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June 28, 2023

DBM Solar Design and Consulting
2650 Washington Boulevard
Ogden, UT 84412

Re: Engineering Services
Trubiano Residence
95 Longview Drive, Dublin OH
11.200 kW System

To Whom It May Concern:

We have received information regarding solar panel installation on the roof of the above referenced structure. Our evaluation of the structure is to verify the existing capacity of the roof system and its ability to support the additional loads imposed by the proposed solar system.

A. Site Assessment Information

1. Site visit documentation identifying attic information including size and spacing of framing for the existing roof structure.
2. Design drawings of the proposed system including a site plan, roof plan and connection details for the solar panels. This information will be utilized for approval and construction of the proposed system.

B. Description of Structure:

Roof Framing: 2x6 dimensional lumber at 16" on center.
Roof Material: Composite Asphalt Shingles
Roof Slope: 23 degrees
Attic Access: Accessible
Foundation: Permanent

C. Loading Criteria Used

- **Dead Load**
 - Existing Roofing and framing = 7 psf
 - New Solar Panels and Racking = 3 psf
 - TOTAL = 10 PSF
- **Live Load** = 20 psf (reducible) – 0 psf at locations of solar panels
- **Ground Snow Load** = 20 psf
- **Wind Load** based on ASCE 7-16
 - Ultimate Wind Speed = 115 mph (based on Risk Category II)
 - Exposure Category C

Analysis performed of the existing roof structure utilizing the above loading criteria is in accordance with the 2019 RCO, including provisions allowing existing structures to not require strengthening if the new loads do not exceed existing design loads by 105% for gravity elements and 110% for seismic elements. This analysis indicates that the existing framing will support the additional panel loading without damage, if installed correctly.

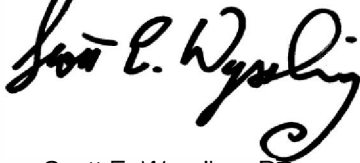
D. Solar Panel Anchorage

1. The solar panels shall be mounted in accordance with the most recent Ironridge installation manual. If during solar panel installation, the roof framing members appear unstable or deflect non-uniformly, our office should be notified before proceeding with the installation.
2. The maximum allowable withdrawal force for a $\frac{5}{16}$ " lag screw is 235 lbs per inch of penetration as identified in the National Design Standards (NDS) of timber construction specifications. Based on a minimum penetration depth of $2\frac{1}{2}$ ", the allowable capacity per connection is greater than the design withdrawal force (demand). Considering the variable factors for the existing roof framing and installation tolerances, the connection using one $\frac{5}{16}$ " diameter lag screw with a minimum of $2\frac{1}{2}$ " embedment will be adequate and will include a sufficient factor of safety.
3. Considering the wind speed, roof slopes, size and spacing of framing members, and condition of the roof, the panel supports shall be placed no greater than 48" on center.

Based on the above evaluation, this office certifies that with the racking and mounting specified, the existing roof system will adequately support the additional loading imposed by the solar system. This evaluation is in conformance with the 2019 RCO, current industry standards, and is based on information supplied to us at the time of this report.

Should you have any questions regarding the above or if you require further information do not hesitate to contact me.

Very truly yours,

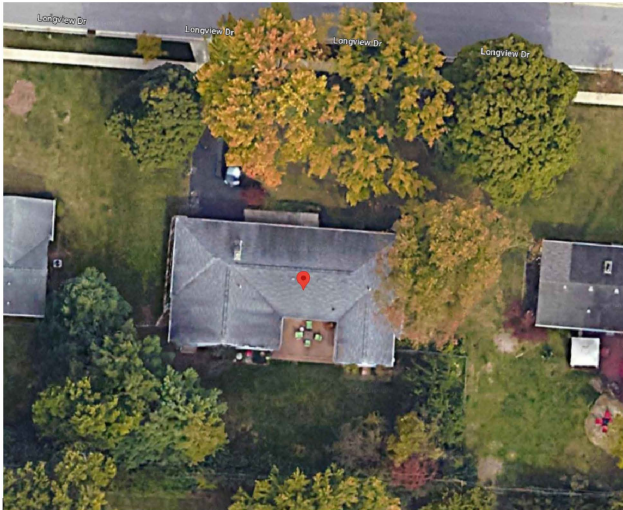


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Ohio COA # 06516

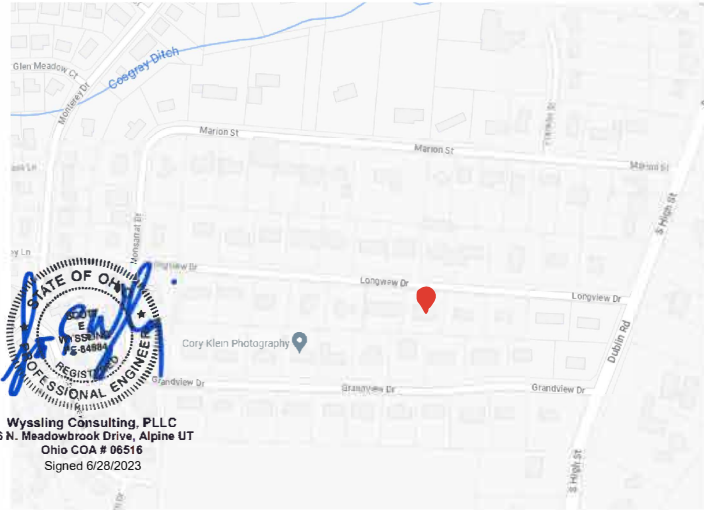


Signed: 6/28/2023

AERIAL VIEW



VICINITY MAP



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76 N. Meadowbrook Drive, Alpine UT
Ohio COA # 06516
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SITE INFORMATION:
Trubiano, Jacob
95 Longview Dr,
Dublin, OH 43017
DC SYSTEM SIZE:
11.2kW

