

# Daylight Hour Event: Redesigning Daylight

The Daylight Hour Campaign by the Building Energy Exchange with support from Fitwel® is pleased to host Redesigning Daylight, an online event discussing the benefits daylight spaces bring to our work, home, and natural environments, and how building owners can utilize daylighting to achieve benefits of sustainability, well-being, and cost-savings.

## Instructors

Sara Karerat, Director of Applied Research, Center for Active Design

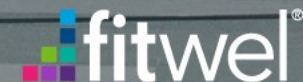
## Panelists

Charlene Mendez, LEED AP BD+C, Senior Sustainability Analyst, HDR

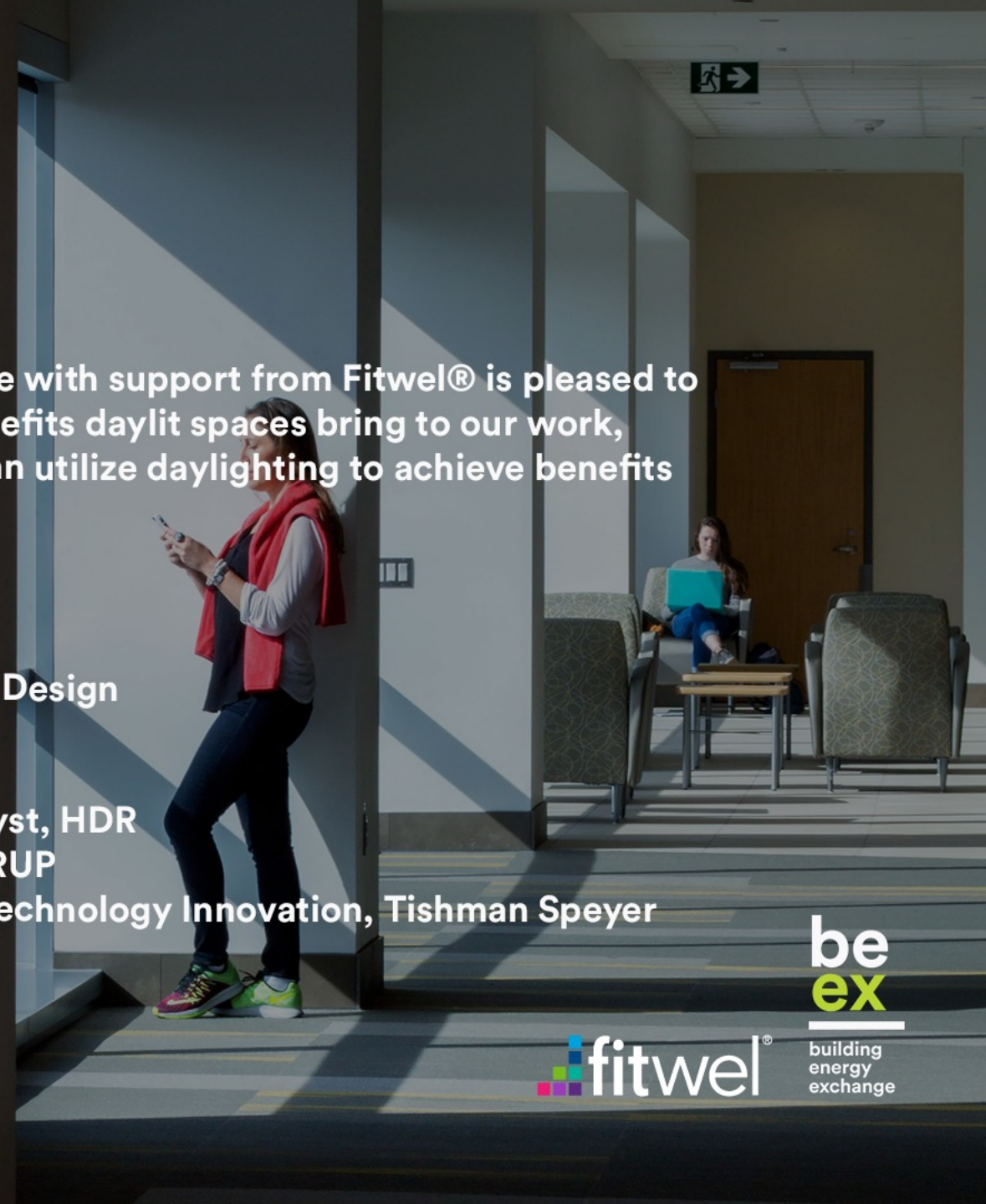
Brian Stacy, Project Director, Global Lighting Skills Leader, ARUP

Jonathan Flaherty, Global Head, Sustainability and Building Technology Innovation, Tishman Speyer

June 21, 2022 | 1 to 2 pm | 1 AIA LU|HSW  
Building Energy Exchange | [be-exchange.org](https://be-exchange.org)



building  
energy  
exchange











# Daylight - Strategies

MIRIAM SOLORIO • BLANCA SOLORIZANO • MERCEDES  
LUIPE SOMUYIWA • SUE SONIONS BEAUTY SUPPLY ST  
MARIA SOSA • RICARDO SOSA • BRENDA SORTO  
ROSALINDA SOTO • ROSELIA SOTO • POLEY SOSANYA • M  
TELCA SOZA • DOLORES SALAZAR SOZA • SAIDE SOTO • M  
MARK SPAUGH • LEONARD K. JAMES • JAMES J  
ANNIE M. SPEARS • LEONARD K. JAMES • JAMES J  
NGUYEN • MR. AND MRS. ABRAHAM NGUYEN CHU  
HARRY NICHOLS • YOSHONDA NICHOLS • AMBER NICH





