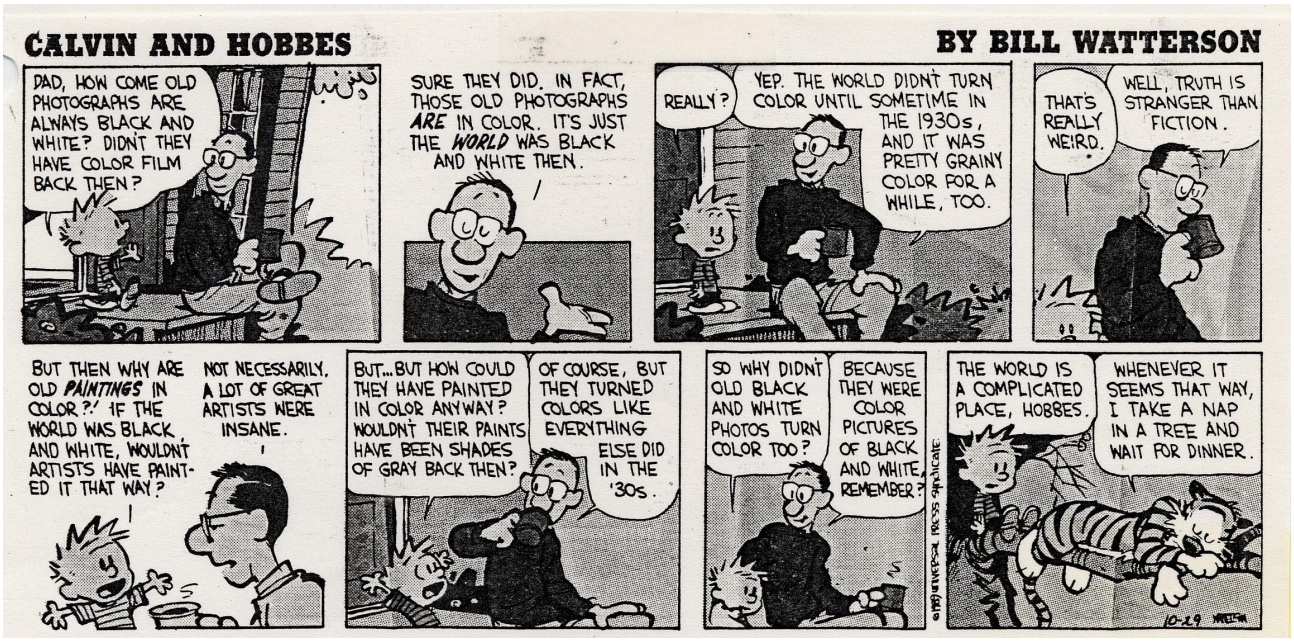
Arch 464
ECS
Midterm I
Spring 2005

30 Multiple Choice Questions



1. Which of these buildings exceeds the rule-of-thumb for skylight area to floor area ratio?
    A. Legoretta's Managua Cathedral
    B. Botta's SF Museum of Modern Art
    C. Holl's St. Ignatius Chapel
    D. none of the above

2. Which of these buildings serves a different purpose than it was originally designed for?
    A. Musée d'Orsay, Paris
    B. Wright Gallery, Seattle
    C. National Building Museum, Washington, DC
    D. all of the above

3. James Turrell's illusionary light works such as AMBA are examples of using
    A. specular reflectors
    B. diffuse transmitters
    C. diffuse reflectors
    D. none of the above

4. The primary sender for daylighting design is
   A. the sky
   B. the sun
   C. the architectural surfaces
   D. the apertures

5. Specular reflectors always have
   A. a high IRC
   B. smooth surfaces
   C. metallic composition
   D. all of the above

6. We perceive a lamp with a color temperature greater than 5000ºK to be
   A. cool
   B. very orange
   C. warm
   D. none of the above

7. Given the task of reading black print on a white page of a slick magazine, a lamp in the offending zone can cause a veiling reflection which
   A. increases the contrast between type and white page to over 100:1
   B. increases the contrast between type and white page to over 10:1
   C. increases the contrast between type and white page to over 3:1
   D. decreases the contrast between type and white page

