Landmarks Preservation Commission

November 15th, 2022
Public Hearing

The current proposal is:

Preservation Department – Item 6, LPC-22-10814

86 Marlborough Road – Ditmas Park Historic District

Borough of Brooklyn

To Testify Please Join Zoom

Webinar ID: 873 1899 4372
Passcode: 278022
By Phone: 1 646-558-8656 US (New York)
877-853-5257 (Toll free) US
888 475 4499 (Toll free)

Note: If you want to testify on an item, join the Zoom webinar at the agenda's "Be Here by" time (about an hour in advance). When the Chair indicates it's time to testify, "raise your hand" via the Zoom app if you want to speak (*9 on the phone). Those who signed up in advance will be called first.

ZELLA ROGERS

86 MARLBOROUGH ROAD, BROOKLYN, NY. 11226

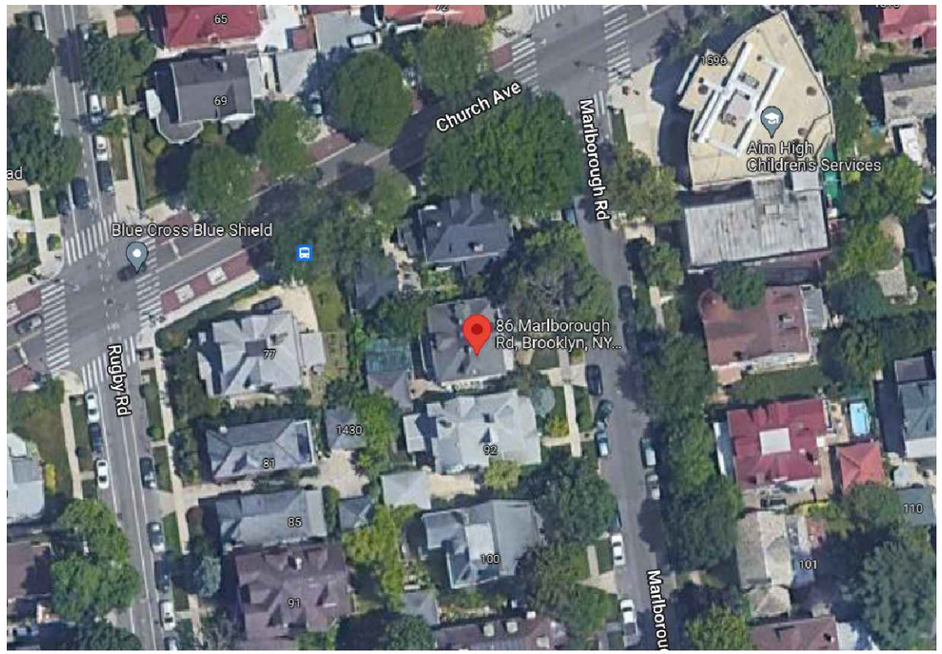
(18) Q.PEAK DUO BLK-G10+ (360W) MODULES

SOLAR PV SYSTEM SIZE: 6.48 KW

ZONNING INFORMATION
BLOCK: 5095
LOT: 28
ZONING DISTRICT: R1-2
ZONING MAP: 22C
FLOOD ZONE: NO
YEAR BUILT: 1920
FLOORS: 2.5

ADDITIONAL DESIGNATION(S) : MS4 - MS4 AREA
NO CHANGE TO USE, EGRESS OR OCCUPANCY.

BUILDING CLASSIFICATION: A1
OCCUPANCY CLASSIFICATION: 1 FAMILY DWELLING
CONSTRUCTION TYPE: 3
BUILDING HEIGHT: 34'
CROSS STREET(S): CHURCH AVENUE, ALBEMARLE ROAD



1 LOCATION MAP

2 FRONT FACADE

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
14th FLOOR, MANHATTAN, NY 10022
PHONE: (800)-870-6105
INFO@UNISOLAR.COM

NY DOB APPLICATION NUMBER:

REVISION:

NO.	DESCRIPTION	DATE
2	LPC COMMENTS	07.21.2022
3	LPC COMMENTS	10.10.2022

NOTES:

THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED EITHER APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
NO CHANGE IN USE, EGRESS OR OCCUPANCY.

PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

ENERGY ANALYSIS, INSPECTION ITEMS, STATEMENT AND NOTES

SEAL & SIGNATURE:

REGISTERED ARCHITECT
THOMAS F. PETERSEN
STATE OF NEW YORK

DATE: 10/11/2022
PROJECT NUMBER: CS-22-292
DRAWN BY: O.D.
BLOCK: 5095
LOT: 28
ZONNING: R1-2
MAP: 22C
DRAWING NO:

A-001.00

SCALE: AS NOTED
PAGE: 1 OF 17

ZELLA ROGERS

86 MARLBOROUGH ROAD, BROOKLYN, NY. 11226

(18) Q.PEAK DUO BLK-G10+ (360W) MODULES

SOLAR PV SYSTEM SIZE: 6.48 KW

ZONNING INFORMATION
BLOCK: 5095
LOT: 28
ZONING DISTRICT: R1-2
ZONING MAP: 22C
FLOOD ZONE: NO
YEAR BUILT: 1920
FLOORS: 2.5

ADDITIONAL DESIGNATION(S) : MS4 - MS4 AREA
NO CHANGE TO USE, EGRESS OR OCCUPANCY.

BUILDING CLASSIFICATION: A1
OCCUPANCY CLASSIFICATION: 1 FAMILY DWELLING
CONSTRUCTION TYPE: 3
BUILDING HEIGHT: 34'
CROSS STREET(S): CHURCH AVENUE, ALBEMARLE ROAD

1 BUILDING INFORMATION

NOTE:
- THERE IS NO TREE, UTILITY LINE OR ANY OTHER POTENTIAL HAZARD THAT COULD COME INTO CONTACT WITH ANY PART OF THE SOLAR ELECTRIC GENERATING SYSTEM.
- EXISTING LOCATION OF MAIN SERVICE PANELS IS INSIDE (BASEMENT).

COORDINATES:
(40.647950, -73.966004)

2 SCOPE OF WORK

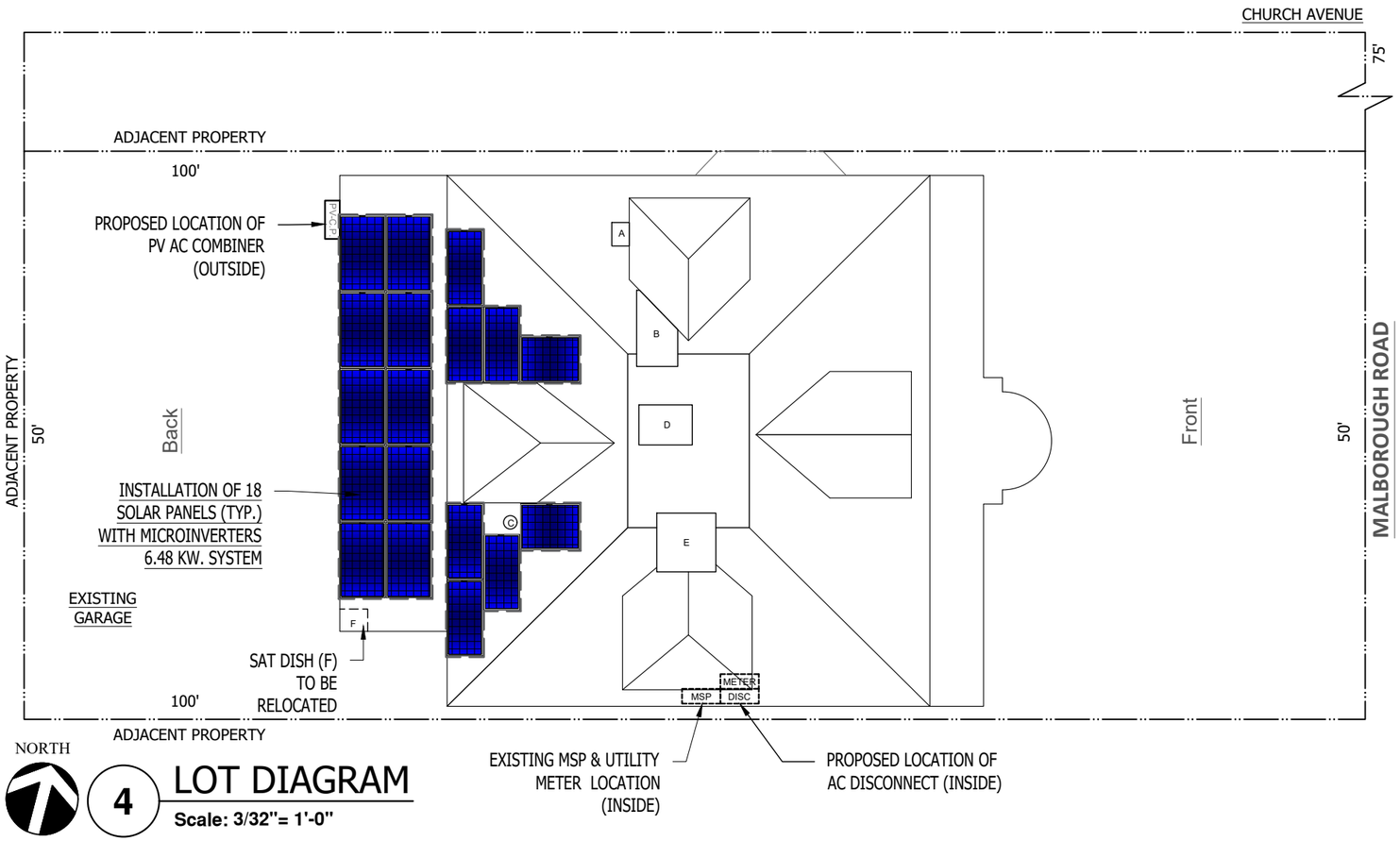
SCOPE OF WORK IS SOLELY FOR THE INSTALLATION OF THE SOLAR ELECTRONIC GENERATING SYSTEM. ALL OTHER WORK IS NOT TO BE RELIED UPON AS BEING APPROVED AND/OR PERMITTED BY THE NYC DEPARTMENT OF BUILDINGS.

NO CHANGE TO USE, EGRESS OR OCCUPANCY.

86 MARLBOROUGH ROAD

3 SITE AERIAL VIEW

Scale: N.T.S.



4 LOT DIAGRAM

Scale: 3/32"= 1'-0"

1. Z-100.00 DRAWING LIST, LOT DIAGRAM, SITE PLAN, SCOPE OF WORK, AND BUILDING INFORMATION
2. A-001.00 ENERGY ANALYSIS, INSPECTION ITEMS, STATEMENT & NOTES
3. A-002.00 BUILDING & ROOFTOP ACCESS AND SOLAR PV INSTALLATION NOTES
4. A-100.00 ROOF PLAN & DETAIL
5. A-200.00 FRONT ELEVATION
6. A-201.00 BACK SIDE ELEVATION
7. A-202.00 SIDE ELEVATION
8. A-203.00 SIDE STREET ELEVATION
9. A-204.00 FRONT STREET VIEW ELEVATION
10. A-205.00 PHOTOS OF SITE SURVEY
11. A-300.00 MODULE SPECIFICATION & DETAILS
12. A-301.00 COMBINER PANEL AND MONITORING SYSTEM SPECIFICATIONS
13. A-302.00 MICRO-INVERTER SPECIFICATIONS
14. A-303.00 ROOF-MOUNTING SPECIFICATIONS
15. A-400.00 ELECTRICAL WARNING LABELS AND NOTES

5 DRAWING LIST

(A) ACCESS HATCH.
(B) CHIMNEY.
(C) CHIMNEY.
(D) PIPE.
(E) PIPE.

