

# SOLAR AIR COLLECTOR CERTIFICATE



Certificate #: 1007  
Date Issued: May 24, 2013  
Issued to: Conserval Systems Inc.  
and Conserval Engineering Inc.

This certifies that the Products listed below have been tested by an accredited independent laboratory to a recognized test standard. In addition the manufacturer has documented procedures in place to ensure the solar Products are properly installed on the building in accordance with approved installation drawings and commissioned to optimize the solar energy savings.

These Products are entitled to bear SAHWIA's **Solar A Mark** as shown above.

## PRODUCTS

SolarWall PV Thermal **model SWPV 1.0** ambient air **PV/T collector**

Site built system using approved SolarWall components, installation drawings and approved PV modules

## Certified PV/T Collector Thermal Performance

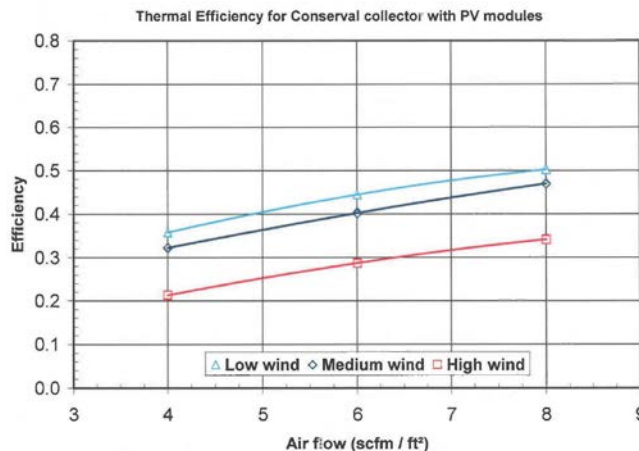
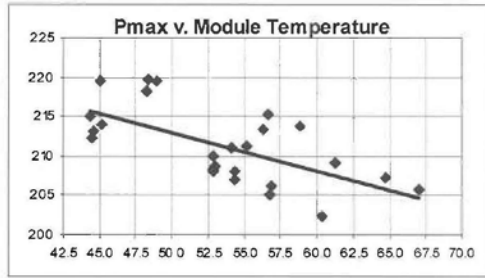
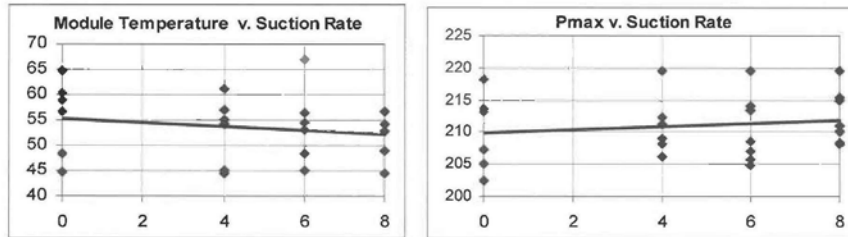


Figure 1: Efficiency versus air flow rates for various wind speeds

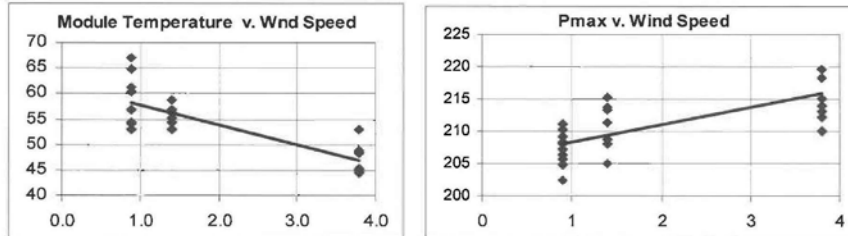


**Figure 2: PV power output decreases as module temperature increases**

The dependence of power on module temperature can be exploited by providing an operating environment for the PV modules that will keep them cooler. As seen in the figures below, the module temperature decreases moderately and the power increases slightly as the suction rate through the transpired collector increases.



The tests also show that in this configuration, the effect of suction rate on module temperature and PV power output is less than the corresponding effects of wind speed, as shown by the following plots.



**Figure 3: PV power increases as wind speed or air flow increases through transpired collector**

**Tests SolarWall / PV**

Test No.	Thermal Efficiency	PV Efficiency	Thermal Power	PV power (6 modules)	Total Power (W)	Suction (cfm/ft <sup>2</sup> )	Wind (m/s)	Solar (W/m <sup>2</sup> )
1	47%	18.5%	3,971	1,276	5,247	8	1.4	915
2	34%	18.9%	2,881	1,303	4,184	8	3.8	913
3	50%	18.2%	4,226	1,257	5,483	8	0.9	911
4	44%	17.9%	3,744	1,238	4,982	6	0.9	912
5	40%	18.3%	3,380	1,266	4,646	6	1.4	909
6	29%	18.3%	2,406	1,266	3,672	6	3.8	908
7	21%	18.8%	1,792	1,295	3,088	4	3.8	912
8	32%	18.2%	2,709	1,258	3,966	4	1.4	910
9	36%	18.0%	3,012	1,246	4,257	4	0.9	912

Test Lab: Exova, located at Mississauga Ontario Canada  
 Test Date(s): May 30, 2011  
 Report Number(s): 10-06-S020  
 Tested in accordance with: CSA F378

**Remarks:** Electrical performance based on six Sanyo HIT PV modules rated at 215 watts each and 17% efficiency at STC conditions. Thermal performance applies to these and other PV modules of similar size and power output.