

ROOM ENERGY SIMULATION + DAYLIGHTING INTEGRATION

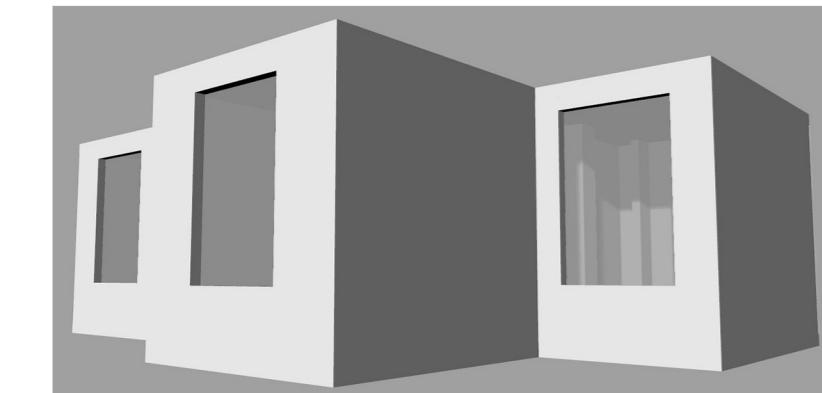
OKLAHOMA CITY, OKLAHOMA



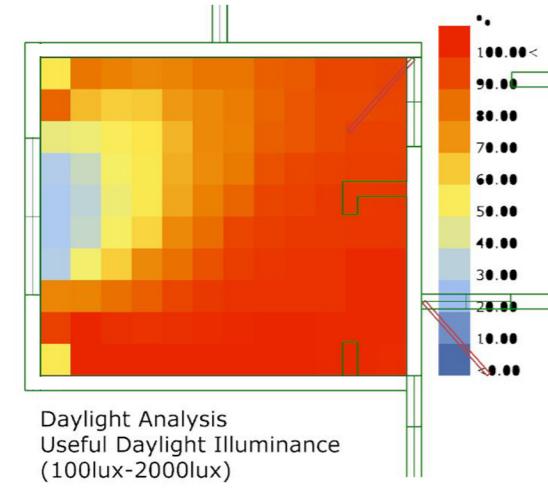
JUAN D. GUARIN

**BASELINE:
APARTMENT WITH ACTUAL CONDITIONS**

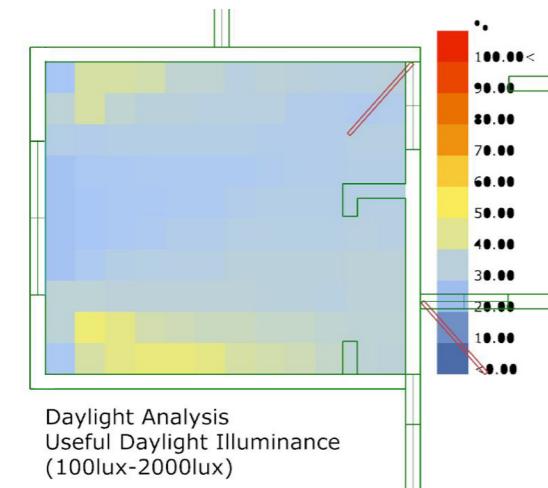
BASELINE: ACTUAL CONDITIONS



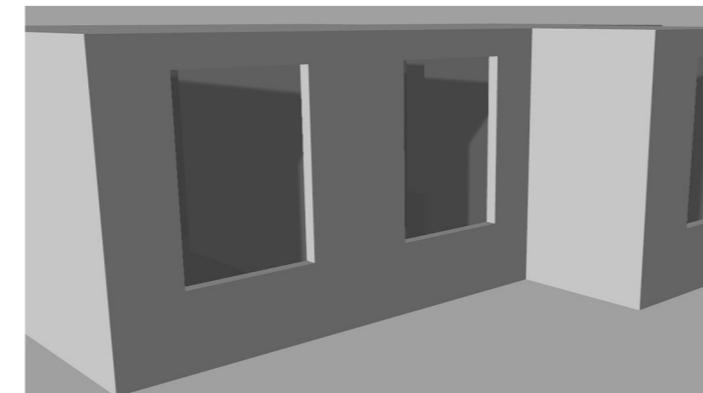
USEFUL DAYLIGH ILLUMINANCE
(OFFICE PROGRAM)



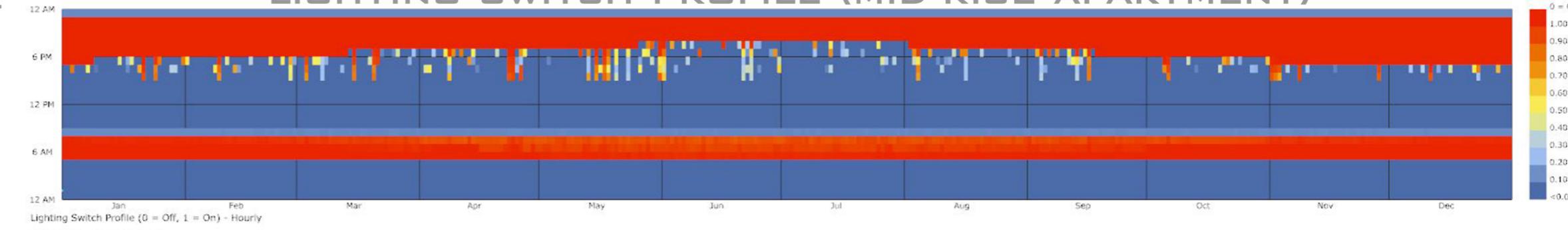
USEFUL DAYLIGH ILLUMINANCE
(MID-RISE APARTMENT PROGRAM)