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
14th FLOOR, MANHATTAN, NY 10022
PHONE: (800)-870-6105
INFO@UNISOLAR.COM

NY DOB APPLICATION NUMBER:

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NO CHANGE IN USE, EGRESS OR OCCUPANCY.

PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

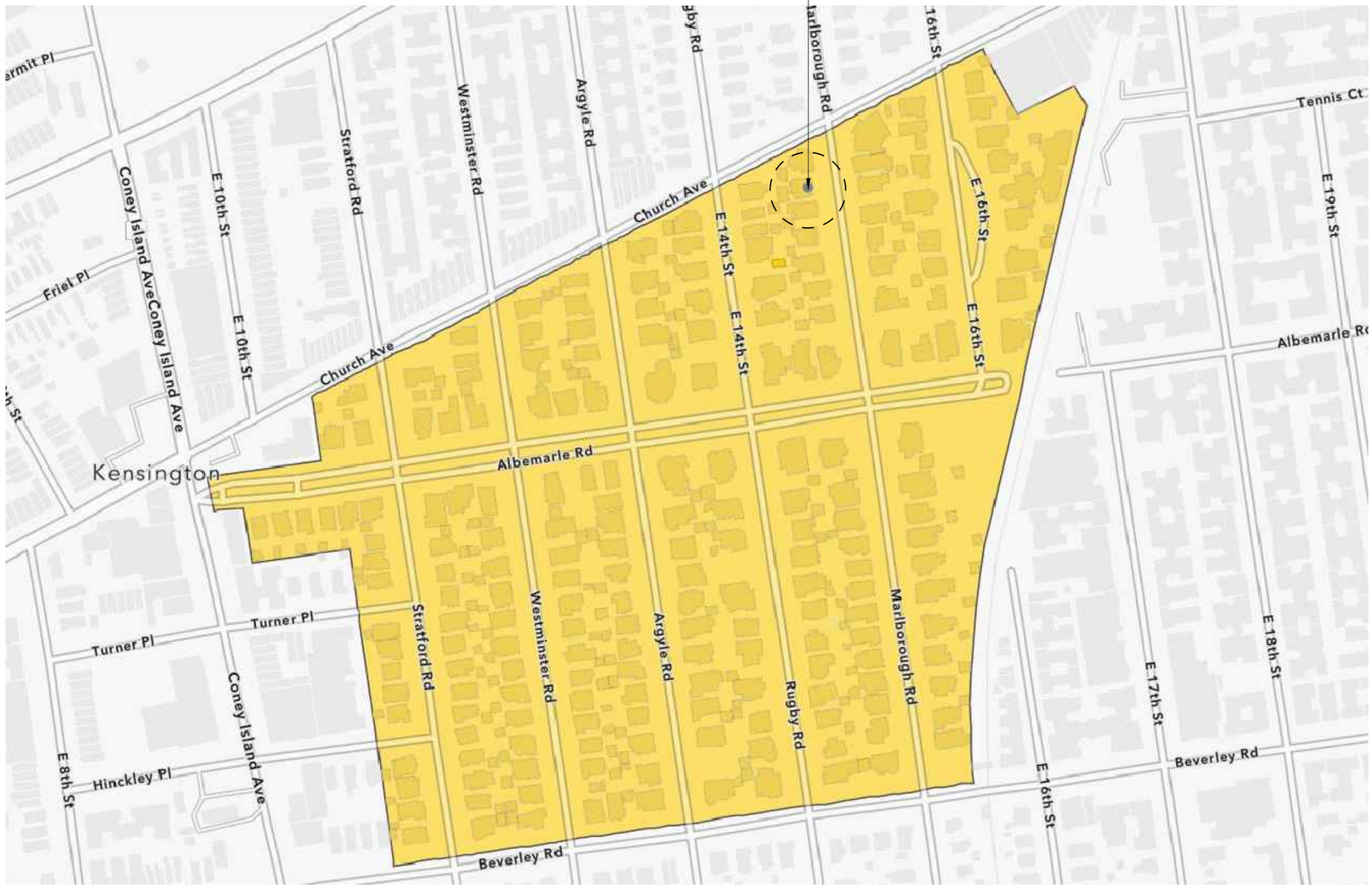
DRAWING LIST, LOT DIAGRAM, SITE PLAN, SCOPE OF WORK, AND BUILDING INFORMATION

SEAL & SIGNATURE:

REGISTERED ARCHITECT
THOMAS F. PETERSEN
037290
STATE OF NEW YORK

DATE:	10/11/2022
PROJECT NUMBER:	CS-22-292
DRAWN BY:	O.D.
BLOCK:	5095
LOT:	28
ZONNING:	R1-2
MAP:	22C
DRAWING NO:	Z-100.00
SCALE:	AS NOTED
PAGE:	2 OF 17

86 MARLBOROUGH ROAD, BROOKLYN, NY. 11226



1 DISTRICT HISTORIC MAP

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
14th FLOOR, MANHATTAN, NY 10022
PHONE: (800)-870-6105
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PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

BUILDING & ROOFTOP ACCESS AND PHOTOVOLTAIC SOLAR PANEL INSTALLATION NOTES

SEAL & SIGNATURE:

REGISTERED ARCHITECT
THOMAS F. PETERSEN
STATE OF NEW YORK
031290

DATE:	10/11/2022
PROJECT NUMBER:	CS-22-292
DRAWN BY:	O.D.
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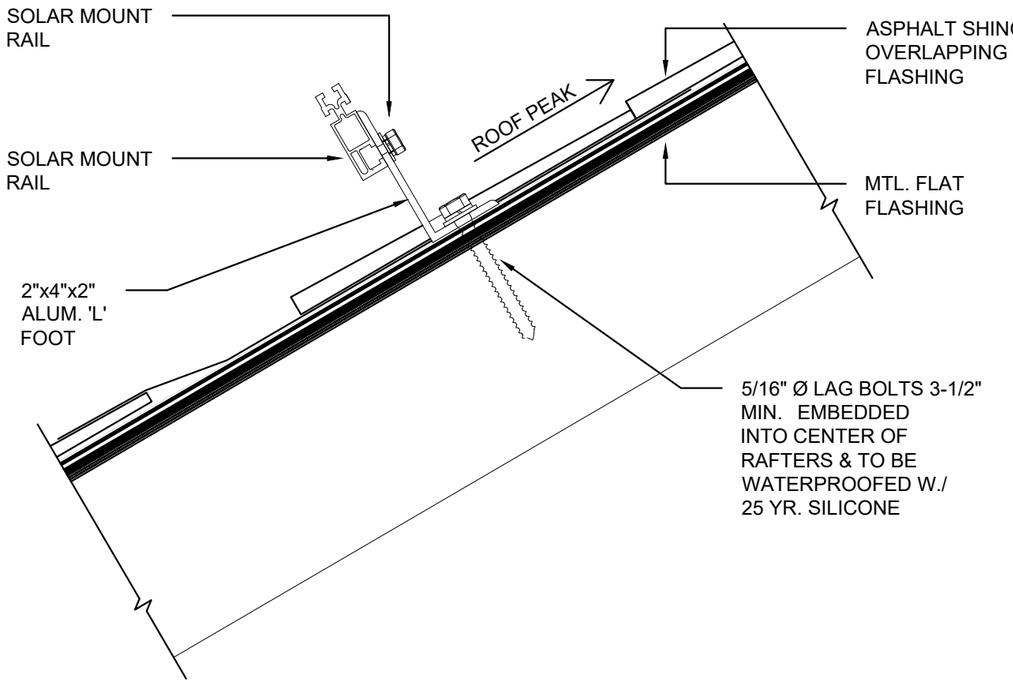
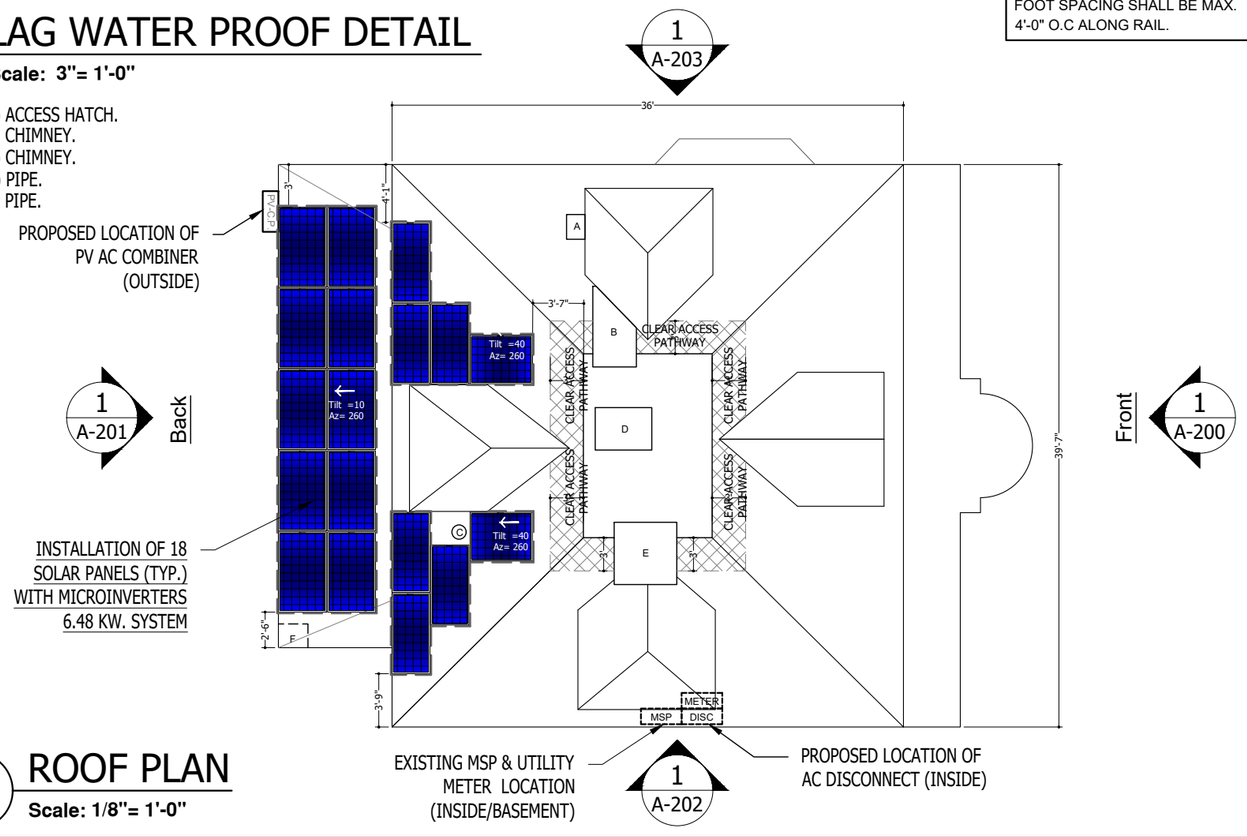


1 LAG WATER PROOF DETAIL

Scale: 3"= 1'-0"

(A) ACCESS HATCH.
(B) CHIMNEY.
(C) CHIMNEY.
(D) PIPE.
(E) PIPE.