8. A 50 candlepower light source produces
   A. 50 footcandles
   B. 50 lumens
   C. 50 footlamberts
   D. 628.5 lumens

9. To measure and calculate the daylight factor you'd use
   A. a luminance meter indoors and an illuminance meter outdoors
   B. an illuminance meter indoors and a luminance meter outdoors
   C. an illuminance meter both indoors and outdoors
   D. a luminance meter both indoors and outdoors

10. In a clear sky the darkest area is
   A. at the horizon
   B. around the sun
   C. high in the sky opposite the sun
   D. clear skies are uniformly bright

11. By rule-of-thumb, a method for mitigating glare is to
    A. light a room with windows in two walls
    B. light a room with a window and a skylight
    C. use splayed apertures and sloped ceilings
    D. all of the above

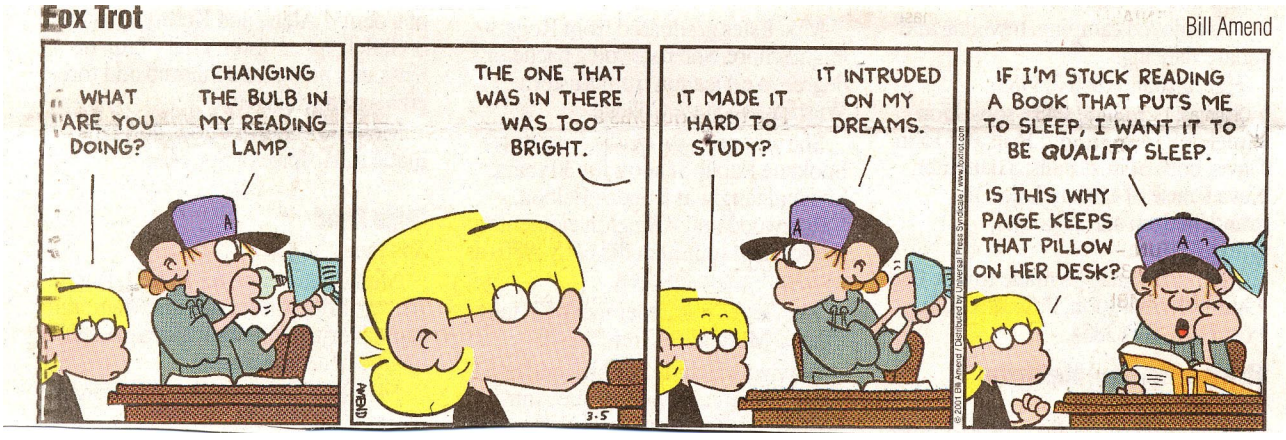
12. A window with a light shelf would be expected to
    A. bring more light into the space
    B. provide more even lighting
    C. eliminate all sunlight penetration
    D. all of the above

13. The most direct way to increase your intuition about daylighting is to
    A. observe and sketch the light in a daylighted space
    B. make physical models of daylighted spaces
    C. make computer models of daylighted spaces
    D. any of the above

14. Daylighting 'footprints'
    A. show the distribution of light in plan from a window or skylight
    B. are limited to predicting cloudy sky conditions
    C. can be added to show light distribution in a space with multiple apertures
    D. all of the above

15. The best computer-based daylighting models
    A. render surface luminance throughout a space
    B. give footcandle levels for points on the workplane
    C. both of the above
    D. none of the above

16. The type of artificial sky used at Cardiff University
    A. is restricted to modeling cloudy skies
    B. can model clear and cloudy skies
    C. is most useful in modeling partly cloudy skies
    D. both B and C above



