Classroom Lighting Solutions

PEERLESS®
INTEGRATED CONTROL SOLUTIONS

Optimal Lighting for Schools

Today's computerized A/V classroom, rising energy costs and tightening energy codes demand new best practices that improve the learning environment while minimizing energy, resources and cost. Peerless Lighting is revolutionizing classroom lighting with dedicated solutions that integrate Peerless' high-quality luminaires with state-of-the-art lighting control to optimize visual comfort, flexibility and satisfaction while slashing energy consumption.

Lower energy costs. Higher satisfaction. More flexibility. Peerless makes it simple.

The challenge to today's lighting system designers is to provide classroom lighting that increases teacher control, reduces glare, improves lighting on faces and optimizes visual comfort while minimizing lighting power and energy use to their lowest possible levels.

LEED for Schools, CHPS and IESNA all encourage best lighting practices that meet the needs of today's hi-tech classrooms, which may include whiteboards, computers and A/V equipment. And recently, researchers in California created and tested an "integrated classroom lighting system" (ICLS) design template under the California Energy Commission's PIER program that yielded 35-58% energy savings over ASHRAE 90.1-2004/2007.

Peerless Lighting is proud to introduce three revolutionary Classroom Lighting Solutions (CLS) that satisy the PIER4.5 design template, meet CHPS and IESNA best practice, and support LEED for Schools:

The **Peerless PIER4.5 Solution** is closely aligned with the PIER researchers' design template, including high-ballast-factor ballasts and electrically separated outboard lamps that cannot be ON at the same time as the inboard lamp.

For higher average light levels and three levels of illumination, choose the **Peerless T8 Solution**, based on the PIER4.5 Solution but using low-ballast-factor ballasts and without electrical separation of the outboard and inboard lamps.

For greatest flexibility and lowest power density, choose the **Peerless SIMPLY5 Solution**, which uses T5 lamps powered by intelligent ballasts.

All feature plug-and-play connections for easy installation and modifications as well as a range of control choices to produce whatever level of economy, illumination, control and energy savings is desired.

With CLS, Peerless offers architects and designers the lighting tools and choices they need to deliver super-efficient, truly state of-the-art classroom lighting for their clients.

HIGH-QUALITY LUMINAIRES

Provides quality task illumination and visual comfort

- Indirect/direct luminaires mounted parallel to windows
- Visual comfort, better facial recognition, reduced glare on screens, uniform light on walls and ceilings

WHITEBOARD LUMINAIRES (optional)

Places light on the teacher whiteboard to focus attention

- Evenly illuminates the whiteboard on the teaching wall
- Separately controlled from main lighting by teacher

PHOTOSENSOR (optional)

Dims to maintain target light level based on available daylight

- Can reduce windowed classroom lighting energy consumption by up to 40%, according to New Buildings Institute
- Closed-loop: measures the combination of daylight and artificial light to maintain a constant light level
- Uses photopic curve to measure light as it's perceived by human eye

OCCUPANCY SENSOR

Automatically shuts off lighting when space is unoccupied

- Can reduce classroom lighting energy consumption by up to 25%, according to New Buildings Institute
- Ceiling-mounted between the rows of pendants
- Dual-technology for increased reliability

MASTER/ROW CONTROL

Provides master or row control

- Located at each entrance to classroom
- Basic ON/OFF control

TEACHER CONTROLS

Allows teacher to facilitate different uses of the space

- Series of engraved switches located at main teaching board for control of whiteboard luminaire and main lighting
- Changes main lighting state from general to A/V use
- Quiet Time switch overrides occupancy sensor for an hour to ensure lights stay on during testing

Unparalleled Flexibility, Savings

Peerless' classroom lighting solutions integrate highly efficient Peerless luminaires with popular lighting controls to create classroom lighting systems that meet best practices and optimize teacher control while generating dramatic energy savings.

Why CLS?

