For office use:
Application No. _____

Land Use Application

Applicant(s) Charles & Valerie Fowler

Mailing Address: 381 Old Highway 8, Lyle, WA 98635

Phone: 206-372-4881

Email cwfsleddog@aol.com

Property Owner(s) Charles & Valerie Fowler

Mailing Address: 381 Old Highway 8, Lyle, WA 98635

Phone: 206-372-4881

Email cwfsleddog@aol.com

Street Address
of Parcel 381 Old Highway 8, Lyle, WA 98635

Township, Range,
Section, Qtr. Section Section 30, Township 3 North Range 12 East WM

Tax Lot Number(s) Klickitat County Tax Lot #03123000000400

Parcel Size 55.95 acres

Summary of
Proposal Supplement Solar array plan for previously approved outbuilding

Existing Use
of Parcel Agriculture

Existing Buildings and Structures: Please provide the following information for each building and structure on the parcel.

Building or Structure (do not include fences or roads)	**Size** (square feet)	**Height** (measure from lowest point)	**Length and Width**	**Year Built** (if known)
See C20-0009 Fowler				

Detailed Project Description: Please describe all proposed development and use of the development, including size, height, exterior colors, construction materials of proposed structures (including access roads), areas of ground disturbance, landscaping details, and structures that you propose to remove. Please describe all aspects of your project in this description or the public notice and final decision may not include an element of your development, which could require a new notice and decision. You may attach additional pages if necessary.

Land Use Decision C20-0009 approved construction of a replacement outbuilding and included installation of an approximately 380 sq. ft. solar array on the roof. After a comprehensive review of our farm's current and future energy requirements with the Klickitat County PUD and contractor engineers, we propose to supplement the previously approved solar array to move closer to our goal of establishing a carbon neutral farm. We anticipate the initial approved 380 sq. ft. solar array will be fully installed by July 2023.

The additional solar panels will also be black and non-reflective, and installed on the south facing roof of the outbuilding. The solar panels with this project and the previously approved solar project will together generate 82% of our energy needs for the entire farm to include the water irrigation system, the barn, outbuilding, electric car charging, and farm house. There will be no visual impact from Key Viewing Areas in the Gorge as the approved outbuilding was carefully located behind a thick line of mature Oregon oak and Ponderosa pine trees. Submission of grading plans and impacts do not apply as all of the solar panels will be within the existing footprint of the outbuilding roof which is comprised of black non reflective tile.

NEW PV SYSTEM: 21.600 kWp

FOWLER RESIDENCE

381 OLD HWY 8,
LYLE, WA 98635
ASSESSOR'S #: 03123000000400

GENERAL NOTES

1.1.1 PROJECT NOTES:
1.1.2 THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690, ALL MANUFACTURERS'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.
1.1.3 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION
1.1.4 GROUND FAULT DETECTION AND INTERRUPTION (GFDI) DEVICE IS INTEGRATED WITH THE MICROINVERTER IN ACCORDANCE WITH NEC 690.41(B)
1.1.5 ALL PV SYSTEM COMPONENTS; MODULES, UTILITY-INTERACTIVE INVERTERS, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY NEC 690.4:
PV MODULES: UL1703, IEC61730, AND IEC61215, AND NFPA 70 CLASS C FIRE
INVERTERS: UL 1741 CERTIFIED, IEEE 1547, 929, 519
COMBINER BOX(ES): UL 1703 OR UL 1741 ACCESSORY
1.1.6 MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC. IF UNAVAILABLE, MAX DC VOLTAGE CALCULATED ACCORDING TO NEC 690.7.
1.1.7 ALL INVERTERS, PHOTOVOLTAIC MODULES, PHOTOVOLTAIC PANELS, AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER 690.4 (D). SHALL BE INSTALLED ACCORDING TO ANY INSTRUCTIONS FROM LISTING OR LABELING [NEC 110.3].
1.1.8 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.

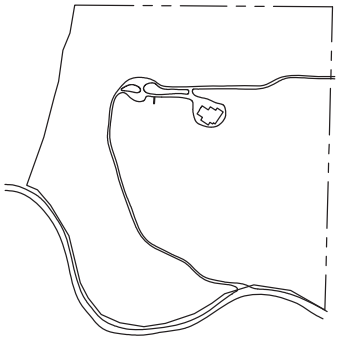
1.2.1 SCOPE OF WORK:
1.2.2 PRIME CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC SYSTEM RETROFIT. PRIME CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTING EXISTING ONSITE REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE EXTERIOR ROOF-MOUNTED PORTION OF THE PHOTOVOLTAIC SYSTEMS DETAILED IN THIS DOCUMENT.

1.3.1 WORK INCLUDES:
1.3.2 PV ROOF ATTACHMENTS - SUNMODO NANO (THROUGH RAFTER)
1.3.3 PV RACKING SYSTEM INSTALLATION - SUNMODO SMR100
1.3.4 PV MODULE AND INVERTER INSTALLATION -
HANWHA Q-CELLS Q.PEAK DUO BLK ML-G10+ 400W / APS DS3-L
1.3.5 PV EQUIPMENT GROUNDING
1.3.6 PV SYSTEM WIRING TO A ROOF-MOUNTED JUNCTION BOX
1.3.7 PV LOAD CENTERS (IF INCLUDED)
1.3.8 PV METERING/MONITORING (IF INCLUDED)
1.3.9 PV DISCONNECTS
1.3.10 PV GROUNDING ELECTRODE & BONDING TO (E) GEC
1.3.11 PV FINAL COMMISSIONING
1.3.12 (E) ELECTRICAL EQUIPMENT RETROFIT FOR PV
1.3.13 SIGNAGE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE

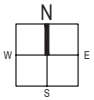
SCOPE OF WORK

SYSTEM SIZE:	STC: 54 X 400W = 21.600KW PTC: 54 X 371.5W = 20.061KW (54) HANWHA Q-CELLS Q.PEAK DUO BLK ML-G10+ 400W (27) APS DS3-L
ATTACHMENT TYPE:	SUNMODO NANO (THROUGH RAFTER)
MSP UPGRADE:	NO

01 AERIAL PHOTO
NOT TO SCALE



02 PLAT MAP
NOT TO SCALE



SHEET LIST TABLE

SHEET NUMBER	SHEET TITLE
T-001.00	COVER PAGE
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A-101.00	SITE PLAN
A-102.00	ELECTRICAL PLAN
A-103.00	SOLAR ATTACHMENT PLAN
E-601.00	LINE DIAGRAM
E-602.00	DESIGN TABLES
E-603.00	PLACARDS
S-501.00	ASSEMBLY DETAILS
R-001.00	RESOURCE DOCUMENT
R-002.00	RESOURCE DOCUMENT
R-003.00	RESOURCE DOCUMENT
R-004.00	RESOURCE DOCUMENT

PROJECT INFORMATION

OWNER
NAME: CHIP & VALERIE FOWLER
PHONE:
E-MAIL:

PROJECT MANAGER
NAME: MASON KIEMELE
PHONE: 360-977-8753

CONTRACTOR
NAME: GREENLIGHT SOLAR & ROOFING
PHONE: 360-836-8902

AUTHORITIES HAVING JURISDICTION
BUILDING: WASHINGTON STATE L&I
ZONING: WASHINGTON STATE L&I
UTILITY: KLICKITAT PUD

DESIGN SPECIFICATIONS
OCCUPANCY: II
CONSTRUCTION: SINGLE-FAMILY
ZONING: RESIDENTIAL
GROUND SNOW LOAD: 25 PSF
WIND EXPOSURE: C
WIND SPEED: 110 MPH

APPLICABLE CODES & STANDARDS
BUILDING: IBC 2018, IRC 2018
ELECTRICAL: NEC 2020
FIRE: IFC 2018

GREENLIGHT SOLAR & ROOFING

CONTRACTOR

GREENLIGHT SOLAR & ROOFING

PHONE: 360-836-8902
ADRESS: 7305 NE 72ND PL.,
VANCOUVER, WA 98662

LIC. NO.: CCB 211333 / GREENSL853KD
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM: 21.600 kWp

FOWLER RESIDENCE

381 OLD HWY 8,
LYLE, WA 98635

APN: 03123000000400

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

COVER PAGE

DATE: 04.22.2023
DESIGN BY: B.I.
CHECKED BY: A.B.

