



Certificate of Appropriateness

LIVING WITH HISTORY

Milwaukee Historic Preservation Commission/809 N. Broadway/PO Box 324/Milwaukee, WI 53201-0324/414-286-5712

Property 1342 N. ASTOR ST.
Description of work Install new solar panels on flat roof of contemporary addition to church.
Date issued 1/28/2010 PTS ID 32583 COA, new solar panels on roof

In accordance with the provisions of Section 308-81(9) of the Milwaukee Code of Ordinances, the Milwaukee Historic Preservation Commission has issued a certificate of appropriateness for the work listed above. The work was found to be consistent with preservation guidelines. The following conditions apply to this certificate of appropriateness:

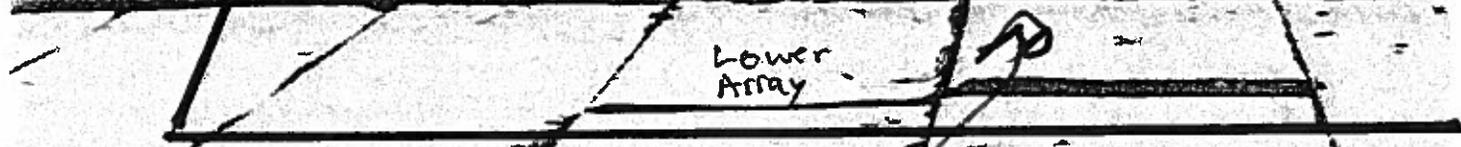
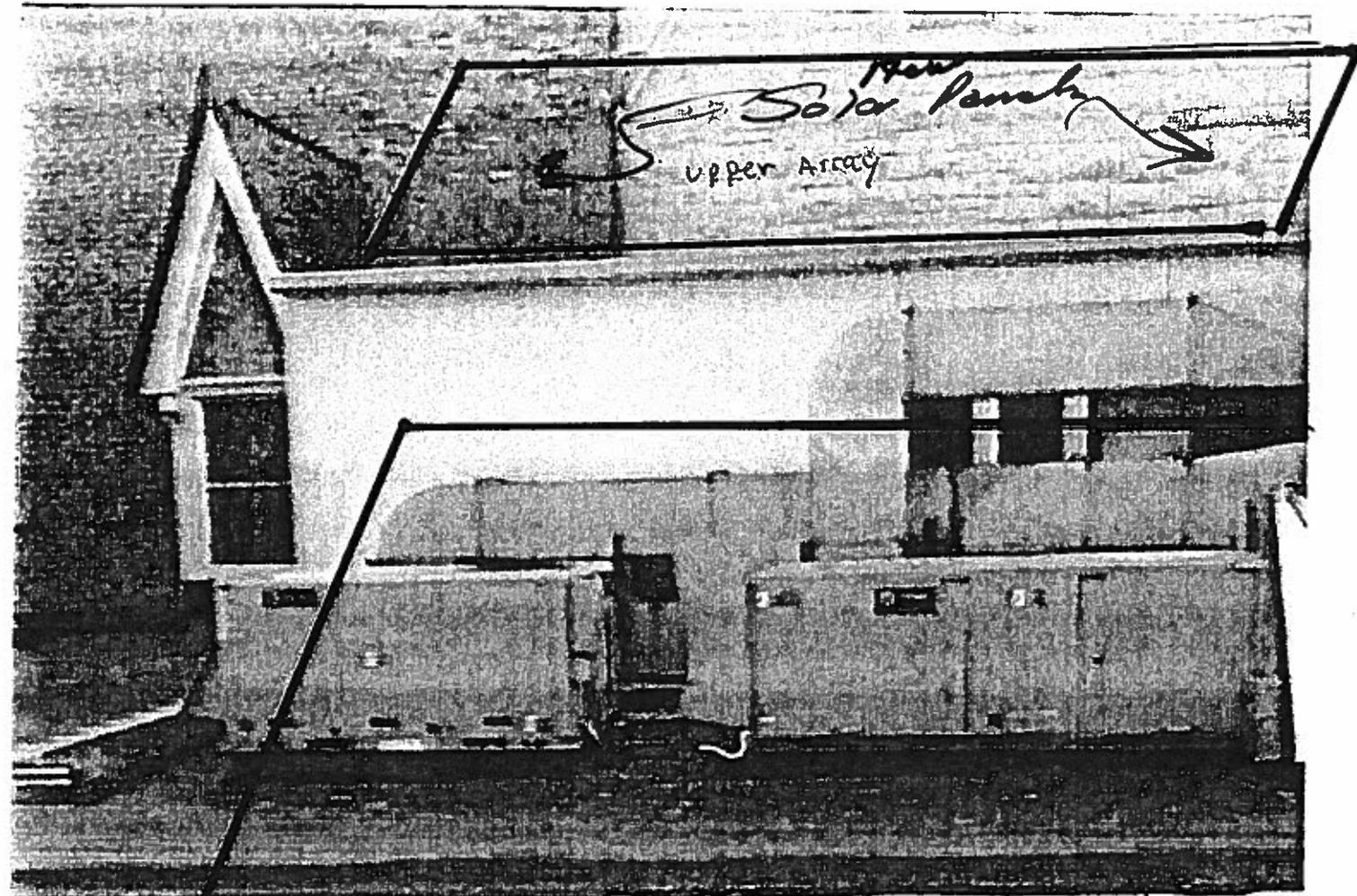
All work will be done according to attached drawings and photos. No panels will be placed on the church roof and the new panels will not be visible from the street.

