

LIGHTING LAYOUT GUIDE SERIES

WAREHOUSE GUIDE 1

ROOM CHARACTERISTICS

Length: 72'
Width: 150'
Height: 28' Open Ceiling
Reflectivity:
Ceiling = 80%
Walls = 30%
Floor = 20%
Product = 30%

PRODUCT SPECIFICATIONS



Dimensions: 12 x 48"
Optics: Specular Aluminum
Lamps: (2) F54T5 HO
CCT: 3500K
CRI: 85
Lumens per Lamp: 5000
Ballast Factor: 0.95*
Lamp Lumen Depreciation: 0.95
Efficiency: 90%
Watts: 117

WAREHOUSE

T5HO FLUORESCENT



Photo: Cardinal Health Warehouse – Depew, NY

THE OPPORTUNITY

In a typical high, open ceiling warehouse application, it is possible to provide high quality lighting that adequately illuminates the warehouse shelves while meeting or beating the local energy code. This layout takes advantage of “stack” lighting strategies and distributes light onto the vertical surfaces—allowing for better product recognition and ultimately improved productivity.

THE SOLUTION

Install industrial high bay fluorescent luminaires with narrow optical distribution located over the center of each aisle. Luminaires equipped with T5 HO electronic ballasts and (2) 54wT5 HO lamps will deliver 10 or more average maintained vertical footcandles on the face of the stacks.

DESIGN CONSIDERATIONS

Stacks have a large impact on the illumination of the space. Vertical surfaces absorb and block light. The lighting layout must correspond to the shelving layout and be centered in the aisles to maximize visibility. Be sure that the light fixtures are installed higher than the material at the top of the shelves to prevent fixtures from damage during stocking or retrieval.



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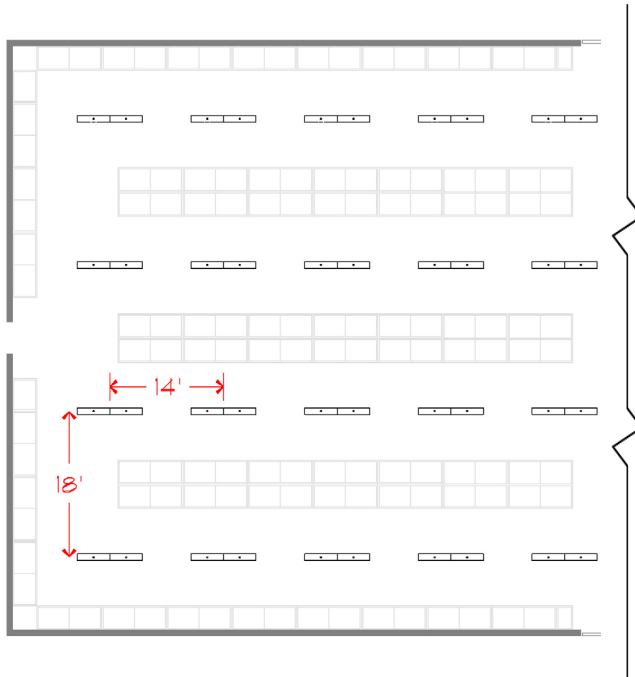
www.lightingdesignlab.com

NORTHWEST
LIGHTING NETWORK

www.nwlightingnetwork.com

LAYOUT OPTIONS

Warehouse (2) T5HO Fluorescent | 18' x 15' Spacing



INSTALLATION SPECS

Number of Luminaires: 40 (20 shown here)
Luminaire Spacing: 18' x 14'
Mounting Condition: Pendant
Mounting Height: 24' to bottom of luminaire
Average Illumination:
 ~16 fc horizontal
 ~85 fc vertical
Watts/sq. ft.: ~0.45

IES Recommended Footcandles (fc):

10 - 30 fc horizontal
 5 - 15 fc vertical

CONTROLS STRATEGY

Many jurisdictions require automatic off occupancy sensors in these types of spaces, and even when not required, occupancy control is an excellent strategy.

Controlling each aisleway independently is also a good energy saving strategy. Using fixtures that have sensors on each one can increase savings in spaces with long aisles.

ENERGY SAVING STRATEGIES

STRATEGY	BENEFIT	TECH NOTE
Daylight dimming sensors near skylights	Can balance light levels within the space while using only enough wattage to maintain target light levels	Light levels maintained from daylight
Integrated occupancy sensors	Simple to commission and minimizes installation cost	Light levels remain equal to base design

ENERGY CODE INFORMATION

JURISDICTION	CODE	LIGHTING POWER ALLOWANCE
Seattle	2012 Seattle Energy Code	0.50 w/sq. ft. (0.58 space x space)
Washington	2012 WSEC	0.50 w/sq. ft. (0.58 space x space)
Oregon	2014 OEESC	0.66 w/sq. ft. (0.58 space x space)
Idaho	2012 IECC	0.60 w/sq. ft. (0.60 space x space)
Montana	2012 IECC	0.60 w/sq. ft. (0.60 space x space)