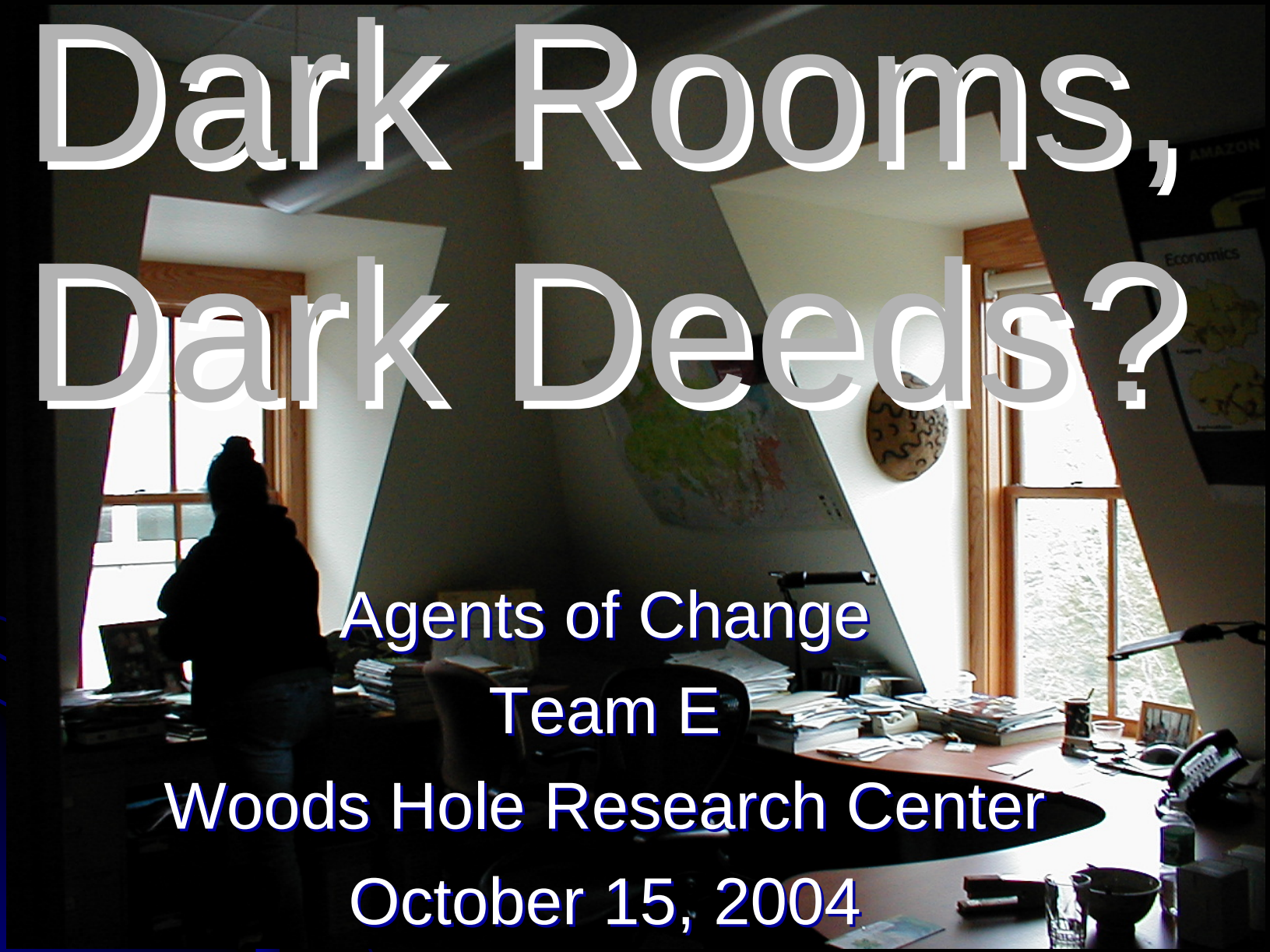
AoC
2004

TEAM E!!!!!!!!!!

(and “E” is for “EXCITED”!!!!!!!!!!)

Dark Rooms, Dark Deeds?



Agents of Change

Team E

Woods Hole Research Center

October 15, 2004

TEAM MEMBERS

Ana “Santa” Maria Corzo

“Babbling” Brooke Harrington

Nathan “Famous” Patrick

“Tofu” Hofu Wu

<u>The “Leaders”:</u>
Heidi Spaly
Bruce Haglund

HYPOTHESIS

Regardless of orientation, the natural illumination of the offices on the third floor is within 10% of each other.

