**MODULE:** (15) APTOS SOLAR MODULES:

DNA-144-BF26-365

**INVERTER:** (1) GENERAC POWERCELL: MODEL X7602

DC SYSTEM SIZE: 5.475 kW

**BATTERY: (1) POWERCELL BATTERY MODULE** 



#### Notes:

- 1. THIS PROJECT SHALL COMPLY WITH THE 2018 NORTH CAROLINA RESIDENTIAL CODE AND THE 2018 NORTH CAROLINA UNIFORM STATEWIDE BUILDING CODE (USBC) WHICH INCLUDES THE 2018 NCCC, 2018 NCEBC AND THE 2018 NCMC
- 2. ALL ELECTRICAL WORK SHALL BE DESIGNED PER LATEST NATIONAL, STATE AND LOCAL ELECTRICAL CODE.
- 3. 110.2 APPROVAL : ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE

UNITED STATES OCCUPATIONAL SAFETY & HEALTH ADMMINISTRATION.PV EQUIPMENT, SYSTEMS AND ALL ASSOCIATED WIRING AND INTERCONNECTIONS SHALL ONLY BE INSTALLED BY QUALIFIED PERSONS.

THIS IS A (15) MODULE SOLAR ELECTRIC PROJECT USING APTOS SOLAR MODULES : DNA-144-BF26-365 365 (WATT)

- 4. THIS SYSTEM USES (1) GENERAC POWERCELL: MODEL X7602 INVERTERS.
- 5. NO BATTERY BACKUP OR UPS IS USED IN THIS SYSTEM.
- 6. THIS SYSTEM IS A 5.475 kW USING IRONRIDGE RAKING AT A 37 PITCH.
- 7. NO ALTERATIONS TO EXISTING DWELLING, THIS BUILDING IS A 1 STORY HOUSE.
- 8. LOCAL UTILITY PROVIDED SHALL BE NOTIFIED PRIOR TO USE AND ACTIVATION OF ANY SOLAR PV INSTALLATION.
- 9. NO SHEET METAL OR TECH SCREWS SHALL BE USED TO GROUND DISCONNECT ENCLOSURE WITH TIN-PLATED ALUMINUM LUGS; PROPER GROUNDING/GROUND BAR KITS SHOULD BE USED.
- 10. ALL ELECTRICAL EQUIPMENT SHALL BE 3 FEET FROM GAS METER.

SHEET NO	DRAWING INFO
PV-1	COVER SHEET
PV-2	LAYOUT
PV-3	STRUCTURE
PV-4	WIRING
PV-5	SIGNAGE

#### LEGEND

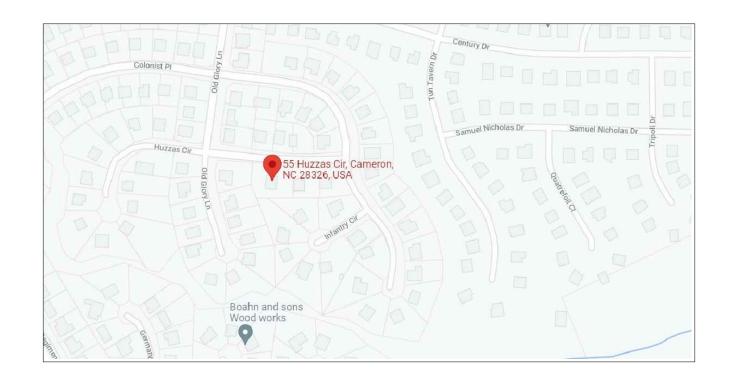
— ROOF OUTLINE

□ SOLAR MODULE (69"X41")