All work must be done in a craftsman-like manner, and must be completed within one year of the date this certificate was issued. Staff must approve any changes or additions to this certificate before work begins. Work that is not completed in accordance with this certificate may be subject to correction orders or citations. If you require technical assistance, please contact Paul Jakubovich of the Historic Preservation staff as follows: Phone: (414) 286-5712 Fax: (414) 286-0232 E-mail: pjakub@milwaukee.gov.

If permits are required, you are responsible for obtaining them from the Milwaukee Development Center. If you have questions about permit requirements, please consult the Development Center's web site, www.mkedcd.org/build, or call (414) 286-8210 or 8211.

Paul Jakubovich
City of Milwaukee Historic Preservation

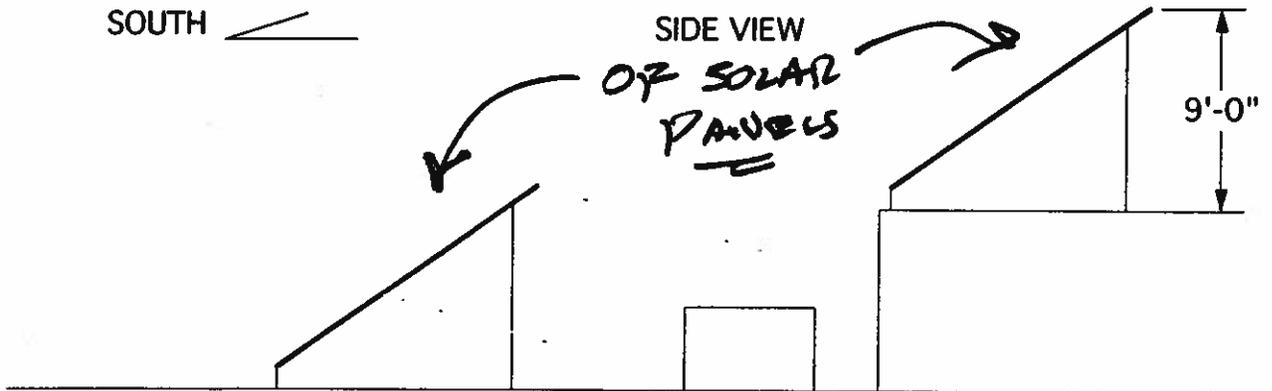
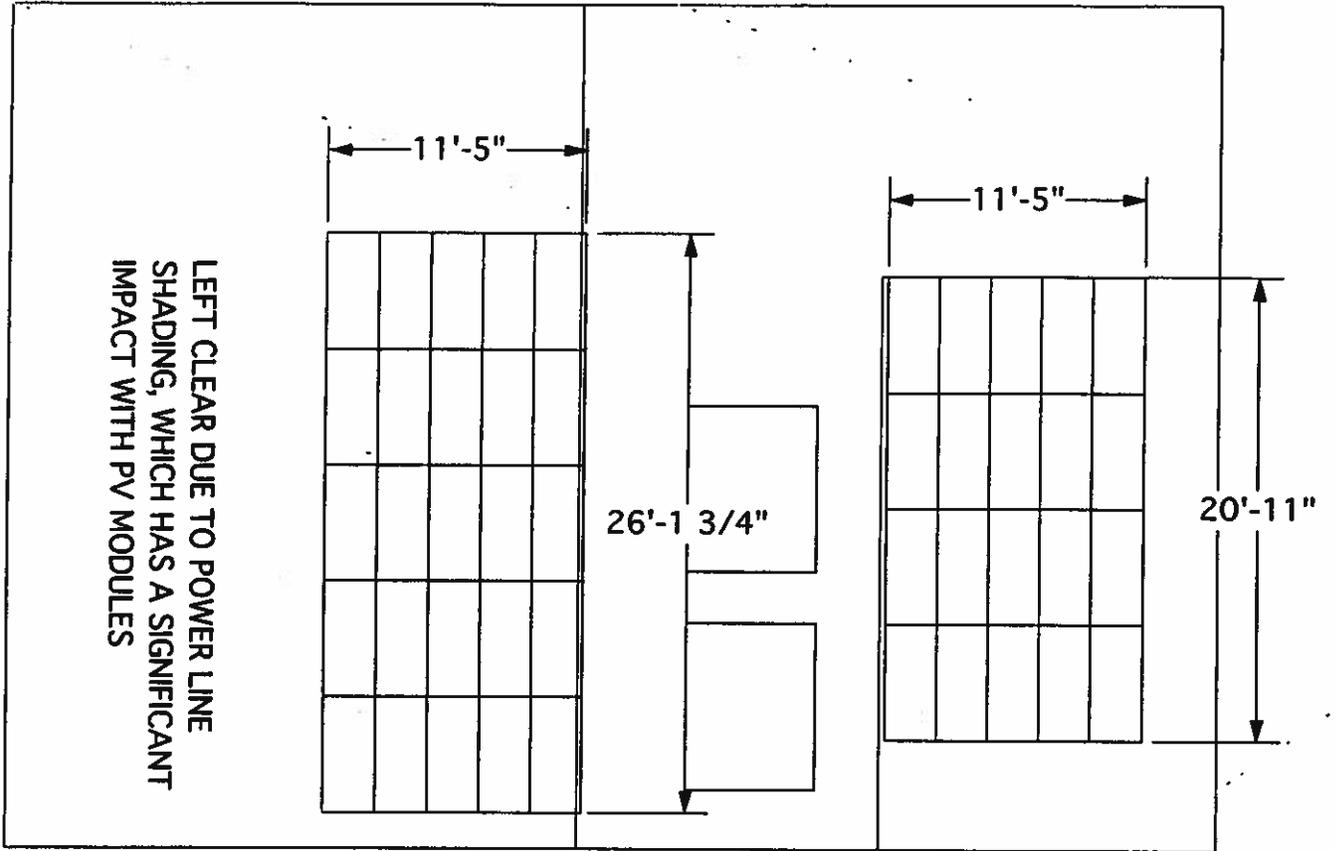
Copies to: Development Center, Ald. Nik Kovac, Inspector Jim Friedrichs (286-5982) TINA ✓



