

## LIGHT & HEALTH, A.E. Cakir

Berlin Ergonomic Institute for Industrial and Social Research

### PURPOSE:

"...to find the most favorable concept for lighting in future office workplaces."

### SCOPE:

400 Facilities                      3,000 People

*"One of the major causes of the problem lies in the concept of general lighting ... that does not take into consideration the individually different needs for light and is thus open to criticism from an ergonomic point of view."*

*"Lighting concepts which take into account individual requirements and thus combat these fundamental flaws are technically available and economically feasible today."*

## Lighting Quality Research

Institute for Research in Construction,  
National Research Council Canada

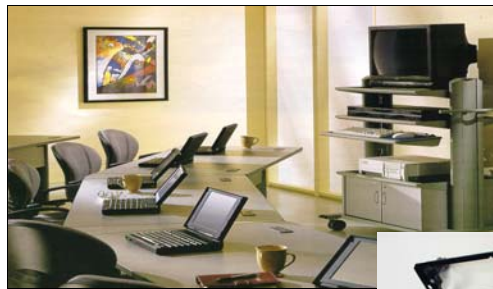
*"Achieving a consensus on lighting quality requires agreement about what constitutes a "good" or "bad" lighting installation...**There was little agreement among the experts...**for many of the spaces we inhabit the lighting has not been designed; instead, the spaces are lit by systems that happen to be available, are inexpensive, and **chosen by someone who has little knowledge of people's lighting needs.**"*

Findings of a joint committee of  
the Illuminating Engineering Society of North America / International Association of Lighting Designers  
Hosted by the NRC. 1996

Mark S. Rae, Ph.D  
Director of Lighting Research  
Rensselaer Polytechnic Institute

***"80% of our sensing brain is devoted to seeing. Lighting is the vehicle to get visual information. The lighting industry is focused on the wrong issue."***

***It's not really about lighting : Its about visibility"***

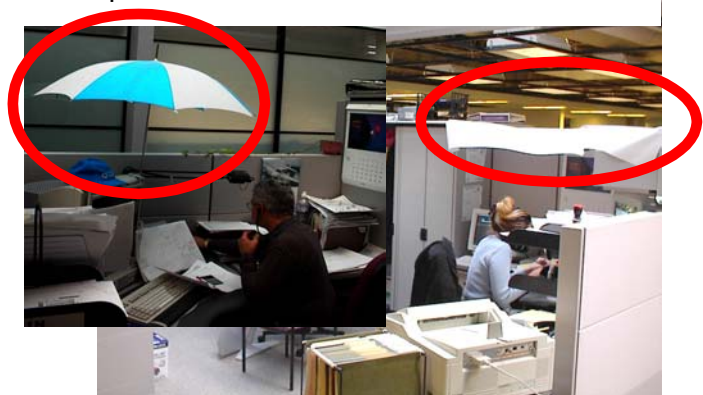


Low Cost "Plug n Play"  
Dimming Controls  
Offices  
Conference Rooms  
Classrooms



2 Dimming Zones    1 for Viewing                      1 for Presentation

Standard Practice lighting forces people to unscrew lamps & create protective barriers in order to complete their Tasks



## Case Studies

*Designing retrofits for task not energy savings*

8 Case studies report 6% - 20% gains in productivity (Rocky Mountain Institute)

Sacramento Municipal Utility District 27% reduction in sick days representing \$260,000 over 1 year, a gain **worth 5 times that of the energy savings** (Rensselaer Polytechnic Institute)

<b>Worker Salaries</b>	= \$ 130.00	a square foot
<b>Energy</b>	= \$ 1.81	a square foot
<b>Retrofit Lighting Saves</b>	= \$ 0.20 - \$0.40	a square foot

(BOMA, Electric Power Research Institute, 1991)



## Lighting is ERGONOMIC

Hundreds of dollars per employee are spent to improve worker comfort, but when it comes to lighting ... watts per square foot still dominate design.

**Mark S. Rae, Ph.D.**  
**Director of Lighting Research,**  
**Rensselaer Polytechnic Institute**  
1999

*“People care about seeing and they care about health. Yet, we seem only to talk about watts, illuminance, and cost ... issues of little or no importance to the public.*

*There are only a few people left that understand the basic principles of color & light”*



**E-Technologies**  
Quality Specification Process **VLP**<sup>SM</sup>