REVISIONS

T-001.00

2.1.1 SITE NOTES:

2.1.2 A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.

2.1.3 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.

2.1.4 THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.

2.1.5 PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION NEC 110.26.

2.1.6 ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SERVES TO PROTECT THE BUILDING OR STRUCTURE.

2.2.1 EQUIPMENT LOCATIONS:

2.2.2 ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.

2.2.3 WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31 (A),(C) AND NEC TABLE 310.15 (B)(1).

2.2.4 JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.

2.2.5 ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.

2.2.6 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.

2.2.7 ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

2.3.1 STRUCTURAL NOTES:

2.3.2 RACKING SYSTEM & PV ARRAY WILL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUST ALSO EXTEND A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUBARRAY, ACCORDING TO RAIL MANUFACTURER'S INSTRUCTIONS.

2.3.3 JUNCTION BOX WILL BE INSTALLED PER MANUFACTURERS' SPECIFICATIONS. IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.

2.3.4 ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.

2.3.5 ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER.

2.3.6 WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

2.4.1 WIRING & CONDUIT NOTES:

2.4.2 ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.

2.4.3 CONDUCTORS SIZED ACCORDING TO NEC 690.8, NEC 690.7.

2.4.4 VOLTAGE DROP LIMITED TO 1.5%.

2.4.5 DC WIRING LIMITED TO MODULE FOOTPRINT. MICROINVERTER WIRING SYSTEMS SHALL BE LOCATED AND SECURED UNDER THE ARRAY W/ SUITABLE WIRING CLIPS.

2.4.6 AC CONDUCTORS COLORED OR MARKED AS FOLLOWS:

PHASE A OR L1- BLACK
PHASE B OR L2- RED, OR OTHER CONVENTION IF THREE PHASE
PHASE C OR L3- BLUE, YELLOW, ORANGE**, OR OTHER CONVENTION
NEUTRAL- WHITE OR GRAY

IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [NEC 110.15].

2.5.1 GROUNDING NOTES:

2.5.2 GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVICES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.

2.5.3 PV EQUIPMENT SHALL BE GROUNDED ACCORDING TO NEC 690.43 AND MINIMUM NEC TABLE 250.122.

2.5.4 METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES CONSIDERED GROUNDED IN ACCORD WITH 250.134 AND 250.136(A).

2.5.5 EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO NEC 690.45 AND MICROINVERTER MANUFACTURERS' INSTRUCTIONS.

2.5.6 EACH MODULE WILL BE GROUNDED USING WEEB GROUNDING CLIPS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ. IF WEEBS ARE NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURERS' INSTALLATION REQUIREMENTS.

2.5.7 THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.

2.5.8 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER [NEC 250.119]

2.5.9 THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH NEC 690.47 AND NEC 250.50 THROUGH 250.106. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED ACCORDING TO NEC 250, NEC 690.47 AND AHJ.

2.5.10 GROUND-FAULT DETECTION SHALL COMPLY WITH NEC 690.41(B)(1) THROUGH (3) TO REDUCE FIRE HAZARDS

2.6.1 DISCONNECTION AND OVER-CURRENT PROTECTION NOTES:

2.6.2 DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS).

2.6.3 DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH

2.6.4 PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.12(A) THROUGH (D).

2.6.5 ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690.8, 690.9, AND 240.

2.6.6 MICROINVERTER BRANCHES CONNECTED TO A SINGLE BREAKER OR GROUPED FUSES IN ACCORDANCE WITH NEC 110.3(B).

2.6.7 IF REQUIRED BY AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION ACCORDING TO NEC 690.11 AND UL1699B.

2.7.1 INTERCONNECTION NOTES:

2.7.2 LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH NEC 705.12

2.7.3 THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR SHALL NOT EXCEED 120 PERCENT OF THE AMPACITY OF THE BUSBAR, PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD [NEC 705.12(B)(3)(2)].

2.7.4 AT MULTIPLE ELECTRIC POWER SOURCES OUTPUT COMBINER PANEL, TOTAL RATING OF ALL OVERCURRENT DEVICES SHALL NOT EXCEED AMPACITY OF BUSBAR. HOWEVER, THE COMBINED OVERCURRENT DEVICE MAY BE EXCLUDED ACCORDING TO NEC 705.12 (B)(3)(3).

2.7.5 FEEDER TAP INTERCONNECTION (LOAD SIDE) ACCORDING TO NEC 705.12 (B)(1) AND (2)

2.7.6 SUPPLY SIDE TAP INTERCONNECTION ACCORDING TO NEC 705.11 WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.42

2.7.7 BACKFEEDING BREAKER FOR ELECTRIC POWER SOURCES OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING [NEC 705.12 (E)].

GREENLIGHT SOLAR & ROOFING

CONTRACTOR

GREENLIGHT SOLAR & ROOFING

PHONE: 360-836-8902
ADRESS: 7305 NE 72ND PL.,
VANCOUVER, WA 98662

LIC. NO.: CCB 211333 / GREENSL853KD
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM: 21.600 kWp

FOWLER RESIDENCE

381 OLD HWY 8,
LYLE, WA 98635

APN: 03123000000400

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

NOTES

DATE: 04.22.2023

DESIGN BY: B.I.