METHODOLOGY

1. Location
   - 3rd floor offices on perimeter of building
   - NE, NW, SE, and SW orientations
2. Distance between illuminance readings
   - 1 ft, 5 ft, and 9 ft from windows

METHODOLOGY

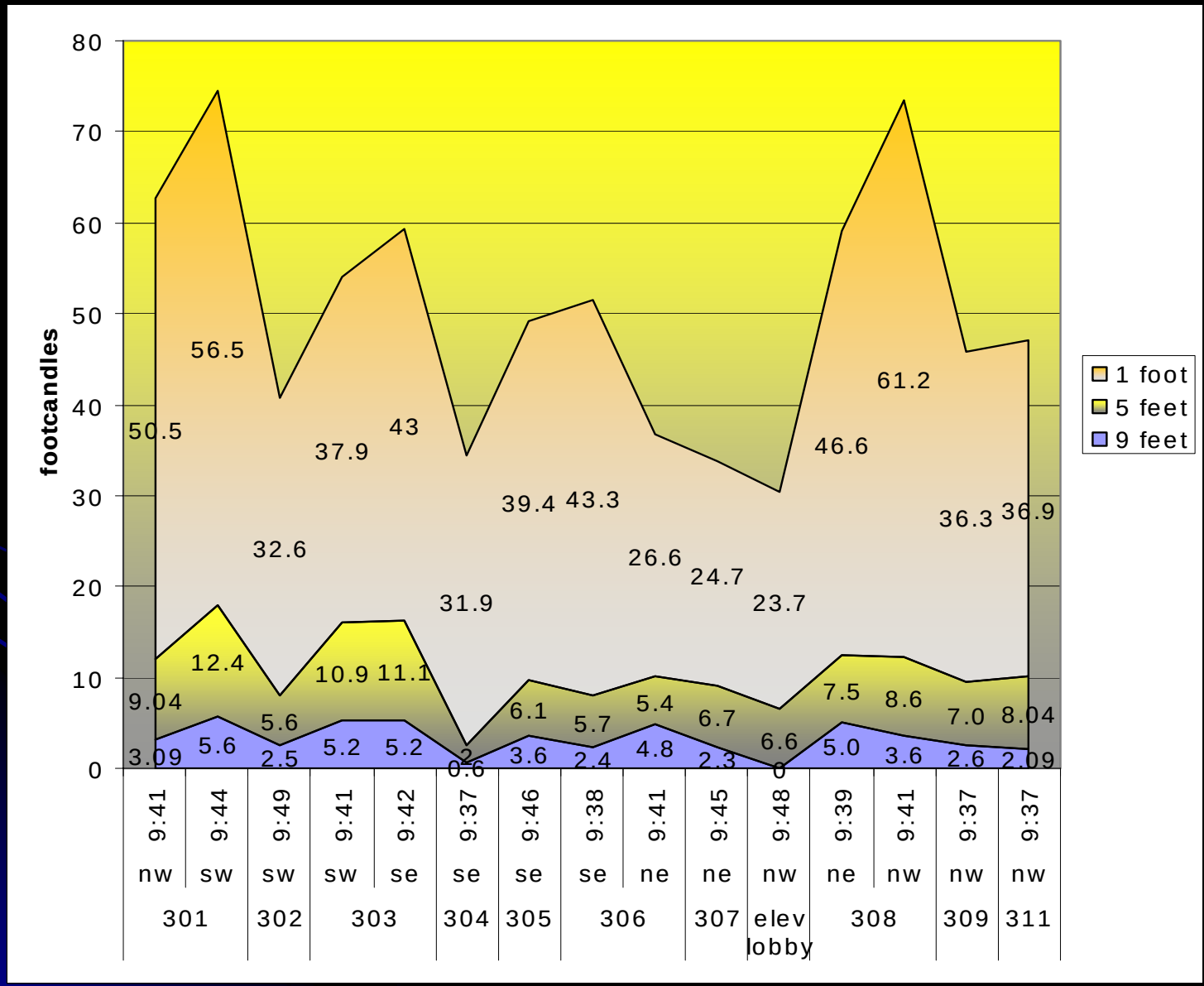
3. Time increments
   - Mid-morning (~9:45 am)
   - Early afternoon (~12:45 pm)