NORTH

3 ROOF PLAN

Scale: 1/8"= 1'-0"

3'-0" WIDE CLEAR ACCESS PATHWAY AS PER FDNY FC512.3

(18) Q.PEAK DUO BLK-G10+ (360W) 67.6"X41.5" PHOTOVOLTAIC SOLAR PANELS (SEE PANEL SPEC. FOR MORE DETAILS)

2 LEGEND

ROOF PITCH	18 PANELS
40 DEGREES	347.20 SF

NOTE:
-MOUNTING RAIL SPACING MAY VARY FROM 20"-48" O.C. CONTRACTOR TO VERIFY PANEL MANUFACTURER'S SPECIFICATIONS AND INSTALLATION REQUIREMENTS. FOOT SPACING SHALL BE MAX. 4'-0" O.C ALONG RAIL.

NOTE:
-NO ADDITIONAL STRUCTURAL WORK REQUIRED @ ROOF FOR INSTALLATION OF SOLAR PANELS.
- MICRO-INVERTERS ARE LOCATED ON THE ROOF BELOW THE SOLAR PANELS.
- AC DISCONNECT SWITCH MUST BE 'READILY ACCESSIBLE. TOP OF LEVER NO HIGHER THAN 2.0 M / 6'-7" ABOVE THE FLOOR OR PLATFORM. THIS FLOOR SURFACE MUST BE ACCESSIBLE WITHOUT THE USE OF LADDERS.
- EXISTING LOCATION OF MAIN SERVICE PANEL IS INSIDE (BASEMENT).

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

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PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

ROOF PLAN, LEGEND &
LAG WATER PROOFING DETAIL

SEAL & SIGNATURE:

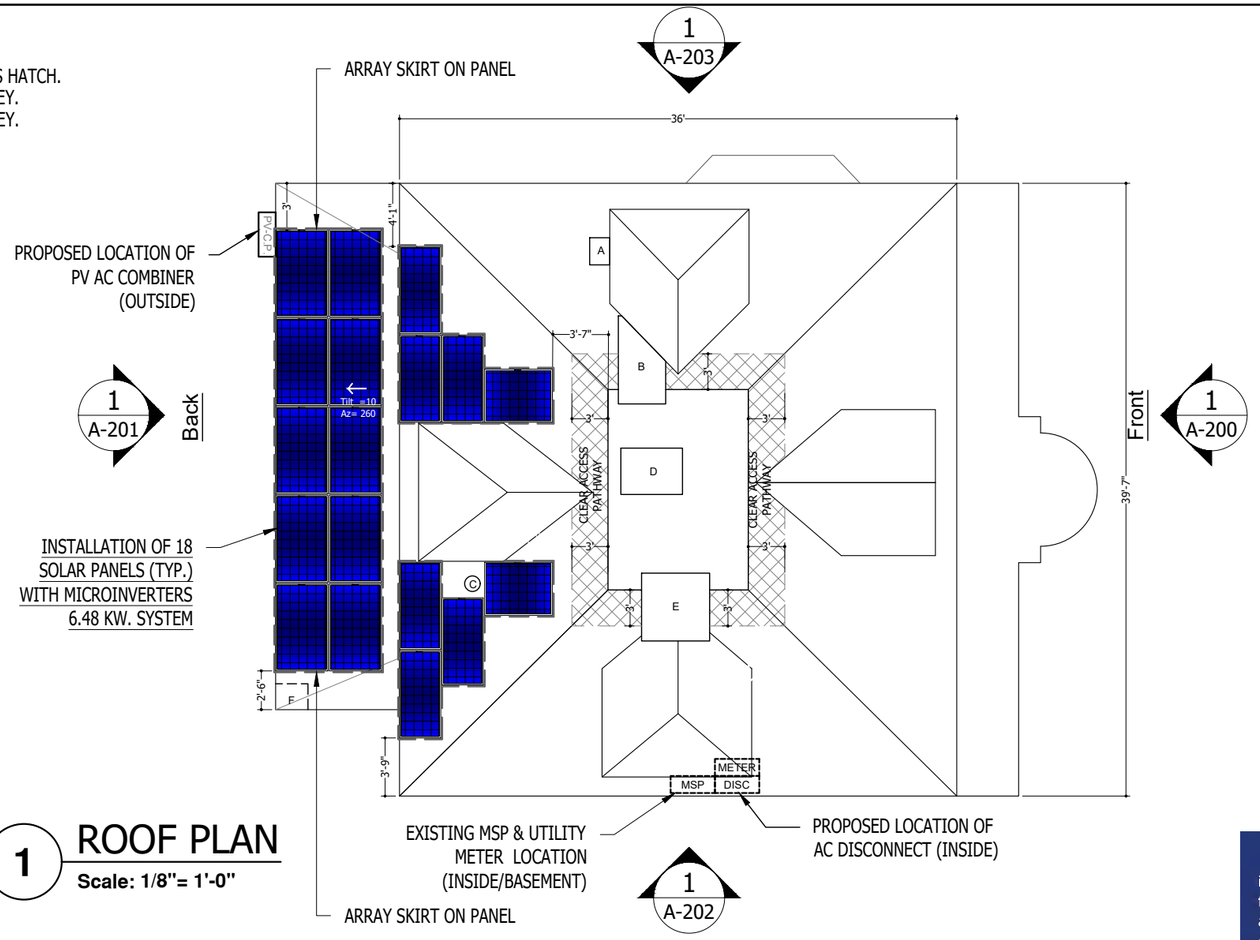
REGISTERED ARCHITECT THOMAS F PETERSEN 031290 STATE OF NEW YORK

DATE: 10/11/2022
PROJECT NUMBER: CS-22-292
DRAWN BY: O.D.
BLOCK: 5095
LOT: 28
ZONNING: R1-2
MAP: 22C
DRAWING NO:

A-100.00

SCALE: AS NOTED
PAGE: 4 OF 17

(A) ACCESS HATCH.
(B) CHIMNEY.
(C) CHIMNEY.
(D) PIPE.
(E) PIPE.



NORTH

1 ROOF PLAN

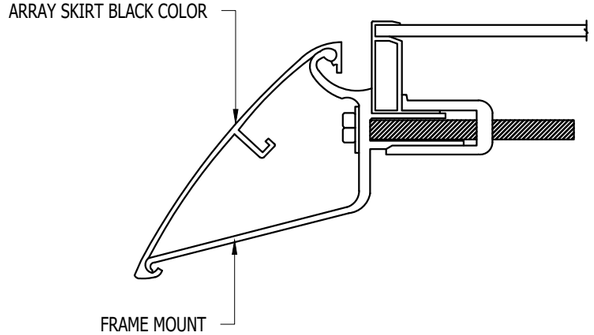
Scale: 1/8"= 1'-0"

3'-0" WIDE CLEAR ACCESS PATHWAY AS PER FDNY FC512.3

(18) Q.PEAK DUO BLK-G10+ (360W) 67.6"X41.5" PHOTOVOLTAIC SOLAR PANELS (SEE PANEL SPEC. FOR MORE DETAILS)

ARRAY SKIRT FOR PANELS (SEE ARRAY SKIRT SPEC. FOR MORE DETAILS)

2 LEGEND



3 ARRAY SKIRT DETAIL

The SnapNrack Array Skirt

is an enhanced aesthetic option with a sleek black finish providing a flush clean line homeowners love. When installed the Array Skirt provides a clean finish to the front of arrays covering any screws, bolts, wires, or mounting hardware. It mounts directly to standard module frames allowing it to attach to almost any array.

Skirt Mounts
- Hook onto the inside of module frame
- Secured in place with ½" fastener from front of module preventing any need for reaching under array

Skirt
- Snaps into place on the mount easily with no tools required
- Smooth curved profile provides an elegant finished look

Splice
- Attaching separate sections of skirt is easy with the snap-in splice
- Provides a seamless transition between skirt sections

End Caps
- Cover end sections of skirt so no cuts are visible
- Easily snap end caps onto the ends of any skirt section

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
14th FLOOR, MANHATTAN, NY 10022
PHONE: (800)-870-6105
INFO@UNISOLAR.COM

NY DOB APPLICATION NUMBER:

REVISION:

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PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

ROOF PLAN, LEGEND &
LAG WATER PROOFING DETAIL

SEAL & SIGNATURE:

REGISTERED ARCHITECT
THOMAS F. PETERSEN
029290
STATE OF NEW YORK

DATE:	10/11/2022
PROJECT NUMBER:	CS-22-292
DRAWN BY:	O.D.
BLOCK:	5095
LOT:	28
ZONNING:	R1-2
MAP:	22C
DRAWING NO:	A-101.00
SCALE:	AS NOTED
PAGE:	5 OF 17

NOTE:
-AC DISCONNECT SWITCH MUST BE 'READILY ACCESSIBLE. TOP OF LEVER NO HIGHER THAN 2.0 M / 6'-7" ABOVE THE FLOOR OR PLATFORM. THIS FLOOR SURFACE MUST BE ACCESSIBLE WITHOUT THE USE OF LADDERS.

NOTE:
- MICRO-INVERTERS ARE LOCATED ON THE ROOF BELOW THE SOLAR PANELS.