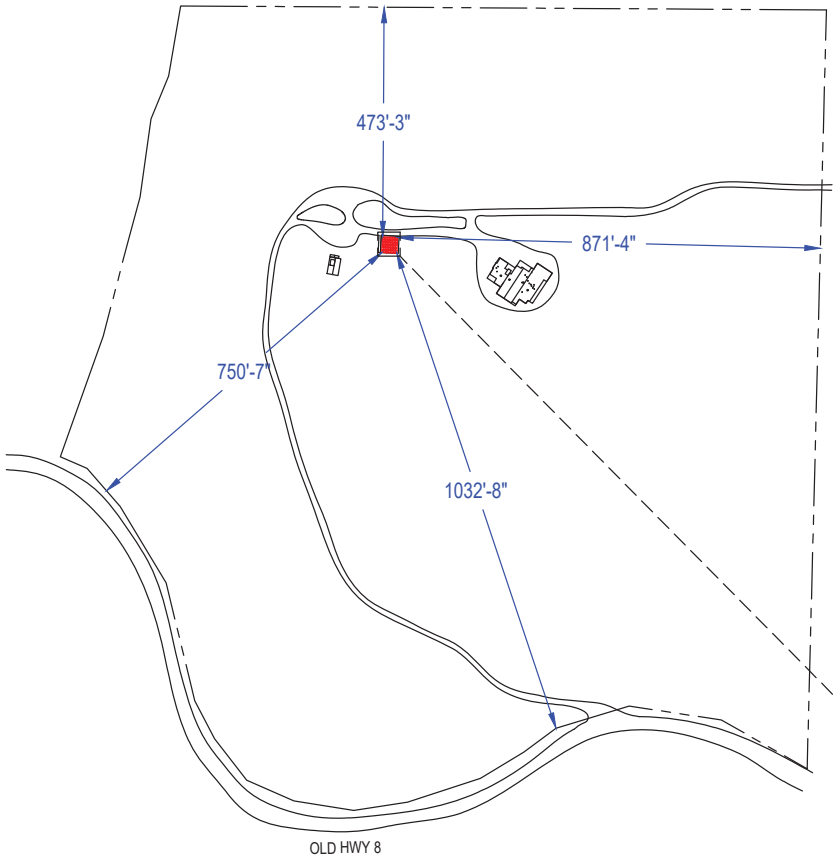
CHECKED BY: A.B.

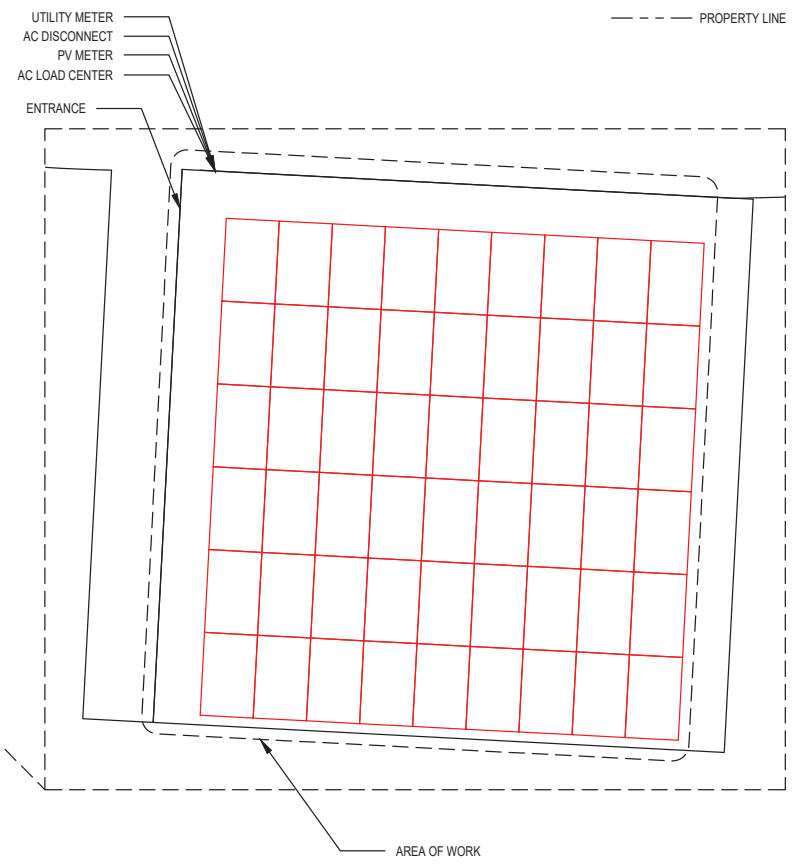
REVISIONS

G-001.00

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE





01 SITE PLAN
1/256" = 1'-0"
0 128' 256'

N
W E
S

02 SITE PLAN
1/8" = 1'-0"
0 4' 8'

N
W E
S

GREENLIGHT SOLAR & ROOFING

CONTRACTOR

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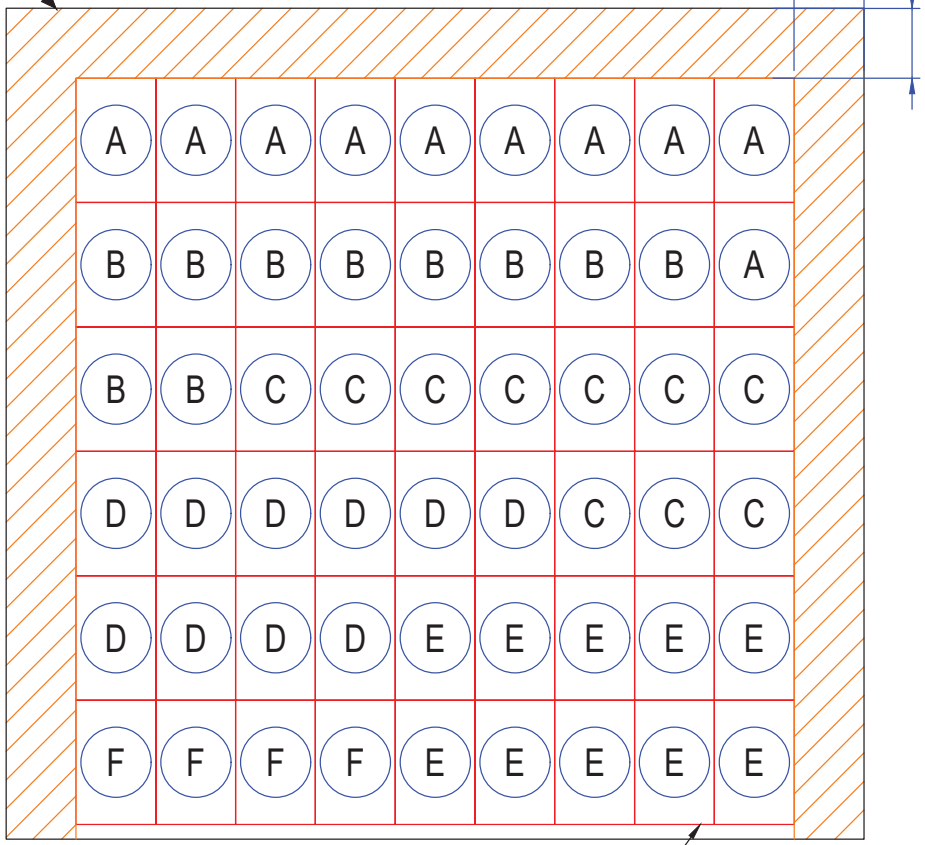
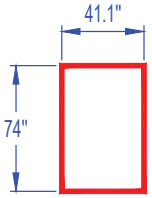
EXTERIOR PV EQUIPMENT
(E) (1) UTILITY METER
(N) (1) AC DISCONNECT
(N) (1) PV METER
(N) (1) AC LOAD CENTER
INTERIOR PV EQUIPMENT
(E) (1) MAIN ELECTRICAL PANEL



ARRAY 1 - 21.600 KW
[x54] (N) MODULES
TILT: 30 DEGREES
ROOF PITCH: 7:12
AZIMUTH: 183 DEGREES

01 ELECTRICAL PLAN
3/16" = 1'-0"
0 2'-8" 5'-4"

N
W E
S



MODULE:
HANWHA Q-CELLS
Q.PEAK DUO BLK ML-G10+ 400W
400 WATTS

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE

FIRE CLEARANCE

A MODULE STRINGING
B MODULE STRINGING
C MODULE STRINGING
D MODULE STRINGING
E MODULE STRINGING
F MODULE STRINGING

GREENLIGHT SOLAR & ROOFING

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ELECTRICAL PLAN

DATE: 04.22.2023
DESIGN BY: B.I.
CHECKED BY: A.B.