Orange County Sanitation District

Orange County Sanitation District Admin. Bldg.  
Fountain Valley, California, US







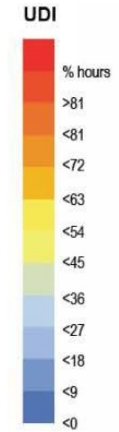
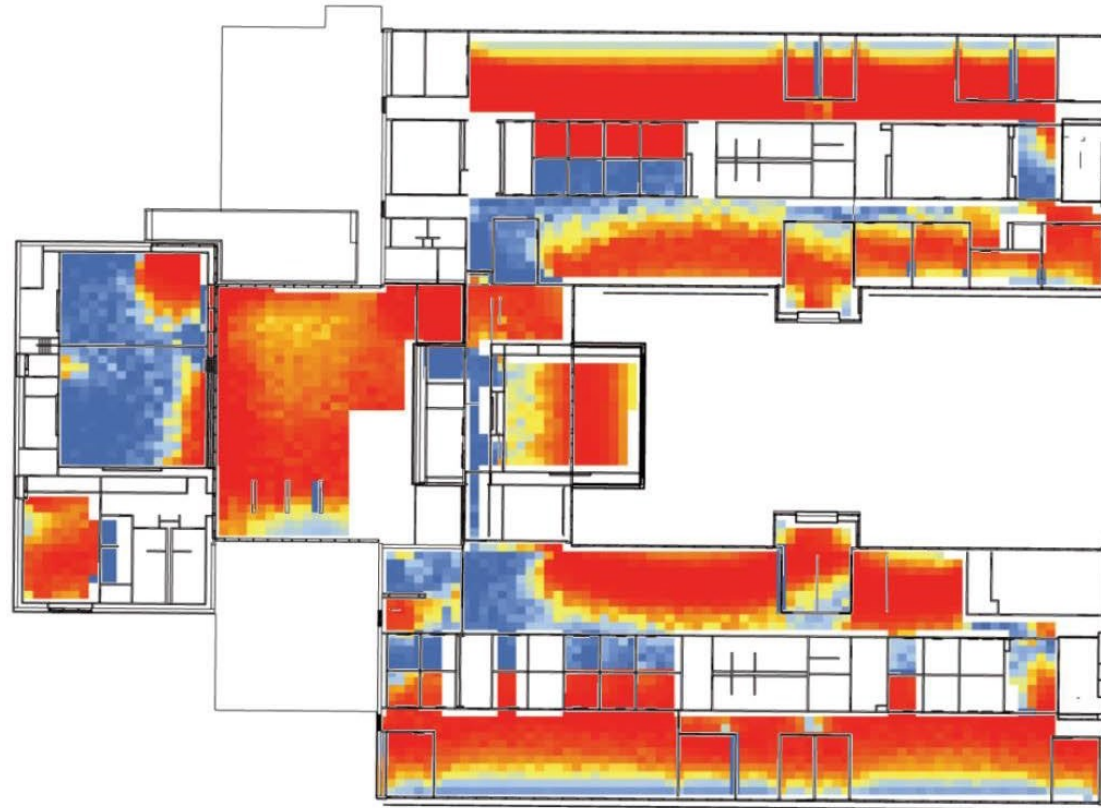
# Useful Daylight Illuminance (UDI) – Level 1