NOTE:
SOLAR PANEL INSTALLATION COMPLIES WITH NYC ZONING RESOLUTION 23-62(m) & 23-62

1 FRONT ELEVATION
Scale: 3/16"= 1'-0"

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

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PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

FRONT ELEVATION

SEAL & SIGNATURE:

REGISTERED ARCHITECT
THOMAS F. PETERSEN
037290
STATE OF NEW YORK

DATE: 10/11/2022
PROJECT NUMBER: CS-22-292
DRAWN BY: O.D.
BLOCK: 5095
LOT: 28
ZONNING: R1-2
MAP: 22C
DRAWING NO:

A-200.00

SCALE: AS NOTED

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NOTE:
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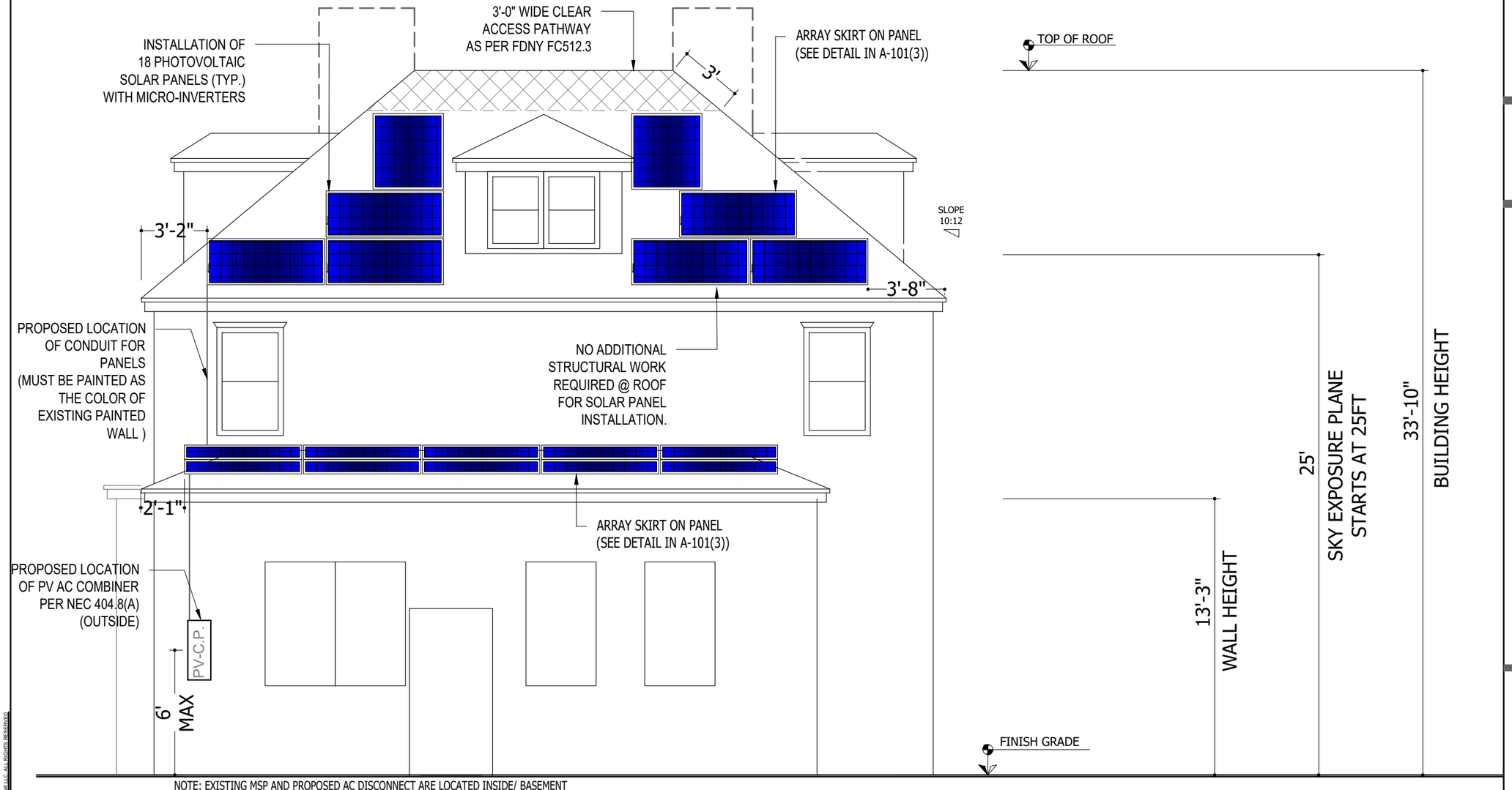
NOTE:
SOLAR PANEL INSTALLATION COMPLIES WITH NYC ZONING RESOLUTION 23-62(m) & 23-62



NOTE: EXISTING MSP AND PROPOSED AC DISCONNECT ARE LOCATED INSIDE/ BASEMENT

1 BACK SIDE ELEVATION

Scale: 3/16"= 1'-0"

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

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PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

BACK SIDE ELEVATION

SEAL & SIGNATURE:

REGISTERED ARCHITECT THOMAS F. PETERSEN 037290 STATE OF NEW YORK

DATE:	10/11/2022
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NOTE:
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NOTE:
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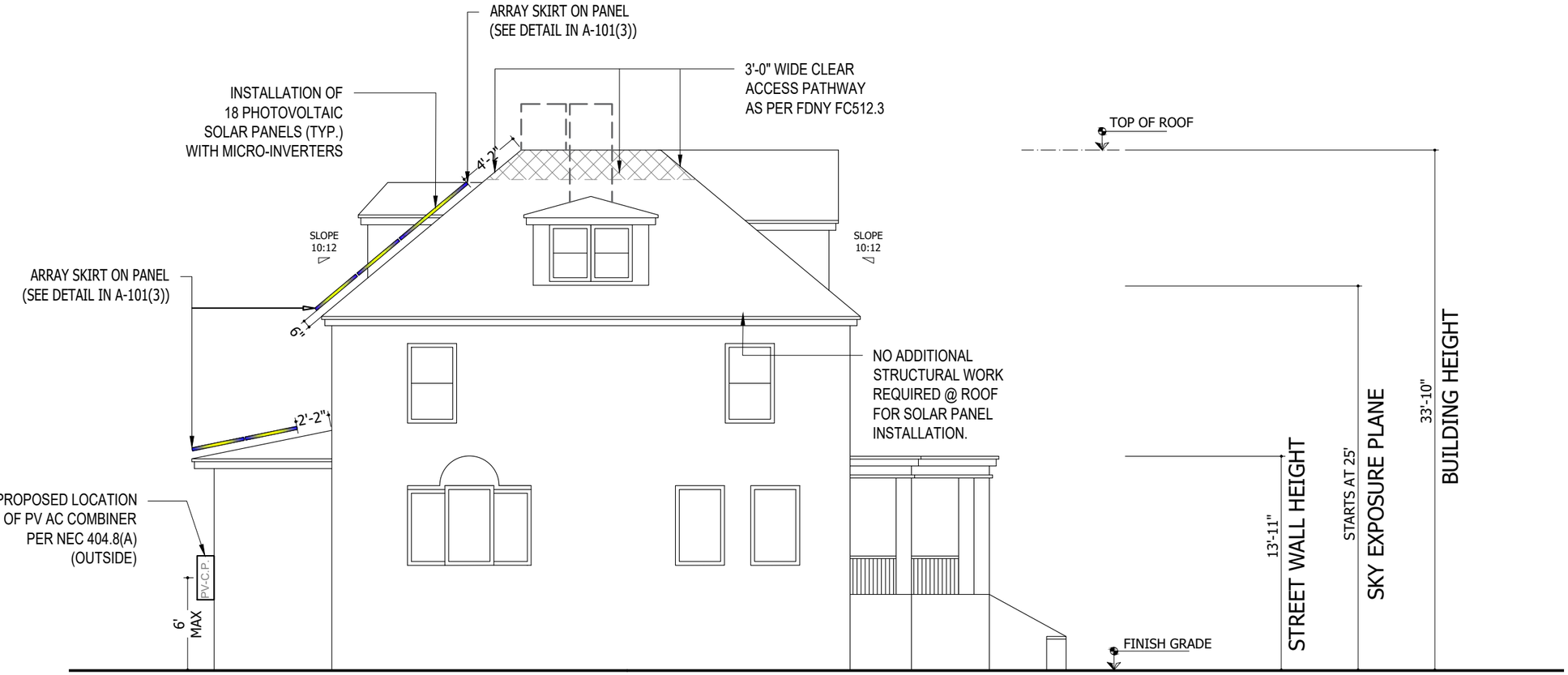

NOTE: EXISTING MSP AND PROPOSED AC DISCONNECT ARE LOCATED INSIDE/ BASEMENT

1 SIDE ELEVATION

Scale: 1/8"= 1'-0"

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

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PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

SIDE ELEVATION

SEAL & SIGNATURE:

REGISTERED ARCHITECT
THOMAS F. PETERSEN
STATE OF NEW YORK
037290

DATE: 10/11/2022
PROJECT NUMBER: CS-22-292
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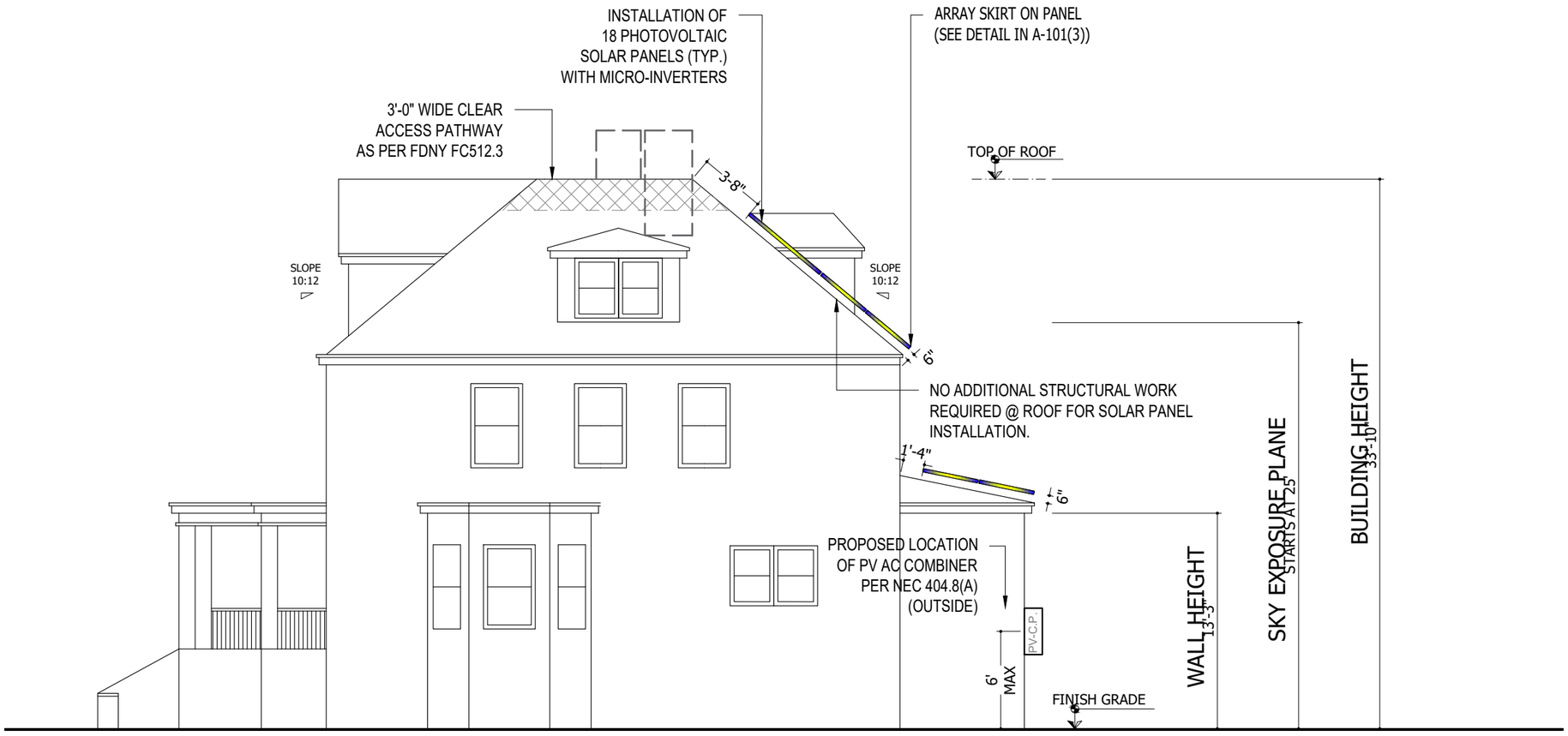

