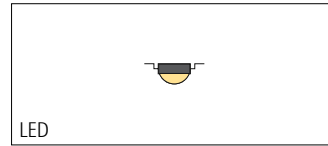
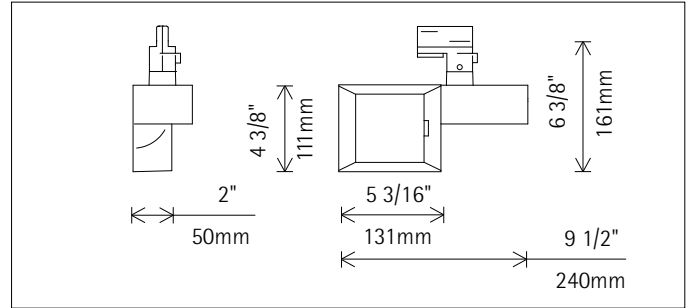
Equipped with 0-10V dimming drivers for linear dimming curve. Minimum dimming level preset to 0.1%. Driver manufacturer recommends the following dimmers, switches or dimming control systems.

Dimmer & Switches Manufacturer	Website	Type	Recommended Driver Dimming Curve
Lutron Electronics	www.lutron.com/LEDtool	Nova T - NTFTV	Linear
		Diva - DDTV	
		Diva - NFTV	
Control Systems Manufacturer	www.lutron.com/LEDtool	GraphicEye - GRX-TVI w GRX3503	Linear
Lutron Electronics		Energy Savr Node - QSN-4T16S	
		TVM2 Module	

DML Drivers:

Equipped with 0-10V dimming drivers for logarithmic dimming curve. Minimum dimming level preset to 0.1%. Driver manufacturer recommends the following dimmers, switches or dimming control systems.

Dimmer & Switch Manufacturer	Website	Type	Recommended Driver Dimming Curve
Busch-Jaeger	www.busch-jaeger.de	2112U-101	Logarithmic
Jung	www.gb.jung.de	240-10	
Leviton Lighting Controls	www.leviton.com	IlumaTech - IP710-DLX	
Lightolier Controls	www.lightolier.com	ZP600FAM120	
Merten	www.merten.de	5729	
Pass & Seymour	www.legrand.us	CD4FB-W	
The Watt Stopper	www.wattstopper.com	DCLV1	



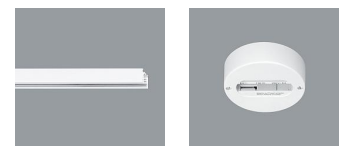
27008.023 White
LED 12W 1140lm 3000K warm white
Version 3
Spherolit lens, flood

Product description

Light head: cast aluminum, powder-coated. 0°-90° tilt.
Housing: plastic, 360° rotatable on the turning adapter. Scale for setting the angle of tilt.
Electronic control gear 120V, 60Hz, dimmable.
Turning adapter for ERCO 2-circuit track: plastic.
LED module: high-power LEDs on metal-core PCB. SDCM<2. CRI>90. L80/B10 50000h. Collimating lens made of optical polymer.
Frame: plastic, black.
Dimming with external dimmers possible (trailing-edge).
Weight 1.61lbs / 0.73kg

LED 12W 1140lm 3000K warm white

h(ft)	E(fc)	D
3	493	27° 1'5"
6	123	2'11"
9	55	4'4"
12	31	5'9"
15	20	7'2"

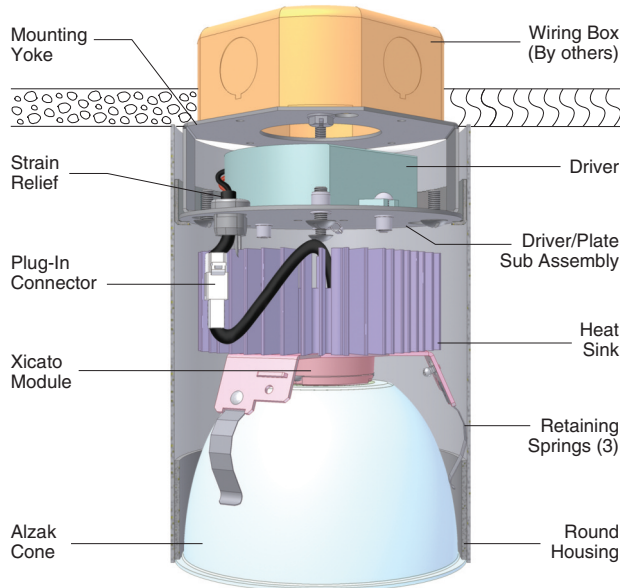


Mounting
ERCO 2-circuit track
Hi-trac 2-circuit track
1-circuit singlet

Accessories



70607.000
Snoot
Plastic, black.



- L137** Narrow Beam, 1000 lm, 1300 lm
- L135** Medium Beam, 1000 lm, 1300 lm
- L133** Wide Beam, 1000 lm, 1300 lm

5" Diameter Cylinder, Conoid
Xicato Remote Phosphor
Fixed Function, MultiSource® Technology

Optics and Applications

Downlight optical systems have been engineered to produce high efficiencies and soft patterns while maintaining excellent brightness control. Beam patterns range from 25° to 75°.

Design Features - MultiSource® Capable

Fixture housings are designed with MultiSource® plug and play connectors allowing field conversion to other sources. New lighting technologies will be incorporated as they become available assuring continuity. Proprietary passive heat sinks ensure proper temperatures are maintained. Service from below only.



Modules

Xicato remote phosphor modules use high efficiency blue LEDs that convert to white light when directed through a phosphor lens. Lumen packages are 1000 lm and 1300 lm operating on a 1A driver. Standard 3000K, 80 CRI. 2700K, 3500K, 4000K available. Rated Life is 50,000 hours at 70% lumen output.

Dimming Driver

Dimming is standard 0-10V/10%, 120V/277V. See accessories for additional dimming options.

Finish

Specular clear Alzak cones are standard. SoftSheen™ is a new cone finish designed to mitigate the color over angle "yellow streak" associated with remote phosphor sources. Optional colors and Softglow® finishes are available. Cylinder exterior is satin white baked enamel. Cylinders are satin brushed and emulsion cleaned before paint spraying, then baked for superior adhesion and durability.

Warranty

5 year limited. See KV website for manufacturers details.

General

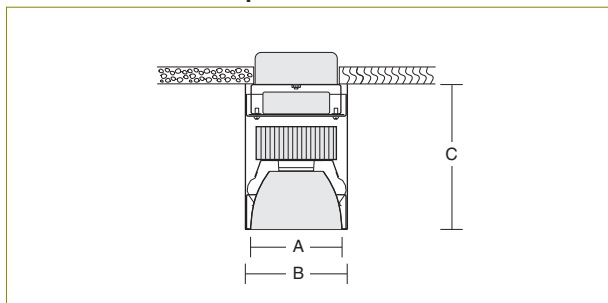
UL and C-UL listed for thermal and electrical safety. All products are union made IBEW. Designed and manufactured in the USA.

Accessories

- B Black cone. T Titanium cone.
- G Gold cone. W Wheat cone.
- H Mocha cone. Y Pewter cone.
- P Graphite cone. Z Bronze cone.
- WT White trim flange. WHT White complete cone.
- 27 2700 Kelvin temp. EX Natatorium exterior application.
- 35 3500 Kelvin temp. BA Brushed aluminum finish.
- 40 4000 Kelvin temp. CC Custom colors.
- F Fuse. PC Powder coat.
- M Wall or column mount, contact factory.
- P5 Pendant adaptor, 21" length.
- ES Extra stem length, specify length.
- YK Yoke mounting, contact factory.
- D1 Lutron to 1%, 3 wire control. Remote only.*
- DE Lutron EcoSystem to 1%, digital 4 wire. Remote only.*
- SS SoftSheen™ add SS, e.g. SSW, SoftSheen™ Wheat.
- S Softglow® add S to color, e.g. SC Softglow® clear.
- AS Xicato Artist Series, 95 CRI modules for 1000 lm available. Contact factory for energy information.

*For integral Lutron driver height increases to 9½".

Dimensions and Lamps



Number	Pattern	A Aperture	B Diameter	C Height*	LED Modules
L137	Narrow	4 3/8"	4 15/16"	7"	1000 lm or
L135	Medium	111mm	125mm	178mm	1300 lm Xicato
L133	Wide				

*For Lutron integral use 9 1/2".

Energy and Ordering Information

Fixture	Module Lumens	System Lumens	System Watts*	lm/W	Order Code	
					Model	L K
L137	1000	845 ^Δ	14	60.4	L137	10 30
	1300	1090 [‡]	21	51.9	L137	13 30
L135	1000	867 [‡]	14	61.9	L135	10 30
	1300	1152 [‡]	21	54.9	L135	13 30
L133	1000	900 ^Δ	14	64.3	L133	10 30
	1300	1132 [‡]	21	53.9	L133	13 30

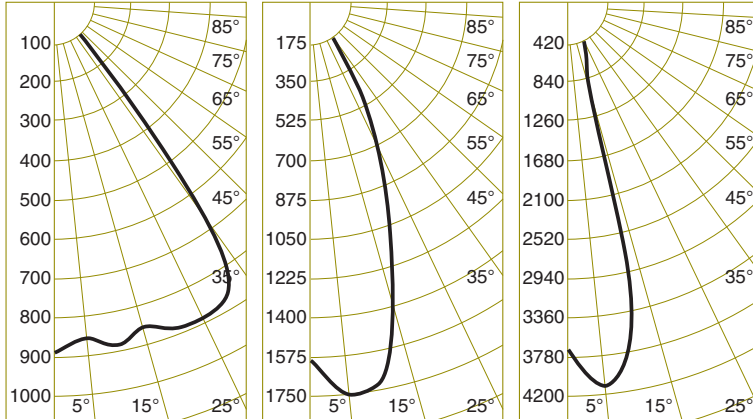
Fixture provided standard 3000K with specular clear cone.
 Module lumens: specify 10 for 1000 lm, 13 for 1300 lm.
 Kelvin temperatures: specify 27 for 2700K, 30 for 3000K, 35 for 3500K, 40 for 4000K.
^ΔIndicates LM-79 Test Data. [‡]Indicates KV Test Data.
 *Wattage consumption based on current module series test data.

Performance Datachart

Single Unit Initial Footcandles, 30" Work Plane						Ceiling to Floor		Multiple Units Initial Footcandles, 30" Work Plane			
L133 Xicato 1300 lm 3000K Read Top Data								Ceiling 80% Walls 50% Floor 20%			
L135 Xicato 1300 lm 3000K Read Bottom Data								Spacing is Maximum Over Work Plane			
Nadir	20°		30°		40°						
FC	FC	Diam	FC	Diam	FC	Diam	Spacing	RCR 1	RCR 3	RCR 8	
29	24	4'	19	6'	3	9'	8'	7'	25	22	15
52	30	4'	9	6'	3	9'		4'	67	60	48
21	17	5'	13	8'	2	11'	9'	8'	18	15	11
37	22	5'	7	8'	2	11'		5'	48	43	35
16	13	5'	10	9'	1	13'	10'	10'	14	12	8
28	16	5'	5	9'	2	13'		6'	36	32	26
12	10	6'	8	10'	1	14'	11'	11'	11	9	6
22	13	6'	4	10'	1	14'		7'	28	25	20
10	8	7'	6	11'	1	16'	12'	12'	8	7	5
18	10	7'	3	11'	1	16'		8'	22	20	16

Single Unit Initial Footcandles, 30" Work Plane						Ceiling to Floor		Multiple Units Initial Footcandles, 30" Work Plane			
L137 Xicato 1300 lm 3000K								Ceiling 80% Walls 50% Floor 20%			
								Spacing is Maximum Over Work Plane			
Nadir	5°		10°		15°						
FC	FC	Diam	FC	Diam	FC	Diam	Spacing	RCR 1	RCR 3	RCR 8	
66	72	1'	60	3'	12	4'	10'	3'	103	93	75
41	45	2'	37	3'	7	5'		4'	64	58	47
28	31	2'	26	4'	5	6'	14'	5'	44	40	32
20	22	2'	19	5'	4	7'		6'	32	29	23
15	17	3'	14	5'	3	8'	18'	7'	24	22	18

Candlepower Distribution



L133 Xicato 1300lm 3000K S/M 1.29 Luminous efficacy 53.9
 L135 Xicato 1300lm 3000K S/M .8 Luminous efficacy 54.9
 L137 Xicato 1300lm 3000K S/M .44 Luminous efficacy 51.9

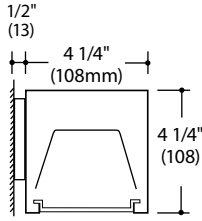
Candelas

	21W	21W	21W
o	1132*	1152*	1090*
0	881	1584	3716
5	855	1753	4112
10	882	1721	3540
15	856	1423	722
20	887	1098	475
25	885	662	418
30	873	442	383
35	633	384	327
40	174	232	101
45	9	28	3
50	5	4	2
55	4	2	1
60	2	1	1
65	1	0	0
70	1	0	0
75	1	0	0
80	0	0	0
85	0	0	0
90	0	0	0

o Vertical Angles
 * Luminaire Lumens

Notes

- Photometric Reports:
 A1137 OnSpex Report No. 30018552-4,
 A1135 LTL Report No. 260321,
 A1133 OnSpex Report No. 30018552-3.
- Datachart degree headings show one side of nadir. Diameter data includes both sides. Therefore the 10° column shows a 20° pattern diameter at the work plane. Footcandle values are at the diameter edge.
- Specular colored cone multipliers, contact factory.
- SoftSheen™ cone multiplier: Clear x .93. Softglow® cone multiplier: Clear x .87. For colored cone multipliers, contact factory.
- The luminous efficacy (lm/W) refers to the total measured luminous flux (lumens) of the fixture divided by the total measured electrical input power (watts) of the complete fixture.



LED Mod™ 44 Wall W-D-L44 Wall-Mounted LED Direct

Product Description

Linear modular direct wall luminaire using distributed LED arrays from OSRAM SYLVANIA. Available with two output levels at different lengths. The LED array provides for clean, continuous light with minimal visible brightness differences along the length of the fixture, even in continuous row applications. cULus Listed.

Ordering Guide

Product, lamping, & length						Options				
W -	D -	L44 -		SGL -					1CWQ -	
Mounting	Distribution	Series	Length in feet (mm)	Diffuser	Output	Color Temperature	Finish	Dimming	Circuiting	Volts
W Wall-mounted	D Direct	L44	04 (1219) 08 (2438)	SGL Soft Glow Lens	MO HO see Output	35K is standard 30K 40K see Color Temperature	CWM see Product Finishes online	D10 NDM	1CWQ	120 277

W-D-L4404-SGL-MO-35K-CWM-D10-1CWQ-120 is a typical catalog number for a wall LED fixture, 4-foot long with soft glow lens, medium output, 35K color temperature, matte white finish, dimming control, one-circuit, 120 volts.

Output

- MO** Medium Output: Fixture provided with LED distributed arrays that utilize 30 LEDs per foot and provide approximately 475 lumens/foot out of the fixture at an input power of approximately 7.25 Watts/foot. These results may vary based on the CCT. Consult test reports for details.
- HO** High Output: Fixture provided with LED distributed arrays that utilize 30 LEDs per foot and provide approximately 600 lumens/foot out of the fixture at an input power of approximately 9.75 Watts/foot. These results may vary based on the CCT. Consult test reports for details.

Color Temperature

- 35K** Provided with LED arrays rated for 3500K and minimum CRI of 80 is standard. Chromaticity consistent within a three-step Macadam ellipse.
- 30K** Provided with LED arrays rated for 3000K and minimum CRI of 80. Consult factory for lead time. Chromaticity consistent within a three-step Macadam ellipse.
- 40K** Provided with LED arrays rated for 4000K and minimum CRI of 80. Consult factory for lead time. Chromaticity consistent within a three-step Macadam ellipse.

See next page for color rendering and spectral distribution.

Dimming

- D10** Fixture provided with an OPTOTRONIC® OT50 constant current power supply from OSRAM SYLVANIA, compatible with 0-10 Volt dimming systems.
- NDM** Non-dimming; fixture will be wired for fixed light output.

Circuiting

- 1CWQ** Fixture is wired such that all LED boards are switched together and the branch circuit wiring continues throughout the entire fixture.

These fixtures have a five-year warranty. Please access the detailed warranty statement at litecontrol.com.

Questions to Ask

1. Row information, including desired fixture lengths?
2. Color Temperature?
3. White finish, or special color?
4. 120 or 277 volt?

Quick Find L44w

litecontrol.com

Specifications

HOUSING. Die-formed and welded steel, with 3/8" regression at housing bottom for rigidity and appearance, furnished with 6" long, steel splines for precise alignment at each joint. End headers have clearance holes for easy row installation and are notched under lamps for more even diffuser luminance and continuous baffle appearance.