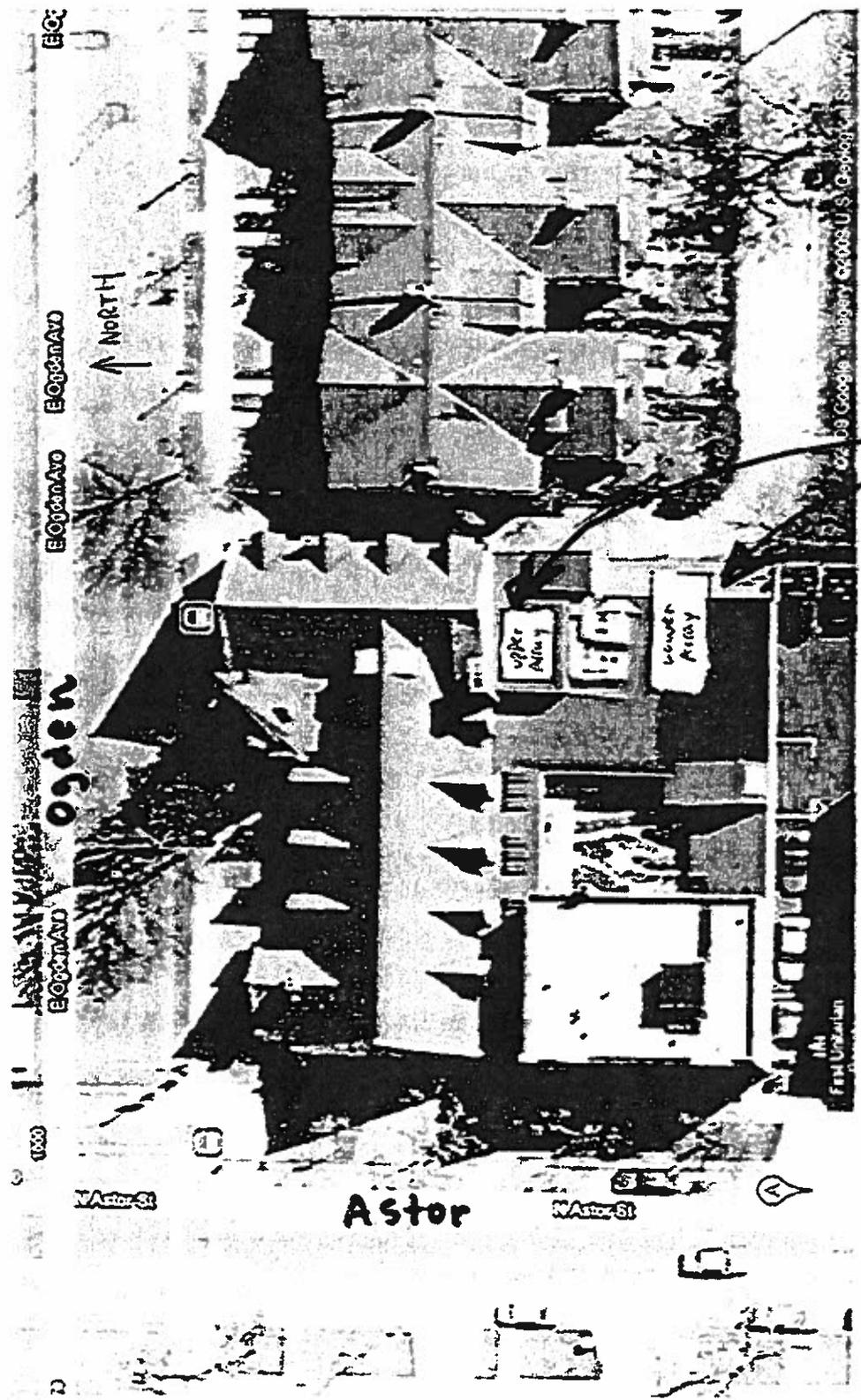
New Solar Panels

Looking North towards
where the solar arrays
will go.

TOP VIEW



Google maps first unitarian church near Milwaukee, WI



Epikos - www.epikos.org - Exploring being part of a Relevant Church in Milwaukee? check us out!

New Solid Panels

SUNPOWER

BENEFITS

Highest Efficiency

Panel efficiency of 18.5% is the highest commercially available for residential applications.

More Power

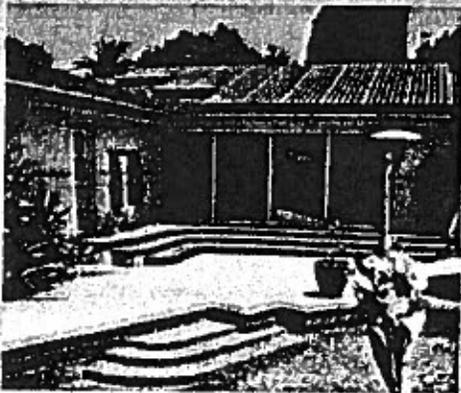
Delivers up to 50% more power per unit area than conventional solar panels.

Attractive Design

Unique all-back contact solar cells and optimized panel design eliminate harsh reflection from front-side metal contacts.

