## SITE LOCATION:

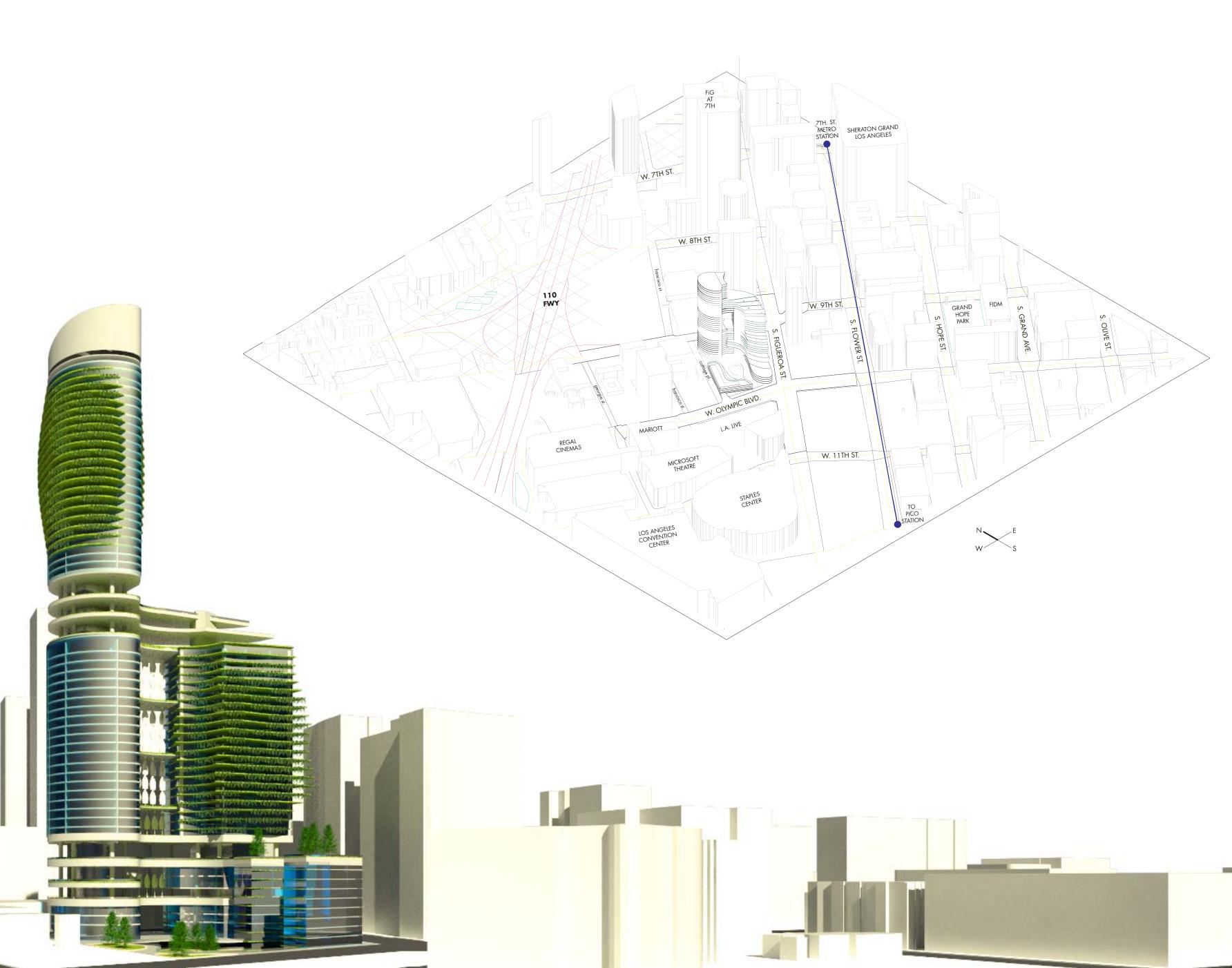
### DOWNTOWN LA, SOUTH PARK DISTRICT S. FIGUEROA ST. + W. OLYMPIC BLVD.

FIGUEROA + OLYMPIC CONSISTS OF A 46 FLOOR RESIDENTIAL TOWER AND A 21 FLOOR RESIDENTIAL TOWER ATOP A RETAIL CENTER SURROUNDING A LOWERED CENTRAL COURTYARD.

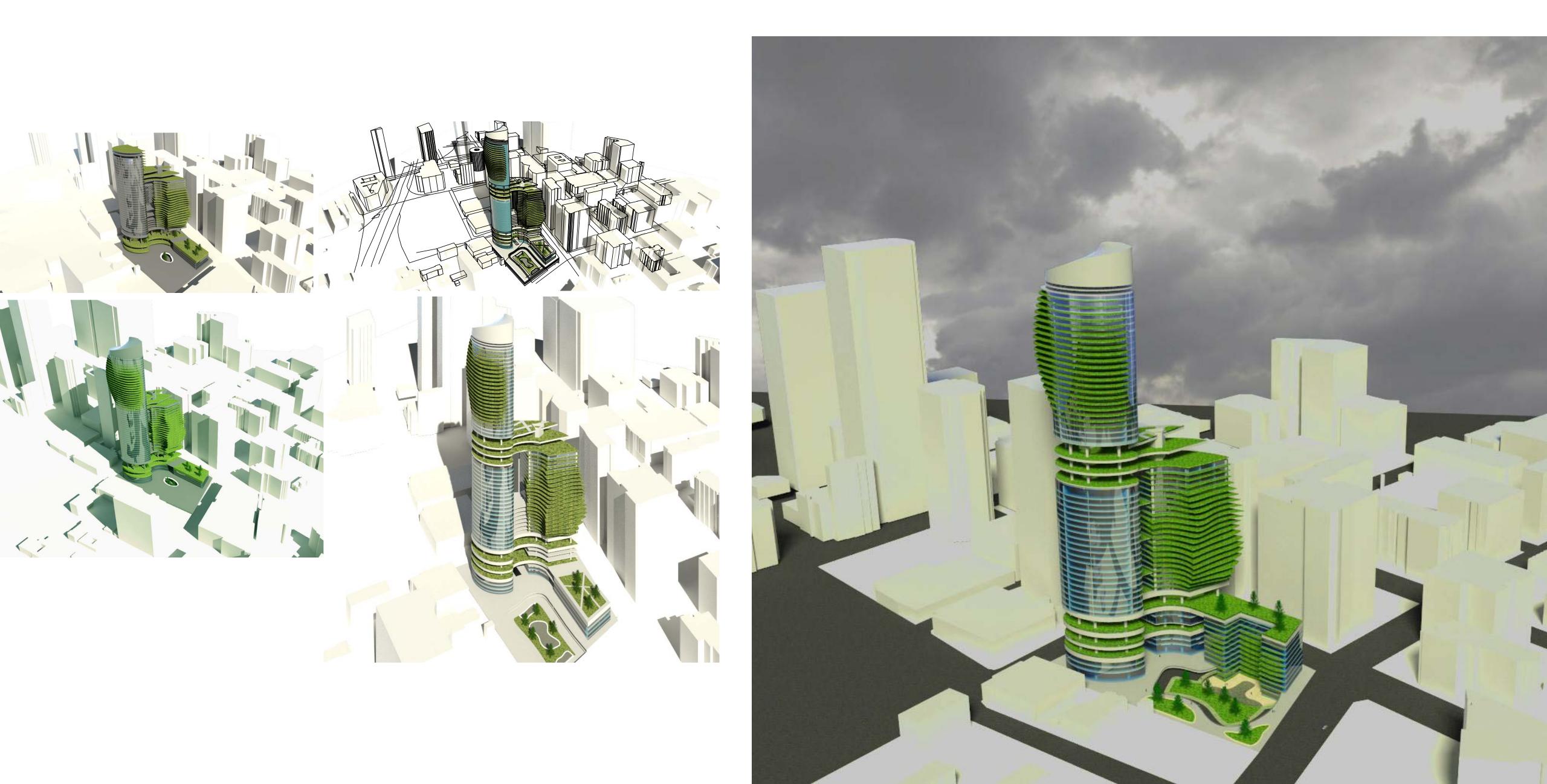
THE MAIN IDEA OF FIGUEROA + OLYMPIC IS TO ESTABLISH A PROMINENT VERTICAL GREEN SPACE IN THE SOUTH PARK DISTRICT, AN AREA OF DOWNTOWN WHICH COULD GREATLY BENEFIT FROM IT.

