

The UC Davis Circadian Protocol



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Laboratory prototype funded by Sacramento Municipal Utility District

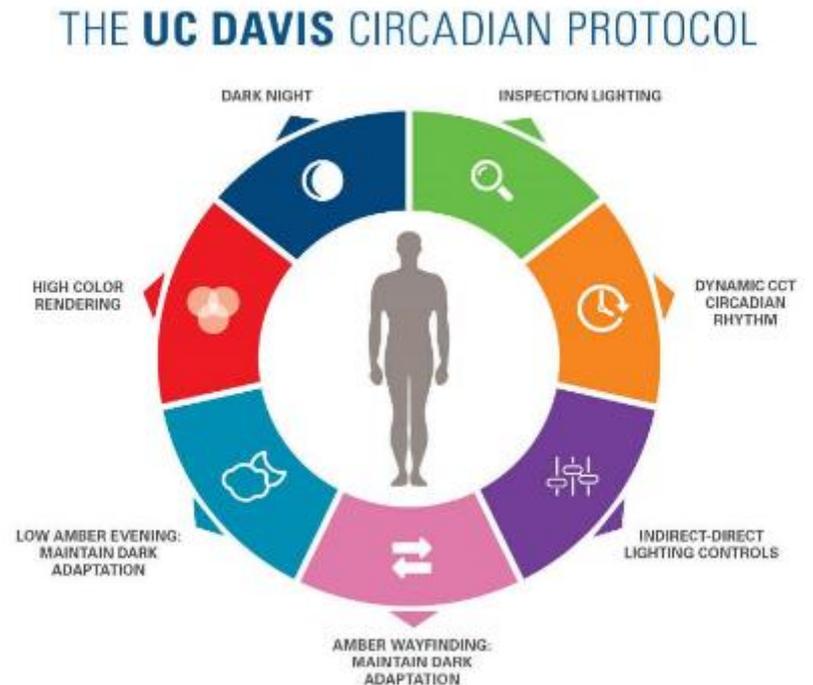


UC DAVIS
MEDICAL CENTER

UC Davis Medical Center

Integrated Circadian lighting: Objectives

1. Develop integrated circadian strategies
2. Prototype and test in clinical application
3. Develop specification for deployment UC system
 - 1.





The circadian biology is connected to the rising and setting of the sun.

Today ~100% planned design- LED



Transition to Solid State Lighting

Opportunities

- Enhanced well-being
- Safety at night
- Enhanced performance
- Temporal order
- Dark adaptation
- Color rendering