END CAPS. Steel, 14-gauge, with no holes or knockouts, finished to match housing. Two fasteners on each end cap allow tight attachment to ends of individual fixtures and ends of rows.

REFLECTOR. Die-formed steel with high-reflectance white finish.

LAMPING. LED Distributed Array from OSRAM SYLVANIA. The arrays are nominally 12" long, with 30 LEDs.

DIMMING. Luminaire provided with constant current LED power supply from OSRAM SYLVANIA, dimmable with 0-10V dimming controls.

LENS. Provided with extruded, frosted acrylic soft glow lens, flush to bottom of fixture housing.

MOUNTING. Provided with two wall-mounting brackets measuring 7" long X 2 3/4" high X 1/2" deep. Finish is TCWM (Textured Matte White).

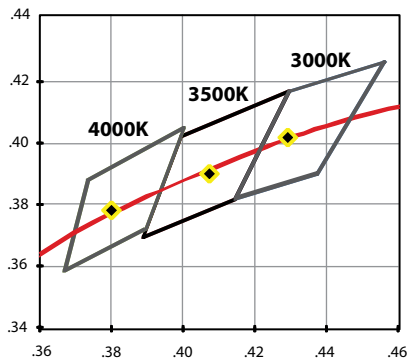
SYSTEM CONNECTORS. Non-lighted, field-measured corners available. Die-formed steel, 90° and 135° inside and outside corners. Bottom and exposed sides to be smooth with no exposed fasteners or knockouts, finished to match fixture housing. Refer to Field Measurement Procedure online for instructions.

CERTIFICATION. Fixture and electrical components are cULus Listed (UL LISTED), and bear the I.B.E.W., A.F. of L. label.

WARRANTY. Luminaire and LED components are covered by a five-year warranty. See litecontrol.com for details.

Note: Litecontrol reserves the right to change specifications without notice for product development and improvement.

Chromaticity Diagram



3 MacAdam Ellipse variation

Color Rendering Index

80 minimum at all color temperatures.

3500K shown here.

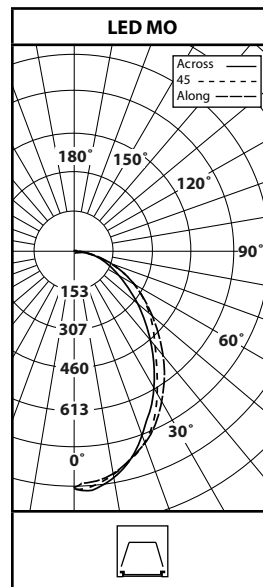
Ra	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
84	82	90	95	81	81	85	87	68	24	75	78	61	84	97

Photometric Summary

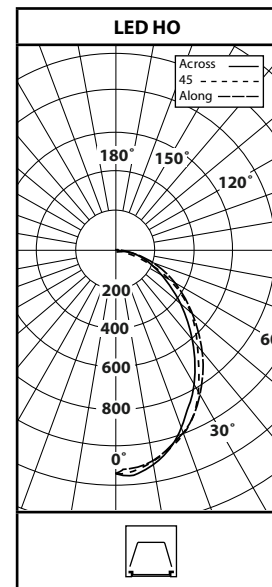
Lamping	Lumens	Watts	LPW
LED MO	1900	29	65
1 T5	1600	28	57
1 T8	1408	32	44
LED HO	2400	39	62
1 T5HO	2480	54	46
2 T5	2500	63	40

Data shown are for a four-foot Mod 44 fixture with an SGL lens and CCT of 3500K. Lumens shown are lumens out of the fixture. IES files and LM-79 test reports available at litecontrol.com.

Photometric Data



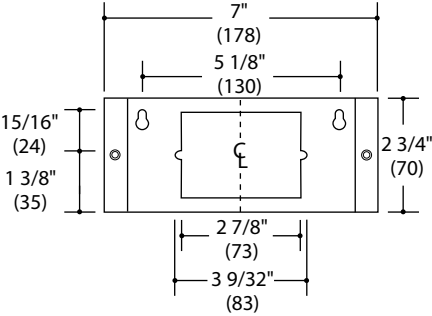
W-D-L4404-SGL-MO
Efficacy 65.0 LPW



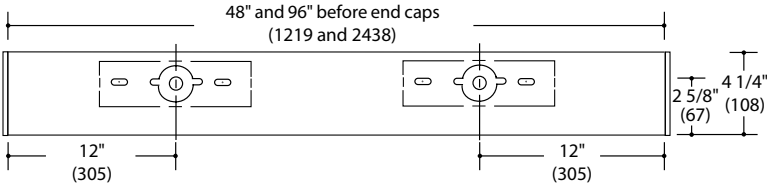
W-D-L4404-SGL-HO
Efficacy 61.5 LPW



Planning for installation

Wall Bracket Detail

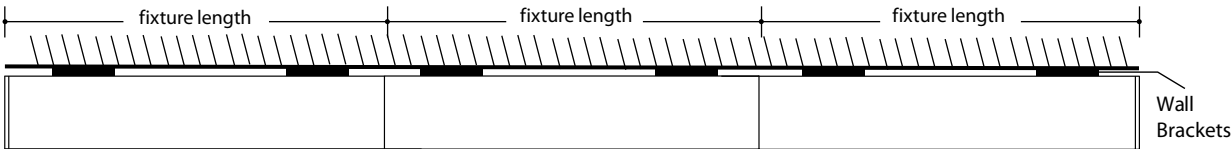


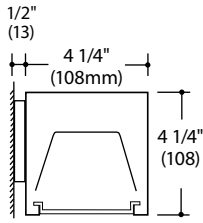
Individual Fixtures L44



Fixture Lengths: 4' and 8'
 5/16" wall bracket mounting slots
 2" knockouts for electrical feed

Row Diagram L44





LED Mod™ 44 Wall

W-D-L44

Wall-Mounted LED Direct

Product Description

Linear modular direct wall luminaire using distributed LED arrays from OSRAM SYLVANIA. Available with two output levels at different lengths. The LED array provides for clean, continuous light with minimal visible brightness differences along the length of the fixture, even in continuous row applications. cULus Listed.

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2. Color Temperature?
3. White finish, or special color?
4. 120 or 277 volt?



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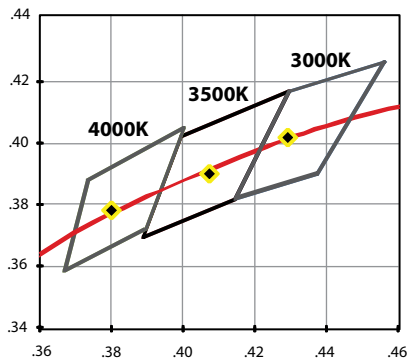
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Note: Litecontrol reserves the right to change specifications without notice for product development and improvement.

Chromaticity Diagram



3 MacAdam Ellipse variation

Color Rendering Index

80 minimum at all color temperatures.

3500K shown here.

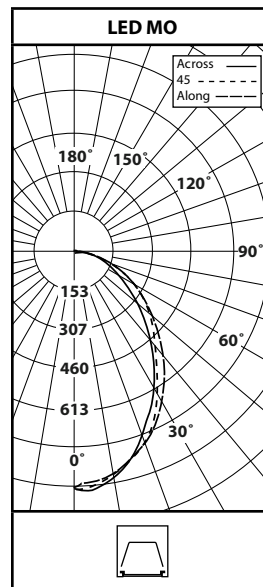
Ra	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
84	82	90	95	81	81	85	87	68	24	75	78	61	84	97

Photometric Summary

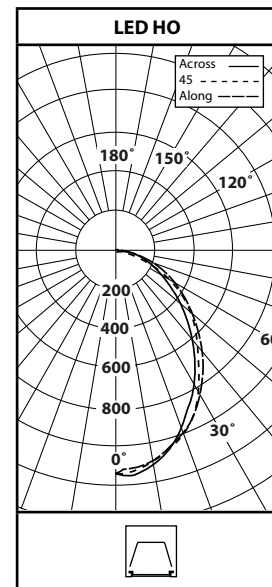
Lamping	Lumens	Watts	LPW
LED MO	1900	29	65
1 T5	1600	28	57
1 T8	1408	32	44
LED HO	2400	39	62
1 T5HO	2480	54	46
2 T5	2500	63	40

Data shown are for a four-foot Mod 44 fixture with an SGL lens and CCT of 3500K. Lumens shown are lumens out of the fixture. IES files and LM-79 test reports available at litecontrol.com.

Photometric Data



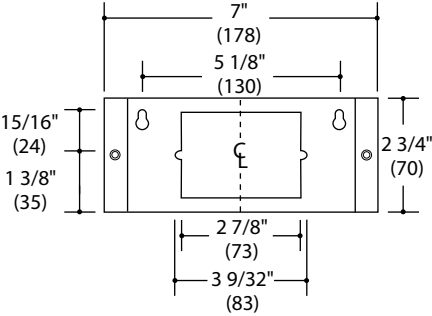
W-D-L4404-SGL-MO
Efficacy 65.0 LPW



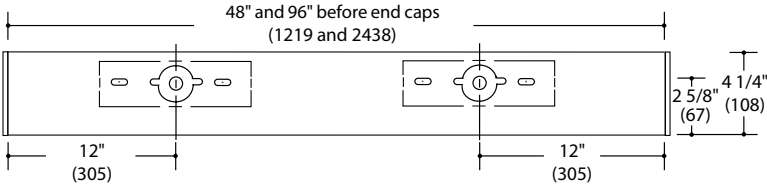
W-D-L4404-SGL-HO
Efficacy 61.5 LPW

Planning for installation

Wall Bracket Detail

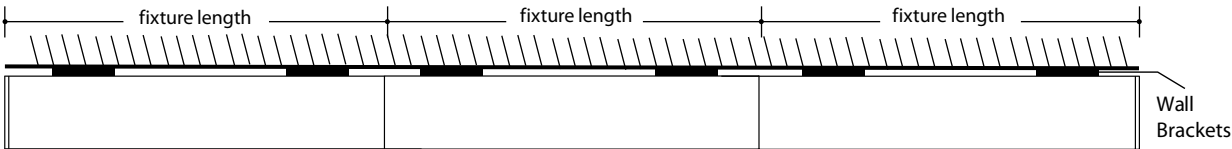


Individual Fixtures L44

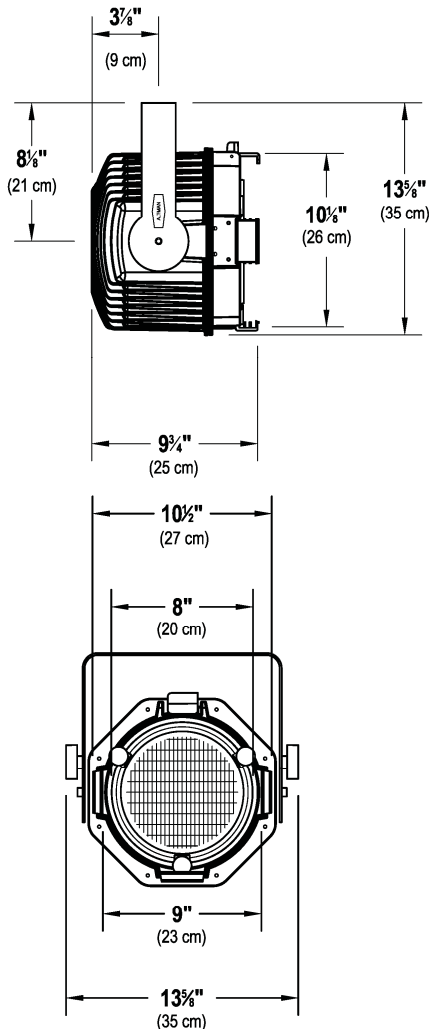


Fixture Lengths: 4' and 8'
 5/16" wall bracket mounting slots
 2" knockouts for electrical feed

Row Diagram L44



The Spectra PAR 100 is a 100 Watt par luminaire utilizing red, green, blue and amber LED emitters. Designed for theatrical and architectural applications, the Spectra PAR 100 acts as a true par lighting fixture complete with interchangeable VNSP, NSP, MFL and WFL lenses. The on board power supply allows for direct power input. Data can be easily daisy chained for up to 1000 feet. The Spectra PAR 100 is compatible with both DMX and RDM protocols, and comes complete with a library of pre-programmed single colors and various color mixes. Certified for use in both indoor or outdoor applications.



**100 WATT
SPECTRA PAR 100
Features**

- Available in 4 Standard LED color configurations: *RGBA, RGBW, 3K White or 3K-6K Tunable White†*.
- Convection Cooled.
- Available in pipe mount and Smart Track™ versions.
- Tool-free exchangeable VNSP, NSP, MFL, WFL & XWFL lenses.
- On-board multi-voltage power supply 100-240VAC.
- Feed through data capabilities using 5-pin XLR connectors.
- Compatible with DMX and RDM protocols.
- Push button addressing.
- Pre-programmed modes for fixed colors, timed color changes and strobes.
- 22 lbs.
- ETL & cETL listed IP65 for outdoor use.
- Made in the USA

Model	-	LED Array	-	Finish Color
SSPAR100	-		-	

Project:	Approval Date:
Location:	Fixture Type:

Specifications:

Materials: Construction employs all corrosion-resistant materials and hardware

Housing: Die-case aluminum construction.

Light Engine: Luxeon Rebel LED's- 100 Watts Max at full RGBA

Lenses: Borosilicate glass 8" diameter PAR64

Lens Holder: Fully rotational, provided with three insulated finger tabs. Tool-free changing of lenses. 360° rotation.

Rating: Multi-Voltage; 100-240 volt AC operation

Data Ports: 1 Male & 1 Female 5-Pin XLR cable

Power Cable: 6' total length bare lead.

Finish: Black, White or Silver TGIC polyester, electrostatic application. Custom colors available

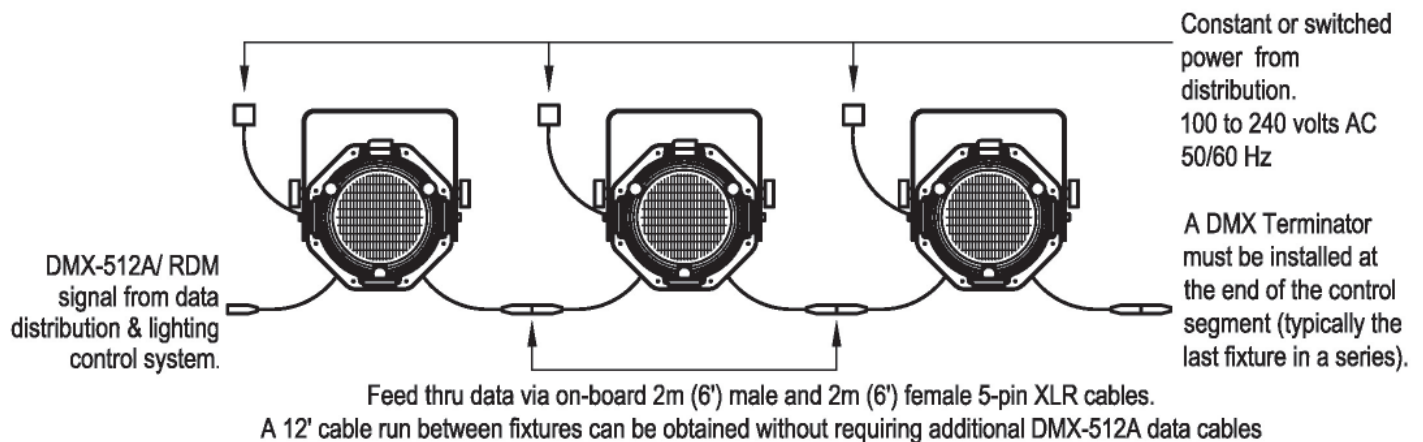
Operational Temperature Range:
-20°C (-4° F) to +60°C (140°F)

Weight: Approx. 22 lbs. (9.98 kg)

Accessories:

Model Number	Supplied with the fixture
97-0150	Set of 4 Lenses(VNSP, NSP, MFL, WFL)
SC-36-BK	36" Black Safety Cable w/ Spring Clip
Additional Accessories	
XLR-5-5	5' 5-Pin XLR Extension Cable
XLR-5-10	10' 5-pin XLR Extension Cable
XLR-5-25	25' 5-pin XLR Extension Cable
99-DMX-TERM	In line 5-pin DMX terminator
510	Malleable Iron Pipe Clamp for 3/4"-1 1/2" Pipe
8-BD-4	Four Leaf Barndoor
8-CFB	Black Color Frame 10"x10"
8-SN	Black Snoot
18-0114	Optional XWFL Lens

Basic wiring diagram for SSPAR100-*-** Spectra PAR 100



The SSPAR100 Spectra PAR is an IP65 wet location rated fixture and comes with installed male and female Neutrik X-HD Series 5-pin XLR connectors for DMX-512A Input and Output. These connectors are IP65 rated in a mated condition, when correctly installed.