NOTE: EXISTING MSP AND PROPOSED AC DISCONNECT ARE LOCATED INSIDE/ BASEMENT

1 SIDE ELEVATION
Scale: 1/8"= 1'-0"

SOLAR DESIGN AND INSTALLER:

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APPLICANT OF RECORD:

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86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

SIDE ELEVATION

SEAL & SIGNATURE:

REGISTERED ARCHITECT THOMAS F. PETERSEN STATE OF NEW YORK 031290

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SCALE: AS NOTED

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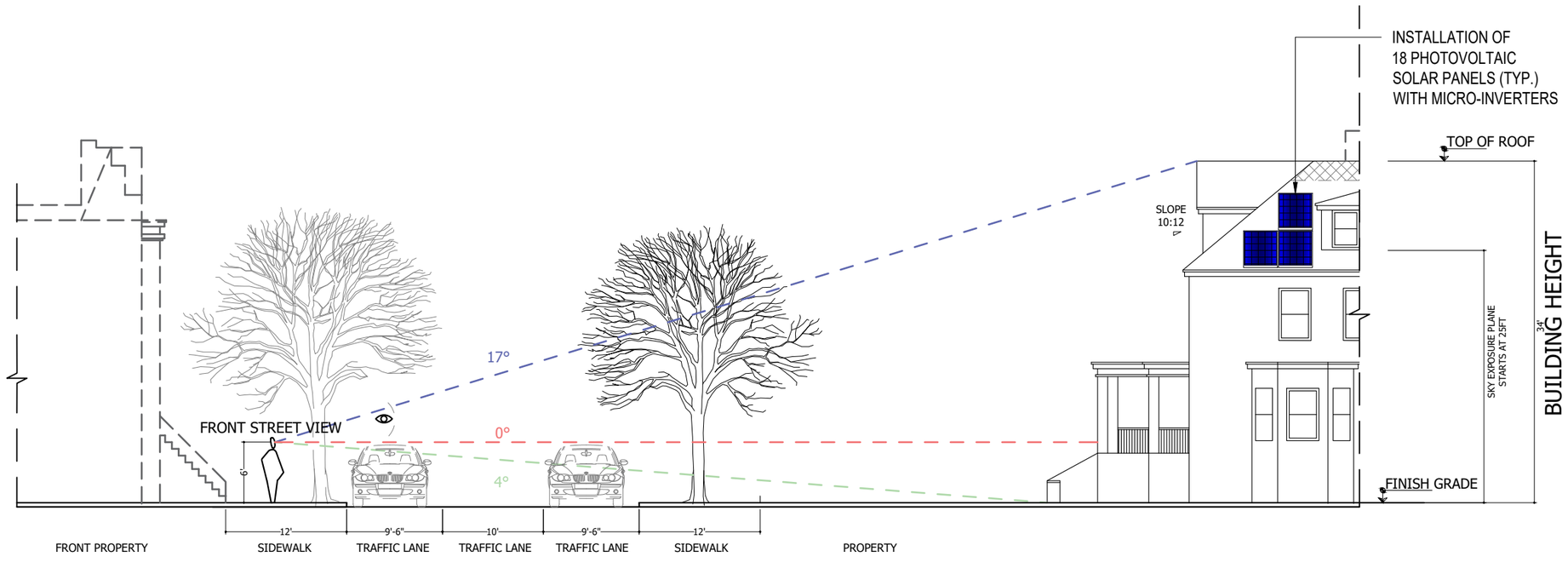
-AC DISCONNECT SWITCH MUST BE 'READILY ACCESSIBLE. TOP OF LEVER NO HIGHER THAN 2.0 M / 6'-7" ABOVE THE FLOOR OR PLATFORM. THIS FLOOR SURFACE MUST BE ACCESSIBLE WITHOUT THE USE OF LADDERS.

NOTE:
- MICRO-INVERTERS ARE LOCATED ON THE ROOF BELOW THE SOLAR PANELS.

NOTE:
SOLAR PANEL INSTALLATION COMPLIES WITH NYC ZONING RESOLUTION 23-62(m) & 23-62



STREET VIEW ANGLE 17°

STREET VIEW ANGLE 0°

STREET VIEW ANGLE 4°

1 FRONT STREET VIEW ELEVATION

Scale: 1/8"= 1'-0"

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
14th FLOOR, MANHATTAN, NY 10022
PHONE: (800)-870-6105
INFO@UNISOLAR.COM

NY DOB APPLICATION NUMBER:

REVISION:

NO.	DESCRIPTION	DATE
2	LPC COMMENTS	07.21.2022
3	LPC COMMENTS	10.10.2022

NOTES:

THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED EITHER APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
NO CHANGE IN USE, EGRESS OR OCCUPANCY.

PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

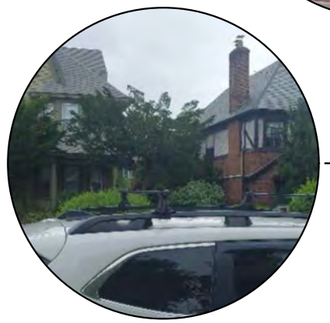
SIDE ELEVATION

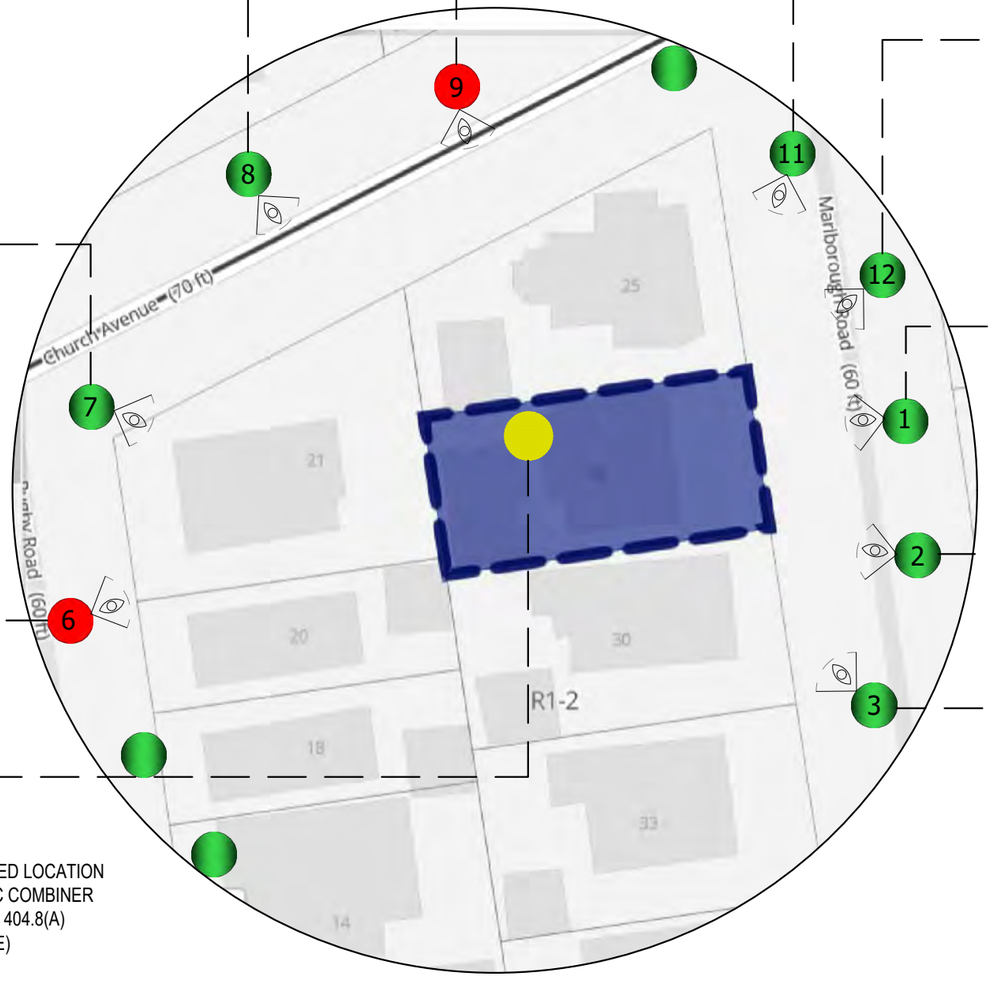
SEAL & SIGNATURE:

REGISTERED ARCHITECT
THOMAS F. PETERSEN
STATE OF NEW YORK

DATE:	10/11/2022
PROJECT NUMBER:	CS-22-292
DRAWN BY:	O.D.
BLOCK:	5095
LOT:	28
ZONNING:	R1-2
MAP:	22C
DRAWING NO:	A-204.00
SCALE:	AS NOTED
PAGE:	10 OF 17

PARTIALLY COVER BY VEGETATION





PROPOSED LOCATION OF PV AC COMBINER PER NEC 404.8(A) (OUTSIDE)

NORTH

1 SITE SURVEY PHOTOS

Scale: N.T.S.

VISIBLE

NOT VISIBLE

PROPOSED LOCATION OF BOS/AC DISCONNECT (OUTSIDE)

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
14th FLOOR, MANHATTAN, NY 10022
PHONE: (800)-870-6105
INFO@UNISOLAR.COM

NY DOB APPLICATION NUMBER:

REVISION:

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NOTES:

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PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

SIDE ELEVATION

SEAL & SIGNATURE:

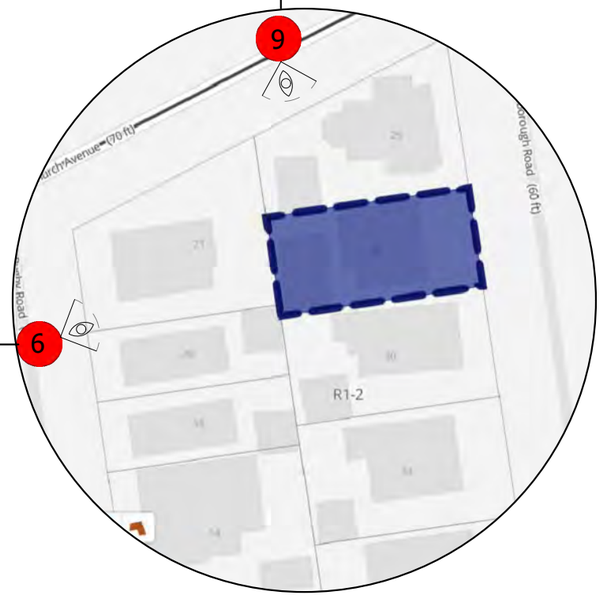
REGISTERED ARCHITECT
THOMAS F. PETERSEN
037290
STATE OF NEW YORK

DATE: 10/11/2022
PROJECT NUMBER: CS-22-292
DRAWN BY: O.D.
BLOCK: 5095
LOT: 28
ZONNING: R1-2
MAP: 22C
DRAWING NO:

A-205.00

SCALE: AS NOTED

PAGE: 11 OF 17



NORTH

1 SITE SURVEY PHOTOS

Scale: N.T.S.