SHEET INDEX	
PAGE NUMBER	PAGE TITLE
PV01	TITLE PAGE
PV02	SITE PLAN
PV03	ELECTRICAL LINE DIAGRAM
PV04	ARRAY & STRINGING DETAIL
PV05	LABEL PLAN
SPECS	SPECSHEETS AND DOCUMENTS



Set Reviewed By:
PV-041115-011207

SCOPE OF WORK
DC System Size: 11.2kW Roof Type: Asphalt/Composite Shingle Roof Roof Pitch: 5/12 Anchored on 48" centers using UL listed racking system UV Resistant cable ties (not zip ties) used for permanent wire management in accordance with NEC 110.2, 110.3(A-B), 300.4 Junction boxes mounted flush with racking.

DESIGN CRITERIA
WIND SPEED: 115 MPH EXPOSURE CATEGORY: C

SYSTEM SUMMARY
MODULE: (28) HANWHA Q. PEAK DUO BLK ML-G10 400W PV Module INVERTER: (28) ENPHASE IQ8PLUS-72-2-US Micro Inverters RACKING: IRONRIDGE Roof Mounted PV System

GENERAL NOTES
A. ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODES. B. DRAWINGS HAVE BEEN DETAILED ACCORDING TO UL LISTING REQUIREMENTS. C. PRIOR TO COMMENCEMENT OF WORK, CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY DBM OF ANY INCONSISTENCIES. D. ALL EQUIPMENT SHALL BE INSTALLED AS SHOWN. E. WARNINGS PER NEC 690. F. WIRING SHALL NOT BE INSTALLED WITHIN 10 INCHES OF ROOF DECKING EXCEPT WHERE DIRECTLY BELOW PV EQUIPMENT

APPLICABLE CODES
2017 National Electrical Code (NEC) 2019 Residential Code of Ohio (RCO) 2017 Ohio Building Code (OBC) 2017 Ohio Fire Code (OFC) 2017 Ohio Energy Code (OEC)
OCCUPANCY & CONSTRUCTION TYPE
OCCUPANCY - R3 CONSTRUCTION - V-B



DESIGNED BY: J. Fairchild
DATE: 6/27/2023
PROJECT #: 2023-GOLDPATH
SHEET NAME: COVER PAGE
PAGE #: PV01
REVISIONS: 0



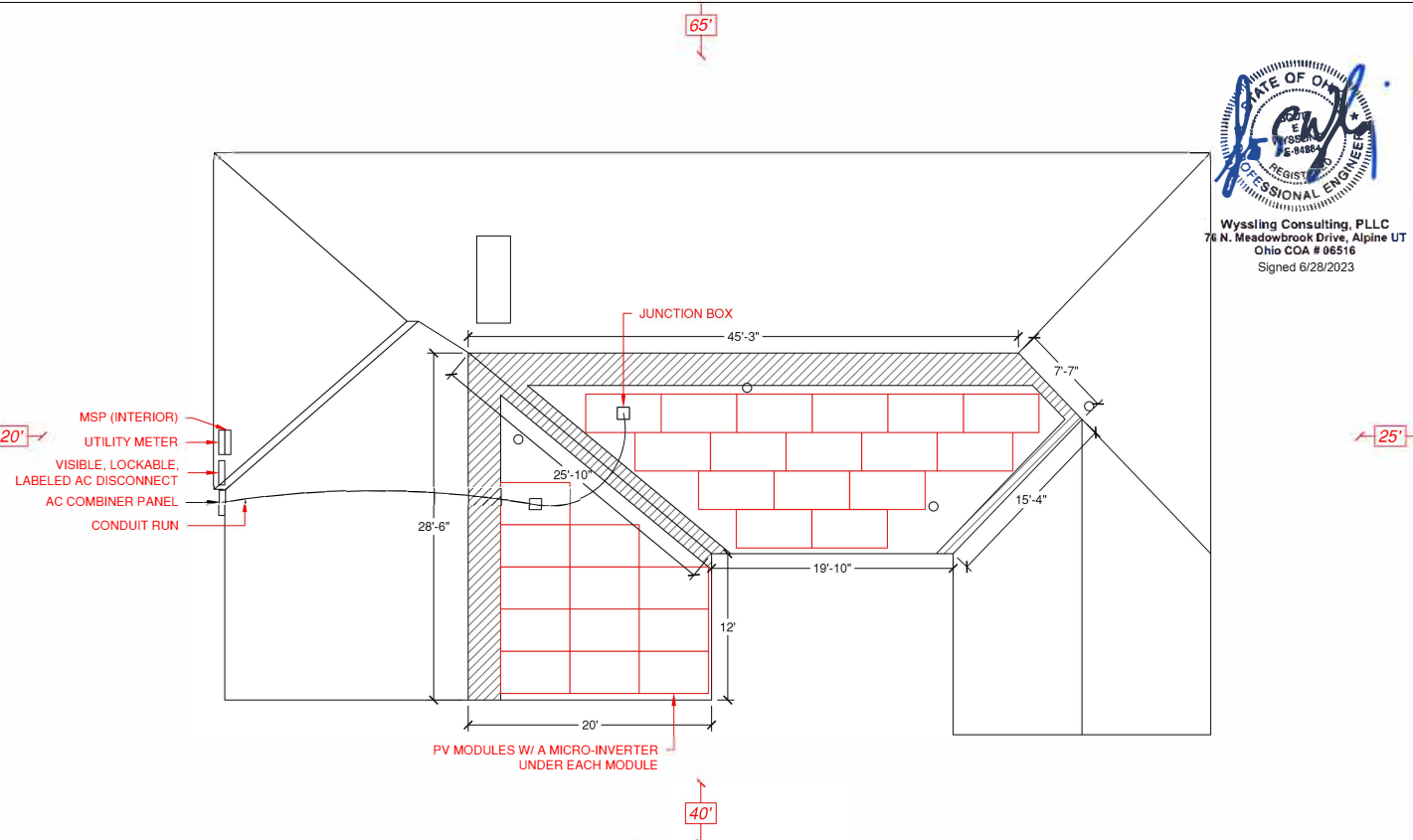
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 74 N. Meadowbrook Drive, Alpine UT
 Ohio COA # 06516
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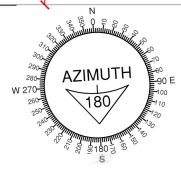
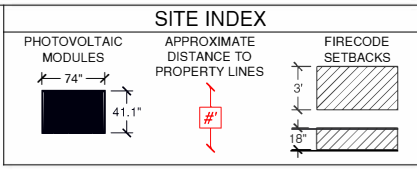
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 95 Longview Dr,
 Dublin, OH 43017
 DC SYSTEM SIZE:
 11.2kW