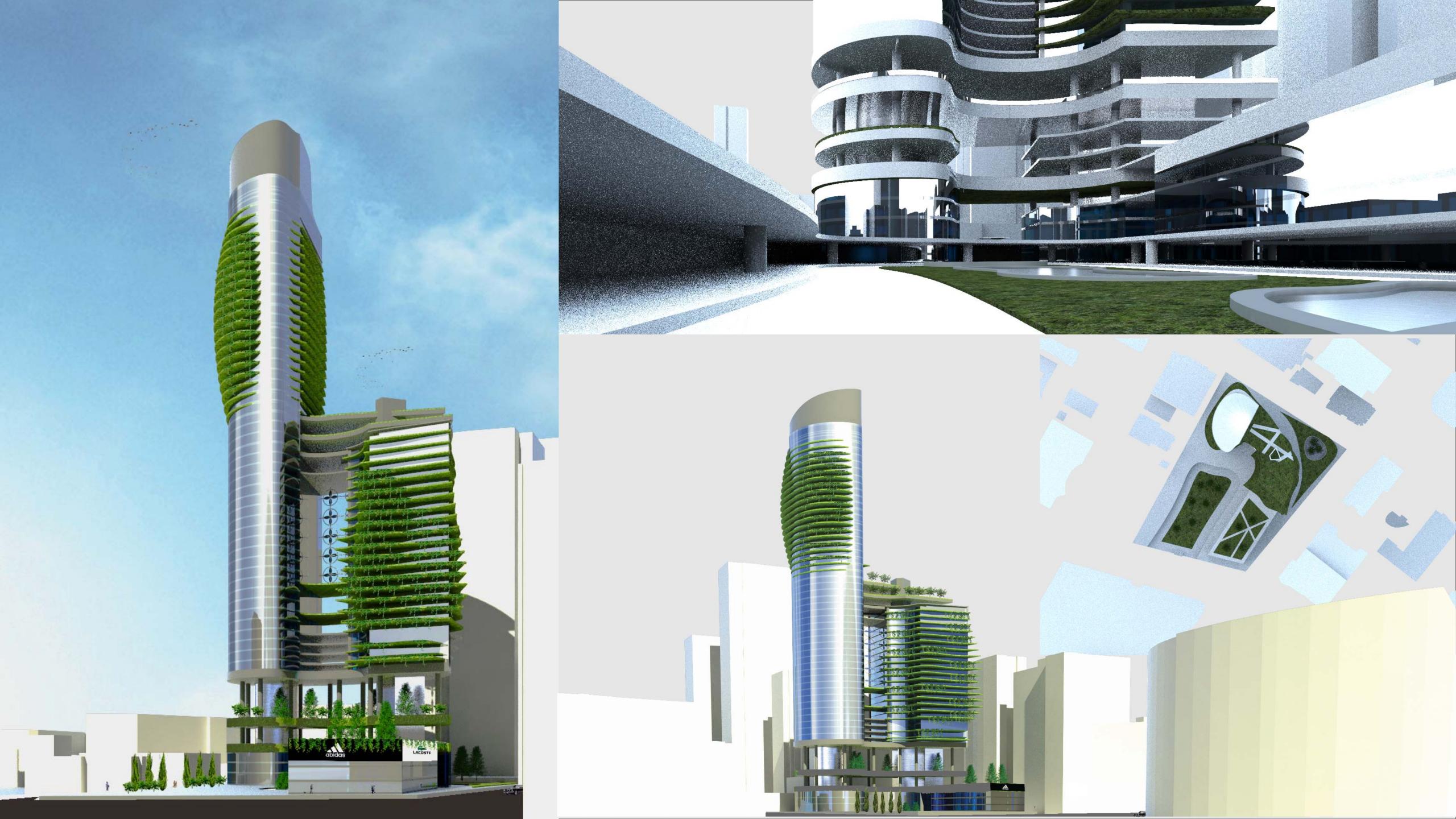
THE FIGUEROA + OLYMPIC FOCUSES ON THE SOUTHERN APPROACH. BEING LOCATED ACROSS FROM LA LIVE, STAPLES CENTER, AND THE LA CONVENTION CENTER, THE TOWER DRAWS THE ATTENTION OF THE FOOT TRAFFIC OF THE AREA INTO THE RETAIL, COURTYARD, AND ELEVATED GARDEN SPACES.

IN ADDITION TO THE GREEN SPACES AND THEIR SUSTAINABLE BENEFITS, THE FORM OF FIGUEROA + OLYMPIC ALSO HARNESS-ES WIND VIA VERTICAL TURBINES LOCATED BETWEEN THE TWO RESIDENTIAL TOWERS, AS WELL AS PV PANELS LOCATED ON THE MAIN TOWER.