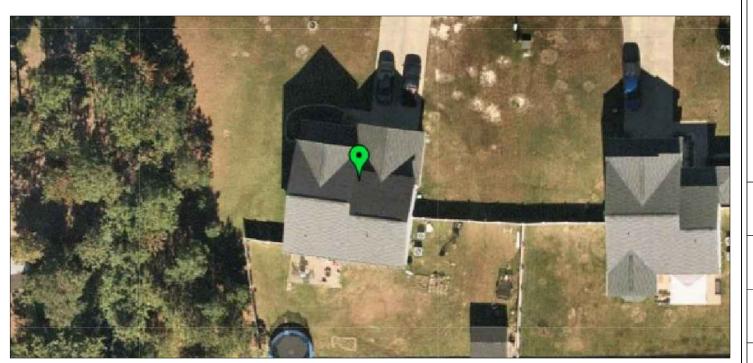
PV STAND-OFF/PENETRATION

– CONDUIT RUN

#### **VICINITY MAP**



#### **SATELLITE MAP**



SolanTyme

SOLAR TYME 6710 JEFFERSON HWY RICHMOND, VA 23237 LICENSE #2705036452

# 55 HUZZAS CIR, CAMERON, NC 28326

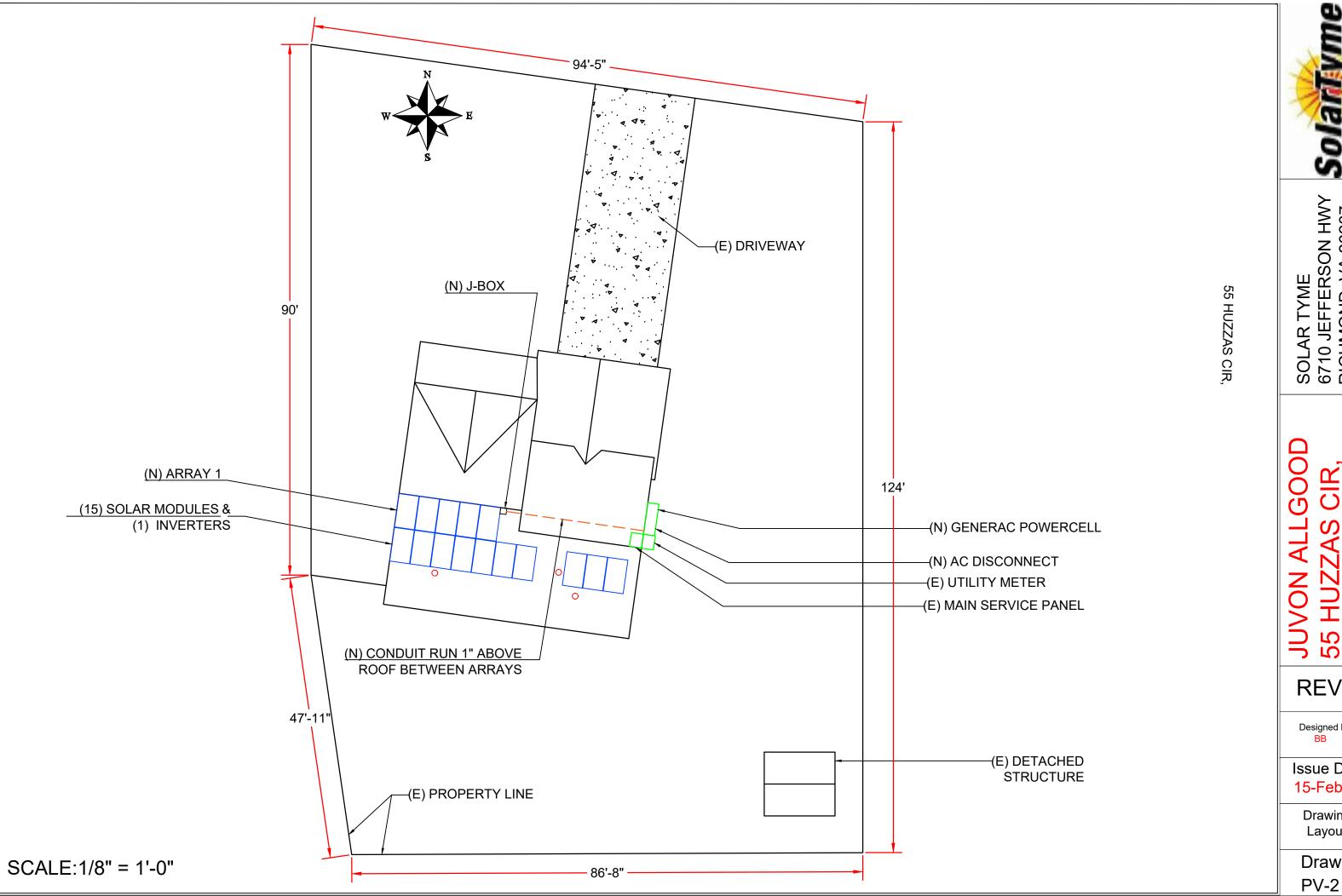
REV<sub>1</sub>

Designed by BB

Issue Date 15-Feb-22

Drawing Cover Sheet

Drawing PV-1





6710 JEFFERSON HWY RICHMOND, VA 23237 LICENSE #2705036452

28326 CAMERON, NC 55 HU

REV<sub>1</sub>

Designed by BB

Issue Date 15-Feb-22

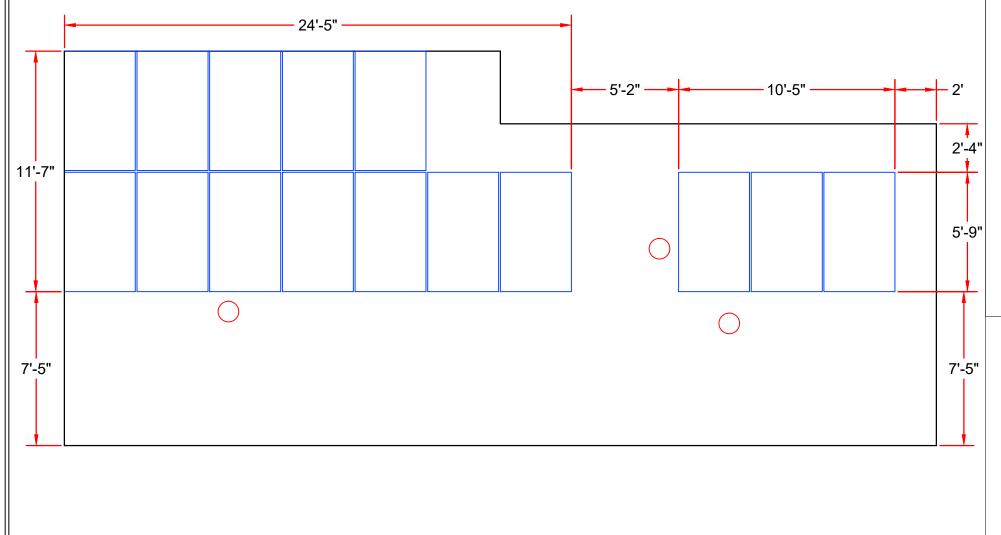
> Drawing Layout

Drawing

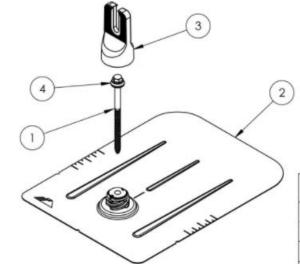
#### ROOF NOTES:

- 1. THE ROOF MODULES WILL NOT COVER ANY PLUMBING OR MECHANICAL VENTS
- 2. THIS SYSTEM IS ON COMP SHINGLE ROOF AT A 37 PITCH WITH 2X8 RAFTERS AT 16" O.C.
- 3. THIS ROOF HAS 1 LAYERS OF COMP SHINGLES.
- 4. THESE BUILDINGS ARE 1 STORY HOUSES AND GARAGE.
- 5. NO ATTACHMENTS SHALL BE MADE WITHIN 6 INCHES OF ALL NAILING PLATES.
- 6. ALL WIRING SETBACK ON THE ROOF IS IN 3/4" EMT AND 4" ABOVE THE ROOF.
- 7. ALL LAG SCREWS SHALL HAVE A MINIMUM EMBEDMENT OF 2.5"
- 8. MAX CANTILEVER SHALL BE 18" OR AS SPECIFIED ON PLANS.
- 9. ALL RAILS TO BE LEVELED.
- 10. ALL CONNECTIONS SHALL BE SEALED WITH WATERPROOF SEALANT.
- 11. PROVIDE 3/16" PILOT HOLE PRIOR TO INSTALLATION OF 5/16 LAG SCREW