Orange County Sanitation District – Fountain Valley, CA

The higher, the better  
(no LEED target)  
OPTION 2

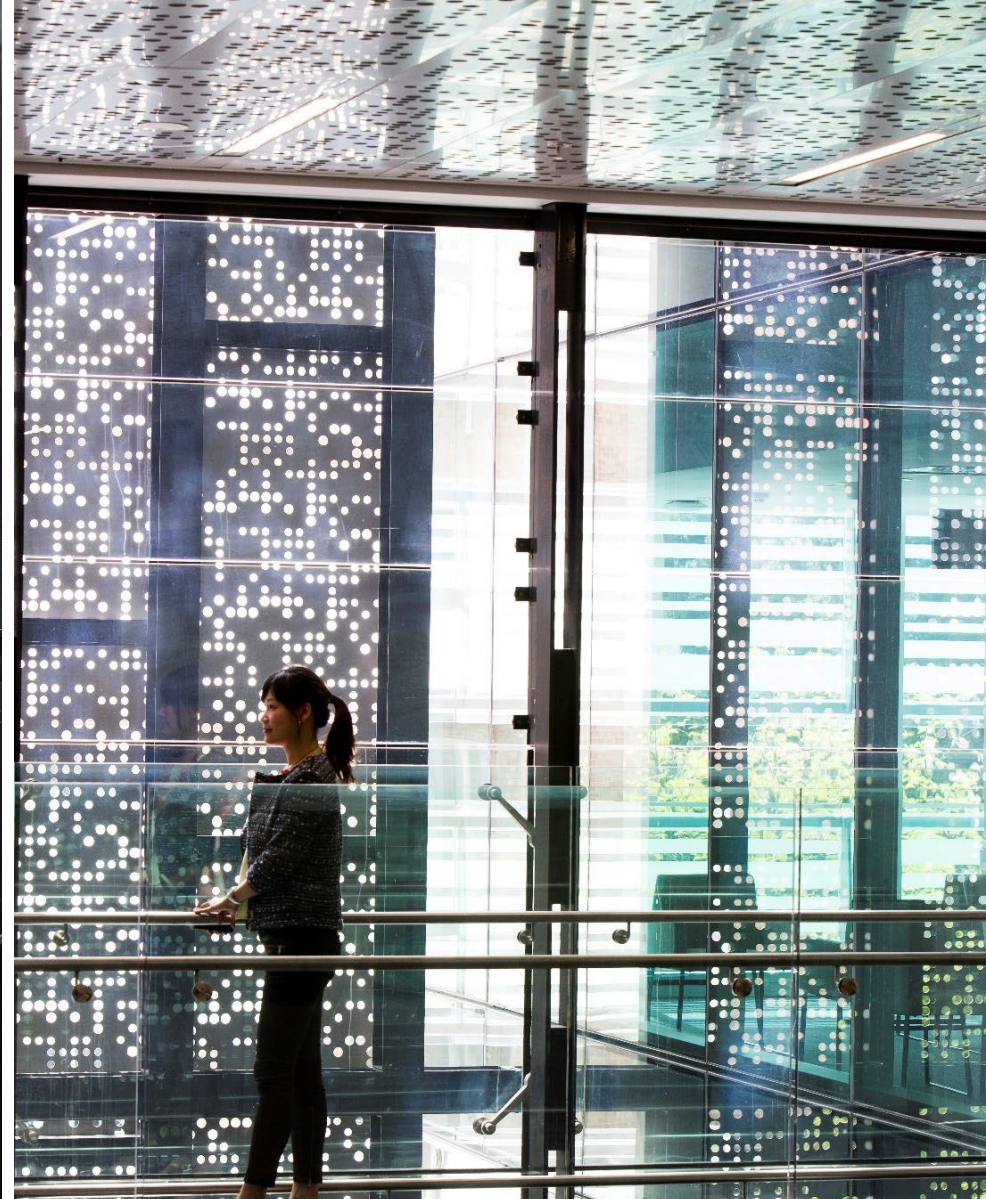
UDI: 58.59%









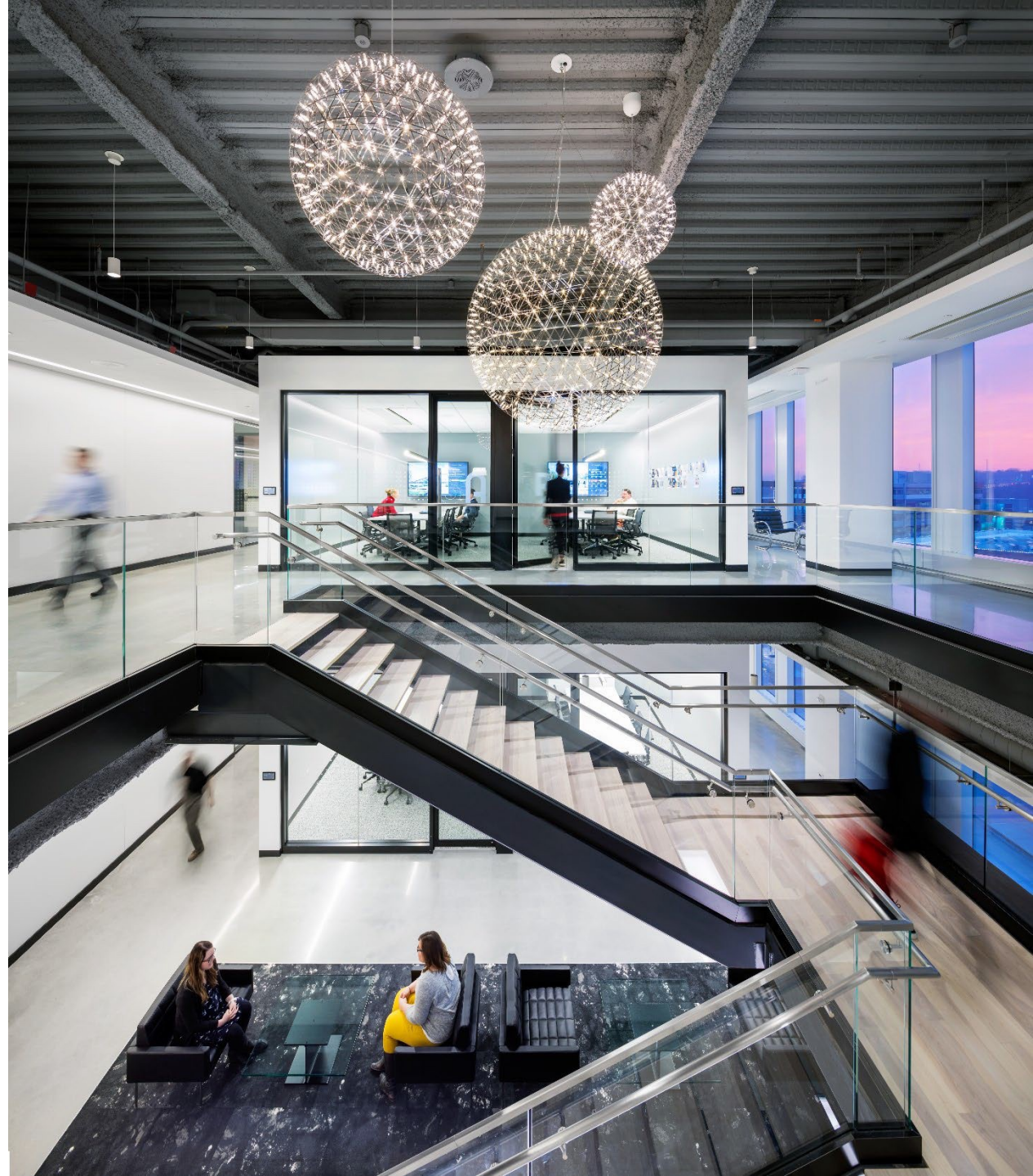


Chris O'Brien Lifehouse Cancer Treatment Center  
Camperdown, New South Wales, Australia