- Panel mount DMX receptacles for exterior applications should be Neutrik MPR-HD series connectors.
- Data extension cables for exterior applications should be fabricated using Neutrik X-HD series connectors for both ends.

Performance per Lens (RGBA array):

VNSP Lens

Throw Distance (d)	10' 3m	15' 4.6m	20' 6.1m	25' 7.6m
Beam Size, (H x V)	1.7' x 1.7' 0.5m x 0.5m	2.5' x 2.5' 0.8m x 0.8m	3.3' x 3.3' 1m x 1m	4.2' x 4.2' 1.3m x 1.3m
Illuminance (fc)	215	96	54	34
Illuminance (lux)	2,316	1,029	579	371

NSP Lens

Throw Distance (d)	10' 3m	15' 4.6m	20' 6.1m	25' 7.6m
Beam Size, (H x V)	2.2' x 2.2' 0.7m x 0.7m	3.3' x 3.3' 1m x 1m	4.4' x 4.4' 1.3m x 1.3m	5.5' x 5.5' 1.7m x 1.7m
Illuminance (fc)	147	65	37	23
Illuminance (lux)	1,579	702	395	253

MFL Lens

Throw Distance (d)	10' 3m	15' 4.6m	20' 6.1m	25' 7.6m
Beam Size, (H x V)	3.27' x 2.5' 1.1m x 0.7m	5.6' x 3.7' 1.7m x 1.1m	7.4' x 4.9' 2.3m x 1.5m	9.3' x 6.1' 2.8m x 1.9m
Illuminance (fc)	81	36	20	13
Illuminance (lux)	871	387	218	139

WFL Lens

Throw Distance (d)	10' 3m	15' 4.6m	20' 6.1m	25' 7.6m
Beam Size, (H x V)	7' x 3.5' 2.1m x 1.1m	10.5' x 5.3' 3.2m x 1.6m	14' x 7.1' 4.3m x 2.1m	17.5' x 8.8' 5.3m x 2.7m
Illuminance (fc)	41	18	10	7
Illuminance (lux)	438	194	109	70

Performance per Lens (3K White array):

VNSP Lens

Throw Distance (d)	10' 3m	15' 4.6m	20' 6.1m	25' 7.6m
Beam Size, (H x V)	1.7' x 1.7' 0.5m x 0.5m	2.5' x 2.5' 0.8m x 0.8m	3.3' x 3.3' 1m x 1m	4.2' x 4.2' 1.3m x 1.3m
Illuminance (fc)	471	209	118	75
Illuminance (lux)	5,068	2,252	1,267	811

NSP Lens

Throw Distance (d)	10' 3m	15' 4.6m	20' 6.1m	25' 7.6m
Beam Size, (H x V)	2.2' x 2.2' 0.7m x 0.7m	3.3' x 3.3' 1m x 1m	4.4' x 4.4' 1.3m x 1.3m	5.5' x 5.5' 1.7m x 1.7m
Illuminance (fc)	364	162	91	58
Illuminance (lux)	3,917	1,741	979	627

MFL Lens

Throw Distance (d)	10' 3m	15' 4.6m	20' 6.1m	25' 7.6m
Beam Size, (H x V)	3.27' x 2.5' 1.1m x 0.7m	5.6' x 3.7' 1.7m x 1.1m	7.4' x 4.9' 2.3m x 1.5m	9.3' x 6.1' 2.8m x 1.9m
Illuminance (fc)	181	80	45	29
Illuminance (lux)	1,948	866	487	312

WFL Lens

Throw Distance (d)	10' 3m	15' 4.6m	20' 6.1m	25' 7.6m
Beam Size, (H x V)	7' x 3.5' 2.1m x 1.1m	10.5' x 5.3' 3.2m x 1.6m	14' x 7.1' 4.3m x 2.1m	17.5' x 8.8' 5.3m x 2.7m
Illuminance (fc)	88	39	22	14
Illuminance (lux)	947	421	237	152

Date: _____ Type: _____

Firm Name: _____

Project: _____



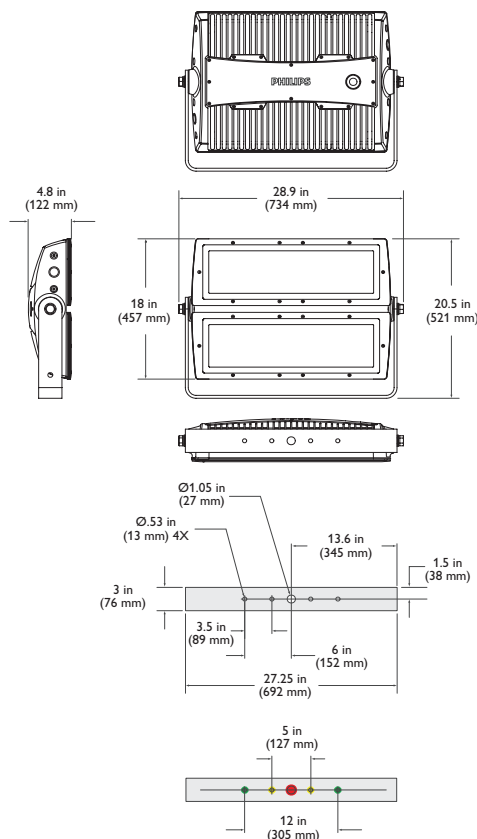
ColorReach Powercore gen2

8° spread lens

Premium long-throw exterior LED floodlight with intelligent color light

ColorReach Powercore gen2 combines all the benefits of LED-based lighting and control in an elegant fixture specifically designed for large-scale installations, such as skyscrapers, casinos, bridges, piers, public monuments, and themed attractions. With levels of light output and projection never before achieved in an LED lighting fixture, ColorReach Powercore gen2 affords entirely new possibilities in exterior illumination.

- **Integrates Powercore technology** — Powercore technology rapidly, efficiently, and accurately controls power output to fixtures directly from line voltage. Philips Data Enabler Pro merges line voltage and control data and delivers them to fixtures over a single standard cable, dramatically simplifying installation and lowering total system cost.
- **Versatile optics** — A native 5° beam angle and exchangeable spread lenses of 8°, 13°, 23°, 40°, 63°, and an asymmetric 5° x 17° support a variety of photometric distributions for a multitude of applications, including spotighting, wall grazing, and asymmetric wall washing. Bezel and gasket are included with spread lenses for easy user installation.
- **Unique split design supports diffuser combinations** — Each half of the fixture is individually addressable and controllable. For instance, you could use one spread lens on the fixture's lower half to bathe a large façade with color at street level, and a different spread lens to project a contrasting or complementary color hundreds of feet up the building's walls.
- **Saturated, cost-effective color** — High-performance LEDs offer rich, saturated color at significantly less cost for installation, operation, and maintenance than traditional light sources.
- **Simple fixture positioning** — Rugged, slim-profile mounting bracket allows simple positioning and fixture rotation through a full 360°. Side locking bolts reliably secure fixture with a standard wrench.
- **Universal power input range** — Fixtures accept a universal power input range of 100 – 240 VAC, allowing consistent installation in any location around the world.
- **Industry-leading controls** — Fixtures work seamlessly with the complete Philips Color Kinetics line of controllers, including Light System Manager, iPlayer 3, and ColorDial Pro, as well as third-party controllers.



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For detailed product information, please refer to the ColorReach Powercore gen2 Product Guide at www.philipscolorkinetics.com/ls/rgb/colorreach/

PHILIPS

Specifications

Due to continuous improvements and innovations, specifications may change without notice.

Item	Specification	Details
Output	Lumens*	3796 (half unit)
	LED Channels	Red / Green / Blue
	Mixing Distance	50 ft (15.2 m) to uniform light
	Lumen Maintenance†	100,000 hours L50 @ 25° C 85,000 hours L50 @ 50° C
Electrical	Input Voltage	100 – 240 VAC, auto-switching, 50 / 60 Hz
	Power Consumption	290 W maximum at full output, steady state
Control	Interface	Data Enabler Pro (DMX / Ethernet)
	Control System	Philips Color Kinetics full range of controllers, including Light System Manager, iPlayer 3, and ColorDial Pro, or third-party controllers
Physical	Dimensions (Height x Width x Depth)	20.5 x 28.9 x 4.8 in (521 x 734 x 122 mm)
	Weight	75 lb (34 kg)
	Effective Projected Area (EPA)	0.42 m ²
	Housing	Die-cast aluminium, powder-coated finish
	Lens	Tempered glass
	Fixture Connections	Integral male / female waterproof connector, 6 ft (1.8 m) unified power / data cable
	Temperature Ranges	-40° – 122° F (-40° – 50° C) Operating -4° – 122° F (-20° – 50° C) Startup -40° – 176° F (-40° – 80° C) Storage
	Humidity	0 – 95%, non-condensing
Certification and Safety	Certification	UL / cUL, FCC Class A, CE, PSE, C-Tick
	Environment	Dry / Damp / Wet Location, IP66

* Lumen measurement complies with IES LM-79-08 testing procedures
 † L50 = 50% lumen maintenance (when light output drops below 50% of initial output). Ambient luminaire temperatures specified. Lumen maintenance calculations are based on lifetime prediction graphs supplied by LED source manufacturers. Calculations for white-light LED fixtures are based on measurements that comply with IES LM-80-08 testing procedures. Refer to www.philipscolorkinetics.com/support/appnotes/lm-80-08.pdf for more information.



Fixtures and Accessories

Item	Type	Item Number	Philips 12NC
ColorReach Powercore gen 2 <i>Includes 6 ft (1.8 m) leader cable</i>	UL / cUL and CE / PSE	123-000013-50	910503703934
Replacement Leader Cable 6 ft (1.8 m)	UL / cUL	108-000043-02	910503700453
	CE / PSE	108-000043-03	910503700454
ColorReach Powercore Spread Lens with bezel	13°	120-000068-00	910503700506
	23°	120-000068-01	910503700507
	40°	120-000068-02	910503700508
	63°	120-000068-03	910503700509
	Asymmetric (5° x 17°)	120-000068-04	910503700510
	8°	120-000068-05	910503700511
Data Enabler Pro	3/4 in / 1/2 in NPT (U.S. trade size conduit)	106-000004-00	910503701210
	PG21 / PG13 (metric size conduit)	106-000004-01	910503701211

Use Item Number when ordering in North America.



Philips Color Kinetics
 3 Burlington Woods Drive
 Burlington, Massachusetts 01803 USA
 Tel 888.385.5742
 Tel 617.423.9999
 Fax 617.423.9998
www.philipscolorkinetics.com

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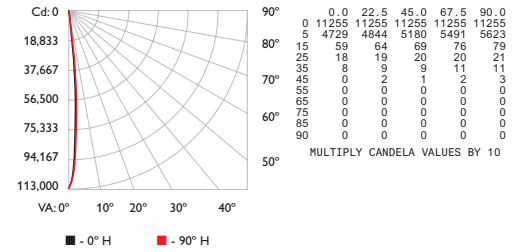
DAS-000022-02 R08 12-12

Photometrics

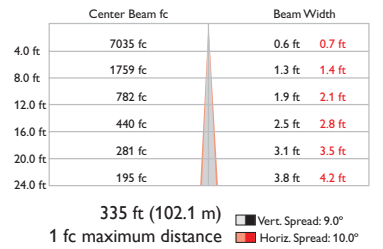
285

8° spread lens, half unit

Polar Candela Distribution



Illuminance at Distance



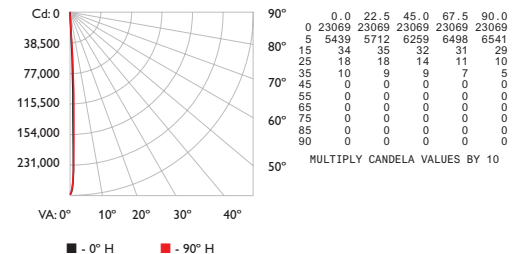
LED	Lumens	Efficacy
RGB	3796	27.7

For lux multiply fc by 10.7

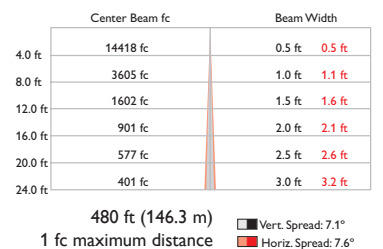


5° native (no spread lens), half unit

Polar Candela Distribution



Illuminance at Distance



LED	Lumens	Efficacy
RGB	4316	31.5





MINI LED DOWNLIGHT

MD1L RECESSED HOUSING AND TRIM

LOW VOLTAGE

Project: _____

Fixture Type: _____

Location: _____

Contact/Phone: _____

PRODUCT DESCRIPTION

The Mini LED recessed downlight is IC rated for insulated or non-insulated applications • Sleek, compact form factor provides direct accent lighting with low glare optic system that approximates the light output and distribution of 20W halogen lamps • Ideal for both residential and commercial limited space applications including niches, bookshelves, displays and cabinets • Remote mount Class 2 120V to 12V AC electronic or magnetic driver/transformer required • Designed to provide 50,000 hours of life • 5 year limited warranty on LED components.

ENVIRONMENTALLY FRIENDLY, ENERGY EFFICIENT

- No harmful ultraviolet or infrared wavelengths
- No lead or mercury
- Comparable light output to 20W MR11 halogen lamps while consuming 5W



PRODUCT SPECIFICATIONS

LED Light Engine Lumileds LUXEON® Rebel LEDs provide outstanding reliability, performance and color quality/consistency • 2700K, 3000K, 3500K or 4100K color temperatures available • 85 CRI typical.

Optical System Fixtures are offered with a choice of spot (16°), narrow flood (24°) or flood (35°) beam patterns • LED source concealed with lensed optic is deeply recessed into an internal reflector to produce a low glare system • Reflectors finished to match trim ring color for uniform appearance • Field replacement of optical lenses is NOT recommended.

Transformer Requires remote mount Class 2, 120V to 12V AC electronic or magnetic transformer for operation • Juno's **TL602E** electronic transformer and **TL576** magnetic transformer are designed specifically for use with these fixtures.

Dimming May be dimmed with dimmers tested and qualified by Juno for use with **TL602E** and **TL576** – see transformer specifications for compatible dimmers • Color temperature remains constant over dimming range • Consult factory for additional information.

Life Rated for 50,000 hours at 70% lumen maintenance.

Labels UL Listed for indoor damp locations and daisy chaining • Union made • UL and cUL listed • RoHS compliant.

Testing All reports are based on published industry procedures; field performance may differ from laboratory performance.

Product specifications subject to change without notice.

HOUSING FEATURES

Housing Designed for use in IC (insulated ceiling) or non-IC construction • Die cast aluminum housing.

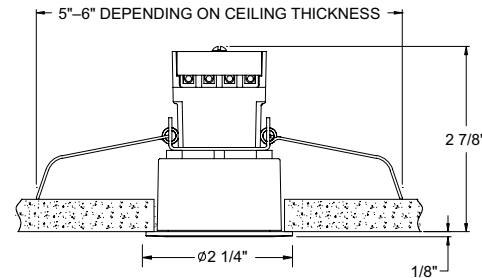
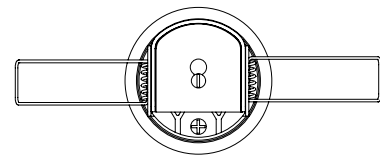
Wiring Compartment Provided with removable access plate • Four pole terminal block allows for quick, secure connection • UL /cUL listed for daisy chaining • Easy to wire with commonly available low voltage cable (Type CL2 or NEC equivalent, 18-12 AWG). Consult local codes for compliant wiring methods.

Mounting Tempered spring steel torsion clips are provided fully assembled to housing • Springs allow for fast, secure installation or removal in mounting surfaces from 1/8" to 1" thick material • 2" Cutout dimension corresponds to common hole saw size.

