



May 1, 2012

Public Utilities Commission of Ohio (PUCO)
180 East Broad Street
Columbus, Ohio 43215

Re: Expansion of BHE Photovoltaic System

To whom it may concern:

BHE is pursuing an expansion of its photovoltaic (PV) system situated on the roof of its headquarters at 11733 Chesterdale Road, Cincinnati, Ohio 45246. The expansion will consist of 180 Nusun 250 watt panels (45kW total) ballasted on the roof by RBI Solar's roof mount systems oriented due south and angled at 10°. The expanded system will utilize 6 SMA Sunny Boy 7000 watt 208 volt inverters. The expanded system will be grid tied via the current in place revenue grade meter. It is anticipated that the system expansion will generate an additional 50-55 MWhs of energy annually.

Installation of the system expansion will be completed by Johnson Melloh Solutions (Johnson) an Indianapolis, Indiana, based company. Johnson is an experienced PV system installation contractor with North American Board of Certified Energy Practitioners (NABCEP) on staff. It is anticipated that the system expansion will be installed in July - August, 2012.

Included as attachments to this letter are the system design details including the system layout, racking system, as well as the panel and inverter cut sheets. If there are questions or requests for additional information regarding the system expansion, please contact me at (513) 326-1520 or mbruck@bheenvironmental.com.

