Adaptive architectural lighting systems

Joint Appendix 8 (JA8), Compatibility Guide

For all Vode systems

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Overview

Compatibility Guide

What is JA8?

As of January 1, 2017, new lighting requirements in California's Building Energy Efficiency Standards (Title 23, Part 6 of Energy Standards) for new construction are in effect. The Energy Standards require high efficacy lighting throughout newly constructed homes, and the definition of "high efficacy" luminaire has been expanded to include luminaires containing light sources that meet the new performance requirements outlined in Title 24 Reference Joint Appendix JA8, Qualifications Requirements for High Efficacy Lighting Sources. Whew!

In addition to more quality and efficacy requirements, JA8 now also references Joint Appendix JA10, Test Method or Measuring Flicker of Lighting Systems and Reporting Requirements, for additional flicker testing and data reporting requirements for JA8 light sources.

Why JA8?

These new lighting requirements are designed to significantly reduce energy use in new homes, multi-family dwellings, motel/hotels, fire stations, dormitories and senior housing. The California Energy Commission (CEC) estimates hundreds of thousands of single-family homes and multifamily dwelling units will be built in California over the next few years. The new requirements are projected to reduce lighting energy use in homes by roughly 50%. Projected energy savings for the first year of implementation (2017) was equal the amount of electricity consumed annually by 13,000 typical California homes (85 GWh).

For more complete information on JA8's purpose and requirements, we recommend the following documents from the CLTC, Energy Ace, the CEC and Lutron Electronics.

California Lighting Technology Center

WHAT'S NEW IN THE 2019 CODE?

Lutron Electronics

CALIFORNIA TITLE 2019 – OVERVIEW

Yay! California

Energy Code Ace

2019 ENERGY CODE FACT SHEET

High Efficacy Lighting for Manufacturers

California Energy Commission

REFERENCE APPENDICES FOR THE 2019 BUILDING EFFICIENCY STANDARDS

JA8 LED Luminaire Requirements

Initial Efficacy	≥ 45 lumens/Watt
Power Factor at Full Rated Power	≥ 0.90
Correlated Color Temperature (CCT)	≤ 4000 Kelvin
Color Rendering Index (CRI)	≥ 90
R9	≥ 50
Rated Life	≥ 15,000 hours
Min. Dimming Level	≤ 10%
Flicker	<30% for frequencies of 200 Hz or below, at 100% and 20% light output
Start Time	≤ 0.5 sec
Duv	≥ -0.0033 and ≤ ± 0.0033
Projected Time to L70	≥ 25,000 hours, or N/A for light sources providing 6,000 hour lumen maintenance testing
100% Light Ouput: Audible Noise	≤ 24 dBA
20% Light Output: Audible Noise	≤ 24 dBA

Vode and JA8

In accordance with the certification guidelines, the Vode product line has been evaluated by an NVLAP accredited third party testing laboratory (participating in the ISO/IEC 17025). Vode products compliant with JA8 are listed below and on the California Energy Commission MAEDBS database.

There are combinations of rail type, length, power and optics that are NOT compliant. Please refer to the data below to ensure your Vode specifications are 100% JA8 compliant.

Vode JA8 Compliant Products

VODE OPTIONS THAT MEET JA8 REQUIREMENTS

Power Type		**AE**	eldoLED 0-10v, 1.0% Dimming
		AT	eldoLED 0-10v, 0.1% Dimming
		AH	Lutron Hi-lume 1% EcoSystem, Soft On / Fade to Black Technology, LDE1
CCT	**90+CRI**	**279**	2700K
		309	3000K
		359	3500K
		409	4000K
LED Type		**Z**	Zipper Board

VODE OPTIONS THAT DO NOT MEET JA8 REQUIREMENTS

Power Type		**AD**	eldoLED DALI, 0.1% Dimming
		AX	eldoLED DMX, 100-0% Dimming
		AH2	Lutron Hi-lume 1% 2-wire LTEA2W (120v forward phase only)
CCT	**80+CRI**	**27**	2700K
		30	3000K
		35	3500K
		40	4000K
LED Type		**B**	Button Board

