

A Management Report on Personal Workplace Lighting Control and its Correlation to Job Satisfaction and Employee Retention





The High Cost of Replacing Information Technology (IT) Staff

Losing an employee is losing an investment in talent, training, knowledge and productivity. Replacement costs can run as high as 2 to 3 times a person's compensation rate. For an average \$60K employee, replacement costs could range between \$120 to \$180K. Recent findings in the IT employment field indicate the seriousness of this issue.¹

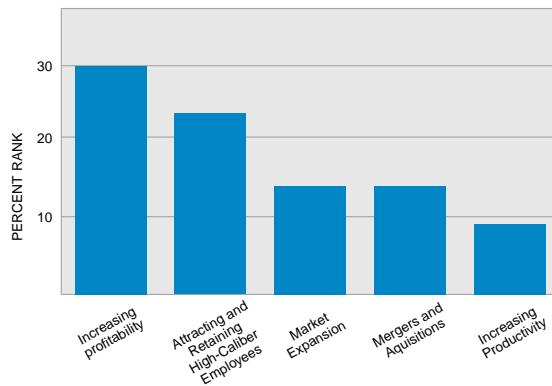
- 78% of all IT workers will leave within 5 years
- Current turnover rate is 14.5%
- One IT position is unfilled for every 10 employees at large- and mid-sized companies
- Employers typically pay between 12% and 15% more to replace the same skill set
- Average time to fill vacancies is 6 months

“Companies who recognize employee turnover as a serious problem understand the profit ramifications of this issue.”
(Employee Retention — a Costly Oversight. Business Wire Internet Article, Feb. 1, 1999.)

“It takes about 13.5 months for a new employee to reach maximum efficiency performance.”
(Computing the Cost of Turnover. Internet Article. Harris, Rothenberg International, 1999.)

Innovative Recruitment and Retention Strategies Secure High-Caliber Talent

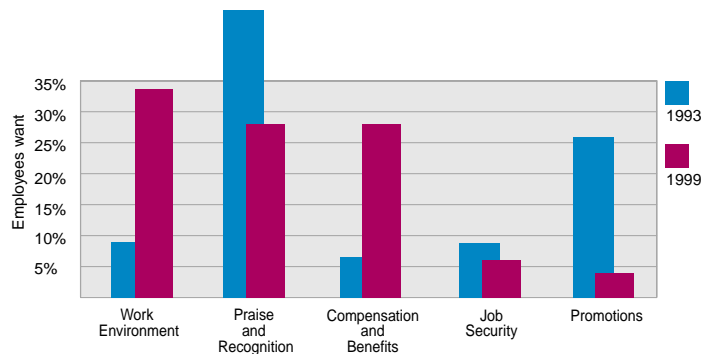
Central to the the success of businesses that focus on service, knowledge, and communications is their most valued resource — human intellectual capital. Competition for stellar performers has resulted in the newest war in the workplace: the battle for talent. Recent surveys among human resources managers and executives show that recruiting top high-tech employees has reached a never-before seen priority as a corporate strategy.² Hiring strategies now include financial and amenity packages to attract cream-of-the-crop people and retention strategies, such as innovative facilities and work areas, to keep them productive and satisfied.³



CEOs Rank Top 5 Corporate Priorities⁴

Facility Design Helps Keep Top Employees

Facility and workplace design can have as notable an impact on employee productivity and job satisfaction as fringe benefits. Intelligent, employee-friendly work environments offer a strategic weapon to corporations fighting to keep talent and maintain a competitive advantage. In the chart below, a recent survey of 150 executives concluded that the work environment has become the most important factor in fostering employee satisfaction.⁵



“It’s vitally important to me as head of the AOL facilities team to know that we’re doing everything we can to keep employees happy and that we have empowered them in every way possible.”