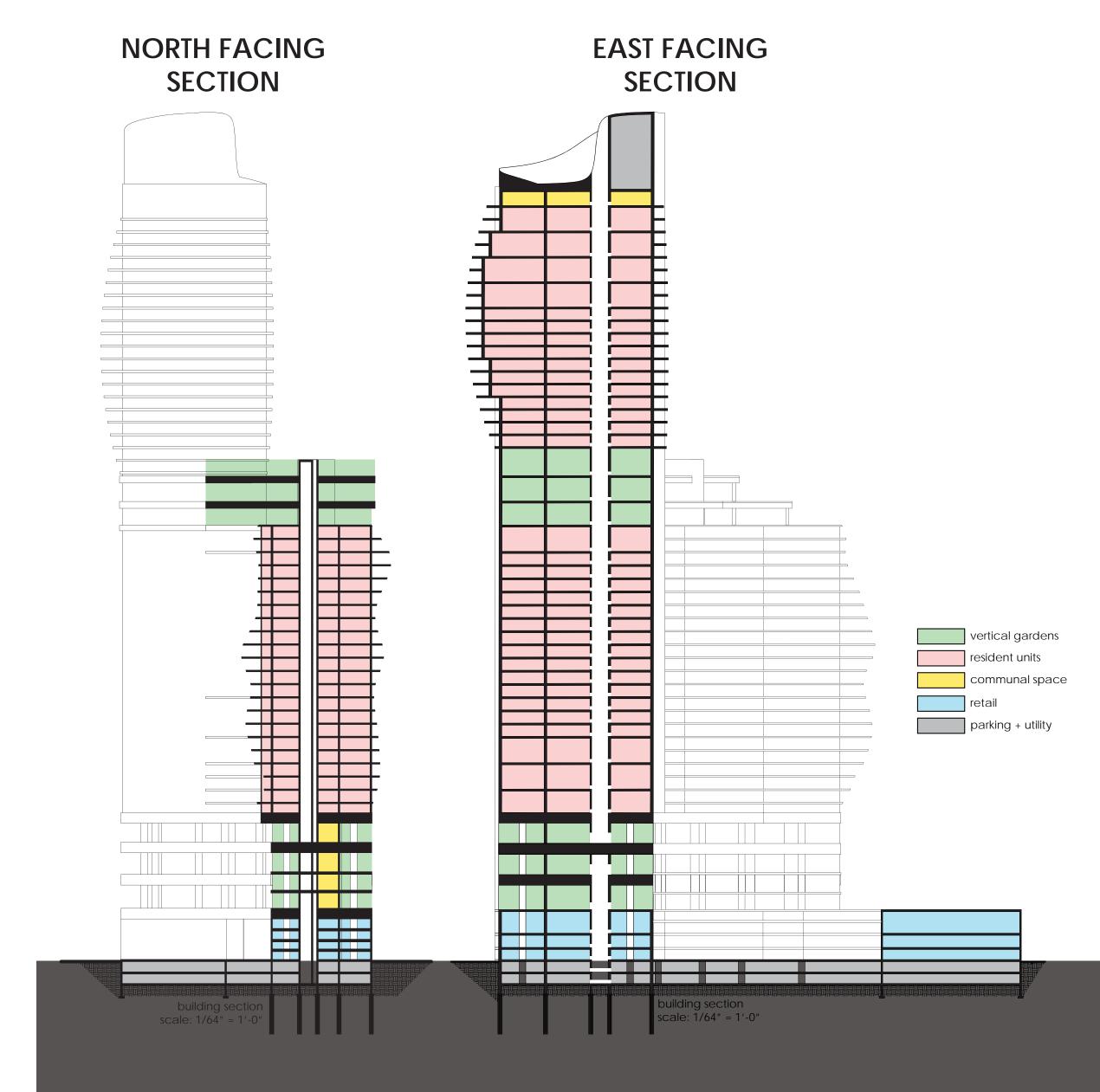
## **CONCEPT DEVELOPMENT**





## PROGRAMMING





## ELEVATIONS



SOUTHEAST

SOUTHWEST

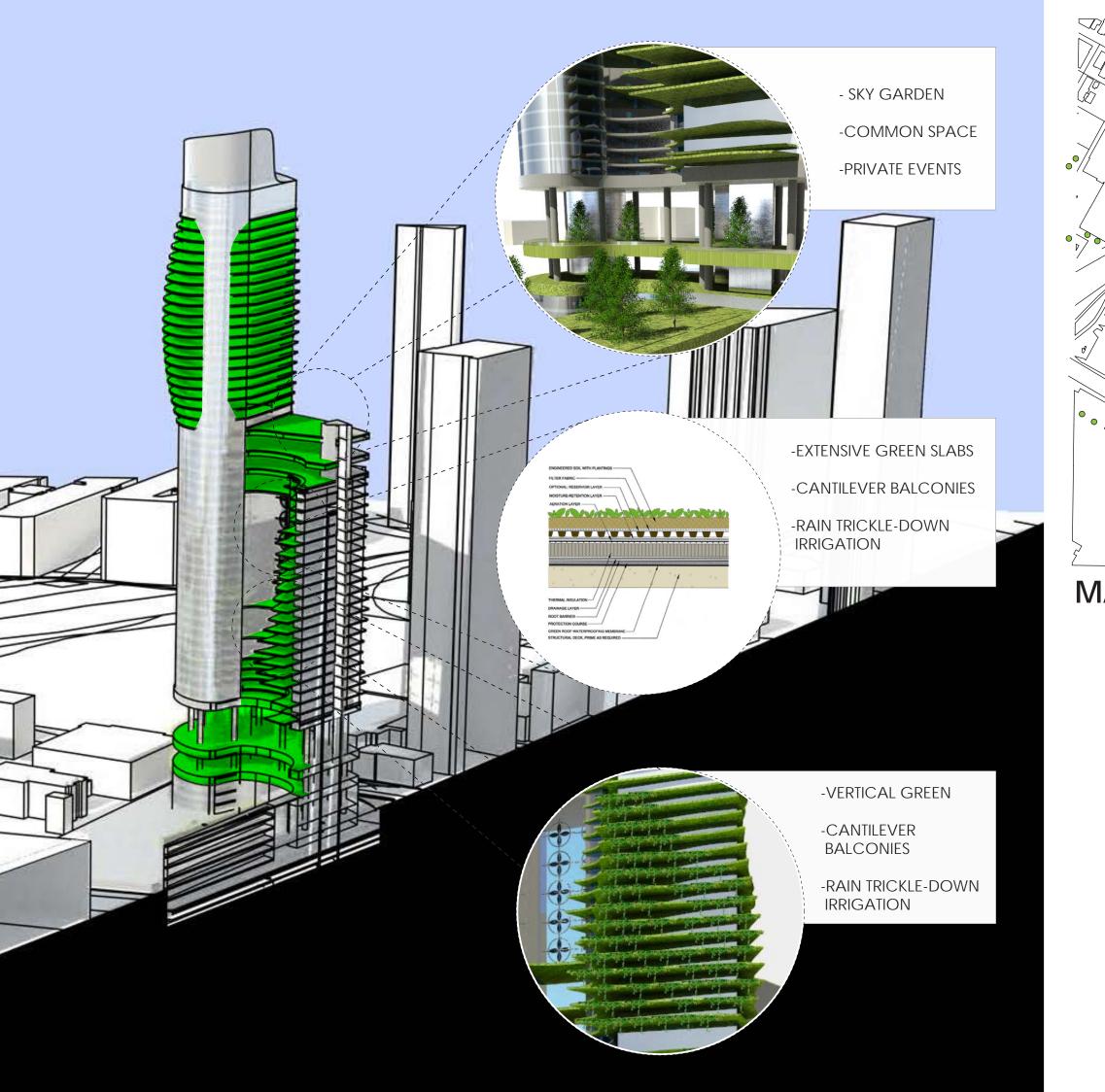
EAST

### NORTHEAST

NORTHWEST



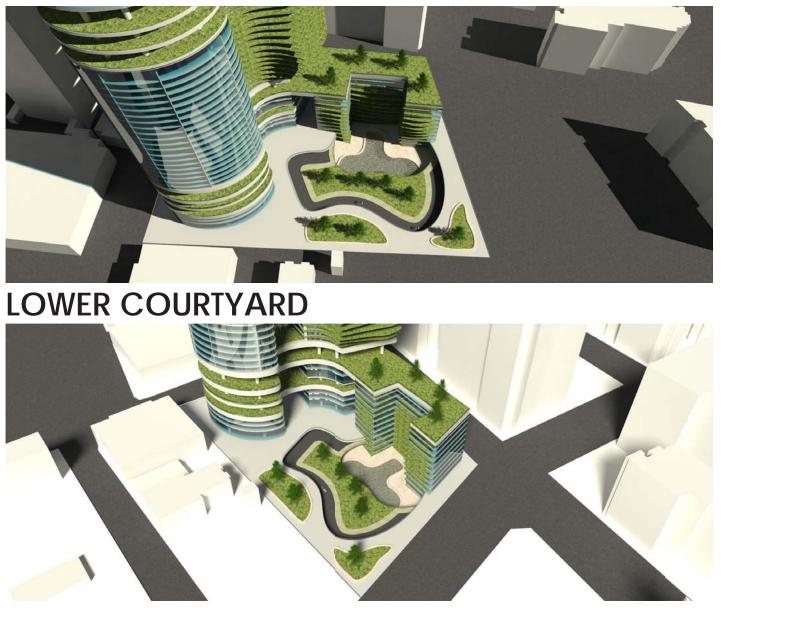
# **SUSTAINABILITY: GREEN**



## **GREEN CONTEXT**



#### UPPER COURTYARD



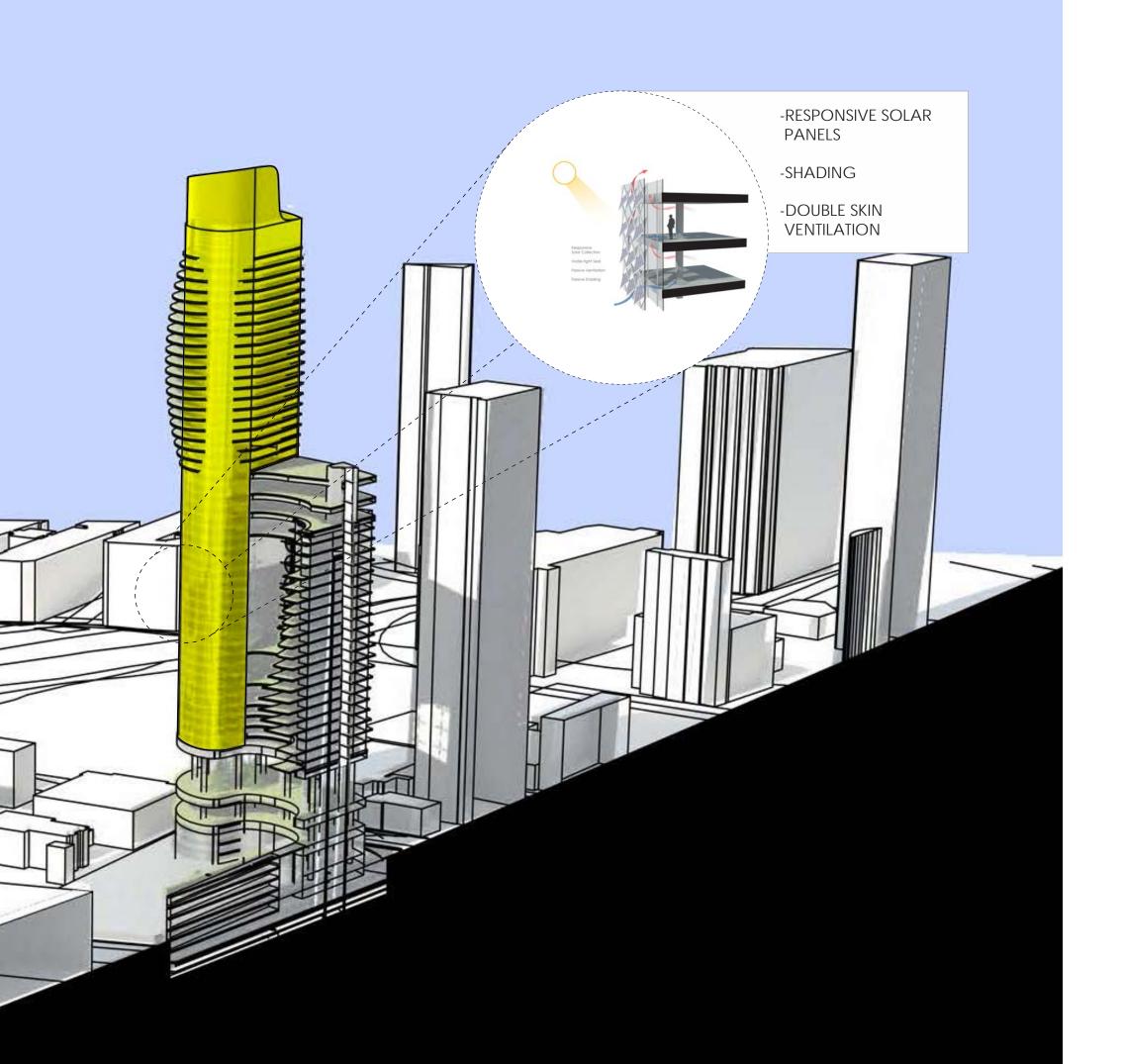


MAIN COURTYARD

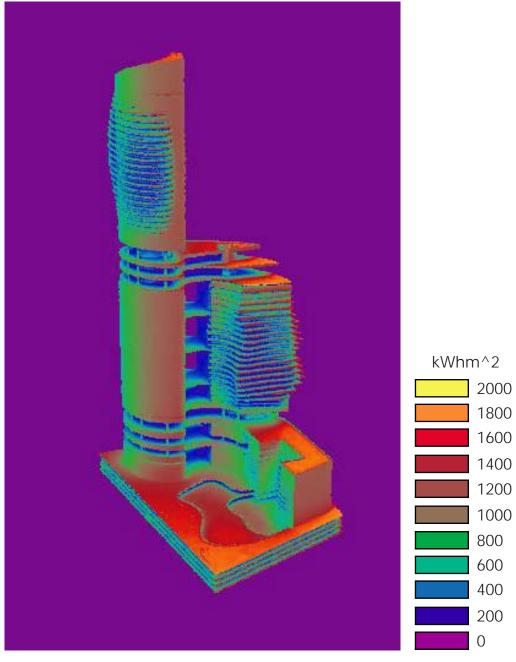




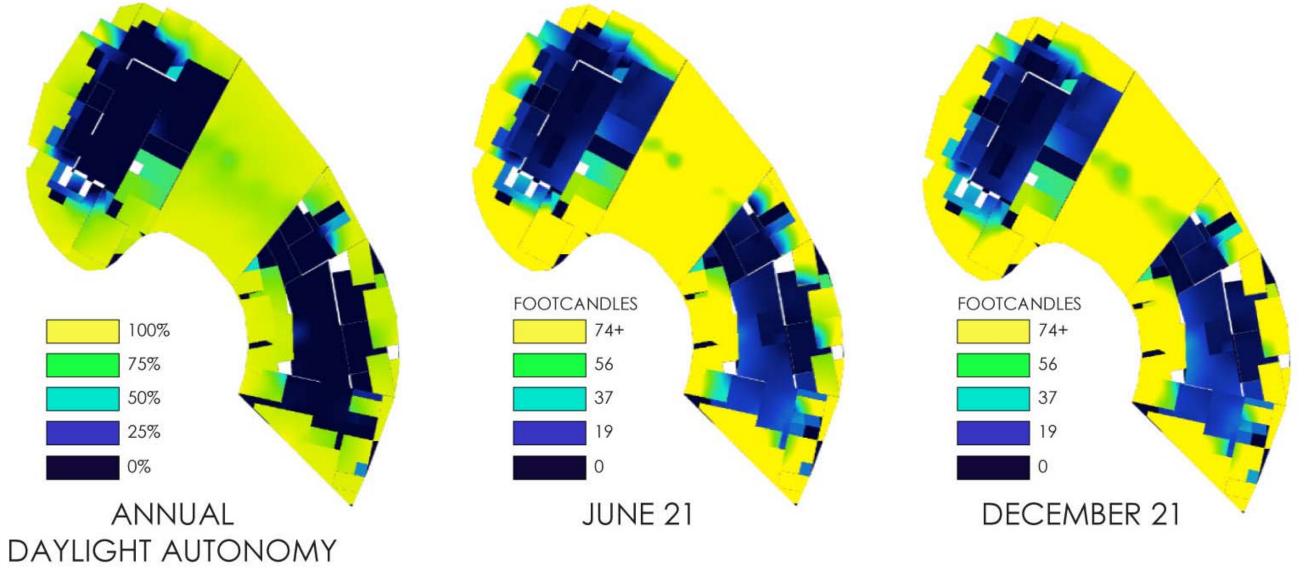
## **SUSTAINABILITY: SOLAR**



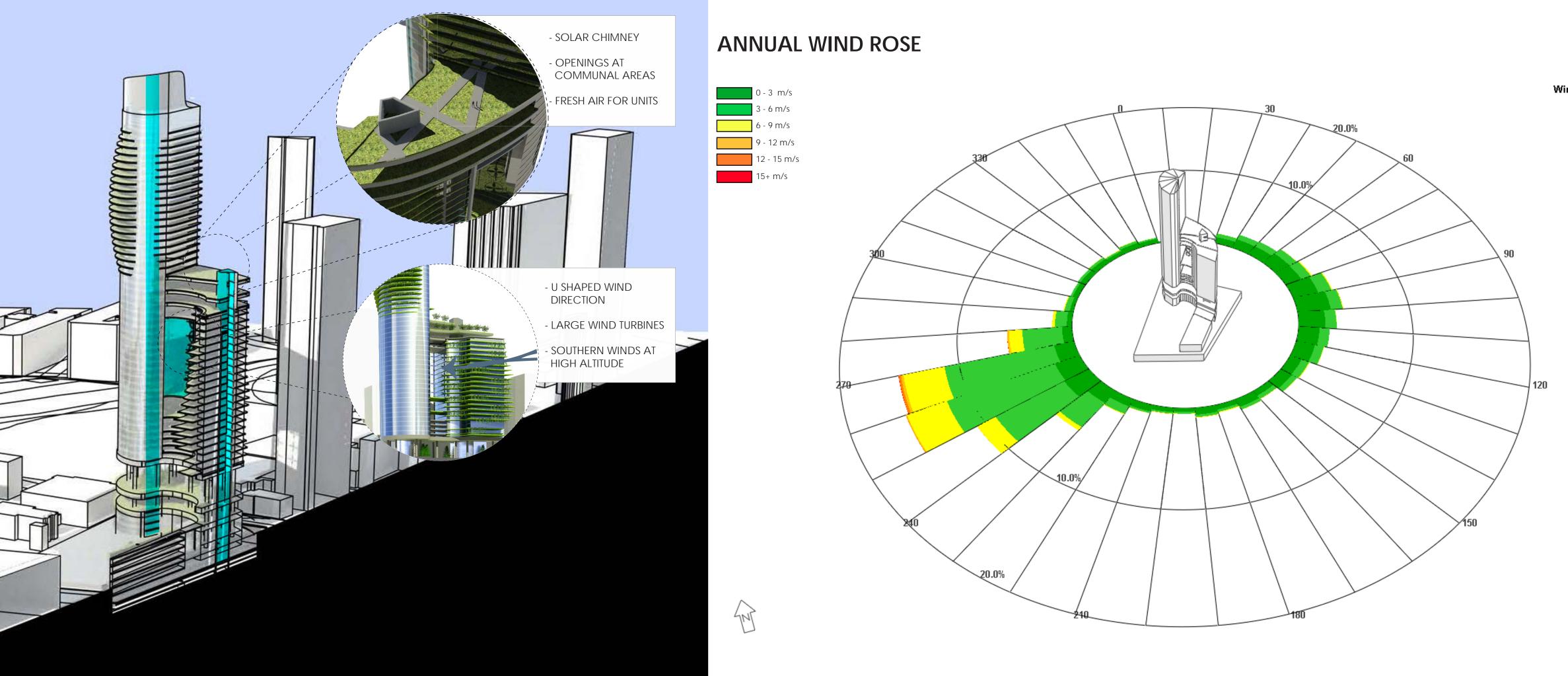
### **ANNUAL RADIATION MAP**



### DAYLIGHTING ON TYPICAL RESIDENTIAL LEVELS



## **SUSTAINABILITY: WIND**





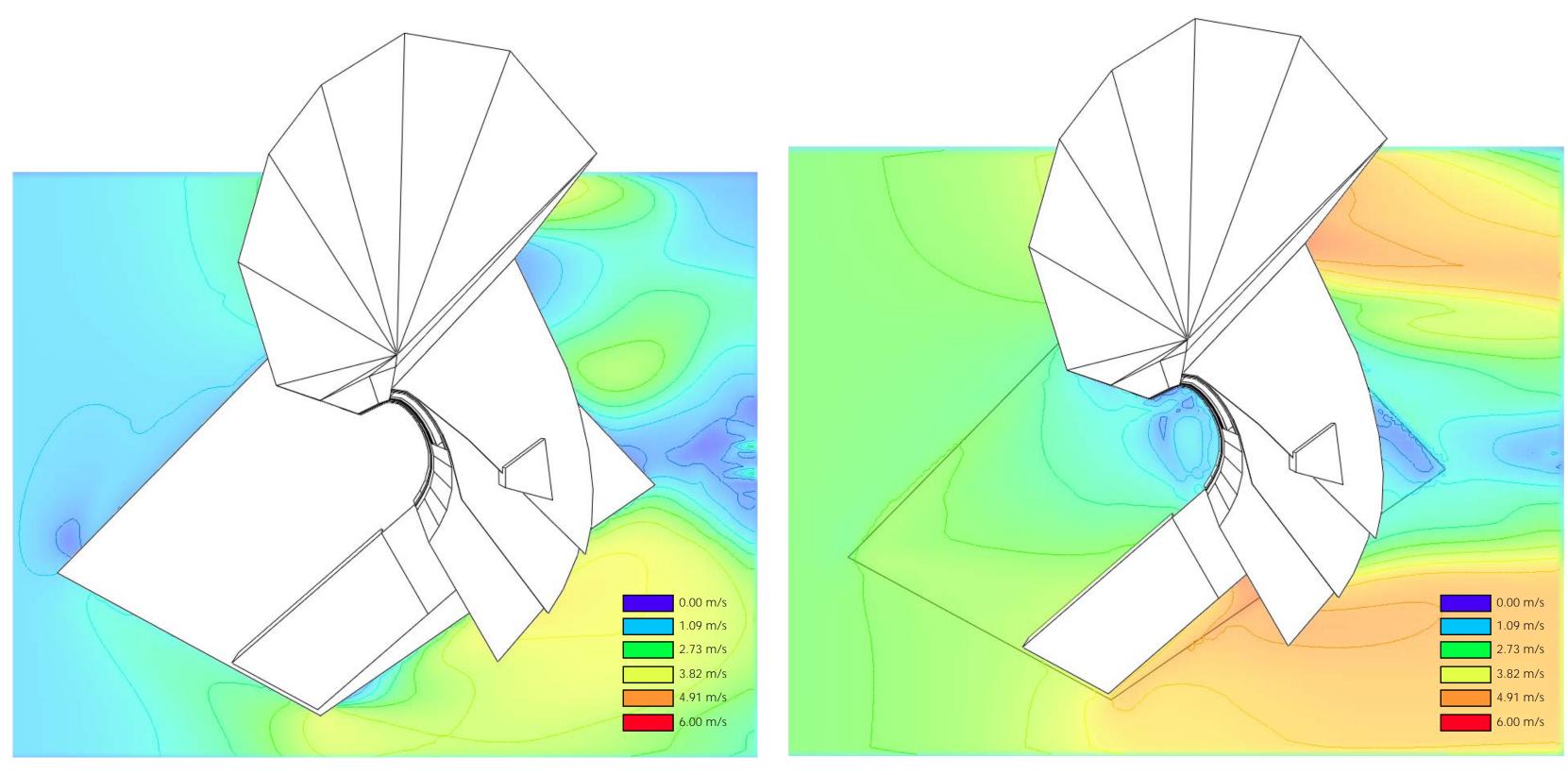
Wind Rose:01/Jan to 31/Dec

## SUSTAINABILITY: WIND

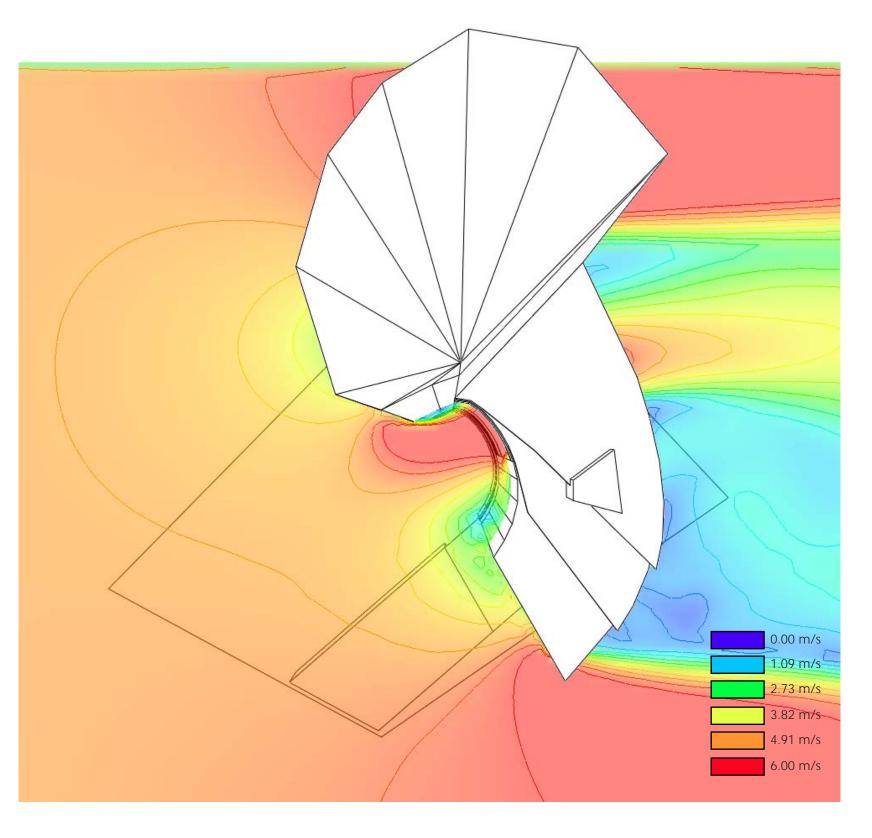
## WIND STUDY ANALYSIS

## **GROUND LEVEL**

## **30 FT ELEVATION**



#### **300 FT ELEVATION**



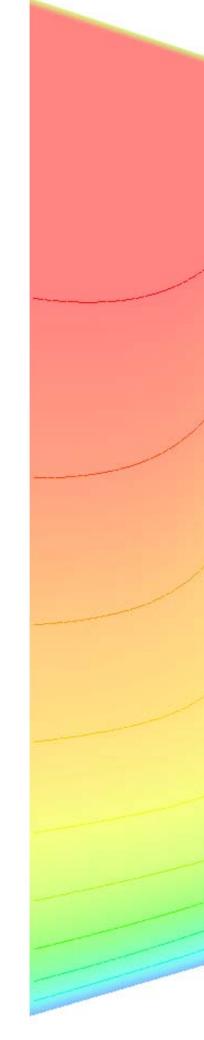
# SUSTAINABILITY: WIND

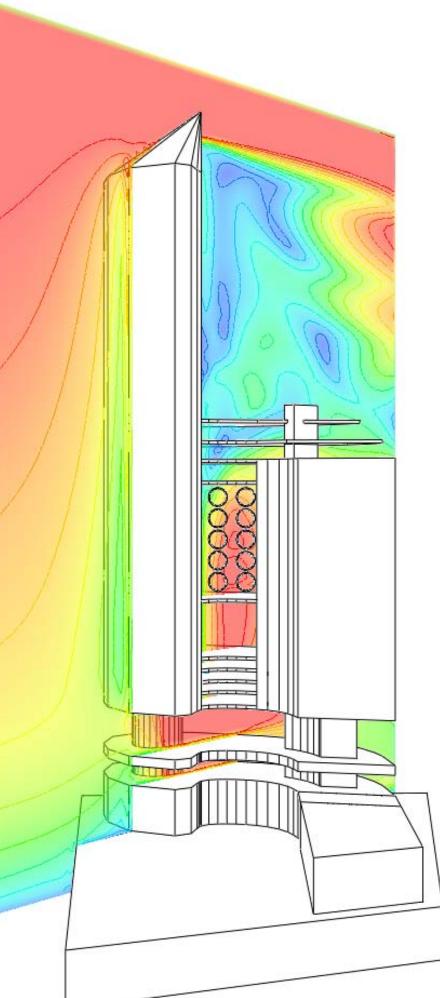
## WIND STUDY ANALYSIS

## SOUTHERN EXPOSURE

ANANA