REVISIONS

A-102.00

GENERAL NOTES

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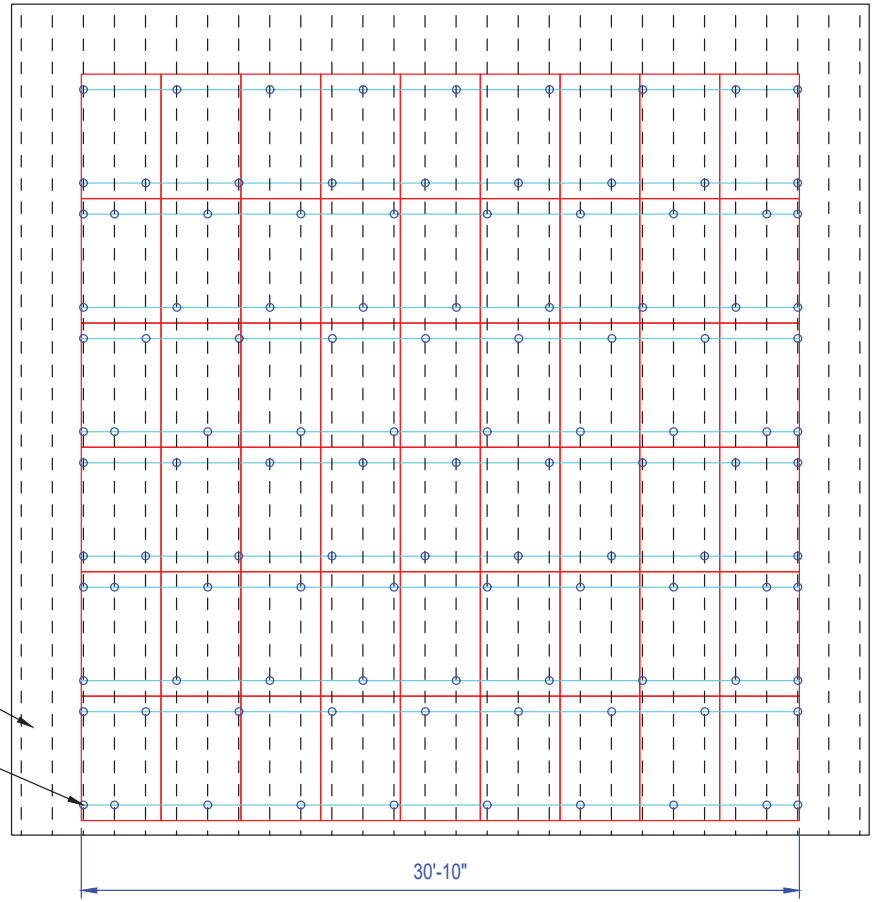


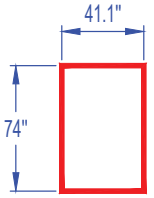
ROOF RAFTERS

01 SOLAR ATTACHMENT PLAN

3/16" = 1'-0"

0 2'-8" 5'-4"

N W E S



MODULE:
HANWHA Q-CELLS
Q.PEAK DUO BLK ML-G10+ 400W
400 WATTS

GREENLIGHT SOLAR & ROOFING

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SOLAR ATTACHMENT PLAN

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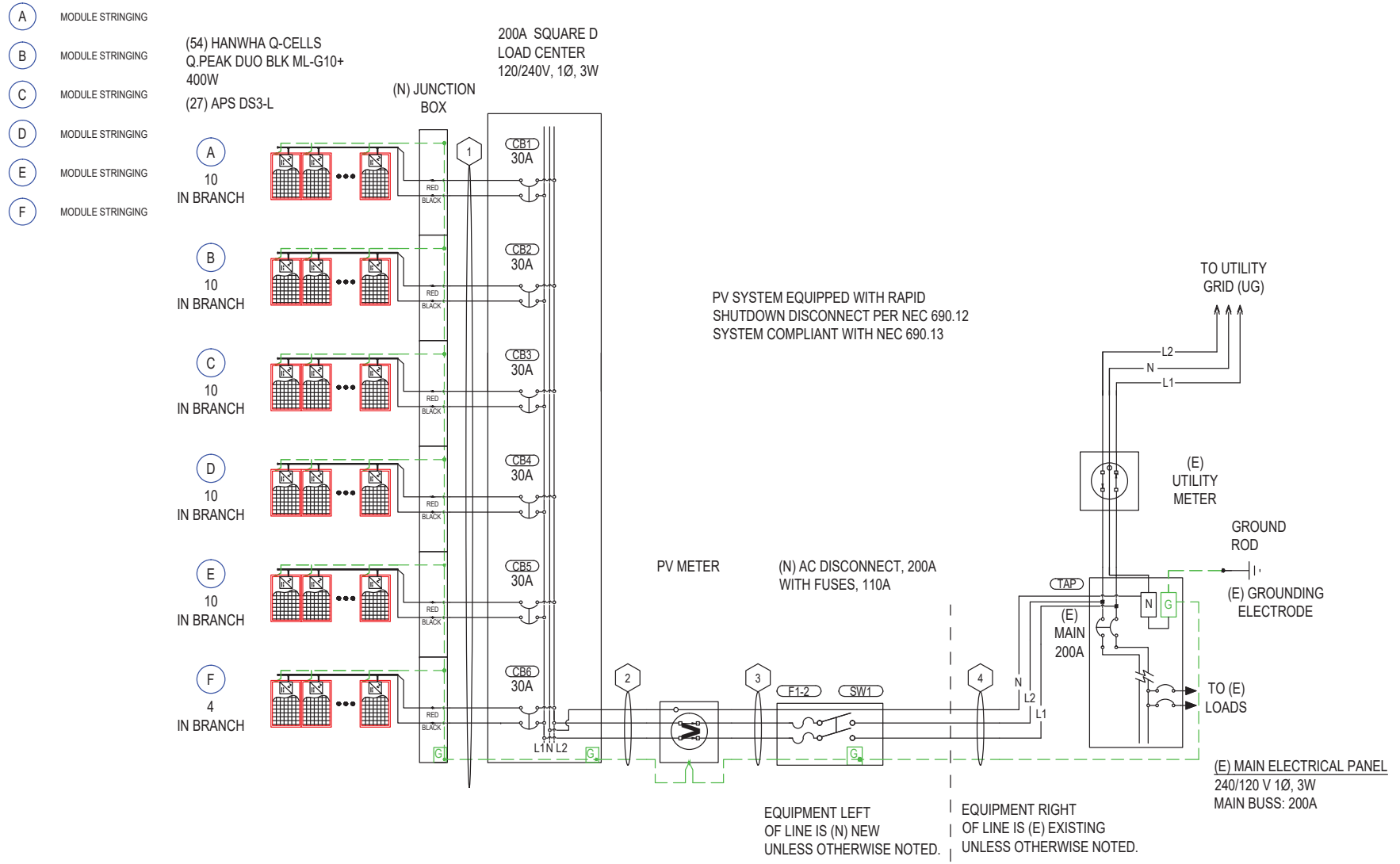
REVISIONS