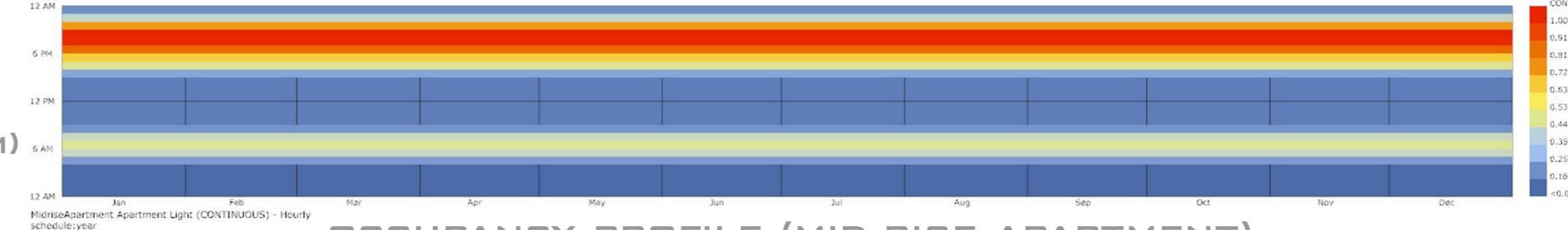
PERSPECTIVE 2



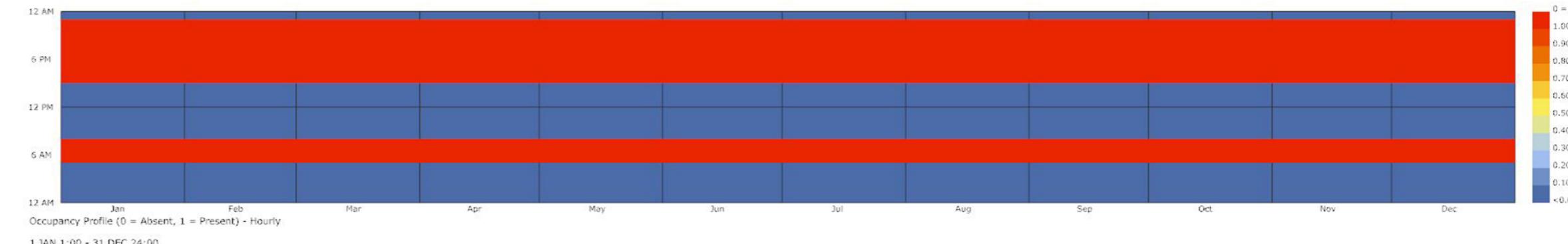
LIGHTING SWITCH PROFILE (MID-RISE APARTMENT)



LIGHTING YEARLY SCHEDULE (MID-RISE APARTMENT)



OCCUPANCY PROFILE (MID-RISE APARTMENT)

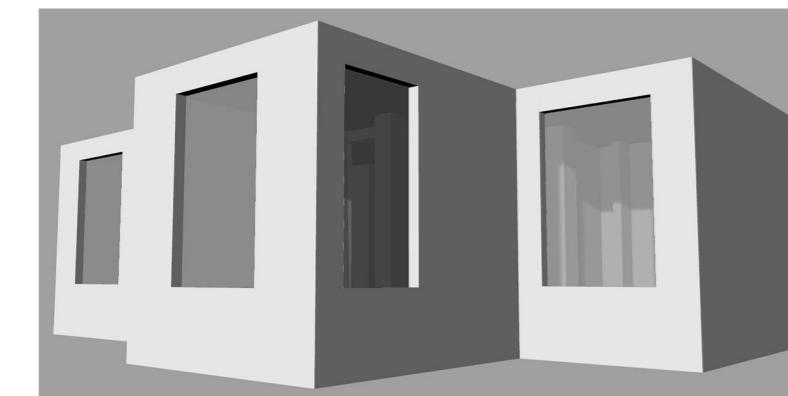


YEARLY SIMULATION RESULTS

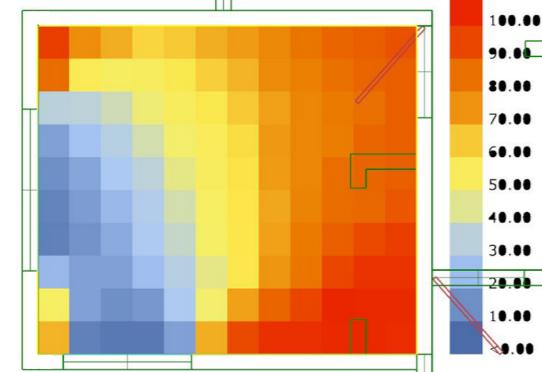
COOLING LOADS	1,352 KW/H
HEATING LOADS	1,338 KW/H
ELECTRIC LIGHTING LOADS	266 KW/H

**CASE #1:
BASELINE WITH ADDITIONAL
SOUTH WINDOW**

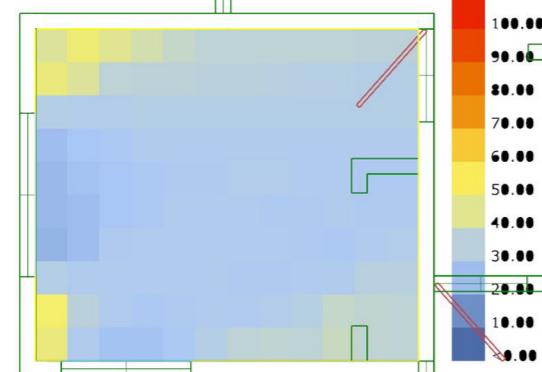
CASE #1: BASELINE + SOUTH WINDOW



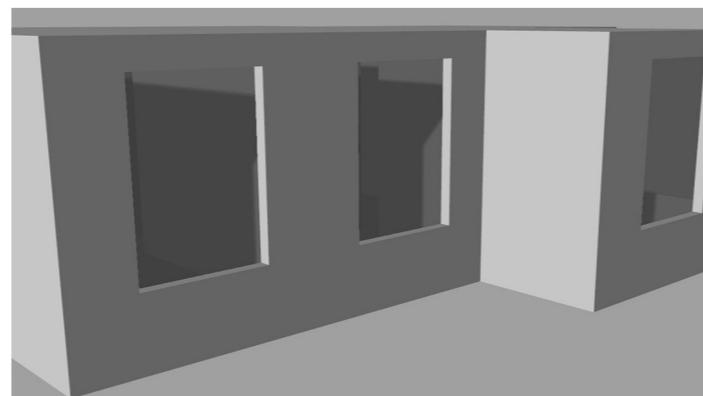
PERSPECTIVE 1
USEFUL DAYLIGH ILLUMINANCE (OFFICE PROGRAM)