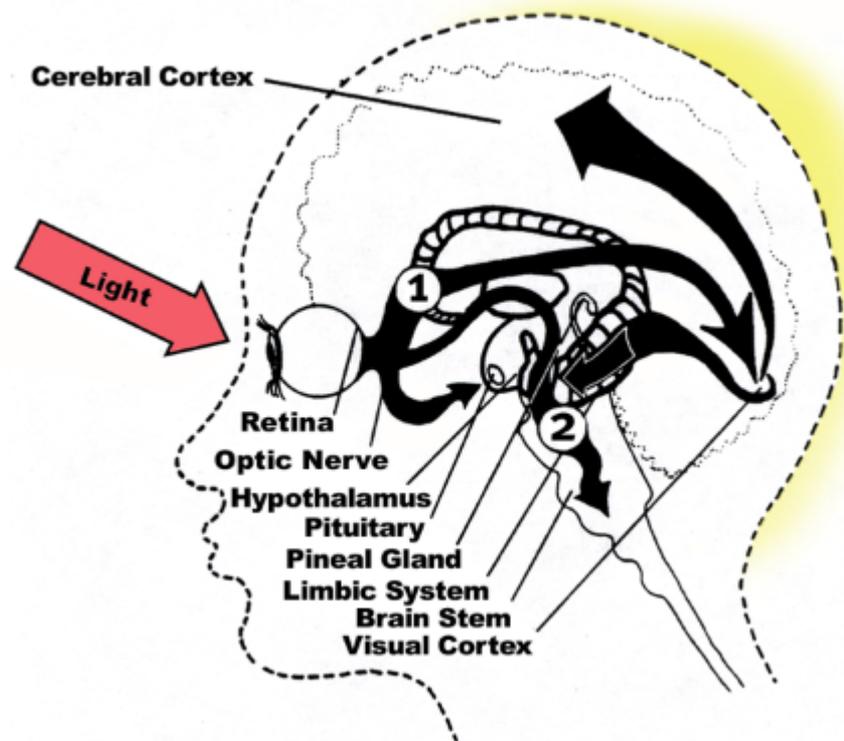
Visual & Circadian Pathways

1. Visual Pathway

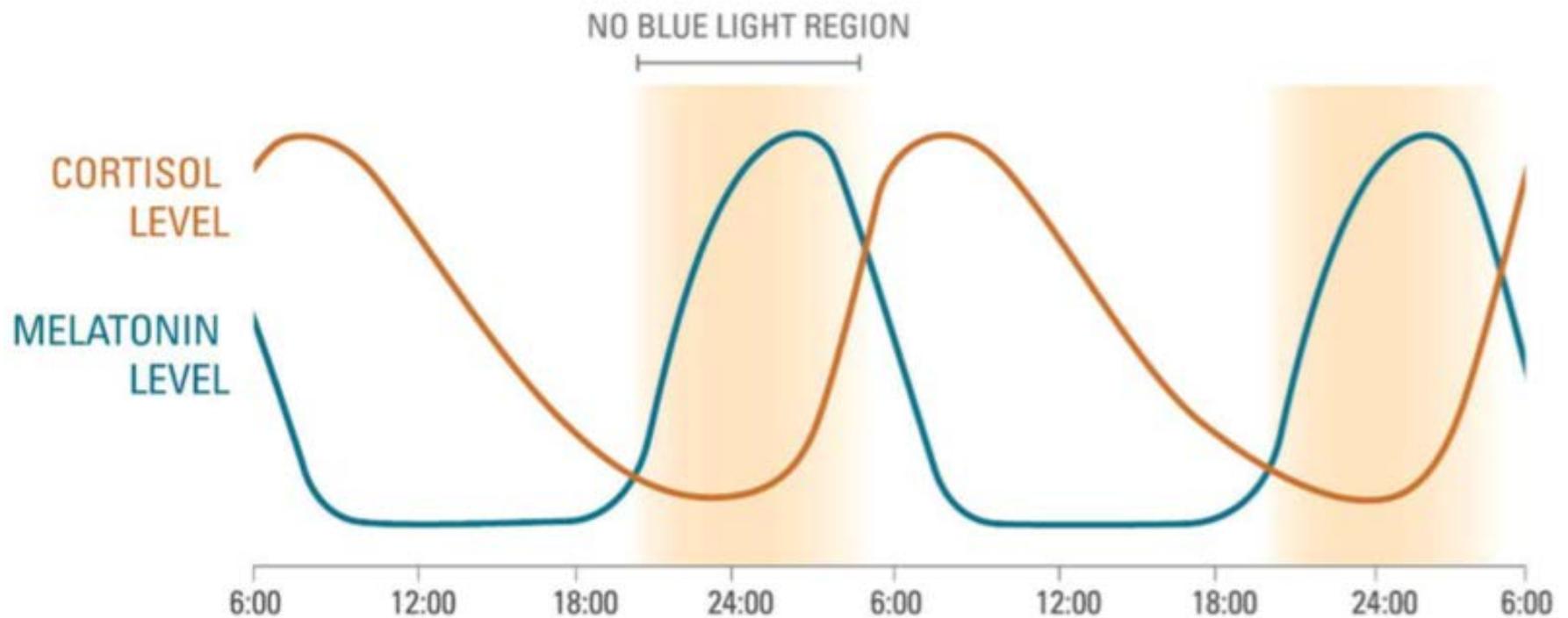
- Light stimulates the cerebral cortex for vision & perception

2. Biological Pathway

- Light causes messages along a biological pathway (Hypothalamus, Pituitary, Pineal Gland) that are used to regulate the body's autonomic nervous and endocrine systems



Circadian Rhythms





The Honda Circadian house at UC Davis

A model for promoting circadian wellness, safety and sustainable low carbon design