#### SCALE: 3/8" = 1'-0":ARRAY 1

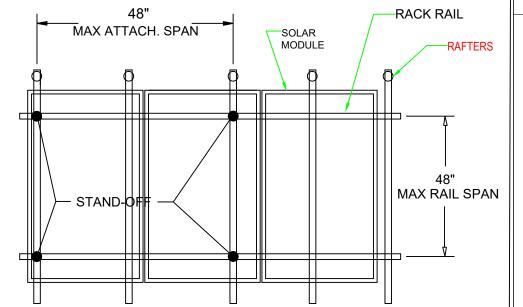


#### MODULE ATTACHMENT



ITEM NO.	DESCRIPTION
1.	BOLT LAG 5/16 X 4.75"
2	ASSY, FLASHING
3	ASSY, CAP
4	WASHER, EPDM BACKED

## **ROOF ATTACHMENT**



PER ASCE 7-16
WIND SPEED = 120 mph
SNOW LOAD = 10 lb/sf

SolarTyme

6710 JEFFERSON HWY RICHMOND, VA 23237 LICENSE #2705036452

JUVON ALLGOOD

55 HUZZAS CIR,

CAMERON, NC 28326

REV 1

Designed by BB

Issue Date 15-Feb-22

Drawing Structure

Drawing PV-3

HEALTH ADMINISTRATION.

Solantyme

6710 JEFFERSON HWY RICHMOND, VA 23237

LICENSE #2705036452

55 HUZZAS CIR, CAMERON, NC 2832

REV 1

Designed by

Issue Date

15-Feb-22

Drawing Wiring

Drawing PV-4

TO BE PLACED ON ALL INTERIOR & EXTERIOR PV CONDUITS, RACEWAYS, ENCLOSURE, CABLE ASSEMBLES, EVERY 10 FEET, 1' FROM TURNS AND ABOVE AND BELOW PENETRATIONS AND ALL DC COMBINER AND JUNCTION BOXES

#### PHOTOVOLTAIC POWER SOURCE

OPERATING AC VOLTAGE: 240 V

MAXIMUM OPERATING
AC OUTPUT CURRENT: 40.00 A

TO BE PLACED ON MAIN SERVICE PANEL

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

—TO BE PLACED ON MAIN SERVICE PANEL

PHOTOVOLTAIC SYSTEM
COMBINER PANEL
DO NOT ADD LOADS

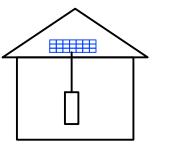
TO BE PLACED ON SOLAR SUB PANEL

RAPID SHUT DOWN SWITCH FOR SOLAR PV SYSTEM

TO BE PLACED ON AC DISCONNECT

# SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN
SWITCH TO THE
"OFF" POSITION TO
SHUTDOWN PV SYSTEM
AND REDUCE
SHOCK HAZARD
IN THE ARRAY



LABEL FOR PV SYSTEMS THAT SHUT DOWN
THE ARRAY AND THE CONDUCTORS LEAVING THE ARRAY

ALL LABELS WILL BE ON RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT ALL LABELS SHALL HAVE A RED BACKGROUND WITH MIN. 3/8" WHITE LETTERING

# 

ELECTRICAL SHOCK HAZARD DO NOT TOUCH TERMINALS. TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION.

TO BE PLACED ON DISCONNECT



DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND
PV SOLAR ELECTRIC SYSTEM

TO BE PLACED ON MAIN SERVICE PANEL

WARNING: PHOTOVOLTAIC POWER SOURCE

TO BE PLACED ON MAIN SERVICE PANEL

PHOTOVOLTAIC SYSTEM AC DISCONNECT

## **♠WARNING ♠**

**DUAL POWER SUPPLY** 

SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE AND LOAD SIDES
MAY BE ENERGIZED IN THE OPEN POSITION.