Daylight Analysis
Useful Daylight Illuminance
(100lux-2000lux)
USEFUL DAYLIGH ILLUMINANCE (MID-RISE APARTMENT PROGRAM)



Daylight Analysis
Useful Daylight Illuminance
(100lux-2000lux)



PERSPECTIVE 2

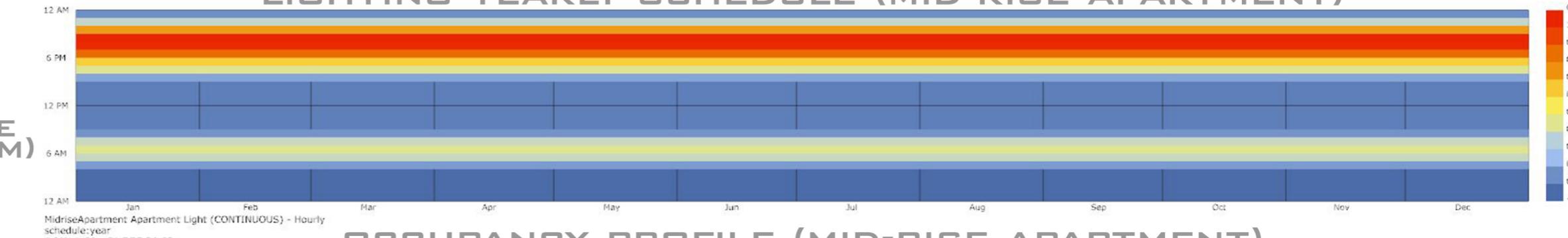
YEARLY SIMULATION RESULTS

COOLING LOADS	1,630 KW/H
HEATING LOADS	1,219 KW/H
ELECTRIC LIGHTING LOADS	236 KW/H

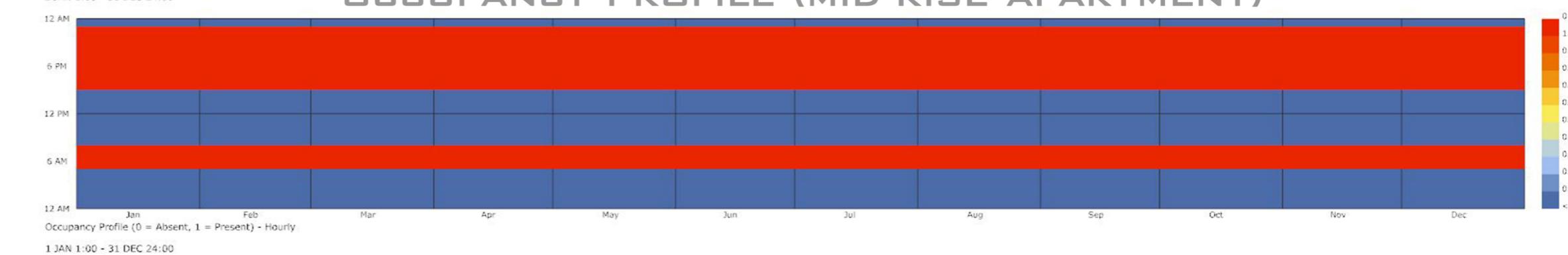
LIGHTING SWITCH PROFILE (MID-RISE APARTMENT)



LIGHTING YEARLY SCHEDULE (MID-RISE APARTMENT)

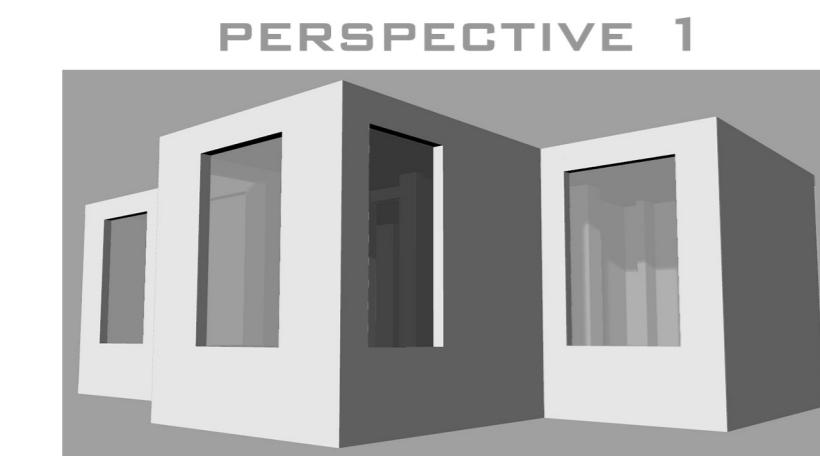


OCCUPANCY PROFILE (MID-RISE APARTMENT)

