City of Belle Isle

Universal Engineering Sciences 3532 Maggie Blvd., Orlando, FL 32811
Tel 407-581-8161 * Fax 407-581-0313 * www.universalengineering.com

PERMIT CARD – PLEASE POST AT JOB SITE

THIS DOCUMENT BECOMES YOUR PERMIT WHEN PROPERLY VALIDATED

Per FBC 105.3.3: An enforcing authority may not issue a building permit for any building construction, erection, alteration, modification, repair or addition unless the permit either includes on its face or there is attached to the permit the following statement: **"NOTICE: In addition to the requirements of this permit, there may be additional restrictions applicable to this property that may be found in the public records of this county, and there may be additional permits required from other governmental entities such as water management districts, state agencies, or federal agencies."** The issuance of this permit does not grant permission to violate any applicable City, Orange County, State of Florida and/or Federal codes and/or ordinances. Separate permits are required for Signs, Roofing, Electrical, Gas, Plumbing and Mechanical services. This permit becomes VOID if the work authorized is not commenced within 6 months, or is suspended or abandoned for a period of 6 months after commencement. WORK SHALL BE CONSIDERED SUSPENDED IF AN APPROVED INSPECTION HAS NOT BEEN MADE WITHIN A 6 MONTH PERIOD. PERMISSION IS GRANTED TO DO THE FOLLOWING WORK ACCORDING TO THE CONDITIONS HEREON AND THE APPROVED PLANS AND SPECIFICATIONS, SUBJECT TO COMPLIANCE WITH THE ORDINANCES OF THE CITY OF BELLE ISLE, FLORIDA.

Scope of Work: ELECTRICAL: one photovoltaic system

Comments: None

Project Information
Address: 2624 Homewood Dr, Belle Isle, FL 32809
Parcel ID: 19-23-30-5888-06-071
Property Owner: Kennedy, Charlene & John
Phone Number: 407 855 7684

Company Name: ESA Renewables LLC
Contractor Name: Click, David
License Number: CVC56979
Address: 4155 St. John's Parkway, Sanford, FL 32771
Phone Number: 407 915 5439

Permit Number: 2017-04-003

Date of Application: 03/30/2017
Date Permit Issued: 04/11/2017

***WARNING TO OWNER*: "YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOU PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT." ON THE JOB INSPECTION(S) MUST BE MADE BEFORE PROCEEDING WITH SUBSEQUENT WORK. THIS CARD MUST BE DISPLAYED OUTSIDE AND BE PROTECTED FROM THE WEATHER WHILE BEING VISIBLE FROM THE STREET UNTIL THE FINAL INSPECTIONS HAVE BEEN APPROVED.**

BUILDING FEATURES

IMPACT FEES
School $
Traffic $

ZONING FEES
Zoning Fee $

UNIVERSAL ENG - BUILDING FEES

Cert of Occ	$
Demo	$
Building	$
Fence	$
Driveway	$
Shed	$
Window(s)	$
Door(s)	$
PrePower	$
Electrical	$402.00
Temp Pole	$
Plumbing	$
Mechanical	$
Gas	$
Roofing	$
Boat Dock	$
Screen Encl	$
Swimming Pool	$
Sign	$

SURCHARGE FEES

Surcharge Fee $6.03
Surcharge Fee $6.03

TOTAL FEES $414.06

Date Paid 4-12-17
CC or Check # VISA 8506
Amount Paid 414.06

The person accepting this permit shall conform to the terms of the application on file and construction shall conform to the requirements of the Florida Building Code (FS 553).

BUILDING INSPECTOR USE ONLY

IF APPLICABLE:
Have Zoning Approval Conditions Been Met? YES NO **Have Stormwater Approval Conditions Been Met?** YES NO **Silt fencing in place?** YES NO **Turbidity Barrier in place?** YES NO

☐ **BUILDING**
1st _____ (Footing/Foundation)
Survey specific foundation plan must be onsite before slab pour. Approved Plan on Site? ____
2nd _____ (Slab)
3rd _____ (Lintel)(Wall Reinforcing on Masonry Building)
4th _____ (Exterior Framing)(Roof/Wall Sheathing)
5th _____ (Framing) (To be made after Plumbing/ Mechanical/ Electrical Rough-Ins & Windows/Doors Installed)
6th _____ (Insulation to be Made After Roof Installed)
7th _____ (Drywall)
8th _____ (Sidewalk/Driveway)
9th _____ (Other)
10th _____ (Final – After MEP and Other Applicable Finals)

☐ **ROOFING**
1ST ROOFING Deck Nailing/Dry-in/Flashing _____
2nd ROOFING Covering In-Progress _____
3rd ROOFING Covering Final _____

☐ **PLUMBING** (Pool-Piping, Solar, Irrigation, Water Treatment Equip, Etc...)
☐
1ST _____ (Underground) 2nd _____ (Sewer)
3rd _____ (Rough-In/Tub Set) 4th _____ (Final)

CHECK APPROPRIATE BOX
☐ **GAS** __Natural ___LP ☐ **MECHANICAL** ☐**ELECTRICAL** ☐ **LOW VOLTAGE**

1st _____ (Rough-In) 2nd _____ (Final)

Inspection requests are to be emailed to BIDscheduling@UniversalEngineering.com; a confirmation email will be sent back to you upon scheduling. Next-Day Inspection requests must be made by 4pm. Please include the following in your request: Permit #, project address, type of inspection, date of the requested inspection, a contact name & a contact phone number. AM or PM may be requested but cannot be guaranteed.

For a copy of your permit, or to check inspection results, please visit https://universalengineering.sharefile.com

login ID = cobi@universalengineering.com password = universal13

City of Belle Isle

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RECEIVED
MAR 30 2017
BY:

APPLICATION FOR ELECTRICAL PERMIT

WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT.

DATE OF APPLICATION: 3/29/2017 **PERMIT NUMBER** 2017-04-003

The undersigned hereby applies for a permit to make electrical installations as indicated below. PLEASE PRINT

Project Address 2624 Homewood Dr 2624 Homewood Dr, Belle Isle FL ☑ 32809 ☐ 32812

Property Owner Charlina Kennedy Kennedy, Charlie Phone (407) 855-7684 407-855-7684

Property Owner's Mailing Address 2624 Homewood Dr City belle Isle

State fl Zip Code 32809 **Parcel Id Number:** ~~30-5888-06-071~~ 19-23-30-5888-06-071

To obtain this information, please visit http://www.ocpafl.org/Searches/ParcelSearch.aspx

Class of Building: Old ☑ New ☐ **Type of Building:** Residential ☑ Commercial ☐ Other ☐

Type of Work: New ☑ Alteration ☐ Addition ☐ Repair ☐ Low Voltage New ☐ Existing ☐

INDICATE THE QUANTITY OF ALL EQUIPMENT TO BE INSTALLED

Dishwasher ____	Exhaust Fan ____	Disposal ____	Water Heater ____
Hood Fan ____	Dryer ____	Paddle Fan ____	Outlets ____
Fixtures ____	Spa ____	Pool ____	Switches ____
Electric Signs ____	Meter Reset ____	Low Voltage ____	Stoves ____
Pumps ____	Motors ____	Air Conditioning (tons) ____	Furnace (KW) ____

Temporary Construction Pole ____ **One (1) New Meter Service** ____ Amperage/Voltage/Phase

Meter Service Upgrade from ____ (Amperage/Voltage/Phase) to ____ (Amperage/Voltage/Phase) = ____ (Difference in Size)

Relocate Existing Meter Service (No Service Size Change) ____

Other: This permit application is for the installation of a photovoltaic solar system. Photovoltaic Solar system

☐ **PERMIT FEE BASED ON METER SERVICE SIZE SCHEDULE** ..... $ ____
(IF NO METER SERVICE WORK BEING DONE, USE VALUATION OF JOB FOR PERMIT FEE)

☐ **VALUATION OF JOB** (VALUATION OF ALL MATERIALS, LABOR, AND FIXTURES INSTALLED $ 21846 21,846

Building Official: ____ Date 4-10-17

Verified Contractor's Licenses & Insurance are on file (SW) Date 4-10-17
~~need~~ Not Read

Permit Fee = $ 268
Review Fee = $ 134
3% FL Surcharge = $ 12.06
TOTAL Permit = $ 414.06

I hereby certify that the above is true and correct to the best of my knowledge.

I hereby make Application for Permit as outlined above, and if same is granted I agree to conform to all Florida Building Code Regulations and City Ordinances regulating same and in accordance with plans submitted. The issuance of this permit does not grant permission to violate any applicable Town and/or State of Florida codes and/or ordinances.

LICENSE HOLDER SIGNATURE ____ LICENSE # CVC56979 CVC56979

LICENSE HOLDER NAME David Click David Click COMPANY NAME ESA Renewables LLC ESA Renewables LLC

Street Address 4155 St. Johns Parkway 4155 St. Johns Pkwy

City Sanford Sanford State Fl Zip Code 32771 Phone Number 407-915-5439

Email Address Dclick@esarenewables.com 32771 407-915-5439

NOTE: The Building Permit Number is required if the Electrical Installation is associated with any construction or alteration where a Building Permit has been issued.

Building Permit Number ____

1ST 1K 37
11x21 231
268 ÷ 2
134
402

79775 ~~3/14~~ 4/10

Permit Number: 2017-04-003
Folio/Parcel ID #: ____
Prepared by: ____

Return to: ____

DOC# 20170115554
03/06/2017 08:09:16 AM Page 1 of 1
Rec Fee: $10.00
Phil Diamond, Comptroller
Orange County, FL
MB - Ret To: ESA RENEWABLES LLC

NOTICE OF COMMENCEMENT

State of Florida, County of Orange

The undersigned hereby gives notice that improvement will be made to certain real property, and in accordance with Chapter 713, Florida Statutes, the following information is provided in this Notice of Commencement.

1. **Description of property** (legal description of the property, and street address if available)
   NELA ISLE (ISLAND SECTION) O/99 THE W 15 FT OF LOT 7 & E 70 FT LOT 8 & LAND ON S
2. **General description of improvement**
   installation of photovoltaic solar system
3. **Owner information or Lessee information if the Lessee contracted for the improvement**
   Name Kennedy John J Kennedy Charline
   Address 2624 Homewood Dr Belle Isle, FL 32809-6113
   Interest in Property owner
   Name and address of fee simple titleholder (if different from Owner listed above)
   Name ____
   Address ____
4. **Contractor**
   Name ESA Renewables LLC Telephone Number 407-915-5430
   Address 4155 St. Johns Parkway, sanford, fl 32771
5. **Surety** (if applicable, a copy of the payment bond is attached)
   Name ____ Telephone Number ____
   Address ____ Amount of Bond $ ____
6. **Lender**
   Name ____ Telephone Number ____
   Address ____
7. **Persons within the State of Florida designated by Owner upon whom notices or other documents may be served as provided by §713.13(1)(a)7, Florida Statutes.**
   Name ____ Telephone Number ____
   Address ____
8. **In addition to himself or herself, Owner designates the following to receive a copy of the Lienor's Notice as provided in §713.13(1)(b), Florida Statutes.**
   Name ____ Telephone Number ____
   Address ____
9. **Expiration date of notice of commencement** (the expiration date will be 1 year from the date of recording unless a different date is specified) ____

WARNING TO OWNER: ANY PAYMENTS MADE BY THE OWNER AFTER THE EXPIRATION OF THE NOTICE OF COMMENCEMENT ARE CONSIDERED IMPROPER PAYMENTS UNDER CHAPTER 713, PART I, SECTION 713.13, FLORIDA STATUTES, AND CAN RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE COMMENCING WORK OR RECORDING YOUR NOTICE OF COMMENCEMENT.