HDR Headquarters  
Omaha, Nebraska, US







University of Oregon, Lewis Integrative Sci. Bldg.  
Eugene, Oregon, US





# Daylight - Programmatic Considerations







Ohio State University, Wexner Medical Center  
Columbus, Ohio, US



# Sustainability | Daylight Analysis – Façade Iteration 1

Wexner Medical Center- Columbus, OH

The highest, the better

**UDI: 64%**

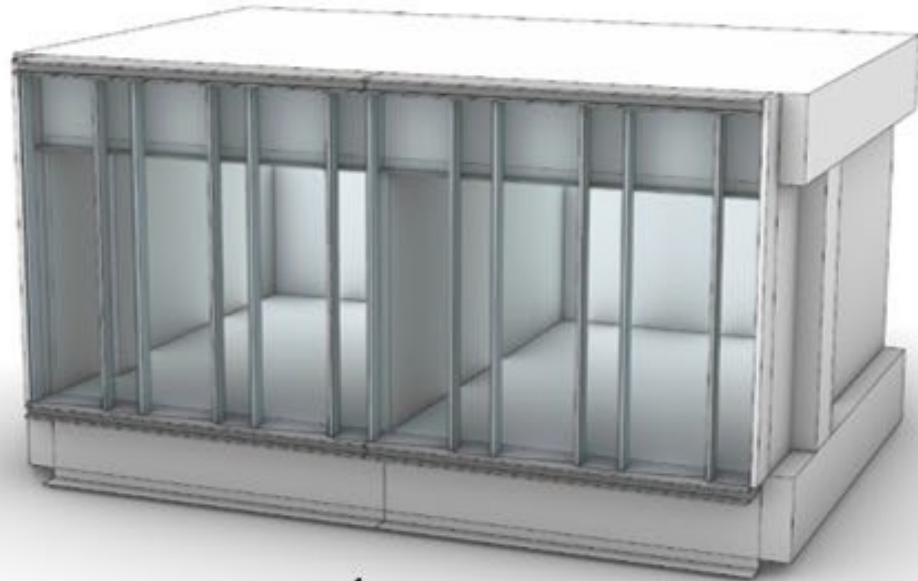
The highest, the better

**sDA: 100%**

The lowest, the better

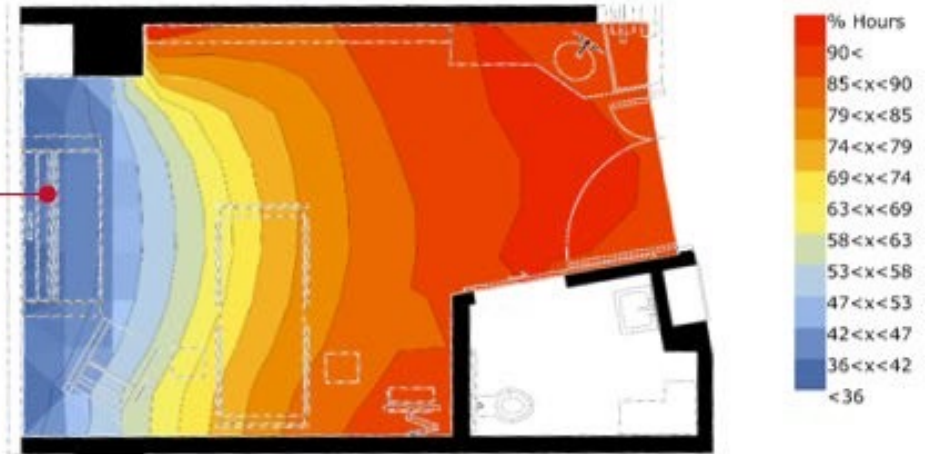
**ASE: 33%**

**UDI** (Useful Daylight Illuminance): % of floor area with lighting levels between 10-200 fc for 50% of the year.  
**sDA** (Spatial Daylight Autonomy): % of floor area with at least 28 fc of lighting levels for 50% of the year.  
**ASE** (Annual Solar Exposure): % of floor area with more than 93 fc of direct sunlight for > 250 hours per year.



1 patient room  
(used for simulation)

Direct sunlight hours on patient's bed: **1123 hrs/ year**



**LUMINANCE:** Amount of daylight reflected from interior surfaces and useful to evaluate visual comfort and glare potential in a space.