LUXEON is a registered trademark of the Philips Lumileds Lighting Company



DIMENSIONS



2" CUTOUT

ELECTRICAL DATA

Input Voltage	12VAC
Input Power	4.8W
Input Current - Max	0.42A
Frequency	Varies with Transformer

ORDERING INFORMATION:

Example: **MD1L41K-NFL-SN**

Fixture	Color Temp.	Optic	Finish
MD1L	27K 2700K 3K 3000K 35K 3500K 41K 4100K	SP Spot NFL Narrow Flood FL Flood	WH White BL Black SN Satin Nickel BZ Bronze

Transformers

Catalog Number	Finish	Description
TL602E-10-WH	White	10W 12V AC Electronic Driver/Transformer
TL602E-25-WH	White	25W 12V AC Electronic Driver/Transformer
TL602E-60-WH	White	60W 12V AC Electronic Driver/Transformer
TL576-10-BL	Black	10W 12V AC Magnetic Driver/Transformer
TL576-25-BL	Black	25W 12V AC Magnetic Driver/Transformer
TL576-60-BL	Black	60W 12V AC Magnetic Driver/Transformer

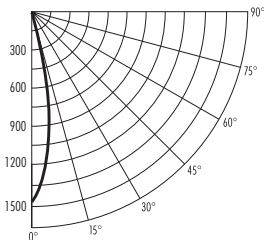


MINI LED DOWNLIGHT

MD1L RECESSED HOUSING AND TRIM LOW VOLTAGE

PHOTOMETRIC REPORT

Test Report #: PT10102802
Catalog No: MD1L35K-SP-WH
Luminaire Spacing Criterion: 0.28
Luminaire LPW: 38.6



CANDLEPOWER DISTRIBUTION (Candelas)

Degrees Vertical	0°
0	1453
5	1086
15	211
25	52
35	11
45	4
55	0
65	0
75	0
85	0
90	0

Multiplier: 27K - 0.92
3K - 0.96
41K - 1.06

AVERAGE INITIAL FOOTCANDLES

Multiple Units (Square Array, 60'x60' room)
Ceiling 80% Wall 50% Floor 20%

Spacing	RCR1	RCR3	RCR5
4.0'	14	13	12
5.0'	9	8	7
6.0'	6	6	5
7.0'	5	5	4
8.0'	4	4	3
9.0'	3	3	3
10.0'	2	2	2

INITIAL FOOTCANDLES (One Unit, 5W, 15.7° Beam)

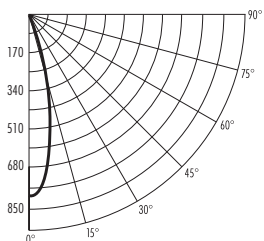
Distance to Illuminated Plane (Feet)	Footcandles Beam Center	Beam Diameter
4	90.8	1.1'
6	40.4	1.7'
8	22.7	2.2'
10	14.5	2.8'

LUMINANCE (Average cd/m²)

Degrees	Average 0° Luminance
45	6377
55	0
65	0
75	0
85	0

PHOTOMETRIC REPORT

Test Report #: LTL21544
Catalog No: MD1L35K-NFL-WH
Luminaire Spacing Criterion: 0.40
Luminaire LPW: 38.2



CANDLEPOWER DISTRIBUTION (Candelas)

Degrees Vertical	0°
0	803
5	701
15	277
25	74
35	19
45	5
55	2
65	0
75	0
85	0
90	0

Multiplier: 27K - 0.92
3K - 0.96
41K - 1.06

AVERAGE INITIAL FOOTCANDLES

Multiple Units (Square Array, 60'x60' room)
Ceiling 80% Wall 50% Floor 20%

Spacing	RCR1	RCR3	RCR5
4.0'	13	12	11
5.0'	9	8	7
6.0'	6	5	5
7.0'	5	4	4
8.0'	4	4	3
9.0'	3	3	2
10.0'	2	2	2

INITIAL FOOTCANDLES (One Unit, 5W, 23.6° Beam)

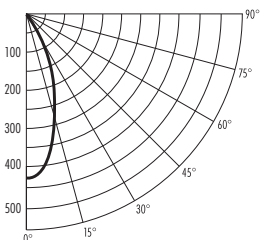
Distance to Illuminated Plane (Feet)	Footcandles Beam Center	Beam Diameter
4	50.2	1.7'
6	22.3	2.5'
8	12.5	3.3'
10	8.0	4.2'

LUMINANCE (Average cd/m²)

Degrees	Average 0° Luminance
45	6171
55	3215
65	0
75	0
85	0

PHOTOMETRIC REPORT

Test Report #: PT10102803
Catalog No: MD1L35K-FL-WH
Luminaire Spacing Criterion: 0.56
Luminaire LPW: 37.2



CANDLEPOWER DISTRIBUTION (Candelas)

Degrees Vertical	0°
0	424
5	403
15	240
25	104
35	28
45	9
55	4
65	2
75	0
85	0
90	0

Multiplier: 27K - 0.92
3K - 0.96
41K - 1.06

AVERAGE INITIAL FOOTCANDLES

Multiple Units (Square Array, 60'x60' room)
Ceiling 80% Wall 50% Floor 20%

Spacing	RCR1	RCR3	RCR5
4.0'	13	12	11
5.0'	8	8	7
6.0'	6	5	5
7.0'	5	4	4
8.0'	4	3	3
9.0'	3	3	2
10.0'	2	2	2

INITIAL FOOTCANDLES (One Unit, 5W, 34.9° Beam)

Distance to Illuminated Plane (Feet)	Footcandles Beam Center	Beam Diameter
4	26.5	2.5'
6	11.8	3.8'
8	6.6	5.0'
10	4.2	6.3'

LUMINANCE (Average cd/m²)

Degrees	Average 0° Luminance
45	16739
55	7738
65	7000
75	0
85	0

Fixtures tested to IES recommended standard for solid state lighting per LM-79-08. Photometric performance on a single unit at 12VAC in a 25°C ambient represents a baseline of performance for the fixture. Results may vary in the field and when multiple fixtures are used in a system.

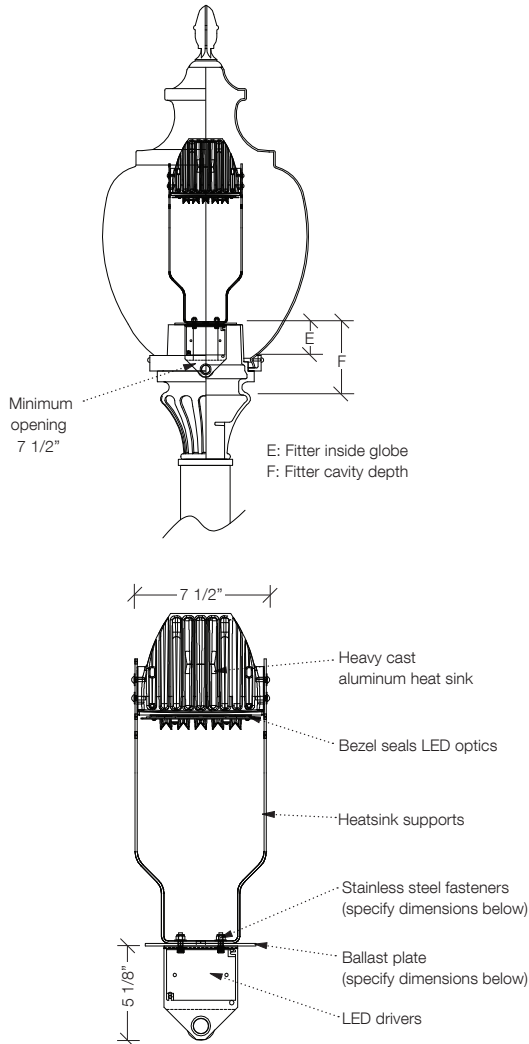


Type: _____
Project Name: _____
Notes: _____

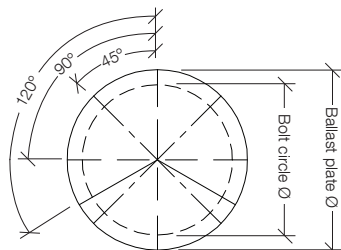
TYPE S1

Sample	LRK-3D	24NB-55	4K	T5R	UNV	2	45	?	?	?	?
Ordering	A	B	C	D	E	F	G	H	I	J	K

DETAILS



Bolt Circle Plate



The mounting plate facilitates a simplified conversion process of many of the existing globe style luminaires.

A. MODEL

LRK-3D LRK direct LED retrofit kit

K. BOLT SIZE

SPECIFY

B. ENGINE-WATTS

24NB-55 55 Watts - LED array

C. CCT - COLOR TEMP

3K 3000K

4K 4000K

5K 5000K (std.)

D. OPTICS

T2 type II

T3 type III

T4 type IV

T5R type V, rectangular

T5W type V, round wide

E. VOLTAGE

UNV 120-277V

347V 347V

480V 480V

F. NUMBER OF BOLTS

2 two bolts

3 three bolts

4 four bolts

G. BOLT PATTERN

45 45° bolt pattern

90 90° bolt pattern

120 120° bolt pattern

180 180° bolt pattern

Other

H. MOUNTING PLATE Ø

SPECIFY

I. BOLT LENGTH

SPECIFY

J. BOLT CIRCLE Ø

SPECIFY



Dimensions (Approx.): Existing Luminaires to be retrofitted are approximately 38" tall x 19" diameter and have clear, diffuse or prismatic refractor globes.

Bezel Optical System: Each luminaire is supplied with an optical one piece cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel. The cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one piece optical system. Two-piece silicone and polycarbonate foam gasket ensures a weather-proof seal around each individual LED and allows the luminaire to be rated for high-pressure hose down applications. The optical cartridge is secured to the extruded housing with fasteners and a heat pad to ensure thermal conductivity. The optics are held in place without the use of adhesives and the complete assembly is gasketed for high pressure hose down cleaning. The cartridge assembly is available in various lighting distributions using a specially designed acrylic optical lens over each LED.

Light Distribution: Shall be Street Classification Lighting Distribution Pattern for Roadway / Area

Power Supply/Driver Requirements: U.L. UL1310, Class 2 and UL48 compliant

Color Rendering Index (CRI): Luminaire shall have a minimum CRI of 67 at 5000K.

Operating Environment: Shall be able to operate normally in ambient temperatures from -40°C to 40°C

Surge Protector: The on-board surge protector shall be a UL recognized component for the United States and Canada and have a surge current rating of 20,000 Amps using the industry standard 8/20 pSec wave. The LSP shall have a clamping voltage of 825V and surge rating of 540J. The case shall be a high-temperature, flame resistant plastic enclosure.

Electrical: Luminaires are equipped with LED driver(s) that accept 90 through 305 VAC, 50 Hz to 60 Hz (UNIV). Power factor is .92 at full load. All electrical components are rated at 50,000 hours at full load and 25°C ambient conditions per MIL-217F Notice 2. All driver components supplied are component-to-component wiring within the luminaire will carry no more than 80% of rated current and is listed by UL for use at 600VAC at 50°C or higher. Plug disconnects are listed by UL for use at 600 VAC, 15A or higher.

Agency Certification: The luminaire shall bear an NRTL label.

Limited Warranty: Beacon luminaires feature a 5 year limited warranty. Beacon LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays. LED drivers are covered by a 5 year limited warranty. PIR sensors carry a 5 year limited warranty from the sensor manufacturer. See Warranty Information on www.beaconproducts.com for complete details and exclusions.

Power/Lumens & Distribution

Engine	Wattage	Delivered Lumens (varies by optic)	Delivered LPW	TM21 Calculated % Lumen Maint. at 100,000 hrs
24NB	55	3360-4090	56-68	93.70%

TM21 is the framework for taking LM-80 data and making useful LED lifetime projections. Reported and Calculated Lifetimes shown are based on hours at the time of this printing. For current Reported and Calculated hours please contact factory or Beacon's web-site.

CCT (COLOR TEMP) Lumen Output Multipliers	CRI (Color Rendering)
5000K = 1.0	min 67 CRI
4000K = .92	min 70 CRI
3000K = .75	min 80 CRI

Due to our continued efforts to improve our products, product specifications are subject to change without notice.

APPENDIX B CORAFLON ADS PRODUCT INFORMATION



METAL COATINGS
FLUOROPOLYMERS



NEW CORAFLON[®] ADS INTERMIX AN ULTRA-DURABLE, FIELD-APPLIED FLUOROPOLYMER COATING FROM PPG

Since the introduction of *Corafalon* ADS in 1995, PPG has been restoring and protecting buildings with unique air-dry fluoropolymer technology developed in the early 1980s. Today, PPG's new *Corafalon* ADS Intermix continues the tradition of long-lasting, field-applied fluoropolymer coatings that you have come to know and trust. *Corafalon* ADS Intermix has added improvements related to application and performance and offers lower VOCs (volatile organic compounds) without sacrificing durability.

Corafalon ADS Intermix Coatings are optimal for building restoration and other large-surface applications and are an excellent choice to restore weathered building panels and accents. *Corafalon* ADS Intermix is less than 250g/L VOC and is compliant in most regions in North America. The *Corafalon* ADS Intermix system is designed to be used on structurally sound surfaces, including architectural metals, curtain walls, standing seam roofs, aluminum windows, doors, handrails and stairs. This includes ferrous metal surfaces, such as water tanks and ornamental entrance ways.

ENHANCE AESTHETICS AND REDUCE LONG-TERM MAINTENANCE COSTS

Corafalon ADS Intermix's ultra-durable finish will save you money over the life of your building. With a long life expectancy and superior gloss and color retention, *Corafalon* ADS Intermix system delivers a low-maintenance finish that stands the test of time even under extreme environmental conditions.

Corafalon ADS Intermix formula is available in satin and gloss finishes and a wide variety of colors, all of which provide outstanding resistance to UV light. The finish resists chalking, weathering, marring and abrasion and is tough against chemicals. It also repels surface dirt and contaminants so your building or structure will retain its beauty for years to come.



WHY CORAFLON® ADS INTERMIX?

- **EXCEPTIONAL COLOR AND GLOSS RETENTION**
A durable, uniform, like-new appearance
- **DECORATIVE COLOR SELECTION**
Available in a wide variety of colors
- **OUTSTANDING PROTECTION**
Excellent resistance to chalking, weathering, marring and abrasion
- **AESTHETICALLY MORE PLEASING**
Superior resistance to ultraviolet light improves the look of a building
- **EXTENDED LIFE CYCLE**
Lengthens building life and reduces maintenance costs
- **EASY APPLICATION**
Can be sprayed, brushed or rolled
- **COATINGS SAVE \$\$\$\$\$**
A cost-effective alternative to removing and replacing infrastructure
- **FAST AND QUIET**
Coating applications minimize major repair disruptions and downtime
- **PRESERVE BUILDING INTEGRITY**
Coating restoration doesn't expose building contents to leaks during work
- **VOC COMPLIANT**
Lower than Federal AIM, OTC, LADCO and CARB 2000 SCM regulations



SAVE TIME AND MONEY ON BUILDING RESTORATIONS

Green Building Renewal Savings

Using *Coraflo*n ADS Intermix low-VOC coatings (<250g/L VOC) to refurbish existing architectural metal can significantly reduce the environmental impact and cost of a commercial building renovation. This is especially true when compared to metal panel or extrusion replacement or field coating with higher-VOC paint products.



Recoat Existing Metal Panels, Save on Replacement Costs

A two-component fluoropolymer coating, *Coraflo*n ADS Intermix can be applied by spray, brush or roller and is the fastest, simplest and most cost-effective way to fix metal panel problems. As an alternative to removing and replacing existing panels, *Coraflo*n ADS Intermix system helps you keep costs down.

Coating restoration alleviates structural issues posed by panel replacement and does not expose the building contents to leaks during work. And coating with *Coraflo*n ADS Intermix provides even more savings by shortening the renovation cycle, minimizing disruptions, and allowing the owners and tenants to return to normal operations much faster.



Advantages of *Coraflo*n ADS Intermix Coatings over Conventional Coatings

*Coraflo*n ADS Intermix Coatings offer a similar life span as new factory-finished panels. *Coraflo*n ADS Intermix Coatings for architectural metal restoration last up to four times as long as conventional coatings, resulting in significantly lower costs per year for protection and beauty. Fluoropolymer-based coatings are more stable and UV resistant than acrylic or conventional, polyurethane-based coatings, saving time and money and resulting in a longer-lasting building finish.

Although its initial material cost is more than conventional coatings, *Coraflo*n ADS Intermix offers exceptional long-term value, making it the ideal choice for monumental buildings and areas where maintenance painting is prohibitive. In fact, using the *Coraflo*n ADS Intermix Coating system—with its long life span—has allowed building owners to treat renovation costs as a capital expenditure rather than a maintenance expense, permitting them to amortize the cost over a period of time.



COLOR SELECTION, EXPERTISE AND SUPPORT TOOLS

PPG understands that color choice and color consistency, as well as special effects, are absolutely critical components to your overall building design. We are uniquely suited to provide expertise and guidance in both color selection and delivery. And because of their unique formula, *Coraflon* ADS Intermix Coatings attain a rich palette of vivid solid colors, metallics and special effects. *Coraflon* ADS Intermix colors are offered in both a satin and gloss finish and are produced with the most durable pigments currently available in the market.

You can either choose from one of the readily available 45 colors on the PPG *Coraflon* ADS Intermix color card, or we can custom match a variety of colors to meet your specific color and durability requirements. And since the right tools are essential for specifying color, PPG provides a wide array of user-friendly color selection tools to help you achieve the best results. PPG can also provide professional rendering services for your building renewal project.



EXPERIENCED, DEDICATED PROFESSIONALS AND OUTSTANDING SUPPORT

With over 40 years of experience in the specialty coatings field, PPG can provide specialized technical support to assure a successful job. In addition to supporting architects and engineers in writing the best specifications, PPG's technical specialists work hand in hand with trained contractors. Your project will receive prompt, effective field service from our experts, who are available to answer questions, assist painting contractors, and ensure that your project goes smoothly.