PEERLESS®
INTEGRATED CONTROL SOLUTIONS

Best Practice

Meets Collaborative for High-Performance Schools and lighting industry best practices

Quality Lighting

Uniform light on walls and ceilings, reduced glare, enhanced visual comfort and more light cutting across the space horizontally, which aids eye adaptation and facial recognition

Energy Cost Savings

Reduces lighting consumption by up to about 60% over ASHRAE 90.1-2004/2007

Sustainability

Supports green building practices such as LEED for Schools

Flexible

Enables separate control of uplight component and dimmable downlight component of main luminaires, separate control of whiteboard luminaire, "Quiet Time" mode for occupancy sensing

Simple to Specify

Specify the entire system from a single manufacturer as a single product with a single warranty

Easy Installation

Installation a snap with plug-and-play, clearly labeled components

Simple to Commission

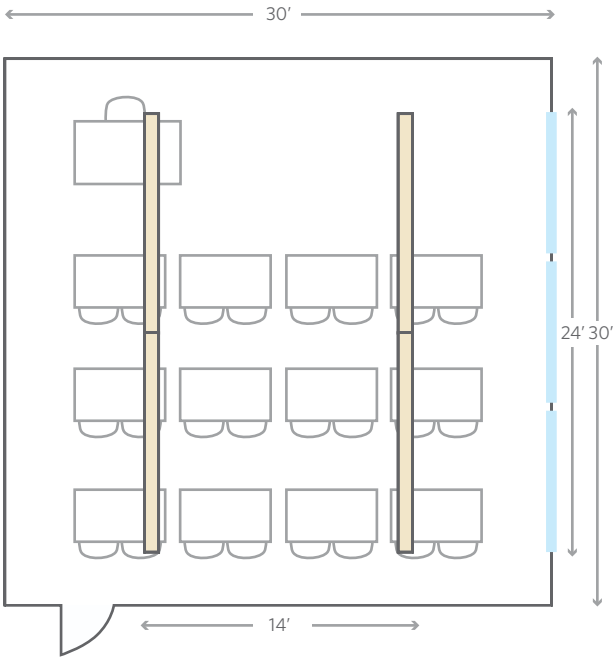
Calibrate the occupancy sensor, then start saving energy

Affordable

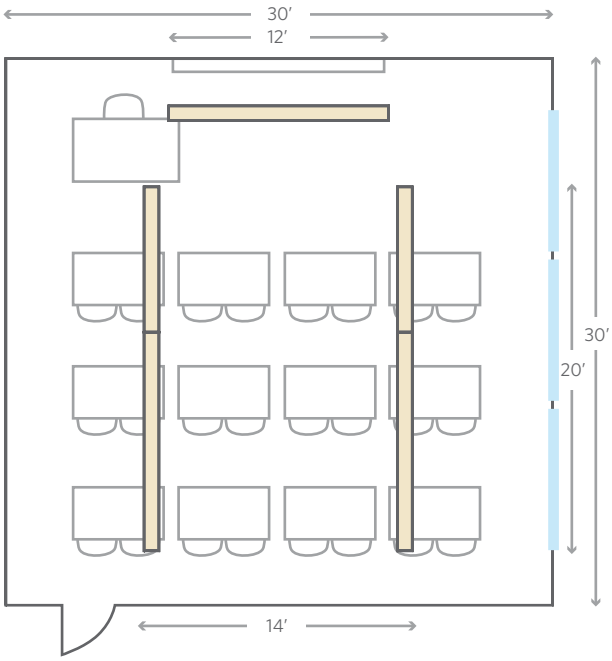
Big energy cost savings, availability with cost-effective luminaires, and lower installation costs combine to create the most economical classroom lighting solution

Peerless PIER4.5 CLS

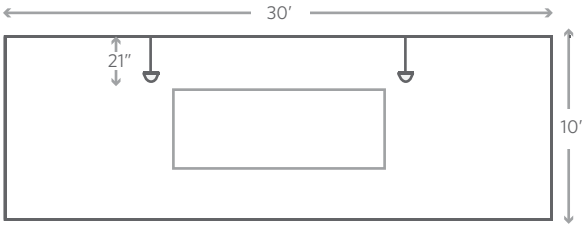
Plan View without Whiteboard Luminaire



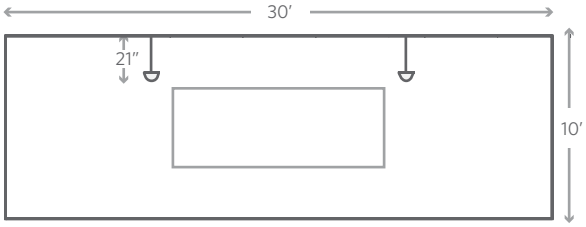
Plan View with Whiteboard Luminaire



Elevation View

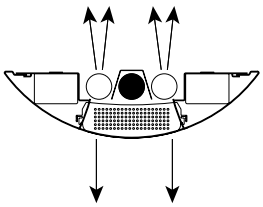


Elevation View



General Mode

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
50 fc	24 fc	0.99 w/ft^2

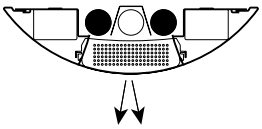


General Mode (whiteboard luminaire turned ON)