Summer Solstice, 3pm



Winter Solstice, 3pm











Humber River Hospital  
Toronto, Ontario, Canada









Penn Medicine, New Patient Pavilion  
Philadelphia, Pennsylvania, US



# 12

1247

← H1213 – H1248  
Campus Lounge  
→ H1201 – H1212  
H1249 – H1272  
City Lounge











Pirbright Institute, Plowright Building  
Surrey, England, United Kingdom









HDR



# Daylight Hour - 2022

## High Level Considerations for Daylight



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# Clyfford Still Museum



1951, Hans Namuth,  
© 1991 Hans Namuth Estate



# Curating the experiential





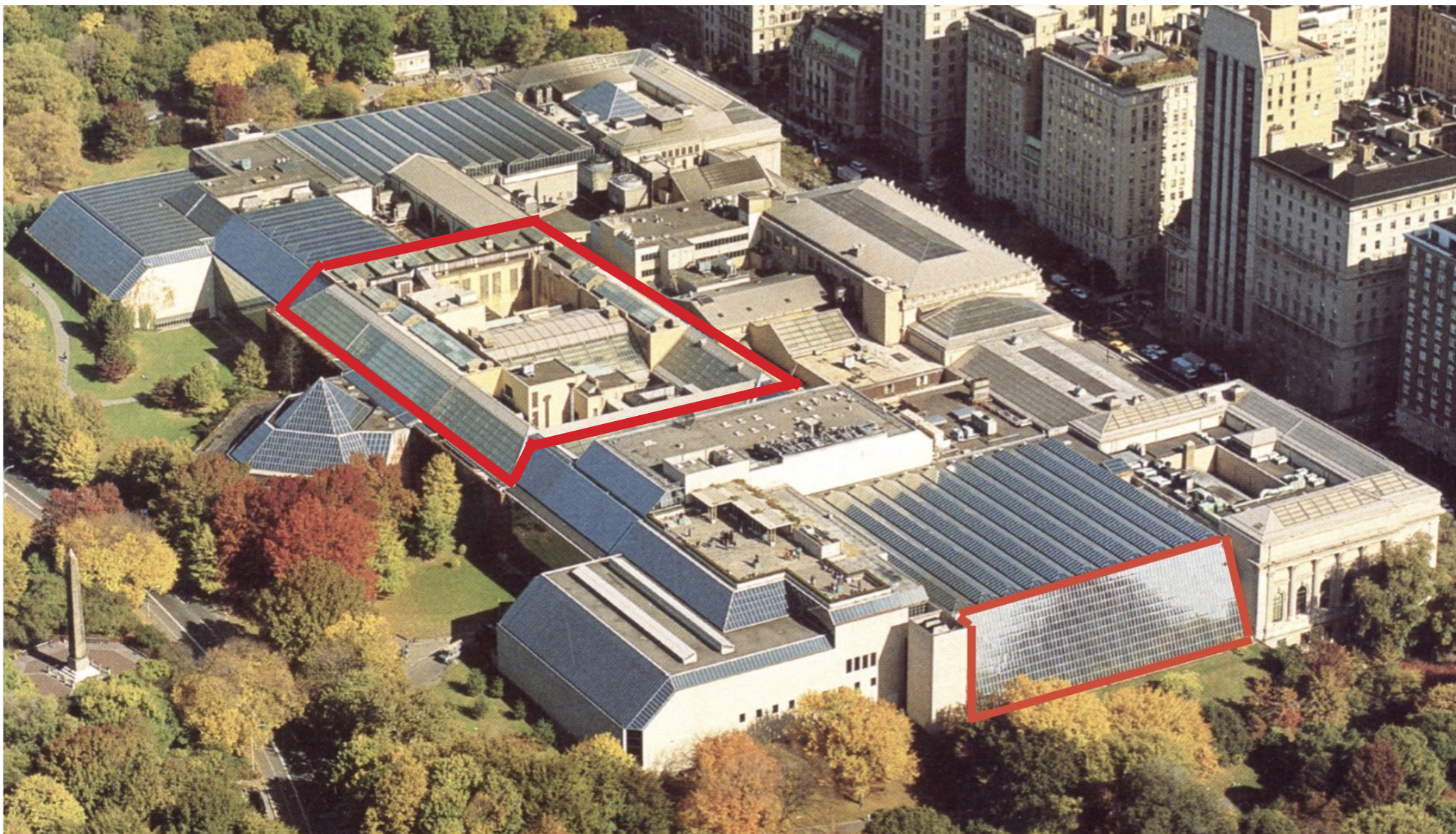


Tuning for conservation



ARUP

THE  
MET



Daylight for Dollars



ARUP  
THE  
MET



European Painting Skylight project progress photos

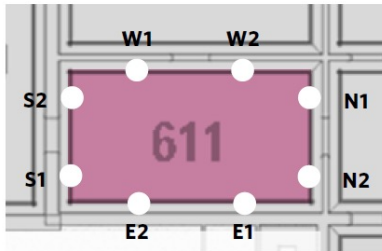
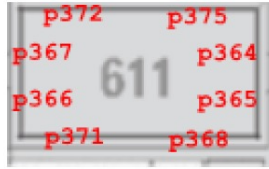




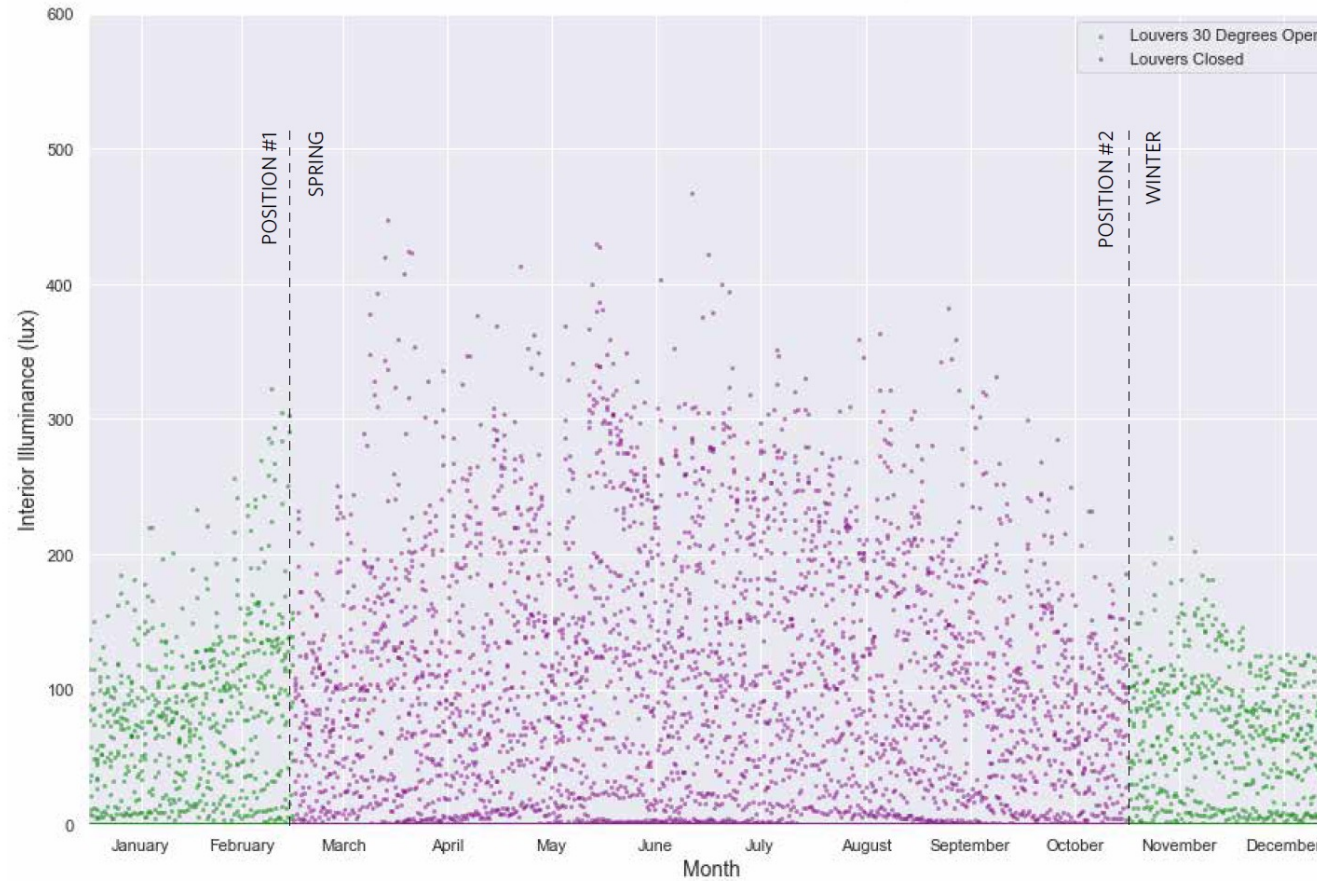
Interior Annual Illuminance - Gallery 611