- AC DISCONNECT LOCATED 10' OR LESS FROM UTILITY METER
- CONDUIT RUNS AND JUNCTION BOX LOCATIONS TO BE DETERMINED IN THE FIELD
- EQUIPMENT LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED IN THE FIELD
- WIRES LOCATED IN READILY ACCESSIBLE LOCATIONS SHALL BE GUARDED PER NEC 690.31(A)



ARRAY DETAIL				
	A	B	C	D
AZIMUTH	184°	94°		
TILT ANGLE	23°	23°		
MODULE COUNT	16	12		
ROOF SUPPORTS	Rafter = 2x6 @ 16" O.C.			

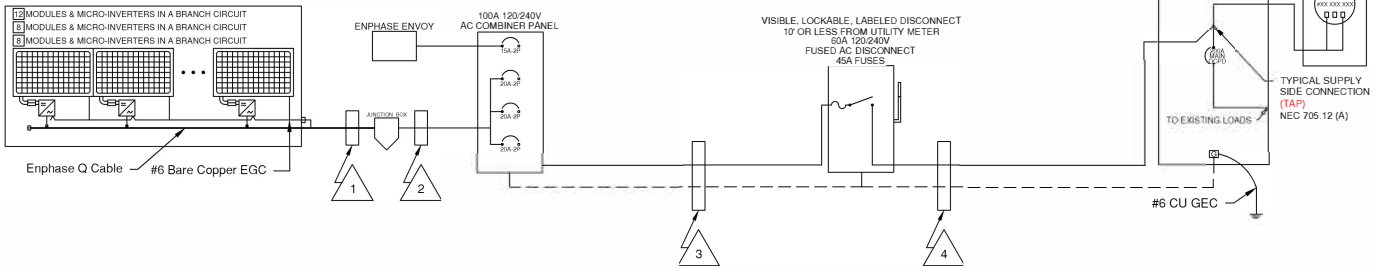
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DATE:	6/27/2023
PROJECT:	2023-GOLDPATH
SHEET NAME:	PROPERTY DETAIL
FRAME:	FV02
REV/ISS:	0

PV MODULE SPECIFICATIONS	
MANUFACTURER	Hanwha Q.PEAK
MODEL	DUO BLK ML-G10+ 400
MAX POWER POINT CURRENT (Imp)	10.77A
MAX POWER POINT VOLTAGE (Vmp)	37.13V
OPEN CIRCUIT VOLTAGE (Voc)	45.30V
SHORT CIRCUIT CURRENT (Isc)	11.14A
MAX SERIES FUSE (OCPD)	20A
MAX POWER (Pmax)	400W
MAX VOLTAGE (Vdc)	1000V

INVERTER SPECIFICATIONS	
MANUFACTURER	Enphase
MODEL	ENPHASE EM200-240-15
GROUND	UNGROUNDING
AC OUTPUT VOLTAGE	240V
MAX OUTPUT POWER	200VA
CEC RATED OUTPUT POWER	200VA
RATED OUTPUT CURRENT	1.21A
MAX INPUT CURRENT	15 A
MAX DC INPUT VOLTAGE	60V
CEC WEIGHTED EFFICIENCY	97%
MAX FUSE (OCPD)	20 A

PHOTOVOLTAIC AC OUTPUT LABEL	
AC OUTPUT CURRENT	33.88A
NOMINAL AC VOLTAGE	240V

PV LOAD CALCULATIONS: SUPPLY SIDE TIE-IN	
200A RATED FEEDER WIRES	
$200A \div 1.25 = 160A$	
160A (FEEDER WIRES ALLOWABLE SOLAR)	
160A AVAILABLE FOR PV	
$705.12(A) \& 690.59$	