VISIBLE PHOTOVOLTAIC SOLAR PANELS

NOT VISIBLE

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
14th FLOOR, MANHATTAN, NY 10022
PHONE: (800)-870-6105
INFO@UNISOLAR.COM

NY DOB APPLICATION NUMBER:

REVISION:

NO.	DESCRIPTION	DATE
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3	LPC COMMENTS	10.10.2022

NOTES:

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NO CHANGE IN USE, EGRESS OR OCCUPANCY.

PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

SITE SURVEY PHOTOS
VISIBLE POINTS

SEAL & SIGNATURE:

REGISTERED ARCHITECT
THOMAS F. PETERSEN
STATE OF NEW YORK

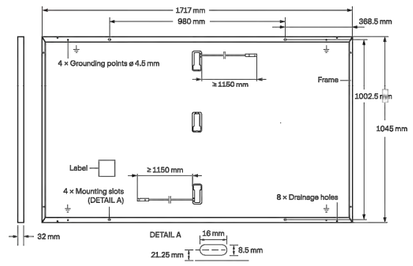
DATE: 10/11/2022
PROJECT NUMBER: CS-22-292
DRAWN BY: O.D.
BLOCK: 5095
LOT: 28
ZONNING: R1-2
MAP: 22C
DRAWING NO:

A-206.00

SCALE: AS NOTED
PAGE: 12 OF 17

MECHANICAL SPECIFICATION

Format	1717 mm × 1045 mm × 32 mm (including frame)
Weight	19.9 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 20 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥1150 mm, (–) ≥1150 mm
Connector	Stäubli MC4; IP68

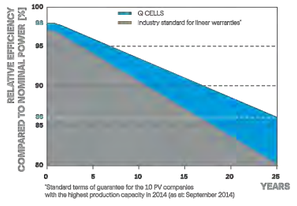


ELECTRICAL CHARACTERISTICS

POWER CLASS				350	355	360	365	370
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)								
Minimum	Power at MPP[1]	P_{MPP}	[W]	350	355	360	365	370
Minimum	Short Circuit Current[1]	I_{SC}	[A]	10.97	11.00	11.04	11.07	11.10
Minimum	Open Circuit Voltage[1]	V_{OC}	[V]	41.11	41.14	41.18	41.21	41.24
Minimum	Current at MPP	I_{MPP}	[A]	10.37	10.43	10.49	10.56	10.62
Minimum	Voltage at MPP	V_{MPP}	[V]	33.76	34.03	34.31	34.58	34.84
Minimum	Efficiency[1]	η	[%]	≥19.5	≥19.8	≥20.1	≥20.3	≥20.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]								
Minimum	Power at MPP	P_{MPP}	[W]	262.6	266.3	270.1	273.8	277.6
Minimum	Short Circuit Current	I_{SC}	[A]	8.84	8.87	8.89	8.92	8.95
Minimum	Open Circuit Voltage	V_{OC}	[V]	38.77	38.80	38.83	38.86	38.90
Minimum	Current at MPP	I_{MPP}	[A]	8.14	8.20	8.26	8.31	8.37
Minimum	Voltage at MPP	V_{MPP}	[V]	32.24	32.48	32.71	32.94	33.17

[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

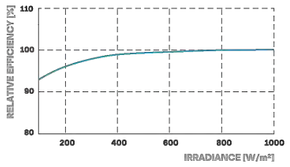
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal 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 Q CELLS sales organisation of your respective country.

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	[°C]	43±3

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V_{SYS}	[V]	1000	PV module classification	Class II
Maximum Reverse Current	I_R	[A]	20	Fire Rating based on ANSI / UL 61730	C / TYPE 2
Max. Design Load, Push / Pull		[Pa]	3600 / 2660	Permitted Module Temperature on Continuous Duty	−40 °C - +85 °C
Max. Test Load, Push / Pull		[Pa]	5400 / 4000		

QUALIFICATIONS AND CERTIFICATES

Quality Controlled PV - TÜV Rheinland; IEC 61215:2016; IEC 61730:2016. This data sheet complies with DIN EN 50380. QCPV Certification ongoing.

TÜVRheinland CERTIFIED
www.tuv.com
ID 1111220277

CE

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

1 MODULE ELECTRICAL & MECHANICAL SPECIFICATIONS

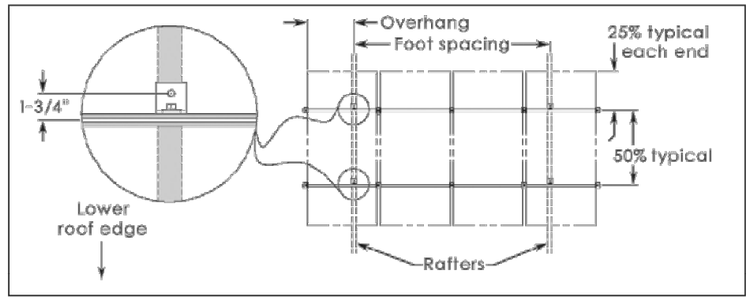


Figure 6. Low-profile layout

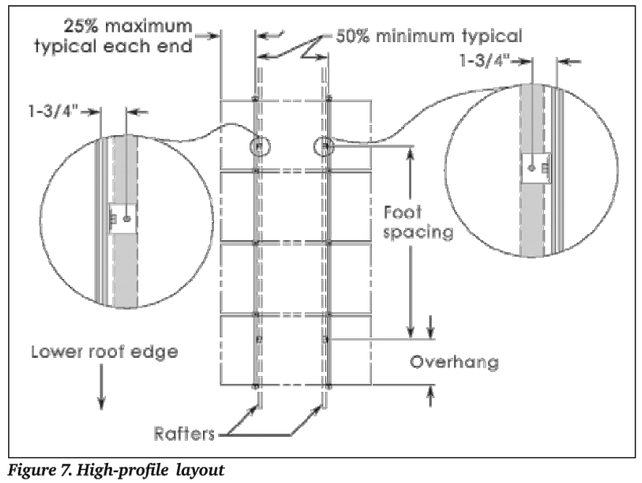


Figure 7. High-profile layout

2 L-FEET LAYOUT & INSTALLATION

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
14th FLOOR, MANHATTAN, NY 10022
PHONE: (800)-870-6105
INFO@UNISOLAR.COM

NY DOB APPLICATION NUMBER:

REVISION:

NO.	DESCRIPTION	DATE
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NO CHANGE IN USE, EGRESS OR OCCUPANCY.

PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

MODULE SPECIFICATION & DETAIL

SEAL & SIGNATURE:

REGISTERED ARCHITECT
THOMAS F. PETERSEN
STATE OF NEW YORK
037290

DATE: 10/11/2022
PROJECT NUMBER: CS-22-292
DRAWN BY: O.D.
BLOCK: 5095
LOT: 28
ZONNING: R1-2
MAP: 22C
DRAWING NO:

A-300.00

SCALE: AS NOTED
PAGE: 13 OF 17

Data Sheet
Enphase Networking

Enphase IQ Combiner 3-ES/3C-ES

X-IQ-AM1-240-3-ES
X-IQ-AM1-240-3C-ES

X-IQ-AM1-240-3C-ES

X-IQ-AM1-240-3-ES

The **Enphase IQ Combiner 3-ES/3C-ES**™ with Enphase IQ Envoy™ and integrated LTE-M1 cell modem (included only with IQ Combiner 3C-ES) consolidates interconnection equipment into a single enclosure and streamlines PV and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

Smart

- Includes IQ Envoy for communication and control
- Includes LTE-M1 cell modem (included only with IQ Combiner 3C-ES)
- Includes solar shield to match Ensemble esthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Reduced size from IQ Combiner+ (X-IQ-AM1-240-2)
- Centered mounting brackets support single stud mounting
- Supports back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included
- UL listed

UL LISTED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

Enphase IQ Combiner 3-ES / 3C-ES

MODEL NUMBER	
IQ Combiner 3-ES (X-IQ-AM1-240-3-ES)	IQ Combiner 3-ES with Enphase IQ Envoy printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes a s solar shield to match the Encharge storage system and Enpower smart switch and to deflect hea
IQ Combiner 3C-ES (X-IQ-AM1-240-3C-ES)	IQ Combiner 3C-ES with Enphase IQ Envoy printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect LTE-M1 (CELLMODEM-M1), a plug-and-play industrial-grade cell mod for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the I Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver shield to match the Encharge storage system and Enpower smart switch and to deflect heat.
ACCESSORIES and **REPLACEMENT PARTS**	(not included, order separately)
Ensemble Communications Kit (COMMS-CELLMODEM-M1)	Includes COMMS-KIT-01 and CELLMODEM-M1 with 5-year data plan for Ensemble sites
Circuit Breakers BRK-10A-2-240 BRK-15A-2-240 BRK-20A-2P-240	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for Combiner 3-ES / 3C-ES
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 3-ES / 3C-ES (required for EPLC-I
XA-ENV-PCBA-3	Replacement IQ Envoy printed circuit board (PCB) for Combiner 3-ES / 3C-ES
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation / 90A with IQ Envoy breaker included
Production metering CT	200 A solid core pre-installed and wired to IQ Envoy
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers
MECHANICAL DATA	
Dimensions (WxHxD)	37.5 x 49.5 x 16.8 cm (14.75" x 19.5" x 6.63"). Height is 21.06" (53.5 cm) with mounting brac
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1 4G based LTE-M1 cellular modem (included only with IQ Combiner 3C-ES). I that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
COMPLIANCE	
Compliance, Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5
Compliance, IQ Envoy	UL 60601-1/CANCSA 22.2 No. 61010-1

To learn more about Enphase offerings, visit **enphase.com**

ENPHAS

1 COMBINER PANEL AND MONITORING SYSTEM SPECIFICATIONS

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
14th FLOOR, MANHATTAN, NY 10022
PHONE: (800)-870-6105
INFO@UNISOLAR.COM

NY DOB APPLICATION NUMBER:

REVISION:

NO.	DESCRIPTION	DATE
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NO CHANGE IN USE, EGRESS OR OCCUPANCY.

PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

COMBINER PANEL AND MONITORING SYSTEM SPECIFICATIONS

SEAL & SIGNATURE:

REGISTERED ARCHITECT THOMAS F. PETERSEN 037290 STATE OF NEW YORK

DATE:	10/11/2022
PROJECT NUMBER:	CS-22-292
DRAWN BY:	O.D.
BLOCK:	5095
LOT:	28
ZONNING:	R1-2
MAP:	22C

DRAWING NO:

A-301.00

SCALE: AS NOTED

PAGE: 14 OF 17

Data Sheet
Enphase Microinverters
Region: AMERICAS

Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready **Enphase IQ 7 Micro™** and **Enphase IQ 7+ Micro™** dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.

Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

- Optimized for high powered 60-cell/120 half-cell and 72-cell/144 half-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell/144 half-cell modules.