## NORTHEASTERN EXPOSURE (TURBINES)





## **CARBON FOOTPRINT**

<b>PRIN</b>	Т	Building Area (m2) 128271.	<mark>0</mark> m2					
	Veerly Velues		Conversion					
1. Operational Energy:	Yearly Values		Factor	lbs CO2e/yr				
Use the following values from the en	ergy modeling program						Tbe = Oe + Ce + We + Wa – Rs $0 \ge$ Tbe	
Total Electricity	13,752,653 kWhr	per kWhr	0.62 lbs/kWhr	8,526,645			Where	
Total Fuel	1,530 kWhr	per kWhr	0.083492847 Ibs/kWhr	128			Tbe	total building emissi
EUI EUI	107 kWhr/m2 year 34 kBtus/sq ft year						Oe	operation emissions
			Operational	Energy 8,526,773	lbs CO2e/yr	3,867,017.1 kgs CO2e/yr	Ce	construction emission
2. Construction:							We	water emissions
	bonneutral.org/ Build Carbon Ne blies http://www.athenasmi.org/tools/eco	utral Provides an Easy way to calculate Emb Calculator/index.html	oodied Emissions				Wa Rs	waste emissions renewable strategie
	38,364 metric tonnes	lbs per metric tonn	e 2205.0 Const	ruction 84,592,620	lbs CO2e	38,364,000.0 kgs CO2e/yr		
o. W. /	life expectancy	of the building. Default is average in the US	A 73.0 P	er Year 1,158,803	lbs CO2e/yr			