ELECTRICAL NOTES	
A.	ALL COMPONENTS SHALL COMPLY WITH NEC AS AMENDED
B.	PHASE CONDUCTORS SHALL BE IDENTIFIED
C.	ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF UPON ENTRY INTO BOXES. REFER TO MANUFACTURER'S INSTALLATION MANUAL FOR REQUIRED TORQUE VALUES
D.	THE DC GEC, IF USED, SHALL BE CONTINUOUS FROM THE INVERTER GROUND BUS TO THE MAIN SERVICE GROUNDING ELECTRODE SYSTEM
E.	ATTACHMENT TO GROUND ELECTRODE SHALL USE IRREVERSIBLE CLAMP
F.	ALL EXPOSED METAL PARTS SHALL BE GROUNDED USING TIN PLATED COPPER LAY IN LUGS OR GROUNDING CLIPS LISTED FOR THE PURPOSE
G.	MIN #10 BARE COPPER EGC AT SOURCE CIRCUITS SHALL BE ROUTED SECURELY TO MOUNTING HARDWARE THAT PROTECTS FROM PHYSICAL DAMAGE
H.	#6 FOR AREAS THAT MAY BE SUBJECT TO DAMAGE
I.	BOTH ENDS OF ALL METALLIC CONDUIT SHALL BE BONDED PER NEC 250
J.	INTERCONNECTION PER NEC 690
K.	ALL WIRES WILL BE RATED AT THIN/TH W/2
L.	CONDUIT AND CONDUCTOR SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS
M.	PV PRODUCTION TERMINATED IN LOAD SIDES OF ALL AC DISCONNECTS

- * All Exposed PV rooftop conductor that are not located under the array modules, shall be installed in a listed raceway, and shall include listed junction boxes at both ends of the raceway to transition from exposed conductors to the listed raceways. In accordance with NEC 690.31(A) & (B)**
- * ROMEK AMPACITY LIMITED TO 60" VALUES, IF USED, SIZE ACCORDING TO NEC TABLE 310.15
- * DC Conduit must be marked in accordance with NEC 690.31. Labeling must be every 10' and must comply with NEC 690.31. See PV05 for Label plan
- * ALL DC Conductors must be protected with metal conduit

CONDUCTOR SCHEDULE WITH NEC ELECTRICAL CALCULATIONS												
ID	CONDUCTOR	CONDUIT	NO. OF CNDRS. IN CNDT.	RATED AMPS	EGC	TEMP. CORR. FACTOR	FILL ADJ. FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMPACITY	DERATED AMPACITY	WIRE RUN DISTANCE
1	ENPHASE Q CABLE	FREE AIR	N/A	14.52A MAX	#12 TRUNK CABLE	0.96	N/A	14.52A	18.15A	25A	24.00A	20ft
2	10 AWG THWN-2 CU	1" DIA PVC	6	14.52A MAX	10 AWG THWN-2 CU	0.96	0.8	14.52A	18.15A	35A	26.88A	20ft
3	8 AWG THWN-2 CU	1" DIA PVC	3	33.88A	10 AWG THWN-2 CU	0.96	1.0	33.88A	42.35A	50A	48.00A	5ft
4	6 AWG THWN-2 CU	1" DIA PVC	3	33.88A	8 AWG THWN-2 CU	0.96	1.0	33.88A	42.35A	65A	62.40A	5ft



