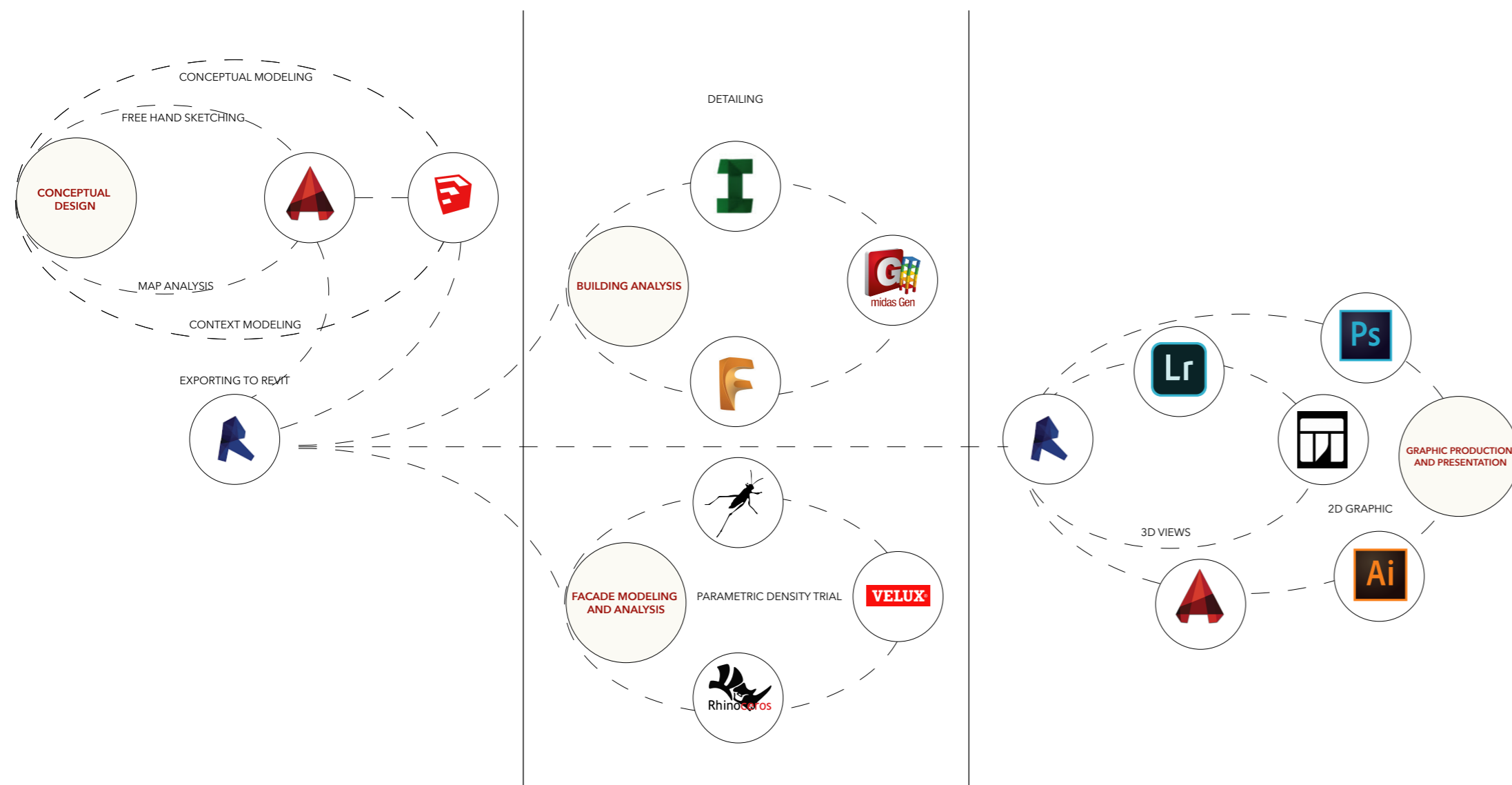