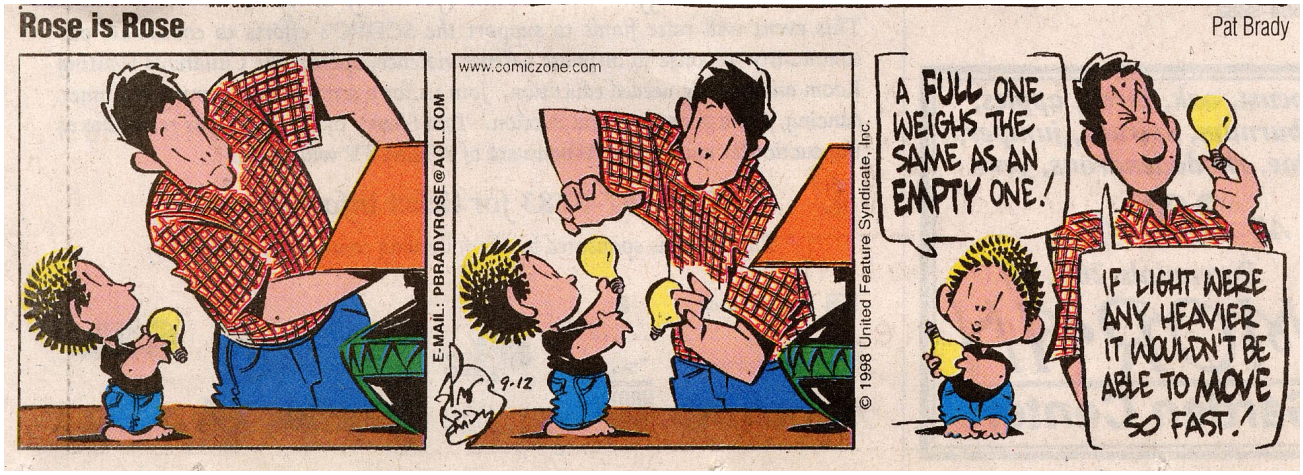
17. Physical daylighting models are helpful in the design process because
    A. you can photograph the space under varied sky conditions
    B. you can test a variety of aperture configurations before building the real building
    C. you can measure and calculate the daylight factors
    D. all of the above

18. An effectively daylighted space can
    A. reduce lighting and cooling costs
    B. improve worker productivity
    C. enhance its aesthetic beauty
    D. all of the above

19. The lamps with the best color rendering characteristics have a spectral distribution curve
    A. that is even at every wavelength
    B. has a significant amount of energy at every wavelength
    C. that is biased toward the red end of the spectrum
    D. all of the above

20. Incandescent lamps are considered the most expensive because of their
    A. first cost
    B. energy use
    C. hazardous chemical content
    D. all of the above

21. The best compact fluorescent lamps
    A. use warm white phosphors
    B. have electronic ballasts
    C. produce twice as many lumens per watt as incandescent lamps
    D. all of the above



22. Among HID lamps, those with the best color rendering characteristics are
    A. high pressure sodium
    B. metal halide
    C. mercury vapor
    D. none of the above

23. A lamp and fixture combination's photometric curve describes
    A. its efficiency over time
    B. how it distributes light in space
    C. its spectral light distribution
    D. all of the above

24. Light therapy can help
    A. mitigate the effects of shift work on office worker productivity
    B. cure the symptoms of SADD
    C. prevent or slow the onset of Alzheimer's disease
    D. all of the above

25. Parabolic cube louvres on a direct fluorescent fixture produce a photometric curve that
    A. shows equal distribution of light in all directions
    B. shows a cut-off angle parallel to the ceiling
    C. concentrates light distribution to a narrow angle perpendicular to the fixture
    D. covers all wavelengths in the visual spectrum

26. The advantage of indirect lighting is
    A. increased efficiency
    B. better spatial definition
    C. better color rendition
    D. all of the above

27. GE's America the Blind ad campaign of the 1960s featuring poor Johnny struggling to read under the then required 125 fc illumination levels in schools
    A. is consistent with modern findings on therapeutic lighting
    B. suggested levels far above the point of diminishing returns
    C. suggests level possible to achieve with today's efficient HID lamps while still meeting the energy code requirements
    D. all of the above

28. Recommended lighting levels for office work and drafting in the 1936 edition of MEEB
    A. were about the same as today's recommendations
    B. were about twice as much as today's recommendations
    C. were about half as much as today's recommendations
    D. were about 5-10 footcandles

29. Using the point source method, you can calculate the effect of multiple point sources by calculating each point source then

A. adding the results
B. averaging the results
C. taking a weighted average of the results depending on distance to the source
D. none of the above

30. The Zonal Cavity method predicts that

A. luminous ceilings provide even lighting to the work plane
B. a surface twice as far from a luminous ceiling will receive half as much light
C. a surface twice as far from a luminous ceiling will receive a fourth as much light
D. none of the above