Daylight Distribution in the Third Floor Conference Room at the Woods Hole Research Center

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Hypothesis:

“The skylights in the conference room on the third floor of the Woods Hole Research Center provide less than a 2% daylight factor under overcast sky conditions.”
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Daylight Factor:

“Ratio of illuminance on the workplane versus a simultaneous exterior illuminance under overcast sky conditions.”
Why a 2% Daylight Factor?

LEED states: “Achieve a minimum Daylight Factor of 2% (excluding all direct sunlight penetration) in 75% of all space occupied for critical visual tasks.”
Overcast Sky

Clear Sky

(Sun, Wind & Light, 2nd Edition)
Daylight Distribution at the Workplane

Average DF = 0.25%  Maximum = 0.77%  Minimum = 0.09%
Average Global Horizontal Illuminance - October - Providence, RI
Average Footcandle Distribution at the Workplane in October (9am - 5pm)
Daylight Factor Section

Conference Room

Corridor

"The Bridge"

Daylight Factor (%)

Distance from Southwest Wall of Conference Room (ft)
Hypothesis:

“The skylights in the conference room on the third floor of the Woods Hole Research Center provide less than a 2% daylight factor (DF) under overcast sky conditions.”

Summary:

Average DF = 0.25%
Maximum DF = 0.77%
Minimum DF = 0.09%

Average = 7fc in October
Lessons Learned:

1. Skylights are too small to provide light levels proportional to adjacent spaces.

2. Light level at the bridge accentuates relatively low light levels of the conference room.

Design Lesson:

Relative light levels are critical to the sequence of spaces.