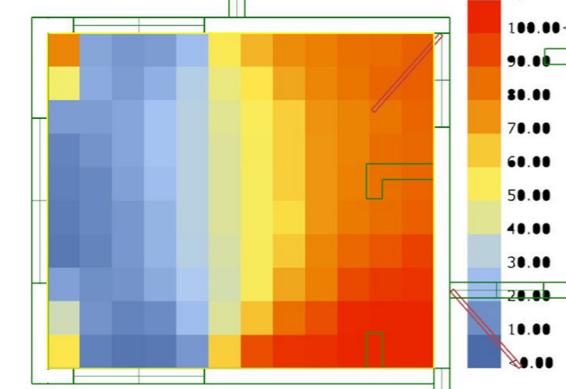


**CASE #2:
BASELINE WITH
ADDITIONAL SOUTH WINDOW
+
NORTH WINDOW**

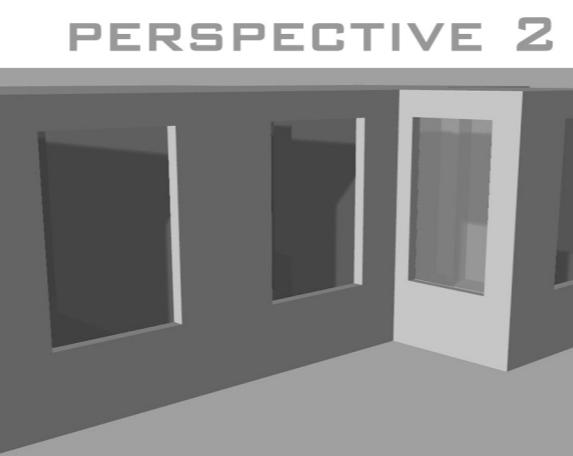
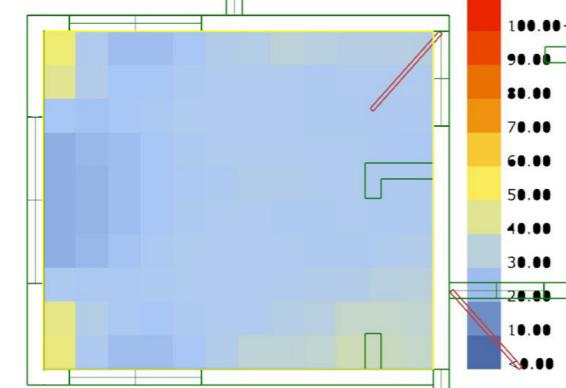
CASE #2: BASELINE + SOUTH WINDOW+NORTH WINDOW



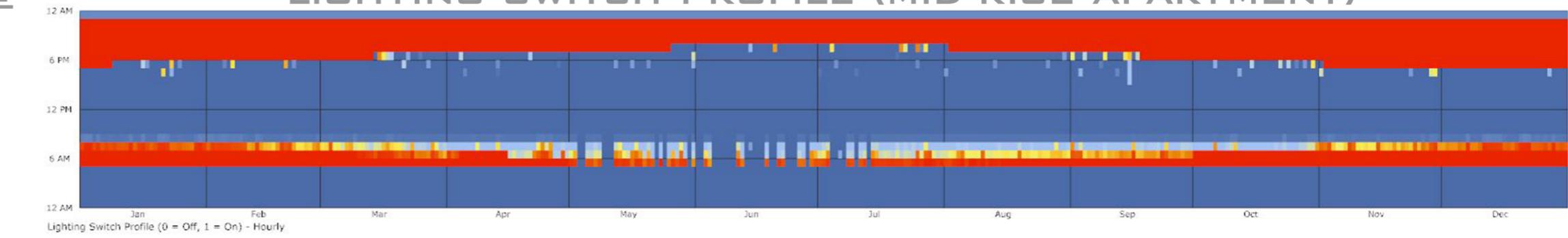
USEFUL DAYLIGH ILLUMINANCE
(OFFICE PROGRAM)



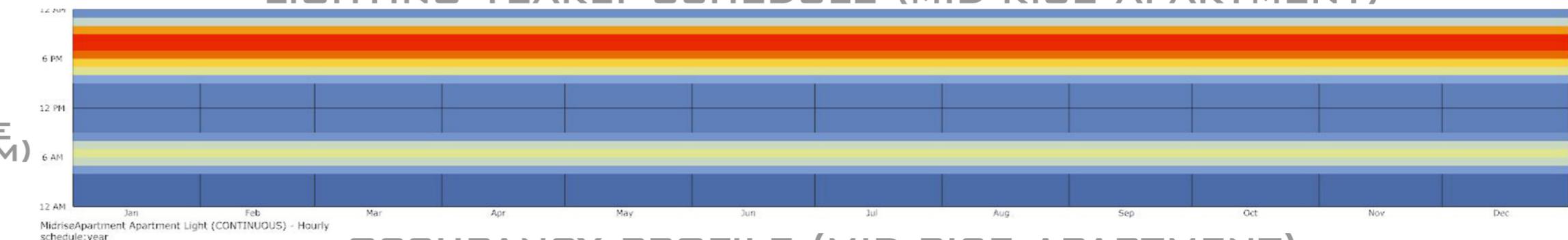
USEFUL DAYLIGH ILLUMINANCE
(MID-RISE APARTMENT PROGRAM)



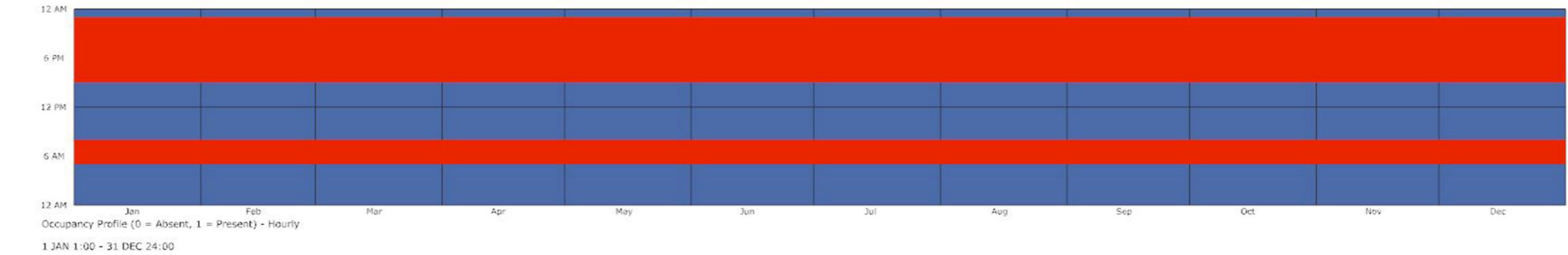
LIGHTING SWITCH PROFILE (MID-RISE APARTMENT)



LIGHTING YEARLY SCHEDULE (MID-RISE APARTMENT)



OCCUPANCY PROFILE (MID-RISE APARTMENT)