Charline Foley Kennedy — Homeowner
Signature of Owner or Lessee, or Owner's or Lessee's Authorized Officer/Director/Partner/Manager — Signatory's Title/Office

The foregoing instrument was acknowledged before me this 6th day of February 2017 (month/year) by Charline F Kennedy (name of person)

as Homeowner for ____
Type of authority, e.g., officer, trustee, attorney in fact — Name of party on behalf of whom instrument was executed

[signature] — Yolanda Quiceno 11/11/20
Signature of Notary Public – State of Florida — Print, type, or stamp commissioned name of Notary Public

Personally Known ✓ OR Produced ID ____
Type of ID Produced ____

YOLANDA QUICENO
MY COMMISSION # GG 010309
EXPIRES: November 11, 2020
Bonded Thru Notary Public Underwriters

SUNNY BOY
3.0-US / 3.8-US / 5.0-US / 6.0-US / 7.0-US / 7.7-US

Value-Added Improvements

- World's first Secure Power Supply now offers up to 2,000 W
- Full grid management capabilities ensure a utility-compliant solution for any market

Reduced Labor

- New Installation Assistant with direct access via smartphone minimizes time in the field
- Integrated disconnect simplifies equipment stocking and speeds installation

Unmatched Flexibility

- SMA's proprietary OptiTrac™ Global Peak technology mitigates shade with ease
- Multiple independent MPPTs accommodate hundreds of stringing possibilities

Trouble-Free Servicing

- Two-part enclosure concept allows for simple, expedited servicing
- Enhanced AFCI technology reduces false tripping while improving sensitivity in real arcs

SUNNY BOY
3.0-US / 3.8-US / 5.0-US / 6.0-US / 7.0-US / 7.7-US

Reduce costs across your entire residential business model

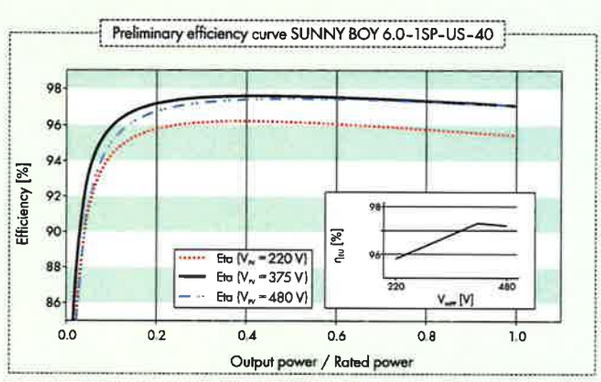
The residential PV market is changing rapidly, and we understand that your bottom line matters more than ever. That's why we've designed a superior residential solution that will help you decrease costs throughout all stages of your business operations. The Sunny Boy 3.0-US/3.8-US/5.0-US/6.0-US/7.0-US/7.7-US join the SMA lineup of field-proven solar technology backed by the world's #1 service team, along with a wealth of improvements. Simple design, improved stocking and ordering, value driven sales support and streamlined installation are just some of the ways that SMA is working to help your business operate more efficiently.

Technical data	Sunny Boy 3.0-US		Sunny Boy 3.8-US		Sunny Boy 5.0-US	
	208 V	240 V	208 V	240 V	208 V	240 V
Input (DC)						
Max. usable DC power	3100 W	3100 W	3450 W	4000 W	5150 W	5150 W
Max. DC voltage	600 V					
Rated MPP voltage range	155 - 480 V		195 - 480 V		220 - 480 V	
MPPT operating voltage range	100 - 550 V					
Min. DC voltage / start voltage	100 V / 125 V					
Max. operating input current per MPPT	10 A					
Max. short circuit current per MPPT	18 A					
Number of MPPT tracker / string per MPPT tracker	2/1				3 / 1	
Output (AC)						
AC nominal power	3000 W	3000 W	3330 W	3800 W	5000 W	5000 W
Max. AC apparent power	3000 VA	3000 VA	3330 VA	3800 VA	5000 VA	5000 VA
Nominal voltage / adjustable	208 V / ●	240 V / ●	208 V / ●	240 V / ●	208 V / ●	240 V / ●
AC voltage range	183 - 229 V	211 - 264 V	183 - 229 V	211 - 264 V	183 - 229 V	211 - 264 V
AC grid frequency	60 Hz / 50 Hz					
Max. output current	14.5 A	12.5 A	16.0 A	16.0 A	24.0 A	24.0 A
Power factor (cos φ)	1					
Output phases / line connections	1 / 2					
Harmonics	< 4 %					
Efficiency						
Max. efficiency	97.2 %	97.6 %	97.2 %	97.5 %	97.2 %	97.5 %
CEC efficiency	96 %	96.5 %	96.5 %	96.5 %	96.5 %	97 %
Protection devices						
DC disconnect device	●					
DC reverse polarity protection	●					
Ground fault monitoring / Grid monitoring	●					
AC short circuit protection	●					
All-pole sensitive residual current monitoring unit (RCMU)	●					
Arc fault circuit interrupter (AFCI)	●					
Protection class / overvoltage category	I / IV					
General data						
Dimensions (W / H / D) in mm (in)	535 x 730 x 198 (21.1 x 28.5 x 7.8)					
Packaging Dimensions (W / H / D) in mm (in)	600 x 800 x 300 (23.6 x 31.5 x 11.8)					
Weight	26 kg (57 lb)					
Packaging weight	30 kg (66 lb)					
Operating temperature range	- 25°C ...+60°C					
Noise emission (typical)	39 dB(A)					
Internal power consumption at night	< 5 W					
Topology	Transformerless					
Cooling concept	Convection					
Features						
Secure Power Supply	●					
Display (2 x 16 characters)	●					
Interfaces: Ethernet / WLAN	● / ●					
Sensor module / External WLAN antenna	o / o					
Warranty: 10 / 15 / 20 years	●/o/o					
Certificates and approvals	UL 1741, UL 1998, UL 1699B, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA V22.2 107.1-1					
● Standard features o Optional features – Not available	Data at nominal conditions NOTE: US inverters ship with gray lids.					
Type designation	SB3.0-1SP-US-40		SB3.8-1SP-US-40		SB5.0-1SP-US-40	

Accessories

Sensor module
MD.SEN-US-40

External WLAN antenna
EXTANT-US-40



Technical data	Sunny Boy 6.0-US		Sunny Boy 7.0-US		Sunny Boy 7.7-US	
	208 V	240 V	208 V	240 V	208 V	240 V
Input (DC)						
Max usable DC power	5400 W	6200 W	6900 W	7200 W	6900 W	7950 W
Max. DC Voltage	600 V					
Rated MPP Voltage range	220 - 480 V		245 - 480 V		270 - 480 V	
MPPT operating voltage range	100 - 550 V					
Min. DC voltage / start voltage	100 V / 125 V					
Max. operating input current per MPPT	10 A					
Max. short circuit current per MPPT	18 A					
Number of MPPT tracker / string per MPPT tracker	3 / 1					
Output (AC)						
AC nominal power	5200 W	6000 W	6660 W	7000 W	6660 W	7680 W
Max. AC apparent power	5200 VA	6000 VA	6660 VA	7000 VA	6660 VA	7680 VA
Nominal voltage / adjustable	208 V / ●	240 V / ●	208 V / ●	240 V / ●	208 V / ●	240 V / ●
AC voltage range	183 - 229 V	211 - 264 V	183 - 229 V	211 - 264 V	183 - 229 V	211 - 264 V
AC grid frequency	60 Hz / 50 Hz					
Max. output current	25.0 A	25.0 A	32.0 A	29.2 A	32.0 A	32.0 A
Power factor (cos φ)	1					
Output phases / line connections	1 / 2					
Harmonics	< 4 %					
Efficiency						
Max. efficiency	97.2 %	97.6 %	97.1 %	97.5 %	97.1 %	97.5 %
CEC efficiency	96.5 %	97 %	96.5 %	97 %	96.5 %	97 %
Protection devices						
DC disconnect device	●					
DC reverse polarity protection	●					
Ground fault monitoring / Grid monitoring	●					
AC short circuit protection	●					
All-pole sensitive residual current monitoring unit (RCMU)	●					
Arc fault circuit interrupter (AFCI)	●					
Protection class / overvoltage category	I / IV					
General data						
Dimensions (W / H / D) in mm (in)	535 x 730 x 198 (21.1 x 28.5 x 7.8)					
Packaging Dimensions (W / H / D) in mm (in)	600 x 800 x 300 (23.6 x 31.5 x 11.8)					
Weight	26 kg (57 lb)					
Packaging weight	30 kg (66 lb)					
Operating temperature range	- 25°C ...+60°C					
Noise emission (typical)	36 dB(A)		45 dB(A)			
Internal power consumption at night	< 5 W					
Topology	Transformerless					
Cooling concept	Convection		Fan			
Features						
Secure Power Supply	●					
Display (2 x 16 characters)	●					
Interfaces: Ethernet / WLAN	● / ●					
Sensor module / External WLAN antenna	o / o					
Warranty: 10 / 15 / 20 years	●/o/o					
Certificates and approvals	UL 1741, UL 1998, UL 1699B, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA V22.2 107.1-1					
● Standard features o Optional features – Not available	Data at nominal conditions NOTE: US inverters ship with gray lids.					
Type designation	SB6.0-1SP-US-40		SB7.0-1SP-US-40		SB7.7-1SP-US-40	

SAME NAME, NEW GAME

The Sunny Boy 3.0-US through 7.7-US are once again raising the bar by offering improved performance, enhanced features, and most importantly, an economical approach to residential solar. Your business model is a value chain. The new Sunny Boy-US series can help you stay competitive in an increasingly price sensitive residential market by driving down costs across all of your business operations.

SIMPLE, FLEXIBLE DESIGN

Speed the completion of customer proposals and maximize the efficiency of your design team with the Sunny Boy-US series, which provides a new level of flexibility in system design by offering:

» Hundreds of stringing configurations and multiple independent MPPTs

» SMA's proprietary OptiTrac™ Global Peak shade mitigation technology

» Diverse application options including on- and off-grid compatibility

VALUE-DRIVEN SALES ENABLEMENT

SMA wants to enable your sales team by arming them with an abundance of feature/benefit support. Show your customers the value of the Sunny Boy-US series by utilizing:

» Secure Power Supply, now with 2,000 W of opportunity power in the event of a grid outage, as an increased value-add or upsell opportunity

» SMA's 35 year history and status as the #1 global inverter manufacturer instills homeowners with peace of mind and the long-term security they demand from a PV investment

» An economical solution for shade mitigation and the challenges of complex roofs

IMPROVED STOCKING AND ORDERING

Ensure that your back office business operations run smoothly and succinctly while mitigating potential errors. The Sunny Boy-US series can help achieve cost savings in these areas by providing:

» An integrated DC disconnect that simplifies equipment stocking and allows for a single inverter part number

» All communications integrated into the inverter, eliminating the need to order additional equipment

STREAMLINED INSTALLATION AND COMMISSIONING

Expedite your operations in the field by taking advantage of the new Sunny Boy's installer-friendly feature set including:

» Direct access via smartphone and utilization of SMA's Installation Assistant, which minimizes time/labor spent in the field and speeds the path to commissioning

» Improved communication—no need to install additional equipment

» Integrated DC disconnect that simplifies onsite logistics and eliminates the need to install a separate disconnect unit, speeding overall installation time

SUPERIOR SERVICE

SMA understands the factors that contribute to lifetime PV ownership cost, that's why the Sunny Boy-US series was designed for maximum reliability and backstopped by an unmatched service offering. Benefit from:

» The new Sunny Boy's two-part enclosure concept that separates the connection unit from the power unit, which allows for simple, expedited servicing

» The #1 service team in the PV industry, as recognized by IMS research, with experience servicing an installed base of more than 40 GW

www.hhi-green.com/solar/en

Hyundai Solar Module

Hyundai Heavy Industries was founded in 1972 and is a Fortune 500 company. The company employs more than 48,000 people, and has a global leading 7 business divisions with sales of 51.3 Billion USD in 2013. As one of our core businesses of the company, Hyundai Heavy Industries is committed to develop and invest heavily in the field of renewable energy.
Hyundai Solar is the largest and the longest standing PV cell and module manufacturer in South Korea. We have 600 MW of module production capacity and provide high-quality solar PV products to more than 3,000 customers worldwide. We strive to achieve one of the most efficient PV modules by establishing an R&D laboratory and investing more than 20 Million USD on innovative technologies.