FOR ADDITIONAL INFORMATION

For a complete product listing, please visit www.coraflon.com. Contact your PPG representative or call **1.888.PPG.IDEA (1.888.774.4332)** to learn more about *Coraflon* ADS Intermix and how PPG can help you restore your building's beauty, performance and profit potential. Your PPG specialist can help you select the right coating systems and colors, plus provide field support to ensure your job gets done right.



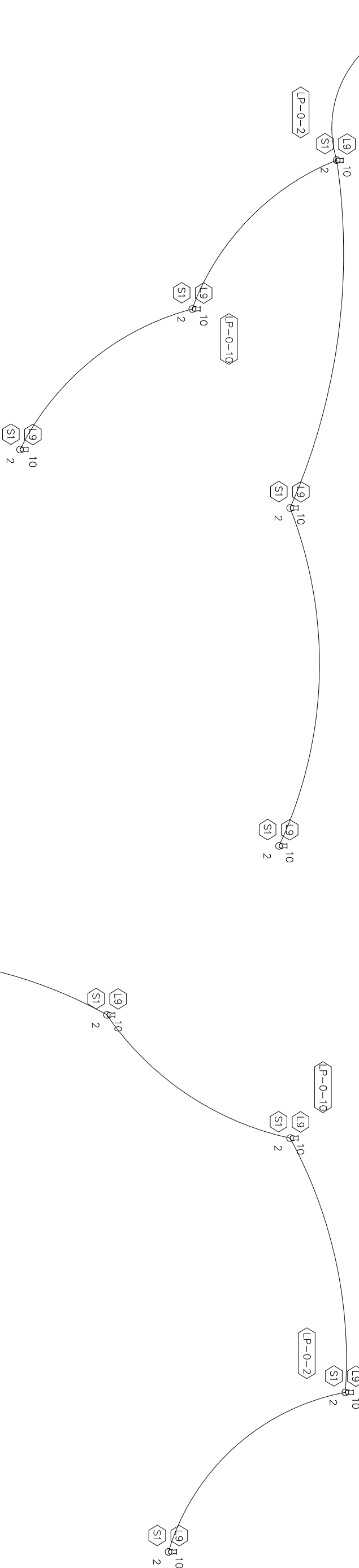
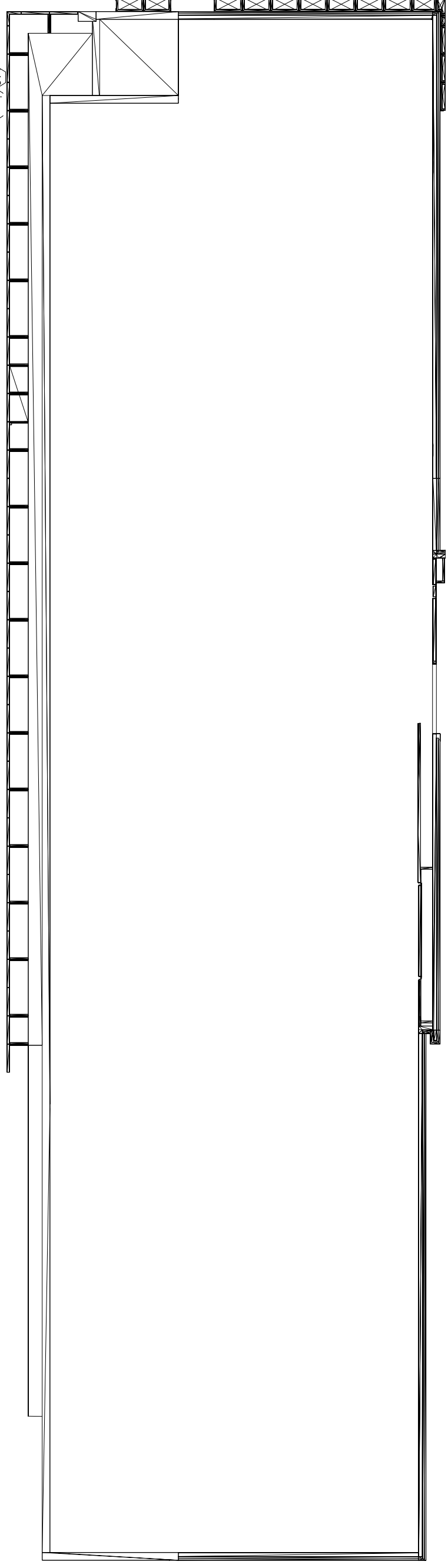
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Architect/Specifier: 1-888-PPG-IDEA • www.corafon.com

APPENDIX C FIXTURE SCHEDULE

FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL	LOAD	LAMP	VOLTAGE	MOUNTING	QUANTITY	COMMENTS
F1	Low profile T5 fluorescent fixture, formed and welded 20 ga steel assembly, high reflectance white powder coat, dimming pack included, includes program-start ballast.	Barco	MITS	32 VA	(1) 28W T5	277 V	Pendant	26	Suspend 6" above perforated ceiling, install above largest perforations as shown in lighting plan, facing up to reflect light in ceiling cavity.
F2	4' suspended pendant in 4.5" by 2.5" cross section housing, extruded aluminum housing with semi-specular high reflectance aluminum or high reflectance white painted steel, frosted acrylic diffuse lens, include dimming option/ballast.	Peerless	Nairo	32 VA	(1) 28W T5	277 V	Pendant	36	Mount as noted, use "L" brackets as noted in drawings.
F3	Concealed 4' cove steel fixture with T5 lamping, asymmetric distribution, painted custom black housing, include dimming ballast/option.	Litecontrol	Cove-25	61 VA	(1) 54 W T5HO	277 V	Surface	22	Mount as noted in drawings, painted black housing, when installing insure no fixture overhang over ceiling panel edges, fixture faces up to pushed up ceiling panels.
F4	4' recessed gypsum ceiling direct wall wash with T5HO lamping, include dimming ballast/option.	Litecontrol	Mod 44	61 VA	(1) 54 W T5HO	277 V	Recessed	6	Install in drop ceiling above custom ceiling panels.
L1	Cable suspended direct linear 8' LED fixture, narrow beam distribution, extruded aluminum housing, white polyester powder coating, clear impact resistant acrylic lens with micro automatic dimmer.	Selux	M36 LED	72 VA	72W LED	277 V	Pendant	1	Suspend above desk, provide fixture with 55% output as specified.
L2	Self-flanged recessed wall wash, 4' aperture, clear semi-specular reflector, 1800 lumen output with 45° cutoff to source, 1.6 ga galvanized steel housing.	Gotham	EVO Wall Wash	29 VA	29 W LED	277 V	Recessed	18	Insure reflector faces towards walls as noted in drawings.
L3	Low wattage LED 3" architectural slot, frosted lens with linear micro prism pattern, extruded aluminum housing, matte white polyester powder coat, include dimming option/driver and sliding sleeves.	Focal Point	Trace	22.9 VA	22.9 W LED	277 V	Recessed	17	Provide continuous run with sliding sleeves (in lobby)
L4	Recessed direct linear 4' LED fixture, narrow distribution, extruded aluminum housing, custom black polyester powder coating, clear impact resistant 5" asymmetrical LMO lens.	Selux	M36 LED	36 VA	36W LED	277 V	Recessed	13	Recessed directly next to linear diffusers, to be installed in slot. 1.5" slot cut in custom perforated ceiling, continuous runs consist of 4' fixtures butted against one another, one fixture along edge of ceiling panel to align with linear diffuser.
L5	Recessed 6' direct LED in continuous white enamel extruded aluminum housing, LED optimized white acrylic diffuser lens, dimming LED control/LED driver.	Selux	M60 LED	57 VA	57 W LED	277 V	Recessed	1	Install as noted within 2.375" slot in custom ceiling panels.
L6	Dimmable LED torso spotlight with spherid lens, cast aluminum powder coated white housing, 360° rotatable fixture, include black plastic, stool accessory.	Erco	Opion	12 VA	12 W LED	277 V	Track	7	Install as noted in drawings, aiming to be done in field by lighting designer.
L7	Suspended wide beam 2000 lumen output architectural cylinder, 4.375" luminous aperture with softglow finish, remote phosphor LED, 0-10V dimming capabilities.	Kurt Versen	L133	14 VA	14 W LED	277 V	Pendant	98	5" diameter cylinder suspended from cable between custom panels, dimmable for presentation mode, 3500K engine.
L8	Direct wall-mounted medium output (MO) fixture, 0-10V dimming, 3500K, die-formed and welded steel housing with high reflectance white finish, extruded frosted acrylic soft glow lens.	Litecontrol	Mod 44 LED	29 VA	29 W LED	277 V	Wall	11	Install above custom ceiling panels, continuous run otherwise butt together ends.
L8A	Same as L8 but with High Output (HO) LED.	Litecontrol	Mod 44 LED	39 VA	39 W LED	277 V	Wall	30	Same as above L8 above.
L9	Exterior pole mounted theatrical fixture with WFL (wide flood) lens and leaf gobo, RGB LED, DMX compatible, IP65-rated.	Wash Lighting	Spectra PAR 100	100 VA	100 W LED	277 V	Pole	10	Mount to existing site lighting poles, provide with leaf gobo, control using DMX programming, controlled by time-clock.
L10	Half-unit long throw exterior LED floodlight with 8" optic, 3796 lumen output, RGB channels, mounted with rotatable fixture bracket and 2 arm extension, DMX/Ethernet control system, die-cast aluminum, powder-coated finish, IP66-rated.	Phillips ColorKinetics	ColorSearch Powercore gen2	145 VA	145 W LED	277 V	Wall	17	Mount on sunscreen with 2" reinforced arm extension, aiming to be done in field by lighting designer.
L11	Mini LED downlight with 2.5" aperture, flood distribution, die cast aluminum housing, black coated finish, 3500 K	Juno	MD1L	4.8 VA	4.8 W LED	12 V	Recessed	5	Recess fixture within 2.5" perforation of custom ceiling panel to conceal source of light.
S1	Type V rectangular distribution pole fixture, LED retrofit kit, UL1310 Class 2 and UL48 compliant.	Beacon	LRC - Direct 3D	55 VA	55 W LED Retrofit Kit	277 V	Pole	11	As approved by University, install as noted in drawings.

APPENDIX D ELECTRICAL PLANS



UNIVERSITY OF PENNSYLVANIA

NEURAL AND BEHAVIORAL SCIENCES BUILDING

ARCHITECTURE & ENGINEERING

SMITHGROUPJJR

CONSTRUCTION MANAGER

P. ANGES

LANDSCAPE ARCHITECTURE

CHRISTOPHER ALLEN

CIVIL ENGINEERING

PENNONI ASSOCIATES, INC

SENIOR THESIS

THE PENNSYLVANIA STATE UNIVERSITY

ARCHITECTURAL ENGINEERING

LIGHTING AND ELECTRICAL OPTION

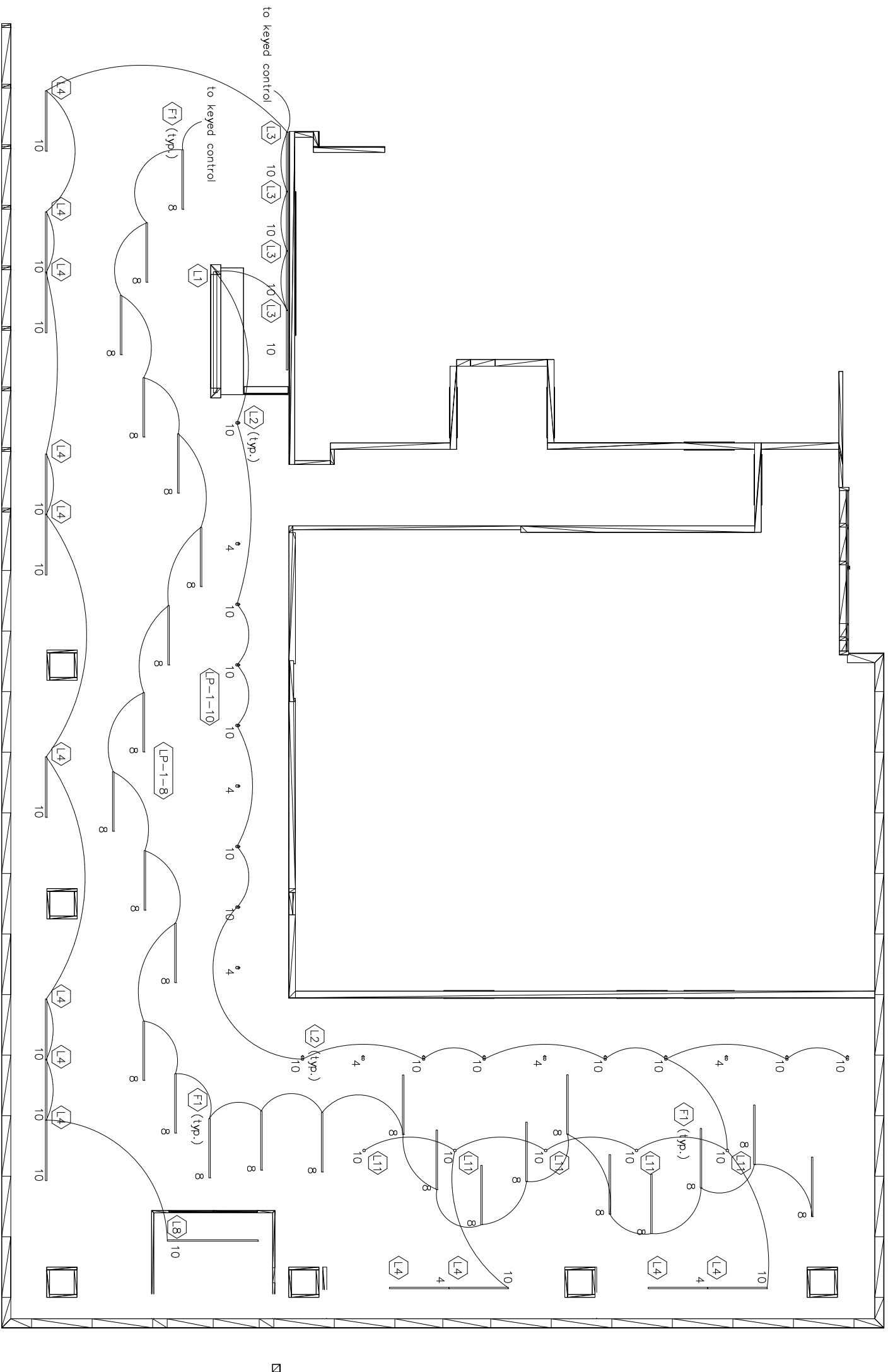
DRAWING TITLE
ELECTRICAL SITE PLAN

SCALE
1/16" = 1' 0"

PROJECT NUMBER
1

DRAWN BY
REINHARDT SMART

DRAWING NUMBER
E1.0



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STATE UNIVERSITY

ARCHITECTURAL
ENGINEERING

LIGHTING AND
ELECTRICAL OPTION

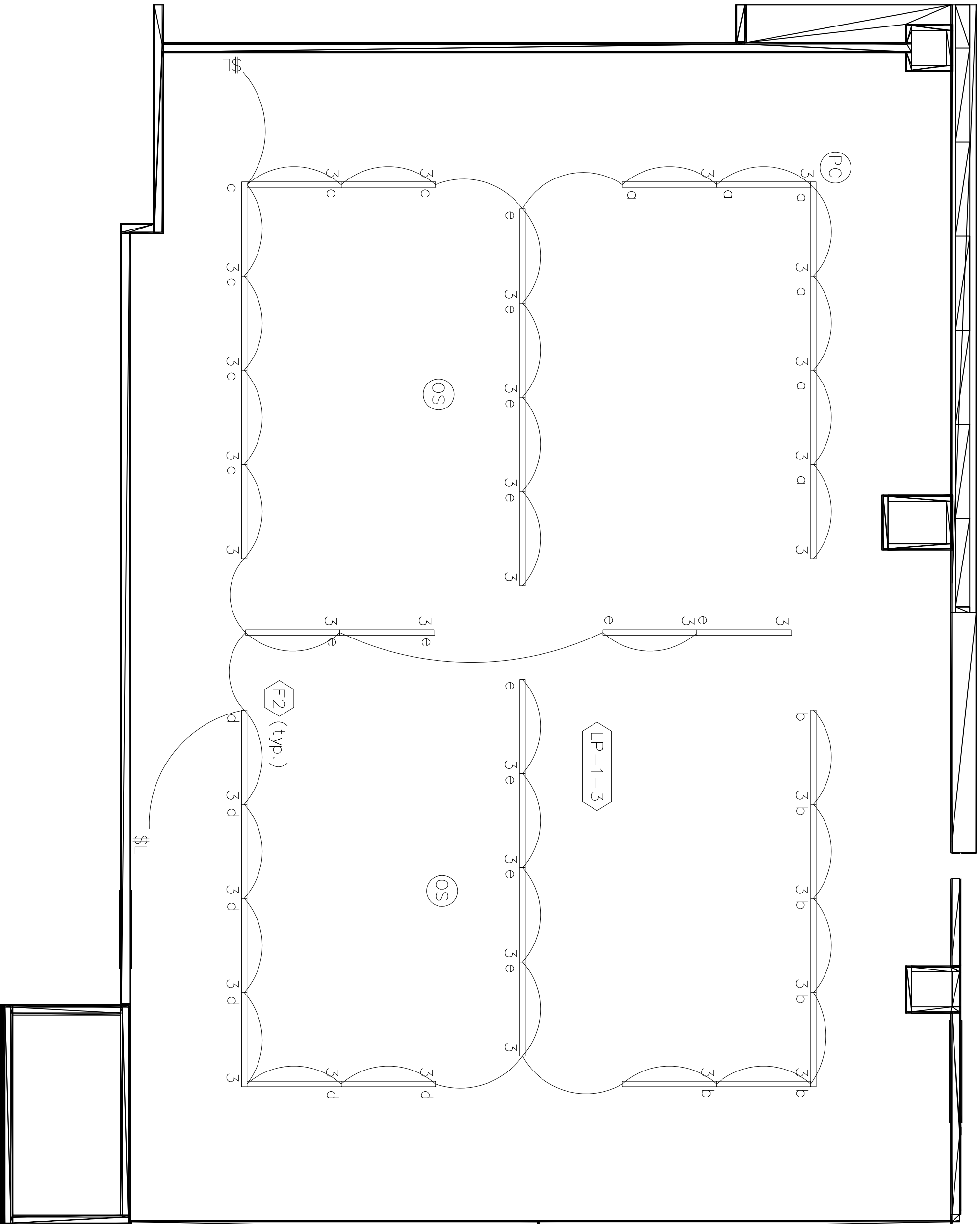
DRAWING TITLE
ELEC. LOBBY/LOUNGE PLAN

SCALE
1/8" = 1' 0"

