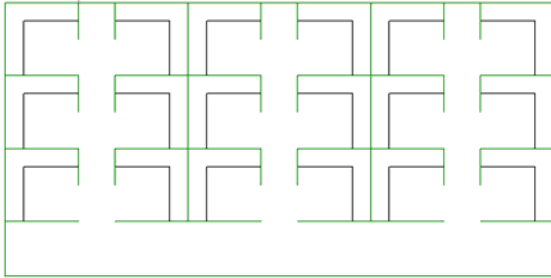


Design Guide: Open Office Areas/Heavy VDT Use Energy Saving T8

The Problem

To provide high quality lighting in this open office that illuminates the desktops, cubicle floors and adjacent corridor to IESNA recommended light levels while minimizing our watts/sq.ft.



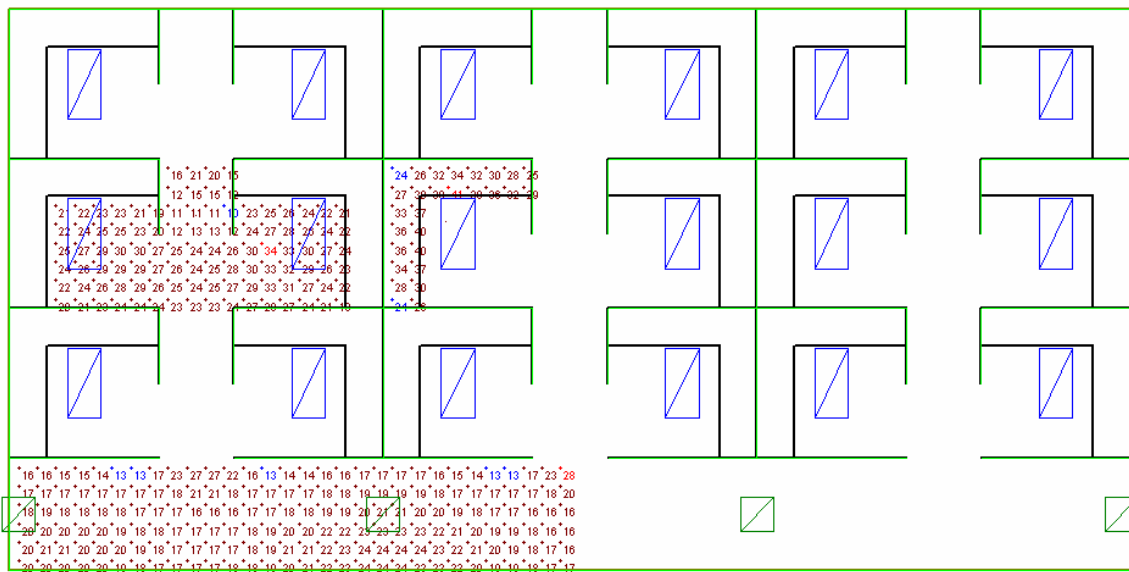
Area Parameters:

- Overall Dimensions - 60' X 30' X 9'
- 60" Partitions

Surface Reflectances:

- Ceiling (acoustical tile) - 70%
- Walls (paint/light) - 50%
- Floor (carpet) - 20%
- Partitions (light grey fabric) - 40%

A Solution



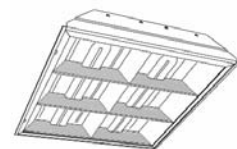
Products Used: (RECESSED T8 TROFFERS)

- (18) 2ES8 232 (2x4), 2 lamps (31000 lumens each), 55 input watts &
- (4) 2ES8P 2U31 (2x2), 1 lamp (2775 lumens), 53 input watts
- Light Loss Factor: 0.75 & 0.68 (LLD: 0.95, LDD: 0.90, BF: 0.88 & 0.79)

Installation Specification:

- 2X4 Luminaires placed 1/cubicle & 2x2's spaced 20' O.C. in corridor
- Fc at

	Desk	Floor	Corridor
• Average:	32	24	19
• Maximum:	41	34	28
• Minimum:	24	10	13
• Avg/Min:	1.3	2.4	1.5
- LPD Achieved: **0.67** watts/sq.ft



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Energy Consumption

IECC-2006 allows for 1.0 watts/sq.ft for office buildings while ASHRAE 90.1-2007 allows for 1.1 watts/sq.ft in open office spaces. As LEED-NC, EAc1 references ASHRAE 90.1-2004 which also allows 1.1 watts/sq.ft in open offices, if the remainder of the building systems were to outperform ASHRAE similarly, this design would contribute towards earning 9 LEED points.

Design Considerations

Partitions

- The vertical surfaces of a partition can block a significant amount of light, potentially having a large impact on the overall pattern of illuminance (however, the illuminance values presented here have taken the partitions into account). Some occupants may still want to add task lighting at their individual stations. If used, task lights should use compact fluorescent or a source of equivalent efficacy and should incorporate an occupancy sensor or some other means of automatic shutoff.

Flexibility Issues

- The original system can be installed using RELOC - flexible wiring. This will allow the locations of the lighting to be easily modified to address changes to the layout as they develop.

What is The es8

High Performance T8 Technology

- ES8™** lighting represents a breakthrough in fluorescent systems, fusing high-performance T8 technology with an extremely efficient and comfortable distribution of light. Unlike common parabolic fixtures employing three standard-life, standard-output T8 lamps, **es8** systems use just two long-life, high-efficiency, superior color-rendering lamps.

Enhanced Environment

- Parabolic fixtures create harsh shadows when lighting densely packed merchandise or illuminating partitioned office environments. **es8™** lighting properly balances horizontal light levels with adequate illumination of vertical surfaces. This balanced delivery of light eliminates harsh shadows and creates a more open, spacious feeling.

Product Offering

	2ES8P 232	2ES8 232	2ES8P 217	2ES8P 2U31
CEE Qualified Ballast	Y	Y	Y	Y
Lamp	CEE Qualified HPT8 Included	Optional	800 Series long life, high output included	800 Series long life, high output included
Housing & Louver Finish	Post Paint	High reflectivity pre-paint	Post paint	Post Paint
Fixture Efficiency	86%	82%	84%	82%
LER	86	74 (with 700 Series lamps)	70	75
Input Watts	48	55	42	53
Ballast Factor	0.78	0.88	1.24	0.79