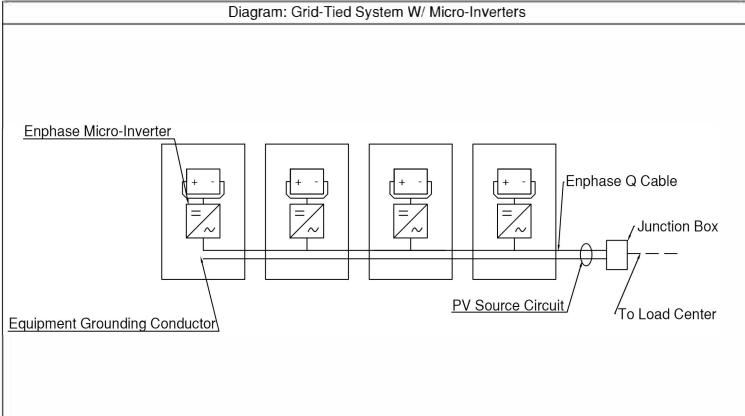
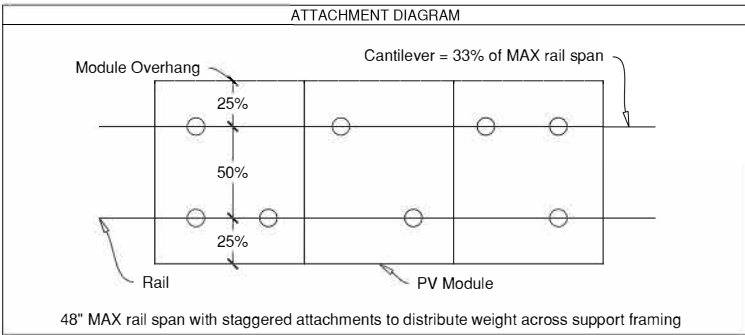
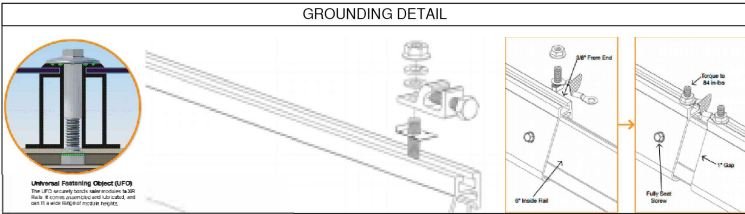
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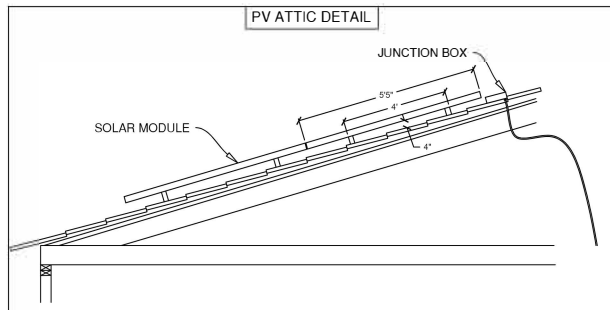
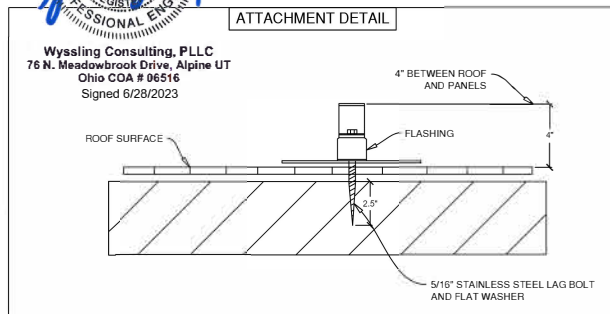
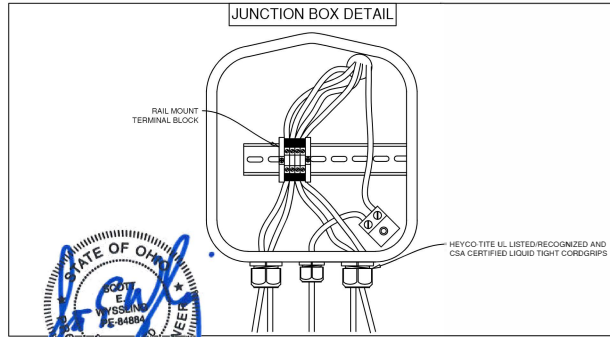
SITE INFORMATION:
Trubiano, Jacob
95 Longview Dr.,
Dublin, OH 43017
DC SYSTEM SIZE:
11.2kW



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DATE:	6/27/2023
PROJECT #:	2023-GOLDPATH
SHEET NAME:	ELD
PAGE #:	PV03
SHEET NO.:	0



*See Attached Data Sheets For More Information



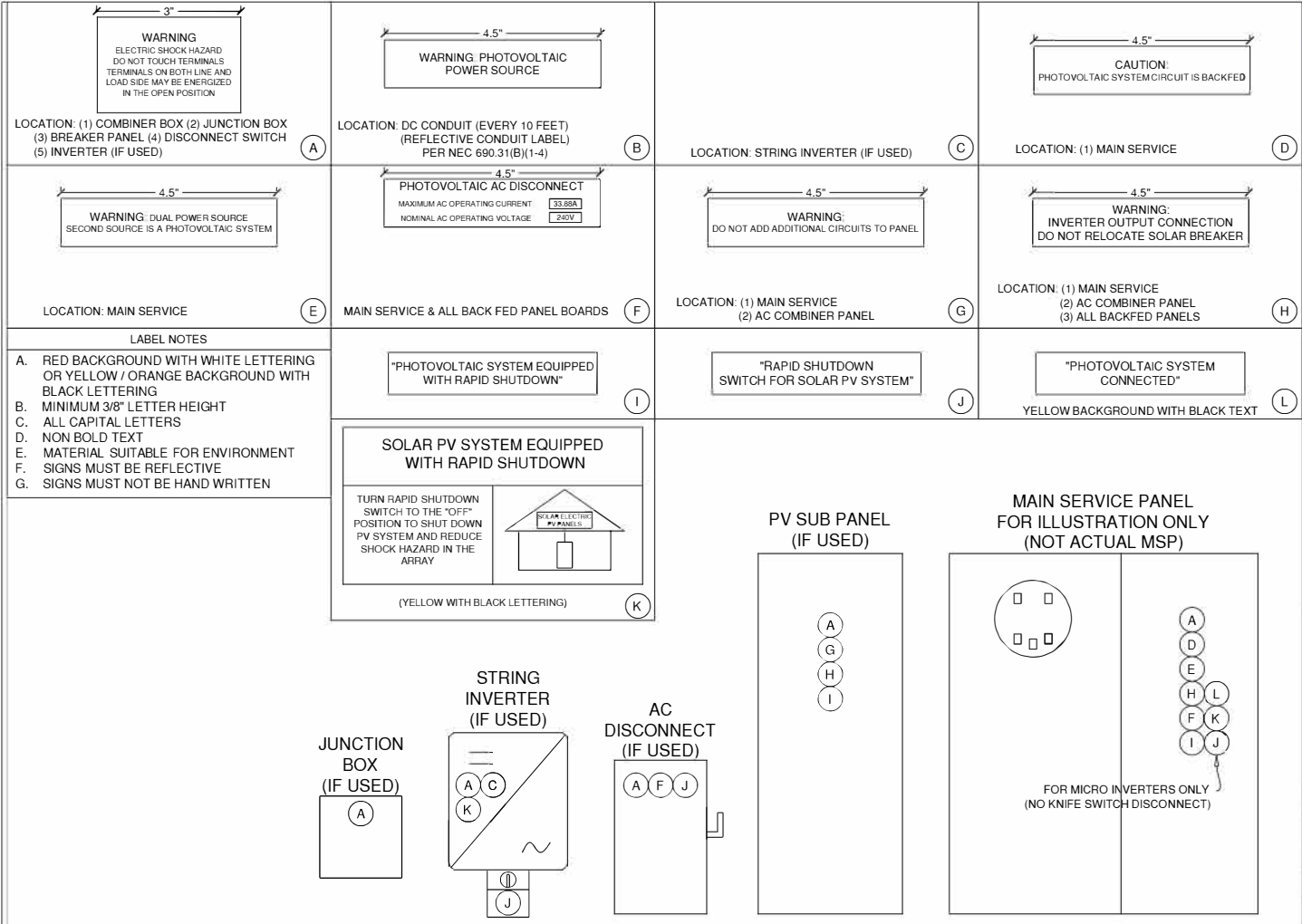
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 DATE: 6/27/2023
 PROJECT #: 2023-GOLDPATH
 SHEET NAME: ARRAY/STRINGING DETAIL
 SHEET # PV04 REVISION: 0