<b>3. Water:</b> C02e factor per Million Gallons: 1,331 lb	s of CO2							
	782,560 gallons of water	per gallon of wate	er 0.001331	Water 1042	lbs CO2e/yr	472.4 kgs CO2e/yr		
4. Waste:								
EPA WARM Model or	429,411			Waste 429411	lbs CO2e/yr	194,744.2 kgs CO2e/yr		
	on-chapters-greenhouse-gas-emission-and-e					t recycle it is 3,458 lbs of CO2e per family	1	
EPA Personal Emissions Calculator https://www3.epa.gov/carbon-footprint-c	http://www.epa.gov/climatechange/emiss	sions/ind_calculator.html			use the carbon footprint calcula	ator to better estimate		
	pa.gov/warm/versions-waste-reduction-mode	el-warm#WARM Tool V14						
				total 10,116,028	lbs CO2e / yr	4,587,767.9 kgs CO2e/yr		
				total 4,588,549	kgs CO2e / yr	2,080,974.8 kgs CO2e/yr		
				total 4,589	metric tonnes CO2e / yr	2,081.0 kgs CO2e/yr		
				<u>36</u> 7.33	kgs CO2e / m2 yr Ibs CO2e/sqft-yr			
				1.55				
Renewable Energy					Ibs CO2 sequestered on site	hv		
Total Energy Generated on Site kwhr	5,233,781 kWhr	per kWhr	0.62	3,244,944	renewable system	by		