OPERATING VOLTAGE: 240 VOLTS
OPERATING CURRENT: 40.00 AMPS

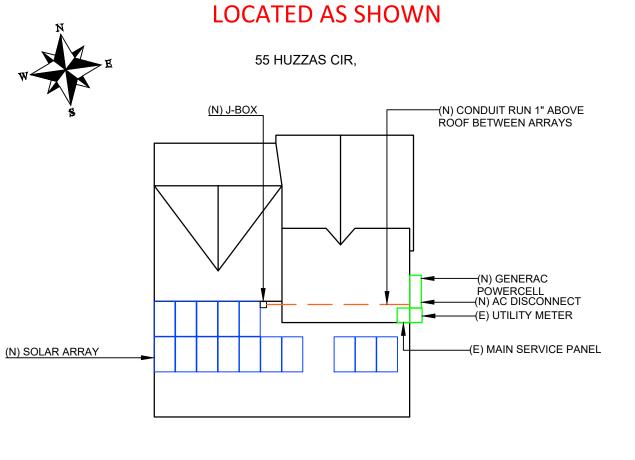
TO BE PLACED ON DISCONNECT-

SOLAR PV BREAKER
BREAKER IS BACKFED
DO NOT RELOCATE

TO BE PLACED INSIDE MAIN SERVICE PANEL NEXT TO SOLAR BREAKER

### **CAUTION:**

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM A
PHOTOVOLTAIC SYSTEM WITH DISCONNECTS
LOCATED AS SHOWN



TO BE PLACED ON MAIN SERVICE PANEL



SOLAR TYME
6710 JEFFERSON HWY
RICHMOND, VA 23237
LICENSE #2705036452

55 HUZZAS CIR, CAMERON, NC 28326

REV<sub>1</sub>

Designed by BB

Issue Date 15-Feb-22

> Drawing Signage

Drawing

PV-5

#### Solar for Innovators

Residential I Commercial



#### Designed & Engineered in Silicon Valley 370W | 365W | 360W

Our DNA™ Split Cell Series impressively combines advanced solar technologies to maximize performance. Our patented Dual Nano Absorber (DNA<sup>TM</sup>) Technology allows the panel to operate at high-efficencies in extreme temperatures. Contact our sales team today to learn more about our line of high-efficienty solar panels.



Patented DNA<sup>™</sup> technology boosts power performance & module efficiency



Advanced split cell technology with 9 ultra-thin busbars allows for less resistance and more photon



Ideal solution for applications affected by shading



All-black design for pristine aesthetics
No excessive silver bussing or ribbons



Robust product design is reslient in extreme weather. Up to 5400 Pa snow load and 210 mph

## intertek (E





#### 30 Year Warranty

3X IEC Standards

RETC Top Performer



3140 De La Cruz Blvd., Ste 200 Santa Clara, CA 95054 wwww.aptossolar.com info@aptossolar.com

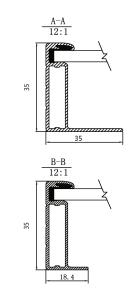
#### **Linear Performance Warranty**



## DN4<sup>TM</sup> 120







Solar for Innovators

Electrical Specifiactions	DNA-120-MF26-360W	DNA-120-MF26-365W	DNA-120-MF26-370W
STCrated Output P <sub>mpp</sub> (W)	360W	365W	370W
Module Efficiency	19.73%	20.01%	20.29%
Open Circuit Voltage V <sub>voc</sub> (V)	40.6	40.7	40.8
Short Circiut Current I <sub>sc</sub> (A)	11.24	11.36	11.51
Rated Voltage V <sub>mmp</sub> (V)	33.8	33.96	34.06
Rated Voltage I <sub>mmp</sub> (A)	10.66	10.75	10.87
Standard Test Conditions for front-face of panel: 1000 W	//m², 25°C, measurement und	certainty <3%	

Temperature Coefficients	
Temperature Coefficients P <sub>mmp</sub>	-0.36%
Temperature Coefficients I <sub>sc</sub>	+0.05%/°C
Temperature Coefficients V <sub>oc</sub>	-0.29%/°C
Normal Operating Cell Temperature (NOCT)	44°C

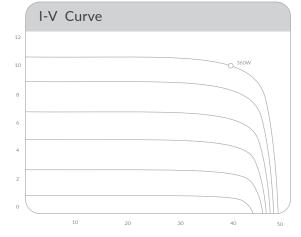
Test Operating Conditions	
Maximum Series Fuse	20A
Maximum System Voltage	1,500 VDC (UL&IEC)
Maximum Load Capacity (Per UL 1703)	5400 PA Snow Load / 210mph Wind Rating
Fire Performance Class	Class C/Type 1

Packaging Configuration	
Number of Modules per Pallet	30
Number of Pallets per 40ft. Container	26
Pallet Dimensions	1740 X 1140 X 1165
Pallet Weight (kg)	640
Container Weight (kg)	16640

McChamcarrio	perties
Cell Type	Monocrystalline
Glass	3.2mm, anti-reflection coating, high transmission, low iron, tempered glass
Frame	Anodized Aluminum Alloy
Junction Box	IP68
Dimensions	1756 X 1039 X 35mm