4. Measurements taken
   - Light levels in footcandles at 3 different locations in each office at about the same time
   - Actual natural daylight levels on roof in lux

EQUIPMENT

1. (4) Osram Sylvania light meters, model DS 2050
2. (4) 30-in. wooden dowel rods
3. (1) Li-Cor photometer, model LI-250 light meter with Li-Cor photometric PH-6342

DATA & ANALYSIS



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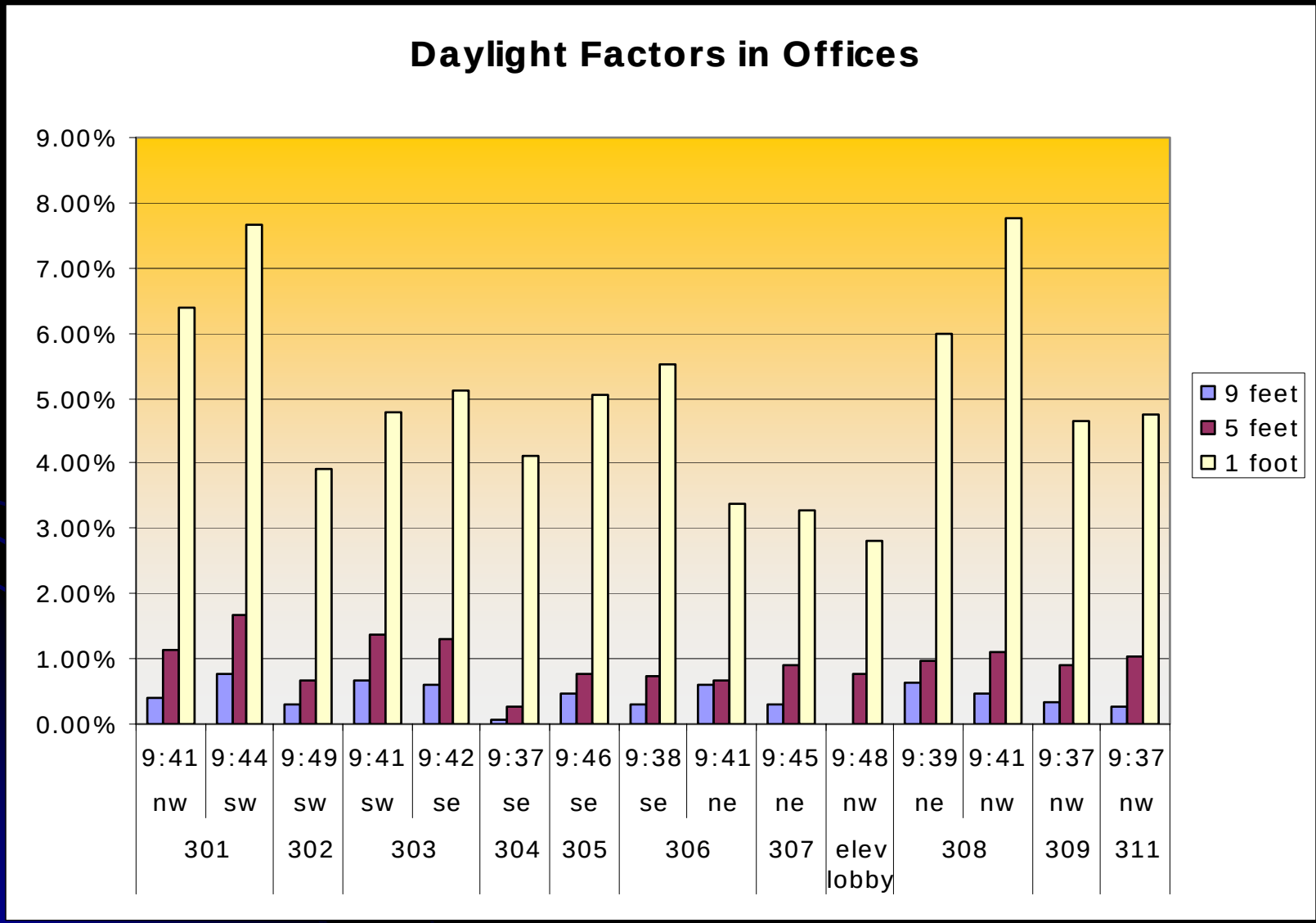
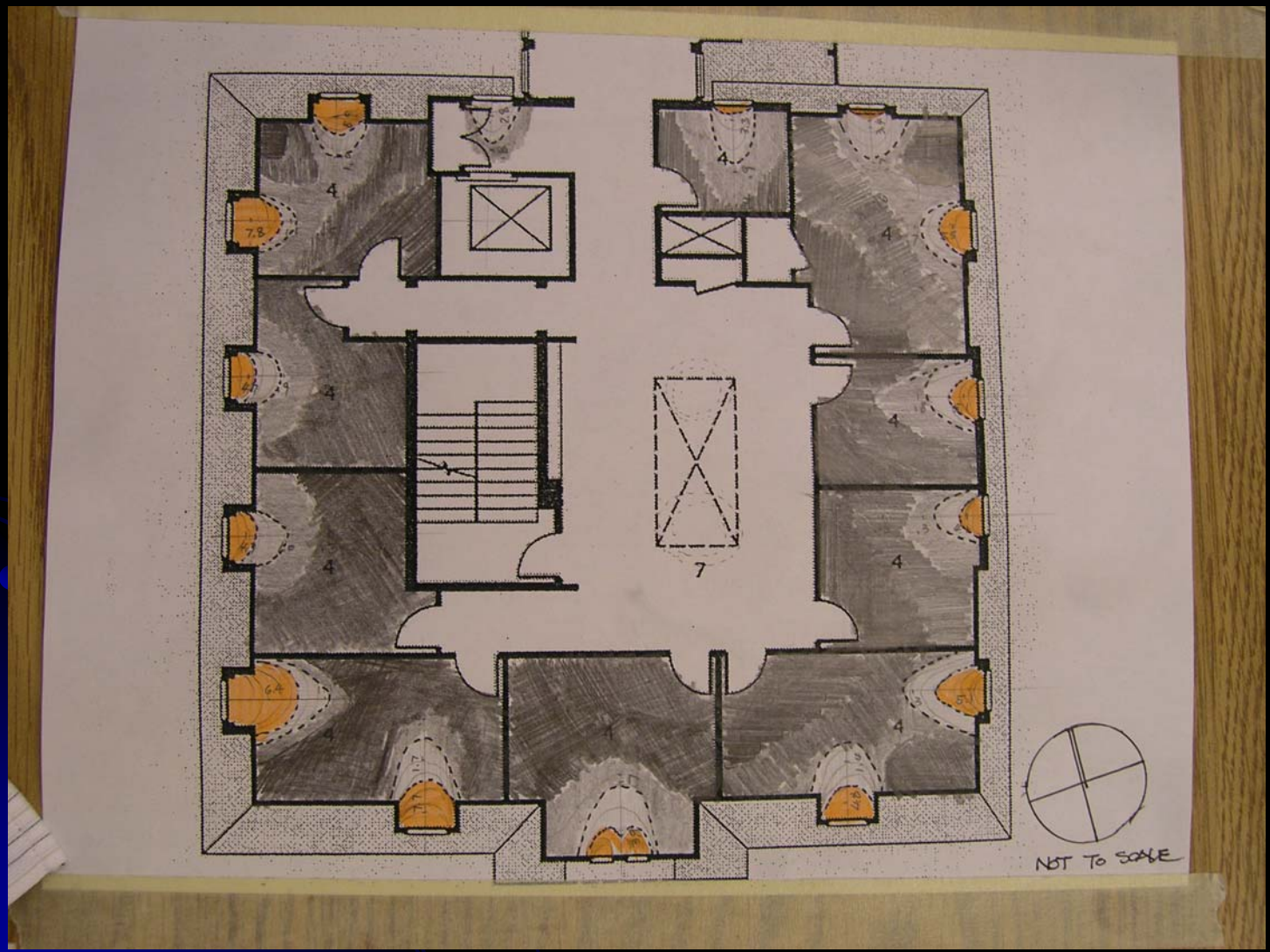