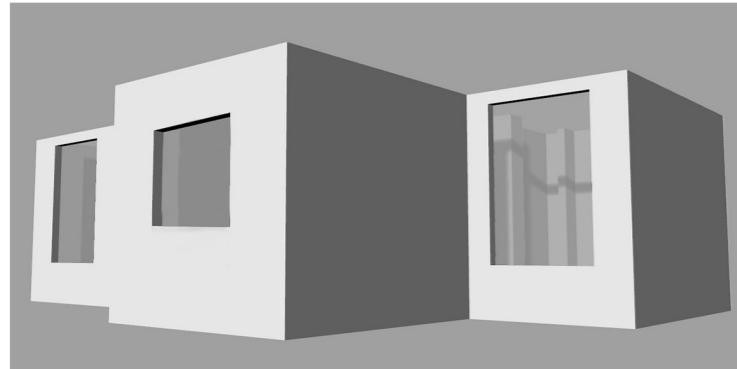


YEARLY SIMULATION RESULTS

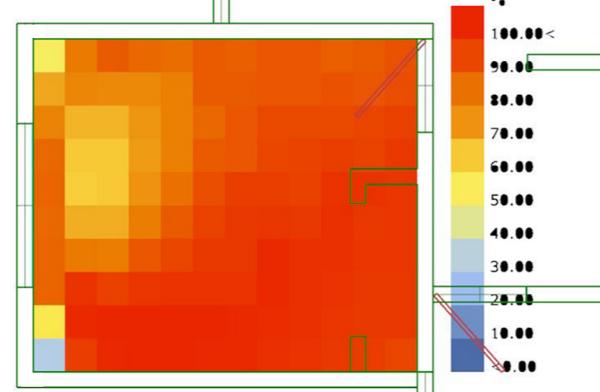
COOLING LOADS	1,723 KW/H
HEATING LOADS	1,352 KW/H
ELECTRIC LIGHTING LOADS	226 KW/H

**CASE #3:
ORIGINAL WINDOW SCALED DOWN**

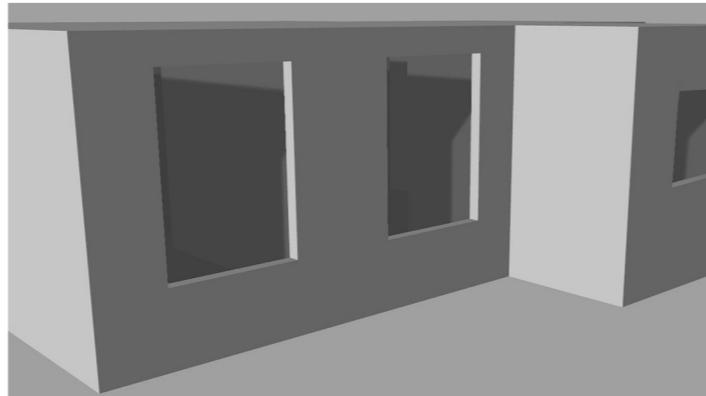
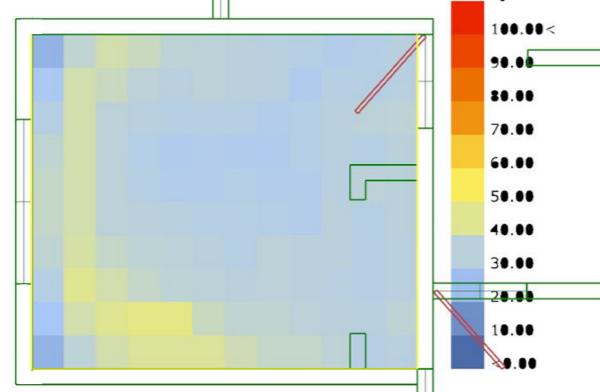
CASE #3: ORIGINAL WINDOW SCALED DOWN



PERSPECTIVE 1
USEFUL DAYLIGH ILLUMINANCE (OFFICE PROGRAM)



USEFUL DAYLIGH ILLUMINANCE (MID-RISE APARTMENT PROGRAM)