UL CERTIFIED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US		IQ7PLUS-72-2-US	
Commonly used module pairings[1]	235 W - 350 W +		235 W - 440 W +	
Module compatibility	60-cell/120 half-cell PV modules only		60-cell/120 half-cell and 72-cell/144 half-cell PV modules	
Maximum input DC voltage	48 V		60 V	
Peak power tracking voltage	27 V - 37 V		27 V - 45 V	
Operating range	16 V - 48 V		16 V - 60 V	
Min/Max start voltage	22 V / 48 V		22 V / 60 V	
Max DC short circuit current (module Isc)	15 A		15 A	
Overvoltage class DC port	II		II	
DC port backfeed current	0 A		0 A	
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit			
OUTPUT DATA (AC)	**IQ 7 Microinverter**		**IQ 7+ Microinverter**	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range[2]	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit[3]	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III		III	
AC port backfeed current	18 mA		18 mA	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.85 leading ... 0.85 lagging		0.85 leading ... 0.85 lagging	
EFFICIENCY	**@240 V**	**@208 V**	**@240 V**	**@208 V**
Peak efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %
MECHANICAL DATA				
Ambient temperature range	-40°C to +65°C			
Relative humidity range	4% to 100% (condensing)			
Connector type	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)			
Dimensions (HxWxD)	212 mm x 175 mm x 30.2 mm (without bracket)			
Weight	1.08 kg (2.38 lbs)			
Cooling	Natural convection - No fans			
Approved for wet locations	Yes			
Pollution degree	PD3			
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure			
Environmental category / UV exposure rating	NEMA Type 6 / outdoor			
FEATURES				
Communication	Power Line Communication (PLC)			
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.			
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.			
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 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 C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.			

1. No enforced DC/AC ratio. See the compatibility calculator at https://enphase.com/en-us/support/module-compatibility.
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

1 MICRO-INVERTER SPECIFICATIONS

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
14th FLOOR, MANHATTAN, NY 10022
PHONE: (800)-870-6105
INFO@UNISOLAR.COM

NY DOB APPLICATION NUMBER:

REVISION:

NO.	DESCRIPTION	DATE
2	LPC COMMENTS	07.21.2022
3	LPC COMMENTS	10.10.2022

NOTES:

THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED EITHER APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
NO CHANGE IN USE, EGRESS OR OCCUPANCY.

PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

MICRO-INVERTER SPECIFICATIONS

SEAL & SIGNATURE:

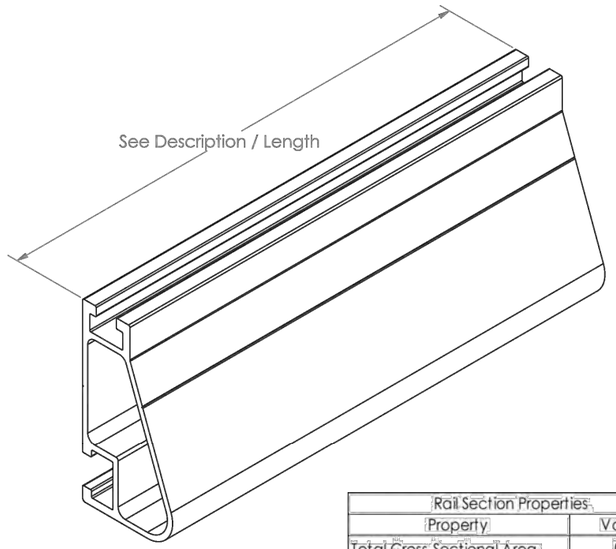
REGISTERED ARCHITECT
THOMAS F. PETERSEN
STATE OF NEW YORK
031290

DATE:	10/11/2022
PROJECT NUMBER:	CS-22-292
DRAWN BY:	O.D.
BLOCK:	5095
LOT:	28
ZONNING:	R1-2
MAP:	22C
DRAWING NO:	A-302.00
SCALE:	AS NOTED
PAGE:	15 OF 17

Cut Sheet

IRONRIDGE

XR100 Rail



Rail Section Properties	
Property	Value
Total Cross-Sectional Area	0.582 in^2
Section Modulus (X-axis)	0.297 in^3
Moment of Inertia (X-axis)	0.390 in^4
Moment of Inertia (Y-axis)	0.085 in^4
Torsional Constant	0.214 in^3
Polar Moment of Inertia	0.126 in^4

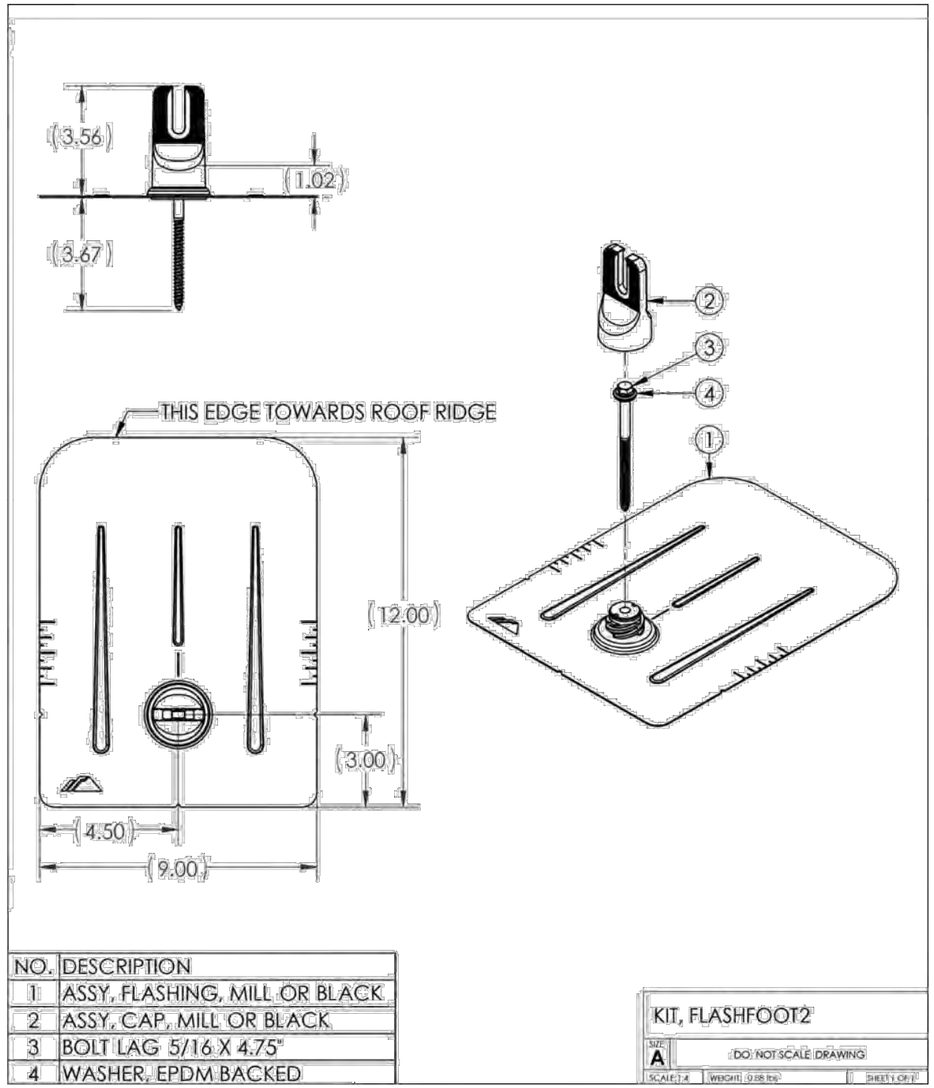
APPROVED MATERIALS:
6005-T6, 6005A-T61, 6105-T5, 6N01-T6
(34,000 PSI YIELD STRENGTH MINIMUM)

Clear Part Number	Black Part Number	Description / Length	Material	Weight
XR-100-132A	XR-100-132B	XR100, Rail 132" (11 Feet)	6000-Series Aluminum	7.50 lbs.
XR-100-168A	XR-100-168B	XR100, Rail 168" (14 Feet)		9.55 lbs.
XR-100-204A	XR-100-204B	XR100, Rail 204" (17 Feet)		11.60 lbs.

v1.1

IRONRIDGE

FlashFoot2



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

KIT, FLASHFOOT2
SIZE A | DO NOT SCALE DRAWING
SCALE: 1:4 | WEIGHT: 0.88 lbs | SHEET 1 OF 1

FM-FF2-MAN REV 1.10

1 ROOF MOUNTING SPECIFICATIONS

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
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NY DOB APPLICATION NUMBER:

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PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

ROOF MOUNTING SPECIFICATIONS

SEAL & SIGNATURE:

REGISTERED ARCHITECT
THOMAS F. PETERSEN
STATE OF NEW YORK
03/290

DATE: 10/11/2022
PROJECT NUMBER: CS-22-292
DRAWN BY: O.D.
BLOCK: 5095
LOT: 28
ZONNING: R1-2
MAP: 22C
DRAWING NO:

A-303.00

SCALE: AS NOTED
PAGE: 16 OF 17

CONDUIT/RACEWAYS

CONDUIT LABEL
1 PER 10 FT

1/4" HT. → WARNING: PHOTOVOLTAIC POWER SOURCE

NEC 690.31

BACKGROUND RED → XXXXXXXXXXXXXX XXXXXXXXXX

TEXT: WHITE → XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX

THE WORD WARNING SHALL BE IN SAFETY BLACK LETTERS ON A SAFETY ORANGE BACKGROUND

TEXT: BLACK → WARNING: XXXXXXXXXXXXXXXX

BACKGROUND: WHITE → XXXXXXXXXXXXXXXXXXXXXXXX

52-IT PANEL

52IT PANEL LABEL X 1
1 PER 52IT PANEL

WARNING:

ELECTRIC SHOCK HAZARD

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

NEC 690.31(C)(2) 690.17

52IT PANEL LABEL X 1
1 PER 52IT PANEL

52IT PANEL - AC SUBPANEL

INVERTER OUTPUT CONNECTION
DO NOT ADD LOADS TO THIS SWITCHBOARD
DO NOT RELOCATE THIS OCPD

NEC 705.12(D)(2)(C)

MSP

MSP LABEL X 1
1 PER MSP

WARNING:

ELECTRIC SHOCK HAZARD

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

NEC 690.31(C)(2) 690.17

MSP LABEL X 1
1 PER MSP

WARNING:

DUAL POWER SOURCE

MULTIPLE SOURCES OF POWER
UTILITY AND SOLAR ELECTRIC SYSTEM

NEC 690.64 705.12(D)(4)

89L - SERVICE DISCONNECT

AC DISCONNECT LABELS X 1
1 PER SERVICE DISCONNECT

3/8" → 89L
PV GENERATOR
DISCONNECT SWITCH

MAX AC OPERATING CURRENT:	29.90 A
NOMINAL OPERATING VOLTAGE:	208 V

NEC 690.15

AC DISCONNECT LABELS X 1
1 PER SERVICE DISCONNECT

WARNING:

ELECTRIC SHOCK HAZARD

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

NEC 690.31(C)(2) 690.17

METER

PV METER LABEL X 1
UTILITY METER

WARNING:

DUAL POWER SOURCE

MULTIPLE SOURCES OF POWER
UTILITY AND SOLAR ELECTRIC SYSTEM

NEC 690.64 705.12(D)(4)

INTERCONNECTION

INTERCONNECTION LABEL X 1
@ MDP

LINE SIDE TAP

NYC ELECTRICAL CODE

1. EXISTING PLUMBING VENTS, SKYLIGHTS, EXHAUST OUTLETS, VENTILATION INTAKE AIR OPENING SHALL NOT BE COVERED BY THE SOLAR PHOTOVOLTAIC SYSTEM.