DATA & ANALYSIS



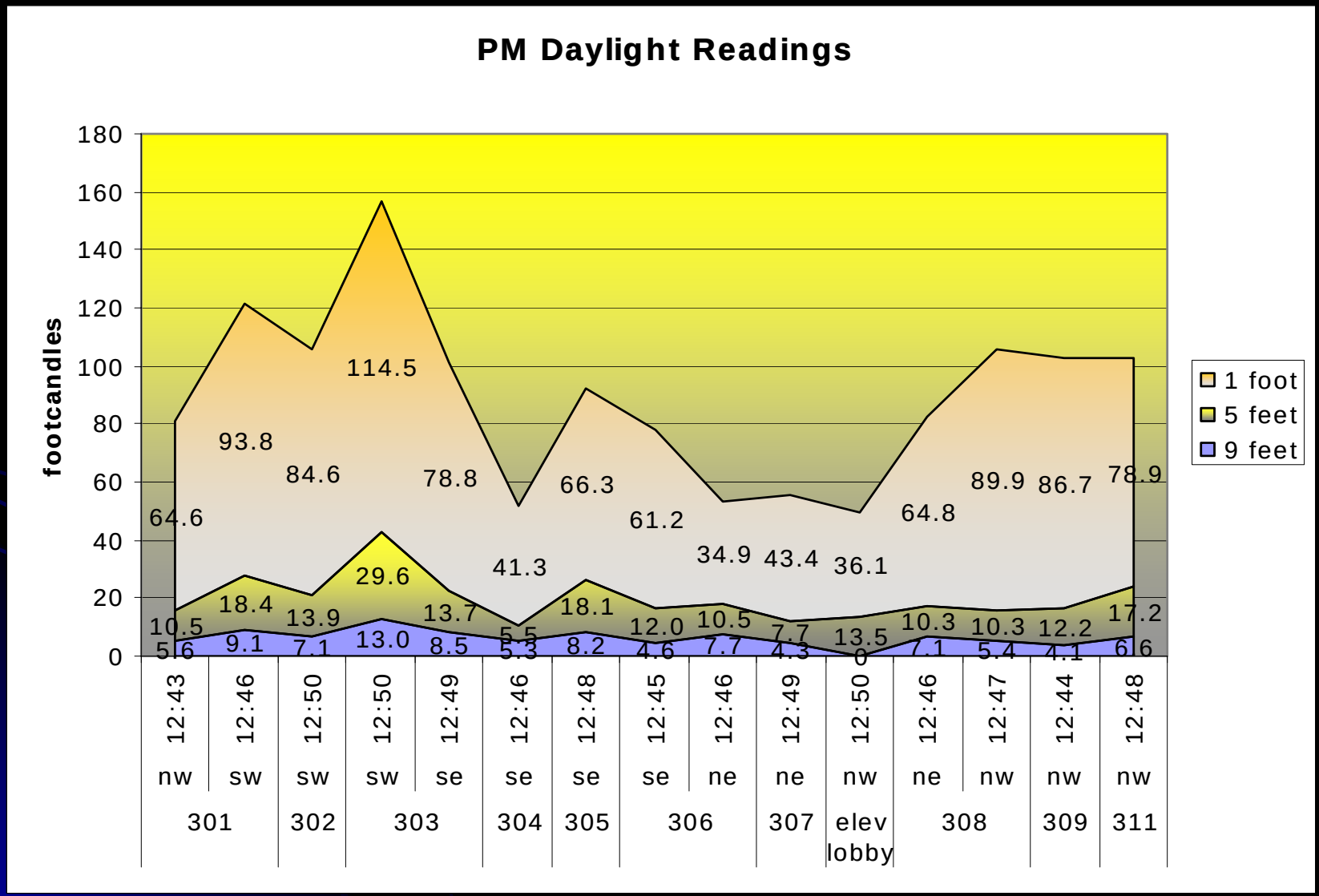
- Outdoor daylight levels around 790 fc

- Orange shade is DF > 5%