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
46 fc	40 fc	0.92 w/ft^2

A/V Mode

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
23 fc	7 fc	0.40 w/ft^2



A/V Mode (whiteboard luminaire turned OFF)

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
21 fc	4 fc	0.33 w/ft^2

Note: Either the two outside lamps will be ON in General Mode or center lamp ON in A/V Mode. Luminaire rows will be switched separately.

System includes: 3100-lumen XPS lamps, 1.18 BF ballasts, occupancy sensor, main switches and teacher controls.

Optional: Whiteboard luminaire, A/V dimming, daylight control.

Available luminaires: Cerra I/D (shown), Bruno I/D (BRM4), Prima I/D (PRM4).

Calcs based on: 80/50/20 reflectances

LLF includes: 0.95 LLD x 0.89 LDD x 1.18 BF = 1.0

Ordering the Peerless PIER4.5 CLS

Order Luminaire

Use guide below to order complete luminaire runs from 4 ft to 100 ft in increments of 4.

Luminaire	# of Lamps in Cross Section	Lamp Type	Distribution	Baffle	Nominal Row Length[1]	Maximum Section Length	Voltage	Ballast Type	# of Emergency / Night Light Sections[2]
10CRM4 BRM4 PRM4	3	**32** 32WT8-XPS	CLI	**SSB** Semi Specular **WPB** White Painted Baffle **SBL**[6] White Steel Blade **PPL**[6] White Perforated Steel Baffle	FT	**R4** **R8** **R12**[4]	**120** **277**	**CCR** (2) 1.18 BF Ballasts (outboard lamps), (1) 0.88 BF Ballast (center lamp) *Consult factory for dimming ballast options.*	**Blank** No Emergency or Night Light **1SE** 1 section **2SE** 2 sections **XSE** X sections

Emergency / Night Light Type[2,3]	Switching	Lamp Color	Mounting Type /	Feed Suspension Length	Finish	Options
Blank No Emergency or Night Light **EL** Emergency Battery Pack **EC** Emergency / Night Light Circuit **EN** Emergency Battery Pack with Night Light Circuit	**DCT** Dual Circuit	**L/LP** No Lamp **LPSM830EXS** 3000k 80+ CRI Extended Performance **LPSM835EXS** 3500k 80+ CRI Extended Performance **LPSM841EXS** 4100k 80+ CRI Extended Performance	**F1** T-Bar Ceiling (Universal Mounting Bracket) **F1A** Suspended Ceiling UMB/NEC **F2** Hard Ceiling (Horizontal J-Box) **F3** Stem Mount **F4A** IDS Clip 15/16" Tee **F4B** IDS Clip 9/16" Tee **F4C** IDS Clip Screw Slot	**12** 12" overall suspension **15** 15" overall suspension **18** 18" overall suspension **21** 21" overall suspension **24** 24" overall suspension **XX** XX" overall suspension	10CRM4 & BRM4: **C210** White PRM4: **C518** White	**ACG** Adjustable Cable Grippers **DU** Dust Cover **ELH** EM through wire w/ separate feed **ELS** EM through wire w/ single feed **GLR** Fusing (fast blow) **GMF** Fusing (slow blow) **SCEP** Sculptured End Cap[5]

Notes:
1 Must be in 4 ft increments.
2 Optional.
3 EL and EC are installed in last 4 ft of luminaire sections and are not available concurrently with each other. Separate feed required for each EL or EC unless ELS/ELH is specified.
4 Not available with Bruno.
5 Not available with Prima.
6 10CRM4 only.

