

LIGHTING LAYOUT GUIDE SERIES

CLASSROOM GUIDE 1

ROOM CHARACTERISTICS

Length: 32'

Width: 30'

Height: 9'

Reflectivity:

Ceiling = 80%

Walls = 60%

Floor = 20%

PRODUCT SPECIFICATIONS



Dimensions: 9" x 48"

Optics: Semi-Specular Louvers

Lamps: (2) F32T8 HP

CCT: 3500K

CRI: 84

Lumens per Lamp: 3100

Ballast Factor: 0.88*

Luminaire Efficiency: 88%

Lamp Lumen Depreciation: 0.95

Watts: 48

* If the light levels are higher than required, consider a lower ballast factor (BF) for greater savings.

CLASSROOM

T8 FLUORESCENT DIRECT/INDIRECT



THE OPPORTUNITY

In this typical classroom space with a 9' high ceiling, it is possible to provide high quality, even lighting that both illuminates the vertical surfaces and desktops to recognized standards, and meets or beats local energy codes.

THE SOLUTION

Install (2) rows of pendant mounted, direct/indirect luminaires, equipped with electronic ballasts and (2) T8 32w high performance lamps. This combination meets the target of 35+ average maintained footcandles (fc). This solution also substantially reduces glare on older computer screens, and works well with flat screen monitors. Look for luminaires that have a distribution of 70% indirect / 30% direct. This solution is a current best practice recommended for classrooms.

DESIGN CONSIDERATIONS

As is the case with many interior applications such as office spaces, this layout emphasizes not only appropriate horizontal and vertical illumination, but uniformity as well. This layout achieves a highly desirable contrast ratio of less than 5.0 to 1.0 at desk level. Be aware that this type of fixture requires a pendant length of 12"-18".



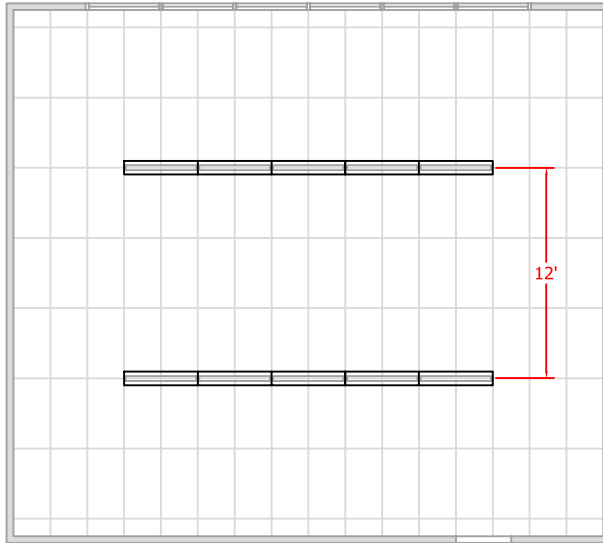
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LIGHTING NETWORK

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LAYOUT OPTIONS

Classroom (2) T8 Fluorescent Direct/Indirect | 12' Spacing



INSTALLATION SPECS

Number of Luminaires: 10
Luminaire Spacing: (2) Rows 12' on center
Mounting Condition: Pendant
Mounting Height: 7'6"
Average Illumination: ~45 fc (30" AFF)
Watts/sq. ft.: ~0.65

IES Recommended Footcandles (fc):
 30 - 50 fc (30" AFF)

CONTROLS

All codes in the Northwest Region require manual ON for classrooms or if the lights are automatically switched ON, they must come ON to 50% power.

Controlling lights separately in the front of the classroom can allow for more energy savings.

ENERGY SAVING STRATEGIES

STRATEGY	BENEFIT	TECH NOTE
Daylight dimming ballasts in primary daylight zone	Can balance light levels within the space, while using only enough wattage to maintain target light levels	Light levels maintained from daylight
Lower ballast factor	Can considerably reduce wattage	Be sure target light levels are not compromised

ENERGY CODE INFORMATION

JURISDICTION	CODE	LIGHTING POWER ALLOWANCE
Seattle	2012 Seattle Energy Code	0.99 w/sq. ft. (1.24 space x space)
Washington	2012 WSEC	0.79 w/sq. ft. (1.24 space x space)
Oregon	2014 OEESC	1.01 w/sq. ft. (1.24 space x space)
Idaho	2012 IECC	1.20 w/sq. ft. (1.30 space x space)
Montana	2012 IECC	1.20 w/sq. ft. (1.30 space x space)