- Light gray shade is DF > 1%

- Dark gray shade is DF < 0.5 %

DATA & ANALYSIS



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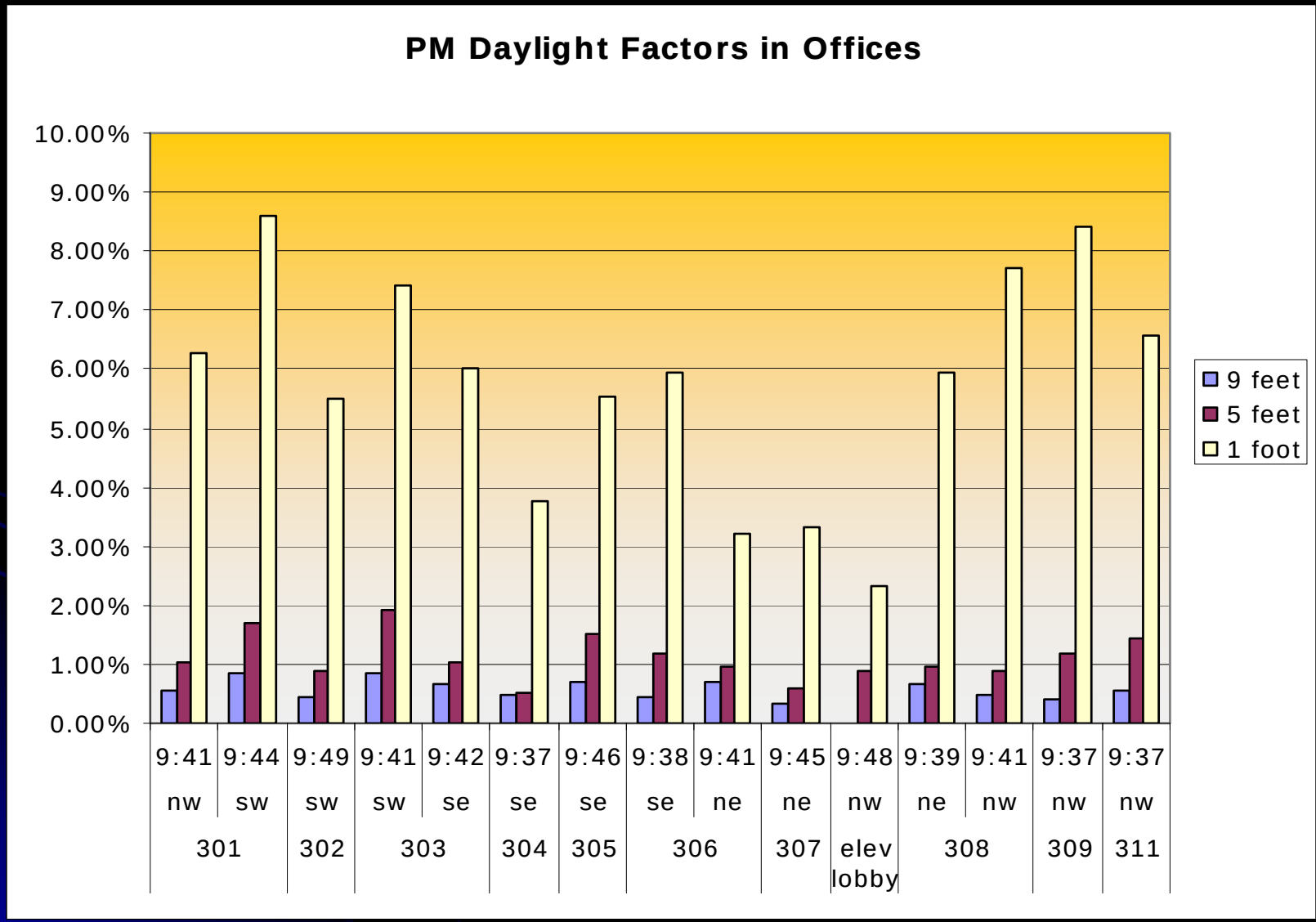
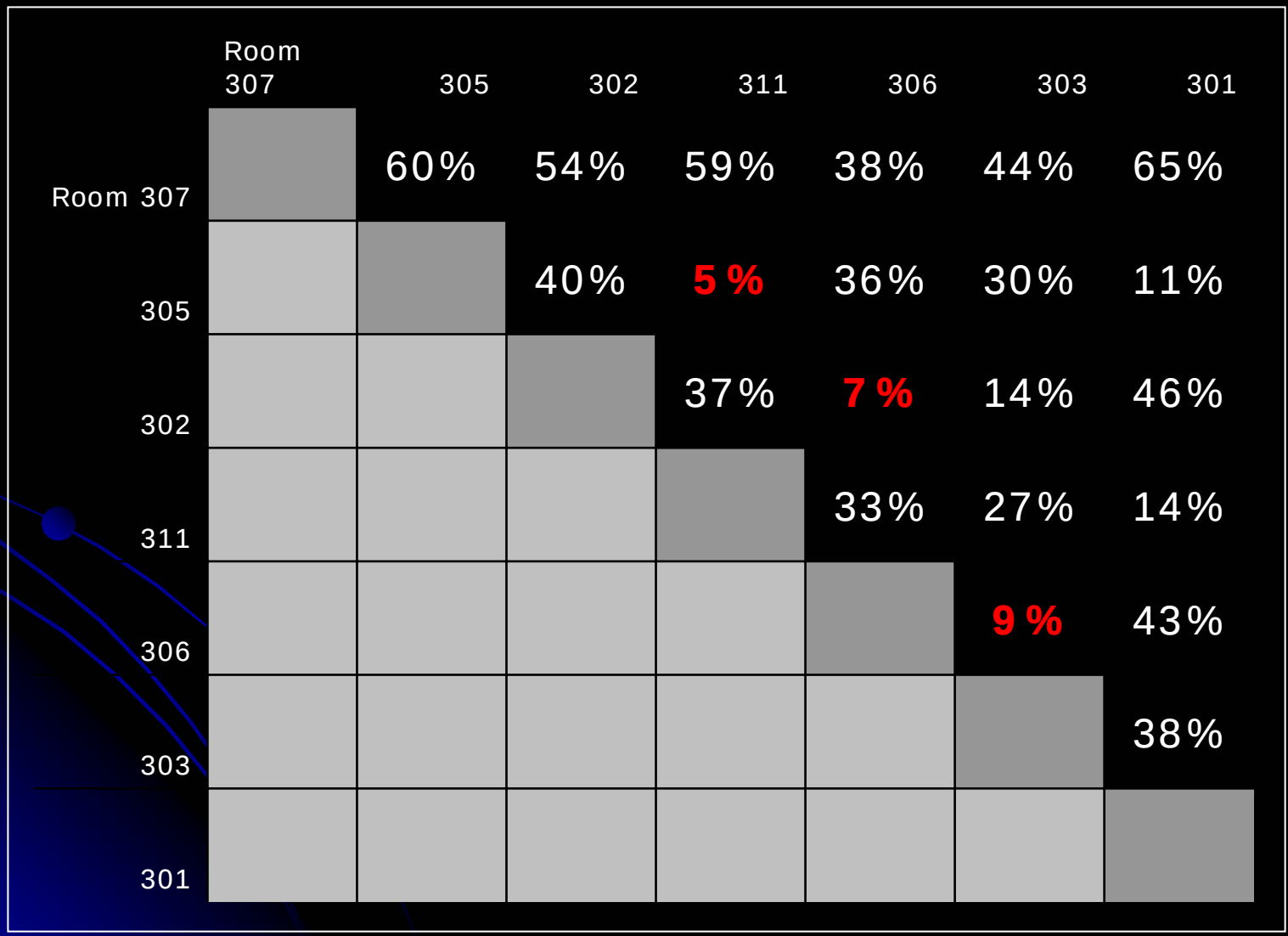
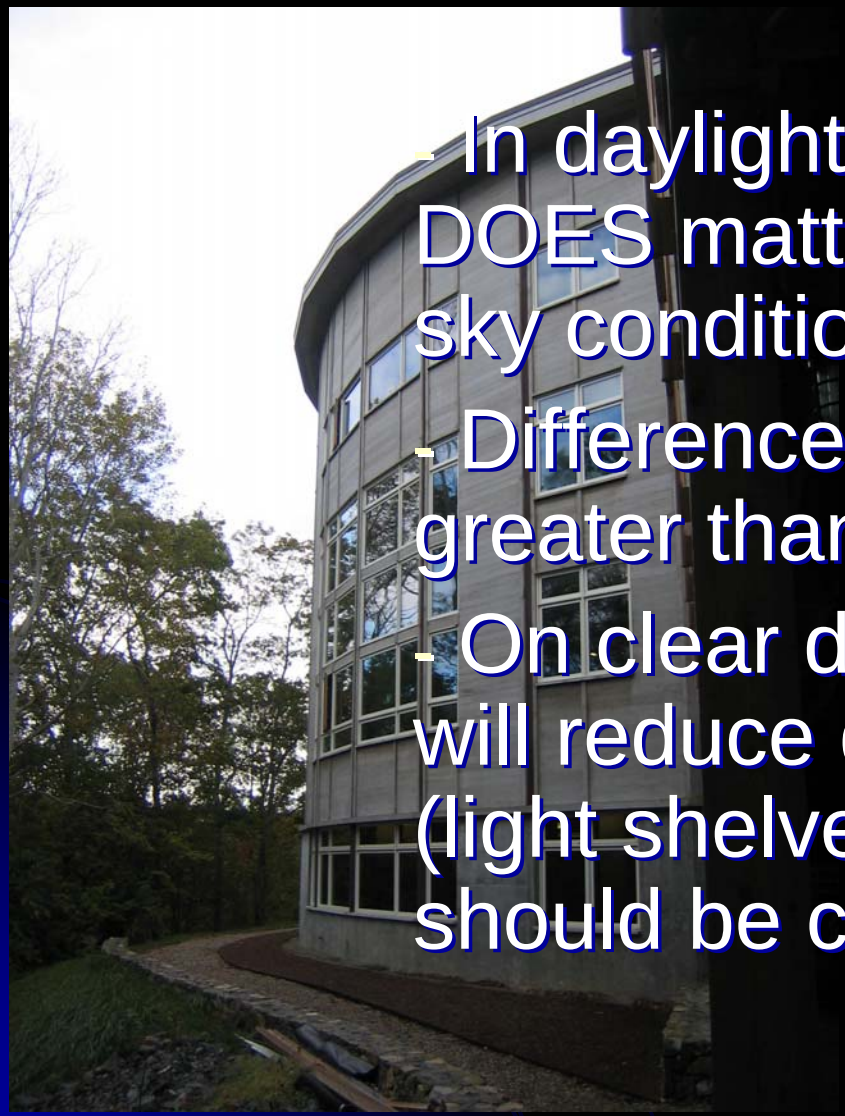