Total kWhr/m2/yr:	41 kwhr/m2/yr							
ZERO NET CARBON								
The numbers below are for 2030 Arch	itecture's definition of Zero Net Carbon		total energy		kWhr			
			total renewable energy ge annual energy		kWhr kWhr			
			annuar energy	EUI 66	kWhr/m2 year			
				EUI 21	kBtus/sq ft year			
			TOTAL CA		Ibs CO2e / yr			
			TOTAL CA CUI: CARBON USE INTE		kgs CO2e / yr kgs CO2e/m2-yr			
			CUI: CARBON USE INTE		lbs CO2e /sf yr			
CARBON NEUTRAL								
	nissions after renewables and should be <b>z</b>	zero or better to be carbon neutral		6,871,084	lbs CO2e-yr	3,116,137.9 kgs CO2e/yr	emissions after renewables	
				3,116,669	kgs CO2e-yr	1,413,455.2 kgs CO2e/yr	emissions after renewables	
				<u>3,117</u>	metric tonnes CO2e-yr	1,413.5 kgs CO2e/yr	emissions after renewables	
			CUI: CARBON USE INTE		kgs CO2e/m2-yr Ibs CO2e /sf yr	24.3 kgs CO2e/yr	emissions after renewables	
Useful Inforr	nation		Data					
				median life of a building in the				
<b>F</b> = 0 <b>H</b>				20.32 lbs of waste = 1 lb				
For Site Size of the lot	t sq ft		A mixed hard	california 0.33 kg CO2e p wood accumulates 0.01 t C (ca				
Area that is c	overed with vegetation							116.999 Pounds
Number of tre	ees planted			1 kilowatthour = 3,412	2 Btu		GAS EIA For gas it is: 0.42 lbs of CO2 per	r kWh or 11 93 lhe of CC
For Construc	ction Material or Descrit Area Sq Ft			Burning Gas According to	the EIA		DEFRA For gas it is: 0.184070 kgCO2 per	
Foundations	and Footings			er million BTUs of Natural Gas	117 lbs of CO2		0.0834928	
Columns and Intermediate			http	os://www.eia.gov/tools/faqs/faq	.ctm?id=73&t=11			
Exterior Walls				0	lbs of CO2 per BTU of Gas			
Interior Walls Windows				0	lbs of CO2 per kBTU of Gas lbs of CO2 per kWhr of Gas			
Roofs				U				
For Energy				another source 12	lbs per 100000 btus			
Electricity use				0	lbs per btu			
Gas Use per Flectricity pro	year duced by renewables per year			0	lbs per kbtu			
	auoou by ronewables per year							
For Water								

For Water Water use per year

For Waste lbs of trash per year percentage of trash that is recycled if we have this by categories it would be even better: aluminum, plastic, glass, paper