PERL RG-Series

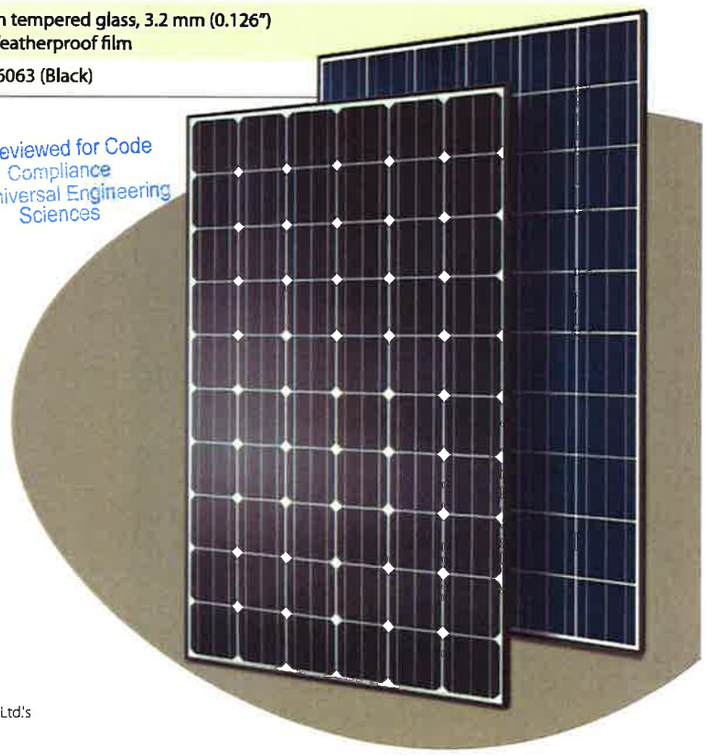
Multi-crystalline Type
HiS-M265RG | HiS-M270RG | HiS-M275RG

Mono-crystalline Type
HiS-S280RG | HiS-S285RG | HiS-S290RG

Mechanical Characteristics

※ Several models are under certification process.

Dimensions	998 mm (39.29")(W) x 1,640 mm (64.57")(L) x 35 mm (1.38")(H)
Weight	Approx. 18.7 kg (41.2 lbs)
Solar cells	60 cells in series (6 x10 matrix) with PERL technology (Hyundai cell, Made in Korea)
Output cables	4 mm² (12AWG) cables with polarized weatherproof connectors, IEC certified (UL listed), Length 1.0 m (39.4")
Junction box	IP67, weatherproof, IEC certified (UL listed)
Bypass diodes	3 bypass diodes to prevent power decrease by partial shade
Construction	Front : Anti-reflective coating low-iron tempered glass, 3.2 mm (0.126") Encapsulant : EVA Back Sheet : Weatherproof film
Frame	Clear anodized aluminum alloy type 6063 (Black)



High Quality

- IEC 61215 (Ed.2) and IEC 61730 by VDE
- UL listed (UL 1703), Type 1 for Class A Fire Rating
- Output power tolerance +3/-0 %
- ISO 9001:2000, ISO 14001:2004 and ISO 50001:2011 Certified
- OHSAS 18001:2007 Certified
- Advanced Mechanical Test (8,000 Pa) Passed (IEC) / Mechanical Load Test (40 lbs/ft²) Passed (UL)
- Ammonia Corrosion Resistance Test Passed
- IEC 61701 (Salt Mist Corrosion Test) Passed

Limited Warranty

- 1st year: 97 %
- After 2nd year: 0.7 % annual degradation
  80.2 % for 25 years
  ▸Please refer to the Hyundai Limited Warranty for more details.

※ Important Notice on Warranty
The warranties apply only to the PV modules with Hyundai Heavy Industries Co., Ltd.'s logo (shown below) and product serial number on it.

HYUNDAI HEAVY INDUSTRIES

Electrical Characteristics

| Multi-crystalline Type |

		HIS-M□□□RG		
		265	270	275
Nominal output (Pmpp)	W	265	270	275
Voltage at Pmax (Vmpp)	V	31.3	31.4	31.5
Current at Pmax (Impp)	A	8.5	8.6	8.7
Open circuit voltage (Voc)	V	37.9	38.0	38.2
Short circuit current (Isc)	A	9.1	9.2	9.3
Output tolerance	%	+3/-0		
No. of cells & connections	pcs	60 in series		
Cell type	-	6" Multi-crystalline silicon with PERL technology (Hyundai cell, Made in Korea)		
Module efficiency	%	16.2	16.5	16.8
Temperature coefficient of Pmpp	%/K	-0.41	-0.41	-0.41
Temperature coefficient of Voc	%/K	-0.32	-0.32	-0.32
Temperature coefficient of Isc	%/K	0.039	0.039	0.039

※ All data at STC (Standard Test Conditions). Above data may be changed without prior notice.

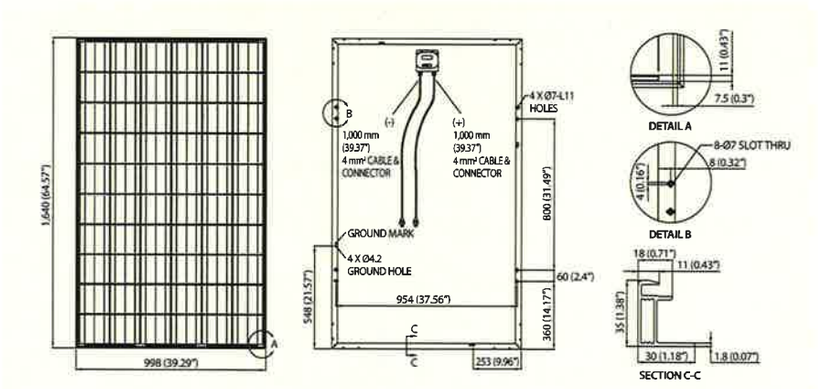
| Mono-crystalline Type |

		HIS-S□□□RG		
		280	285	290
Nominal output (Pmpp)	W	280	285	290
Voltage at Pmax (Vmpp)	V	31.7	31.8	32.0
Current at Pmax (Impp)	A	8.8	8.9	9.1
Open circuit voltage (Voc)	V	38.5	38.7	38.8
Short circuit current (Isc)	A	9.4	9.5	9.7
Output tolerance	%	+3/-0		
No. of cells & connections	pcs	60 in series		
Cell type	-	6" Mono-crystalline silicon with PERL technology (Hyundai cell, Made in Korea)		
Module efficiency	%	17.1	17.4	17.7
Temperature coefficient of Pmpp	%/K	-0.42	-0.42	-0.42
Temperature coefficient of Voc	%/K	-0.30	-0.30	-0.30
Temperature coefficient of Isc	%/K	0.047	0.047	0.047

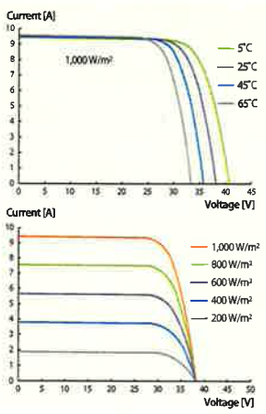
※ All data at STC (Standard Test Conditions). Above data may be changed without prior notice.

| Module Diagram |

(unit : mm, inch)



| I-V Curves |



| Installation Safety Guide |

- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when they are wet.

Nominal Operating Cell Temperature	46°C ± 2
Operating Temperature	-40 - 85°C
Maximum System Voltage	DC 1,000 V (IEC) DC 600 V (UL)
Maximum Reverse Current	15 A

[Printed Date : December 2015]

Sales & Marketing
Hyundai Bldg., 75, Yulgok-ro, Jongno-gu, Seoul 03058, Korea
Tel : +82-2-746-4671, 7635, 8556 Fax : +82-2-746-7675

HYUNDAI HEAVY INDUSTRIES

PROJECT DESCRIPTION:

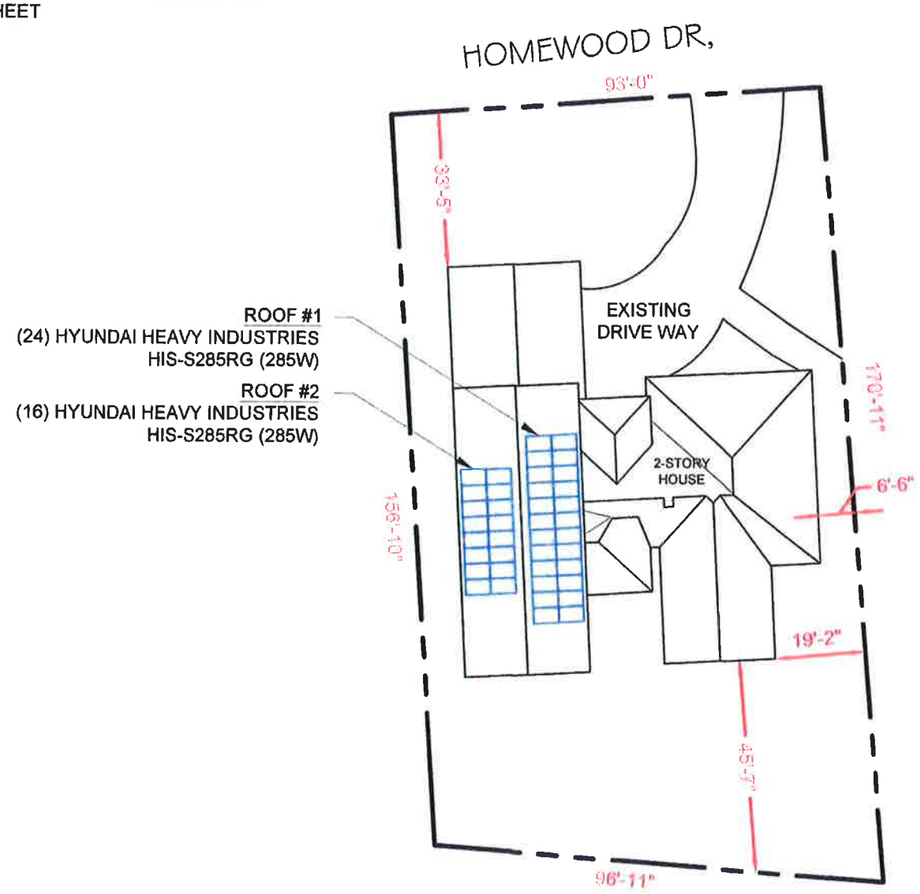
40x285 HYUNDAI HEAVY INDUSTRIES HIS-S285RG (285W)
ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES

SYSTEM SIZE: 11.40 kW DC STC
ARRAY AREA #1: 422.88 SQ FT.
ARRAY AREA #2: 281.92 SQ FT.

EQUIPMENT SUMMARY
40 HYUNDAI HEAVY INDUSTRIES HIS-S285RG (285W)

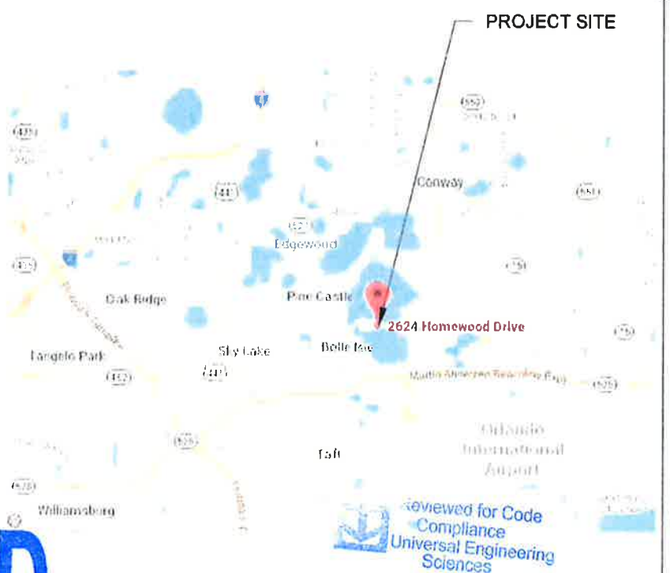
SHEET INDEX

GOVERNING CODES
FLORIDA ELECTRIC CODE, 5TH EDITION 2014 EDITION (FEC)
FLORIDA RESIDENTIAL CODE, 5TH EDITION 2014 (FRC)
FLORIDA PLUMBING CODE, 5TH EDITION 2014 (FPC)
FLORIDA BUILDING CODE, 5TH EDITION 2014 EDITION (FBC)
FLORIDA MECHANICAL CODE, 5TH EDITION 2014 (FMC)
ARTICLE 690, NEC 2011 CODE BOOK