GP GoldPath SOLAR

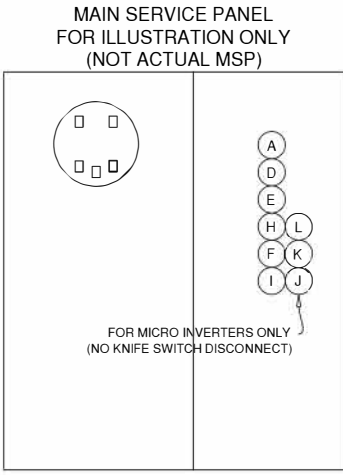
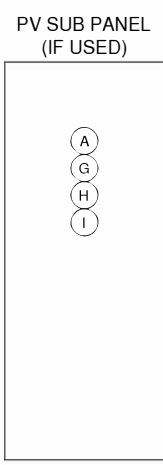
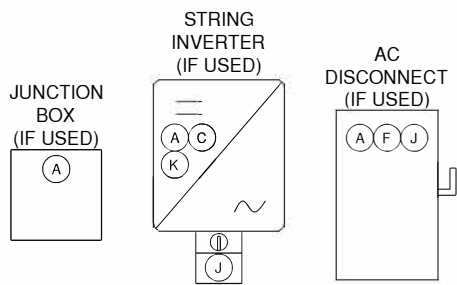
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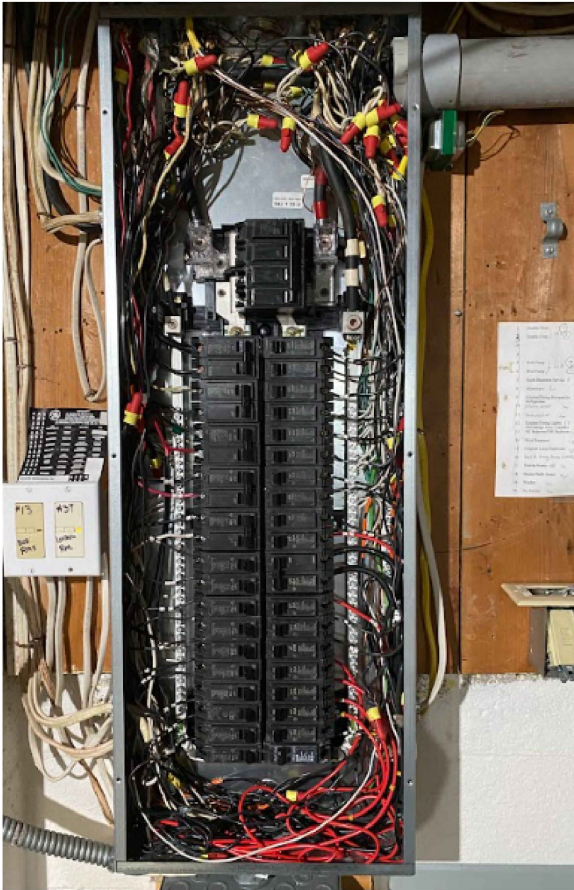
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Trubiano, Jacob
95 Longview Dr,
Dublin, OH 43017
DC SYSTEM SIZE:
11.2kW

DBM DESIGN
DBM SOLAR DESIGN AND CONSULTING COMPANY, LLC
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DESIGNED BY: **J. Fairchild**
DATE: **6/27/2023**
PROJECT #: **2023-GOLDPATH**
SHEET NAME: **LABEL PLAN**
PAGE #: **PV05** REVISION: **0**



PICTURES



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SHEET NAME	PICTURES
PAGES	0

SOLAR MODULE SPECSHEET

Q.PEAK DUO BLK ML-G10+ SERIES



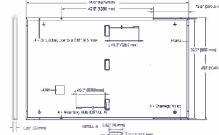
385-405Wp | 132 Cells
20.6% Maximum Module Efficiency

385Wp - 405Wp (132 Cells)

Q.PEAK DUO BLK ML-G10+ SERIES

Mechanical Specification

Format	78.8in x 49.1in (+10mm including frame) (2002mm x 1245mm ± 32mm)
Weight	48.5lbs (22.0kg)
Front Cover	0.13in (3.2mm) 4mm lamination pre-crossed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 x 27 monocrystalline Q.PEAK ML-G10+ cells half-cut
Module Size	2.09 x 3.86in ± 1.22 x 2.36in ± 0.59 x 0.7in (53.04mm x 97.63mm ± 30.96mm x 59.41mm) typical module
Cable	4mm ² Solar cable (V) 45.2 x (1250mm) (V) 45.2 x (1250mm)
Connector	Solar MCA-PEG



