



To Shelf or not to Shelf? A "light" question

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Team @ work



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Problems & Observations

Design goals vs. operation and use

- Light shelf will maximize daylight penetration (LEED credits!)
- Most of the top shades were drawn down.
- Not enough light bouncing from shelves.
- Light shelves were dirty... we didn't want to come closer!



Hypotheses

- The light shelf is not contributing more than 10% to the daylight level in the room.
- This 10% contribution is the same regardless of window orientation (South, East, and West)

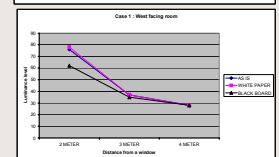
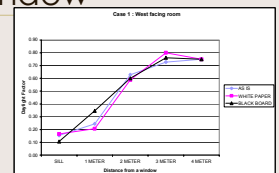
Methods

- Analysis of 2 rooms
 - Sewing Room with West exposure
 - Art Room with East exposure
- Measured interior illuminance
 - with light shelf as is
 - covered w/ White paper
 - covered w/ Black paper
- Calculated daylight factor
 - Measured exterior illumination level
 - Measured horizontal illumination at floor level in one meter increments
 - Measured ceiling luminance in one meter increments
- Measured luminance of daylight window and ceiling (for glare - alt. Hypothesis)



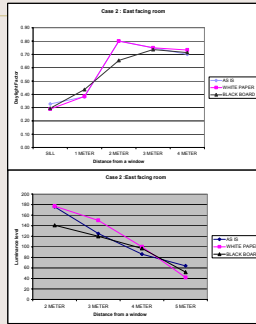
Results 1- West-Facing window

- No significant change in light levels
- Light shelf is not bouncing light further in the room



Results 2 – East-Facing Window

- No significant change in light levels (7% increase only!)
- Light shelf is not bouncing light in the room more than 10% as hypothesized



Results 3

- Light shelves reduce glare