PROJECT NUMBER
1

DRAWN BY
REINHARDT SMART

DRAWING NUMBER
E1.1



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LIGHTING AND ELECTRICAL OPTION

DRAWING TITLE

ELEC. CLASSROOM PLAN

SCALE

1/4" = 1'-0"

PROJECT NUMBER

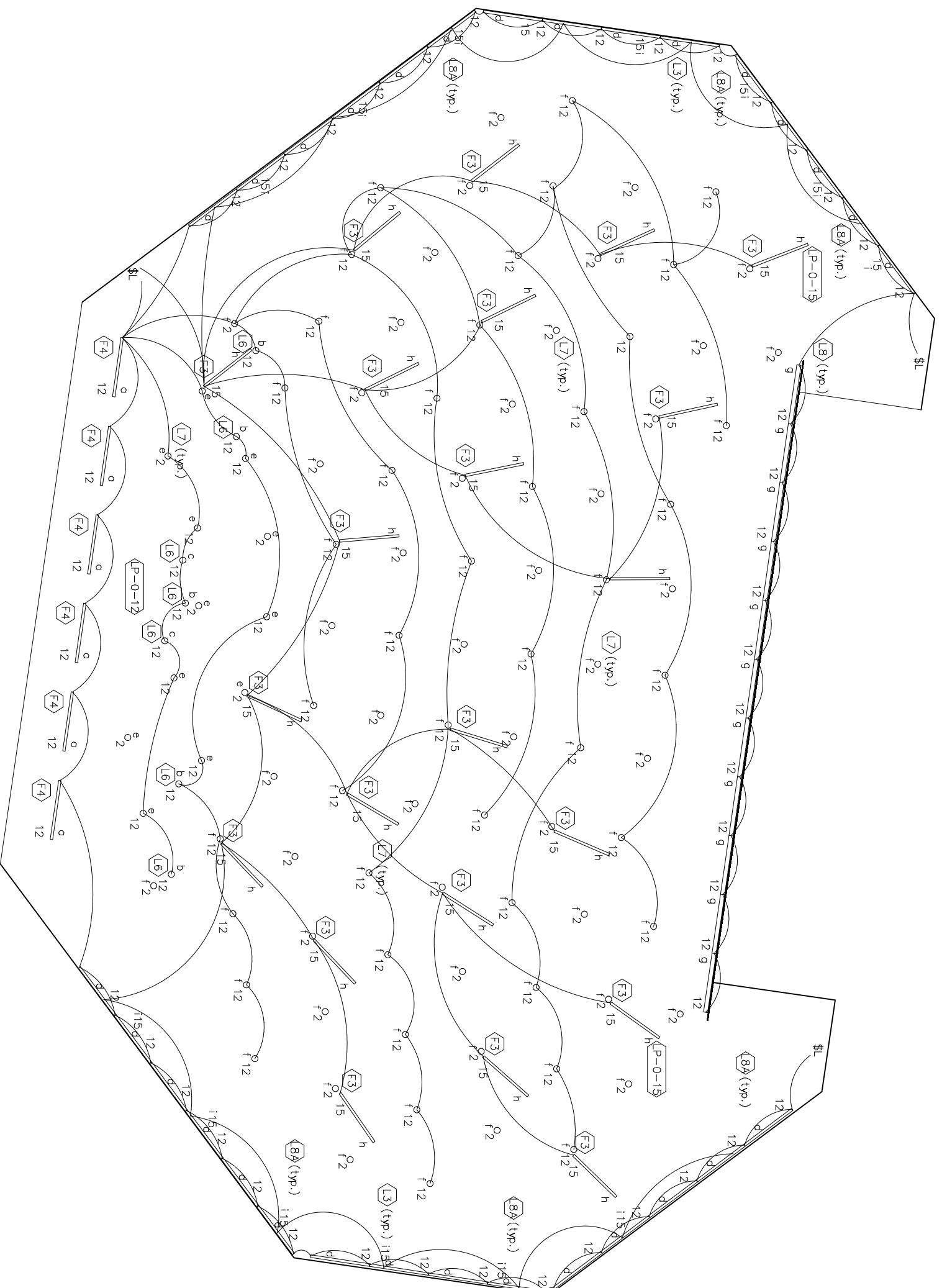
1

DRAWN BY

REINHARDT SMART

DRAWING NUMBER

E1.2



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ARCHITECTURAL ENGINEERING

LIGHTING AND ELECTRICAL OPTION

DRAWING TITLE

ELEC. LECTURE HALL PLAN

SCALE

1/8" = 1' 0"

PROJECT NUMBER

1

DRAWN BY

REINHARDT SWART

DRAWING NUMBER

E1.3

APPENDIX E COMCHECK REPORT



Interior Lighting and Power Compliance Certificate

90.1 (2010) Standard

Section 1: Project Information

Project Type: **New Construction**

Project Title :

Construction Site:

Owner/Agent:

Designer/Contractor:

Section 2: Interior Lighting and Power Calculation

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B x C)
Entrance Lobby/Lounge (Common Space Types:Lobby - General)	2407	0.9	2166
Allowance: Decorative Appearance / Fix. ID: F1	2407(a)	1	832(b)
Lecture Hall (Common Space Types:Classroom/Lecture/Training)	3200	1.24	3968
Allowance: Decorative Appearance / Fix. ID: F3	3200(a)	1	1342(b)
Allowance: Decorative Appearance / Fix. ID: L3	3200(a)	1	298(b)
Classroom (Common Space Types:Classroom/Lecture/Training)	1700	1.24	2108
Total Allowed Watts =			10714

(a) Area claimed must not exceed the illuminated area permitted for this allowance type.

(b) Allowance is (B x C) or the actual wattage of the fixtures given in Section 2, whichever is less.

Section 3: Interior Lighting Fixture Schedule

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Entrance Lobby/Lounge (Common Space Types:Lobby - General 2407 sq.ft.)				
F1 Flour. Backlight: F1: 48" T8 28W (Super T8): Electronic:	1	26	32	832
L1 Linear Pendant: L1: Other:	1	1	72	72
L2 Wall Wash: L2: Other:	1	18	29	522
L3 Wall Graze: L3: Other:	1	4	22.9	91.6
L4 Linear Perimeter: L4: Other:	1	13	36	468
L5 Linear Entrance: L5: Other:	1	1	57	57
L11 Downlights: L11: Other:	1	5	4.8	24
Lecture Hall (Common Space Types:Classroom/Lecture/Training 3200 sq.ft.)				
F3 Custom Cove: F3: Other: Dimming:	1	22	61	1342
F4 Wall Wash: F4: Other: Dimming:	1	6	61	366
L3 Wall Graze: L3: Other:	1	13	22.9	297.7
L6 Track Light: L6: LED PAR 12W:	1	7	12	84
L7 Downlights: L7: LED PAR 15W:	1	98	14	1372
L8 Wall Wash: L8: Other:	1	11	29	319
L8A Wall Wash: L8A: Other:	1	30	39	1170
Classroom (Common Space Types:Classroom/Lecture/Training 1700 sq.ft.)				
F2 Linear Pendant: F2: Other: Dimming:	1	36	32	1152
Total Proposed Watts =			8169	

Interior Lighting PASSES: Design 24% better than code.

Section 4: Compliance Statement

Compliance Statement: The proposed lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 90.1 (2010) Standard requirements in COMcheck Version 3.9.3 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title

Signature

Date

Section 5: Post Construction Compliance Statement

Record Drawings and Operating and Maintenance Manuals:

1. Construction documents with record drawings and operating and maintenance manuals provided to the owner.

Lighting Designer or Contractor Name

Signature

Date



Exterior Lighting Compliance Certificate

90.1 (2010) Standard

Section 1: Project Information

Project Type: **New Construction**

Project Title :

Exterior Lighting Zone: **4 (High activity metropolitan commercial district)**

Construction Site:

Owner/Agent:

Designer/Contractor:

Section 2: Exterior Lighting Area/Surface Power Calculation

A Exterior Area/Surface	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B x C)	F Proposed Watts
Sunscreen/Scrim (Illuminated area of facade wall or surface)	17125 ft2	0.2	No	3425	2465
Walkway < 10 feet wide	6240 ft of walkway length	1	Yes	6240	1605
Total Tradable Watts* =				6240	1605
Total Allowed Watts =				9665	
Total Allowed Supplemental Watts** =				1300	

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 5% of total allowed wattage may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Sunscreen/Scrim (Illuminated area of facade wall or surface 17125 ft2): Non-tradable Wattage				
L10 Exterior Floodlights: L10: Other:	1	17	145	2465
Walkway < 10 feet wide (6240 ft of walkway length): Tradable Wattage				
S1 Site Lighting: S1: Other:	1	11	55	605
L9 Theatrical PAR: L9: Other:	1	10	100	1000
Total Tradable Proposed Watts =				1605

Section 4: Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 90.1 (2010) Standard requirements in COMcheck Version 3.9.3 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title

Signature

Date

**COMcheck Software Version 3.9.3**

Inspection Checklist

Energy Code: 90.1 (2010) Standard

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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90.1 (2010) Standard	Plan Review	Complies?	Comments/Assumptions
4.2.2,8.4. 1.1,8.4.1. 2,8.7 [PR6] ²	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder connectors sized in accordance with approved plans and branch circuits sized for maximum drop of 3%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
4.2.2,9.4. 4,9.7 [PR4] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.7 [PR8] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

90.1 (2010) Standard	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
8.4.2 [EL10] ²	At least 50% of all 125 volt 15- and 20-Amp receptacles are controlled by an automatic control device.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.4.1.1 [EL1] ²	Automatic controls to shut off all building lighting installed in buildings >5,000 ft ² .	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.4.1.2 [EL2] ²	Independent lighting controls installed per approved lighting plans and all manual controls readily accessible and visible to occupants.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.4.1.3 [EL11] ²	Parking garage lighting is equipped with required lighting controls and daylight transition zone lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
9.4.1.4 [EL12] ¹	Primary sidelighted areas \geq 250 ft ² are equipped with required lighting controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.4.1.5 [EL13] ¹	Enclosed spaces with daylight area under skylights and rooftop monitors >900 ft ² are equipped with required lighting controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
9.4.1.7 [EL3] ²	Automatic lighting controls for exterior lighting installed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.4.1.6 [EL4] ¹	Separate lighting control devices for specific uses installed per approved lighting plans.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.4.2 [EL6] ¹	Exit signs do not exceed 5 watts per face.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.4.3 [EL7] ¹	Exterior grounds lighting over 100 W provides >60 lm/W unless on motion sensor or fixture is exempt from scope of code or from external LPD.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.6.2 [EL8] ¹	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

90.1 (2010) Standard	Final Inspection	Complies?	Comments/Assumptions
8.7.1 [FI16] ³	Furnished as-built drawings for electric power systems within 30 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
8.7.2 [FI17] ³	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.2.2.3 [FI18] ¹	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Interior Lighting fixture schedule for values.
9.4.3 [FI19] ¹	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Exterior Lighting fixture schedule for values.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
---	----------------------	---	------------------------	---	---------------------

APPENDIX F MECHANICAL SYSTEM COST ANALYSIS

INTERIOR MECHANICAL REDESIGN
Ref: M2.4, M7.4

Original Design													
Unit	Duct Size	LF	Shape	Diffuser Size	CFM	RS Means Unit	Cost (Material + Labor)						
Supply Air													
S2-1-120	6" x 8"	5	Rectangular	24" x 24"	120	11.5 lbs.	\$ 67.39						
S2-1-120	6" x 8"	1	Rectangular	24" x 24"	120	2.3 lbs.	\$ 13.48						
S2-1-120	6" x 8"	6	Rectangular	24" x 24"	120	13.8 lbs.	\$ 80.87						
S2-1-120	6" x 8"	1	Rectangular	24" x 24"	120	2.3 lbs.	\$ 13.48						
S2-1-120	12" x 10"	9	Rectangular	1" x 48"	310	33.3 lbs.	\$ 195.14						
S2-1-120	12" x 10"	5	Rectangular	1" x 48"	205	18.5 lbs.	\$ 108.41						
Return Air													
R2-1-120	6" x 8"	5	Rectangular	24" x 24"	120	11.5 lbs.	\$ 67.39						
R2-1-120	6" x 8"	7	Rectangular	24" x 24"	120	16.1 lbs.	\$ 94.35						
R2-1-120	6" x 8"	2	Rectangular	24" x 24"	120	4.6 lbs.	\$ 26.96						
R2-1-120	6" x 8"	2	Rectangular	24" x 24"	120	4.6 lbs.	\$ 26.96						
R2-3-10	12" DIA	13.5	Round	24" x 24"	210	2.1 lb.	\$ 20.94						
R2-3-10	6" x 8"	5.75	Rectangular	24" x 24"	202	13.2 lbs.	\$ 77.33						
						995							
							RS Means Unit						
							Cost						
Branches	Unit	Duct Size	LF	Shape	N/A	CFM	RS Means Unit	Cost					
Main Return	30" x 10"		44.5	Rectangular			382.7 lbs.	\$ 2,150.77					
Supply Branch1	10" DIA		19.5	Round			19.5 LF	\$ 154.83					
Supply Branch2	12" x 10"		25	Rectangular			92.5 lbs.	\$ 542.05					
Linear Diffuser Branch	12" x 10"		16.5	Rectangular			61.1 lbs.	\$ 358.05					
Return Air Branch	6" x 8"		17.75	Rectangular			40.8 lbs.	\$ 239.09					
TOTAL COST							\$	4,235.93					

Renovated Open Office													
Unit	Duct Size	LF	Shape	Diffuser Size	CFM	RS Means Unit	Cost (Material + Labor)						
Supply Air													
S2-1-120	7" DIA	7	Round	8" DIA	120	7.1 lb.	\$ 37.80						
S2-1-120	7" DIA	7	Round	8" DIA	120	7.1 lb.	\$ 37.80						
S2-1-120	7" DIA	7	Round	8" DIA	120	7.1 lb.	\$ 37.80						
S2-1-120	7" DIA	7	Round	8" DIA	120	7.1 lb.	\$ 37.80						
S2-1-120	10" DIA	10.25	Round	1" x 48"	310	10.25 LF	\$ 81.39						
S2-1-120	10" DIA	10.25	Round	1" x 48"	205	10.25 LF	\$ 65.19						
Return Air													
R2-1-330	12" DIA	2	Round	24" x 24"	352	2.1 lb.	\$ 20.36						
R2-1-330	12" DIA	2	Round	24" x 24"	352	9.1 lb.	\$ 91.62						
R2-1-330	12" DIA	2	Round	24" x 24"	352	2.1 lb.	\$ 20.36						
Removed	--	--	--	--	--	--	--						
Removed	--	--	--	--	--	--	--						
Removed	--	--	--	--	--	--	--						
						996							
							RS Means Unit						
							Cost						
Branches	Unit	Duct Size	LF	Shape	N/A	CFM	RS Means Unit	Cost					
Main Return	30" x 10"		44.5	Rectangular			382.7 lbs.	\$ 2,150.77					
Supply Branch	10" DIA		24	Round			24 LF	\$ 190.56					
Supply Branch	10" DIA		25	Round			25 LF	\$ 198.50					
Linear Diffuser Branch	12" DIA		20.5	Round			20.5 LF	\$ 208.69					
Removed	--		--	--			--	--					
TOTAL COST							\$	3,178.64					
TOTAL SAVINGS							\$	1,058.29					