DAYLIGHT ACCESS ANALYSIS

p364	367200.0
p365	361300.0
p366	331100.0
p367	356600.0
p368	397300.0
p369	485400.0
p370	456700.0
p371	323800.0
p372	313700.0
p373	428800.0
p374	419800.0
p375	315900.0



Key Plan



PREDICTIVE ANALYSIS DAYLIGHT STATISTICS:

	N1	N2	N3	E1	E2	E3	S1	S2	S3	W1	W2	W3
CUMULATIVE ANNUAL TOTAL (LUX-HOURS)	367,200	361,300	—	485,400	456,700	—						

NOTE: ELECTRIC LIGHT IS ADDITIONAL TO THESE VALUES

↑  
CALCULATION POINT REPRESENTED IN ABOVE SCATTERPLOT

Fine tuning all layers



- The Department of Citywide Administrative Services (DCAS) Division of Energy Management (DEM) is the hub for energy management in City buildings.
- DCAS DEM partnered with the Met by providing over **\$60 million** in funding to support projects that will reduce emissions by over 7,000 metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>e). This work includes **lighting**, HVAC, control systems, and **envelope upgrades**.
- The Met upgrades supported by DCAS highlight the ability to improve energy and emissions performance during gallery renovations. This partnership benefits not only the art community, but the City of New York as well.

ARUP

THE  
MET

**NYC DCAS**  
Citywide Administrative Services

Contact:

**Jasmin Rivera**

Director of Accelerated Conservation & Efficiency Program NYC

[JaRivera@dcas.nyc.gov](mailto:JaRivera@dcas.nyc.gov)





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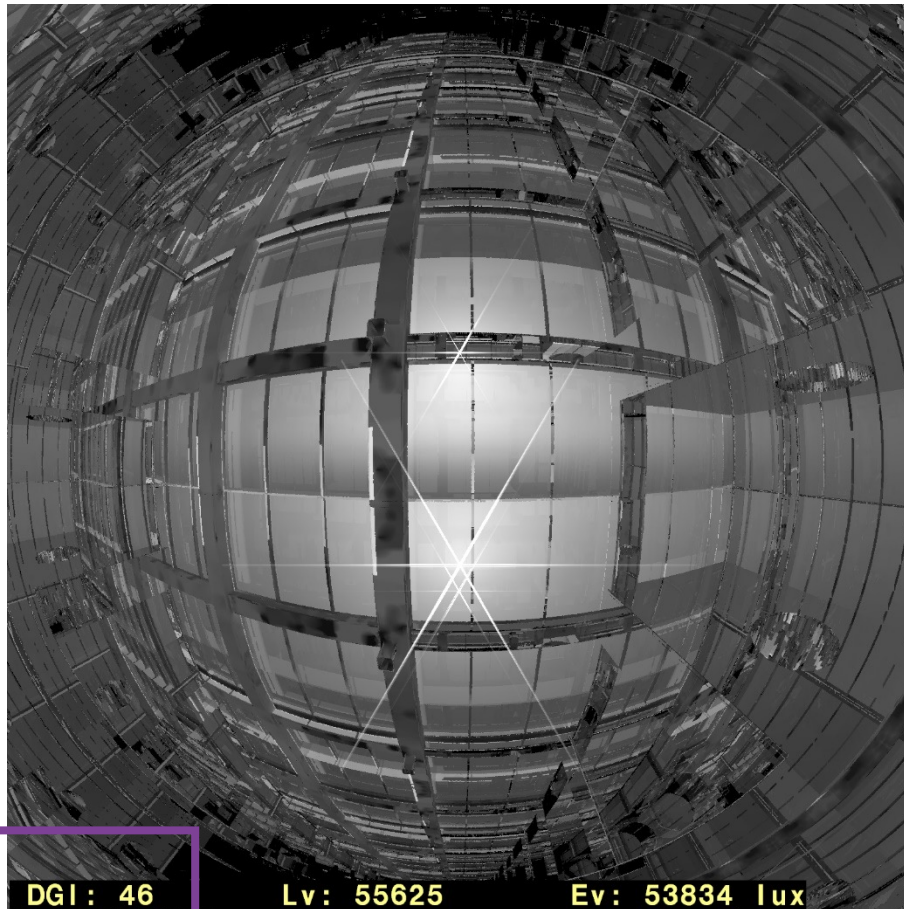
How many 'suns'  
are too many?





