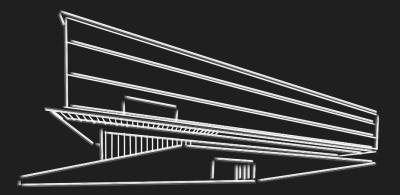
# ENGINEERING CENTER OAKLAND UNIVERSITY





# JOHNCONLEY

# OAKLANDSMITHGROUP UNIVERSITY...

# LIGHTING DEPTH

BUILDING OVERVIEW

LIGHTING

concept

lobby + atrium

auditorium

ELECTRICAL DEPTH

SKYLIGHT ADDITION

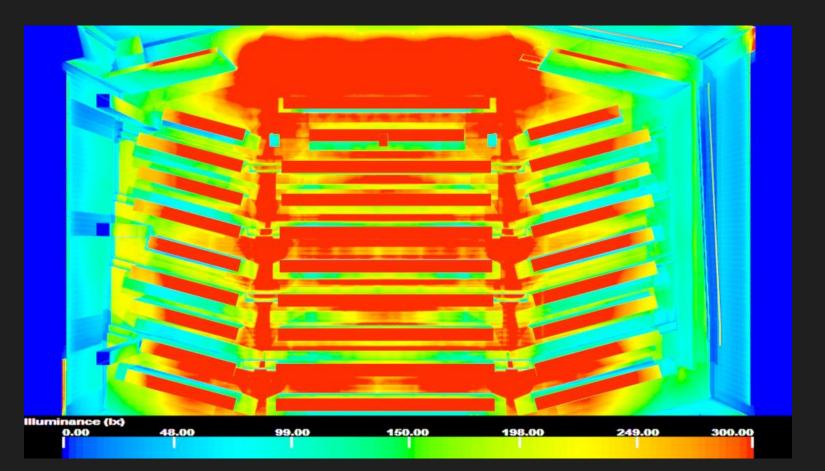
daylighting

structural breadth

mechanical breadth

CONCLUSION

QUESTIONS COMMENTS



Lights in ALL ON Setting For Test Taking Purposes

LPD is ASHRAE 90.1 Compliant at 0.747

Allowed LPD is 1.24

# MAE TOPIC DAYLIGHTING

BUILDING OVERVIEW

LIGHTING

concept

lobby + atrium

auditorium

ELECTRICAL DEPTH

SKYLIGHT ADDITION

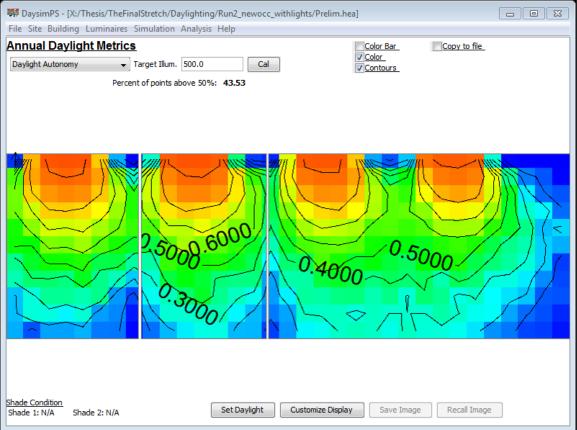
daylighting

structural breadth

mechanical breadth

**CONCLUSION** 

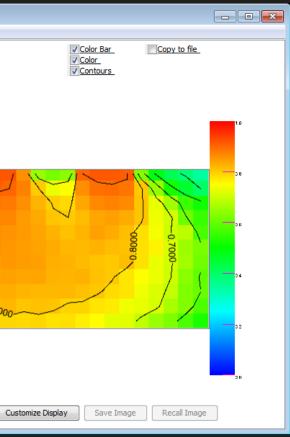
QUESTIONS COMMENTS



🗱 DaysimPS - [C:/DAYSIM/Run3/Kalwall.hea]	
File Site Building Luminaires Simulation Analysis Help	
Annual Daylight Metrics	
Daylight Autonomy   Target Illum. 500.0	Cal
Percent of points above 50%: 97	.8
0,8000	.0
0.8000 /	0.80
Shade Condition Shade 1: N/A Shade 2: N/A State	Daylight

## Without Skylights | DA500 = 43.53

## With Skylights | DA500 = 97.8



# MECHANICAL BREADTH

**BUILDING OVERVIEW** 

LIGHTING

concept

lobby + atrium

auditorium

ELECTRICAL DEPTH

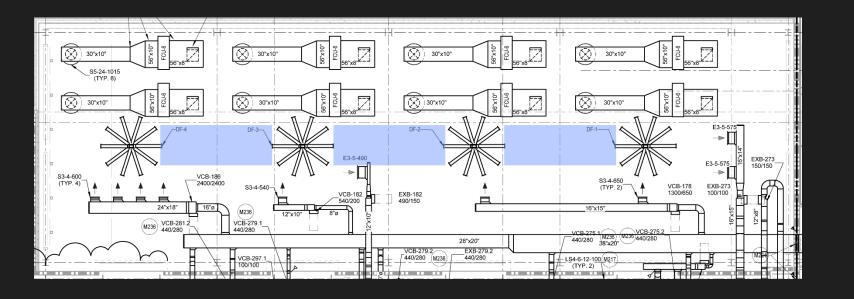
SKYLIGHT ADDITION

daylighting structural breadth

mechanical breadth

CONCLUSION

QUESTIONS COMMENTS



Working around the mechanical equipment while maximizing the daylighting capabilities

