

# Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

This list is maintained by the LDL for Puget Sound Energy, Seattle City Light, Snohomish PUD, Tacoma Power, the Energy Trust of Oregon, Bonneville Power Administration, Idaho Power, and Eugene Water and Electric Board.

**NOTE: This is an interim qualifying list while products are being reviewed by ENERGY STAR or DLC.**

Products will be permanently removed 12 months after "Post Date".

If you don't see a product on this list, check the ENERGY STAR or DLC lists.

All products carry a warranty of 3 years or more. For questions, please contact ledlist@lightingdesignlab.com.



Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date	
<b>2' and 4' Linear Replacement</b>	GE Lighting	LED11ET8/G/3/830	3163 K	10.9	140.4	1,536	1,450	5.6	NA	Yes	82.6	05/01/17	
		LED11ET8/G/3/835	3625 K	10.9	145.0	1,576	1,500	3.5	NA	Yes	82.3	05/01/17	
		LED11ET8/G/3/840	4021 K	10.9	148.4	1,623	1,500	1.2	NA	Yes	82.4	05/01/17	
		LED12ET8/3/830	3023 K	11.3	147.4	1,666	1,500	7.1	NA	Yes	82.7	05/01/17	
		LED12ET8/3/835	3523 K	11.2	153.5	1,719	1,550	5	NA	Yes	82.6	05/01/17	
		LED12ET8/3/840	3952 K	11.5	155.6	1,790	1,550	5.5	NA	Yes	82.9	05/01/17	
		LED12ET8/3/850	5116 K	11.3	163.5	1,847	1,650	0.9	NA	Yes	82.6	05/01/17	
	Philips	9T8 LED/36-5000 IF 10/1	5174 K	11.6	110.6	1,284	1,200	7.5	NA	No	83.8	05/01/17	
	GE Lighting	GELED08T8/4/830/RUA	2964 K	8.8	99.7	874	834	35.8	NA	Yes	88.0	12/01/16	
		GELED08T8/4/835/RUA	3362 K	8.7	102.5	896	863	39.4	NA	Yes	88.0	12/01/16	
		GELED08T8/4/840/RUA	3976 K	8.8	108.0	946	886	39	NA	Yes	87.0	12/01/16	
		GELED14T8/4/830/RCA	2966 K	16.8	105.1	1,770	1,530	37.6	NA	Yes	88.0	12/01/16	
		GELED14T8/4/835/RCA	3363 K	16.8	108.1	1,818	1,687	41.6	NA	Yes	89.0	12/01/16	
		GELED14T8/4/840/RCA	3994 K	16.9	113.2	1,913	1,732	43.1	NA	Yes	88.0	12/01/16	
	GREEN CREATIVE	8T8/2F/840/DIR	3999 K	10.4	138.4	1,438	1,300	0.6	NA	Yes	81.4	05/17/17	
		8T8/3F/840/DIR	4109 K	10.4	118.1	1,232	1,150	2.4	NA	Yes	81.5	05/17/17	
	Intelligent Energy Optimizers LLC	2'OptioLED6W	4062 K	6.2	172.5	1,069	1,020	3	345.0	No	81.1	03/22/17	
		OptioLED6W	4062 K	6.3	172.1	1,088	1,020	4	371.5	No	81.4	01/09/17	
	<b>2' and 4' Linear Replacement (T5)</b>	GREEN CREATIVE	12T5HE/3F/830/DIR	2942 K	14.1	107.9	1,517	1,420	13	NA	Yes	83.6	12/01/16
			12T5HE/3F/835/DIR	3490 K	14.0	110.8	1,549	1,420	20	NA	Yes	85.2	12/01/16
12T5HE/3F/840/DIR			3906 K	14.3	111.0	1,582	1,550	15	NA	Yes	84.3	12/01/16	
15T5HE/4F/830/DIR			2972 K	16.0	106.3	1,702	1,700	15	NA	Yes	83.6	07/28/16	
15T5HE/4F/835/DIR			3474 K	16.6	112.0	1,857	2,000	13	NA	Yes	83.9	08/23/16	
15T5HE/4F/840/DIR			4006 K	15.8	117.0	1,843	1,800	19	n/a	Yes	85.1	09/06/16	
24T5HO/4F/830/DIR			2932 K	28.0	109.7	3,076	3,000	23.7	NA	Yes	83.2	05/16/17	
24T5HO/4F/835/DIR			3531 K	28.0	109.2	3,057	3,000	21	NA	Yes	84.0	05/16/17	
24T5HO/4F/840/DIR			4209 K	28.1	107.7	3,027	3,050	22	NA	Yes	85.0	05/16/17	
24T5HO/4F/850/DIR			5185 K	28.7	120.3	3,450	3,200	18.6	NA	Yes	85.0	05/16/17	
8T5HE/2F/830/DIR			2924 K	9.4	103.9	974	950	11	NA	Yes	83.4	02/23/17	
8T5HE/2F/835/DIR			3478 K	9.2	109.2	1,006	950	19	NA	Yes	84.9	02/23/17	
8T5HE/2F/840/DIR			3879 K	9.4	113.1	1,059	1,100	13	NA	No	83.9	02/23/17	
Philips		16.5PL-LED/24-3000 IF 10/1	2956 K	16.5	104.1	2,095	1,900	8.1	NA	No	82.4	12/21/16	
		16.5PL-LED/24-3500 IF 10/1	3476 K	16.5	107.4	2,139	2,000	14.5	NA	No	84.2	12/21/16	
		16.5PL-LED/24-4000 IF 10/1	3853 K	16.5	111.1	2,262	2,100	7.5	NA	No	83.1	12/20/16	
Philips Lighting North America Corporation		24T5 LED/HO/48-3000 IF 10/1	2995 K	27.4	117.6	3,217	3,300	8	6.1	No	83.1	05/03/17	
<b>2' Linear Replacement</b>		Clear Blue Fit BIXX	ZY-T8-15W-600U-BIXX	4974 K	14.7	127.5	1,879	1,700	7	NA	No	81.4	07/28/16

## Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date
3' Linear Replacement	GREEN CREATIVE	10T8/3F/830/DIR	2957 K	11.1	97.5	1,085	1,100	5	NA	No	81.7	08/23/16
		10T8/3F/835/DIR	3494 K	11.2	103.7	1,162	1,100	18.4	NA	Yes	83.6	07/28/16
		10T8/3F/840/DIR	4078 K	11.4	111.7	1,271	1,150	11	NA	Yes	83.8	08/23/16
3' Linear Replacement	CAO Lighting, Inc.	33312-40-UL	4149 K	14.8	98.5	1,460	1,500	2.7	NA	No	81.3	01/26/17
	Philips	9T8 LED/36-3000 IF 10/1	3093 K	11.6	104.3	1,206	1,100	8.6	NA	No	83.1	03/22/17
		9T8 LED/36-3500 IF 10/1	3533 K	11.6	108.9	1,267	1,100	5.7	NA	No	82.9	03/22/17
		9T8 LED/36-4000 IF 10/1	4045 K	11.6	110.1	1,276	1,200	4.2	NA	No	82.3	03/22/17
4' Linear Replacement	3M	URT835183E-B	3433 K	18.9	106.3	2,064	2,000	15	NA	No	83.6	08/09/16
		URT835183E-L	3418 K	17.9	115.2	2,056	2,000	11	NA	No	83.5	08/09/16
	Beyond LED Technology	101311	6606 K	20.7	117.6	2,436	2,530	0	NA	No	83.1	07/28/16
	ESL Vision	ESL-T8BC-16W-F50	5132 K	16.1	121.7	1,961	1,900	4	NA	No	83.5	08/22/16
	ESL Vision, LLC	ESL-T8BC-16W	4035 K	14.1	125.5	1,766	1,740	9	NA	No	82.8	06/15/16
	GREEN CREATIVE	17.5T8/4F/GOLD/BYP	1420 K	17.5	62.5	1,091	1,100	0	NA	No	33.8	07/28/16
	Keystone Technologies	KT-LED13T5HE-48GC-835-S	3464 K	16.9	126.0	2,132	1,650	9.3	NA	No	83.4	09/19/16
		KT-LED13T5HE-48GC-840-S	3913 K	17.0	125.3	2,127	1,700	8.5	NA	No	82.9	09/19/16
		KT-LED13T5HE-48GC-850-S	5081 K	17.1	126.3	2,166	1,800	11.8	NA	No	84.0	09/19/16
	MAXLITE	L18T8SE450-10	5211 K	6.7	115.3	2,127	1,950	15.2	NA	No	82.1	07/27/16
		Philips	10T8/48-3000 IF 10/1	3029 K	12.2	123.3	1,505	1,500	6.9	NA	No	82.2
			14T8/48-3000 IF 10/1	3065 K	16.7	120.2	2,007	2,000	7.7	NA	No	82.3
	STANDARD PRODUCTS INC.	65049	3491 K	18.2	105.3	1,917	1,850	18.1	NA	No	83.7	05/15/17
		65050	4051 K	18.2	111.4	2,013	1,950	7.4	NA	No	82.8	05/15/17
	TGL Inc.	TGL-14W-3FT-410K	4079 K	12.4	127.8	1,583	1,550	16	NA	No	84.0	10/17/16
		TGL-14W-3FT-500K	5128 K	12.5	133.0	1,666	1,600	9.76	NA	No	84.0	10/17/16
8' Linear Replacement	E2 Lighting International, Inc.	E2-T8M36WYZ8FT(5000K)	5037 K	36.0	124.5	4,519	4,519	11	(blank)	No	84.0	02/24/17
	Titan LED	17C-8-32-SP-57K	5634 K	33.4	124.0	4,152	4,255	19.4	NA	Yes	85.0	08/15/16
8' Linear Replacement	ESL Vision	ESL-T8-8-F40-DQC1-30W	4123 K	28.3	122.7	3,479	3,270	7.4	NA	No	83.0	05/03/17
		ESL-T8-8-F40-DQC1-36W	4132 K	38.6	115.0	4,433	3,924	6.8	NA	No	82.8	05/03/17
		ESL-T8-8-F50-DQC1-30W	5103 K	28.1	124.4	3,498	3,270	8	NA	No	83.1	05/03/17
		ESL-T8-8-F50-DQC1-36W	5113 K	38.2	117.5	4,484	3,924	7.1	NA	No	82.9	05/03/17
	ETech LED LLC	B1-54C-26U-840-12	4151 K	33.1	107.0	3,550	3,550	(blank)	NA	No	84.7	05/04/17
		BB-T88-A1-40-40	4063 K	30.7	133.0	5,392	5,392	(blank)	NA	No	84.1	05/04/17
	GE Lighting	KT-LED54T8-96P-850-D	5159 K	56.2	112.1	6,298	5,900	12	NA	No	84.6	03/22/17
		LED36T8/G/8/830	3049 K	30.1	143.5	4,313	4,200	8.9	NA	Yes	83.1	12/01/16
		LED36T8/G/8/835	3465 K	29.3	143.8	4,401	4,400	17.7	NA	Yes	85.0	09/16/16
		LED36T8/G/8/840	4037 K	29.2	151.4	4,586	4,400	9.4	NA	Yes	83.7	09/16/16
		LED36T8/G/8/850	5102 K	29.1	152.1	4,631	4,400	15	NA	Yes	85.3	09/16/16
	Intelligent Energy Optimizers LLC	8'OptioLED16W	4843 K	16.0	151.6	2,429	2,400	3	NA	No	82.5	12/01/16
		8'OptioLED24W	3997 K	23.9	172.3	4,116	4,080	3	NA	No	81.2	01/31/17
		8'OptioLED30W	4001 K	30.3	167.2	5,060	4,950	3	NA	No	81.2	01/31/17
		OptioLED8W	4055 K	8.5	170.7	1,458	1,360	3	493.0	No	81.2	01/31/17
	Philips	35T8/96-3500 IF FA8 10/1	3501 K	27.4	166.0	4,544	4,000	6.5	NA	No	82.8	03/29/17
		35T8/96-4000 IF FA8 10/1	3944 K	28.1	166.0	4,665	4,200	5.1	NA	No	82.7	03/29/17
	Satco Products Inc	S9700	4052 K	37.2	124.4	4,619	4,400	10	NA	No	83.9	03/23/17
		S9701	5176 K	37.2	123.1	4,584	4,400	10	NA	No	83.2	03/23/17
Shenzhen R&Z World Optoelectronic Co.	RZTL-T8R240-36W	4850 K	36.3	132.9	4,821	4,680	4	NA	No	82.8	12/01/16	

