

LIGHTING LAYOUT GUIDE SERIES

WAREHOUSE

T5HO FLUORESCENT

ROOM CHARACTERISTICS

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

PRODUCT SPECIFICATIONS



Courtesy: Lithonia Lighting

Dimensions: 9.75" x 48" (4 ft.)
Louvers: Blade type
Lamps: (2) F54T5 HO
Lumens per Lamp: 4400
Ballast Factor: 1.0*
Lamp Lumen Depreciation: 0.95
Total Fixture Efficiency: ~83%
Watts: 120

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



Photo credit: 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. When provided with targeted optical control, 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 located over the center of each aisle. Luminaires equipped with T5HO electronic ballasts and (2) 54W T5HO lamps will deliver 10+ 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 stack layout must correspond to the lighting layout to minimize shadows, (if luminaires are installed off center of the aisles).



The Lighting Design Lab is a Northwest utility sponsored education facility focused on quality energy efficient lighting solutions. Additional guides are available at the Lighting Design Lab website.

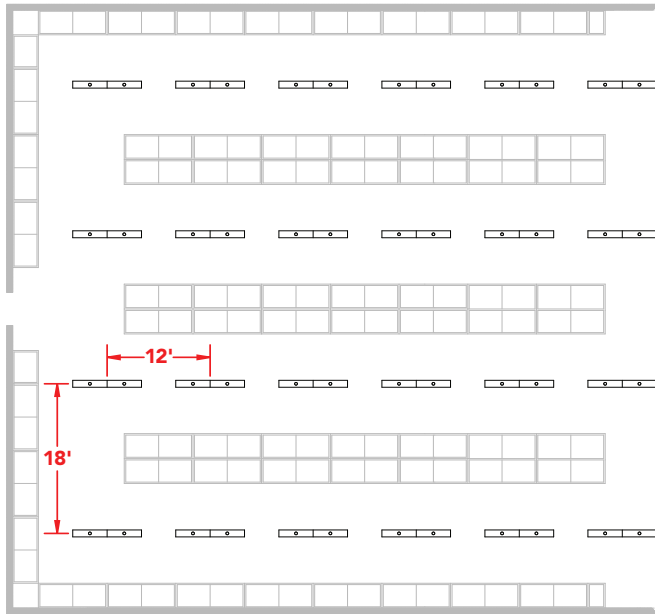
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With support from



LAYOUT OPTIONS

Warehouse 2-lamp T5HO | 18' x 12' Spacing



INSTALLATION SPECS

Number of Luminaires: 48

Luminaire Spacing: 18' x 12'

Mounting Condition: Pendant

Mounting Height: 24" to bottom of luminaire

Average Illumination: horizontal ~14 footcandles
vertical ~11 footcandles

Watts/sq. ft.: ~0.50

CONTROLS

Occupancy sensors or building energy management systems now **MUST** be used to turn lights off automatically when occupants are away, or after hours. **NOTE: One cost effective solution is specifying luminaires with integral occupancy sensors. This will minimize wiring labor costs.**

Daylight harvesting controls, by code, now **MUST** be used on all luminaires within the 'Daylight Zone', (typically 70% of the ceiling height in all directions from the edge of the skylight, or equal to the window height away from the wall).

ENERGY SAVING OPTIONS

| STRATEGY | WATTS/LUMINAIRE | SAVINGS | LIGHT LEVELS |
|--|----------------------|------------|-------------------------|
| Daylight dimming ballasts (first row near windows) | ~24w (@ 20% dimming) | ~80% | Higher than base design |
| Integrated occupancy sensors | 120w | 20% to 40% | Equal to base design |

ADDITIONAL ENERGY CODE INFORMATION

| JURISDICTION | CODE | LIGHTING POWER ALLOWANCE (WAREHOUSES) |
|--------------|--------------------------|--|
| Seattle | 2009 Seattle Energy Code | 0.50 w/sq. ft. (1.15 w/sq. ft. rack allowance) |
| Washington | 2009 WSEC | 0.50 w/sq. ft. (1.15 w/sq. ft. rack allowance) |
| Oregon | 2010 OEESC | 0.73 w/sq. ft. |
| Idaho | 2009 IECC | 0.80 w/sq. ft. |
| Montana | 2009 IECC | 0.80 w/sq. ft. |