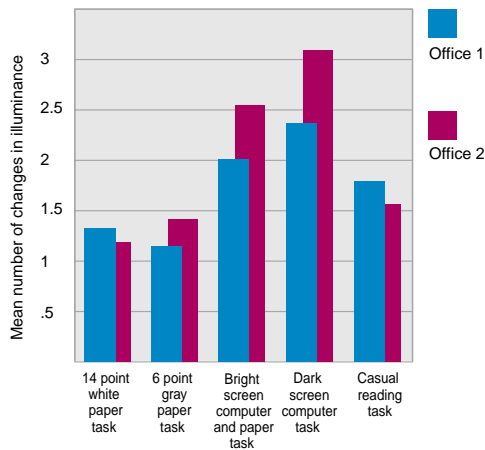
Faith Denault, Vice President, Facilities and Business Services, America Online Incorporated



Employees Rate Lighting Control as Key Factor in Quality Workplace Design

Studies show that when people are able to control their overhead fluorescent lighting, they will.⁶ When overhead office lighting is so bright that it causes glare and reflections on computer screens, people will actually climb onto desktops to remove fluorescent lamps or rig makeshift shields. If the lighting is too low to see paperwork, then employees will add desk lamps as a supplement.

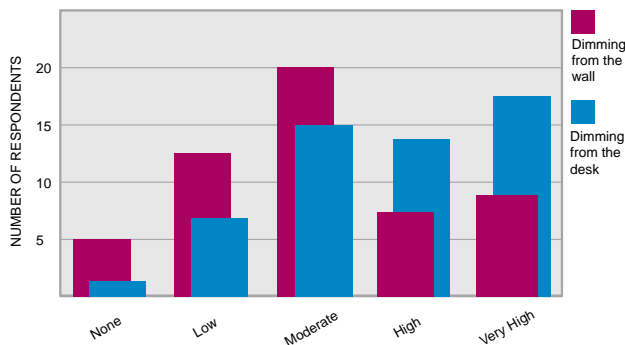
In a recent study, 18 subjects performed both paper and computer based tasks in two offices outfitted with remotely controlled overhead fluorescent lights. Over the course of the day, the number of times the lighting was changed



and the degree of change were measured, clearly demonstrating that people will adjust lighting levels to match the task.⁷ The chart at left shows each change, indicating that given the option, people will use it.

In another study conducted by the Lighting Research Institute (LRI) of the Rensselaer Polytechnic Institute (RPI), researchers found

that office occupants value personal control of overhead fluorescent lighting. The majority preferred that the control be located at their workstation, within easy reach.⁸



Subjects' ratings of dimming from the wall vs. dimming from the desk reveal the high value placed on personal overhead lighting control option and the convenience it offers.

Personal Control — the Key to Employee Satisfaction and Productivity

Innovative workplace design, a newly-appreciated corporate resource, makes good use of emerging technologies to integrate work assignments and technology with the layout of the workplace.

Modular furniture, air quality, temperature and lighting control help to create comfort, utility, and attractiveness that leads to increased productivity. Two major manufacturers, Steelcase, Inc., a designer of office furniture and Johnson Controls Inc., a supplier of office environment controls, have published research on the positive link between personal control of the work environment and increased productivity.^{9, 10}

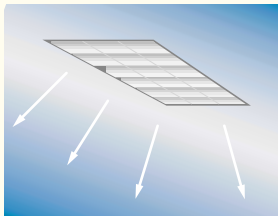
The common factor in both reports is personal control. The option to exercise personal choice in the workplace — whether the choice is a chair, air temperature, or lighting control — gives employees a sense of empowerment and satisfaction.



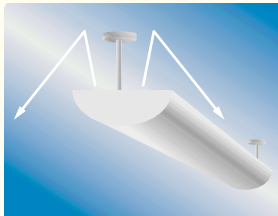
Current Office Lighting Systems Provide Fixed Lighting Levels

Attempts to address workplace lighting have helped to drive significant fixture developments which include parabolic fixtures, indirect lighting systems and dual level switching.¹¹

Fixed output parabolic fixtures address direct and image glare issues on computer screens, but can make critical glare issues, such as washout, veiling reflections and luminance ratios even more obvious and irritating.



Parabolic Fixture



Indirect Lighting

Indirect lighting systems, which result in a bright, homogenous ceiling, can intensify washout on computer screens, robbing a screen of essential contrast.¹²

Dual level switching offers independent on/off control of each half of every fixture. When operated at half on, half off (50% light) the human eye perceives the light level to be still too bright.

Computer-Dependent Professionals Have Unique Workplace Lighting Needs

Results of lighting control research studies indicate that computer-dependent professionals require specific levels of lighting to do their work. And they will also have specific preferences based on age, visual acuity or just personal choice.