Order Controls

System	# of Rows	Voltage	Control Type	Occupancy Sensor	Whiteboard	Daylighting Control	Row Control at Entry	Faceplate Engraving Services
SY *Contact factory to specify whiteboard luminaire*	**2** Rows of Control **3** Rows of Control **4** Rows of Control	**120** **277**	**S** Switched Loads **C** Center Lamp Dimming (A/V Mode) **F** Full Dimming Control	**1S** 1 Occupancy Sensor **2S** 2 Occupancy Sensors	**NWB** No Whiteboard Luminaire **WBS** Whiteboard with Teacher Switching Control **WBD** Whiteboard with Teacher Dimming Control	**NDC** No Daylighting Control **DC** Daylighting Control	**I** Independent Switch Control for Each Row **M** Master Switch Control for All Rows	**(Blank)** Engraving Standard

Example:

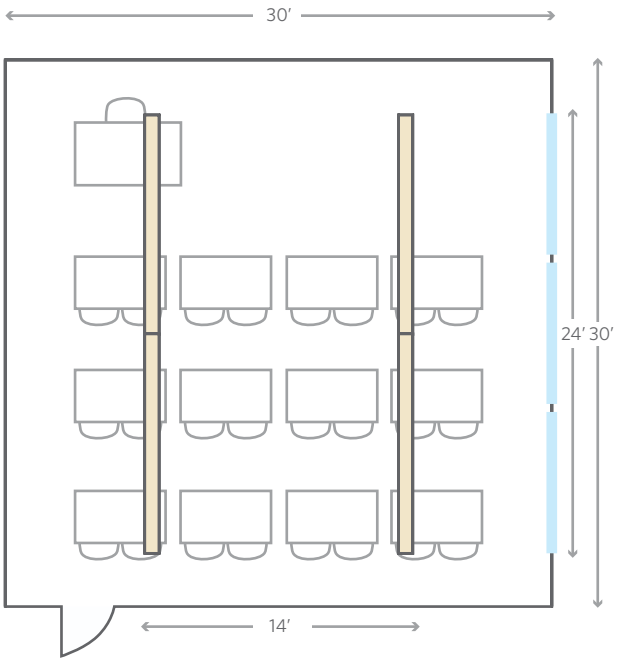
10CRM4 3 32 CLI PPL 24FT R12 120 CCR 1SE DCT LPSM835EXS F1/24 ACG SY 2 120 S 1S NWB NDC I

Available Fixtures:

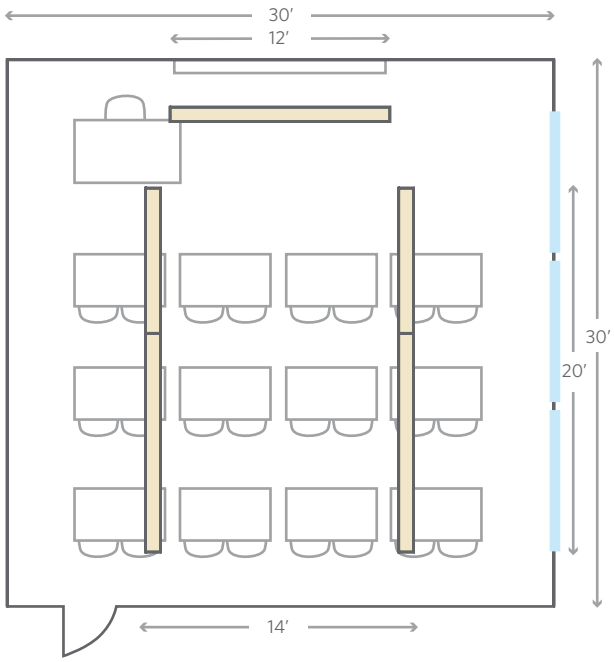
DESIGN ASSISTANCE ▪ Need help? Contact us at Peerless Lighting for ideas on how to apply CLS to meet your lighting design objectives ▪
▪ **CLSSupport@Peerless-Lighting.com** ▪ **Tel: 510.845.2760** ▪ **Fax: 510.845.2776**