A-103.00

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS

ID	TYPICAL	CONDUCTOR	CONDUIT	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPD	EGC	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	AMP. @ TERMINAL
1	2	10 AWG THWN-2, COPPER	0.75" DIA FMC	8	20A	10 AWG THWN-2, COPPER	0.91 (37.3 °C)	0.7	16A	20A	40A	25.48A	75°C	35A
2	1	2 AWG THWN-2, COPPER	1.25" DIA FMC	2	N/A	2 AWG THWN-2, COPPER	0.91 (37.3 °C)	1	86.4A	108A	130A	118.3A	75°C	115A
3	1	2 AWG THWN-2, COPPER	1.25" DIA FMC	2	110A	2 AWG THWN-2, COPPER	0.91 (37.3 °C)	1	86.4A	108A	130A	118.3A	75°C	115A
4	1	2 AWG THWN-2, COPPER	1.25" DIA FMC	2	N/A	2 AWG THWN-2, COPPER	0.91 (37.3 °C)	1	86.4A	108A	130A	118.3A	75°C	115A



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LINE DIAGRAM

DATE: 04.22.2023
DESIGN BY: B.I.
CHECKED BY: A.B.

REVISIONS

E-601.00

SYSTEM SUMMARY						
	BRANCH #1	BRANCH #2	BRANCH #3	BRANCH #4	BRANCH #5	BRANCH #6
INVERTERS PER BRANCH	5	5	5	5	5	2
MAX AC CURRENT	16A	16A	16A	16A	16A	6.4A
MAX AC OUTPUT POWER	3,840W	3,840W	3,840W	3,840W	3,840W	1,536W
ARRAY STC POWER	21,600W					
ARRAY PTC POWER	20,061W					
MAX AC CURRENT	86.4A					
MAX AC POWER	20,736W					
DERATED (CEC) AC POWER	19,359W					

MODULES										
REF.	QTY.	MAKE AND MODEL	PMAX	PTC	ISC	IMP	VOC	VMP	TEMP. COEFF. OF VOC	FUSE RATING
PM1-54	54	HANWHA Q-CELLS Q.PEAK DUO BLK ML-G10+ 400W	400W	371.5W	11.14A	10.77A	45.3V	37.13V	-0.122V/°C (-0.27%/°C)	20A

INVERTERS										
REF.	QTY.	MAKE AND MODEL	AC VOLTAGE	GROUND	OCPD RATING	RATED POWER	MAX OUTPUT CURRENT	MAX INPUT CURRENT	MAX INPUT VOLTAGE	CEC WEIGHTED EFFICIENCY
I1-27	27	APS DS3-L	240V	FLOATING	30A	768W	3.2A	2x18A	60V	96.5%

DISCONNECTS				
REF.	QTY.	MAKE AND MODEL	RATED CURRENT	MAX RATED VOLTAGE
SW1	1	SQUARE D D224NRB OR EQUIV.	200A	240VAC

OCPDS			
REF.	QTY.	RATED CURRENT	MAX VOLTAGE
CB1-6	6	20A	240VAC
F1-2	2	110A	240VAC

ASHRAE EXTREME LOW	-15.6°C (3.9°F), SOURCE: COLUMBIA GORGE RGNL (45.62°; -121.17°)
ASHRAE 2% HIGH	37.3°C (99.1°F), SOURCE: COLUMBIA GORGE RGNL (45.62°; -121.17°)

GREENLIGHT SOLAR & ROOFING

CONTRACTOR

GREENLIGHT SOLAR & ROOFING

PHONE: 360-836-8902
ADRESS: 7305 NE 72ND PL.,
VANCOUVER, WA 98662

LIC. NO.: CCB 211333 / GREENSL853KD
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM: 21.600 kWp

FOWLER RESIDENCE

381 OLD HWY 8,
LYLE, WA 98635

APN: 03123000000400

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

DESIGN TABLES

DATE: 04.22.2023

DESIGN BY: B.I.

CHECKED BY: A.B.

REVISIONS

E-602.00

LABELING NOTES
1.1 LABELING REQUIREMENTS BASED ON THE 2020 NATIONAL ELECTRICAL CODE, CALIFORNIA FIRE CODE 605.11, OSHA STANDARD 1910.145, ANSI Z535
1.2 MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
1.3 LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
1.4 LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8" AND PERMANENTLY AFFIXED.
1.5 ALERTING WORDS TO BE COLOR CODED. "DANGER" WILL HAVE RED BACKGROUND; "WARNING" WILL HAVE ORANGE BACKGROUND; "CAUTION" WILL HAVE YELLOW BACKGROUND. [ANSI Z535]

WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL 1
AT EACH DISCONNECTING MEANS FOR PHOTOVOLTAIC EQUIPMENT (2" X 4").
[NEC 690.13].

WARNING
POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL 2
AT POINT OF INTERCONNECTION OVERCURRENT DEVICE (2" X 4").
[NEC 705.12(B)(2)(3)(B)].

AC DISCONNECT
PHOTOVOLTAIC SYSTEM POWER SOURCE
RATED AC OUTPUT CURRENT 86.4 AMPS
NOMINAL OPERATING AC VOLTAGE 240 VOLTS

LABEL 3
AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS (4" X 3").
[NEC 690.54]

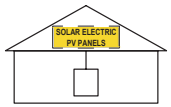
PHOTOVOLTAIC SYSTEM DISCONNECT

LABEL 4
AT EACH AC DISCONNECTING MEANS (4" X 1").
[NEC 690.13(B)].

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL 5
AT RAPID SHUTDOWN DISCONNECT SWITCH (5 1/4" X 2").
[NEC 690.56(C)(3)].

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN



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

LABEL 6
AT RAPID SHUTDOWN SYSTEM (3 3/4" X 5 1/4"). [NEC 690.56(C)(1)(A)].

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

LABEL 7
AT POINT OF INTERCONNECTION (2 3/4" X 1 5/8").
[NEC 705.12(B)(3)]

WARNING
SOLAR ELECTRIC CIRCUIT BREAKER IS BACKFED

LABEL 8
AT POINT OF INTERCONNECTION (2" X 1").
[NEC 705.12(B)(3)]

INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED
PHOTOVOLTAIC SYSTEM DISCONNECT LOCATED NORTH SIDE OF THE HOUSE

DIRECTORY
PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS IF NOT IN THE SAME LOCATION (5 3/4" X 1 1/8").
[NEC 690.56(B)]

WHERE THE PV SYSTEMS ARE REMOTELY LOCATED FROM EACH OTHER, A DIRECTORY IN ACCORDANCE WITH 705.10 SHALL BE PROVIDED AT EACH PV SYSTEM DISCONNECTING MEANS.
PV SYSTEM EQUIPMENT AND DISCONNECTING MEANS SHALL NOT BE INSTALLED IN BATHROOMS
[NEC 690.4(D),(E)]

PHOTOVOLTAIC POWER SOURCE

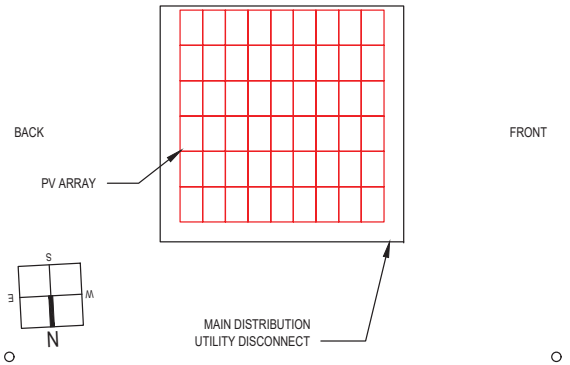
LABEL 9
AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10 FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS (5 3/4" X 1 1/8").
[CEC 690.31(D)(2)]