JA8 Compliance of Length and Power Combinations

Vode System: 707

	DRIVER: AE eldoLED 0-10v, 1.0% Dimming AT eldoLED 0-10v, 0.1% Dimming			DRIVER: AH Lutron Hi-lume 1% EcoSystem, Soft On / Fade to Black Technology, LDE1		
Rail Length	LO	SO	HO	LO	SO	HO
24” (610 mm)	Yes	Yes	Yes	**No**	**No**	**No**
36” (914 mm)	Yes	Yes	Yes	Yes	Yes	Yes
48” (1219 mm)	Yes	Yes	Yes	Yes	Yes	Yes
60” (1524 mm)	Yes	Yes	**No** (Z3 & Z9 only)	Yes	Yes	Yes
72” (1829 mm)	Yes	Yes	**No**	Yes	Yes	**No**

Vode Systems: 107, 117, 907

	DRIVER: AE eldoLED 0-10v, 1.0% Dimming AT eldoLED 0-10v, 0.1% Dimming			DRIVER: AH Lutron Hi-lume 1% EcoSystem, Soft On / Fade to Black Technology, LDE1		
Rail Length	LO	SO	HO	LO	SO	HO
24” (610 mm)	Yes	Yes	Yes	**No**	**No**	**No**
36” (914 mm)	Yes	Yes	Yes	Yes	Yes	Yes
48” (1219 mm)	Yes	Yes	Yes	Yes	Yes	Yes
60” (1524 mm)	Yes	Yes	Yes	Yes	Yes	Yes
72” (1829 mm)	Yes	Yes	**No**	Yes	Yes	**No** (907 only)
96” (2438mm)	Yes	Yes	**No**	Yes	Yes	**No**

JA8 Compliance of Rail and Optic Combinations

Vode System: 707

		COMPLIANT		NOT COMPLIANT	
ZipOne®	**A2**	100° Asymmetric	ZipOne		
ZipTwo®	**S1**	Micro 3508, 40° Symmetric	ZipTwo	**S1**	Micro 3508, 40° Symmetric, black
	S2	Micro 3508, 60° Symmetric		**S2**	Micro 3508, 60° Symmetric, black
	S3	Micro 3508, 120° Symmetric		**S3**	Micro 3508, 120° Symmetric, black
	A1	Micro 3508, 85° Asymmetric, white		**A1**	Micro 3508, 85° Asymmetric, black
	S4	Round 3515, Diffuse (WH)		**S9**	Square 3536, Side Diffuse, black
	S5	Square 3536, Critical Edge			
	S6	Square 3536, Diffuse			
	S9	Square 3536, Side Diffuse			
ZipThree®	**U1A1**	Symmetric, up | 85° Asymmetric, down	ZipThree		
	U2A1	Symmetric with EdgeGlow, up | 85° Asymmetric, down			
	U1	Symmetric, uplight only			
	U2	Symmetric with EdgeGlow, uplight only			
	A1	85° Asymmetric, downlight only			
ZipWave®	**C1**	Clear with EdgeSoft™	ZipWave		

JA8 Compliance of Rail and Optic Combinations

Vode System: 107, 117, 907

COMPLIANT			NOT COMPLIANT		
BoxRail®	1	Diffuse	BoxRail	WB	White Baffle
	G1	Wide Batwing		BB	Black Baffle
	G2	120° FlyWing™		S1	40° Symmetric, black
	S1	40° Symmetric, white		S2	60° Symmetric, black
	S2	60° Symmetric, white		A1	85° Asymmetric, black
	A1	85° Asymmetric, white			
RaceRail®	2	Diffuse, Round	RaceRail		
	G1	120° Batwing, Flat			
	G2	120° Flywing, Flat			
WingRail®	C1	Clear with EdgeSoft	WingRail	BB	Black Baffle with EdgeSoft
	D1	Diffuse			
	WB	White Baffle with EdgeSoft			
DoubleRace	22	Diffuse, Round, up | Diffuse, Round, down	DoubleRace		
	G12	120° Batwing, Flat, up | Diffuse, Round, down			
	G1G2	120° Batwing, Flat, up | 120° FlyWing, Flat, down			
DoubleBox	G12	Wide Batwing, up | Diffuse, down	DoubleBox	G1WB	Wide Batwing, up | White Baffle, down
	G1S1	Wide Batwing, up | 40° Symmetric, white, down		G1BB	Wide Batwing, up | Black Baffle, down
	G1S2	Wide Batwing, up | 60° Symmetric, white, down		G1S1	Wide Batwing, up | 40° Symmetric, black, down
	G1A1	Wide Batwing, up | 85° Asymmetric, white, down		G1S2	Wide Batwing, up | 60° Symmetric, black, down
	G1G2	Wide Batwing, up | 120° FlyWing, down		G1A1	Wide Batwing, up | 85° Asymmetric, black, down