Peerless T8 CLS

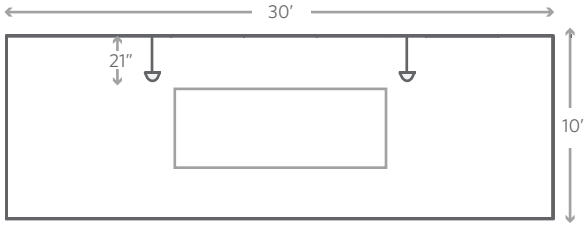
Plan View without Whiteboard Luminaire



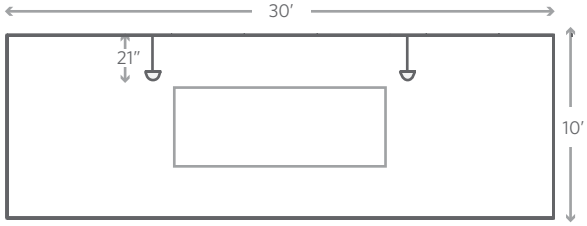
Plan View with Whiteboard Luminaire



Elevation View

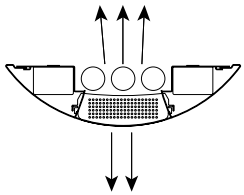


Elevation View



General Mode 3 lamp

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
56 fc	25 fc	0.95 w/ft^2

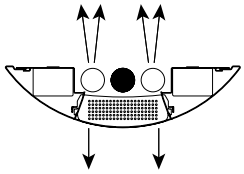


General Mode 3 lamp (whiteboard luminaire turned ON)

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
51 fc	41 fc	0.89 w/ft^2

General Mode 2 lamp

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
38 fc	16 fc	0.61 w/ft^2

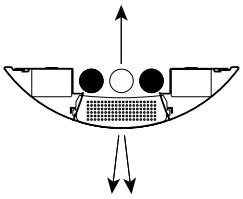


General Mode 2 lamp (whiteboard luminaire turned ON)

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
34 fc	35 fc	0.61 w/ft^2

A/V Mode

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
19 fc	8 fc	0.33 w/ft^2



A/V Mode (whiteboard luminaire turned OFF)

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
16 fc	6 fc	0.28 w/ft^2

Note: Inboard lamp, outboard lamps or all three lamps ON. Luminaire rows will be switched together.

System includes: 3100-lumen XPS lamps, 0.71 BF ballasts, occupancy sensor, main switches and teacher controls.

Optional: Whiteboard luminaire, A/V dimming, daylight control.

Available luminaires: Cerra I/D (shown), Bruno I/D (BRM4), Prima I/D (PRM4).

Calcs based on: 80/50/20 reflectances

LLF includes: 0.95 LLD x 0.89 LDD x 0.71 BF = 0.60

Ordering the Peerless T8 CLS

Order Luminaire

Use guide below to order complete luminaire runs from 4 ft to 100 ft in increments of 4.

Luminaire	# of Lamps in Cross Section	Lamp Type	Distribution	Baffle	Nominal Row Length[1] (FT)	Maximum Section Length	Voltage	Ballast Type	# of Emergency / Night Light Sections[2]
10CRM4 BRM4 PRM4	3	**32** 32WT8-XPS	**WHR**[4] White Reflector **SPR** Specular Reflector	**SSB** Semi Specular **WPB** White Painted Baffle **SBL**[6] White Steel Blade **PPL**[6] White Perforated Steel Baffle		**R4** **R8** **R12**[4]	**120** **277**	**OSPSX** *Consult factory for dimming ballast options.*	**Blank** No Emergency or Night Light **1SE** 1 section **2SE** 2 sections **XSE** X sections

Emergency / Night Light Type[2,3]	Switching	Lamp Color	Mounting Type /	Feed Suspension Length	Finish	Options
Blank No Emergency or Night Light **EL** Emergency Battery Pack **EC** Emergency / Night Light Circuit **EN** Emergency Battery Pack with Night Light Circuit	**DCT** Dual Circuit	**L/LP** No Lamp **LPSM830EXS** 3000k 80+ CRI extended performance **LPSM835EXS** 3500k 80+ CRI extended performance **LPSM841EXS** 4100k 80+ CRI extended performance	**F1** T-Bar Ceiling (Universal Mounting Bracket) **F1A** Suspended Ceiling UMB/NEC **F2** Hard Ceiling (Horizontal J-Box) **F3** Stem Mount **F4A** IDS Clip $^{15}/_{16}$" Tee **F4B** IDS Clip $^{9}/_{16}$" Tee **F4C** IDS Clip Screw Slot	**12** 12" overall suspension **15** 15" overall suspension **18** 18" overall suspension **21** 21" overall suspension **24** 24" overall suspension **XX** XX" overall suspension	10CRM4 & BRM4: **C210** White PRM4: **C518** White	**ACG** Adjustable Cable Grippers **DU** Dust Cover **ELH** EM through wire w/ separate feed **ELS** EM through wire w/ single feed **GLR** Fusing (fast blow) **GMF** Fusing (slow blow) **SCEP** Sculptured End Cap[5]

Notes:
1 Must be in 4 ft increments.
2 Optional.
3 EL and EC are installed in last 4 ft of luminaire sections and are not available concurrently with each other. Separate feed required for each EL or EC unless ELS/ELH is specified.
4 Not available with Bruno.
5 Not available with Prima. Contact factory to specify whiteboard luminaire.
6 10CRM4 only.