Mechanical Properties

4mm2 (EU)12AWG,39.37in.(1200mm) Weight 45.19lbs.(20.5kg) 1200mm Cable Length

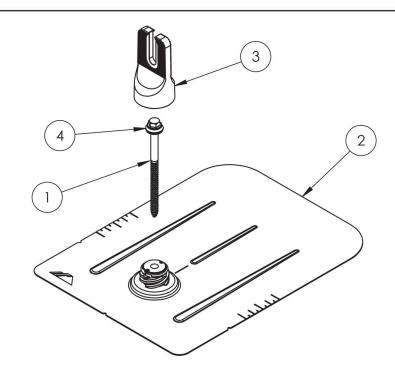








## FlashFoot2

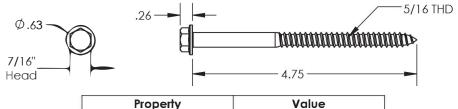


ITEM NO.	DESCRIPTION
1	BOLT LAG 5/16 X 4.75"
2	ASSY, FLASHING
3	ASSY, CAP
4	WASHER, EPDM BACKED

#### FLASHFOOT 2

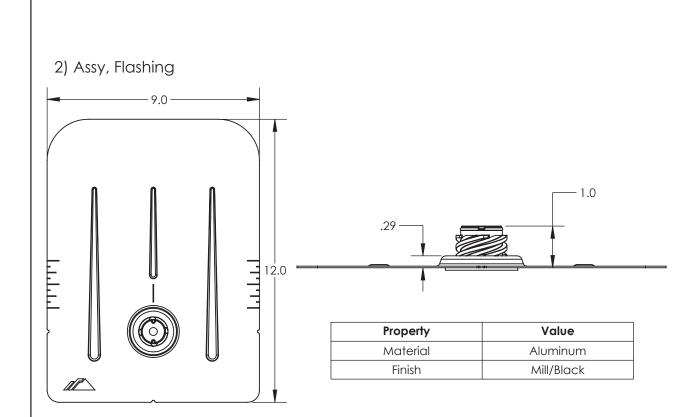
Part Number	Description
FF2-01-M1	FLASHFOOT2, MILL
FF2-01-B1	FLASHFOOT2, BLACK

#### 1) Bolt, Lag 5/16 x 4.75

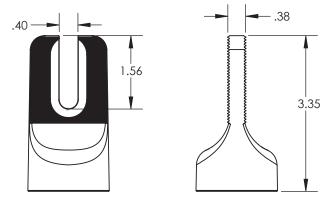


Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.21

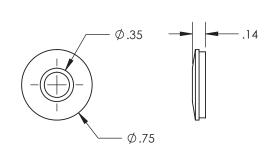


3) Assy, Cap



Property	Value
Material	Aluminum
Finish	Mill/Black

4) Washer, EPDM Backed



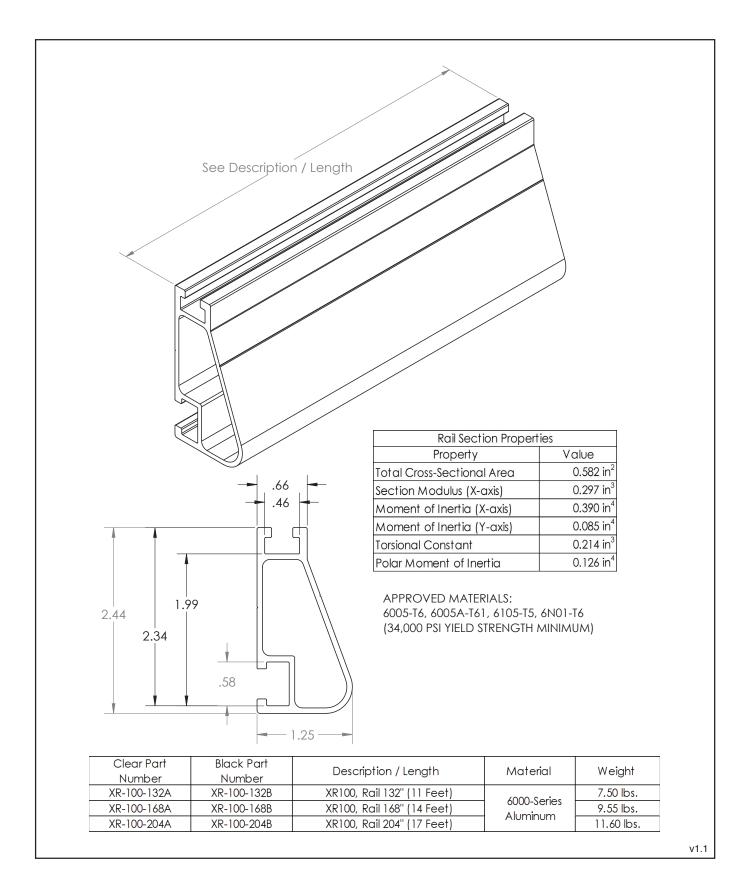
Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.21