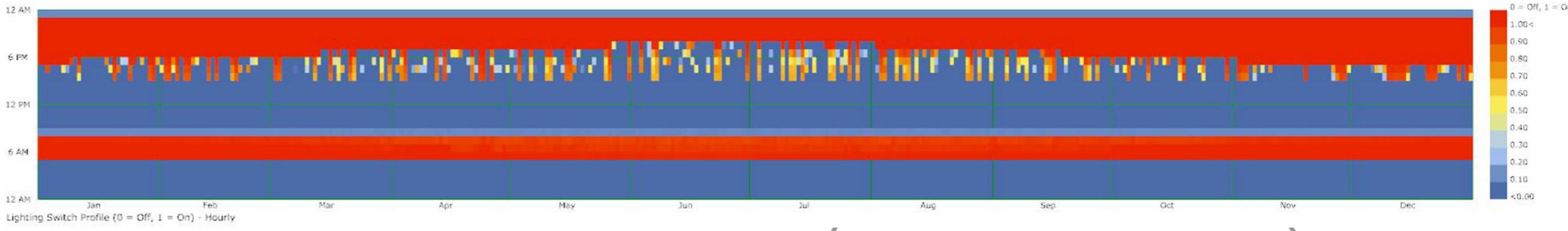


PERSPECTIVE 2

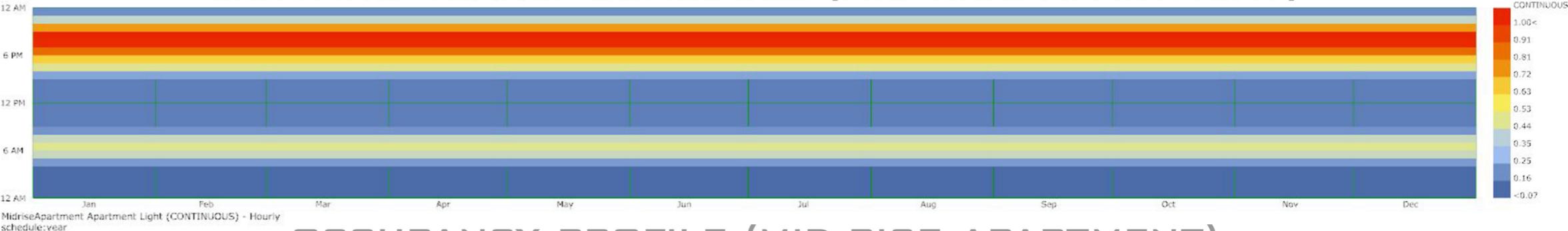
YEARLY SIMULATION RESULTS

COOLING LOADS	1,040 KW/H
HEATING LOADS	1,327 KW/H
ELECTRIC LIGHTING LOADS	288 KW/H

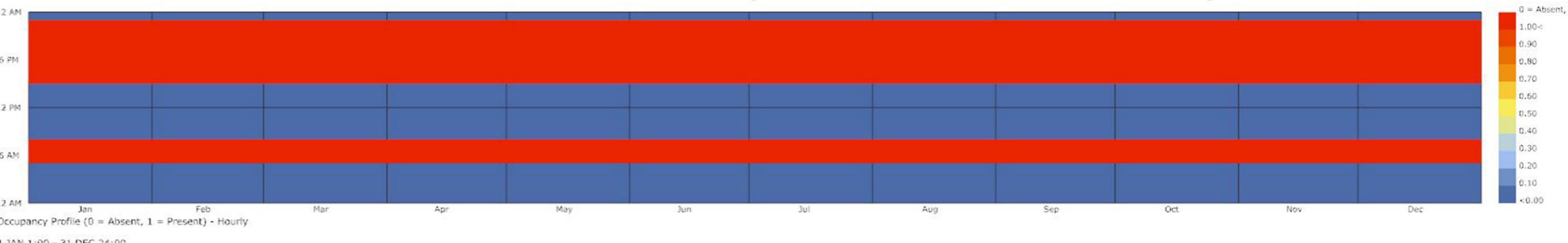
LIGHTING SWITCH PROFILE (MID-RISE APARTMENT)



LIGHTING YEARLY SCHEDULE (MID-RISE APARTMENT)

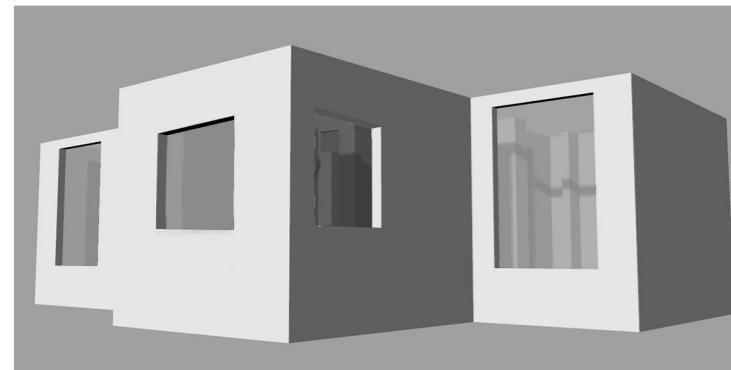


OCCUPANCY PROFILE (MID-RISE APARTMENT)

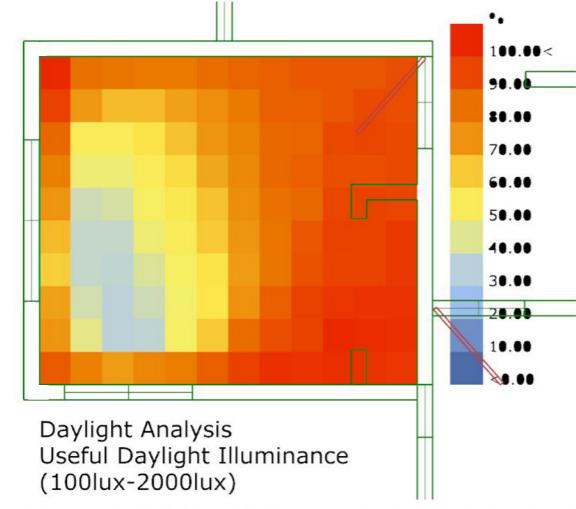


**CASE #4:
ORIGINAL WINDOW SCALED DOWN
+
SOUTH WINDOW SCALED DOWN**

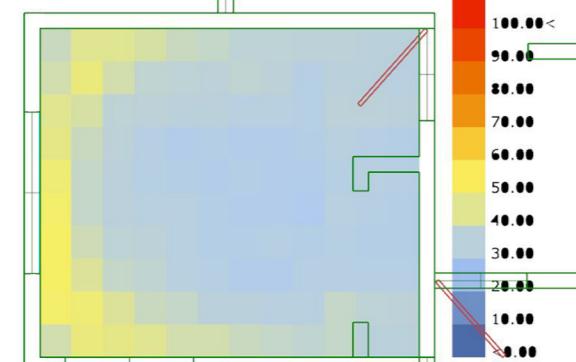
CASE #4: ORIGINAL SOUTHWEST WINDOW SCALED DOWN+



PERSPECTIVE 1
USEFUL DAYLIGH ILLUMINANCE
(OFFICE PROGRAM)

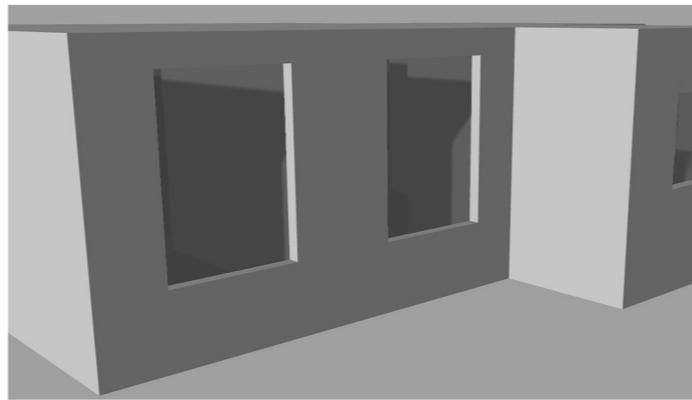


USEFUL DAYLIGH ILLUMINANCE
(MID-RISE APARTMENT PROGRAM)



Daylight Analysis
Useful Daylight Illuminance
(100lux-2000lux)