Order Controls

System	# of Rows	Voltage	Control Type	Occupancy Sensor	Whiteboard	Daylighting Control	Row Control at Entry	Faceplate Engraving Services
SY	**(Blank)** Standard 2, 3, or 4 Row Supported	**120** **277**	**S** Switched Loads **C** Center Lamp Dimming (A/V Mode) **F** Full Dimming Control	**1S** 1 Occupancy Sensor **2S** 2 Occupancy Sensors	**NWB** No Whiteboard Luminaire **WBS** Whiteboard with Teacher Switching Control **WBD** Whiteboard with Teacher Dimming Control	**NDC** No Daylighting Control **DC** Daylighting Control	**(Blank)** Standard Lamp Control *Full On/1 Lamp/2 Lamp/ Full Off	**(Blank)** Engraving Standard

Example:

10CRM4 3 32 WHR PPL 24FT R12 120 OSPSX DCT LPSM835EXS F1/21
SY 120 S 1S NWB NDC

Available Fixtures:

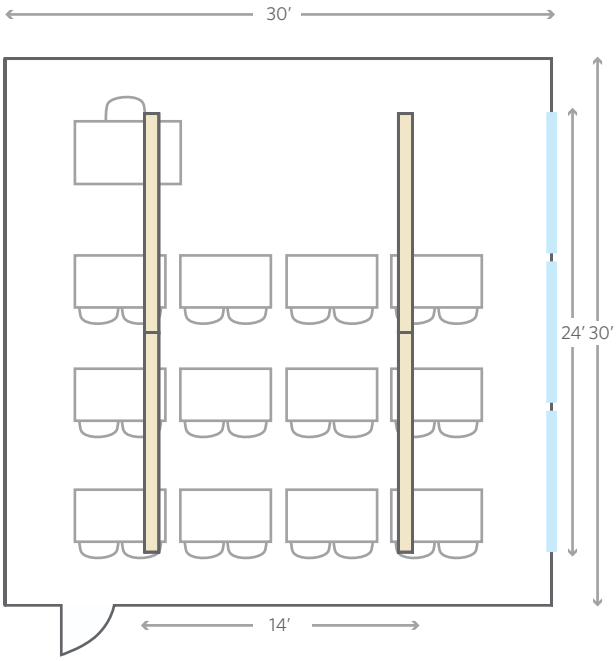
10CRM4

BRM4

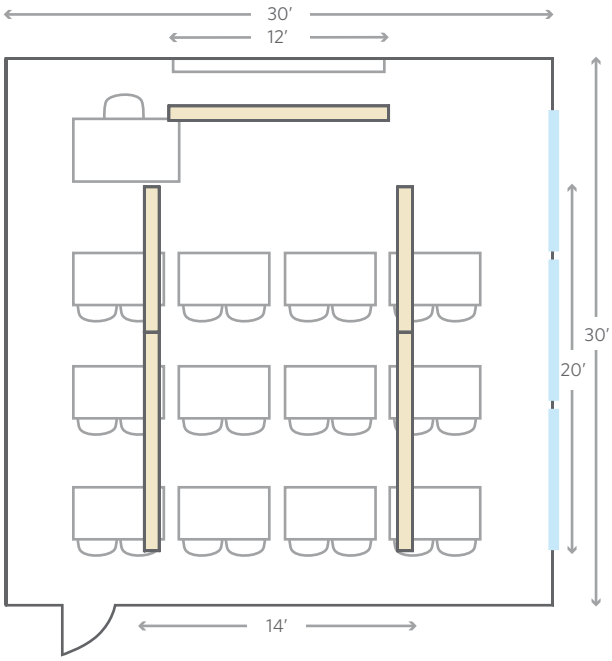
PRM4

Peerless SIMPLY5™ CLS

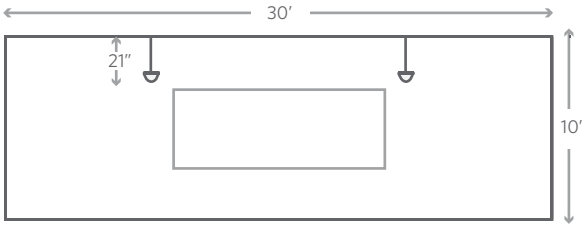
Plan View without Whiteboard Luminaire



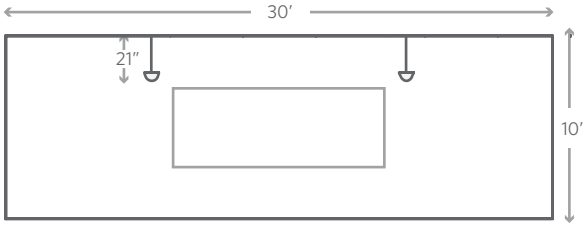
Plan View with Whiteboard Luminaire



Elevation View

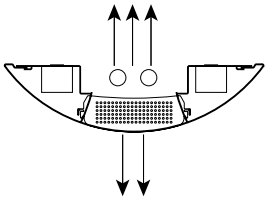


Elevation View



General Mode – Step 1 (maximum)

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
52 fc	23 fc	0.83 w/ft^2

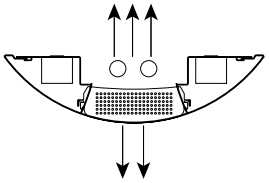


General Mode (whiteboard luminaire turned ON)

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
47 fc	43 fc	0.89 w/ft^2

General Mode – Step 2

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
32 fc	14 fc	0.59 w/ft^2

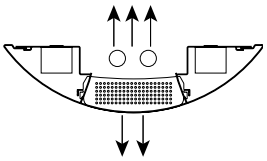


General Mode (whiteboard luminaire turned ON)

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
29 fc	37 fc	0.69 w/ft^2