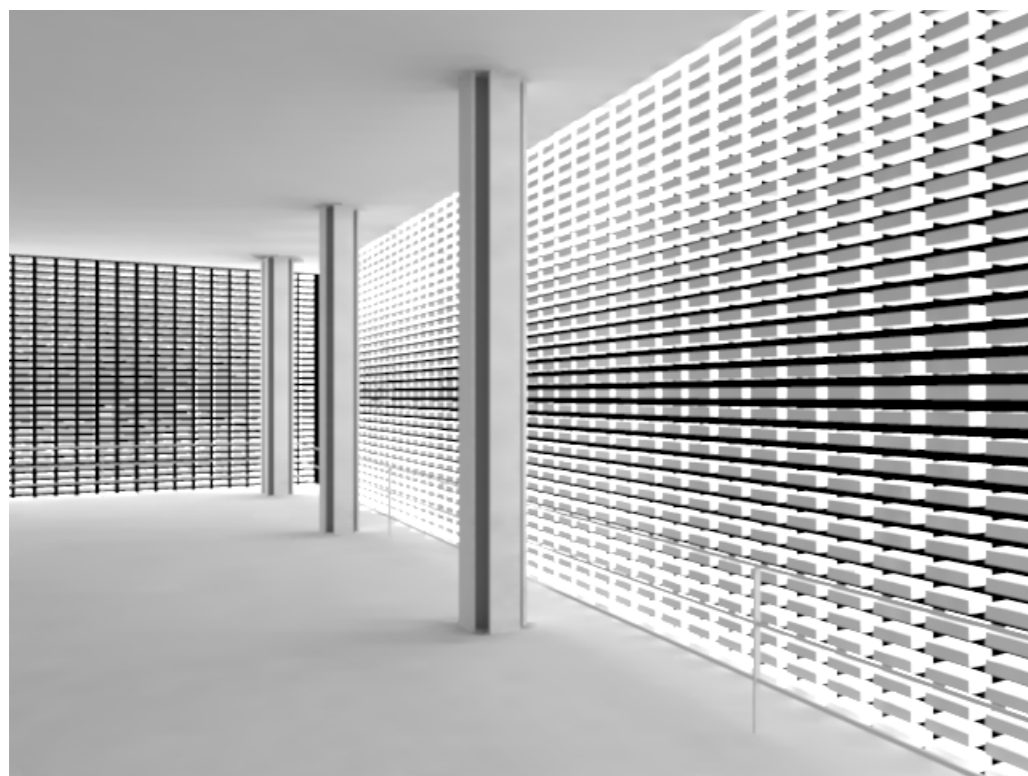
TECHNOLOGY and DESIGN in BIM ENVIRONMENT