1 PLOT PLAN WITH ROOF PLAN
A-00 SCALE: 1/32"=1'-0"

2 HOUSE PHOTO
A-00 SCALE: NTS



3 VICINITY MAP
A-00 SCALE: NTS

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BY:

Reviewed for Code Compliance
Universal Engineering Sciences

RC ENGINEERING, LLC
COA # 28345
2381 CREST RIDGE COURT
SANFORD, FL 32771
TEL 407-474-9181 ERMOCRATES E CASTILLO - FL PE 52590

REVISIONS

DESCRIPTION	DATE	REV

PROJECT DEVELOPER

FEB 23 2017

Signature with Seal

LICENSE NO. 52590 STATE OF FLORIDA PROFESSIONAL ENGINEER ERMOCRATES E. CASTILLO

PROJECT NAME
CHARLINE KENNEDY RESIDENCE
2624 HOMEWOOD DRIVE, BELLE ISLE, FL 32809

SHEET NAME
PLOT PLAN & VICINITY MAP

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
A-00

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 40 MODULES
MODULE TYPE = HYUNDAI HEAVY INDUSTRIES HIS-S285RG (285W)
MODULE WEIGHT = 41.2 LBS / 18.7 KG.
MODULE DIMENSIONS = 64.57" x 39.29" = 17.62 SF
UNIT WEIGHT OF ARRAY = 2.34 PSF

ARRAY & ROOF AREA CALC'S (ROOF #1)

ARRAY AREA = 422.88 SQ. FT.
ROOF FACE AREA = 837.00 SQ. FT.
422.88 / 837.00 = 50.52% OF ROOF
FACE AREA COVERED BY ARRAY

DESCRIPTION (ROOF # 1)

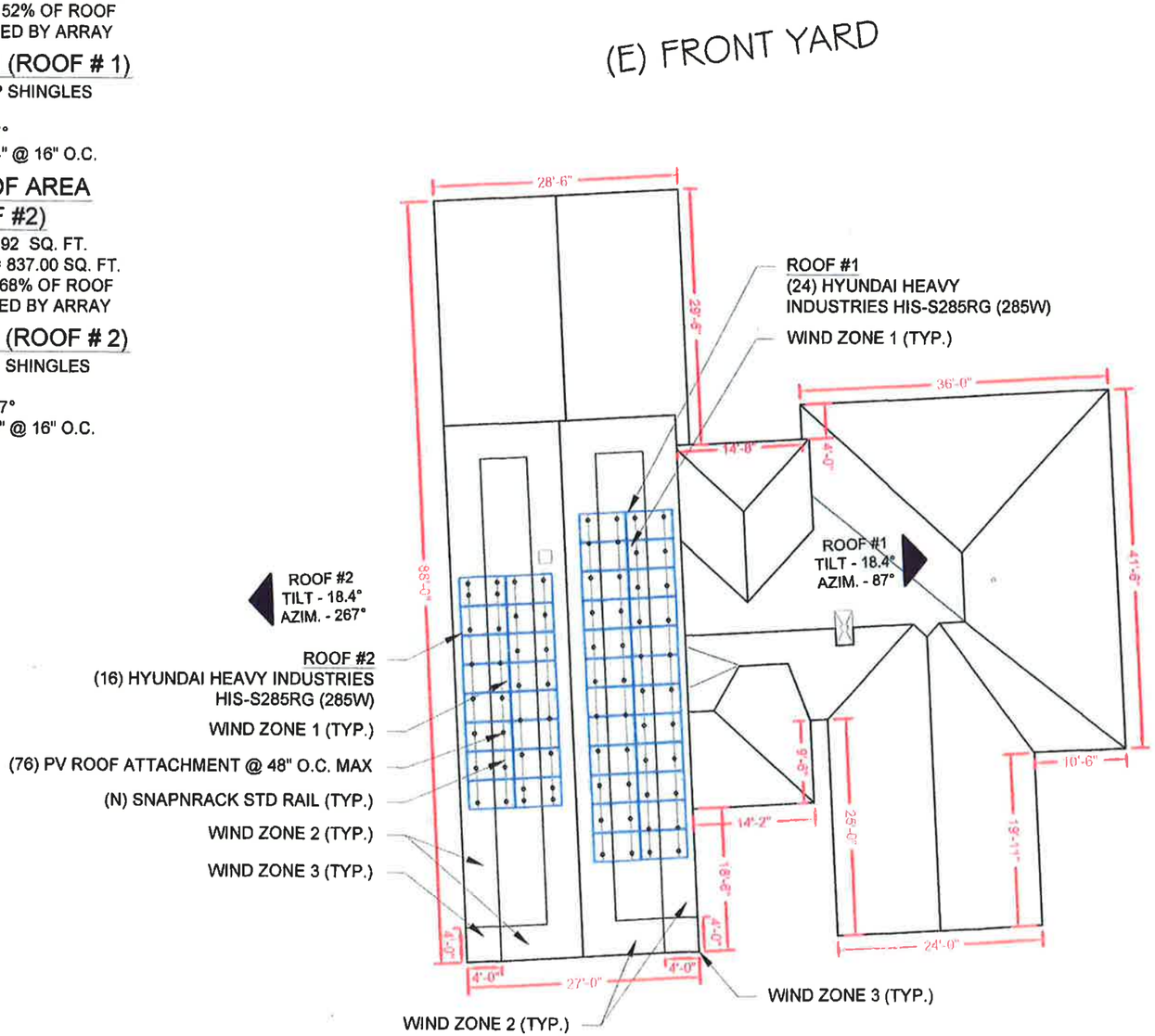
ROOF TYPE - COMP SHINGLES
ROOF TILT - 18.4°
ROOF AZIMUTH - 87°
RAFTER SIZE - 2"x4" @ 16" O.C.

ARRAY & ROOF AREA CALC'S (ROOF #2)

ARRAY AREA = 281.92 SQ. FT.
ROOF FACE AREA = 837.00 SQ. FT.
281.92 / 837.00 = 33.68% OF ROOF
FACE AREA COVERED BY ARRAY

DESCRIPTION (ROOF # 2)

ROOF TYPE - COMP SHINGLES
ROOF TILT - 18.4°
ROOF AZIMUTH - 267°
RAFTER SIZE - 2"x4" @ 16" O.C.



1 ROOF PLAN & MODULES
S-01 SCALE: 1/16" = 1'-0"

GENERAL INSTALLATION PLAN NOTES:

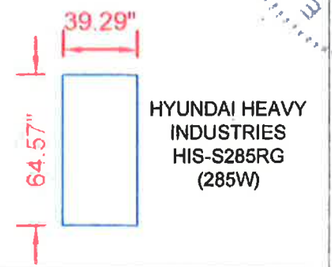
1) DRAWINGS SHOWN MAY NOT REFLECT FIELD CONDITIONS. CONTRACTOR TO FIELD VERIFY CONDITIONS PRIOR TO INSTALLATION.

2) CONTRACTOR MAY LOCATE PV MODULES TO DIFFERENT LOCATION THAN SHOWN, BUT SHALL NOT PLACE PV MODULES IN WIND ZONE 3.

3) ROOF ATTACHMENTS TO SYP TRUSSES SHALL BE INSTALLED AS SHOWN IN SHEET S-02 AND AS FOLLOWS FOR EACH WIND ZONE:

WIND ZONE 1: 4'-0" O.C.
WIND ZONE 2: 4'-0" O.C.
WIND ZONE 3: NOT ALLOWED
SEE SHEET S-02 FOR SUPPORTING CALCULATIONS.

4) EXISTING RESIDENTIAL BUILDING IS ASSUMED TO BE A ASPHALT SHINGLE ROOF FINISH WITH MEAN ROOF HEIGHT LESS THAN 30 FT AND SYP 2X4 WOOD ROOF TRUSSES SPACED 16" O.C. EXISTING ROOF SLOPE FOR SOLAR SYSTEM RETROFIT IS ASSUMED TO BE BETWEEN 7 TO 27 DEGREES. CONTRACTOR TO FIELD VERIFY AND SHALL REPORT TO THE ENGINEER IF ANY DISCREPANCIES EXIST BETWEEN PLANS AND IN FIELD CONDITIONS.



LEGEND

- JB - JUNCTION BOX
- INV - INVERTER
- DC - INTEGRATED DC DISCONNECT
- SLD - SOLAR LOAD CENTER
- PM - PRODUCTION METER
- MSP - MAIN SERVICE PANEL
- - VENT, ATTIC FAN (ROOF OBSTRUCTION)
- - PV ROOF ATTACHMENT
- - RAFTERS
- ----- - CONDUIT
- CB - COMBINER BOX

Reviewed for Code Compliance
Universal Engineering Sciences

RC ENGINEERING, LLC
COA # 28345
2381 CREST RIDGE COURT
SANFORD, FL 32771
TEL: 407-474-9161ERMOCRATES E. CASTILLO - FL PE 52590

REVISIONS

DESCRIPTION	DATE	REV

PROJECT DEVELOPER

8 2 3 2017

Signature with Seal

ERMOCRATES E. CASTILLO
LICENSE
No. 52590
STATE OF FLORIDA
ENGINEER

PROJECT NAME

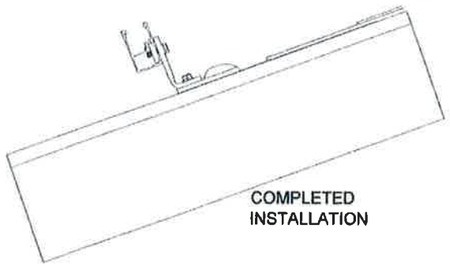
CHARLINE KENNEDY RESIDENCE
2624 HOMEWOOD DRIVE,
BELLE ISLE, FL 32809

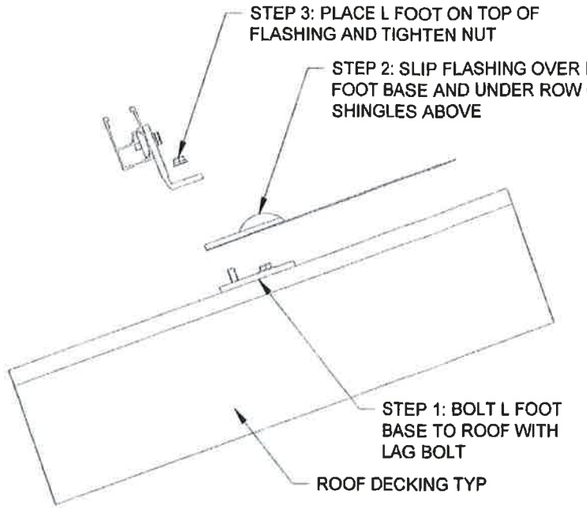
SHEET NAME
ROOF PLAN & MODULES

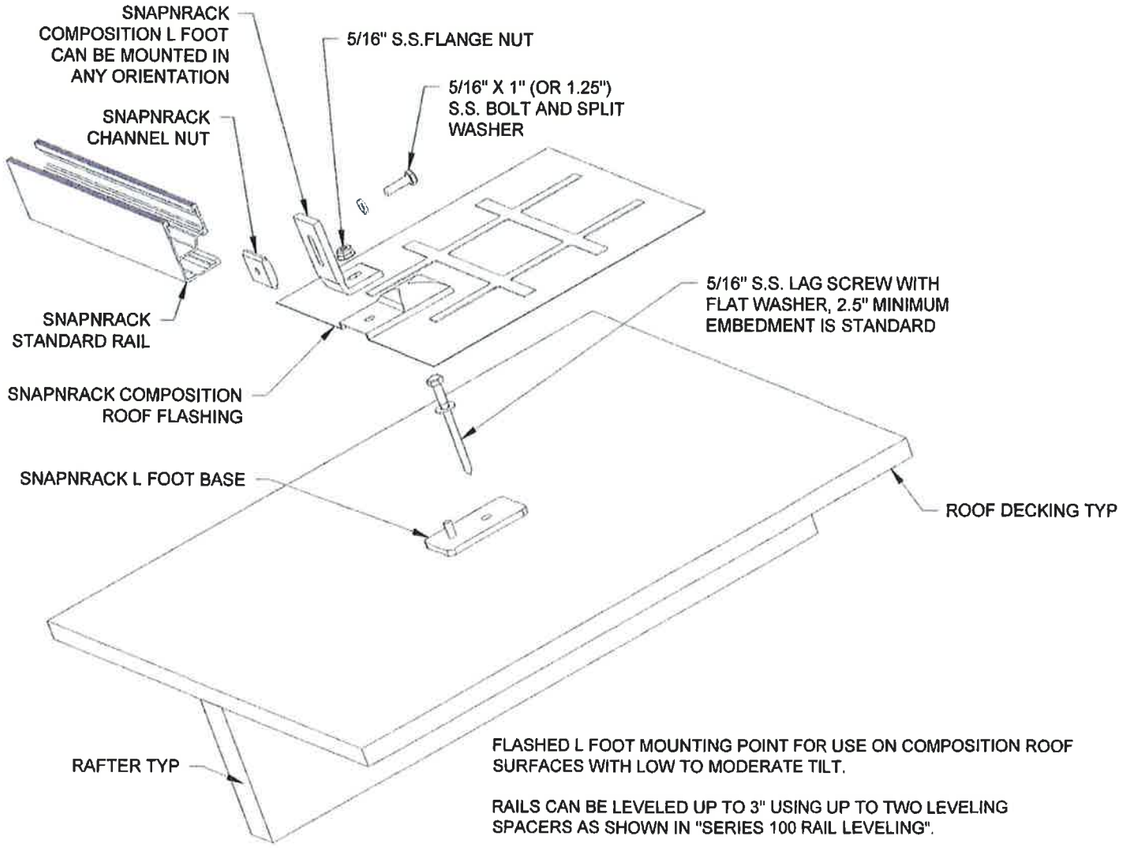
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
S-01