A/V Mode – Step 3

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
20 fc	9 fc	0.43 w/ft^2



A/V Mode (whiteboard luminaire turned OFF)

Average Illuminance @ 2.5′	Average Vertical Illumination	Power Density
17 fc	6 fc	0.36 w/ft^2

Note: Lamps will be step-dimmed together. Luminaire rows will be switched separately.

System includes: 3050-lumen T5 Premier lamps, SIMPLY5 ballasts and SIMPLY5 controls.

Optional: Whiteboard luminaire, daylight control. First three of seven levels of dimming shown.

Available luminaires: Cerra I/D (shown), Bruno I/D (BRM4), Prima I/D (PRM4), Lightedge Rectangular I/D (EGRM4), Envision I/D (ENM4), Mirage I/D (MRM4), Cerra Baffle (10CRM8), Contrail (CLM9)

Calcs based on: 80/50/20 reflectances

LLF includes: 0.95 LLD x 0.89 LDD x 1.0 BF = 0.85

Ordering the Peerless SIMPLY5™ CLS

Order Luminaire

Use guide below to order complete luminaire runs from 4 ft to 100 ft in increments of 4.

FT

Luminaire	# of Lamps in Cross Section	Lamp Type	Distribution	Baffle	Nominal Row Length[1]	Maximum Section Length	Voltage	Ballast Type	# of Emergency / Night Light Sections[2]
10CRM4 10CRM8 BRM4 PRM4 EGSAM4 EGSCM4 ENM4[4] MRM4 CLM9[4] EGRM4 EGRM9[4]	2	28T5	10CRM4 & PRM4 only: **WHR** White Reflector (Standard) **SPR** Specular Reflector Other luminaires: leave blank	10CRM4 only: **SSB** Semi Specular **SBL** White Steel Blade **PPL** White Perforated Steel Baffle **WPB** White Painted Baffle BRM4, PRM4 & ENM4 only: **WPB** White Painted Baffle **SSB** Semi Specular Baffle Other luminaires: leave blank			**120** **277**	**S5**	**Blank** No Emergency or Night Light **1SE** 1 section **2SE** 2 sections **XSE** X sections