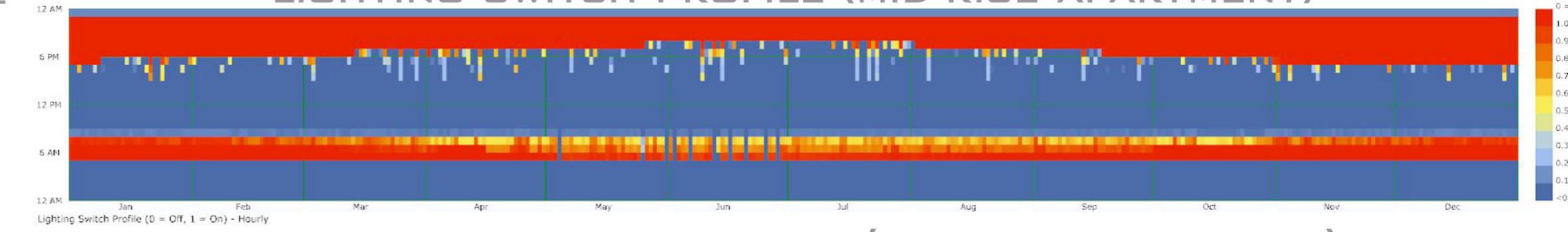
PERSPECTIVE 2



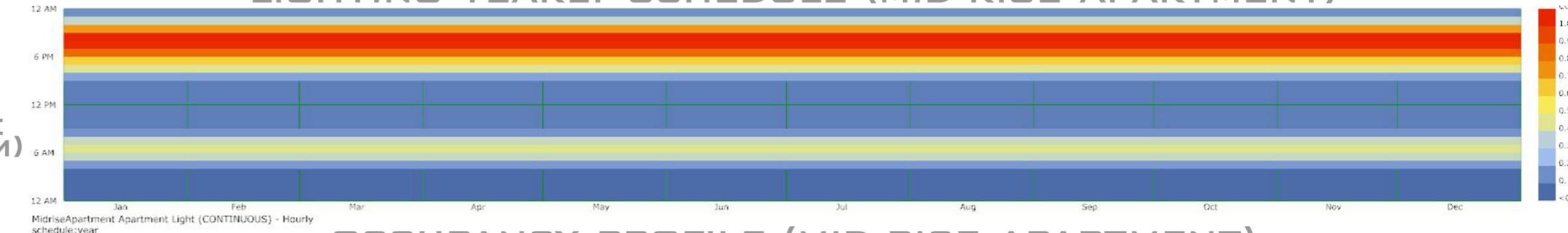
YEARLY SIMULATION RESULTS

COOLING LOADS	1,241 KW/H
HEATING LOADS	1,223 KW/H
ELECTRIC LIGHTING LOADS	250 KW/H

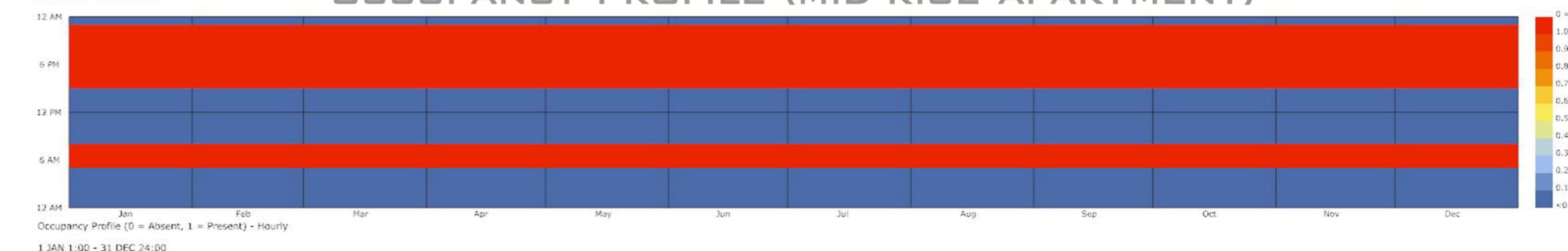
LIGHTING SWITCH PROFILE (MID-RISE APARTMENT)



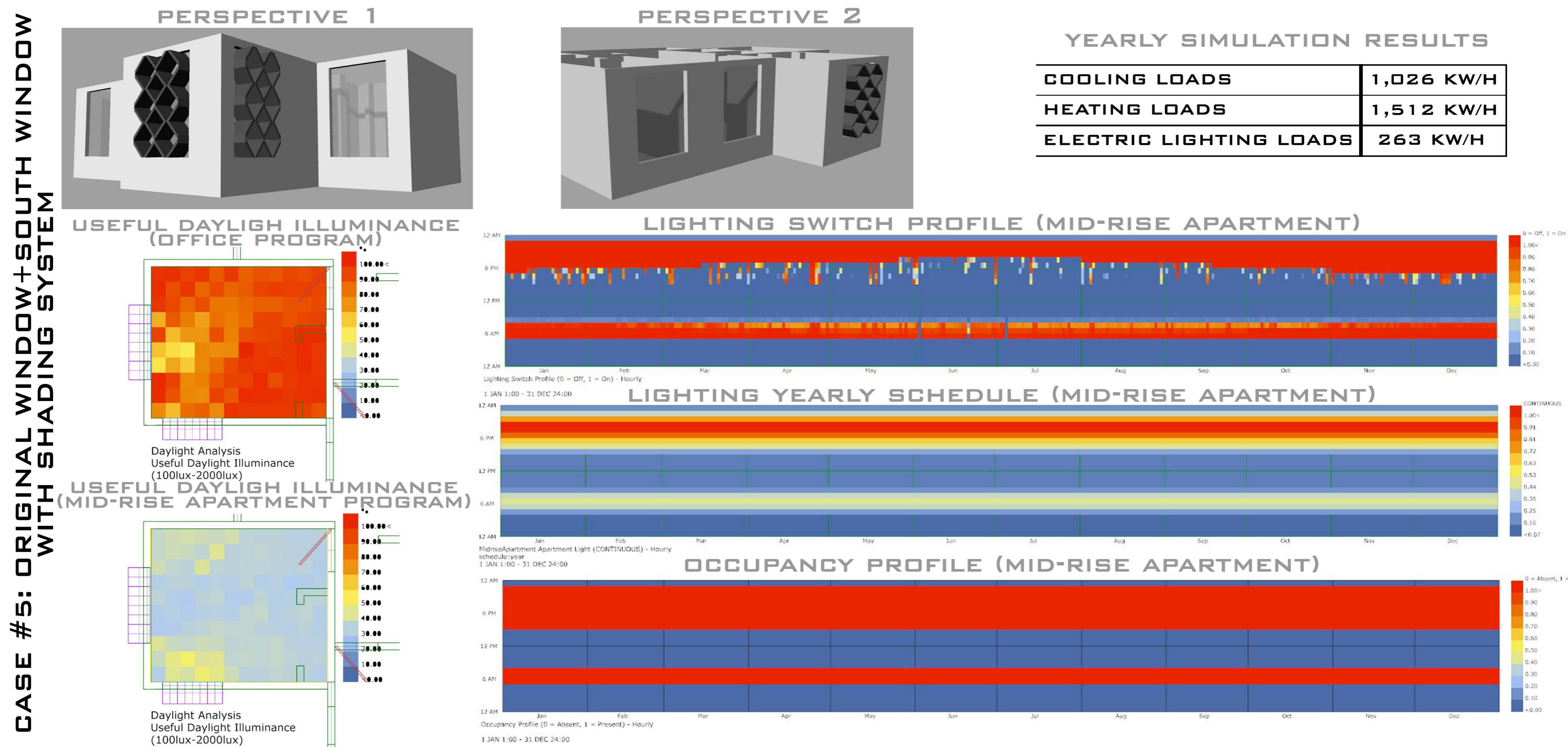
LIGHTING YEARLY SCHEDULE (MID-RISE APARTMENT)