WORKFLOW

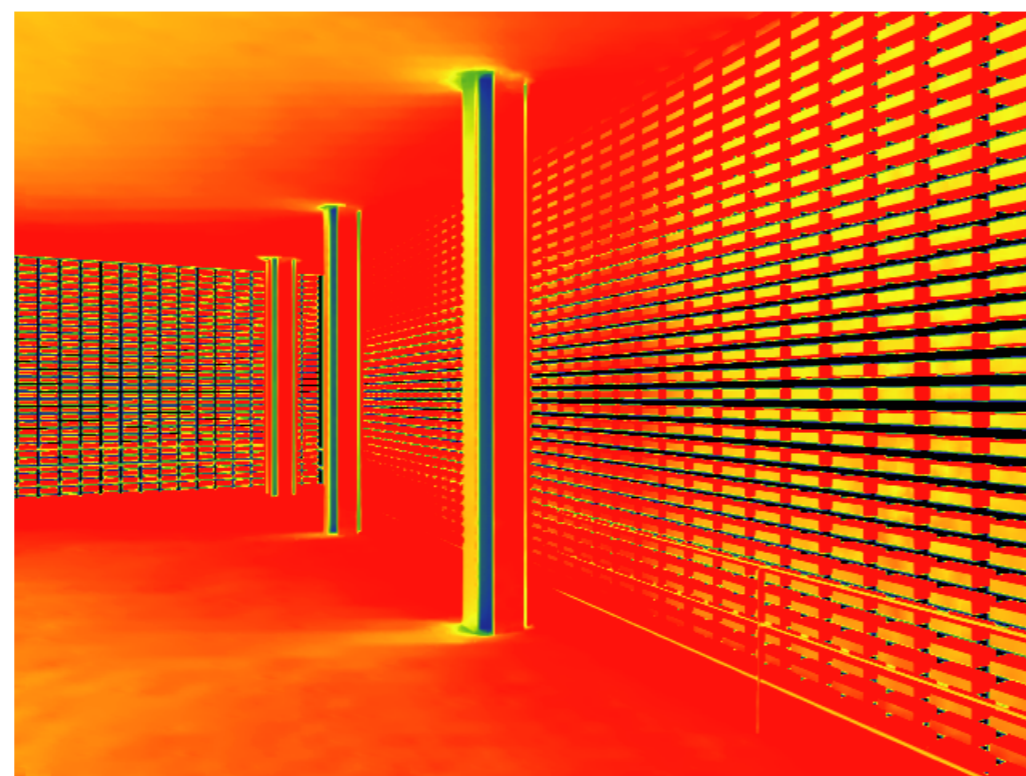


THE DESIGN PROCESS

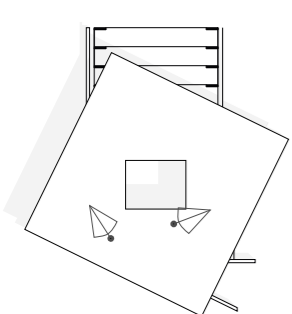
LIGHTING LUMINANCE ANALYSIS WITH VELUX SOFTWARE
21 of September h:12.30
Rendered interior lighting