NOTES:
- 5/16" LAG BOLTS MUST EMBED 2.5" INTO ROOF STRUCTURAL MEMBERS/RAFTERS
- TORQUE ALL 5/16" HARDWARE TO THE FOLLOWING:
  - SILVER S.S. 10-16 FT-LBS
  - BLACK S.S. 7-9 FT-BLS
- RAILS CAN MOUNT TO EITHER SIDE OF L FOOT (UPSLOPE VS DOWNSLOPE)







FLASHED L FOOT MOUNTING POINT FOR USE ON COMPOSITION ROOF SURFACES WITH LOW TO MODERATE TILT.

RAILS CAN BE LEVELED UP TO 3" USING UP TO TWO LEVELING SPACERS AS SHOWN IN "SERIES 100 RAIL LEVELING".

USE GEOCEL 3300 PROFESSIONAL GRADE POLYURETHANE SEALANT OR APPROVED SIMILAR FOR WATER TIGHT SEAL AS REQUIRED

1 ATTACHMENT DETAIL (ENLARGED VIEW)
S-02 SCALE: 1'-0" = 1'-0"

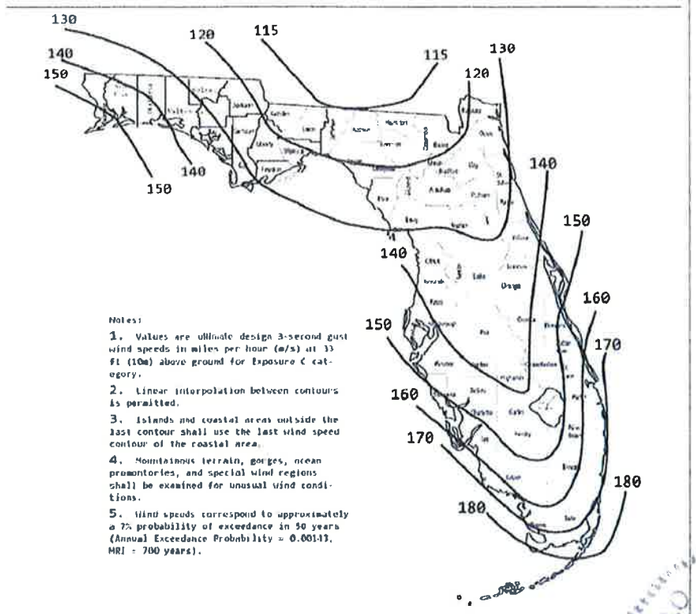


FIGURE 1609A ULTIMATE DESIGN WIND SPEEDS, V_{ULT}, FOR RISK CATEGORY II BUILDINGS AND OTHER STRUCTURES

Wind Speed Ult (mph)	140
Risk Category	II
Wind Speed ASD (mph)	110
Exposure Category	B
Mean Roof Height (ft)	25
Roof Slope (degrees)	20
Module Area (sq ft)	20
Kzt	1
Height Adjustment Factor, λ	1

Roof Slope Calculator		
Rise	Run	Slope (°)
4	12	18.4

Roof Zone	Pnet (30)	
1	11.4	-19.4
2	11.4	-31.9
3	11.4	-47.9

$P\_net = [\lambda K]\_zt \, P\_(net(30))$

Roof Zone	Pnet	
1	11.4	-19.4
2	11.4	-31.9
3	11.4	-47.9

Maximum Uplift per *fastener **Wind Zone 1**	213.4
Per American Wood Council - NDS Max Withdraw Load for 5/16" LAG with 2.5" Embedment	476

* Roof attachements at 4' O/C w 2 rails

Maximum Uplift per *fastener **Wind Zone 2**	350.9
Per American Wood Council - NDS Max Withdraw Load for 5/16" LAG with 2.5" Embedment	476

*Roof attachements at 4' O/C w 2 rails

Maximum Uplift per *fastener **Wind Zone 3**	263.5
Per American Wood Council - NDS Max Withdraw Load for 5/16" LAG with 2.5" Embedment	476

* Not allowed

Reviewed for Code Compliance Universal Engineering Sciences

RC ENGINEERING, LLC
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TEL: 407-474-9181ERMOCRATES E. CASTILLO - FL PE 52560

REVISIONS

DESCRIPTION	DATE	REV

PROJECT DEVELOPER

FEB 2021

Signature with Seal

ERMOCRATES E. CASTILLO LICENSE NO. 52560 STATE OF FLORIDA PROFESSIONAL ENGINEER

PROJECT NAME

CHARLINE KENNEDY RESIDENCE
2624 HOMEWOOD DRIVE, BELLE ISLE, FL 32809

SHEET NAME
STRUCTURAL ATTACHMENT DETAILS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
S-02

SERIES 100
ROOF MOUNT SYSTEM

SnapNrack Residential PV Mounting Systems

The SnapNrack line of solar mounting systems is designed to reduce total installation costs. The system features technical innovations proven on more than 100MW of solar projects to simplify installation and reduce costs.

Pitched Roof Arrays Simplified

The SnapNrack Series 100 Roof Mount System is an efficient, visually appealing, photovoltaic (PV) module installation system. Series 100 was developed in the field by a team of veteran solar engineers and installers. Their goal was to ensure a quick, efficient installation. Series 100 has been tested on megawatts of real-world residential and commercial installations. Industry leading installation times are achieved with unique Snap-in fasteners and fully adjustable components that make installation of roof mounted solar arrays easy while achieving lower installation costs.

- Up to 3" of height adjustability at roof connection
- Waterproof full-metal flashing at each roof penetration
- Works on virtually all composition and tile roofs
- Single wrench size for all system hardware
- Configures easily as low profile or tilt (0-60 Degrees)
- Rail channels provide excellent wire management

Patent Pending

Roof System in 4 Simple Steps:

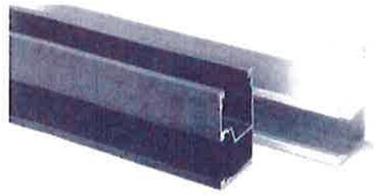
1) Identify Site Conditions (Array Tilt, Building Height, Roof Type, Wind and Snow Loads)

2) Determine Footing Span from Engineering Tables (download at www.snapnrack.com)

3) Choose color (Clear or Black) and roof attachment type

4) Place Order with your distributor. Purchase material for a single project or order in bulk for additional savings
- Rail & Module Clamps
- Roof Attachments
- Array Accessories

SnapNrack™ PV Mounting Systems



Simple

- Quick assembly and clean aesthetic finish
- One wrench fits every bolt in the system
- Low profile installation on any roof

Adaptable

- Compatible with virtually all 60 and 72 cell modules
- Unique "snap-in" channel nuts can be installed anywhere on the rail
- Rail channels provide improved wire management

Strong

- Excellent seismic, wind, and snow-loading protection
- Vertical and horizontal adjustments ensure superior fit
- Rain-tight metal flashing ensures waterproofing

Innovative Universal End Clamps

- One size fits any standard L frame module
- Clean look - nothing extends beyond module frames
- Less waste - rail lengths match most modules

SnapNrack Series 100 Technical Data Patent Pending	
Materials	• 6000 Series aluminum • Stainless steel • Galvanized steel
Material Finish	• Clear and black anodized aluminum
Installation	• Quick and efficient mounting • Adjustable hardware to ensure clean and level finish • Worry-free waterproof flashing
Calcs. & Certifications	• Wind speeds up to 150 MPH and snow loads to 120 PSF
Grounding	• Washer, Electrical Equipment Bond (WEEB) or lay-In lugs
Warranty	• 10 Year material and worksmanship (download full details at snapnrack.com)

SnapNrack™ PV Mounting Systems

(877) 732-2860 www.SnapNrack.com

Printed on recycled paper using soy based inks

Reviewed for Code Compliance Universal Engineering Sciences

RC ENGINEERING, LLC
COA # 28345
2381 CREST RIDGE COURT
SANFORD, FL 32771
TEL 407-474-9181ERMOCRATES E. CASTILLO - FL PE 52590

REVISIONS

DESCRIPTION	DATE	REV

PROJECT DEVELOPER

RECEIVED FEB 23 2017

ERMOCRATES E. CASTILLO LICENSE No. 52590 STATE OF FLORIDA PROFESSIONAL ENGINEER

Signature with Seal

PROJECT NAME

CHARLINE KENNEDY RESIDENCE

2624 HOMEWOOD DRIVE, BELLE ISLE, FL 32809

SHEET NAME

DATA SHEET

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

DS-01

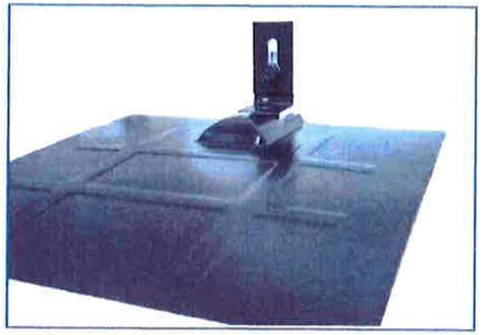
SnapNrack
Solar Mounting Solutions

snapnrack.com

Series 100 Flashed L Foot Kit

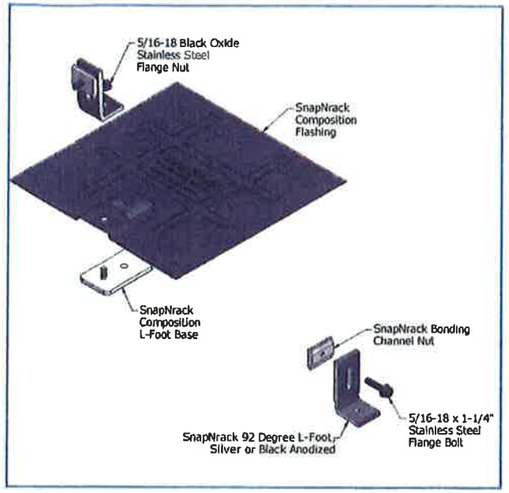
SnapNrack Series 100 Flashed L Foot Kit is an innovative solution to provide a long lasting, watertight seal over the life of the system. The Flashed L Foot provides a fully flashed roof fastener for attachment to composition roof with no required cutting of shingles. The L Foot is engineered for maximum adjustability for a clean, level installation.