OCCUPANCY PROFILE (MID-RISE APARTMENT)

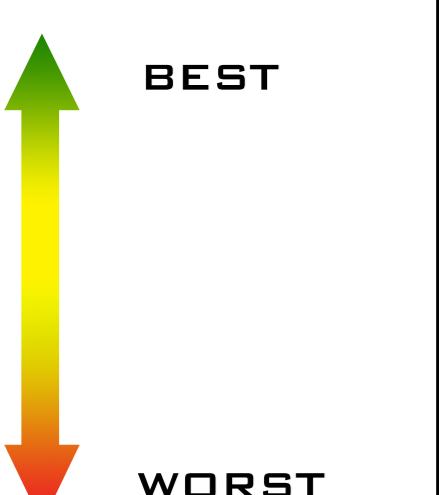
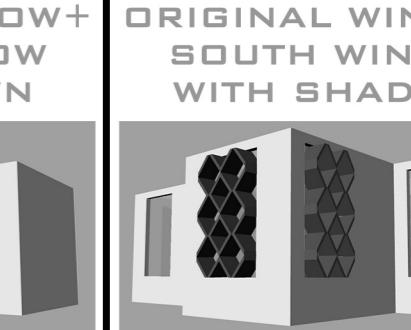
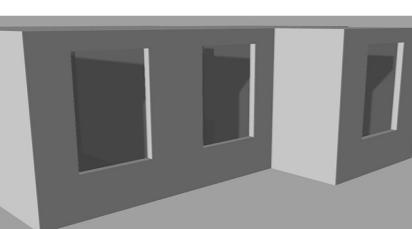
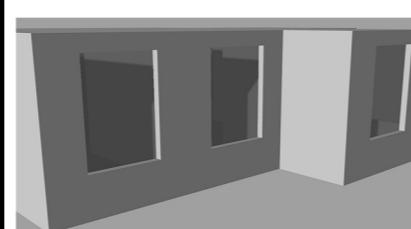
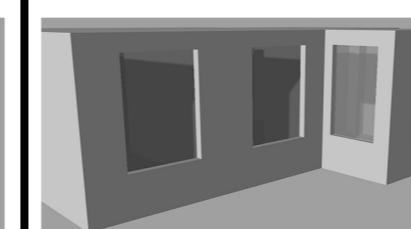
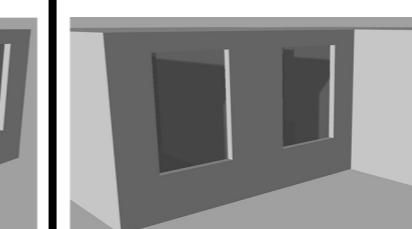
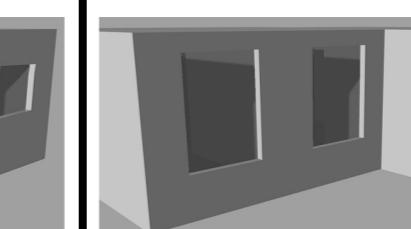
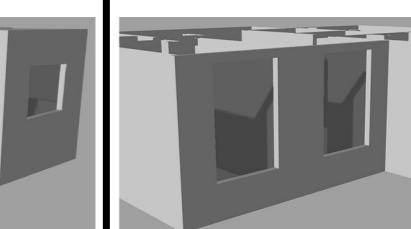


CASE #5:
ORIGINAL WINDOW WITH SHADING SYSTEM
+
SOUTH WINDOW WITH SHADING SYSTEM



CONCLUSIONS

CONCLUSIONS

LEGEND:		BASELINE: ACTUAL CONDITIONS	CASE #1: ADDITIONAL SOUTH WINDOW	CASE #2: ADDITIONAL SOUTH+NORTH WINDOWS	CASE #3: ORIGINAL WINDOW SCALED DOWN	CASE #4: ORIGINAL WINDOW+ SOUTH WINDOW SCALED DOWN	CASE #5: ORIGINAL WINDOW+ SOUTH WINDOW WITH SHADING
 A vertical color bar with a gradient from red at the bottom to green at the top, with an upward-pointing arrow on the left and a downward-pointing arrow on the right.	BEST						
	WORST						
 COOLING LOADS	4TH	5TH	6TH	2ND	3RD	1ST	
 HEATING LOADS	4TH	1ST	5TH	3RD	2ND	6TH	
 ELECTRIC LIGHTING LOADS	6TH	2ND	1ST	5TH	3RD	4TH	