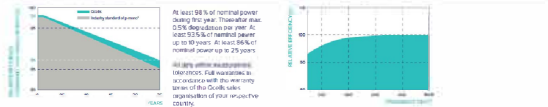
Electrical Characteristics

POWER CLASS	MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS (STC) POWER TOLERANCE ±0.4%					
	285	390	395	400	405	
Power at MPP	P_{MPP} [W]	385	390	395	400	405
Short Circuit Current	I_{SC} [A]	10.08	10.07	10.08	10.18	10.17
Open Circuit Voltage	V_{OC} [V]	46.09	45.23	46.27	46.1	46.36
Current at MPP	I_{MPP} [A]	10.09	10.65	10.71	10.77	10.83
Voltage at MPP	V_{MPP} [V]	38.36	38.63	38.88	39.03	39.28
Efficiency ¹	η [%]	>19.6	>19.5	>19.4	>19.6	>19.6

MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS (NOCT)

Power at MPP	P_{MPP} [W]	388.8	392.5	396.3	399.1	393.8
Short Circuit Current	I_{SC} [A]	8.90	8.92	8.96	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]	8.25	8.81	9.46	9.68	9.97
Voltage at MPP	V_{MPP} [V]	34.69	34.81	35.09	35.25	35.46

Quality Performance Warranty



Temperature Coefficients

Temperature Coefficient of I_{SC}	$\alpha_{I_{SC}}$ [1/K]	+0.01	Temperature Coefficient of V_{OC}	$\alpha_{V_{OC}}$ [1/K]	-0.27
Temperature Coefficient of P_{MPP}	$\alpha_{P_{MPP}}$ [%/K]	-0.24	Normal Module Operating Temperature	NOCT [°C]	45±1

Properties for System Design

Maximum System Voltage	V_{MSV} [V]	1500 (IEC) / 1500 (UL)	PV module class (IEC/UL)	Class E
Maximum Series Fuse Rating	[A (IEC)]	15	Fuse Rating based on IEC/UL 61730	TYPE 2
Max. Design Load, Push/Pull ¹	[N/m ²] / [PSF]	75 (2000) / 55 (2660)	Permitted Module Temperature on Continuous Duty	80°C up to 100°C (-10°C up to 150°C)
Max. Test Load, Push/Pull ¹	[N/m ²] / [PSF]	165 (4600) / 114 (4000)		

Qualifications and Certificates

UL 6170, CE compliant, Quality Certified PV 100 standard, IEC 61215 2016, IEC 61730 2016, U.S. Patent No. 10,093,275 solar cells.



Breaking the 20% efficiency barrier
 Q.PEAK DUO 2 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.



Enduring high performance
 Long-term yield security with Anti-LiND Technology, Anti-PID Technology¹ and Hotspot Protect.



Extreme weather rating
 High-tech aluminum alloy frame, certified for high snow (5400Pa) and wind loads (4000Pa).



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.

The ideal solution for:
 Roofing arrays on residential buildings



Qcells pursues minimizing paper output in consideration of the global environment.
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SHEET NAME	SPEC SHEETS
PROJECT	SPECS
REVISION	0

INVERTER SPECSHEET



DATA SHEET



IQ8 Series Microinverters

Our newest IQ8 Microinverters are the industry's first microgrid-forming, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC) which enables the micro inverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has super-fast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the Enphase IQ Gateway, Enphase IQ Battery, Enphase IQ Charge Controller, and the Enphase App monitoring and analysis software.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-CONNECT adapter cable with plug-in play MC4 connectors.



IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer's instructions.

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IQ8SE-DS-0009-01-EN-05-2021-01-16

Easy to install

- Lightweight and compact with plug-in play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down
- More than one million cumulative hours of testing
- Class II double-insulated enc.ature
- Optimized for the latest high-powered PV modules

Microgrid-forcing

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) requirements

IQ8 Series Microinverters

INPUT DATA	1000-1200	1200-1440	1440-1728	1728-2160	2160-2592	2592-3024
Maximum module power ⁽¹⁾	235-330	235-440	260-460	295-500	330-540	265-500
Module compatibility	60-watt/20-ft half-cell	60-watt/20-ft half-cell	60-watt/20-ft half-cell	72-watt/24-ft half-cell	72-watt/24-ft half-cell	72-watt/24-ft half-cell
MPPT voltage range	V 27-37	28-45	33-45	36-45	38-45	38-45
Operating range	V 25-68			25-58		
Minimum start voltage	V 30/38			30/38		
Max input DC voltage	V 80			80		
Max DC current ⁽²⁾ (module bc)	A 15			15		
Overvoltage class DC port	II			II		
DC port backfeed current	mA 0			0		
PV array configuration	1st Ungrounded array. No additional DC side protection required. AC side protection requires max 20A per branch circuit.					