Analytical interior lighting



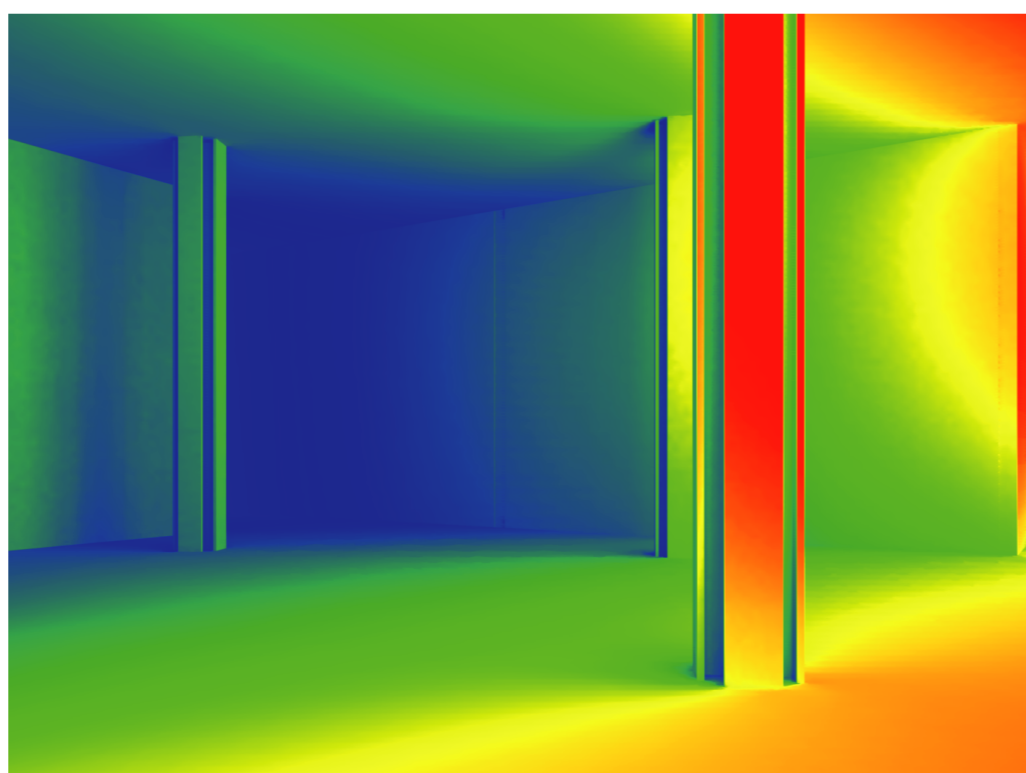
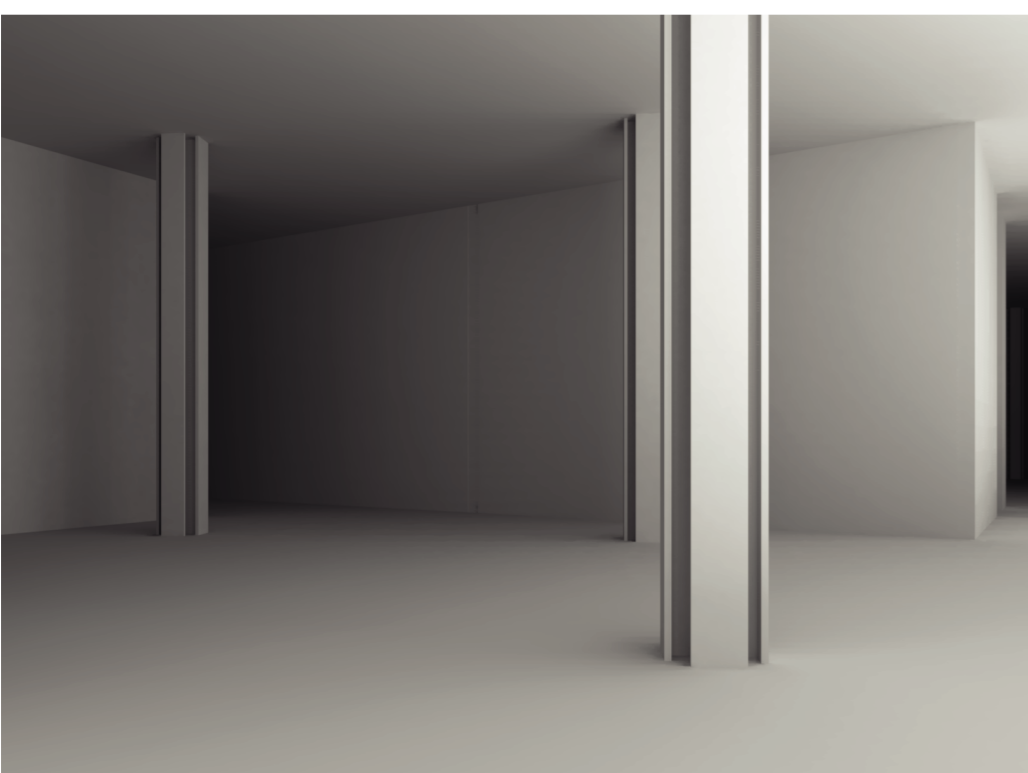
Camera keyplan