	FACE SHEET COMBINATIONS			% LIGHT TRANSMISSION note 1 23/4" (70 mm) thick panels					R HEAT		note 3
EXTERIOR COLOR	INTERIOR COLOR	0.53 "U"	0.29 / <mark>0.23</mark> "U" note 2	0.22 / <mark>0.14</mark> "U" note 2	0.18 <mark>/0.10</mark> "U" note 2	<mark>0.05</mark> "U" note 2	0.53 "U"	0.29 / <mark>0.23</mark> "U" note 2	0.22 / <mark>0.14</mark> "U" note 2	0.18 <mark>/0.10</mark> "U" note 2	0.05 "∪" note 2
Greenish Blue	White	25	14	5	3	12	0.50	0.23	0.14	0.10	0.19
Aqua	White	29	17	6	4	13	0.45	0.24	0.14	0.10	0.21
Rose	White	30	18	6	4	14	0.46	0.24	0.15	0.10	0.21
Ice Blue	White	35	20	8	6	18	0.54	0.28	0.17	0.12	0.26
White	White	20	15	8	5	14	0.38	0.23	0.15	0.11	0.18
Crystal	White	35	20	12	8	20	0.52	0.28	0.17	0.13	0.25
Crystal	Crystal	50	30	15	10	NA	0.65	0.33	0.18	0.13	NA

## U Value = 0.29 with VLT at 20%

BUILDING OVERVIEW LIGHTING concept lobby + atrium auditorium ELECTRICAL DEPTH SKYLIGHT ADDITION daylighting structural breadth mechanical breadth CONCLUSION QUESTIONS COMMENTS

### **BUILDING OVERVIEW**

LIGHTING

concept lobby + atrium auditorium ELECTRICAL DEPTH SKYLIGHT ADDITION daylighting structural breadth mechanical breadth CONCLUSION QUESTIONS COMMENTS

## **BUILDING OVERVIEW** LIGHTING

concept lobby + atrium auditorium ELECTRICAL DEPTH SKYLIGHT ADDITION daylighting structural breadth mechanical breadth CONCLUSION QUESTIONS COMMENTS

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**BUILDING OVERVIEW** LIGHTING concept lobby + atrium auditorium ELECTRICAL DEPTH SKYLIGHT ADDITION daylighting structural breadth mechanical breadth CONCLUSION QUESTIONS COMMENTS

**BUILDING OVERVIEW** LIGHTING concept lobby + atrium auditorium ELECTRICAL DEPTH SKYLIGHT ADDITION daylighting structural breadth mechanical breadth CONCLUSION QUESTIONS COMMENTS

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**BUILDING OVERVIEW** LIGHTING concept lobby + atriu auditorium ELECTRICAL DEPTH SKYLIGHT ADDITION daylighting structural bre mechanical b

CONCLUSION QUESTIONS COMMEN

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**BUILDING OVERVIEW** BUILDING OVERVIEW LIGHTING concept icept lobby + atrium by + atrium auditorium ditorium . DEPTH ELECTRICAL DEPTH DDITION SKYLIGHT ADDITION ylighting daylighting structural breadth uctural breadth echanical breadth mechanical breadth CONCLUSION S COMMENTS QUESTIONS COMMENTS

**BUILDING OVERVIEW** LIGHTING concept lobby + atrium auditorium ELECTRICAL DEPTH SKYLIGHT ADDITION daylighting structural breadth mechanical breadth CONCLUSION QUESTIONS COMMENTS

**BUILDING OVERVIEW** LIGHTING concept lobby + atrium project labs ELECTRICAL DEPTH SKYLIGHT ADDITION daylighting structural breadth mechanical breadth CONCLUSION QUESTIONS COMMENTS

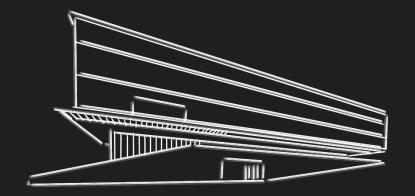
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BUILDING OVERVIEW	
LIGHTING	
concept	name
lobby + atrium	location
project labs	owner
ELECTRICAL DEPTH	size
SKYLIGHT ADDITION	cost
daylighting	architect
structural breadth	construction
mechanical breadth	
CONCLUSION	

QUESTIONS COMMENTS

- e engineering center
- n rochester, mi
- r oakland university school of engineering and computer
- e science
- t 136,653 sf
- t \$57 million
- n smithgroupjjr
- walbridge aldinger company





# THANKYOU

# OAKLANDSMITHGRO **UNIVERSITY**

My professors My Parents My girlfriend Deirdre All of my AE friends

For the knowledge they have imparted and the support they have given me

# A special thanks to

# SmithGroupJJR and Oakland University for letting me use this building