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Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date
A19	GREEN CREATIVE	4.5FA19DIM/824/A	2527 K	4.6	90.1	411	380	0.2	NA	Yes	80.0	07/28/16
	Sengled	A19 - Sigalux 1102270651	2787 K	8.2	102.2	839	800	2.1	NA	Yes	80.7	08/02/16
	Sigh Twenty Hands Inc	STH-A19D-09-65	6404 K	9.0	104.8	944	800	14	NA	Yes	83.1	06/16/16
	Viribrigh Lighting Inc. (Matrix Lighting Limited)	750207 / A09EU2-5	2738 K	8.5	98.7	836	810	35	NA	Yes	90.8	06/01/16
		750208 / A09EU4-5	4065 K	8.8	95.7	846	810	61	NA	Yes	92.9	06/01/16
		750209 / A09EU6-5	6214 K	8.5	98.9	840	810	69	NA	Yes	94.4	06/01/16
	GE Lighting	LED14LS2/828	2800 K	14.5	84.5	1,223	1,060	2	NA	No	80.0	09/01/16
		LED14LS2/850	4783 K	14.5	94.0	1,362	1,060	6	NA	No	83.0	09/01/16
LED16LS2/828		2819 K	15.3	104.6	1,596	1,520	5	NA	No	81.0	09/01/16	
LED16LS2/850		4943 K	15.2	104.5	1,584	1,520	9	NA	No	83.0	09/01/16	
A21	ESL Vision, LLC	ESL-A21-13W-127	2776 K	12.9	100.0	1,290	1,235	10	NA	Yes	82.3	08/01/16
		ESL-A21-13W-130	2948 K	12.8	105.3	1,349	1,300	8	NA	Yes	82.0	08/01/16
		ESL-A21-13W-140	4229 K	12.8	114.1	1,455	1,430	10	NA	Yes	83.4	08/01/16
		ESL-A21-13W-150	5023 K	12.7	119.7	1,518	1,495	10	NA	Yes	84.1	08/01/16
B	Archipelago Lighting, Inc.	LTCB12C32524K1	2396 K	3.4	102.1	345	325	15.9	NA	Yes	83.1	08/17/16
		LTCB12C32527K1	2679 K	3.6	90.2	328	325	18.1	NA	Yes	83.3	08/17/16
		LTCB26C32524K1	2396 K	3.4	102.1	345	325	15.9	NA	Yes	83.1	08/17/16
		LTCB26C32527K1	2679 K	3.6	90.2	328	325	18.1	NA	Yes	83.3	08/17/16
	GREEN CREATIVE	3.5FBA10DIM/824/FT/A	2449 K	3.7	84.1	312	280	5.6	NA	Yes	80.3	08/23/16
Biax	GE Lighting	LED172G11/830/10	3031 K	14.9	146.9	2,189	2,150	6.4	NA	No	82.6	07/29/16
	GE Lighting	LED172G11/835/10	3390 K	16.0	134.4	250	2,150	10	NA	No	84.0	07/29/16
		LED172G11/840/10	3937 K	16.0	139.4	2,230	2,200	10	NA	No	84.0	07/29/16
		LED172G11/850/10	4971 K	16.0	138.4	2,215	2,200	15	NA	No	85.0	07/29/16
BR30	GE Lighting	LED10DR30V/827W	2757 K	9.2	75.8	694	650	2	NA	Yes	80.0	09/01/16
		LED10DR30V/830W	3043 K	9.3	78.4	729	650	5	NA	Yes	81.0	09/01/16
		LED10DR30V/850W	4992 K	9.2	81.0	742	650	2	NA	Yes	81.0	09/01/16
	ESL Vision, LLC	ESL-BR30-13W-D40	4026 K	13.5	90.7	1,226	1,200	6	NA	Yes	82.6	07/27/16
BR40	ESL Vision	ESL-BR40-15W-240	4010 K	15.3	91.8	1,407	1,150	6	NA	Yes	82.4	08/22/16
CA	Archipelago Lighting, Inc.	LTCA12C32524K1	2382 K	3.3	97.4	322	325	16.5	NA	Yes	83.2	08/17/16
		LTCA26C32524K1	2382 K	3.3	97.4	322	325	16.5	NA	Yes	83.2	08/17/16
CFL Replacement	EiKO Global	LED9W4PH/830DR-G6	2941 K	11.3	79.4	899	850	23	NA	No	84.8	08/17/16
		LED9W4PH/835DR-G6	3444 K	11.6	83.9	976	850	16	NA	No	83.2	08/17/16
		LED9W4PH/840DR-G6	4087 K	11.6	83.7	967	900	16	NA	No	84.4	08/17/16
		LED9W4PV/830DR-G6	2998 K	11.8	79.5	937	850	7	NA	No	82.0	08/17/16
		LED9W4PV/835DR-G6	3474 K	11.7	83.1	976	850	11	NA	No	83.4	08/17/16
		LED9W4PV/840DR-G6	3874 K	11.9	87.2	1,034	900	13	NA	No	84.0	08/17/16
	ESL Vision	ESL-2G11-17-F40-DQC1-15W-1L	4170 K	14.7	104.7	1,534	1,500	8	NA	No	83.2	09/27/16
	ESL Vision	ESL-VPL-14W-230	3126 K	12.9	99.0	1,279	1,030	8.2	NA	No	82.4	05/03/17
		ESL-VPL-14W-240	4141 K	13.2	104.7	1,383	1,245	9	NA	No	83.1	05/03/17
ESL-VPL-14W-240		3101 K	7.6	94.5	717	650	3.7	NA	No	81.5	05/03/17	

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CFL Replacement	ESL Vision	ESL-VPL-8W-250	5240 K	7.7	99.7	769	700	13.8	NA	No	84.5	05/03/17
		ESL Vision, LLC	ESL-PL-11W-30	2947 K	10.3	104.3	1,071	1,070	10	NA	No	83.4
	ESL Vision, LLC	ESL-PL-11W-40	4053 K	10.7	109.3	1,171	1,170	10	NA	No	83.0	03/21/17
		ESL-PL-11W-50	5105 K	10.8	110.8	1,197	1,195	9	NA	No	83.4	03/21/17
		ESL-PL-7W-30	2931 K	6.9	104.8	723	700	11	NA	No	83.7	03/21/17
		ESL-PL-7W-40	4026 K	6.5	107.9	705	700	10	NA	No	83.1	03/21/17
		ESL-PL-7W-50	5149 K	6.5	110.6	714	700	9	NA	No	83.5	03/21/17
		ESL-PL-9W-30	2919 K	8.6	104.5	896	895	11	NA	No	83.6	03/21/17
		ESL-PL-9W-40	4031 K	8.7	107.9	939	935	10	NA	No	83.2	03/21/17
		ESL-PL-9W-50	5112 K	8.8	110.0	964	960	9	NA	No	83.5	03/21/17
	Espen Technology Inc.	CLD18WH/827-ID	2706 K	10.8	89.3	962	2,700	9.5	NA	No	82.1	10/12/16
		CLD18WH/840-ID	3907 K	10.5	108.2	1,132	1,000	17.7	NA	No	84.9	10/17/16
		CLD18WH/850-ID	5291 K	10.7	98.2	1,048	1,000	21.3	NA	No	85.0	10/12/16
		CLD18WV/827-ID	2692 K	10.7	88.7	947	1,000	9.8	NA	No	82.2	10/17/16
		CLD18WV/840-ID	3883 K	10.5	109.1	1,144	1,000	12.2	NA	No	83.8	10/12/16
		CLD18WV/850-ID	5046 K	10.7	117.4	1,250	1,000	11.9	NA	No	84.1	10/14/16
		LT18W/835-ID	3460 K	8.3	109.3	902	640	22.5	NA	No	84.4	10/17/16
		LT18W/840-ID	4089 K	8.3	109.7	909	640	38.2	NA	No	86.6	10/17/16
	Espen Technology Inc.	LT18W/850-ID	4949 K	8.2	115.3	944	640	15.6	NA	No	84.5	10/17/16
		GE Lighting	LED172G11/830/10	3050 K	16.3	140.7	2,287	2,150	11.9	NA	No	83.4
	LED172G11/840/10		3968 K	15.6	142.8	2,223	2,200	9.8	NA	No	83.5	05/18/17
	LED19GX24q-H/827		2720 K	18.4	99.2	1,825	1,800	11	NA	No	82.0	03/21/17
	LED19GX24q-H/830		2989 K	18.2	102.4	1,863	1,850	10	NA	No	82.0	03/22/17
	LED19GX24q-H/835		3375 K	18.3	107.0	1,957	1,950	12	NA	No	83.0	03/22/17
	LED19GX24q-H/840		3911 K	18.3	107.4	1,965	1,950	13	NA	No	83.0	03/22/17
	LED19GX24q-V/827		2719 K	18.4	102.0	1,876	1,800	12	NA	No	83.0	03/21/17
	LED19GX24q-V/830		2990 K	18.3	106.1	1,941	1,850	10	NA	No	82.0	03/22/17
	LED19GX24q-V/835		3384 K	18.3	110.2	2,016	1,950	12	NA	No	83.0	03/22/17
	LED19GX24q-V/840		3911 K	18.4	110.3	2,030	1,950	13	NA	No	83.0	03/22/17
	GREEN CREATIVE	10.5PLH/827/BYP	2790 K	10.4	89.6	930	870	3	NA	No	81.0	08/03/16
		10.5PLH/830/BYP	2969 K	10.4	90.3	943	920	14.6	NA	Yes	83.2	08/23/16
		10.5PLH/835/BYP	3597 K	10.3	98.4	1,015	920	13.7	NA	No	83.9	08/03/16
		10.5PLH/840/BYP	4120 K	10.6	101.2	1,071	935	13.9	NA	No	84.1	08/03/16
		10.5PLH/930/DIR	3096 K	12.2	77.7	950	890	61	NA	Yes	93.3	03/01/17
		10PLV/827/BYP	2737 K	10.0	96.6	990	950	6.8	NA	No	81.4	03/28/17
		10PLV/827/DIR	2705 K	11.0	87.3	958	950	9	NA	Yes	82.4	12/01/16
		10PLV/830/DIR	2945 K	11.0	89.4	986	1,000	9	NA	Yes	82.3	08/23/16
		10PLV/835/BYP	3422 K	10.0	111.8	1,116	1,000	13	NA	No	83.5	03/23/17
		10PLV/835/DIR	3522 K	14.1	74.4	1,050	1,000	22	NA	Yes	84.3	08/09/16
		10PLV/840/BYP	3955 K	10.0	111.1	1,106	1,020	14	NA	No	84.0	03/23/17
		10PLV/840/DIR	4142 K	14.1	78.3	1,105	1,000	20	NA	Yes	85.2	08/09/16
		11.5PLV/827/BYP	2730 K	11.4	85.1	968	950	4	NA	No	80.7	08/03/16
		11.5PLV/830/BYP	3001 K	11.7	89.5	1,044	1,000	1	NA	No	80.7	08/03/16
		11.5PLV/835/BYP	3571 K	11.7	88.5	1,040	1,000	15	NA	No	82.7	08/03/16
		11.5PLV/840/BYP	4159 K	11.5	99.8	1,148	1,120	16	NA	No	84.8	08/23/16
		11PLV/930/DIR	3074 K	12.8	73.9	942	920	61	NA	Yes	93.4	03/01/17
		12T8/3F/830/BYP	3049 K	11.6	127.4	1,475	2,500	9.1	NA	No	83.2	05/16/17
		13PAR30DIM/930NF25	3017 K	12.8	83.4	1,067	600	63.3	NA	No	92.3	05/01/17
		13PAR30DIM/940FL40	3827 K	12.7	93.2	1,186	1,100	65.4	NA	No	93.1	05/02/17

## Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date
CFL Replacement	GREEN CREATIVE	13PAR30SNDIM/930NF25	3021 K	13.1	85.0	1,112	1,050	62.7	NA	Yes	92.3	05/16/17
		14.5PLL/835/DIR	3548 K	18.6	86.4	1,609	1,550	28	NA	Yes	86.4	07/28/16
		3.5PLS/827/HYB/GX23	2755 K	3.3	92.7	309	280	11	NA	No	82.4	05/16/17
		3.5PLS/835/BYP/2G7	3525 K	3.3	90.4	301	300	20.6	NA	No	84.3	06/01/16
		3.5PLS/835/HYB/G23	3525 K	3.3	90.4	301	300	20.6	NA	No	84.3	06/01/16
		5.5PLH/827/DIR	2721 K	7.3	84.8	615	520	5.2	NA	Yes	81.9	08/23/16
		5.5PLH/830/DIR	2960 K	7.2	83.4	604	550	6.6	NA	Yes	82.0	08/23/16
		5.5PLH/830/DIR/R	3042 K	7.5	82.4	645	550	5.9	NA	No	82.4	05/02/17
		5.5PLH/835/DIR	3535 K	7.4	87.3	650	550	(blank)	NA	Yes	83.5	10/10/16
		5.5PLH/835/DIR/R	3566 K	7.5	83.0	621	550	18.7	NA	Yes	83.5	03/28/17
		5.5PLH/840/DIR	4143 K	7.3	86.8	632	560	18.6	NA	Yes	85.4	12/01/16
		5.5PLH/840/DIR/R	4141 K	7.4	84.8	629	550	12.1	NA	Yes	83.3	03/28/17
		5.5PLS/835/BYP/2GX7	3551 K	5.5	94.5	523	500	24	NA	No	85.0	06/01/16
		6.5/830/DIR	2942 K	7.7	82.6	632	600	4.2	NA	Yes	81.4	12/01/16
		6.5/830/DIR								No	81.4	08/23/16
		6.5PLSV/827/HYB/GX23	2739 K	6.5	87.9	571	570	3.7	NA	No	80.9	05/16/17
		6.5PLSV/830/HYB/GX23	2996 K	6.4	95.7	612	600	5.4	NA	No	82.1	05/01/17
		6.5PLSV/835/HYB/GX23	3488 K	6.5	97.4	631	600	9	NA	No	83.1	03/24/17
		6.5PLSV/840/HYB/GX23	4114 K	6.5	99.3	643	620	13	NA	No	83.8	03/24/17
		6.5PLV/827/DIR	2658 K	7.7	81.3	623	570	1	NA	No	81.2	08/23/16
		6.5PLV/835/DIR	3508 K	7.9	82.0	646	600	16.7	NA	No	83.1	08/23/16
		6.5PLV/840/BYP	3966 K	6.5	104.7	678	620	16	NA	No	84.7	03/24/17
		6.5PLV/840/DIR	4109 K	7.7	85.7	663	620	16.6	NA	No	85.0	08/23/16
		6PLH/830/BYP	2981 K	6.1	100.3	607	550	22	NA	No	84.6	08/23/16
		6PLH/830/BYP/E26	2981 K	6.1	100.3	607	550	22	NA	No	84.6	08/23/16
		6PLH/830/BYP/GU24	2981 K	6.1	100.3	607	550	22	NA	No	84.6	08/23/16
		6PLH/830/BYP/GU24/R	2950 K	5.9	116.3	684	550	7.5	NA	No	82.4	05/02/17
		6PLH/830/BYP/R	2950 K	5.9	116.3	684	560	7.5	NA	No	82.4	05/04/17
		6PLH/835/BYP	3615 K	6.1	104.2	639	550	15	NA	No	84.4	08/03/16
		6PLH/835/BYP/E26	3615 K	6.1	104.2	639	550	15	NA	No	84.4	08/03/16
		6PLH/835/BYP/GU24	3615 K	6.1	104.2	939	550	15	NA	No	84.4	08/03/16
		6PLH/835/BYP/R	3505 K	5.8	110.2	634	550	10	NA	No	83.4	03/23/17
		6PLH/840/BYP	4129 K	6.3	103.8	656	560	17	NA	No	84.7	08/03/16
		6PLH/840/BYP/E26	4129 K	6.3	103.8	656	560	17	NA	No	84.7	08/03/16
		6PLH/840/BYP/GU24	4129 K	6.3	103.8	656	560	17	NA	No	84.7	08/03/16
		6PLH/840/BYP/GU24/R	4129 K	6.3	103.8	656	560	17	NA	No	84.7	03/01/17
		6PLH/840/BYP/R	4129 K	5.9	110.0	649	560	12	NA	No	83.8	05/02/17
		6PLS/827/HYB/GX23	2744 K	6.1	95.3	580	520	3	NA	No	80.7	08/23/16
		6PLS/827/HYB/GX23/R	2714 K	6.0	107.9	643	520	6.6	NA	No	81.6	05/16/17
		6PLS/830/HYB/GX23	2969 K	6.0	98.8	596	550	22	NA	No	84.6	08/23/16
		6PLS/830/HYB/GX23/R	2959 K	5.9	118.0	699	550	7.8	NA	No	82.5	05/16/17
		6PLS/835/HYB/GX23	3509 K	6.2	112.5	692	550	20	NA	No	83.6	08/23/16
		6PLS/835/HYB/GX23/R	3479 K	6.0	121.7	728	550	7.8	NA	No	83.0	05/17/17
		6PLS/840/HYB/GX23	4126 K	6.1	108.1	661	560	19	NA	No	85.0	08/23/16
		6PLS/840/HYB/GX23/R	3970 K	6.1	114.3	693	560	8.3	NA	No	82.7	05/17/17
		6PLV/830/DIR	3101 K	7.6	86.6	656	600	5.9	NA	Yes	82.3	03/29/17
		6PLV/835/DIR	3489 K	8.0	85.3	681	600	6	NA	Yes	82.6	03/28/17
		6PLV/840/DIR	3990 K	7.9	85.2	669	620	7.9	NA	Yes	82.5	03/28/17
		7PLSV/827/HYB/GX23	2727 K	7.0	84.3	590	550	3	NA	No	81.9	08/23/16

## Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date
CFL Replacement	GREEN CREATIVE	7PLSV/830/HYB/GX23	2986 K	7.1	89.3	631	550	5	NA	No	81.6	08/23/16
		7PLSV/835/HYB/GX23	3542 K	7.0	89.5	623	560	18	NA	No	83.3	08/23/16
		7PLSV/840/HYB/GX23	4200 K	7.0	91.1	634	570	19	NA	No	85.3	08/23/16
		7PLV/835/BYP	3531 K	7.0	89.1	619	600	17	NA	No	83.1	08/23/16
		7PLV/840/BYP	4168 K	7.0	94.1	658	620	18	NA	No	85.2	08/23/16
		9.5PLH/827/BYP	2735 K	9.5	109.1	1,032	870	2.9	NA	No	81.8	05/16/17
		9.5PLH/827/DIR	2671 K	10.4	91.0	943	870	4	NA	No	81.8	08/23/16
		9.5PLH/830/BYP	3041 K	9.5	118.3	1,122	920	10	NA	No	82.9	03/23/17
		9.5PLH/830/DIR	3015 K	13.0	72.8	950	920	13	NA	Yes	83.0	08/09/16
		9.5PLH/835/BYP	3523 K	9.4	115.4	1,088	920	7.3	NA	No	82.8	05/16/17
		9.5PLH/835/DIR	3559 K	13.4	72.7	970	920	24	NA	Yes	84.5	08/09/16
		9.5PLH/840/BYP	4125 K	9.5	119.8	1,134	950	12	NA	No	83.5	03/23/17
		9.5PLH/840/DIR	4199 K	13.1	78.9	1,034	935	2	NA	Yes	85.7	08/09/16
	GREENLITE LIGHTING CORPORATION	12W/LED/PLC/G24Q/35K	3553 K	12.0	68.2	1,150	1,150	4.6	NA	No	82.5	05/18/17
		12W/LED/PLC/G24Q/40K	4006 K	12.0	69.0	1,150	1,150	12	NA	No	84.4	05/18/17
		5W/LED/PLC/GX23/27K	2788 K	5.0	88.4	513	500	12.3	NA	No	83.6	05/17/17
		5W/LED/PLC/GX23/35K	3524 K	5.0	99.1	500	500	4.9	NA	No	82.6	05/17/17
		5W/LED/PLC/GX23/40K	3996 K	5.0	99.1	500	500	12.6	NA	No	82.6	05/18/17
		5W/LED/PLS/G23/27K	2753 K	5.0	88.8	500	500	10.9	NA	No	83.3	05/18/17
		5W/LED/PLS/G23/40K	3984 K	5.0	99.2	500	500	11.6	NA	No	84.3	05/18/17
		6W/LED/PLC/GX23/40K	4127 K	6.0	86.7	517	510	23.9	NA	No	86.7	03/22/17
	Halco Lighting Technologies	PL13H/827/4P/LED	2711 K	13.8	69.2	958	1,000	9.1	311.0	Yes	82.1	08/04/16
		PL13H/830/4P/LED	3065 K	13.4	76.8	1,027	1,000	3.1	337.0	Yes	81.1	08/04/16
		PL13H/835/4P/LED	3414 K	11.4	89.3	1,021	1,000	8.8	332.0	Yes	82.9	09/27/16
		PL13H/841/4P/LED	3898 K	13.6	85.7	1,162	1,000	16.7	383.0	Yes	84.7	08/04/16
		PL13H/850/4P/LED	5268 K	13.6	77.3	105	1,000	21.2	352.0	Yes	84.9	08/04/16
		PL13V/827/4P/LED	2676 K	13.4	74.3	997	1,000	5.2	318.0	Yes	81.3	08/04/16
		PL13V/830/4P/LED	3046 K	13.6	76.6	1,043	1,000	3.1	338.0	Yes	81.2	08/04/16
		PL13V/835/4P/LED	3430 K	11.4	93.2	1,065	1,000	9.1	329.0	Yes	82.9	09/26/16
		PL13V/841/4P/LED	3914 K	11.4	102.0	1,163	1,000	12.1	361.0	Yes	83.5	09/27/16
		PL13V/850/4P/LED	5075 K	13.7	91.9	125	1,000	13.2	388.0	Yes	84.4	08/04/16
	Hylite LED	HL-G24-13W	4197 K	12.2	125.3	1,522	1,365	27	566.5	No	86.6	08/17/16
		HL-G24-15W	4193 K	13.8	124.3	1,709	1,575	27	639.5	No	86.7	08/17/16
		HL-G24-7W	4208 K	6.9	120.6	829	725	28	312.8	No	86.8	08/17/16
		HL-G24-9W	4193 K	9.0	121.4	1,103	945	25	411.5	No	86.5	08/17/16
		HL-Gx23-5W	4193 K	5.0	117.9	586	525	26	NA	No	86.6	08/17/16
	HyLite LED	HL-OBF-11W-G24	3987 K	10.5	101.2	1,061	1,060	12	NA	No	84.1	09/27/16
		HL-OBF-13W-G24	4002 K	12.5	98.7	1,234	1,233	13	NA	No	84.2	09/27/16
		HL-OBF-15W-G24	4007 K	14.8	97.2	1,433	1,432	12	NA	No	84.2	09/27/16
		HL-OBF-5W-Gx23	3979 K	5.0	101.1	504	503	12	NA	No	84.0	09/27/16
		HL-OBF-7W-G24	3971 K	6.8	99.6	673	672	12	NA	No	84.1	09/27/16
		HL-OBF-9W-G24	3976 K	8.8	102.4	900	899	13	NA	No	84.3	09/27/16
		HL-VLF-12W-G24	3991 K	11.7	116.3	1,358	1,358	25	NA	No	86.1	09/26/16
	Keystone Technologies	KT-LED114P-EV-827-S	2676 K	13.4	74.3	997	1,000	5.2	NA	No	81.3	09/02/16
		KT-LED114P-EV-830-S	3046 K	13.6	76.6	1,043	1,050	3.1	NA	No	81.2	08/01/16
		KT-LED114P-EV-835-S	3430 K	11.4	93.3	1,065	1,000	9.1	NA	No	82.9	09/27/16
		KT-LED114P-EV-840-S	3852 K	13.5	86.2	1,166	1,050	11.6	NA	No	93.6	07/29/16
		KT-LED114P-EV-850-S	5075 K	13.7	91.9	1,255	1,050	13	NA	No	84.4	08/01/16
		KT-LED114P-H-827-S	2711 K	13.8	69.2	958	1,000	9.1	NA	No	82.1	09/01/16

## Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date		
CFL Replacement	Keystone Technologies	KT-LED114P-H-830-S	3065 K	13.4	76.8	1,027	1,000	3.1	NA	No	81.1	07/29/16		
		KT-LED114P-H-835-S	3414 K	11.4	89.3	1,021	1,000	8.8	NA	No	82.9	09/27/16		
		KT-LED114P-H-840-S	3898 K	13.6	85.7	1,162	1,050	16.7	NA	No	84.7	07/27/16		
		KT-LED114P-H-850-S	5268 K	13.6	77.3	1,054	1,050	21.2	NA	No	84.9	09/02/16		
		KT-LED114P-V-827-S	2676 K	13.4	74.3	997	1,000	5.2	NA	No	81.3	09/02/16		
		KT-LED114P-V-830-S	3046 K	13.6	76.6	1,043	1,000	3.1	NA	No	81.2	08/17/16		
		KT-LED114P-V-830-S					1,050	3.1	NA	No	81.2	08/01/16		
		KT-LED114P-V-835-S	3430 K	11.4	93.3	1,065	1,000	9.1	NA	No	82.9	09/27/16		
		KT-LED114P-V-840-S	3852 K	13.5	86.2	1,166	1,050	11.6	NA	No	83.6	07/27/16		
		KT-LED114P-V-850-S	5075 K	13.7	91.9	1,255	1,050	13.2	NA	No	84.4	08/01/16		
		KT-LED62P-H-830-D	2918 K	5.8	90.8	530	500	6.3	NA	No	81.8	09/27/16		
		KT-LED62P-H-840-D	4204 K	6.1	84.5	515	550	17.9	NA	No	84.9	09/27/16		
		KT-LED62P-H-850-D	4976 K	5.7	99.9	565	550	10.6	NA	No	83.5	09/27/16		
		KT-LED82P-EV-827-D	2696 K	7.5	103.3	776	900	32.5	NA	No	87.0	03/22/17		
		KT-LED82P-EV-830-D	3105 K	7.7	121.4	940	900	7.8	NA	No	82.8	03/22/17		
		KT-LED82P-EV-835-D	3470 K	7.9	114.9	906	900	17.8	NA	No	83.8	03/22/17		
		KT-LED82P-EV-840-D	3981 K	7.8	120.0	934	950	8.3	NA	No	82.8	03/22/17		
		KT-LED82P-EV-850-D	5044 K	7.6	123.0	938	950	13.1	NA	No	84.4	03/22/17		
		KT-LED82P-H-827-D	2704 K	7.6	98.2	741	900	32.4	NA	No	86.9	03/22/17		
		KT-LED82P-H-830-D	3124 K	7.6	117.4	894	900	7.5	NA	No	82.7	03/22/17		
		KT-LED82P-H-835-D	3501 K	7.8	109.9	856	900	17.1	NA	No	83.7	03/22/17		
		KT-LED82P-H-840-D	4011 K	7.8	114.1	895	950	8.5	NA	No	82.8	03/22/17		
		KT-LED82P-H-850-D	5104 K	7.6	117.8	900	950	13.9	NA	No	84.6	03/22/17		
		KT-LED82P-V-827-D	2695 K	7.5	102.6	773	900	32.6	NA	No	87.0	03/22/17		
		KT-LED82P-V-830-D	3111 K	7.8	122.4	955	900	7.9	NA	No	82.9	03/22/17		
		KT-LED82P-V-835-D	3481 K	7.9	115.5	908	900	17.7	NA	No	83.9	03/22/17		
		KT-LED82P-V-840-D	4005 K	7.7	117.7	905	950	7.3	NA	No	82.7	03/22/17		
		KT-LED82P-V-850-D	5082 K	7.6	123.0	933	950	13.6	NA	No	84.5	03/22/17		
			Kobi Electric	PL-1335-PP-G24	3411 K	7.2	86.0	620	600	16	NA	No	84.0	03/28/17
				PL-1335-RMV-G24	3466 K	6.8	113.3	770	750	15	(blank)	No	84.0	02/24/17
				PL-1340-PP-G24	4005 K	7.4	91.0	678	650	12	NA	No	83.0	03/28/17
				PL-1340-RMV-G24	4007 K	7.6	111.0	840	800	12	(blank)	No	83.3	02/24/17
				PL-1350-PP-G24	5157 K	7.3	89.0	651	650	12	NA	No	84.0	03/28/17
		PL-1350-RMV-G24		5173 K	7.2	113.0	819	800	16	(blank)	No	85.0	02/24/17	
		PL-1835-PP-G24		3432 K	9.9	86.0	860	850	16	NA	No	84.0	03/28/17	
		PL-1835-RMV-G24		3473 K	9.2	112.8	1,037	1,050	14	(blank)	No	83.8	02/24/17	
		PL-1840-PP-G24		4031 K	10.4	92.0	950	900	12	NA	No	83.0	03/28/17	
		PL-1840-RMV-G24		4014 K	9.7	108.8	1,058	1,050	12	(blank)	No	83.2	02/24/17	
		PL-1850-PP-G24		5287 K	10.5	86.0	905	900	19	NA	No	85.0	03/28/17	
		PL-1850-RMV-G24		5281 K	9.7	111.0	1,079	1,050	19	(blank)	No	85.5	02/24/17	
		PL-2635-PP-G24		3477 K	14.8	85.0	1,269	1,250	14	NA	No	83.0	03/28/17	
		PL-2635-RMV-G24		3444 K	12.9	112.4	1,450	1,400	8	(blank)	No	82.6	02/24/17	
		PL-2640-PP-G24		4060 K	15.4	84.0	1,300	1,300	13	NA	No	83.0	03/28/17	
		PL-2640-RMV-G24		4086 K	13.2	107.8	1,422	1,400	11	(blank)	No	83.4	02/24/17	
		PL-2650-PP-G24		5198 K	15.3	87.0	1,333	1,300	17	NA	No	85.0	03/28/17	
		PL-2650-RMV-G24		5148 K	12.7	113.0	1,433	1,400	13	(blank)	No	83.7	02/24/17	
		PL-440-RPP-GX23		4105 K	3.9	109.8	424	400	14	NA	No	84.0	10/14/16	
	PL-450-RPP-GX23	5154 K		4.0	108.3	430	400	4	NA	No	83.0	10/14/16		
	PL-640-RPP-GX23	4103 K		5.8	110.3	634	600	14	NA	No	84.1	10/14/16		

# Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date
CFL Replacement	Kobi Electric	PL-650-RPP-GX23	5138 K	5.9	108.5	639	600	5	NA	No	83.3	10/17/16
		PL-840-RPP-GX23	4092 K	7.8	113.4	885	800	7	NA	No	82.5	10/17/16
		PL-850-RPP-GX23	5230 K	7.7	112.8	866	800	10	NA	No	83.6	10/17/16
	Light Efficient Design	LED-7311-27A	2586 K	6.6	123.0	816	816	5	NA	No	81.7	05/02/17
		LED-7311-35A	3394 K	6.9	129.0	884	884	19	NA	No	85.1	05/02/17
		LED-7311-40A	3844 K	6.7	134.1	893	893	15	NA	No	84.0	05/02/17
		LED-7312-27A	2583 K	6.8	108.5	802	802	6	NA	No	81.9	05/02/17
		LED-7312-35A	3382 K	7.0	129.1	900	900	6	NA	No	84.9	05/02/17
		LED-7312-40A	3837 K	7.0	131.4	914	914	15	NA	No	83.9	05/02/17
	Lunera	HN-H-G24D-26W-2700-G2	2710 K	14.0	60.8	850	883	17.2	293.7	No	82.1	08/15/16
		HN-H-G24D-26W-3000-G2	3034 K	13.8	61.0	845	883	21.5	293.7	No	83.1	08/15/16
		HN-H-G24D-26W-3500-G2	3500 K	13.9	66.3	920	883	24.7	293.7	No	84.1	08/15/16
		HN-H-G24D-26W-4000-G2	3970 K	14.0	79.7	1,113	883	10.7	293.7	No	82.2	08/15/16
		HN-H-G24D-B-13W-827-G4	2795 K	25.0	72.0	899	900	6.7	293.0	No	82.1	05/17/17
		HN-H-G24D-B-13W-830-G4	3090 K	24.9	75.2	938	930	(blank)	293.0	No	83.3	05/17/17
		HN-H-G24D-B-13W-835-G4	3555 K	24.8	81.4	1,009	1,009	4.7	293.0	No	82.3	05/17/17
		HN-H-G24D-B-13W-840-G4	4088 K	24.9	80.7	1,004	1,004	8.1	293.0	No	82.4	05/17/17
		HN-H-G24Q-26W-2700-G2	2737 K	14.0	64.4	940	883	11.1	293.7	Yes	82.3	08/02/16
		HN-H-G24Q-26W-3000-G2	3055 K	14.5	61.4	889	899	20	293.7	Yes	82.7	08/02/16
		HN-H-G24Q-26W-3000-G3	3099 K	16.1	56.6	913	920	10.3	354.4	Yes	81.9	08/26/16
		HN-H-G24Q-26W-3500-G2	3466 K	14.5	70.6	1,023	930	13.6	293.7	Yes	82.3	08/02/16
		HN-H-G24Q-26W-3500-G3	3587 K	16.1	58.2	939	940	12.3	354.4	Yes	82.2	08/26/16
		HN-H-G24Q-26W-4000-G2	4065 K	14.5	71.3	1,035	954	15.7	293.7	Yes	83.2	08/02/16
		HN-H-G24Q-26W-4000-G3	4041 K	16.3	60.2	979	970	15.3	354.4	Yes	83.3	08/26/16
		HN-H-G24Q-B-11W-827-G4	2729 K	12.9	67.9	878	880	2.5	293.7	Yes	80.4	10/14/16
		HN-H-G24Q-B-11W-830-G4	2981 K	13.8	70.3	967	900	18.2	NA	Yes	82.9	12/01/16
		HN-H-G24Q-B-11W-835-G4	3501 K	14.0	88.0	1,229	910	9.8	NA	Yes	83.3	12/01/16
		HN-H-G24Q-B-11W-840-G4	4046 K	12.9	69.1	893	925	17.4	293.7	Yes	83.8	10/14/16
		HN-PLL-D-22-22W-827-G1	2711 K	26.6	91.3	2,431	2,400	4	609.0	Yes	81.1	02/15/17
		HN-PLL-D-22-22W-830-G1	3083 K	26.6	97.5	2,591	2,600	4.19	613.0	Yes	81.9	02/15/17
		HN-PLL-D-22-22W-835-G1	3566 K	27.1	94.7	2,562	2,600	12	643.0	Yes	83.8	02/15/17
		HN-PLL-D-22-22W-840-G1	3982 K	26.8	102.4	2,743	2,700	5	643.0	Yes	82.5	02/15/17
		HN-PLL-L-22-23W-827-G1	2719 K	24.0	97.9	2,354	2,400	4	581.0	Yes	81.1	02/15/17
		HN-PLL-L-22-23W-830-G1	3091 K	24.0	107.8	2,584	2,600	4	608.0	No	81.9	02/15/17
		HN-PLL-L-22-23W-835-G1	3573 K	24.0	105.7	2,532	2,600	12	608.0	No	83.8	02/15/17
		HN-PLL-L-22-23W-840-G1	4116 K	24.7	105.7	2,605	2,600	23	636.0	No	86.1	02/24/17
		HN-V-G24D-26W-2700-G2	2663 K	14.0	69.7	973	920	16.7	293.9	No	81.9	08/15/16
		HN-V-G24D-26W-3000-G2	3033 K	14.0	71.4	1,002	920	22.8	293.9	No	83.2	08/15/16
		HN-V-G24D-26W-3500-G2	3517 K	14.0	79.2	1,111	920	16.5	293.9	No	82.8	08/15/16
		HN-V-G24D-26W-4000-G2	4023 K	14.0	75.4	1,055	920	26.1	293.9	No	84.0	08/15/16
		HN-V-G24D-B-13W-827-G4	2772 K	14.4	64.1	925	925	8.1	293.0	No	82.0	05/16/17
		HN-V-G24D-B-13W-830-G4	2936 K	14.5	65.3	946	946	11.1	293.0	No	83.0	05/16/17
		HN-V-G24D-B-13W-835-G4	3516 K	14.4	67.3	971	971	11.1	293.0	No	81.7	05/16/17
		HN-V-G24D-B-13W-840-G4	4029 K	14.6	69.6	1,014	1,014	5.5	293.0	No	82.3	05/16/17
		HN-V-G24Q-26W-2700-G3	2780 K	16.0	60.1	960	880	6.8	360.3	Yes	81.3	08/26/16
		HN-V-G24Q-26W-3000-G3	3159 K	15.9	62.1	990	912	8.8	360.3	Yes	81.6	08/26/16
		HN-V-G24Q-26W-3500-G3	3499 K	16.4	60.6	992	916	12.3	360.3	Yes	82.1	08/26/16
		HN-V-G24Q-26W-4000-G3	4085 K	16.3	61.0	997	950	12.3	360.3	Yes	83.2	08/26/16
		HN-V-G24Q-B-11W-827-G4	2711 K	13.8	67.1	927	925	5	NA	Yes	81.7	10/14/16



## Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date	
CFL Replacement	Lunera	HN-V-G24Q-B-11W-830-G4	2964 K	15.2	67.9	1,030	970	16.9	293.7	Yes	82.6	12/01/16	
		HN-V-G24Q-B-11W-835-G4	3499 K	15.0	86.1	1,292	1,000	8.6	293.7	Yes	83.1	12/01/16	
		HN-V-G24Q-B-11W-840-G4	3972 K	13.8	67.2	926	1,020	16.6	293.7	Yes	83.8	10/14/16	
		HN-VL-G24Q-26W-2700-G2	2725 K	14.3	67.1	961	920	12.9	266.6	Yes	82.6	08/02/16	
		HN-VL-G24Q-26W-3000-G2	3046 K	14.3	68.3	976	937	12.3	266.6	Yes	82.5	08/02/16	
		HN-VL-G24Q-26W-3500-G2	3460 K	14.3	72.5	1,039	969	16.1	266.6	Yes	82.8	08/02/16	
		HN-VL-G24Q-26W-4000-G2	4000 K	14.3	71.2	1,015	994	16.2	266.6	Yes	83.4	08/02/16	
	MAXLITE	11PLG24QHLED35	3560 K	13.7	83.0	1,200	1,000	(blank)	NA	No	83.1	01/25/17	
		11PLG24QHLED40	4188 K	14.0	77.0	1,080	1,050	15	419.8	No	84.2	08/22/16	
		11PLG24QVLED27	2770 K	13.6	81.0	1,155	1,000	13	NA	No	82.5	03/22/17	
		11PLG24QVLED35	3568 K	13.7	83.0	1,194	1,000	12	(blank)	No	83.6	02/24/17	
		13PLG24QHLED35/G2	3406 K	15.4	87.0	1,339	1,000	13	NA	No	83.4	01/26/17	
		13PLG24QHLED40/G2	3942 K	15.4	94.0	1,455	1,000	13	NA	No	84.0	01/26/17	
		13PLG24QVLED27/G2	2737 K	15.0	85.0	1,273	1,000	14	NA	No	83.2	01/26/17	
		13PLG24QVLED40/G2	3922 K	15.5	95.0	1,475	1,000	14	NA	No	84.0	01/26/17	
		6PLE26LED27	2733 K	6.0	84.0	502	500	12	NA	No	81.7	05/01/17	
		6PLE26LED30	3023 K	6.0	77.0	459	500	4	NA	No	81.7	03/22/17	
		6PLG24QLED27	2733 K	6.0	84.0	502	500	12	NA	No	81.7	05/01/17	
		6PLG24QLED30	3023 K	6.0	77.0	459	500	4	NA	No	81.7	03/23/17	
		6PLG24QLED35	3495 K	5.9	86.0	505	525	16	NA	No	82.7	03/21/17	
		6PLG24QLED40	4055 K	5.9	91.0	540	525	17	NA	No	85.1	03/21/17	
		6PLG24QLED50	5213 K	6.0	90.0	536	525	25	NA	No	86.9	03/21/17	
		6PLGU24LED27	2733 K	6.0	84.0	502	500	12	NA	No	81.7	05/01/17	
		6PLGU24LED30	3023 K	6.0	77.0	459	500	4	NA	No	81.7	03/23/17	
		6PLGU24LED40	4055 K	5.9	91.0	540	525	17	NA	No	85.1	03/21/17	
		6PLGX23LED27	2733 K	6.0	84.0	502	500	12	NA	No	81.7	05/01/17	
		6PLGX23LED30	3023 K	6.0	77.0	459	500	4	NA	No	81.7	03/23/17	
		6PLGX23LED35	3495 K	5.9	86.0	505	525	16	NA	No	82.7	03/21/17	
		6PLGX23LED40	4055 K	5.9	91.0	540	525	17	NA	No	85.1	03/21/17	
		6PLGX23LED50	5213 K	6.0	90.0	536	525	25	NA	No	86.9	03/21/17	
		8PLE26LED27	2738 K	7.1	94.0	669	675	6	NA	No	81.4	05/01/17	
		8PLE26LED30	3048 K	7.4	97.0	712	675	17	NA	No	84.4	03/23/17	
		8PLG24LED27	2738 K	7.1	94.0	669	675	6	NA	No	81.4	05/01/17	
		8PLG24LED30	3048 K	7.4	97.0	712	675	17	NA	No	84.4	03/23/17	
		8PLG24LED35	3474 K	7.3	96.0	700	725	15	NA	No	84.1	03/21/17	
		8PLG24LED40	4058 K	6.8	111.0	756	725	6	NA	No	85.4	05/02/17	
		8PLGU24LED27	2738 K	7.1	94.0	669	675	6	NA	No	81.4	05/01/17	
		8PLGX23LED27	2738 K	7.1	94.0	669	675	6	NA	No	81.4	05/01/17	
		8PLGX23LED35	3474 K	7.3	96.0	700	725	15	NA	No	84.1	03/21/17	
		Metrosphere Light Corp.	MET-HY6WHG24D-27	2753 K	5.7	98.0	563	550	6.1	NA	No	81.7	05/04/17
			MET-SUPL-5WHG24-30	3016 K	7.0	74.8	523	500	8	NA	Yes	82.6	09/28/16
			MET-SUPL-5WHG24-40	4163 K	7.0	73.6	512	500	19	NA	Yes	85.2	09/28/16
			MET-SUPL-9WHG24-30	2941 K	11.3	79.4	899	900	23	NA	Yes	84.8	09/27/16
			MET-SUPL-9WHG24-40	4087 K	12.0	83.7	967	900	16	NA	Yes	84.4	09/27/16
			MET-WIPL-06WHG24-30	3110 K	8.1	85.6	696	700	7.9	NA	No	82.9	12/13/16
			MET-WIPL-06WHG24-40	4102 K	8.3	86.9	723	700	14.5	NA	No	84.3	12/13/16
			MET-WIPL-3WHG23-30	3045 K	3.4	100.6	338	300	10.8	NA	No	83.0	05/18/17
			MET-WIPL-5WHGX23-27	2777 K	5.1	99.0	506	500	7	NA	No	81.8	05/04/17
			MET-WIPL-5WHGX23-30	2928 K	5.3	95.4	507	500	12.9	NA	No	83.8	12/01/16

## Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date
CFL Replacement	Metrosphere Light Corp.	MET-WIPL--5WHGX23-40	4199 K	5.3	98.0	523	500	19.1	NA	No	85.1	12/01/16
		MET-WIPL-HY6WHG24D-30	2994 K	5.4	124.8	673	550	9.8	(blank)	No	83.3	02/24/17
		MET-WIPL-HY6WHG24D-40	4022 K	6.1	111.5	681	680	8.4	NA	No	82.8	12/13/16
	NINGBO VEALITE ILLUMINATION CO.L	5PL01G23LEDYY	2703 K	4.7	107.5	505	500	(blank)	NA	No	82.4	12/01/16
		7PL01GX23LED27	2780 K	6.9	99.6	686	650	2.4	NA	No	81.5	01/30/17
	Optimal LED	GQR04NX1010VV50JPW	5223 K	9.9	83.3	820	900	15	NA	No	84.2	08/17/16
	Philips	10.5PL-C/T LED/26V-2700 IF 4P	2698 K	14.3	87.9	1,252	1,200	11.4	NA	No	82.6	01/26/17
		10.5PL-C/T LED/26V-3000 IF 4P	3103 K	14.4	86.4	1,247	1,200	16	NA	No	83.5	01/26/17
		10.5PL-C/T LED/26V-3500 IF 4P	3397 K	14.4	93.2	1,344	1,200	9.8	NA	No	83.1	01/25/17
		10.5PL-C/T LED/26V-400 IF 4P	3949 K	14.4	96.7	1,391	1,200	3.8	NA	No	82.5	03/21/17
		8.5PL-C/T LED/26H-2700 IF 4P	2630 K	10.4	90.1	939	900	10.5	NA	No	82.3	01/26/17
		8.5PL-C/T LED/26H-3000 IF 4P	3057 K	10.4	91.0	947	900	7	NA	No	82.3	01/26/17
		8.5PL-C/T LED/26H-3500 IF 4P	3434 K	10.3	92.3	950	900	9.4	NA	No	85.6	01/25/17
		8.5PL-C/T LED/26H-4000 IF 4P	3956 K	10.3	95.0	978	900	10.2	NA	No	83.8	03/21/17
		RENO LED LIGHTING	WLL-LED6/2P/830	2918 K	5.8	90.8	530	520	6.3	NA	No	81.8
	WLL-LED6/2P/835		3570 K	6.1	87.9	533	520	22	NA	No	84.5	05/04/17
	WLL-LED6/2P/840		4204 K	6.1	84.5	515	520	17.9	NA	No	84.9	05/04/17
	WLL-LED6/2P/850		4976 K	5.7	99.9	565	520	10.6	NA	No	83.5	05/05/17
	Satco Products Inc.	S9850	2941 K	11.3	79.4	899	850	23	NA	No	84.8	12/01/16
		S9851	3444 K	11.6	83.9	976	850	16	NA	No	83.2	12/01/16
		S9852	4087 K	11.6	83.7	967	900	16	NA	No	84.4	12/01/16
		S9858	2998 K	11.8	79.5	937	850	7	NA	No	82.0	12/01/16
		S9859	3474 K	11.7	83.1	976	850	11	NA	No	83.4	12/01/16
		S9860	3874 K	11.9	87.2	1,034	900	13	NA	No	84.0	12/01/16
	Shenzhen Seven Rainbow lighting Co., L	CH-2G11-22W	6486 K	20.1	137.1	2,753	2,200	18	NA	No	86.0	12/01/16
	TGL Inc.	TGL-PLG24Q-10W4K	3938 K	9.4	94.0	885	800	19.2	NA	No	85.0	09/27/16
	Verbatim Americas	PL4-L1000-C27-DIR	2701 K	11.6	88.8	1,029	1,100	12	NA	No	83.0	08/11/16
		PL4-L1100-C30-DIR	2994 K	11.5	91.3	1,053	1,100	19	NA	No	85.0	08/11/16
		PL4-L1100-C35-DIR	3462 K	11.6	94.7	1,098	1,100	17	NA	No	85.0	08/11/16
		PL4-L1100-C40-DIR	3976 K	11.6	95.6	1,108	1,100	18	NA	No	85.0	08/11/16
		PL4-L800-C27-DIR	2695 K	8.3	86.4	715	800	10	NA	No	83.0	08/11/16
		PL4-L800-C30-DIR	3045 K	8.2	92.0	749	800	18	NA	No	85.0	08/11/16
PL4-L800-C35-DIR		3408 K	8.1	96.0	789	800	14	NA	No	84.0	08/11/16	
PL4-L800-C40-DIR		3979 K	8.2	97.0	795	800	13	NA	No	84.0	08/11/16	
Display/Refrigerated Case	Diode LED	DI-24V-AV27-90XX	2695 K	18.8	52.3	140	162	77.1	NA	Yes	95.6	12/13/16
HID Replacements (screw-in)	Aledra LED Lighting	ALJ12-22U-XYX-E26	2984 K	19.6	94.1	1,839	2,000	4	NA	No	82.0	03/21/17
		ALJ16-30U-XYX-E26	2985 K	26.6	92.2	2,456	2,700	7	NA	No	82.7	03/21/17
		ALJ16-50U-XYX-E26	3025 K	45.4	93.8	4,255	3,780	4	NA	No	82.2	03/21/17
	Differential Energy Global Ltd.	DEG-070120-G1.5 (120V)	4532 K	20.8	64.7	1,345	1,345	-17.2	6.1	Yes	73.4	05/03/17
		DEG-070120-G1.5 (277V)	4532 K	21.0	64.7	1,345	1,345	-17.2	6.1	Yes	73.4	05/03/17
		DEG-070120-G2 (120V)	4495 K	16.8	67.0	1,125	1,125	-18.3	5.0	Yes	73.4	05/03/17
		DEG-070120-G2 (277V)	4495 K	16.8	67.0	1,125	1,125	-18.3	5.0	Yes	73.4	05/03/17
		DEG-100225-CLiK 4.0 (120V)	3830 K	59.1	83.9	4,961	4,961	14.8	13.8	Yes	83.0	05/04/17
		DEG-100225-CLiK 4.0 (277V)	3830 K	59.0	83.9	4,961	4,961	14.8	13.8	Yes	83.0	05/04/17
		DEG-150175 (120V)	4422 K	53.5	85.1	4,579	4,579	-6.7	71.1	Yes	74.9	05/02/17

## Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date
(screw-in)	Differential Energy Global Ltd.	DEG-150175 (277V)	4422 K	58.1	85.1	4,579	4,579	-6.7	71.1	Yes	74.9	05/02/17
		DEG-250400 (120V)	4569 K	98.2	72.9	7,155	7,155	-3.7	26.4	Yes	78.0	05/02/17
		DEG-250400 (277V)	4569 K	97.1	72.9	7,155	7,155	-3.7	26.4	Yes	78.0	05/02/17
	EiKO Global	LED15WPT40KMED-G7	4086 K	14.7	131.2	1,929	1,875	8	NA	No	82.9	09/23/16
		LED15WPT50KMED-G7	5134 K	14.6	133.5	1,949	1,900	16	NA	No	86.0	09/23/16
		LED19WPT40KMED-G7	4108 K	19.1	126.2	2,411	2,375	8	NA	No	82.8	09/23/16
		LED19WPT50KMED-G7	5164 K	18.8	130.9	2,461	2,470	8	NA	No	86.0	09/23/16
		LED20WPT40KMED-G6	4157 K	19.1	115.0	2,190	2,100	15	NA	No	84.5	08/17/16
		LED20WPT50KMED-G6	5044 K	18.2	127.6	2,326	2,100	-1	NA	No	81.5	08/17/16
		LED24WPT40KMED-G7	4148 K	23.8	132.2	3,147	3,000	12	NA	No	83.7	09/23/16
		LED24WPT50KMED-G7	5116 K	23.5	133.3	3,129	3,120	16	NA	No	86.0	09/23/16
		LED27WPT40KMED-G7	4086 K	26.6	136.8	3,636	3,645	12	NA	No	83.5	09/23/16
		LED27WPT50KMED-G7	5238 K	27.5	136.1	3,749	3,645	4	NA	No	84.0	10/10/16
		LED36WPT40KMED-G7	4085 K	36.0	137.1	4,939	4,860	13	NA	No	83.7	09/23/16
		LED36WPT50KMED-G7	5146 K	37.1	137.9	5,112	4,860	11	NA	No	85.2	10/17/16
		LED45WPT40KMED-G7	4008 K	40.3	143.6	5,779	6,075	10	NA	No	83.3	09/23/16
		LED45WPT50KMED-G7	5150 K	40.6	149.5	6,073	6,075	-2	NA	No	82.6	09/23/16
	LED54WPT40KMED-G7	4065 K	54.3	137.8	7,482	7,290	17	NA	No	85.0	09/26/16	
	ESL Vision	ESL-CL-55W-EXT-480V	5112 K	57.4	124.1	7,122	6,900	29	NA	No	86.4	09/27/16
	ESL Vision, LLC	ESL-CL-15W-230S	3082 K	15.1	122.7	1,848	1,845	12	NA	No	82.8	10/12/16
		ESL-CL-15W-240S	3993 K	14.9	131.5	1,952	1,950	17	NA	No	84.2	10/12/16
		ESL-CL-15W-250S	5112 K	15.0	134.5	2,018	2,015	16	NA	No	84.7	10/12/16
		ESL-CL-23W-230S	3076 K	21.9	127.2	3,076	2,780	12	NA	No	82.7	10/12/16
		ESL-CL-23W-240S	4005 K	22.0	134.9	2,974	2,970	17	NA	No	84.1	10/12/16
		ESL-CL-23W-250	5236 K	22.2	129.0	2,875	2,875	4	NA	No	81.6	06/01/16
		ESL-CL-23W-250S	5096 K	22.4	139.2	3,117	3,115	17	NA	No	84.8	10/12/16
		ESL-CL-9W-230S	3081 K	8.4	117.1	981	980	12	NA	No	82.7	10/12/16
		ESL-CL-9W-240S	3976 K	8.2	124.6	1,026	1,025	17	NA	No	84.0	10/12/16
		ESL-CL-9W-250S	5082 K	8.2	127.2	1,045	1,045	16	NA	No	84.6	10/12/16
	Foreverlamp Inc	GS-400D-HO-840	4197 K	190.0	101.2	19,230	20,000	0	NA	No	84.0	08/12/16
		PS-400D-HO-840	3985 K	200.0	112.0	22,422	20,000	0	NA	No	83.0	08/12/16
	Foreverlamp Inc.	GS-400D-VVHO-850	5010 K	229.4	89.0	25,399	26,000	0	NA	No	84.0	09/26/16
		GS-400U-HO-840	4137 K	204.9	76.0	20,054	21,000	0	NA	No	84.0	09/28/16
		GS-400U-VHO-850	5078 K	211.9	122.0	25,758	24,000	0	NA	No	82.0	09/28/16
		PS-400D-HO-850	5034 K	201.6	80.0	20,899	21,000	0	NA	No	84.0	09/28/16
	GREEN CREATIVE	27HID/840/277V/EX39/R	4052 K	28.0	118.5	3,321	1,004	16	293.0	No	84.0	05/17/17
		27HID/850/277V/E26	5003 K	28.1	121.8	3,420	3,200	24	NA	No	85.5	02/27/17
		45HID/840/277V/EX39/R	4050 K	44.8	123.0	5,509	5,350	13	NA	No	83.2	05/17/17
		45HID/850/277V/E26	5008 K	44.6	127.5	5,684	5,400	22	NA	No	85.2	02/27/17
		45HID/850/277V/E26							(blank)	No	85.2	02/27/17
	Keystone Technologies	KT-LED20HID-E26-840-D	4157 K	19.1	109.7	2,090	2,100	15	NA	No	84.5	10/12/16
		KT-LED20HID-E26-850-D	5044 K	18.2	127.6	2,326	2,130	(blank)	NA	No	81.5	10/12/16
		KT-LED27HID-E26-840-D	4086 K	26.6	136.8	3,636	3,780	(blank)	NA	No	83.5	03/21/17
		KT-LED27HID-E26-850-D	5238 K	27.5	136.1	3,749	3,830	(blank)	NA	No	84.0	03/14/17
		KT-LED36HID-E26-840-D	4085 K	36.0	137.1	4,939	5,040	13	NA	No	83.7	10/14/16
		KT-LED36HID-E26-850-D	5134 K	37.1	137.9	5,112	5,100	11	NA	No	85.2	12/01/16
	LEDTRONICS, INC.	LED22UL-18E26-XPW-101W	5220 K	17.3	126.9	2196.80	2,280	23	NA	No	85.0	05/03/17
		LED22UL-22E26-XPW-101W	5216 K	21.6	126.9	2,740	2,690	23	NA	No	85.1	03/24/17
	Light Efficient Design	LED-8025E42	3963 K	51.0	107.9	5,498	5,498	(blank)	NA	No	84.2	03/01/17

## Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date	
(screw-in)	Light Efficient Design	LED-8025E57	5435 K	52.2	110.6	5,774	5,773	(blank)	NA	No	85.6	03/01/17	
		LED-8029E30-A	2965 K	23.2	101.7	2,362	2,362	8	NA	No	82.6	08/08/16	
		LED-8029E40-A	4026 K	22.4	118.4	2,656	2,656	15	NA	No	84.4	08/08/16	
		LED-8029E57-A	5772 K	22.1	120.5	2,667	2,667	16	NA	No	85.2	08/08/16	
		LED-8032M40-A	4051 K	144.4	113.6	16,407	16,407	13	NA	No	84.3	08/02/16	
		LED-8032M57-A	5393 K	144.2	115.2	16,605	16,605	12	NA	No	84.7	08/02/16	
		LED-8039E30-A	2958 K	18.2	112.8	2,056	2,055	7	NA	No	82.4	08/08/16	
		LED-8039E40-A	4087 K	18.0	127.8	2,297	229	17	NA	No	84.7	08/08/16	
		LED-8039E57-A	5552 K	18.0	124.4	2,243	2,243	15	NA	No	85.1	08/08/16	
		LED-8055E27	2783 K	30.2	83.9	2,537	2,537	9	NA	No	82.2	08/08/16	
		LED-8055E42	4105 K	32.3	88.4	2,842	2,842	(blank)	NA	No	88.0	03/01/17	
		LED-8055E57	5858 K	32.2	89.7	2,886	2,886	(blank)	NA	No	88.3	03/01/17	
		LED-8055M27	2783 K	30.2	83.9	2,537	2,537	9	NA	No	82.2	08/08/16	
		LED-8055M42	4105 K	32.3	88.0	2,842	2,886	29	NA	No	88.0	08/08/16	
		LED-8055M57	5958 K	32.2	89.6	2,886	2,886	37	NA	No	88.3	08/08/16	
		LED-8081E27	2615 K	32.3	90.7	2,927	5,498	(blank)	NA	Yes	82.0	03/24/17	
		LED-8081E40	3942 K	31.8	110.4	3,509	3,509	11	NA	No	83.5	08/09/16	
		LED-8081E57	5794 K	31.3	113.9	3,567	3,567	1	NA	No	81.2	08/09/16	
		LED-8082M40	3933 K	41.6	120.4	5,010	5,010	13	NA	No	83.8	08/09/16	
		LED-8082M57	5775 K	42.8	122.2	5,230	5,229	1	NA	No	81.2	08/09/16	
		LED-8083E30	2929 K	13.1	117.6	3,662	3,661	6	NA	No	81.9	08/08/16	
		LED-8083E40	4041 K	30.7	127.9	3,920	3,919	12	NA	No	83.8	08/08/16	
		LED-8083E57	5606 K	30.7	128.8	3,956	3,955	9	NA	No	84.4	08/08/16	
		LED-8087E30	2912 K	32.5	107.2	3,483	3,483	4	NA	No	81.4	05/02/17	
		LED-8087E40-A	4041 K	32.9	127.0	4,172	4,171	11	NA	No	83.5	08/08/16	
		LED-8087E57-A	5636 K	32.8	128.9	4,225	4,225	9	NA	No	84.4	08/08/16	
		LED-8088E30	2940 K	53.3	106.8	5,691	4,868	(blank)	NA	No	81.7	03/01/17	
		LED-8088E40	3947 K	50.9	116.4	5,947	5,946	(blank)	NA	No	83.8	03/01/17	
		LED-8088E57	5826 K	50.9	115.2	5,870	5,870	(blank)	NA	No	85.7	03/01/17	
		LED-8090M40-A	3835 K	114.9	101.0	11,605	11,605	0	NA	No	73.4	08/02/16	
		LED-8090M50-A	4915 K	114.5	102.7	11,760	11,760	0	NA	No	73.8	08/02/16	
		Lunera	SN-360-E26-L-5Klm-835-G3	3355 K	53.4	98.1	5,237	5,400	14.9	NA	Available	82.6	08/01/16
			SN-360-E26-L-5Klm-840-G3	3954 K	53.5	107.6	5,763	5,400	15.2	NA	Available	83.4	08/01/16
	SN-360-E26-L-5Klm-850-G3		4886 K	52.9	103.6	5,481	5,400	14	NA	Available	83.7	08/01/16	
	SN-360-E26-L-8Klm-835-G3		3539 K	89.5	94.0	8,413	8,400	10.7	NA	Available	81.7	08/01/16	
	SN-360-E26-L-8Klm-840-G3		4056 K	85.7	100.4	8,602	8,400	14.1	NA	Available	83.0	08/01/16	
	SN-360-E26-L-8Klm-850-G3		4855 K	87.3	97.9	8,553	8,400	8.9	NA	Available	82.8	08/01/16	
	SN-V-E26-L-4.5Klm-840-G3		3883 K	58.6	81.9	4,800	4,500	10.4	NA	Available	81.9	08/15/16	
	SN-V-E26-L-4.5Klm-850-G3		4729 K	58.8	83.6	4,911	4,500	7.5	NA	Available	82.5	08/15/16	
	SN-V-E26-L-9Klm-840-G3		3899 K	106.1	82.9	8,794	9,000	14.8	NA	Available	83.1	08/15/16	
	SN-V-E26-L-9Klm-850-G3		4982 K	109.4	83.9	9,170	9,000	14.8	NA	Available	84.1	08/15/16	
	SN-VS-E26-L-4.5Klm-840-G3		3877 K	59.1	83.4	4,926	4,500	11	NA	Available	82.1	08/15/16	
	SN-VS-E26-L-4.5Klm-850-G3		4711 K	57.9	83.6	4,843	4,500	7.8	NA	Available	82.5	08/15/16	
	SN-VS-E26-L-9Klm-840-G3		3911 K	108.2	83.1	8,990	9,000	7.8	NA	Available	83.1	08/15/16	
	SN-VS-E26-L-9Klm-850-G3		4971 K	107.5	85.1	9,144	9,000	14.6	NA	Available	84.1	08/15/16	
	MAXLITE		BLHR43UN50B	5000 K	43.5	95.6	4,160	4,100	0	NA	No	86.7	08/17/16
	OEO Energy Solutions	EZ LED HO-D-5K	5034 K	201.0	104.0	20,899	21,500	0	NA	No	84.0	09/06/16	
		EZ LED VHO-U-5K	5078 K	211.9	122.0	25,758	26,000	0	NA	No	82.0	09/09/16	
		EZLED HO-U-5K	5036 K	205.2	101.0	20,763	21,000	0	NA	No	84.0	09/09/16	

## Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date	
(screw-in)	Satco Products Inc.	S9670	2746 K	17.6	120.7	2,130	2,200	11	NA	No	83.2	03/30/17	
		S9671	2741 K	22.1	120.8	2,673	2,680	10	NA	No	82.9	05/01/17	
		S9672	2765 K	39.6	119.0	4,359	4,390	10	NA	No	83.1	05/01/17	
		S9750	5108 K	29.1	131.0	3,808	3,900	16	NA	No	83.7	05/01/17	
	Shenzhen Guanke Technologies Co., Ltd	GKS09-27W-10 E26 E39	3031 K	27.4	93.8	2,560	3,510	6	NA	No	80.7	12/01/16	
		GKS09-36W-10 E26 E39	4948 K	33.7	132.8	4,473	4,680	8	NA	No	82.6	12/01/16	
		GKS13-40W E26 E39	4876 K	39.5	145.5	5,748	5,600	10	NA	No	83.4	12/01/16	
		GKS28-27W E26 E39	4086 K	27.6	136.8	3,636	3,510	12	NA	No	83.5	03/22/17	
		GKS28-27W E26 E39	5238 K	27.5	136.1	3,749	3,510	4	NA	No	84.0	03/22/17	
	STANDARD PRODUCTS INC.	65042	3030 K	20.5	112.5	2,309	2,309	14	NA	No	83.8	05/02/17	
		65043	4044 K	21.4	125.1	2,674	2,674	12	NA	No	83.9	05/02/17	
		65045	3029 K	34.1	117.6	4,016	4,016	13	NA	No	83.6	05/02/17	
	Truly Green Solutions	310772	4166 K	12.3	111.5	1,372	1,150	5	NA	No	82.8	12/07/16	
		310781	5164 K	14.9	100.5	1,501	1,650	-22	NA	No	73.0	12/13/16	
		310861-IL-G4	4920 K	81.5	128.7	10,491	10,880	7	NA	No	82.8	09/02/16	
		310872-IL-G4	4104 K	104.0	129.6	13,475	13,680	22	NA	No	85.7	09/02/16	
	<b>Integral Omnidirectional LED &gt; 5 and &lt; 10 watts</b>	TGL Inc.	VINE26-6WG80-270K	2689 K	5.3	101.9	543	550	1.93	NA	Yes	80.8	01/27/17
<b>Integral Omnidirectional LED &lt;=5 watts</b>	Brilliance LED	CAN FIL EDGE BC 2700 1.5	2678 K	1.5	89.0	133	135	49	NA	Yes	90.7	03/22/17	
CAN FIL EDGE FC 2700 1.5		2707 K	1.5	92.3	138	135	50	NA	Yes	90.8	03/22/17		
Luminance	TGL Inc.	L7588-2-RF	2700 K	1.5	111.1	160	160	19	NA	Yes	84.4	01/10/17	
		VINE12-2W-230KA	2145 K	1.7	79.1	136	158	8.47	NA	Yes	80.7	01/26/17	
		VINE12-4W-230KA	2104 K	3.2	77.8	246	311	3.76	NA	Yes	79.3	01/26/17	
		VINE12-4WG165-270K	2652 K	3.6	98.3	353	380	0.16	NA	Yes	80.3	01/27/17	
		VINE12-4WG45-270K	2694 K	3.6	93.7	341	380	0.27	NA	Yes	80.3	01/27/17	
		VINE12-4WT-220KA	2071 K	3.7	68.0	249	272	46.8	NA	Yes	90.0	01/30/17	
		VINE12-4WT-270K	2732 K	3.7	100.5	367	320	1.01	NA	Yes	80.7	12/13/16	
		VINE26-2W-230KA	2115 K	1.7	67.1	114	158	7.96	NA	Yes	80.4	01/26/17	
		VINE26-4WG165-270K	2663 K	3.7	96.2	353	380	1.29	NA	Yes	80.6	01/27/17	
		VINE26-4WST45-270K	2711 K	3.6	97.2	353	380	1.89	NA	Yes	80.8	01/27/17	
		TGL Inc.	VINE12-2WT-270K	2726 K	1.8	101.1	183	180	1.7	NA	Yes	81.1	12/13/16
MR16	Sengled-Sigalux	MR16-6M-WH-DIM-A-36°-3000K	3031 K	6.3	81.5	511	350	7	850.0	Yes	81.5	08/09/16	
	Verbatim Americas	M16-L300-C30-B25-ENC	2986 K	3.7	85.9	316	300	12	1620.0	Yes	81.2	06/16/16	
		M16-L300-C30-B36-ENC	2990 K	3.7	88.8	329	300	11	900.0	Yes	81.0	06/16/16	
		M16-L430-C30-B25-ENC	3052 K	5.8	80.0	460	430	14	2405.0	Yes	82.0	06/16/16	
		M16-L430-C30-B36-ENC	3013 K	5.9	78.0	457	430	10	1260.0	Yes	80.8	06/16/16	
		M16-L500-C27-B13-97-ENC	2725 K	8.5	66.4	552	500	78	6475.0	Yes	96.3	06/16/16	
		M16-L500-C27-B25-97-ENC	2718 K	8.3	59.6	482	500	77.5	2690.0	Yes	96.2	06/16/16	
		M16-L500-C27-B36-97-ENC	2733 K	8.1	60.2	485	500	77.6	1400.0	Yes	96.3	06/16/16	
		M16-L525-C30-B13-97-ENC	2986 K	8.5	67.0	568	525	80.5	6500.0	Yes	96.4	06/16/16	
		M16-L525-C30-B25-97-ENC	2979 K	8.3	62.2	516	525	85.3	2715.0	Yes	96.5	06/16/16	
		M16-L525-C30-B36-97-ENC	3013 K	8.2	63.6	522	525	86	1430.0	Yes	96.7	06/16/16	
		Sengled	1102011245	2699 K	8.0	73.0	580	525	63.9	4885.0	Yes	93.3	12/01/16

## Lighting Design Lab Qualified LED List -- Lamps and Linear Tubes

Lamp Type	Manufacturer	Model Number	CCT	Input Wattage	Efficacy LPW	Initial Lumen Output	Rated Lumens	R9 Value	Rated CBCP	Dimmable	CRI	Post Date
<b>Outdoor Pole-Mounted Area and Roadway Retrofit Kits</b>	Harris Lighting Products	FL113-5000	5139 K	113.0	107.3	12,124	12,124	0	NA	Yes	82.7	06/01/16
		FL56-5000	5110 K	56.7	114.9	6,518	6,518	0	NA	Yes	82.6	06/01/16
	Viribrigh Lighting Inc. (Matrix Lighting Limited)	P15EU6-5 / 750077	5720 K	14.9	93.9	1,402	1,350	74	612.0	Yes	94.4	06/01/16
		P42EU2-5 / 750096	2641 K	4.2	91.5	383	380	38	143.0	Yes	92.2	06/01/16
		S42EU4-5 / 750049	4005 K	4.1	101.6	421	380	61	196.0	Yes	94.2	06/01/16
		S42EU6-5 / 750050	5653 K	4.0	100.4	402	380	71	184.0	Yes	93.9	06/01/16
<b>Outdoor Wall/Ground-Mounted Retrofit Kits</b>	Viribrigh Lighting Inc. (Matrix Lighting Limited)	P15EU2-5 / 750075	2741 K	14.9	82.6	1,232	1,200	37	545.0	Yes	91.9	06/01/16
		P15EU4-5 / 750076	4028 K	15.0	93.7	1,405	1,350	55	621.0	Yes	94.0	06/01/16
		P42EU4-5 / 750097	3998 K	4.1	100.1	413	380	60	157.0	Yes	94.1	06/01/16
		S42EU2-5 / 750048	2662 K	4.1	91.2	371	370	40	168.0	Yes	92.5	06/01/16
<b>ST</b>	GREEN CREATIVE	5FST19DIM/824/A	2378 K	4.9	79.2	391	380	6.5	NA	Yes	80.9	08/23/16
<b>U-Bent</b>	Aledra Inc.	LLT-2U-T8-15W-BA-C-30K	3020 K	17.5	109.6	1,920	1,920	2.8	NA	No	81.6	06/13/16
		LLT-2U-T8-15W-BA-C-50K	5189 K	17.6	116.1	2,041	1,920	3.6	NA	No	82.3	06/13/16
		LLT-2U-T8-15W-BA-D-30K	3022 K	17.4	102.4	1,777	1,778	3.3	NA	No	81.8	06/13/16
		LLT-2U-T8-15W-BA-D-50K	5167 K	17.4	108.6	1,891	1,850	3.3	NA	No	82.3	06/13/16
	GE Lighting	LED13ET8/U6/830	3036 K	12.4	146.6	1,817	1,800	6	NA	No	83.0	09/16/16
		LED13ET8/U6/835	3396 K	12.4	149.6	1,860	1,850	11	NA	No	84.0	09/16/16
		LED13ET8/U6/840	3930 K	12.4	155.6	1,934	1,900	9	NA	No	84.0	09/16/16
		LED13ET8/U6/850	4984 K	12.4	156.4	1,945	1,900	5	NA	No	82.0	09/16/16
		LED15T8/G/U6/830	3139 K	13.0	135.9	1,770	1,700	5	NA	Yes	83.0	12/01/16
		LED15T8/G/U6/835	3487 K	13.1	139.3	1,827	1,800	5	NA	Yes	84.0	12/01/16
		LED15T8/G/U6/840	4033 K	13.1	145.3	1,900	1,800	7	NA	Yes	83.0	12/01/16
		LED15T8/G/U6/850	5099 K	13.0	142.5	1,853	1,850	9	NA	Yes	84.0	12/01/16
		Kobi Electric	T8U-1.6-1535-RMV	3386 K	15.2	124.0	1,880	1,850	11	NA	No	83.8
	T8U-1.6-1540-PP		4087 K	15.6	120.1	1,872	1,850	17	NA	No	84.9	09/27/16
	T8U-1.6-1540-RMV		4044 K	15.3	124.2	1,899	1,850	9	NA	No	83.5	09/27/16
	T8U-1.6-1550-PP		5108 K	16.0	120.0	1,915	1,900	8	NA	No	83.9	09/27/16
	T8U-1.6-1550-RMV		5139 K	15.4	121.1	1,858	1,850	23	NA	No	86.2	09/27/16
	T8U-6-1535-RMV		3387 K	15.4	120.7	1,853	1,850	11	NA	No	83.7	09/27/16
	T8U-6-1540-PP		4073 K	16.1	112.2	1,801	1,800	16	NA	No	84.7	09/27/16
	T8U-6-1540-RMV		4062 K	15.3	123.3	1,890	1,850	8	NA	No	83.4	09/27/16
	T8U-6-1550-PP		5263 K	15.8	120.1	1,896	1,850	18	NA	No	85.5	09/27/16
	T8U-6-1550-RMV		5182 K	15.1	120.3	1,815	1,850	23	NA	No	86.4	09/27/16
	Turolight	VIV-T8DF/U/20W/35/F	3476 K	21.5	102.6	2,210	2,000	11.7	NA	No	84.1	06/01/16
		VIV-T8DF/U/20W/40/F	4053 K	21.5	106.7	2,289	2,000	17.6	NA	No	85.2	06/01/16