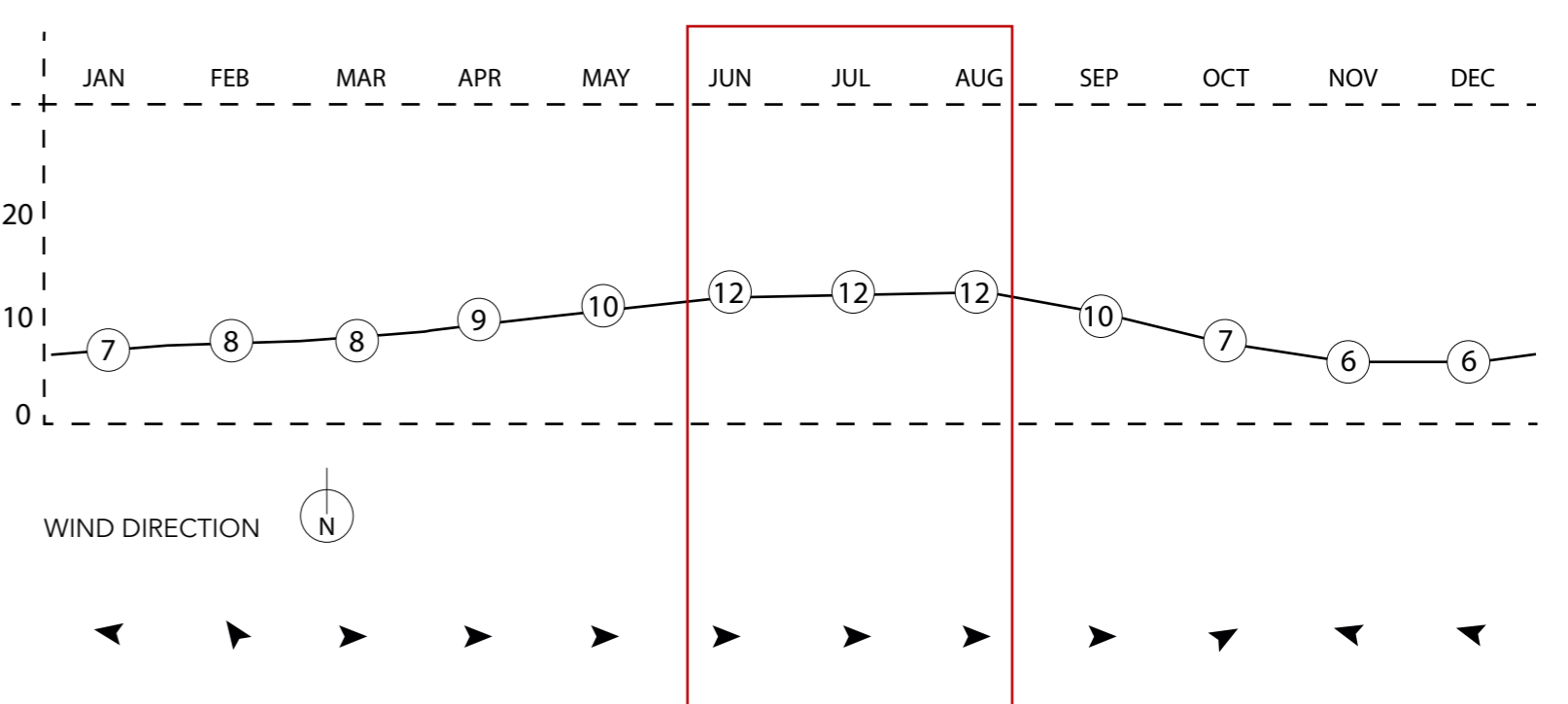
Velux lighting simulation software permitted us to prove the efficiency of our design and material choices. The idea to express massiveness with a facade that also had to permit the lighting of the interior space was not that easy. During our work we simulated various proposal of density for the pattern facade (studied with Grasshopper script on Rhino) and then we processed the obtained proposal into this simulation software.