2. EQUIPMENT, PHOTOVOLTAIC MODULES, PHOTOVOLTAIC PANELS, AC PHOTOVOLTAIC MODULES,SOURCE-CIRCUIT COMBINERS, AND CHARGE CONTROLLERS INTENDED FOR USE IN PHOTOVOLTAIC POWER SYSTEMS SHALL BE IDENTIFIED AND LISTED FOR THE APPLICATION. (NEC 690.4(D)).

3. ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED, INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND SWITCHES.

4. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.

5. ALL CIRCUITS CONNECTED TO MORE THAN ONE SOURCE SHALL HAVE OVERCURRENT DEVICES LOCATED SO AS TO PROVIDE OVERCURRENT PROTECTION FROM ALL SOURCES. (NEC 690.9(A))

6. ALL PHOTOVOLTAIC (PV) MODULES SHALL BE MOUNTED ON THE ROOF. ADDITIONAL EQUIPMENT OF THE PV SYSTEM SHALL BE LOCATED OUTSIDE THE BUILDING OR INDOORS NEAR THE MAIN ELECTRICAL SERVICES. (NEC 690.14(C))

7.THE UTILITY INTERACTIVE INVERTER SHALL AUTOMATICALLY DE-ENERGIZE ITS OUTPUT TO THE CONNECTED ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK UPON LOSS OF VOLTAGE IN THE SYSTEM AND SHALL REMAIN IN THE STATE UNTIL THE ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK VOLTAGE HAS BEEN RESTORED. (NEC 690.61)

8. DUE TO THE FACTS THAT PV MODULES ARE ENERGIZED WHENEVER EXPOSED TO LIGHT, PV CONTRACTOR SHALL DISABLE THE ARRAY DURING INSTALLATION AND SERVICE BY SHORT CIRCUITING, OPEN CIRCUITING, OR COVERING THE ARRAY WITH OPAQUE COVERING. (NEC 690.18)

9. ALL CONDUCTOR EXPOSED TO WEATHER SHALL BE LISTED AND IDENTIFIED FOR USE IN DIRECT SUNLIGHT (NEC 69031(B), 310.8(D))

10. THE MODULE CONDUCTORS MUST BE LISTED FOR PHOTOVOLTAIC (PV) WIRE, (NEC 690.31(B))

11. ALL CONDUCTORS SHALL BE MARKED ON EACH END FOR UNIQUE IDENTIFICATION.

12. PV SYSTEM CONNECTED ON THE LOAD SIDE OF THE SERVICE DISCONNECTING MEANS OF THE OTHER SOURCE(S) AT ANY DISTRIBUTION EQUIPMENT ON THE PREMISES SHALL MEET THE FOLLOWING (NEC 705.12(D))

13. EACH SOURCE CONNECTION SHALL BE MADE AT A DEDICATED CIRCUIT BREAKER OR FUSIBLE DISCONNECTING MEANS. (NEC 705.12(D)(1))

14. THE SUM OF THE AMPERE RATING OF THE OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO THE BUSBAR OR CONDUCTOR SHALL NOT EXCEED 120% OF THE RATING OF THE BUSBAR OR CONDUCTOR. (NEC 705.12(D)(2))

15. THE INTERCONNECTION POINT SHALL BE ON THE LINE SIDE OF ALL GROUND-FAULT PROTECTION EQUIPMENT. (NEC 705.12(D)(3))

16. EQUIPMENT CONTINING OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO A BUS BAR OR CONDUCTOR SHALL BE MARKED TO INDICATE THE PRESENCE OF ALL SOURCES. (NEC 705.12(D)(4)

17. CIRCUIT BREAKER, IF BACKFED, SHALL BE SUITABLE FOR SUCH OPERATION. (NEC 705.12(D)(5))

18. TO MINIMIZE OVER HEATING OF THE BUSBAR IN PANELBOARD, THE PANELBOARD MAIN CIRCUIT BREAKER AND THE PV POWER SOURCE CIRCUIT BREAKER SHALL BE PHYSICALLY LOCATED AT THE OPPOSITE END OF THE BUSBAR.

19. ALL THE NEC REQUIRED WARNING SIGNS MARKINGS AND LEVELS SHALL BE POSTED ON EQUIPMENT AND DISCONNECTS PRIOR TO ANY INSPECTIONS TO BE PERFORMED BY THE BUILDING DEPARTMENT INSPECTOR.

20. METALLIC RACEWAYS OR METALLIC ENCLOSURES ARE REQUIRED WIRING METHOD FOR INSIDE A BUILDING FOR PV SYSTEM. (NEC 690.31(E))

21. FLEXIBLE, FINE0STRANDED CABLES SHALL BE TERMINATED ONLY WITH TERMINALS, LUGS, DEVICES OR CONNECTOR THAT ARE IDENTIFIED AND LISTED FOR SUCH USE. (NEC 690.31(F))

22. CONNECTORS SHALL BE LATCHING OR LOCKING TYPE. CONNECTORS THAT ARE READILY ACCESSIBLE AND OPERATING AT OVER 30 VOLTS SHALL: REQUIRE A TOOL TO OPEN & BE MARKED "DO NOT DISCONNECT UNDER LOAD " OR "NOT FOR CURRENT INTERRUPTING". (NEC 693.33 (C)(E)2)

23. EQUIPMENT GROUNDING CONDUCTOR FOR PV MODULES SMALLER THAN 6AWG SHALL BE PROTECTED FROM PHYSICAL DAMAGE BY A RACEWAY OR CABLE ARMOR. (NEC 690.46 & 250.120(C))

24. EQUIPMENT GROUNDING CONDUCTOR FOR PV SYSTEMS WITHOUT GROUND FAULT PROTECTION (GFP) AND INSTALLED ON NON0DWELLING UNIT MUST HAVE AMPACITY OF AT LEAST 2 TIMES THE TEMPERATURE AND CONDUIT FILL CORRECTED CIRCUIT CONDUCTOR AMPACITY. (NEC 690.45(B))

25. GROUNDING BUSHINGS ARE REQUIRED AROUND PRE-PUNCHED CONCENTRIC KNOCKOUTS ON THE DC SIDE OF THE SYSTEM (NEC 250.64 C)

26. GROUNDING ELECTRODE CONDUCTOR WILL BE CONTINUOUS, EXCEPT FOR SPLICES OR JOINTS AT BUSBAR'S WITHIN LISTED EQUIPMENT. (NEC 250.64 C)

27. INSTALLATION SHALL MEET ALL APPLICABLE SAFETY AND PERFORMANCE STANDARDS ESTABLISHED BY THE NATIONAL ELECTRICAL CODE, THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, AND ACCREDITED TESTING LABORATORIES SUCH AS UNDERWRITER LABORATORIES, AND WHERE APPLICABLE, RULE OF THE PUBLIC UTILITIES COMMISSION REGARDING SAFETY AND RELIABILITY, AS WELL AS MEET ALL MID REQUIREMENTS.

28. AC DISCONNECT SWITCH SHALL BE LOCKABLE, VISIBLE & ACCESSIBLE WITHOUT OVSTRUCTIONS SUCH AS GATES, FENCES OR WALLS.

29. CONTRACTOR WILL NOTIFY SERVING UTILITY BEFORE ACTIVATION OF PV SYSTEM.

30. WORK CLEARANCES AROUND ELECTRICAL EQUIPMENT WILL BE MAINTAINED PER NEC 110.26(A)(1)(2)(3)

31. ALL EXTERIOR CONDUITS, FITTINGS AND BOXES SHALL BE RAIN-TIGHT AND APPROVED FOR USE IN WET LOCATIONS PER NEC 314.15.

32. ALL METALLIC RACEWAYS AND EQUIPMENT SHALL BE BONDED AND ELECTRICALLY CONTINUOUS.

33. ALL PV EQUIPMENT, SYSTEMS ADN ALL ASSOCIATED WIRING AND INTERCONNECTIONS SHALL BE INSTALLED BY QUALIFIED PERSONS.

34. THE PHOTOVOLTAIC SYSTEM CONDUCTORS SHALL BE IDENTIFIED AND GROUPED. THE MEANS OF IDENTIFICATION SHALL BE PERMITTED BY SEPERATED COLOR CODING, MARKING TAPE, TAGGING OR OTHER APPROVED MEANS. NEC 690.4(B)

35. ADEQUATE SPACING MUST BE MAINTAINED BETWEEN ANY PLUMBING SEWER VENTS EXTENDING THROUGH THE ROOF AND THE UNDERSIDE OF THE PHOTOVOLTAIC PANELS (6" MINIMUM RECOMMENDED).

36. PV EQUIPMENT, SYSTEMS AND ALL ASSOCIATED WIRING AND INTERCONNECTIONS SHALL ONLY BE INSTALLED BY QUALIFIED PERSONS (NEC 690.4(E))

37. PHOTOVOLTAIC SYSTEM CONDUCTORS SHALL BE IDENTIFIED AND GROUPED. THE MEANS OF IDENTIFICATION SHALL BE PERMITTED SEPARATE COLOR CODING, MARKING TAPE, TAGGING OR OTHER APPROVED MEANS. (NEC 690.4B)

38. CONDUCTOR CALCULATIONS WERE BASED ON CONDUIT IS 3.5" - 5" ABOVE ROOF DECK, USED ASHRAE DATA FOR CONDUIT ABOVE 3.5" AND BELOW 12".

39. WARNING SIGN(S) OR LABEL(S) SHALL COMPLY WITH NEC 110.21(B). WORDS, SYMBOLS, AND COLORS OF PRODUCTS SAFETY SIGNS AND LABELS SHALL COMPLY WITH ANSI Z535.4-2011 AS DIRECTED BY 110.21(B)

1 ELECTRICAL WARNING LABELS & NOTES

SOLAR DESIGN AND INSTALLER:

SUNCO

APPLICANT OF RECORD:

UNISOLAR, LLC

UniSolar

575 LEXINGTON AVENUE,
14th FLOOR, MANHATTAN, NY 10022
PHONE: (800)-870-6105
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PROJECT:

86 MARLBOROUGH ROAD,
BROOKLYN, NY. 11226

INSTALLATION OF SOLAR PANELS ON EXISTING ROOF OF RESIDENTIAL BUILDING

TITLE:

ELECTRICAL WARNING LABELS AND NOTES

SEAL & SIGNATURE:

REGISTERED ARCHITECT
THOMAS F. PETERSEN
STATE OF NEW YORK

DATE: 10/11/2022
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SCALE: AS NOTED
PAGE: 17 OF 17

Landmarks Preservation Commission

November 15th, 2022
Public Hearing

The current proposal is:

Preservation Department – Item 6, LPC-22-10814

86 Marlborough Road – Ditmas Park Historic District

Borough of Brooklyn

To Testify Please Join Zoom

Webinar ID: 873 1899 4372
Passcode: 278022
By Phone: 1 646-558-8656 US (New York)
877-853-5257 (Toll free) US
888 475 4499 (Toll free)

Note: If you want to testify on an item, join the Zoom webinar at the agenda's "Be Here by" time (about an hour in advance). When the Chair indicates it's time to testify, "raise your hand" via the Zoom app if you want to speak (*9 on the phone). Those who signed up in advance will be called first.