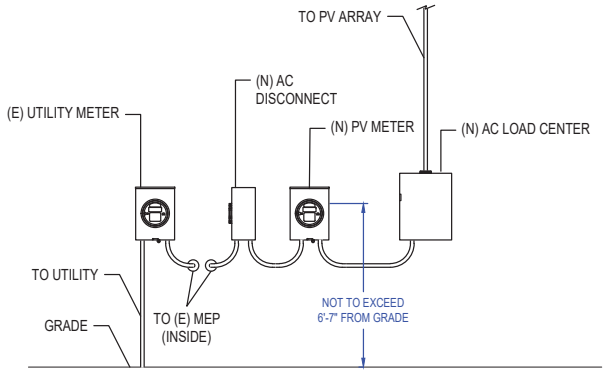
CAUTION
MULTIPLE SOURCES OF POWER

LABEL 10
AT UTILITY METER (5 3/4" X 1 1/8")
[NEC 690.56(B)]

!CAUTION!

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM ROOF MOUNTED SOLAR ARRAYS WITH SAFETY DISCONNECTS AS SHOWN:





01 EQUIPMENT ELEVATION
NOT TO SCALE

GREENLIGHT SOLAR & ROOFING

CONTRACTOR

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PLACARDS

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REVISIONS

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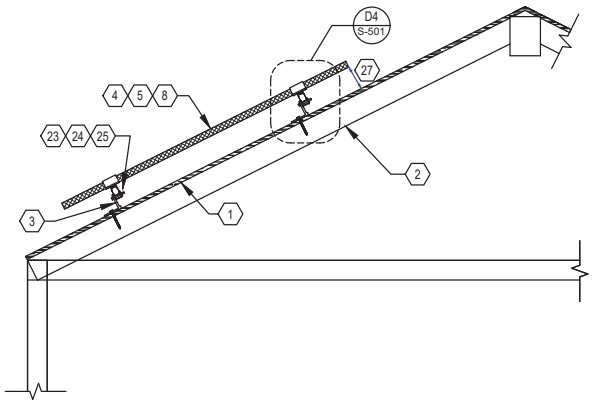
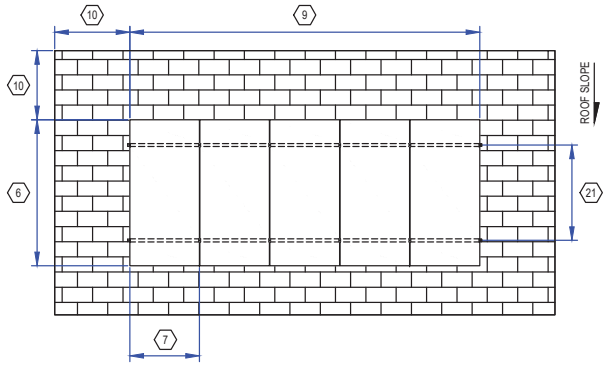
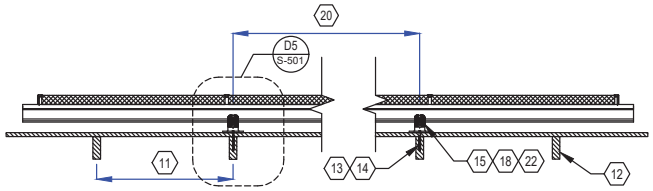


D1 RACKING DETAIL (TRANSVERSE)

NOT TO SCALE



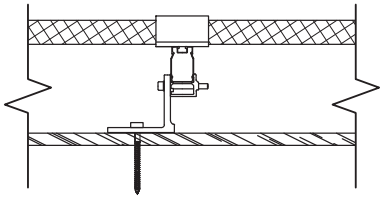


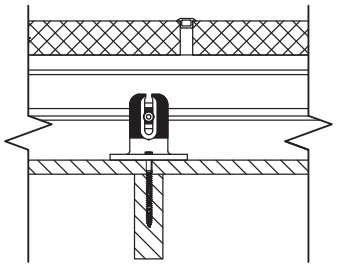
D2 RACKING DETAIL (LONGITUDINAL)

NOT TO SCALE

D3 RACKING DETAIL (TOP)

NOT TO SCALE





D4 DETAIL (TRANSVERSE)

NOT TO SCALE

D5 DETAIL (LONGITUDINAL)

NOT TO SCALE

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE

SHEET KEYNOTES

1. ROOF MATERIAL: ASPHALT SHINGLE
2. ROOF STRUCTURE: SINGLE SPAN RAFTER
3. ATTACHMENT TYPE: SUNMODO NANO (THROUGH RAFTER)
4. MODULE MANUFACTURER: HANWHA Q-CELLS
5. MODULE MODEL: Q.PEAK DUO BLK ML-G10+ 400W
6. MODULE LENGTH: 74"
7. MODULE WIDTH: 41.1"
8. MODULE WEIGHT: 48.5 LBS.
9. SEE SHEET A-103 FOR DIMENSION(S)
10. MIN. FIRE OFFSET: 18" FROM RIDGE, 36" FROM EDGE
11. RAFTERS SPACING: 16 IN. O.C.
12. RAFTERS SIZE: 2X10 IN. NOMINAL
13. LAG BOLT DIAMETER: 3/8 IN.
14. LAG BOLT EMBEDMENT: 4 IN.
15. TOTAL # OF ATTACHMENTS: 112.
16. TOTAL AREA: 1140.53 SQ. FT.
17. TOTAL WEIGHT: 2925.52 LBS.
18. WEIGHT PER ATTACHMENT: 26.12 LBS.
19. DISTRIBUTED LOAD: 2.57 PSF
20. MAX. HORIZONTAL STANDOFF: 48 IN.
21. MAX. VERTICAL STANDOFF: IN ACCORDANCE WITH MODULE MANUFACTURER'S INSTRUCTIONS.
22. STANDOFF STAGGERING: YES
23. RAIL MANUFACTURER (OR EQUIV.): SUNMODO
24. RAIL MODEL (OR EQUIVALENT): SMR100
25. RAIL WEIGHT: 0.4126 PLF
26. MAX. RAFTERS SPAN: 5 IN.
27. MODULE CLEARANCE: 3 IN. MIN., 6 IN. MAX.

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ASSEMBLY DETAILS

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CHECKED BY: A.B.

REVISIONS

S-501.00

Q.PEAK DUO BLK ML-G10+ SERIES

385 - 405 Wp | 132 Cells
20.6 % Maximum Module Efficiency

MODEL Q.PEAK DUO BLK ML-G10+

6 busbar cell technology

12 busbar cell technology

Breaking the 20 % efficiency barrier

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.6 %.

A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty[1].

Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology[2] and Hot-Spot Protect.

Extreme weather rating

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

Innovative all-weather technology

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.

The most thorough testing programme in the industry

Qcells is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.