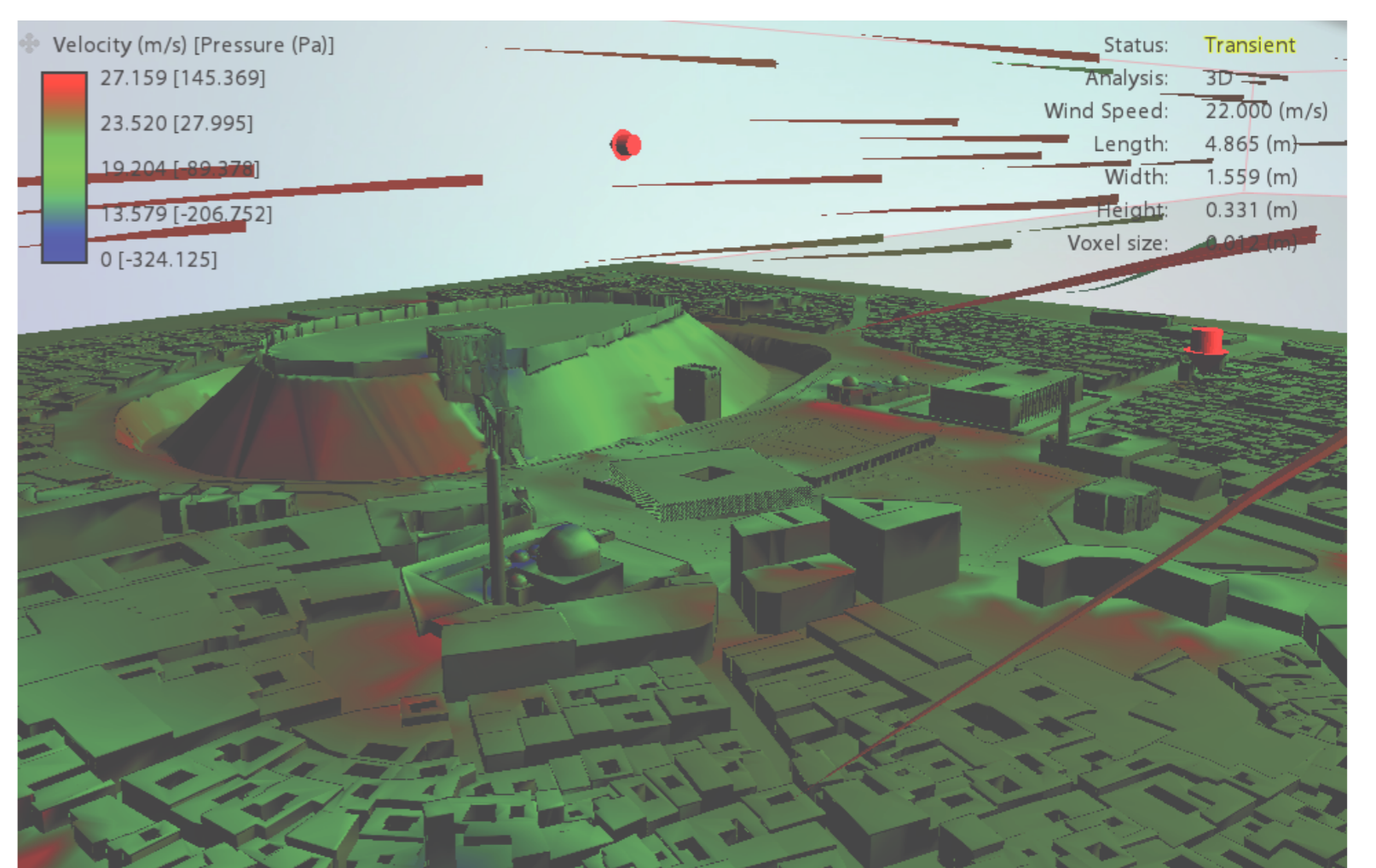
Clearly from the simulation we discovered how the material choice of the ceramic could reach the right lighting effect for the interior space. As it's seen in the upper picture, even the back of the ceramic tile is lighted because of the reflectivity of the material. Then we discovered how the interior circulation between the courtyard glass and the exterior facade was darker than the outer parts. But it was still acceptable because of the use of this kind of circulation spots.