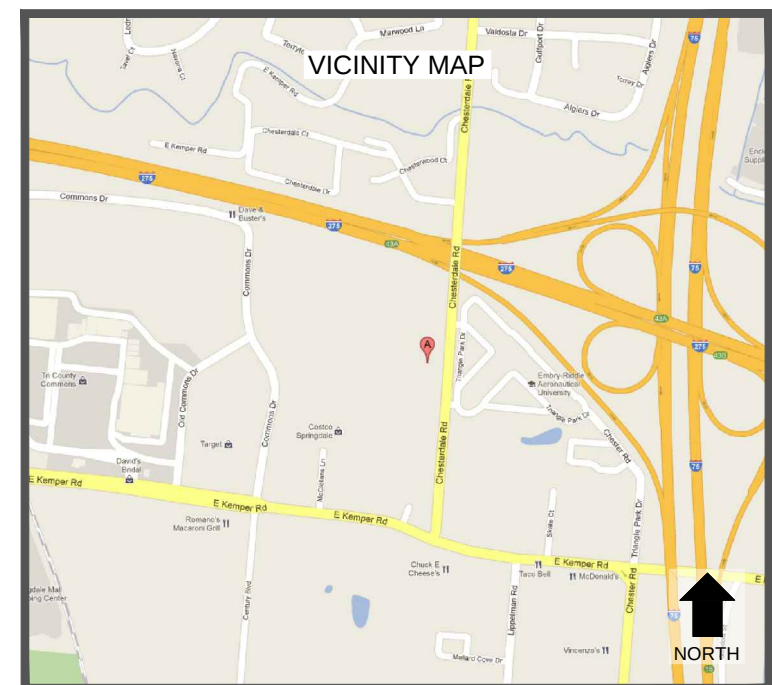
Sincerely,

J. Matt Bruck, PE
Project Manager

c. John Bruck, President, BHE
PN: 9999.956-001

JOHNSON MELLOH SOLUTIONS

5925 Stockberger Place
Indianapolis, IN 46241
317-244-5993 | 866-262-6355 | Fax: 317-243-5777

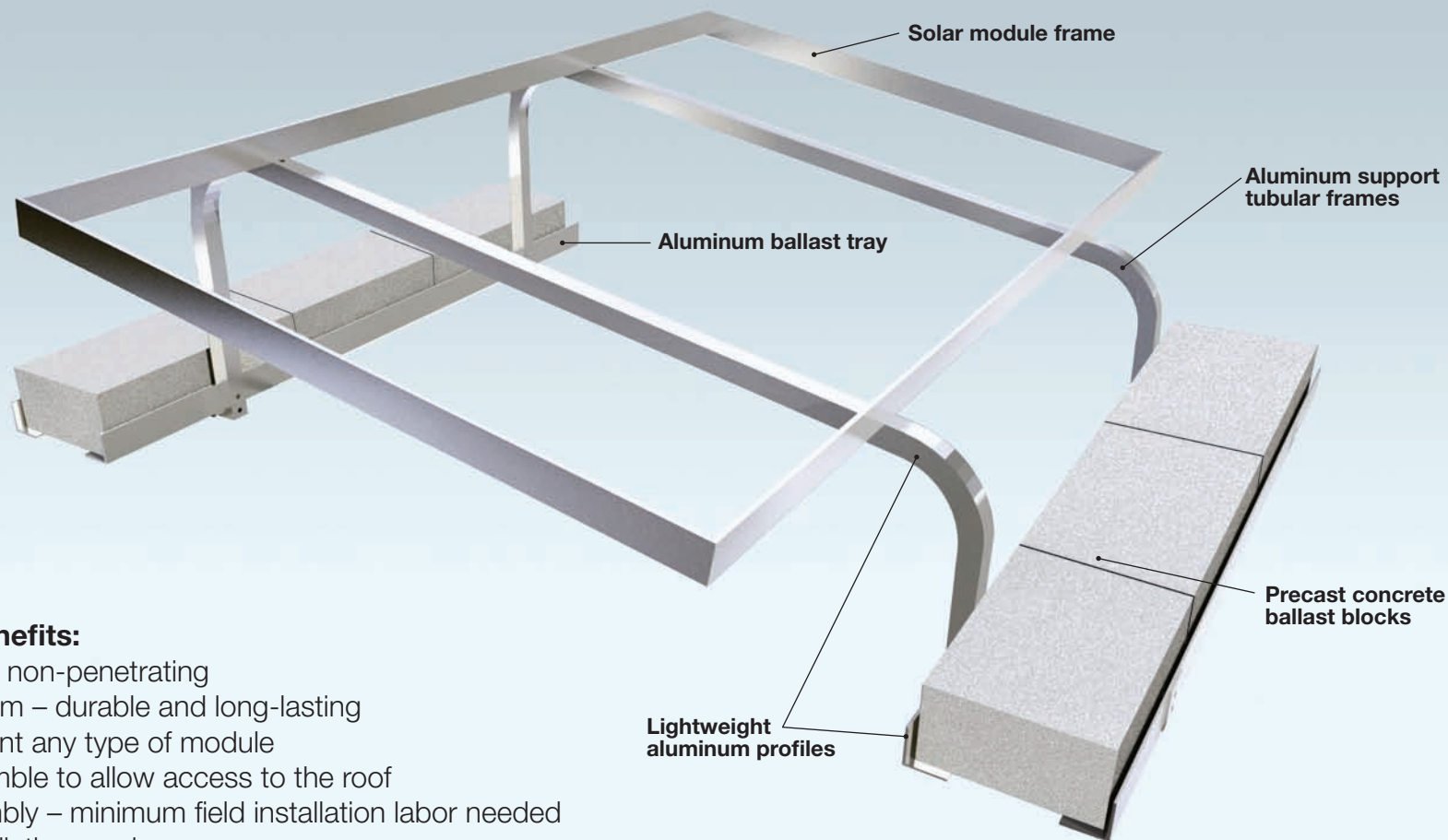


Solar Array

180 Panels
@ 250 W each = 45 kW



**Photovoltaic Proposal
for
BHE**
**11733 Chesterdale Road
Cincinnati, OH 45246**



Features and Benefits:

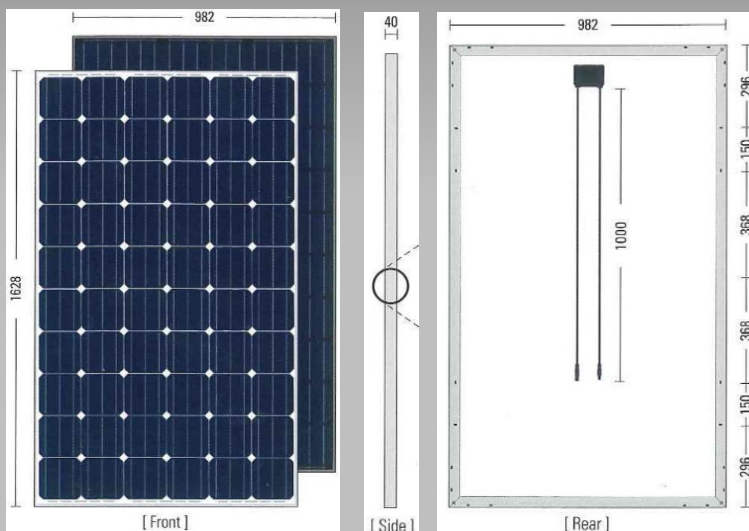
- Light weight and non-penetrating
- Made of aluminum – durable and long-lasting
- Flexibility to mount any type of module
- Easy to disassemble to allow access to the roof
- Ready for assembly – minimum field installation labor needed
- Nationwide installation services
- 20-year limited warranty