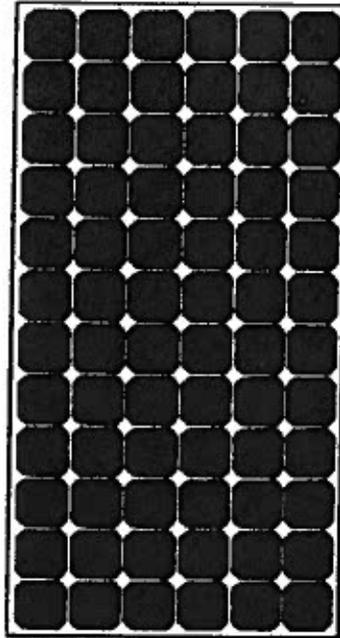
Reliable and Robust Design

Proven materials, tempered front glass, and a sturdy anodized frame allow panel to operate reliably in multiple mounting configurations.



230 SOLAR PANEL

EXCEPTIONAL EFFICIENCY AND PERFORMANCE



The SunPower 230 Solar Panel provides today's highest efficiency and performance for residential use. Utilizing 72 next generation SunPower all-back contact solar cells and an optimized panel design, the SunPower 230 elegantly delivers an unprecedented total panel conversion efficiency of 18.5%. The panel's reduced voltage-temperature coefficient and exceptional low-light performance attributes provide far higher energy delivery per peak power than conventional panels.

