

Team Green

Colony Weyrauch*, *University of Oregon*

Michael Walsh*, *University of Oregon*

Hal Slater, *Solarticity*

Fredrick Mitchell, *Solar Washington*

Greg Koss, *Adobe Solar*

Lei Yu, *Sheffield University*

Blinded by the light

Hypothesis: The contrast in light level between sky light level and peripheral areas is too great.

Lighting Contrast Effects

- 3 to 1 there is noticeable contrast
- 10 to 1 is discomfort
- 100 to 1 debilitating

Methodology

- Measured illuminance and luminance covering 28 points in an area of approx 1,800 sq ft.

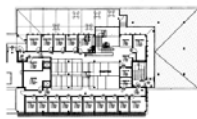


Methodology

Used the high and low luminance data points in room
 Plugged these points in Jeff Culp's "Culplite Software."



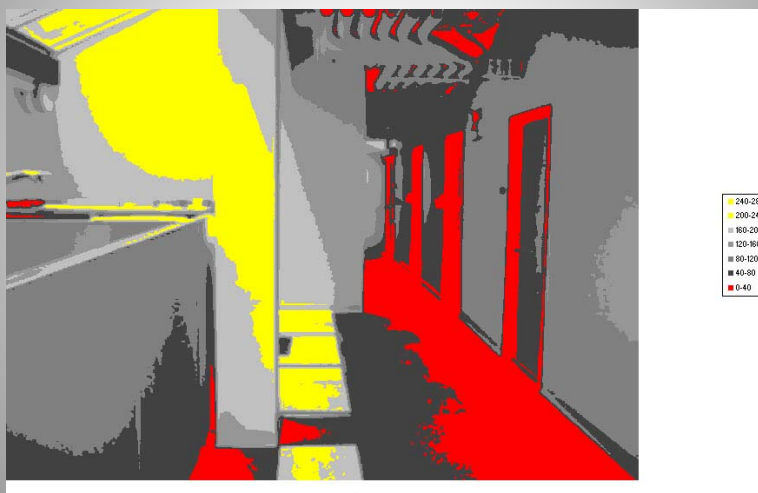
Illuminance Results



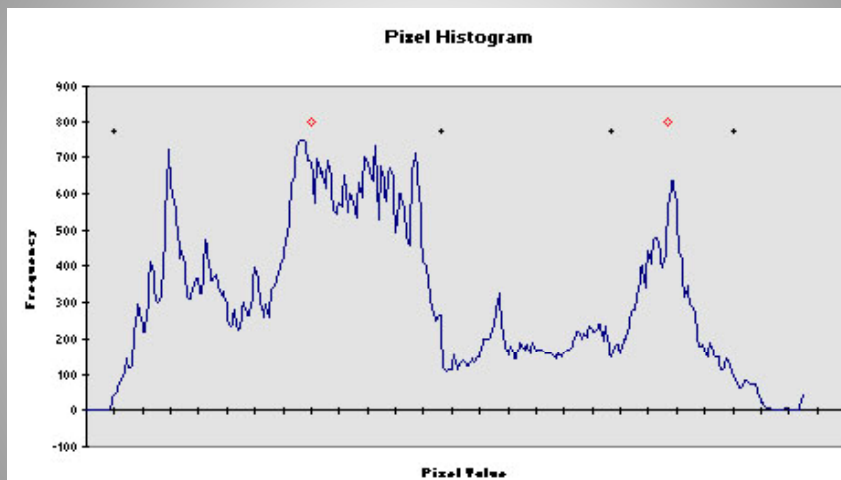
SCALE 1/8" = 1'-0"

7.2	7.3	8.7	52	23.6	61	36.7
502	600	481	480	30.4	37.3	23.3
62	64	57	51.1	21.2	9.2	10
14	17	10	28	6.7	32.2	39