- Slotted attachment provides 1" vertical adjustability for array leveling
- 1" spacers available for increased elevation adjustability
- Offered in silver or black anodized aluminum. Both are available with black galvanized steel or aluminum flashing.
- No cutting of shingles

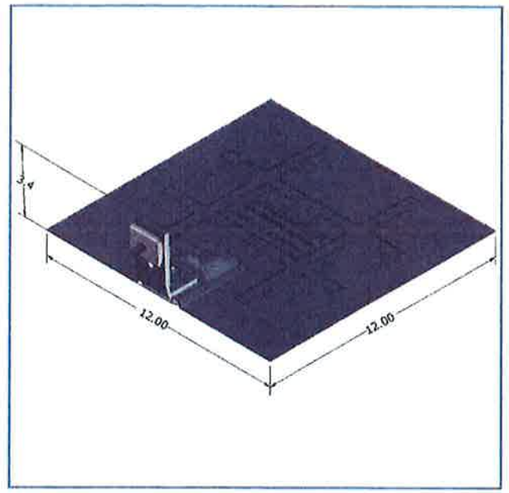


242-92051

Flashed L Foot Kit Assembly



Flashed L Foot Kit Dimensions



Features Include

Snap In Hardware

Single Tool Installation

Easy Leveling

No Cutting or Drilling

Preassembled hardware

Integrated bonding

UL 2703 Certified

FLASHED L FOOT KIT TECHNICAL DATA	
Materials	• 6000 Series aluminum L foot & base • Stainless steel hardware • Galvanized steel or aluminum flashing w/ black all weather coating
Material Finish	Silver or black anodization
Design Uplift Load	340 lb
Torque Specification	• Flange nut: 10-16 ft-lbs • Rail attachment: silver hardware 10-16 ft-lbs, black hardware 8-10 ft-lbs

Reviewed for Code Compliance Universal Engineering Sciences

RC ENGINEERING, LLC
COA # 28345
2381 CREST RIDGE COURT
SANFORD, FL 32771
TEL: 407-474-9161 ERMOCRATES E. CASTILLO - FL PE 52590

REVISIONS

DESCRIPTION	DATE	REV

PROJECT DEVELOPER

2017 FEB 23

ERMOCRATES E. CASTILLO LICENSE No. 52590 STATE OF FLORIDA PROFESSIONAL ENGINEER

Signature with Seal

PROJECT NAME

CHARLINE KENNEDY RESIDENCE
2624 HOMEWOOD DRIVE,
BELLE ISLE, FL 32809

SHEET NAME
DATA SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
DS-02

www.hhi-green.com/solar/en

Hyundai Solar Module

Hyundai Heavy Industries was founded in 1972 and is a Fortune 500 company. The company employs more than 48,000 people, and has a global leading 7 business divisions with sales of 51.3 Billion USD in 2013. As one of our core businesses of the company, Hyundai Heavy Industries is committed to develop and invest heavily in the field of renewable energy.
Hyundai Solar is the largest and the longest standing PV cell and module manufacturer in South Korea. We have 600 MW of module production capacity and provide high-quality solar PV products to more than 3,000 customers worldwide. We strive to achieve one of the most efficient PV modules by establishing an R&D laboratory and investing more than 20 Million USD on innovative technologies.

PERL RG-Series

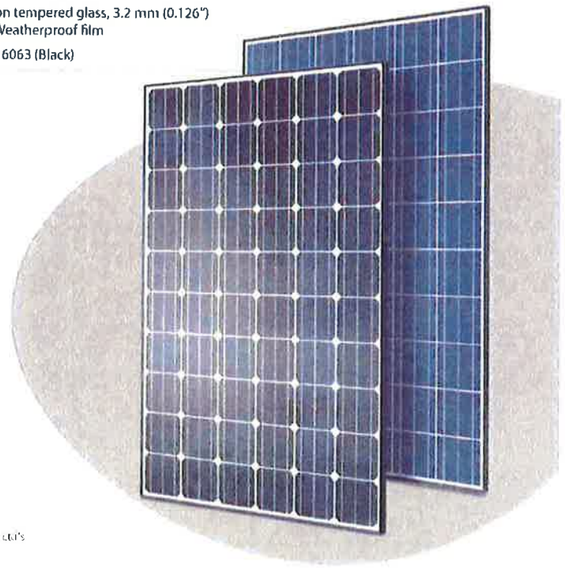
Multi-crystalline Type
HiS-M265RG | HiS-M270RG | HiS-M275RG

Mono-crystalline Type
HiS-S280RG | HiS-S285RG | HiS-S290RG

Mechanical Characteristics

※ Several models are under certification process

Dimensions	998 mm (39.29")(W) × 1,640 mm (64.57")(L) × 35 mm (1.38")(H)
Weight	Approx. 18.7 kg (41.2 lbs)
Solar cells	60 cells in series (6 ×10 matrix) with PERL technology (Hyundai cell, Made in Korea)
Output cables	4 mm² (12AWG) cables with polarized weatherproof connectors, IEC certified (UL listed), Length 1.0 m (39.4")
Junction Box	IP67, weatherproof, IEC certified (UL listed)
Bypass Diodes	3 bypass diodes to prevent power decrease by partial shade
Construction	Front : Anti-reflective coating low-iron tempered glass, 3.2 mm (0.126") Encapsulant : EVA Back Sheet : Weatherproof film
Frame	Clear anodized aluminum alloy type 6063 (Black)



High Quality

- IEC 61215 (Ed.2) and IEC 61730 by VDE
- UL listed (UL 1703), Type 1 for Class A Fire Rating
- Output power tolerance +3/-0 %
- ISO 9001:2000, ISO 14001:2004 and ISO 50001:2011 Certified
- OHSAS 18001:2007 Certified
- Advanced Mechanical Test (8,000 Pa) Passed (IEC) / Mechanical Load Test (40 lbs/ft²) Passed (UL)
- Ammonia Corrosion Resistance Test Passed
- IEC 61701 (Salt Mist Corrosion Test) Passed

Limited Warranty

- 1st year: 97 %
- After 2nd year: 0.7 % annual degradation
  80.2 % for 25 years
  ▸Please refer to the Hyundai Limited Warranty for more details.

※ **Important Notice on Warranty**
The warranties apply only to the PV modules with Hyundai Heavy Industries Co., Ltd's logo shown below and a product serial number on it.

Electrical Characteristics

| Multi-crystalline Type |

		Rated output (Pmpp)		
		265	270	275
Nominal output (Pmpp)	W	265	270	275
Voltage at Pmax (Vmpp)	V	31.3	31.4	31.5
Current at Pmax (Impp)	A	8.5	8.6	8.7
Open circuit voltage (Voc)	V	37.9	38.0	38.2
Short circuit current (Isc)	A	9.1	9.2	9.3
Output tolerance	%	+3/-0		
No. of cells & connections	pcs	60 in series		
Cell type	-	6" Multi-crystalline silicon with PERL technology (Hyundai cell, Made in Korea)		
Module efficiency	%	16.2	16.5	16.8
Temperature coefficient of Pmpp	%/K	-0.41	-0.41	-0.41
Temperature coefficient of Voc	%/K	-0.32	-0.32	-0.32
Temperature coefficient of Isc	%/K	0.039	0.039	0.039

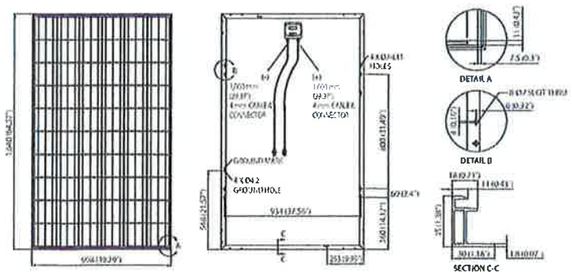
※ All data at STC (Standard Test Conditions). Above data may be changed without prior notice.

| Mono-crystalline Type |

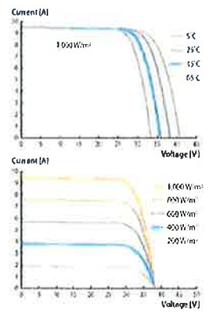
		Rated output (Pmpp)		
		280	285	290
Nominal output (Pmpp)	W	280	285	290
Voltage at Pmax (Vmpp)	V	31.7	31.8	32.0
Current at Pmax (Impp)	A	8.8	8.9	9.1
Open circuit voltage (Voc)	V	38.5	38.7	38.8
Short circuit current (Isc)	A	9.4	9.5	9.7
Output tolerance	%	+3/-0		
No. of cells & connections	pcs	60 in series		
Cell type	-	6" Mono-crystalline silicon with PERL technology (Hyundai cell, Made in Korea)		
Module efficiency	%	17.1	17.4	17.7
Temperature coefficient of Pmpp	%/K	-0.42	-0.42	-0.42
Temperature coefficient of Voc	%/K	-0.30	-0.30	-0.30
Temperature coefficient of Isc	%/K	0.047	0.047	0.047

※ All data at STC (Standard Test Conditions). Above data may be changed without prior notice.

| Module Diagram | (unit : mm, inch)



| I-V Curves |



| Installation Safety Guide |

- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when they are wet.

Nominal Operating Cell Temperature	46°C ± 2
Operating Temperature	-40 ~ 85°C
Maximum System Voltage	DC 1,000 V (IEC) DC 600 V (UL)
Maximum Series Fuse Rating	15 A

Data Sheet Date : December 2013

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Reviewed for Code Compliance Universal Engineering Sciences

HYUNDAI HEAVY INDUSTRIES

RC ENGINEERING, LLC
COA # 28345
2381 CREST RIDGE COURT
SANFORD, FL 32771
TEL: 407-474-9181ERMOCRATES E CASTILLO - FL PE 52590

REVISIONS

DESCRIPTION	DATE	REV

PROJECT DEVELOPER

FEB 03 2017

Signature with Seal

ERMOCRATES E. CASTILLO LICENSE No. 52590 STATE OF FLORIDA PROFESSIONAL ENGINEER

PROJECT NAME

CHARLINE KENNEDY RESIDENCE
2624 HOMEWOOD DRIVE, BELLE ISLE, FL 32809

SHEET NAME
DATA SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
DS-03

David K. Click, State of Florida, Professional Engineer License #74642

This item has been electronically signed and sealed by David K. Click, PE on this date:
2017-03-10 | 14:35 EST
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David K. Click
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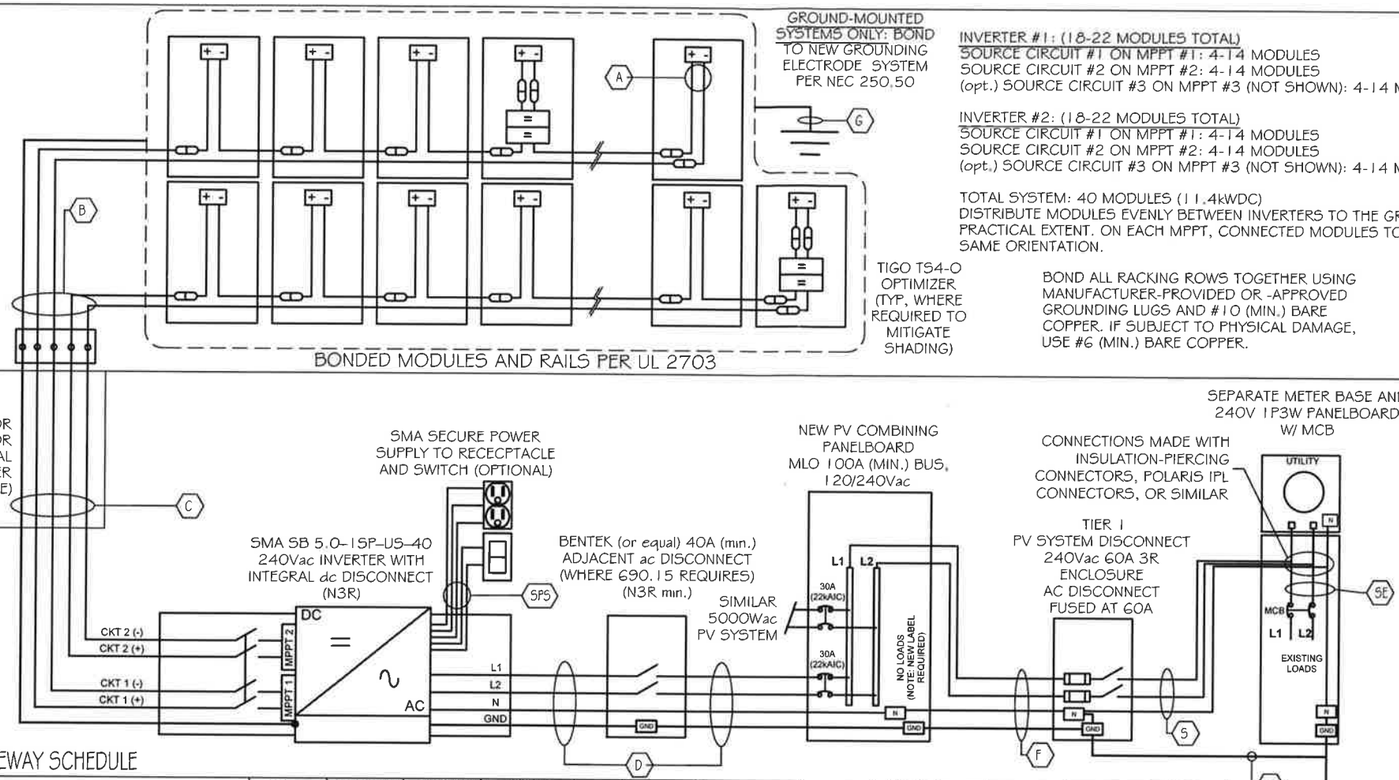