Standards organizations have issued light level guidelines for working with computers — far lower than the requirements for general office lighting levels. Under traditional office lighting, employees struggle with glare, veiling reflections (an image of a person, etc. seen on the screen), contrast and brightness issues which cause a range of eyestrain symptoms collectively known as Computer Vision Syndrome (CVS).¹³

Office Lighting Standards Recommend that Lighting Match Tasks

The Illuminating Engineering Society of North America (IESNA) recommends illuminance levels of 30-75 foot-candles for paper tasks, but much lower levels, 5-10 foot-candles, for computer work. According to the IESNA, “the illumination requirements of different tasks may be satisfied by the use of a flexible lighting system. ...By designing for the highest level and providing dimming capabilities, the user may adjust the lighting in various areas to suit particular tasks.” Providing personal lighting control removes the need to compromise between fixed light levels in order to satisfy these two requirements.



Paper Tasks, 30-75 foot-candles



Computer Work, 5-10 foot-candles

IES RP-1 Recommendations. Illumination Engineering Society of North America. American National Standard Practice for Office Lighting. RP-1-1993.

Add-on Task Lighting: Proof that Workplace Lighting Needs Vary

Some companies provide task lighting, such as desk lamps or under cabinet lighting, to meet personally variable lighting levels. Often employees bring in their own lamps, then stand on their desks to remove lamps from overhead fixtures in order to see their computer screens.¹⁴

Task lighting is generally added piecemeal, increasing the amount of equipment, power costs and maintenance requirements. Task lights on extension cords can pose safety hazards. The random addition of task lights brings a fractured, cumbersome look to an office, downgrading its appearance. During relocation and reconfiguration, this patchwork approach can create unnecessary complexity.

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Studies Verify Higher Job Satisfaction and Sense of Empowerment with Personal Workplace Lighting Control

Research statistics point out that people like having control of their environment. Respondents in studies rated areas with personal controllable lighting superior in quality to areas with fixed light levels. Tasks were perceived as less difficult in areas with controllable lighting.¹⁵

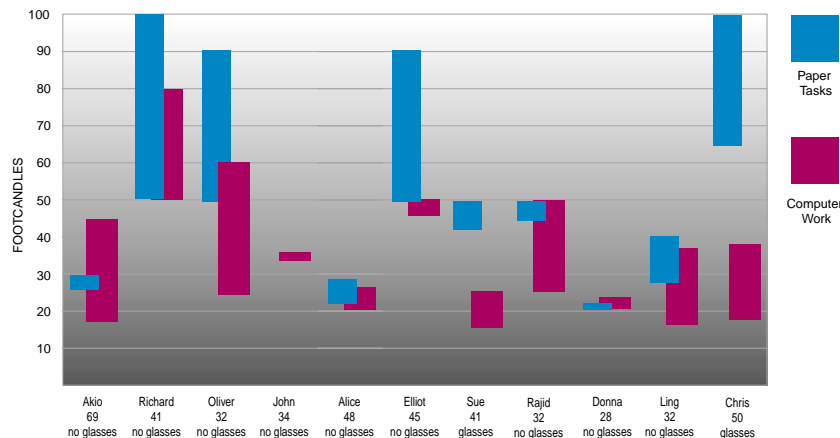
	Light Level Type	
	Fixed	Personal Control
I would be happier to work in this office.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
I am more comfortable working in this room.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
I like the lighting in this room more.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
This room has better quality lighting.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
I believe that the lighting used in this room is more acceptable for office work.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
I believe the tasks are easier to do in this office	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Qualitative results of lighting study participants verify impressions of satisfaction, control and empowerment.

Both Task and Individual Lighting Preferences Satisfied by Personal Workplace Lighting Control

Study results also show that higher lighting levels are selected for paper-based tasks and lower light levels are selected for computer-based tasks.¹⁶ Personal preference adds individualization. While light levels selected for specific tasks are obvious, personal choices within the expected ranges vary from person to person. Visual acuity and age affect personal preference but often the selection is just that — personal.