www.rbisolar.com • 513-242-2051

solar mounting systems
BALLASTED ROOF MOUNT

TECHNICAL SPECIFICATIONS		MODEL NUMBER: NS250P-6M	
Maximum Power (Pmax)	250 W		
Optimum Power Voltage (Vmp)	30.74 V		
Optimum Operating Current (Imp)	8.17 A		
Open Circuit Voltage (Voc)	37.25 V		
Short Circuit Current (Isc)	8.78 A		
Maximum System Voltage	600 V		
Temperature Coefficient of Isc	0.035 %/C		
Temperature Coefficient of Voc	-0.341%/C		
Temperature Coefficient of Pm	-0.482 %/C		
Temperature Coefficient of Im	0.04 %/C		
Temperature Coefficient of Vm	-0.38 %/C		
Power Tolerance	+ 3 %		
length	1628 mm	64.09 in	
width	982 mm	38.66 in	
height	40 mm	1.57 in	
Front glass thickness	3.2 mm	0.13 in	
Weight	18 kg	39.68 Lbs	
Surface Maximum Load Capacity	5400 Pa	113 psf	
Allowable Hail Load	23 m/s, 25 mm	52 mph, 1 in	
Solar Cell Type	Monocrystalline		
Number of Solar Cells	60 (6 x 10)		
Ambient Operating temperature	-40 C to 85 C	-40 F to 185 F	
Certification Agency	Intertek		
Standards tested to by certification Agency	UL1703		
Power output Χρόνος Ψήφισης Χρόνος Ωθής	90% : 10 years, 80%: 25 years	βήματα	
Ψήφισμα Εξου / Ψήφισμα Ωθής {Ε/	! a ' ψ /		



FEATURES

- Specifically engineered to maintain optimal functionality in extreme climates
- Composed of highly efficient cells
- Ideal for integration into residential and commercial applications
- Backed with 25 year warranty (90%: 10 years, 80%: 25 years)
- Available in triple black / original blue



SUNNY BOY 5000-US / 6000-US / 7000-US / 8000-US

SB 5000US / SB 6000US / SB 7000US / SB 8000US



ASSEMBLED IN THE USA



UL Certified

- For countries that require UL certification (UL 1741/IEEE 1547)

Efficient

- 97% peak efficiency
- OptiCool™ active temperature management system

Safe

- Galvanic isolation

Simple

- Patented automatic grid voltage detection*
- Integrated DC disconnect switch

SUNNY BOY 5000-US / 6000-US / 7000-US / 8000-US

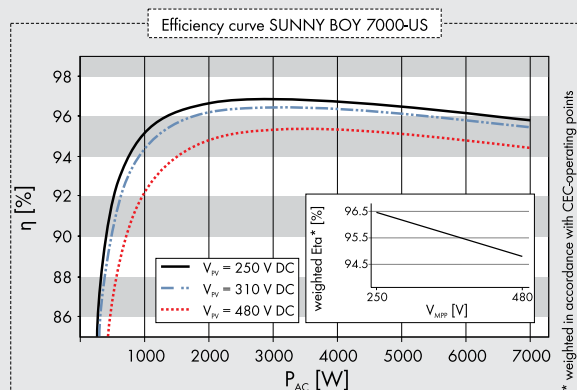
Versatile performer with UL Certification

The Sunny Boy 5000-US, 6000-US, 7000-US and 8000-US inverters are UL Certified and feature excellent efficiency. Graduated power classes provide flexibility in system design. Automatic grid voltage detection* and an integrated DC disconnect switch simplify installation, ensuring safety as well as saving time. These models feature galvanic isolation and can be used with all types of modules—crystalline as well as thin-film.