DRAWING LIST:
- E101: THREE LINE (SUPPLY-SIDE OPTION #1)
- E102: THREE LINE (SUPPLY-SIDE OPTION #2)
- E103: OMITTED
- E104: OMITTED
- E105: LABELING REQUIREMENTS

CONDUCTOR AND RACEWAY SCHEDULE

SYMBOL	CIRCUIT	310.15(B) AMPACITY	TEMPERATURE RACEWAY FILL	ADJUSTED AMPACITY	REQUIRED AMPACITY	SETS	MATERIAL	INSULATION	RACEWAY	MIN. SIZE (AWG)	QTY	CONDUCTOR	1-WAY RUN	VOLTAGE DROP
A	PV MODULE WIRING (INTEGRATED BY MANUFACTURER)	40A	55°C (0.76) N/A	30.4A	(Isc x 1.25) 11.9A < 30.4A	1	CU	600V+ PV	FREE AIR, SUPPORTED	12	1 1	DC+ DC-	2.5'	Imp@111VDC: 0.08%
B	PV SOURCE CIRCUIT	40A	55°C (0.76) N/A	30.4A *	(Imax) 11.9A < 30.4A	1	CU	600V+ PV	FREE AIR, SUPPORTED	12 12 10	1 1 1	DC+ DC- G	30'	[111V] 0.93%
C	PV SOURCE CIRCUIT	35A	55°C (0.67) 0.8	18.8A	(Imax) 11.9A < 18.8A	1	CU	THWN	3/4" METAL BONDED	10	1-3 1-3 1	DC+ DC- G	60'	[111V] 1.16%
D	INVERTER OUTPUT CIRCUIT	35A (75°C)	40°C (0.88) 1.0	30.8A (75°C)	(Imax) 24A < 35A	1	CU	THWN	3/4"	10 10 10	2 1 1	L N G	30'	[240V] 0.78%
SPS	INVERTER SECURE POWER SUPPLY OUTPUT RECEPT. SWITCH	25A N/A	40°C (0.88) N/A	22A (75°C) N/A	(Imax x 1.25) 20A < 22A	1	CU	THWN	1/2" 1/2"	12 14	2+G 2	L,N,G (2)	10'	[120V] N/A
F	INVERTERS OUTPUT CIRCUIT: FEEDER	65A (75°C) 75A (90°C)	40°C (0.91) N/A	65A (75°C)	(Imax x 1.25) 60A < 65A	1	CU	THWN-2	3/4"	6 8 8	2 1 1	L N G	<20'	[240V] <0.41%
S	INVERTERS OUTPUT: SERVICE ENTRANCE CONDUCTOR	65A (75°C) 75A (90°C)	40°C (0.91) N/A	65A (75°C)	(Imax x 1.25) 60A < 65A	1	CU	THWN-2	3/4" BONDED	6 8	2 1	L N	<10'	[240V] <0.21%
SE	SERVICE ENTRANCE CONDUCTOR	SIZE PER [310.15(B)(7)]	40°C (0.91) N/A	DETERMINE IN FIELD	[310.15(B)(7)] 150/200A FEEDER	1	CU	DETERMINE IN FIELD	DETERMINE IN FIELD	TBD TBD TBD	2 1 1	L N G	30'	[240V] TBD
G	GROUNDING ELECTRODE CONDUCTOR	N/A	N/A	N/A	N/A	1	CU	BARE SOLID	N/A	4 (OR PER [250.66])	1	GEC	DETERMINE IN FIELD	N/A

INVERTER #1: (18-22 MODULES TOTAL)
SOURCE CIRCUIT #1 ON MPPT #1: 4-14 MODULES
SOURCE CIRCUIT #2 ON MPPT #2: 4-14 MODULES
(opt.) SOURCE CIRCUIT #3 ON MPPT #3 (NOT SHOWN): 4-14 MODULES

INVERTER #2: (18-22 MODULES TOTAL)
SOURCE CIRCUIT #1 ON MPPT #1: 4-14 MODULES
SOURCE CIRCUIT #2 ON MPPT #2: 4-14 MODULES
(opt.) SOURCE CIRCUIT #3 ON MPPT #3 (NOT SHOWN): 4-14 MODULES

TOTAL SYSTEM: 40 MODULES (11.4kWDC)
DISTRIBUTE MODULES EVENLY BETWEEN INVERTERS TO THE GREATEST PRACTICAL EXTENT. ON EACH MPPT, CONNECTED MODULES TO BE OF SAME ORIENTATION.

BOND ALL RACKING ROWS TOGETHER USING MANUFACTURER-PROVIDED OR -APPROVED GROUNDING LUGS AND #10 (MIN.) BARE COPPER. IF SUBJECT TO PHYSICAL DAMAGE, USE #6 (MIN.) BARE COPPER.

INSTALLATION REQUIREMENTS:
CONTRACTOR TO VERIFY FIELD CONDITIONS AND REPORT DISCREPANCIES TO ENGINEER. MANUFACTURER-PROVIDED INSTRUCTIONS AND TORQUE REQUIREMENTS TO BE FOLLOWED FOR ALL LISTED EQUIPMENT. ALL WORK TO BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE 2011 AND ANY LOCAL AHJ OR UTILITY REQUIREMENTS.

ARRAY AND STRUCTURE GROUNDING:
MODULES AND RAILS TO BE BONDED USING UL 2703 LISTED HARDWARE. RAILS BONDED TO GROUNDING WIRE USING BURNDY WEEB-LUG-6.7 OR OTHER APPROVED HARDWARE.

MODULE SPECIFICATIONS:
Hyundai HiS-S285RG
Pmp 285W; Vmp 31.8V; Imp 8.9A;
Voc 38.7V; Isc 9.5A; Max Fuse 15A
TCs: Pmp -0.42%/°C, Voc -0.30%/°C

FSEC Listed

Min. Source Circuit Operating Voltage: (Vmp @55°C)
4 x 31.8 x (1 - 0.0042 x +30°) = 111V
Max. Source Circuit Voltage: (lowest temp -7°C)
14 x 38.7 x (1 - 0.0030 x -32°) = 594V

INVERTER MPPT RANGE: 220-480V (ok)
INVERTER OPERATING RANGE: 100-600V (ok)

PROJECT NOTES:
THIS SYSTEM CONSISTS OF TWO SIDE-BY-SIDE SIMILAR INSTALLATIONS, EACH WITH A 5000W INVERTER INTERCONNECTING WITH A 30A BREAKER WITHIN THE NEW PANELBOARD AS SHOWN. INSTALLER HAS TWO DRAWING OPTIONS FOR INTERCONNECTION.

DRAWING SCOPE OF WORK:
INTERCONNECT NEW SUPPLY-SIDE PV SYSTEM ON SUPPLY SIDE OF MCB IN MAIN PANEL PER 705.12(A). AS NEW PV MASTER DISCONNECT, INSTALLER MAY USE A 60A FUSED DISCONNECT (E101) OR 60A FASTENED BREAKER (E102).

[705.12(D)] INTERCONNECTION REQUIREMENTS:
(PVCP PANEL SUPPLY BREAKER + PV BREAKERS) ≤ (120% OF PVCP BUS)
PER 705.12(D)(7), INSTALL PV INTERCONNECTION BREAKERS AT OPPOSITE END FROM UTILITY FEED.

* MODULE-TO-MODULE TERMINALS ARE RATED FOR 90C. 60C RATED TERMINALS, OR TERMINALS WITHOUT A LABELED RATING, MAY NOT BE USED.

RECEIVED
APR 10 2017
BY:

Reviewed for Code Compliance
Universal Engineering Sciences

SEAL
DAVID K. CLICK LICENSE No. 74642 STATE OF FLORIDA PROFESSIONAL ENGINEER

REV.	DATE	REVISION DESCRIPTION	DRW	CHK	APP
00	2017-02-08	INITIAL RELEASE FOR PERMITTING	DC	DC	DC
01	2017-03-10	CUSTOMIZED SOLUTION FOR CUSTOMER	DC	DC	DC

esa RENEWABLES
4155 St Johns Pkwy, Ste 1100
Sanford, FL 32771
407.268.6455
Engineer: David K. Click, PE
FBPE: #74642
FL COA: #31310
FL CILB: CVC 56979
NABCEP PVIP: #041704-08

CLIENT NAME: Kennedy Residence FSEC# RN-17-0119A
ADDRESS: 2624 Homewood Drive, Belle Isle, FL, 32809
PROJECT NAME: HYUNDAI 285 / SB5.0 (2) PV SYSTEM
PV SYSTEM SIZE: 11,400WDC STC / 10,000WAC CONTINUOUS
SHEET TITLE: THREE LINE (SUPPLY-SIDE OPTION #1)

SCALE NTS
FORMAT 11" x 17"
DRAWING N° E101
DATE 2017-03-10

David K. Click, State of Florida, Professional Engineer License #74642

This item has been electronically signed and sealed by David K. Click, PE on this date:

2017-03-10 | 14:35 EST

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DocuSigned by:
David K. Click
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E101: THREE LINE (SUPPLY-SIDE OPTION #1)
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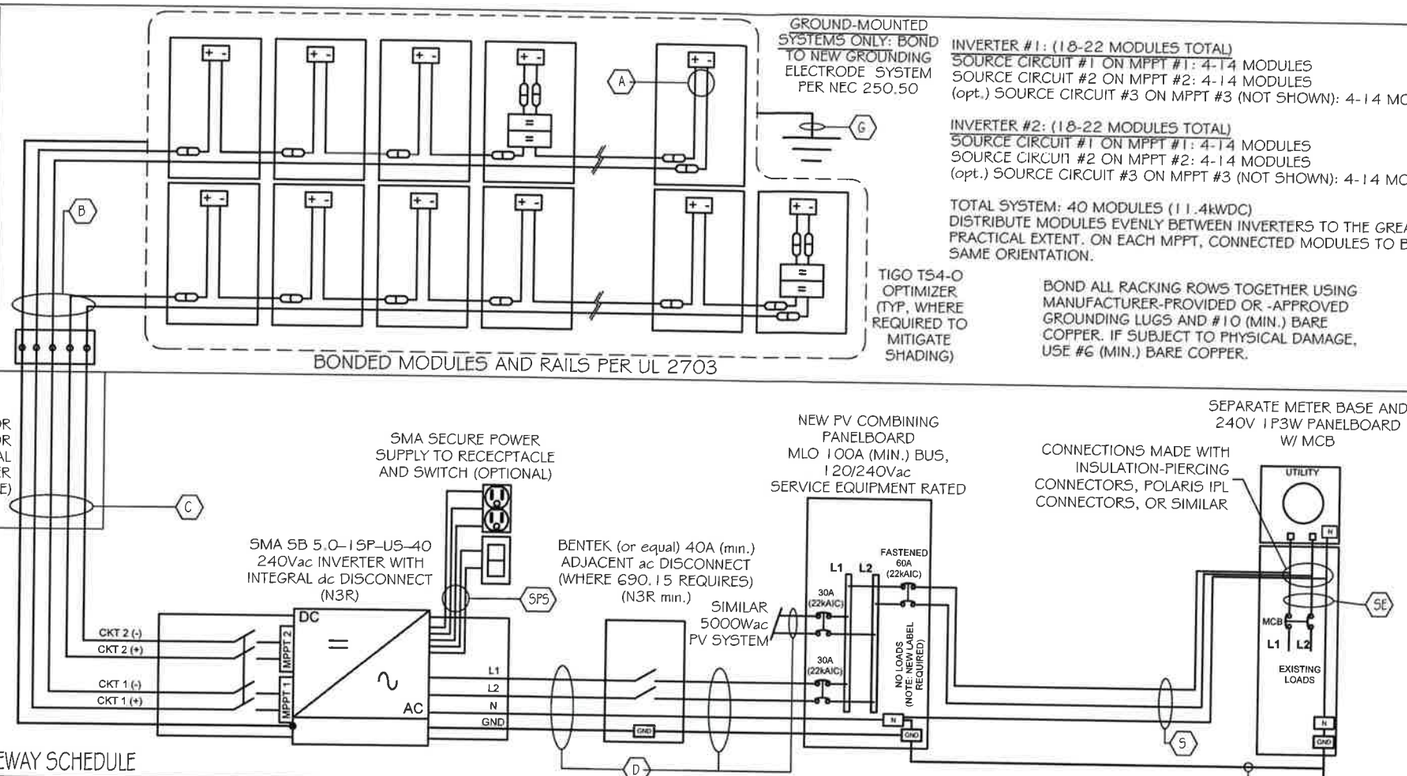

