OCCUPANT EXPERIENCE IN BUILDINGS

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Let’s open the door and see all those people.
Many people, Doing different Things in Different places.
What are we learning about people in buildings?
KEY FINDING #1.

Buildings can have medicinal effects.
NIH Stress Study

• Workers in “old” vs “new” workspace in the Denver Federal Center
• Hourly survey of perceived stress levels
• Continuous cardiac activity
• Salivary cortisol – 4 times/day
• 60 Ss, studied for 5 days
New space
Key Results

• Lower cortisol and healthier heart rate pattern in the new space
• No differences in perceived stress – no conscious awareness of stress effects?
• Causal links between environment and stress outcomes were uncertain
DAYLIGHT AT WORK AND CIRCADIAN HEALTH
Light is the primary synchronizer of circadian rhythms; and daylight is an ideal source.

Light needed for circadian functioning is much brighter than light needed for office work.
Wayne G. Aspinall
Federal Building
Grand Junction  CO
Edith Green-Wendell Wyatt
Federal building
Portland, OR
Federal Center South
Seattle WA
GSA Headquarters, Washington DC
Photometric Analysis

Study team: RPI Lighting Research Center

Winter and summer measurements

Daysimeter on a stick.
Light Exposure and Sleep Quality
Daysimeter worn for 7 days at work and elsewhere

Daysimeter captures light exposure during waking hours.

Wristband measures sleep quality.
WHAT ARE WE LEARNING?
LOCATION MATTERS.
People nearest windows and on high floors get the most circadian stimulus.
BUT, Many are in biological darkness for much of the day.
Computers are a key driver of shade use and other daylight reducing behaviors.
Behavior and interior design have a big impact on circadian stimulation.
Light is an ecosystem, not a technology

**Daylight Design** – windows, controls, integration with electric light

**Interior Design** – furniture, layout, colors, finishings, computer ergonomics

**Organizational System** – culture, occupant behavior, nature of work, reward structure, work technologies
KEY FINDING #2.
Workplace redesign can enhance occupant experience: findings from GSA’s workplace research
Chicago Federal Building
Old space
New space
Denver Federal Building
Old space
New space
US Coast Guard
Old space
Veterans Affairs
Old Space
New space
Consistent areas of design improvement

Access to daylight and views
Better balance between interaction and focus
Attractive break areas
Improved overall aesthetics
Environmentally friendly materials and furnishings
Spatial equity
Overall findings: comfort & satisfaction

- Amount of light
- Visual comfort
- Workspace satisfaction
- Daylight
- Views
- Building satisfaction
- Noise levels
- Air quality
- Temperature
- Speech privacy

Percent Satisfied
Percent Citing Problems with Acoustic-related Behaviors

- People overhearing my private conversations
- People talking on the phone
- People talking nearby

Post vs Pre
Yet the research also shows:

- 59% of survey respondents say they stop and talk to others in corridors and workspaces
- 56% say they learn a lot from overhearing others talk
- 53% say they often have meetings in their personal workstations

Do we need a “cognitive cocoon” for privacy and focus?
Psycho-social and organizational well being

Feeling proud to show the office to visitors
Feeling proud of the organization
My personal well being
Feeling satisfied with my job overall
Getting to know other people
The effect of the office space on my stress levels

Percent rating new workplace as better
KEY FINDING #3.
People are not passive recipients of design.
People actively modify environments to increase comfort, functionality and pleasure

In a study of 7 office buildings in the Pacific Northwest:

- 64% added personal artifacts or posters
- 48% added plants
- 21% added desk lamps
- 16% added heaters

Only 13% made no changes

People in windowless offices decorate their spaces with more nature artifacts than those in offices with windows.

Are they self-medicating?

Some create their own views by removing cube panels.
Others cope creatively with thermal discomfort.
KEY FINDING # 4.
Individual differences may play a large role in environmental experience.

People are not clones.
Some like it bright. Some like it dim.
And the causes may be biological.
PEOPLE ALSO VARY ON:

Noise sensitivity, personality, preference patterns, age, work needs, and health factors.
How do we intentionally integrate individual differences into design thinking and solutions in place of the “one size fits all” approaches we currently use?