[1] See data sheet on rear for further information.
[2] APT test conditions according to IEC/TS 62804-1:2015, method A (−1500 V, 96 h)

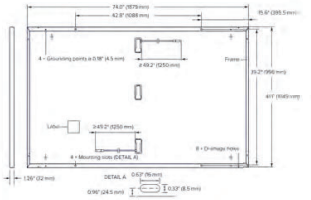
The ideal solution for:

Rooftop arrays on residential buildings

Q.PEAK DUO BLK ML-G10+ SERIES

Mechanical Specification

Format	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction box	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥ 49.2 in (1250 mm), (−) ≥ 49.2 in (1250 mm)
Connector	Stäubli MC4; IP68

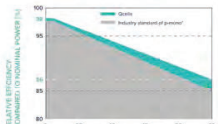


Electrical Characteristics

POWER CLASS			385	390	395	400	405
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC (POWER TOLERANCE +5 W/−0 W)							
Minimum	Power at MPP[1]	P_{MPP} [W]	385	390	395	400	405
	Short Circuit Current[1]	I_{SC} [A]	11.04	11.07	11.10	11.14	11.17
	Open Circuit Voltage[1]	V_{OC} [V]	45.19	45.23	45.27	45.3	45.34
	Current at MPP	I_{MPP} [A]	10.59	10.65	10.71	10.77	10.83
	Voltage at MPP	V_{MPP} [V]	36.36	36.62	36.88	37.13	37.39
	Efficiency[1]	η [%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]							
Minimum	Power at MPP	P_{MPP} [W]	288.8	292.6	296.3	300.1	303.8
	Short Circuit Current	I_{SC} [A]	8.90	8.92	8.95	8.97	9.00
	Open Circuit Voltage	V_{OC} [V]	42.62	42.65	42.69	42.72	42.76
	Current at MPP	I_{MPP} [A]	8.35	8.41	8.46	8.51	8.57
	Voltage at MPP	V_{MPP} [V]	34.59	34.81	35.03	35.25	35.46

[1] Measurement tolerances P_{MPP} ±3 %; I_{SC}; V_{OC} ±5 % at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • [2] 800 W/m², NMOT, spectrum AM 1.5

Qcells PERFORMANCE WARRANTY

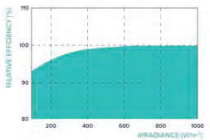


At least 98 % of nominal power during first year. Thereafter max. 0.5 % degradation per year. At least 93.5 % of nomina power up to 10 years. At least 86 % of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Qcells sales organisation of your respective country.

*Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.34	Nominal Module Operating Temperature	NMOT	[°F]	109 ± 5.4 (43 ± 3 °C)

Properties for System Design

Maximum System Voltage	V_{SYS}	[V]	1000 (IEC)/1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating		[A DC]	20	Fire Rating based on ANSI/UL 61730	TYPE 2
Max. Design Load, Push/Pull[3]		[lbs/ft²]	75 (3600 Pa)/55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	−40 °F up to +185 °F (−40 °C up to +85 °C)
Max. Test Load, Push/Pull[3]		[lbs/ft²]	113 (5400 Pa)/84 (4000 Pa)		

[3] See Installation Manual

Qualifications and Certificates

UL 61730, CE-compliant.
Quality Controlled PV - TÜV Rheinland, IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (solar cells).

Qcells pursues minimizing paper output in consideration of the global environment.

Note! Installation instructions must be followed. Contact our technical service for further information on approved installation of this product.
Hanwha Q CELLS America Inc.: 400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL hqc-inquiry@qcells.com | WEB www.qcells.com

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REVISIONS

R-001.00

APsystems
ALTENERGY POWER

Leading the Industry in
Solar Microinverter Technology

DS3 Series

The most powerful Dual Microinverter

- One microinverter connects to two solar modules
- Max output power reaching 640VA, 768VA or 880VA
- Two independent input channels (MPPT)
- CA Rule 21 (UL 1741 SA) compliant
- NEC 2020 690.12 Rapid Shutdown Compliant
- Encrypted Wireless ZigBee Communication
- Phase Monitored and Phase Balanced

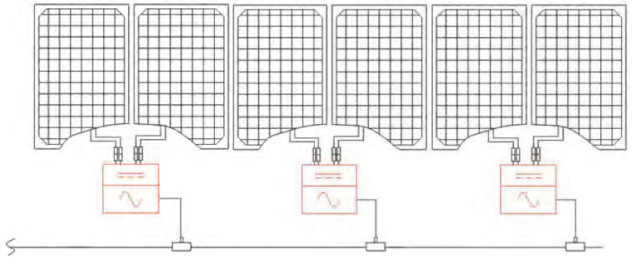
PRODUCT FEATURES

APsystems 3rd generation of dual microinverters are reaching unprecedented power outputs of 640VA or 768VA or 880VA to adapt to today's larger power module. With 2 independent MPPT, encrypted ZigBee signals, the DS3-S, DS3-L and DS3 benefit from an entirely new architecture and are fully backwards compatible with the QS1 and YC600 microinverters.

The innovative and compact design make the product lighter while maximizing power production. The components are encapsulated with silicone to reduce stress on the electronics, facilitate thermal dissipation, enhance waterproof properties, and ensure maximum reliability of the system via rigorous testing methods including accelerated life testing. A 24/7 energy access through Apps or web based portal facilitate remote diagnosis and maintenance.

The DS3 series is interactive with power grids through a feature referred to as RPC (Reactive Power Control) to better manage photovoltaic power spikes in the grid. With a performance and an efficiency of 97%, a unique integration with 20% less components, APsystems DS3-S, DS3-L and DS3 are a game changer to residential and commercial PV.

WIRING SCHEMATIC



2022/02/15 Rev1.3

Datasheet | DS3 Microinverter Series

Model	DS3-S	DS3-L	DS3
Input Data (DC)			
Recommended PV Module Power (STC) Range	250Wp-480Wp+	265Wp-570Wp+	300Wp-660Wp+
Peak Power Tracking Voltage	22V-48V	25V-55V	32V-55V
Operating Voltage Range	16V-60V	16V-60V	26V-60V
Maximum Input Voltage		60V	
Maximum Input Current	16A x 2	18A x 2	20A x 2
Output Data (AC)			
Maximum Continuous Output Power	640VA	768VA	880VA
Nominal Output Voltage/Range①		240V / 211V-264V	
Nominal Output Current	2.66A	3.20A	3.7A
Nominal Output Frequency/ Range①		60Hz/59.3Hz-60.5Hz	
Power Factor(Default/Adjustable)		0.99/0.7 leading...0.7 lagging	
Maximum Units per 20A and 30A Branch②	6/9	5/7	4/6
AC Bus Cable		12AWG / 10AWG	
Efficiency			
Peak Efficiency		97%	
CEC Efficiency		96.5%	
Nominal MPPT Efficiency		99.5%	
Night Power Consumption		20mW	
Mechanical Data			
Operating Ambient Temperature Range		-40°F to +149°F (-40°C to +65°C)	
Storage Temperature Range		-40°F to +185°F (-40°C to+85°C)	
Dimensions (W x H x D)		10.3" × 8.6" × 1.6" (262mm X 218mm X41.2mm)	
Weight		5.7lbs(2.6kg)	
DC Connector Type		Stäubli MC4 PV-ADBP4-S2&ADSP4-S2	
Cooling		Natural Convection - No Fans	
Enclosure Environmental Rating		NEMA 6	
Features			
Communication (Inverter To ECU)③		Encrypted ZigBee	
Isolation Design		High Frequency Transformers, Galvanically Isolated	
Energy Management		Energy Management Analysis (EMA) system	
Warranty④		10 Years Standard ; 25 Years Optional	
Compliance			
Safety and EMC Compliance		UL1741;CSA C22.2 No. 107.1-16;CA Rule 21 (UL 1741 SA); FCC Part15; ANSI C63.4; ICES-003; IEEE1547; NEC2014&NEC2017 Section 690.11 DC Arc-Fault circuit; Protection NEC2014&NEC2017 Section 690.12 Rapid Shutdown of PV systems on Buildings; NEC 2020	

① Nominal voltage/frequency range can be extended beyond nominal if required by the utility.
② Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.
③ Recommend no more than 80 inverters register to one ECU for stable communication.
④ To be eligible for the warranty, APsystems microinverters need to be monitored via the EMA portal. Please refer to our warranty T&Cs available on usa.APsystems.com.