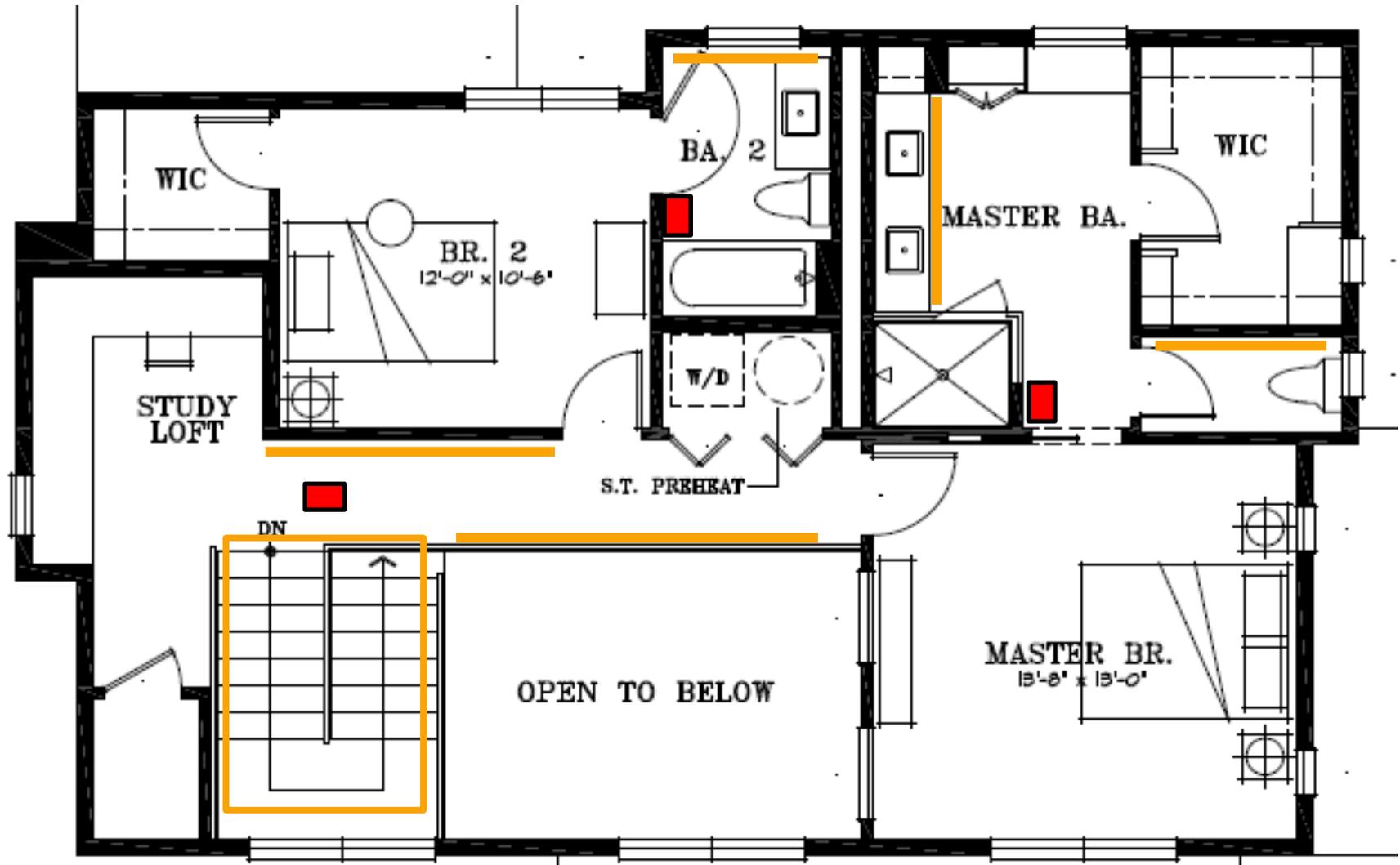




The Honda House at UC Davis

A new paradigm for residential design to promote circadian health

Amber LED way finding (Second floor) occupancy program (intensity, schedule, sensor control)