Luminance Results



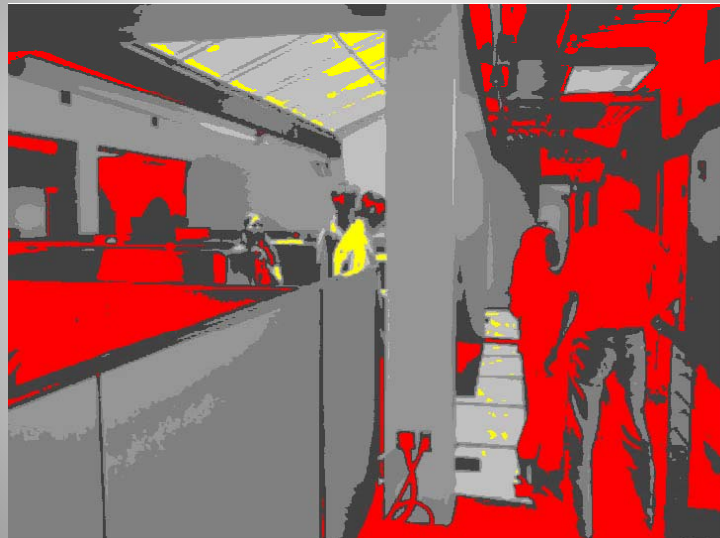
Luminance Results



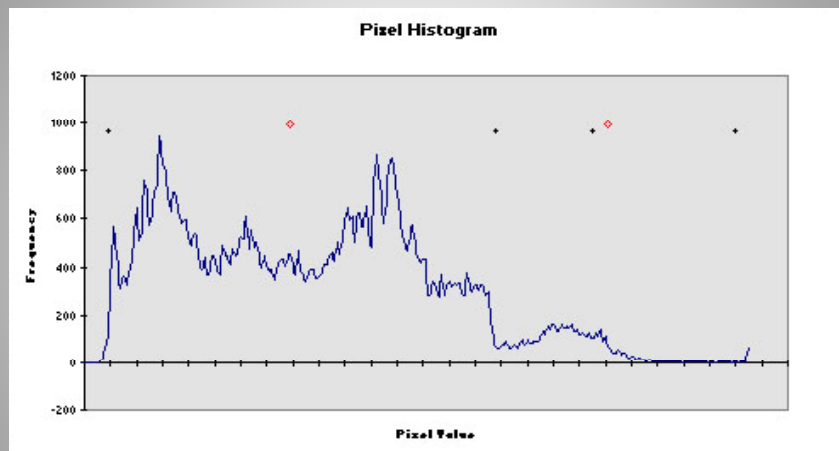
Luminance Results

Overall Image		Individual Pixel	
Weighted Ave Pixel Intensity	130.16	Individual Pixel Value	147
Total Number of Pixels	76800	Corresponding Luminance	115.24 footlamberts
Background Bell Curve		Spike	
Low End Pixel Value	10	Low End Pixel Value	187
High End Pixel Value	126	High End Pixel Value	230
Background Median Value	80	Spike Median Value	207
Number of Background Pixels	52346	Number of Spike Pixels	12980
Background Percentage of View	68.16 %	Spike Percentage of View	16.90 %
Spike to Background Ratio			
Median Spike to Median Background		2.59 TO 1	
Schlier Glare ?		MAYBE	
Developed by Jeff Culp CERES Ball State University jculp@wp.bsu.edu			

Luminance Results 2



Luminance Results 2



Luminance Results 2

Overall Image		Individual Pixel	
Weighted Ave Pixel Intensity	101.50	Individual Pixel Value	198
Total Number of Pixels	76800	Corresponding Luminance	195.26 footlamberts
Background Bell Curve		Spike	
Low End Pixel Value	9	Low End Pixel Value	195
High End Pixel Value	158	High End Pixel Value	250
Background Median Value	79	Spike Median Value	201
Number of Background Pixels	71256	Number of Spike Pixels	1395
Background Percentage of View	92.78 %	Spike Percentage of View	1.82 %
Spike to Background Ratio			
Median Spike to Median Background		2.54 TO 1	
Schiller Glare ?		MAYBE	
Developed by			
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100 to 1 debilitating

Conclusion

- The contrast extremes in the room are as high as 20:1, although these areas are not adjacent to each other.
- While the room meets acceptable specifications in general, these high contrast points are outside the range of comfort and create significant and annoying eye strain.
- The software yields a less than 3:1 ratio for the room but specific areas are uncomfortable