APsystems
600 Ericksen Ave NE, Suite 200 Seattle, WA 98110
Tel : 844-666-7035
apsystems.com

Meets the standard requirements for Distributed Energy Resources (UL 1741) and identified with the CSA Listed Mark

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SUNMOD

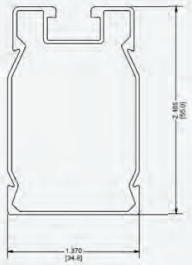
SMR100 Rail

SMR200 Rail

Part Number	Description
A20422-168-BK	SMR100 Rail, Black Anodized, 168"
A20431-168-BK	SMR200 Rail, Black Anodized, 168"
A20440-BK1	SMR100 Rail End Cap, Black
A20440-BK2	SMR200 Rail End Cap, Black

Cut Sheet

SMR100 Rail



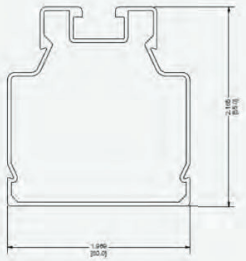
Mechanical Properties

Material: 6005-T5 Aluminum
Weight: 0.4126 lbs/ft (0.614 kg/m)
Ultimate Tensile Strength: 37.7 ksi (260 MPa)
Yield Strength: 34.8 ksi (240 MPa)

Section Properties

Sx: 0.196 in³ (3.21 cm³)
Sy: 0.146 in³ (2.39 cm³)
Area (X-section): 0.352 in² (2.27 cm

SMR200 Rail



Mechanical Properties

Material: 6005-T5 Aluminum
Weight: 0.453 lbs/ft (0.626 kg/m)
Ultimate Tensile Strength: 37.7 ksi (260 MPa)
Yield Strength: 34.8 ksi (240 MPa)

Section Properties

Sx: 0.223 in³ (3.74 cm³)
Sy: 0.189 in³ (3.10 cm³)
Area (X-section): 0.388 in² (1.22 cm

D10225-V001

Dimensions shown are inches (and millimeters)

Details are subject to change without notice

GREENLIGHT SOLAR & ROOFING

CONTRACTOR

GREENLIGHT SOLAR & ROOFING

PHONE: 360-836-8902
ADRESS: 7305 NE 72ND PL.,
VANCOUVER, WA 98662

LIC. NO.: CCB 211333 / GREENSL853KD
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM: 21.600 kWp

FOWLER RESIDENCE

381 OLD HWY 8,
LYLE, WA 98635

APN: 03123000000400

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

RESOURCE DOCUMENT

DATE: 04.22.2023
DESIGN BY: B.I.
CHECKED BY: A.B.

REVISIONS

R-003.00

SUNMODO
We've Got Your Rack!

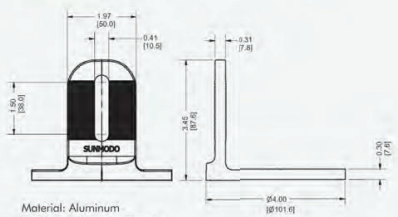
NanoMount™ (Rafter)

Part Description: Nano Rafter Mount, Black
Part No.: K50044-BK1

Item No.	Description	Qty in Kit
1	Nano Rafter Mount Assembly • Nano Rafter Mount • Nano Gasket	1
2	Lat Bolt Assembly • Hex Lag Bolt M8X115, DIN 571, 304S • Sealing Washer .33 ID X .75 X .157	1

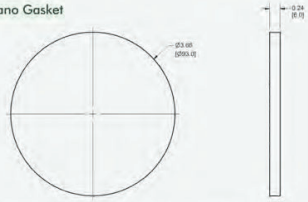
Cut Sheet

1. Nano Mount



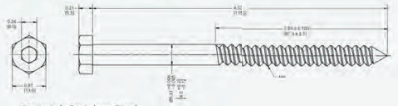
Material: Aluminum
Finish: Black Powder Coating

2. Nano Gasket



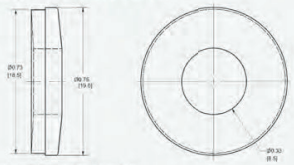
Material: USWR Silicone Foam Gasket with Adhesive

3. Hex Lag Bolt M8X115, DIN 571, 304SS



Material: Stainless Steel
Finish: Clear

4. Sealing Washer .33ID X.75X.157



Material: EPDM + Stainless Steel

D10213.V00T
Dimensions shown are inches (and millimeters) Details are subject to change without notice

SUNMODO
We've Got Your Rack!

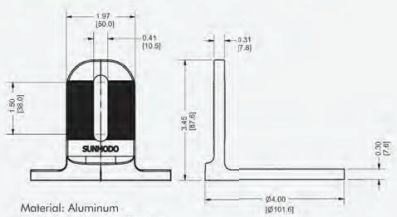
NanoMount™ (Decking)

Part Description: Nano Deck Mount, Black
Part No.: K50044-BK2

Item No.	Description	Qty in Kit
1	Nano Deck Mount Assembly • Nano Deck Mount • Nano Gasket	1
2	Decking Screw Assembly • Self-Drilling Screw, #6.3 X 76 • Sealing Washer .26ID X .50X .125	4

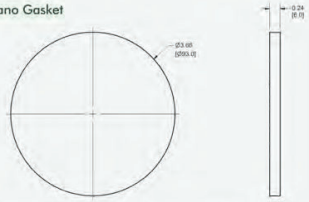
Cut Sheet

1. Nano Mount



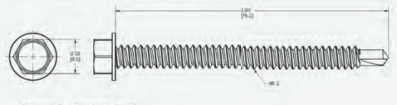
Material: Aluminum
Finish: Black Powder Coating

2. Nano Gasket



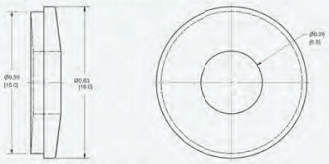
Material: USWR Silicone Foam Gasket with Adhesive

3. Self-Drilling Screw, #6.3 X 76



Material: Stainless Steel
Finish: Clear

4. Sealing Washer .26ID X .50X .125



Material: EPDM + Stainless Steel

D10214.V00T
Dimensions shown are inches (and millimeters) Details are subject to change without notice

GREENLIGHT
SOLAR & ROOFING

CONTRACTOR

GREENLIGHT SOLAR & ROOFING

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