OUTPUT DATA	1000-1200	1200-1440	1440-1728	1728-2160	2160-2592	2592-3024
Peak output power	345	320	330	366	354	348
Max continuous output power	340	290	320	348	330	340
Nominal (L-L) voltage range ⁽³⁾	V 240/207-264			240/207-264		
Max continuous output current	A 1.0	1.2 ⁽⁴⁾	1.22	1.65	1.58	1.75
Nominal frequency	Hz 60			60		
Extended frequency range	Hz 50-58			50-58		
Max units per 20 A (L-L) branch circuit ⁽⁵⁾	36	13	11	15	10	9
Total harmonic distortion	<3%					
Overvoltage class AC port	II					
AC port backfeed current	50					
Power factor setting	1.0					
Grid-tied power factor (adjustable)	0.95 leading - 0.95 lagging					
Peak efficiency	% 97.5	97.6	97.6	97.6	97.6	97.4
CEC weighted efficiency	% 97	97	97	97.5	97	97
Stand-by power consumption	80					

MECHANICAL DATA	
Ambient temperature range	-40°C to +60°C (-40°F to +140°F)
Relative humidity range	0% to 100% (condensing)
DC Connector type	MC4
Dimensions (in/WxD)	212 mm (8.37" x 175 mm (6.9" x 50.2 mm 0.21")
Weight	1.05 kg (2.31 lbs)
Cooling	Natural convection - no fans
Approved for wet locations	Yes
Acceleration (1 Hz)	<10 g's
Pollution degree	P03
Enclosure	Class II double-insulated, corrosion resistant polycarbonate enclosure
Installation category / UV radiation rating	NEMA type 6 / outdoor

COMPLIANCE	
Certification	CA Rule 21 (UL 1741-SA), UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-003 Class B, CAN/CSA-C22.2 NO. 107.1-01
Compliance	This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2008 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.

(1) The IQ8H-208 variant will be operating in grid-tied mode only at 208V AC. (2) No enforced DC/AC ratio. See the compatibility calculator at <https://enphase.com/module-compatibility>. (3) Maximum continuous input DC current is 10.6 A. (4) Nominal voltage range can be extended beyond nominal if required by the utility. (5) Lines may vary. Refer to local requirements to define the number of microinverters per branch in your area.

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SITE INFORMATION:
Trubiano, Jacob
95 Longview Dr.,
Dublin, OH 43017
DC SYSTEM SIZE:
11.2kW



DESIGNED BY

J. Fairchild

DATE 6/27/2023

PROJECT 2023-GOLDPATH

SHEET NAME SPEC SHEETS

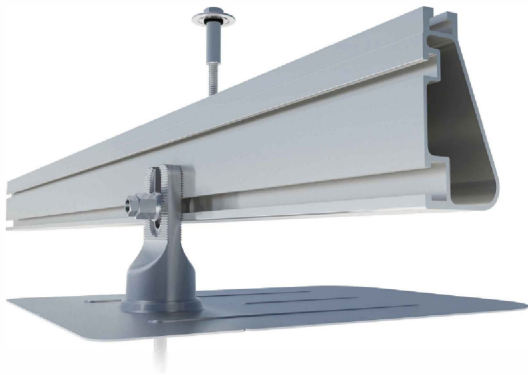
PAGE # 0

RACKING SPECSHEET



Flush Mount System

Datasheet



Built for solar's toughest roofs.

IronRidge builds the strongest mounting system for pitched roofs in solar. Every component has been tested to the limit and proven in extreme environments.

Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 20-year warranty.

Strength Tested
All components evaluated for superior structural performance.

PE Certified
Pre-stamped engineering letters available in most states.

Class A Fire Rating
Certified to maintain the fire resistance rating of the existing roof.

Design Assistant
Online software makes it simple to create, share, and price projects.

UL 2703 Listed System
Entire system and components meet newest effective UL 2703 standard.

20-Year Warranty
Twice the protection offered by competitors.

Datasheet

XR Rails

XR10 Rail



A low-profile mounting rail for regions with light snow.

- 6' spanning capability
- Moderate load capability
- Clear and black finish

XR100 Rail



The ultimate residential solar mounting rail.

- 8' spanning capability
- Heavy load capability
- Clear and black finish

XR1000 Rail



A heavyweight mounting rail for commercial projects.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish

Bonded Splices



All rails use internal splices for seamless connections.

- Self-drilling screws
- Varying versions for rails
- Forms secure bonding

Clamps & Grounding

UFOs



Universal Fastening Objects bond modules to rails.

- Fully assembled & lubed
- Single, universal size
- Clear and black finish

Stopper Sleeves



Snap onto the UFO to turn into a bonded end clamp.

- Bonds modules to rails
- Sized to match modules
- Clear and black finish

Grounding Lugs



Connect arrays to equipment ground.

- Low profile
- Single tool installation
- Mounts in any direction

Microinverter Kits



Mount Mi5 or PO5 to XR Rails.

- Bonds devices to rails
- Kit comes assembled
- Listed to UL 2703

Attachments

FlashFoot2



Flash and mount XR Rails with superior waterproofing.

- Twist-on Cap eases install
- Wind-driven rain tested
- Mill and black finish

Slotted L-Feet



Drop-in design for rapid rail attachment.

- Secure rail connections
- Slot for vertical adjusting
- Clear and black finish

Bonding Hardware



Bond and attach XR Rails to roof attachments.

- T & Square Bolt options
- Nut uses 7/16" socket
- Assembled and lubricated

Flush Standoffs



Raise Flush Mount System to various heights.

- Works with vent flashing
- 4" and 7" lengths
- Ships assembled

Resources



Design Assistant
Go from rough layout to fully engineered system. For free.
Go to IronRidge.com/design



NABCEP Certified Training
Earn free continuing education credits, while learning more about our systems.
Go to IronRidge.com/training



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