Integrated Circadian lighting: Principles

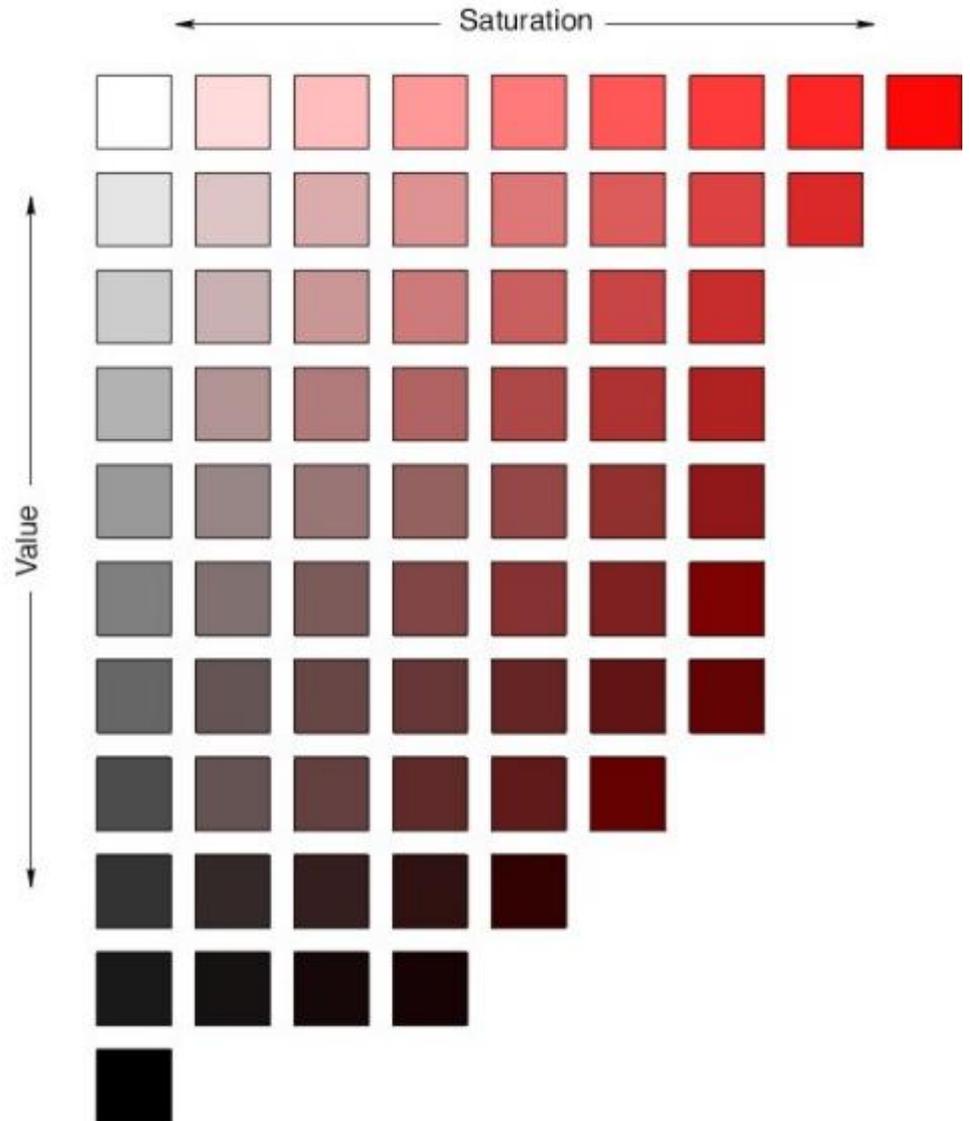
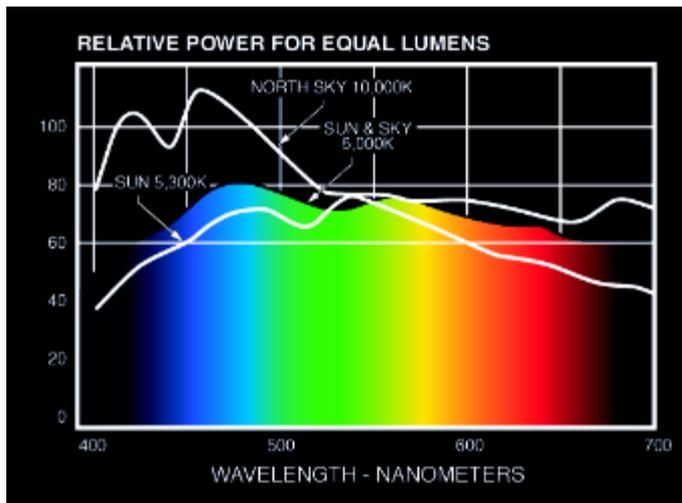
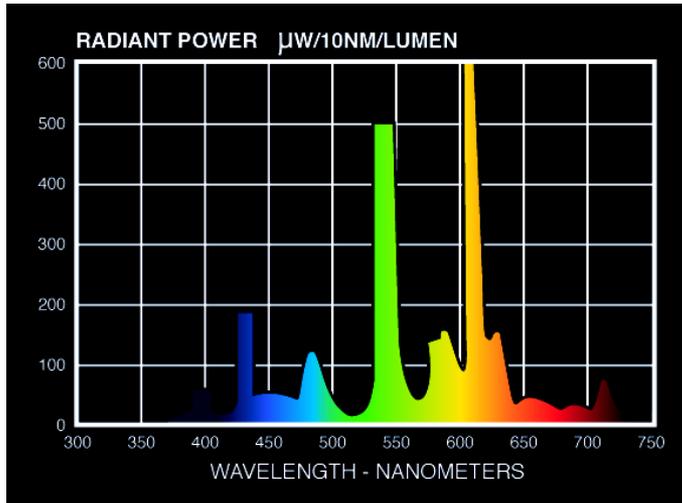
- 1 Circadian Sensitivities
- 2 Dark Adaptation
- 3 Color Rendering**

Enhanced clinical environment





Critical with small variation in tint or Chroma





- Ambient lighting spectrum/CCT to follow diurnal variation

- 2000K-8000K



2700K lighting











THE UC DAVIS CIRCADIAN PROTOCOL