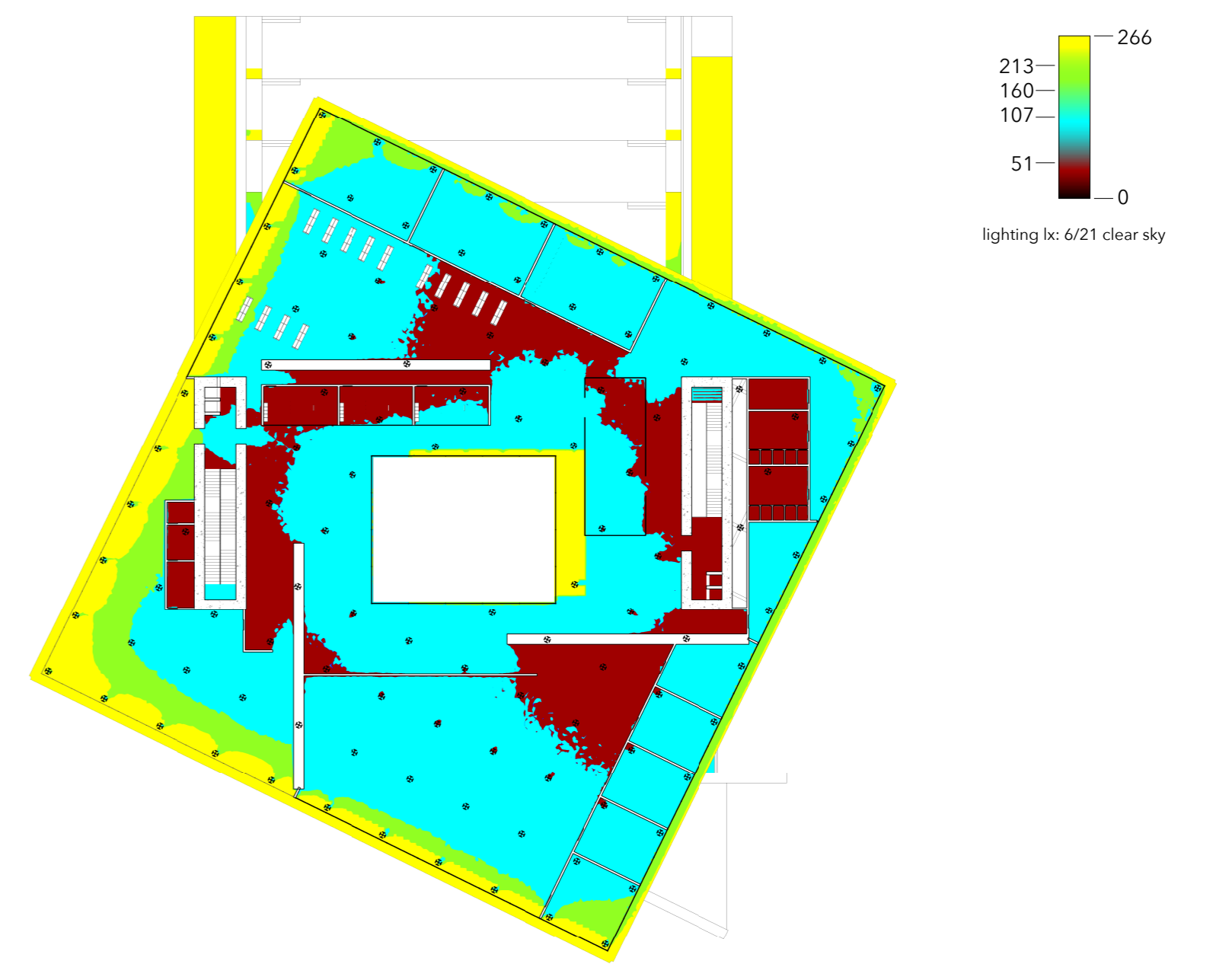
MAXIMUM WIND FLOW SPEED (KTS)