## **NET EUI:** 21 kBtu/sf yr

## NET CUI: 3.8 LBS CO2e/sf yr

emissions issions (energy)

missions

Pounds of CO2 per million Btu s of CO2 per Therm

#### **SEFAIRA - ANNUAL ENERGY CONSUMPTION**

3 sefair	3					S Erick Colot	oong 🔻
ojects 🕨 ARC	402 Final 🔻 Baseline Concept						
h	Baseline Concept       Old Architect         Last analysis completed 24 minutes ago         Run Analysis		Annval Grid Fuel Used kBTU				
enewables	Baseline Concept	46,926,928	5,221				
ater Fixtures	TIP: Drag strategies from the list above t	o create bundles.			(	Export 🖾 Add	Result 🍒
ater Fixtures	TIP: Drag strategies from the list above t All changes are automatically saved.	o create bundles.				Export 🖾 🛛 Add	Result 🍒
nvelope			Glazing		Brise Soleil	Export 🖾 Add	Turn on
ivelope	All changes are automatically saved.	Roof	Glazing ng U-Factor	0.35		Export 🛛 Add	
velope /AC	All changes are automatically saved.	0.35 Glazi		0.35	Brise Soleil		Turn on
welope /AC	All changes are automatically saved.          Facade Glazing       Glazing U-Factor	0.35 0.25 Glazi	ng U-Factor		Brise Soleil Orientation		Turn on
	All changes are automatically saved.          Facade Glazing         Glazing U-Factor         Glazing SHGC	0.35 0.25 Glazi	ng U-Factor	0.25	Brise Soleil Orientation		Turn on

#### **KOHLER - ESTIMATED WATER USAGE**

	Your Building	US Average	LEED Baseline
Calculation Results			
Gallons per person per day:	2.0	6.3	4.7
Gallons per day:	2,144.0	6,700.0	5,038.4
Gallons per month:	65,214.0	203,793.9	153,253.0
Gallons per year:	782,560.0	2,445,500.0	1,839,016.0
% Reduction vs. average:	68.0%		
% Reduction vs. LEED Baseline:	57.4%		

#### **PVWATTS - ESTIMATED GAINS FROM SOLAR**

Location	90015 » Change Location			HELP FEEDBACK (	ALL NREL SOLAR TOOLS
-		RESOURCE DATA SYSTI	EM INFO RESULTS		
<	RESULTS	5.233	3.682 kW	Vh per Year *	
Go to	Print Results	System output may range from	m 4,928,035 to 5,346,729kW		
stem info	Month	Solar Radiation ( kWh / m <sup>2</sup> / day )	AC Energy ( kWh )	Energy Value (\$)	
	January	5.97	356,328	46,430	
	February	5.98	325,942	42,470	
	March	7.11	429,724	55,993	
	April	9.19	537,886	70,087	
	May	8.11	490,222	63,876	
	June	8.74	505,331	65,845	
	July	9.34	552,518	71,993	
	August	9.10	537,948	70,095	
	September	7.35	420,034	54,730	
	October	5.88	351,573	45,810	
	November	6.39	364,801	47,534	
	December	6.07	361,375	47,087	

## **EPA - ESTIMATED CARBON EMISSIONS FROM WASTE**

	United States Environmental Protection Agency		<u>Español</u>   中文:繁體版	│ 中文: 简体版 │ Tiếng	Việt   한국
Learn the Iss	ssues Science & Technology Laws & Regulations About EPA			Search EPA.gov	٩
				Cont	tact Us Shi
Waste					
Household	d Carbon Footprint Calculator				
	Home Energy Transportation	3	Waste		
Waste					
[-] Your	r Current Emissions from Waste		Your Carbon Footprint Annual CO <sub>2</sub> emissions (lbs.)	0	
Î	Waste       Estimated CC         Average waste emissions for a household of 1072 people: ①       ③         Which of the following products do you currently recycle in your household?       ✓         ✓ aluminum & steel cans       ✓	O <sub>2</sub> Emissions 741,288 lbs	Your Current Total: 429,411		
Free	<ul> <li>✓ plastic</li> <li>✓ glass</li> <li>✓ newspaper</li> <li>✓ magazines</li> </ul>	311,877 lbs	New Total After Your Planned Actions: 429,411		
[-] Redu	uce Your Emissions	129711 103	U.S. Average*: 741,288 *for a household of 1072 peo	ple in Zip Code <b>90015</b>	
5	You recycle all common household products. Keep up the good work! Visit <u>Climate Change and Waste</u> for more you can do.		Start Over	View Your Re	port

#### WIND TURBINE SPECS **CONSTRUCTION EMISSIONS buildcarbonneutral** Controller III Controller IV Downloa DS-300 VAWT DS-700 VAWT DS30-G000-00-DS-1500 VAWT 3KW 12 m/s 230 rpm <3 m 15 m/s 60 m/s(3 seconde gust) **Construction Carbon Calculator Results** Rated Vind Speed: Rated Vind Speed: Cut-In Vind Speed: Cut-In Vind Speed: Cut-In Vind Speed: Survival Wind Speed: Dimension-Weight Rotor Diameter: Rotor Height: Total Height: Total Height: Total Weight: Rotor Specification External Darrieus: Internal Savoinus: Material of Rates: Material of Rates: Material of Rates: Material of Rates: Rated Output: Bracking System Automatic Braking: Manual Braking: Operation Environment Generator Temperature: Controler Temperature: Ambient Humidity: Special Notes Information and specification and Hybrid Street Lighting System DS-3000 Photo Galle Approximate net embodied CO2 for this project is 4 m 4.16m 4 m 8.16m 680 Kgs (Mast not included) DS-3000 Projects Gallery 38,364 metric tons. OS Series Video Gallery 3 Blades Your Entries Total Square Feet 1,273,060 Anodized Aluminum Galvanized Steel SS400 40 Stories Above Grade 33 AC, 3 Phase, Synchronism PMG 3 KW Stories Below Grade System Type steel Automatic Dump-load and 3-phase short circuit braking syste mechanical manual brake/3-phase short-circuit manual brake Ecoregion Mediterranean Californ Existing Vegetation Type Previously Developed Installed Vegetation Type Shrubland -20~40°C -10~40°C 95% max. Landscape Disturbed (SF) 0 Landscape Installed (SF) 0 Information and specification a onstruction Carbon Calculator formula version 0.03.5, last updated 007.10.11. These results are an approximation. Your actual carbon footprint The information provided is based on the use of our standard 4m ma poing to install with the mast higher than 4m. e follow your local regulations to install the DS-3000 at proper location. Always consult your local certified civil engineer uctural engineer if you are planning to install the DS-3000 on top of the roof. av vary. See assumptions for more information ght ©2007 BuildCarbonNeutral.org | Terms of Use | Site Credits | Referen

## SEFAIRA - MONTHLY ENERGY CONSUMPTION Monthly Consumption (kBTU)