**Cut Sheet** 



#### XR100 Rail



#### **FEATURES:**

No autotransformer or battery inverter needed

User-selectable modes

Free system monitorina



# PWR CELL

Inverter

Model: X7602, X11402

Solar-plus-storage is simple with the Generac PWRcell Inverter. This bi-directional, REbus™-powered inverter offers a simple, efficient design for integrating smart batteries with solar. Ideal for self-supply, backup power, zero-export and energy cost management, the PWRcell inverter is the industry's most feature-rich line of inverters, available in single-phase and three-phase models.

#### **ADDITIONAL FEATURES**

- Single inverter for grid-tied solar with smart battery integration
- Simplified system design: No autotransformer or battery inverter needed
- User-selectable modes for backup power, self-supply, time-of-use and zero-export
- Free system monitoring included via PWRview Web Portal and Mobile App

AC OUTPUT/ GRID-TIE	MODEL X7602	MODEL X11402
RATED AC POWER OUTPUT	7600 W	11400 W
AC OUTPUT VOLTAGE	120/240, 1Ø VAC	120/208, 3Ø VAC
AC FREQUENCY	60 Hz	60 Hz
MAXIMUM CONTINUOUS OUTPUT CURRENT	32 A, RMS	32 A, RMS
GROUND-FAULT ISOLATION DETECTION	Included	Included
CHARGE BATTERY FROM AC	Yes	Yes
THD (CURRENT)	< 2 %	< 2 %
TYPICAL NIGHTTIME POWER CONSUMPTION	< 7 W	< 7 W

AC OUTPUT/ BACKUP	MODEL X7602	MODEL X11402
RATED AC BACKUP POWER OUTPUT	8000 W	8000 W
MAXIMUM AC BACKUP POWER OUTPUT	12000 W	12000 W
AC BACKUP OUTPUT VOLTAGE	120/240, 1Ø VAC	120/240, 1Ø VAC
AC FREQUENCY	60 HZ	60 HZ
AC CIRCUIT BREAKER	50 A	50 A
THD (VOLTAGE)	< 2 %	< 2 %
AUTOMATIC SWITCHOVER TIME	< 1 Seconds	< 1 Seconds
TYPICAL NIGHTTIME POWER CONSUMPTION	30 W	30 W



PWREED

DC INPUT/ BATTERY	MODEL X7602	MODEL X11402
MAXIMUM CONTINUOUS POWER	8000 W	8000 W
INTERNAL DC DISTRIBUTION BREAKERS	4X 2P30A	4X 2P30A
DC FUSES ON PLUS AND MINUS	40 A	40 A
2-POLE DISCONNECTION	YES	YES

EFFICIENCY	MODEL X7602	MODEL X11402
PEAK EFFCIENCY	97 %	98 %
CEC WEIGHTED EFFCIENCY	96.5 %	97.5 %



Generac Power Systems, Inc. S45 W29290 Hwy. 59, Waukesha, WI 53189 www.Generac.com 1-888-GENERAC (1-888-436-3722)



CRITICAL LOADS DISCONNECT<sup>3</sup>



FEATURES AND MODES	
ISLANDING <sup>3</sup>	Yes
GRID SELL	Yes
SELF CONSUMPTION	Yes
PRIORITIZED CHARGING FROM RENEWABLES	Yes
GRID SUPPORT - ZERO EXPORT	Yes
ADDITIONAL FEATURES	
SUPPORTED COMMUNICATION INTERFACES	CANbus, RS4854, Ethernet
CVCTEN MANUTARINA	DIVID : W. I. D I I. I. I. I. I.