CONCLUSIONS

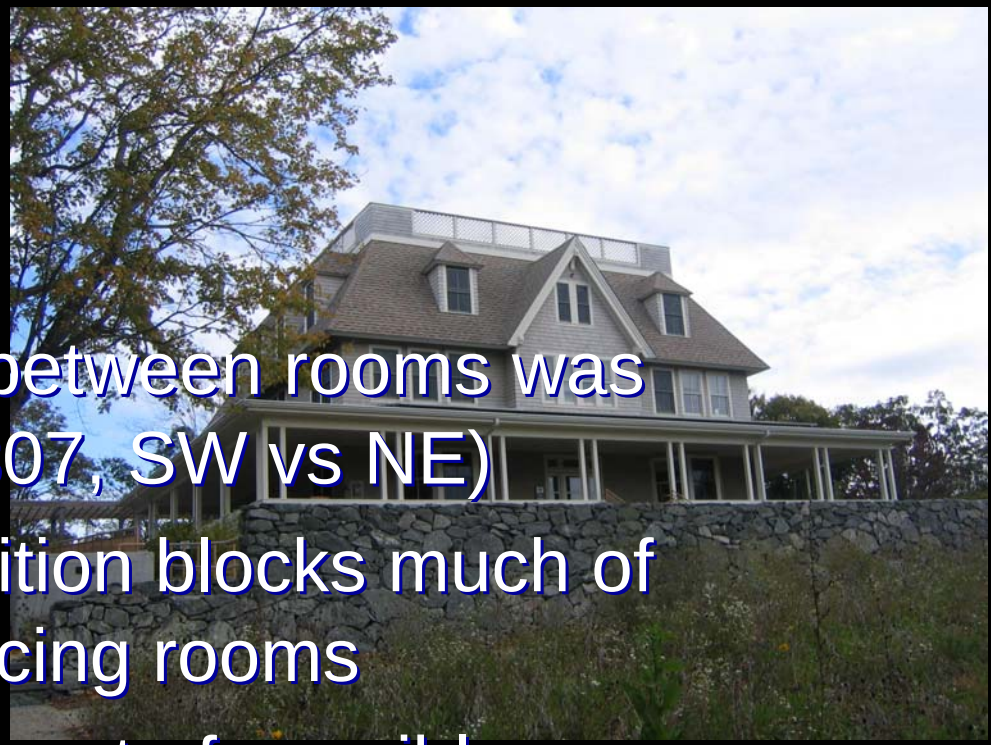


CONCLUSIONS



- In daylight performance, orientation DOES matter, even under overcast sky conditions
- Differences among rooms is WAY greater than 10%
- On clear days, pull-down shades will reduce daylight performance (light shelves or horizontal shades should be considered)

LESSONS LEARNED



- Maximum difference between rooms was 65% (rooms 301 and 307, SW vs NE)
- The new building addition blocks much of the light to the north-facing rooms
- Dormers reduced amount of possible daylight penetrations into offices
- Instrument calibration is critical
- Teamwork is very important

LIFE APPLICATION LESSONS

- Bubbles are sticky…

- Plants in front of windows are bad…