

PRESENTATION OUTLINE:

- I. PROJECT BACKGROUND
- II. ANALYSIS #1: PHOTOVOLTAIC FAÇADE
  - i. SYSTEM DESIGN
  - ii. ELECTRICAL BREADTH
  - iii. FEASIBILITY ANALYSIS
- III. ANALYSIS #2 PREFABRICATED FAÇADE
  - i. DESIGN
  - ii. SCHEDULE/COST IMPACT
  - iii. SITE CONGESTION
- III. ANALYSIS #3: LEED CERTIFICATION
  - i. SOFT COSTS
  - ii. CREDIT CATEGORIES/COST IMPACT
- IV. CONCLUSION
- V. ACKNOWLEDGEMENTS

Current Building Image

**Location**  
100 High Street, Buffalo, NY

**Function**  
Medical Research and Hospital

**Size**  
450,000 SF

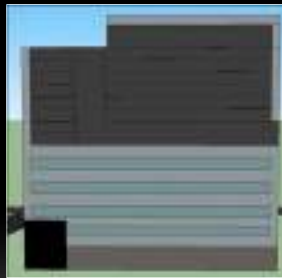
**Cost**  
GMP: \$291 Million

**Construction Dates**  
9/2009 – 10/2011

Location Image

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SOLAR ARRAY CRITERIA	
Sun Hours Per Day	3.31
Size of Panel (SF)	54
Watts per SF	5
Actual Produced Power Per Panel (Watts)	270
# of Panels	426
Total Power Produced by Panels Per Day (Watts)	115,020

**Orientation**

- Entire South façade faces directly South
- 35,700 SF of façade space

**Solar Shading**

- Only top 5 floors have no shading all year
- Slight shading occurs during winter solstice months



Winter Solstice



4pm



Fall/Spring Equinox



4pm



Summer Solstice



4pm

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STATION IDENTIFICATION	
City	Buffalo
State	New York
Latitude	42.93° N
Longitude	78.73° W
Elevation	215m
PV SYSTEM PARAMETERS	
DC Rating	115kW
DC to AC Derate Factor	.77
AC Rating	88.5kW
Array Type	Fixed
Array Tilt	90°
Array Azimuth	180°
ENERGY PARAMETERS	
Cost of Electricity	14.5 /kWh

Yearly AC Energy Produced

• 78,579kWh

Yearly Energy Value

• \$11,393.95

PV WATTS ENERGY PRODUCTION RESULTS			
MONTH	SOLAR RADIATION (kWh/m <sup>2</sup> /day)	AC ENERGY (kWh)	ENERGY VALUE (\$)
1	2.31	6473	\$938.59
2	2.96	7644	\$1108.38
3	3.39	9228	\$1338.06
4	2.94	7133	\$1034.29
5	2.84	6429	\$932.21
6	2.63	5411	\$784.60
7	2.72	5766	\$836.07
8	3.09	7090	\$1028.05
9	2.99	7005	\$1015.73
10	2.77	7077	\$1026.16
11	1.84	4519	\$655.25
12	1.82	4806	\$696.87
<b>Year</b>	<b>2.69</b>	<b>78,579</b>	<b>\$11,393.95</b>