STANDARDS COMPLIANCE	
SAFETY	UL1741 SA, CSA 22.2
GRID CONNECTION STANDARDS	IEEE1547, Rule 21, Rule 14H

DIMENSIONS AND INSTALLATION SPECIFICATIONS	
WIRE GAUGE RANGE	10 - 8 AWG
TOTAL AC KNOCKOUTS X SIZE	2" x 0.75", 2 x 1"
TOTAL DC KNOCKOUTS X SIZE	5" x 1"
DIMENSIONS (L,W,H)	24.5" x 19.25" x 8"
WEIGHT	62.7 lb
COOLING	Forced convection
NOISE	< 40 dBA
OPERATING TEMPERATURE	-20 to 50 °C*
PROTECTION RATING	NEMA 3R

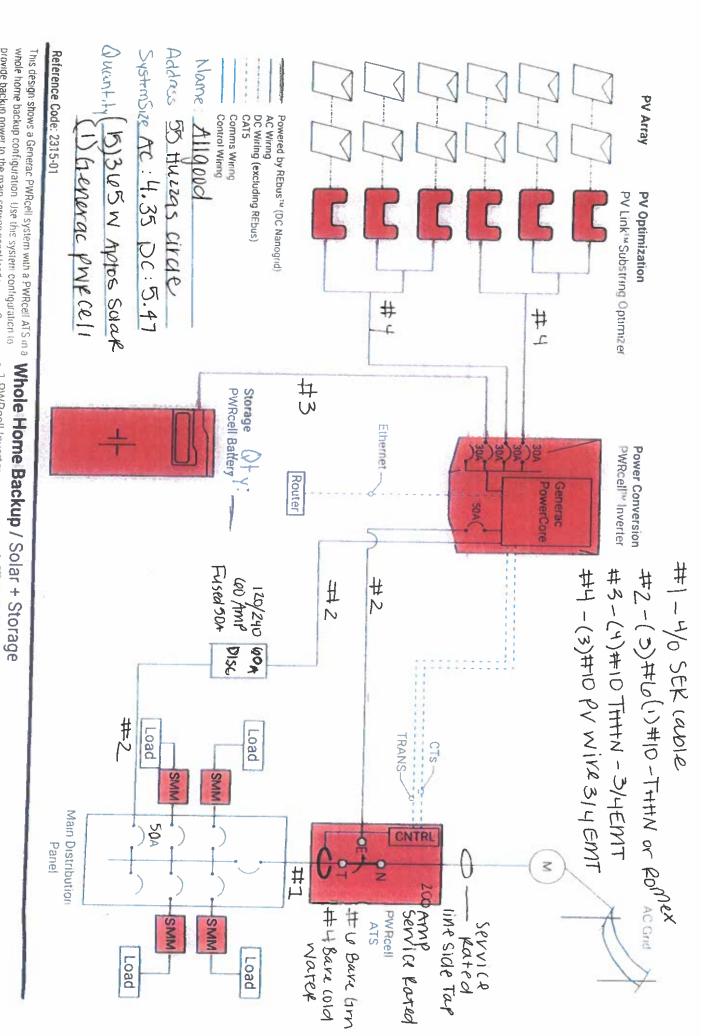
INSTALLATION GUIDELINES	
BATTERY TYPES SUPPORTED	PWRcell battery module
MODULE STRING SIZE PER PV LINK OPTIMIZER	2-9 PV modules
MAXIMUM RECOMMENDED DC POWER FROM PV	10kW (10), 15kW (30)
BATTERIES PER INVERTER	Up to 2

Specifications subject to change without notice.

<sup>3</sup> 3Ø inverters offer islanding for 1Ø loads, <sup>4</sup> Modbus, \*Reduced power at extreme temperatures



Generac Power Systems, Inc. S45 W29290 Hwy. 59, Waukesha, WI 53189 www.Generac.com 1-888-GENERAC (1-888-436-3722)



This configuration is acceptable with 200A or larger utility services with NEC 702.4(B) and Article 220 Smart Management Modules (SMMs) for load shedding in accordance

provide backup power to the main service panel loads using Generac 1 PWRcell Inverter

6 PV Links

1 PWRcell Battery

OT Kit (incl.)

1 PWRcell ATS

Generac SMMs

Generac Power Systems, Inc. \$45 W29290 Hwy, 59

Part No. A0000521683 | Rev. E | 29 JUL 2020

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