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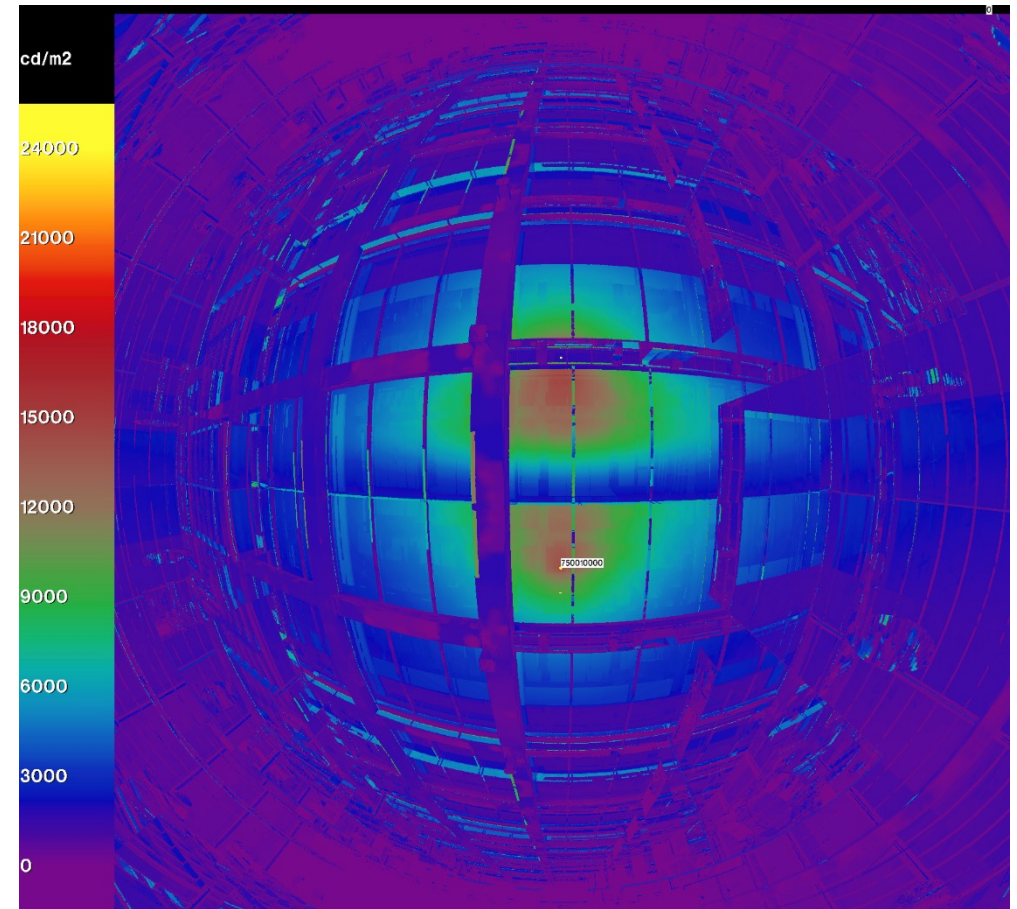