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F	INVERTERS OUTPUT CIRCUIT: FEEDER	65A (75°C) 75A (90°C)	40°C (0.91) N/A	65A (75°C)	(Imax x 1.25) 60A < 65A	1	CU	THWN-2	3/4"	6 8 8	2 1 1	L N G	<20'	[240V] <0.41%
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INSTALLATION REQUIREMENTS:
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Voc 38.7V; Isc 9.5A; Max Fuse 15A
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INVERTER OPERATING RANGE: 100-600V (ok)

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Universal Engineering Sciences

SEAL
DAVID K. CLICK LICENSE No. 74642 STATE OF FLORIDA PROFESSIONAL ENGINEER

REV.	DATE	REVISION DESCRIPTION	DRW	CHK	APP
00	2017-02-08	INITIAL RELEASE FOR PERMITTING	DC	DC	DC
01	2017-03-10	CUSTOMIZED SOLUTION FOR CUSTOMER	DC	DC	DC

esa RENEWABLES
4155 St Johns Pkwy, Ste 1100
Sanford, FL 32771
407.2686455
Engineer: David K. Click, PE
FBPE: #74642
FL COA: #31310
FL CILB: CVC 56979
NABCEP PVIP: #041704-08

CLIENT NAME: Kennedy Residence FSEC® RN-17-0119A
ADDRESS: 2624 Homewood Drive, Belle Isle, FL, 32809
PROJECT NAME: HYUNDAI 285 / SB5.0 (2) PV SYSTEM
PV SYSTEM SIZE: 11,400WDC STC / 10,000WAC CONTINUOUS
SHEET TITLE: THREE LINE (SUPPLY-SIDE OPTION #2)

SCALE NTS
FORMAT 11" x 17"
DRAWING N° E102
DATE 2017-03-10

ALL LABELS TO COMPLY WITH [FFPC], [2011 NEC 110.21] OR [2014 NEC 110.21(B)] AS APPLICABLE; LABELS SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.

AT EACH DC JUNCTION BOX:
[690.35(F)] LABEL

WARNING: ELECTRIC SHOCK HAZARD
THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

EXPOSED INDOOR/OUTDOOR DC WIRING AT (MAX.) 10' INTERVALS:
[690.31(E)] AND FFPC 11.12.2.1.3.2]

PHOTOVOLTAIC POWER SOURCE

AT DC DISCONNECT:
[690.14(C)(2)] DC DISCONNECT LABEL

SOLAR DC DISCONNECT

[690.53] PV POWER SOURCE DC RATING**

RATED CURRENT AT MAXIMUM POWER: 8.9A | 8.9A | 8.9A
RATED VOLTAGE AT MAXIMUM POWER: 318V | 318V | 318V
MAXIMUM SYSTEM VOLTAGE: 424V | 424V | 424V
MAXIMUM SYSTEM CURRENT: 11.9A | 11.9A | 11.9A

** CONTRACTOR TO MODIFY TO MEET FIELD CONDITIONS

AT AC DISCONNECTS:
[690.15]

SOLAR AC DISCONNECT

AT PV INTERCONNECTION POINTS:
[690.54] PV POWER SOURCE AC RATING (QTY: 2)

RATED CURRENT: 24A
RATED VOLTAGE: 240V

[690.54] PV POWER SOURCE AC RATING (QTY: 1)

RATED CURRENT: 48A
RATED VOLTAGE: 240V

AT UTILITY SERVICE DISCONNECT:
[PER FFPC 11.12.2.1.1]

WARNING: PHOTOVOLTAIC POWER SOURCE

INCLUDE PV INSTALLER INFORMATION SIGNAGE
PER FFPC 11.12.2.1.5

AT NEW PV COMBINING PANELBOARD:

SOLAR PV COMBINING PANELBOARD ONLY.
NO LOAD CIRCUIT BREAKERS MAY BE ADDED.

AT MAIN PV SYSTEM AC DISCONNECTS,
AND AT UTILITY SERVICE DISCONNECT:
[705.10] DISCONNECT LOCATIONS
SYSTEM SPECIFIC. COULD INCLUDE EITHER CLEAR TEXT DESCRIPTION OR A MAP OF SITE DESCRIBING LOCATIONS OF ALL POWER DISCONNECTS: 1) UTILITY SERVICE DISCONNECT, 2) PV SYSTEM DISCONNECT
DISCONNECTS SHALL BE LABELED:

ELECTRICAL DISCONNECT #1 OF 2: UTILITY
ELECTRICAL DISCONNECT #2 OF 2: SOLAR

LABEL "PHOTOVOLTAIC DISCONNECT" PER FFPC 11.12.2.1.1

[705.12(D)(7)]: IN A PANELBOARD, WHEN THE SUM OF ITS UTILITY SUPPLY BREAKER AND ITS PV INVERTER BREAKER(S) EXCEED ITS RATING, BREAKERS SHALL BE LOCATED AT OPPOSITE ENDS OF THE BUS WITH THIS LABEL NEAR THE PV INVERTER BREAKER(S) (EQUIVALENT WORDING ACCEPTABLE):

WARNING
INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

COLOR CODING:
DC+: RED OR ORANGE
DC-: BLACK OR BLUE
GROUND: GREEN OR BARE
AC L1: BLACK; L2: RED; N: WHITE OR GREY

David K. Click, State of Florida,
Professional Engineer License #74642

This item has been electronically signed and sealed by David K. Click, PE on this date:
2017-03-10 | 14:35 EST
using a Digital Signature.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Reviewed for Code Compliance
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SEAL

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PROFESSIONAL ENGINEER

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Engineer: David K. Click, PE
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FL CILB: CVC 56979
NABCEP PVIP: #041704-08

CLIENT NAME: Kennedy Residence FSEC* RN-17-01194
ADDRESS: 2624 Homewood Drive, Belle Isle, FL, 32809
PROJECT NAME:
HYUNDAI 285 / SB5.0 (2) PV SYSTEM
PV SYSTEM SIZE: 11,400WDC STC / 10,000WAC CONTINUOUS
SHEET TITLE:
LABELING REQUIREMENTS

SCALE NTS
FORMAT 11" x 17"
DRAWING N°
E105
DATE 2017-03-10

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CONSTRUCTION INDUSTRY LICENSING BOARD
2601 BLAIR STONE ROAD
TALLAHASSEE FL 32399-0783

(850) 487-1395

CLICK, DAVID KARLSSON
ESA RENEWABLES LLC
4155 ST JOHNS PKWY STE 1100
SANFORD FL 32771

Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better. For information about our services, please log onto **www.myfloridalicense.com**. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CVC56979 ISSUED: 08/28/2016

CERTIFIED SOLAR CONTRACTOR
CLICK, DAVID KARLSSON
ESA RENEWABLES LLC

IS CERTIFIED under the provisions of Ch. 489 FS.
Expiration date : AUG 31, 2018 L1608280004269

DETACH HERE

RICK SCOTT, GOVERNOR

KEN LAWSON, SECRETARY

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
CONSTRUCTION INDUSTRY LICENSING BOARD

LICENSE NUMBER
CVC56979

The SOLAR CONTRACTOR
Named below IS CERTIFIED
Under the provisions of Chapter 489 FS.
Expiration date: AUG 31, 2018

CLICK, DAVID KARLSSON
ESA RENEWABLES LLC
4155 ST JOHNS PKWY STE 1100
SANFORD FL 32771

ISSUED: 08/28/2016

DISPLAY AS REQUIRED BY LAW

SEQ # L1608280004269

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 3/31/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Sihle Insurance Group, Inc.
1021 Douglas Ave.
Altamonte Springs FL 32714

CONTACT NAME: Marcy Reinoehl
PHONE (A/C, No, Ext): 407-257-1857 FAX (A/C, No): 407-389-8428
E-MAIL ADDRESS: mreinoehl@sihle.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Security National Insurance Co.	19879
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED ESARENE-01
ESA Renewables, LLC
4155 St. John's Parkway, Suite 1100
Sanford FL 32771

COVERAGES **CERTIFICATE NUMBER:** 435589760 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			SES134541600	12/1/2016	12/1/2017	EACH OCCURRENCE	$1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$100,000
							MED EXP (Any one person)	$5,000
							PERSONAL & ADV INJURY	$1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$2,000,000
	X POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$2,000,000
	OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS / NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N / A (Mandatory in NH)						E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

City of Belle Isle
1600 Nela Avenue
Belle Isle FL 32809

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Marcella Reinoehl

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY) 03/31/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
PAYCHEX INSURANCE AGENCY, INC.
150 SAWGRASS DRIVE
ROCHESTER, NY 14620

CONTACT NAME: Paychex Insurance Agency Inc
PHONE (A/C, NO. EXT): 877-266-6850 FAX (A/C, No): 585-389-7426
E-MAIL ADDRESS: Certs@paychex.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A: NEW HAMPSHIRE INSURANCE COMPANY	23841
INSURER B:	
INSURER C:	
INSURER D:	
INSURER E:	
INSURER F:	

INSURED
Paychex Business Solutions LLC
ESA Renewables LLC
911 PANORAMA TRAIL SOUTH
ROCHESTER, NY 14625-0397

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
GENERAL LIABILITY							
COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
CLAIMS-MADE OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
						MED EXP (Any one person)	$
						PERSONAL & ADV INJURY	$
GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
POLICY PROJECT LOC						PRODUCTS - COMP/OP AGG	$
							$
AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
ANY AUTO						BODILY INJURY (Per person)	$
ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
HIRED AUTOS / NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
							$
UMBRELLA LIAB OCCUR						EACH OCCURRENCE	$
EXCESS LIAB CLAIMS-MADE						AGGREGATE	$
DED RETENTION $							$
WORKERS COMPENSATION AND EMPLOYERS' LIABILITY			015722020	06/01/2016	06/01/2017	X WC STATU-TORY LIMITS / OTH-ER	
ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N	N/A					E.L. EACH ACCIDENT	$ 1,000,000.00
If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000.00
						E.L. DISEASE - POLICY LIMIT	$ 1,000,000.00

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
Worker's Compensation coverage is provided to only those employees leased to, but not subcontractors of the named insured.
Client Inception Date with PBS is 01/23/2017

CERTIFICATE HOLDER
City of Belle Isle
1600 Nela Ave
Belle Isle, FL 32809

CANCELLATION
SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

SEMINOLE COUNTY BUSINESS TAX RECEIPT

RAY VALDES, SEMINOLE COUNTY TAX COLLECTOR

PO Box 630 ▪ Sanford, FL 32772-0630 ▪ Telephone: 407-665-1000

www.seminoletax.org

VALID THROUGH 09/30/17

ESA RENEWABLES LLC
4155 ST JOHNS PKWY #1100
SANFORD, FL 32771

Account #: 173442

LINDSAY HEROLD (OFFICER)

NOT REGULATED

****SANFORD CITY LICENSE REQUIRED ****

Receipt #: OLHS2016081700204 **Amount Paid: $ 25.00** **Date Paid: 08/17/2016**