LIMIT CONDITION ANALYZED WITH AUTODESK FLOW DESIGN:
Month= July
Wind speed = 22 m/s (12kts)
Direction : W



SOLAR ILLUMINANCE ANALYSIS WITH AUTODESK INSIGHTS



LEED SUSTAINABILITY CHECKLIST

LEED v4 for BD+C: New Construction and Major Renovation Project Checklist

Project Name: Aleppo Cultural Center
Date: 18/11/2019

Y	7	N	Credit	Required	Points
Y			Integrative Process	1	1
9	4	0	Location and Transportation	16	16
			Credit: LEED for Neighborhood Development Location	16	
1			Credit: Sensitive Land Protection	1	
2			Credit: High Priority Site	2	
5			Credit: Surrounding Density and Diverse Uses	5	
2			Credit: Access to Quality Transit	5	
1			Credit: Bicycle Facilities	1	
1			Credit: Reduced Parking Footprint	1	
1			Credit: Green Vehicles	1	
7	3	0	Sustainable Sites	10	10
			Prereq: Construction Activity Pollution Prevention	Required	
1			Credit: Site Assessment	1	
2			Credit: Site Development - Protect or Restore Habitat	2	
1			Credit: Open Spaces	1	
3			Credit: Rainwater Management	3	
2			Credit: Heat Island Reduction	2	
1			Credit: Light Pollution Reduction	1	

2	0	0	Water Efficiency	11
Y			Prereq: Outdoor Water Use Reduction	Required
Y			Prereq: Indoor Water Use Reduction	Required
Y			Prereq: Building-Level Water Metering	Required
0			Credit: Outdoor Water Use Reduction	2
1			Credit: Indoor Water Use Reduction	6
0			Credit: Cooling Tower Water Use	2
1			Credit: Water Metering	1
19	0	0	Energy and Atmosphere	33
			Prereq: Fundamental Commissioning and Verification	Required
Y			Prereq: Minimum Energy Performance	Required
Y			Prereq: Building-Level Energy Metering	Required
Y			Prereq: Fundamental Refrigerant Management	Required
1			Credit: Enhanced Commissioning	6
14			Credit: Optimize Energy Performance	18
1			Credit: Advanced Energy Metering	1
2			Credit: Demand Response	2
0			Credit: Renewable Energy Production	3
0			Credit: Enhanced Refrigerant Management	1
0			Credit: Green Power and Carbon Offsets	2
11	0	0	Materials and Resources	13
			Prereq: Storage and Collection of Recyclables	Required
Y			Prereq: Construction and Demolition Waste Management Planning	Required
4			Credit: Building Life-Cycle Impact Reduction	5
2			Credit: Building Product Disclosure and Optimization - Environmental Product Declarations	2
2			Credit: Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1			Credit: Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit: Construction and Demolition Waste Management	2

14	0	1	Indoor Environmental Quality	16
Y			Prereq: Minimum Indoor Air Quality Performance	Required
Y			Prereq: Environmental Tobacco Smoke Control	Required
2			Credit: Enhanced Indoor Air Quality Strategies	2
2			Credit: Low-Emitting Materials	3
1			Credit: Construction Indoor Air Quality Management Plan	1
2			Credit: Indoor Air Quality Assessment	2
1			Credit: Thermal Comfort	1
2			Credit: Interior Lighting	2
3			Credit: Daylight	3
1			Credit: Quality Views	1
1			Credit: Acoustic Performance	1
5	0	0	Innovation	6
			Credit: Innovation	5
			Credit: LEED Accredited Professional	1
1	0	0	Regional Priority	4
1			Credit: Regional Priority: Specific Credit	1
0			Credit: Regional Priority: Specific Credit	1
0			Credit: Regional Priority: Specific Credit	1
0			Credit: Regional Priority: Specific Credit	1
70	7	1	TOTALS	110

Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110

TOTAL ACHIEVABLE CREDITS = 68/110 CERTIFIED GOLD