APPENDIX G EATON CONSULTING APPLICATION GUIDE

Transformers

Liquid-Filled Transformers

Table 14.0-29. Oil-Filled Standard Design, 60 Hz, HV Delta, LV at 600V Class (30 kV BIL) Indoor or Outdoor Application

kVA	HV, kV	HV BIL, kV	Dimensions in Inches (mm)			Weight Lbs (kg)	Liquid Gallons (Liters)
			H _{TX}	W _{TX}	D _{TX}		
Oil-Filled 65°C Rise							
300	5 or 15	60 or 95	73.00 (1854.2)	53.00 (1346.2)	38.20 (970.3)	6100 (2767)	480 (1817)
500	5 or 15	60 or 95	73.00 (1854.2)	57.00 (1447.8)	47.00 (1193.8)	7400 (3357)	517 (1957)
750	5 or 15	60 or 95	73.00 (1854.2)	60.00 (1524.0)	50.50 (1282.7)	9300 (4218)	575 (2177)
	25	125	73.00 (1854.2)	60.00 (1524.0)	50.50 (1282.7)	9301 (4219)	
	35	150	73.00 (1854.2)	60.00 (1524.0)	50.50 (1282.7)	9302 (4219)	
1000	5 or 15	60 or 95	73.00 (1854.2)	69.00 (1752.6)	50.50 (1282.7)	11,000 (4990)	600 (2271)
	25	125	73.00 (1854.2)	69.00 (1752.6)	50.50 (1282.7)	11,000 (4990)	
	35	150	73.00 (1854.2)	69.00 (1752.6)	50.50 (1282.7)	11,000 (4990)	
1500	5 or 15	60 or 95	73.00 (1854.2)	73.00 (1854.2)	63.60 (1615.4)	12,700 (5761)	640 (2423)
	25	125	73.00 (1854.2)	73.00 (1854.2)	63.60 (1615.4)	12,700 (5761)	
	35	150	73.00 (1854.2)	73.00 (1854.2)	63.60 (1615.4)	12,700 (5761)	
2000	5 or 15	60 or 95	73.00 (1854.2)	76.00 (1930.4)	63.60 (1615.4)	15,200 (6895)	650 (2461)
	25	125	73.00 (1854.2)	76.00 (1930.4)	63.60 (1615.4)	15,200 (6895)	
	35	150	73.00 (1854.2)	76.00 (1930.4)	63.60 (1615.4)	15,200 (6895)	
2500	5 or 15	60 or 95	73.00 (1854.2)	76.00 (1930.4)	71.20 (1808.5)	17,250 (7825)	650 (2461)
	25	125	73.00 (1854.2)	76.00 (1930.4)	71.20 (1808.5)	17,250 (7825)	
	35	150	73.00 (1854.2)	76.00 (1930.4)	71.20 (1808.5)	17,250 (7825)	
3000	25	125	85.00 (2159.0)	76.00 (1930.4)	71.20 (1808.5)	17,850 (8097)	680 (2574)
	35	150	85.00 (2159.0)	76.00 (1930.4)	71.20 (1808.5)	17,850 (8097)	
3750	25	125	85.00 (2159.0)	70.00 (1778.0)	115.00 (2921.0)	16,800 (7627)	900 (3407)
	35	150	100.00 (2540.0)	76.00 (1930.4)	118.00 (2997.2)	18,000 (8165)	
Oil-Filled 55°/65°C Rise							
300	5 or 15	60 or 95	73.00 (1854.2)	53.00 (1346.2)	50.50 (1282.7)	6100 (2767)	480 (1817)
500	5 or 15	60 or 95	73.00 (1854.2)	57.00 (1447.8)	52.20 (1333.5)	7400 (3357)	517 (1957)
750	5 or 15	60 or 95	73.00 (1854.2)	60.00 (1524.0)	63.60 (1615.4)	9300 (4218)	575 (2177)
	25	125	73.00 (1854.2)	60.00 (1524.0)	63.60 (1615.4)	9301 (4219)	
	35	150	73.00 (1854.2)	60.00 (1524.0)	63.60 (1615.4)	9302 (4219)	
1000	5 or 15	60 or 95	73.00 (1854.2)	69.00 (1752.6)	63.60 (1615.4)	11,000 (4990)	600 (2271)
	25	125	73.00 (1854.2)	69.00 (1752.6)	63.60 (1615.4)	11,000 (4990)	
	35	150	73.00 (1854.2)	69.00 (1752.6)	63.60 (1615.4)	11,000 (4990)	
1500	5 or 15	60 or 95	73.00 (1854.2)	73.00 (1854.2)	63.60 (1615.4)	12,700 (5761)	640 (2423)
	25	125	73.00 (1854.2)	73.00 (1854.2)	63.60 (1615.4)	12,700 (5761)	
	35	150	73.00 (1854.2)	73.00 (1854.2)	63.60 (1615.4)	12,700 (5761)	
2000	5 or 15	60 or 95	73.00 (1854.2)	76.00 (1930.4)	71.20 (1808.5)	15,200 (6895)	670 (2536)
	25	125	73.00 (1854.2)	76.00 (1930.4)	71.20 (1808.5)	15,200 (6895)	
	35	150	73.00 (1854.2)	76.00 (1930.4)	71.20 (1808.5)	15,200 (6895)	
2500	5 or 15	60 or 95	73.00 (1854.2)	76.00 (1930.4)	96.60 (2453.6)	17,500 (7938)	700 (2650)
	25	125	73.00 (1854.2)	76.00 (1930.4)	96.60 (2453.6)	17,500 (7938)	
	35	150	73.00 (1854.2)	76.00 (1930.4)	96.60 (2453.6)	17,500 (7938)	
3000	25	125	85.00 (2159.0)	76.00 (1930.4)	96.60 (2453.6)	17,850 (8097)	700 (2650)
	35	150	85.00 (2159.0)	76.00 (1930.4)	96.60 (2453.6)	17,850 (8097)	
3750	25	125	85.00 (2159.0)	70.00 (1778.0)	122.00 (3098.8)	16,800 (7620)	900 (3407)
	35	150	100.00 (2540.0)	78.00 (1981.2)	135.00 (3429.0)	18,000 (8165)	

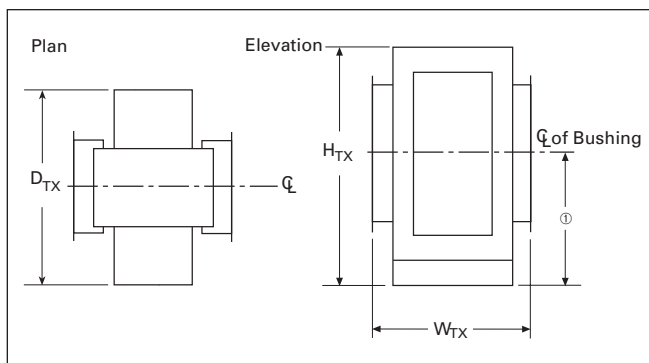


Figure 14.0-15. Liquid-Filled, Indoor and Outdoor
① = 55.00 inches (1397.0 mm) for all ratings through 15 kV primary, 600V secondary.

Dimensions for estimating purposes only.

Transformers

Table 14.0-30. High Voltage 35 kV and Below. Low Voltage 600V and Below. Copper Conductor Windings. Losses in Watts. Three-Phase Distribution Transformers ①

Liquid-Filled <34.5 kV Primary 55°C Temp. Rise				
kVA	No Load at 75°C Ref. Temp. (Watts)	Load Loss at 100% Load and 75°C Ref. Temp. (Watts)	Total Losses at 100% Load and 85°C (Watts)	60–150 kV HV BIL Total Losses at 50% Load and 55°C LL Ref. Temp. and 20°C NL Ref. Temp. per DOE (Watts)
75 ②	175	960	1135	413
112.5 ②	250	1250	1500	562
150 ②	300	1630	1930	696
225 ②	330	2500	2830	942
300 ②	520	2600	3120	1164
500 ②	730	4900	5630	1889
750 ②	1100	6200	7300	2567
1000 ②	1500	6700	8200	3221
1500 ②	1900	10,000	11,900	4375
2000 ②	2600	12,000	14,600	5429
2500 ②	2800	15,000	17,800	6408
3000	3800	16,000	19,800	N/A

① Losses offered are typical only, not guaranteed.

② Designates units must typically meet the new DOE efficiency guideline levels with noted losses complying with such.

Table 14.0-31. High Voltage 35 kV and Below. Low Voltage 600V and Below. Copper Conductor Windings. Losses in Watts. Three-Phase Distribution Transformers ③

Liquid-Filled <34.5 kV Primary 65°C Temp. Rise				
kVA	No Load at 85°C Ref. Temp. (Watts)	Load Loss at 100% Load and 85°C Ref. Temp. (Watts)	Total Losses at 100% Load and 85°C (Watts)	60–150 kV HV BIL Total Losses at 50% load and 55°C LL Ref. Temp. and 20°C NL Ref. Temp. per DOE (Watts)
75 ④	190	950	1140	413
112.5 ④	260	1300	1560	562
150 ④	320	1600	1920	696
225 ④	400	2300	2700	942
300 ④	500	3000	3500	1164
500 ④	700	5000	5700	1889
750 ④	1000	6500	7500	2567
1000 ④	1300	8500	9800	3221
1500 ④	1900	10,500	12,400	4375
2000 ④	2100	14,500	16,600	5429
2500 ④	2700	15,500	18,200	6408
3000	4000	18,000	22,000	N/A

③ Losses offered are typical only, not guaranteed.

④ Designates units must typically meet the new DOE efficiency guideline levels with noted losses complying with such.

Transformers

Environmentally Friendly Fluid Filled Units

Table 14.0-32. Liquid-Filled Standard Design, 60 Hz, HV Delta, LV at 600V Class (30 kV BIL) Indoor or Outdoor Application

kVA	HV, kV	HV BIL, kV	Dimensions in Inches (mm)			Weight Lbs (kg)	Liquid Gallons (Liters)
			H _{TX}	W _{TX}	D _{TX}		
Liquid-Filled 65°C Rise							
300	5 or 15	60 or 95	73.00 (1854.2)	53.00 (1346.2)	38.20 (970.3)	6100 (2767)	480 (1817)
500	5 or 15	60 or 95	73.00 (1854.2)	57.00 (1447.8)	47.00 (1193.8)	7400 (3357)	517 (1957)
750	5 or 15	60 or 95	73.00 (1854.2)	60.00 (1524.0)	50.50 (1282.7)	9300 (4218)	575 (2177)
	25	125	73.00 (1854.2)	60.00 (1524.0)	50.50 (1282.7)	9301 (4219)	
	35	150	73.00 (1854.2)	60.00 (1524.0)	50.50 (1282.7)	9302 (4219)	
1000	5 or 15	60 or 95	73.00 (1854.2)	69.00 (1752.6)	50.50 (1282.7)	11,000 (4990)	600 (2271)
	25	125	73.00 (1854.2)	69.00 (1752.6)	50.50 (1282.7)	11,000 (4990)	
	35	150	73.00 (1854.2)	69.00 (1752.6)	50.50 (1282.7)	11,000 (4990)	
1500	5 or 15	60 or 95	73.00 (1854.2)	73.00 (1854.2)	63.60 (1615.4)	12,700 (5761)	640 (2423)
	25	125	73.00 (1854.2)	73.00 (1854.2)	63.60 (1615.4)	12,700 (5761)	
	35	150	73.00 (1854.2)	73.00 (1854.2)	63.60 (1615.4)	12,700 (5761)	
2000	5 or 15	60 or 95	73.00 (1854.2)	76.00 (1930.4)	63.60 (1615.4)	15,200 (6895)	650 (2461)
	25	125	73.00 (1854.2)	76.00 (1930.4)	63.60 (1615.4)	15,200 (6895)	
	35	150	73.00 (1854.2)	76.00 (1930.4)	63.60 (1615.4)	15,200 (6895)	
2500	5 or 15	60 or 95	73.00 (1854.2)	76.00 (1930.4)	71.20 (1808.5)	17,250 (7825)	650 (2461)
	25	125	73.00 (1854.2)	76.00 (1930.4)	71.20 (1808.5)	17,250 (7825)	
	35	150	73.00 (1854.2)	76.00 (1930.4)	71.20 (1808.5)	17,250 (7825)	
3000	25	125	85.00 (2159.0)	76.00 (1930.4)	71.20 (1808.5)	17,850 (8097)	680 (2574)
	35	150	85.00 (2159.0)	76.00 (1930.4)	96.60 (2453.6)	17,850 (8097)	
3750	25	125	85.00 (2159.0)	70.00 (1778.0)	115.00 (2921.0)	16,800 (7620)	900 (3407)
	35	150	100.00 (2540.0)	76.00 (1930.4)	118.00 (2997.2)	18,000 (8165)	

Liquid-Filled 55°/65°C Rise

300	5 or 15	60 or 95	73.00 (1854.2)	53.00 (1346.2)	50.50 (1282.7)	6100 (2767)	480 (1817)
500	5 or 15	60 or 95	73.00 (1854.2)	57.00 (1447.8)	52.50 (1333.5)	7400 (3357)	517 (1957)
750	5 or 15	60 or 95	73.00 (1854.2)	60.00 (1524.0)	63.60 (1615.4)	9300 (4218)	575 (2177)
	25	125	73.00 (1854.2)	60.00 (1524.0)	63.60 (1615.4)	9301 (4219)	
	35	150	73.00 (1854.2)	60.00 (1524.0)	63.60 (1615.4)	9302 (4219)	
1000	5 or 15	60 or 95	73.00 (1854.2)	69.00 (1752.6)	63.60 (1615.4)	11,500 (5216)	600 (2271)
	25	125	73.00 (1854.2)	69.00 (1752.6)	63.60 (1615.4)	11,500 (5216)	
	35	150	73.00 (1854.2)	69.00 (1752.6)	63.60 (1615.4)	11,500 (5216)	
1500	5 or 15	60 or 95	73.00 (1854.2)	73.00 (1854.2)	63.60 (1615.4)	13,500 (6124)	640 (2423)
	25	125	73.00 (1854.2)	73.00 (1854.2)	71.20 (1808.5)	13,500 (6124)	
	35	150	73.00 (1854.2)	73.00 (1854.2)	71.20 (1808.5)	13,500 (6124)	
2000	5 or 15	60 or 95	73.00 (1854.2)	76.00 (1930.4)	71.20 (1808.5)	15,200 (6895)	670 (2536)
	25	125	73.00 (1854.2)	76.00 (1930.4)	96.60 (2453.6)	15,200 (6895)	
	35	150	73.00 (1854.2)	76.00 (1930.4)	96.60 (2453.6)	15,200 (6895)	
2500	5 or 15	60 or 95	73.00 (1854.2)	76.00 (1930.4)	96.60 (2453.6)	17,500 (7938)	700 (2650)
	25	125	73.00 (1854.2)	76.00 (1930.4)	96.60 (2453.6)	17,500 (7938)	
	35	150	73.00 (1854.2)	76.00 (1930.4)	96.60 (2453.6)	17,500 (7938)	
3000	25	125	85.00 (2159.0)	76.00 (1930.4)	96.60 (2453.6)	18,000 (8165)	700 (2650)
	35	150	85.00 (2159.0)	76.00 (1930.4)	96.60 (2453.6)	18,000 (8165)	
3750	25	125	85.00 (2159.0)	70.00 (1778.0)	122.00 (3098.8)	16,800 (7620)	900 (3407)
	35	150	100.00 (2540.0)	78.00 (1981.2)	135.00 (3429.0)	18,000 (8165)	

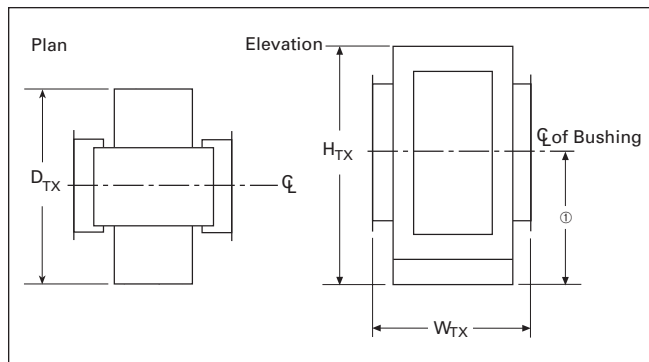


Figure 14.0-16. Liquid-Filled, Indoor and Outdoor

Ø = 55.00 inches (1397.0 mm) for all ratings through 15 kV primary, 600V secondary.

Dimensions for estimating purposes only.