At California Steel Industries, employee-adjusted light levels at eleven engineering workstations were recorded over a six-day period. The chart below shows how light levels varied by task, age and personal preference.¹⁷



Managers Extol Benefits of Personal Lighting Control for Employees and Company

“... we sold upper management on the (PerSONNA) system by showing them two things. First and foremost, its function -- the benefits of employee comfort and satisfaction. But the fact that the system would pay off in another way, by greatly easing the costs of reconfiguring office space, was a big plus, too.

*Robert Mandley
Manager,
Corporate Facilities Projects,
America Online Incorporated*

“Our employees are better off with improved lighting. And they like personal control of their lighting environment. So there’s no doubt in my mind that they are more satisfied and productive. And I’d say we have cut our lighting costs by 50%, saving us hundreds of dollars a month.”

*John Tomczak,
President,
Pro-Tech Industries*



Personal Lighting Control Essential in Today's High-Tech Work Environment

"Our fluorescent dimming system has met our objective of providing personal control and employee comfort. People are using the system; some change light levels as they go from task to task, others leave lights at a low level throughout the day. But you'll observe that every person has a different light level."

Ray Bromfield, Project Manager, Facilities, America Online Incorporated



Above: Dimming overhead fluorescent lighting removes glare and reflection on the computer screen.



Above right: Raising the light level for other tasks only needs the simple touch of a button on a hand-held remote.

Right: In an open office, proper fixtures and personal lighting control easily handle multiple activities in the same space.



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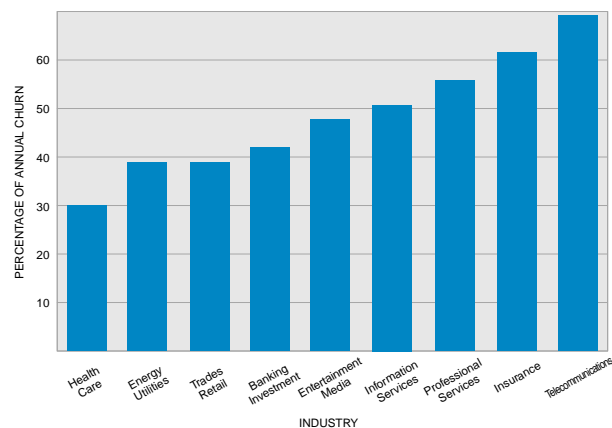
Personal Lighting Control Offers Benefits Beyond the Personal

Personal control of overhead lighting provides a level of visual comfort in the work environment that leads to higher job satisfaction and productivity, and ultimately to employee retention. The design of the physical environment projects the image desired by a company. The resulting facility has a higher degree of flexibility, allowing better management of operating and maintenance costs.

Controllable Lighting Cuts the Cost of Office Moves

A recent benchmark report from the International Facility Managers Association (IFMA) noted that 94% of annual organizational moves are within existing facilities. The following chart shows that in the technology services industry, this annual 'churn' rate (number of relocations), can be as high as 69%. The average move requires some construction, such as walls, wiring or new telecommunications systems and costs about \$4,000.¹⁸

Having controllable lighting with handheld wireless remote controls can save hours and dollars when employees are moved. Lighting modifications can be as simple as carrying the remote control to a new workstation area and setting the light levels.



Lower Light Levels Save Energy, Lower Costs Without Shortchanging Employee Comfort

In today's world utilities can cost up to 40% of the total facility operating budget.¹⁹ Lighting control can save energy and reduce operating costs. Dimming lights by 50% cuts energy use by 50%. With personal controls, employees can set lower light levels for comfort, generating significant energy savings, without negatively affecting visual perception.

Incorporating Personal Lighting Control into Facility Design Helps Companies Maintain Competitive Position

Recruitment and retention campaigns in today's market involve every aspect of an organization, especially the facility.

As a major competitive resource, a facility that is flexible and uses technologies such as personal lighting control to extend its economic life, can cost-effectively help a company realize continued growth and a profitable bottom line performance.



Lutron's PerSONNA® system controls the light output of one to 20 overhead fluorescent fixtures. Using PerSONNA's handheld remote, you can dim or brighten lights – depending on task and preference.



PerSONNA helps create a great work environment for your employees:

- alleviates Computer Vision Syndrome
- permits lighting adjustment to suit task and preference
- offers convenient, easy operation with a hand held remote control



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