SunPower's High Efficiency Advantage - up to 50% More Power

Comparable systems covering 25 m² / 270 ft²

	Conventional	SunPower
Watts / Panel	165	230
Efficiency	12.0%	18.5%
kWs	3.0	4.6

SPR-230-WHT



Electrical Data

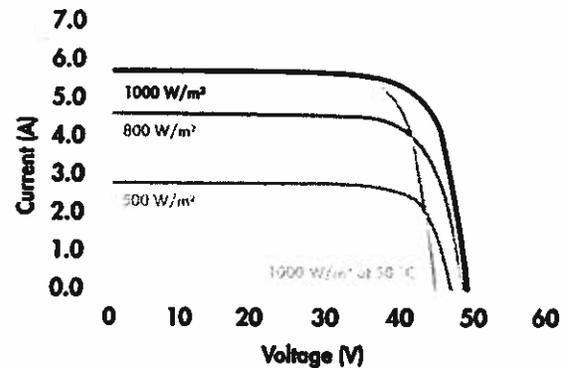
Measured at Standard Test Conditions (STC): irradiance of 1000 W/m², air mass 1.5g, and cell temperature 25° C

Peak Power (+/-5%)	P _{max}	230 W
Rated Voltage	V _{mp}	41.0 V
Rated Current	I _{mp}	5.61 A
Open Circuit Voltage	V _{oc}	48.7 V
Short Circuit Current	I _{sc}	5.99 A
Maximum System Voltage	IEC, UL	1000 V, 600 V
Temperature Coefficients		
	Power	-0.38% /°C
	Voltage (V _{oc})	-132.5 mV/°C
	Current (I _{sc})	3.5 mA/°C
Series Fuse Rating		20 A
Peak Power per Unit Area		185 W/m ² , 17.2 W/ft ²
CEC PTC Rating		213.5 W

Mechanical Data

Solar Cells	72 SunPower all-back contact monocrystalline
Front Glass	3.2 mm (1/8 in) tempered
Junction Box	IP-65 rated with 3 bypass diodes
Output Cables	900 mm length cable / Multi-Contact connectors
Frame	Anodized aluminum alloy type 6063
Weight	15 kg, 33 lbs

IV Curve



Current/voltage characteristics with dependence on irradiance and module temperature.

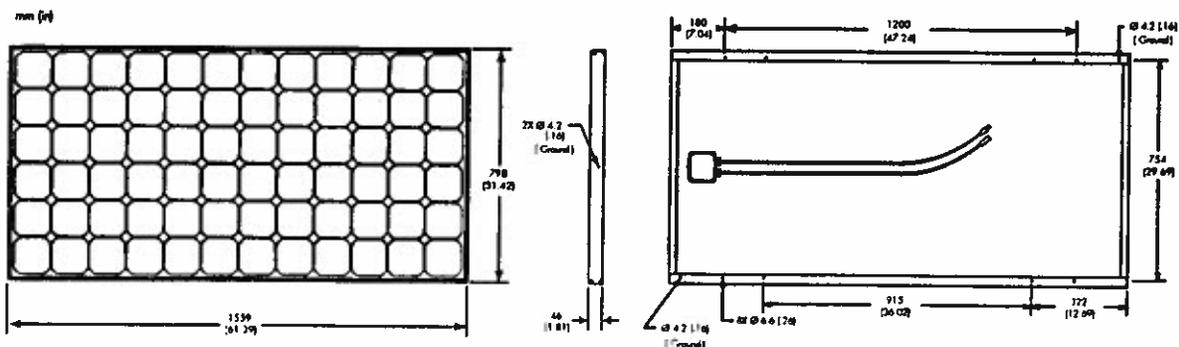
Tested Operating Conditions

Temperature	-40° C to +85° C (-40°F to +185°F)
Max load	50 psf (2400 Pascals) front and back
Impact Resistance	Hail - 25mm (1 in) at 23 m/s (52 mph)

Warranty and Certifications

Warranty	25 year limited power warranty
	10 year limited product warranty
Certifications	IEC 61215, Safety tested IEC 61730
	UL listed (UL 1703), Class C Fire Rating

Dimensions



CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT. Go to www.sunpowercorp.com/panels for details

About SunPower

SunPower designs, manufactures and delivers high-performance solar electric technology worldwide. Our high-efficiency solar cells generate up to 50 percent more power than conventional solar cells. Our high-performance solar panels, roof tiles and trackers deliver significantly more energy than competing systems.