* US Patent US7352549B1

Technical data	Sunny Boy 5000-US			Sunny Boy 6000-US			Sunny Boy 7000-US			Sunny Boy 8000-US	
	208 V AC	240 V AC	277 V AC	208 V AC	240 V AC	277 V AC	208 V AC	240 V AC	277 V AC	240 V AC	277 V AC
Input (DC)											
Max. recommended PV power (@ module STC)	6250 W			7500 W			8750 W			10000 W	
Max. DC power (@ cos φ = 1)	5300 W			6350 W			7400 W			8600 W	
Max. DC voltage	600 V			600 V			600 V			600 V	
DC nominal voltage	310 V			310 V			310 V			345 V	
MPP voltage range	250 V – 480 V			250 V – 480 V			250 V – 480 V			300 V – 480 V	
Min. DC voltage / start voltage	250 V / 300 V			250 V / 300 V			250 V / 300 V			300 V / 365 V	
Max. input current / per string (at DC disconnect)	21 A / 20 A			25 A / 20 A			30 A / 20 A			30 A / 20 A	
	36 A @ combined terminal			36 A @ combined terminal			36 A @ combined terminal			36 A @ combined terminal	
Number of MPP trackers / fused strings per MPP tracker	1 / 4 (DC disconnect)										
Output (AC)											
AC nominal power	5000 W			6000 W			7000 W			7680 W	8000 W
Max. AC apparent power	5000 VA			6000 VA			7000 VA			8000 VA	
Nominal AC voltage / adjustable	208 V / ●	240 V / ●	277 V / ●	208 V / ●	240 V / ●	277 V / ●	208 V / ●	240 V / ●	277 V / ●	240 V / ●	277 V / ●
AC voltage range	183 – 229 V	211 – 264 V	244 – 305 V	183 – 229 V	211 – 264 V	244 – 305 V	183 – 229 V	211 – 264 V	244 – 305 V	211 – 264 V	244 – 305 V
AC grid frequency; range	60 Hz; 59.3 – 60.5 Hz			60 Hz; 59.3 – 60.5 Hz			60 Hz; 59.3 – 60.5 Hz			60 Hz; 59.3 – 60.5 Hz	
Max. output current	24 A	21 A	18 A	29 A	25 A	22 A	34 A	29 A	25 A	32 A	29 A
Power factor (cos φ)	1			1			1			1	
Phase conductors / connection phases	1 / 2	1 / 2	1 / 1	1 / 2	1 / 2	1 / 1	1 / 2	1 / 2	1 / 1	1 / 2	1 / 1
Harmonics	< 4%			< 4%			< 4%			< 4%	
Efficiency											
Max. efficiency	96.7%	96.8%	96.8%	96.9%	96.8%	97.0%	97.1%	96.9%	97.0%	96.3%	96.5%
CEC efficiency	95.5%	95.5%	95.5%	95.5%	95.5%	96.0%	95.5%	96.0%	96.0%	96.0%	96.0%
Protection devices											
DC reverse-polarity protection	●			●			●			●	
AC short circuit protection	●			●			●			●	
Galvanically isolated / all-pole sensitive monitoring unit	●/–			●/–			●/–			●/–	
Protection class / overvoltage category	I / III			I / III			I / III			I / III	
General data											
Dimensions (W / H / D) in mm (in)	470 / 615 / 240 (18.5 / 24 / 9)										
DC Disconnect dimensions (W / H / D) in mm (in)	187 / 297 / 190 (7 / 12 / 7.5)										
Packing dimensions (W / H / D) in mm (in)	390 / 580 / 800 (16 / 23 / 31.5)										
DC Disconnect packing dimensions (W / H / D) in mm (in)	370 / 240 / 280 (15 / 9 / 11)										
Weight / DC Disconnect weight	64 kg (141 lb) / 3.5 kg (8 lb)										66 kg (145 lb) / 3.5 kg (8 lb)
Packing weight / DC Disconnect packing weight	67 kg (147 lb) / 4 kg (9 lb)										69 kg (152 lb) / 4 kg (9 lb)
Operating temperature range (full power)**	–25 °C ... +45 °C (–13 °F ... +113 °F)										
Noise emission (typical)	44 dB(A)			45 dB(A)			46 dB(A)			49 dB(A)	
Internal consumption at night	0.1 W			0.1 W			0.1 W			0.1 W	
Topology	LF transformer			LF transformer			LF transformer			LF transformer	
Cooling concept	OptiCool			OptiCool			OptiCool			OptiCool	
Electronics protection rating / connection area	NEMA 3R / NEMA 3R			NEMA 3R / NEMA 3R			NEMA 3R / NEMA 3R			NEMA 3R / NEMA 3R	
Features											
Display: text line / graphic	●/–			●/–			●/–			●/–	
Interfaces: RS485 / Bluetooth®	○/○			○/○			○/○			○/○	
Warranty: 10 / 15 / 20 years	●/○/○			●/○/○			●/○/○			●/○/○	
Certificates and permits (more available on request)	UL1741, UL1998, IEEE 1547, FCC Part 15 (Class A & B), CSA C22.2 No. 107.1-2001										
**Extended operating temperature range to -40 °C available. Specify when ordering.											
NOTE: US inverters ship with gray lids. Data at nominal conditions											
● Standard features ○ Optional features – Not available											
Type designation	SB 5000US			SB 6000US			SB 7000US			SB 8000US	

SUNNYBOY5000-US/6000-US/7000-US/8000-US Sunny Boy, OptiCool, and SMA are registered trademarks of SMA Solar Technology AG. Text and figures comply with the state of the art applicable when printing. Subject to technical changes. We accept no liability for typographical and other errors. Printed on chlorine-free paper.



Accessories



RS485 interface
485USPB-SMC-NR



Bluetooth Piggy Back
BTPBINV-NR



Combi-Switch
DC disconnect and PV
array combiner box
COMBO-SWITCH



Combiner Box
Simplify wiring for added
convenience and safety
SBCB-6-3R or SBCB-6-4

This foregoing document was electronically filed with the Public Utilities

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in

Case No(s). 10-0445-EL-REN

Summary: Letter of Notification BHE PV System Expansion electronically filed by Mr. John M Bruck on behalf of BHE ENVIRONMENTAL INC