Transformers

Table 14.0-33. High Voltage 35 kV and Below. Low Voltage 600V and Below. Copper Conductor Windings. Losses in Watts. Three-Phase Distribution Transformers ①

Liquid-Filled <34.5 kV Primary 55°C Temp. Rise				
kVA	No Load at 75°C Ref. Temp. (Watts)	Load Loss at 100% Load and 75°C Ref. Temp. (Watts)	Total Losses at 100% Load and 85°C (Watts)	60–150 kV HV BIL Total Losses at 50% Load and 55°C LL Ref. Temp. and 20°C NL Ref. Temp. per DOE (Watts)
75 ②	175	960	1135	413
112.5 ②	250	1250	1500	562
150 ②	300	1630	1930	696
225 ②	330	2500	2830	942
300 ②	520	2600	3120	1164
500 ②	730	4900	5630	1889
750 ②	1100	6200	7300	2567
1000 ②	1500	6700	8200	3221
1500 ②	1900	10,000	11,900	4375
2000 ②	2600	12,000	14,600	5429
2500 ②	2800	15,000	17,800	6408
3000	3800	16,000	19,800	N/A

① Losses offered are typical only, not guaranteed.

② Designates units must typically meet the new DOE efficiency guideline levels with noted losses complying with such.

Table 14.0-34. High Voltage 35 kV and Below. Low Voltage 600V and Below. Copper Conductor Windings. Losses in Watts. Three-Phase Distribution Transformers ③

Liquid-Filled <34.5 kV Primary 65°C Temp. Rise				
kVA	No Load at 85°C Ref. Temp. (Watts)	Load Loss at 100% Load and 85°C Ref. Temp. (Watts)	Total Losses at 100% Load and 85°C (Watts)	60–150 kV HV BIL Total Losses at 50% load and 55°C LL Ref. Temp. and 20°C NL Ref. Temp. per DOE (Watts)
75 ④	190	950	1140	413
112.5 ④	260	1300	1560	562
150 ④	320	1600	1920	696
225 ④	400	2300	2700	942
300 ④	500	3000	3500	1164
500 ④	700	5000	5700	1889
750 ④	1000	6500	7500	2567
1000 ④	1300	8500	9800	3221
1500 ④	1900	10,500	12,400	4375
2000 ④	2100	14,500	16,600	5429
2500 ④	2700	15,500	18,200	6408
3000	4000	18,000	22,000	N/A

③ Losses offered are typical only, not guaranteed.

④ Designates units must typically meet the new DOE efficiency guideline levels with noted losses complying with such.

Transformers

VPI and VPE Ventilated Dry-Type—Integrated Unit Substation (IUS)

Table 14.0-37. Aluminum/Copper Windings, Standard Design, Delta-Wye, 60 Hz, Indoor, 600V LV Class at 10 kV BIL, Indoor

kVA	HV, kV	HV BIL, kV 2	Dimensions in Inches (mm)			Weight Lbs (kg)			
			H _{TX}	W _{TX}	D _{TX}	Aluminum— Core and Coil	Aluminum— Total	Copper— Core and Coil	Copper— Total
150°C Rise									
1000	5	60	90.00 (2286.0)	52.00 (1320.8)	90.00 (2286.0)	4900 (2225)	5900 (2679)	5900 (2679)	6900 (3133)
	15	95	90.00 (2286.0)	60.00 (1524.0)	90.00 (2286.0)	6500 (2951)	7500 (3405)	6800 (3087)	7800 (3541)
1500	5	60	90.00 (2286.0)	56.00 (1422.4)	90.00 (2286.0)	6700 (3042)	7700 (3496)	8200 (3723)	9200 (4177)
	15	95	90.00 (2286.0)	60.00 (1524.0)	90.00 (2286.0)	8000 (3632)	9000 (4086)	8800 (3995)	9800 (4449)
2000	5	60	90.00 (2286.0)	56.00 (1422.4)	90.00 (2286.0)	8500 (3859)	9500 (4313)	8900 (4041)	9900 (4495)
	15	95	96.00 (2438.4)	60.00 (1524.0)	102.00 (2590.8)	9700 (4404)	11,000 (4994)	10,800 (4903)	12,100 (5493)
2500	5	60	96.00 (2438.4)	56.00 (1422.4)	96.00 (2438.4)	9600 (4358)	10,700 (4858)	10,900 (4949)	12,000 (5448)
	15	95	102.00 (2590.8)	60.00 (1524.0)	102.00 (2590.8)	11,800 (5357)	13,200 (5993)	12,400 (5630)	13,800 (6265)
3000	5	60	102.00 (2590.8)	56.00 (1422.4)	102.00 (2590.8)	12,500 (5675)	13,700 (6220)	13,300 (6038)	14,500 (6583)
	15	95	102.00 (2590.8)	60.00 (1524.0)	108.00 (2743.2)	13,700 (6220)	15,200 (6901)	14,500 (6583)	16,000 (7264)
3750	5	60	102.00 (2590.8)	56.00 (1422.4)	108.00 (2743.2)	15,400 (6992)	16,800 (7627)	15,400 (6992)	16,800 (7627)
	15	95	102.00 (2590.8)	60.00 (1524.0)	108.00 (2743.2)	15,000 (6810)	16,500 (7491)	19,800 (8989)	21,300 (9670)
80°C Rise									
1000	5	60	90.00 (2286.0)	56.00 (1422.4)	90.00 (2286.0)	6600 (2996)	7600 (3450)	7900 (3587)	8900 (4041)
	15	95	90.00 (2286.0)	60.00 (1524.0)	96.00 (2438.4)	7100 (3223)	8200 (3723)	7800 (4212)	8900 (4041)
1500	5	60	90.00 (2286.0)	56.00 (1422.4)	96.00 (2438.4)	8700 (3950)	9700 (4404)	10,000 (4540)	11,000 (4994)
	15	95	90.00 (2286.0)	60.00 (1524.0)	96.00 (2438.4)	9400 (4268)	10,500 (4767)	11,400 (5176)	12,500 (5675)
2000	5	60	90.00 (2286.0)	56.00 (1422.4)	96.00 (2438.4)	11,500 (5221)	12,700 (5766)	12,300 (5584)	13,500 (6129)
	15	95	96.00 (2438.4)	64.00 (1625.6)	112.00 (2844.8)	11,900 (5403)	13,400 (6084)	15,800 (7173)	17,300 (7854)
2500	5	60	96.00 (2438.4)	56.00 (1422.4)	108.00 (2743.2)	12,600 (5720)	13,900 (6311)	14,500 (6583)	15,800 (7173)
	15	95	102.00 (2590.8)	64.00 (1625.6)	112.00 (2844.8)	13,900 (6311)	15,500 (7037)	17,500 (7945)	19,100 (8671)
3000	5	60	102.00 (2590.8)	56.00 (1422.4)	114.00 (2895.6)	15,500 (7037)	16,900 (7673)	16,300 (7400)	17,700 (8036)
	15	95	112.00 (2844.8)	64.00 (1625.6)	118.00 (2997.2)	15,400 (6992)	17,300 (7854)	20,000 (9080)	21,900 (9943)
3750	5	60	108.00 (2743.2)	56.00 (1422.4)	114.00 (2895.6)	18,000 (8172)	19,500 (8853)	22,000 (9988)	23,500 (10,669)
	15	95	112.00 (2844.8)	64.00 (1625.6)	118.00 (2997.2)	20,000 (9080)	21,900 (9943)	24,000 (10,896)	25,900 (11,759)

Note: Smaller dimensions/weights may be available, refer to Eaton.

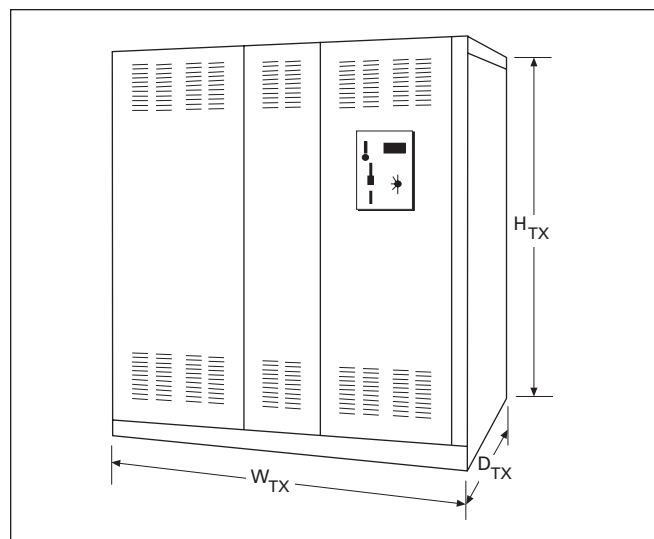


Figure 14.0-18. Indoor Ventilated Enclosure (NEMA 1 Construction)

Transformers

Cast Coil and RESIBLOC Dry-Type—Standard Unit Substation

Table 14.0-38. Standard Windings, Standard Design, Delta-Wye, 60 Hz, Indoor, 600V LV Class at 10 kV BIL, Indoor ①

kVA	HV, kV	HV BIL, kV ^②	Dimensions in Inches (mm)			Weight Lbs (kg)	kVA	HV, kV	HV BIL, kV ^②	Dimensions in Inches (mm) ①			Weight Lbs (kg)
			H _{TX}	W _{TX}	D _{TX}					H _{TX}	W _{TX}	D _{TX}	
80°C Rise						100°C Rise or 115°C Rise							
300	5	60	90.00 (2286.0)	78.00 (1981.2)	60.00 (1524.0)	4000 (1816)	300	5	60	90.00 (2286.0)	78.00 (1981.2)	60.00 (1524.0)	3900 (1771)
	15	95	90.00 (2286.0)	78.00 (1981.2)	60.00 (1524.0)	4400 (1998)		15	95	90.00 (2286.0)	78.00 (1981.2)	60.00 (1524.0)	4200 (1907)
500	5	60	90.00 (2286.0)	78.00 (1981.2)	60.00 (1524.0)	5900 (2679)	500	5	60	90.00 (2286.0)	78.00 (1981.2)	60.00 (1524.0)	6000 (2724)
	15	95	90.00 (2286.0)	84.00 (2133.6)	60.00 (1524.0)	7100 (3223)		15	95	90.00 (2286.0)	84.00 (2133.6)	60.00 (1524.0)	6200 (2815)
750	5	60	90.00 (2286.0)	84.00 (2133.6)	60.00 (1524.0)	7400 (3360)	750	5	60	90.00 (2286.0)	84.00 (2133.6)	60.00 (1524.0)	7500 (3405)
	15	95	90.00 (2286.0)	84.00 (2133.6)	60.00 (1524.0)	7900 (3587)		15	95	90.00 (2286.0)	84.00 (2133.6)	60.00 (1524.0)	7900 (3587)
1000	5	60	90.00 (2286.0)	90.00 (2286.0)	66.00 (1676.4)	8700 (3950)	1000	5	60	90.00 (2286.0)	90.00 (2286.0)	66.00 (1676.4)	8400 (3814)
	15	95	90.00 (2286.0)	90.00 (2286.0)	66.00 (1676.4)	8800 (3995)		15	95	90.00 (2286.0)	90.00 (2286.0)	66.00 (1676.4)	8500 (3859)
1500	5	60	90.00 (2286.0)	96.00 (2438.4)	66.00 (1676.4)	11,000 (4994)	1500	5	60	90.00 (2286.0)	96.00 (2438.4)	66.00 (1676.4)	10,200 (4631)
	15	95	102.00 (2590.8)	96.00 (2438.4)	66.00 (1676.4)	11,400 (5176)		15	95	102.00 (2590.8)	96.00 (2438.4)	66.00 (1676.4)	10,800 (4903)
2000	5	60	96.00 (2438.4)	96.00 (2438.4)	66.00 (1676.4)	13,600 (6174)	2000	5	60	96.00 (2438.4)	96.00 (2438.4)	66.00 (1676.4)	12,400 (5630)
	15	95	102.00 (2590.8)	102.00 (2590.8)	66.00 (1676.4)	14,000 (6356)		15	95	102.00 (2590.8)	102.00 (2590.8)	66.00 (1676.4)	13,000 (5902)
2500	5	60	102.00 (2590.8)	102.00 (2590.8)	66.00 (1676.4)	16,900 (7673)	2500	5	60	102.00 (2590.8)	102.00 (2590.8)	66.00 (1676.4)	15,200 (6901)
	15	95	112.00 (2844.8)	108.00 (2743.2)	66.00 (1676.4)	16,600 (7536)		15	95	112.00 (2844.8)	108.00 (2743.2)	66.00 (1676.4)	14,700 (6674)
3000	5	60	102.00 (2590.8)	102.00 (2590.8)	66.00 (1676.4)	22,500 (10,215)	3000	5	60	102.00 (2590.8)	102.00 (2590.8)	66.00 (1676.4)	20,000 (9080)
	15	95	112.00 (2844.8)	108.00 (2743.2)	66.00 (1676.4)	23,500 (10,669)		15	95	112.00 (2844.8)	108.00 (2743.2)	66.00 (1676.4)	21,000 (9534)
3750	5	60	102.00 (2590.8)	102.00 (2590.8)	66.00 (1676.4)	24,000 (10,896)	3750	5	60	102.00 (2590.8)	102.00 (2590.8)	66.00 (1676.4)	23,000 (10,442)
	15	95	120.00 (3048.0)	144.00 (3657.6)	78.00 (1981.2)	21,200 (9625)		15	95	120.00 (3048.0)	126.00 (3200.4)	72.00 (1828.8)	26,000 (11,804)
	27	125	120.00 (3048.0)	144.00 (3657.6)	78.00 (1981.2)	21,200 (9625)		27	125	120.00 (3048.0)	126.00 (3200.4)	72.00 (1828.8)	26,000 (11,804)
	38	150	124.00 (3149.6)	150.00 (3810.0)	84.00 (2133.6)	24,000 (10,896)		38	150	124.00 (3149.6)	150.00 (3810.0)	84.00 (2133.6)	27,000 (12,258)

① Dimensions based on MVS primary coordination and Magnum DS secondary coordination. For outdoor base construction, add 12.00 inches (304.8 mm) to height and 6.00 inches (152.4 mm) to width and depth. Roof overhangs 8.50 inches (215.9 mm) front and rear.

② 30 kV BIL is standard for 5 kV class; 60 kV BIL is available as an option. 60 kV BIL is standard for 15 kV class; 95 kV BIL is available as an option.

Note: Smaller dimensions/weights may be available, refer to Eaton.

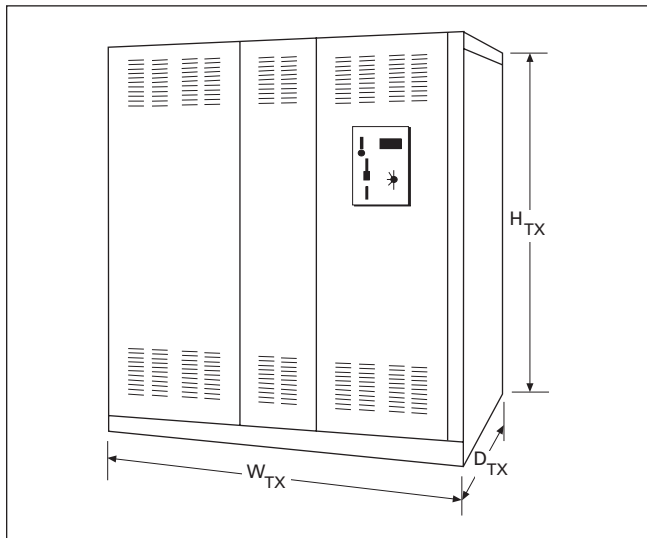


Figure 14.0-19. Indoor Ventilated Enclosure (NEMA 1 Construction)

Table 14.0-39. High Voltage 15 kV and Below. Low Voltage 600V and Below. Copper Conductor Windings. Losses in Watts. Three-Phase Dry-Type Unit Substation Transformers. ③

Cast, 15 kV Primary 115°C Temp. Rise				
kVA	No Load (Watts)	Load Loss at 100% Load and 135°C Ref. Temp. (Watts)	Total Losses at 100% Load and 135°C (Watts)	46–95 kV BIL Total Losses at 75% Load and 75°C Ref. Temp. per DOE (Watts)
300 ④	1250	4000	5250	2022
500 ④	1500	8000	9500	2960
750 ④	2500	9000	11,500	3980
1000 ④	3000	12,500	15,500	4898
1500 ④	4000	16,000	20,000	6659
2000 ④	5000	19,000	24,000	8268
2500 ④	5500	20,000	25,500	9700
3000	9000	26,000	35,000	N/A
3750	11,000	29,000	40,000	N/A
5000	13,500	30,000	43,500	N/A
7500	20,000	35,000	55,000	N/A
10,000	22,500	45,000	67,500	N/A

③ Losses offered are typical only, not guaranteed.

④ Units must typically meet the new DOE efficiency guideline levels with noted losses complying with such.

Dimensions and weights for estimating purposes only.