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Emergency / Night Light Type[2,3]	Switching	Lamp Color	Mounting Type /	Feed Suspension Length	Finish	Options
Blank No Emergency or Night Light **EL** Emergency Battery Pack **EC** Emergency / Night Light Circuit **EN** Emergency Battery Pack with Night Light Circuit	**SCT** Single Circuit	**L/LP** No Lamp **LP830** 3000k 80+ CRI **LP835** 3500k 80+ CRI **LP841** 4100k 80+ CRI **LP830P** 3000k 80+ CRI Premier **LP835P** 3500k 80+ CRI Premier **LP841P** 4100k 80+ CRI Premier	**F1**[8] T-Bar Ceiling (Universal Mounting Bracket) **F1A** Suspended Ceiling UMB/NEC **F2** Hard Ceiling (Horizontal J-Box) **F4A** IDS Clip $^{15}/_{16}$" Tee **F4B** IDS Clip $^{9}/_{16}$" Tee **F4C** IDS Clip Screw Slot	**12** 12" overall suspension **15** 15" overall suspension **18** 18" overall suspension **21** 21" overall suspension **24** 24" overall suspension **XX** XX" overall suspension	10CRM4 & BRM4: **C210** White PRM4: **C518** White 10CRM8: **C041** White EGSAM4, EGSCM4, EGRM9, ENM4, & MRM4: **C100** Satin Anodized Aluminum CLM9: Leave blank	**ACG** Adjustable Cable Grippers **DU** Dust Cover[7] **ELH** EM through wire w/ separate feed **ELS** EM through wire w/ single feed **GLR** Fusing (fast blow) **GMF** Fusing (slow blow) **SCEP** Sculptured End Cap[6]

Notes:
1. Must be in 4 ft increments.
2. Optional.
3. EL and EC are installed in last 4 ft of luminaire sections and are not available concurrently with each other. Separate feed required for each EL or EC unless ELS/ELH is specified.
4. Verify illuminance due to diffuser between louver and lamps.
5. Not available with Bruno or Lightedge.
6. Option only available with 10CRM4, BRM4.
7. Not available with ENM4 or MRM4.
8. J-Box with RELOC Power-T provided.

Order Controls

System	# of Rows	Voltage	Control Type	Occupancy Sensor	Whiteboard	Daylighting Control	Row Control at Entry	Faceplate Engraving Services
SY S5	**2** Rows of Control **3** Rows of Control **4** Rows of Control	**120** **277**	**R** Row Dimming Control **F** Full Dimming Control, Single Zone	**1S** 1 Occupancy Sensor **2S** 2 Occupancy Sensors	**NWB** No Whiteboard Luminaire **WBD** Whiteboard with Teacher Dimming Control	**NDC** No Daylighting Control **DC** Daylighting Control[1]	**ID** Independent Dimming Control for each Row[2] **MD** Master Dimming Station (All lights controlled together)[3]	**(Blank)** Engraving Standard

Notes:
1. Standard row configuration parallel to windows.
2. Requires Control Type R.
3. Requires Control Type F.

Example:

10CRM4 2 28 WHR PPL 24FT R12 120 S5 SCT LP835P F1/21
SY S5 2 120 F 1S NWB NDC MD

Available Fixtures:

10CRM4

BRM4

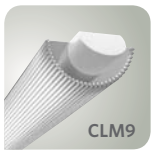
PRM4

EGRM4

ENM4

MRM4

10CRM8


CLM9

DESIGN ASSISTANCE ▪ Need help? Contact us at Peerless Lighting for ideas on how to apply CLS to meet your lighting design objectives ▪
▪ **CLSSupport@Peerless-Lighting.com** ▪ **Tel: 510.845.2760** ▪ **Fax: 510.845.2776**

Comparison

Solution	Meets PIER 4.5 and CHPS performance criteria	Uplight is eliminated in A/V mode	Highest average illuminance at workplane	Lowest power density (w/ft²)	Lowest cost with dimming	Full controls and sensors included
PIER4.5 CLS Based on PIER research design template. Two Super T8 lamps with a high-BF ballast and the center Super T8 lamp with a standard ballast are switched separately and cannot be turned on together.	■	■				■
T8 CLS Achieves CHPS illuminance and power density criteria using three Super T8 lamps powered by low-BF ballasts, which provide three levels of illumination.	■		■			■
SIMPLY5 CLS Achieves CHPS illuminance and power density criteria using two SYLVANIA T5 Premier lamps powered by step-dimming ballasts providing seven levels of illuminance and power density.	■			■	■	■

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