**DGI: 46**

**Lv: 55625**

**Ev: 53834 lux**



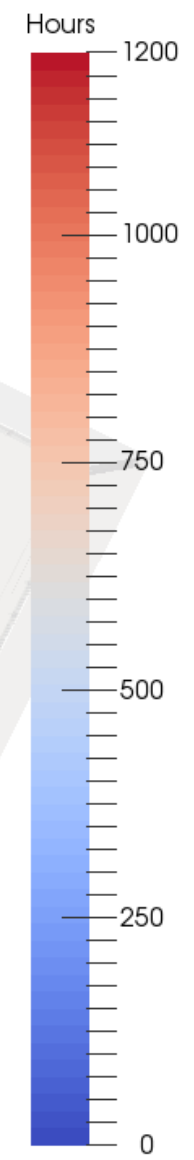
Level 57

Dec 21, 11:00am

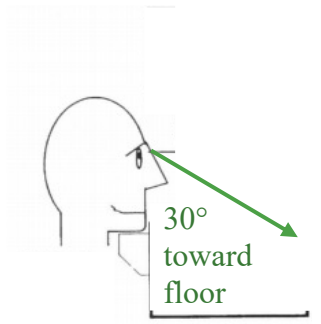
Glare Frequency



For comparison,  
4380 total daylight  
hours per year

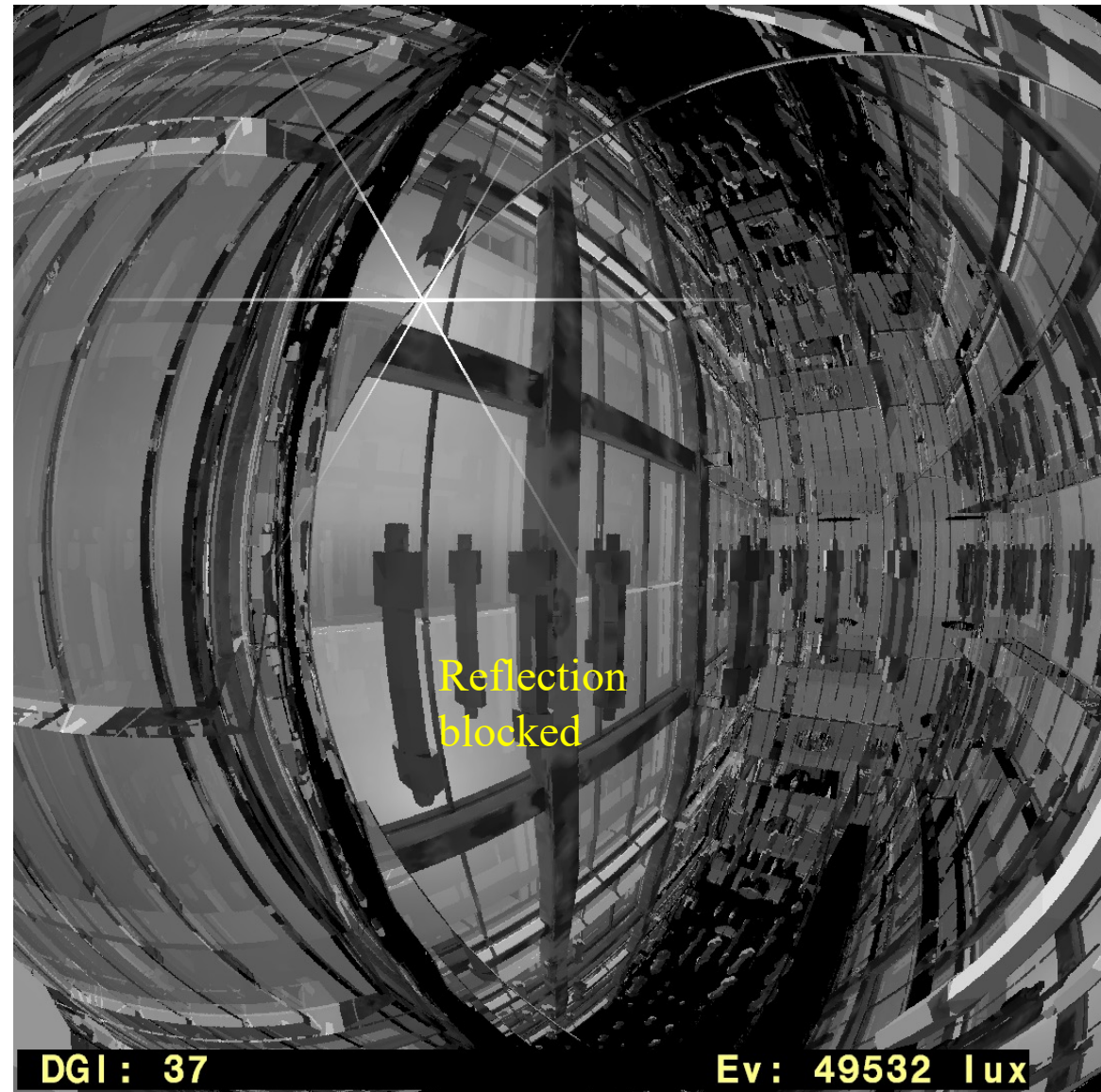
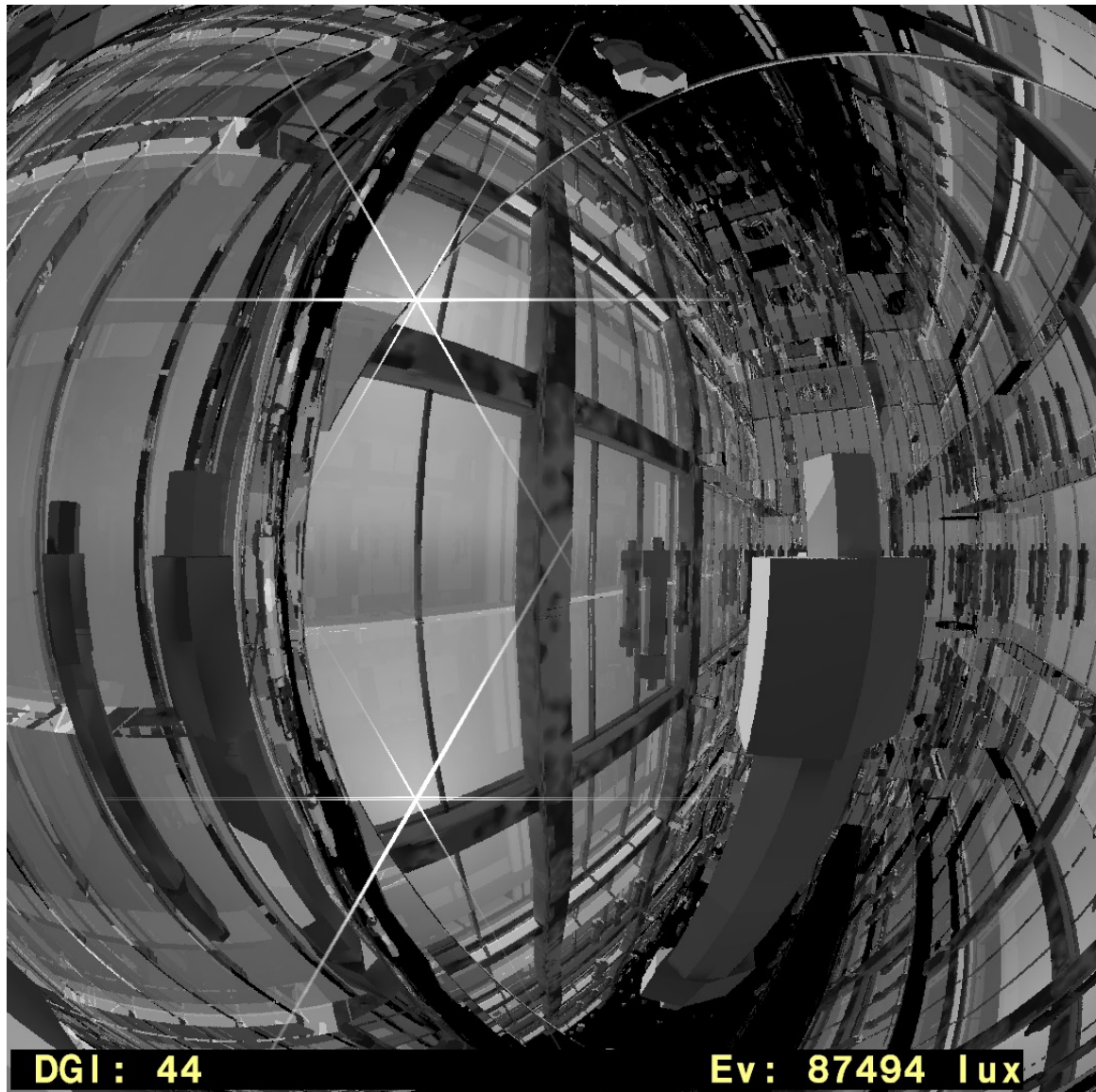


When Walking South



Glare Frequency





Images represent two different random distributions of 50 people throughout south and west portion of 57<sup>th</sup> floor

People Impact



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be  
ex

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building  
energy  
exchange

discuss.

*Moderator*

Sara Karerat, Director of Applied Research, Center for Active Design

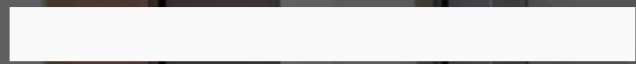
*Speakers*

- Charlene Mendez, *AIA AP BD+C, Senior Sustainability Analyst, HDR*
- Brian Stacy, *Project Director, Global Lighting Skills Leader, ARUP*
- Jonathan Flaherty, *Global Head, Sustainability and Building Technology Innovation, Tishman Speyer*





**be**  
**ex**



**building**  
**energy**  
**exchange**

**thank you.**

